

# Safety in which you can trust



OSAS



USAS



OPAS



SKUDO

Cilindri molla ad azoto  
Nitrogen gas cylinders  
Stickstoffgasdruckfedern  
Cylindres-ressort à l'azote  
Cilindros resorte de nitrógeno  
Cilindros com mola ao azoto

2016



What is changed and integrated with respect to catalog no. 9800C04600314  
(web edition)



REFERENCE	Description	Page
M 50	New model	53
M 70	New model	54
FC 12, FC 15	New model	230
FA 022	New dimensions	293

What is changed and integrated with respect to catalog no. 9800C04600015  
(printed edition)

REFERENCE	Description	Page
RG series	New series	102
FML 1000	Upgrade	169
FS1	New fixing	226
FC 32 A, FC 38 A	New dimension	230
39DM16X2A	New dimension	235
39PR04	New accessory	257
39CP08A	New panel	280
39NCU...	New accessory	299

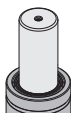
What is changed and integrated with respect to catalog no. 9800C04600115  
(printed edition)

REFERENCE	Description	Page
NG series	New series	44
Easy manifold	Upgrade section	237
EV Easy manifold	New model	241
39TE011A - 39TE012A	New model	244
39TM01A...	New connection	267
36TSM9/160...	New connection	272
MCPB	New model	277
CP11A	New model	280
CP09A	New model	282
CP10A / CP12A	New model	283
TB07 - TB08	New accessory	296
FT500	New accessory	300
DYBO	New accessory	303

## News?

Consultare l'edizione web del presente catalogo per aggiornamenti e novità - Further updates and news of the present catalogue can be found in digital edition on our web site - Für alle Aktualisierungen und Neuheiten bitte nachschlagen Sie in unserem web Seite bei der Digitalen Edition - Consultez l'Édition numérique de notre catalogue actuel pour toutes mises à jour et nouveautés - Consulte la edición web de este catálogo para todas las actualizaciones y noticias - Consulte a edição web deste catálogo para atualizações e notícias.

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**CERTIFICATIONS**



<b>SAFETY</b>	Life plus concept
	Informazioni d'uso - User information - Benutzerinformationen - Informations utilisateur - información del usuario - informação do usuário
	Vantaggi - Benefits - Vorteile - Advantages - Ventajas - Vantagens
<b>N<sub>2</sub> BENEFITS</b>	Come leggere il catalogo - How to read the catalog - Hinweise zur katalogbenutzung - Comment lire le catalogue - Guía de lectura del catálogo - Como ler o catálogo
<b>Selection TAB</b>	Tabella di selezione - Selection table - Auswahl Tabelle - Tableau de choix - Tabla de selección - Tabela de seleção
<b>NE</b> VDI - BMW Ford	Espulsori a gas - Gas ejectors - Federnde Druckstücke - Éjecteurs de gaz - Eyectores de gas - Ejectores a gás
<b>NG</b> GM - VW	
<b>M</b> VDI - BMW - Ford MB - PSA - VW	Mini cilindri - Mini cylinders - Mini Gasdruckfedern - Mini-ressorts - Mini cilindros - Mini-cilindros
<b>MS</b>	Mini cilindri + SKUDO - Mini cylinders + SKUDO - Minizylinder + SKUDO - Mini-ressorts + SKUDO - Mini cilindros + SKUDO - Mini-cilindros + SKUDO
<b>RV</b> ISO - VDI - BMW Ford - Mazda - MB Nissan - PSA - VW	Minima altezza, massima forza - Miniature height, maximum force - Minimale Höhe, maximale Kraft - Hauteur minimum, force maximum - Minima altura, máxima fuerza - Altura mínima, força máxima
<b>RF</b>	Minima altezza, massima forza, collegabili G1/8 - Miniature height, maximum force, hose cylinders with G1/8 charging port - Minimale Höhe, maximale Kraft, Gdf. mit G1/8 Öffnung verbindbar - Hauteur minimum, force maximum, cylindres raccordés avec trou G1/8 gaz - Minima altura, máxima fuerza, cilindros conectados con agujero G1/8 gas - Altura mínima, força máxima, cilindros conectados com furo G1/8 gás
<b>RS</b>	Minima altezza, massima forza + SKUDO - Miniature height, maximum force + SKUDO - Minimale höhe, maximale Kraft + SKUDO - Hauteur minimum, force maximum + SKUDO - Minima altura, máxima fuerza + SKUDO - Altura mínima, força máxima + SKUDO
<b>RG</b>	Minima altezza, massima forza, collegabili G1/8 - Miniature height, maximum force, hose cylinders with G1/8 charging port - Minimale höhe, maximale Kraft, gdf mit G1/8 öffnung verbunden - Hauteur minimum, force maximum, cylindres raccordés avec trou G1/8 gaz - Minima altura, máxima fuerza, cilindros conectados con agujero G1/8 gas - Altura mínima, força máxima, cilindros conectados com furo G1/8 gás
<b>RT</b> Mazda - Nissan PSA - Toyota	Minima altezza, massima forza, collegabili G1/8 - Miniature height, maximum force, hose cylinders with G1/8 charging port - Minimale Höhe, maximale Kraft, Gdf. mit G1/8 öffnung verbindbar - Hauteur minimum, force maximum, cylindres raccordés avec trou G1/8 gaz - Minima altura, máxima fuerza, cilindros conectados con agujero G1/8 gas - Altura mínima, força máxima, cilindros conectados com furo G1/8 gás
<b>S</b> MB - Renault Suzuki	Forze ISO, altezza ridotta - ISO forces, low profile - ISO Kräfte, Reduzierte Höhe - ISO forces, hauteur réduite - ISO fuerzas, altura reducida - ISO potência, altura reduzida
<b>SC</b> ISO - VDI - BMW Ford - Mazda - MB - <b>SCF</b> Nissan - PSA Renault - Suzuki - VW	ISO 11901 standard - ISO 11901 standard - ISO 11901 Standard - Conforme ISO 11901 - ISO 11901 standard - Norma ISO 11901
<b>H</b> ISO - VDI <b>HF</b> BMW - VW	ISO standard, forza potenziata - ISO standard, high force - ISO Standard, erhöhte Kraft - standard ISO, force majorée - ISO standard, fuerza potenciada - norma ISO, força permitida
<b>LS</b>	Forza iniziale nulla - Zero force on contact - Ausgangsleistung null - Force initiale nulle - Fuerza inicial cero - Força inicial nula
<b>ML</b>	Massima forza, tenuta stelo - Maximum force, rod sealed - Maximale Kraft, kolbenstange dichtung - Maximum, tige étanche - Máxima fuerza, estanqueidad vástago - Força máxima, estanquidade no embolo
<b>KE</b>	Massima forza, tenuta pistone + SKUDO - Maximum force, piston sealed + SKUDO - Maximale Kraft, Kolbendichtung + SKUDO - Force maximum, piston étanche + SKUDO - Máxima fuerza, estanqueidad pistón + SKUDO - Força máxima, estanquidade no pistão + SKUDO
<b>HR</b> <b>HRF</b> PHASING OUT 	Minima altezza, massima forza - Miniature height, maximum force - Minimale Höhe, maximale Kräfte - Hauteur minimum, force maximum - Minima altura, máxima fuerza - Altura mínima, força máxima
<b>LI</b> PHASING OUT 	Minima altezza, minimo incremento di pressione - Miniature height, low pressure increase - Minimale Höhe, minimale Druckerhöhung - Hauteur minimum, faible augmentation de pression - Minima altura, mínimo aumento de presión - Altura mínima, aumento mínimo da pressão
<b>MANIFOLD</b>	Easy and standard manifold systems
	Fissaggi - Fixings - Befestigungen - Fixé - Bridas - Fixação
	Cilindri collegati a sistema - Hosed system - Verbund System - Ressorts gaz reliés - Sistemas de cilindros conectados - Cilindros ligados em sistema
	Accessori - Accesories - Zubehörteile - Accessoires - Accesorios - Acessórios
<b>AC</b>	Cilindri a ritorno controllato - Cylinders with controlled return - Gdf. mit kontrolliertem Rücklauf - Cylindres a retour contrôlé - Cilindros de retorno controlado - Cilindros retorno controlado
<b>UPG</b>	Unità di punzonatura a gas - Nitrogen punching unit - Stanzeinheit mit Gasdruckniederhalter - Unitè de poinçonnage d'azote - Unidad de perforación de nitrógeno - Unidade de perfuração de nitrogênio

## OSAS (Over Stroke Active Safety) Sicurezza Attiva Oltre Corsa



### Cos'è?

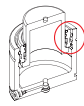
La Sicurezza Attiva Oltre Corsa sono 3 soluzioni esclusive Special Springs per scaricare la pressione in modo controllato e completo quando il cilindro ha subito un oltre corsa.

### Vantaggi OSAS

- Scarica in modo controllato e completo la pressione interna del cilindro quando ha subito un oltre corsa.
- Riduce il rischio di danni e pericoli dovuti alla proiezione di parti in pressione.
- Si attiva automaticamente senza intervento dell'operatore.
- Non aumenta il costo del cilindro.

### Come è realizzata?

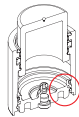
#### 1. Design boccola - corpo



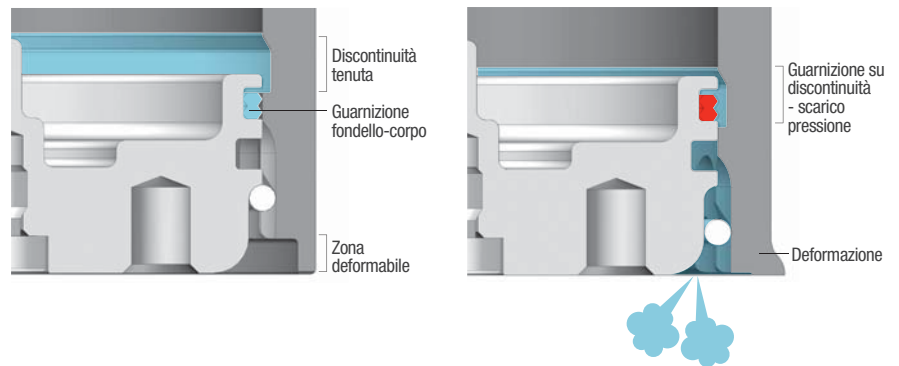
OSAS è la combinazione di un prolungamento verso l'esterno della boccola con delle discontinuità sulla parete di contatto della guarnizione boccola-corpo. OSAS si attiva senza deformazione del corpo, aumentando ulteriormente la sicurezza per l'utilizzatore.



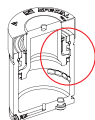
#### 2. Design fondello - corpo



OSAS è la combinazione di una zona deformabile del corpo con delle discontinuità sulla parete di contatto della guarnizione fondello-corpo. OSAS si attiva senza pericolo strutturale per il cilindro, aumentando ulteriormente la sicurezza per l'utilizzatore.



#### 3. Design pistone - corpo



OSAS è realizzata con delle discontinuità sulla parete di contatto della guarnizione pistone. OSAS si attiva senza deformazione del corpo, aumentando ulteriormente la sicurezza per l'utilizzatore.



## USAS (Uncontrolled Speed Active Safety) Sicurezza Attiva Ritorno Incontrollato



### Cos'è?

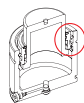
La Sicurezza Attiva Ritorno Incontrollato sono 3 soluzioni esclusive Special Springs per scaricare la pressione in modo controllato e completo senza eiezione di parti quando il cilindro ha subito dei ritorni incontrollati. Tipicamente ciò accade quando parti di stampo o pezzi stampati, inceppati o grippati, sottoposti alla spinta dei cilindri a gas, si svincolano in modo incontrollato.

### Vantaggi USAS

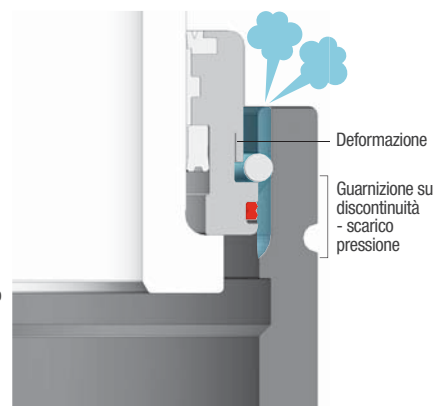
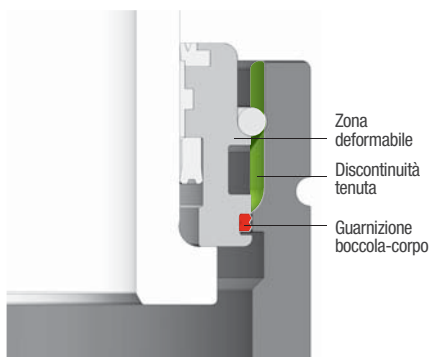
- Scarica in modo controllato e completo la pressione del cilindro quando soggetto a ritorni incontrollati.
- Riduce il rischio di danni e pericoli dovuti alla proiezione di parti in pressione.
- Si attiva automaticamente senza intervento dell'operatore.
- Non aumenta il costo del cilindro.

### Come è realizzata?

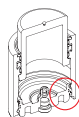
#### 1. Design boccola - corpo



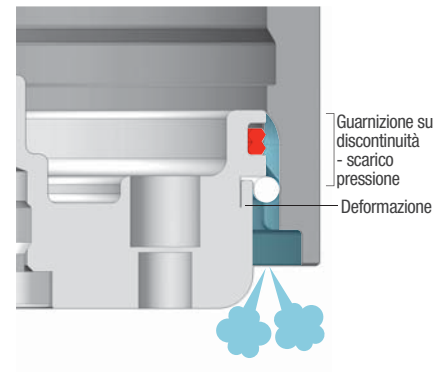
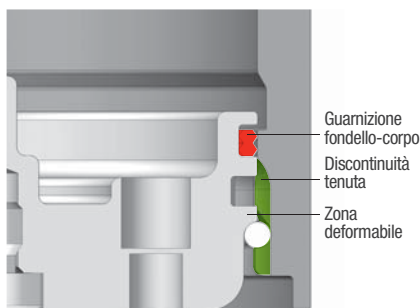
USAS è la combinazione di una zona deformabile della boccola in contatto con l'anello di ritegno a C e delle discontinuità sulla parete di contatto della guarnizione boccola-corpo. USAS si attiva senza pericolo strutturale per il cilindro, aumentando ulteriormente la sicurezza per l'utilizzatore.



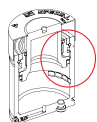
#### 2. Design fondello - corpo



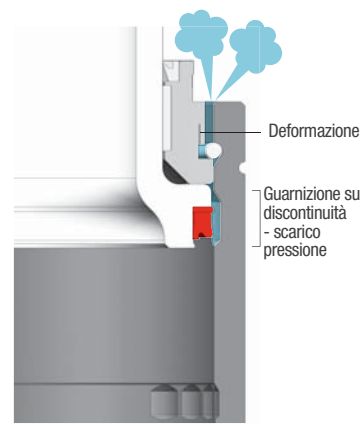
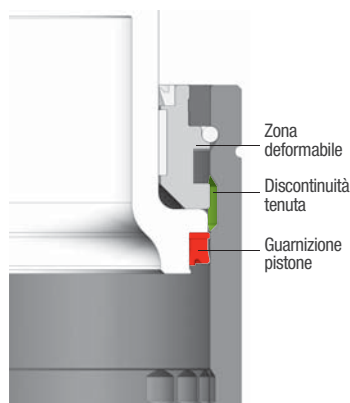
USAS è la combinazione di una zona deformabile del fondello in contatto con l'anello di ritegno a C e delle discontinuità sulla parete di contatto della guarnizione fondello-corpo. USAS si attiva senza pericolo strutturale per il cilindro, aumentando ulteriormente la sicurezza per l'utilizzatore.



#### 3. Design pistone - corpo



USAS è la combinazione di una zona deformabile della boccola in contatto con l'anello di ritegno a C e delle discontinuità sulla parete di contatto della guarnizione pistone. USAS si attiva senza pericolo strutturale per il cilindro, aumentando ulteriormente la sicurezza per l'utilizzatore.



## OPAS (Over Pressure Active Safety) Sicurezza Attiva Oltre Pressione



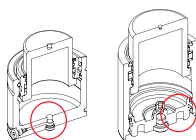
### Cos'è?

La Sicurezza Attiva Oltre Pressione sono 2 soluzioni esclusive Special Springs per scaricare in modo controllato e completo la pressione quando viene superato il valore massimo consentito. Tipicamente ciò accade quando il volume della camera del gas si riduce per la presenza di liquidi e contaminanti di stampaggio.

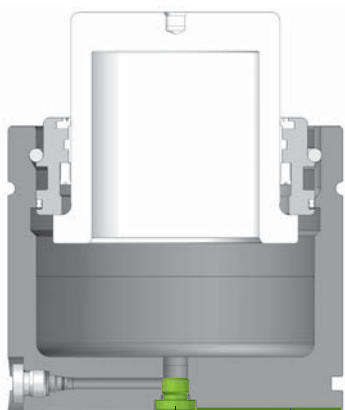
### Vantaggi OPAS

- Scarica in modo controllato e completo la pressione del cilindro quando viene superato il valore massimo consentito.
- Riduce il rischio di danni e pericoli dovuti alla proiezione di parti in pressione.
- Si attiva automaticamente senza intervento dell'operatore.
- Non aumenta il costo del cilindro.

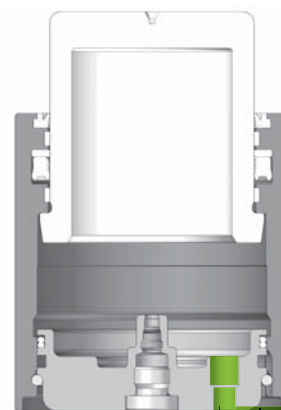
### Come è realizzata?



OPAS è la combinazione di un setto di rottura calibrato integrale sul fondello o un tappo di rottura montato sul corpo del cilindro, con una fresatura di scarico sulla base di appoggio.



Tappo di rottura Fresatura di scarico



Setto di rottura Fresatura di scarico

## SKUDO (Active Protection from Contaminants) Protezione Attiva da Contaminanti



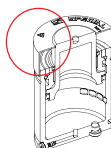
### Cos'è?

La Protezione Attiva da Contaminanti è una soluzione esclusiva di Special Springs per proteggere i componenti di tenuta e guida da contaminanti liquidi e solidi ed eliminare situazioni di sovra pressione.

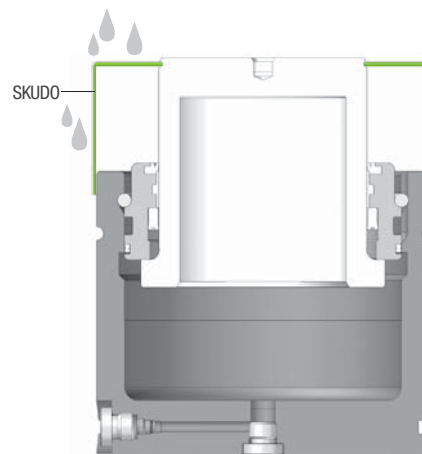
### Vantaggi SKUDO

- Elimina qualsiasi danno da contaminanti ai componenti di guida e tenuta.
- Aumenta significativamente la vita del cilindro in presenza di contaminanti liquidi e solidi.
- Non aumenta l'altezza del cilindro.
- È una protezione non soggetta ad usura alcuna.
- È disponibile per tutti i cilindri Special Springs.

### Come è realizzata?



SKUDO è un cappuccio protettivo di materiale plastico agganciato direttamente e in modo solidale allo stelo senza modifica alcuna della superficie di contatto con la piastra premente.



## AFFIDABILITÀ

### PED 97/23/CE

La progettazione e la produzione dei cilindri a gas Special Springs sono realizzate nel pieno rispetto delle normative vigenti per i recipienti in pressione come stabilito dalla direttiva PED 97/23/CE.

#### Vantaggi

- Maggiore garanzia per il cliente con prodotti e componenti più sicuri.



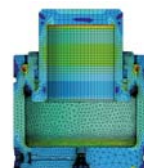
0496

### FEM - CAE

Tutti i prodotti Special Springs sono sviluppati e validati con l'utilizzo dei più avanzati sistemi di analisi FEM (finite element method) e CAE (computer aided engineering).

#### Vantaggi

- Maggiore garanzia per il cliente con prodotti e componenti più sicuri.



### STRUTTURA DEL CILINDRO A GAS

Tutti i componenti strutturali delle molle a gas Special Springs sono progettati e costruiti per supportare minimo 2.000.000 di cicli completi alla massima pressione, temperatura e per ogni tipo di fissaggio.

#### Vantaggi

- Maggiore garanzia per il cliente con prodotti e componenti più sicuri.

> 2.000.000

### PROVE DINAMICHE

Test di durata e prove fisiche sui prodotti finiti, con simulazione di condizioni di utilizzo gravose e pericolose, sono elemento essenziale per la completa validazione dei progetti e delle soluzioni tecniche.

Per lo sviluppo delle sicurezze attive Special Springs ha realizzato macchine e impianti idonei per la verifica della reale efficacia dei dispositivi di sicurezza.

#### Vantaggi

- Maggiore garanzia per il cliente con prodotti e componenti più sicuri e realmente testati.

## FORMAZIONE & SUPPORTO TECNICO

### CONOSCENZA

La conoscenza è un elemento fondamentale per azioni quotidiane di successo, più conosciamo meglio facciamo. Questo concetto è da sempre presente nella filosofia del lavoro di Special Springs. Da molti anni Special Springs è impegnata per aumentare la conoscenza dei prodotti e delle loro caratteristiche unitamente alle migliori tecniche di utilizzo attraverso formazioni teoriche e pratiche.

#### Vantaggi

- Maggiore conoscenza degli utilizzatori sui reali vantaggi offerti dai cilindri a gas Special Springs.
- Maggiore conoscenza degli utilizzatori sui più corretti metodi di utilizzo con vantaggi economici e di sicurezza.
- Maggiore sensibilità e coscienza sull'importanza delle sicurezze attive sui cilindri a gas.

### SUPPORTO TECNICO

Special Springs, da sempre impegnata per migliorare il supporto tecnico agli utilizzatori, fornisce con ogni cilindro o suo componente un completo foglio di istruzioni multilingua.

#### Vantaggi

- Maggiore confidenza dell'utilizzatore verso i cilindri a gas.
- Maggiore sicurezza con riduzione di danni e rischi per errato utilizzo.
- Risparmio economico con produzioni più efficienti.



### 2D - 3D CAD FILES

[www.partserver.com](http://www.partserver.com)



# OSAS

Over Stroke Active Safety



## What's it?

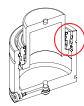
OSAS are 3 unique Special Springs safety solution devices, which exhaust pressure in a controlled and complete mode, when working stroke exceeds the nominal value.

## OSAS' Benefits

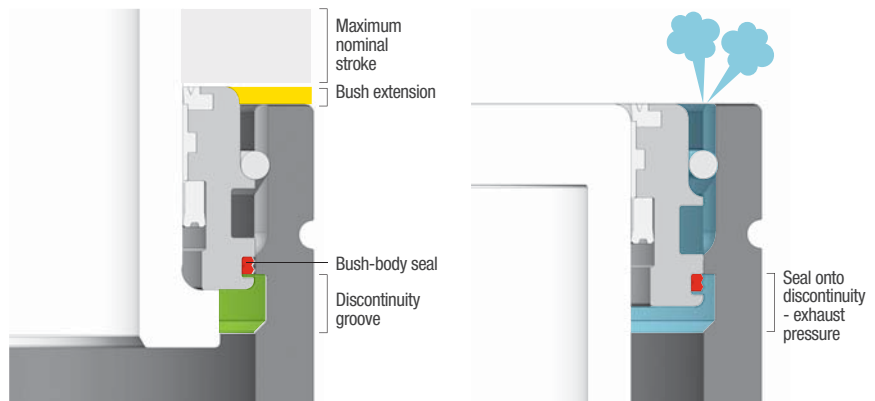
- Exhausts pressure in a controlled and complete mode, when the cylinder has been overstroked.
- Reduces the risk of tool damage or injury due to ejection of parts under pressure.
- Self activates automatically regardless of users' intervention.
- Does not increase the cost of the cylinders.

## How is it made?

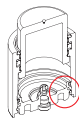
### 1. Bush-body design



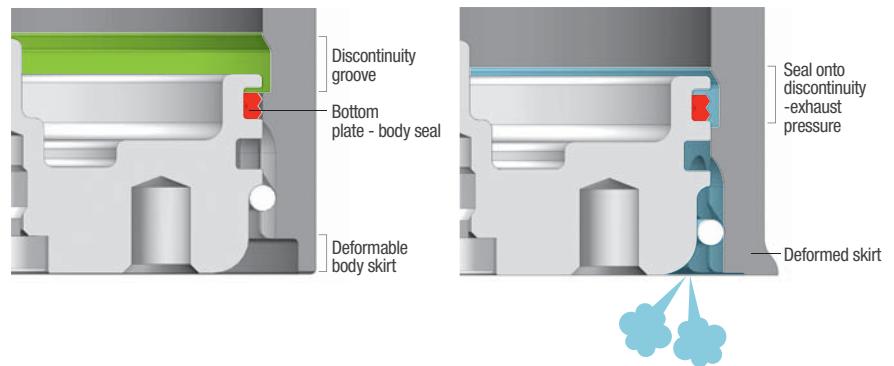
OSAS is the combination of an outward extension of the bush with discontinuity groove on the body-bush sealing wall. OSAS self activates without deforming the body of the cylinder, further improving safety for users.



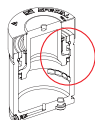
### 2. Bottom plate-body design



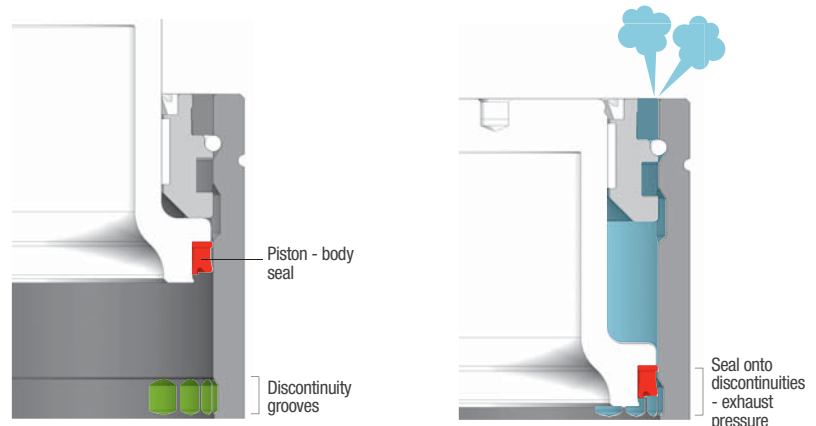
OSAS is the combination of a deformable body skirt with discontinuity groove on the body-bottom plate sealing wall. OSAS self activates without causing structural damages to the cylinder, further improving safety for users.



### 3. Piston-body design



OSAS are discontinuity grooves on the body-piston sealing wall. OSAS self activates without deforming the body of the cylinder, further improving safety for users.





# USAS

## Uncontrolled Speed Active Safety



### What's it?

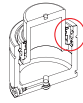
USAS are 3 unique Special Springs safety solution devices, which exhaust pressure in a controlled and complete manner when the cylinder has been stressed by uncontrolled return of the piston rod. This is typically caused by the seizure and jam of the die plates or stamped parts that, subjected to pressure thrust, are released in an uncontrolled manner.

### USAS' Benefits

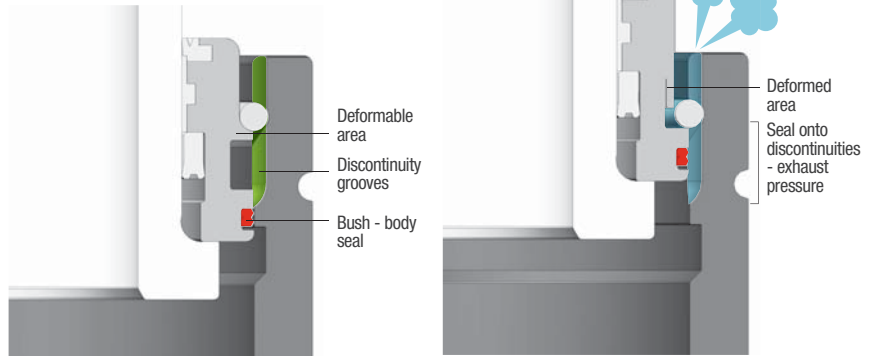
- Exhausts pressure in a controlled and complete manner when the cylinder has been stressed by uncontrolled returns.
- Reduces the risk of tool damage or injury due to ejection of parts under pressure.
- Self activates automatically regardless of users' intervention.
- Does not increase the cost of the cylinders.

### How is it made?

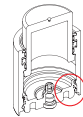
#### 1. Bush-body design



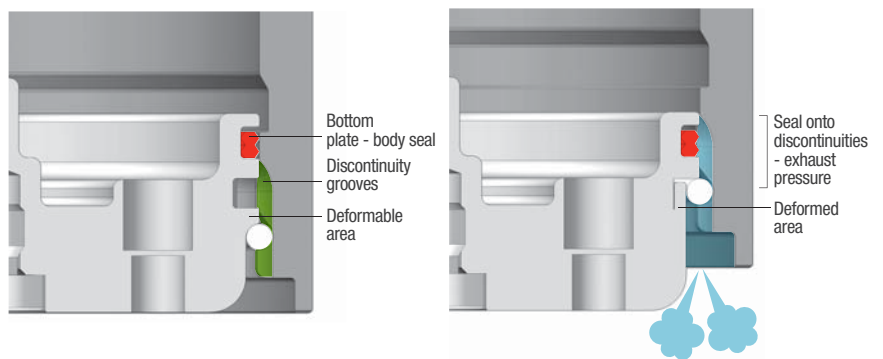
USAS is the combination of a deformable part of the bushing in contact with the retaining C-ring and the discontinuities on the wall of contact of the body-bush seal. USAS self activates without causing structural damages to the cylinder, further improving safety for users.



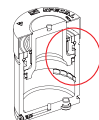
#### 2. Bottom plate-body design



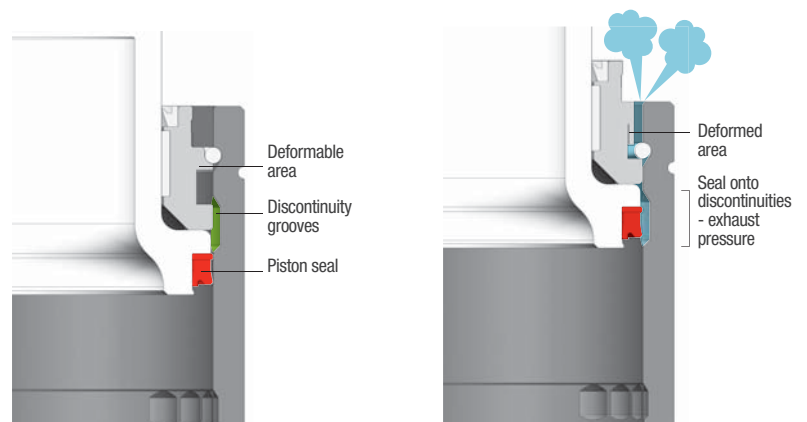
USAS is the combination of a deformable part of the bottom plate in contact with the retaining C-ring and the discontinuities on the wall of contact of the body-bottom plate. USAS self activates without causing structural damages to the cylinder, further improving safety for users.



#### 3. Piston-body design



USAS is the combination of a deformable part of the bushing in contact with the retaining C-ring and the discontinuities on the wall of contact of the piston seal. USAS self activates without causing structural damages to the cylinder, further improving safety for users.



# OPAS

## Over Pressure Active Safety



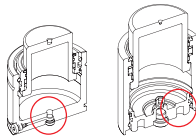
### What's it?

OPAS are 2 unique Special Springs safety solution devices, built or mounted on the bottom of the cylinders, which exhaust pressure in a controlled and complete manner when the latter exceeds maximum allowed. This is typically caused when stamping contaminants get into the gas room reducing its volume.

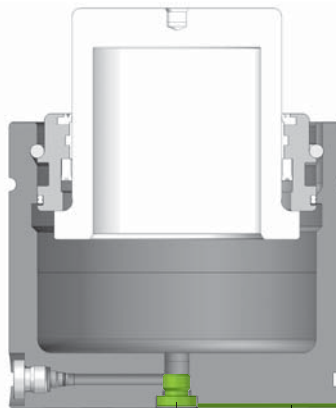
### OPAS' Benefits

- Exhausts the pressure in a controlled and complete manner when it exceeds the maximum value allowed.
- Reduces the risk of tool damage or injury due to ejection of parts under pressure.
- Self activates automatically regardless of users' intervention.
- Does not increase the cost of the cylinders.

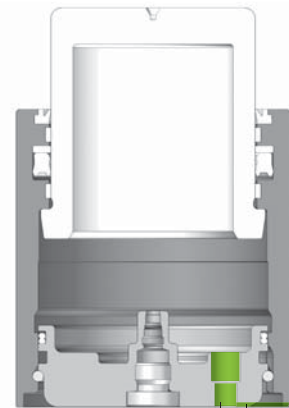
### How is it made?



OPAS is either the combination of a rupture septum or a rupture plug positioned in the bottom of the cylinders, with an exhaust milling on the bottom contact surface.



Rupture plug Exhaust milling



Rupture septum Exhaust milling

# SKUDO

## Active Protection from Contaminants



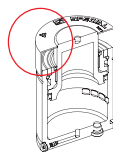
### What's it?

SKUDO is a unique Special Springs solution, which protects the sealing and guiding components of the cylinder from liquid and solid contaminants and which eliminates situations of over pressure.

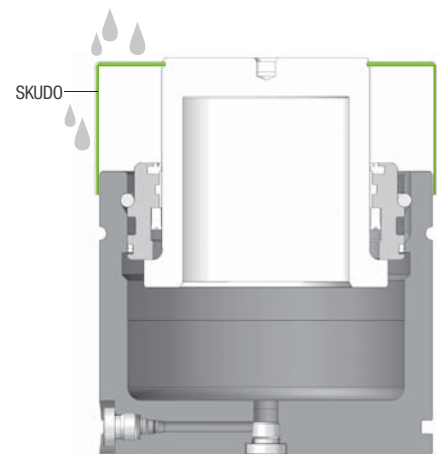
### SKUDO' Benefits

- Eliminates damages to guiding and sealing components caused by contaminants.
- Significantly increases the life of cylinders used in severe working environments.
- Does not alter the height of the cylinder.
- Does not wear out.
- Is available for all Special Springs cylinders.

### How is it made?



SKUDO is a protective plastic cap securely fixed on the top of the rod, with no alteration to the contact surface of the rod with the plate.



# RELIABILITY

## PED 97/23/CE

The design and manufacturing of SPECIAL SPRINGS gas cylinders are in full compliance with the European regulations for high pressure vessels, in accordance with directive PED 97/23/CE.

### **Benefits**

- Greater assurance for customers of safer products and components.

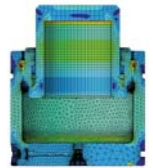


## FEM - CAE

All Special Springs products are developed and validated via the use of the most advanced FEM (finite element method) and CAE (computer aided engineering) analysis systems

### **Benefits**

- Greater assurance for customers of safer products and components.



## STRUCTURE OF A GAS CYLINDER

All structural components of Special Springs' gas springs are designed and built to withstand a minimum of 2,000,000 complete cycles at maximum pressure, temperature and for all types of fixings.

### **Benefits**

- Greater assurance for customers of safer products and components.

**> 2.000.000**

## DYNAMIC TESTS

Endurance and structural crash tests, with heavy and dangerous working conditions, are essential and continuously carried out on finished products, in order to attain complete validation of design and technical solutions.

To develop the active safety features, Special Springs has designed and built special custom machines and equipment, suitable to test the efficiency of the features at different working conditions.

### **Benefits**

- Greater assurance for customers of tested safer products and components.

# SUPPORT AND TRAINING

## KNOWLEDGE

Knowledge is an essential element for successful daily actions; the more we know, the better we perform.

This concept has always been one of Special Springs' core values.

For many years the company has committed to increase knowledge of products along with their characteristics and their best utilisations techniques, through theoretical and practical training.

### **Benefits**

- Increased knowledge of users, in regards to the real benefits given by Special Springs gas cylinders. (i.e.: reduction of tool damages and injury)
- Increased knowledge of users on how to appropriately use the products, hence benefit from cost and production efficiency.
- Increased knowledge of users on the importance of our gas cylinders safety features.

## TECHNICAL SUPPORT

Special Springs has always been committed to provide technical support for users; we provide a thorough multilingual instruction sheet with each cylinder or component.

### **Benefits**

- Increased confidence of user in utilising gas cylinders.
- Increased safety with reduction of tool damages and injuries due to inappropriate usage.
- Cost savings with increased production efficiency.



## 2D - 3D CAD FILES

[www.partserver.com](http://www.partserver.com)



# OSAS

## Aktive Überhubsicherung



### Was ist OSAS?

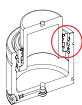
Die aktive Überhubsicherung OSAS besteht aus drei exklusiven Special Springs Lösungen zur kontrollierten und vollständigen Druckentladung bei Überhub der Gasdruckfeder.

### OSAS Vorteile

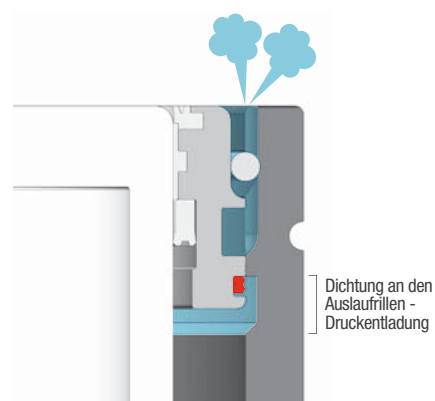
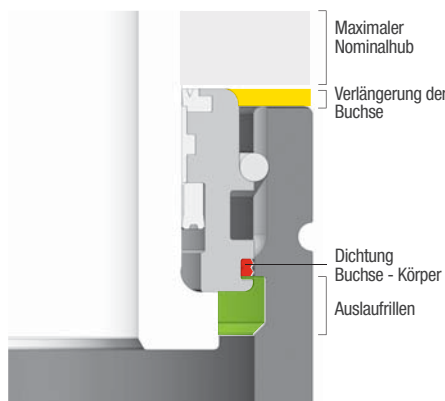
- ermöglicht das kontrollierte und komplette Entladen des Innendrucks der Gasdruckfeder bei Überhub.
- reduziert das Risiko von Schäden und Gefahren durch wegschleudernde, unter Druck stehende Teile.
- aktiviert sich automatisch bei einem Überhub.
- erhöht die Kosten der Gasdruckfeder nicht.

### Wie ist OSAS aufgebaut?

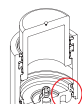
#### 1. Ausführung Körper - Buchse



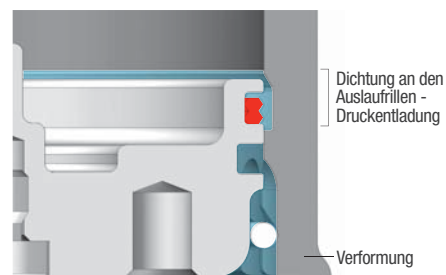
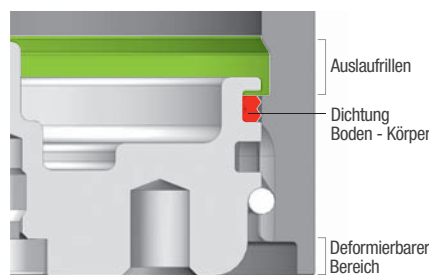
OSAS ist die Kombination einer Verlängerung der Buchse nach außen mit Auslaufrillen an der Kontaktwand der Dichtung Körper-Buchse. OSAS aktiviert sich ohne Deformation des Körpers, wodurch die Sicherheit des Anwenders erhöht wird.



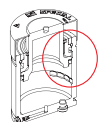
#### 2. Ausführung Körper - Boden



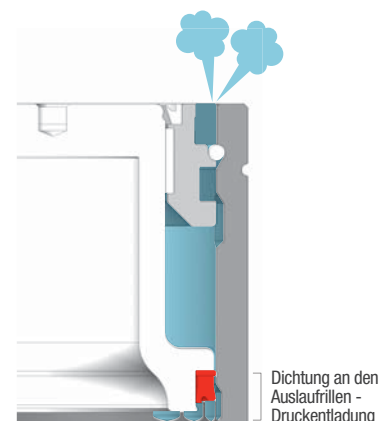
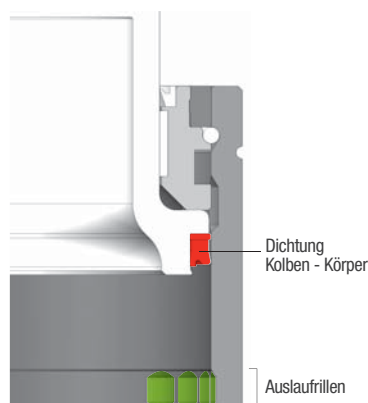
OSAS ist die Kombination einer deformierbaren Zone des Körpers mit Auslaufrillen an der Kontaktwand der Dichtung Körper-Boden. OSAS aktiviert sich ohne Strukturschäden am Zylinder, wodurch die Sicherheit für den Anwender verbessert wird.



#### 3. Ausführung Körper - Kolben



OSAS besteht aus Auslaufrillen an den Kontaktflächen der Kolbendichtung. OSAS aktiviert sich ohne eine Verformung des Körpers, wodurch die Sicherheit für den Anwender verbessert wird.



# USAS

## Aktiver Schutz bei unkontrolliertem Rückhub



### Was ist USAS?

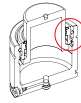
Der aktive Schutz bei unkontrolliertem Rückhub USAS besteht aus drei exklusiven Lösungen von Special Springs zum kontrollierten und vollständigen Entladen des Drucks, ohne dass Teile herausgeschleudert werden, wenn die Kolbenstange einem unkontrollierten Rückhub ausgesetzt ist. Verursacht wird das normalerweise dadurch, dass sich Teile des Werkzeugs oder damit produzierte Teile unter der Kraft der Gasdruckfeder plötzlich bzw. unkontrolliert lösen, nachdem sie eingeklemmt oder festgepresen waren.

### USAS Vorteile

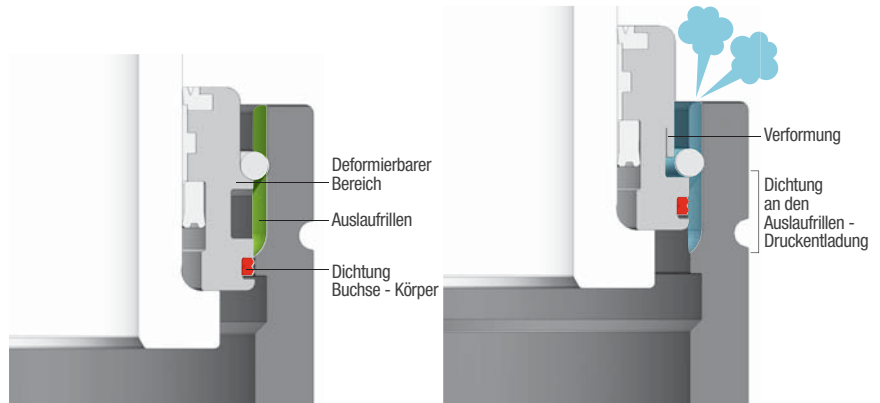
- ermöglicht das kontrollierte und komplette Entladen des Innendrucks der Gasdruckfeder bei unkontrolliertem Rückhub.
- reduziert das Risiko von Schäden und Gefahren durch wegschleudernde, unter Druck stehende Teile.
- aktiviert sich automatisch bei unkontrolliertem Rückhub.
- erhöht die Kosten der Gasdruckfeder nicht.

### Wie ist USAS aufgebaut?

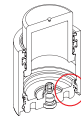
#### 1. Ausführung Körper - Buchse



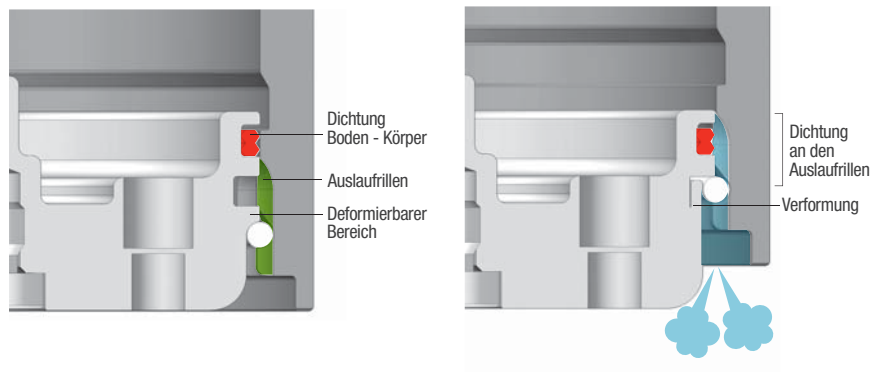
USAS besteht aus der Kombination eines verformbaren Bereichs der Buchse in Kontakt mit dem Sprengring und den Auslaufrillen auf der Kontaktwand der Dichtung Körper-Buchse. USAS aktiviert sich ohne die Gefahr von Strukturschäden am Zylinder, wodurch die Sicherheit des Anwenders verbessert wird.



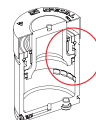
#### 2. Ausführung Körper - Boden



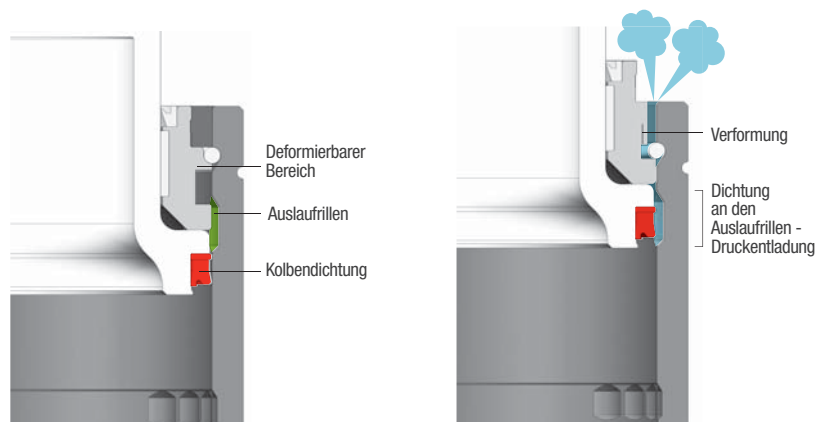
USAS ist die Kombination eines deformierbaren Bereichs am Boden in Kontakt mit dem Sprengring und den Auslaufrillen an den Kontaktwänden der Dichtung Körper-Boden. USAS aktiviert sich ohne die Gefahr von Strukturschäden am Zylinder, wodurch die Sicherheit des Anwenders verbessert wird.



#### 3. Ausführung Körper - Kolben



USAS besteht aus der Kombination eines deformierbaren Bereichs der Buchse in Kontakt mit dem Sprengring und den Auslaufrillen an den Kontaktflächen der Kolbendichtung. USAS aktiviert sich ohne die Gefahr von Strukturschäden am Zylinder, wodurch die Sicherheit für den Anwender verbessert wird.



# OPAS

## Aktive Überdruck-Sicherheitsvorrichtung



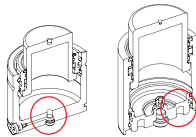
### Was ist OPAS?

Die aktive Überdruck-Vorrichtung besteht aus zwei exklusiven Special Springs Lösungen zur kontrollierten und vollständigen Entladung des Innendrucks, wenn der maximale zulässige Wert überschritten wird. Das passiert normalerweise, wenn das für den Stickstoff verfügbare Volumen in der Gasdruckfeder sich aufgrund von Flüssigkeiten oder Verunreinigungen reduziert.

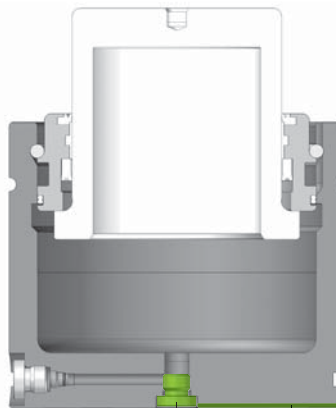
### OPAS Vorteile

- kontrollierte und vollständige Entladung des Innendrucks des Zylinders bei Überschreiten des maximal zulässigen Werts.
- reduziert das Risiko von Schäden und Gefahren durch wegschleudernde, unter Druck stehende Teile.
- aktiviert sich automatisch ohne Eingriff des Anwenders.
- erhöht die Kosten der Gasdruckfeder nicht.

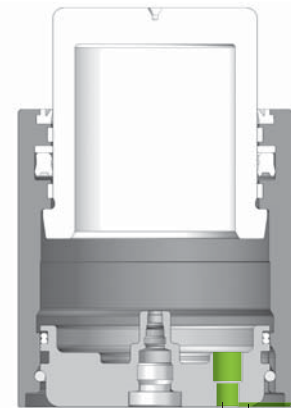
### Wie ist OPAS aufgebaut?



Je nach Bauweise der Gasdruckfeder ist OPAS die Kombination einer kalibrierten in den Boden integrierten Berstsicherung oder einem Berststopfen am Zylinderkörpers mit einer Auslauffrille auf der Auflagefläche.



Berststopfen Auslauffrille



Boden mit integrierter Berstsicherung Auslauffrille

# SKUDO

## Aktiver Schutz vor Verunreinigungen



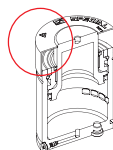
### Was ist SKUDO?

Der aktive Schutz vor Verunreinigungen ist eine exklusive Lösung von Special Springs zum Schutz der Führungs- und Dichtungselemente vor flüssigen und festen Verunreinigungen und zur Prävention vor Überdruck.

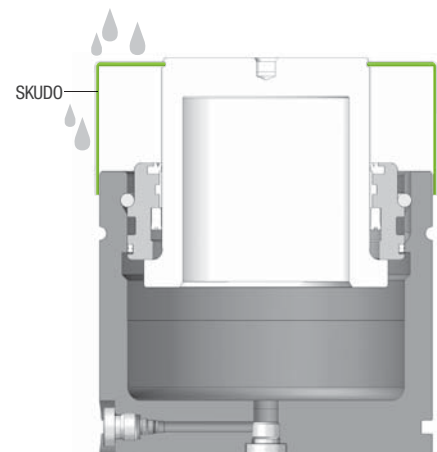
### SKUDO Vorteile

- schützt vor Verunreinigungen, die Schäden an den Führungs- und Dichtungselementen hervorrufen.
- steigert erheblich die Lebenszeit der Gasdruckfeder bei erschwerten Arbeitsbedingungen.
- verändert die Gesamthöhe der Gasdruckfeder nicht.
- ist ein Schutz, der nicht verschleißt.
- ist für alle Gasdruckfedern von Special Springs lieferbar.

### Wie ist SKUDO aufgebaut?



SKUDO ist eine Schutzkappe aus Kunststoff, die direkt und fest auf der Kolbenstange befestigt ist, wobei die Kontaktfläche mit der Druckplatte nicht verändert wird.



# ZUVERLÄSSIGKEIT

## PED 97/23/EG

Die Konstruktion und Herstellung der Gasdruckfedern SPECIAL SPRINGS erfolgt in Übereinstimmung mit den geltenden Normen für Druckbehälter, wie in der PED Richtlinie 97/23/EG festgelegt.

### Vorteile

- verbesserte Sicherheit für den Kunden durch sichere Produkte und Komponenten.

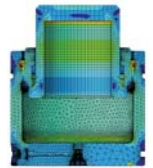


## FEM - CAE

Alle Produkte von Special Springs werden durch die Verwendung der fortschrittlichsten Analysensysteme FEM (finite element method) und CAE (computer aided engineering) entwickelt und validiert.

### Vorteile

- verbesserte Sicherheit für den Kunden durch sichere Produkte und Komponenten.



## STRUKTUR DER GASDRUCKFEDERN

Alle Strukturkomponenten der Special Springs Gasdruckfedern sind konstruiert und hergestellt, um mindestens 2.000.000 komplette Zyklen bei maximalem Druck und Temperatur zu erreichen, unter Verwendung jeder für das jeweilige Modell empfohlener Befestigungsart.

### Vorteile

- verbesserte Sicherheit für den Kunden durch sichere Produkte und Komponenten.

> 2.000.000

## DYNAMISCHE TESTS

Lebensdauerprüfungen und Tests an den fertigen Produkten mit Simulation der erschwerenden und gefährlichen Anwendungsbedingungen sind ein wesentliches Element zur vollständigen Validierung der Projekte und der technischen Lösungen. Zur Entwicklung der aktiven Sicherheitselemente hat Special Springs geeignete Maschinen und Anlagen zur Prüfung der tatsächlichen Wirksamkeit der Sicherheitsvorrichtungen realisiert.

### Vorteile

- verbesserte Sicherheit für den Kunden durch sichere, wirklich getestete Produkte und Komponenten

# SCHULUNG & TECHNISCHER SUPPORT

## FACHKENNTNIS

Fachkenntnis ist ein grundlegendes Element für tagtägliche Tätigkeiten mit Erfolg, je mehr wir wissen, desto besser können wir handeln. Dieses Konzept ist schon immer die Arbeitsphilosophie von Special Springs. Seit vielen Jahren ist Special Springs bestrebt, die Fachkenntnisse rund um die Produkte und ihre technischen Eigenschaften zusammen mit den neuesten Anwendungstechniken durch theoretische und praktische Schulungen zu vertiefen.

### Vorteile

- größeres Wissen der Anwender über die effektiven Vorteile der Special Springs Gasdruckfedern.
- größeres Wissen der Anwender über die am besten geeigneten Anwendungsverfahren mit wirtschaftlichen und sicherheitsrelevanten Vorteilen.
- besseres Verständnis bzw. Bewusstsein der Wichtigkeit der aktiven Sicherheitselemente an Gasdruckfedern.

## TECHNISCHER SUPPORT

Special Springs ist schon immer bestrebt, den technischen Support der Anwender zu verbessern, für jede Gasdruckfeder und deren Komponenten ist eine mehrsprachige Betriebsanleitung verfügbar.

### Benefits

- größeres Vertrauen des Anwenders in den Einsatz von Gasdruckfedern.
- höhere Sicherheit durch Reduzierung von Schaden und Gefahr durch falsche Anwendung.
- Kostenersparnis durch verbesserte Produktivität.



## 2D - 3D CAD FILES

[www.partserver.com](http://www.partserver.com)



# OSAS

(Over Stroke Active Safety)

## Sécurité Active Outre-Course



### Qu'est-ce que c'est?

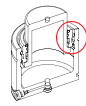
OSAS combine 3 dispositifs de sécurité, exclusifs de Special Springs, pour décharger la pression en mode contrôlé et complet lorsque la course admissible est dépassée.

### OSAS avantages

- Décharge la pression du ressort en mode contrôlé et complet, lorsque le vérin est sur-sollicité au niveau de la course.
- Réduit le risque d'endommagement de l'outil ou le risque de blessure en cas d'éjection de pièces ou composants mis sous pression.
- S'auto-active sans intervention de l'opérateur.
- N'augmente pas le coût du ressort.

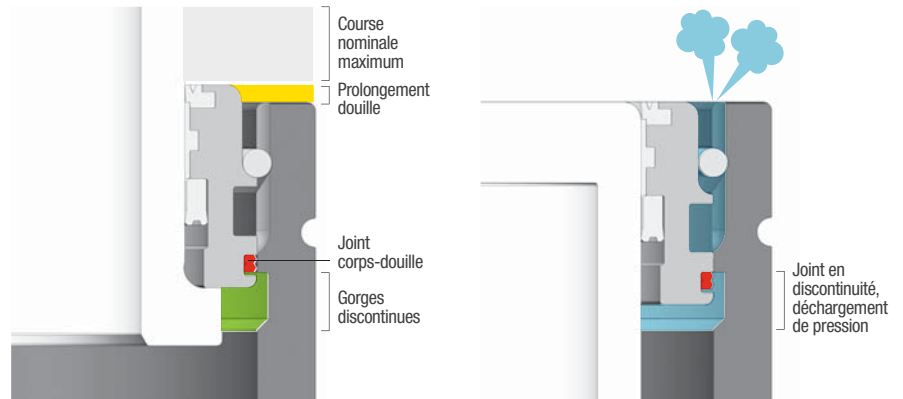
### Comment cela fonctionne t-il ?

#### 1. Design corps - douille

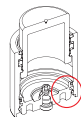


OSAS est la combinaison d'un prolongement vers l'extérieur de la douille avec gorges discontinues sur la paroi de contact du joint douille-corps.

OSAS s'auto-active sans déformer le corps du ressort, améliorant ainsi la sécurité des opérateurs.

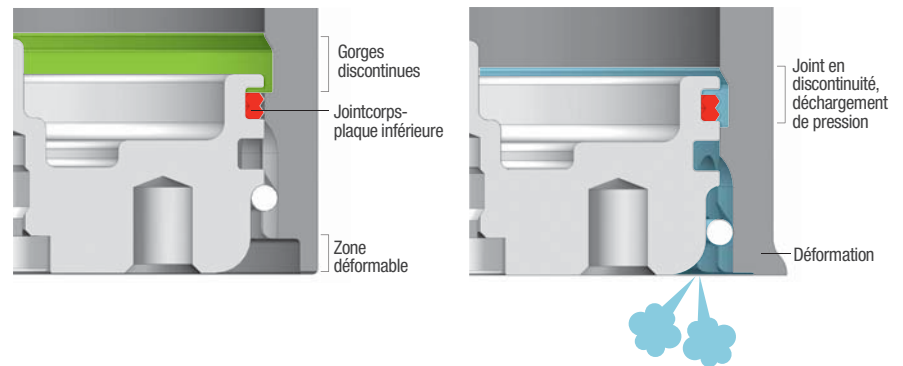


#### 2. Design corps - plaque inférieure

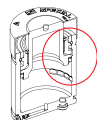


OSAS est la combinaison d'une zone déformable du corps avec des gorges discontinues sur la paroi de contact du joint corps-plaque inférieure.

OSAS s'auto-active sans provoquer de détériorations structurelles du vérin, améliorant ainsi la sécurité des opérateurs.

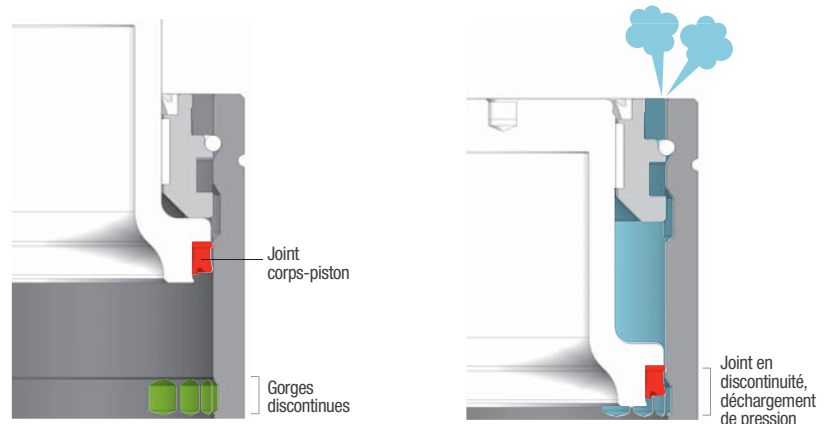


#### 3. Design corps - piston



OSAS sont des gorges discontinues sur la paroi de contact du joint corps-piston.

OSAS s'auto-active sans provoquer de déformation du vérin, améliorant ainsi la sécurité des opérateurs.





# USAS (Uncontrolled Speed Active Safety)

## Sécurité Active pour Retour Incontrôlé



### Qu'est-ce que c'est?

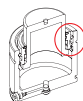
USAS combine 3 dispositifs de sécurité, exclusifs de Special Springs, pour décharger la pression en mode contrôlé et complet, sans éjection des pièces, lorsque la vitesse de retour de la tige est incontrôlée. Cela peut se produire en cas de contrainte au niveau de l'outil ou des pièces découpées qui peuvent être éjectées de manière incontrôlée.

### Comment cela fonctionne t-il ?

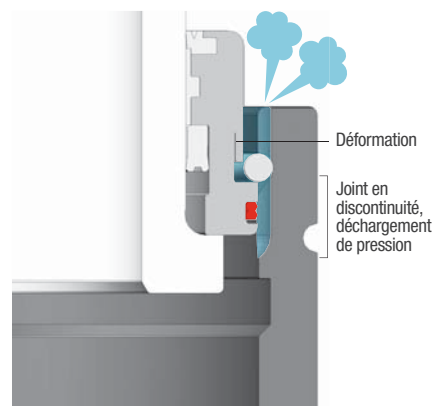
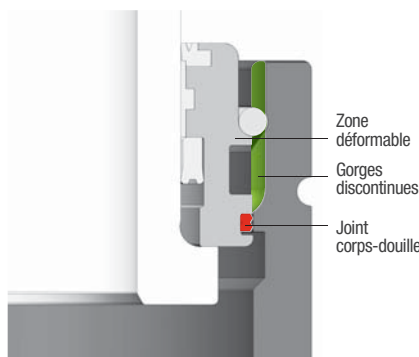
### USAS avantages

- Décharge la pression du ressort en mode contrôlé et complet, lorsque le vérin a été mis sous contrainte par des retours non contrôlés.
- Réduit le risque d'endommagement de l'outil ou le risque de blessure en cas d'éjection de pièces ou composants mis sous pression.
- S'auto-active sans intervention de l'opérateur.
- N'augmente pas le coût du ressort.

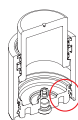
### 1. Design corps - douille



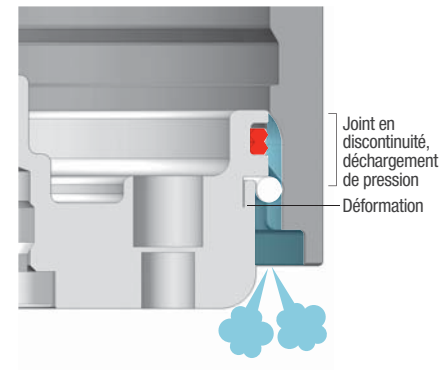
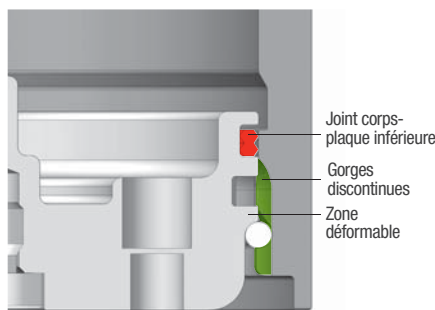
USAS est la combinaison d'une zone déformable de la douille en contact avec le joint de retenue à C et des gorges discontinues sur la paroi de contact du joint corps-douille. USAS s'auto-active sans déformer le corps du vérin, améliorant ainsi la sécurité des opérateurs.



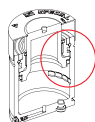
### 2. Design corps - plaque inférieure



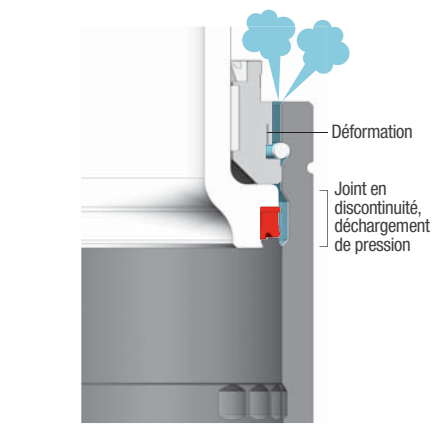
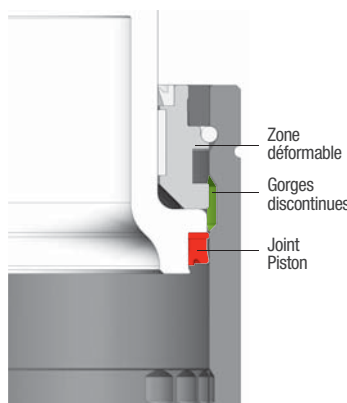
USAS est la combinaison d'une zone déformable de la douille en contact avec la bague de retenue à C et des gorges discontinues sur la paroi de contact du joint corps-plaque inférieure. USAS s'auto-active sans provoquer des détériorations structurelles du vérin, améliorant ainsi la sécurité des opérateurs.



### 3. Design corps - piston



USAS est la combinaison d'une zone déformable de la douille en contact avec le joint de retenue à C et des gorges discontinues sur la paroi de contact du joint corps-piston. USAS s'auto-active sans déformer le corps du vérin, améliorant ainsi la sécurité des opérateurs.



# OPAS

(Over Pressure Active Safety)

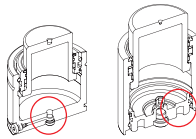
## Sécurité Active Surpression



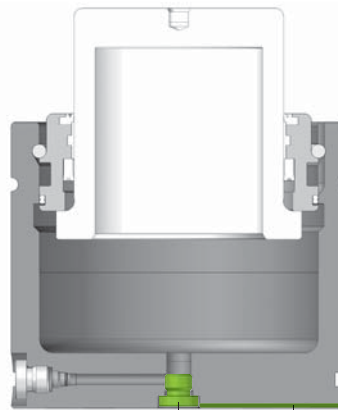
### Qu'est-ce que c'est?

USAS sont 2 dispositifs de sécurité, exclusifs de Special Springs, pour décharger la pression en mode contrôlé et complet, lorsque celle-ci dépasse la valeur admissible. Ce qui peut se produire lorsque des produits contaminants pénètrent dans le vérin, réduisant le volume de gaz.

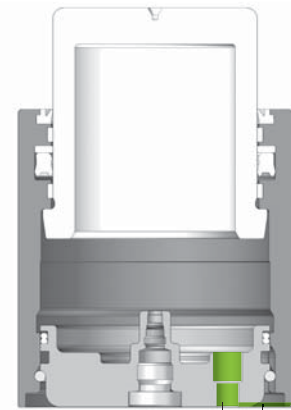
### Comment cela fonctionne t-il ?



OPAS est un cloison de rupture calibré intégral sur la plaque inférieure ou un bouchon de rupture monté sur le plateau du cylindre, avec une fraisure de déchargement sur la base d'appui.



Bouchon de rupture      Fraisage de déchargement



Cloison de rupture  
Fraisage de déchargement

### OPAS avantages

- Décharge la pression du ressort en mode contrôlé et complet lorsque la valeur maximale admissible est dépassée.
- Réduit le risque d'endommagement de l'outil ou le risque de blessure en cas d'éjection de pièces ou composants mis sous pression.
- S'auto-active sans intervention de l'opérateur.
- N'augmente pas le coût du ressort.

# SKUDO

(Active Protection from Contaminants)

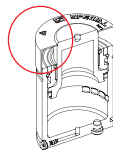
## Protection Active des Contaminants



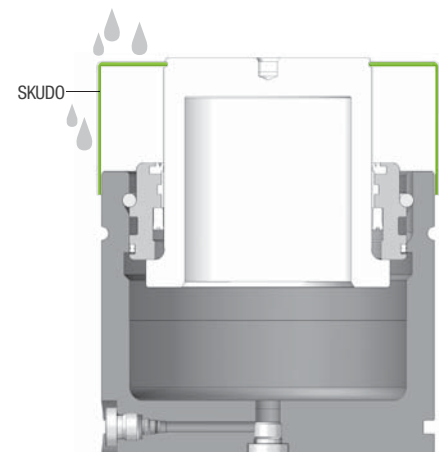
### Qu'est-ce que c'est?

SKUDO est une solution exclusive de Special Springs pour protéger les joints et les éléments de guidage contre tous contaminants liquides et solides, et permet d'éliminer des phénomènes de surpression.

### Comment cela fonctionne t-il ?



SKUDO est une capsule de protection en plastique fixée solidement sur la tige sans modification de la surface de contact avec la plaque de réfolement.



### SKUDO avantages

- Élimine tout endommagement du joint et des éléments de guidage du fait de contaminants.
- Augmente de manière significative la vie du ressort en présence de contaminants liquides et solides.
- Ne change pas la hauteur du vérin.
- Est une protection qui n'est pas soumise à aucune usure.
- Est disponible pour tous les ressorts Special Springs.

# FIABILITÉ

## PED 97/23/CE

La conception et la fabrication des ressorts à gaz Special Springs sont en totale conformité avec les législations européennes en matière de composants caractérisés haute pression et notamment avec la directive PED 97/23/CE

### Avantages

- Sécurité accrue pour les clients et opérateurs.

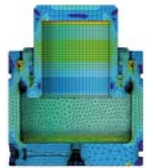


## FEM - CAE

Tous les produits Special Springs sont développés et certifiés selon les méthodes FEM (finite element method) et CAE (Computer aided engineering).

### Avantages

- Sécurité accrue pour les clients et opérateurs.



## STRUCTURE DES RESSORTS A GAZ

Tous les composants structurels des ressorts gaz Special Springs sont conçus et construits pour supporter un minimum de 2 million des cycles complètes à la pression et température maximale pour chaque type de fixation.

### Avantages

- Sécurité accrue pour les clients et opérateurs.

> 2.000.000

## ESSAIS DYNAMIQUES

Des essais de durée et des épreuves physiques sur les produits finis, avec simulation en condition d'usage lourdes et dangereuses, sont essentiels pour la complète validation des projets et des solutions techniques. Pour le développement de sécurités actives, Special Springs a réalisé des outils et des machines spéciales pour la validation de l'efficacité réelle des dispositifs de sécurité.

### Avantages

- Sécurité accrue pour les clients et opérateurs.

# FORMATION ET SUPPORT

## CONNAISSANCE

La connaissance est un élément fondamental pour les actions quotidiennes de succès, le plus on connait, le mieux on fait. Ce concept a été toujours présent dans la philosophie de travail de Special Spring. Depuis plusieurs années Special Spring s'est engagé à augmenter la connaissance des produits et de ses caractéristiques mais aussi aux meilleures techniques d'usage à travers formations théoriques et pratiques.

### Avantages

- Majeure connaissance des utilisateurs sur les avantages réels offerts par les ressorts à gaz Special Spring.
- Majeure connaissance des utilisateurs sur les méthodes de usage plus correctes avec avantages économiques et de sécurité.
- Majeure sensibilité et conscience sur l'importance des sécurités actives dans les ressorts à gaz.

## SUPPORT TECHNIQUE

Special Springs s'est engagée depuis longtemps pour améliorer le support technique aux utilisateurs, elle fournit avec chaque ressort ou composant un papier d'instruction multilingue complet.

### Avantages

- Majeure confiance de l'utilisateur sur les ressorts à gaz.
- Majeure sécurité avec réduction des dommages et risques pour usage erroné.
- Épargne économique avec productions plus efficaces.



## 2D - 3D CAD FILES

[www.partserver.com](http://www.partserver.com)



# OSAS

(Over Stroke Active Safety)

## Seguridad Activa de Fin de Carrera

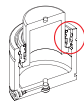


### ¿Qué es?

La Seguridad Activa de Fin de Carrera son 3 soluciones exclusivas de Special Springs para descargar la presión controlada y completamente en caso de que el cilindro sobrepase su carrera máxima.

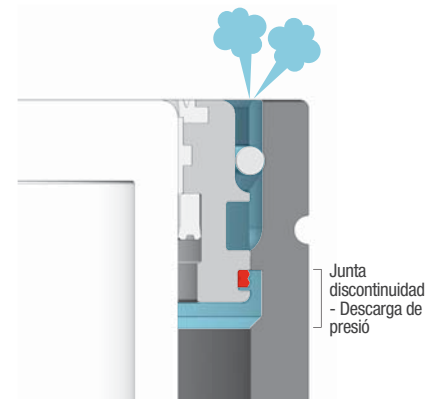
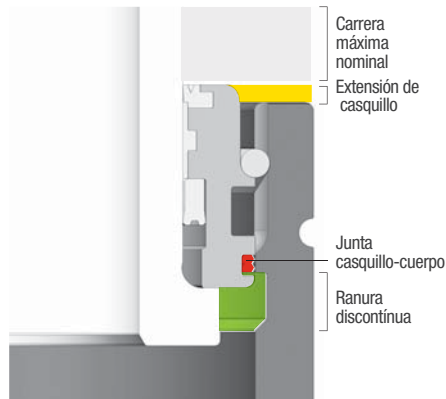
### ¿Cómo funciona?

#### 1. Diseño cuerpo - casquillo

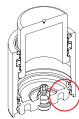


OSAS es la combinación de una extensión del casquillo con ranuras discontinuas en la pared de contacto cuerpo-casquillo.

OSAS se activa sin deformaciones del cuerpo, aumentando de manera importante la seguridad para el usuario.

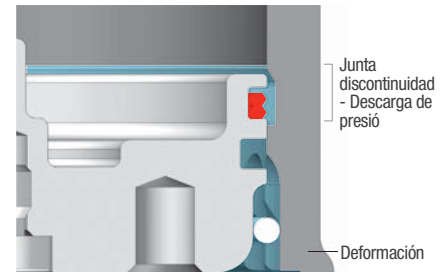
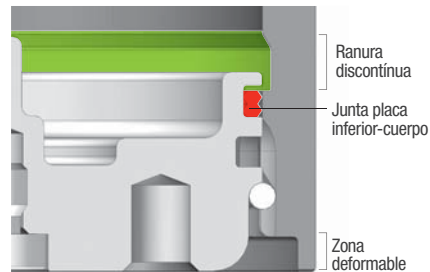


#### 2. Diseño cuerpo - placa inferior

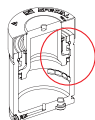


OSAS es la combinación de una zona deformable del cuerpo con ranuras discontinuas en la pared de contacto cuerpo-placa inferior.

OSAS se activa sin peligro estructural para el cilindro, aumentando de manera importante la seguridad para el usuario.

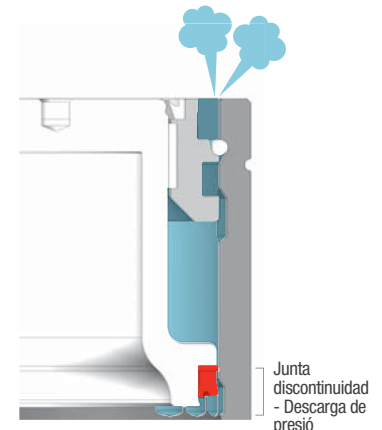
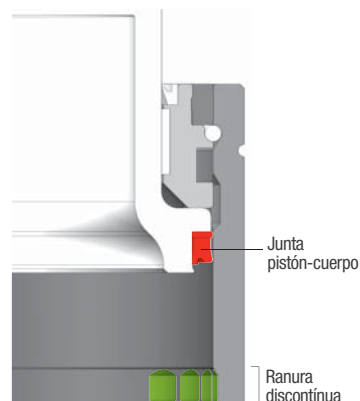


#### 3. Diseño cuerpo - pistón



OSAS consiste en ranuras discontinuas en la pared de contacto cuerpo-pistón.

OSAS se activa sin deformaciones del cuerpo, aumentando de manera importante la seguridad para el usuario.



## USAS (Uncontrolled Speed Active Safety) Seguridad Activa de Retorno Incontrolado



### ¿Qué es?

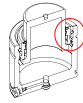
La Seguridad Activa de Retorno Incontrolado son 3 soluciones exclusivas de Special Springs para descargar la presión controlada y completamente sin eyección de piezas en caso de que el cilindro sufra un retorno incontrolado. Esto sucede cuando la placa o pieza estampada en el troquel son liberadas súbitamente y sin control.

### USAS Ventajas

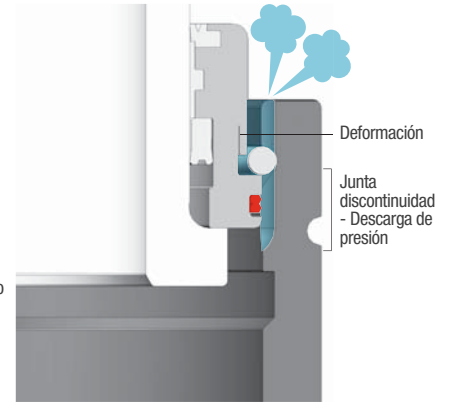
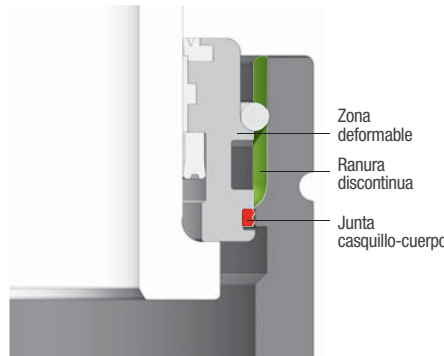
- Descarga la presión de manera controlada y completa en caso de que el cilindro sufra un retorno incontrolado.
- Reduce el riesgo de daños y peligros consecuencia de la proyección de partes bajo presión.
- Se activa automáticamente sin intervención del usuario.
- No aumenta el costo del cilindro.

### ¿Cómo funciona?

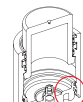
#### 1. Diseño cuerpo - casquillo



USAS es la combinación de una zona deformable del casquillo en contacto con el anillo de sujeción y ranuras discontinuas en la pared cuerpo-casquillo. USAS se activa sin deformaciones del cuerpo, aumentando de manera importante la seguridad para el usuario.

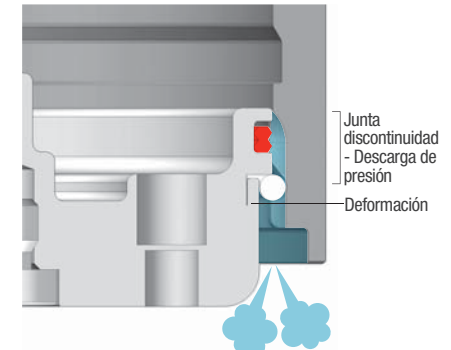
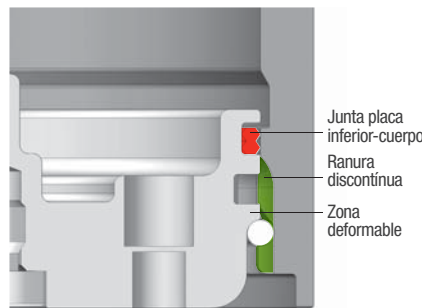


#### 2. Diseño cuerpo - placa inferior



USAS es la combinación de una zona deformable de la placa inferior en contacto con el anillo de sujeción y ranuras discontinuas en la pared de contacto cuerpo-placa inferior.

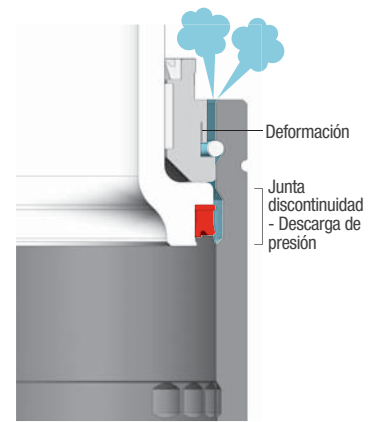
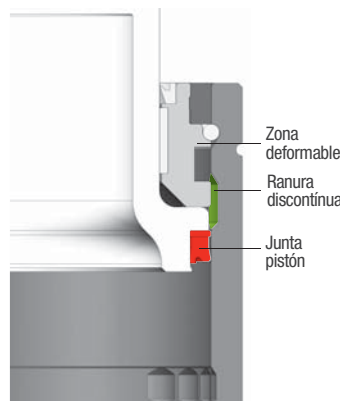
USAS se activa sin peligro estructural para el cilindro, aumentando de manera importante la seguridad para el usuario.



#### 3. Diseño cuerpo - pistón



USAS consiste en la combinación de una zona deformable del casquillo en contacto con el anillo de sujeción y ranuras discontinuas en la pared de contacto cuerpo-pistón, aumentando de manera importante la seguridad para el usuario.



# OPAS

(Over Pressure Active Safety)

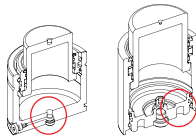
## Seguridad Activa por Sobrepresión



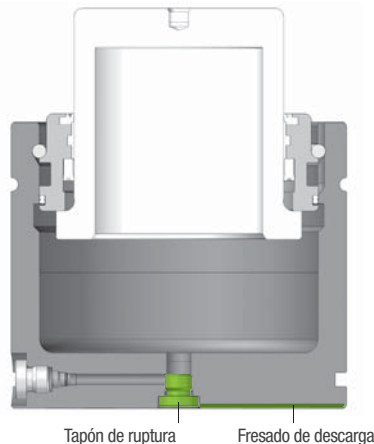
### ¿Qué es?

La Seguridad Activa por Sobrepresión son 2 soluciones exclusivas de Special Springs para descargar la presión controlada y completamente cuando se supera el valor máximo permitido. Esto sucede cuando el volumen de la cámara de gas se reduce por la presencia de líquidos y agentes contaminantes.

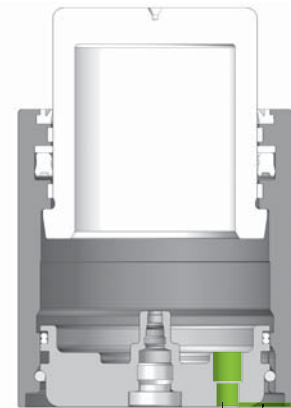
### ¿Cómo funciona?



OPAS es la combinación de un septo de rotura o bien de un tapón de rotura posicionados en la base del cilindro, con un fresado de descarga en la base de apoyo.



Tapón de ruptura Fresado de descarga



Septo de ruptura Fresado de descarga

# SKUDO

(Active Protection from Contaminants)

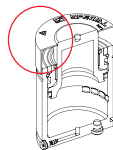
## Protección Activa contra Agentes Contaminantes



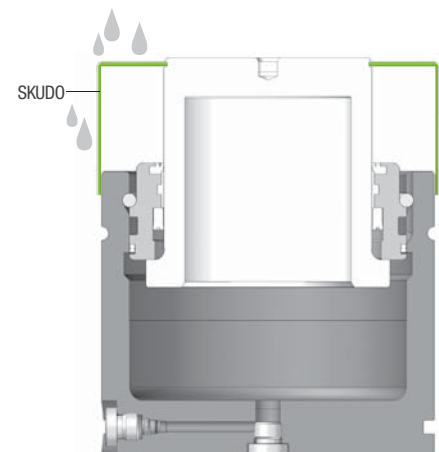
### ¿Qué es?

La Protección Activa contra Agentes Contaminantes es una solución exclusiva de Special Springs para proteger los componentes que garantizan la hermeticidad y guiado de contaminantes líquidos y sólidos y así eliminar situaciones de sobrepresión.

### ¿Cómo funciona?



SKUDO consiste en un tapón de plástico fijado de forma solidaria directamente al vástago, sin alterar la superficie de contacto del mismo.



### SKUDO Ventajas

- Elimina cualquier probabilidad de daño de contaminantes a los componentes que garantizan la estanqueidad y guiado.
- Aumenta significativamente la vida del cilindro en presencia de contaminantes líquidos y sólidos.
- No aumenta la altura del cilindro.
- Es una protección que no sufre desgaste.
- Disponible para todos los cilindros Special Springs.

# FIABILIDAD

## PED 97/23/CE

La proyectación y producción de los cilindros de nitrógeno Special Springs se realizan con pleno respeto de las normativas vigentes para elementos de presión como establece la directiva PED 97/23/CE.

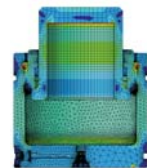


### Ventajas

- Mayor garantía para el cliente, productos y componentes más seguros.

## FEM - CAE

Todos los productos Special Springs son desarrollados y validados con la utilización de los más avanzados sistemas de análisis FEM (finite element method) y CAE (computer aided engineering).



### Venajas

- Mayor garantía para el cliente, productos y componentes más seguros

## ESTRUCTURA DEL CILINDRO DE NITROGENO

Todos los componentes estructurales de los cilindros de nitrógeno Special Springs son proyectados y fabricados para soportar un mínimo de 2.000.000 de ciclos completos a la máxima presión y temperatura, y con todos los tipos de fijación.

> 2.000.000

### Ventajas

- Mayor garantía para el cliente, productos y componentes más seguros.

## PRUEBAS DINAMICAS

Los tests de duración y pruebas físicas sobre producto terminado, con simulaciones en condiciones de uso difíciles y peligrosas, son elementos esenciales para la completa validación de los proyectos y soluciones técnicas. Para el desarrollo de la seguridad activa Special Springs ha diseñado y construido útiles y equipamientos especiales, para la verificación de la eficacia real de los dispositivos de seguridad.

### Avantages

- Sécurité accrue pour les clients et opérateurs.

# FORMACIÓN Y SOPORTE TÉCNICO

## CONOCIMIENTOS

El conocimiento es un elemento fundamental para acciones cotidianas que lleven al éxito, cuanto más se conoce mejor se hace. Este concepto ha estado siempre en la filosofía de trabajo de Special Springs. Special Springs se dedica desde hace muchos años a aumentar su conocimiento sobre los productos y sus características, así como a mejorar las técnicas de uso a través de formaciones teóricas y prácticas.

### Ventajas

- Mayor conocimiento por parte del usuario de las ventajas ofrecidas por los cilindros Special Springs.
- Mayor conocimiento por parte del usuario de los métodos correctos para aumentar la seguridad de uso.
- Mayor sensibilidad y conciencia de la importancia de la seguridad activa en los cilindros de nitrógeno.

## SOPORTE TÉCNICO

Es prioridad desde siempre para Special Springs la mejora del soporte técnico al usuario, para lo que entrega un completo manual en varios idiomas con el cilindro o componente.



### Avantages

- Mayor confianza del usuario en los cilindros de nitrógeno.
- Mayor seguridad, con reducción de daños y riesgos por un mal uso.
- Ahorro económico, con producciones más eficientes.

## 2D - 3D CAD FILES

[www.partserver.com](http://www.partserver.com)



# OSAS

(Over Stroke Active Safety)

## Segurança para Sobre Curso



### O que é?

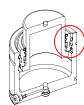
OSAS são 3 tipos de dispositivos de segurança unicos nos cilindros Special Springs, que esvaziam a pressão do cilindro por completo, quando esta excede o curso nominal do cilindro.

### OSAS Benefícios

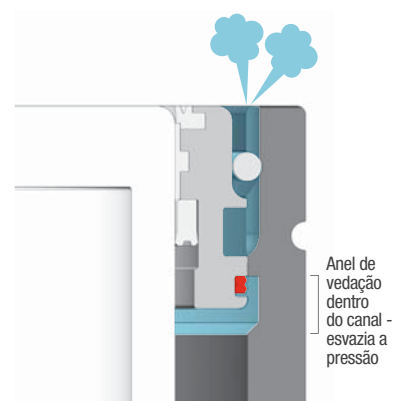
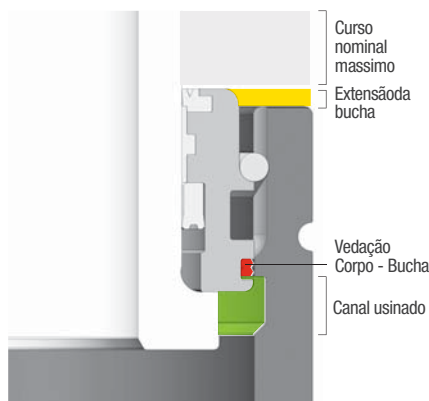
- Esvazia a pressão dos cilindros completamente quando os cilindros sofrem sobre-curso.
- Reduz o risco de danos para a ferramenta e ferimentos para o operador por estilhaços.
- Ativa-se automaticamente independentemente de intervenção dos usuários.
- Não aumenta o custo dos cilindros.

### Como funciona?

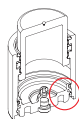
#### 1. Design Corpo - bucha



OSAS é composto de dois pontos: uma extensão da bucha localizada para fora do corpo, e canais usinados na parte interna do corpo do cilindro onde acontece a vedação. O sistema OSAS é ativado sem o contato com o corpo do cilindro, proporcionando mais segurança ao operador.

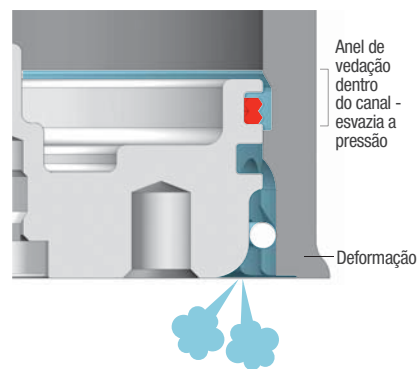
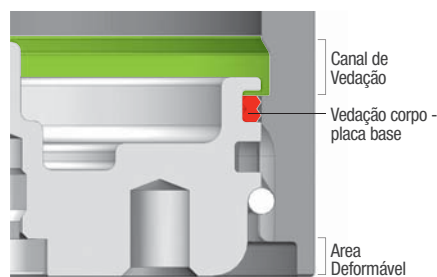


#### 2. Design Corpo - placa base

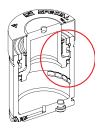


OSAS é a combinação de uma área do corpo deformável com ranhura na parede de vedação inferior corpo-placa.

OSAS ativa sem causar danos estruturais ao cilindro, melhorando ainda mais a segurança para os usuários.

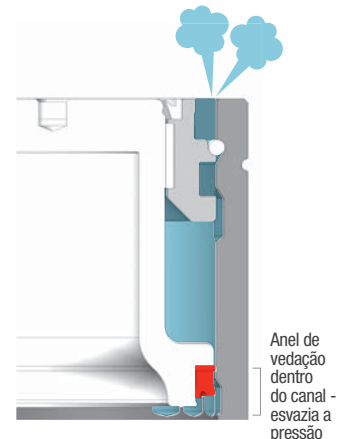
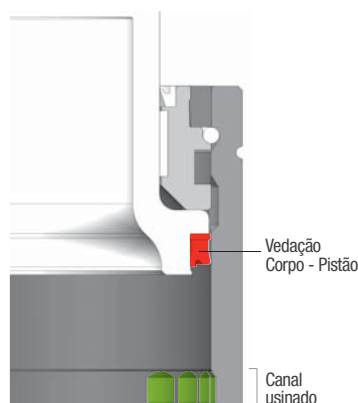


#### 3. Design Corpo - pistão



OSAS é ativado com canais na parede de vedação do pistão.

A OSAS é ativada sem deformação do corpo, aumentando ainda mais a segurança do usuário.





## USAS (Uncontrolled Speed Active Safety) Segurança para Retorno Descontrolado



### O que é?

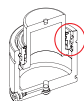
USAS é o escape de pressão em um modo controlado e completo, provocado pelo retorno descontrolado da haste, evitando o risco da mesma se desprender do cilindro.

### USAS Benefícios

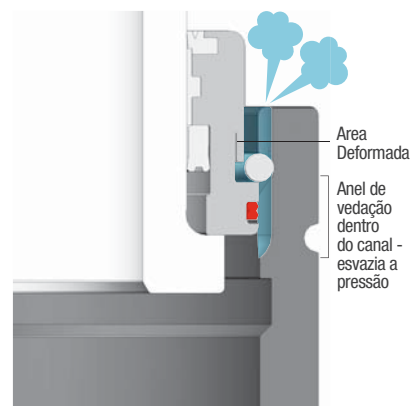
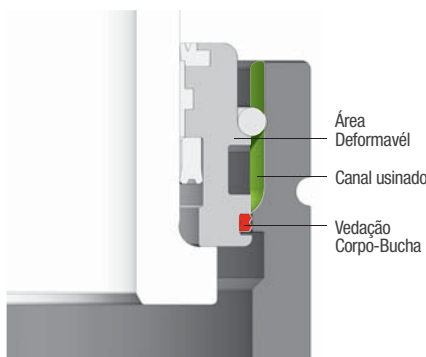
- Quando o cilindro sofrer retornos descontrolados, o mesmo se esvazia de uma maneira controlada e completa.
- Reduz o risco de danos a ferramenta ou ferimentos devido à estilhaços de peças sob pressão.
- Ativa-se automaticamente independentemente de intervenção dos usuários.
- Não aumenta o custo dos cilindros.

### Como funciona?

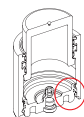
#### 1. Design Corpo - bucha



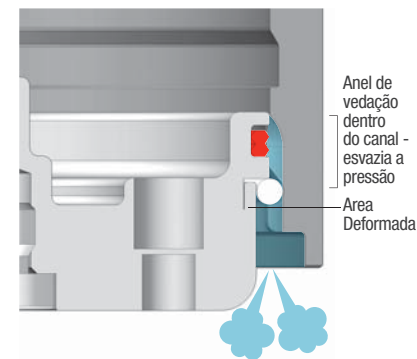
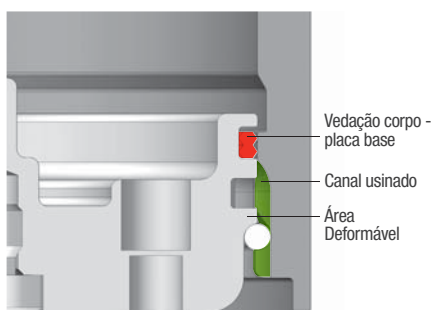
USAS é a combinação de uma parte deformável da bucha em contacto com o anel de retenção em C. Com o trabalho incorreto da haste sobre a bucha rompe-se o selo liberando a pressão do cilindro. USAS é ativado, sem causar danos estruturais ao cilindro, melhorando ainda mais a segurança para os usuários.



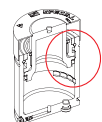
#### 2. Design Corpo - placa base



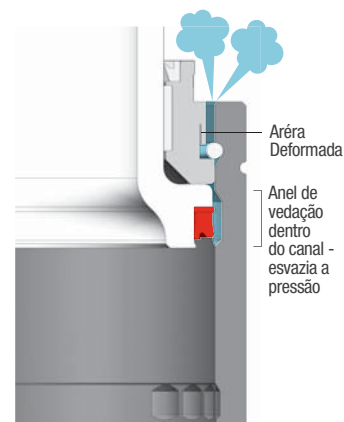
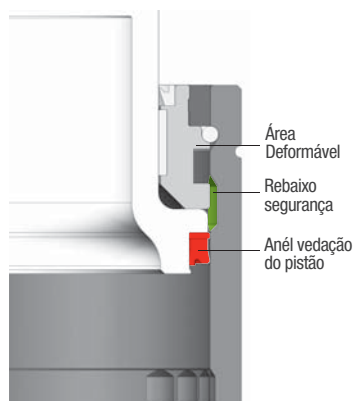
USAS é a combinação de uma área deformável da placa base em contacto com o anel de retenção em C, e as ranhuras na parede de vedação corpo-placa base. USAS é ativado para não causar danos estruturais ao cilindro, e melhorar ainda mais a segurança para os usuários.



#### 3. Design Corpo - pistão



USAS é a combinação de uma parte deformável da bucha em contacto com o anel de retenção em C, ao se deformar o pistão entra em uma área rebaixada do corpo. USAS é ativada descarregando a pressão evitando danos estruturais ao cilindro, e prevenindo ainda mais a segurança para os usuários.



# OPAS

(Over Pressure Active Safety)

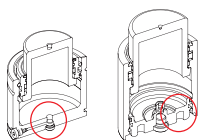
## Segurança Sobre Pressão



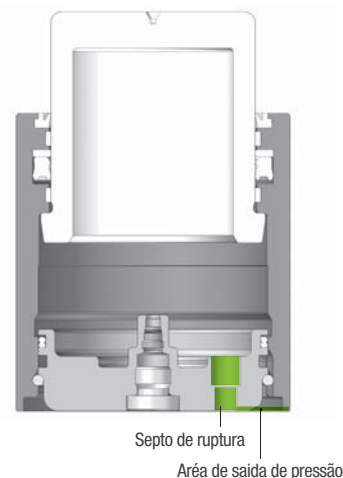
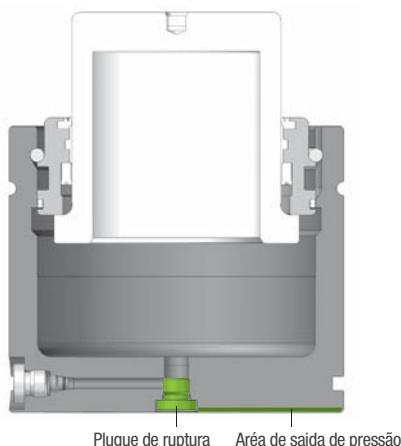
### O que é?

OPAS são 2 tipos de dispositivos de segurança exclusivos da Special Springs, inseridos ou montados na parte inferior dos cilindros, Quando a pressão excede o seu limite dentro do cilindro por causa de impurezas reduzindo a área interna e aumentando a pressão, rompe-se a válvula liberando a pressão de forma controlada e completa.

### Como funciona?



OPAS é a combinação de um septo calibrado ou uma plugue de ruptura posicionado na parte inferior dos cilindros, com uma saída de escape na superfície inferior de contacto.



### OPAS Benefícios

- Saída de pressão de forma controlada e completa quando ele excede o valor máximo permitido.
- Reduz o risco de danos ao cilindro e ferimentos aos usuários devido à ejeção de estilhaços sob pressão.
- Ativa-se automaticamente independentemente de intervenção dos usuários.
- Não aumenta o custo dos cilindros.

# SKUDO

(Active Protection from Contaminants)

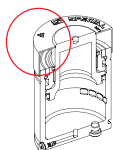
## Capa Protetora Contra Resíduos



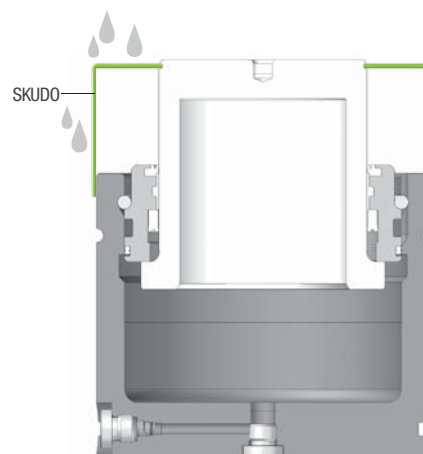
### O que é?

SKUDO é uma solução exclusiva da Special Springs que protege os anéis de vedação contra restos de resíduos sólidos e líquidos evitando o aumento da pressão.

### Como funciona?



SKUDO é um plástico de proteção firmemente fixado na parte superior da haste, com nenhuma alteração da superfície de contacto com a placa de pressão.



### SKUDO Benefícios

- Elimina danos nos anéis de vedação causados por resíduos.
- Aumenta significativamente a vida dos cilindros usados em ambientes de trabalho com resíduos.
- Não altera a altura do cilindro.
- Não expande durante o movimento.
- Está disponível para todos os cilindros da Special Springs.

# CONFIABILIDADE

## PED 97/23/CE

O projeto e fabricação de cilindros de Nitrogênio Special Springs estão em total conformidade com as regras Europeias para Cilindros de alta pressão, em conformidade com a directiva PED 97/23/CE.

### Benefícios

- Maior garantia para os clientes com produtos e componentes mais seguros.



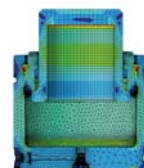
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## FEM - CAE

Todos os produtos Special Springs são desenvolvidos e validados através da utilização das Técnicas mais avançadas FEM (método de elementos finitos) e sistemas de análise do CAE (Engenharia assistida por computador).

### Benefícios

- Maior garantia para os clientes com produtos e componentes mais seguros.



## COMPONENTES ESTRUTURAIS DE UM CILINDRO DE NITROGÊNIO

Todos os componentes estruturais dos cilindros Special Springs, são projetados e construídos para suportar no mínimo 2.000.000 ciclos com máxima pressão, temperatura e para todos os tipos de dispositivos de fixação.

### Benefícios

- Maior garantia para os clientes com produtos e componentes mais seguros.

**> 2.000.000**

## ENSAIOS DINÂMICOS

Resistência e testes de impacto estrutural, com condições de trabalho pesado e perigoso, são essenciais e continuamente realizada em todos produtos a fim de atingir a validação completa dos projetos e soluções técnicas. Para desenvolver as características de segurança a Special Springs desenhou e construiu máquinas especiais personalizadas e equipamentos, adequados para testar a eficiência dos recursos em diferentes condições de trabalho.

### Benefícios

- Maior garantia para o cliente com produtos e componentes mais seguros e realmente testado.

# TREINAMENTO E SUPORTE

## CONHECIMENTO

O conhecimento é um elemento essencial para o sucesso das ações diárias; Quanto mais soubermos, melhor nós executamos. Este conceito sempre foi um dos valores da Special Springs. Por muitos anos a empresa se comprometeu a aumentar os conhecimentos dos produtos juntamente com suas características e suas melhores técnicas de utilizações através de formação teórica e prática.

### Benefícios

- Aumento do conhecimento dos usuários, no que diz respeito aos benefícios reais dados pelo Cilindro de Nitrogênio Special Springs. (ou seja: redução de danos a ferramenta)
- Aumento do conhecimento dos usuários sobre como usar adequadamente os produtos, portanto, aumentando a eficiência de custo e produção.
- Aumento do conhecimento dos usuários sobre a importância de nossas características de segurança do cilindros de Nitrogênio.

## SUPORTE TÉCNICO

A Special Springs é empenhada em fornecer suporte técnico para usuários; Nós fornecemos uma folha de instruções multilíngue completa com cada cilindro ou componente.

### Benefícios

- Aumento de confiança do usuário na utilização dos cilindros de Nitrogênio.
- Segurança aumentada com redução de risco devido ao uso inadequado.
- Economia de custos com eficiência de aumento da produção



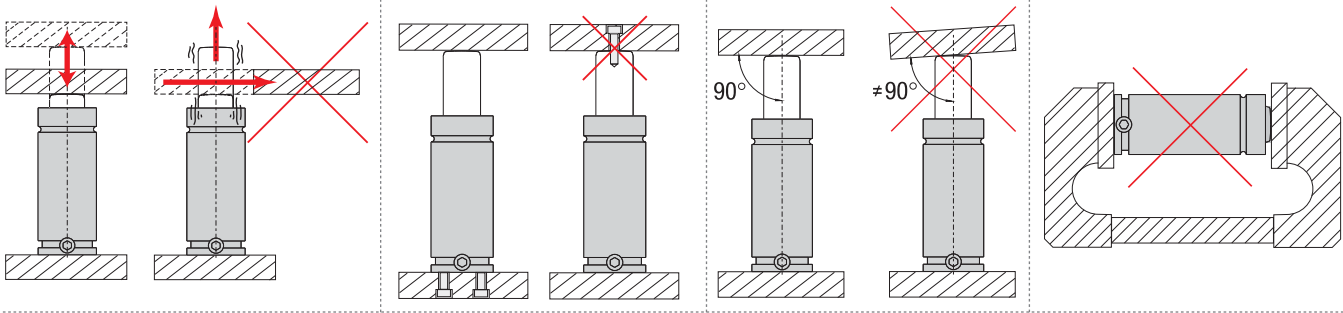
## 2D - 3D CAD FILES

[www.partserver.com](http://www.partserver.com)

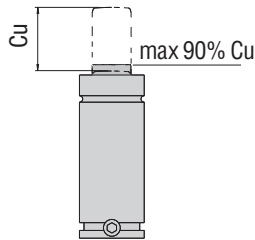




- I** Caricare soltanto con GAS AZOTO (N<sub>2</sub>).
- GB** Charge only with NITROGEN GAS (N<sub>2</sub>).
- D** Gasdruckfedern dürfen nur mit STICKSTOFF GAS (N<sub>2</sub>) gefüllt werden.
- F** Charge seulement avec du GAZ AZOTE (N<sub>2</sub>).
- E** Cargar únicamente con GAS NITROGENO (N<sub>2</sub>).
- P** Carregar somente com GÁS de NITROGÊNIO (N<sub>2</sub>).

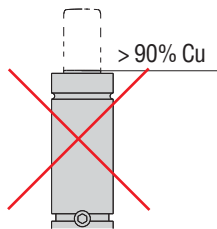


- I** Tutti i cilindri Special Springs sono dotati di riserva corsa da 1 a 3 mm (escluso M90/TBM-TBI-TEM). Quindi il valore nominale Cu è completamente utilizzabile. Si raccomanda comunque di non eccedere il 90% di Cu nell'uso pratico per prevenire eventuali extra-corse, causate da modifiche o errori sugli stampi, con danni irreparabili ai cilindri e gravi rischi per la sicurezza.



- GB** All Special Springs nitrogen cylinders are designed with a stroke reserve from 1 to 3 mm (except M90/TBM-TBI-TEM). Therefore, the nominal value (Cu) is fully applicable. However, it is recommended not to exceed 90% of Cu in practical use in order to avoid the risk of any extra stroke caused by changes or errors in tools. This would result in irreparable damages to the cylinders and serious danger to personnel.

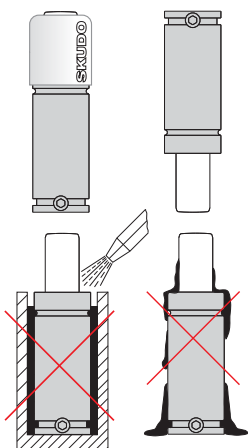
- D** Alle Zylindern Special Springs sind mit einer Hubreserve von 1 ÷ 3 mm ausgestattet (Ausnahme: M90/TBM-TBI-TEM). Daher kann der Nennwert Cu komplett verwendet werden. Wir empfehlen, die 90%-Grenze des Cu-Werts beim praktischen Einsatz nicht zu überschreiten, um einen eventuellen Überlauf zu vermeiden, der durch Änderungen oder Fehler an den Pressformen verursacht werden und irreparablen Schäden an den Zylindern sowie schwerwiegende Sicherheitsrisikos hervorrufen könnte.



- F** Tous les cylindres Special Springs sont munis d'une course de réserve de 1 ÷ 3 mm (sauf M90/TBM-TBI-TEM). Donc, la valeur nominale Cu peut être utilisée complètement. Il est en tout cas conseillé de ne pas dépasser 90% de Cu lors de l'utilisation normale, pour éviter toute course supplémentaire engendrée par des modifications ou des erreurs sur les moules; ce qui entraînerait des dommages irréparables aux cylindres et de graves risques pour la sécurité.

- E** Todos los cilindros Special Springs están dotados de un margen adicional de carrera de 1 ÷ 3 mm (excepto M90/TBM-TBI-TEM). Esto significa que el valor nominal Cu es completamente utilizable. De todos modos, no deja de ser aconsejable no superar el 90% de Cu en el uso práctico, para así prevenir posibles sobre carreras, causadas por modificaciones o errores en los moldes, con daños irreparables a los cilindros y graves riesgos de seguridad.

- P** Todos os cilindros Special Springs dispõem de reserva para pressões súbitas de 1 ÷ 3 mm (excluindo o M90/TBM-TBI-TEM). Assim, o valor nominal Cu é completamente utilizável. Recomenda-se no entanto que não se excedam os 90% de Cu na utilização prática para prevenir eventuais pressões súbitas mais fortes, causadas por modificações ou erros nas estampagens, com danos irreparáveis nos cilindros e graves riscos para a segurança.



- I** In presenza di contaminanti liquidi o solidi utilizzare cilindri con SKUDO. In mancanza di cilindri con SKUDO, un miglioramento significativo si ottiene installando i cilindri capovolti.

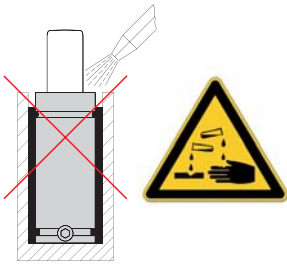
- GB** In presence of liquid or solid contaminants, use cylinders with SKUDO. In absence of cylinders with SKUDO protection, a significant improvement could be obtained by mounting the cylinders in upside-down position.

- D** Bei Aussehen vom Flüssigkeiten und Festkörper, utlisieren Zylindern mit SKUDO. Bei fehlerender vom SKUDO, wird durch Montage der Zylinder in auf den Kopf gesteller Position eine bedeutende Verbesserung erzielt.

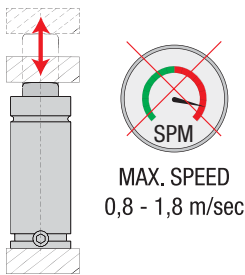
- F** En presence de contaminants liquides ou solides, utiliser les ressorts avec SKUDO. En absence de ressorts avec SKUDO, une amélioration importante peut s'obtenir en montant les cylindres renversés.

- E** En presencia de contaminantes líquidos o sólidos, utilice cilindros con SKUDO. A falta de cilindros con SKUDO, una notable mejora se obtiene montando los cilindros volcados.

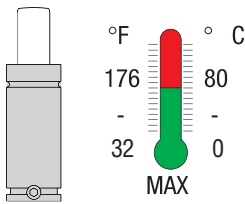
- P** Em presença de contaminadores líquidos o sólidos, usar cilindro com SKUDO. Na falta de cilindro com proteção SKUDO, obtém-se uma significativa melhoria montando os cilindros de cabeça para baixo.



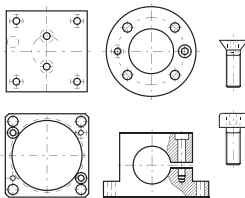
- I** Evitare il contatto di fluidi aggressivi (soda e cloruri) con i cilindri se utilizzati per la pulizia dello stampo si raccomanda di rimuovere dai cilindri ogni residuo.
- GB** Avoid any contact with contaminant (soda or chlorites) on the cylinders. If used for cleaning the tools, we recommend you to carefully remove any remaining liquid from the cylinders.
- D** Werden aggressive Flüssigkeiten (Soda oder Chloride) zur Reinigung des Werkzeugs verwendet, dürfen sie nicht mit den Gasdruckfedern in Kontakt kommen bzw. jeglicher Rückstand davon muss von den Gasdruckfedern entfernt werden.
- F** Eviter le contact des liquides agressifs (soda ou chlorites) avec le cylindres. Si utilisés pour le nettoyage des moules, il est préférable d'enlever tous les restes de liquides nettoyants dans les cylindres
- E** Evite el contacto de productos contaminantes (soda, cloruro) con los cilindros. Si se utilizan para la limpieza de herramientas, recomendamos elimine cuidadosamente cualquier resto de líquido de los cilindros
- P** Evitar qualquer contacto com contaminantes (soda ou cloritos) no cilindro. Se forem usados para limpar ferramentas, recomendamos a remoção de qualquer remanescente de líquido que fique nos cilindros



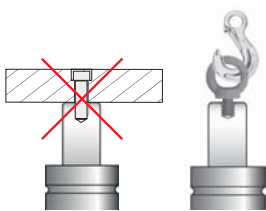
- I** Non confondere la velocità massima con la cadenza massima di cicli/min, come raccomandato in ogni modello.
- GB** Do not confuse the maximum speed with the recommended maximum number cycles/min, as indicated in each family of product.
- D** Die maximale Geschwindigkeit, die für jedes Modell empfohlen wird, darf nicht mit der max. Anzahl an Hübten pro Minute verwechselt werden.
- F** Ne pas confondre la vitesse maximum avec la cadence maximum de cycles/min, ainsi qu'il est recommandé pour chaque modèle de ressort.
- E** No confundir la velocidad máxima con la cadencia máxima de ciclos/min, como se indica en cada modelo.
- P** Não confundir a velocidade máxima com a cadência ciclos/min como recomendado em cada modelo.



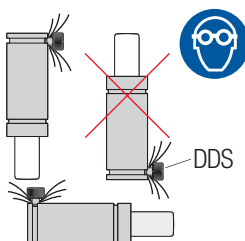
- I** Temperatura di funzionamento
- GB** Operating temperature
- D** Arbeitstemperatur
- F** Température de fonctionnement
- E** Temperatura de funcionamiento
- P** Temperatura de funcionamiento



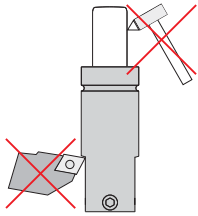
- I** Fissare sempre i cilindri attraverso gli elementi specifici di fissaggio
- GB** Always fix the gas springs directly through the threaded holes on the bottom or with the fixing elements provided
- D** Fixieren Sie die Zylinder direkt mit den spezifischen Befestigungselementen.
- F** Fixer toujours les cylindres à l'aide des éléments spécifiques de fixation.
- E** Fijar siempre los cilindros directamente mediante los elementos de sujeción específicos.
- P** Fixar sempre os cilindros directamente através dos elementos de fixação específicos.



- I** Utilizzare il foro filettato sullo stelo solo per il trasporto di cilindri.
- GB** Use the threaded hole on the rod only for handling.
- D** Die Gewindebohrung an der Kolbenstange ist ausschließlich für den Transport der Gasdruckfedern zu verwenden.
- F** Utiliser le trou fileté sur la tige uniquement pour le transport.
- E** Utilizar el orificio roscado en el vastago solo par transporte.
- P** Utilizar o furo roscado na haste apenas para transporte.



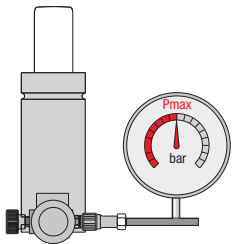
- I** Durante lo scaricamento con l'uso del dispositivo DDS, orientare il flusso del gas in direzione opposta all'operatore.
- GB** When discharging using a DDS device, direct the gas flow away from operator.
- D** Richten Sie den Gasfluss während der Entladung mit Hilfe der DDS-Vorrichtung in die dem Bediener entgegengesetzte Richtung.
- F** Durant le déchargement à l'aide du dispositif DDS, orienter le flux du gaz dans la direction opposée à l'opérateur.
- E** Durante la descarga mediante el dispositivo DDS, orientar el flujo del gas en dirección contraria al operador.
- P** Durante a descarga com a utilização do dispositivo DDS, orientar o fluxo de gás na direção oposta à do operador.



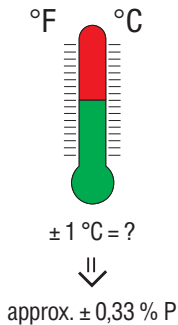
- I** Evitare qualsiasi lavorazione meccanica o impatto su corpo e stelo.
- GB** Avoid any mechanical tooling or impact on the body and the rod.
- D** Vermeiden Sie mechanische Bearbeitungen jeder Art oder sonstige Einwirkungen auf Körper und Kolbenstange.
- F** Éviter toute opération mécanique ou impact sur le corps et la tige.
- E** Evitar toda clase de elaboraciones mecánicas o de impactos en el cuerpo y en el vástago del cilindro.
- P** Evitar qualquer trabalho mecânico ou impacto sobre o corpo e haste.



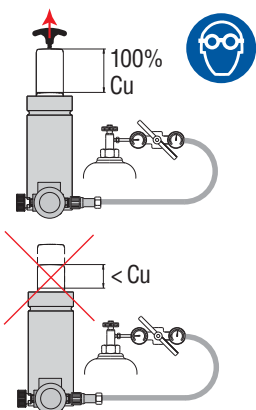
- I** Se un cilindro ha la struttura danneggiata, prima di qualsiasi manipolazione, scaricare completamente la pressione.
- GB** If a cylinder has structural damage, fully exhaust all pressure before any form of handling.
- D** Weist die Struktur eines Gdf. eine Beschädigung auf, muss vor jedem Eingriff der Druck komplett abgelassen werden.
- F** Si la structure d'un cylindre est endommagée, décharger complètement la pression, avant d'effectuer toute opération.
- E** Si un cilindro presenta desperfectos en su estructura, descargar completamente la presión antes de proceder a revisarlo.
- P** Se um cilindro tiver a estrutura danificada, antes de qualquer manipulação, descarregar completamente a pressão.



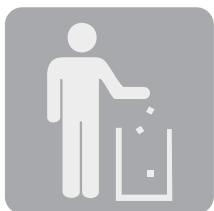
- I** Durante il caricamento non eccedere la pressione massima raccomandata per ogni modello.
- GB** When charging do NOT exceed the maximum recommended pressure for each model.
- D** Überschreiten Sie während der Ladung den für jedes Modell angegebenen Druckwert nicht.
- F** Durant le chargement, il est conseillé de ne pas dépasser la pression maximum recommandée pour chaque modèle.
- E** Durante la carga, no superar nunca la presión máxima aconsejada para cada modelo.
- P** Durante a carga, não exceder a pressão máxima recomendada para cada modelo.



- I** Ogni variazione della temperatura, rispetto al valore nominale di calcolo di 20°C, determina una variazione della pressione del gas (P).
- GB** Any variation in temperature, respect to the nominal calculation value of 20°C, causes a change in gas pressure (P).
- D** Jede Temperatur, die vom berechneten Nennwert (20°C) abweicht, bewirkt eine Änderung des Gasdrucks (P).
- F** Chaque modification de la température, par rapport à la valeur nominale de calcul de 20°C, détermine une modification de la pression du gaz (P).
- E** Toda variación de la temperatura con respecto al valor nominal de cálculo de 20°C, determina una variación de la presión del gas (P).
- P** Qualquer variação da temperatura, no que respeita ao valor nominal de cálculo de 20°C, determina uma variação da pressão do gás (P).



- I** Durante il caricamento assicurarsi che lo stelo sia estratto al 100%. Per cilindri privi di foro filettato sullo stelo, caricare inizialmente con 5 bar (75 psi) per estrarre completamente lo stelo, quindi procedere fino alla pressione desiderata.
- GB** Ensure that the rod is 100% extracted when charging. For cylinders without a threaded hole on the rod, initially charge to 5 bar (75 psi) to extract the rod completely, then charge to the required.
- D** Stellen Sie während der Ladung sicher, dass der Kolbenstange ganz ausgefahren ist. Für Zylinder ohne Gewindebohrung am Kolbenstange laden Sie den Druck zu Beginn bei 5 Bar (75 psi), um den Kolbenstange ganz herauszuziehen. Steigern Sie den Druck danach auf den gewünschten Wert.
- F** Durant le chargement, s'assurer que la tige soit complètement sortie. Les cylindres sans trou fileté sur la tige doivent être chargés initialement sous 5 bars (75 psi) pour extraire complètement la tige; procéder ensuite jusqu'à la pression désirée.
- E** Durante la carga, asegurarse de que el vástago sea extraído al 100%. En cilindros con vástago sin orificio roscado, comenzar con una carga de 5 bar (75 psi) a fin de extraer completamente el vástago. Sólo entonces proseguir cargando hasta alcanzar la presión deseada.
- P** Durante a carga, assegure-se de que o haste esteja totalmente extraído. Para cilindros sem orifício roscado no haste, carregar inicialmente com 5 bar (75 psi) para extrair completamente haste, depois, proceder até à pressão desejada.



- I** Prima di gettare qualsiasi cilindro a gas scaricare completamente la pressione.
- GB** Before disposing of a gas spring ensure that all residual pressure is fully exhausted.
- D** Bevor der Entsorgung eines Gaszylinders muss der Druck komplett abgelassen werden.
- F** Décharger complètement la pression, avant de jeter tout cylindre à gaz.
- E** Nunca tirar un cilindro de gas sin antes haber descargado por completo la presión.
- P** Antes de deitar fora qualquer cilindro a gás, descarregar completamente a pressão.



**I** Per tutti i modelli è indicata nel catalogo sia la forza finale isoterma che politropica.

La forza finale isoterma con 100% Cu, è un valore calcolato in condizioni statiche e può essere considerato sufficiente nell'uso normale dei cilindri.

La forza finale politropica con 100% Cu, è un valore più realistico quando il cilindro è in lavoro. Essendo però la temperatura del gas all'interno del cilindro non costante e dipendente da corsa nominale, corsa di lavoro, velocità della pressa, no. di cicli al minuto, volume del gas, temperatura dell'ambiente e di lavoro, etc. la forza finale politropica dovrebbe essere calcolata caso per caso.

Special Springs, comunque a titolo informativo, indica anche i valori di forza politropica calcolati a regime termico, 100% Cu, ca. 30 SPM, velocità pressa costante e ambiente a ca. 20°C.

Per maggiori informazioni contattare Special Springs.

**GB** On the catalogue it is indicated, for all models, both the isothermal end force, and the polytropic one.

The isothermal end force with 100% Cu, is a value calculated on static conditions and can be considered sufficient for a normal use of cylinders.

The polytropic end force, with 100% Cu, is a more realistic value when the cylinder is working. Though, being the temperature of the gas inside the cylinder not constant, and depending from several factors, the polytropic end force should be calculated case by case. The influencing factors are, for example: nominal stroke, working stroke, press speed, number of cycles per minutes, gas volume, working and environment temperature etc.

Special Springs, for user information, indicates also the values of the polytropic force calculated at thermal regime, 100% Cu, ca 30 SPM, constant press speed and environment at around 20°C.

For any further information, please contact Special Springs.

**D** In unserem Katalog ist für alle Gasdruckfedern sowohl die isotherme als auch die polytrope Endkraft angegeben.

Die isotherme Endkraft bei 100 % Cu ist ein Wert, der unter beinahe statischen Bedingungen ermittelt worden ist und der unter normalen Einsatzbedingungen der Gasdruckfeder als ausreichend genau betrachtet werden kann.

Die polytrope Endkraft bei 100 % Cu ist ein realistischer Wert wenn die Gasdruckfeder in Betrieb ist. Da jedoch die Temperatur des Stickstoffs im Inneren der Gasdruckfeder nicht konstant ist und abhängig ist vom Nominalhub, vom Arbeitshub, der Pressengeschwindigkeit, der Anzahl Zyklen pro Minute, dem Volumen des Stickstoffgases, der Raum- und Arbeitstemperatur, etc. müsste die polytrope Endkraft für jede Anwendung berechnet werden.

Special Springs gibt jedoch zur Information auch den Wert der polytropen Kraft an, der bei stabiler Betriebstemperatur, 100 % Cu, ca. 30 Hübe pro Minute, konstanter Pressengeschwindigkeit und ca. 20 °C Raumtemperatur ermittelt worden ist. Für weitere Informationen wenden Sie sich bitte direkt an Special Springs.

**F** Pour tous les modèles, on indique sur le catalogue, soit la force finale isothermique, que celle polytrophique.

La force finale isothermique, avec 100% de Cu, est une valeur calculée en conditions statiques et peut être considérée suffisante en l'usage normal des cylindres.

La force finale polytrophique, avec 100% de Cu, est une valeur plus réaliste lorsque le cylindre est en travail. Toutefois, étant donné que la température du gaz à l'intérieur du cylindre n'est pas constante et dépend de différents facteurs, tels que: course nominale, course de travail, vitesse de la presse, nombre de cycles par minute, volume du gaz, température de travail et de l'environnement etc., la force polytrophique finale doit être calculé au cas par cas.

Special Springs, cependant, à des fins d'information, indique aussi les valeurs de la force polytrophique calculés au régime thermique, 100% Cu, environ. 30 SPM, presses à vitesse constante et environnement à environ 20 ° C.

Pour tous renseignements complémentaires, contactez Special Springs.

**E** Para todos los modelos, se indica en el catálogo, tanto la fuerza final isotérmica, como la politrópica.

La fuerza final isotérmica con 100% de Cu, es un valor calculado en condiciones estáticas y puede considerarse suficiente en el uso normal de los cilindros.

La fuerza politrópica final con 100% de Cu, es un valor más realista cuando el cilindro está en trabajo. Dado que, sin embargo, la temperatura del gas dentro del cilindro no es constante y depende de varios factores, tales como: carrera nominal, la carrera de trabajo, la velocidad de la prensa, el número de ciclos por minuto, el volumen del gas, la temperatura del medio ambiente y trabajo, etc., la fuerza politrópica final debe calcularse caso por caso.

Special Springs, sin embargo, a efectos informativos, indica los valores de fuerza politrópica calculados a régimen térmico, 100% Cu, ca. 30 SPM, velocidad constante de prensas y ambiente a 20 ° C.

Para más informaciones póngase en contacto con Special Springs.

**P** Para todos os modelos, é indicada no catálogo tanto a força final isotérmica, que a politrópica.

A força final isotérmica com 100% de Cu, é um valor calculado em condições estáticas e pode ser considerada suficiente, em utilização normal dos cilindros..

A força politrópica final com 100% de Cu, é um valor mais realista quando o cilindro estiver em trabalho. Uma vez que, no entanto, a temperatura do gás no interior do cilindro não é constante e depende de vários factores, tais como: curso nominal, o curso de trabalho, a velocidade de impressão, o número de ciclos por minuto, o volume do gás, a temperatura do ambiente e trabalhar etc., o a força politrópica final deve ser calculado caso a caso.

Special Springs, no entanto, para fins de informação, indica os valores de força politrópica calculado a regime térmico, 100% Cu, ca. 30 SPM, velocidade constante de prensas e ambiente a 20 ° C.

Para mais informações contacte Special Springs.

$F_{1i}$   
(isothermal  
end force)

$F_{1p}$   
(polytrophic  
end force)

$$F_0 = P \cdot S$$

- I** Per calcolare la forza iniziale (Fo) di un cilindro a gas è sufficiente moltiplicare la pressione di caricamento massima (P) per l'area di tenuta, stelo o pistone, della guarnizione (S).
- GB** To calculate the initial force of each gas cylinder, multiply the maximum charging pressure (P) to the area of sealing, rod or piston, of the gasket seal.
- D** Zur berechnen der Anfangskraft (Fo) eines Gasdruckfedern, muss man die maximale Ladedruck (P) für die Führungsfläche vom Kolben oder Kolbenstange(S) des Dichtungs, multiplizieren.
- F** Pour calculer la force initiale (Fo) d'un cylindre à gaz, il suffit de multiplier la pression maximum de chargement (P) pour la surface de retenue, tige ou piston, du joint (S).
- E** Para calcular la fuerza inicial (Fo) de un cilindro de gas, se multiplica la presión máxima de carga (P) por el área de junta, vástago o pistón, de la guarnición(S).
- P** Para calcular a força inicial (Fo) de um cilindro a gás, basta multiplicar a pressão de carga máxima (P) pela área de estanquidade do haste/pistão, da guarnição.

$$F_{x_i} = P \cdot S \cdot \left( \frac{1}{1 - \frac{S \cdot C_x}{V_0 \cdot 10}} \right)$$

- I** Per calcolare la forza intermedia isotermica (Fx<sub>i</sub>) o politropica (Fx<sub>p</sub>) di un cilindro a gas ad una determinata corsa di lavoro (Cx) applicare la formula sostituendo i relativi valori numerici .
- GB** To calculate the intermediate isothermal force (Fx<sub>i</sub>) or polytropic (Fx<sub>p</sub>) of a gas cylinder to a determined working stroke (Cx), use the formula by replacing the relative numeric values.
- D** Um die isothermische Zwischen Leistung (Fx<sub>i</sub>), oder polytropische (Fx<sub>p</sub>) einem Gasdruckfedern, bei einem bestimmten Arbeitshub (Cx) Zuberechnen, Sie muessen diese Formel utlisieren, und die relativen Zahlen auszuwechseln.
- F** Pour calculer la force intermédiaire isothermique (Fx<sub>i</sub>) ou polytropique (Fx<sub>p</sub>) d'un ressort à gaz à une course de travail déterminée (Cx), vous devez utiliser cette formule en substituant les chiffres relatifs aux valeurs numériques.
- E** Para calcular la fuerza intermedia isotérmica (Fx<sub>i</sub>) o politrópica (Fx<sub>p</sub>) de un cilindro de gas con una determinada carrera de trabajo (Cx) basta aplicar la fórmula indicada sustituyendo los valores numéricos relativos.
- P** Para calcular a força intermediária isotérmica (Fx<sub>i</sub>) o politrópica (Fx<sub>p</sub>) de um cilindro de gás a um determinado curso de trabalho, você apenas tem de utilizar a seguinte fórmula substituindo os valores numéricos relativos.

$$F_{x_p} = P \cdot S \cdot \left( \frac{1}{1 - \frac{S \cdot C_x}{V_0 \cdot 10}} \right)^{1.58}$$

$$P_n = \frac{F_n}{S}$$

- I** Per determinare la pressione di caricamento necessaria per ottenere una forza (Fn) diversa dalla nominale (Fo) è sufficiente dividere la forza richiesta (Fn) per l'area di tenuta, stelo o pistone, della guarnizione.
- GB** To determine the pressure level required to achieve a force (Fn) different from the nominal one (Fo), divide the required force (Fn) by the area of sealing, rod or piston, of the gasket seal .
- D** Zur Bestimmung des für eine spezifische Leistung (Fn) benötigten Ladedrucks, der vom Nenndruck (Fo) abweicht, muss die benötigte Leistung (Fn) durch die von der Dichtung abgedichteten Fläche an der Kolbenstange oder dem Kolben dividiert werden.
- F** Pour calculer la pression de chargement nécessaire pour obtenir une force (Fn) différente de la force nominale (Fo) il suffit de diviser la force requise (Fn) par la surface d'étanchéité (tige ou piston) du joint.
- E** Para calcular la presión de carga necesaria a fin de obtener una fuerza (Fn) distinta de la nominal (Fo), se divide la fuerza pedida (Fn) por el área de estanquidad, vástago o pistón, de la guarnición.
- P** Para determinar a pressão de carga necessária para obter uma força (Fn) diferente da nominal (Fo), basta dividir a força necessária (Fn) pela área de estanquidade do embolo/pistão, da guarnição.

## Max Speed

- I** Non eccedere la velocità massima dello stelo pistone indicata per ogni modello. Superare tali limiti può avere effetti sulla sicurezza e durata dei cilindri.
- GB** Do not exceed the maximum rod speed indicated for each model. Going beyond that limit could cause bad effects on safety and on the cylinders' duration
- D** Übersteigen Sie für jedes Model die maximaler angegebenen Geschwindigkeit des Kolbestanges nicht. Diese Grenze zu überschreiten, meist schlechte Effekten zum Sicherheit und Lebensdauer des Gassdruckfedern.
- F** Ne pas excéder la vitesse maximale de la tige indiquée pour chaque modèle . Dépasser ces limites peut avoir des effets négatifs sur la sécurité et la durée des cylindres-ressort.
- E** No exceder la velocidad máxima del vástago indicada para cada modelo. Superar dichos límites puede tener efectos sobre la duración y vida útil de los cilindros.
- P** Não exceda a velocidade máxima da haste indicada para cada modelo. Indo além desse limite pode causar efeitos negativos sobre a segurança e sobre a duração dos cilindros.





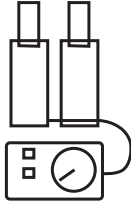
SPM  
 ↓  
 Strokes  
 per  
 Minute

- I** Il numero di cicli al minuto raccomandato per ogni modello è riferito all'utilizzo completo della corsa e si intende per "normali" utilizzi su stampi di tranciatura. Il valore minimo indicato è valido per la corsa più lunga, mentre il valore massimo è riferito alla corsa più corta. Per usi parziali della corsa il numero di cicli al minuto può essere aumentato. Si ricorda che cadenze di lavoro maggiori ai valori raccomandati possono avere effetti sulla durata di lavoro. Contattare Special Springs per maggiori informazioni.
- GB** The recommended number of cycles per minute for each model is referred to the complete use of the stroke and is intended for "normal" uses on cut moulds. The minimum amount indicated is to be considered for the longest stroke, while the maximum amount is referred to the shortest stroke. In case of partial use of the stroke, the number of cycles per minute could increase. We remind you that higher working frequencies respect of the recommended ones may have negative effects on the work duration. Please contact Special Springs to have further details.
- D** Den empfohlenen Hube/min Ziffer für jede Model bezieht sich auf die gesamte Nennhub und ist vereinbart für normalen Nutzungen im Schneiderung Pressformen. Der mindesten Richtwert ist gültig für die längerer Hub, während der maximalen Richtwert sich auf die kürzerer Hub bezieht. Für partielle Nutzungen, der Nummer des Hube/min wurde vermehrt sein. Erinnern Sie dass höher Arbeitsperiode zu den empfohlenen Wert, schlechte Effekte zur Arbeitsdauer haben können. Bitte melden Sie an Special Springs für alle mehrere Informationen.
- F** Le nombre de cycles par minute recommandés pour chaque modèle est référé à l'usage complet de la course et s'entend pour des usages «normaux» dans des moules de tranchage. La valeur minimale indiquée est valable pour la course plus longue, alors que la valeur maximale est référée à la course plus courte. Pour les usages partiels de la course le nombre des cycles par minute peut augmenter. On vous rappelle que des cadences de travaux majeures respect aux valeurs recommandés peuvent avoir des effets négatifs sur la durée du travail. Contactez Special Springs pour tous renseignements complémentaires.
- E** El número de ciclos por minuto recomendado para cada modelo está basado en la utilización de la carrera completa y para un proceso de estampado "normal". El valor mínimo indicado es válido para carrera máxima, mientras que el valor máximo se refiere a carrera mínima. Para usos parciales de la carrera el número de golpes por minuto puede aumentar. Se recuerda que cadencias de trabajo superiores a los valores recomendados pueden tener efectos sobre la vida del cilindro. Contactar con Special Springs en caso de necesitar más información.
- P** Pancadas por minuto. A quantidade recomendada de ciclos por minuto para cada modelo é referida a utilização completa do curso e é destinada para uso "normal" em moldes de corte. A quantidade mínima indicada, deve ser considerado para o curso mais longo, enquanto que a quantidade máxima é referido a menor curso. No caso de utilização parcial do curso, o número de ciclos por minuto, poderiam aumentar. Nós lembramos que uma maior cadência de trabalho que as recomendadas pode ter efeitos negativos sobre a duração do trabalho. Entre em contacto com a Special Springs para obter mais detalhes.

LIFE WARRANTY

- I** Se correttamente installati e in normali condizioni di lavoro, i cilindri ad azoto Special Springs sono garantiti per una durata di **200.000 metri lineari** di corsa. Condizioni di lavoro critiche o cause esterne che provochino mal funzionamenti possono ridurre, anche significativamente, la durata. La garanzia è valida per la durata indicata entro **2 anni** dalla data di acquisto. Utilizzi difformi dalle prescrizioni e dalle linee guida specificate e fornite con i prodotti o danni meccanici saranno causa di immediata decadenza della garanzia. **Termini legali di garanzia su [www.specialsprings.com](http://www.specialsprings.com)**
- GB** If correctly installed and in normal working conditions, the nitrogen cylinders Special Springs can guarantee a life of **200.000 linear meters** of stroke. Heavy working conditions or external causes that would cause malfunctioning may reduce the life significantly. The warranty is valid for the indicated life within **2 years** from the purchase date. Either any different use respect of the prescriptions and guidelines provided and specified with the products, or mechanical damages would cause the immediate warranty decadenza. **Warranty legal terms on [www.specialsprings.com](http://www.specialsprings.com)**
- D** Bei korrektem Einbau und unter normalen Betriebsbedingungen, ist für die Special Springs Gasdruckfedern eine Lebensdauer von 200.000 m Gesamthub gewährleistet. Kritische Betriebsbedingungen oder äußere Einflüsse, die zu Störungen führen, können die Lebensdauer wesentlich verringern. Die Garantie gilt für die angegebene Dauer innerhalb von zwei Jahren ab Kaufdatum. Die Garantie erlischt mit sofortiger Wirkung bei von den Vorschriften und Richtlinien, die zusammen mit den Produkten geliefert werden, abweichendem Einsatz bzw. mechanischer Beschädigung. **Garantiebedingungen siehe [www.specialsprings.com](http://www.specialsprings.com)**
- F** Si correctement installées et avec des normales conditions d'usage, les ressorts à l'azote Special Spring sont garantis pour une durée de **200.000 mètres linéaires** des course. Des conditions de travail critiques ou d'autres cause externes qui provoquent des mal fonctionnements pourraient réduire, même significativement, la durée. La garantie est valable pour la durée indiquée entre **2 ans** de la date d'achat. Des utilisations différentes des prescriptions des lignes-guide spécifiées et fournies avec les produits, ou encore des endommagements mécaniques causeront l'immédiate décadence de la garantie. **Termes juridiques de garantie sur [www.specialsprings.com](http://www.specialsprings.com)**
- E** Con una instalación correcta y en condiciones normales de trabajo, los cilindros resorte de nitrógeno de Special Springs están garantizados para una duración de **200.000 metros lineales** de carrera. Condiciones de trabajo críticas o causas externas que provoquen funcionamientos incorrectos pueden reducir, incluso de manera significativa, la vida útil. La garantía es válida para la duración indicada, máximo **2 años** desde fecha de compra. Usos diferentes a los prescritos y a las líneas guía especificadas y suministradas con el producto o daños mecánicos serán causa inmediata decadenza de la garantía. **Términos legales de garantía en [www.specialsprings.com](http://www.specialsprings.com)**
- P** Se correctamente instalados e em condições normais de trabalho, os cilindros de nitrogênio Special Springs podem garantir uma duração de **200.000 metros lineares** de curso. Condições críticas ou causas externas que possam causar mau funcionamento de trabalho pode reduzir a duração de uma forma significativa. A garantia é válida durante o período indicado dentro de **2 anos** até a data de compra. Ou qualquer uso diferente respeito das prescrições e orientações fornecidas e especificada com os produtos, ou danos mecânicos causaria a decadenza garantia imediata. **Termos legais de garantia em [www.specialsprings.com](http://www.specialsprings.com)**

## NON SELF CONTAINED



**I** Tutti i cilindri collegabili a sistema e specificatamente codificati ( \_\_ - N / \_\_ - NA) sono forniti senza valvola unidirezionale, senza pressione e con il solo tappo di chiusura del foro di collegamento (escluso M90, M200, RV170, RV320). Nel caso si desideri trasformare dei cilindri autonomi in cilindri collegabili a sistema è sufficiente ordinare i raccordi e i tubi necessari e seguire le istruzioni specifiche per ogni serie pubblicate nel sito [www.specialsprings.com](http://www.specialsprings.com).

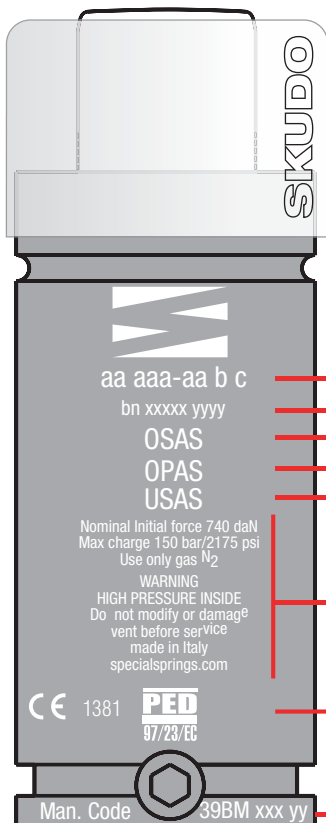
**GB** All cylinders which can be connected to the system and are specifically coded ( \_\_ - N / \_\_ - NA) are supplied without the one-way valve, without pressure and with only the closure plug of the connection hole (excluding M90, M200, RV170, RV320). If you wish to convert independent cylinders into system-connectable cylinders, order the necessary hoses and connections, and follow the specific instructions for every series published on site [www.specialsprings.com](http://www.specialsprings.com).

**D** Alle in das System integrierbaren und speziell kodierten Zylinder ( \_\_ - N / \_\_ - NA) werden ohne Rückschlagventil, ohne Druck und nur mit dem Verschlussdeckel der Anschlussöffnung geliefert (ausgenommen M90, M200, RV170, RV320). Sollten eigenständige Zylinder in an das System anschlussfähige Zylinder umgebaut werden sollen, genügt es, die erforderlichen Anschlüsse und Leitungen zu bestellen sowie die für die jeweilige Serie auf der Internetseite [www.specialsprings.com](http://www.specialsprings.com) veröffentlichten Hinweise zu beachten.

**F** Tous les cylindres qui peuvent être raccordés au système et qui possèdent un code d'identification spécifique ( \_\_ - N / \_\_ - NA) sont fournis sans valve unidirectionnelle ni pression. Seul le bouchon de fermeture de l'orifice de raccordement est fourni (sauf M90, M200, RV170, RV320). Au cas où l'on souhaiterait transformer des cylindres autonomes en cylindres à système raccordables, il suffira de commander les raccords et les tubes nécessaires puis de suivre les instructions spécifiques de chaque série, publiées sur le site [www.specialsprings.com](http://www.specialsprings.com).

**E** Todos los cilindros que se pueden conectar al sistema, específicamente codificados ( \_\_ - N / \_\_ - NA), se suministran sin válvula unidireccional y sin presión, sólo con el tapón de cierre del orificio de conexión (menos M90, M200, RV170, RV320). Si se desea transformar cilindros autónomos en cilindros conectables a sistema, es suficiente pedir los empalmes y los tubos necesarios y seguir las instrucciones específicas para cada serie publicadas en el sitio [www.specialsprings.com](http://www.specialsprings.com).

**P** Todos os cilindros que podem ser ligados ao sistema e especificamente codificados ( \_\_ - N / \_\_ - NA) são fornecidos sem válvula unidireccional, sem pressão e somente com a tampa de fechamento do furo de ligação (Não incluída M90, M200, RV170, RV320). Caso queira-se transformar cilindros autónomos em cilindros acopláveis ao sistema, basta encomendar as conexões e tubos necessários e seguir as instruções específicas para cada série, publicadas no site [www.specialsprings.com](http://www.specialsprings.com).



- I**
- Codice modello
  - Indice revisione
  - Versione collegabile a sistema
  - Lotto di produzione
  - Info generali
  - Soggetto a marchiatura CE/PED 97/23/EC
  - Sicurezza attiva oltre corsa
  - Sicurezza attiva oltre pressione
  - Sicurezza attiva ritorno incontrollato
  - kit manutenzione

- GB**
- Model code
  - Revision indicator
  - Hosed-system version
  - Batch number
  - General info
  - Subject to OE/PED 97/23/EC
  - Over stroke active safety
  - Over pressure active safety
  - Uncontrolled speed active safety
  - Maintenance kit

- D**
- Modellcode
  - Revisionsindex
  - Version kann an das System angeschlossen werden
  - Produktionsposten
  - Allgemeine Informationen
  - Unterliegt der OE/PED-Kennzeichnung gemäß Richtlinie 97/23/EG
  - Aktiven überhubsicherung
  - Aktive überdruck-sicherheitsvorrichtung
  - Aktiver Schutz bei Unkontrolliertem Rückhub
  - Wartung set

- F**
- Référence modèle
  - N de révision
  - Version pouvant être reliée à un système
  - Lot de production
  - Information générales
  - Peut être marqué CE/PED 97/23/EC
  - Securite active outre-course
  - Securite active outre-pression
  - Securité Active pour Retour Incontrôlé.
  - Set manutention

- E**
- Código de modelo
  - Indicador de revisión
  - Versión conectable a sistema
  - Lote de producción
  - Información general
  - Sujeto a marcado CE/PED 97/23/EC
  - Seguridad activa de fin de carrera
  - Seguridad activa ultra presión
  - Seguridad Activa de Retorno Incontrolado.
  - Set mantenimiento

- P**
- Código do modelo
  - Índice de revisão
  - Versão que pode ser ligada em sistema
  - Lote de produção
  - Informações gerais
  - Sujeito a marcação OE/PED 97/23/EC
  - Segurança ativa mecânica
  - Segurança ativa sobrepressão
  - Segurança para Retorno da Haste.
  - Manutenção de conjunto



**I** TUTTI i cilindri ad azoto SPECIAL SPRINGS soddisfano la Direttiva Europea sui recipienti in pressione 97/23/CE. La Direttiva Europea sui recipienti in pressione 97/23/CE, entrata in vigore per tutta la comunità europea il 29 Maggio 2002, regola e definisce come attrezzature a pressione, i recipienti, le tubazioni ed accessori costruiti per contenere fluidi pressurizzati quando la pressione massima ammissibile PS del fluido è > di 0,5 bar. Più specificatamente, la Direttiva 97/23/CE prevede la classificazione in categorie (I, II, III), con marchiatura CE e numero identificativo del produttore (obbligatoria per II e III, facoltativa per I) per i recipienti il cui risultato della pressione P (bar) x il volume del fluido Vo (dm<sup>3</sup>) è => di 50. Tutti i cilindri a gas il cui prodotto P x Vo è < 50 rientrano nell'art. 3.3 della direttiva e la marchiatura CE non si applica.

**GB** ALL the nitrogen cylinders Special Springs totally satisfy the European Directive on pressure devices 97/23/EC. The European Directive on pressure equipments 97/23/EC, entered into force on 29th May 2002 for all European Community, prescribes and defines as pressure equipments the receptacles, the tubes and accessories built to contain pressurized fluids when the maximum acceptable pressure PS of the fluid is > of 0.5 bar. In particular, the directive 97/23/EC foresees the classification into categories (I,II,III) with EC mark and identification number of producer (mandatory for II and III, discretionary for I) for containers by which result of pressure P(bar) X fluid volume Vo(dm<sup>3</sup>) is => of 50. All the gas cylinders by which result of P x Vo is < 50 are subject to the article 3.3 of the same directive and the mark EC should not be applied.

**D** ALLE die Stiffstoffgasdruckfedern SPECIAL SPRINGS befriedigen die Richtlinie über Druckgeräte 97/23/EG. Diese Richtlinie über Druckgeräte 97/23/EG, die der 29. Mai 2002 in kraft gewesen war, reglementiert und beschreibt als „druckausrüstungen“ die Behältern, leitungen und zubehören gebauten um unter Überdruck Flüssigkeiten zu enthalten, wenn die maximaler akzeptabel Druck des Flüssigkeit PS ist > vom 0.5 bar. Im einzelnen, Die richtlinie 97/23/EG vorraussieht eine klassifikation in kategorien (I,II,III) mit EG kennzeichnung und identifikations nummer vom dem Hersteller (obligatorisch für II und III, fakultativ für I) für Behälter denen resultat vom Druck P (bar) X Volumen des Flüssigkeit Vo (dm<sup>3</sup>) ist => vom 50. Alle Gasdruckfedern denen Ergebnis P X Vo ist < 50, folgen den artikel 3.3 der Gleiche Richtlinie und die EG kennzeichnung ist nicht aufzuerlegen.

**F** TOUS le cylinder-ressorts à l'azote SPECIAL SPRINGS satisfont la Directive Européenne sur les récipients en pression 97/23/CE. La Directive Européenne sur les récipients en pression 97/23/CE, entrée en vigueur pour toute la Communauté Européenne le 29 Mai 2002, réglemente et définit comme "Equipement en pression" les récipients, les tuyaux, les condites et accessoires fabriqués pour contenir des fluides pressurisés quand la pression maximale ammissible PS du fluide est > de 0.5 bar. Plus spécifiquement, La Directive 97/23/CE prévoit la classification en catégories (I,II,III), avec marquage CE et numéro identifiatif du producteur (obligatoire pour II et III et facultatif pour I), pour les recipients dont le resultat de la pression P (bar) X le volume du fluide Vo (dm<sup>3</sup>) est => de 50. Tous les cylindres à gaz dont le produit de P X Vo est < 50 sont réglementés par l'article 3.3 de la même directive et le marquage CE n'est pas à effectuer.

**E** TODOS los cilindros de nitrógeno SPECIAL SPRINGS son conformes a la Directiva Europea sobre recipientes de presión 97/23/CE. La Directiva Europea sobre recipientes de presión 97/23/CE, que entró en vigor en toda la Comunidad Europea el 29 de mayo de 2002, reglamenta y define como elementos de presión, los recipientes, tubos y accesorios construidos para contener fluidos presurizados cuando la presión máxima admisible PS del fluido es > a 0,5 bar. Más concretamente, la directiva 97/23/CE prevé la clasificación en categorías (I,II,III), con marcaje CE y número identificativo del fabricante (obligatoria para II y III, facultativa para I) para los recipientes cuyo resultado de la presión P (bar) x el volumen del fluido Vo (dm<sup>3</sup>) sea => a 50. Todos los cilindros de gas con P x Vo < 50 entran en el artículo 3.3 de la directiva y el marcaje CE no se aplica.

**P** TODOS os cilindros de nitrogénio Special Springs satisfazem totalmente a Directiva Europeia para dispositivos de pressão 97/23/CE, que entraram em vigor em 29 de Maio de 2002 para toda a comunidade Europeia, prescreve e define os equipamentos receptáculos, os tubos e acessórios montados para conter a os fluidos pressurizados quando a pressão máxima aceitável PS de fluido > de 0.5 bar. Em particular, a directiva 97/23/CE prevê a classificação em categorias (I,II,III) com CE marcadas e com numero de identificação de produtor (obrigatório para II e III, discricionário para I) para recipientes cujo o resultado de pressão P (bar) X volume fluido Vo(dm<sup>3</sup>) é => a 50. Todos os cilindros de gás, através da qual resultam P x Vo é < 50 estão sujeitos ao artigo 3.3 da mesma directiva e da marca CE não deve ser aplicada.

## PED 97/23/EC



**I** Si raccomanda ai costruttori di stampi di consegnare con le attrezzature i fogli di istruzione e uso allegati ai cilindri e agli accessori forniti da Special Springs.

**GB** We recommend all die-makers to deliver all tools with the instructions sheets provided with cylinders and accessories supplied by Special Springs.


**D** Werkzeugbauern wird empfohlen, zusammen mit dem Werkzeug die Gebrauchsanweisung, die den Gasdruckfedern und Zubehörteilen von Special Springs beiliegt, mitzuliefern.

**F** Nous conseillons à tous les outilleurs de fournir leurs outils accompagnés de la fiche d'instruction sur les ressorts gaz et accessoires établie par Special Springs.



**E** Se recomienda a los troquelistas acompañar los troqueles con las instrucciones de los cilindros y accesorios Special Springs.

**P** Recomenda-se aos constructores de ferramentas, entregar juntamente com a ferramenta a documentação e intruções de uso de cilindros, e respectivos acessórios fornecidos pela Special Springs.



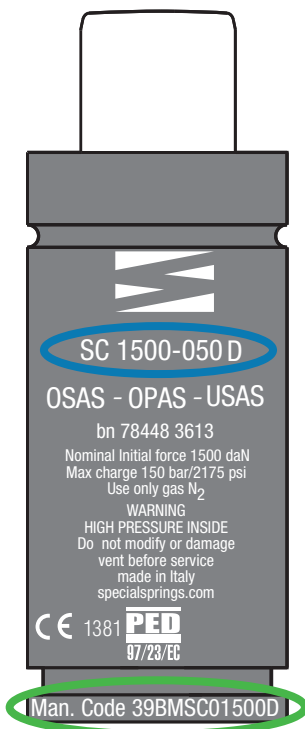
- 
- I** Qualora, dopo un lungo funzionamento o per applicazioni particolarmente gravose, si verificassero delle perdite di pressione, significa che le tenute hanno iniziato ad usurarsi o sono state danneggiate. E' quindi possibile, con l' uso di appositi utensili e kits ed il supporto di specifici video e dettagliate istruzioni, ripristinare le condizioni originarie di tenuta e guida. Solo personale qualificato dovrebbe eseguire la manutenzione. Eventuali errori possono essere causa di gravi rischi per la sicurezza o limitare la durata dei cilindri. Prima di eseguire qualsiasi intervento scaricare completamente la pressione e assicurare che lo stelo sia completamente compresso nel corpo.
  - GB** If pressure losses occur after extended use or particularly heavy applications, this indicates that the sealing gaskets are worn or damaged. Using special tools and kits, and with the support of videos and detailed instructions, it is possible to restore the original seal and guide conditions. Maintenance must only be conducted by qualified personnel. Errors would cause serious injury or reduce the working life of the cylinders. Before carrying out any work on the system, fully exhaust all pressure and ensure that the rod is fully retracted into the body.
  - D** Wird nach langer Betriebstätigkeit oder besonders beanspruchender Verwendung ein Druckverlust festgestellt, bedeutet dies, dass die Dichtungen allmählich abgenutzt sind oder beschädigt wurden. Es ist mit Hilfe von zweckmäßigem Werkzeug oder Sets sowie spezifischen Videos und detaillierten Anweisungen möglich, die Ausgangsbedingungen von Dichtung und Führung wiederherzustellen. Die Wartung sollte nur von qualifiziertem Personal vorgenommen werden. Etwaige Fehler können schwerwiegende Sicherheitsrisiken hervorrufen oder die Lebensdauer der Zylinder einschränken. Entladen Sie den Druck und stellen Sie sicher, dass der Schaft komplett in den Körper eingeführt ist, bevor Sie Eingriffe vornehmen.
  - F** Si des pertes de pression se produisent après un long fonctionnement ou avec des applications particulièrement lourdes, cela signifie que les joints de retenue ont commencé à s'usurer ou qu'ils sont endommagés. L'utilisation d'outils et de kits appropriés, ainsi que le support de vidéos spécifiques et d'instructions détaillées permettront de rétablir les conditions d'origine de retenue et de guidage. La maintenance doit être effectuée uniquement par du personnel qualifié. Les éventuelles erreurs peuvent engendrer de graves risques pour la sécurité ou limiter la durée de vie des cylindres. Avant d'effectuer toute opération, décharger complètement la pression et s'assurer que la tige soit complètement comprimée dans le corps.
  - E** Si, después de mucho tiempo funcionando, o en caso de aplicaciones muy pesadas, se produjesen pérdidas de presión, significa que las guarniciones han comenzado a desgastarse o han sufrido algún desperfecto. En esos casos es perfectamente posible restablecer las condiciones originales de la guarnición o la guía mediante kits de herramientas especiales y videos de instrucciones específicas. El mantenimiento debe ser efectuado única y exclusivamente por personal cualificado. Cualquier error podría causar graves riesgos de seguridad o limitar la vida útil de los cilindros. Antes de cualquier reparación, descargar completamente la presión y asegurarse de que el vástago quede completamente
  - P** No caso em que, após um longo funcionamento ou por aplicações particularmente gravosas, se verificarem perdas de pressão, isso significa que os vedantes começaram a desgastar-se ou foram danificadas. Portanto, com a utilização dos utensílios e dos conjuntos, com o apoio de vídeos específicos e de instruções detalhadas é possível restabelecer as condições originais de estanquidade e guidamento. A manutenção só deve ser executada por pessoal qualificado. Erros eventuais podem ser a causa de riscos graves para a segurança ou limitar a duração dos cilindros. Antes de executar qualquer intervenção, descarregar completamente a pressão e assegurar-se de que o embolo recolhido.

Download video and step-by-step guide instructions at:  
<http://www.specialsprings.com/en/content/maintenance-manuals>

- 
- PED 97/23/EC
- 
- I** Come previsto dalle linee guida della direttiva PED 97/23/CE l'azienda che provvede alla manutenzione dei cilindri marchiati CE dal fabbricante ( $P \times V_o \geq 50$ ) si assume la completa responsabilità di far riesaminare gli stessi da un ente di certificazione accreditato. Diversamente tali manutenzioni potranno essere effettuate esclusivamente da Special Springs.
  - GB** As the guidelines of the PED 97/23/EC instruction provide for, the company that arranges the maintenance of the cylinders laser etched EC by the producer ( $P \times V_o \geq 50$ ), takes charge of making them checked by a certified and qualified company. Otherwise, these maintenances could be carried out exclusively by Special Springs.
  - D** Wie in der Richtlinie PED 97/23/EG vorgeschrieben übernimmt die Firma, die die Instandhaltung von Gasdruckfedern durchführt, die vom Hersteller mit EG-Kennzeichnung versehen worden sind ( $P \times V_o \geq 50$ ), die volle Verantwortung dafür, diese von einer zugelassenen Zertifizierungsanstalt nachprüfen zu lassen. Andernfalls können diese Instandhaltungsarbeiten ausschließlich von Special Springs durchgeführt werden.
  - F** Selon le mode prévu par les indications de la directive PED 97/23/CE, l'entreprise qui s'occupe de l'entretien des cylindres marqués CE par le producteur ( $P \times V_o \geq 50$ ), assume la responsabilité de les faire réexaminer par un institut de certification qualifié. Autrement, les entretiens peuvent être effectués exclusivement par Special Springs.
  - E** Como las indicaciones de la directiva PED 97/23/CE estipulan, la empresa que provee al mantenimiento de los cilindros grabado CE por el productor ( $P \times V_o \geq 50$ ), se hace cargo de que una empresa certificada y capacitada les controle. De otra manera los mantenimientos pueden ser llevado exclusivamente por Special Springs.
  - P** De acordo com as directizes PED 97/23/CE a fabrica que fornece a manutenção dos cilindros com a marca CE do fabricante ( $P \times V_o \geq 50$ ) assume a responsabilidade de reexaminar os mesmos por uma entidade de certificação creditada. De outra forma tais manutenções poderão ser efectuadas exclusivamente pela Special Springs.



## How to Order



## Maintenance kits



- I** Se il codice Man. Code non è riportato sul cilindro: 39BM + Codice modello + revisione.
- GB** If Man. Code is not indicated on the cylinder, order: 39BM + Model code + revision.
- D** Wenn Man. Code auf der Gasdruckfeder nicht vorhanden, bestellen Sie 39BM + Modellcode + revision.
- F** Si le Man. Code n'est pas indiqué en le cylindre, ordonnez 39BM + Référence modèle + révision.
- E** Si el Man. Código no está indicado en el cilindro, ordenar 39BM + Código de modelo + revisión.
- P** Se a referencia Man Code não estiver escrita no cilindro, favor solicitar 39BM + Código de modelo + revisão.

**EXAMPLE: 39BMSC1500D**

- I** Se presente nel cilindro, riportare il codice Man. Code in fase di ordinazione.
- GB** If Man. Code is indicated on the cylinder, specify it on the order.
- D** Wenn Man. Code auf der Gasdruckfeder vorhanden, bitte in der Bestellung angeben.
- F** Si le Man. Code est indiqué en le cylindre, précisez-le dans l'ordre.
- E** Si el Man. Code está indicado en el cilindro, especificarlo en el orden.
- P** Se indicado no cilindro, indique o Man. Code na ordem.

**EXAMPLE: 39BMSC01500D**



- I** Kit inclusivo di: Boccola assemblata, Valvola unidirezionale, Olio lubrificante e grasso, Istruzioni di montaggio.
- GB** Kit made of: Assembled bushing, one way valve, lubricant and grease, instructions sheet.
- D** Set beinhaltet: montierte Buchse, Rückschlagventil, Schmieröl und Schmierfett, Montageanleitung.
- F** Kit comprenant: Douille assemblée, Soupape à sens unique, Huile lubrifiante et graisse, Instructions pour le montage.
- E** El Kit incluye: casquillo ensamblado, Válvula unidireccional, Aceite lubricante y grasa, Instrucciones de montaje.
- P** Kit com: Bucha ensamblada, Válvula unidireccional, Óleo lubrificante e graxa, Instruções de montagem.

## Less Space

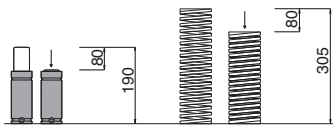
Minore spazio - Less Space - Weniger Platz - Moins d'espace - Menos espacio - Menos espaço



- I** VANTAGGI Notevole riduzione della superficie occupata. Notevole riduzione dello spazio in altezza. Notevole riduzione del volume occupato. Eliminazione dei dispositivi di precarico e guidaggio.  
RISULTATO Notevole risparmio economico.
- GB** BENEFITS Considerable reduction of required surface. Considerable reduction of height. Considerable reduction of occupied volume. Considerable reduction of retaining and pre-load devices.  
RESULT Great saving of money.
- D** VORTEILE Wesentliche Reduzierung der benötigten Fläche. Wesentliche Reduzierung der benötigten Höhe. Wesentliche Reduzierung des benötigten Raums. Entfall der Vorrichtungen zum Vorspannen und Führen.  
ERGEBNIS Große Kosteneinsparung.
- F** ADVANTAGES Réduction importante de la surface occupée. Réduction importante de l'espace en hauteur. Réduction importante du volume total occupé. Réduction importante du nombre de dispositifs de précharge et guidage.  
RESULTAT Épargne économique important.
- E** VENTAJAS Notable reducción de la superficie ocupada. Notable reducción de espacio en altura. Notable reducción del volumen ocupado. Eliminación de dispositivos de precarga y guía.  
RESULTADO Notable ahorro económico.
- P** VANTAGENS Redução notável da superfície ocupada. Redução notável do espaço em altura. Redução notável do volume ocupado. Eliminação de dispositivos de pré-carga e guidamento.  
RESULTADO Poupança económica notável.

## Less Height

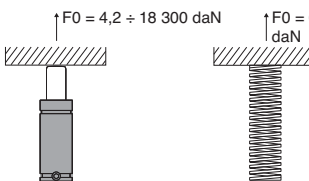
Minore altezza - Less Height - Weniger Höhe - Moins de hauteur - Menos altura - Menos altura



- I** VANTAGGI Notevole riduzione degli ingombri in altezza a parità di forza e corsa. Costruzione dello stampo più compatta.  
RISULTATO Notevole risparmio economico.
- GB** BENEFITS Considerable height reduction for the same working deflection and force. Compact tool construction.  
RESULT Great saving of money.
- D** VORTEILE Wesentliche Reduzierung des Höhenbedarfs bei gleichem Hub und gleicher Kraft. Kompaktere Werkzeugkonstruktion.  
ERGEBNIS Große Kosteneinsparung.
- F** ADVANTAGES Réduction importante des encombrements en hauteur avec une course et une force équivalente. Construction plus compacte de l'outillage.  
RESULTAT Épargne économique important.
- E** VENTAJAS Notable reducción de la altura de los volúmenes con igual fuerza y recorrido. Construcción más compacta del molde.  
RESULTADO Notable ahorro económico.
- P** VANTAGENS Redução notável em altura com igual força e curso. Construção mais compacta da Ferramenta.  
RESULTADO Poupança económica notável.

## Large Forces

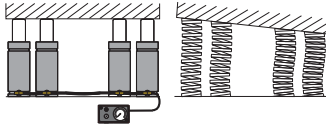
Maggiore forza - Large Forces - Große Kräfte - Grandes forces - Grandes fuerzas - Grande Potência



- I** VANTAGGI Eliminazione precarico. Maggiore facilità di applicazione.  
RISULTATO Notevole risparmio economico.
- GB** BENEFITS No pre-load. Easier and quicker fitting.  
RESULT Great saving of money.
- D** VORTEILE Entfall der Vorspannung. Einfachere Anwendung.  
ERGEBNIS Große Kosteneinsparung.
- F** ADVANTAGES Elimination de la précharge. Application plus facile.  
RESULTAT Épargne économique important.
- E** VENTAJAS Eliminación de la precarga. Mayor facilidad de aplicación.  
RESULTADO Notable ahorro económico.
- P** VANTAGENS Eliminação da pré-carga. Maior facilidade de aplicação.  
RESULTADO Poupança económica notável.

## Controlled Forces

Forza controllata - Controlled Forces - Kontrollierte Kräfte - Forces contrôlées - Fuerzas controladas - Potência Controlada

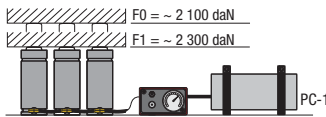


- I** VANTAGGI Forza sempre bilanciata in tutti i punti di contatto. Forza posizionabile esattamente dove richiesto nello stampo. Visualizzazione continua della pressione.  
RISULTATO Migliore e costante qualità dei pezzi stampati. Maggiore durata utensili. Risparmio economico.
- GB** BENEFITS Balanced force on each contact point. Forces may be positioned exactly where required. System may be constantly monitored for pressure.  
RESULTS Constant production conditions of piece-parts. Longer life for punches and tools. Money saving.
- D** VORTEILE Stets ausgeglichene Kraft an allen Kontaktpunkten. Kraft exakt an den erforderlichen Stellen des Werkzeug positionierbar. Ständige Anzeige des Betriebsdrucks.  
ERGEBNIS Bessere und konstante Qualität der zu fertigenden Teile. Längere Lebensdauer der Werkzeuge. Kosteneinsparung.
- F** ADVANTAGES Force toujours équilibrée et égale en tous points de contact. Force que l'on peut positionner exactement là où elle est exigée dans l'outil. Visualisation continue de la pression dans le système.  
RESULTATS Qualité supérieure et constante des produits découpés ou emboutis. Longévité accrue des outils. Épargne économique.
- E** VENTAJAS Fuerza siempre equilibrada en todos los puntos de contacto. Fuerza posicionable exactamente donde se precisa en el molde. Visualización continua de la presión  
RESULTADO Mejor calidad y constante de las piezas moldeadas. Mayor duración de las herramientas. Notable ahorro económico.
- P** VANTAGENS Força sempre equilibrada em todos os pontos de contacto. Força posicionável exactamente onde é necessária na Ferramenta. Visualização contínua da pressão  
RESULTADO Melhor e constante qualidade das peças estampadas. Maior duração das ferramentas. Poupança económica notável.

BENE  
FITS

## Almost Constant

Quasi costante - Almost Constant - Fast konstant - Praticamente constantes - Prácticamente constante - Quase Constante

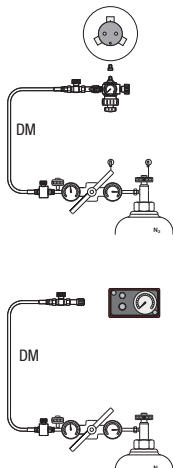


es.:  
n.3 H1000 - 50  
(F0 ~ 700 daN)  
P = 100 bar

- I** VANTAGGI Migliore controllo del materiale durante le fasi di formatura e imbutitura.  
RISULTATO Migliore qualità dei pezzi stampati. Minori scarti di produzione. Risparmio economico.
- GB** BENEFITS Maximum control of piece-parts during forming and drawing operations.  
RESULTS Controlled production conditions on piece-parts. Less rejection of piece-parts. Money saving.
- D** VORTEILE Bessere Kontrolle des Werkstücks beim Formen und Ziehen.  
ERGEBNIS Bessere Qualität der fertigen Werkstücke. Weniger Ausschuss. Kosteneinsparung.
- F** ADVANTAGES Un meilleur contrôle de la pièce durant les phases de découpage ou d'emboutissage.  
RESULTATS Une meilleure qualité des pièces découpées ou embouties. Une quantité moindre de rebuts en production. Épargne économique.
- E** VENTAJAS Mejor control del material durante las fases de moldeo y embutición.  
RESULTADO Mejor calidad de las piezas moldeadas. Menores desechos de producción. Notable ahorro económico.
- P** VANTAGENS Melhor controlo dos materiais durante a fase de formação e de cunhagem.  
RESULTADO Melhor qualidade das peças estampadas. Menores desperdícios na produção. Poupança económica notável.

## Adjustable Forces

Forza aggiustabile - Adjustable Forces - Korrigierbare Kräfte - Forces réglables - Fuerzas regulables - Potência Ajustável



- I** VANTAGGI Adeguamento dei cilindri alle forze realmente richieste. Utilizzo di uno stesso cilindro in lavori diversi.  
RISULTATO Flessibilità di utilizzo. Risparmio economico.
- GB** BENEFITS Cylinders applied to provide the real forces required. Assurance of defined forces. The same cylinder may be re-used for different power application.  
RESULTS Flexible usage. Saving of money.
- D** VORTEILE Einstellung der Gasdruckfedern auf die effektiv erforderlichen Kräfte. Einsatz derselben Gasdruckfeder für unterschiedliche Anwendungen.  
ERGEBNIS Flexibler Einsatz. Kosteneinsparung.
- F** ADVANTAGES Adaptation des ressorts à gaz aux forces réellement requises. Certitude des forces définies.  
Utilisation d'un même ressort à gaz dans des travaux différents.  
RESULTAT Flexibilité d'utilisation. Épargne économique.
- E** VENTAJAS Adecuación de los cilindros a las fuerzas realmente necesarias. Utilización de un mismo cilindro en trabajos distintos.  
RESULTADO Flexibilidad de utilización. Notable ahorro económico.
- P** VANTAGENS Adaptação dos cilindros às forças realmente necessárias. Utilização do mesmo cilindro em diferentes trabalhos.  
RESULTADO Flexibilidade de utilização. Poupança económica notável.

# HOW TO READ THE CATALOG



## EXAMPLE OF PAGE

**1**

**SC 1500**

**PED**  
97/23/EC

**lifepius**  
concept

ISO 11901 - 1	VDI 3003	B2 4006 (BMW)	W-DX35-6203 (Ford)
PG23D (Mazda)	B8 3180 220 000 001(MB)	K 32 S (Nissan)	E24.54.815.G (PSA)
EM24.54.700 (Renault)	SES-K 5404e (Suzuki)	39D 878 (VW)	

OSAS

USAS

OPAS

**3**

**4**

**2**

**Info**

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytropic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio  
The new code will be supplied only when the old will be out of stock  
Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist  
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé  
El nuevo código será suministrado sólo cuando el viejo está fuera de stock  
O novo código irá ser fornecido apenas quando o antigo esgotar stock

**6**

**7**

°F  
32  
176

°C  
0  
80

**8**

$\Delta P$   
± 0,33 %/°C

**9**

**P max**  
150 bar  
2175 psi

**10**

**P min**  
20 bar  
290 psi

**11**

**S**  
10,18 cm<sup>2</sup>  
1,578 in<sup>2</sup>

**5**

**SPM**  
~ 15 - 50  
(at 20°C)

**13**

**Max Speed**  
1,8 m/s

**14**

**Maintenance kit**  
39BMSC01500D Cu 13 ÷ 80  
39BMSC01500DH Cu 100 ÷ 300

CODE	PHASING OUT from 01/2014	NEW	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg	~lb	Cat.
			mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
SC 1500 - 013 - B		SC 1500 - 013 - D	13	0,51	135	5,31	122	4,80	1530	3440	1769	3977	2016	4532	97,0	5,92	3,26	7,19	-
SC 1500 - 025 - B		SC 1500 - 025 - D	25	0,98	160	6,30	135	5,31			1855	4170	2174	4887	144,0	8,78	3,47	7,65	-
SC 1500 - 038 - B		SC 1500 - 038 - D	38	1,50	186	7,32	148	5,83			1916	4307	2287	5141	191,0	11,65	3,66	8,07	-
SC 1500 - 050 - B		SC 1500 - 050 - D	50	1,97	210	8,27	160	6,30			1952	4388	2355	5294	234,0	14,27	3,84	8,47	-
SC 1500 - 063 - B		SC 1500 - 063 - D	63,5	2,50	237	9,33	173,5	6,83			1975	4440	2400	5395	283,0	17,26	4,05	8,93	-
SC 1500 - 080 - B		SC 1500 - 080 - D	80	3,15	270	10,63	190	7,48			2004	4505	2455	5519	342,0	20,86	4,30	9,48	-
SC 1500 - 100 - B		SC 1500 - 100 - D	100	3,94	310	12,20	210	8,27			2024	4550	2495	5609	414,0	25,25	4,60	10,14	-

**12**

**15**

**16**

**HOW TO ORDER**

(10 pcs) SC 1500-050-D  
(10 pcs) SC 1500-050-D-N

**18**

**19**

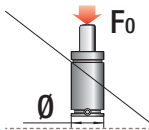
136 - 016

Special Springs

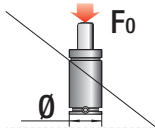


<p><b>1</b></p> <p>Modello Model Modell Modèle Modelo Modelo</p>	<p><b>2</b></p> <p>Rif. standard ( ISO, VDI, ecc. ) Standard ref. ( ISO, VDI, ecc. ) Standard Ref. ( ISO, VDI, ecc. ) Réf standard ( ISO, VDI, ecc. ) Ref. standard ( ISO, VDI, ecc. ) Ref. standard ( ISO, VDI, ecc. )</p>
<p><b>3</b></p> <p>Sicurezze presenti nel modello Safety devices provided on the model Anwesende Sicherheitseinrichtungen am Modell. Dispositifs de sécurités présents sur le modèle. Dispositivos de seguridad disponibles en el modelo. Dispositivos de segurança disponíveis no modelo.</p>	<p><b>4</b></p> <p>Modifica rispetto al catalogo precedente &gt; see page 2 Modification respect to the former catalogue &gt; see page 2 Modification restet au catalogue pr\$écédent &gt; voir page 2 Veränderungen gegenüber den alte Katalog &gt; Siehe Seite 2 Cambios en comparación con el catálogo anterior &gt; ver página 2 Alterações em comparação com o catálogo anterior &gt; ver página 2</p>
<p><b>5</b></p> <p>Gas di caricamento Pressure medium Druckgas Gaz de chargement Gas de carga Gás de carga</p>	<p><b>6</b></p> <p>Temperatura di esercizio Working temperature Betriebstemperatur Température de fonctionnement Temperatura de funcionamiento Temperatura de funcionamento</p>
<p><b>7</b></p> <p><math>\Delta P / \Delta t</math></p>	<p><b>8</b></p> <p>Pressione max di caricamento Max charging pressure Maximaler Ladedruck Pression de chargement maximum Presión máx de carga Pressão máxima de carga</p>
<p><b>9</b></p> <p>Pressione min. di caricamento Min charging pressure Minimaler Ladedruck Pression de chargement minimum Presión mín de carga Pressão mínima de carga</p>	<p><b>10</b></p> <p>Area di tenuta stelo/pistone Rod/piston seal area Dichtungsbereich Kolbenstange/Kolben Zone d'étanchéité tige/piston Área de estanqueidad vástago/pistón Área de estanquidade do embolo/pistão</p>
<p><b>11</b></p> <p>Cicli / minuto Strokes / minute Hube / Minute Cycles / minute Cyclos / minuto Pancadas / minuto</p>	<p><b>12</b></p> <p>Codice Code Bestell-Nummer Référéce Código Codigo</p>
<p><b>13</b></p> <p>Forza iniziale a 20°C Initial force at 20°C Ausgangsleistung bei 20°C Force initiale a 20°C Fuerza inicial a 20°C Força inicial a 20°C</p>	<p><b>14</b></p> <p>Forza finale isotermica Isothermal end force Isothermische Endfestigkeit Force finale isothermique fuerza finale isotérmica força final isotérmica</p>
<p><b>15</b></p> <p>Forza finale politropica Polytrophic end force polytropische Endfestigkeit force finale politrophique fuerza finale politrópica força finale politrópica</p>	<p><b>16</b></p> <p>Volume iniziale Initial gas volume Ausgangswert Gasvolumen Volumen inicial de gas Volume de gaz initial Volume de gás inicial</p>
<p><b>17</b></p> <p>Classificazione PED PED classification PED Einteilung Classification PED Clasificación PED Classificação PED</p>	<p><b>18</b></p> <p>Fissaggi Fixings Befestigungen Fixé Bridas Fixação</p>
<p><b>19</b></p> <p>Indice di revisione pagina Page review index Index der Seiteüberprüfung Index de revue de page Índice de revisión de página Índice de revisão de página</p>	<p>Tutte le dimensioni senza tolleranza si intendono nominali. All dimensions are nominal unless tolerance is stated. Alle Massgangen ohne Toleranzen sind Nennmasse. Sauf specifications de tolerances, totes le dimensions sont des valeurs nominales. Todas las dimensiones son nominales excepto cuando se indica la tolerancia. Todas as medidas são nominais excepto quando a tolerancia é mencionada.</p> 

# SELECTION TAB



	42 50	70 90	170 200	260 320	360 470	510 680	740	900 980	1060 1410	1530 1925
<b>12</b>	M 50									
<b>15</b>		M 70								
<b>M 16 x 1,5</b>	NG 16 x 1,5 NE 16 x 1,5									
<b>M 16 x 2</b>	NE 16 x 2									
<b>19</b>		M 90 MS 90	RV 170 RS 170							
<b>M 24 x 1,5</b>		M 90 TBM M 90 TEM	NG 24 x 1,5 NE 24 X 1,5							
<b>1"- 8 THD</b>		M 90 TBI								
<b>25</b>			M 200 MS 200 ⚠ HR 200	ML 300 RV 320 RS 320	KE 400					
<b>32</b>			SC 150	M 300 H 300 ⚠ HR 300	RV 350 RS 350 RT 350	ML 500	KE 750			
<b>38</b>				SC 250	H 500 ⚠ HR 500 RV 500 RS 500 RT 500		ML 1000	KE 1000		
<b>M 38 x 1,5</b>				SCF 250	HF 500 ⚠ HRF 500					
<b>M 45 x 1,5</b>						HF 700 ⚠ HRF 700				
<b>45</b>					⚠ LI 400 S 500 SC 500	⚠ HR 700	H 700 RV 750 RS 750 RF 750 RT 750 RG 750			
<b>M 50 x 1,5</b>								HF 1000 ⚠ HRF 1000		
<b>50</b>						SC 750 S 750	H 1000 RV 1000 RS 1000 RF 1000 RT 1000 RG 1000	RV 1200 RS 1200 RF 1200 RT 1200 ⚠ HR 1000	KE 1800 ML 1800	
<b>63</b>							⚠ LI 900			RV 1500 RS 1500 RF 1500 RT 1500 RG 1500 ⚠ HR 1500
<b>75</b>								⚠ LI 1400		S 1500 SC 1500 LS 1500



	2035 2385	2830 2945	3180	4240	4418 4980	6630	7540 7700	9540	10600 12720	18400 19910
<b>63</b>		KE 3000	ML 3000							
<b>75</b>	H 2400 ⚠ HR 2400 LS 2400 RV 2400 RS 2400 RF 2400 RT 2400 RG 2400				KE 4700 ML 4700					
<b>95</b>	⚠ LI 2000	LS 3000 S 3000 SC 3000		H 4200 ⚠ HR 4200 LS 4200 RV 4200 RS 4200 RT 4200 RG 4200			KE 7500 ML 7500			
<b>120</b>			⚠ LI 3200		LS 5000 SC 5000	H 6600 ⚠ HR 6600 LS 6600 RV 6600 RS 6600 RT 6600 RG 6600			KE 12000 ML 12000	
<b>150</b>						SC 7500 LS 7500	H 9500 LS 9500 RV 9500 RS 9500 RT 9500	⚠ HR 11800 RV 12000	KE 18500	
<b>195</b>									SC 10000	RV 20000 H 18500

TAB

**NE SERIES**

**NG SERIES**

VDI	BMW	Ford
VW		

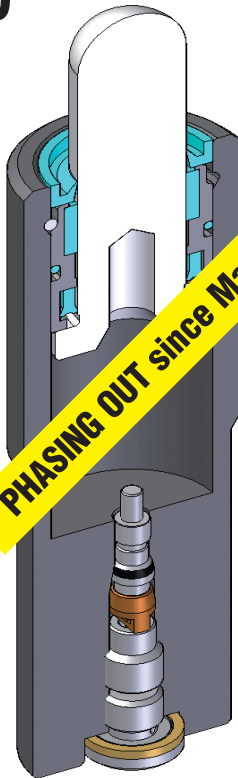


VDI	GM
-----	----

**PED**  
97/23/EC

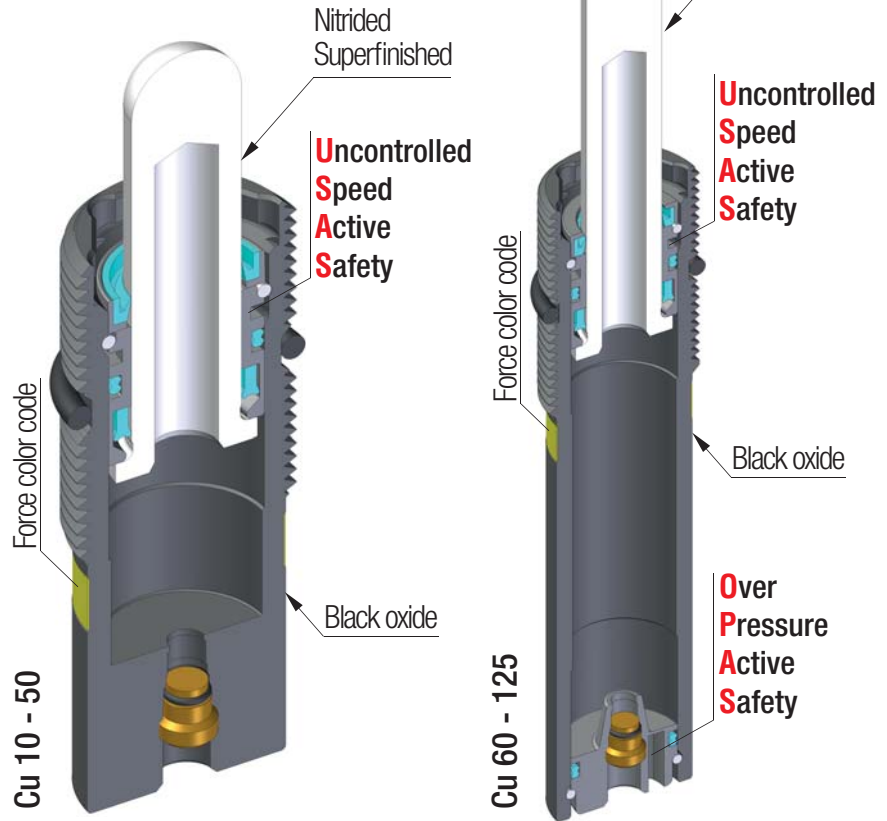


**OLD**



**PHASING OUT since May 2011**

**NEW**



**Range chart**

Model	Body Ø		Stroke Cu		Initial force Fo		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
NE 16 x 1,5	M 16 x 1,5	M 16 x 1,5	10 - 125	0,39 - 4,92	3 - 42	7 - 95	-	✓	-	-
NE 16 x 2	M 16 x 2	M 16 x 2	10 - 125	0,39 - 4,92	3 - 42	7 - 95	-	✓	-	-
NG 16 x 1,5	M 16 x 1,5	M 16 x 1,5	10 - 100	0,39 - 3,94	3 - 42	7 - 95	-	✓	-	-
NE 24 x 1,5	M 24 x 1,5	M 24 x 1,5	10 - 50	0,39 - 1,97	11 - 170	25 - 382	-	✓	-	-
NE 24 x 1,5	M 24 x 1,5	M 24 x 1,5	60 - 125	2,36 - 4,92	11 - 170	25 - 382	-	✓	✓	-
NG 24 x 1,5	M 24 x 1,5	M 24 x 1,5	10 - 50	0,39 - 1,97	11 - 170	25 - 382	-	✓	-	-
NG 24 x 1,5	M 24 x 1,5	M 24 x 1,5	60 - 100	2,36 - 3,94	11 - 170	25 - 382	-	✓	✓	-

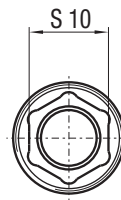
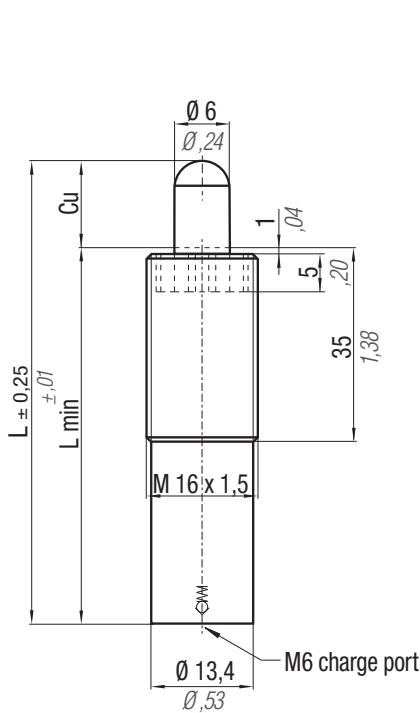


**How to Order**

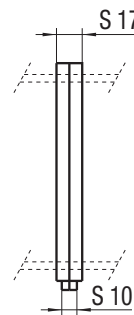
**NE 16x1.5-050-B - RD**

Codice cilindro autonomo  
Self-contained cylinder code  
Kode des eingeständigen Gdf.  
Code du cylindre autonome  
Codigo del cilindro autónomo  
Codigo do cilindro autónomo

Identificazione delle forze iniziali (vedi tab. "force color code"), se non specificata, si intende sempre forza massima YW. Per forze diverse BK + Fo richiesta.  
Identification of initial forces (see "force color code" chart), if not specified, it is always intended as maximum force YW. For different forces BK + Fo required  
Identifikation der initiales Kräfte (siehe tabelle "force color code"), wenn nicht aufgestellt, es ist immer verstanden als maximaler kraft YW. Für verschiedenen Kräfte, BK + Fo gebrauchte  
Identides forces initiale (voir tabelle "force color code"), si non specié, on entend toujours force maximum YW. Pour forces différentes BK + Fo requise  
Identificación de las fuerzas iniciales (veer cuadro "force color code"), si no se especifica, se entiende siempre la maxima fuerza YW. Para fuerzas diferentes BK + Fo requerida  
Identificação das forças iniciais (ver Tabela "force color code"), se não especificado, é sempre entendido a maxima força YW. Para forças diferentes BK + Fo inquirita



cod. 39CM01A  
(optional)



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

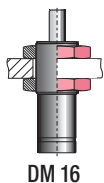
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

NE  
NG

	$^{\circ}\text{F}$ 32 -176	$^{\circ}\text{C}$ 0 -80	$\Delta P$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 10 bar 145 psi	<b>S</b> 0,28 cm <sup>2</sup> 0,043 in <sup>2</sup>	<b>SPM</b> ~ 50 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> Disposable
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CODE	Cu		L		L min		~Kg		Cat.	Force color code	P		F <sub>0</sub> Initial force $\pm 5\%$ $+20^{\circ}\text{C} +68^{\circ}\text{F}$		F <sub>1i</sub> End force*	F <sub>1p</sub> End force**
	mm	inch	mm	inch	mm	inch	~Kg	~lb			bar	psi	daN	lb		
NE 16 x 1,5-010-B-...	10	0,39	65	2,56	55	2,17	0,05	0,11	-							
NE 16 x 1,5-020-B-...	20	0,79	85	3,35	65	2,56	0,06	0,13	-							
NE 16 x 1,5-030-B-...	30	1,18	105	4,13	75	2,95	0,07	0,15	-	PR	12	174	4	9	1,55 x F <sub>0</sub>	1,9 x F <sub>0</sub>
NE 16 x 1,5-040-B-...	40	1,57	125	4,92	85	3,35	0,07	0,15	-	GR	20	290	6	14	1,55 x F <sub>0</sub>	1,9 x F <sub>0</sub>
NE 16 x 1,5-050-B-...	50	1,97	145	5,71	95	3,74	0,08	0,18	-	BU	40	580	11	25	1,55 x F <sub>0</sub>	1,9 x F <sub>0</sub>
NE 16 x 1,5-060-B-...	60	2,36	165	6,50	105	4,13	0,08	0,18	-	RD	75	1088	21	47	1,55 x F <sub>0</sub>	1,9 x F <sub>0</sub>
NE 16 x 1,5-070-B-...	70	2,76	185	7,28	115	4,53	0,09	0,20	-	YW	150	2175	42	95	1,55 x F <sub>0</sub>	1,9 x F <sub>0</sub>
NE 16 x 1,5-080-B-...	80	3,15	205	8,07	125	4,92	0,10	0,22	-	BK	10-150	145-2175	3-42	7-95	1,55 x F <sub>0</sub>	1,9 x F <sub>0</sub>
NE 16 x 1,5-100-B-...	100	3,94	245	9,65	145	5,71	0,11	0,24	-							
NE 16 x 1,5-125-B-...	125	4,92	295	11,61	170	6,69	0,12	0,26	-							

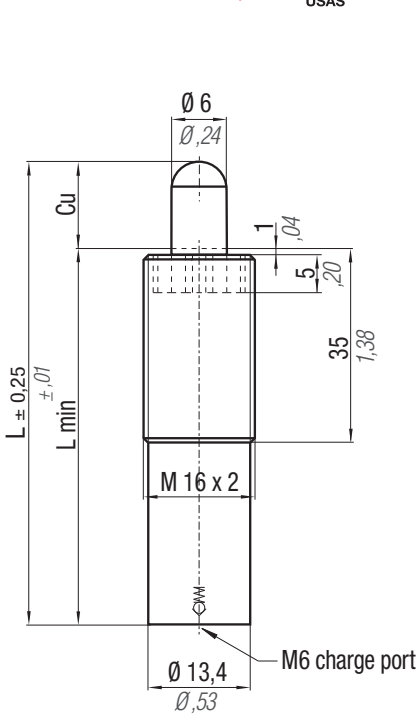
P = nominal charging pressure



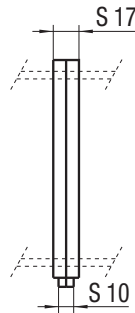
DM 16

## HOW TO ORDER

(10 pcs) NE16x1.5-050-B-YW



cod. 39CM01A  
(optional)



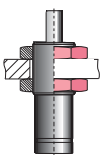
## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

CODE	Cu		L		L min		~Kg	~lb	Cat.	Force color code	P		F <sub>0</sub> Initial force ± 5% +20°C +68°F		F <sub>1i</sub> End force*	F <sub>1p</sub> End force**
	mm	inch	mm	inch	mm	inch					bar	psi	daN	lb		
NE 16 x 2-010-B-...	10	0,39	65	2,56	55	2,17	0,05	0,11	-	PR	12	174	4	9	1,55 x F <sub>0</sub>	1,9 x F <sub>0</sub>
NE 16 x 2-020-B-...	20	0,79	85	3,35	65	2,56	0,06	0,13	-	GR	20	290	6	14	1,55 x F <sub>0</sub>	1,9 x F <sub>0</sub>
NE 16 x 2-030-B-...	30	1,18	105	4,13	75	2,95	0,07	0,15	-	BU	40	580	11	25	1,55 x F <sub>0</sub>	1,9 x F <sub>0</sub>
NE 16 x 2-040-B-...	40	1,57	125	4,92	85	3,35	0,07	0,15	-	RD	75	1088	21	47	1,55 x F <sub>0</sub>	1,9 x F <sub>0</sub>
NE 16 x 2-050-B-...	50	1,97	145	5,71	95	3,74	0,08	0,18	-	YW	150	2175	42	95	1,55 x F <sub>0</sub>	1,9 x F <sub>0</sub>
NE 16 x 2-060-B-...	60	2,36	165	6,50	105	4,13	0,08	0,18	-	BK	10-150	145-2175	3-42	7-95	1,55 x F <sub>0</sub>	1,9 x F <sub>0</sub>
NE 16 x 2-070-B-...	70	2,76	185	7,28	115	4,53	0,09	0,20	-							
NE 16 x 2-080-B-...	80	3,15	205	8,07	125	4,92	0,10	0,22	-							
NE 16 x 2-100-B-...	100	3,94	245	9,65	145	5,71	0,11	0,24	-							
NE 16 x 2-125-B-...	125	4,92	295	11,61	170	6,69	0,12	0,26	-							

P = nominal charging pressure

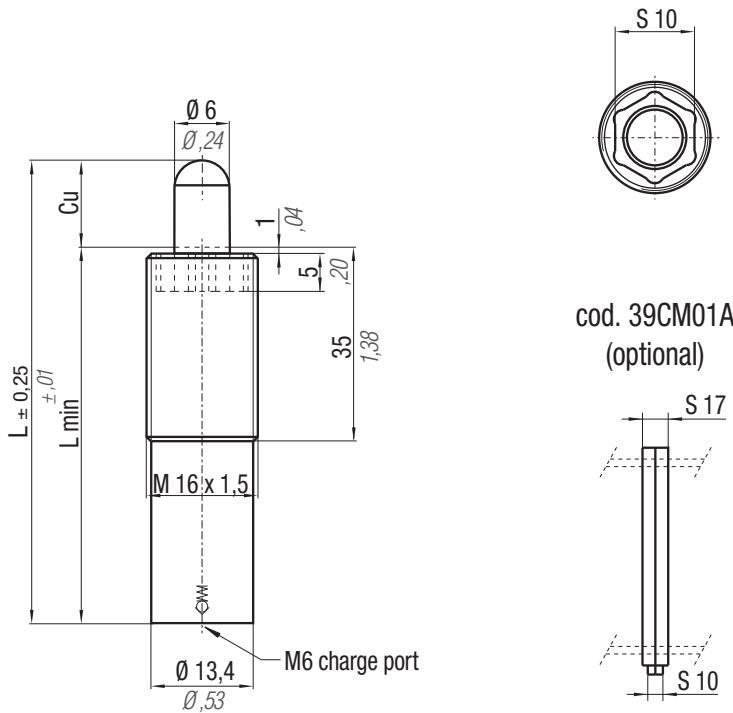


39DM16X2A

## HOW TO ORDER

(10 pcs) NE16x2-050-B-YW

VDI 3004 90.25.28 (GM)	B2 4036 (BMW) 39D 549 (VW)	W-DX35-60M (Ford)	90.25.97 (GM)
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cod. 39CM01A  
(optional)

## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

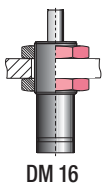
NE  
NG

CODE	Cu		L		L min		S		SPM ~ 50 - 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit Disposable
	mm	inch	mm	inch	mm	inch	~Kg	~lb			
NG 16 x 1,5-010-A-...	10	0,39	80	3,15	70	2,76	0,05	0,11	-	-	-
NG 16 x 1,5-020-A-...	20	0,79	100	3,94	80	3,15	0,06	0,13	-	-	-
NG 16 x 1,5-030-A-...	30	1,18	120	4,72	90	3,54	0,07	0,15	-	-	-
NG 16 x 1,5-040-A-...	40	1,57	140	5,51	100	3,94	0,07	0,15	-	-	-
NG 16 x 1,5-050-A-...	50	1,97	160	6,30	110	4,33	0,08	0,18	-	-	-
NG 16 x 1,5-060-A-...	60	2,36	180	7,09	120	4,72	0,08	0,18	-	-	-
NG 16 x 1,5-070-A-...	70	2,76	200	7,87	130	5,12	0,09	0,20	-	-	-
NG 16 x 1,5-080-A-...	80	3,15	220	8,66	140	5,51	0,10	0,22	-	-	-
NG 16 x 1,5-100-A-...	100	3,94	260	10,24	160	6,30	0,11	0,24	-	-	-

Force color code	P		F0 Initial force ± 5% +20°C +68°F		F <sub>1i</sub> End force*	F <sub>1p</sub> End force**
	bar	psi	daN	lb		
GR	20	290	6	13	1,27 x F0	1,6 x F0
YW	150	2175	42	94	1,27 x F0	1,6 x F0

P = nominal charging pressure



DM 16

## HOW TO ORDER

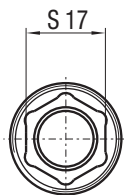
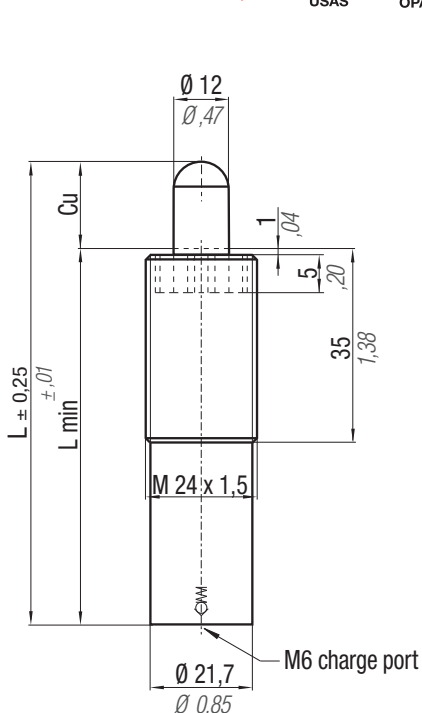
(10 pcs) NG16x1.5-050-A-YW

# NE 24 x 1.5

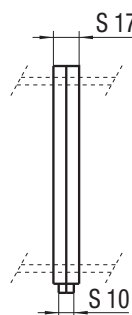
VDI 3004

W-DX35-60M (Ford)

39D 549 (VW)



cod. 39CM01A  
(optional)



## Info

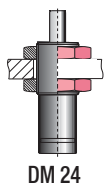
\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

	$^{\circ}F$ 32 -176	$^{\circ}C$ 0 -80	$\Delta P$ $\pm 0,33\%/^{\circ}C$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 10 bar 145 psi	<b>S</b> 1,13 cm <sup>2</sup> 0,175 in <sup>2</sup>	<b>SPM</b> ~ 50 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> Disposable
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CODE	Cu		L		L min		~Kg		~lb	Cat.	CE	Force color code	P		F0 Initial force $\pm 5\%$ $+20^{\circ}C +68^{\circ}F$		F <sub>1i</sub> End force*	F <sub>1p</sub> End force**
	mm	inch	mm	inch	mm	inch	bar	psi					daN	lb				
NE 24 x 1,5-010-B-...	10	0,39	65	2,56	55	2,17	0,16	0,35	-	-	-	GR	20	290	23	52	1,75 x F0	2,4 x F0
NE 24 x 1,5-020-B-...	20	0,79	85	3,35	65	2,56	0,18	0,40	-	-	-	BU	40	580	45	101	1,75 x F0	2,4 x F0
NE 24 x 1,5-030-B-...	30	1,18	105	4,13	75	2,95	0,20	0,44	-	-	-	RD	75	1088	85	191	1,75 x F0	2,4 x F0
NE 24 x 1,5-040-B-...	40	1,57	125	4,92	85	3,35	0,23	0,51	-	-	-	YW	150	2175	170	382	1,75 x F0	2,4 x F0
NE 24 x 1,5-050-B-...	50	1,97	145	5,71	95	3,74	0,25	0,55	-	-	-	BK	10-150	145-2175	11-170	25-382	1,75 x F0	2,4 x F0
NE 24 x 1,5-060-B-...	60	2,36	165	6,50	105	4,13	0,27	0,59	-	-	-							
NE 24 x 1,5-070-B-...	70	2,76	185	7,28	115	4,53	0,29	0,64	-	-	-							
NE 24 x 1,5-080-B-...	80	3,15	205	8,07	125	4,92	0,30	0,66	-	-	-							
NE 24 x 1,5-100-B-...	100	3,94	245	9,65	145	5,71	0,33	0,73	-	-	-							
NE 24 x 1,5-125-B-...	125	4,92	295	11,61	170	6,69	0,35	0,77	-	-	-							

P = nominal charging pressure



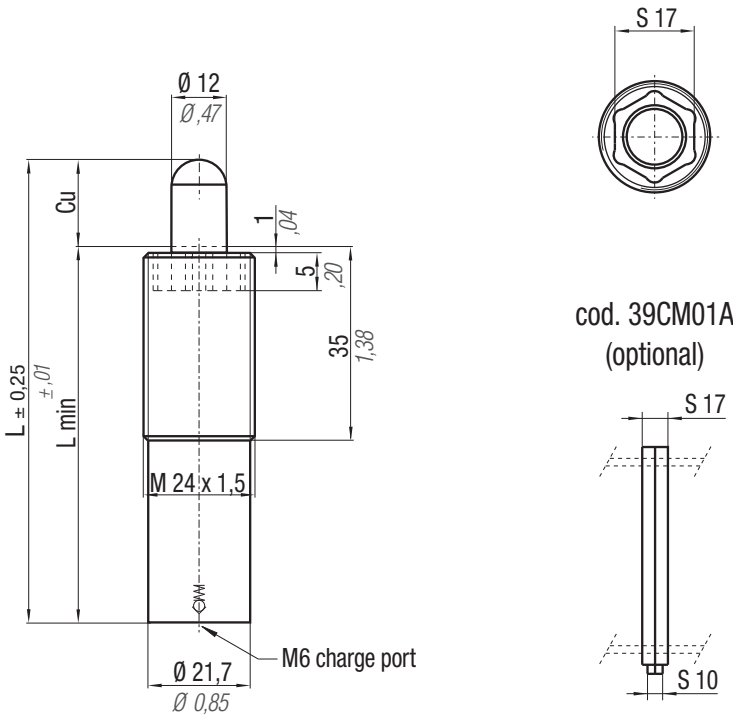
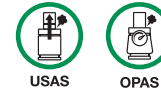
DM 24

## HOW TO ORDER

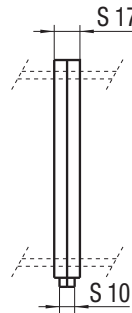
(10 pcs) NE24x1.5-050-B-YW



VDI 3004 39D 549 (VW)	W-DX35-60M (Ford)	90.25.95 (GM)	90.25.96 (GM)
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cod. 39CM01A  
(optional)



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

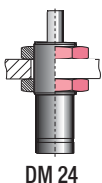
NE  
NG

CODE	Cu		L		L min		S		SPM	Max Speed	Maintenance kit
	mm	inch	mm	inch	mm	inch	~Kg	~lb			
NG 24 x 1,5-010-A-...	10	0,39	80	3,15	70	2,76	0,15	0,33	~ 50 - 100 (at 20°C)	1,8 m/s	Disposable
NG 24 x 1,5-020-A-...	20	0,79	100	3,94	80	3,15	0,17	0,37			
NG 24 x 1,5-030-A-...	30	1,18	120	4,72	90	3,54	0,19	0,42			
NG 24 x 1,5-040-A-...	40	1,57	140	5,51	100	3,94	0,22	0,49			
NG 24 x 1,5-050-A-...	50	1,97	160	6,30	110	4,33	0,24	0,53			
NG 24 x 1,5-060-A-...	60	2,36	180	7,09	120	4,72	0,26	0,57			
NG 24 x 1,5-070-A-...	70	2,76	200	7,87	130	5,12	0,28	0,62			
NG 24 x 1,5-080-A-...	80	3,15	220	8,66	140	5,51	0,29	0,64			
NG 24 x 1,5-100-A-...	100	3,94	260	10,24	160	6,30	0,31	0,68			

Force color code	P		F <sub>0</sub> Initial force ± 5% +20°C +68°F		F <sub>1i</sub> End force*	F <sub>1p</sub> End force**
	bar	psi	daN	lb		
GR	20	290	23	52	1,41 x F <sub>0</sub>	1,88 x F <sub>0</sub>
BR	60	870	67	151	1,41 x F <sub>0</sub>	1,88 x F <sub>0</sub>

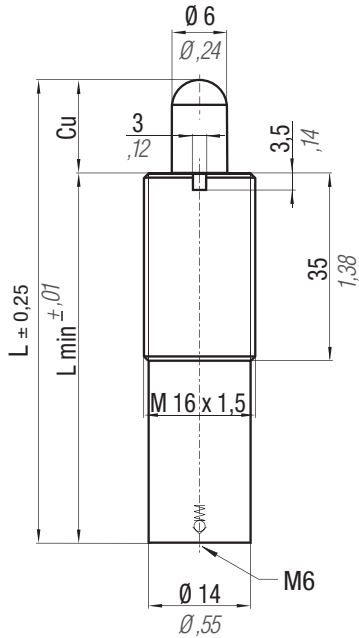
P = nominal charging pressure



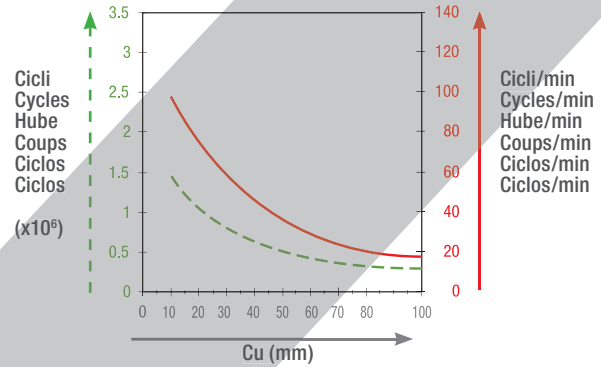
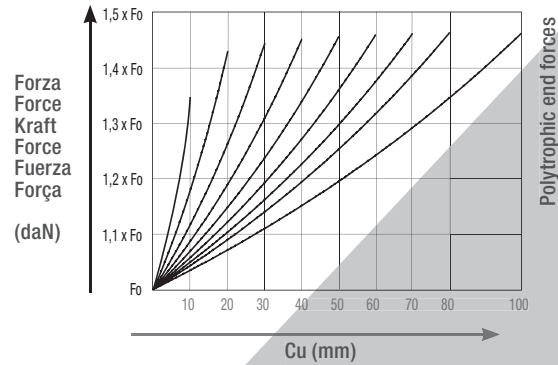
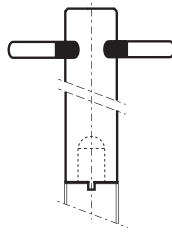
DM 24

## HOW TO ORDER

(10 pcs) NG24x1.5-050-A-BR



cod. CM16  
(optional)

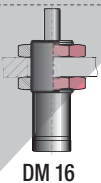


<b>Max Speed</b> 1,8 m/s	<b>°F</b> 32 - 176	<b>°C</b> 0 - 80		<b>P max</b> 150 bar 2175 psi	<b>P min</b> 10 bar 145psi	<b>S</b> 0,28 cm <sup>2</sup> 0,043 inc <sup>2</sup>		<b>Maintenance kit</b> Disposable
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CODE	Cu		L		L min		Fo		Vo		CODE	
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb
NE 16 - 010 - A	10	0,39	80	3,15	70	2,76	2,8 min	-	-	0,07	0,15	-
NE 16 - 020 - A	20	0,79	100	3,94	80	3,15	42 max	-	-	0,08	0,18	-
NE 16 - 030 - A	30	1,18	120	4,72	90	3,54	6,3 min	-	-	0,09	0,20	-
NE 16 - 040 - A	40	1,57	140	5,51	100	3,94	94,4 max	-	-	0,09	0,20	-
NE 16 - 050 - A	50	1,97	160	6,30	110	4,33	150 bar 2175 psi	-	-	0,10	0,22	-
NE 16 - 060 - A	60	2,36	180	7,09	120	4,72		-	-	0,10	0,22	-
NE 16 - 070 - A	70	2,76	200	7,87	130	5,12	±5%	-	-	0,11	0,24	-
NE 16 - 080 - A	80	3,15	220	8,66	140	5,51		-	-	0,12	0,26	-
NE 16 - 100 - A	100	3,94	260	10,24	160	6,30		+20°C +68°F	-	-	0,13	0,29



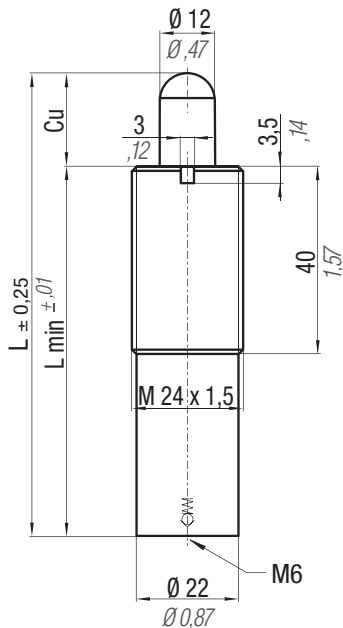
- I** I cilindri filettati NON hanno riserva corsa. Si raccomanda di NON superare il 90% della corsa nominale Cu.
- GB** Threaded cylinders have NO stroke extension. It is recommended NOT to exceed 90% of the nominal stroke Cu.
- D** Die Gewindezylinder haben KEINEN Reservelauf. Es wird empfohlen, 90% des Nennlaufs für Cu nicht zu überschreiten.
- F** Les cylindres filetés N'ONT PAS de réserve de course. Il est recommandé de NE PAS dépasser 90% de la course nominale Cu.
- E** Los cilindros roscados NO tienen reserva de carrera. Es importante NO superar el 90% de la carrera nominal Cu.
- P** Os cilindros rosqueados NÃO possuem reserva de curso. Aconselha-se NÃO ultrapassar os 90% do curso nominal Cu.



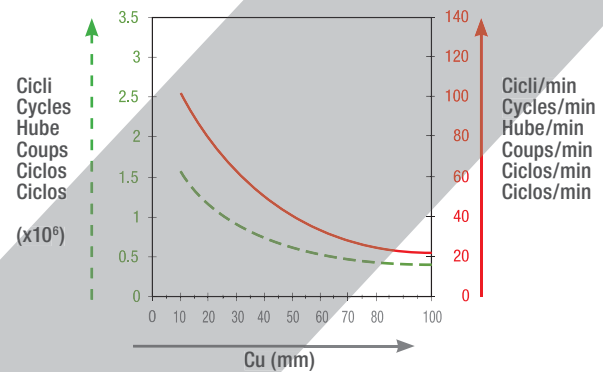
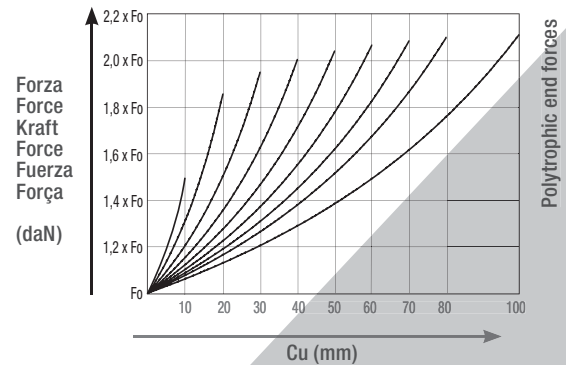
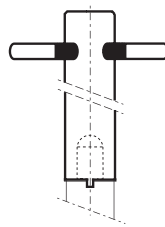
DM 16

### HOW TO ORDER

(10 pcs)NE16-050-A  
+ Fo required



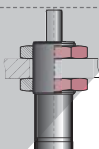
cod. CM24  
(optional)



Max Speed	°F	°C		P max	P min	S		Maintenance kit			
1,8 m/s	32	0		150 bar	10 bar	1,13 cm <sup>2</sup>		Disposable			
	176	80	N <sub>2</sub>	2175 psi	145 psi	0,175 in <sup>2</sup>					
CODE	Cu		L		L min		Fo	Vo		CODE	
	mm	inch	mm	inch	mm	inch	daN	cm <sup>3</sup>	in <sup>3</sup>		
							lb	~Kg	~lb		
NE 24 - 010 - A	10	0,39	80	3,15	70	2,76	11 min	-	-	0,18	0,40
NE 24 - 020 - A	20	0,79	100	3,94	80	3,15	170 max	-	-	0,20	0,44
NE 24 - 030 - A	30	1,18	120	4,72	90	3,54	24,7 min	-	-	0,22	0,48
NE 24 - 040 - A	40	1,57	140	5,51	100	3,94	382,2 max	-	-	0,25	0,55
NE 24 - 050 - A	50	1,97	160	6,30	110	4,33		-	-	0,27	0,59
NE 24 - 060 - A	60	2,36	180	7,09	120	4,72	150 bar	-	-	0,29	0,64
NE 24 - 070 - A	70	2,76	200	7,87	130	5,12	2175 psi	-	-	0,31	0,68
NE 24 - 080 - A	80	3,15	220	8,66	140	5,51		-	-	0,32	0,70
NE 24 - 100 - A	100	3,94	260	10,24	160	6,30	±5%	-	-	0,37	0,81
							+20°C +68°F				



- I** I cilindri filettati NON hanno riserva corsa. Si raccomanda di NON superare il 90% della corsa nominale Cu.
- GB** Threaded cylinders have NO stroke extension. It is recommended NOT to exceed 90% of the nominal stroke Cu.
- D** Die Gewindezylinder haben KEINEN Reservelauf. Es wird empfohlen, 90% des Nennlaufs für Cu nicht zu überschreiten.
- F** Les cylindres filetés N'ONT PAS de réserve de course. Il est recommandé de NE PAS dépasser 90% de la course nominale Cu.
- E** Los cilindros roscados NO tienen reserva de carrera. Es importante NO superar el 90% de la carrera nominal Cu.
- P** Os cilindros rosqueados NÃO possuem reserva de curso. Aconselha-se NÃO ultrapassar os 90% do curso nominal Cu.

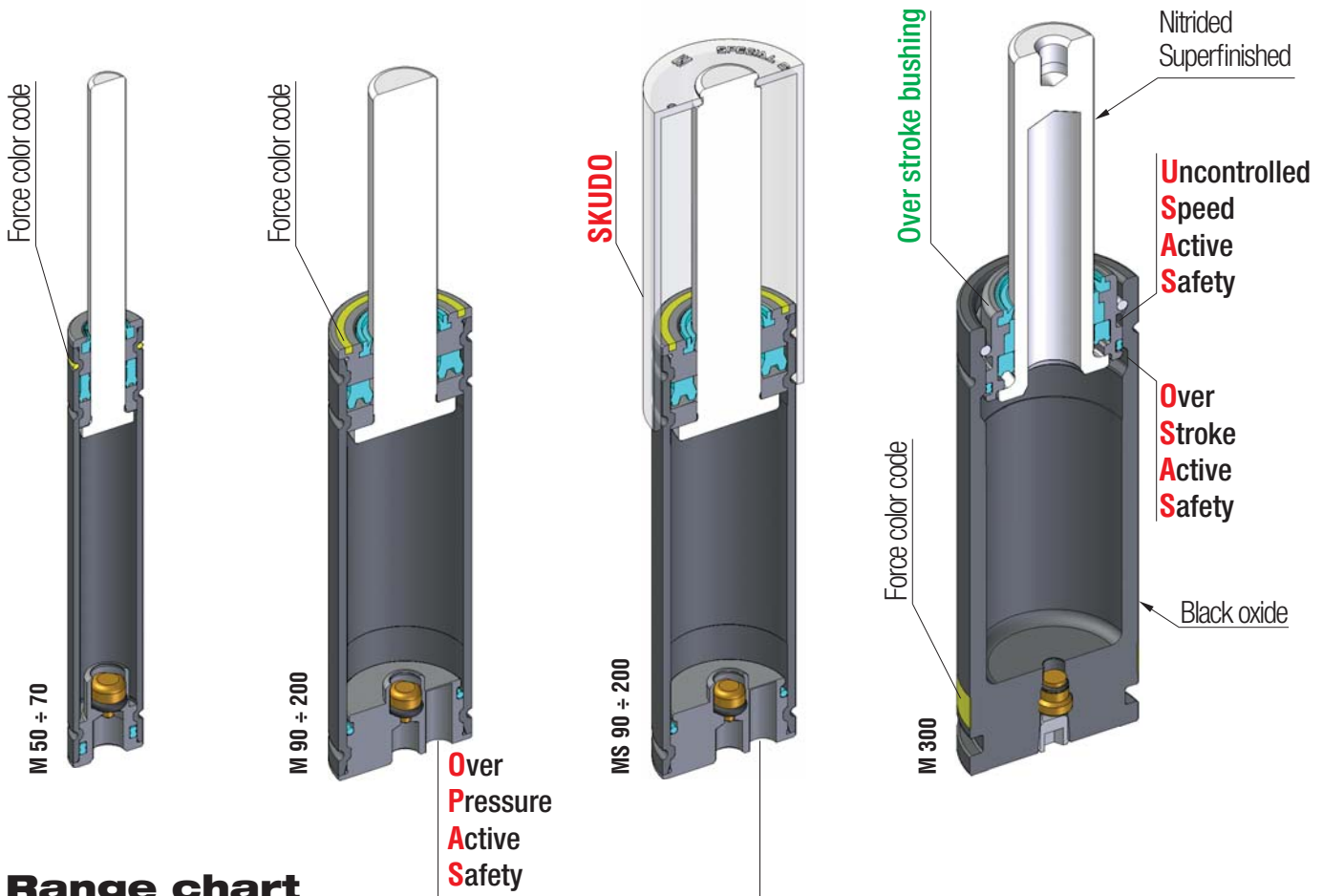


DM 24





## HOW TO ORDER

(10 pcs) NE24-050-A  
+ Fo required

VDI MB	BMW PSA	Ford VW
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## Range chart

Model	Body Ø		Stroke Cu		Initial force Fo		 OSAS	 USAS	 OPAS	 SKUDO
	mm	inch	mm	inch	daN	lb				
M 50	12	0,47	7 - 125	0,28 - 4,92	6 - 50	13 - 112	-	-	-	-
M 70	15	0,59	7 - 125	0,28 - 4,92	8 - 70	18 - 157	-	-	-	-
M 90	19	0,75	7 - 125	0,28 - 4,92	5 - 90	11 - 202	-	-	✓	-
MS 90	19	0,75	7 - 122	0,28 - 4,80	5 - 90	11 - 202	-	-	✓	✓
M 90 TBM	M 24 X 1,5	M 24 X 1,5	7 - 125	0,28 - 4,92	5 - 90	11 - 202	-	-	✓	-
M 90 TEM	M 24 X 1,5	M 24 X 1,5	7 - 125	0,28 - 4,92	5 - 90	11 - 202	-	-	✓	-
M 90 TBI	1"-8 THD	1"-8 THD	7 - 125	0,28 - 4,92	5 - 90	11 - 202	-	-	✓	-
M 200	25	0,98	7 - 125	0,28 - 4,92	17 - 200	38 - 450	-	-	✓	-
MS 200	25	0,98	7 - 122	0,28 - 4,80	17 - 200	38 - 450	-	-	✓	✓
M 300	32	1,26	7 - 125	0,28 - 4,92	80 - 320	180 - 719	✓	✓	-	-



## How to Order

### M 90-050-A - RD

Codice cilindro autonomo  
Self-contained cylinder code  
Kode des eingeständigen Gdf.  
Code du cylindre autonome  
Codigo del cilindro autónomo  
Codigo do cilindro autónomo

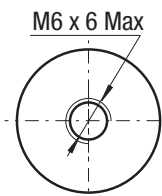
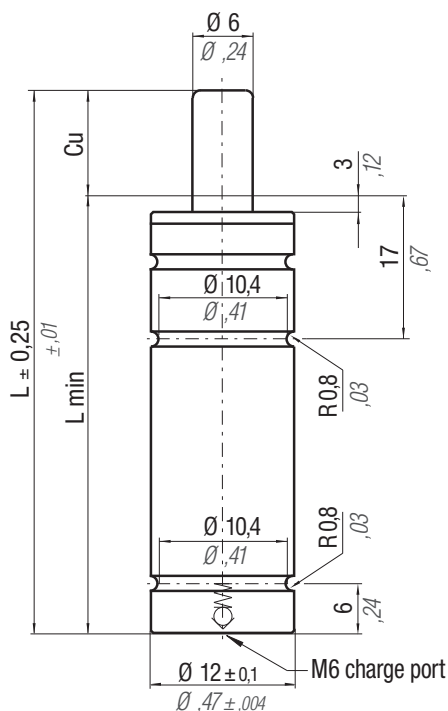
Identificazione delle forze iniziali (vedi tab. "force color code"), se non specificata, si intende sempre forza massima YW. Per forze diverse BK + Fo richiasta.

Identification of initial forces (see "force color code" chart), if not specified, it is always intended as maximum force YW. For different forces BK + Fo required

Identifikation der initiales Kräfte (siehe tabelle "force color code"), wenn nicht aufgestellt, es ist immer verstanden als maximaler kraft YW. Für verschiedenen Kräfte, BK + Fo gebrauchte

Identifies forces initiale (voir tabelle "force color code"), si non specificata, se entiende siempre la maxima fuerza YW. Para fuerzas diferentes BK + Fo requerida

Identificação das forças iniciais (ver Tabela "force color code"), se não especificado, é sempre entendido a maxima força YW. Para forças diferentes BK + Fo inquirita



Force color code	P		Fo Initial force ± 5% +20°C +68°F	
	bar	psi	daN	lb
GR	45	653	13	29
BU	90	1305	25	56
RD	135	1958	38	85
YW	180	2610	50	112
BK	20-180	290-2610	6-50	13-112

## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

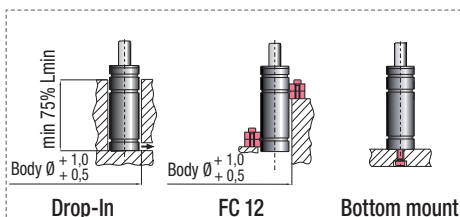
Collegabile con tubi, MICRO 32°  
 Linkable with hoses, MICRO 32°  
 Anschlussfähig mit Leitungen, MICRO 32°  
 Connectable with tubes, MICRO 32°  
 Connectable con tubos, MICRO 32°  
 Acompláveis com tubos, MICRO 32°



M  
MS

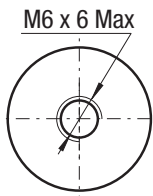
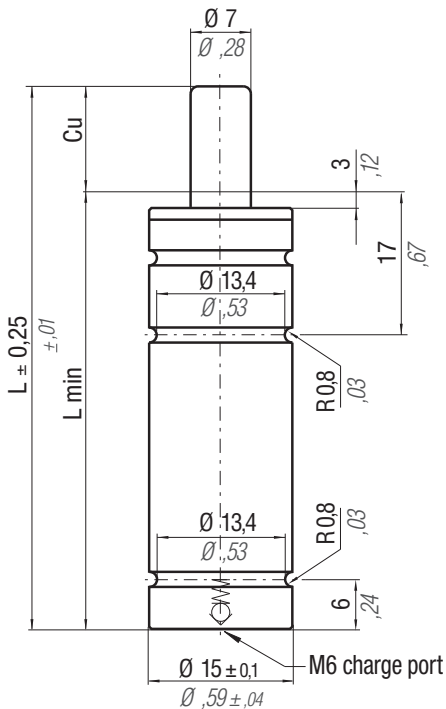
	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 180 bar 2610 psi	P min 20 bar 290 psi	S 0,28 cm <sup>2</sup> 0,043 in <sup>2</sup>	SPM ~ 100 - 150 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit Disposable
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CODE	Cu		L		L min		F <sub>1i</sub> * End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		~Kg ~lb	CE Cat.	
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
M50 - 007 - A - ...	7	0,28	56	2,20	49	1,93	1,28 x F <sub>0</sub>		1,55 x F <sub>0</sub>		-	-	0,03	0,07	-
M50 - 010 - A - ...	10	0,39	62	2,44	52	2,04	1,33 x F <sub>0</sub>		1,66 x F <sub>0</sub>		-	-	0,03	0,07	-
M50 - 013 - A - ...	12,7	0,50	67,4	2,65	54,7	2,15	1,37 x F <sub>0</sub>		1,73 x F <sub>0</sub>		-	-	0,03	0,07	-
M50 - 015 - A - ...	15	0,59	72	2,83	57	2,24	1,39 x F <sub>0</sub>		1,77 x F <sub>0</sub>		-	-	0,03	0,07	-
M50 - 019 - A - ...	19	0,75	80	3,15	61	2,40	1,42 x F <sub>0</sub>		1,83 x F <sub>0</sub>		-	-	0,03	0,07	-
M50 - 025 - A - ...	25	0,98	92	3,62	67	2,64	1,46 x F <sub>0</sub>		1,90 x F <sub>0</sub>		-	-	0,03	0,07	-
M50 - 038 - A - ...	38	1,50	118	4,65	80	3,15	1,50 x F <sub>0</sub>		1,98 x F <sub>0</sub>		-	-	0,04	0,09	-
M50 - 050 - A - ...	50	1,97	142	5,59	92	3,62	1,52 x F <sub>0</sub>		2,03 x F <sub>0</sub>		-	-	0,05	0,11	-
M50 - 063 - A - ...	63,5	2,50	172	6,77	108,5	4,27	1,49 x F <sub>0</sub>		1,98 x F <sub>0</sub>		-	-	0,06	0,13	-
M50 - 075 - A - ...	75	2,95	195	7,68	120	4,72	1,51 x F <sub>0</sub>		2,02 x F <sub>0</sub>		-	-	0,06	0,13	-
M50 - 080 - A - ...	80	3,15	205	8,07	125	4,92	1,52 x F <sub>0</sub>		2,03 x F <sub>0</sub>		-	-	0,07	0,15	-
M50 - 100 - A - ...	100	3,94	245	9,65	145	5,71	1,53 x F <sub>0</sub>		2,06 x F <sub>0</sub>		-	-	0,08	0,18	-
M50 - 125 - A - ...	125	4,92	295	11,61	170	6,69	1,54 x F <sub>0</sub>		2,09 x F <sub>0</sub>		-	-	0,09	0,20	-



## HOW TO ORDER

(10 pcs) M50-050-A-YW



Force color code	P		F <sub>0</sub> Initial force ± 5% +20°C +68°F	
	bar	psi	daN	lb
GR	45	653	18	40
BU	90	1305	35	79
RD	135	1958	50	112
YW	180	2610	70	157
BK	20-180	290-2610	8-70	18-157

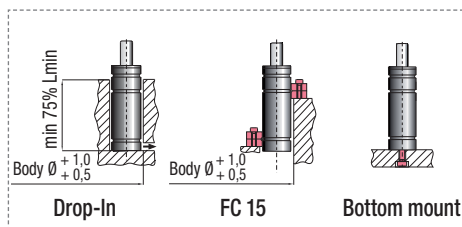
## Info

\* F<sub>1i</sub> = Isothermal end force at 100% Cu - see page 31

\*\* F<sub>1p</sub> = Polytropic end force at 100% Cu - see page 31

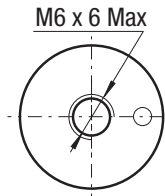
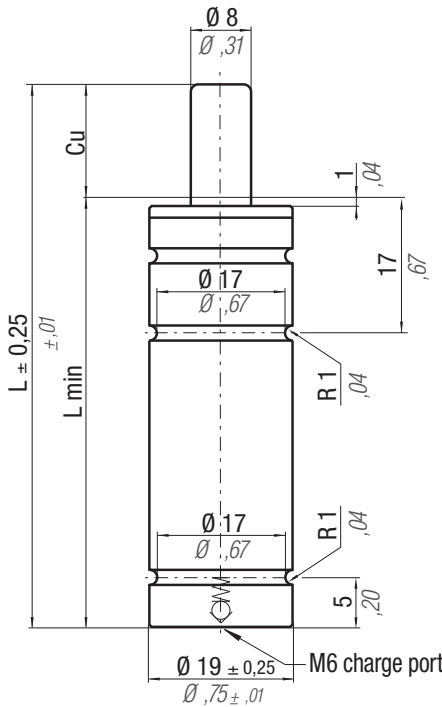
Collegabile con tubi, MICRO 32°  
Linkable with hoses, MICRO 32°  
Anschlussfähig mit Leitungen, MICRO 32°  
Connectable avec tubes, MICRO 32°  
Connectable con tubos, MICRO 32°  
Acompláveis com tubos, MICRO 32°

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 180 bar 2610 psi	P min 20 bar 290 psi	S 0,38 cm <sup>2</sup> 0,059 in <sup>2</sup>	SPM ~ 100 - 150 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit Disposable	Cu		L		L min		F <sub>1i</sub> End force *		F <sub>1p</sub> End force **		V <sub>0</sub>		Kg		CE Cat.
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
M70 - 007 - A - ...											7	0,28	56	2,20	49	1,93	1,24 x F <sub>0</sub>	1,48 x F <sub>0</sub>	-	-	0,04	0,09	-		
M70 - 010 - A - ...											10	0,39	62	2,44	52	2,05	1,29 x F <sub>0</sub>	1,56 x F <sub>0</sub>	-	-	0,05	0,11	-		
M70 - 013 - A - ...											12,7	0,50	67,4	2,65	54,7	2,15	1,32 x F <sub>0</sub>	1,63 x F <sub>0</sub>	-	-	0,05	0,11	-		
M70 - 015 - A - ...											15	0,59	72	2,83	57	2,24	1,34 x F <sub>0</sub>	1,66 x F <sub>0</sub>	-	-	0,05	0,11	-		
M70 - 019 - A - ...											19	0,75	80	3,15	61	2,40	1,37 x F <sub>0</sub>	1,72 x F <sub>0</sub>	-	-	0,05	0,11	-		
M70 - 025 - A - ...											25	0,98	92	3,62	67	2,64	1,39 x F <sub>0</sub>	1,78 x F <sub>0</sub>	-	-	0,06	0,13	-		
M70 - 038 - A - ...											38	1,50	118	4,65	80	3,15	1,43 x F <sub>0</sub>	1,85 x F <sub>0</sub>	-	-	0,07	0,15	-		
M70 - 050 - A - ...											50	1,97	142	5,59	92	3,62	1,45 x F <sub>0</sub>	1,89 x F <sub>0</sub>	-	-	0,08	0,18	-		
M70 - 063 - A - ...											63,5	2,50	172	6,77	108,5	4,27	1,43 x F <sub>0</sub>	1,85 x F <sub>0</sub>	-	-	0,09	0,20	-		
M70 - 075 - A - ...											75	2,95	195	7,68	120	4,72	1,45 x F <sub>0</sub>	1,89 x F <sub>0</sub>	-	-	0,10	0,22	-		
M70 - 080 - A - ...											80	3,15	205	8,071	125	4,92	1,45 x F <sub>0</sub>	1,89 x F <sub>0</sub>	-	-	0,10	0,22	-		
M70 - 100 - A - ...											100	3,94	245	9,65	145	5,71	1,47 x F <sub>0</sub>	1,92 x F <sub>0</sub>	-	-	0,12	0,26	-		
M70 - 125 - A - ...											125	4,92	295	11,61	170	6,69	1,48 x F <sub>0</sub>	1,94 x F <sub>0</sub>	-	-	0,14	0,31	-		



## HOW TO ORDER

(10 pcs) M70-050-A-YW



Force color code	P		Fo Initial force ± 5% +20°C +68°F	
	bar	psi	daN	lb
OR	10	145	5	11
PR	20	290	10	22
GR	60	870	30	67
BU	100	1450	50	112
RD	140	2030	70	157
YW	180	2610	90	202
BK	10-180	145-2610	5-90	11-202

## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

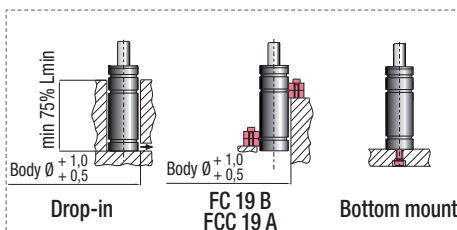
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

Collegabile con tubi, MICRO 32°  
Linkable with hoses, MICRO 32°  
Anschlussfähig mit Leitungen, MICRO 32°  
Connectable with tubes, MICRO 32°  
Connectable with tubos, MICRO 32°  
Acompláveis com tubos, MICRO 32°

M  
MS

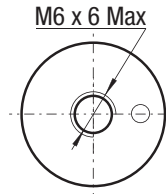
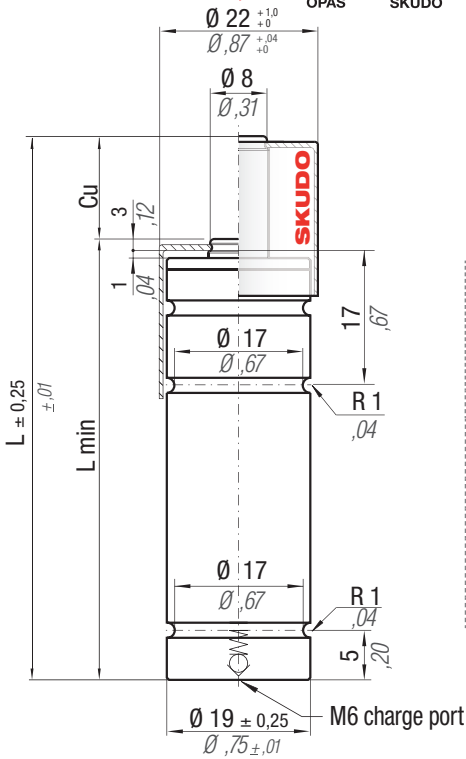
	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 180 bar 2610 psi	P min 10 bar 145 psi	S 0,5 cm <sup>2</sup> 0,078 in <sup>2</sup>	SPM ~ 100 - 150 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit Disposabile
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CODE		Cu		L		L min		F <sub>1i</sub> * End force *		F <sub>1p</sub> ** End force **		Vo			CE	
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			~Kg
M90 - 007 - A - ...		7	0,28	56	2,20	49	1,93	1,13 x F0		1,28 x F0		-	-	0,07	0,15	-
M90 - 010 - A - ...		10	0,39	62	2,44	52	2,05	1,16 x F0		1,34 x F0		-	-	0,07	0,15	-
M90 - 013 - A - ...		12,7	0,50	67,4	2,65	54,7	2,15	1,19 x F0		1,38 x F0		-	-	0,08	0,18	-
M90 - 015 - A - ...		15	0,59	72	2,83	57	2,24	1,20 x F0		1,40 x F0		-	-	0,08	0,18	-
M90 - 025 - A - ...		25	0,98	92	3,62	67	2,64	1,24 x F0		1,47 x F0		-	-	0,09	0,20	-
M90 - 038 - A - ...		38,1	1,50	118,2	4,65	80,1	3,15	1,27 x F0		1,52 x F0		-	-	0,11	0,24	-
M90 - 050 - A - ...		50	1,97	142	5,59	92	3,62	1,28 x F0		1,55 x F0		-	-	0,12	0,26	-
M90 - 063 - A - ...		63,5	2,50	172	6,77	108,5	4,27	1,27 x F0		1,54 x F0		-	-	0,14	0,31	-
M90 - 080 - A - ...		80	3,15	205	8,07	125	4,92	1,29 x F0		1,57 x F0		-	-	0,15	0,33	-
M90 - 100 - A - ...		100	3,94	245	9,65	145	5,71	1,30 x F0		1,58 x F0		-	-	0,17	0,37	-
M90 - 125 - A - ...		125	4,92	295	11,61	170	6,69	1,31 x F0		1,60 x F0		-	-	0,20	0,44	-



## HOW TO ORDER

(10 pcs) M90-050-A-YW



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

Force color code	P		F <sub>0</sub> Initial force ± 5% +20°C +68°F	
	bar	psi	daN	lb
OR	10	145	5	11
PR	20	290	10	22
GR	60	870	30	67
BU	100	1450	50	112
RD	140	2030	70	157
YW	180	2610	90	202
BK	10-180	145-2610	5-90	11-202

N <sub>2</sub>	°F 32 -176	°C 0 -80	ΔP ± 0,33 %/°C	P max 180 bar 2610 psi	P min 10 bar 145 psi	S 0,5 cm <sup>2</sup> 0,078 in <sup>2</sup>	SPM ~ 100 - 150 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit Disposable
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CODE		Cu		L		L min		F <sub>1i</sub> End force *		F <sub>1p</sub> End force **		V <sub>0</sub>				CE Cat.
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
MS90 - 007 - A - ...		7	0,28	62	2,44	55	2,17	1,16 x F <sub>0</sub>		1,34 x F <sub>0</sub>		-	-	0,07	0,15	-
MS90 - 010 - A - ...		9,7	0,38	67,4	2,65	57,7	2,27	1,19 x F <sub>0</sub>		1,38 x F <sub>0</sub>		-	-	0,08	0,18	-
MS90 - 012 - A - ...		12	0,47	72	2,83	60	2,36	1,20 x F <sub>0</sub>		1,40 x F <sub>0</sub>		-	-	0,08	0,18	-
MS90 - 022 - A - ...		22	0,87	92	3,62	70	2,76	1,24 x F <sub>0</sub>		1,47 x F <sub>0</sub>		-	-	0,09	0,20	-
MS90 - 035 - A - ...		35,1	1,38	118,2	4,65	83,1	3,27	1,27 x F <sub>0</sub>		1,52 x F <sub>0</sub>		-	-	0,11	0,24	-
MS90 - 047 - A - ...		47	1,85	142	5,59	95	3,74	1,28 x F <sub>0</sub>		1,55 x F <sub>0</sub>		-	-	0,12	0,26	-
MS90 - 060 - A - ...		60,5	2,38	172	6,77	111,5	4,39	1,27 x F <sub>0</sub>		1,54 x F <sub>0</sub>		-	-	0,14	0,31	-
MS90 - 077 - A - ...		77	3,03	205	8,07	128	5,04	1,29 x F <sub>0</sub>		1,57 x F <sub>0</sub>		-	-	0,15	0,33	-
MS90 - 097 - A - ...		97	3,82	245	9,65	148	5,83	1,30 x F <sub>0</sub>		1,58 x F <sub>0</sub>		-	-	0,17	0,37	-
MS90 - 122 - A - ...		122	4,80	295	11,61	173	6,81	1,31 x F <sub>0</sub>		1,60 x F <sub>0</sub>		-	-	0,20	0,44	-

**WARNING REMOVE SKUDO**

Upside down mounting

FC / FCC fixings

Drop-In

FC 19 B  
FCC 19 A

Bottom mount

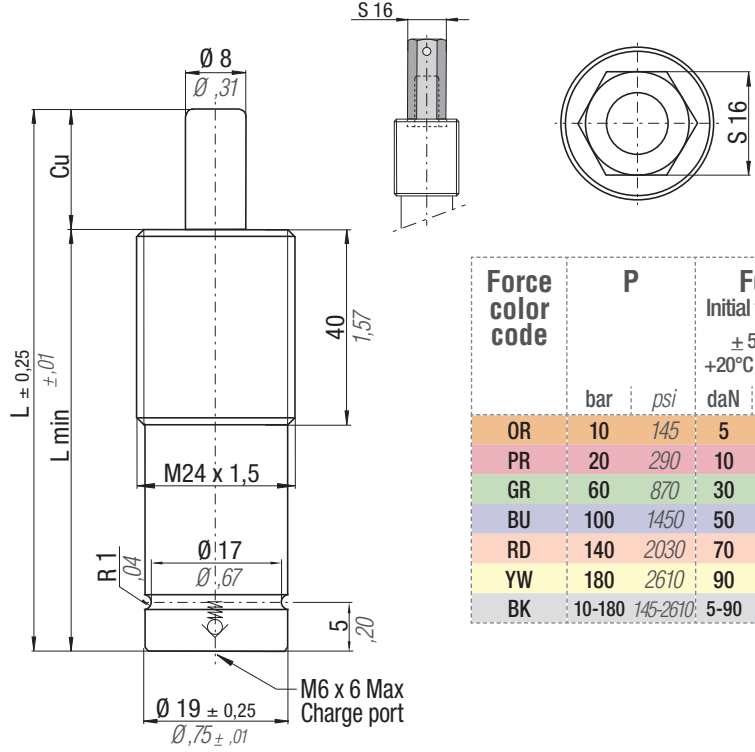
**HOW TO ORDER**

(10 pcs) MS90-047-A-YW





cod. 39 TBT (optional)



Force color code	P		Fo Initial force ± 5% +20°C +68°F	
	bar	psi	daN	lb
OR	10	145	5	11
PR	20	290	10	22
GR	60	870	30	67
BU	100	1450	50	112
RD	140	2030	70	157
YW	180	2610	90	202
BK	10-180	145-2610	5-90	11-202

### Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



Senza riserva corsa. NON superare 90% Cu  
 Without reserve of stroke. DO NOT exceed 90% Cu  
 Ohne Hubreserve. NICHT überschreiten die 90% Cu  
 Sans course de réserve. NE PAS dépasser 90% Cu  
 Sin margen de Carrera. NO superar el 90% Cu  
 Sem reserva de curso. NÃO se excedam os 90% Cu

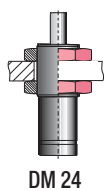
Collegabile con tubi, MICRO 32°  
 Linkable with hoses, MICRO 32°  
 Anschlussfähig mit Leitungen, MICRO 32°  
 Connectable avec tubes, MICRO 32°  
 Connectable con tubos, MICRO 32°  
 Acompláveis com tubos, MICRO 32°



M MS

	$^{\circ}\text{F}$ 32 176	$^{\circ}\text{C}$ 0 80	$\Delta P$ ± 0,33 %/°C	P max 180 bar 2610 psi	P min 10 bar 145 psi	S 0,5 cm <sup>2</sup> 0,078 in <sup>2</sup>	SPM ~ 100 - 150 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit Disposable
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CODE	Cu		L		L min		F <sub>1i</sub> * End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		~Kg	~lb	Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
M90 - 007 - A - ...	7	0,28	56	2,20	49	1,93	1,13 x F0		1,28 x F0		-	-	0,07	0,15	-
M90 - 010 - A - ...	10	0,39	62	2,44	52	2,05	1,16 x F0		1,34 x F0		-	-	0,07	0,15	-
M90 - 013 - A - ...	12,7	0,50	67,4	2,65	54,7	2,15	1,19 x F0		1,38 x F0		-	-	0,08	0,18	-
M90 - 015 - A - ...	15	0,59	72	2,83	57	2,24	1,20 x F0		1,40 x F0		-	-	0,08	0,18	-
M90 - 025 - A - ...	25	0,98	92	3,62	67	2,64	1,24 x F0		1,47 x F0		-	-	0,09	0,20	-
M90 - 038 - A - ...	38,1	1,50	118,2	4,65	80,1	3,15	1,27 x F0		1,52 x F0		-	-	0,11	0,24	-
M90 - 050 - A - ...	50	1,97	142	5,59	92	3,62	1,28 x F0		1,55 x F0		-	-	0,12	0,26	-
M90 - 063 - A - ...	63,5	2,50	172	6,77	108,5	4,27	1,27 x F0		1,54 x F0		-	-	0,14	0,31	-
M90 - 080 - A - ...	80	3,15	205	8,07	125	4,92	1,29 x F0		1,57 x F0		-	-	0,15	0,33	-
M90 - 100 - A - ...	100	3,94	245	9,65	145	5,71	1,30 x F0		1,58 x F0		-	-	0,17	0,37	-
M90 - 125 - A - ...	125	4,92	295	11,61	170	6,69	1,31 x F0		1,60 x F0		-	-	0,20	0,44	-



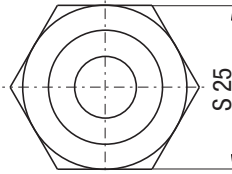
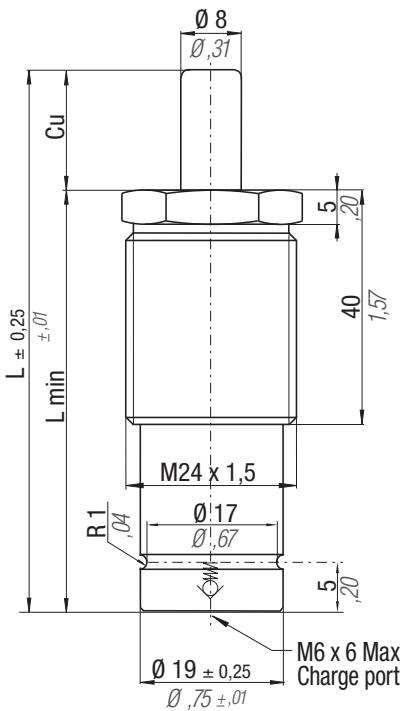
DM 24

### HOW TO ORDER

(10 pcs)  
 M90-050-A-YW-TBM

# M 90 TEM threaded

W-DX35-80-191 (Ford)



Force color code	P		F <sub>0</sub> Initial force	
	bar	psi	daN	lb
OR	10	145	5	11
PR	20	290	10	22
GR	60	870	30	67
BU	100	1450	50	112
RD	140	2030	70	157
YW	180	2610	90	202
BK	10-180	145-2610	5-90	11-202

## Info

\* F<sub>1i</sub> = Isothermal end force at 100% Cu - see page 31

\*\* F<sub>1p</sub> = Polytrophic end force at 100% Cu - see page 31

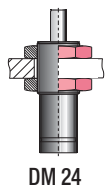


Senza riserva corsa. NON superare 90% Cu  
 Without reserve of stroke. DO NOT exceed 90% Cu  
 Ohne Hubreserve. NICHT überschreiten die 90% Cu  
 Sans course de réserve. NE PAS dépasser 90% Cu  
 Sin margen de Carrera. NO superar el 90% Cu  
 Sem reserva de curso. NÃO se excedam os 90% Cu



Collegabile con tubi, MICRO 32°  
 Linkable with hoses, MICRO 32°  
 Anschlussfähig mit Leitungen, MICRO 32°  
 Connectable avec tubes, MICRO 32°  
 Connectable con tubos, MICRO 32°  
 Acompláveis com tubos, MICRO 32°

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 180 bar 2610 psi	P min 10 bar 145 psi	S 0,5 cm <sup>2</sup> 0,078 in <sup>2</sup>	SPM ~ 100 - 150 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit Disposable	Cu		L		L min		F <sub>1i</sub> End force *		F <sub>1p</sub> End force **		V <sub>0</sub>		Kg		CE Cat.
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
M90-007-A-...											7	0,28	56	2,20	49	1,93	1,13 x F <sub>0</sub>	1,28 x F <sub>0</sub>	-	-	0,07	0,15	-	-	-
M90-010-A-...											10	0,39	62	2,44	52	2,05	1,16 x F <sub>0</sub>	1,34 x F <sub>0</sub>	-	-	0,07	0,15	-	-	-
M90-013-A-...											12,7	0,50	67,4	2,65	54,7	2,15	1,19 x F <sub>0</sub>	1,38 x F <sub>0</sub>	-	-	0,08	0,18	-	-	-
M90-015-A-...											15	0,59	72	2,83	57	2,24	1,20 x F <sub>0</sub>	1,40 x F <sub>0</sub>	-	-	0,08	0,18	-	-	-
M90-025-A-...											25	0,98	92	3,62	67	2,64	1,24 x F <sub>0</sub>	1,47 x F <sub>0</sub>	-	-	0,09	0,20	-	-	-
M90-038-A-...											38,1	1,50	118,2	4,65	80,1	3,15	1,27 x F <sub>0</sub>	1,52 x F <sub>0</sub>	-	-	0,11	0,24	-	-	-
M90-050-A-...											50	1,97	142	5,59	92	3,62	1,28 x F <sub>0</sub>	1,55 x F <sub>0</sub>	-	-	0,12	0,26	-	-	-
M90-063-A-...											63,5	2,50	172	6,77	108,5	4,27	1,27 x F <sub>0</sub>	1,54 x F <sub>0</sub>	-	-	0,14	0,31	-	-	-
M90-080-A-...											80	3,15	205	8,07	125	4,92	1,29 x F <sub>0</sub>	1,57 x F <sub>0</sub>	-	-	0,15	0,33	-	-	-
M90-100-A-...											100	3,94	245	9,65	145	5,71	1,30 x F <sub>0</sub>	1,58 x F <sub>0</sub>	-	-	0,17	0,37	-	-	-
M90-125-A-...											125	4,92	295	11,61	170	6,69	1,31 x F <sub>0</sub>	1,60 x F <sub>0</sub>	-	-	0,20	0,44	-	-	-



DM 24

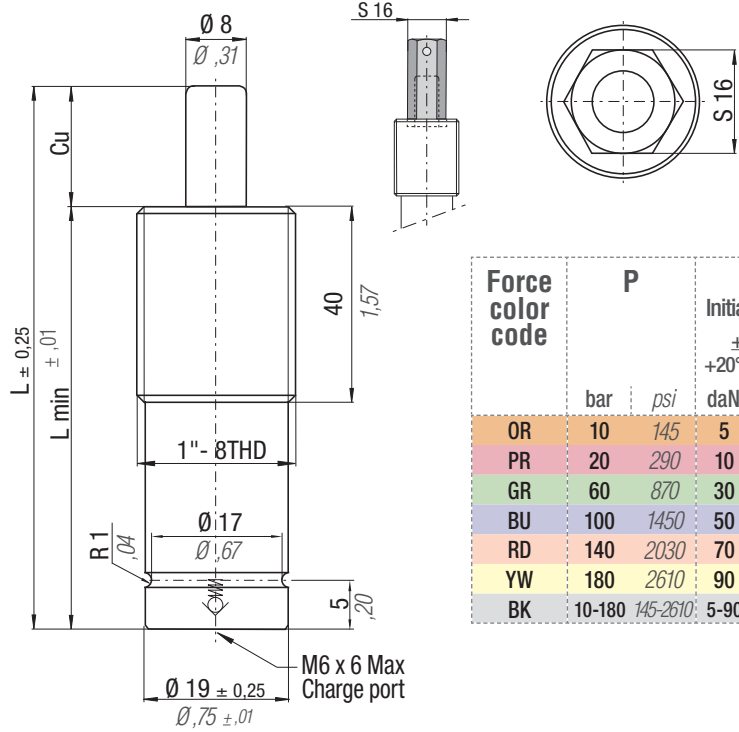


## HOW TO ORDER

(10 pcs)  
 M90-050-A-YW-TEM



cod. 39 TBT (optional)



Force color code	P		Fo Initial force ± 5% +20°C +68°F	
	bar	psi	daN	lb
OR	10	145	5	11
PR	20	290	10	22
GR	60	870	30	67
BU	100	1450	50	112
RD	140	2030	70	157
YW	180	2610	90	202
BK	10-180	145-2610	5-90	11-202

### Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

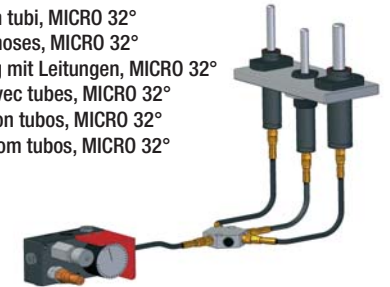
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



Senza riserva corsa. NON superare 90% Cu  
 Without reserve of stroke. DO NOT exceed 90% Cu  
 Ohne Hubreserve. NICHT überschreiten die 90% Cu  
 Sans course de réserve. NE PAS dépasser 90% Cu  
 Sin margen de Carrera. NO superar el 90% Cu  
 Sem reserva de curso. NÃO se excedam os 90% Cu

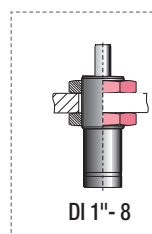
M  
MS

Collegabile con tubi, MICRO 32°  
 Linkable with hoses, MICRO 32°  
 Anschlussfähig mit Leitungen, MICRO 32°  
 Connectable avec tubes, MICRO 32°  
 Connectable con tubos, MICRO 32°  
 Acompláveis com tubos, MICRO 32°



	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 180 bar 2610 psi	P min 10 bar 145 psi	S 0,5 cm <sup>2</sup> 0,078 in <sup>2</sup>	SPM ~ 100 - 150 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit Disposable
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CODE	Cu		L		L min		F <sub>1i</sub> * End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		~Kg	~lb	Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
M90 - 007 - A - ...	7	0,28	56	2,20	49	1,93	1,13 x F0		1,28 x F0		-	-	0,07	0,15	-
M90 - 010 - A - ...	10	0,39	62	2,44	52	2,05	1,16 x F0		1,34 x F0		-	-	0,07	0,15	-
M90 - 013 - A - ...	12,7	0,50	67,4	2,65	54,7	2,15	1,19 x F0		1,38 x F0		-	-	0,08	0,18	-
M90 - 015 - A - ...	15	0,59	72	2,83	57	2,24	1,20 x F0		1,40 x F0		-	-	0,08	0,18	-
M90 - 025 - A - ...	25	0,98	92	3,62	67	2,64	1,24 x F0		1,47 x F0		-	-	0,09	0,20	-
M90 - 038 - A - ...	38,1	1,50	118,2	4,65	80,1	3,15	1,27 x F0		1,52 x F0		-	-	0,11	0,24	-
M90 - 050 - A - ...	50	1,97	142	5,59	92	3,62	1,28 x F0		1,55 x F0		-	-	0,12	0,26	-
M90 - 063 - A - ...	63,5	2,50	172	6,77	108,5	4,27	1,27 x F0		1,54 x F0		-	-	0,14	0,31	-
M90 - 080 - A - ...	80	3,15	205	8,07	125	4,92	1,29 x F0		1,57 x F0		-	-	0,15	0,33	-
M90 - 100 - A - ...	100	3,94	245	9,65	145	5,71	1,30 x F0		1,58 x F0		-	-	0,17	0,37	-
M90 - 125 - A - ...	125	4,92	295	11,61	170	6,69	1,31 x F0		1,60 x F0		-	-	0,20	0,44	-



### HOW TO ORDER

(10 pcs)  
M90-050-A-YW-TBI

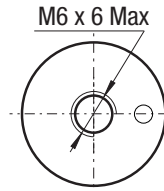
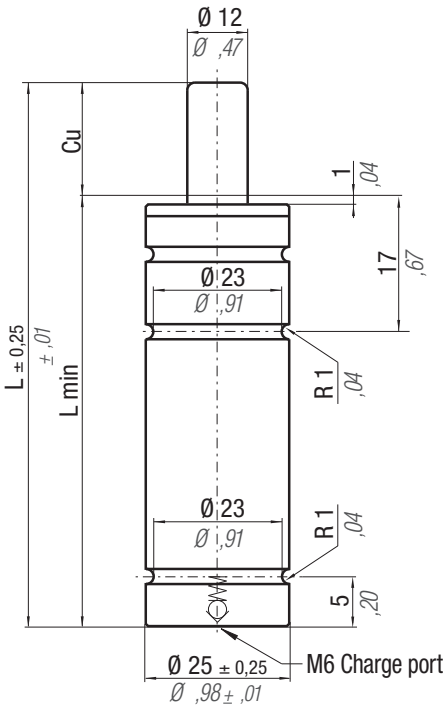
# M 200

ISO 11901 - 1  
E24.54.815.G (PSA)

VDI 3003 - Blatt 2  
39D 878 (VW)

B2 4007 (BMW)

B8 3180 220 000 002(MB)



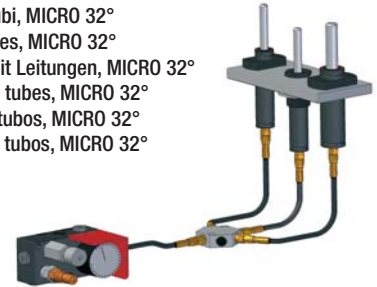
Force color code	P		F0 Initial force ± 5% +20°C +68°F	
	bar	psi	daN	lb
OR	15	218	17	38
PR	25	363	28	63
GR	45	653	50	112
BU	90	1305	100	225
RD	135	1958	150	337
YW	180	2610	200	450
BK	10-180	145-2610	11-200	25-450

## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

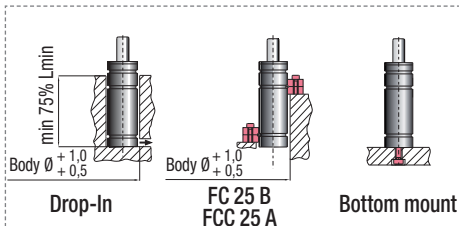
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

Collegabile con tubi, MICRO 32°  
Linkable with hoses, MICRO 32°  
Anschlussfähig mit Leitungen, MICRO 32°  
Connectable avec tubes, MICRO 32°  
Connectable con tubos, MICRO 32°  
Acompláveis com tubos, MICRO 32°



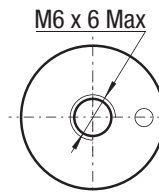
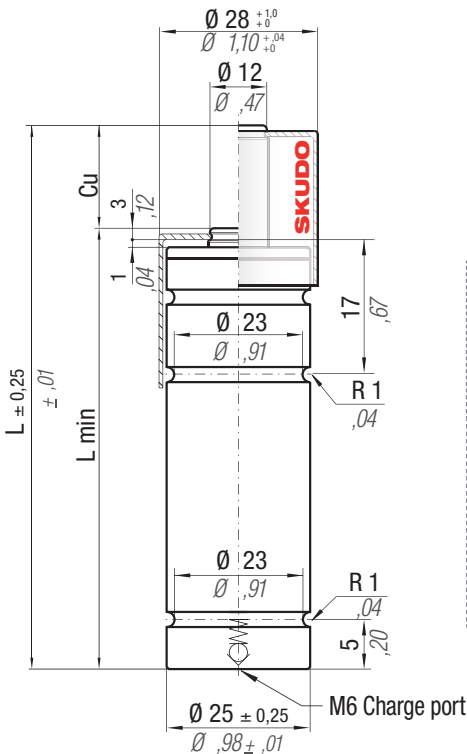
	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	<b>P max</b> 180 bar 2610 psi	<b>P min</b> 10 bar 145 psi	<b>S</b> 1,13 cm <sup>2</sup> 0,175 in <sup>2</sup>	<b>SPM</b> ~ 50 - 80 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> Disposable
--	----------------------	--------------------	---------------------------	-------------------------------------	-----------------------------------	---	--------------------------------------	-----------------------------	--------------------------------------

CODE	Cu		L		L min		F <sub>1i</sub> * End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		Kg		Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
M200 - 007 - A - ...	7	0,28	56	2,20	49	1,93	1,16 x F0		1,33 x F0		-	-	0,12	0,26	-
M200 - 010 - A - ...	10	0,39	62	2,44	52	2,05	1,20 x F0		1,40 x F0		-	-	0,13	0,29	-
M200 - 013 - A - ...	12,7	0,50	67,4	2,65	54,7	2,15	1,23 x F0		1,46 x F0		-	-	0,13	0,29	-
M200 - 015 - A - ...	15	0,59	72	2,83	57	2,24	1,24 x F0		1,48 x F0		-	-	0,14	0,31	-
M200 - 025 - A - ...	25	0,98	92	3,62	67	2,64	1,29 x F0		1,58 x F0		-	-	0,16	0,35	-
M200 - 038 - A - ...	38,1	1,50	118,2	4,65	80,1	3,15	1,33 x F0		1,65 x F0		-	-	0,19	0,42	-
M200 - 050 - A - ...	50	1,97	142	5,59	92	3,62	1,35 x F0		1,69 x F0		-	-	0,20	0,44	-
M200 - 063 - A - ...	63,5	2,50	172	6,77	108,5	4,27	1,34 x F0		1,67 x F0		-	-	0,23	0,51	-
M200 - 080 - A - ...	80	3,15	205	8,07	125	4,92	1,36 x F0		1,71 x F0		-	-	0,26	0,57	-
M200 - 100 - A - ...	100	3,94	245	9,65	145	5,71	1,37 x F0		1,73 x F0		-	-	0,30	0,66	-
M200 - 125 - A - ...	125	4,92	295	11,61	170	6,69	1,38 x F0		1,75 x F0		-	-	0,34	0,75	-



## HOW TO ORDER

(10 pcs) M200-050-A-YW



Force color code	P		Fo Initial force ± 5% +20°C +68°F	
	bar	psi	daN	lb
OR	15	218	17	38
PR	25	363	28	63
GR	45	653	50	112
BU	90	1305	100	225
RD	135	1958	150	337
YW	180	2610	200	450
BK	10-180	145-2610	11-200	25-450

## Info

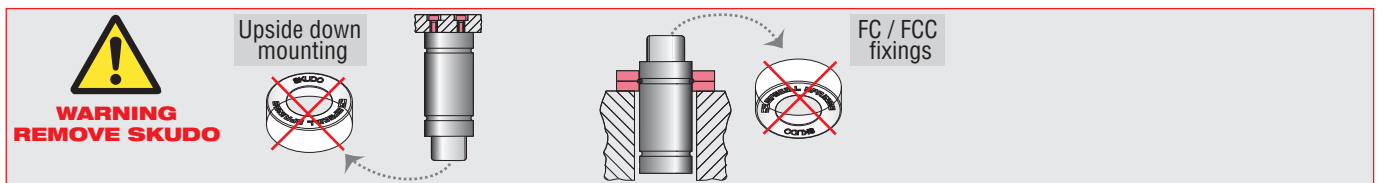
\* F<sub>1i</sub> = Isothermal end force at 100% Cu - see page 31

\*\* F<sub>1p</sub> = Polytrophic end force at 100% Cu - see page 31

M  
MS

N <sub>2</sub>	°F 32 - 176 °C 0 - 80	ΔP ± 0,33 %/°C	P max 180 bar 2610 psi	P min 10 bar 145 psi	S 1,13 cm <sup>2</sup> 0,175 in <sup>2</sup>	SPM ~ 50 - 80 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit Disposable
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CODE	Cu	L		L min		F <sub>1i</sub> * End force *		F <sub>1p</sub> ** End force **		Vo		~Kg	~lb	CE Cat.
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb			
MS200 - 007 - A	7	0,28	62	2,44	55	2,17	1,20 x F0	1,40 x F0	-	-	0,13	0,29	-	
MS200 - 010 - A	9,7	0,38	67,4	2,65	57,7	2,27	1,23 x F0	1,46 x F0	-	-	0,13	0,29	-	
MS200 - 012 - A	12	0,47	72	2,83	60	2,36	1,24 x F0	1,48 x F0	-	-	0,14	0,31	-	
MS200 - 022 - A	22	0,87	92	3,62	70	2,76	1,29 x F0	1,58 x F0	-	-	0,16	0,35	-	
MS200 - 035 - A	35,1	1,38	118,2	4,65	83,1	3,27	1,33 x F0	1,65 x F0	-	-	0,19	0,42	-	
MS200 - 047 - A	47	1,85	142	5,59	95	3,74	1,35 x F0	1,69 x F0	-	-	0,20	0,44	-	
MS200 - 060 - A	60,5	2,38	172	6,77	111,5	4,39	1,34 x F0	1,67 x F0	-	-	0,23	0,51	-	
MS200 - 077 - A	77	3,03	205	8,07	128	5,04	1,36 x F0	1,71 x F0	-	-	0,26	0,57	-	
MS200 - 097 - A	97	3,82	245	9,65	148	5,83	1,37 x F0	1,73 x F0	-	-	0,30	0,66	-	
MS200 - 122 - A	122	4,80	295	11,61	173	6,81	1,38 x F0	1,75 x F0	-	-	0,34	0,75	-	

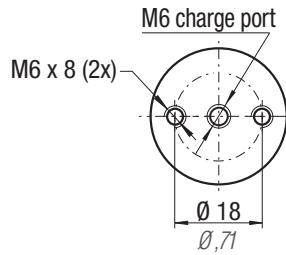
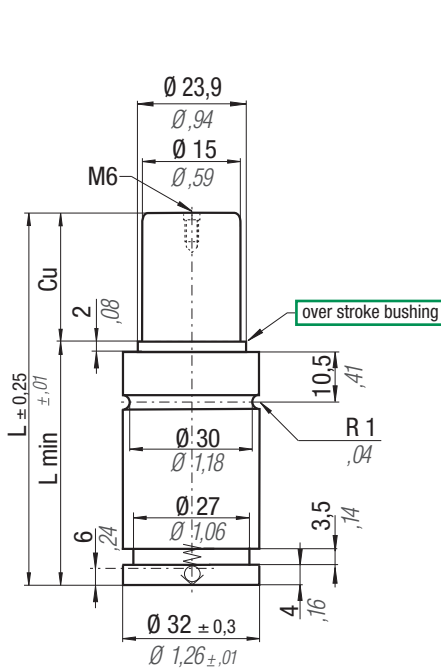


## HOW TO ORDER

(10 pcs) MS200-047-A-YW

# M 300

W-DX35-80-40 (Ford)



Force color code	P		F <sub>0</sub>	
	bar	psi	daN	lb
GR	45	653	80	180
BU	90	1305	160	360
RD	135	1958	240	540
YW	180	2610	320	719
BK	10-180	145-2610	18-320	40-719

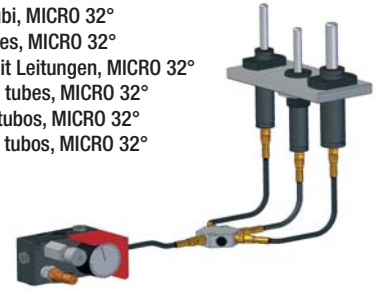
Initial force  $\pm 5\%$   
 $+20^\circ\text{C} +68^\circ\text{F}$

## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

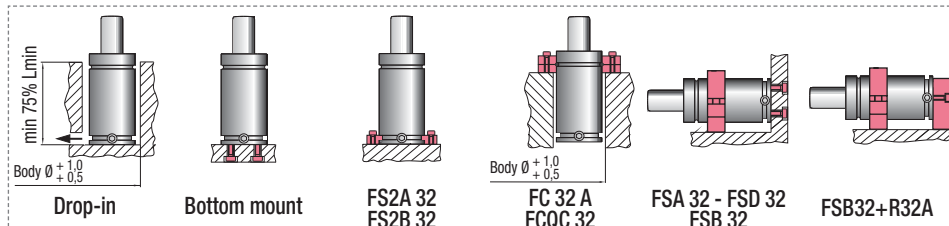
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

Collegabile con tubi, MICRO 32°  
Linkable with hoses, MICRO 32°  
Anschlussfähig mit Leitungen, MICRO 32°  
Connectable with tubes, MICRO 32°  
Connectable with tubes, MICRO 32°  
Acompláveis com tubos, MICRO 32°



N <sub>2</sub>	$^\circ\text{F}$ 32 - 176	$^\circ\text{C}$ 0 - 80	$\Delta P$ $\pm 0,33\% / ^\circ\text{C}$	P max 180 bar 2610 psi	P min 10 bar 145 psi	S 1,77 cm <sup>2</sup> 0,274 in <sup>2</sup>	SPM ~ 50 - 80 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMMCI32A
----------------	------------------------------------	----------------------------------	---	------------------------------	----------------------------	--	-------------------------------	----------------------	-------------------------------

CODE		Cu		L		L min		F <sub>1i</sub> End force *		F <sub>1p</sub> End force **		V <sub>0</sub>		Kg		CE
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
M300 - 007 - A - ...		7	0,28	56	2,20	49	1,93	1,18 x F <sub>0</sub>		1,37 x F <sub>0</sub>		-	-	0,21	0,01	-
M300 - 010 - A - ...		10	0,39	62	2,44	52	2,05	1,22 x F <sub>0</sub>		1,43 x F <sub>0</sub>		-	-	0,22	0,01	-
M300 - 013 - A - ...		12,7	0,50	67,4	2,65	54,7	2,15	1,25 x F <sub>0</sub>		1,49 x F <sub>0</sub>		-	-	0,23	0,01	-
M300 - 015 - A - ...		15	0,59	72	2,83	57	2,24	1,26 x F <sub>0</sub>		1,51 x F <sub>0</sub>		-	-	0,24	0,01	-
M300 - 025 - A - ...		25	0,98	92	3,62	67	2,64	1,30 x F <sub>0</sub>		1,60 x F <sub>0</sub>		-	-	0,26	0,01	-
M300 - 038 - A - ...		38	1,50	118	4,65	80	3,15	1,33 x F <sub>0</sub>		1,65 x F <sub>0</sub>		-	-	0,30	0,01	-
M300 - 050 - A - ...		50	1,97	142	5,59	92	3,62	1,35 x F <sub>0</sub>		1,68 x F <sub>0</sub>		-	-	0,34	0,01	-
M300 - 063 - A - ...		63,5	2,50	172	6,77	108,5	4,27	1,34 x F <sub>0</sub>		1,66 x F <sub>0</sub>		-	-	0,39	0,02	-
M300 - 080 - A - ...		80	3,15	205	8,07	125	4,92	1,35 x F <sub>0</sub>		1,69 x F <sub>0</sub>		-	-	0,44	0,02	-
M300 - 100 - A - ...		100	3,94	245	9,65	145	5,71	1,36 x F <sub>0</sub>		1,71 x F <sub>0</sub>		-	-	0,50	0,02	-
M300 - 125 - A - ...		125	4,92	295	11,61	170	6,69	1,37 x F <sub>0</sub>		1,73 x F <sub>0</sub>		-	-	0,57	0,02	-



## HOW TO ORDER

(10 pcs) M300-050-A-YW



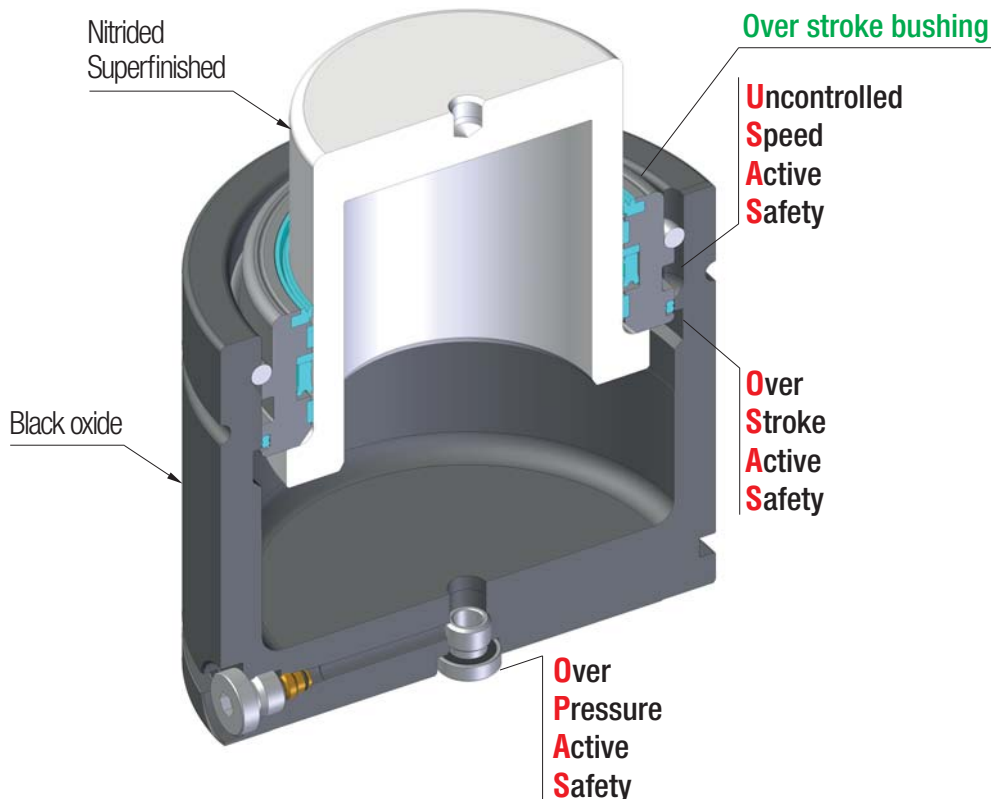
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# RV SERIES



ISO	VDI	BMW
Ford	Mazda	MB
Nissan	PSA	VW



## Range chart

Model	Body Ø		Stroke Cu		Initial force Fo					
	mm	inch	mm	inch	daN	lb	OSAS	USAS	OPAS	SKUDO
RV 170	19	0,75	7 - 125	0,28 - 4,92	170	382	-	-	✓	-
RV 320	25	0,98	7 - 125	0,28 - 4,92	320	719	-	-	✓	-
RV 350	32	1,26	10 - 125	0,39 - 4,92	360	809	✓	✓	✓	-
RV 500	38	1,50	10 - 125	0,39 - 4,92	470	1057	✓	✓	✓	-
RV 750	45	1,77	10 - 125	0,39 - 4,92	740	1664	✓	✓	✓	-
RV 1000	50	1,97	10 - 125	0,39 - 4,92	920	2068	✓	✓	✓	-
RV 1200	50	1,97	10 - 125	0,39 - 4,92	1060	2383	✓	✓	✓	-
RV 1500	63	2,48	10 - 125	0,39 - 4,92	1530	3440	✓	✓	✓	-
RV 2400	75	2,95	10 - 125	0,39 - 4,92	2385	5362	✓	✓	✓	-
RV 4200	95	3,74	16 - 125	0,63 - 4,92	4240	9532	✓	✓	✓	-
RV 6600	120	4,72	16 - 125	0,63 - 4,92	6630	14905	✓	✓	✓	-
RV 9500	150	5,91	19 - 125	0,75 - 4,92	9540	21447	✓	✓	✓	-
RV 12000	150	5,91	19 - 125	0,75 - 4,92	11780	26470	✓	✓	✓	-
RV 20000	195	7,68	19 - 125	0,75 - 4,92	19910	44738	✓	✓	✓	-



How to Order

## RV 2400-050-A - N

## RS

## RF

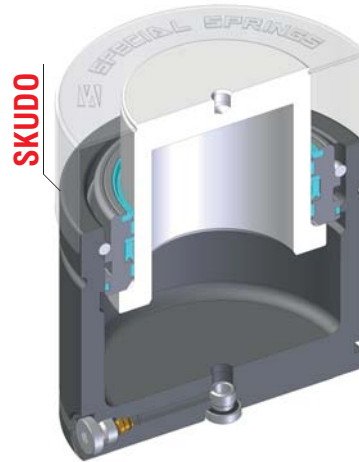
Codice cilindro autonomo  
Self-contained cylinder code  
Kode des eingeständigen Gdf.  
Code du cylindre autonome  
Codigo del cilindro autónomo  
Codigo do cilindro autónomo

## - E

Collegabile con tubi, cilindro fornito scarico e senza valvola unidirezionale  
Linkable with hoses, cylinder supplied without pressure and oneway valve  
Anschlussfähig mit Leitungen, Gdf. geliefert ohne Druck und RückschlagVentil  
Connectable avec tubes, ressort fourni sans pression ni valve unidirectionnelle  
Connectable con tubos, cilindro suministrado sin presión y sin válvula unidireccional  
Acompláveis com tubos, cilindro fornecidos sem pressão e sem válvula unidireccional

Collegabile EASY MANIFOLD, fornito scarico + guarnizione di collegamento  
Linkable EASY MANIFOLD, supplied without pressure + connecting seal  
Anschlussfähig EASY MANIFOLD, geliefert ohne Druck + Verbindungsdichtung  
Connectable EASY MANIFOLD, fourni sans pression + joint de connexion  
Connectable EASY MANIFOLD, suministrado sin presión + junta de conexión  
Acompláveis EASY MANIFOLD, fornecidos sem pressão + vedantes de conexão

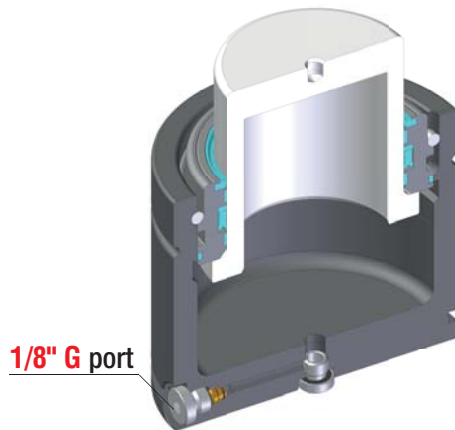




### Range chart

Model	Body Ø		Stroke Cu		Initial force Fo					
	mm	inch	mm	inch	daN	lb	OSAS	USAS	OPAS	SKUDO
RS 170	19	0,75	7 - 122	0,28 - 4,80	170	382	-	-	✓	✓
RS 320	25	0,98	7 - 122	0,28 - 4,80	320	719	-	-	✓	✓
RS 350	32	1,26	7 - 122	0,28 - 4,80	360	809	✓	✓	✓	✓
RS 500	38	1,50	7 - 122	0,28 - 4,80	470	1057	✓	✓	✓	✓
RS 750	45	1,77	7 - 122	0,28 - 4,80	740	1664	✓	✓	✓	✓
RS 1000	50	1,97	10 - 122	0,39 - 4,80	920	2068	✓	✓	✓	✓
RS 1200	50	1,97	10 - 122	0,39 - 4,80	1060	2383	✓	✓	✓	✓
RS 1500	63	2,48	10 - 122	0,39 - 4,80	1530	3440	✓	✓	✓	✓
RS 2400	75	2,95	13 - 122	0,51 - 4,80	2385	5362	✓	✓	✓	✓
RS 4200	95	3,74	13 - 122	0,51 - 4,80	4240	9532	✓	✓	✓	✓
RS 6600	120	4,72	13 - 122	0,51 - 4,80	6630	14905	✓	✓	✓	✓
RS 9500	150	5,91	16 - 122	0,63 - 4,80	9540	21447	✓	✓	✓	✓

RV  
RS-RF



## SERIES RF

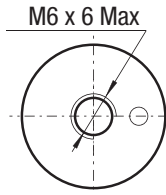
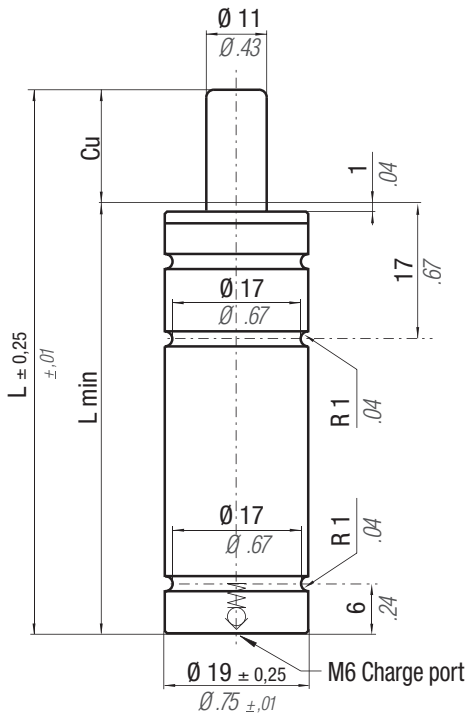
1/8" G port

**FCA norm**  
Fiat Chrysler  
Automobiles



Model	Body Ø		Stroke Cu		Initial force Fo					
	mm	inch	mm	inch	daN	lb	OSAS	USAS	OPAS	SKUDO
RF 750	45	1,77	10 - 125	0,39 - 4,92	740	1664	✓	✓	✓	-
RF 1000	50	1,97	13 - 125	0,51 - 4,92	920	2068	✓	✓	✓	-
RF 1200	50	1,97	13 - 125	0,51 - 4,92	1060	2383	✓	✓	✓	-
RF 1500	63	2,48	13 - 125	0,51 - 4,92	1530	3440	✓	✓	✓	-
RF 2400	75	2,95	16 - 125	0,63 - 4,92	2385	5362	✓	✓	✓	-
	95	3,74								
	120	4,72								
	150	5,91								
	150	5,91								
	195	7,68								

see → RV series



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytropic end force at 100% Cu - see page 31

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

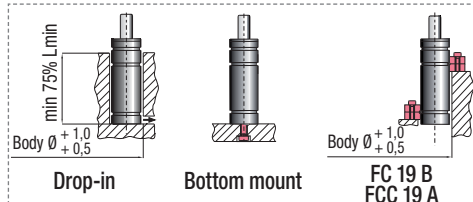
O novo código irá ser fornecido apenas quando o antigo esgotar stock



Collegabile con tubi, MICRO 32°  
Linkable with hoses, MICRO 32°  
Anschlussfähig mit Leitungen, MICRO 32°  
Connectable avec tubes, MICRO 32°  
Connectable con tubos, MICRO 32°  
Acompláveis com tubos, MICRO 32°

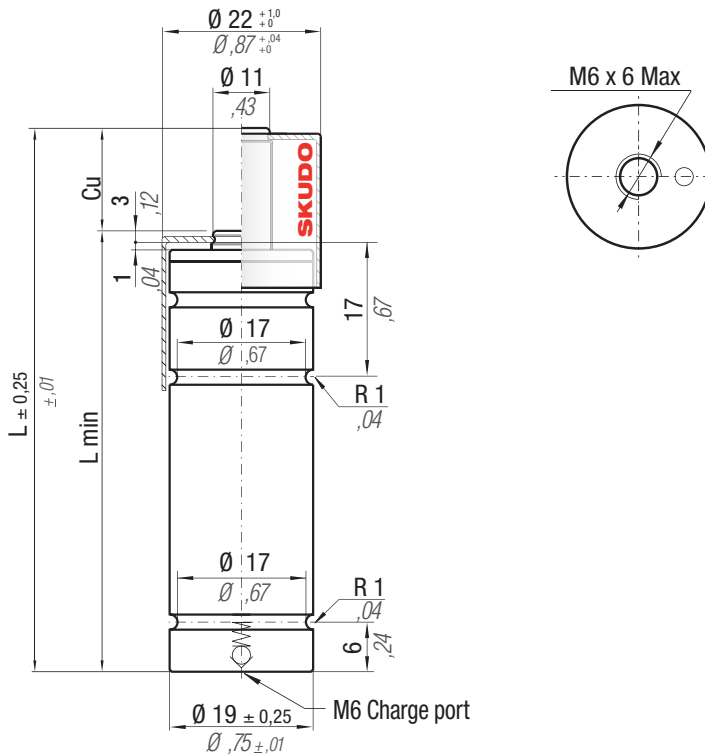


		$^{\circ}\text{F}$ 32 -176	$^{\circ}\text{C}$ 0 -80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 180 bar 2610 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 0,95 cm <sup>2</sup> 0,147 in <sup>2</sup>	<b>SPM</b> ~ 40 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> Disposable								
CODE	NEW	<b>Cu</b>		<b>L</b>		<b>L min</b>		<b>F<sub>0</sub></b>		<b>F<sub>1i</sub></b>		<b>F<sub>1p</sub></b>		<b>V<sub>0</sub></b>			<b>CE</b>	
PHASING OUT from 09/2013		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
RV 170 - 007 - A	RV 170 - 007 - B	7	0,28	44	1,73	37	1,46	170 382	180 bar 2610psi	253	569	292	656	2,0	0,12	0,057	0,13	-
RV 170 - 010 - A	RV 170 - 010 - B	10	0,39	50	1,97	40	1,57			255	573	311	699	3,0	0,18	0,061	0,13	-
RV 170 - 013 - A	RV 170 - 013 - B	13	0,51	56	2,20	43	1,69			256	576	324	728	4,0	0,24	0,065	0,14	-
RV 170 - 015 - A	RV 170 - 015 - B	15	0,59	60	2,36	45	1,77			256	576	331	744	4,0	0,24	0,066	0,15	-
RV 170 - 019 - A	RV 170 - 019 - B	19	0,75	68	2,68	49	1,93			261	587	341	767	5,0	0,31	0,071	0,16	-
RV 170 - 025 - A	RV 170 - 025 - B	25	0,98	80	3,15	55	2,17			266	598	352	791	7,0	0,43	0,078	0,17	-
RV 170 - 032 - A	RV 170 - 032 - B	32	1,26	94	3,70	62	2,44			270	607	360	809	8,0	0,49	0,086	0,19	-
RV 170 - 038 - A	RV 170 - 038 - B	38	1,50	106	4,17	68	2,68			272	611	365	821	10,0	0,61	0,093	0,21	-
RV 170 - 050 - A	RV 170 - 050 - B	50	1,97	130	5,12	80	3,15			275	618	371	834	13,0	0,79	0,107	0,24	-
RV 170 - 063 - A	RV 170 - 063 - B	63	2,48	156	6,14	93	3,66			277	623	376	845	16,0	0,98	0,121	0,27	-
RV 170 - 075 - A	RV 170 - 075 - B	75	2,95	185	7,28	110	4,33			270	607	361	812	19,0	1,16	0,139	0,31	-
RV 170 - 080 - A	RV 170 - 080 - B	80	3,15	195	7,68	115	4,53			271	609	362	814	21,0	1,28	0,145	0,32	-
RV 170 - 100 - A	RV 170 - 100 - B	100	3,94	235	9,25	135	5,31			274	616	368	827	25,0	1,55	0,166	0,37	-
RV 170 - 125 - A	RV 170 - 125 - B	125	4,92	285	11,22	160	6,30			276	620	373	839	31,0	1,91	0,194	0,43	-



## HOW TO ORDER

(10 pcs) RV 170-050-A



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

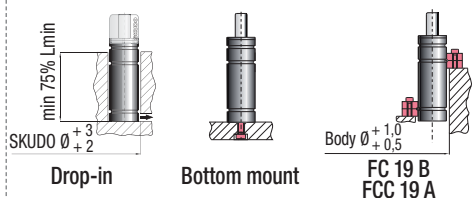
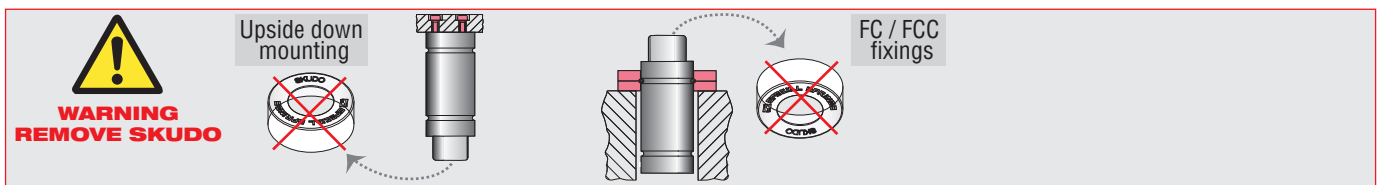
El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

RV  
RS-RF

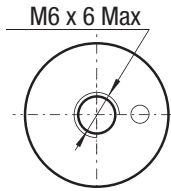
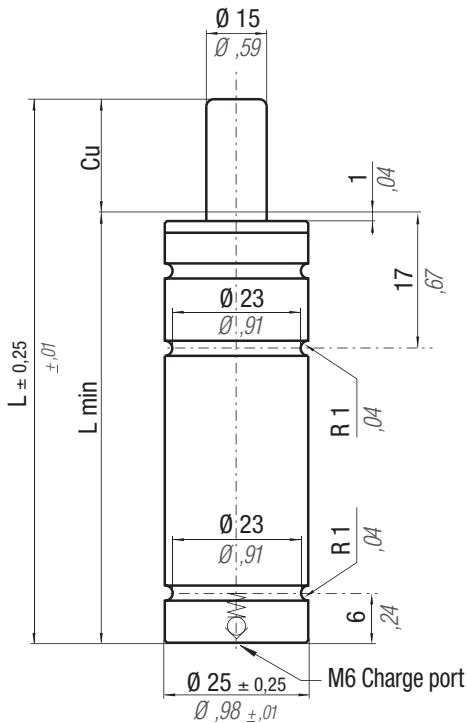
	$F$ 32 -176	$C$ 0 -80	$\Delta P$ $\pm 0,33\% / ^\circ C$	<b>P max</b> 180 bar 2610 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 0,95 cm <sup>2</sup> 0,147 in <sup>2</sup>	<b>SPM</b> ~ 40 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> Disposable
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CODE PHASING OUT from 09/2013	NEW	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> End force **		V <sub>0</sub>		CE		
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
RS 170 - 007 - A	RS 170 - 007 - B	7	0,28	50	1,97	43	1,69	170	382	217	488	257	578	3,0	0,18	0,061	0,13	-
RS 170 - 010 - A	RS 170 - 010 - B	10	0,39	56	2,20	46	1,81			227	510	276	620	4,0	0,24	0,065	0,14	-
RS 170 - 012 - A	RS 170 - 012 - B	12	0,47	60	2,36	48	1,89			233	524	286	643	4,0	0,24	0,066	0,15	-
RS 170 - 016 - A	RS 170 - 016 - B	16	0,63	68	2,68	52	2,05			241	542	302	679	5,0	0,31	0,071	0,16	-
RS 170 - 022 - A	RS 170 - 022 - B	22	0,87	80	3,15	58	2,28			249	560	318	715	7,0	0,43	0,078	0,17	-
RS 170 - 029 - A	RS 170 - 029 - B	29	1,14	94	3,70	65	2,56			256	576	332	746	8,0	0,49	0,086	0,19	-
RS 170 - 035 - A	RS 170 - 035 - B	35	1,38	106	4,17	71	2,80			260	585	340	764	10,0	0,61	0,093	0,21	-
RS 170 - 047 - A	RS 170 - 047 - B	47	1,85	130	5,12	83	3,27			265	596	351	789	13,0	0,79	0,107	0,24	-
RS 170 - 060 - A	RS 170 - 060 - B	60	2,36	156	6,14	96	3,78			269	605	359	807	16,0	0,98	0,121	0,27	-
RS 170 - 072 - A	RS 170 - 072 - B	72	2,83	185	7,28	113	4,45			264	593	348	782	19,0	1,16	0,139	0,31	-
RS 170 - 077 - A	RS 170 - 077 - B	77	3,03	195	7,68	118	4,65			265	596	351	789	21,0	1,28	0,145	0,32	-
RS 170 - 097 - A	RS 170 - 097 - B	97	3,82	235	9,25	138	5,43			269	605	358	805	25,0	1,53	0,166	0,37	-
RS 170 - 122 - A	RS 170 - 122 - B	122	4,80	285	11,22	163	6,42			272	611	365	821	31,0	1,89	0,194	0,43	-



## HOW TO ORDER

(10 pcs) RS 170-047-A



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

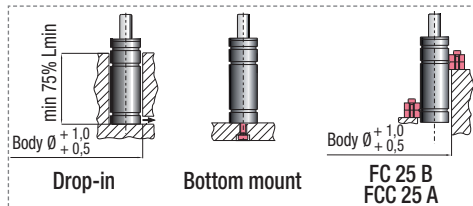


Il nuovo codice sarà fornito solo ad esaurimento del vecchio  
 The new code will be supplied only when the old will be out of stock  
 Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist  
 Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé  
 El nuevo código será suministrado sólo cuando el viejo está fuera de stock  
 O novo código irá ser fornecido apenas quando o antigo esgotar stock

Collegabile con tubi, MICRO 32°  
 Linkable with hoses, MICRO 32°  
 Anschlussfähig mit Leitungen, MICRO 32°  
 Connectable avec tubes, MICRO 32°  
 Connectable con tubos, MICRO 32°  
 Acompláveis com tubos, MICRO 32°

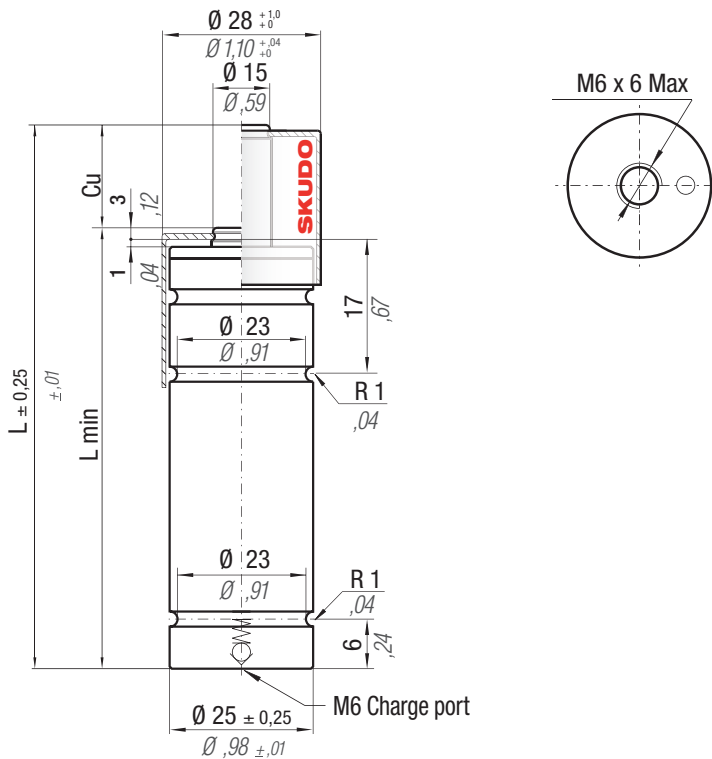


N <sub>2</sub>		°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 180 bar 2610 psi	P min 20 bar 290 psi	S 1,77 cm <sup>2</sup> 0,27 in <sup>2</sup>	SPM ~ 40 - 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit Disposable								
CODE	NEW	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE		
PHASING OUT from 09/2013		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
RV 320 - 007 - A	RV 320 - 007 - B	7	0,28	44	1,73	37	1,46	320	719	435	978	531	1194	5,0	0,31	0,099	0,22	-
RV 320 - 010 - A	RV 320 - 010 - B	10	0,39	50	1,97	40	1,57			447	1005	566	1272	6,0	0,37	0,104	0,23	-
RV 320 - 013 - A	RV 320 - 013 - B	13	0,51	56	2,20	43	1,69			459	1032	589	1324	8,0	0,49	0,108	0,24	-
RV 320 - 015 - A	RV 320 - 015 - B	15	0,59	60	2,36	45	1,77			465	1045	602	1353	8,0	0,49	0,112	0,25	-
RV 320 - 019 - A	RV 320 - 019 - B	19	0,75	68	2,68	49	1,93			474	1066	620	1394	10,0	0,61	0,120	0,26	-
RV 320 - 025 - A	RV 320 - 025 - B	25	0,98	80	3,15	55	2,17			483	1086	640	1439	13,0	0,79	0,130	0,29	-
RV 320 - 032 - A	RV 320 - 032 - B	32	1,26	94	3,70	62	2,44			490	1102	654	1470	16,0	0,98	0,140	0,31	-
RV 320 - 038 - A	RV 320 - 038 - B	38	1,50	106	4,17	68	2,68			494	1111	663	1490	19,0	1,16	0,151	0,33	-
RV 320 - 050 - A	RV 320 - 050 - B	50	1,97	130	5,12	80	3,15			500	1124	676	1520	24,0	1,46	0,171	0,38	-
RV 320 - 063 - A	RV 320 - 063 - B	63	2,48	156	6,14	93	3,66			504	1133	684	1538	30,0	1,83	0,193	0,43	-
RV 320 - 075 - A	RV 320 - 075 - B	75	2,95	185	7,28	110	4,33			492	1106	658	1479	38,0	2,32	0,217	0,48	-
RV 320 - 080 - A	RV 320 - 080 - B	80	3,15	195	7,68	115	4,53			494	1111	662	1488	40,0	2,44	0,226	0,50	-
RV 320 - 100 - A	RV 320 - 100 - B	100	3,94	235	9,25	135	5,31			499	1122	672	1511	49,0	2,99	0,260	0,57	-
RV 320 - 125 - A	RV 320 - 125 - B	125	4,92	285	11,22	160	6,30			475	1068	623	1401	67,0	4,08	0,301	0,66	-



## HOW TO ORDER

(10 pcs) RV 320-050-A



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

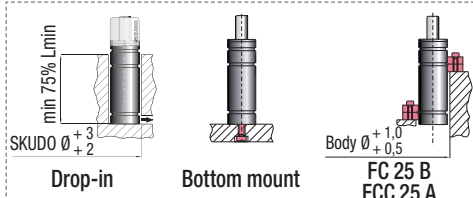
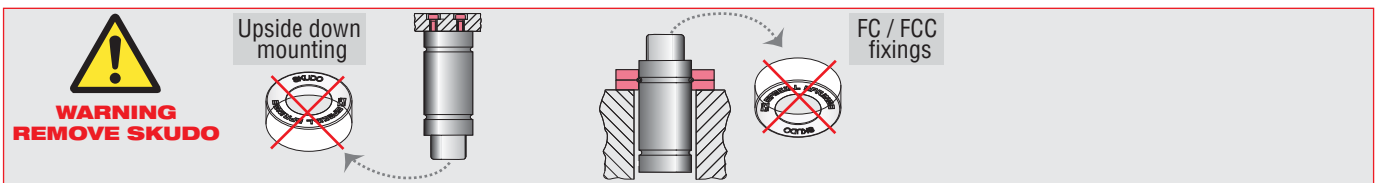
El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

RV  
RS-RF

	$^{\circ}\text{F}$ 32 -176	$^{\circ}\text{C}$ 0 -80	$\Delta\text{P}$ ± 0,33 %/°C	<b>P max</b> 180 bar 2610 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 1,77 cm <sup>2</sup> 0,27 in <sup>2</sup>	<b>SPM</b> ~ 40 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> Disposable
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CODE PHASING OUT from 09/2013	NEW	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> End force **		V <sub>0</sub>		~Kg ~lb		Cat.
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
RS 320 - 007 - A	RS 320 - 007 - B	7	0,28	50	1,97	43	1,69	320 719 180 bar 2610psi ± 5% + 20 °C +68 °F		399	897	472	1061	6,0	0,37	0,104	0,23	-
RS 320 - 010 - A	RS 320 - 010 - B	10	0,39	56	2,20	46	1,81			416	935	506	1138	8,0	0,49	0,108	0,24	-
RS 320 - 012 - A	RS 320 - 012 - B	12	0,47	60	2,36	48	1,89			426	958	523	1176	8,0	0,49	0,112	0,25	-
RS 320 - 016 - A	RS 320 - 016 - B	16	0,63	68	2,68	52	2,05			440	989	552	1241	10,0	0,61	0,120	0,26	-
RS 320 - 022 - A	RS 320 - 022 - B	22	0,87	80	3,15	58	2,28			455	1023	581	1306	13,0	0,79	0,130	0,29	-
RS 320 - 029 - A	RS 320 - 029 - B	29	1,14	94	3,70	65	2,56			467	1050	605	1360	16,0	0,98	0,140	0,31	-
RS 320 - 035 - A	RS 320 - 035 - B	35	1,38	106	4,17	71	2,80			474	1066	620	1394	19,0	1,16	0,151	0,33	-
RS 320 - 047 - A	RS 320 - 047 - B	47	1,85	130	5,12	83	3,27			484	1088	641	1441	24,0	1,46	0,171	0,38	-
RS 320 - 060 - A	RS 320 - 060 - B	60	2,36	156	6,14	96	3,78			490	1102	655	1472	30,0	1,83	0,193	0,43	-
RS 320 - 072 - A	RS 320 - 072 - B	72	2,83	185	7,28	113	4,45			482	1084	636	1430	38,0	2,32	0,217	0,48	-
RS 320 - 077 - A	RS 320 - 077 - B	77	3,03	195	7,68	118	4,65			484	1088	641	1441	40,0	2,44	0,226	0,50	-
RS 320 - 097 - A	RS 320 - 097 - B	97	3,82	235	9,25	138	5,43			490	1102	654	1470	49,0	2,99	0,260	0,57	-
RS 320 - 122 - A	RS 320 - 122 - B	122	4,80	285	11,22	163	6,42			470	1057	611	1374	67,0	4,09	0,301	0,66	-



## HOW TO ORDER

(10 pcs) RS 320-047-A

# RV 350

ISO 11901 - 3 B8 3180 220 000 004(MB)	VDI 3003 - Blatt 3 39D 997 (VW)	B2 4005 (BMW)	W-DX35-6204 (Ford)
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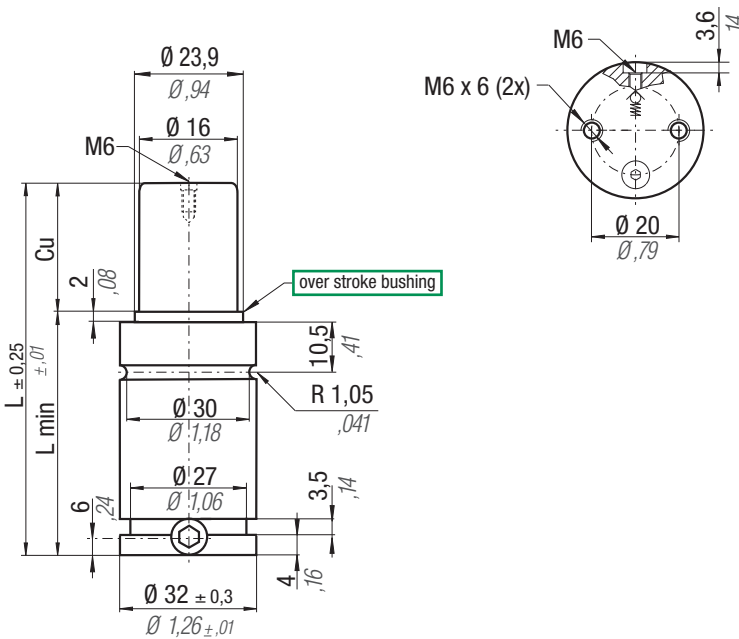


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

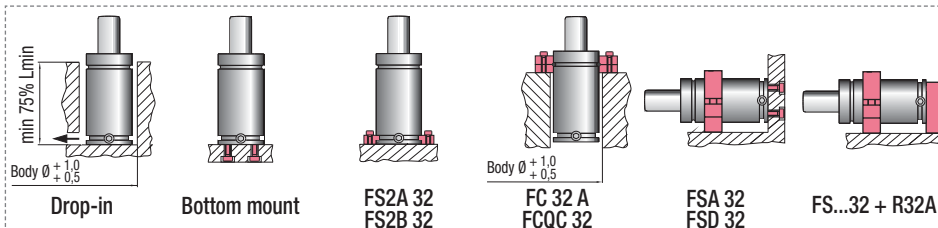
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237



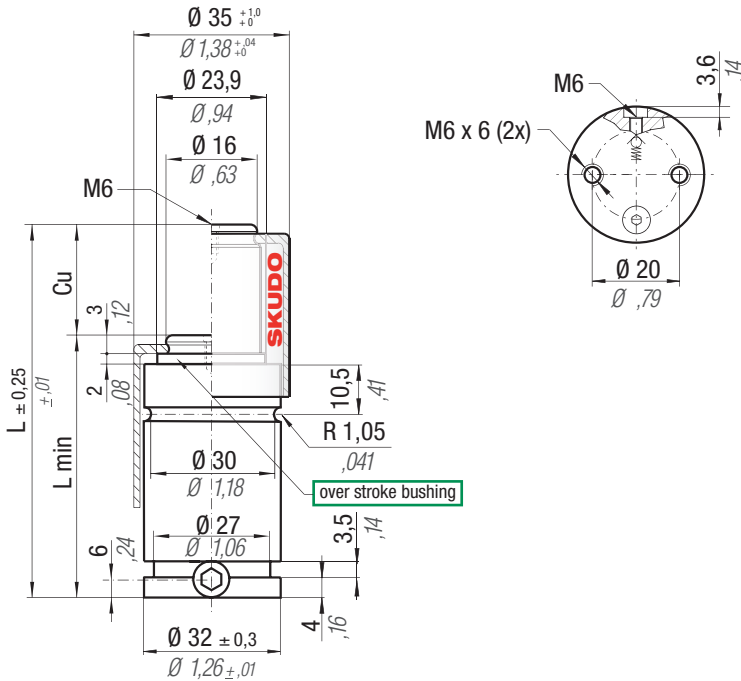
	$^{\circ}\text{F}$ 32 -176	$^{\circ}\text{C}$ 0 -80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 180 bar 2610 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 2,01 cm <sup>2</sup> 0,312 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV00350C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE		
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
RV 350 - 010 - A	10	0,39	50	1,97	40	1,57	360 180 bar 2610psi $\pm 5\%$ + 20 °C +68 °F	809	530	1191	605	1360	8,0	0,49	0,162	0,36	-
RV 350 - 013 - A	13	0,51	56	2,20	43	1,69			495	1113	624	1403	10,0	0,61	0,173	0,38	-
RV 350 - 016 - A	16	0,63	62	2,44	46	1,81			502	1129	638	1434	12,0	0,73	0,182	0,40	-
RV 350 - 019 - A	19	0,75	68	2,68	49	1,93			508	1142	648	1457	13,0	0,79	0,191	0,42	-
RV 350 - 025 - A	25	0,98	80	3,15	55	2,17			515	1158	663	1490	17,0	1,04	0,209	0,46	-
RV 350 - 032 - A	32	1,26	94	3,70	62	2,44			520	1169	674	1515	21,0	1,28	0,230	0,51	-
RV 350 - 038 - A	38	1,50	106	4,17	68	2,68			524	1178	681	1531	25,0	1,53	0,249	0,55	-
RV 350 - 050 - A	50	1,97	130	5,12	80	3,15			528	1187	690	1551	32,0	1,95	0,285	0,63	-
RV 350 - 063 - A	63	2,48	156	6,14	93	3,66			531	1194	696	1565	40,0	2,44	0,325	0,72	-
RV 350 - 075 - A	75	2,95	180	7,09	105	4,13			533	1198	700	1574	47,0	2,87	0,361	0,80	-
RV 350 - 080 - A	80	3,15	190	7,48	110	4,33			533	1198	701	1576	50,0	3,05	0,375	0,83	-
RV 350 - 100 - A	100	3,94	230	9,06	130	5,12			535	1203	705	1585	62,0	3,78	0,437	0,96	-
RV 350 - 125 - A	125	4,92	280	11,02	155	6,10			537	1207	709	1594	77,0	4,70	0,513	1,13	-



## HOW TO ORDER

(10 pcs) RV 350-050-A  
(10 pcs) RV 350-050-A-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

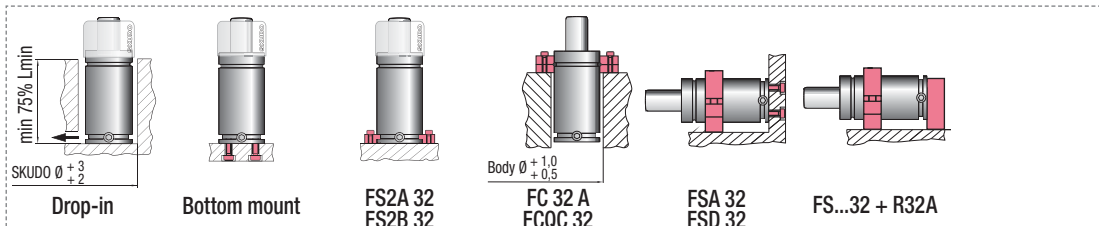
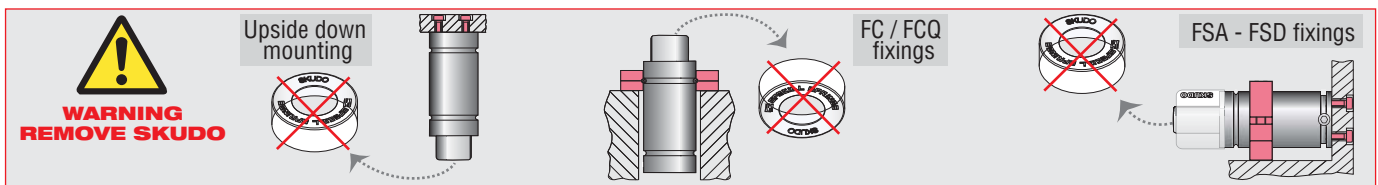
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easyl** MANIFOLD - see page 237

RV  
RS-RF

	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta P$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 180 bar 2610 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 2,01 cm <sup>2</sup> 0,312 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV00350C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub> **		V <sub>0</sub>		~Kg		Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	-Kg	-lb	
RS 350 - 007 - A	7	0,28	50	1,97	43	1,69	360 180 bar 2610 psi $\pm 5\%$ + 20 °C + 68 °F	809	436	980	511	1149	8,0	0,49	0,162	0,36	-
RS 350 - 010 - A	10	0,39	56	2,20	46	1,81			451	1014	539	1212	10,0	0,61	0,173	0,38	-
RS 350 - 013 - A	13	0,51	62	2,44	49	1,93			463	1041	560	1259	12,0	0,73	0,182	0,40	-
RS 350 - 016 - A	16	0,63	68	2,68	52	2,05			471	1059	576	1295	14,0	0,85	0,191	0,42	-
RS 350 - 022 - A	22	0,87	80	3,15	58	2,28			483	1086	600	1349	18,0	1,10	0,209	0,46	-
RS 350 - 029 - A	29	1,14	94	3,70	65	2,56			492	1106	618	1389	22,0	1,34	0,230	0,51	-
RS 350 - 035 - A	35	1,38	106	4,17	71	2,80			498	1120	629	1414	26,0	1,59	0,249	0,55	-
RS 350 - 047 - A	47	1,85	130	5,12	83	3,27			505	1135	644	1448	33,0	2,01	0,285	0,63	-
RS 350 - 060 - A	60	2,36	156	6,14	96	3,78			511	1149	655	1472	41,0	2,50	0,325	0,72	-
RS 350 - 072 - A	72	2,83	180	7,09	108	4,25			514	1156	661	1486	49,0	2,99	0,361	0,80	-
RS 350 - 077 - A	77	3,03	190	7,48	113	4,45			515	1158	664	1493	52,0	3,17	0,375	0,83	-
RS 350 - 097 - A	97	3,82	230	9,06	133	5,24			518	1165	671	1508	65,0	3,97	0,437	0,96	-
RS 350 - 122 - A	122	4,80	280	11,02	158	6,22			521	1171	676	1520	80,0	4,88	0,513	1,13	-



## HOW TO ORDER

(10 pcs) RS 350-047-A  
(10 pcs) RS 350-047-A-N

# RV 500

ISO 11901 - 3 B8 3180 220 000 004(MB)	VDI 3003 - Blatt 3 K 32 H (Nissan)	B2 4005 (BMW) E24.54.815.G (PSA)	W-DX35-6204 (Ford) 39D 997 (VW)
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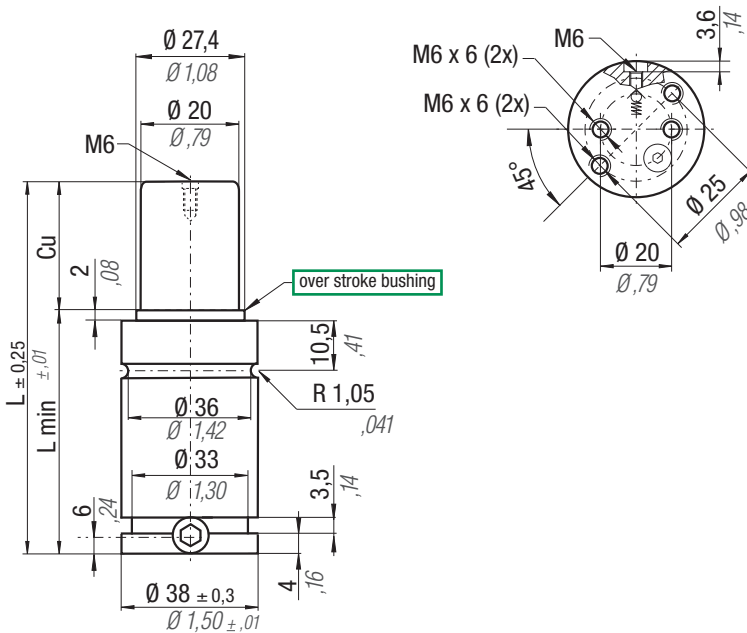


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

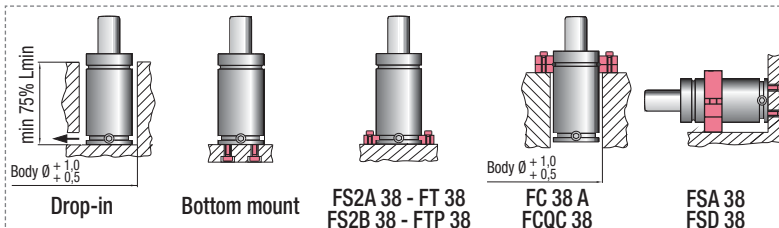
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237



	$^{\circ}F$ 32 - 176	$^{\circ}C$ 0 - 80	$\Delta P$ $\pm 0,33\% / ^{\circ}C$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 3,14 cm <sup>2</sup> 0,487 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV00500C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg		CE
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
RV 500 - 010 - A	10	0,39	50	1,97	40	1,57	470 1057  150 bar 2175psi  $\pm 5\%$ $+ 20^{\circ}C + 68^{\circ}F$		652	1466	824	1852	11,0	0,67	0,24	0,53	-
RV 500 - 013 - A	13	0,51	56	2,20	43	1,69			667	1499	854	1920	14,0	0,85	0,25	0,55	-
RV 500 - 016 - A	16	0,63	62	2,44	46	1,81			678	1524	876	1969	17,0	1,04	0,26	0,57	-
RV 500 - 019 - A	19	0,75	68	2,68	49	1,93			686	1542	892	2005	19,0	1,16	0,28	0,62	-
RV 500 - 025 - A	25	0,98	80	3,15	55	2,17			697	1567	916	2059	24,0	1,46	0,31	0,68	-
RV 500 - 032 - A	32	1,26	94	3,70	62	2,44			706	1587	933	2097	30,0	1,83	0,34	0,75	-
RV 500 - 038 - A	38	1,50	106	4,17	68	2,68			711	1598	944	2122	35,0	2,14	0,37	0,82	-
RV 500 - 050 - A	50	1,97	130	5,12	80	3,15			718	1614	958	2154	46,0	2,81	0,42	0,93	-
RV 500 - 063 - A	63	2,48	156	6,14	93	3,66			722	1623	968	2176	57,0	3,48	0,48	1,06	-
RV 500 - 075 - A	75	2,95	180	7,09	105	4,13			725	1630	975	2192	67,0	4,09	0,54	1,19	-
RV 500 - 080 - A	80	3,15	190	7,48	110	4,33			726	1632	977	2196	72,0	4,39	0,56	1,23	-
RV 500 - 100 - A	100	3,94	230	9,06	130	5,12			729	1639	983	2210	89,0	5,43	0,66	1,46	-
RV 500 - 125 - A	125	4,92	280	11,02	155	6,10			732	1646	989	2223	110,0	6,71	0,77	1,70	-



**HOW TO ORDER**  
(10 pcs) RV 500-050-A  
(10 pcs) RV 500-050-A-N



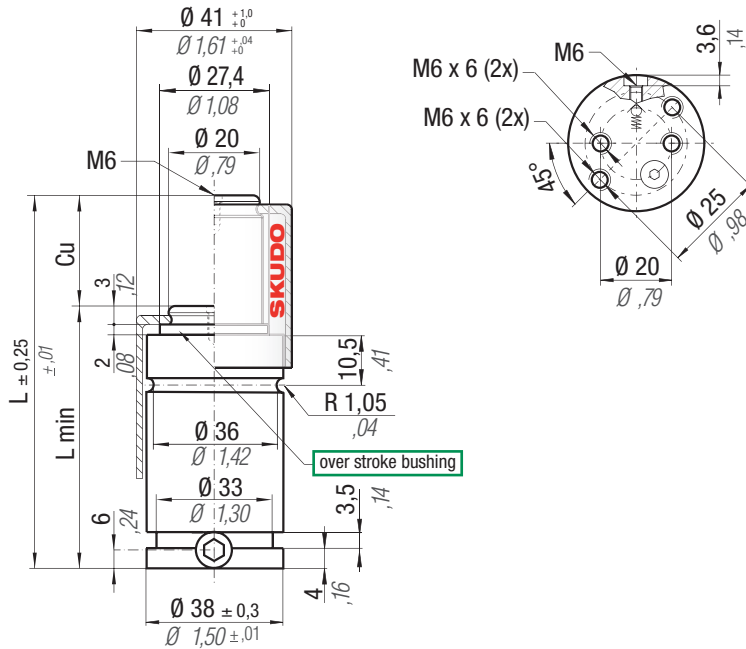


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

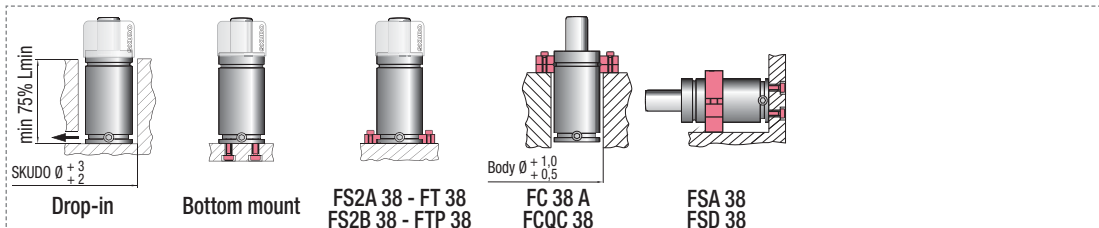
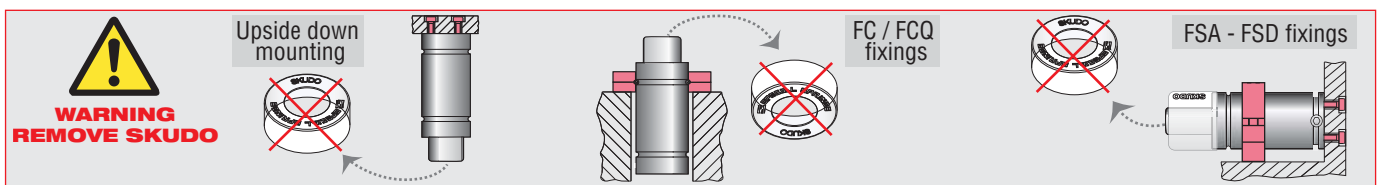
**easyl** MANIFOLD - see page 237



RV  
RS-RF

	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 3,14 cm <sup>2</sup> 0,487 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV00500C
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CODE	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		~Kg ~lb		Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
RS 500 - 007 - A	7	0,28	50	1,97	43	1,69	470 1057 150 bar 2175psi ± 5% + 20 °C +68 °F		585	1315	694	1560	11,0	0,67	0,24	0,53	-
RS 500 - 010 - A	10	0,39	56	2,20	46	1,81			609	1369	739	1661	14,0	0,85	0,25	0,55	-
RS 500 - 013 - A	13	0,51	62	2,44	49	1,93			626	1407	773	1738	17,0	1,04	0,26	0,57	-
RS 500 - 016 - A	16	0,63	68	2,68	52	2,05			640	1439	800	1798	19,0	1,16	0,28	0,62	-
RS 500 - 022 - A	22	0,87	80	3,15	58	2,28			659	1481	838	1884	24,0	1,46	0,31	0,68	-
RS 500 - 029 - A	29	1,14	94	3,70	65	2,56			674	1515	868	1951	30,0	1,83	0,34	0,75	-
RS 500 - 035 - A	35	1,38	106	4,17	71	2,80			683	1535	887	1994	35,0	2,14	0,37	0,82	-
RS 500 - 047 - A	47	1,85	130	5,12	83	3,27			696	1565	913	2053	46,0	2,81	0,42	0,93	-
RS 500 - 060 - A	60	2,36	156	6,14	96	3,78			704	1583	931	2093	57,0	3,48	0,48	1,06	-
RS 500 - 072 - A	72	2,83	180	7,09	108	4,25			710	1596	942	2118	67,0	4,09	0,54	1,19	-
RS 500 - 077 - A	77	3,03	190	7,48	113	4,45			712	1601	946	2127	72,0	4,39	0,56	1,23	-
RS 500 - 097 - A	97	3,82	230	9,06	133	5,24			717	1612	958	2154	89,0	5,43	0,66	1,46	-
RS 500 - 122 - A	122	4,80	280	11,02	158	6,22			722	1623	968	2176	110,0	6,71	0,77	1,70	-



**HOW TO ORDER**

(10 pcs) RS 500-047-A  
(10 pcs) RS 500-047-A-N

# RV 750



ISO 11901 - 3 B8 3180 220 000 004(MB)	VDI 3003 - Blatt 3 E24.54.815.G (PSA)	B2 4005 (BMW) 39D 997 (VW)	W-DX35-6204 (Ford)
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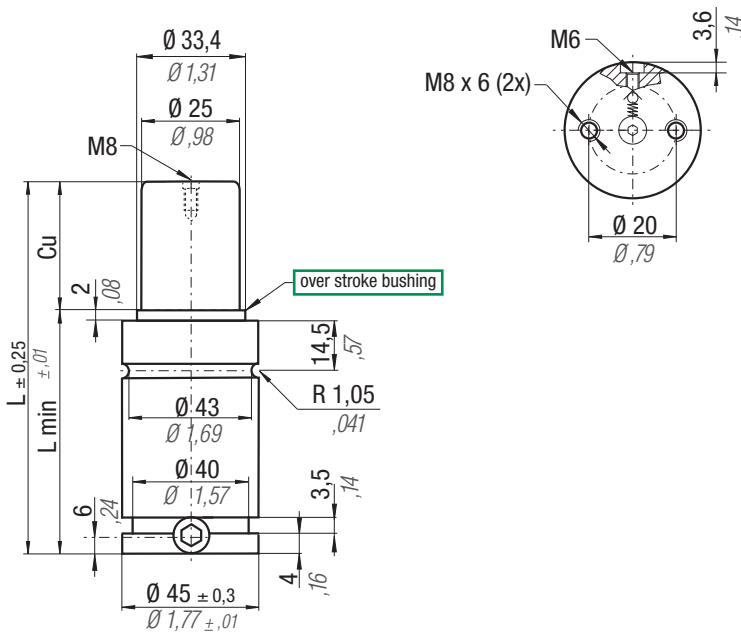


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

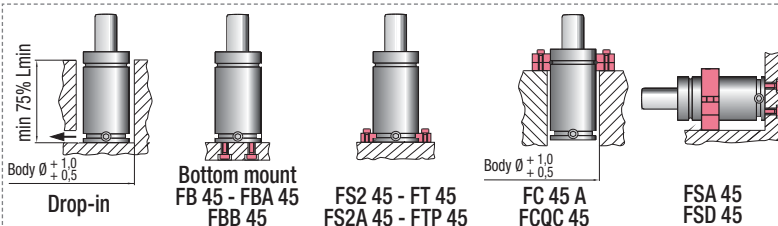
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237



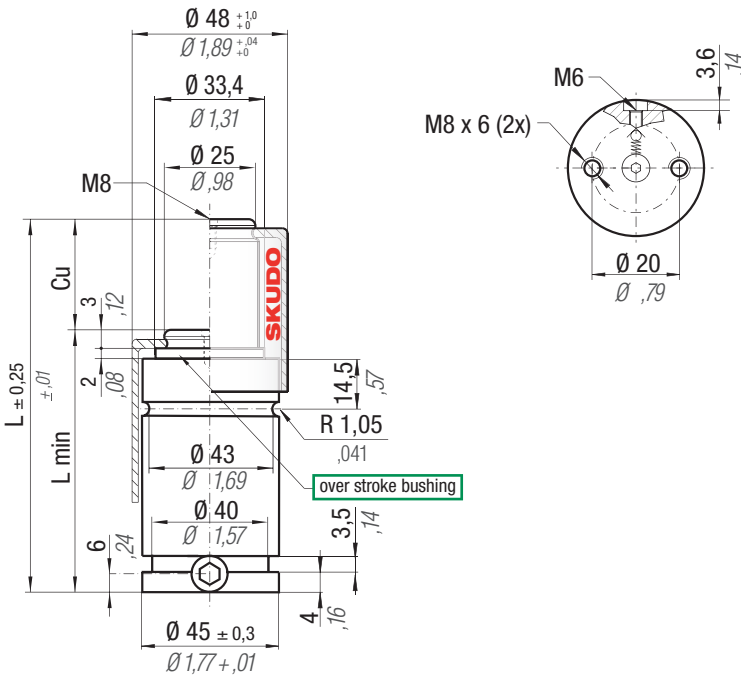
	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 4,91 cm <sup>2</sup> 0,761 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV00750C
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CODE		Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg		CE
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
RV 750 - 010 - A		10	0,39	52	2,05	42	1,65	740 1664  150 bar 2175psi  $\pm 5\%$ $+ 20^{\circ}\text{C} + 68^{\circ}\text{F}$		1090	2450	1298	2918	18,0	1,10	0,36	0,79	-
RV 750 - 013 - A		13	0,51	58	2,28	45	1,77			1095	2462	1354	3044	21,0	1,28	0,38	0,84	-
RV 750 - 016 - A		16	0,63	64	2,52	48	1,89			1097	2466	1395	3136	25,0	1,53	0,39	0,86	-
RV 750 - 019 - A		19	0,75	70	2,76	51	2,01			1087	2444	1426	3206	29,0	1,77	0,41	0,90	-
RV 750 - 025 - A		25	0,98	82	3,23	57	2,24			1109	2493	1471	3307	37,0	2,26	0,45	0,99	-
RV 750 - 032 - A		32	1,26	96	3,78	64	2,52			1125	2529	1506	3386	46,0	2,81	0,50	1,10	-
RV 750 - 038 - A		38	1,50	108	4,25	70	2,76			1135	2552	1527	3433	53,0	3,23	0,54	1,19	-
RV 750 - 050 - A		50	1,97	132	5,20	82	3,23			1149	2583	1556	3498	68,0	4,15	0,61	1,34	-
RV 750 - 063 - A		63	2,48	158	6,22	95	3,74			1158	2603	1577	3545	85,0	5,19	0,70	1,54	-
RV 750 - 075 - A		75	2,95	182	7,17	107	4,21			1164	2617	1590	3574	100,0	6,10	0,77	1,70	-
RV 750 - 080 - A		80	3,15	192	7,56	112	4,41			1166	2621	1594	3583	107,0	6,53	0,81	1,79	-
RV 750 - 100 - A		100	3,94	232	9,13	132	5,20			1172	2635	1607	3613	132,0	8,05	0,93	2,05	-
RV 750 - 125 - A		125	4,92	282	11,10	157	6,18			1177	2646	1618	3637	164,0	10,00	1,10	2,43	-



## HOW TO ORDER

(10 pcs) RV 750-050-A  
(10 pcs) RV 750-050-A-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

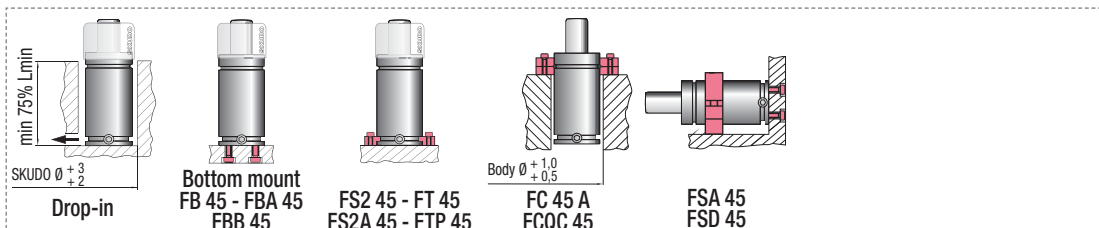
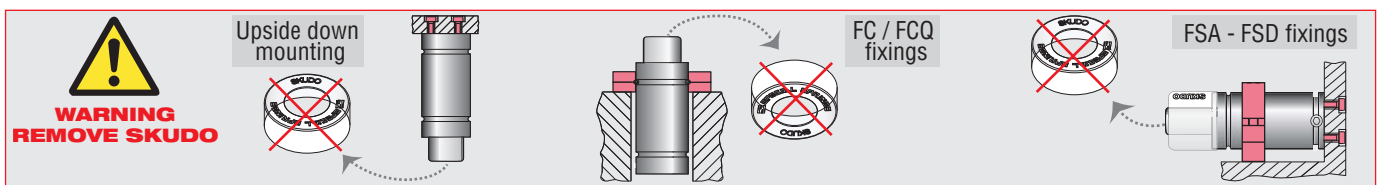
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

RV  
RS-RF

	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 4,91 cm <sup>2</sup> 0,761 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV00750C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub> **		V <sub>0</sub>		CE		
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
RS 750 - 007 - A	7	0,28	52	2,05	45	1,77	740 1664  150 bar 2175psi  ± 5% + 20 °C +68 °F		917	2061	1090	2450	18,0	1,10	0,36	0,79	-
RS 750 - 010 - A	10	0,39	58	2,28	48	1,89			957	2151	1166	2621	21,0	1,28	0,38	0,84	-
RS 750 - 013 - A	13	0,51	64	2,52	51	2,01			987	2219	1225	2754	25,0	1,53	0,39	0,86	-
RS 750 - 016 - A	16	0,63	70	2,76	54	2,13			1011	2273	1272	2860	29,0	1,77	0,41	0,90	-
RS 750 - 022 - A	22	0,87	82	3,23	60	2,36			1045	2349	1340	3012	37,0	2,26	0,45	0,99	-
RS 750 - 029 - A	29	1,14	96	3,78	67	2,64			1072	2410	1395	3136	46,0	2,81	0,50	1,10	-
RS 750 - 035 - A	35	1,38	108	4,25	73	2,87			1089	2448	1429	3213	53,0	3,23	0,54	1,19	-
RS 750 - 047 - A	47	1,85	132	5,20	85	3,35			1111	2498	1477	3320	68,0	4,15	0,61	1,34	-
RS 750 - 060 - A	60	2,36	158	6,22	98	3,86			1127	2534	1511	3397	85,0	5,19	0,70	1,54	-
RS 750 - 072 - A	72	2,83	182	7,17	110	4,33			1138	2558	1533	3446	100,0	6,10	0,77	1,70	-
RS 750 - 077 - A	77	3,03	192	7,56	115	4,53			1141	2565	1540	3462	107,0	6,53	0,81	1,79	-
RS 750 - 097 - A	97	3,82	232	9,13	135	5,31			1152	2590	1563	3514	132,0	8,05	0,93	2,05	-
RS 750 - 122 - A	122	4,80	282	11,10	160	6,30			1161	2610	1582	3556	164,0	10,00	1,10	2,43	-

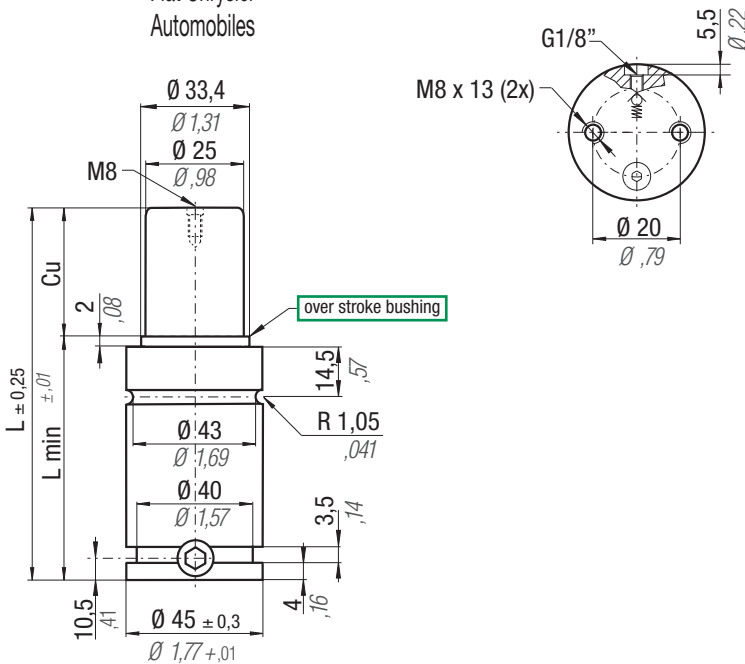


**HOW TO ORDER**

(10 pcs) RS 750-047-A  
(10 pcs) RS 750-047-A-N

**FCA norm**

Fiat Chrysler  
Automobiles



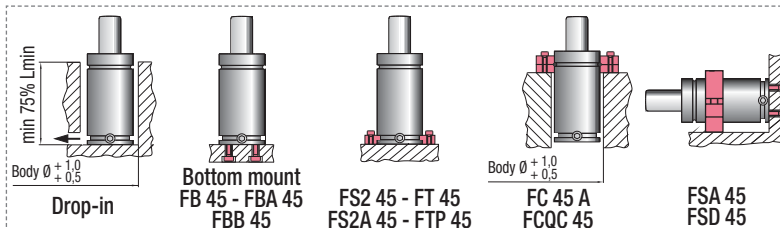
**Info**

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

	$^{\circ}F$ 32 - 176	$^{\circ}C$ 0 - 80	$\Delta P$ $\pm 0,33\% / ^{\circ}C$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 4,91 cm <sup>2</sup> 0,761 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV00750C
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CODE		Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg		CE
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
RF 750 - 010 - A		10	0,39	62	2,44	52	2,05	740 1664  150 bar 2175psi  $\pm 5\%$ $+ 20^{\circ}C + 68^{\circ}F$		1090	2450	1298	2918	18,0	1,10	0,46	1,01	-
RF 750 - 013 - A		13	0,51	68	2,68	55	2,17			1095	2462	1354	3044	21,0	1,28	0,48	1,06	-
RF 750 - 016 - A		16	0,63	74	2,91	58	2,28			1097	2466	1395	3136	25,0	1,53	0,50	1,10	-
RF 750 - 019 - A		19	0,75	80	3,15	61	2,40			1087	2444	1426	3206	29,0	1,77	0,52	1,15	-
RF 750 - 025 - A		25	0,98	92	3,62	67	2,64			1109	2493	1471	3307	37,0	2,26	0,56	1,23	-
RF 750 - 032 - A		32	1,26	106	4,17	74	2,91			1125	2529	1506	3386	46,0	2,81	0,60	1,32	-
RF 750 - 038 - A		38	1,50	118	4,65	80	3,15			1135	2552	1527	3433	53,0	3,23	0,64	1,41	-
RF 750 - 050 - A		50	1,97	142	5,59	92	3,62			1149	2583	1556	3498	68,0	4,15	0,72	1,59	-
RF 750 - 063 - A		63	2,48	168	6,61	105	4,13			1158	2603	1577	3545	85,0	5,19	0,80	1,76	-
RF 750 - 075 - A		75	2,95	192	7,56	117	4,61			1164	2617	1590	3574	100,0	6,10	0,88	1,94	-
RF 750 - 080 - A		80	3,15	202	7,95	122	4,80			1166	2621	1594	3583	107,0	6,53	0,91	2,01	-
RF 750 - 100 - A		100	3,94	242	9,53	142	5,59			1172	2635	1607	3613	132,0	8,05	1,04	2,29	-
RF 750 - 125 - A		125	4,92	292	11,50	167	6,57			1177	2646	1618	3637	164,0	10,00	1,20	2,65	-



**HOW TO ORDER**

(10 pcs) RF 750-050-A  
(10 pcs) RF 750-050-A-N



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# RV 1000



ISO 11901 - 3 B8 3180 220 000 004(MB)	VDI 3003 - Blatt 3 E24.54.815.G (PSA)	B2 4005 (BMW) 39D 997 (VW)	W-DX35-6204 (Ford)
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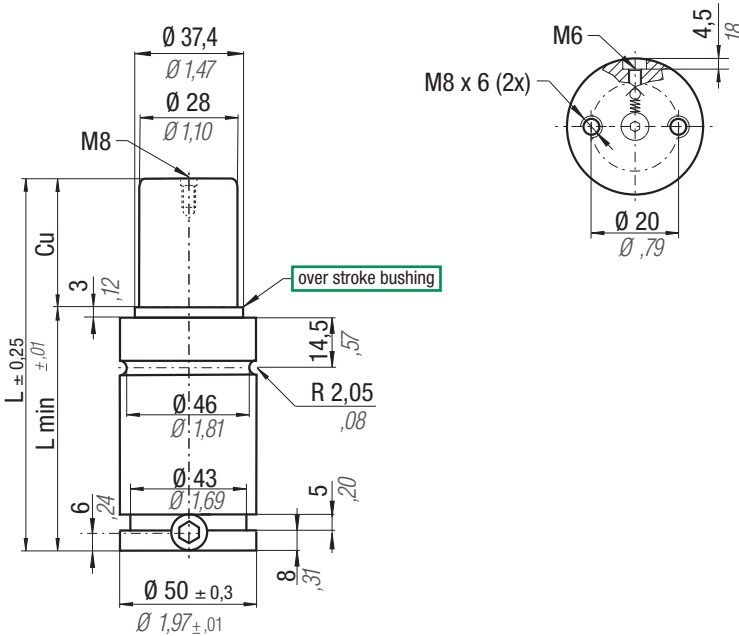


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

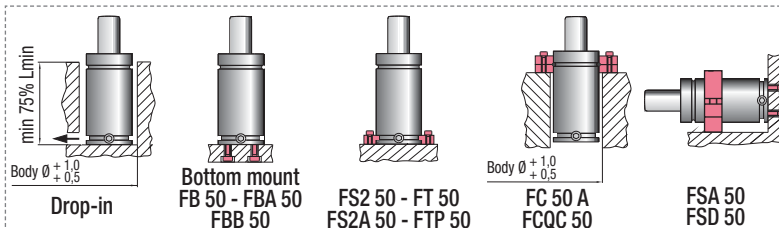
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237



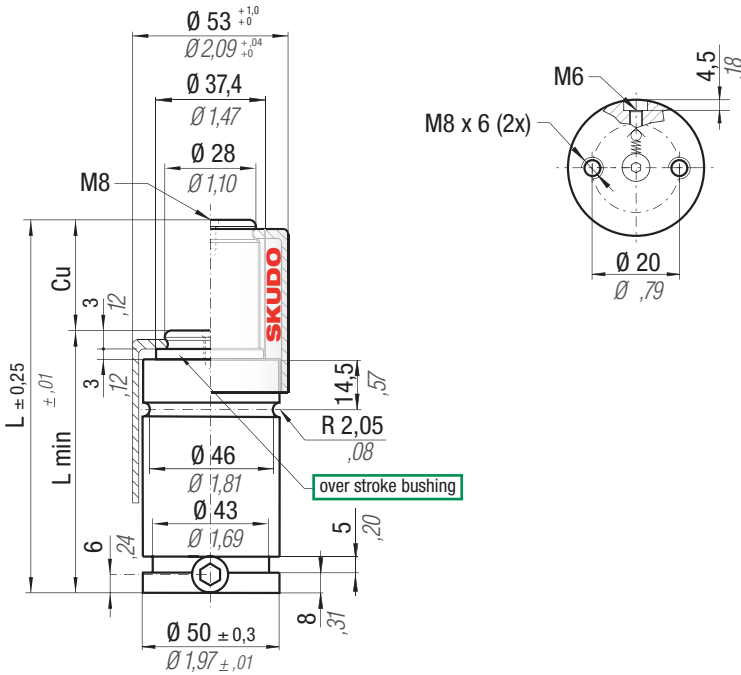
	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 6,15 cm <sup>2</sup> 0,953 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV01000C
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CODE		Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg		CE
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
RV 1000 - 010 - A		10	0,39	58	2,28	48	1,89	920 2068  150 bar 2175 psi  ± 5% + 20 °C +68 °F		1231	2767	1523	3424	25,0	1,53	0,49	1,08	-
RV 1000 - 013 - A		13	0,51	64	2,52	51	2,01			1270	2855	1599	3595	29,0	1,77	0,51	1,12	-
RV 1000 - 016 - A		16	0,63	70	2,76	54	2,13			1299	2920	1658	3727	34,0	2,07	0,54	1,19	-
RV 1000 - 019 - A		19	0,75	76	2,99	57	2,24			1323	2974	1705	3833	39,0	2,38	0,56	1,23	-
RV 1000 - 025 - A		25	0,98	88	3,46	63	2,48			1357	3051	1775	3990	48,0	2,93	0,61	1,34	-
RV 1000 - 032 - A		32	1,26	102	4,02	70	2,76			1384	3111	1832	4118	59,0	3,60	0,67	1,48	-
RV 1000 - 038 - A		38	1,50	114	4,49	76	2,99			1402	3152	1868	4199	69,0	4,21	0,71	1,57	-
RV 1000 - 050 - A		50	1,97	138	5,43	88	3,46			1425	3204	1919	4314	88,0	5,37	0,81	1,79	-
RV 1000 - 063 - A		63	2,48	164	6,46	101	3,98			1442	3242	1955	4395	108,0	6,59	0,91	2,01	-
RV 1000 - 075 - A		75	2,95	188	7,40	113	4,45			1453	3266	1978	4447	127,0	7,75	1,05	2,31	-
RV 1000 - 080 - A		80	3,15	198	7,80	118	4,65			1457	3275	1986	4465	135,0	8,24	1,09	2,40	-
RV 1000 - 100 - A		100	3,94	238	9,37	138	5,43			1468	3300	2011	4521	166,0	10,13	1,21	2,67	-
RV 1000 - 125 - A		125	4,92	288	11,34	163	6,42			1478	3323	2031	4566	205,0	12,51	1,41	3,11	-



**HOW TO ORDER**

(10 pcs) RV 1000-050-A  
(10 pcs) RV 1000-050-A-N



## Info

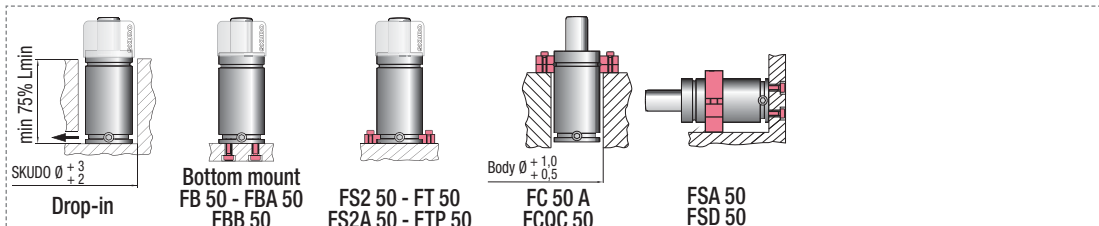
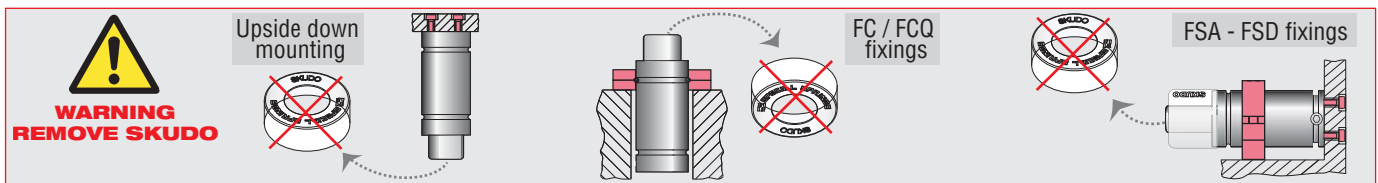
\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easv** MANIFOLD - see page 237

RV  
RS-RF

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 6,15 cm <sup>2</sup> 0,953 in <sup>2</sup>	SPM ~ 20 - 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMRV01000C	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub> **		V <sub>0</sub>		CE	
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb
RS 1000 - 010 - A											10	0,39	64	2,52	54	2,13	920 2068  150 bar 2175 psi  ± 5% + 20 °C + 68 °F	1169	2628	1402	3152	29,0	1,77	0,51	1,12	-
RS 1000 - 013 - A											13	0,51	70	2,76	57	2,24		1207	2713	1476	3318	34,0	2,07	0,54	1,19	-
RS 1000 - 016 - A											16	0,63	76	2,99	60	2,36		1238	2783	1536	3453	39,0	2,38	0,56	1,23	-
RS 1000 - 022 - A											22	0,87	88	3,46	66	2,60		1285	2889	1628	3660	48,0	2,93	0,61	1,34	-
RS 1000 - 029 - A											29	1,14	102	4,02	73	2,87		1323	2974	1705	3833	59,0	3,60	0,67	1,48	-
RS 1000 - 035 - A											35	1,38	114	4,49	79	3,11		1346	3026	1754	3943	69,0	4,21	0,71	1,57	-
RS 1000 - 047 - A											47	1,85	138	5,43	91	3,58		1380	3102	1824	4101	88,0	5,37	0,81	1,79	-
RS 1000 - 060 - A											60	2,36	164	6,46	104	4,09		1405	3159	1875	4215	108,0	6,59	0,91	2,01	-
RS 1000 - 072 - A											72	2,83	188	7,40	116	4,57		1421	3195	1908	4289	127,0	7,75	1,05	2,31	-
RS 1000 - 077 - A											77	3,03	198	7,80	121	4,76		1426	3206	1920	4316	135,0	8,24	1,09	2,40	-
RS 1000 - 097 - A											97	3,82	238	9,37	141	5,55		1443	3244	1956	4397	166,0	10,13	1,21	2,67	-
RS 1000 - 122 - A											122	4,80	288	11,34	166	6,54		1457	3275	1986	4465	205,0	12,51	1,41	3,11	-

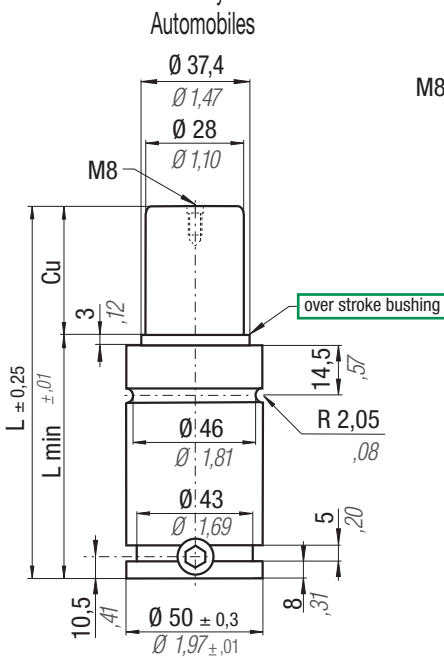


**HOW TO ORDER**

(10 pcs) RS 1000-047-A  
(10 pcs) RS 1000-047-A-N

### FCA norm

Fiat Chrysler  
Automobiles



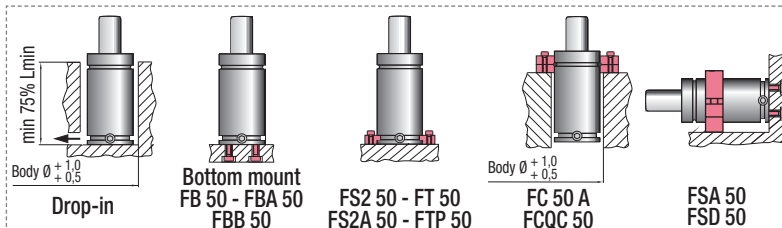
### Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 6,15 cm <sup>2</sup> 0,953 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV01000C
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CODE		Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg		CE
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
RF 1000 - 013 - A		13	0,51	74	2,91	61	2,40	920 2068 150 bar 2175 psi $\pm 5\%$ $+ 20^{\circ}\text{C} + 68^{\circ}\text{F}$		1270	2855	1599	3595	29,0	1,77	0,64	1,41	-
RF 1000 - 016 - A		16	0,63	80	3,15	64	2,52			1299	2920	1658	3727	34,0	2,07	0,67	1,48	-
RF 1000 - 019 - A		19	0,75	86	3,39	67	2,64			1323	2974	1705	3833	39,0	2,38	0,70	1,54	-
RF 1000 - 025 - A		25	0,98	98	3,86	73	2,87			1357	3051	1775	3990	48,0	2,93	0,74	1,63	-
RF 1000 - 032 - A		32	1,26	112	4,41	80	3,15			1384	3111	1832	4118	59,0	3,60	0,79	1,74	-
RF 1000 - 038 - A		38	1,50	124	4,88	86	3,39			1402	3152	1868	4199	69,0	4,21	0,84	1,85	-
RF 1000 - 050 - A		50	1,97	148	5,83	98	3,86			1425	3204	1919	4314	88,0	5,37	0,94	2,07	-
RF 1000 - 063 - A		63	2,48	174	6,85	111	4,37			1442	3242	1955	4395	108,0	6,59	1,04	2,29	-
RF 1000 - 075 - A		75	2,95	198	7,80	123	4,84			1453	3266	1978	4447	127,0	7,75	1,14	2,51	-
RF 1000 - 080 - A		80	3,15	208	8,19	128	5,04			1457	3275	1986	4465	135,0	8,24	1,18	2,60	-
RF 1000 - 100 - A		100	3,94	248	9,76	148	5,83			1468	3300	2011	4521	166,0	10,13	1,34	2,95	-
RF 1000 - 125 - A		125	4,92	298	11,73	173	6,81			1478	3323	2031	4566	205,0	12,51	1,54	3,40	-



### HOW TO ORDER

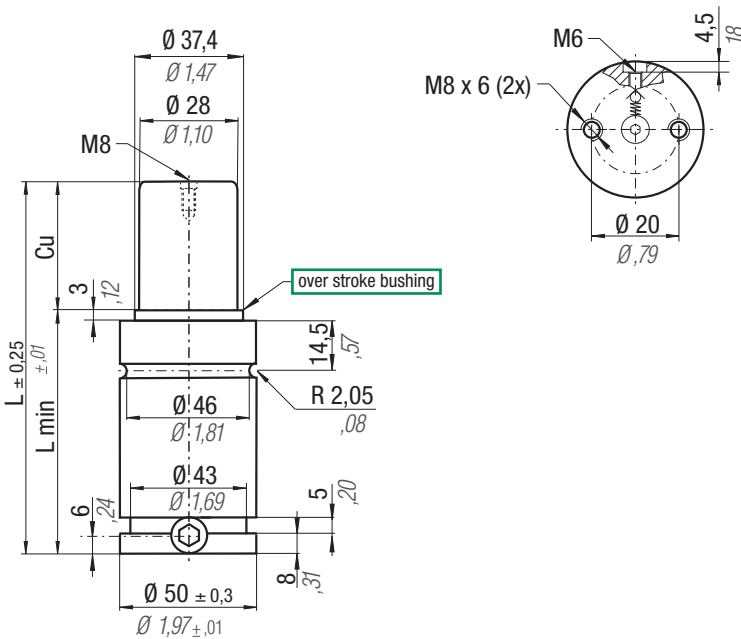
(10 pcs) RF 1000-050-A  
(10 pcs) RF 1000-050-A-N





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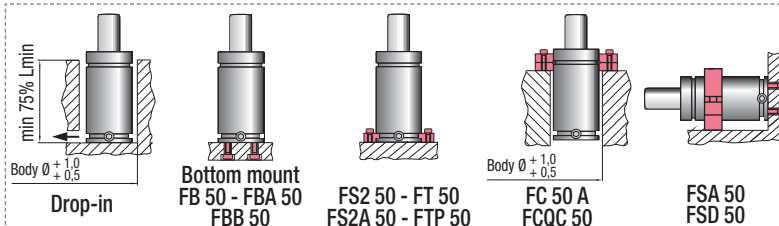
## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

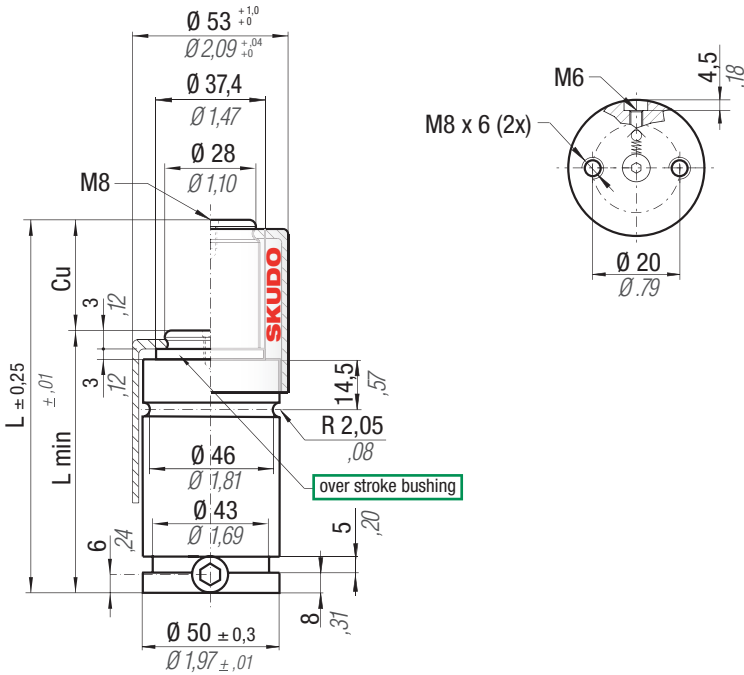
**easu** MANIFOLD - see page 237

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 170 bar 2465 psi	P min 20 bar 290 psi	S 6,15 cm <sup>2</sup> 0,953 in <sup>2</sup>	SPM ~ 20 - 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMRV01000C	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE	
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb
RV 1200 - 010 - A											10	0,39	58	2,28	48	1,89	1060 2383  170 bar 2465 psi  ± 5% + 20 °C + 68 °F	1396	3138	1726	3880	25,0	1,53	0,49	1,08	-
RV 1200 - 013 - A											13	0,51	64	2,52	51	2,01		1439	3235	1813	4076	30,0	1,83	0,51	1,12	-
RV 1200 - 016 - A											16	0,63	70	2,76	54	2,13		1473	3311	1880	4226	34,0	2,07	0,54	1,19	-
RV 1200 - 019 - A											19	0,75	76	2,99	57	2,24		1499	3370	1933	4346	39,0	2,38	0,56	1,23	-
RV 1200 - 025 - A											25	0,98	88	3,46	63	2,48		1538	3458	2013	4525	48,0	2,93	0,61	1,34	-
RV 1200 - 032 - A											32	1,26	102	4,02	70	2,76		1569	3527	2077	4669	59,0	3,60	0,67	1,48	-
RV 1200 - 038 - A											38	1,50	114	4,49	76	2,99		1588	3570	2118	4761	69,0	4,21	0,71	1,57	-
RV 1200 - 050 - A											50	1,97	138	5,43	88	3,46		1615	3631	2175	4890	88,0	5,37	0,81	1,79	-
RV 1200 - 063 - A											63	2,48	164	6,46	101	3,98		1634	3673	2216	4982	108,0	6,59	0,91	2,01	-
RV 1200 - 075 - A											75	2,95	188	7,40	113	4,45		1647	3703	2243	5042	127,0	7,75	1,05	2,31	-
RV 1200 - 080 - A											80	3,15	198	7,80	118	4,65		1651	3712	2252	5063	135,0	8,24	1,09	2,40	-
RV 1200 - 100 - A											100	3,94	238	9,37	138	5,43		1664	3741	2280	5126	166,0	10,13	1,21	2,67	-
RV 1200 - 125 - A											125	4,92	288	11,34	163	6,42		1675	3766	2303	5177	205,0	12,51	1,41	3,11	-



## HOW TO ORDER

(10 pcs) RV 1200-050-A  
(10 pcs) RV 1200-050-A-N



## Info

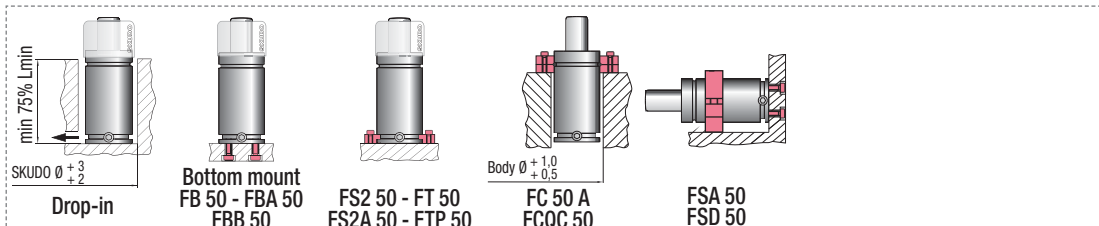
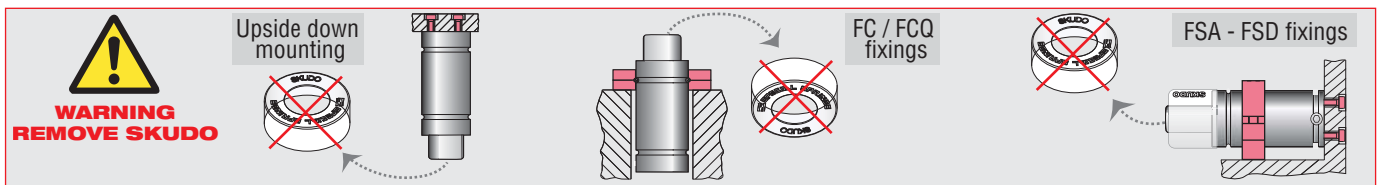
\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easyl** MANIFOLD - see page 237

RV  
RS-RF

	°F 32 176	°C 0 80	$\Delta P$ ± 0,33 %/°C	P max 170 bar 2465 psi	P min 20 bar 290 psi	S 6,15 cm <sup>2</sup> 0,953 in <sup>2</sup>	SPM ~ 20 - 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMRV01000C								
CODE	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		CE		
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
RS 1200 - 010 - A	10	0,39	64	2,52	54	2,13	1060 2383 170 bar 2465 psi ± 5% + 20 °C + 68 °F		1325	2979	1590	3574	30,0	1,83	0,51	1,12	-
RS 1200 - 013 - A	13	0,51	70	2,76	57	2,24			1368	3075	1673	3761	34,0	2,07	0,54	1,19	-
RS 1200 - 016 - A	16	0,63	76	2,99	60	2,36			1403	3154	1742	3916	39,0	2,38	0,56	1,23	-
RS 1200 - 022 - A	22	0,87	88	3,46	66	2,60			1456	3273	1846	4150	48,0	2,93	0,61	1,34	-
RS 1200 - 029 - A	29	1,14	102	4,02	73	2,87			1499	3370	1933	4346	59,0	3,60	0,67	1,48	-
RS 1200 - 035 - A	35	1,38	114	4,49	79	3,11			1526	3431	1988	4469	69,0	4,21	0,71	1,57	-
RS 1200 - 047 - A	47	1,85	138	5,43	91	3,58			1564	3516	2068	4649	88,0	5,37	0,81	1,79	-
RS 1200 - 060 - A	60	2,36	164	6,46	104	4,09			1592	3579	2126	4779	108,0	6,59	0,91	2,01	-
RS 1200 - 072 - A	72	2,83	188	7,40	116	4,57			1610	3619	2164	4865	127,0	7,75	1,05	2,31	-
RS 1200 - 077 - A	77	3,03	198	7,80	121	4,76			1616	3633	2177	4894	135,0	8,24	1,09	2,40	-
RS 1200 - 097 - A	97	3,82	238	9,37	141	5,55	1635	3676	2217	4984	166,0	10,13	1,21	2,67	-		
RS 1200 - 122 - A	122	4,80	288	11,34	166	6,54	1651	3712	2251	5060	205,0	12,51	1,41	3,11	-		

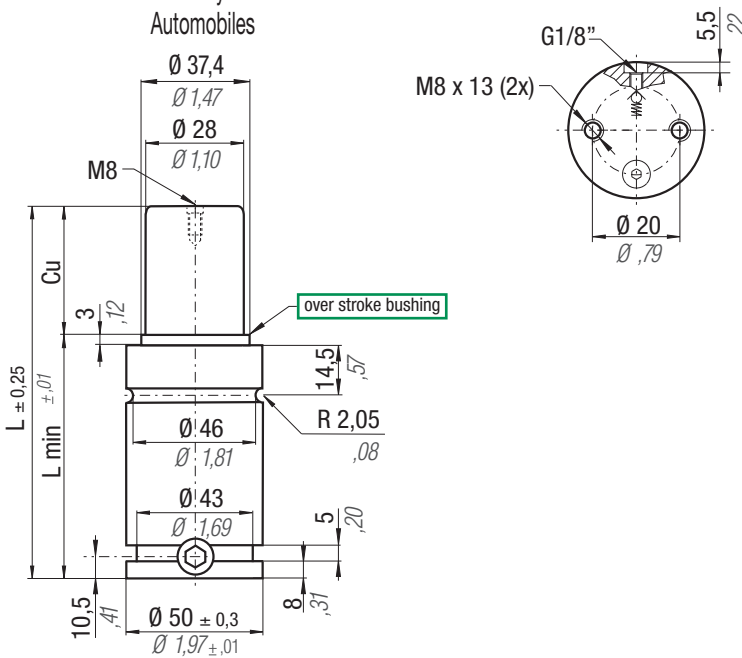


### HOW TO ORDER

(10 pcs) RS 1200-047-A  
(10 pcs) RS 1200-047-A-N

### FCA norm

Fiat Chrysler  
Automobiles

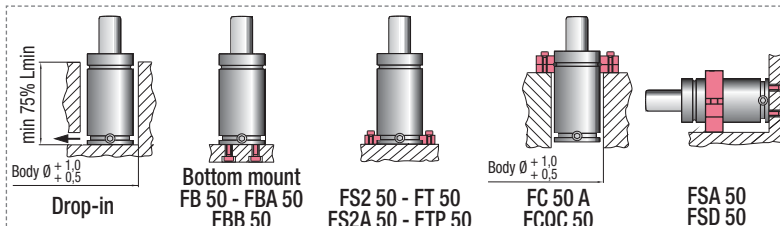


### Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 170 bar 2465 psi	P min 20 bar 290 psi	S 6,15 cm <sup>2</sup> 0,953 in <sup>2</sup>	SPM ~ 20 - 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMRV01000C	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE	
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb
RF 1200 - 013 - A											13	0,51	74	2,91	61	2,40	1060 2383 170 bar 2465 psi ± 5% + 20 °C + 68 °F	1439	3235	1813	4076	29,0	1,77	0,64	1,41	-
RF 1200 - 016 - A											16	0,63	80	3,15	64	2,52		1473	3311	1880	4226	34,0	2,07	0,67	1,48	-
RF 1200 - 019 - A											19	0,75	86	3,39	67	2,64		1499	3370	1933	4346	39,0	2,38	0,70	1,54	-
RF 1200 - 025 - A											25	0,98	98	3,86	73	2,87		1538	3458	2013	4525	48,0	2,93	0,74	1,63	-
RF 1200 - 032 - A											32	1,26	112	4,41	80	3,15		1569	3527	2077	4669	59,0	3,60	0,79	1,74	-
RF 1200 - 038 - A											38	1,50	124	4,88	86	3,39		1588	3570	2118	4761	69,0	4,21	0,84	1,85	-
RF 1200 - 050 - A											50	1,97	148	5,83	98	3,86		1615	3631	2175	4890	88,0	5,37	0,94	2,07	-
RF 1200 - 063 - A											63	2,48	174	6,85	111	4,37		1634	3673	2216	4982	108,0	6,59	1,04	2,29	-
RF 1200 - 075 - A											75	2,95	198	7,80	123	4,84		1647	3703	2243	5042	127,0	7,75	1,14	2,51	-
RF 1200 - 080 - A											80	3,15	208	8,19	128	5,04		1651	3712	2252	5063	135,0	8,24	1,18	2,60	-
RF 1200 - 100 - A											100	3,94	248	9,76	148	5,83		1664	3741	2280	5126	166,0	10,13	1,34	2,95	-
RF 1200 - 125 - A											125	4,92	298	11,73	173	6,81		1675	3766	2303	5177	205,0	12,51	1,54	3,40	-



**HOW TO ORDER**

(10 pcs) RF 1200-050-A  
(10 pcs) RF 1200-050-A-N



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# RV 1500

ISO 11901 - 3 B8 3180 220 000 004(MB)	VDI 3003 - Blatt 3 39D 997 (VW)	B2 4005 (BMW)	W-DX35-6204 (Ford)
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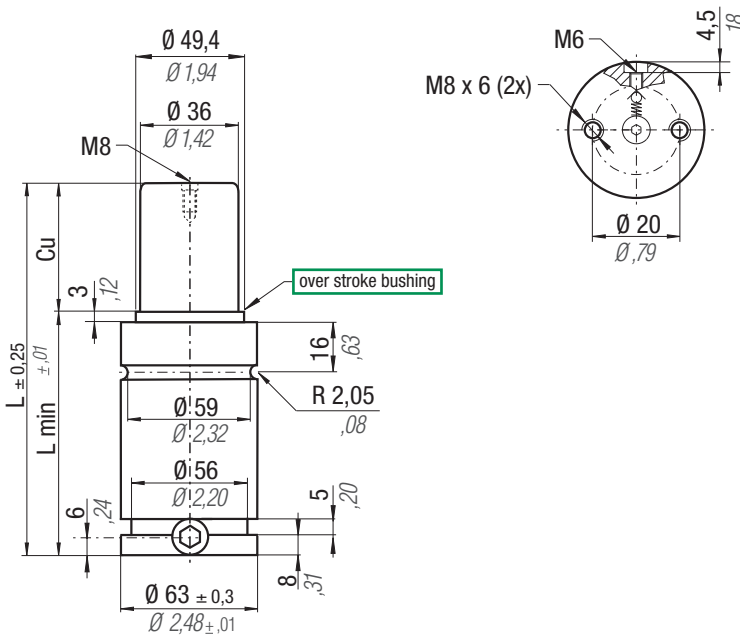


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

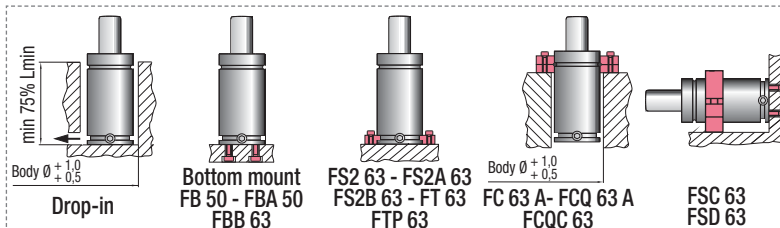
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237



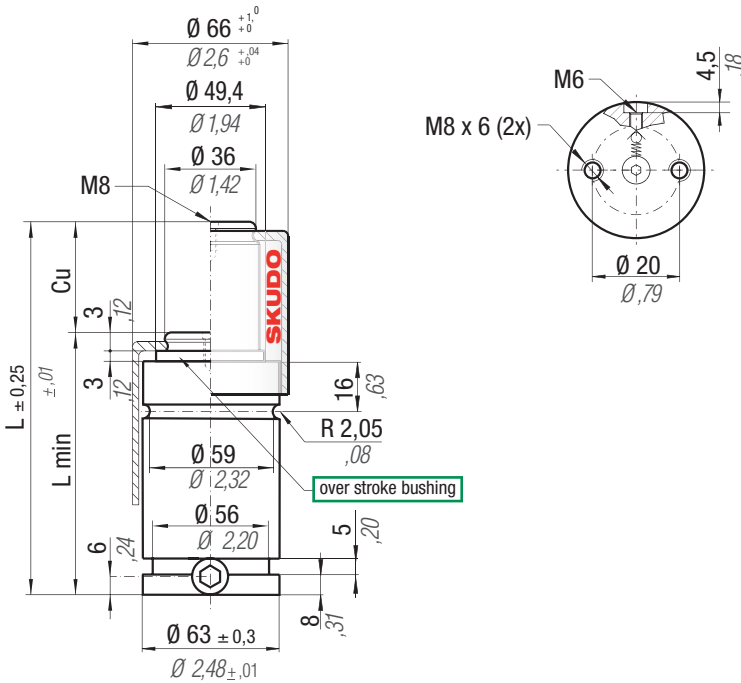
	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 10,18 cm <sup>2</sup> 1,578 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV01500C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg		Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
RV 1500 - 010 - A	10	0,39	64	2,52	54	2,13	1530 3440  150 bar 2175 psi  $\pm 5\%$ $+ 20\text{ }^{\circ}\text{C} + 68\text{ }^{\circ}\text{F}$		2131	4791	2400	5395	45,0	2,75	0,90	1,98	-
RV 1500 - 013 - A	13	0,51	70	2,76	57	2,24			2168	4874	2521	5667	53,0	3,23	0,92	2,03	-
RV 1500 - 016 - A	16	0,63	76	2,99	60	2,36			2188	4919	2616	5881	61,0	3,72	0,96	2,12	-
RV 1500 - 019 - A	19	0,75	82	3,23	63	2,48			2192	4928	2693	6054	69,0	4,21	0,99	2,18	-
RV 1500 - 025 - A	25	0,98	94	3,70	69	2,72			2195	4935	2811	6319	85,0	5,19	1,06	2,34	-
RV 1500 - 032 - A	32	1,26	108	4,25	76	2,99			2230	5013	2908	6537	103,0	6,28	1,14	2,51	-
RV 1500 - 038 - A	38	1,50	120	4,72	82	3,23			2260	5081	2971	6679	119,0	7,26	1,21	2,67	-
RV 1500 - 050 - A	50	1,97	144	5,67	94	3,70			2303	5177	3059	6877	151,0	9,21	1,35	2,98	-
RV 1500 - 063 - A	63	2,48	170	6,69	107	4,21			2333	5245	3123	7021	186,0	11,35	1,51	3,33	-
RV 1500 - 075 - A	75	2,95	194	7,64	119	4,69			2353	5290	3165	7115	217,0	13,24	1,65	3,64	-
RV 1500 - 080 - A	80	3,15	204	8,03	124	4,88			2360	5305	3180	7149	231,0	14,09	1,71	3,77	-
RV 1500 - 100 - A	100	3,94	244	9,61	144	5,67			2381	5353	3224	7248	284,0	17,32	1,94	4,28	-
RV 1500 - 125 - A	125	4,92	294	11,57	169	6,65			2398	5391	3262	7333	350,0	21,36	2,23	4,92	-



**HOW TO ORDER**

(10 pcs) RV 1500-050-A  
(10 pcs) RV 1500-050-A-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

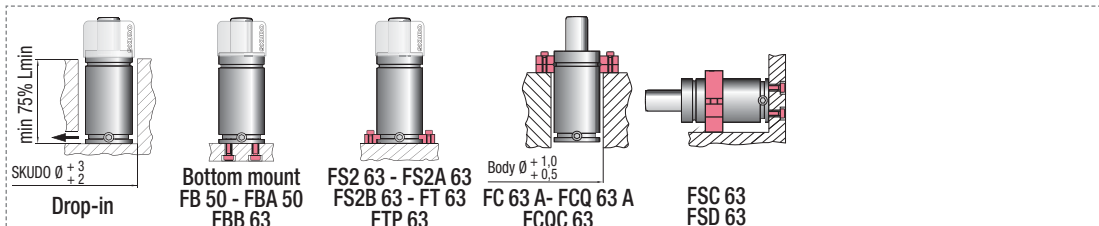
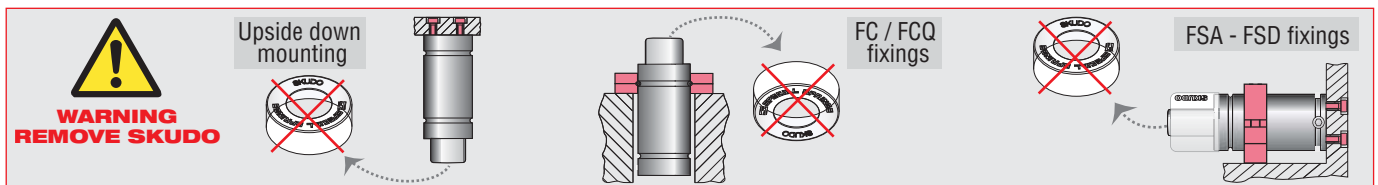
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easyl** MANIFOLD - see page 237

RV  
RS-RF

	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 10,18 cm <sup>2</sup> 1,578 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV01500C
--	----------------------	--------------------	---------------------------	-------------------------------------	-----------------------------------	--	---------------------------------------	-----------------------------	--

CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub> **		V <sub>0</sub>		CE		
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
RS 1500 - 010 - A	10	0,39	70	2,76	60	2,36	1530 3440 150 bar 2175 psi ± 5% + 20 °C + 68 °F		1891	4251	2241	5038	53,0	3,23	0,92	2,03	-
RS 1500 - 013 - A	13	0,51	76	2,99	63	2,48			1952	4388	2355	5294	61,0	3,72	0,96	2,12	-
RS 1500 - 016 - A	16	0,63	82	3,23	66	2,60			2001	4498	2450	5508	69,0	4,21	0,99	2,18	-
RS 1500 - 022 - A	22	0,87	94	3,70	72	2,83			2076	4667	2596	5836	85,0	5,19	1,06	2,34	-
RS 1500 - 029 - A	29	1,14	108	4,25	79	3,11			2138	4806	2720	6115	103,0	6,28	1,14	2,51	-
RS 1500 - 035 - A	35	1,38	120	4,72	85	3,35			2178	4896	2801	6297	119,0	7,26	1,21	2,67	-
RS 1500 - 047 - A	47	1,85	144	5,67	97	3,82			2235	5024	2917	6558	151,0	9,21	1,35	2,98	-
RS 1500 - 060 - A	60	2,36	170	6,69	110	4,33			2276	5117	3003	6751	186,0	11,35	1,51	3,33	-
RS 1500 - 072 - A	72	2,83	194	7,64	122	4,80			2303	5177	3060	6879	217,0	13,24	1,65	3,64	-
RS 1500 - 077 - A	77	3,03	204	8,03	127	5,00			2313	5200	3079	6922	231,0	14,09	1,71	3,77	-
RS 1500 - 097 - A	97	3,82	244	9,61	147	5,79	2342	5265	3141	7061	284,0	17,32	1,94	4,28	-		
RS 1500 - 122 - A	122	4,80	294	11,57	172	6,77	2366	5319	3193	7178	350,0	21,35	2,23	4,92	-		

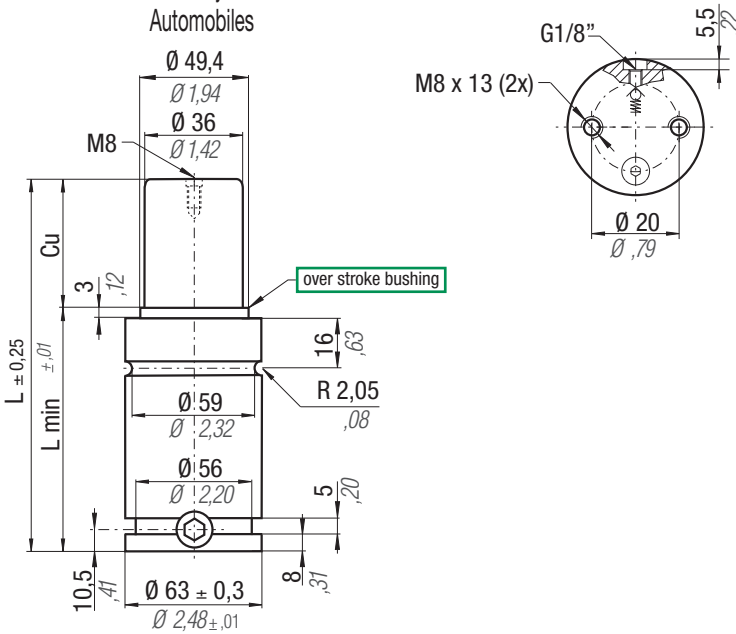


**HOW TO ORDER**

(10 pcs) RS 1500-047-A  
(10 pcs) RS 1500-047-A-N

### FCA norm

Fiat Chrysler  
Automobiles

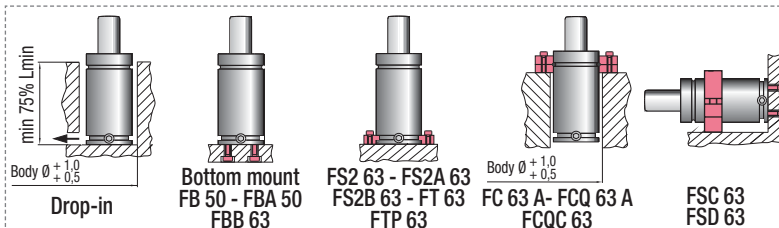


### Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 10,18 cm <sup>2</sup> 1,578 in <sup>2</sup>	SPM ~ 20 - 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMRV01500C	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE	
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb
RF 1500 - 013 - A											13	0,51	80	3,15	67	2,64	1530 3440 150 bar 2175 psi ± 5% + 20 °C + 68 °F	2168	4874	2521	5667	53,0	3,23	1,15	2,54	-
RF 1500 - 016 - A											16	0,63	86	3,39	70	2,76		2188	4919	2616	5881	61,0	3,72	1,18	2,60	-
RF 1500 - 019 - A											19	0,75	92	3,62	73	2,87		2192	4928	2693	6054	69,0	4,21	1,22	2,69	-
RF 1500 - 025 - A											25	0,98	104	4,09	79	3,11		2195	4935	2811	6319	85,0	5,19	1,29	2,84	-
RF 1500 - 032 - A											32	1,26	118	4,65	86	3,39		2230	5013	2908	6537	103,0	6,28	1,37	3,02	-
RF 1500 - 038 - A											38	1,50	130	5,12	92	3,62		2260	5081	2971	6679	119,0	7,26	1,44	3,17	-
RF 1500 - 050 - A											50	1,97	154	6,06	104	4,09		2303	5177	3059	6877	151,0	9,21	1,58	3,48	-
RF 1500 - 063 - A											63	2,48	180	7,09	117	4,61		2333	5245	3123	7021	186,0	11,35	1,73	3,81	-
RF 1500 - 075 - A											75	2,95	204	8,03	129	5,08		2353	5290	3165	7115	217,0	13,24	1,87	4,12	-
RF 1500 - 080 - A											80	3,15	214	8,43	134	5,28		2360	5305	3180	7149	231,0	14,09	1,93	4,25	-
RF 1500 - 100 - A											100	3,94	254	10,00	154	6,06		2381	5353	3224	7248	284,0	17,32	2,17	4,78	-
RF 1500 - 125 - A											125	4,92	304	11,97	179	7,05		2398	5391	3262	7333	350,0	21,35	2,46	5,42	-



**HOW TO ORDER**

(10 pcs) RF 1500-050-A  
(10 pcs) RF 1500-050-A-N





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# RV 2400

ISO 11901 - 3 B8 3180 220 000 004(MB)	VDI 3003 - Blatt 3 E24.54.815.G (PSA)	B2 4005 (BMW) 39D 997 (VW)	W-DX35-6204 (Ford)
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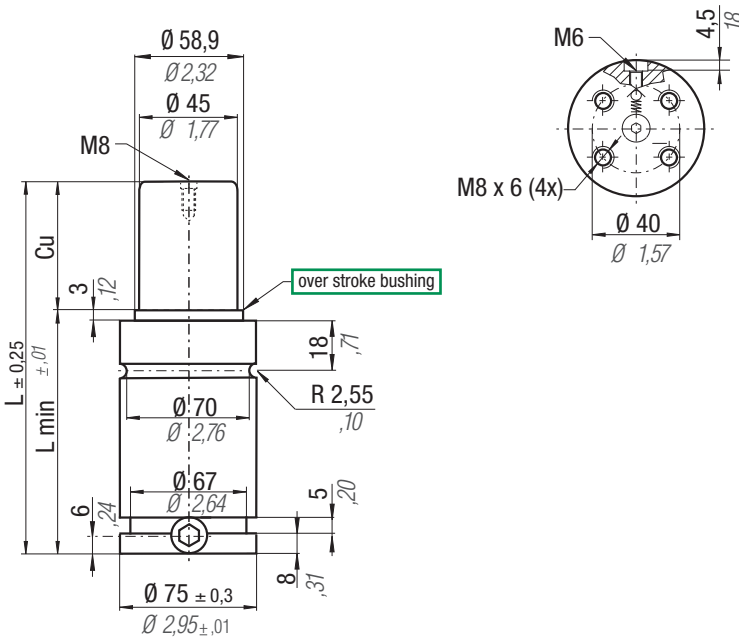


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

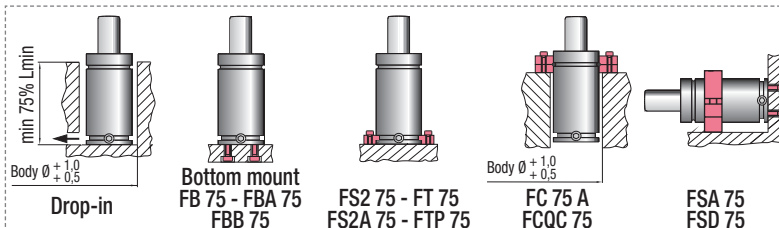
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237



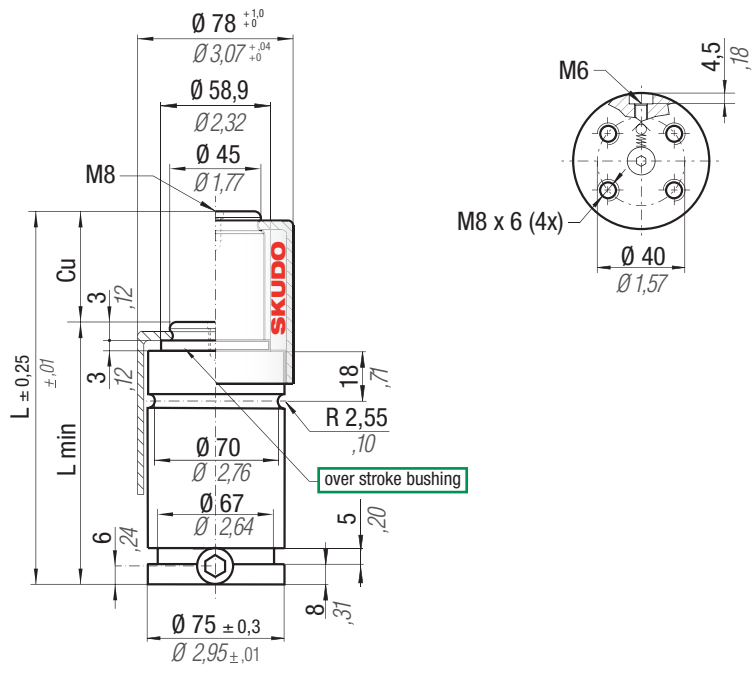
	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 15,90 cm <sup>2</sup> 2,465 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV02400C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE		
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
RV 2400 - 010 - A	10	0,39	65	2,56	55	2,17	2385 5362 150 bar 2175 psi ± 5% + 20 °C + 68 °F		3390	7621	3786	8511	69,0	4,21	1,27	2,80	-
RV 2400 - 013 - A	13	0,51	71	2,80	58	2,28			3427	7704	3984	8956	81,0	4,94	1,30	3,00	-
RV 2400 - 016 - A	16	0,63	77	3,03	61	2,40			3466	7792	4142	9312	93,0	5,67	1,36	3,00	-
RV 2400 - 019 - A	19	0,75	83	3,27	64	2,52			3472	7805	4271	9602	105,0	6,41	1,40	3,09	-
RV 2400 - 025 - A	25	0,98	95	3,74	70	2,76			3493	7853	4468	10044	129,0	7,87	1,50	3,31	-
RV 2400 - 032 - A	32	1,26	109	4,29	77	3,03			3527	7929	4632	10413	157,0	9,58	1,61	3,55	-
RV 2400 - 038 - A	38	1,50	121	4,76	83	3,27			3578	8044	4737	10649	181,0	11,04	1,70	3,75	-
RV 2400 - 050 - A	50	1,97	145	5,71	95	3,74			3649	8203	4887	10986	230,0	14,03	1,89	4,17	-
RV 2400 - 063 - A	63	2,48	171	6,73	108	4,25			3700	8318	4996	11231	282,0	17,20	2,09	4,61	-
RV 2400 - 075 - A	75	2,95	195	7,68	120	4,72			3734	8394	5068	11393	330,0	20,13	2,28	5,03	-
RV 2400 - 080 - A	80	3,15	205	8,07	125	4,92			3746	8421	5093	11450	350,0	21,35	2,36	5,20	-
RV 2400 - 100 - A	100	3,94	245	9,65	145	5,71			3781	8500	5169	11620	431,0	26,29	2,67	5,89	-
RV 2400 - 125 - A	125	4,92	295	11,61	170	6,69	3811	8567	5234	11767	532,0	32,45	3,07	6,77	-		



**HOW TO ORDER**

(10 pcs) RV 2400-050-A  
(10 pcs) RV 2400-050-A-N



## Info

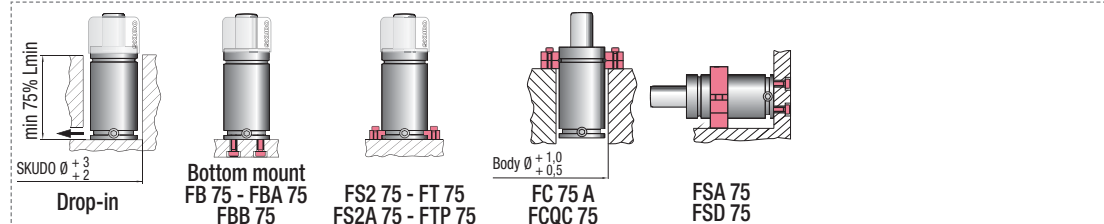
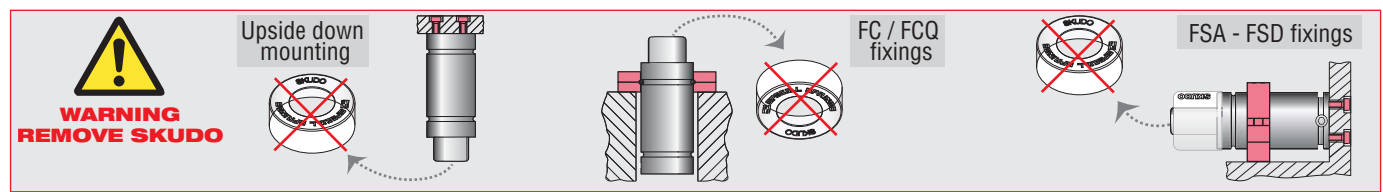
\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31  
 \*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easyl** MANIFOLD - see page 237

RV  
RS-RF

	°F 32 176	°C 0 80	$\Delta P$ ± 0,33 %/°C	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 15,90 cm <sup>2</sup> 2,465 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV02400C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub> **		V <sub>0</sub>		CE																																																																												
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.																																																																										
RS 2400 - 013 - A	13	0,51	77	3,03	64	2,52	2385	5362	3069	6899	3718	8358	93,0	5,67	1,36	3,00	-																																																																										
RS 2400 - 016 - A	16	0,63	83	3,27	67	2,64												150 bar 2175 psi	3150	7081	3873	8707	105,0	6,41	1,40	3,09	-																																																																
RS 2400 - 022 - A	22	0,87	95	3,74	73	2,87																						± 5% + 20 °C +68 °F	3273	7358	4115	9251	129,0	7,87	1,50	3,31	-																																																						
RS 2400 - 029 - A	29	1,14	109	4,29	80	3,15																																3376	7590	4322	9716	157,0	9,58	1,61	3,55	-																																													
RS 2400 - 035 - A	35	1,38	121	4,76	86	3,39																																									3442	7738	4456	10017	181,0	11,04	1,70	3,75	-																																				
RS 2400 - 047 - A	47	1,85	145	5,71	98	3,86																																																		3537	7951	4651	10456	230,0	14,03	1,89	4,17	-																											
RS 2400 - 060 - A	60	2,36	171	6,73	111	4,37																																																											3606	8107	4796	10782	282,0	17,20	2,09	4,61	-																		
RS 2400 - 072 - A	72	2,83	195	7,68	123	4,84																																																																				3652	8210	4892	10998	330,0	20,13	2,28	5,03	-									
RS 2400 - 077 - A	77	3,03	205	8,07	128	5,04																																																																													3667	8244	4925	11072	350,0	21,35	2,36	5,20	-
RS 2400 - 097 - A	97	3,82	245	9,65	148	5,83																																																																																					
RS 2400 - 122 - A	122	4,80	295	11,61	173	6,81	3757	8446	5117	11503	532,0	32,45	3,07	6,77	-																																																																												



**HOW TO ORDER**  
 (10 pcs) RS 2400-047-A  
 (10 pcs) RS 2400-047-A-N

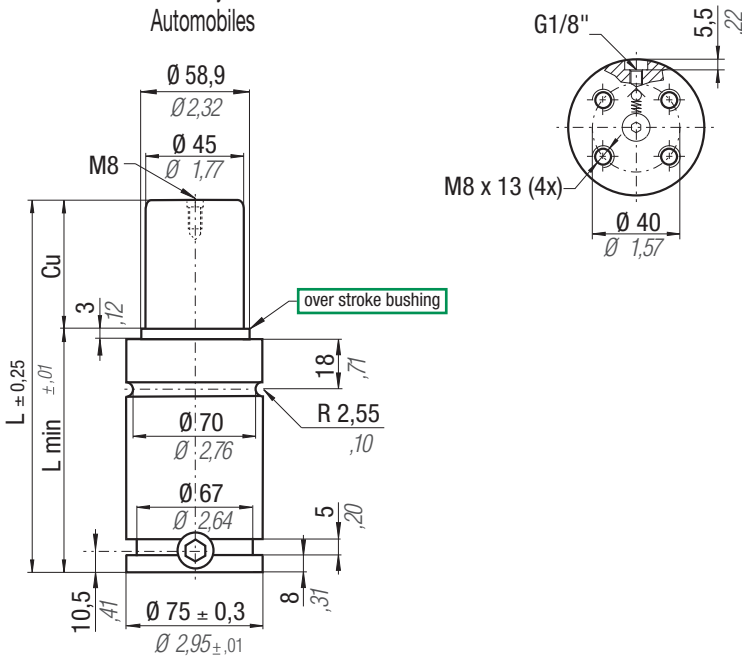
# RF 2400

linkable G1/8"



## FCA norm

Fiat Chrysler  
Automobiles



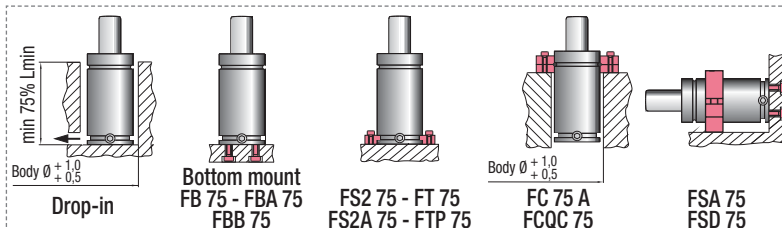
## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 15,90 cm <sup>2</sup> 2,465 in <sup>2</sup>	SPM ~ 20 - 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMRV02400C	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE				
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.		
RF 2400 - 016 - A											16	0,63	87	3,43	71	2,80	2385	5362	150 bar 2175 psi	3466	7792	4142	9312	93,0	5,67	1,68	3,70	-	
RF 2400 - 019 - A											19	0,75	93	3,66	74	2,91				3472	7805	4271	9602	105,0	6,41	1,73	3,81	-	
RF 2400 - 025 - A											25	0,98	105	4,13	80	3,15				3493	7853	4468	10044	129,0	7,87	1,82	4,01	-	
RF 2400 - 032 - A											32	1,26	119	4,69	87	3,43				3527	7929	4632	10413	157,0	9,58	1,93	4,25	-	
RF 2400 - 038 - A											38	1,50	131	5,16	93	3,66				3578	8044	4737	10649	181,0	11,04	2,03	4,48	-	
RF 2400 - 050 - A											50	1,97	155	6,10	105	4,13				3649	8203	4887	10986	230,0	14,03	2,21	4,87	-	
RF 2400 - 063 - A											63	2,48	181	7,13	118	4,65				3700	8318	4996	11231	282,0	17,20	2,42	5,34	-	
RF 2400 - 075 - A											75	2,95	205	8,07	130	5,12				± 5% + 20 °C + 68 °F	3734	8394	5068	11393	330,0	20,13	2,61	5,75	-
RF 2400 - 080 - A											80	3,15	215	8,46	135	5,31				3746	8421	5093	11450	350,0	21,35	2,69	5,93	-	
RF 2400 - 100 - A											100	3,94	255	10,04	155	6,10				3781	8500	5169	11620	431,0	26,29	3,00	6,61	-	
RF 2400 - 125 - A											125	4,92	305	12,01	180	7,09				3811	8567	5234	11767	532,0	32,45	3,40	7,50	-	



**HOW TO ORDER**

(10 pcs) RF 2400-050-A  
(10 pcs) RF 2400-050-A-N



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# RV 4200



ISO 11901 - 3 PG 24D (Mazda)	VDI 3003 - Blatt 3 B8 3180 220 000 004(MB)	B2 4005 (BMW) E24.54.815.G (PSA)	W-DX35-6204 (Ford) 39D 997 (VW)
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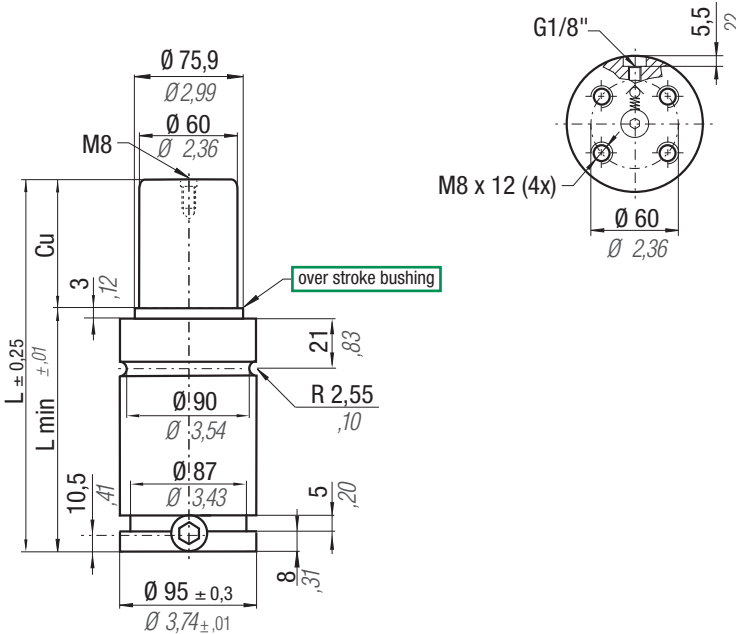


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

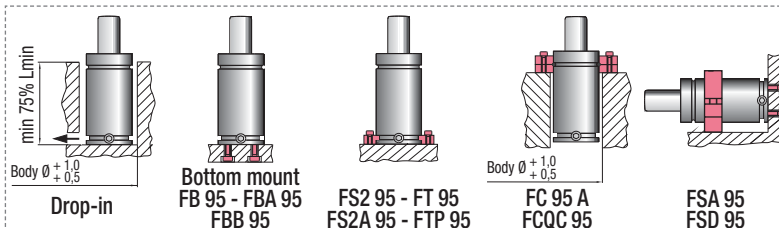
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237



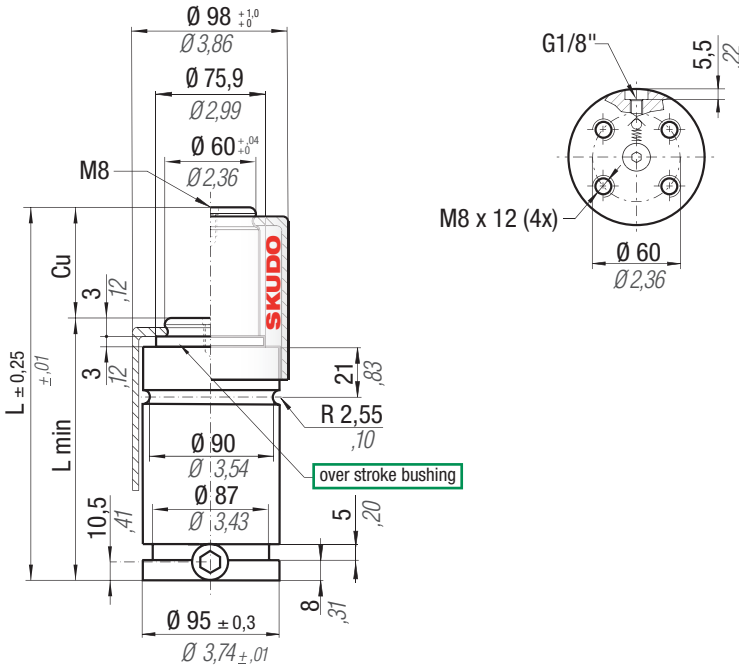
	°F 32 - 176	°C 0 - 80	$\Delta P$ $\pm 0,33\% / ^\circ C$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 28,27 cm <sup>2</sup> 4,382 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV04200C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg		~lb	Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>				
RV 4200 - 016 - A	16	0,63	90	3,54	74	2,91	4240 9532 150 bar 2175 psi  ± 5% + 20 °C + 68 °F		5741	12906	7162	16101	173,0	10,55	2,76	6,08	-	
RV 4200 - 019 - A	19	0,75	96	3,78	77	3,03			5871	13199	7421	16683	193,0	11,77	2,83	6,24	-	
RV 4200 - 025 - A	25	0,98	108	4,25	83	3,27			6076	13659	7834	17612	234,0	14,27	2,98	6,57	-	
RV 4200 - 032 - A	32	1,26	122	4,80	90	3,54			6251	14053	8194	18421	281,0	17,14	3,16	6,97	-	
RV 4200 - 038 - A	38	1,50	134	5,28	96	3,78			6365	14309	8432	18956	322,0	19,64	3,30	7,28	-	
RV 4200 - 050 - A	50	1,97	158	6,22	108	4,25			6532	14685	8783	19745	403,0	24,58	3,60	7,94	-	
RV 4200 - 063 - A	63	2,48	184	7,24	121	4,76			6656	14963	9048	20341	491,0	29,95	3,93	8,66	-	
RV 4200 - 075 - A	75	2,95	208	8,19	133	5,24			6739	15150	9227	20743	572,0	34,89	4,20	9,26	-	
RV 4200 - 080 - A	80	3,15	218	8,58	138	5,43			6767	15213	9288	20880	606,0	36,97	4,35	9,59	-	
RV 4200 - 100 - A	100	3,94	258	10,16	158	6,22			6857	15415	9483	21319	741,0	45,20	4,85	10,69	-	
RV 4200 - 125 - A	125	4,92	308	12,13	183	7,20			6933	15586	9651	21696	910,0	55,51	5,47	12,06	-	



## HOW TO ORDER

(10 pcs) RV 4200-050-A  
(10 pcs) RV 4200-050-A-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

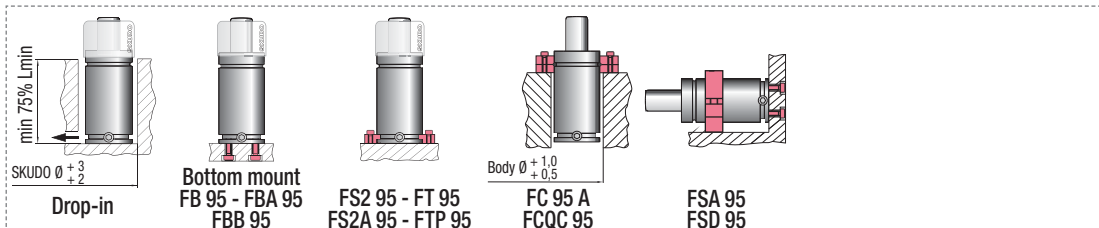
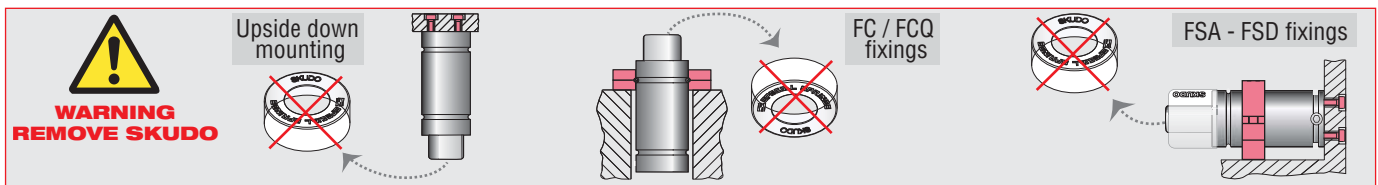
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easyl** MANIFOLD - see page 237

RV  
RS-RF

	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 28,27 cm <sup>2</sup> 4,382 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV04200C
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CODE	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		~Kg		~lb	Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>				
RS 4200 - 013 - A	13	0,51	90	3,54	77	3,03	4240 9532  150 bar 2175 psi  ± 5% + 20 °C + 68 °F		5384	12104	6471	14547	173,0	10,55	2,76	6,08	-	
RS 4200 - 016 - A	16	0,63	96	3,78	80	3,15			5535	12443	6761	15199	194,0	11,83	2,83	6,24	-	
RS 4200 - 022 - A	22	0,87	108	4,25	86	3,39			5776	12985	7232	16258	234,0	14,27	2,98	6,57	-	
RS 4200 - 029 - A	29	1,14	122	4,80	93	3,66			5985	13455	7650	17198	281,0	17,14	3,16	6,97	-	
RS 4200 - 035 - A	35	1,38	134	5,28	99	3,90			6123	13765	7931	17830	322,0	19,64	3,30	7,28	-	
RS 4200 - 047 - A	47	1,85	158	6,22	111	4,37			6327	14224	8351	18774	403,0	24,58	3,60	7,94	-	
RS 4200 - 060 - A	60	2,36	184	7,24	124	4,88			6480	14568	8673	19498	491,0	29,95	3,93	8,66	-	
RS 4200 - 072 - A	72	2,83	208	8,19	136	5,35			6584	14801	8893	19992	572,0	34,89	4,20	9,26	-	
RS 4200 - 077 - A	77	3,03	218	8,58	141	5,55			6620	14882	8970	20165	606,0	36,97	4,35	9,59	-	
RS 4200 - 097 - A	97	3,82	258	10,16	161	6,34			6732	15134	9212	20709	741,0	45,20	4,85	10,69	-	
RS 4200 - 122 - A	122	4,80	308	12,13	186	7,32	6829	15352	9423	21184	910,0	55,51	5,47	12,06	-			



**HOW TO ORDER**  
(10 pcs) RS 4200-047-A  
(10 pcs) RS 4200-047-A-N

ISO 11901 - 3	VDI 3003 - Blatt 3	B2 4005 (BMW)	W-DX35-6204 (Ford)
B8 3180 220 000 004(MB)	39D 997 (VW)		

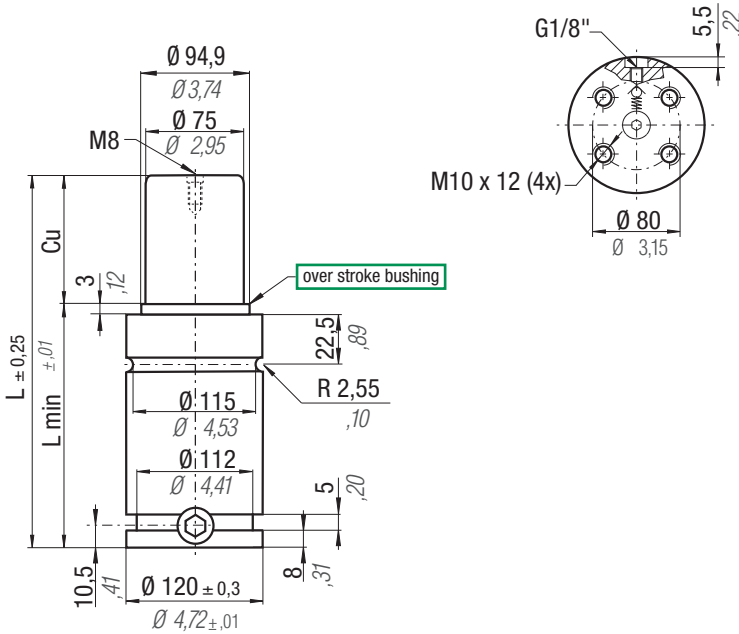


## Info

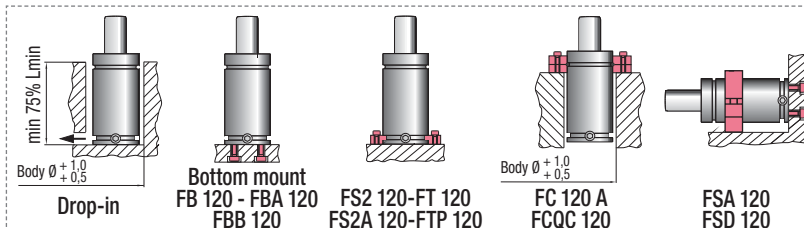
\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237



CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 44,18 cm <sup>2</sup> 6,848 in <sup>2</sup>	SPM ~ 20 - 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMRV06600C	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE	
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb
RV 6600 - 016 - A											16	0,63	100	3,94	84	3,31	6630 14904 150 bar 2175 psi ± 5% + 20 °C + 68 °F	8671	19493	10607	23845	300,0	18,30	5,06	11,16	-
RV 6600 - 019 - A											19	0,75	106	4,17	87	3,43		8870	19941	10995	24718	332,0	20,25	5,17	11,40	-
RV 6600 - 025 - A											25	0,98	118	4,65	93	3,66		9190	20660	11628	26141	396,0	24,16	5,42	11,95	-
RV 6600 - 032 - A											32	1,26	132	5,20	100	3,94		9471	21292	12195	27415	471,0	28,73	5,69	12,54	-
RV 6600 - 038 - A											38	1,50	144	5,67	106	4,17		9659	21714	12578	28276	535,0	32,64	5,93	13,07	-
RV 6600 - 050 - A											50	1,97	168	6,61	118	4,65		9938	22342	13157	29578	663,0	40,44	6,40	14,11	-
RV 6600 - 063 - A											63	2,48	194	7,64	131	5,16		10150	22818	13604	30583	801,0	48,86	6,90	15,21	-
RV 6600 - 075 - A											75	2,95	218	8,58	143	5,63		10294	23142	13911	31273	930,0	56,73	7,40	16,31	-
RV 6600 - 080 - A											80	3,15	228	8,98	148	5,83		10344	23254	14018	31514	983,0	59,96	7,60	16,76	-
RV 6600 - 100 - A											100	3,94	268	10,55	168	6,61		10503	23612	14359	32280	1197,0	73,02	8,40	18,52	I
RV 6600 - 125 - A											125	4,92	318	12,52	193	7,60		10640	23920	14656	32948	1464,0	89,30	9,40	20,72	II



## HOW TO ORDER

(10 pcs) RV 6600-050-A  
(10 pcs) RV 6600-050-A-N





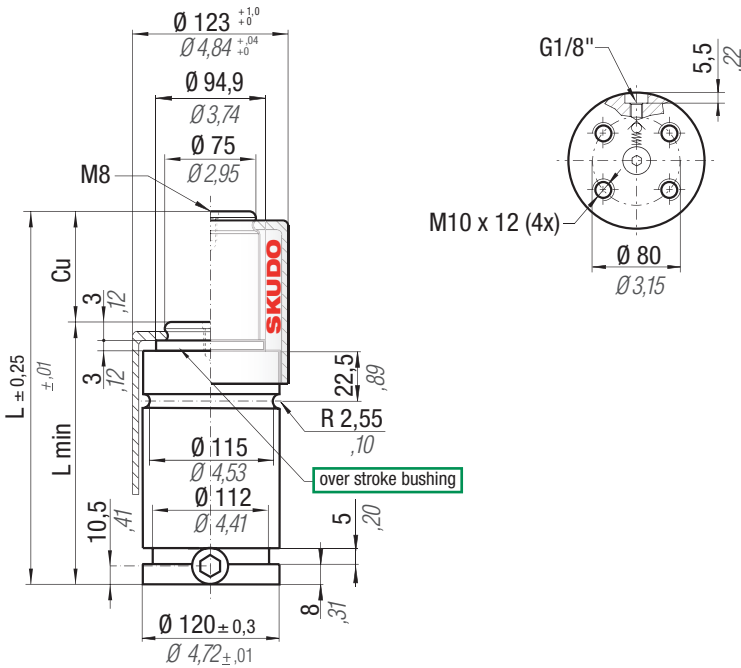
## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



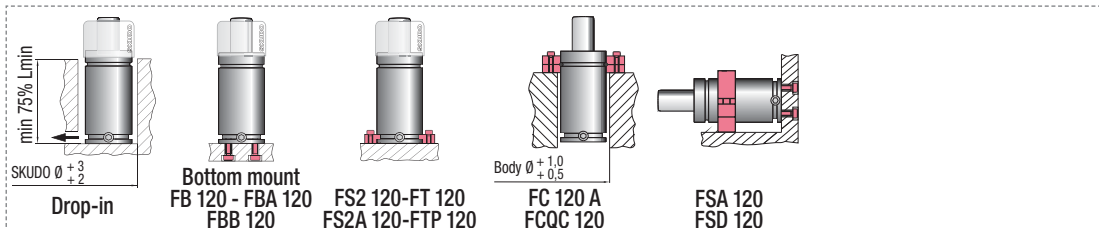
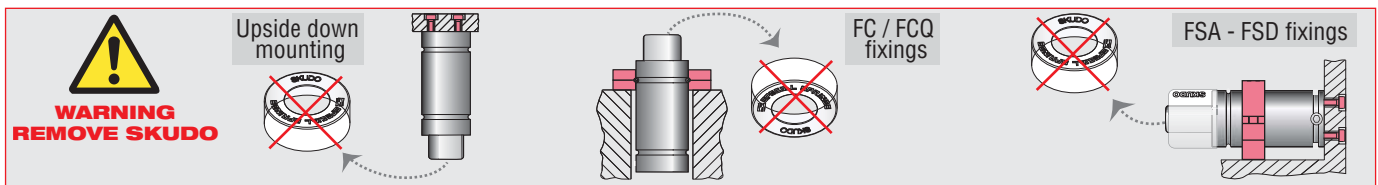
- see page 237



RV  
RS-RF

	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta P$ $\pm 0,33 \% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 44,18 cm <sup>2</sup> 6,848 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV06600C
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CODE	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		~Kg		~lb	Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>				
RS 6600 - 013 - A	13	0,51	100	3,94	87	3,43	6630 14904 150 bar 2175 psi	± 5% + 20 °C +68 °F	8197	18428	9705	21818	300,0	18,30	5,06	11,16	-	
RS 6600 - 016 - A	16	0,63	106	4,17	90	3,54			8420	18929	10127	22766	332,0	20,25	5,17	11,40	-	
RS 6600 - 022 - A	22	0,87	118	4,65	96	3,78			8783	19745	10824	24333	396,0	24,16	5,42	11,95	-	
RS 6600 - 029 - A	29	1,14	132	5,20	103	4,06			9105	20469	11458	25759	471,0	28,73	5,69	12,54	-	
RS 6600 - 035 - A	35	1,38	144	5,67	109	4,29			9322	20957	11892	26734	535,0	32,64	5,93	13,07	-	
RS 6600 - 047 - A	47	1,85	168	6,61	121	4,76			9649	21692	12557	28229	663,0	40,44	6,40	14,11	-	
RS 6600 - 060 - A	60	2,36	194	7,64	134	5,28			9899	22254	13077	29398	802,0	48,92	6,90	15,21	-	
RS 6600 - 072 - A	72	2,83	218	8,58	146	5,75			10071	22641	13438	30210	930,0	56,73	7,40	16,31	-	
RS 6600 - 077 - A	77	3,03	228	8,98	151	5,94			10131	22775	13564	30493	983,0	59,96	7,60	16,76	-	
RS 6600 - 097 - A	97	3,82	268	10,55	171	6,73			10322	23205	13970	31406	1197,0	73,02	8,40	18,52	I	
RS 6600 - 122 - A	122	4,80	318	12,52	196	7,72	10488	23578	14326	32206	1464,0	89,30	9,40	20,72	II			



**HOW TO ORDER**

(10 pcs) RS 6600-047-A  
(10 pcs) RS 6600-047-A-N

# RV 9500

ISO 11901 - 3 PG 24D (Mazda)	VDI 3003 - Blatt 3 B8 3180 220 000 004(MB)	B2 4005 (BMW) 39D 997 (VW)	W-DX35-6204 (Ford)
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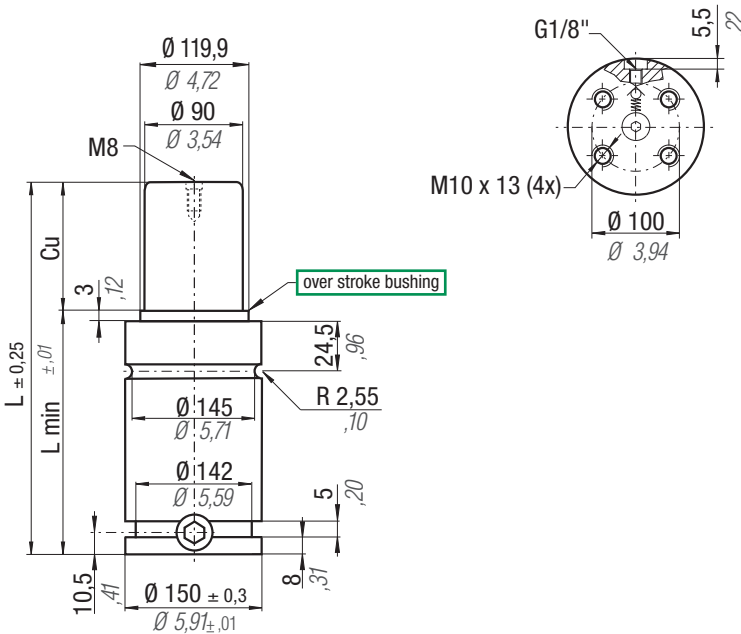


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

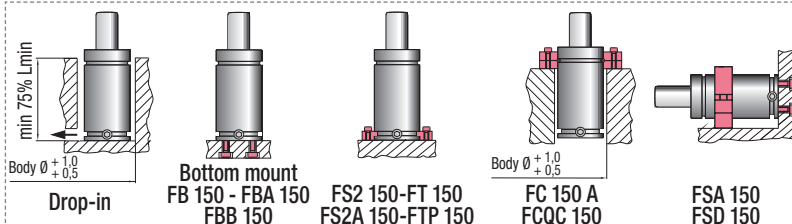
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easU** MANIFOLD - see page 237



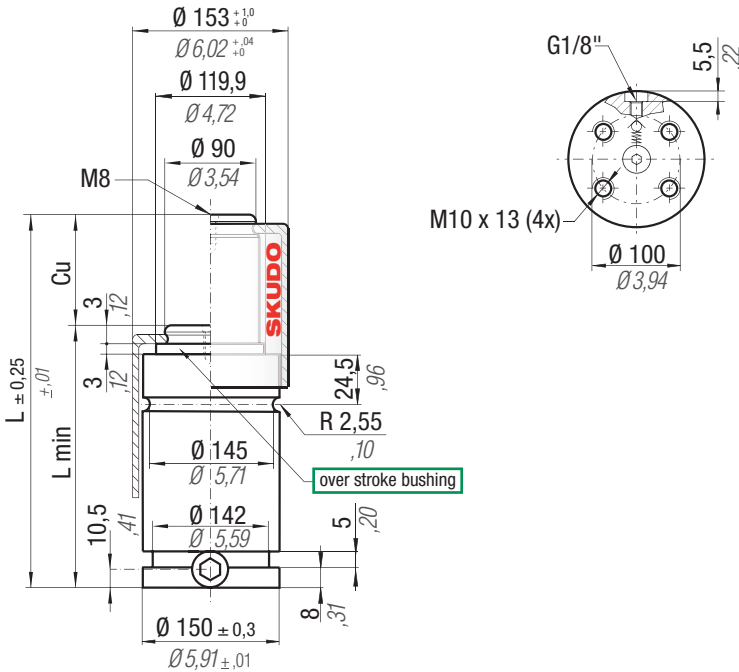
	$\Delta P$ $\pm 0,33\% / ^\circ C$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 63,62 cm <sup>2</sup> 9,864 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV09500C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg		CE
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
RV 9500 - 019 - A	19	0,75	116	4,57	97	3,82	9540 21446  150 bar 2175 psi  ± 5% + 20 °C +68 °F		12455	28000	15214	34202	517,0	31,54	9,51	20,97	-
RV 9500 - 025 - A	25	0,98	128	5,04	103	4,06			12881	28958	16044	36068	614,0	37,45	9,90	21,83	-
RV 9500 - 032 - A	32	1,26	142	5,59	110	4,33			13258	29805	16792	37750	727,0	44,35	10,30	22,71	-
RV 9500 - 038 - A	38	1,50	154	6,06	116	4,57			13510	30372	17299	38890	823,0	50,20	10,70	23,59	I
RV 9500 - 050 - A	50	1,97	178	7,01	128	5,04			13888	31221	18070	40623	1017,0	62,04	11,40	25,13	I
RV 9500 - 063 - A	63	2,48	204	8,03	141	5,55			14176	31869	18666	41963	1226,0	74,79	12,20	26,90	I
RV 9500 - 075 - A	75	2,95	228	8,98	153	6,02			14373	32312	19078	42889	1420,0	86,62	13,00	28,66	II
RV 9500 - 080 - A	80	3,15	238	9,37	158	6,22			14442	32467	19222	43213	1500,0	91,50	13,30	29,32	II
RV 9500 - 100 - A	100	3,94	278	10,94	178	7,01			14659	32955	19681	44245	1823,0	111,20	14,60	32,19	II
RV 9500 - 125 - A	125	4,92	328	12,91	203	7,99			14847	33377	20082	45146	2226,0	135,79	16,10	35,49	II



**HOW TO ORDER**

(10 pcs) RV 9500-050-A  
(10 pcs) RV 9500-050-A-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

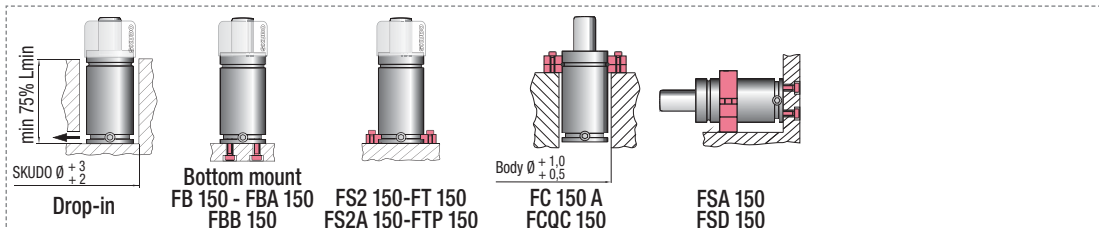
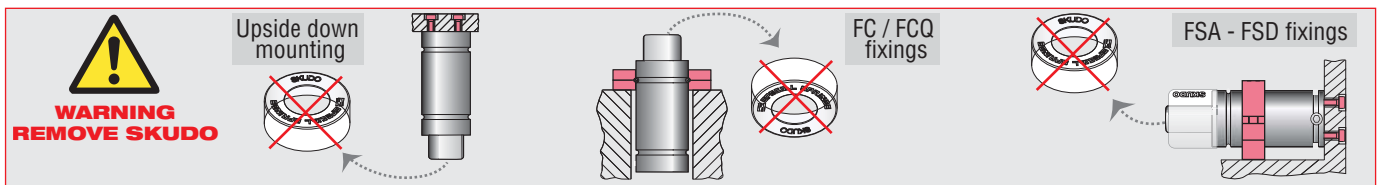
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easyl** MANIFOLD - see page 237

RV  
RS-RF

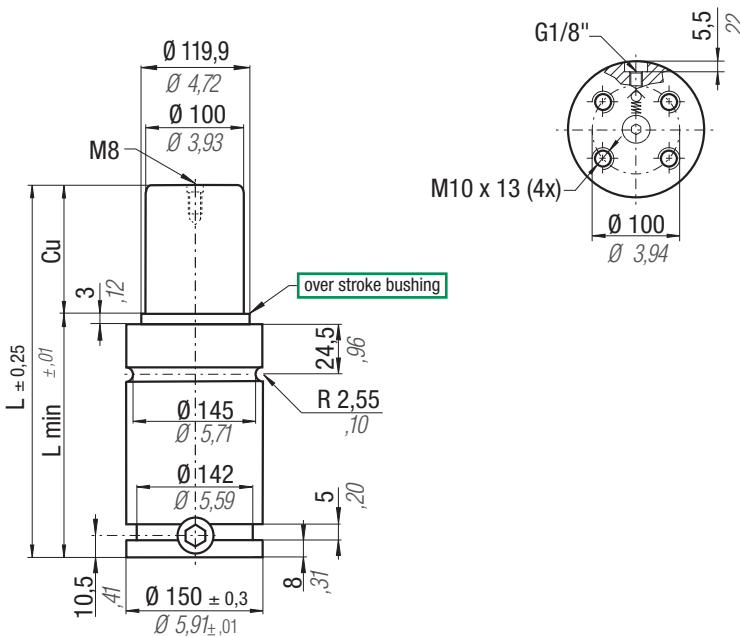
	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 63,62 cm <sup>2</sup> 9,861 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV09500C
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CODE	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		CE		
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
RS 9500 - 016 - A	16	0,63	116	4,57	100	3,94	9540 21446  150 bar 2175 psi  ± 5% + 20 °C +68 °F		11882	26712	14124	31752	517,0	31,54	9,51	20,97	-
RS 9500 - 022 - A	22	0,87	128	5,04	106	4,17			12362	27791	15035	33800	614,0	37,45	9,90	21,83	-
RS 9500 - 029 - A	29	1,14	142	5,59	113	4,45			12791	28755	15867	35670	727,0	44,35	10,30	22,71	-
RS 9500 - 035 - A	35	1,38	154	6,06	119	4,69			13081	29407	16439	36956	823,0	50,20	10,70	23,59	-
RS 9500 - 047 - A	47	1,85	178	7,01	131	5,16			13518	30390	17317	38930	1017,0	62,04	11,40	25,13	I
RS 9500 - 060 - A	60	2,36	204	8,03	144	5,67			13856	31150	18004	40475	1226,0	74,79	12,20	26,90	I
RS 9500 - 072 - A	72	2,83	228	8,98	156	6,14			14088	31671	18483	41551	1420,0	86,62	13,00	28,66	II
RS 9500 - 077 - A	77	3,03	238	9,37	161	6,34			14169	31853	18651	41929	1500,3	91,52	13,30	29,32	II
RS 9500 - 097 - A	97	3,82	278	10,94	181	7,13			14427	32433	19191	43143	1823,0	111,20	14,60	32,19	II
RS 9500 - 122 - A	122	4,80	328	12,91	206	8,11			14652	32939	19666	44211	2226,0	135,79	16,10	35,49	II



**HOW TO ORDER**

(10 pcs) RS 9500-047-A  
(10 pcs) RS 9500-047-A-N



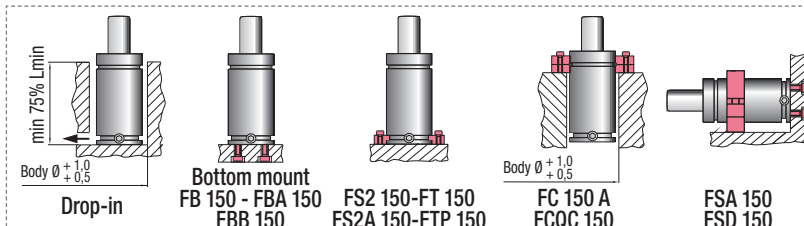
## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easU** MANIFOLD - see page 237

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 78,54 cm <sup>2</sup> 12,173 in <sup>2</sup>	SPM ~ 20 - 80 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMRV12000A	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE	
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb
RV 12000 - 019 - A											19	0,75	116	4,57	97	3,82	11780 26470 150 bar 2175 psi ± 5% + 20 °C +68 °F	15947	35850	19896	44728	571,0	34,83	9,57	21,10	-
RV 12000 - 025 - A											25	0,98	128	5,04	103	4,06		16614	37350	21225	47716	675,0	41,18	9,96	21,96	-
RV 12000 - 032 - A											32	1,26	142	5,59	110	4,33		17216	38703	22454	50479	796,0	48,56	10,41	22,95	-
RV 12000 - 038 - A											38	1,50	154	6,06	116	4,57		17627	39627	23307	52396	900,0	54,90	10,81	23,83	-
RV 12000 - 050 - A											50	1,97	178	7,01	128	5,04		18254	41037	24629	55368	1108,0	67,59	11,59	25,55	I
RV 12000 - 063 - A											63	2,48	204	8,03	141	5,55		18741	42131	25676	57722	1332,0	81,25	11,88	26,19	II
RV 12000 - 075 - A											75	2,95	228	8,98	153	6,02		19079	42891	26412	59377	1540,0	93,94	12,21	26,92	II
RV 12000 - 080 - A											80	3,15	238	9,37	158	6,22		19197	43157	26671	59959	1626,0	99,19	12,43	27,40	II
RV 12000 - 100 - A											100	3,94	278	10,94	178	7,01		19576	44009	27507	61838	1972,0	120,29	13,51	29,78	II
RV 12000 - 125 - A											125	4,92	328	12,91	203	7,99		19908	44755	28249	63506	2405,0	146,71	15,14	33,38	II



## HOW TO ORDER

(10 pcs) RV 12000-050-A  
(10 pcs) RV 12000-050-A-N

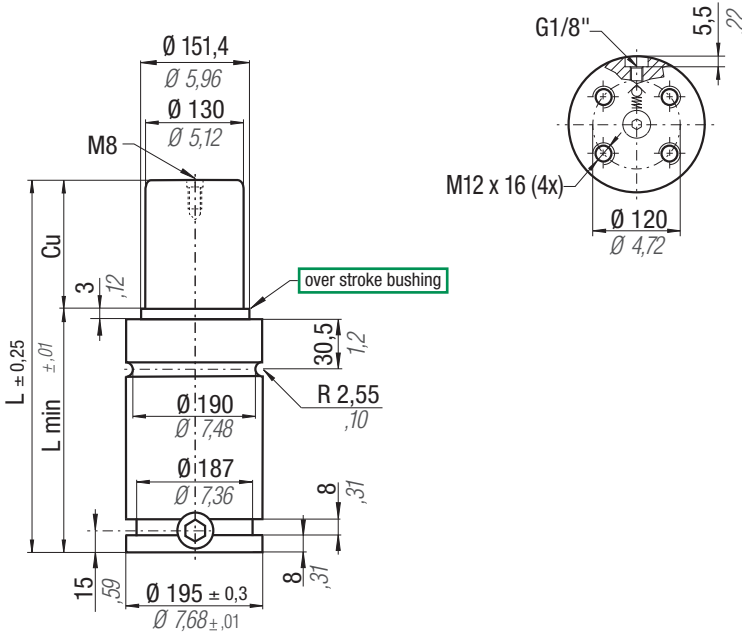


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

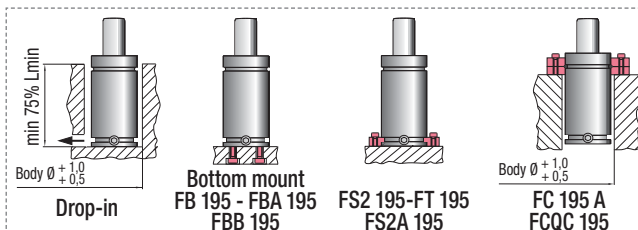
**easu** MANIFOLD - see page 237



RV  
RS-RF

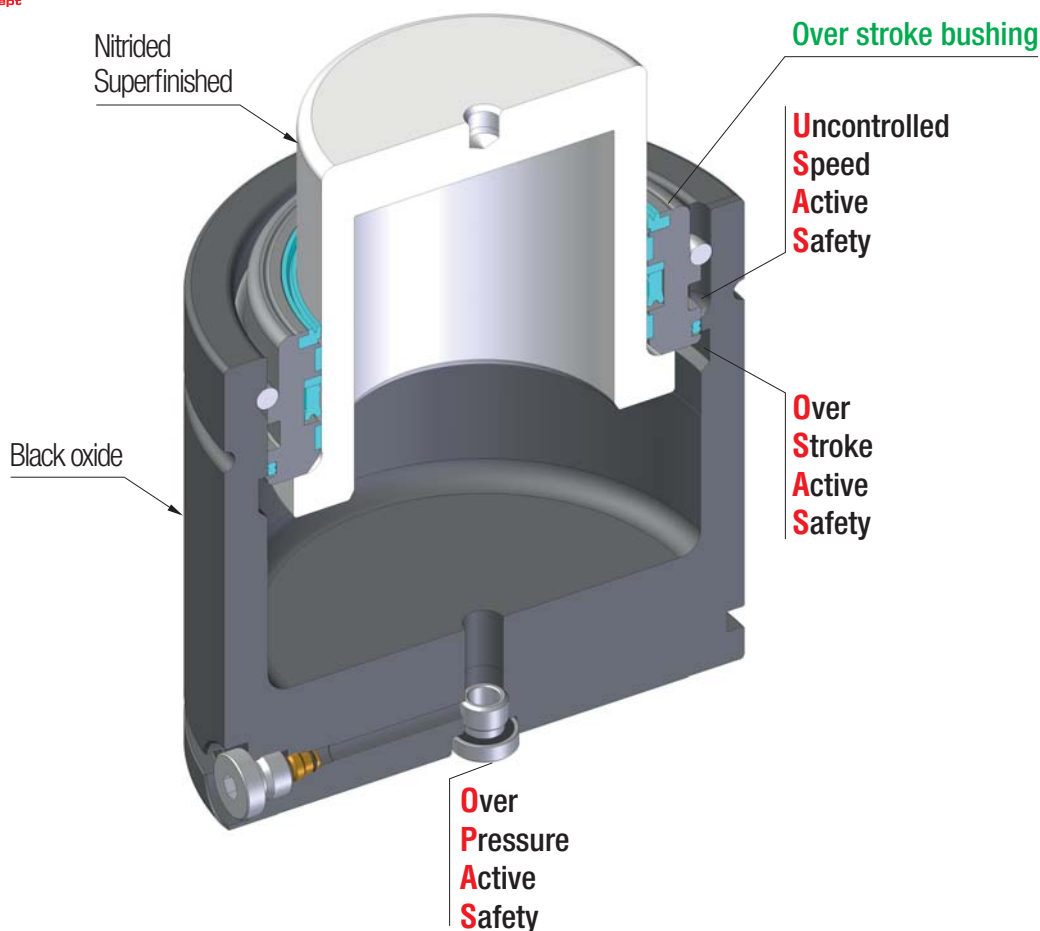
	$^{\circ}F$ 32 - 176	$^{\circ}C$ 0 - 80	$\Delta P$ $\pm 0,33 \% / ^{\circ}C$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 132,73 cm <sup>2</sup> 20,573 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV20000A
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CODE	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		~Kg ~lb		CE Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
RV 20000 - 019 - A	19	0,75	148	5,83	129	5,08	19910 44738  150 bar 2175 psi  $\pm 5\%$ $+ 20^{\circ}C + 68^{\circ}F$		25708	57794	31207	70156	1118,0	68,20	21,60	47,62	I
RV 20000 - 025 - A	25	0,98	160	6,30	135	5,32			26821	60296	33368	75014	1288,0	78,57	22,30	49,19	II
RV 20000 - 032 - A	32	1,26	174	6,85	142	5,59			27880	62677	35474	79749	1486,0	90,65	23,10	51,01	II
RV 20000 - 038 - A	38	1,50	186	7,32	148	5,83			28634	64372	37002	83184	1656,0	101,02	23,90	52,58	II
RV 20000 - 050 - A	50	1,97	210	8,27	160	6,30			29836	67074	39486	88768	1995,0	121,70	25,30	55,73	II
RV 20000 - 063 - A	63	2,48	236	9,29	173	6,81			30819	69284	41560	93431	2362,0	144,08	26,80	59,13	II
RV 20000 - 075 - A	75	2,95	260	10,24	185	7,28			31526	70873	43077	96841	2702,0	164,82	28,40	62,66	II
RV 20000 - 080 - A	80	3,15	270	10,63	190	7,48			31779	71442	43624	98071	2843,0	173,42	28,80	63,56	II
RV 20000 - 100 - A	100	3,94	310	12,21	210	8,27			32607	73303	45434	102140	3409,0	207,95	31,20	68,78	II
RV 20000 - 125 - A	125	4,92	360	14,17	235	9,25			33358	74992	47097	105878	4116,0	251,08	34,20	75,33	II



## HOW TO ORDER

(10 pcs) RV 20000-050-A  
(10 pcs) RV 20000-050-A-N



## Range chart

Model	Body Ø		Stroke Cu		Initial force Fo		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
RG 750	45	1,77	10 - 125	0,39 - 4,92	740	1664	✓	✓	✓	-
RG 1000	50	1,97	10 - 125	0,39 - 4,92	920	2068	✓	✓	✓	-
RG 1500	63	2,48	10 - 125	0,39 - 4,92	1530	3440	✓	✓	✓	-
RG 2400	75	2,95	10 - 125	0,39 - 4,92	2385	5362	✓	✓	✓	-
RG 4200	95	3,74	16 - 125	0,63 - 4,92	4240	9532	✓	✓	✓	-
RG 6600	120	4,72	16 - 125	0,63 - 4,92	6630	14905	✓	✓	✓	-



How to Order

## RG 2400-050-A - N

Codice cilindro autonomo  
Self-contained cylinder code  
Kode des eingeständigen Gdf.  
Code du cylindre autonome  
Codigo del cilindro autónomo  
Codigo do cilindro autónomo

- E

Collegabile con tubi, cilindro fornito scarico e senza valvola unidirezionale  
Linkable with hoses, cylinder supplied without pressure and oneway valve  
Anschlussfähig mit Leitungen, Gdf. geliefert ohne Druck und RückschlagVentil  
Connectable avec tubes, ressort fourni sans pression ni valve unidirectionnelle  
Connectable con tubos, cilindro suministrado sin presión y sin válvula unidireccional  
Acompláveis com tubos, cilindro fornecidos sem pressão e sem válvula unidireccional

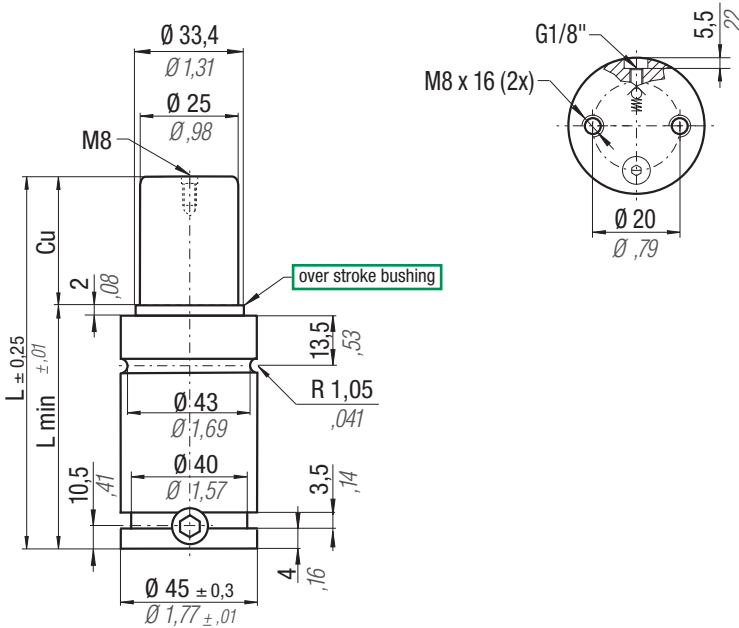
Collegabile EASY MANIFOLD, fornito scarico + guarnizione di collegamento  
Linkable EASY MANIFOLD, supplied without pressure + connecting seal  
Anschlussfähig EASY MANIFOLD, geliefert ohne Druck + Verbindungsdichtung  
Connectable EASY MANIFOLD, fourni sans pression + joint de connexion  
Connectable EASY MANIFOLD, suministrado sin presión + junta de conexión  
Acompláveis EASY MANIFOLD, fornecidos sem pressão + vedantes de conexão



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

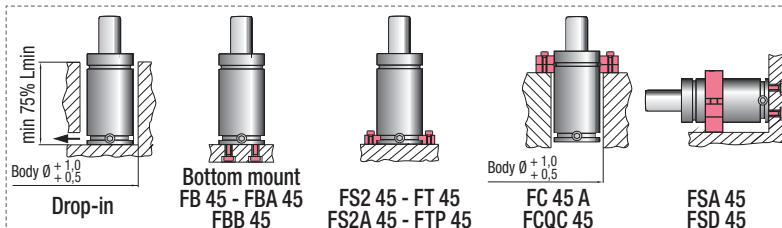
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



RG

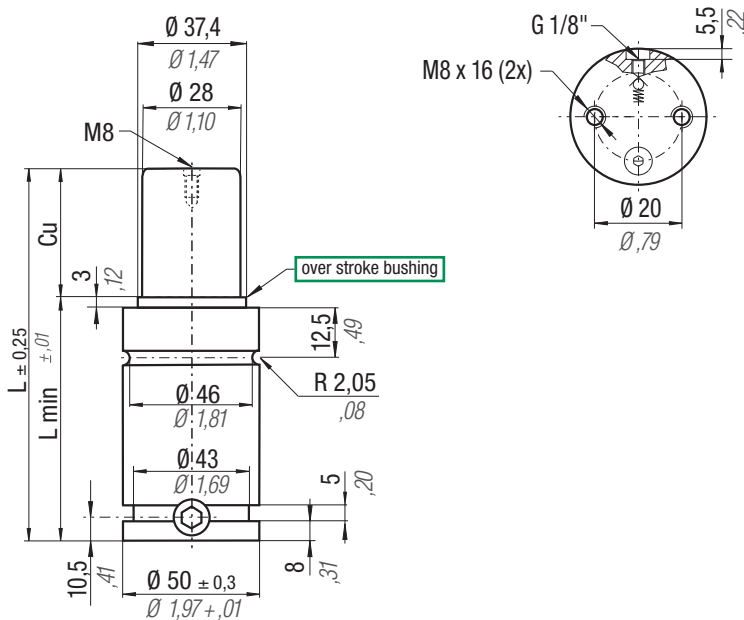
	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 4,91 cm <sup>2</sup> 0,761 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV00750C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub> **		V <sub>0</sub>		~Kg		~lb	Cat.																																																																	
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>																																																																					
RG 750 - 010 - A	10	0,39	67	2,64	57	2,24	740	1664	1090	2450	1184	2662	21,0	1,28	0,50	1,10	-																																																																		
RG 750 - 013 - A	13	0,51	73	2,87	60	2,36											150 bar 2175psi	1095	2462	1243	2794	24,0	1,46	0,52	1,15	-																																																									
RG 750 - 016 - A	16	0,63	79	3,11	63	2,48																				± 5% + 20 °C + 68 °F	1097	2466	1289	2898	28,0	1,71	0,54	1,19	-																																																
RG 750 - 019 - A	19	0,75	85	3,35	66	2,60																													1136	2554	1527	3433	88,0	5,37	0,84	1,85	-																																								
RG 750 - 025 - A	25	0,98	97	3,82	72	2,83																																					1145	2574	1546	3476	103,0	6,28	0,92	2,03	-																																
RG 750 - 032 - A	32	1,26	111	4,37	79	3,11																																													1148	2581	1552	3489	110,0	6,71	0,95	2,09	-																								
RG 750 - 038 - A	38	1,50	123	4,84	85	3,35																																																					1157	2601	1573	3536	135,0	8,24	1,08	2,38	-																
RG 750 - 050 - A	50	1,97	147	5,79	97	3,82																																																													1165	2619	1590	3574	167,0	10,19	1,24	2,73	-								
RG 750 - 063 - A	63	2,48	173	6,81	110	4,33																																																																													
RG 750 - 075 - A	75	2,95	197	7,76	122	4,80																																																																													
RG 750 - 080 - A	80	3,15	207	8,15	127	5,00																																																																													
RG 750 - 100 - A	100	3,94	247	9,72	147	5,79																																																																													
RG 750 - 125 - A	125	4,92	297	11,69	172	6,77																																																																													



## HOW TO ORDER

(10 pcs) RG 750-050-A  
(10 pcs) RG 750-050-A-N

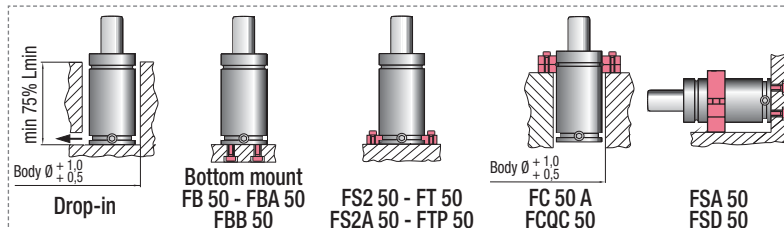


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 6,15 cm <sup>2</sup> 0,953 in <sup>2</sup>	SPM ~ 20 - 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMRV01000C								
CODE	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> End force **		V <sub>0</sub>		CE		
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
RG 1000 - 010 - A	10	0,39	72	2,83	62	2,44	920 2068 150 bar 2175 psi ± 5% + 20 °C + 68 °F		1210	2720	1481	3329	26,0	1,59	0,72	1,59	-
RG 1000 - 013 - A	13	0,51	78	3,07	65	2,56			1249	2808	1557	3500	31,0	1,89	0,75	1,65	-
RG 1000 - 016 - A	16	0,63	84	3,31	68	2,68			1279	2875	1617	3635	35,0	2,14	0,77	1,70	-
RG 1000 - 019 - A	19	0,75	90	3,54	71	2,80			1303	2929	1666	3745	40,0	2,44	0,82	1,81	-
RG 1000 - 025 - A	25	0,98	102	4,02	77	3,03			1339	3010	1739	3909	50,0	3,05	0,86	1,90	-
RG 1000 - 032 - A	32	1,26	116	4,57	84	3,31			1369	3078	1800	4047	61,0	3,72	0,92	2,03	-
RG 1000 - 038 - A	38	1,50	128	5,04	90	3,54			1387	3118	1838	4132	70,0	4,27	0,97	2,14	-
RG 1000 - 050 - A	50	1,97	152	5,98	102	4,02			1413	3177	1893	4256	89,0	5,43	1,08	2,38	-
RG 1000 - 063 - A	63	2,48	178	7,01	115	4,53			1432	3219	1933	4346	109,0	6,65	1,18	2,60	-
RG 1000 - 075 - A	75	2,95	202	7,95	127	5,00			1444	3246	1959	4404	128,0	7,81	1,28	2,82	-
RG 1000 - 080 - A	80	3,15	212	8,35	132	5,20			1448	3255	1968	4424	136,0	8,30	1,35	2,98	-
RG 1000 - 100 - A	100	3,94	252	9,92	152	5,98			1461	3284	1995	4485	167,0	10,19	1,51	3,33	-
RG 1000 - 125 - A	125	4,92	302	11,89	177	6,97			1472	3309	2018	4537	207,0	12,63	1,71	3,77	-



## HOW TO ORDER

(10 pcs) RG 1000-050-A  
(10 pcs) RG 1000-050-A-N

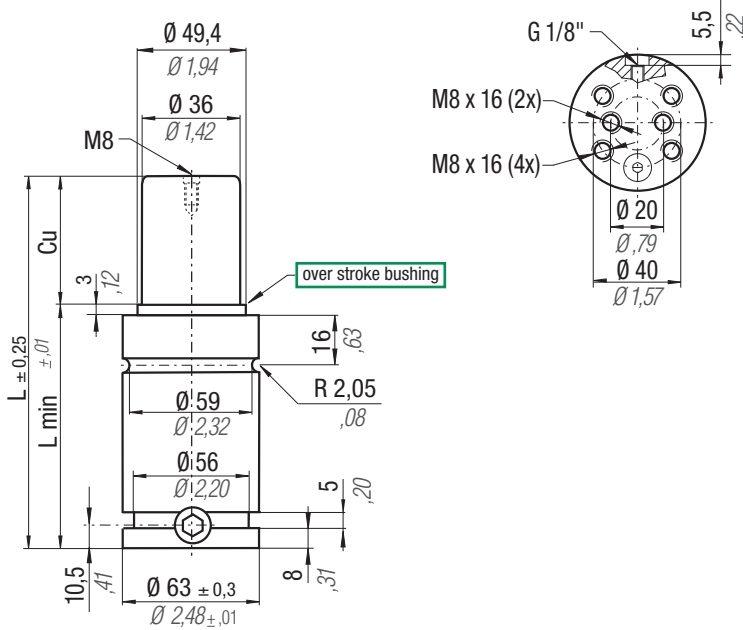




## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

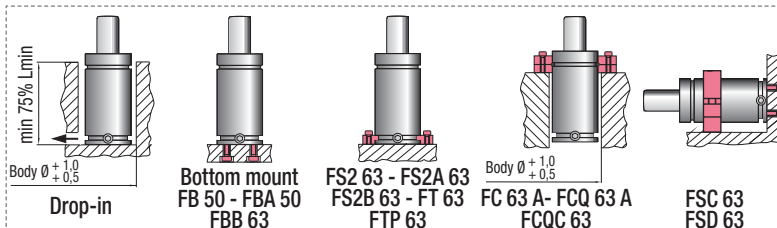
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



RG

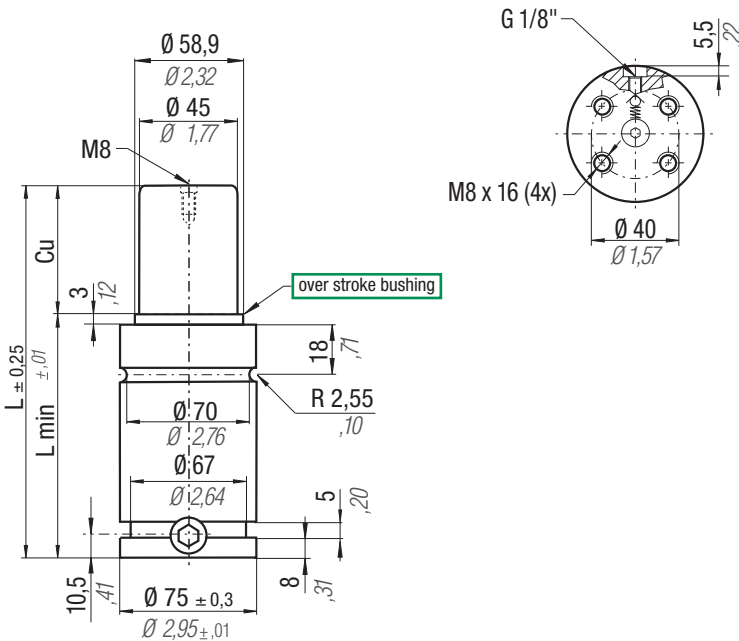
	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta P$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 10,18 cm <sup>2</sup> 1,578 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV01500C
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CODE	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		~Kg ~lb		CE Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
RG 1500 - 010 - A	10	0,39	72	2,83	62	2,44	1530	3440	2132	4793	2395	5384	45,0	2,75	1,10	2,43	-
RG 1500 - 013 - A	13	0,51	78	3,07	65	2,56			2168	4874	2515	5654	53,0	3,23	1,12	2,47	-
RG 1500 - 016 - A	16	0,63	84	3,31	68	2,68			2188	4919	2611	5870	61,0	3,72	1,16	2,56	-
RG 1500 - 019 - A	19	0,75	90	3,54	71	2,80			2192	4928	2688	6043	69,0	4,21	1,20	2,65	-
RG 1500 - 025 - A	25	0,98	102	4,02	77	3,03			2195	4935	2806	6308	85,0	5,19	1,27	2,80	-
RG 1500 - 032 - A	32	1,26	116	4,57	84	3,31	150 bar 2175 psi		2228	5009	2904	6528	104,0	6,34	1,35	2,98	-
RG 1500 - 038 - A	38	1,50	128	5,04	90	3,54			2258	5076	2966	6668	119,0	7,26	1,42	3,13	-
RG 1500 - 050 - A	50	1,97	152	5,98	102	4,02	$\pm 5\%$ + 20 °C + 68 °F		2301	5173	3055	6868	151,0	9,21	1,56	3,44	-
RG 1500 - 063 - A	63	2,48	178	7,01	115	4,53			2332	5243	3120	7014	186,0	11,35	1,71	3,77	-
RG 1500 - 075 - A	75	2,95	202	7,95	127	5,00			2352	5288	3163	7111	218,0	13,30	1,85	4,08	-
RG 1500 - 080 - A	80	3,15	212	8,35	132	5,20			2359	5303	3177	7142	231,0	14,09	1,91	4,21	-
RG 1500 - 100 - A	100	3,94	252	9,92	152	5,98			2380	5350	3222	7243	284,0	17,32	2,15	4,74	-
RG 1500 - 125 - A	125	4,92	302	11,89	177	6,97	2398	5391	3260	7329	350,0	21,35	2,44	5,38	-		



## HOW TO ORDER

(10 pcs) RG 1500-050-A  
(10 pcs) RG 1500-050-A-N



## Info

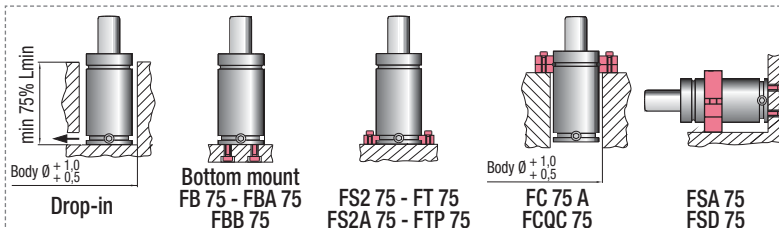
\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easU** MANIFOLD - see page 237

	$^{\circ}\text{F}$ 32 -176	$^{\circ}\text{C}$ 0 -80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 15,90 cm <sup>2</sup> 2,465 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRT02400C
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CODE		Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg		~lb	Cat.
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>				
RG 2400 - 010 - A		10	0,39	79	3,11	69	2,72	2385 5362 150 bar 2175 psi $\pm 5\%$ + 20 °C +68 °F		3432	7715	3574	8035	78,0	4,76	1,73	3,81	-	
RG 2400 - 013 - A		13	0,51	85	3,35	72	2,83			3453	7763	3763	8460	90,0	5,49	1,77	3,90	-	
RG 2400 - 016 - A		16	0,63	91	3,58	75	2,95			3466	7792	3920	8813	103,0	6,28	1,82	4,01	-	
RG 2400 - 019 - A		19	0,75	97	3,82	78	3,07			3472	7805	4051	9107	115,0	7,02	1,87	4,12	-	
RG 2400 - 025 - A		25	0,98	109	4,29	84	3,31			3489	7844	4258	9572	139,0	8,48	1,96	4,32	-	
RG 2400 - 032 - A		32	1,26	123	4,84	91	3,58			3501	7871	4436	9973	167,0	10,19	2,08	4,59	-	
RG 2400 - 038 - A		38	1,50	135	5,31	97	3,82			3535	7947	4554	10238	191,0	11,65	2,18	4,81	-	
RG 2400 - 050 - A		50	1,97	159	6,26	109	4,29			3573	8032	4726	10624	239,0	14,58	2,37	5,22	-	
RG 2400 - 063 - A		63	2,48	185	7,28	122	4,80			3634	8170	4855	10914	292,0	17,81	2,58	5,69	-	
RG 2400 - 075 - A		75	2,95	209	8,23	134	5,28			3675	8262	4942	11110	340,0	20,74	2,83	6,24	-	
RG 2400 - 080 - A		80	3,15	219	8,62	139	5,47			3689	8293	4972	11178	360,1	21,97	2,91	6,42	-	
RG 2400 - 100 - A		100	3,94	259	10,20	159	6,26			3733	8392	5066	11389	441,0	26,90	3,22	7,10	-	
RG 2400 - 125 - A		125	4,92	309	12,17	184	7,24			3771	8478	5147	11571	541,0	33,00	3,63	8,00	-	



## HOW TO ORDER

(10 pcs) RG2400-050-A  
(10 pcs) RG 2400-050-A-N

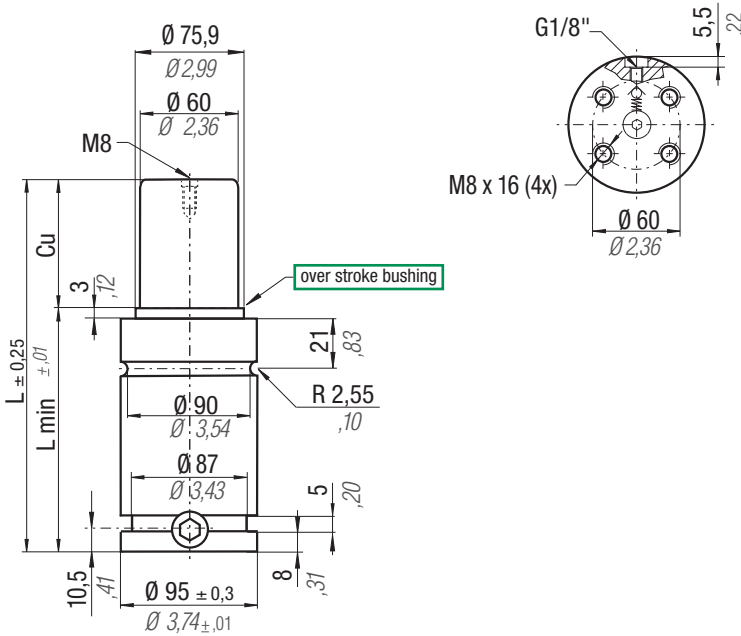


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

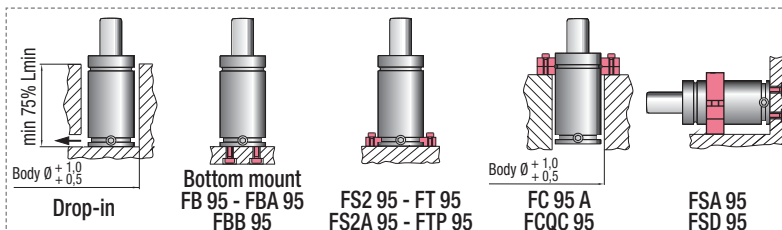
**easyl** MANIFOLD - see page 237



RG

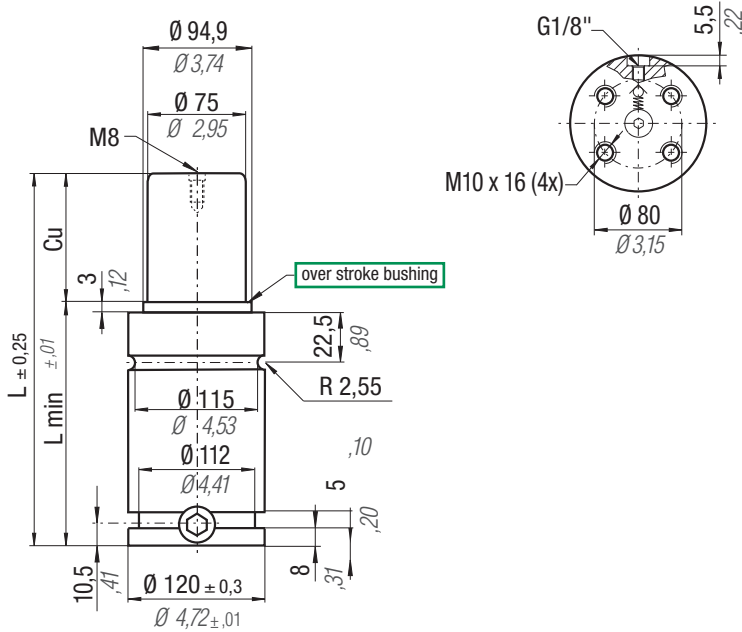
	$^{\circ}F$ 32 - 176	$^{\circ}C$ 0 - 80	$\Delta P$ $\pm 0,33\%/^{\circ}C$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 28,27 cm <sup>2</sup> 4,382 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV04200C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub> **		V <sub>0</sub>		~Kg		~lb	Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>				
RG 4200 - 016 - A	16	0,63	94	3,70	78	3,07	4240 9532  150 bar 2175 psi  $\pm 5\%$ $+ 20^{\circ}C + 68^{\circ}F$		5735	12893	7150	16074	174,0	10,61	3,18	7,01	-	
RG 4200 - 019 - A	19	0,75	100	3,94	81	3,19			5866	13187	7410	16658	194,0	11,83	3,27	7,21	-	
RG 4200 - 025 - A	25	0,98	112	4,41	87	3,43			6071	13648	7823	17587	235,0	14,34	3,47	7,65	-	
RG 4200 - 032 - A	32	1,26	126	4,96	94	3,70			6246	14042	8183	18396	282,0	17,20	3,64	8,02	-	
RG 4200 - 038 - A	38	1,50	138	5,43	100	3,94			6361	14300	8421	18931	323,0	19,70	3,79	8,36	-	
RG 4200 - 050 - A	50	1,97	162	6,38	112	4,41			6528	14676	8774	19725	404,0	24,64	4,25	9,37	-	
RG 4200 - 063 - A	63	2,48	188	7,40	125	4,92			6652	14954	9039	20320	492,0	30,01	4,47	9,85	-	
RG 4200 - 075 - A	75	2,95	212	8,35	137	5,39			6735	15141	9219	20725	573,0	34,95	4,77	10,52	-	
RG 4200 - 080 - A	80	3,15	222	8,74	142	5,59			6764	15206	9281	20865	606,0	36,97	4,96	10,93	-	
RG 4200 - 100 - A	100	3,94	262	10,31	162	6,38			6854	15408	9477	21305	742,0	45,26	5,45	12,02	-	
RG 4200 - 125 - A	125	4,92	312	12,28	187	7,36	6931	15582	9645	21683	911,0	55,57	6,07	13,38	-			



## HOW TO ORDER

(10 pcs) RG 4200-050-A  
(10 pcs) RG 4200-050-A-N



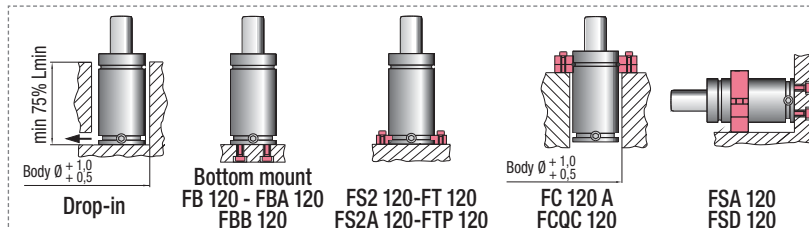
## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 44,18 cm <sup>2</sup> 6,848 in <sup>2</sup>	SPM ~ 20 - 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMRV06600C	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE	
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb
RG 6600 - 016 - A											16	0,63	104	4,09	88	3,46	6630 14904 150 bar 2175 psi ± 5% + 20 °C +68 °F	8597	19327	10464	23524	309,0	18,85	5,55	12,24	-
RG 6600 - 019 - A											19	0,75	110	4,33	91	3,58		8795	19772	10847	24385	341,0	20,80	5,67	12,50	-
RG 6600 - 025 - A											25	0,98	122	4,80	97	3,82		9115	20491	11478	25804	405,0	24,71	5,91	13,03	-
RG 6600 - 032 - A											32	1,26	136	5,35	104	4,09		9398	21128	12047	27083	479,0	29,22	6,18	13,62	-
RG 6600 - 038 - A											38	1,50	148	5,83	110	4,33		9589	21557	12435	27955	544,0	33,18	6,43	14,18	-
RG 6600 - 050 - A											50	1,97	172	6,77	122	4,80		9874	22198	13025	29281	672,0	40,99	6,90	15,21	-
RG 6600 - 063 - A											63	2,48	198	7,80	135	5,31		10093	22690	13483	30311	811,0	49,47	7,42	16,36	-
RG 6600 - 075 - A											75	2,95	222	8,74	147	5,79		10242	23025	13800	31024	939,0	57,28	7,90	17,42	-
RG 6600 - 080 - A											80	3,15	232	9,13	152	5,98		10294	23142	13910	31271	992,0	60,51	8,01	17,66	-
RG 6600 - 100 - A											100	3,94	272	10,71	172	6,77		10459	23513	14264	32067	1206,0	73,57	8,89	19,60	I
RG 6600 - 125 - A											125	4,92	322	12,68	197	7,76		10602	23834	14574	32764	1473,0	89,85	9,89	21,80	II



## HOW TO ORDER

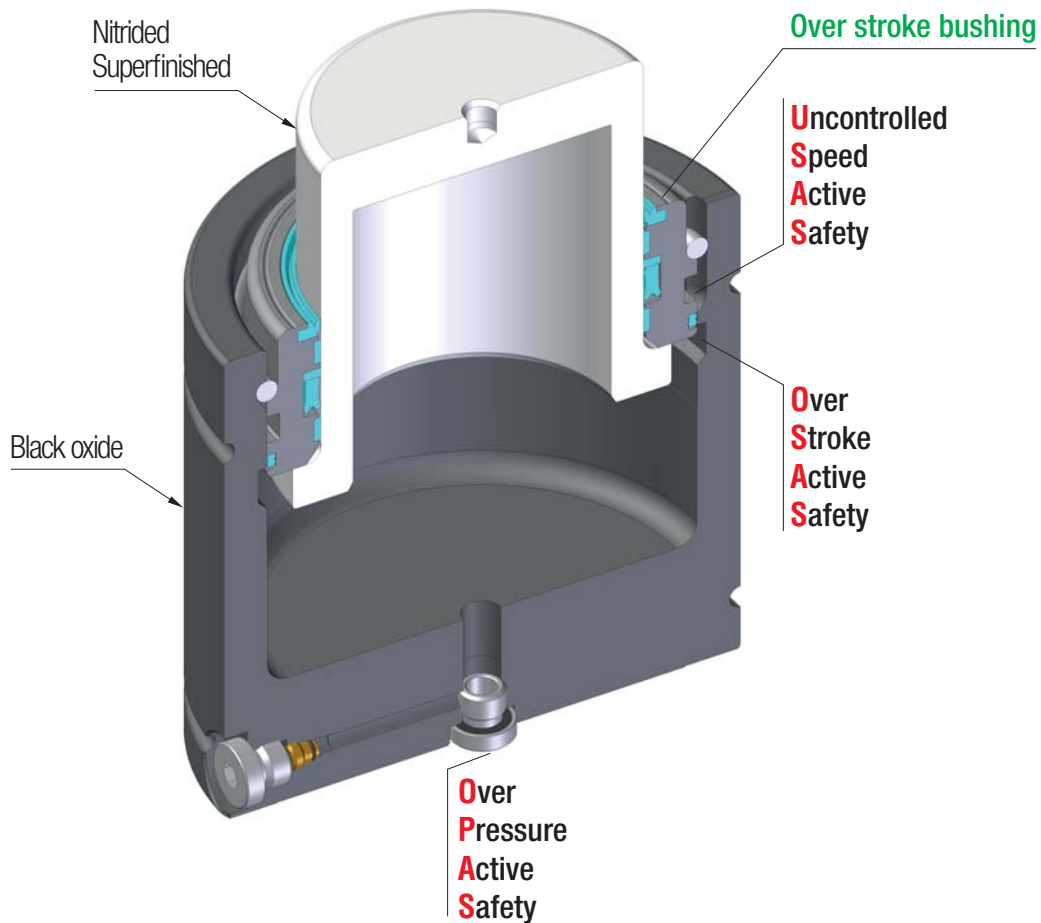
(10 pcs) RG 6600-050-A  
(10 pcs) RG 6600-050-A-N



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Mazda	Nissan	PSA
Toyota		



## Range chart

Model	Body Ø		Stroke Cu		Initial force Fo		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
RT 350	32	1,26	10 - 125	0,39 - 4,92	360	809	✓	✓	✓	-
RT 500	38	1,50	10 - 125	0,39 - 4,92	470	1057	✓	✓	✓	-
RT 750	45	1,77	10 - 125	0,39 - 4,92	740	1664	✓	✓	✓	-
RT 1000	50	1,97	10 - 125	0,39 - 4,92	920	2068	✓	✓	✓	-
RT 1200	50	1,97	10 - 125	0,39 - 4,92	1060	2383	✓	✓	✓	-
RT 1500	63	2,48	10 - 125	0,39 - 4,92	1530	3440	✓	✓	✓	-
RT 2400	75	2,95	10 - 125	0,39 - 4,92	2385	5362	✓	✓	✓	-
RT 4200	95	3,74	16 - 125	0,63 - 4,92	4240	9532	✓	✓	✓	-
RT 6600	120	4,72	16 - 125	0,63 - 4,92	6630	14905	✓	✓	✓	-
RT 9500	150	5,91	19 - 125	0,75 - 4,92	9540	21447	✓	✓	✓	-



How to Order

## RT 2400-050-A - N - E

Codice cilindro autonomo  
Self-contained cylinder code  
Kode des eingeständigen Gdf.  
Code du cylindre autonome  
Codigo del cilindro autónomo  
Codigo do cilindro autónomo

Collegabile con tubi, cilindro fornito scarico e senza valvola unidirezionale  
Linkable with hoses, cylinder supplied without pressure and oneway valve  
Anschlussfähig mit Leitungen, Gdf. geliefert ohne Druck und RückschlagVentil  
Connectable avec tubes, ressort fourni sans pression ni valve unidirectionelle  
Connectable con tubos, cilindro suministrado sin presión y sin válvula unidireccional  
Acompláveis com tubos, cilindro fornecidos sem pressão e sem válvula unidireccional

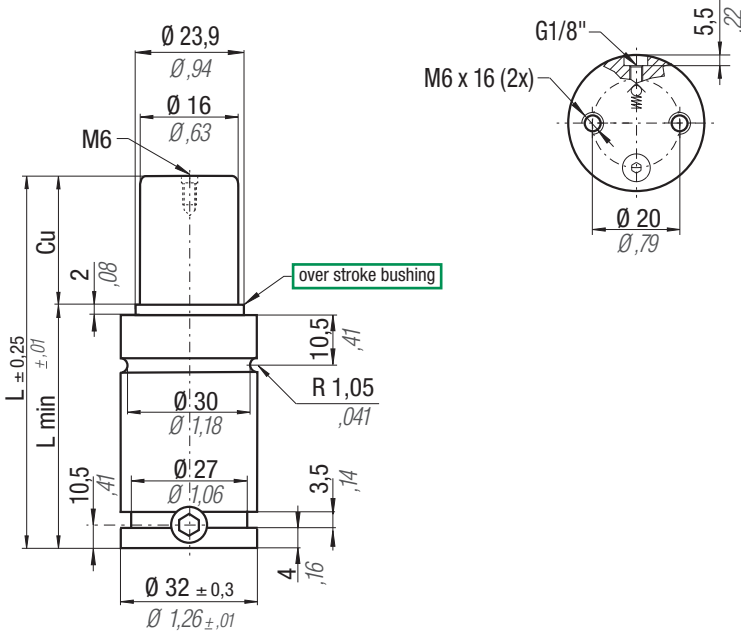
Collegabile EASY MANIFOLD, fornito scarico + guarnizione di collegamento  
Linkable EASY MANIFOLD, supplied without pressure + connecting seal  
Anschlussfähig EASY MANIFOLD, geliefert ohne Druck + Verbindungsdichtung  
Connectable EASY MANIFOLD, fourni sans pression + joint de connexion  
Connectable EASY MANIFOLD, suministrado sin presión + junta de conexión  
Acompláveis EASY MANIFOLD, fornecidos sem pressão + vedados de conexão



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

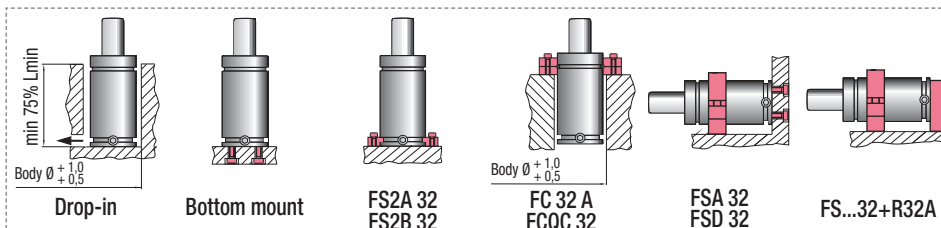
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



RT

	$^{\circ}F$ 32 - 176	$^{\circ}C$ 0 - 80	$\Delta P$ $\pm 0,33 \% / ^{\circ}C$	<b>P max</b> 180 bar 2610 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 2,01 cm <sup>2</sup> 0,312 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV00350C
--	----------------------------	--------------------------	---	-------------------------------------	-----------------------------------	---	---------------------------------------	-----------------------------	--

CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub> **		V <sub>0</sub>		~Kg		CE
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	-Kg	-lb	
RT 350 - 010 - A	10	0,39	60	2,36	50	1,97	360 809	180 bar 2610psi	532	1196	605	1360	8,0	0,49	0,22	0,48	-
RT 350 - 013 - A	13	0,51	66	2,60	53	2,09			495	1113	624	1403	10,0	0,61	0,23	0,50	-
RT 350 - 016 - A	16	0,63	72	2,83	56	2,20			502	1129	638	1434	12,0	0,73	0,24	0,52	-
RT 350 - 019 - A	19	0,75	78	3,07	59	2,32			508	1142	648	1457	13,0	0,79	0,25	0,54	-
RT 350 - 025 - A	25	0,98	90	3,54	65	2,56			515	1158	663	1490	17,0	1,04	0,26	0,58	-
RT 350 - 032 - A	32	1,26	104	4,09	72	2,83			520	1169	674	1515	21,0	1,28	0,29	0,63	-
RT 350 - 038 - A	38	1,50	116	4,57	78	3,07			524	1178	681	1531	25,0	1,53	0,30	0,67	-
RT 350 - 050 - A	50	1,97	140	5,51	90	3,54			528	1187	690	1551	32,0	1,95	0,34	0,75	-
RT 350 - 063 - A	63	2,48	166	6,54	103	4,06			531	1194	696	1565	40,0	2,44	0,38	0,84	-
RT 350 - 075 - A	75	2,95	190	7,48	115	4,53			533	1198	700	1574	47,0	2,87	0,42	0,91	-
RT 350 - 080 - A	80	3,15	200	7,87	120	4,72			533	1198	701	1576	50,0	3,05	0,43	0,95	-
RT 350 - 100 - A	100	3,94	240	9,45	140	5,51			535	1203	705	1585	62,0	3,79	0,49	1,08	-
RT 350 - 125 - A	125	4,92	290	11,42	165	6,50			537	1207	709	1594	77,0	4,71	0,57	1,25	-



## HOW TO ORDER

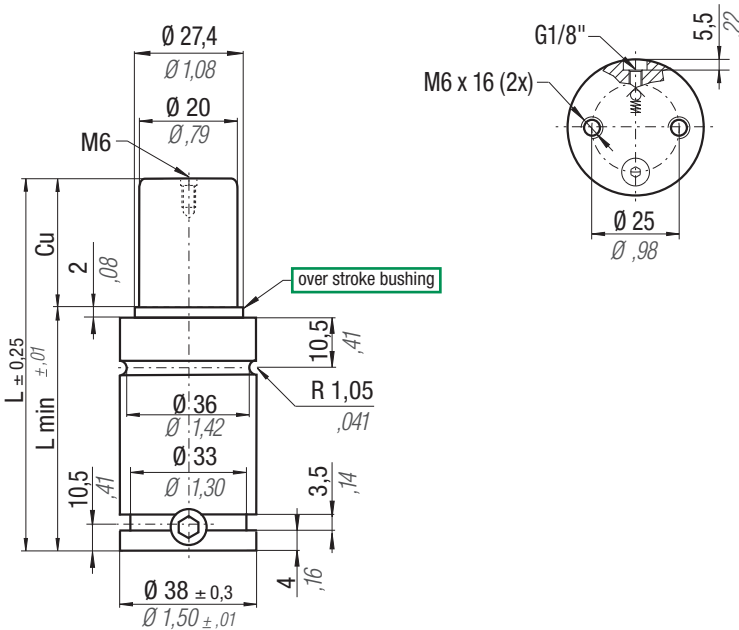
(10 pcs) RT 350-050-A  
(10 pcs) RT 350-050-A-N



## Info

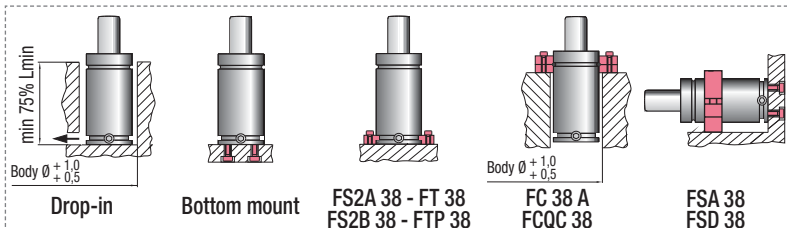
\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



	$^{\circ}\text{F}$ 32 -176	$^{\circ}\text{C}$ 0 -80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 3,14 cm <sup>2</sup> 0,487 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV00500C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg		Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
RT 500 - 010 - A	10	0,39	60	2,36	50	1,97	470 1057  150 bar 2175psi  $\pm 5\%$ $+ 20^{\circ}\text{C} + 68^{\circ}\text{F}$		652	1466	824	1852	11,0	0,67	0,33	0,73	-
RT 500 - 013 - A	13	0,51	66	2,60	53	2,09			667	1499	854	1920	14,0	0,85	0,34	0,75	-
RT 500 - 016 - A	16	0,63	72	2,83	56	2,20			678	1524	876	1969	17,0	1,04	0,36	0,79	-
RT 500 - 019 - A	19	0,75	78	3,07	59	2,32			686	1542	892	2005	19,0	1,16	0,37	0,82	-
RT 500 - 025 - A	25	0,98	90	3,54	65	2,56			697	1567	916	2059	24,0	1,46	0,40	0,88	-
RT 500 - 032 - A	32	1,26	104	4,09	72	2,83			706	1587	933	2097	30,0	1,83	0,43	0,95	-
RT 500 - 038 - A	38	1,50	116	4,57	78	3,07			711	1598	944	2122	36,0	2,20	0,46	1,01	-
RT 500 - 050 - A	50	1,97	140	5,51	90	3,54			718	1614	958	2154	46,0	2,81	0,52	1,15	-
RT 500 - 063 - A	63	2,48	166	6,54	103	4,06			722	1623	968	2176	57,0	3,48	0,58	1,28	-
RT 500 - 075 - A	75	2,95	190	7,48	115	4,53			725	1630	975	2192	67,0	4,09	0,63	1,39	-
RT 500 - 080 - A	80	3,15	200	7,87	120	4,72			726	1632	977	2196	72,0	4,39	0,66	1,46	-
RT 500 - 100 - A	100	3,94	240	9,45	140	5,51			729	1639	983	2210	89,0	5,43	0,75	1,65	-
RT 500 - 125 - A	125	4,92	290	11,42	165	6,50			732	1646	988	2221	110,0	6,71	0,87	1,92	-



**HOW TO ORDER**

(10 pcs) RT 500-050-A  
(10 pcs) RT 500-050-A-N

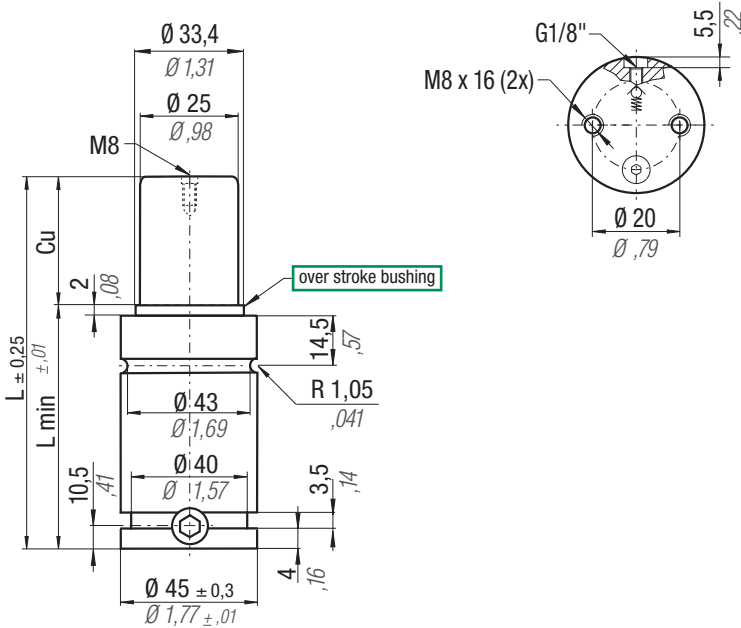




## Info

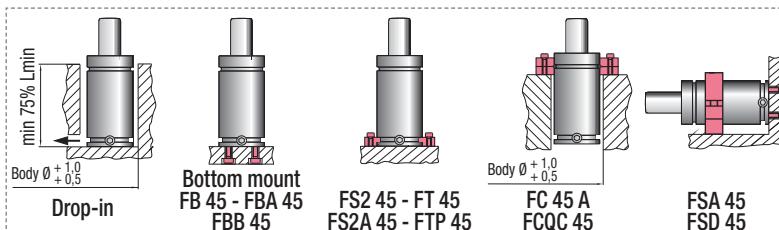
\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



RT

CODE	Cu	L	L min	F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub> **		V <sub>0</sub>		Maintenance kit			
				mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb
RT 750 - 010 -A	10	0,39	67	2,64	57	2,24	1090	2450	1184	2662	21,0	1,28	0,50	1,10	-
RT 750 - 013 -A	13	0,51	73	2,87	60	2,36	1095	2462	1243	2794	24,0	1,46	0,52	1,15	-
RT 750 - 016 -A	16	0,63	79	3,11	63	2,48	1097	2466	1289	2898	28,0	1,71	0,54	1,19	-
RT 750 - 019 -A	19	0,75	85	3,35	66	2,60	1099	2471	1326	2981	32,0	1,95	0,56	1,23	-
RT 750 - 025 -A	25	0,98	97	3,82	72	2,83	1067	2399	1382	3107	40,0	2,44	0,60	1,32	-
RT 750 - 032 -A	32	1,26	111	4,37	79	3,11	1089	2448	1428	3210	49,0	2,99	0,64	1,41	-
RT 750 - 038 -A	38	1,50	123	4,84	85	3,35	1103	2480	1457	3275	56,0	3,42	0,68	1,50	-
RT 750 - 050 -A	50	1,97	147	5,79	97	3,82	1122	2522	1497	3365	72,0	4,39	0,76	1,68	-
RT 750 - 063 -A	63	2,48	173	6,81	110	4,33	1136	2554	1527	3433	88,0	5,37	0,84	1,85	-
RT 750 - 075 -A	75	2,95	197	7,76	122	4,80	1145	2574	1546	3476	103,0	6,28	0,92	2,03	-
RT 750 - 080 -A	80	3,15	207	8,15	127	5,00	1148	2581	1552	3489	110,0	6,71	0,95	2,09	-
RT 750 - 100 -A	100	3,94	247	9,72	147	5,79	1157	2601	1573	3536	135,0	8,24	1,08	2,38	-
RT 750 - 125 -A	125	4,92	297	11,69	172	6,77	1165	2619	1589	3572	167,0	10,19	1,24	2,73	-



## HOW TO ORDER

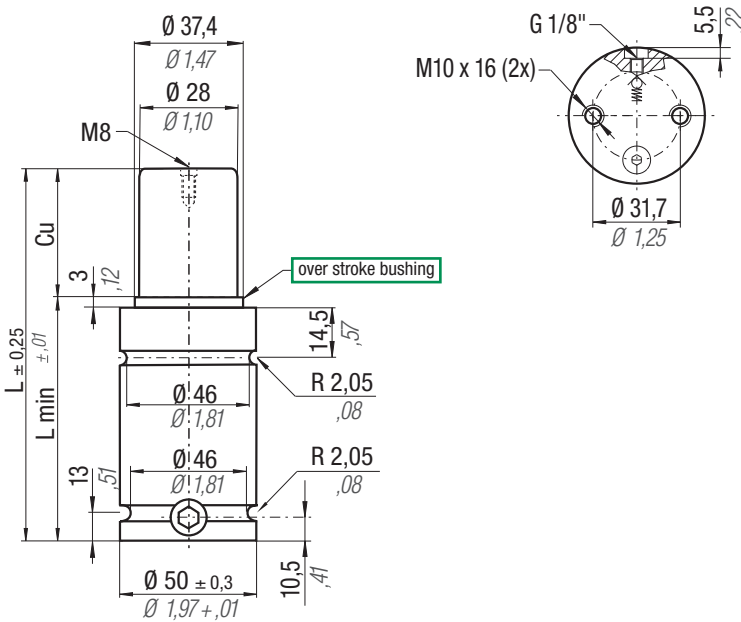
(10 pcs) RT 750-050-A  
(10 pcs) RT 750-050-A-N



## Info

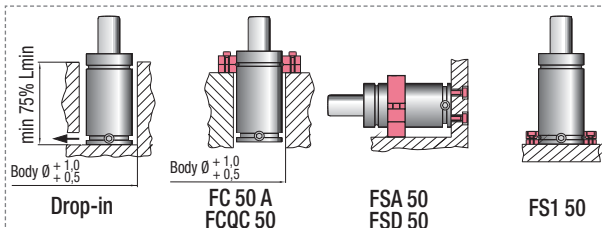
\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



	$^{\circ}\text{F}$ 32 -176	$^{\circ}\text{C}$ 0 -80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 6,15 cm <sup>2</sup> 0,953 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV01000C
--	----------------------------------	--------------------------------	---	-------------------------------------	-----------------------------------	---	---------------------------------------	-----------------------------	--

CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE		
	mm	inch	mm	inch	mm	inch	Initial force	Initial force	End force *	End force *	End force **	End force **	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
RT 1000 - 010 - A	10	0,39	72	2,83	62	2,44	920 2068 150 bar 2175 psi  ± 5% + 20 °C + 68 °F		1212	2725	1481	3329	26,0	1,59	0,72	1,59	-
RT 1000 - 013 - A	13	0,51	78	3,07	65	2,56			1251	2812	1557	3500	31,0	1,89	0,75	1,65	-
RT 1000 - 016 - A	16	0,63	84	3,31	68	2,68			1281	2880	1617	3635	35,0	2,14	0,77	1,70	-
RT 1000 - 019 - A	19	0,75	90	3,54	71	2,80			1305	2934	1666	3745	40,0	2,44	0,82	1,81	-
RT 1000 - 025 - A	25	0,98	102	4,02	77	3,03			1341	3015	1739	3909	50,0	3,05	0,86	1,90	-
RT 1000 - 032 - A	32	1,26	116	4,57	84	3,31			1370	3080	1800	4047	61,0	3,72	0,92	2,03	-
RT 1000 - 038 - A	38	1,50	128	5,04	90	3,54			1389	3123	1838	4132	70,0	4,27	0,97	2,14	-
RT 1000 - 050 - A	50	1,97	152	5,98	102	4,02			1414	3179	1893	4256	89,0	5,43	1,08	2,38	-
RT 1000 - 063 - A	63	2,48	178	7,01	115	4,53			1433	3222	1933	4346	109,0	6,65	1,18	2,60	-
RT 1000 - 075 - A	75	2,95	202	7,95	127	5,00			1445	3248	1959	4404	128,0	7,81	1,28	2,82	-
RT 1000 - 080 - A	80	3,15	212	8,35	132	5,20			1449	3257	1968	4424	136,0	8,30	1,35	2,98	-
RT 1000 - 100 - A	100	3,94	252	9,92	152	5,98			1462	3287	1995	4485	167,0	10,19	1,51	3,33	-
RT 1000 - 125 - A	125	4,92	302	11,89	177	6,97			1472	3309	2018	4537	207,0	12,63	1,71	3,77	-



## HOW TO ORDER

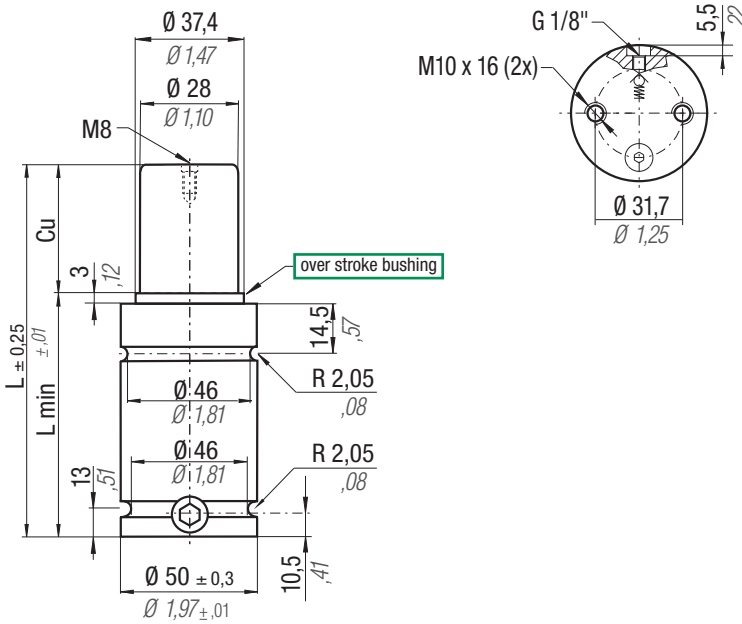
(10 pcs) RT 1000-050-A  
(10 pcs) RT 1000-050-A-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

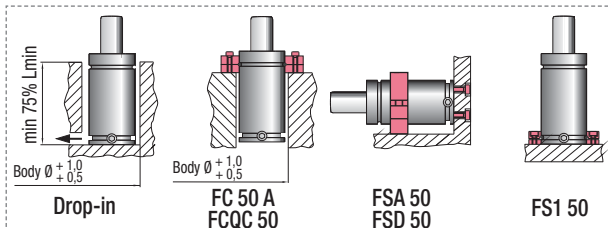
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



RT

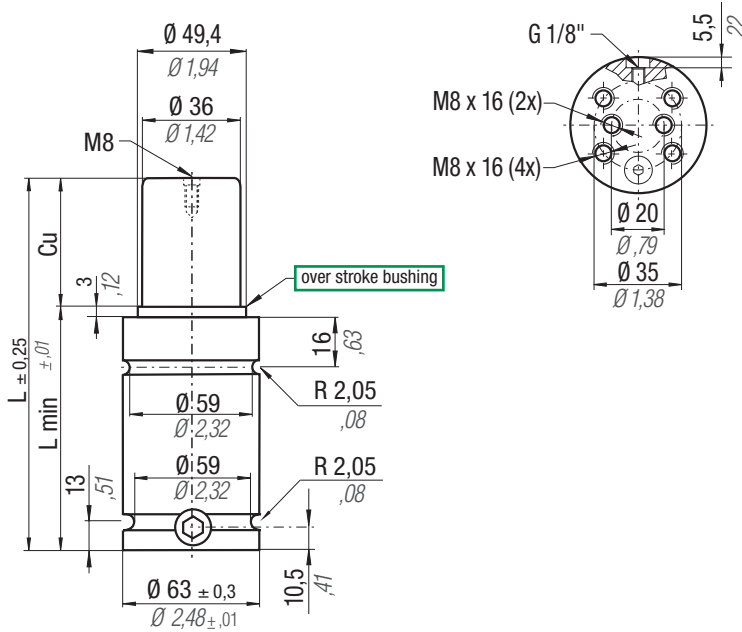
	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta\text{P}$ ± 0,33 %/°C	<b>P max</b> 170 bar 2465 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 6,15 cm <sup>2</sup> 0,953 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV01000C
--	--------------------------------------	------------------------------------	---------------------------------	-------------------------------------	-----------------------------------	---	---------------------------------------	-----------------------------	--

CODE	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		~Kg		~lb	Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	-Kg	-lb		
RT 1200 - 010 - A	10	0,39	72	2,83	62	2,44	1060 2383  170 bar 2465 psi  ± 5% + 20 °C + 68 °F		1373	3087	1679	3775	26,0	1,59	0,72	1,59	-	
RT 1200 - 013 - A	13	0,51	78	3,07	65	2,56			1417	3186	1765	3968	31,0	1,89	0,75	1,65	-	
RT 1200 - 016 - A	16	0,63	84	3,31	68	2,68			1452	3264	1833	4121	35,0	2,14	0,77	1,70	-	
RT 1200 - 019 - A	19	0,75	90	3,54	71	2,80			1479	3325	1888	4244	40,0	2,44	0,82	1,81	-	
RT 1200 - 025 - A	25	0,98	102	4,02	77	3,03			1520	3417	1972	4433	50,0	3,05	0,86	1,90	-	
RT 1200 - 032 - A	32	1,26	116	4,57	84	3,31			1553	3491	2041	4588	61,0	3,72	0,92	2,03	-	
RT 1200 - 038 - A	38	1,50	128	5,04	90	3,54			1574	3538	2084	4685	70,0	4,27	0,97	2,14	-	
RT 1200 - 050 - A	50	1,97	152	5,98	102	4,02			1603	3604	2146	4824	89,0	5,43	1,08	2,38	-	
RT 1200 - 063 - A	63	2,48	178	7,01	115	4,53			1624	3651	2191	4926	109,0	6,65	1,18	2,60	-	
RT 1200 - 075 - A	75	2,95	202	7,95	127	5,00			1638	3682	2221	4993	128,0	7,81	1,28	2,82	-	
RT 1200 - 080 - A	80	3,15	212	8,35	132	5,20			1642	3691	2231	5015	136,0	8,30	1,35	2,98	-	
RT 1200 - 100 - A	100	3,94	252	9,92	152	5,98			1657	3725	2262	5085	167,0	10,19	1,51	3,33	-	
RT 1200 - 125 - A	125	4,92	302	11,89	177	6,97			1669	3752	2288	5144	207,0	12,63	1,71	3,77	-	



## HOW TO ORDER

(10 pcs) RT 1200-050-A  
(10 pcs) RT 1200-050-A-N

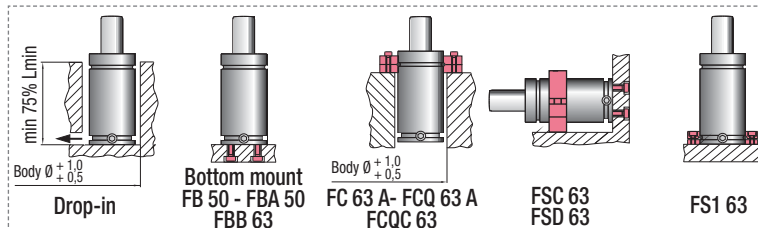


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytropic end force at 100% Cu - see page 31

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 10,18 cm <sup>2</sup> 1,578 in <sup>2</sup>	SPM ~ 20 - 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMRV01500C	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub> *		F <sub>1p</sub> **		V <sub>0</sub>		CE			
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.	
RT 1500 - 010 - A											10	0,39	72	2,83	62	2,44	1530	3440	150 bar 2175 psi	2132	4793	2395	5384	45,0	2,75	1,10	2,43	-
RT 1500 - 013 - A											13	0,51	78	3,07	65	2,56				2168	4874	2515	5654	53,0	3,23	1,12	2,47	-
RT 1500 - 016 - A											16	0,63	84	3,31	68	2,68				2188	4919	2611	5870	61,0	3,72	1,16	2,56	-
RT 1500 - 019 - A											19	0,75	90	3,54	71	2,80				2192	4928	2687	6041	69,0	4,21	1,20	2,65	-
RT 1500 - 025 - A											25	0,98	102	4,02	77	3,03				2195	4935	2806	6308	85,0	5,19	1,27	2,80	-
RT 1500 - 032 - A											32	1,26	116	4,57	84	3,31				2230	5013	2904	6528	104,0	6,34	1,35	2,98	-
RT 1500 - 038 - A											38	1,50	128	5,04	90	3,54				2260	5081	2966	6668	119,0	7,26	1,42	3,13	-
RT 1500 - 050 - A											50	1,97	152	5,98	102	4,02				2303	5177	3055	6868	151,0	9,21	1,56	3,44	-
RT 1500 - 063 - A											63	2,48	178	7,01	115	4,53				2333	5245	3120	7014	186,0	11,35	1,71	3,77	-
RT 1500 - 075 - A											75	2,95	202	7,95	127	5,00				2353	5290	3163	7111	218,0	13,30	1,85	4,08	-
RT 1500 - 080 - A											80	3,15	212	8,35	132	5,20				2360	5305	3177	7142	231,0	14,09	1,91	4,21	-
RT 1500 - 100 - A											100	3,94	252	9,92	152	5,98				2381	5353	3222	7243	284,0	17,32	2,15	4,74	-
RT 1500 - 125 - A											125	4,92	302	11,89	177	6,97				2398	5391	3260	7329	350,0	21,35	2,44	5,38	-



## HOW TO ORDER

(10 pcs) RT 1500-050-A  
(10 pcs) RT 1500-050-A-N



OSAS

USAS

OPAS

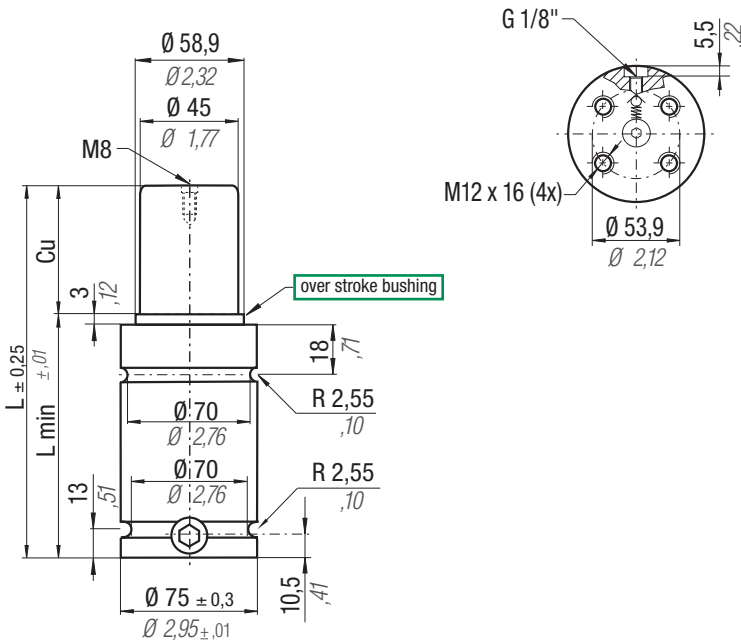
## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



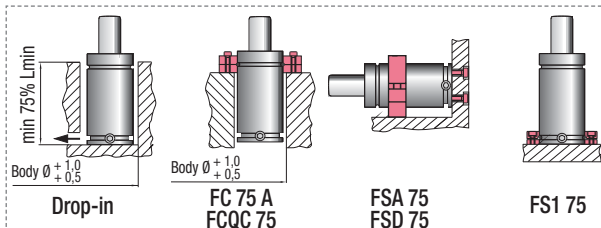
- see page 237



RT

	$^{\circ}F$ 32 - 176	$^{\circ}C$ 0 - 80	$\Delta P$ $\pm 0,33 \% / ^{\circ}C$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 15,90 cm <sup>2</sup> 2,465 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV02400C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub> **		V <sub>0</sub>		CE		
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
RT 2400 - 010 - A	10	0,39	79	3,11	69	2,72	2385 150 bar 2175 psi	5362	3432	7715	3574	8035	78,0	4,76	1,73	3,81	-
RT 2400 - 013 - A	13	0,51	85	3,35	72	2,83			3453	7763	3763	8460	90,0	5,49	1,77	3,90	-
RT 2400 - 016 - A	16	0,63	91	3,58	75	2,95			3466	7792	3920	8813	103,0	6,28	1,82	4,01	-
RT 2400 - 019 - A	19	0,75	97	3,82	78	3,07			3472	7805	4051	9107	115,0	7,02	1,87	4,12	-
RT 2400 - 025 - A	25	0,98	109	4,29	84	3,31			3489	7844	4258	9572	139,0	8,48	1,96	4,32	-
RT 2400 - 032 - A	32	1,26	123	4,84	91	3,58			3501	7871	4436	9973	170,0	10,37	2,08	4,59	-
RT 2400 - 038 - A	38	1,50	135	5,31	97	3,82			3535	7947	4554	10238	191,0	11,65	2,18	4,81	-
RT 2400 - 050 - A	50	1,97	159	6,26	109	4,29			3573	8032	4726	10624	239,0	14,58	2,37	5,22	-
RT 2400 - 063 - A	63	2,48	185	7,28	122	4,80			3636	8174	4855	10914	292,0	17,81	2,58	5,69	-
RT 2400 - 075 - A	75	2,95	209	8,23	134	5,28			3677	8266	4942	11110	340,0	20,74	2,83	6,24	-
RT 2400 - 080 - A	80	3,15	219	8,62	139	5,47	3691	8298	4972	11178	360,0	21,96	2,91	6,42	-		
RT 2400 - 100 - A	100	3,94	259	10,20	159	6,26	3735	8397	5066	11389	441,0	26,90	3,22	7,10	-		
RT 2400 - 125 - A	125	4,92	309	12,17	184	7,24	3772	8480	5147	11571	541,0	33,00	3,63	8,00	-		



## HOW TO ORDER

(10 pcs) RT 2400-050-A  
(10 pcs) RT 2400-050-A-N

# RT 4200

K 32 R (Nissan)

E24.54.815.G (PSA)

SMS DNH 3203n Rev.3 (TOYOTA)

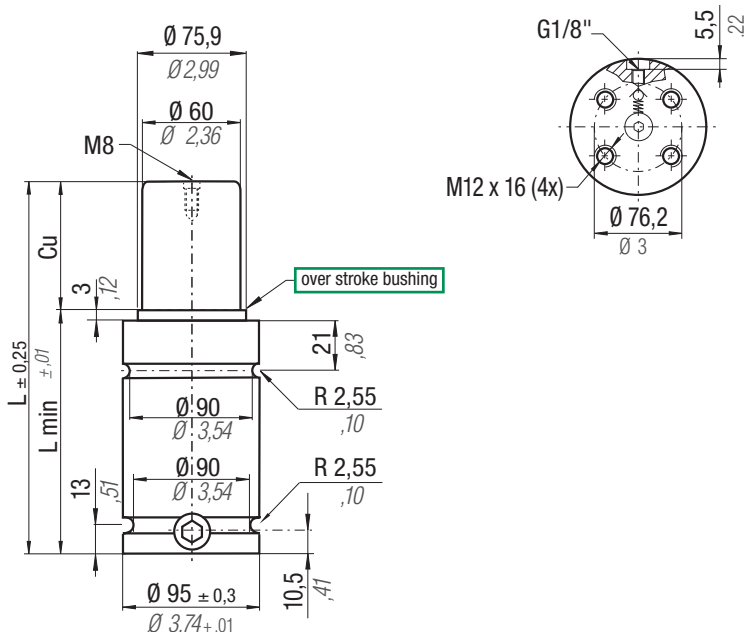


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

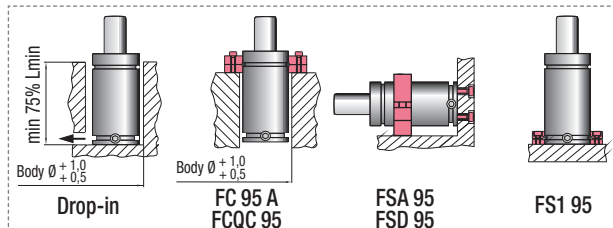
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237



	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 28,27 cm <sup>2</sup> 4,382 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV04200C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg		~lb		Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>					
RT 4200 - 016 - A	16	0,63	94	3,70	78	3,07	4240 9532 150 bar 2175 psi  ± 5% + 20 °C +68 °F		5741	12906	7150	16074	174,0	10,61	3,18	7,01	-	-	-
RT 4200 - 019 - A	19	0,75	100	3,94	81	3,19			5871	13199	7409	16656	194,0	11,83	3,27	7,21	-	-	-
RT 4200 - 025 - A	25	0,98	112	4,41	87	3,43			6076	13659	7823	17587	235,0	14,34	3,47	7,65	-	-	-
RT 4200 - 032 - A	32	1,26	126	4,96	94	3,70			6251	14053	8183	18396	282,0	17,20	3,64	8,02	-	-	-
RT 4200 - 038 - A	38	1,50	138	5,43	100	3,94			6365	14309	8421	18931	323,0	19,70	3,79	8,36	-	-	-
RT 4200 - 050 - A	50	1,97	162	6,38	112	4,41			6532	14685	8774	19725	404,0	24,64	4,25	9,37	-	-	-
RT 4200 - 063 - A	63	2,48	188	7,40	125	4,92			6656	14963	9039	20320	492,0	30,01	4,47	9,85	-	-	-
RT 4200 - 075 - A	75	2,95	212	8,35	137	5,39			6826	15345	9219	20725	573,0	34,95	4,77	10,52	-	-	-
RT 4200 - 080 - A	80	3,15	222	8,74	142	5,59			6767	15213	9281	20865	606,0	36,97	4,96	10,93	-	-	-
RT 4200 - 100 - A	100	3,94	262	10,31	162	6,38			6857	15415	9477	21305	742,0	45,26	5,45	12,02	-	-	-
RT 4200 - 125 - A	125	4,92	312	12,28	187	7,36			6933	15586	9645	21683	911,0	55,57	6,07	13,38	-	-	-



**HOW TO ORDER**  
(10 pcs) RT 4200-050-A  
(10 pcs) RT 4200-050-A-N

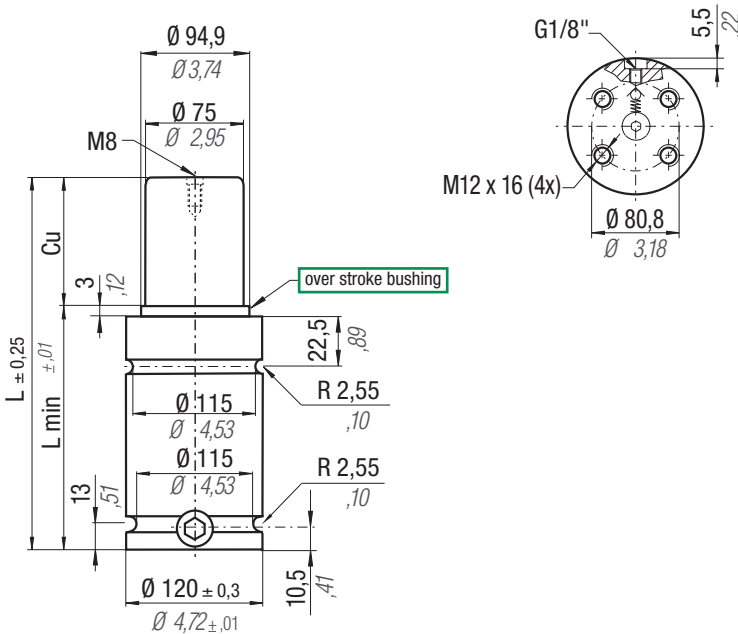


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

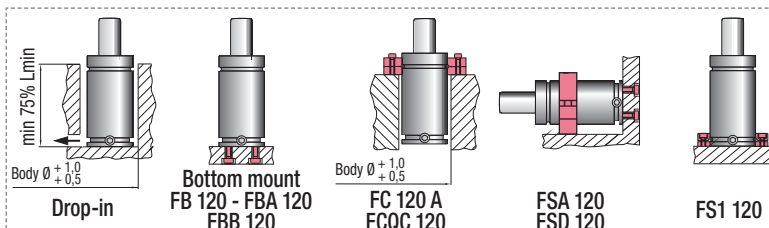
**easyl** MANIFOLD - see page 237



RT

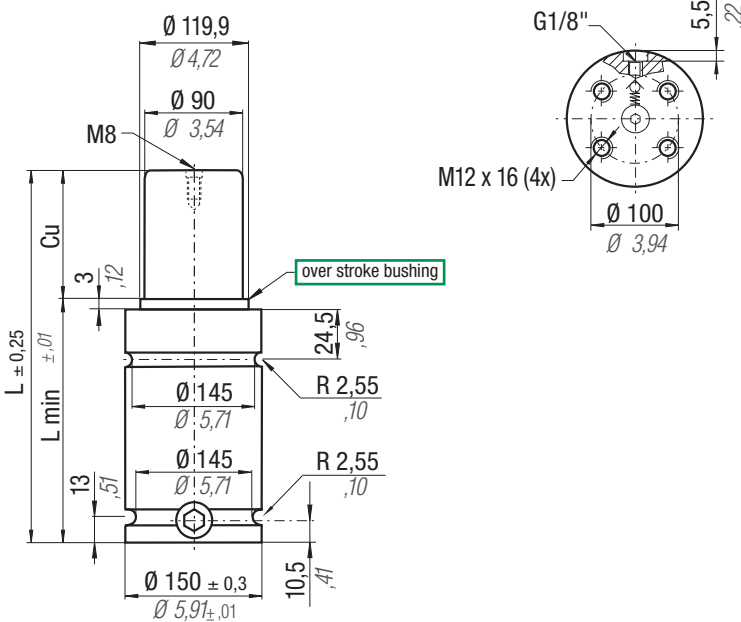
	$^{\circ}F$ 32 - 176	$^{\circ}C$ 0 - 80	$\Delta P$ $\pm 0,33 \% / ^{\circ}C$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 44,18 cm <sup>2</sup> 6,848 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV06600C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub> **		V <sub>0</sub>		~Kg		~lb	Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>				
RT 6600 - 016 - A	16	0,63	104	4,09	88	3,46	6630	14904	150 bar	8603	19340	10464	23524	309,0	18,85	5,55	12,24	-
RT 6600 - 019 - A	19	0,75	110	4,33	91	3,58				8801	19785	10847	24385	341,0	20,80	5,67	12,50	-
RT 6600 - 025 - A	25	0,98	122	4,80	97	3,82				9122	20507	11478	25804	405,0	24,71	5,91	13,03	-
RT 6600 - 032 - A	32	1,26	136	5,35	104	4,09				9405	21143	12047	27083	479,0	29,22	6,18	13,62	-
RT 6600 - 038 - A	38	1,50	148	5,83	110	4,33				9595	21570	12435	27955	544,0	33,18	6,43	14,18	-
RT 6600 - 050 - A	50	1,97	172	6,77	122	4,80				9880	22211	13025	29281	672,0	40,99	6,90	15,21	-
RT 6600 - 063 - A	63	2,48	198	7,80	135	5,31				10098	22701	13483	30311	811,0	49,47	7,42	16,36	-
RT 6600 - 075 - A	75	2,95	222	8,74	147	5,79				10247	23036	13800	31024	939,0	57,28	7,90	17,42	-
RT 6600 - 080 - A	80	3,15	232	9,13	152	5,98				10297	23149	13910	31271	992,0	60,51	8,01	17,66	-
RT 6600 - 100 - A	100	3,94	272	10,71	172	6,77				10463	23522	14264	32067	1206,0	73,57	8,89	19,60	I
RT 6600 - 125 - A	125	4,92	322	12,68	197	7,76	10606	23843	14574	32764	1473,0	89,85	9,89	21,80	II			



## HOW TO ORDER

(10 pcs) RT 6600-050-A  
(10 pcs) RT 6600-050-A-N



## Info

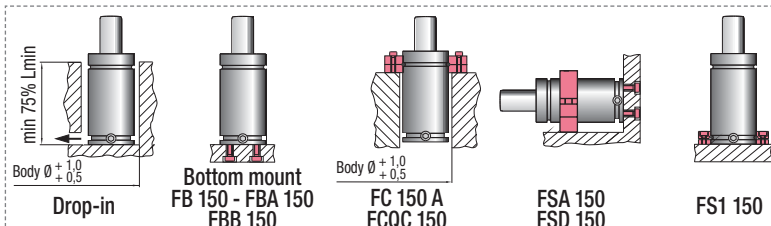
\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

	$\Delta P$ ± 0,33 %/°C	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 63,62 cm <sup>2</sup> 9,864 in <sup>2</sup>	<b>SPM</b> ~ 20 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV09500C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg		~lb	Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>				
RT 9500 - 019 - A	19	0,75	116	4,57	97	3,82	9540 21446 150 bar 2175 psi ± 5% + 20 °C +68 °F		12548	28209	15375	34564	506,0	30,87	9,79	21,58	-	
RT 9500 - 025 - A	25	0,98	128	5,04	103	4,06			12974	29167	16208	36437	603,0	36,78	10,16	22,40	-	
RT 9500 - 032 - A	32	1,26	142	5,59	110	4,33			13347	30005	16952	38110	716,0	43,68	10,60	23,37	-	
RT 9500 - 038 - A	38	1,50	154	6,06	116	4,57			13595	30563	17455	39240	812,0	49,53	10,97	24,18	-	
RT 9500 - 050 - A	50	1,97	178	7,01	128	5,04			13965	31395	18214	40947	1006,0	61,37	11,72	25,84	I	
RT 9500 - 063 - A	63	2,48	204	8,03	141	5,55			14246	32026	18797	42257	1215,0	74,12	12,53	27,62	I	
RT 9500 - 075 - A	75	2,95	228	8,98	153	6,02			14437	32456	19198	43159	1409,0	85,95	13,28	29,28	II	
RT 9500 - 080 - A	80	3,15	238	9,37	158	6,22			14503	32604	19338	43474	1489,0	90,83	13,59	29,96	II	
RT 9500 - 100 - A	100	3,94	278	10,94	178	7,01			14715	33081	19783	44474	1812,0	110,53	14,84	32,72	II	
RT 9500 - 125 - A	125	4,92	328	12,91	203	7,99			14893	33481	20170	45344	2215,0	135,12	16,39	36,13	II	



**HOW TO ORDER**

(10 pcs) RT 9500-050-A  
(10 pcs) RT 9500-050-A-N

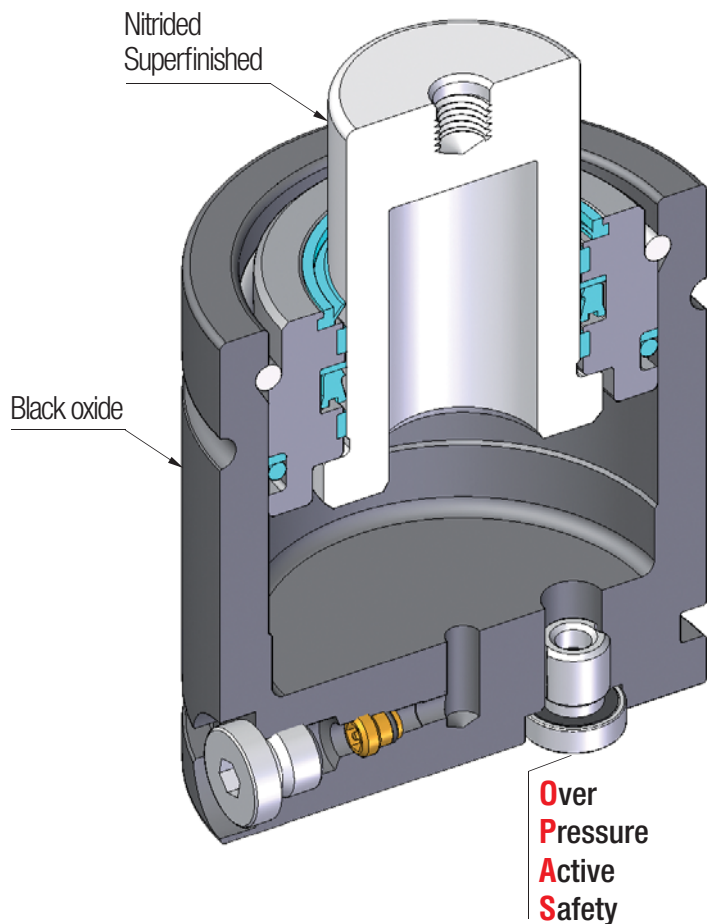




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MB	Reanult	Suzuki



## Range chart

Model	Body Ø		Stroke C <sub>u</sub>		Initial force F <sub>0</sub>		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
S 500	45	1,77	6 - 125	0,24 - 4,92	470	1057	-	-	-	-
S 750	50	1,97	6 - 125	0,24 - 4,92	740	1664	-	-	-	-
S 1500	75	2,95	25 - 100	0,98 - 3,94	1530	3440	-	-	✓	-
S 3000	95	3,74	25 - 100	0,98 - 3,94	2945	6621	-	-	✓	-



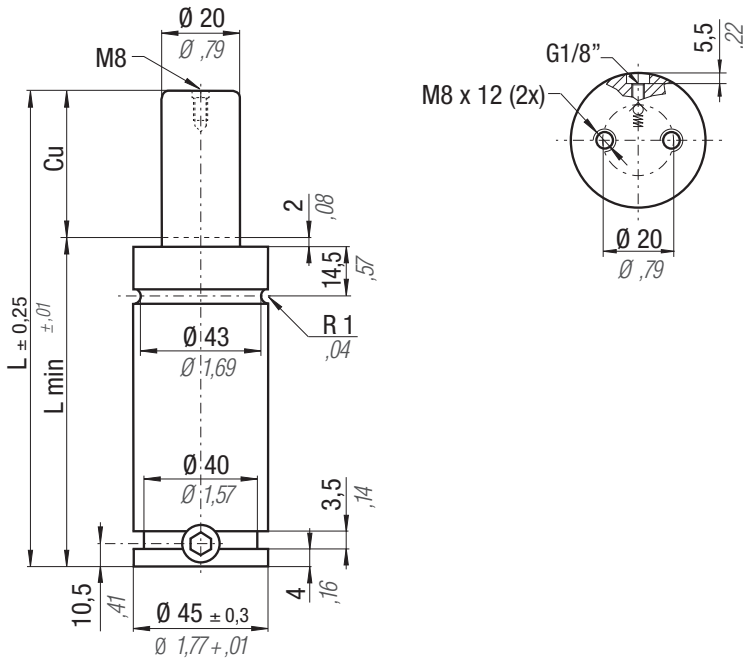
How to Order

## S 1500-050-A - N - E

Codice cilindro autonomo  
Self-contained cylinder code  
Kode des eingeständigen Gdf.  
Code du cylindre autonome  
Codigo del cilindro autónomo  
Codigo do cilindro autónomo

Collegabile con tubi, cilindro fornito scarico e senza valvola unidirezionale  
Linkable with hoses, cylinder supplied without pressure and oneway valve  
Anschlussfähig mit Leitungen, Gdf. geliefert ohne Druck und RückschlagVentil  
Connectable avec tubes, ressort fourni sans pression ni valve unidirectionelle  
Connectable con tubos, cilindro suministrado sin presión y sin válvula unidireccional  
Acompláveis com tubos, cilindro fornecidos sem pressão e sem válvula unidireccional

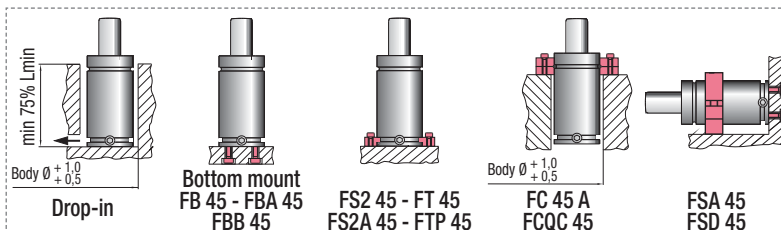
Collegabile EASY MANIFOLD, fornito scarico + guarnizione di collegamento  
Linkable EASY MANIFOLD, supplied without pressure + connecting seal  
Anschlussfähig EASY MANIFOLD, geliefert ohne Druck + Verbindungsdichtung  
Connectable EASY MANIFOLD, fourni sans pression + joint de connexion  
Connectable EASY MANIFOLD, suministrado sin presión + junta de conexión  
Acompláveis EASY MANIFOLD, fornecidos sem pressão + vedantes de conexão


**Info**

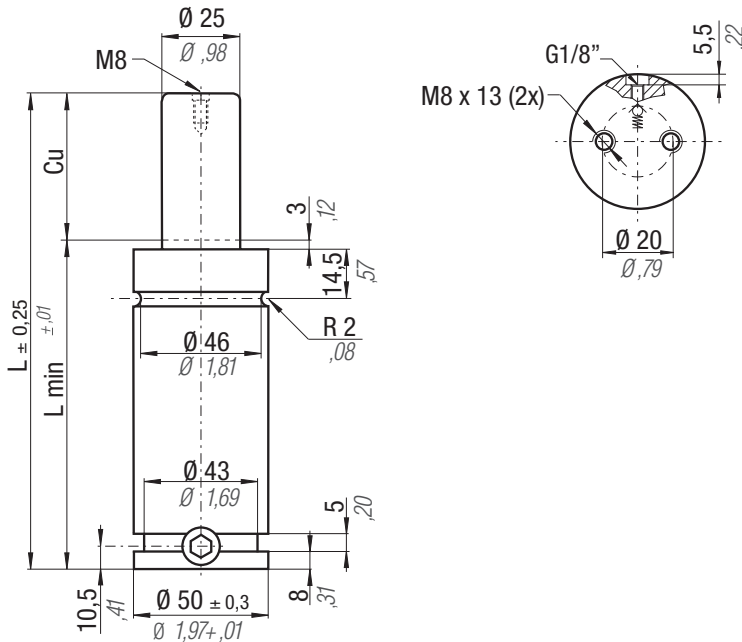
 \*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

 \*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

	$^{\circ}\text{F}$ 32 -176	$^{\circ}\text{C}$ 0 -80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 3,14 cm <sup>2</sup> 0,487 in <sup>2</sup>	<b>SPM</b> ~ 40 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMS00500A								
<b>CODE</b>	<b>Cu</b>		<b>L</b>		<b>L min</b>		<b>F<sub>0</sub></b> Initial force		<b>F<sub>1i</sub></b> End force *		<b>F<sub>1p</sub></b> End force **		<b>V<sub>0</sub></b>				
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
S 500 - 006 - A	6	0,24	62	2,44	56	2,20	470 1057 150 bar 2175 psi $\pm 5\%$ $+ 20^{\circ}\text{C} + 68^{\circ}\text{F}$		560	1259	648	1457	12,0	0,73	0,51	1,12	-
S 500 - 013 - A	13	0,51	76	2,99	63	2,48			595	1338	714	1605	20,0	1,22	0,56	1,23	-
S 500 - 019 - A	19	0,75	88	3,46	69	2,72			614	1380	749	1684	26,0	1,59	0,60	1,32	-
S 500 - 025 - A	25	0,98	100	3,94	75	2,95			626	1407	772	1736	32,0	1,95	0,65	1,43	-
S 500 - 038 - A	38	1,50	126	4,96	88	3,46			641	1441	802	1803	45,0	2,75	0,74	1,63	-
S 500 - 050 - A	50	1,97	150	5,91	100	3,94			649	1459	819	1841	57,0	3,48	0,83	1,83	-
S 500 - 063 - A	63	2,48	176	6,93	113	4,45			633	1423	786	1767	78,0	4,76	0,96	2,12	-
S 500 - 080 - A	80	3,15	210	8,27	130	5,12			640	1439	799	1796	96,0	5,86	0,99	2,18	-
S 500 - 100 - A	100	3,94	250	9,84	150	5,91			647	1455	813	1828	116,0	7,08	1,14	2,51	-
S 500 - 125 - A	125	4,92	300	11,81	175	6,89			653	1468	825	1855	141,0	8,60	1,32	2,91	-


**HOW TO ORDER**

 (10 pcs) S 500-050-A  
 (10 pcs) S 500-050-A-N

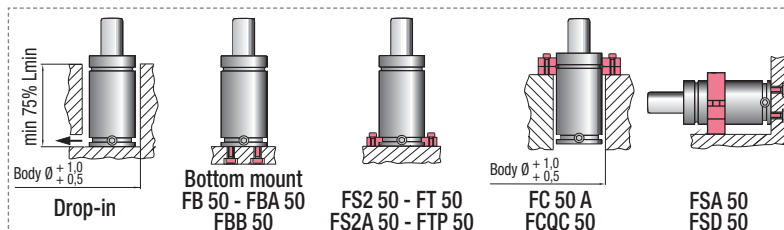


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytropic end force at 100% Cu - see page 31

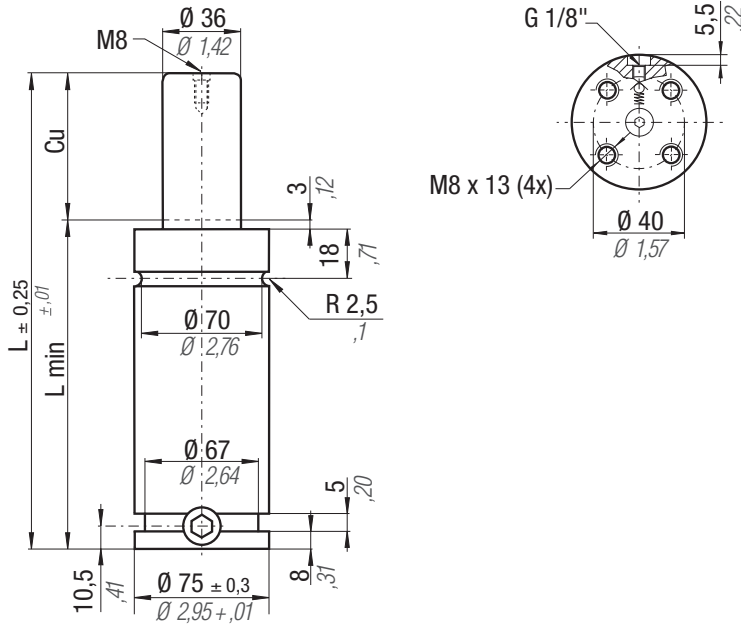
	N <sub>2</sub>	°F 32 -176	°C 0 -80	ΔP ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 4,91 cm <sup>2</sup> 0,761 in <sup>2</sup>	SPM ~ 30 - 80 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMS00750A						
CODE																
Cu	mm	inch	mm	inch	mm	inch										
L	mm	inch	mm	inch	mm	inch										
L min	mm	inch	mm	inch	mm	inch										
F <sub>0</sub>	Initial force		daN		lb											
F <sub>1i</sub>	End force *		daN		lb											
F <sub>1p</sub>	End force **		daN		lb											
V <sub>0</sub>	cm <sup>3</sup>		in <sup>3</sup>		~Kg		~lb		Cat.							
S 750 - 006 - A	6	0,24	62	2,44	56	2,20	740 1664 150 bar 2175 psi ± 5% + 20 °C +68 °F	911	2048	1078	2423	15,0	0,92	0,59	1,30	-
S 750 - 013 - A	13	0,51	76	2,99	63	2,48		997	2241	1245	2799	24,0	1,46	0,65	1,43	-
S 750 - 019 - A	19	0,75	88	3,46	69	2,72		1040	2338	1330	2990	32,0	1,95	0,70	1,54	-
S 750 - 025 - A	25	0,98	100	3,94	75	2,95		1069	2403	1388	3120	40,0	2,44	0,76	1,68	-
S 750 - 038 - A	38	1,50	126	4,96	88	3,46		1106	2486	1466	3296	56,0	3,42	0,80	1,76	-
S 750 - 050 - A	50	1,97	150	5,91	100	3,94		1126	2531	1509	3392	71,0	4,33	1,00	2,20	-
S 750 - 063 - A	63	2,48	176	6,93	113	4,45		1141	2565	1539	3460	87,0	5,31	1,10	2,43	-
S 750 - 080 - A	80	3,15	210	8,27	130	5,12		1154	2594	1566	3521	109,0	6,65	1,70	3,75	-
S 750 - 100 - A	100	3,94	250	9,84	150	5,91		1163	2615	1588	3570	134,0	8,17	1,96	4,32	-
S 750 - 125 - A	125	4,92	300	11,81	175	6,89		1172	2635	1606	3610	165,0	10,07	2,07	4,56	-



## HOW TO ORDER

(10 pcs) S 750-050-A

(10 pcs) S 750-050-A-N



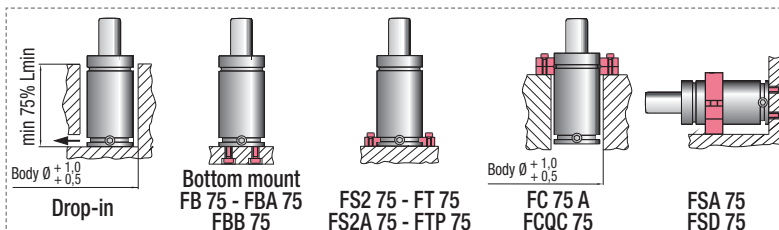
## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

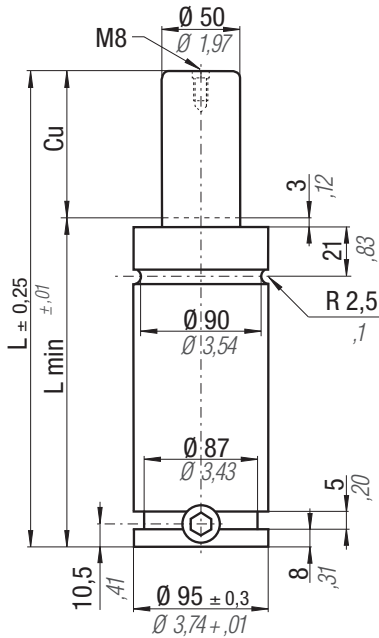
**easu** MANIFOLD - see page 237

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	$\Delta P$ $\pm 0,33\%/^{\circ}C$	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 10,18 cm <sup>2</sup> 1,578 in <sup>2</sup>	SPM ~ 20 - 80 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMS01500A	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		~Kg ~lb		Cat.
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
S 1500 - 025 - A											25	0,98	110	4,33	85	3,35	1530	3440	2103	4728	2651	5960	93,0	5,67	1,93	4,25	-
S 1500 - 038 - A											38	1,50	136	5,35	98	3,86	150 bar 2175 psi		2176	4892	2798	6290	130,0	7,93	2,18	4,81	-
S 1500 - 050 - A											50	1,97	160	6,30	110	4,33			2217	4984	2880	6474	164,0	10,00	3,64	8,02	-
S 1500 - 063 - A											63	2,48	186	7,32	123	4,84			2246	5049	2941	6612	200,0	12,20	3,91	8,62	-
S 1500 - 080 - A											80	3,15	220	8,66	140	5,51	$\pm 5\%$ $+ 20^{\circ}C + 68^{\circ}F$		2272	5108	2994	6731	248,0	15,13	4,28	9,44	-
S 1500 - 100 - A											100	3,94	260	10,24	160	6,30			2292	5153	3036	6825	305,0	18,61	4,72	10,41	-



## HOW TO ORDER

(10 pcs) S 1500-050-A  
(10 pcs) S 1500-050-A-N



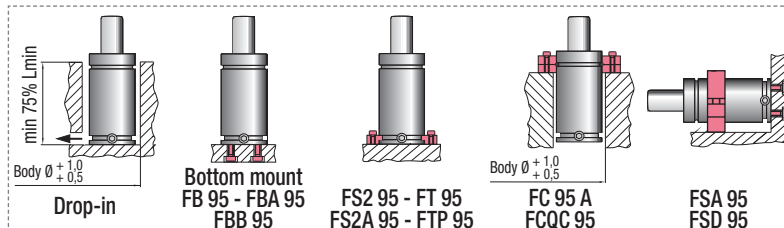
## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	$\Delta P$ $\pm 0,33\%/^{\circ}C$	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 19,63 cm <sup>2</sup> 3,043 in <sup>2</sup>	SPM ~ 15 - 60 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMS03000A	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> End force **		V <sub>0</sub>		~Kg		~lb		Cat.
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>					
S 3000 - 025 - A												25	0,98	120	4,72	95	3,74	2945	6621	4487	10087	5995	13477	143,0	8,72	4,07	8,97	-	
S 3000 - 038 - A												38	1,50	146	5,75	108	4,25	150 bar 2175 psi	4672	10503	6391	14368	202,0	12,32	4,53	9,99	-		
S 3000 - 050 - A												50	1,97	170	6,69	120	4,72	4774	10732	6612	14864	256,0	15,62	5,16	11,38	-			
S 3000 - 063 - A												63	2,48	196	7,72	133	5,24	4847	10896	6773	15226	315,0	19,22	5,44	11,99	-			
S 3000 - 080 - A												80	3,15	230	9,06	150	5,91	± 5%	4911	11040	6916	15548	392,0	23,91	6,05	13,34	-		
S 3000 - 100 - A												100	3,94	270	10,63	170	6,69	+ 20 °C +68 °F	4962	11155	7028	15800	483,0	29,46	6,78	14,95	-		



## HOW TO ORDER

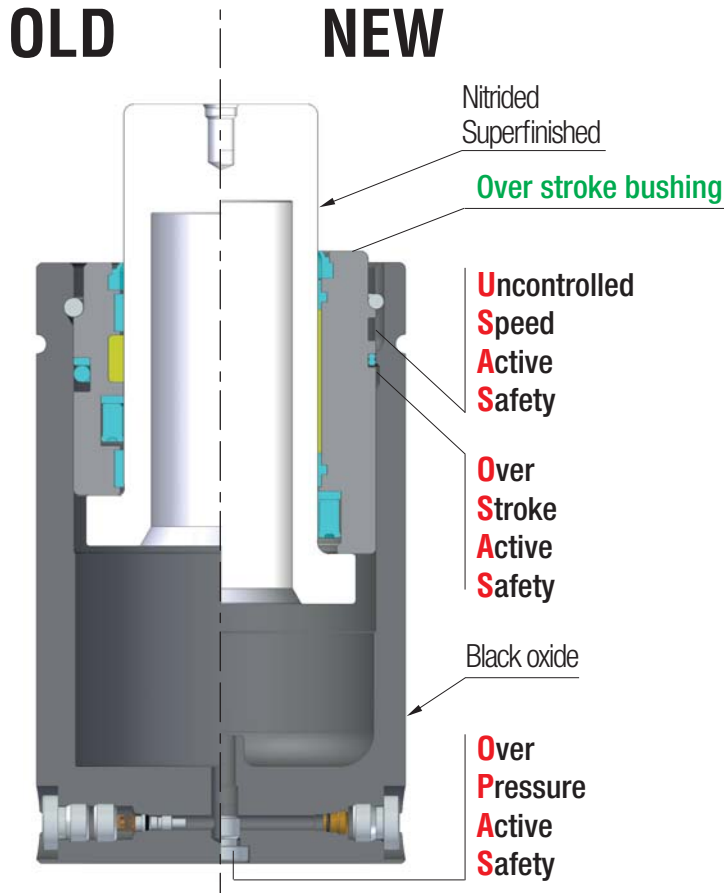
(10 pcs) S 3000-050-A  
(10 pcs) S 3000-050-A-N



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ISO	VDI	BMW
Ford	Mazda	MB
Nissan	PSA	Renault
Suzuki	VW	



Code : SC \_ \_ \_ - \_ - B    Code : SC \_ \_ \_ - \_ - D

## Range chart

Model	Body Ø		Stroke C <sub>u</sub>		Initial force F <sub>0</sub>					
	mm	inch	mm	inch	daN	lb	OSAS	USAS	OPAS	SKUDO
SC 150	32	1,26	10 - 125	0,39 - 4,92	170	382	✓	✓	✓	-
SC 250	38	1,50	10 - 125	0,39 - 4,92	260	585	✓	✓	✓	-
SCF 250	M 38 X 1,5	M 38 X 1,5	10 - 125	0,39 - 4,92	260	585	✓	✓	✓	-
SC 500	45	1,77	10 - 160	0,39 - 6,30	470	1057	✓	✓	✓	-
SC 750	50	1,97	13 - 300	0,51 - 11,81	740	1664	✓	✓	✓	-
SC 1500	75	2,95	13 - 300	0,51 - 11,81	1530	3440	✓	✓	✓	-
SC 3000	95	3,74	13 - 300	0,51 - 11,81	2945	6621	✓	✓	✓	-
SC 5000	120	4,72	25 - 300	0,98 - 11,81	4980	11195	✓	✓	✓	-
SC 7500	150	5,91	25 - 300	0,98 - 11,81	7540	16950	✓	✓	✓	-
SC 10000	195	7,68	25 - 300	0,98 - 11,81	10600	23830	✓	✓	✓	-



### How to Order

## SC 1500-050-D - N - E

Codice cilindro autonomo  
Self-contained cylinder code  
Kode des eingeständigen Gdf.  
Code du cylindre autonome  
Codigo del cilindro autónomo  
Codigo do cilindro autónomo

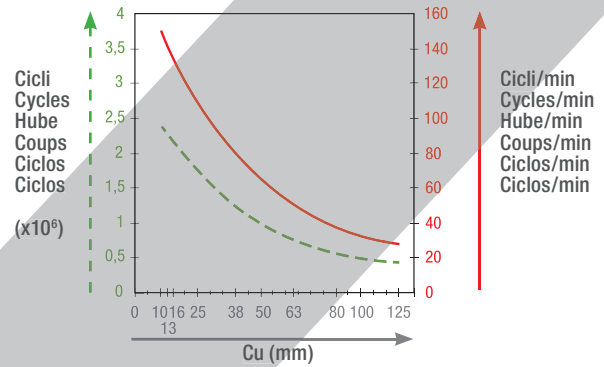
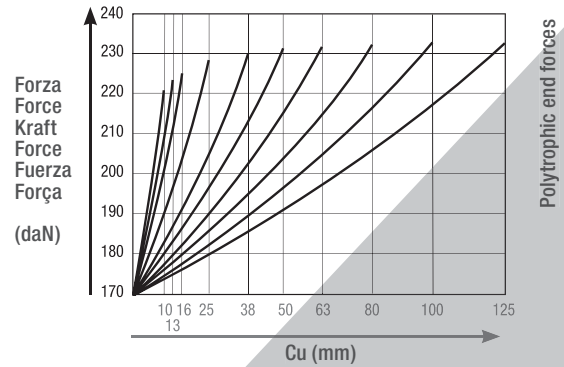
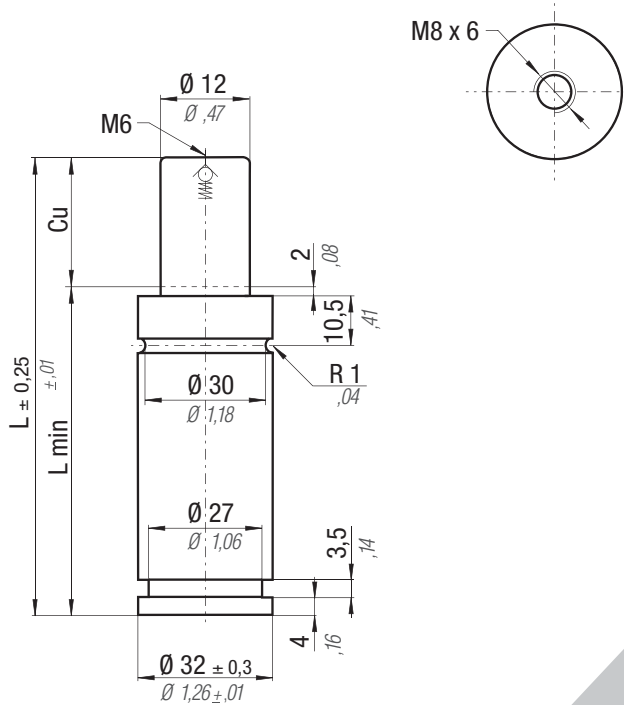
Collegabile con tubi, cilindro fornito scarico e senza valvola unidirezionale  
Linkable with hoses, cylinder supplied without pressure and oneway valve  
Anschlussfähig mit Leitungen, Gdf. geliefert ohne Druck und RückschlagVentil  
Connectable avec tubes, ressort fourni sans pression ni valve unidirectionelle  
Connectable con tubos, cilindro suministrado sin presión y sin válvula unidireccional  
Acompláveis com tubos, cilindro fornecidos sem pressão e sem válvula unidireccional

Collegabile EASY MANIFOLD, fornito scarico + guarnizione di collegamento  
Linkable EASY MANIFOLD, supplied without pressure + connecting seal  
Anschlussfähig EASY MANIFOLD, geliefert ohne Druck + Verbindungsdichtung  
Connectable EASY MANIFOLD, fourni sans pression + joint de connexion  
Connectable EASY MANIFOLD, suministrado sin presión + junta de conexión  
Acompláveis EASY MANIFOLD, fornecidos sem pressão + vedantes de conexão



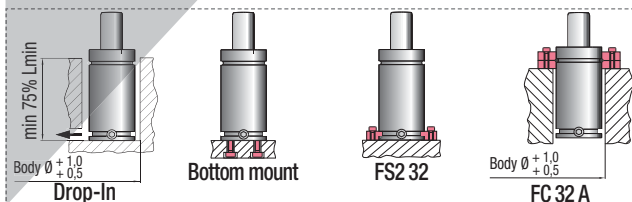
ISO 11901

**PED**  
97/23/EC



Max Speed	°F	°C		P max	P min	S		Maintenance kit					
1,8 m/s	32	0		150 bar	20 bar	1,13 cm <sup>2</sup>		39BMSC00150B					
	176	80		2175 psi	290 psi	0,175 in <sup>2</sup>							
CODE	Cu		L		L min		Fo		Vo		CODE		
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
SC 150 - 010 - B	10	0,39	70	2,76	60	2,36	170 382 150 bar 2175 psi ± 5% + 20 °C + 68 °F		-	-	0,28	0,62	-
SC 150 - 013 - B	13	0,51	75,4	2,97	62,7	2,47			-	-	0,29	0,64	-
SC 150 - 016 - B	16	0,63	82	3,23	66	2,60			-	-	0,30	0,66	-
SC 150 - 025 - B	25	0,98	100	3,94	75	2,95			-	-	0,33	0,73	-
SC 150 - 038 - B	38	1,50	126	4,96	88	3,46			-	-	0,36	0,79	-
SC 150 - 050 - B	50	1,97	150	5,91	100	3,94			-	-	0,40	0,88	-
SC 150 - 063 - B	63	2,48	177	6,97	113,5	4,47			-	-	0,44	0,97	-
SC 150 - 080 - B	80	3,15	210	8,27	130	5,12			-	-	0,49	1,08	-
SC 150 - 100 - B	100	3,94	250	9,84	150	5,91			-	-	0,55	1,21	-
SC 150 - 125 - B	125	4,92	300	11,81	175	6,89			-	-	0,64	1,41	-

SC SCF

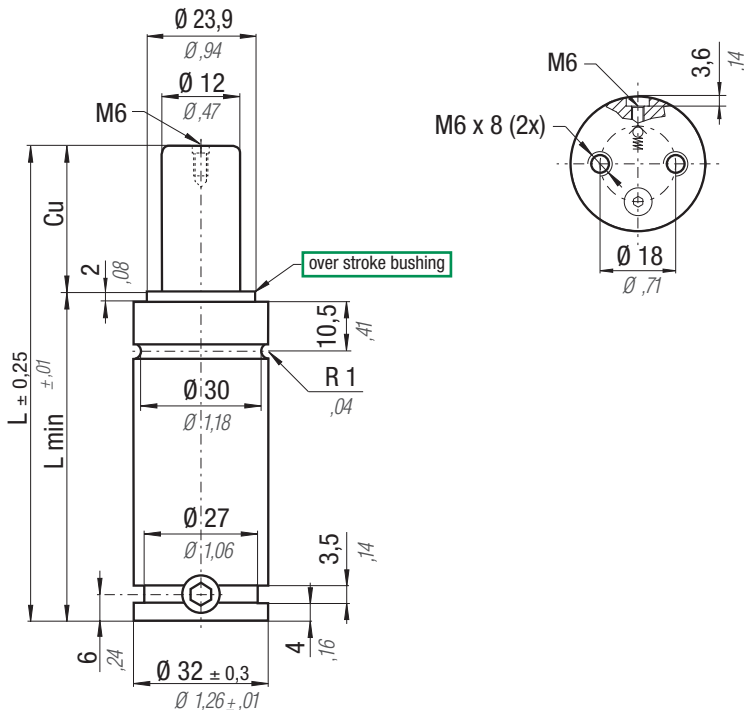


## HOW TO ORDER

(10 pcs) SC150-050-B

# SC 150

ISO 11901 - 1 E24.54.815.G (PSA)	VDI 3003 EM24.54.700 (Renault)	B2 4006 (BMW) 39D 878 (VW)	B8 3180 220 000 001(MB)
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## Info

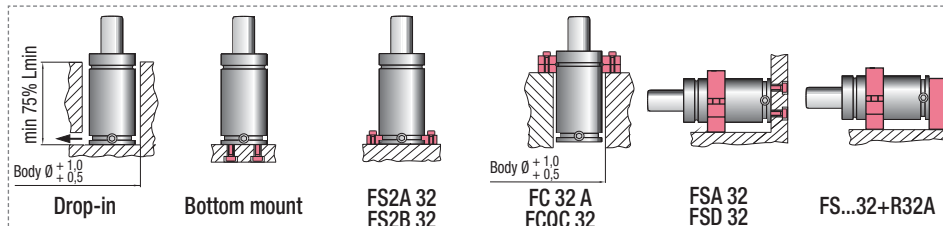
\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easU** MANIFOLD - see page 237

	$\Delta P$ $\pm 0,33\% / ^\circ C$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 1,13 cm <sup>2</sup> 0,175 in <sup>2</sup>	<b>SPM</b> ~ 80 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMSC00150E
--	---------------------------------------	-------------------------------------	-----------------------------------	---	---------------------------------------	-----------------------------	--

CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg		CE
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
SC 150 - 010 - D	10	0,39	70	2,76	60	2,36	170 382 150 bar 2175 psi $\pm 5\%$ + 20 °C + 68 °F		187	420	208	468	12,0	0,73	0,28	0,62	-
SC 150 - 013 - D	12,7	0,51	75,4	2,97	62,7	2,47			190	427	213	479	14,0	0,85	0,29	0,64	-
SC 150 - 016 - D	16	0,63	82	3,23	66	2,60			192	432	216	486	16,0	0,98	0,30	0,66	-
SC 150 - 025 - D	25	0,98	100	3,94	75	2,95			197	443	224	504	21,0	1,28	0,33	0,73	-
SC 150 - 038 - D	38	1,50	126	4,96	88	3,46			200	450	231	519	28,0	1,71	0,36	0,79	-
SC 150 - 050 - D	50	1,97	150	5,91	100	3,94			203	456	235	528	35,0	2,14	0,40	0,88	-
SC 150 - 063 - D	63,5	2,48	177	6,97	113,5	4,47			204	459	237	533	43,0	2,62	0,44	0,97	-
SC 150 - 080 - D	80	3,15	210	8,27	130	5,12			205	461	240	540	52,0	3,17	0,49	1,08	-
SC 150 - 100 - D	100	3,94	250	9,84	150	5,91			207	465	242	544	63,0	3,84	0,55	1,21	-
SC 150 - 125 - D	125	4,92	300	11,81	175	6,89			208	468	244	549	78,0	4,76	0,64	1,41	-

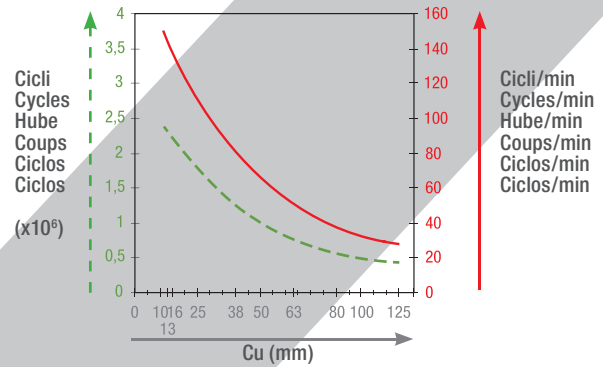
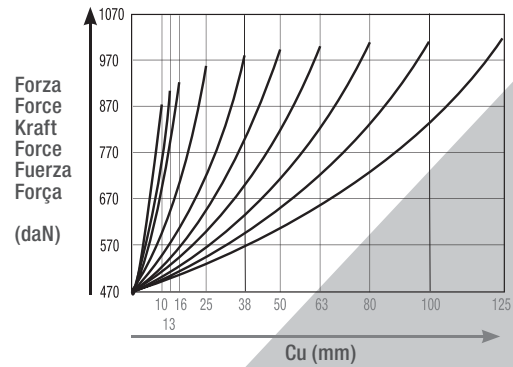
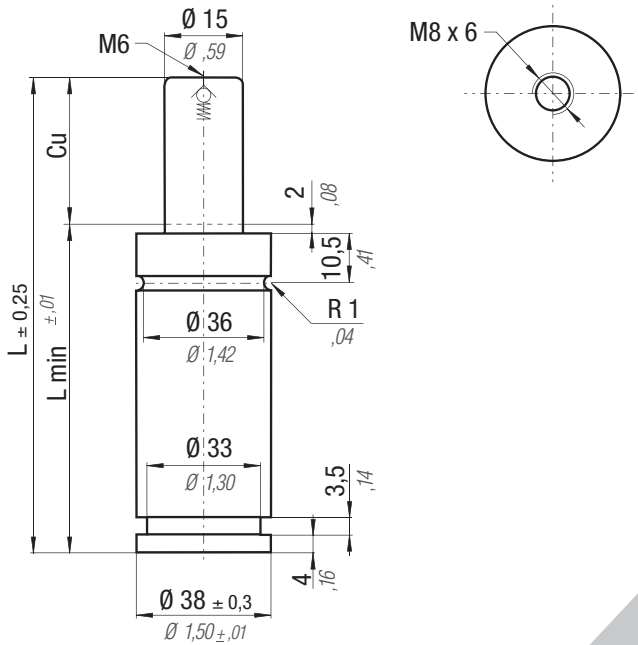


## HOW TO ORDER

(10 pcs) SC 150-050-D  
(10 pcs) SC 150-050-D-N

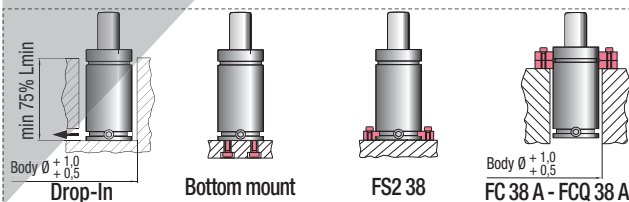
ISO 11901

**PED**  
97/23/EC



Max Speed	°F	°C		P max	P min	S		Maintenance kit							
1,8 m/s	32	0		150 bar 2175 psi	20 bar 290 psi	1,77 cm <sup>2</sup> 0,274 in <sup>2</sup>		39BMS00250B							
CODE	Cu		L		L min		Fo		Vo		CODE				
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb			
SC 250 - 010 - B	10	0,39	70	2,76	60	2,36	260 585 150 bar 2175 psi ± 5% + 20 °C + 68 °F		-	-	0,40	0,88	-		
SC 250 - 013 - B	13	0,51	75,4	2,97	62,7	2,47			-	-	0,41	0,90	-	-	-
SC 250 - 016 - B	16	0,63	82	3,23	66	2,60			-	-	0,43	0,95	-	-	-
SC 250 - 025 - B	25	0,98	100	3,94	75	2,95			-	-	0,48	1,06	-	-	-
SC 250 - 038 - B	38	1,50	126	4,96	88	3,46			-	-	0,54	1,19	-	-	-
SC 250 - 050 - B	50	1,97	150	5,91	100	3,94			-	-	0,60	1,32	-	-	-
SC 250 - 063 - B	63	2,48	177	6,97	113,5	4,47			-	-	0,66	1,46	-	-	-
SC 250 - 080 - B	80	3,15	210	8,27	130	5,12			-	-	0,74	1,63	-	-	-
SC 250 - 100 - B	100	3,94	250	9,84	150	5,91			-	-	0,81	1,79	-	-	-
SC 250 - 125 - B	125	4,92	300	11,81	175	6,89			-	-	0,98	2,16	-	-	-

SC  
SCF

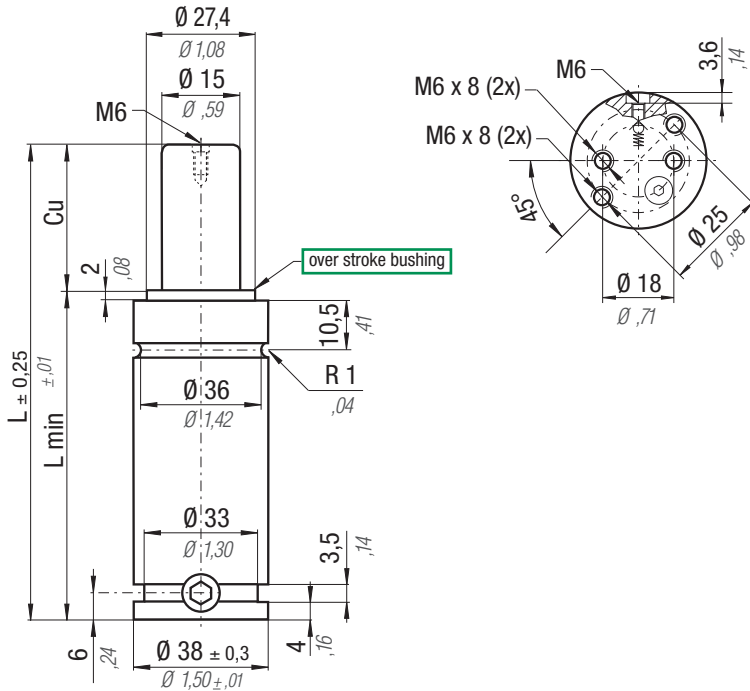


### HOW TO ORDER

(10 pcs) SC250-050-B

# SC 250

ISO 11901 - 1	VDI 3003	B2 4006 (BMW)	B8 3180 220 000 001(MB)
K 32 S (Nissan)	E24.54.815.G (PSA)	EM24.54.700 (Renault)	SES-K 5404e (Suzuki)
39D 878 (VW)			



## Info

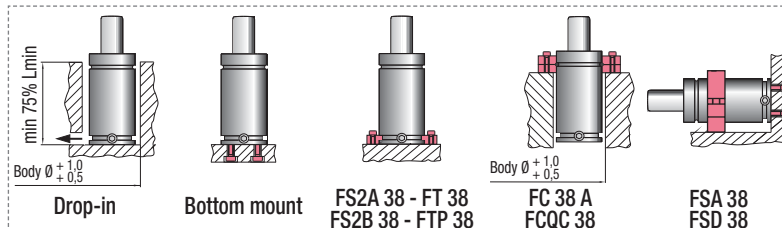
\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

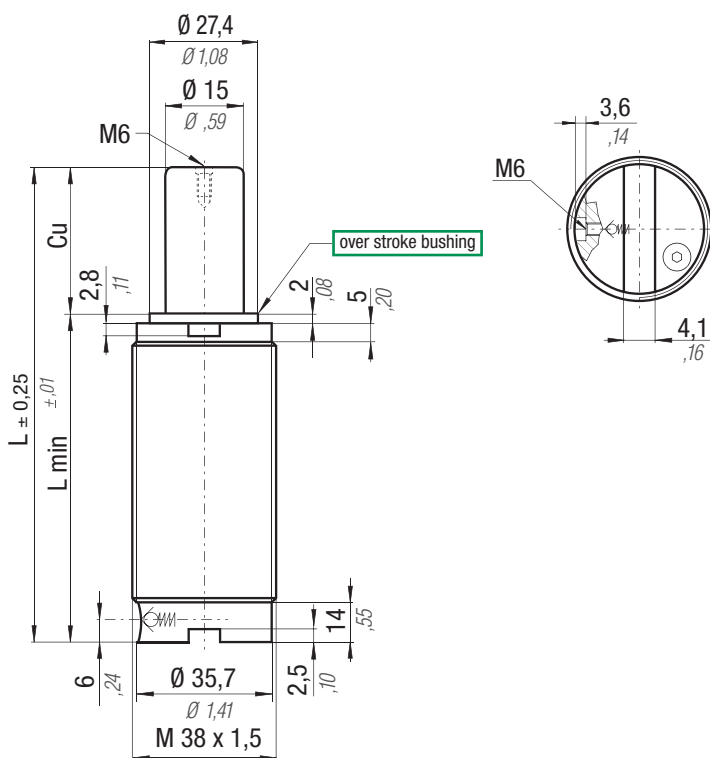
**easu** MANIFOLD - see page 237

	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 1,77 cm <sup>2</sup> 0,274 in <sup>2</sup>	<b>SPM</b> ~ 80 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMSC00250E
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub> *		F <sub>1p</sub> **		V <sub>0</sub>		~Kg		~lb		Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>					
SC 250 - 010 - D	10	0,39	70	2,76	60	2,36	260 585  150 bar 2175 psi  ± 5% + 20 °C +68 °F		316	710	332	746	16,0	0,98	0,40	0,88	-	-	-
SC 250 - 013 - D	12,7	0,50	75,4	2,97	62,7	2,47			317	713	342	769	19,0	1,16	0,41	0,90	-	-	-
SC 250 - 016 - D	16	0,63	82	3,23	66	2,60			318	715	348	782	21,0	1,28	0,43	0,95	-	-	-
SC 250 - 019 - D	19	0,75	88	3,46	69	2,72			319	717	355	798	23,0	1,40	0,45	0,99	-	-	-
SC 250 - 025 - D	25	0,98	100	3,94	75	2,95			320	719	364	818	28,0	1,71	0,48	1,06	-	-	-
SC 250 - 038 - D	38	1,50	126	4,96	88	3,46			322	724	377	848	38,0	2,32	0,54	1,19	-	-	-
SC 250 - 050 - D	50	1,97	150	5,91	100	3,94			326	733	385	866	47,0	2,87	0,60	1,32	-	-	-
SC 250 - 063 - D	63,5	2,50	177	6,97	113,5	4,47			329	740	389	875	58,0	3,54	0,66	1,46	-	-	-
SC 250 - 080 - D	80	3,15	210	8,27	130	5,12			332	746	395	888	70,0	4,27	0,74	1,63	-	-	-
SC 250 - 100 - D	100	3,94	250	9,84	150	5,91			334	751	399	897	85,0	5,19	0,81	1,79	-	-	-
SC 250 - 125 - D	125	4,92	300	11,81	175	6,89			336	755	403	906	105,0	6,41	0,98	2,16	-	-	-



**HOW TO ORDER**  
(10 pcs) SC 250-050-D  
(10 pcs) SC 250-050-D-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytropic end force at 100% Cu - see page 31

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

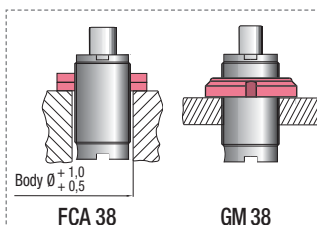
El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 1,77 cm <sup>2</sup> 0,274 in <sup>2</sup>	<b>SPM</b> ~ 80 - 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMS00250E
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CODE PHASING OUT from 09/2009	NEW	Cu		L		L min		F0 Initial force		F1i End force *		F1p End force *		V0		~Kg		CE Cat.		
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	-Kg	-lb			
SCF 250 - 010 - A	SCF 250 - 010 - D	10	0,39	70	2,76	60	2,36	260	585	316	710	332	746	16,0	0,98	0,37	0,81	-		
SCF 250 - 013 - A	SCF 250 - 013 - D	12,7	0,50	75,4	2,97	62,7	2,47			317	713	342	769	19,0	1,16	0,38	0,84	-		
SCF 250 - 016 - A	SCF 250 - 016 - D	16	0,63	82	3,23	66	2,60			318	715	348	782	21,0	1,28	0,39	0,86	-		
-	SCF 250 - 019 - D	19	0,75	88	3,46	69	2,72			319	717	355	798	23,0	1,40	0,42	0,92	-		
SCF 250 - 025 - A	SCF 250 - 025 - D	25	0,98	100	3,94	75	2,95			150 bar 2175 psi	$\pm 5\%$ $+ 20^{\circ}\text{C} + 68^{\circ}\text{F}$	320	719	364	818	28,0	1,71	0,44	0,97	-
SCF 250 - 038 - A	SCF 250 - 038 - D	38	1,50	126	4,96	88	3,46					322	724	377	848	38,0	2,32	0,50	1,10	-
SCF 250 - 050 - A	SCF 250 - 050 - D	50	1,97	150	5,91	100	3,94					326	733	385	866	47,0	2,87	0,55	1,21	-
SCF 250 - 063 - A	SCF 250 - 063 - D	63,5	2,50	177	6,97	113,5	4,47					329	740	389	875	58,0	3,54	0,63	1,39	-
SCF 250 - 080 - A	SCF 250 - 080 - D	80	3,15	210	8,27	130	5,12					332	746	395	888	70,0	4,27	0,70	1,54	-
SCF 250 - 100 - A	SCF 250 - 100 - D	100	3,94	250	9,84	150	5,91					334	751	399	897	86,0	5,25	0,75	1,65	-
SCF 250 - 125 - A	SCF 250 - 125 - D	125	4,92	300	11,81	175	6,89	336	755			403	906	105,0	6,41	0,93	2,05	-		

SCF



## HOW TO ORDER

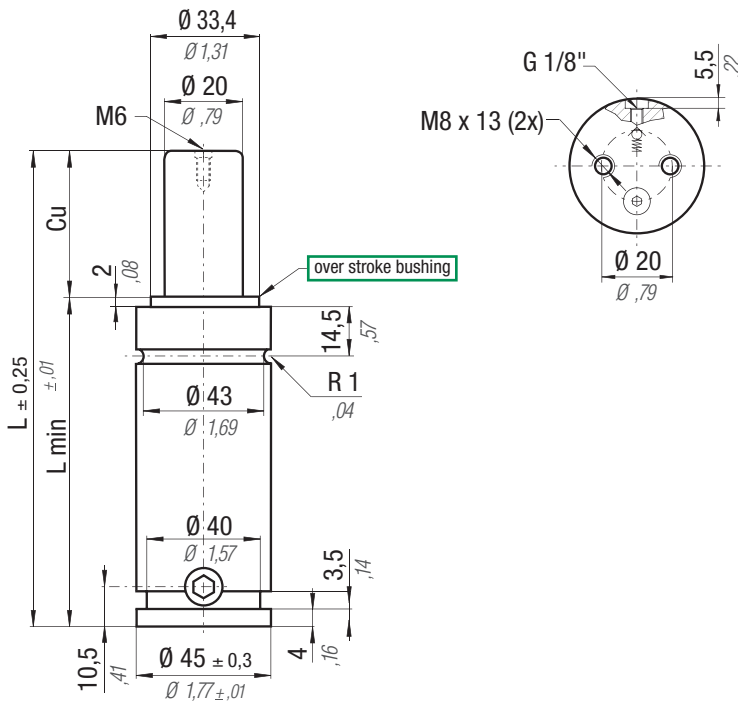
(10 pcs) SCF250-050-D

(10 pcs) SCF250-050-D-N

# SC 500



ISO 11901 - 1	VDI 3003	B2 4006 (BMW)	PG23D (Mazda)
B8 3180 220 000 001 (MB)	K 32 S (Nissan)	E24.54.815.G (PSA)	EM24.54.700 (Renault)
SES-K 5404e (Suzuki)	39D 878 (VW)		



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



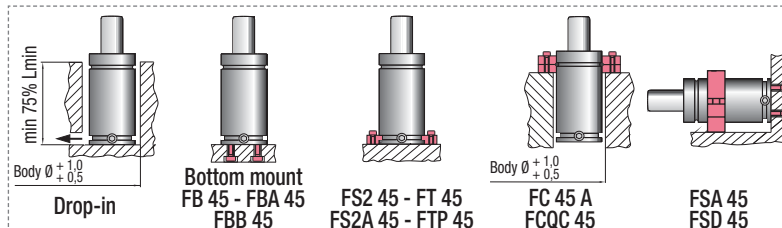
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolué

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta P$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 3,14 cm <sup>2</sup> 0,487 in <sup>2</sup>	<b>SPM</b> ~ 40 - 80 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMSC00500D
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CODE PHASING OUT from 01/2014	NEW	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		Kg	lb	Cat.
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
-	SC 500 - 010 - D	10	0,39	105	4,13	95	3,74	470	1057	574	1290	673	1513	18,0	1,10	0,90	1,98	-
SC 500 - 013 - B	SC 500 - 013 - D	12,7	0,50	110,4	4,35	97,7	3,85			590	1326	702	1578	20,0	1,22	1,00	2,20	-
SC 500 - 025 - B	SC 500 - 025 - D	25	0,98	135	5,31	110	4,33			619	1392	759	1706	33,0	2,01	1,09	2,40	-
SC 500 - 038 - B	SC 500 - 038 - D	38	1,50	161	6,34	123	4,84			636	1430	792	1780	46,0	2,81	1,20	2,65	-
SC 500 - 050 - B	SC 500 - 050 - D	50	1,97	185	7,28	135	5,31			645	1450	810	1821	58,0	3,54	1,29	2,84	-
SC 500 - 063 - B	SC 500 - 063 - D	63,5	2,50	212	8,35	148,5	5,85			650	1461	819	1841	72,0	4,39	1,38	3,04	-
SC 500 - 080 - B	SC 500 - 080 - D	80	3,15	245	9,65	165	6,50			657	1477	834	1875	89,0	5,43	1,50	3,31	-
SC 500 - 100 - B	SC 500 - 100 - D	100	3,94	285	11,22	185	7,28			662	1488	843	1895	109,0	6,65	1,64	3,62	-
SC 500 - 125 - B	SC 500 - 125 - D	125	4,92	335	13,19	210	8,27			665	1495	850	1911	135,0	8,24	1,85	4,08	-
SC 500 - 160 - B	SC 500 - 160 - D	160	6,30	405	15,94	245	9,65			669	1504	857	1927	170,0	10,37	2,10	4,63	-

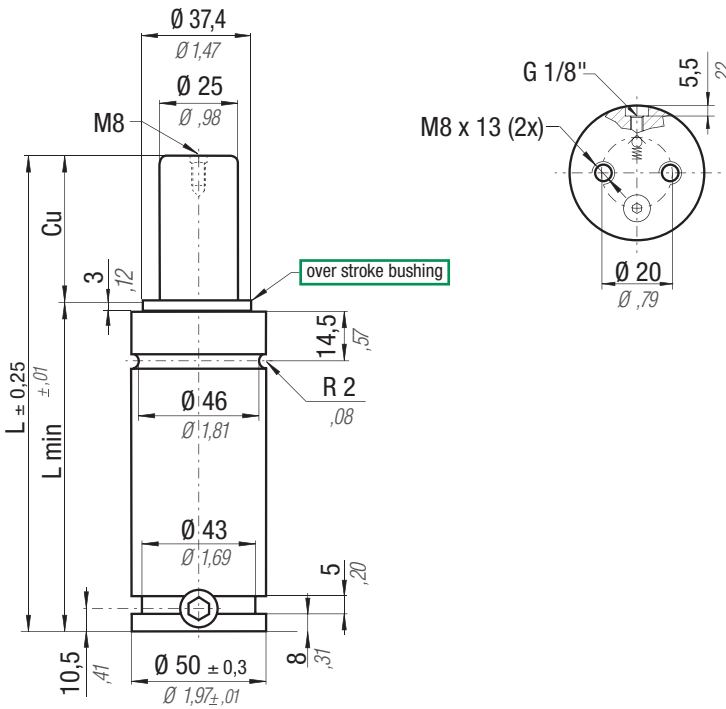
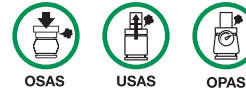


## HOW TO ORDER

(10 pcs) SC 500-050-D

(10 pcs) SC 500-050-D-N

ISO 11901 - 1	VDI 3003	B2 4006 (BMW)	W-DX35-6203 (Ford)
PG23D (Mazda)	B8 3180 220 000 001(MB)	K 32 S (Nissan)	E24.54.815.G (PSA)
EM24.54.700 (Renault)	SES-K 5404e (Suzuki)	39D 878 (VW)	



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

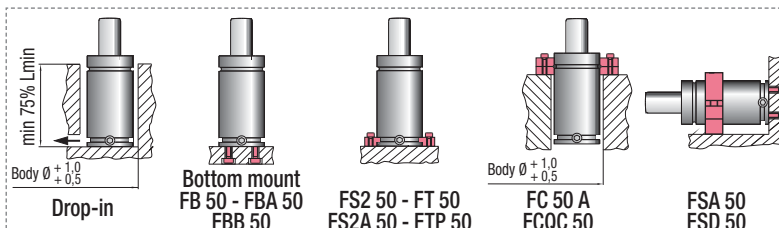
El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 4,91 cm <sup>2</sup> 0,761 in <sup>2</sup>	<b>SPM</b> ~ 15 - 50 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMSC00750D
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CODE PHASING OUT from 01/2014	NEW	Cu		L		L min		F0 Initial force		F1i End force *		F1p End force *		V0		CE		
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
SC 750 - 013 - B	SC 750 - 013 - D	12,7	0,50	120,4	4,74	107,7	4,24	740	1664	877	1972	1016	2284	40,0	2,44	1,28	2,82	-
SC 750 - 025 - B	SC 750 - 025 - D	25	0,98	145	5,71	120	4,72			934	2100	1122	2522	58,0	3,54	1,38	3,04	-
SC 750 - 038 - B	SC 750 - 038 - D	38	1,50	171	6,73	133	5,24			971	2183	1192	2680	77,0	4,70	1,48	3,26	-
SC 750 - 050 - B	SC 750 - 050 - D	50	1,97	195	7,68	145	5,71			993	2232	1235	2776	95,0	5,80	1,58	3,48	-
SC 750 - 063 - B	SC 750 - 063 - D	63,5	2,50	222	8,74	158,5	6,24	150 bar 2175 psi		1007	2264	1263	2839	115,0	7,02	1,69	3,73	-
SC 750 - 080 - B	SC 750 - 080 - D	80	3,15	255	10,04	175	6,89			1025	2304	1299	2920	140,0	8,54	1,82	4,00	-
SC 750 - 100 - B	SC 750 - 100 - D	100	3,94	295	11,61	195	7,68	± 5% + 20 °C + 68 °F		1037	2331	1324	2976	169,0	10,31	1,99	4,39	-
SC 750 - 125 - B	SC 750 - 125 - D	125	4,92	345	13,58	220	8,66			1048	2356	1346	3026	206,0	12,57	2,19	4,83	-
SC 750 - 160 - B	SC 750 - 160 - D	160	6,30	415	16,34	255	10,04	1070	2405	1391	3127	252,0	15,37	2,52	5,56	-		
SC 750 - 200 - B	SC 750 - 200 - D	200	7,87	495	19,49	295	11,61	1091	2453	1434	3224	302,0	18,42	2,92	6,44	-		
SC 750 - 250 - B	SC 750 - 250 - D	250	9,84	595	23,43	345	13,58	1109	2493	1472	3309	365,0	22,27	3,40	7,50	-		
SC 750 - 300 - B	SC 750 - 300 - D	300	11,81	695	27,36	395	15,55	1123	2525	1501	3374	428,0	26,11	3,90	8,60	-		

SC  
SCF



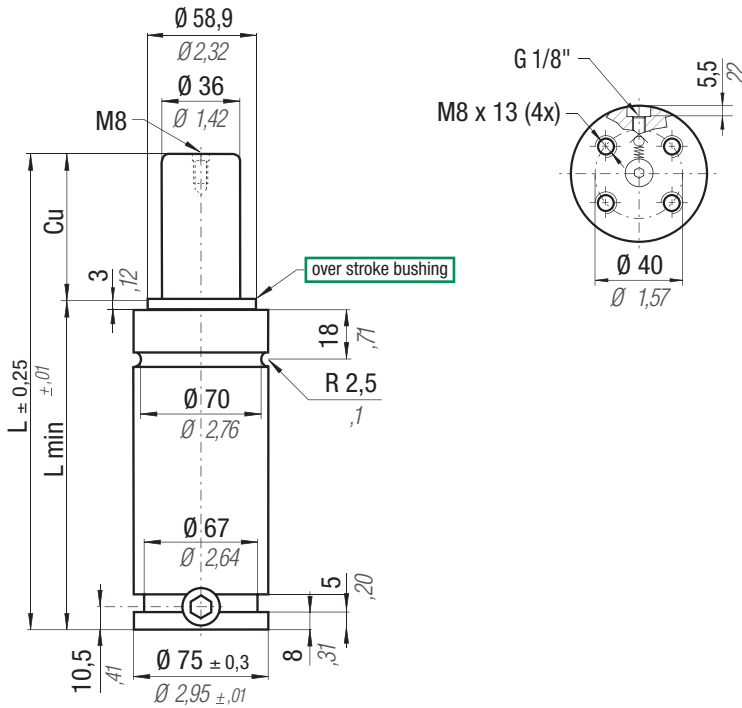
## HOW TO ORDER

(10 pcs) SC 750-050-D  
(10 pcs) SC 750-050-D-N

# SC 1500



ISO 11901 - 1	VDI 3003	B2 4006 (BMW)	W-DX35-6203 (Ford)
PG23D (Mazda)	B8 3180 220 000 001(MB)	K 32 S (Nissan)	E24.54.815.G (PSA)
EM24.54.700 (Renault)	SES-K 5404e (Suzuki)	39D 878 (VW)	



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



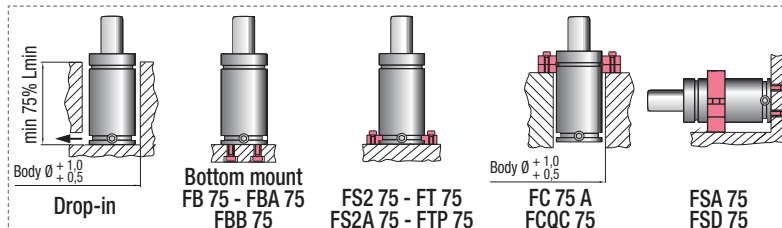
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

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O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$^{\circ}\text{F}$ 32 -176	$^{\circ}\text{C}$ 0 -80	$\Delta P$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 10,18 cm <sup>2</sup> 1,578 in <sup>2</sup>	<b>SPM</b> ~ 15 - 50 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMSC01500D Cu 13 ÷ 80 39BMSC01500DH Cu 100 ÷ 300
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CODE PHASING OUT from 01/2014	NEW	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg	~lb	CE Cat.								
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>											
-	SC 1500 - 013 - D	13	0,51	135	5,31	122	4,80	1530 3440  150 bar 2175 psi  $\pm 5\%$ $+ 20^{\circ}\text{C} + 68^{\circ}\text{F}$	1769	3977	2016	4532	97,0	5,92	3,26	7,19	-									
SC 1500 - 025 - B	SC 1500 - 025 - D	25	0,98	160	6,30	135	5,31											1855	4170	2174	4887	144,0	8,78	3,47	7,65	-
SC 1500 - 038 - B	SC 1500 - 038 - D	38	1,50	186	7,32	148	5,83											1916	4307	2287	5141	191,0	11,65	3,66	8,07	-
SC 1500 - 050 - B	SC 1500 - 050 - D	50	1,97	210	8,27	160	6,30											1952	4388	2355	5294	234,0	14,27	3,84	8,47	-
SC 1500 - 063 - B	SC 1500 - 063 - D	63,5	2,50	237	9,33	173,5	6,83											1975	4440	2400	5395	283,0	17,26	4,05	8,93	-
SC 1500 - 080 - B	SC 1500 - 080 - D	80	3,15	270	10,63	190	7,48											2004	4505	2455	5519	342,0	20,86	4,30	9,48	-
SC 1500 - 100 - B	SC 1500 - 100 - D	100	3,94	310	12,20	210	8,27											2024	4550	2495	5609	414,0	25,25	4,60	10,14	-
SC 1500 - 125 - B	SC 1500 - 125 - D	125	4,92	360	14,17	235	9,25											2042	4591	2529	5685	505,0	30,81	4,98	10,98	-
SC 1500 - 160 - B	SC 1500 - 160 - D	160	6,30	430	16,93	270	10,63											2058	4627	2562	5760	631,0	38,49	5,51	12,15	-
SC 1500 - 200 - B	SC 1500 - 200 - D	200	7,87	510	20,08	310	12,20											2074	4663	2592	5827	772,0	47,09	6,14	13,54	-
SC 1500 - 250 - B	SC 1500 - 250 - D	250	9,84	610	24,02	360	14,17											2104	4730	2652	5962	928,0	56,61	7,10	15,65	-
SC 1500 - 300 - B	SC 1500 - 300 - D	300	11,81	710	27,95	410	16,14											2126	4779	2696	6061	1084,0	66,12	8,05	17,75	I

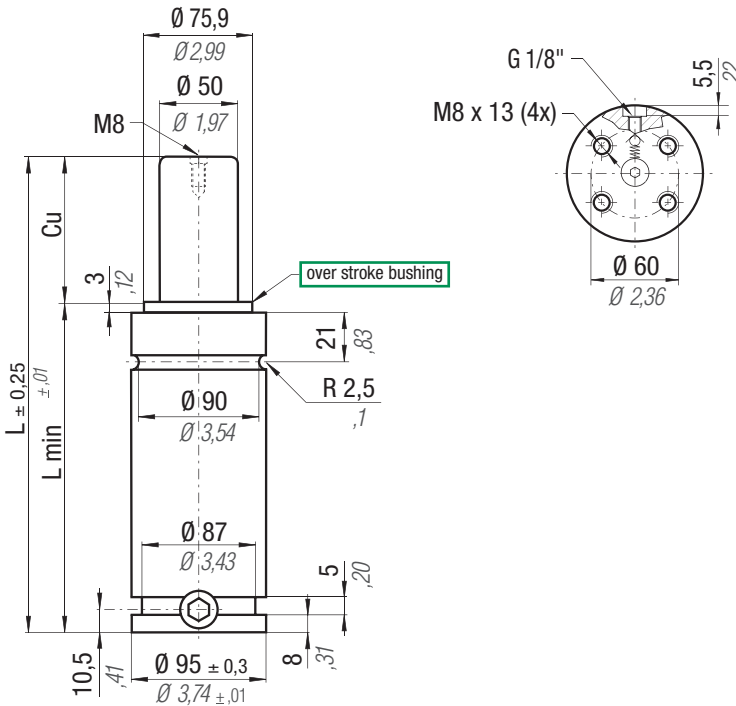


## HOW TO ORDER

(10 pcs) SC 1500-050-D  
(10 pcs) SC 1500-050-D-N



ISO 11901 - 1	VDI 3003	B2 4006 (BMW)	W-DX35-6203 (Ford)
PG23D (Mazda)	B8 3180 220 000 001(MB)	K 32 S (Nissan)	E24.54.815.G (PSA)
EM24.54.700 (Renault)	SES-K 5404e (Suzuki)	39D 878 (VW)	



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easyl** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

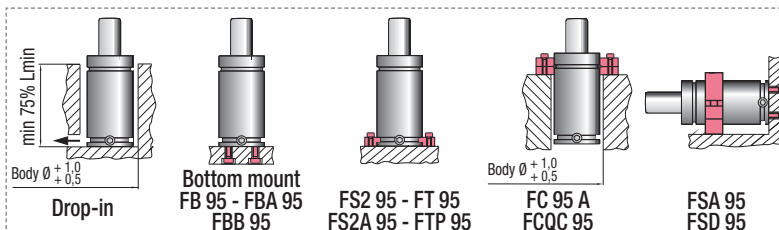
El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 19,63 cm <sup>2</sup> 3,043 in <sup>2</sup>	<b>SPM</b> ~ 15 - 50 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMSC03000D Cu 13 ÷ 80 39BMSC03000DH Cu 100 ÷ 300
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CODE PHASING OUT from 01/2014	NEW	Cu		L		L min		F0 Initial force		F1 <sub>i</sub> End force *		F1 <sub>p</sub> End force *		V0		Kg		Cat.							
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	-Kg	-lb								
-	SC 3000 - 013 - D	13	0,51	145	5,71	132	5,20	2945 6621  150 bar 2175 psi  $\pm 5\%$ $+ 20^{\circ}\text{C} + 68^{\circ}\text{F}$	3428	7706	3917	8806	181,0	11,04	5,65	12,46	-								
SC 3000 - 025 - B	SC 3000 - 025 - D	25	0,98	170	6,69	145	5,71										3628	8156	4286	9635	261,0	15,92	6,00	13,23	-
SC 3000 - 038 - B	SC 3000 - 038 - D	38	1,50	196	7,72	158	6,22										3773	8482	4559	10249	340,0	20,74	6,29	13,87	-
SC 3000 - 050 - B	SC 3000 - 050 - D	50	1,97	220	8,66	170	6,69										3863	8684	4732	10638	413,0	25,19	6,57	14,48	-
SC 3000 - 063 - B	SC 3000 - 063 - D	63,5	2,50	247	9,72	183,5	7,22										3925	8824	4852	10908	496,0	30,26	6,90	15,21	-
SC 3000 - 080 - B	SC 3000 - 080 - D	80	3,15	280	11,02	200	7,87										3999	8990	4997	11234	596,0	36,36	7,30	16,09	-
SC 3000 - 100 - B	SC 3000 - 100 - D	100	3,94	320	12,60	220	8,66										4053	9112	5105	11476	718,0	43,80	7,78	17,15	-
SC 3000 - 125 - B	SC 3000 - 125 - D	125	4,92	370	14,57	245	9,65										4101	9219	5201	11692	871,0	53,13	8,38	18,47	-
SC 3000 - 160 - B	SC 3000 - 160 - D	160	6,30	440	17,32	280	11,02										4146	9321	5292	11897	1085,0	66,19	9,22	20,33	I
SC 3000 - 200 - B	SC 3000 - 200 - D	200	7,87	520	20,47	320	12,60										4181	9399	5362	12054	1329,0	81,07	10,19	22,47	II
SC 3000 - 250 - B	SC 3000 - 250 - D	250	9,84	620	24,41	370	14,57										4212	9469	5424	12194	1633,0	99,61	11,40	25,13	II
SC 3000 - 300 - B	SC 3000 - 300 - D	300	11,81	720	28,35	420	16,54										4261	9579	5525	12421	1908,0	116,39	12,84	28,31	II

SC  
SCF



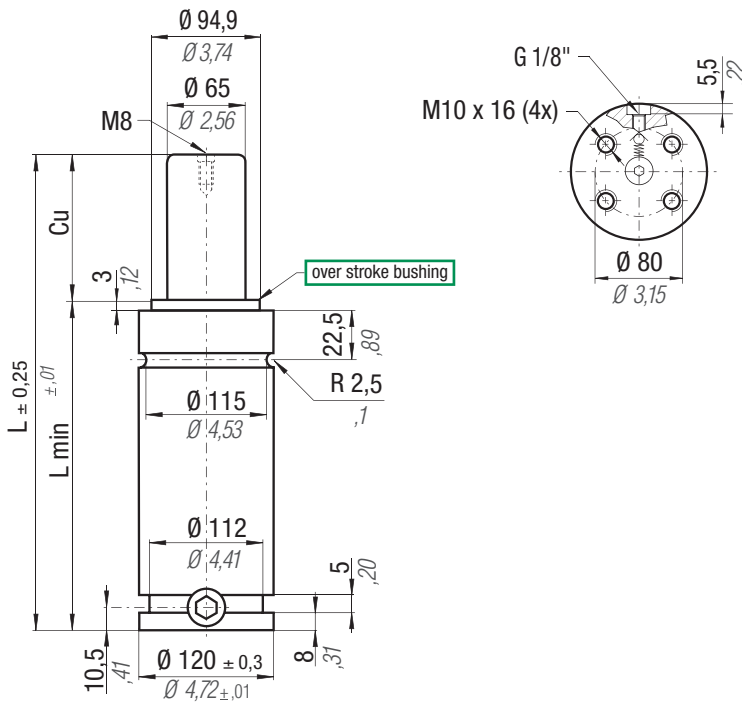
## HOW TO ORDER

(10 pcs) SC 3000-050-D  
(10 pcs) SC 3000-050-D-N

# SC 5000



ISO 11901 - 1	W-DX35-6203 (Ford)	EM24.54.700 (Renault)	PG23D (Mazda)
VDI 3003	B8 3180 220 000 001 (MB)	39D 878 (VW)	SES-K 5404e (Suzuki)
B2 4006 (BMW)	E24.54.815.G (PSA)	K 32 S (Nissan)	



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



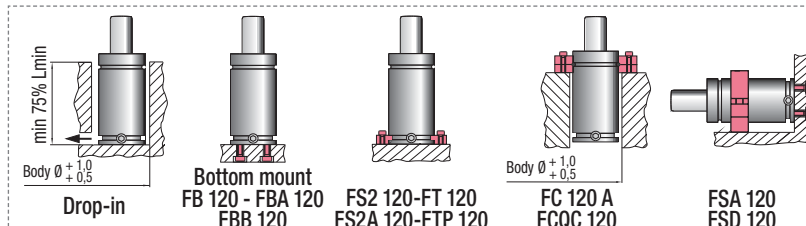
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$^{\circ}\text{F}$ 32 -176	$^{\circ}\text{C}$ 0 -80	$\Delta P$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 33,18 cm <sup>2</sup> 5,143 in <sup>2</sup>	<b>SPM</b> ~ 15 - 50 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMSC05000D Cu 25 ÷ 80 39BMSC05000DH Cu 100 ÷ 300
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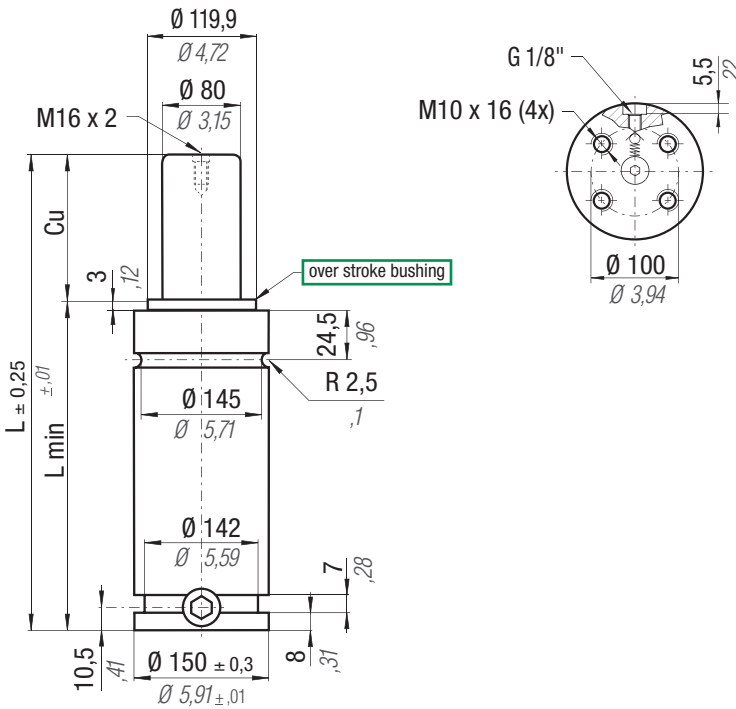
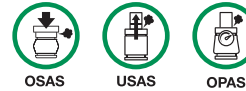
CODE PHASING OUT from 01/2014	NEW	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> End force *		V <sub>0</sub>		~Kg	~lb	CE Cat.
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
SC 5000 - 025 - B	SC 5000 - 025 - D	25	0,98	190	7,48	165	6,50	4980	11195	6080	13668	7148	16069	457,0	27,88	11,07	24,41	-
SC 5000 - 038 - B	SC 5000 - 038 - D	38	1,50	216	8,50	178	7,01			6351	14278	7657	17214	583,0	35,56	11,60	25,57	-
SC 5000 - 050 - B	SC 5000 - 050 - D	50	1,97	240	9,45	190	7,48			6527	14673	7994	17971	699,0	42,64	12,08	26,63	-
SC 5000 - 063 - B	SC 5000 - 063 - D	63,5	2,50	267	10,51	203,5	8,01			6672	14999	8277	18607	823,0	50,20	12,70	28,00	-
SC 5000 - 080 - B	SC 5000 - 080 - D	80	3,15	300	11,81	220	8,66			6804	15296	8537	19192	989,0	60,33	13,28	29,28	-
SC 5000 - 100 - B	SC 5000 - 100 - D	100	3,94	340	13,39	240	9,45			6920	15557	8768	19711	1182,0	72,10	14,08	31,04	I
SC 5000 - 125 - B	SC 5000 - 125 - D	125	4,92	390	15,35	265	10,43			7024	15791	8977	20181	1424,0	86,86	15,10	33,29	II
SC 5000 - 160 - B	SC 5000 - 160 - D	160	6,30	460	18,11	300	11,81			7124	16015	9181	20640	1762,0	107,48	16,50	36,38	II
SC 5000 - 200 - B	SC 5000 - 200 - D	200	7,87	540	21,26	340	13,39			7202	16191	9340	20997	2148,0	131,03	18,10	39,90	II
SC 5000 - 250 - B	SC 5000 - 250 - D	250	9,84	640	25,20	390	15,35			7269	16341	9477	21305	2632,0	160,55	20,10	44,31	II
SC 5000 - 300 - B	SC 5000 - 300 - D	300	11,81	740	29,13	440	17,32	7316	16447	9573	21521	3115,0	190,02	22,12	48,77	II		



## HOW TO ORDER

(10 pcs) SC 5000-050-D  
(10 pcs) SC 5000-050-D-N

ISO 11901 - 1	VDI 3003	B2 4006 (BMW)	W-DX35-6203 (Ford)
PG23D (Mazda)	B8 3180 220 000 001(MB)	E24.54.815.G (PSA)	EM24.54.700 (Renault)
39D 878 (VW)			



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolé

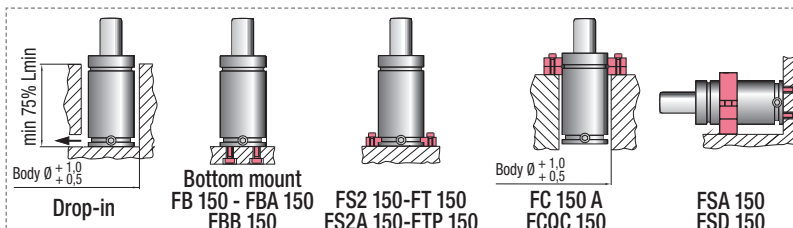
El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 50,27 cm <sup>2</sup> 7,792 in <sup>2</sup>	<b>SPM</b> ~ 15 - 50 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMS07500D Cu 25 ÷ 80 39BMS07500DH Cu 100 ÷ 300
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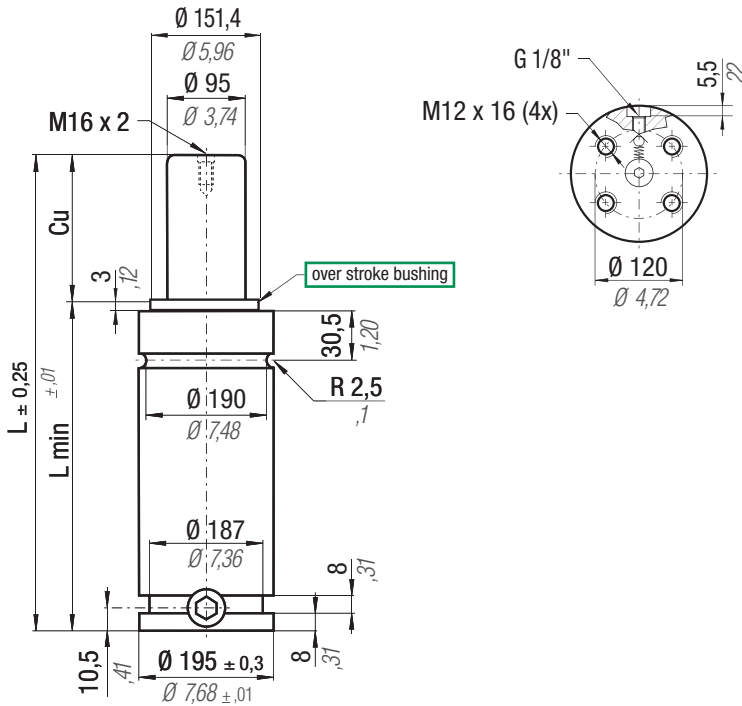
CODE	PHASING OUT from 01/2014	NEW	Cu		L		L min		F0		F <sub>1i</sub>		F <sub>1p</sub>		V0		CE		
			mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
SC 7500 - 025 - B		SC 7500 - 025 - D	25	0,98	205	8,07	180	7,09	7540	16950	9018	20273	10472	23542	767,0	46,79	19,10	42,11	-
SC 7500 - 038 - B		SC 7500 - 038 - D	38	1,50	231	9,09	193	7,60			9406	21146	11192	25161	963,0	58,74	19,95	43,98	-
SC 7500 - 050 - B		SC 7500 - 050 - D	50	1,97	255	10,04	205	8,07			9663	21723	11679	26255	1144,0	69,78	20,70	45,64	I
SC 7500 - 063 - B		SC 7500 - 063 - D	63,5	2,50	282	11,10	218,5	8,60			9855	22155	12049	27087	1348,0	82,23	21,50	47,40	II
SC 7500 - 080 - B		SC 7500 - 080 - D	80	3,15	315	12,40	235	9,25			10077	22654	12480	28056	1597,0	97,42	22,50	49,60	II
SC 7500 - 100 - B		SC 7500 - 100 - D	100	3,94	355	13,98	255	10,04			10254	23052	12828	28838	1899,0	115,84	23,70	52,25	II
SC 7500 - 125 - B		SC 7500 - 125 - D	125	4,92	405	15,94	280	11,02			10414	23412	13146	29553	2276,0	138,84	25,20	55,56	II
SC 7500 - 160 - B		SC 7500 - 160 - D	160	6,30	475	18,70	315	12,40			10571	23765	13459	30257	2805,0	171,11	27,40	60,41	II
SC 7500 - 200 - B		SC 7500 - 200 - D	200	7,87	555	21,85	355	13,98			10693	24039	13707	30815	3409,0	207,95	29,80	65,70	II
SC 7500 - 250 - B		SC 7500 - 250 - D	250	9,84	655	25,79	405	15,94			10799	24277	13921	31296	4164,0	254,00	32,90	72,53	II
SC 7500 - 300 - B		SC 7500 - 300 - D	300	11,81	755	29,72	455	17,91	10873	24443	14073	31637	4919,0	300,06	35,90	79,15	II		

SC  
SCF



## HOW TO ORDER

(10 pcs) SC 7500-050-D  
(10 pcs) SC 7500-050-D-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



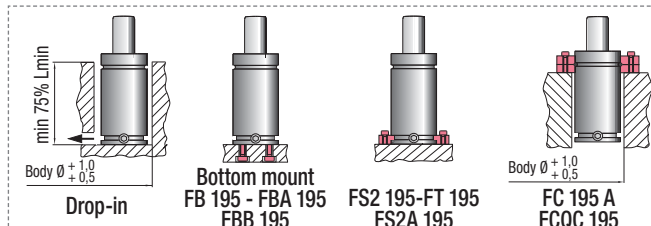
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	<b>N<sub>2</sub></b>	<b>°F</b> 32 - 176	<b>°C</b> 0 - 80	<b>ΔP</b> ± 0,33 %/°C	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 70,88 cm <sup>2</sup> 10,986 in <sup>2</sup>	<b>SPM</b> ~ 15 - 50 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMSC10000D
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CODE PHASING OUT from 01/2014	NEW	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg	~lb	CE Cat.																																																																		
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>																																																																					
SC 10000 - 025 - C	SC 10000 - 025 - D	25	0,98	210	8,27	185	7,28	10600	23830	12733	28625	14797	33265	1186,0	72,35	35,09	77,36	I																																																																		
SC 10000 - 038 - C	SC 10000 - 038 - D	38	1,50	236	9,29	198	7,80											150 bar 2175 psi	13229	29740	15718	35335	1497,0	91,32	36,55	80,58	II																																																									
SC 10000 - 050 - C	SC 10000 - 050 - D	50	1,97	260	10,24	210	8,27																				± 5% + 20 °C + 68 °F	13547	30455	16318	36684	1784,0	108,82	37,89	83,53	II																																																
SC 10000 - 063 - C	SC 10000 - 063 - D	63,5	2,50	287	11,30	223	8,78																													14042	31568	17271	38827	2503,0	152,68	41,24	90,92	II																																								
SC 10000 - 080 - C	SC 10000 - 080 - D	80	3,15	320	12,60	240	9,45																																					14247	32029	17670	39724	2982,0	181,90	43,48	95,86	II																																
SC 10000 - 100 - C	SC 10000 - 100 - D	100	3,94	360	14,17	260	10,24																																													14429	32438	18028	40529	3581,0	218,44	46,28	102,03	II																								
SC 10000 - 125 - C	SC 10000 - 125 - D	125	4,92	410	16,14	285	11,22																																																					14597	32815	18361	41277	4419,0	269,56	50,12	110,50	II																
SC 10000 - 160 - C	SC 10000 - 160 - D	160	6,30	480	18,90	320	12,60																																																													14820	33317	18807	42280	5343,0	325,92	55,15	121,58	II								
SC 10000 - 200 - C	SC 10000 - 200 - D	200	7,87	560	22,05	360	14,17																																																																					15066	33870	19301	43390	6348,0	387,23	61,85	136,36	III
SC 10000 - 250 - C	SC 10000 - 250 - D	250	9,84	660	25,98	410	16,14																																																																													15246



## HOW TO ORDER

(10 pcs) SC 10000-050-D  
(10 pcs) SC 10000-050-D-N

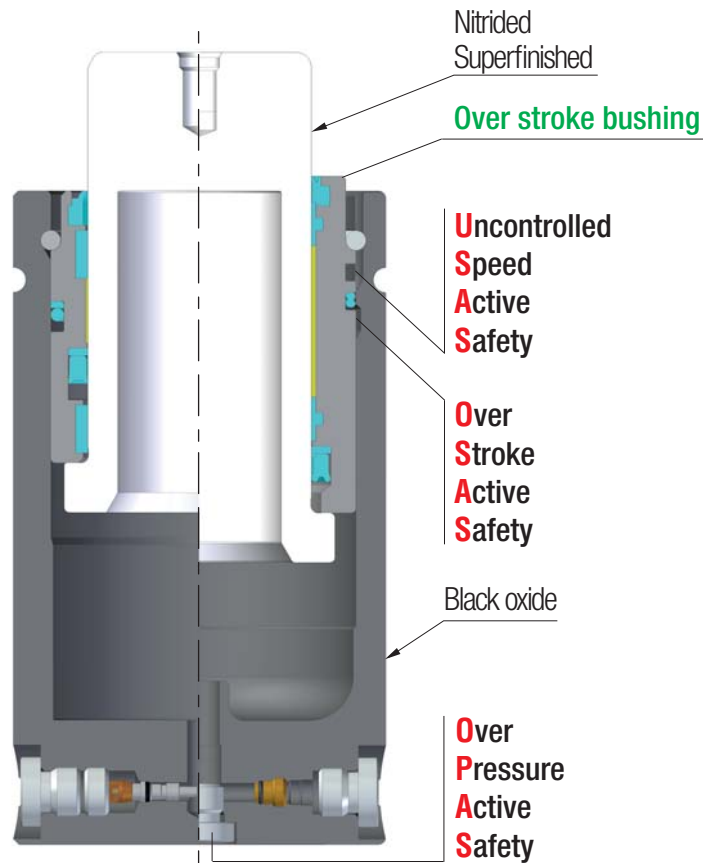


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## OLD

## NEW



Code : H \_ \_ \_ - \_ \_ - A    Code : H \_ \_ \_ - \_ \_ - C

### Range chart

Model	Body Ø		Stroke Cu		Initial force Fo		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
H 300	32	1,26	10 - 125	0,39 - 4,92	300	674	✓	✓	✓	-
H 500	38	1,50	10 - 125	0,39 - 4,92	470	1057	✓	✓	✓	-
HF 500	M 38 X 1,5	M 38 X 1,5	10 - 125	0,39 - 4,92	470	1057	✓	✓	✓	-
H 700	45	1,77	10 - 160	0,51 - 6,30	680	1529	✓	✓	✓	-
H 1000	50	1,97	13 - 300	0,51 - 11,81	920	2383	✓	✓	✓	-
H 2400	75	2,95	25 - 300	0,98 - 11,81	2385	5362	✓	✓	✓	-
H 4200	95	3,74	25 - 300	0,98 - 11,81	4240	9532	✓	✓	✓	-
H 6600	120	4,72	25 - 300	0,98 - 11,81	6630	14905	✓	✓	✓	-
H 9500	150	5,91	25 - 300	0,98 - 11,81	9540	21446	✓	✓	✓	-
H 18500	195	7,68	25 - 300	0,98 - 11,81	18400	41365	✓	✓	✓	-



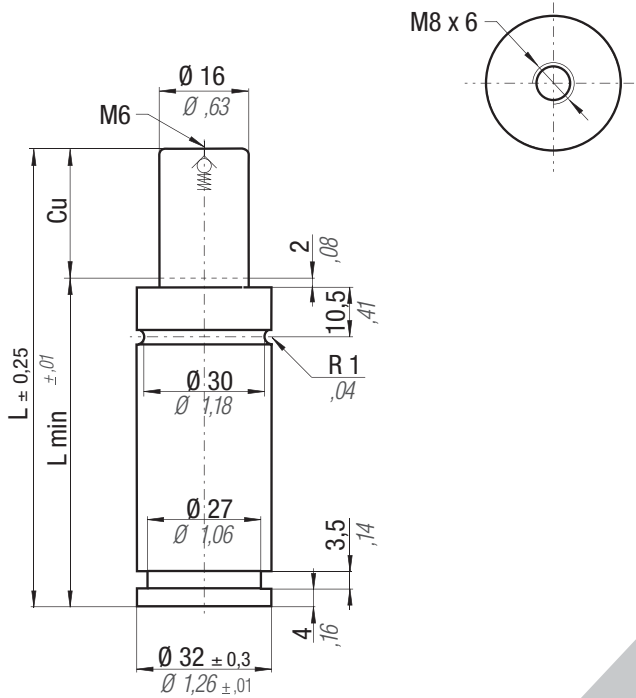
How to Order

## H 2400-050-C - N - E

Codice cilindro autonomo  
Self-contained cylinder code  
Kode des eingeständigen Gdf.  
Code du cylindre autonome  
Codigo del cilindro autónomo  
Codigo do cilindro autónomo

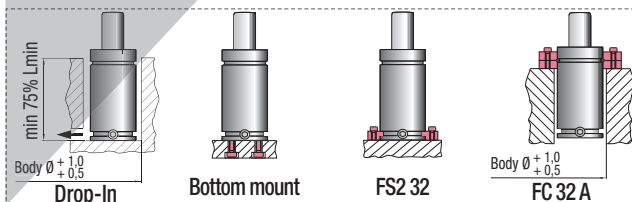
Collegabile con tubi, fornito scarico e senza valvola unidirezionale  
Linkable with hoses, supplied without pressure and oneway valve  
Anschlussfähig mit Leitungen, geliefert ohne Druck und RückschlagVentil  
Connectable avec tubes, fourni sans pression ni valve unidirectionelle  
Connectable con tubos, suministrado sin presión y sin válvula unidireccional  
Acompláveis com tubos, fornecidos sem pressão e sem válvula unidireccional

Collegabile EASY MANIFOLD, fornito scarico + guarnizione di collegamento  
Linkable EASY MANIFOLD, supplied without pressure + connecting seal  
Anschlussfähig EASY MANIFOLD, geliefert ohne Druck + Verbindungsdichtung  
Connectable EASY MANIFOLD, fourni sans pression + joint de connexion  
Connectable EASY MANIFOLD, suministrado sin presión + junta de conexión  
Acompláveis EASY MANIFOLD, fornecidos sem pressão + vedantes de conexão

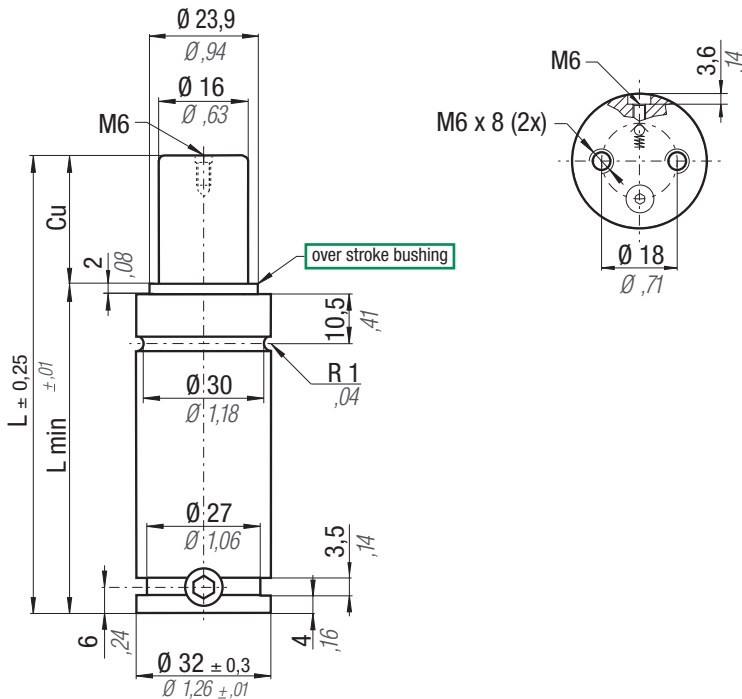


Max Speed	°F	°C		P max	P min	S		Maintenance kit						
1,8 m/s	32	0	N <sub>2</sub>	150 bar 2175 psi	20 bar 290 psi	2,01 cm <sup>2</sup> 0,312 in <sup>2</sup>		39BMH00300B						
CODE	Cu		L		L min		F <sub>0</sub>		V <sub>0</sub>		CODE			
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb		
H 300 - 010 - B	10	0,39	70	2,76	60	2,36	300 674 150 bar 2175 psi ± 5% + 20 °C + 68 °F		-	-	0,29	0,64	-	
H 300 - 013 - B	13	0,51	75,4	2,97	62,7	2,47			-	-	0,30	0,66	-	-
H 300 - 016 - B	16	0,63	82	3,23	66	2,60			-	-	0,31	0,68	-	-
H 300 - 025 - B	25	0,98	100	3,94	75	2,95			-	-	0,34	0,75	-	-
H 300 - 038 - B	38	1,50	126	4,96	88	3,46			-	-	0,38	0,84	-	-
H 300 - 050 - B	50	1,97	150	5,91	100	3,94			-	-	0,43	0,95	-	-
H 300 - 063 - B	63	2,48	177	6,97	113,5	4,47			-	-	0,48	1,06	-	-
H 300 - 080 - B	80	3,15	210	8,27	130	5,12			-	-	0,54	1,19	-	-
H 300 - 100 - B	100	3,94	250	9,84	150	5,91			-	-	0,61	1,34	-	-
H 300 - 125 - B	125	4,92	300	11,81	175	6,89	-	-	0,69	1,52	-	-		

H  
HF



**HOW TO ORDER**  
  
(10 pcs) H 300 - 050 - B



## Info

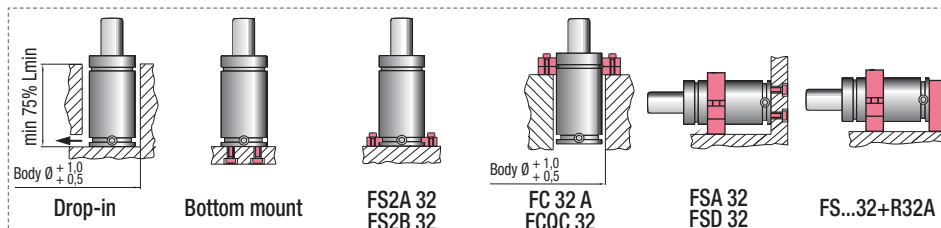
\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



- see page 237

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 2,01 cm <sup>2</sup> 0,312 in <sup>2</sup>	SPM ~ 30 ÷ 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMRV00350B	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE		
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
H 300 - 010 - C											10	0,39	70	2,76	60	2,36	300	674	345	776	391	879	16,0	0,98	0,29	0,64	-
H 300 - 013 - C											13	0,51	75,7	2,98	62,7	2,47			355	798	408	917	18,0	1,10	0,30	0,66	-
H 300 - 016 - C											16	0,63	82	3,23	66	2,60			361	812	420	944	20,0	1,22	0,31	0,68	-
H 300 - 025 - C											25	0,98	100	3,94	75	2,95			378	850	451	1014	25,0	1,53	0,34	0,75	-
H 300 - 038 - C											38	1,50	126	4,96	88	3,46			394	886	481	1081	33,0	2,01	0,38	0,84	-
H 300 - 050 - C											50	1,97	150	5,91	100	3,94			403	906	499	1122	40,0	2,44	0,43	0,95	-
H 300 - 063 - C											63	2,48	176,5	6,95	113,5	4,47			410	922	512	1151	48,0	2,93	0,48	1,06	-
H 300 - 080 - C											80	3,15	210	8,27	130	5,12			417	937	527	1185	58,0	3,54	0,54	1,19	-
H 300 - 100 - C											100	3,94	250	9,84	150	5,91			423	951	539	1212	70,0	4,27	0,61	1,34	-
H 300 - 125 - C											125	4,92	300	11,81	175	6,89			428	962	549	1234	85,0	5,19	0,69	1,52	-

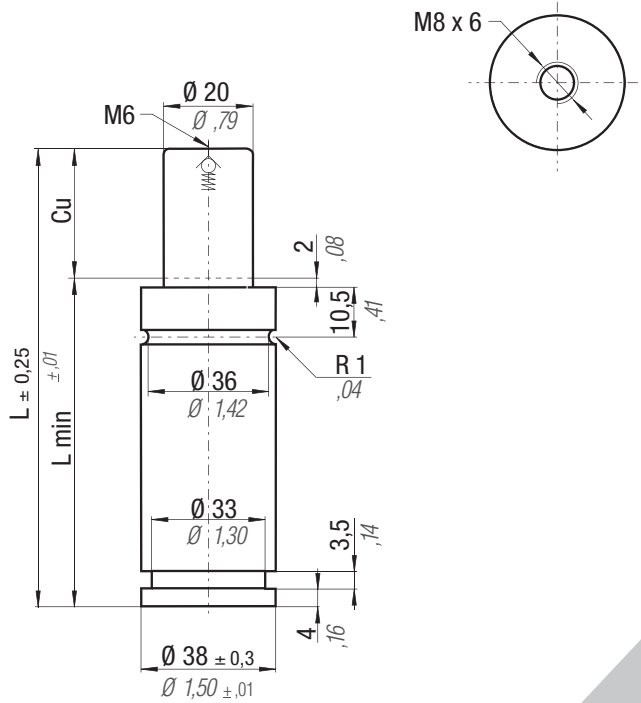


## HOW TO ORDER

(10 pcs) H 300-050-C

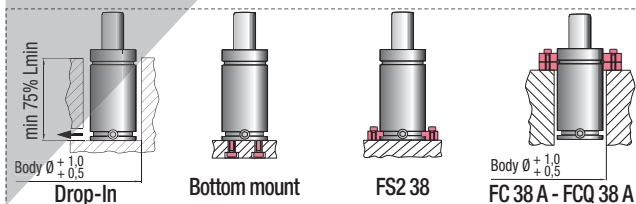
(10 pcs) H 300-050-C-N





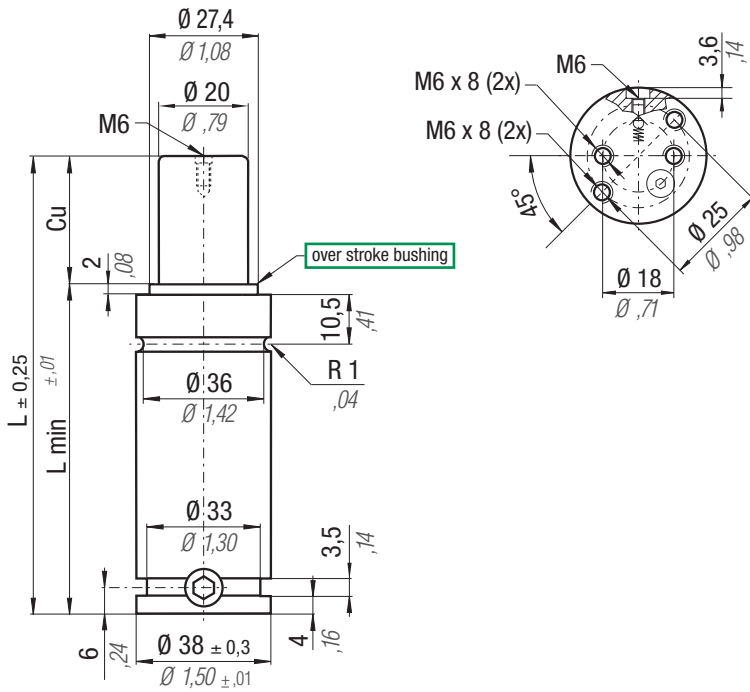
Max Speed	°F	°C		P max	P min	S		Maintenance kit					
1,8 m/s	32 - 176	0 - 80	N <sub>2</sub>	150 bar 2175 psi	20 bar 290 psi	3,14 cm <sup>2</sup> 0,487 in <sup>2</sup>		39BMH00500B					
CODE	Cu		L		L min		F <sub>0</sub>		V <sub>0</sub>		CODE		
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
H 500 -010 - B	10	0,39	70	2,76	60	2,36	470 1057  150 bar 2175 psi  ± 5% + 20 °C + 68 °F		-	-	0,42	0,93	-
H 500 -013 - B	13	0,51	75,4	2,97	62,7	2,47			-	-	0,43	0,95	-
H 500 -016 - B	16	0,63	82	3,23	66	2,60			-	-	0,45	0,99	-
H 500 -025 - B	25	0,98	100	3,94	75	2,95			-	-	0,50	1,10	-
H 500 -038 - B	38	1,50	126	4,96	88	3,46			-	-	0,56	1,23	-
H 500 -050 - B	50	1,97	150	5,91	100	3,94			-	-	0,63	1,39	-
H 500 -063 - B	63	2,48	177	6,97	113,5	4,47			-	-	0,70	1,54	-
H 500 -080 - B	80	3,15	210	8,27	130	5,12			-	-	0,79	1,74	-
H 500 -100 - B	100	3,94	250	9,84	150	5,91			-	-	0,89	1,96	-
H 500 -125 - B	125	4,92	300	11,81	175	6,89	-	-	1,08	2,38	-		

H  
HF



## HOW TO ORDER

(10 pcs) H 500 - 050 - B



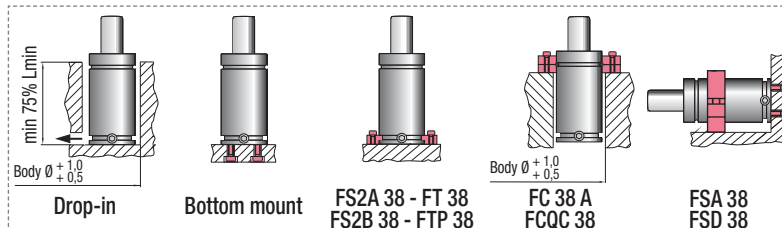
## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

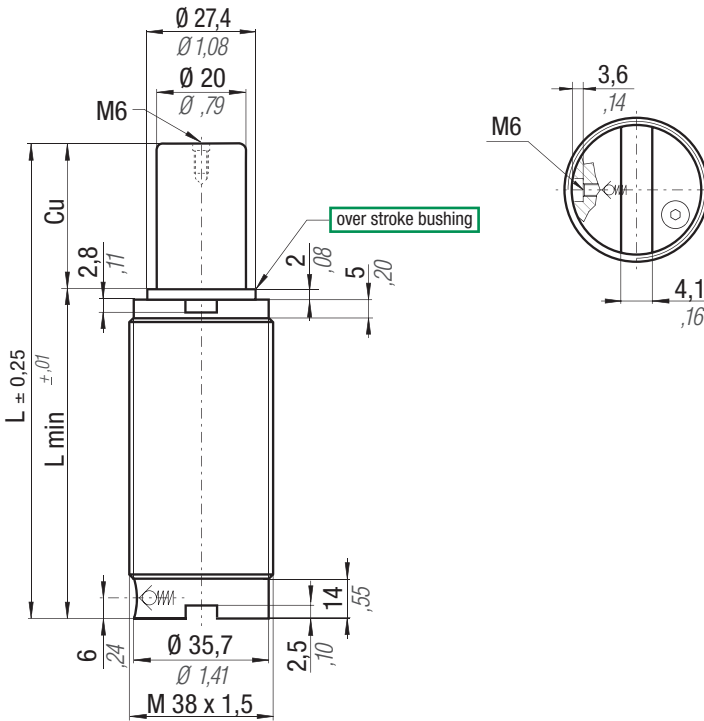
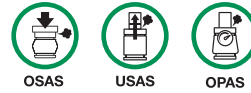
**easU** MANIFOLD - see page 237

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	$\Delta P$ $\pm 0,33\%/^{\circ}C$	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 3,14 cm <sup>2</sup> 0,487 in <sup>2</sup>	SPM ~ 30 - 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMRV00500B	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub> *		F <sub>1p</sub> **		V <sub>0</sub>		CE		
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
H 500 - 010 - C											10	0,39	70	2,76	60	2,36	470 1057	150 bar 2175 psi	549	1234	629	1414	22,0	1,34	0,42	0,93	-
H 500 - 013 - C											13	0,51	75,7	2,98	62,7	2,47			566	1272	658	1479	24,0	1,46	0,43	0,95	-
H 500 - 016 - C											16	0,63	82	3,23	66	2,60			578	1299	681	1531	27,0	1,65	0,45	0,99	-
H 500 - 019 - C											19	0,75	88	3,46	69	2,72			589	1324	702	1578	30,0	1,83	0,48	1,06	-
H 500 - 025 - C											25	0,98	100	3,94	75	2,95			608	1367	737	1657	35,0	2,14	0,50	1,10	-
H 500 - 038 - C											38	1,50	126	4,96	88	3,46			636	1430	791	1778	46,0	2,81	0,56	1,23	-
H 500 - 050 - C											50	1,97	150	5,91	100	3,94			352	791	825	1855	57,0	3,48	0,63	1,39	-
H 500 - 063 - C											63	2,48	176,5	6,95	113,5	4,47			665	1495	849	1909	68,0	4,15	0,70	1,54	-
H 500 - 080 - C											80	3,15	210	8,27	130	5,12			678	1524	877	1972	82,0	5,00	0,79	1,74	-
H 500 - 100 - C											100	3,94	250	9,84	150	5,91			689	1549	898	2019	100,0	6,10	0,89	1,96	-
H 500 - 125 - C											125	4,92	300	11,81	175	6,89	697	1567	916	2059	121,0	7,38	1,08	2,38	-		



## HOW TO ORDER

(10 pcs) H 500-050-C  
(10 pcs) H 500-050-C-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



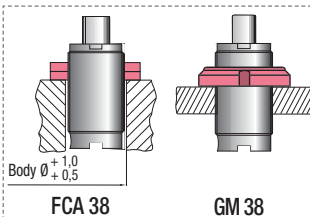
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

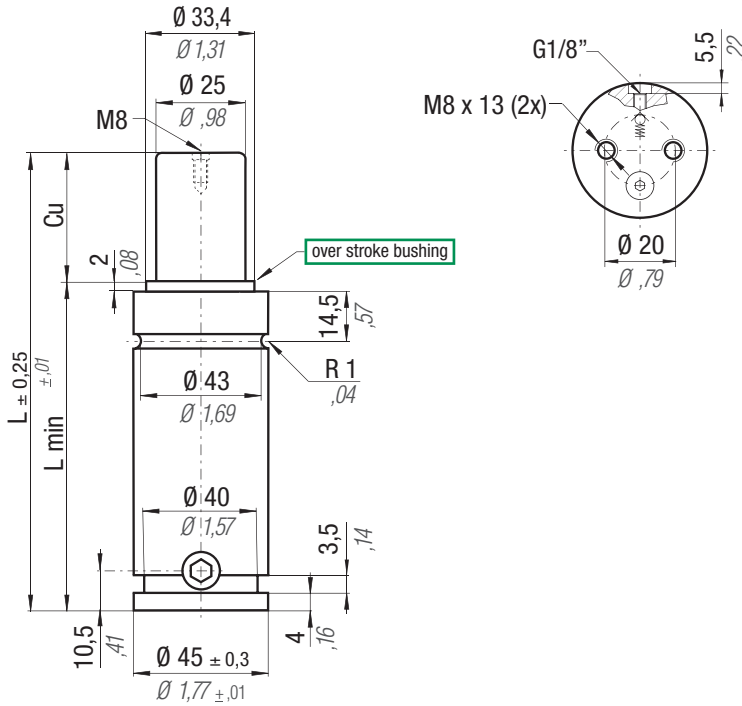
N <sub>2</sub>	°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 3,14 cm <sup>2</sup> 0,487 in <sup>2</sup>	SPM ~ 30 ÷ 100 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit									
									39BMRV00500B									
CODE	NEW		Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE	
PHASING OUT from 09/2009			mm	inch	mm	inch	mm	inch	Initial force daN lb	End force * daN lb	End force * daN lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.		
HF 500 - 010 - A	HF 500 - 010 - C	10	0,39	70	2,76	60	2,36	470 1057	150 bar 2175 psi	629	1414	549	1234	22,0	1,34	0,39	0,86	-
HF 500 - 013 - A	HF 500 - 013 - C	13	0,51	75,7	2,98	62,7	2,47			658	1479	566	1272	24,0	1,46	0,40	0,88	-
HF 500 - 016 - A	HF 500 - 016 - C	16	0,63	82	3,23	66	2,60			681	1531	578	1299	27,0	1,65	0,42	0,93	-
-	HF 500 - 019 - C	19	0,75	88	3,46	69	2,72			702	1578	589	1324	30,0	1,83	0,45	0,99	-
HF 500 - 025 - A	HF 500 - 025 - C	25	0,98	100	3,94	75	2,95			737	1657	608	1367	35,0	2,14	0,48	1,06	-
HF 500 - 038 - A	HF 500 - 038 - C	38	1,50	126	4,96	88	3,46			791	1778	636	1430	46,0	2,81	0,54	1,19	-
HF 500 - 050 - A	HF 500 - 050 - C	50	1,97	150	5,91	100	3,94			825	1855	352	791	57,0	3,48	0,59	1,30	-
HF 500 - 063 - A	HF 500 - 063 - C	63	2,48	176,5	6,95	113,5	4,47			849	1909	665	1495	68,0	4,15	0,66	1,46	-
HF 500 - 080 - A	HF 500 - 080 - C	80	3,15	210	8,27	130	5,12			877	1972	678	1524	82,0	5,00	0,76	1,68	-
HF 500 - 100 - A	HF 500 - 100 - C	100	3,94	250	9,84	150	5,91			898	2019	689	1549	100,0	6,10	0,85	1,87	-
HF 500 - 125 - A	HF 500 - 125 - C	125	4,92	300	11,81	175	6,89	916	2059	697	1567	121,0	7,38	1,05	2,31	-		

H  
HF



## HOW TO ORDER

(10 pcs) HF 500-050-C  
(10 pcs) HF 500-050-C-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



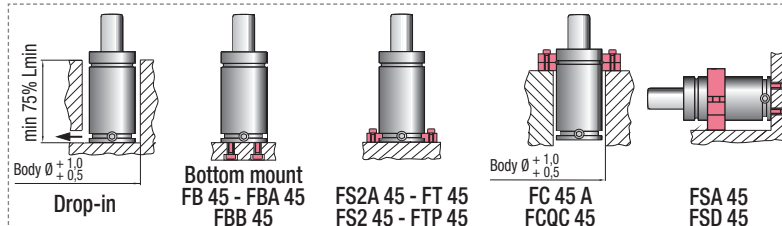
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$\Delta P$	P max	P min	S	SPM	Max Speed	Maintenance kit
N <sub>2</sub>	$\pm 0,33 \% / ^\circ C$	150 bar 2175 psi	20 bar 290 psi	4,91 cm <sup>2</sup> 0,761 in <sup>2</sup>	~ 20 ÷ 100 (at 20°C)	1,8 m/s	39BMRV00750B Cu 13 ÷ 80 39BMH00700C Cu 100 ÷ 160

CODE PHASING OUT from 01/2014	NEW	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg	~lb	Cat.					
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>								
-	H 700 - 010 - C	10	0,39	105	4,13	95	3,74	740 1664  150 bar 2175 psi  ± 5% + 20 °C + 68 °F	802 1803	882 1983	60,0	3,66	0,65	1,43	-								
H 700 - 013 - A	H 700 - 013 - C	13	0,50	110,7	4,35	97,7	3,85								818	1839	911	2048	64,0	3,90	0,69	1,52	-
H 700 - 025 - A	H 700 - 025 - C	25	0,98	135	5,31	110	4,33								871	1958	1006	2262	79,0	4,82	0,77	1,70	-
H 700 - 038 - A	H 700 - 038 - C	38	1,50	161	6,34	123	4,84								914	2055	1085	2439	96,0	5,86	0,86	1,90	-
H 700 - 050 - A	H 700 - 050 - C	50	1,97	185	7,28	135	5,31								945	2124	1144	2572	111,0	6,77	0,94	2,07	-
H 700 - 063 - A	H 700 - 063 - C	63,5	2,50	212	8,35	148,5	5,85								971	2183	1193	2682	128,0	7,81	1,03	2,27	-
H 700 - 080 - A	H 700 - 080 - C	80	3,15	245	9,65	165	6,50								979	2201	1209	2718	158,0	9,64	1,14	2,51	-
H 700 - 100 - A	H 700 - 100 - C	100	3,94	285	11,22	185	7,28								1010	2271	1270	2855	181,0	11,04	1,51	3,33	-
H 700 - 125 - A	H 700 - 125 - C	125	4,92	335	13,19	210	8,27								1035	2327	1319	2965	213,0	12,99	1,68	3,70	-
H 700 - 160 - A	H 700 - 160 - C	160	6,30	405	15,94	245	9,65								1060	2383	1370	3080	257,0	15,68	1,92	4,23	-



## HOW TO ORDER

(10 pcs) H 700-050-C

(10 pcs) H 700-050-C-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



- see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

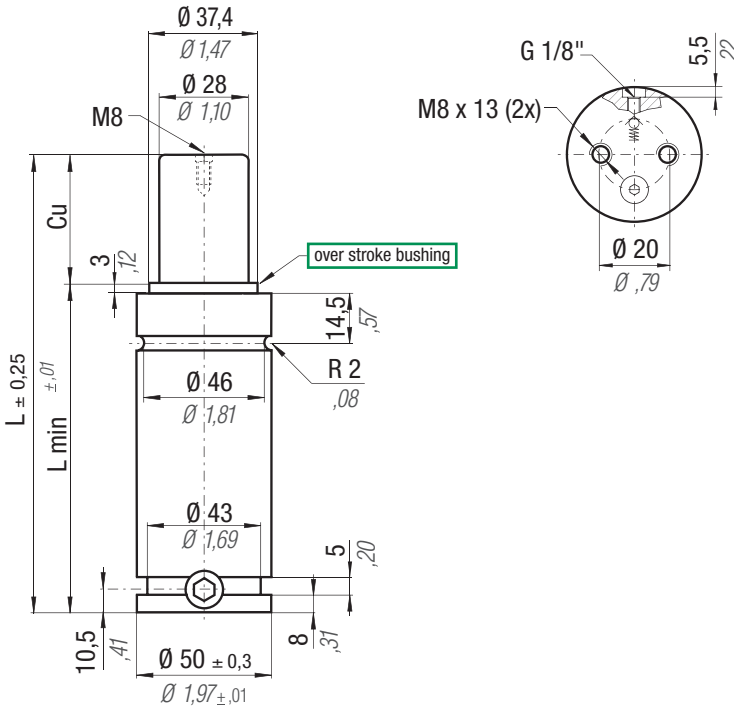
Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

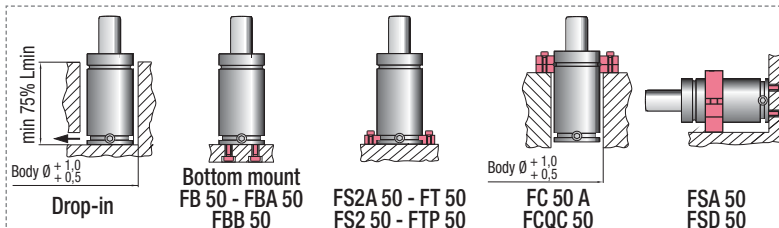
O novo código irá ser fornecido apenas quando o antigo esgotar stock



	<b>N<sub>2</sub></b>	<b>°F</b> 32 - 176	<b>°C</b> 0 - 80	<b>ΔP</b> ± 0,33 %/°C	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 6,15 cm <sup>2</sup> 0,953 in <sup>2</sup>	<b>SPM</b> ~ 15 ÷ 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV01000B Cu 13 ÷ 80 39BMH01000C Cu 100 ÷ 300
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CODE PHASING OUT from 01/2014	NEW	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> End force *		V <sub>0</sub>		~Kg		CE Cat.
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	-Kg	-lb	
H 1000 - 013 - A	H 1000 - 013 - C	13	0,50	120,7	4,74	107,7	4,24	920 2068  150 bar 2175 psi  ± 5% + 20 °C +68 °F		1023	2300	1135	2552	83,0	5,06	0,97	2,14	-
H 1000 - 025 - A	H 1000 - 025 - C	25	0,98	145	5,71	120	4,72			1088	2446	1252	2815	102,0	6,22	1,08	2,38	-
H 1000 - 038 - A	H 1000 - 038 - C	38	1,50	171	6,73	133	5,24			1142	2567	1352	3039	122,0	7,44	1,19	2,62	-
H 1000 - 050 - A	H 1000 - 050 - C	50	1,97	195	7,68	145	5,71			1181	2655	1426	3206	141,0	8,60	1,29	2,84	-
H 1000 - 063 - A	H 1000 - 063 - C	63	2,48	221	8,74	158	6,22			1215	2731	1492	3354	162,0	9,88	1,40	3,09	-
-	H 1000 - 075 - C	75	2,95	245	9,65	170	6,69			1241	2790	1542	3467	181,0	11,04	1,50	3,31	-
H 1000 - 080 - A	H 1000 - 080 - C	80	3,15	255	10,04	175	6,89			1251	2812	1561	3509	188,0	11,47	1,54	3,40	-
H 1000 - 100 - A	H 1000 - 100 - C	100	3,94	295	11,61	195	7,68			1265	2844	1589	3572	228,0	13,91	1,96	4,32	-
H 1000 - 125 - A	H 1000 - 125 - C	125	4,92	345	13,58	220	8,66			1297	2916	1653	3716	268,0	16,35	2,17	4,78	-
-	H 1000 - 150 - C	150	5,91	395	15,55	245	9,65			1438	3233	1945	4373	258,0	15,74	2,38	5,25	-
H 1000 - 160 - A	H 1000 - 160 - C	160	6,30	415	16,34	255	10,04			1442	3242	1955	4395	274,0	16,71	2,47	5,45	-
-	H 1000 - 175 - C	175	6,89	445	17,52	270	10,63			1448	3255	1967	4422	298,0	18,18	2,59	5,71	-
H 1000 - 200 - A	H 1000 - 200 - C	200	7,87	495	19,49	295	11,61			1456	3273	1984	4460	336,0	20,50	2,80	6,17	-
H 1000 - 250 - A	H 1000 - 250 - C	250	9,84	595	23,43	345	13,58			1467	3298	2009	4516	415,0	25,32	3,22	7,10	-
H 1000 - 300 - A	H 1000 - 300 - C	300	11,81	695	27,36	395	15,55			1475	3316	2026	4555	494,0	30,13	3,64	8,02	-

H  
HF



## HOW TO ORDER

(10 pcs) H 1000-050-C  
(10 pcs) H 1000-050-C-N

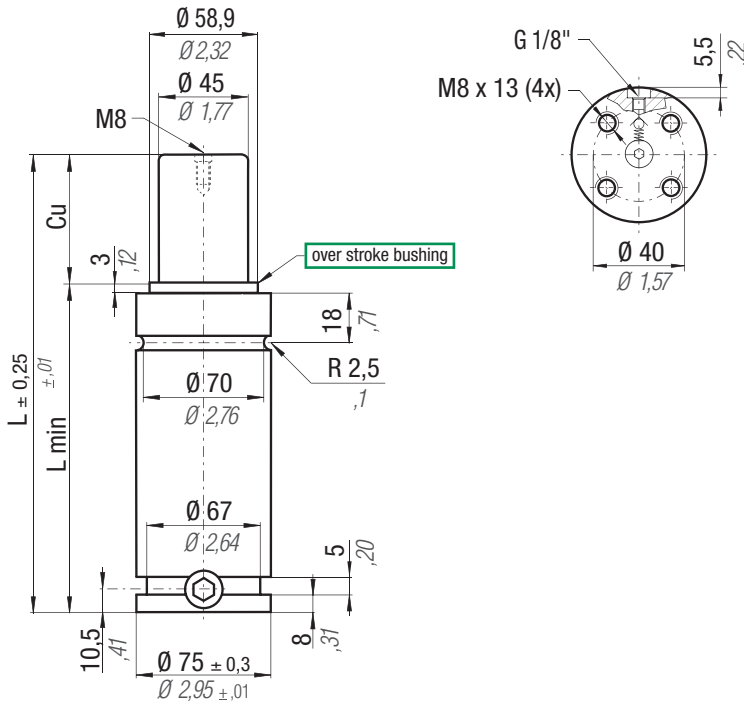
# H 2400

ISO 11901 - 4

VDI 3003 Blatt 4

B2 4008 (BMW)

39D 838 (VW)



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



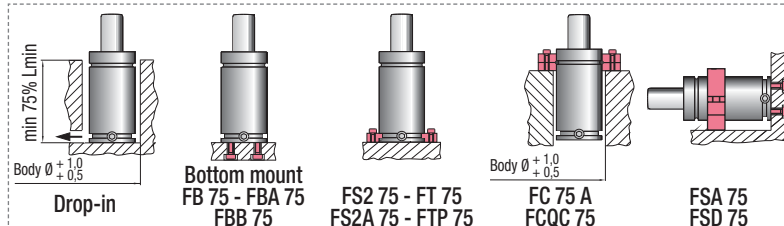
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$^{\circ}\text{F}$ 32 -176	$^{\circ}\text{C}$ 0 -80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 15,9 cm <sup>2</sup> 2,465 in <sup>2</sup>	<b>SPM</b> ~ 15 ÷ 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV02400B Cu 25 ÷ 80 39BMH02400C Cu 100 ÷ 300
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CODE PHASING OUT from 01/2014	NEW	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> End force *		V <sub>0</sub>		~Kg	~lb	CE Cat.	
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>				
H 2400 - 025 - A	H 2400 - 025 - C	25	0,98	160	6,30	135	5,31	2385	5362	2763	6211	3148	7077	291,0	17,75	2,50	5,51	-	
H 2400 - 038 - A	H 2400 - 038 - C	38	1,50	186	7,32	148	5,83			2895	6508	3389	7619	344,0	20,98	2,70	5,95	-	
H 2400 - 050 - A	H 2400 - 050 - C	50	1,97	210	8,27	160	6,30			2993	6729	3573	8032	392,0	23,91	2,90	6,39	-	
H 2400 - 063 - A	H 2400 - 063 - C	63	2,48	236	9,31	173	6,81			3080	6924	3739	8406	444,0	27,08	3,12	6,88	-	
-	H 2400 - 075 - C	75	2,95	260	10,24	185	7,28			3148	7077	3869	8698	493,0	30,07	3,31	7,30	-	
H 2400 - 080 - A	H 2400 - 080 - C	80	3,15	270	10,63	190	7,48			3173	7133	3918	8808	513,0	31,29	3,39	7,47	-	
H 2400 - 100 - A	H 2400 - 100 - C	100	3,94	310	12,20	210	8,27			150 bar	3578	8044	4738	10651	477,0	29,10	4,45	9,81	-
H 2400 - 125 - A	H 2400 - 125 - C	125	4,92	360	14,17	235	9,25			2175 psi	3637	8176	4861	10928	578,0	35,26	4,86	10,71	-
-	H 2400 - 150 - C	150	5,91	410	16,14	260	10,24			$\pm 5\%$ $+20^{\circ}\text{C} +68^{\circ}\text{F}$	3679	8271	4951	11130	679,0	41,42	5,27	11,62	-
H 2400 - 160 - A	H 2400 - 160 - C	160	6,30	430	16,93	270	10,63				3693	8302	4981	11198	719,0	43,86	5,43	11,97	-
-	H 2400 - 175 - C	175	6,89	460	18,11	285	11,22	3711	8343	5020	11285	779,0	47,52	5,68	12,52	-			
H 2400 - 200 - A	H 2400 - 200 - C	200	7,87	510	20,08	310	12,20	3737	8401	5074	11407	880,0	53,68	6,08	13,40	-			
H 2400 - 250 - A	H 2400 - 250 - C	250	9,84	610	24,02	360	14,17	3774	8484	5153	11584	1081,0	65,94	6,90	15,21	I			
H 2400 - 300 - A	H 2400 - 300 - C	300	11,81	710	27,95	410	16,14	3799	8540	5209	11710	1282,0	78,20	7,72	17,02	II			



## HOW TO ORDER

(10 pcs) H 2400-050-C

(10 pcs) H 2400-050-C-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** - see page 237  
MANIFOLD

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

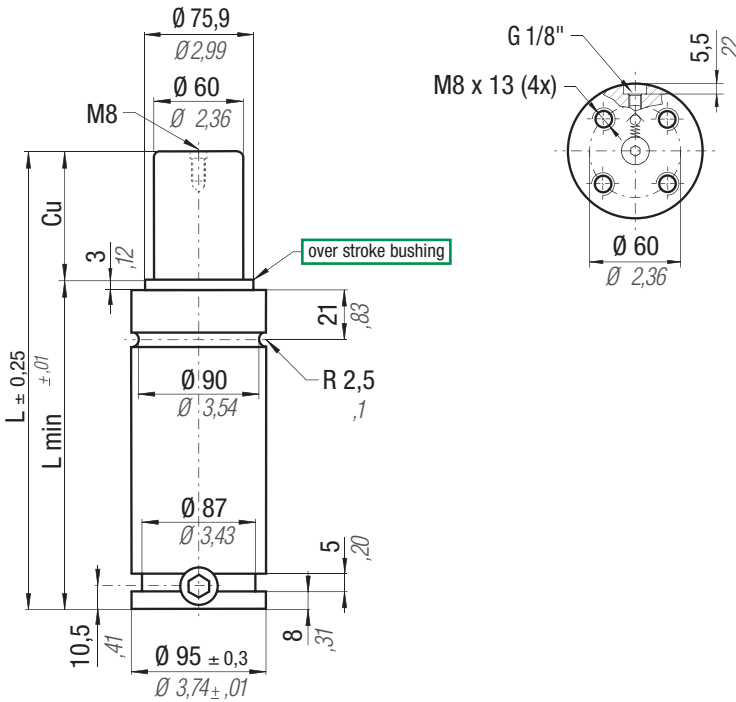
Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

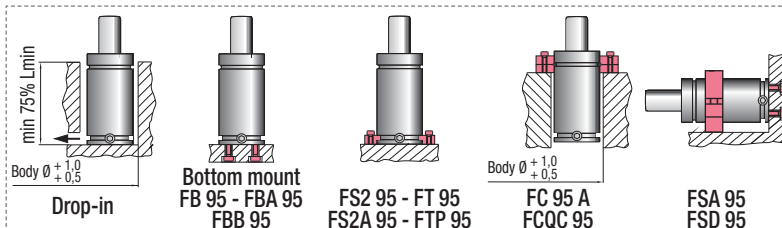
El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock



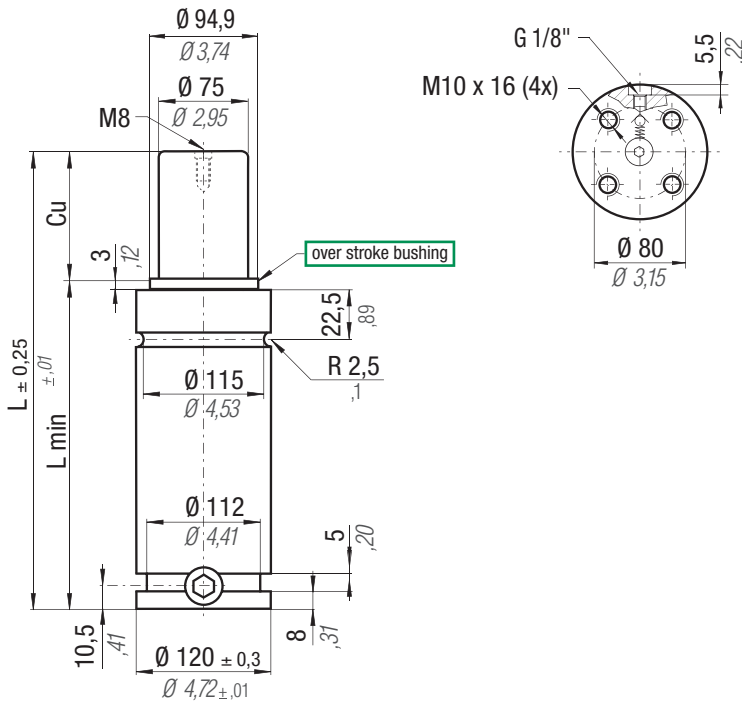
	<b>N<sub>2</sub></b>	<b>°F</b> 32 - 176	<b>°C</b> 0 - 80	<b>ΔP</b> ± 0,33 %/°C	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 28,27 cm <sup>2</sup> 4,382 in <sup>2</sup>	<b>SPM</b> ~ 15 ÷ 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV04200B Cu 25 ÷ 80 39BMH04200C Cu 100 ÷ 300
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CODE		Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub> *		V <sub>0</sub>		CE		
PHASING OUT	NEW	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
H 4200 - 025 - A	H 4200 - 025 - C	25	0,98	170	6,69	145	5,71	4240 9532	150 bar 2175 psi	4902	11020	5581	12547	524,0	31,96	4,29	9,46	-
H 4200 - 038 - A	H 4200 - 038 - C	38	1,50	196	7,72	158	6,22			5144	11564	6022	13538	612,0	37,33	4,62	10,19	-
H 4200 - 050 - A	H 4200 - 050 - C	50	1,97	220	8,66	170	6,69			5328	11978	6365	14309	693,0	42,27	4,93	10,87	-
H 4200 - 063 - A	H 4200 - 063 - C	63	2,48	246	9,70	183	7,20			5494	12351	6682	15022	781,0	47,64	5,27	11,62	-
-	H 4200 - 075 - C	75	2,95	270	10,63	195	7,68			5625	12646	6935	15591	862,0	52,58	5,57	12,28	-
H 4200 - 080 - A	H 4200 - 080 - C	80	3,15	280	11,02	200	7,87			5674	12756	7030	15804	896,0	54,66	5,70	12,57	-
H 4200 - 100 - A	H 4200 - 100 - C	100	3,94	320	12,60	220	8,66			6588	14810	8903	20015	794,0	48,43	7,80	17,20	-
H 4200 - 125 - A	H 4200 - 125 - C	125	4,92	370	14,57	245	9,65			6723	15114	9193	20667	957,0	58,38	8,50	18,74	-
-	H 4200 - 150 - C	150	5,91	420	16,54	270	10,63			6822	15336	9408	21150	1121,0	68,38	9,17	20,22	I
H 4200 - 160 - A	H 4200 - 160 - C	160	6,30	440	17,32	280	11,02			6855	15411	9479	21310	1187,0	72,41	9,45	20,83	I
-	H 4200 - 175 - C	175	6,89	470	18,50	295	11,61			6898	15507	9573	21521	1284,0	78,32	9,86	21,74	II
H 4200 - 200 - A	H 4200 - 200 - C	200	7,87	520	20,47	320	12,60			6958	15642	9704	21815	1448,0	88,33	10,55	23,26	II
H 4200 - 250 - A	H 4200 - 250 - C	250	9,84	620	24,41	370	14,57			7046	15840	9899	22254	1776,0	108,34	11,92	26,28	II
H 4200 - 300 - A	H 4200 - 300 - C	300	11,81	720	28,35	420	16,54			7108	15979	10038	22566	2103,0	128,28	13,29	29,30	II



## HOW TO ORDER

(10 pcs) H 4200-050-C  
(10 pcs) H 4200-050-C-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



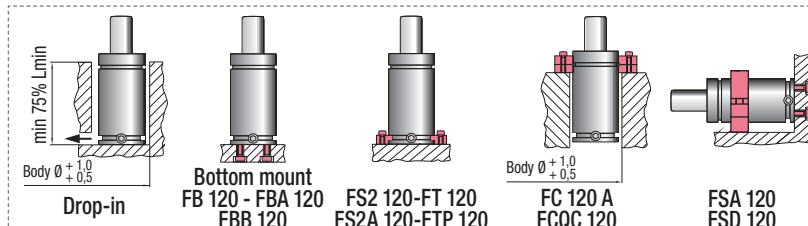
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$^{\circ}\text{F}$ 32 -176	$^{\circ}\text{C}$ 0 -80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 44,18 cm <sup>2</sup> 6,848 in <sup>2</sup>	<b>SPM</b> ~ 15 ÷ 100 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMRV06600B Cu 25 ÷ 80 39BMH06600C Cu 100 ÷ 300
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CODE PHASING OUT from 01/2014	NEW	Cu		L		L min		F0		F <sub>1i</sub>		F <sub>1p</sub>		V0		~Kg	~lb	CE Cat.																																																												
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>																																																															
H 6600 - 025 - A	H 6600 - 025 - C	25	0,98	190	7,48	165	6,50	6630 14904  150 bar 2175 psi  $\pm 5\%$ $+20^{\circ}\text{C} +68^{\circ}\text{F}$	7573 17025	8564 19253	884,0 53,92	8,07 17,79	-																																																																	
H 6600 - 038 - A	H 6600 - 038 - C	38	1,50	216	8,50	178	7,01							7927 17821	9206 20696	1023,0 62,40	8,60 18,96	I																																																												
H 6600 - 050 - A	H 6600 - 050 - C	50	1,97	240	9,45	190	7,48												8200 18434	9711 21831	1151,0 70,21	9,06 19,97	I																																																							
H 6600 - 063 - A	H 6600 - 063 - C	63	2,48	266	10,47	203	7,99																	8450 18996	10182 22890	1290,0 78,69	9,66 21,30	II																																																		
-	H 6600 - 075 - C	75	2,95	290	11,42	215	8,46																						8647 19439	10560 23740	1418,0 86,50	10,11 22,29	II																																													
H 6600 - 080 - A	H 6600 - 080 - C	80	3,15	300	11,81	220	8,66																											8721 19606	10704 24064	1472,0 89,79	10,31 22,73	II																																								
H 6600 - 100 - A	H 6600 - 100 - C	100	3,94	340	13,39	240	9,45																																9859 22164	12994 29212	1347,0 82,17	13,44 29,63	II																																			
H 6600 - 125 - A	H 6600 - 125 - C	125	4,92	390	15,35	265	10,43																																					10072 22643	13439 30212	1615,0 98,52	14,46 31,88	II																														
-	H 6600 - 150 - C	150	5,91	440	17,32	290	11,42																																										10230 22998	13773 30963	1882,0 114,80	15,48 34,13	II																									
H 6600 - 160 - A	H 6600 - 160 - C	160	6,30	460	18,11	300	11,81																																															10282 23115	13885 31215	1988,0 121,27	15,89 35,03	II																				
-	H 6600 - 175 - C	175	6,89	490	19,29	315	12,40																																																				10352 23272	14034 31550	2149,0 131,09	16,5 36,38	II															
H 6600 - 200 - A	H 6600 - 200 - C	200	7,87	540	21,26	340	13,39																																																									10449 23490	14242 32017	2416,0 147,38	17,53 38,65	II										
H 6600 - 250 - A	H 6600 - 250 - C	250	9,84	640	25,20	390	15,35																																																														10593 23814	14555 32721	2950,0 179,95	19,57 43,14	II					
H 6600 - 300 - A	H 6600 - 300 - C	300	11,81	740	29,13	440	17,32																																																																			10696 24046	14778 33222	3484,0 212,52	21,72 47,88	II



## HOW TO ORDER

(10 pcs) H 6600-050-C  
(10 pcs) H 6600-050-C-N



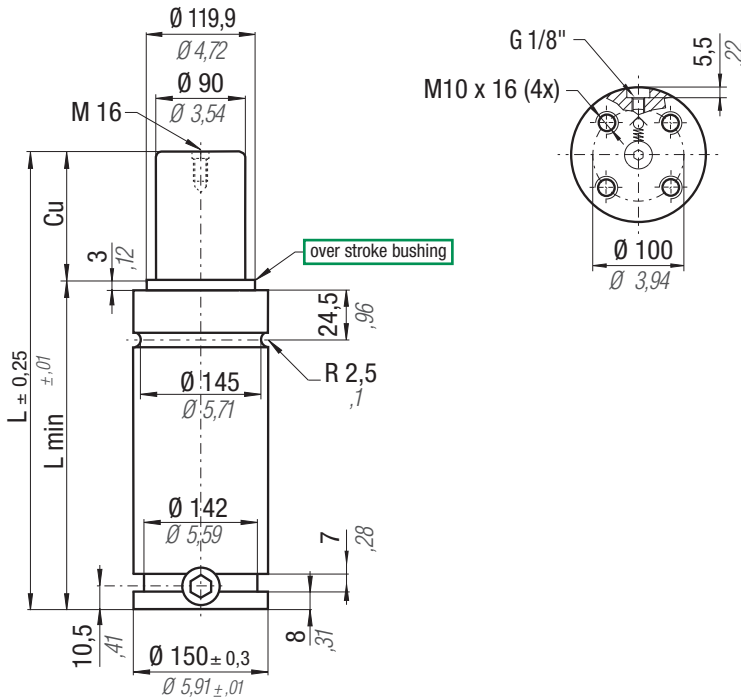


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

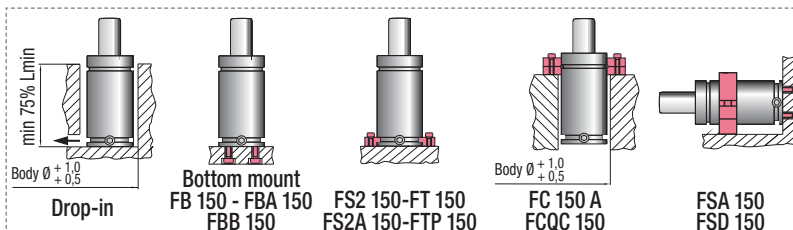
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easyl** MANIFOLD - see page 237



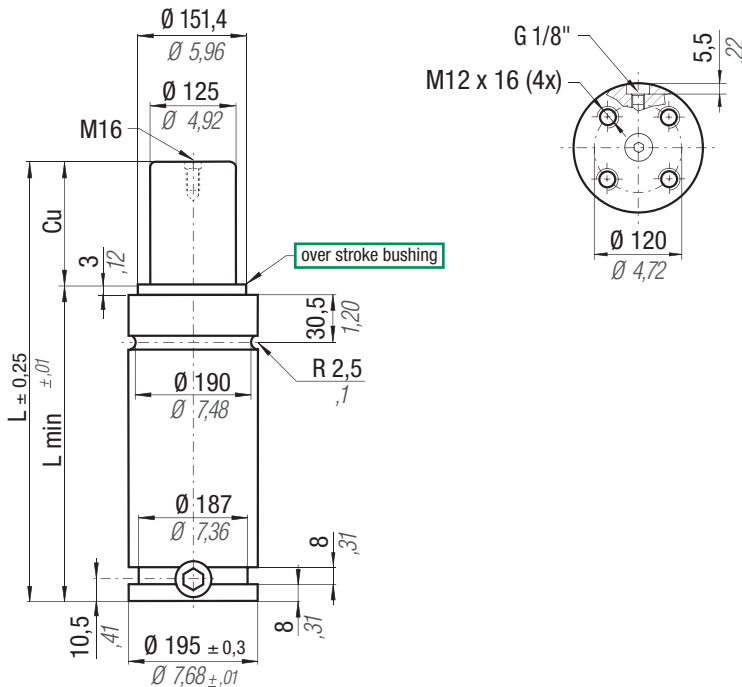
	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta P$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 63,62 cm <sup>2</sup> 9,861 in <sup>2</sup>	<b>SPM</b> ~ 15 ÷ 80 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMH09500C
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CODE	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub> **		V <sub>0</sub>		~Kg		Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	-Kg	-lb	
H 9500 - 025 - C	25	0,98	205	8,07	180	7,09	9540 21446  150 bar 2175 psi  $\pm 5\%$ $+ 20\text{ }^{\circ}\text{C} + 68\text{ }^{\circ}\text{F}$		11654	26199	13698	30794	878,0	53,56	18,13	39,97	-
H 9500 - 038 - C	38	1,50	231	9,09	193	7,60			12271	27586	14860	33407	1087,0	66,31	18,95	41,78	I
H 9500 - 050 - C	50	1,97	255	10,04	205	8,07			12696	28542	15681	35252	1281,0	78,14	19,72	43,48	I
H 9500 - 063 - C	63	2,48	281	11,06	218	8,58			13053	29344	16384	36833	1490,0	90,89	20,55	45,30	II
H 9500 - 075 - C	75	2,95	305	12,01	230	9,06			13316	29936	16909	38013	1684,0	102,72	21,31	46,98	II
H 9500 - 080 - C	80	3,15	315	12,40	235	9,25			13411	30149	17100	38442	1764,0	107,60	21,63	47,69	II
H 9500 - 100 - C	100	3,94	355	13,98	255	10,04			13728	30862	17742	39886	2087,0	127,31	22,90	50,49	II
H 9500 - 125 - C	125	4,92	405	15,94	280	11,02			14021	31520	18344	41239	2490,0	151,89	24,50	54,01	II
H 9500 - 150 - C	150	5,91	455	17,91	305	12,01			14240	32013	18800	42264	2893,0	176,47	26,08	57,50	II
H 9500 - 160 - C	160	6,30	475	18,70	315	12,40			14313	32177	18952	42606	3054,0	186,29	26,72	58,91	II
H 9500 - 175 - C	175	6,89	505	19,88	330	12,99			14410	32395	19156	43064	3296,0	201,06	27,67	61,00	II
H 9500 - 200 - C	200	7,87	555	21,85	355	13,98			14546	32701	19443	43710	3699,0	225,64	29,27	64,53	II
H 9500 - 250 - C	250	9,84	655	25,79	405	15,94			14750	33159	19875	44681	4505,0	274,81	32,45	71,54	II
H 9500 - 300 - C	300	11,81	755	29,72	455	17,91			14895	33485	20185	45378	5311,0	323,97	35,63	78,55	III

 H  
HF


## HOW TO ORDER

(10 pcs) H 9500-050-C  
(10 pcs) H 9500-050-C-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



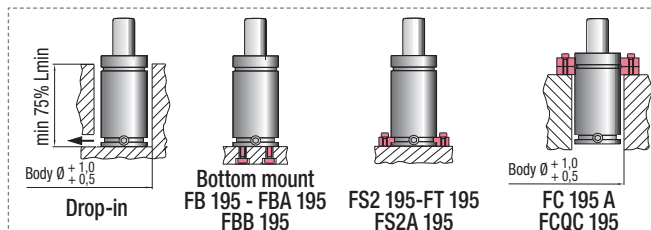
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolué

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta P$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 122,7 cm <sup>2</sup> 19,019 in <sup>2</sup>	<b>SPM</b> ~ 10 ÷ 70 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMH18500C
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CODE		Cu	L		L min		F0		F1i		F1p		Vo		Kg	lb	Cat.
PHASING OUT from 01/2014	NEW		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb			
H 18500 - 025 - A	H 18500 - 025 - C	25	0,98	210	8,27	185	7,28	18400 41363 150 bar 2175 psi $\pm 5\%$ $+ 20^{\circ}\text{C} + 68^{\circ}\text{F}$	23062	51845	27510	61845	1520,0	92,72	31,16	68,70	II
H 18500 - 038 - A	H 18500 - 038 - C	38	1,50	236	9,29	198	7,80		24464	54997	30199	67890	1884,0	114,92	32,63	71,94	II
H 18500 - 050 - A	H 18500 - 050 - C	50	1,97	260	10,24	210	8,27		25442	57196	32129	72229	2219,0	135,36	34,00	74,96	II
H 18500 - 063 - A	H 18500 - 063 - C	63	2,50	286	11,30	223	8,80		26212	58927	33678	75711	2597,0	158,42	35,52	78,31	II
H 18500 - 080 - A	H 18500 - 080 - C	80	3,15	320	12,60	240	9,45		27112	60950	35522	79857	3058,0	186,54	37,39	82,43	II
H 18500 - 100 - A	H 18500 - 100 - C	100	3,94	360	14,17	260	10,24		27860	62632	37082	83364	3617,0	220,64	39,66	87,44	II
H 18500 - 125 - A	H 18500 - 125 - C	125	4,92	410	16,14	285	11,22		28557	64199	38560	86686	4316,0	263,28	42,49	93,67	II
H 18500 - 160 - A	H 18500 - 160 - C	160	6,30	480	18,90	320	12,60		29257	65772	40065	90070	5295,0	323,00	46,45	102,40	III
H 18500 - 200 - A	H 18500 - 200 - C	200	7,87	560	22,05	360	14,17		29820	67038	41289	92821	6413,0	391,19	50,98	112,39	III
H 18500 - 250 - A	H 18500 - 250 - C	250	9,84	660	25,98	410	16,14		30314	68149	42374	95261	7811,0	476,47	56,64	124,87	III
H 18500 - 300 - A	H 18500 - 300 - C	300	11,81	760	29,92	460	18,11	30513	68596	42815	96252	9280,0	566,08	62,30	137,35	III	



## HOW TO ORDER

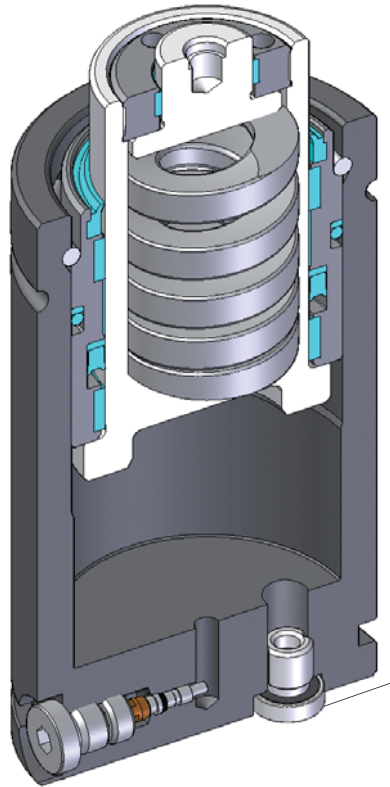
(10 pcs) H 18500-050-C  
(10 pcs) H 18500-050-C-N



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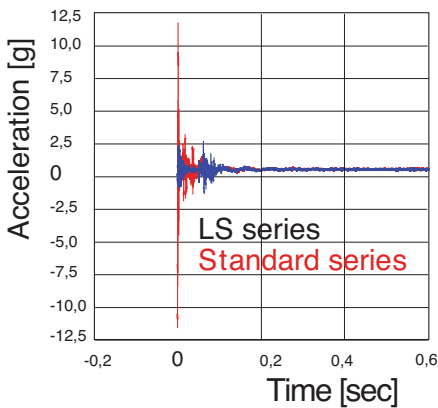
**- 55 %  
noise**

**- 50 %  
vibrations**

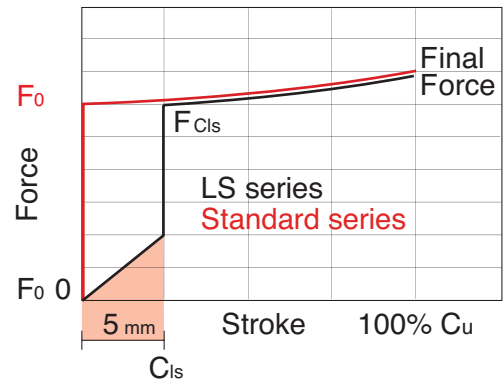


**Over  
Pressure  
Active  
Safety**

### INITIAL IMPACT VIBRATIONS



### FORCE CURVE



### Range chart

Model	Body Ø		Stroke Cu		Initial force F <sub>0</sub>		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
LS 1500	75	2,95	25 - 300	0,98 - 11,81	1590	3574	-	-	✓	-
LS 2400	75	2,95	25 - 300	0,98 - 11,81	2385	5362	-	-	✓	-
LS 3000	95	3,74	25 - 300	0,98 - 11,81	2830	6362	-	-	✓	-
LS 4200	95	3,74	25 - 300	0,98 - 11,81	4240	9532	-	-	✓	-
LS 5000	120	4,72	25 - 300	0,98 - 11,81	4418	9932	-	-	✓	-
LS 6600	120	4,72	25 - 300	0,98 - 11,81	6630	14905	-	-	✓	-
LS 7500	150	5,91	25 - 300	0,98 - 11,81	7630	17152	-	-	✓	-
LS 9500	150	5,91	25 - 300	0,98 - 11,81	9540	21446	-	-	✓	-



**How  
to  
Order**

## LS 2400-050-A - N

Codice cilindro autonomo  
Self-contained cylinder code  
Kode des eingeständigen Gdf.  
Code du cylindre autonome  
Codigo del cilindro autónomo  
Codigo do cilindro autónomo

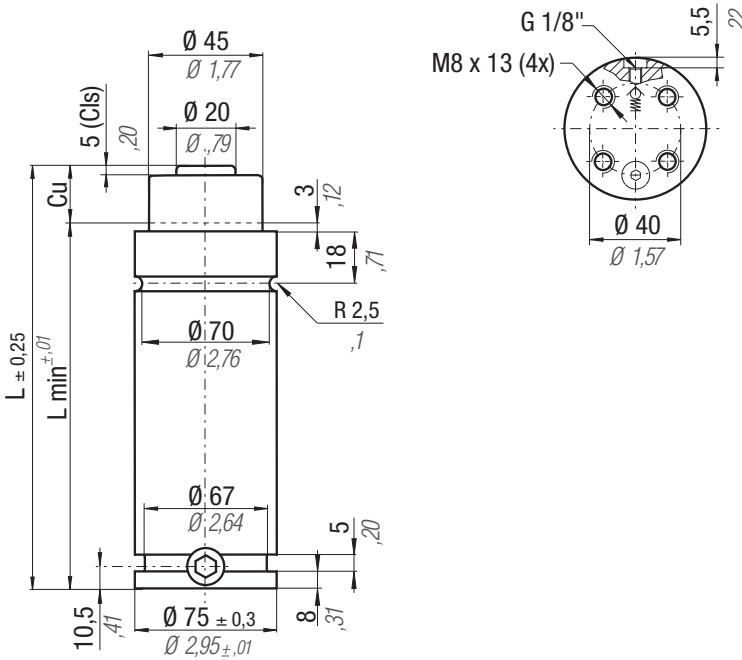
Collegabile con tubi, fornito scarico e senza valvola unidirezionale  
Linkable with hoses, supplied without pressure and oneway valve  
Anschlussfähig mit Leitungen, geliefert ohne Druck und RückschlagVentil  
Connectable avec tubes, fourni sans pression ni valve unidirectionelle  
Connectable con tubos, suministrado sin presión y sin válvula unidireccional  
Acompláveis com tubos, fornecidos sem pressão e sem válvula unidireccional



**Info**

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

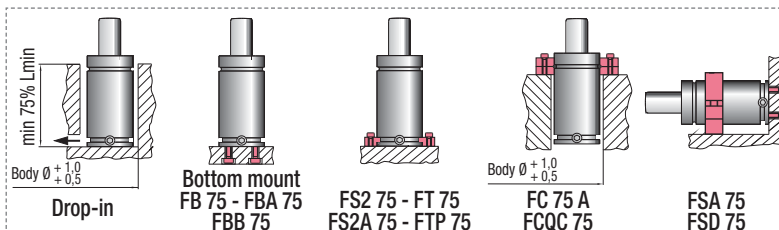
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta P$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 100 bar 1450 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 15,9 cm <sup>2</sup> 2,465 in <sup>2</sup>	<b>SPM</b> ~ 15 - 60 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMLS01500A
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CODE	Cu		L		L min		F <sub>0</sub> Initial force		F Cls		F <sub>1i</sub> * End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		~Kg ~lb		Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
LS 1500 - 025 - A	25	0,98	160	6,30	135	5,31	0	0	1590	3574	2300	5171	3047	6850	126,0	7,69	3,71	8,18	-
LS 1500 - 038 - A	38	1,50	186	7,32	148	5,83	0	0	1590	3574	2425	5452	3314	7450	174,0	10,62	3,79	8,36	-
LS 1500 - 050 - A	50	1,97	210	8,27	160	6,30	0	0	1590	3574	2499	5618	3476	7814	218,0	13,30	3,89	8,58	-
LS 1500 - 063 - A	63,5	2,50	237	9,33	173,5	6,83	100 bar	1450 psi	100 bar	1450 psi	2555	5744	3600	8093	268,0	16,35	4,48	9,88	-
LS 1500 - 080 - A	80	3,15	270	10,63	190	7,48	100 bar	1450 psi	100 bar	1450 psi	2607	5861	3715	8352	329,0	20,08	4,73	10,43	-
LS 1500 - 100 - A	100	3,94	310	12,20	210	8,27	100 bar	1450 psi	100 bar	1450 psi	2648	5953	3809	8563	403,0	24,59	4,89	10,78	-
LS 1500 - 125 - A	125	4,92	360	14,17	235	9,25	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	2684	6034	3891	8747	495,0	30,21	5,57	12,28	-
LS 1500 - 160 - A	160	6,30	430	16,93	270	10,63	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	2718	6110	3968	8920	624,0	38,08	6,33	13,96	-
LS 1500 - 200 - A	200	7,87	510	20,08	310	12,20	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	2743	6167	4026	9051	771,0	47,05	7,19	15,85	-
LS 1500 - 250 - A	250	9,84	610	24,02	360	14,17	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	2764	6214	4075	9161	955,0	58,28	9,19	20,26	-
LS 1500 - 300 - A	300	11,81	710	27,95	410	16,14	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	2778	6245	4108	9235	1139,0	69,51	11,04	24,34	I

LS

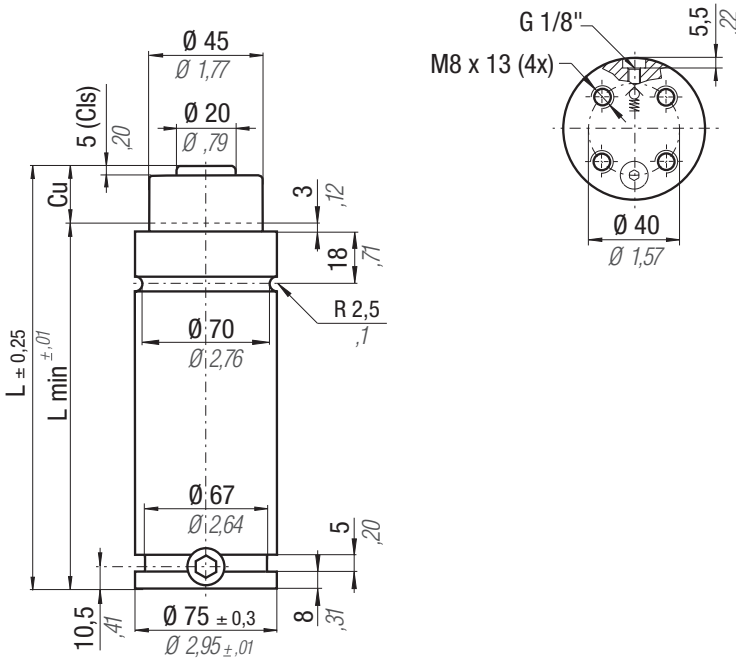


**HOW TO ORDER**

(10 pcs) LS 1500-050-A  
(10 pcs) LS 1500-050-A-N

# LS 2400

- 50% VIBRATIONS  
- 55% NOISE

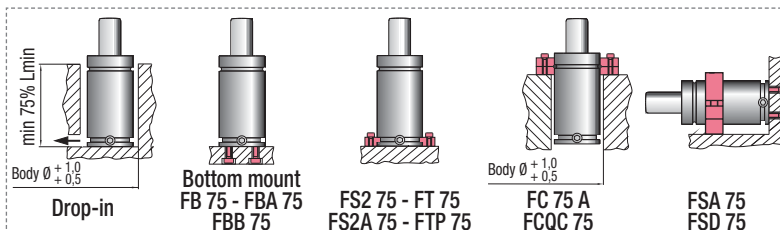


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	$\Delta P$ $\pm 0,33\%/^{\circ}C$	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 15,9 cm <sup>2</sup> 2,465 in <sup>2</sup>	SPM ~ 15 - 60 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMLS01500A	Cu		L		L min		F <sub>0</sub>		F CIs		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		Kg		lb		Cat.
											mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	-Kg	-lb			
LS 2400 - 025 - A											25	0,98	160	6,30	135	5,31	0	0	2385	5362	3449	7754	4471	10051	126,0	7,69	3,71	8,18	-		
LS 2400 - 038 - A											38	1,50	186	7,32	148	5,83					3638	8177	4863	10932	174,0	10,62	3,79	8,36	-		
LS 2400 - 050 - A											50	1,97	210	8,27	160	6,30					3749	8428	5100	11465	218,0	13,30	3,89	8,58	-		
LS 2400 - 063 - A											63,5	2,50	237	9,33	173,5	6,83					3833	8617	5282	11875	268,0	16,35	4,48	9,88	-		
LS 2400 - 080 - A											80	3,15	270	10,63	190	7,48	150 bar	2175 psi	150 bar	2175 psi	3910	8790	5451	12253	329,0	20,08	4,73	10,43	-		
LS 2400 - 100 - A											100	3,94	310	12,20	210	8,27					3973	8931	5589	12564	403,0	24,59	4,89	10,78	-		
LS 2400 - 125 - A											125	4,92	360	14,17	235	9,25	$\pm 5\%$	$+ 20^{\circ}C + 68^{\circ}F$	$\pm 5\%$	$+ 20^{\circ}C + 68^{\circ}F$	4026	9052	5709	12834	495,0	30,21	5,57	12,28	-		
LS 2400 - 160 - A											160	6,30	430	16,93	270	10,63					4077	9164	5822	13088	624,0	38,08	6,33	13,96	-		
LS 2400 - 200 - A											200	7,87	510	20,08	310	12,20					4114	9249	5907	13280	771,0	47,05	7,19	15,85	-		
LS 2400 - 250 - A											250	9,84	610	24,02	360	14,17					4146	9320	5979	13441	955,0	58,28	9,19	20,26	-		
LS 2400 - 300 - A											300	11,81	710	27,95	410	16,14					4167	9369	6028	13551	1139,0	69,51	11,04	24,34	I		



## HOW TO ORDER

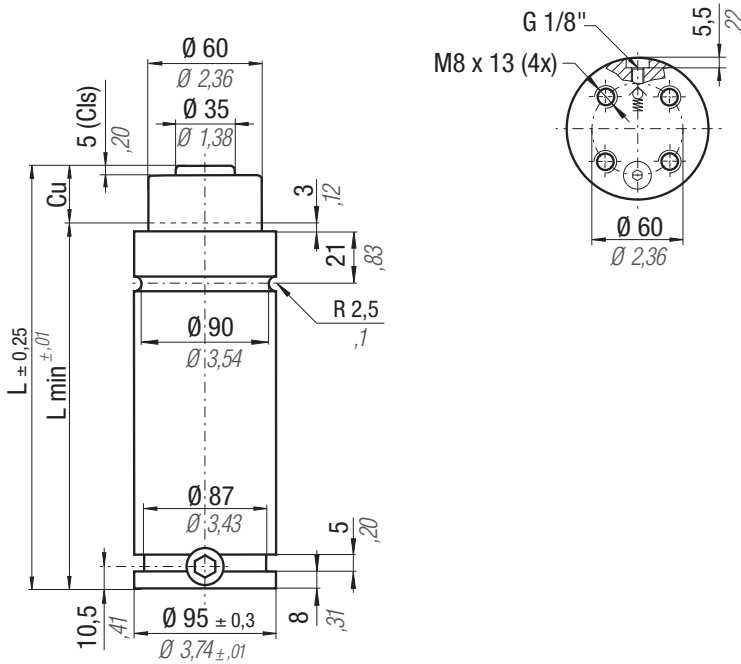
(10 pcs) LS 2400-050-A  
(10 pcs) LS 2400-050-A-N



**Info**

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

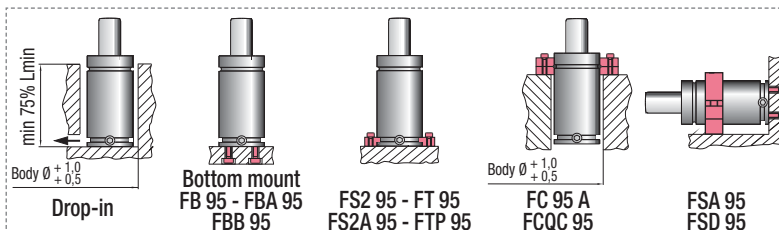
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



	$^{\circ}F$ 32 176	$^{\circ}C$ 0 80	$\Delta P$ $\pm 0,33\%/^{\circ}C$	<b>P max</b> 100 bar 1450 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 28,27 cm <sup>2</sup> 4,382 in <sup>2</sup>	<b>SPM</b> ~ 15 - 60 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMLS03000A
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CODE	Cu		L		L min		F0 Initial force		F Cls		F1 <sub>i</sub> * End force *		F1 <sub>p</sub> ** End force **		Vo		~Kg	~lb	Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
LS 3000 - 025 - A	25	0,98	170	6,69	145	5,71	0	0	2830	6362	4046	9097	5330	11983	195,0	11,90	5,69	12,54	-
LS 3000 - 038 - A	38	1,50	196	7,72	158	6,22	0	0	2830	6362	4339	9755	5952	13381	274,0	16,72	6,48	14,29	-
LS 3000 - 050 - A	50	1,97	220	8,66	170	6,69	0	0	2830	6362	4527	10178	6365	14310	347,0	21,17	6,77	14,93	-
LS 3000 - 063 - A	63,5	2,50	247	9,72	183,5	7,22	100 bar	1450 psi	100 bar	1450 psi	4678	10517	6703	15070	429,0	26,18	6,84	15,08	-
LS 3000 - 080 - A	80	3,15	280	11,02	200	7,87	100 bar	1450 psi	100 bar	1450 psi	4823	10842	7033	15812	529,0	32,28	7,23	15,94	-
LS 3000 - 100 - A	100	3,94	320	12,60	220	8,66	± 5%		± 5%		4945	11117	7318	16452	650,0	39,66	7,95	17,53	-
LS 3000 - 125 - A	125	4,92	370	14,57	245	9,65	+ 20 °C +68 °F		+ 20 °C +68 °F		5055	11364	7576	17031	801,0	48,88	9,58	21,12	-
LS 3000 - 160 - A	160	6,30	440	17,32	280	11,02					5160	11601	7827	17596	1013,0	61,82	10,89	24,01	I
LS 3000 - 200 - A	200	7,87	520	20,47	320	12,60					5242	11784	8024	18038	1256,0	76,64	11,03	24,32	I
LS 3000 - 250 - A	250	9,84	620	24,41	370	14,57					5312	11941	8193	18418	1559,0	95,13	12,06	26,59	I
LS 3000 - 300 - A	300	11,81	720	28,35	420	16,54					5360	12050	8312	18685	1859,0	113,44	13,02	28,70	I

LS

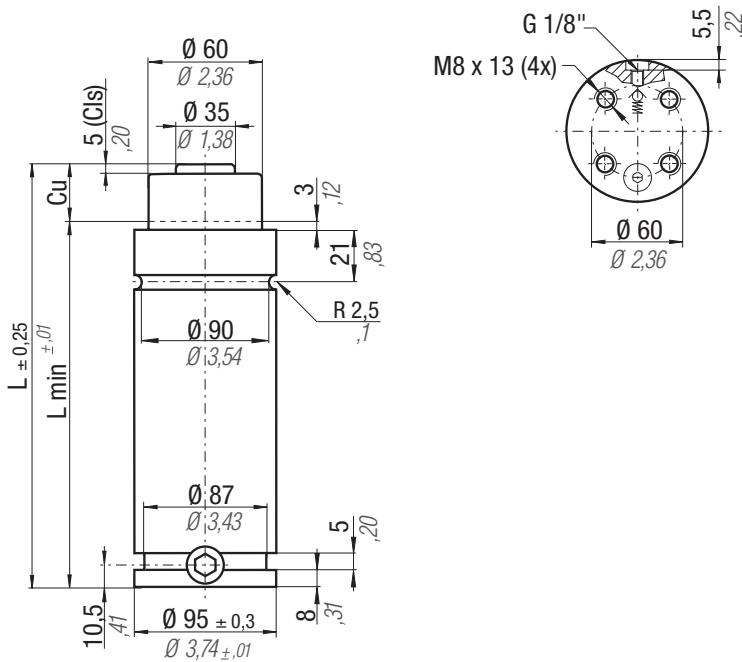


**HOW TO ORDER**

(10 pcs) LS 3000-050-A  
(10 pcs) LS 3000-050-A-N

# LS 4200

- 50% VIBRATIONS  
- 55% NOISE

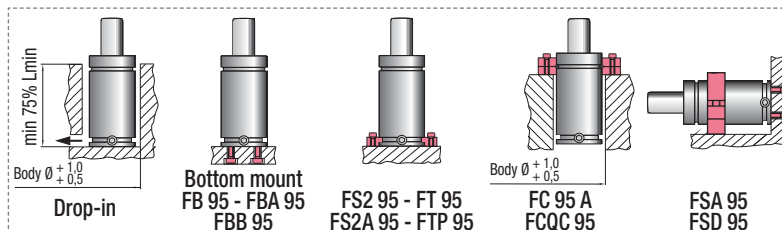


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

N <sub>2</sub>		°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 28,27 cm <sup>2</sup> 4,382 in <sup>2</sup>	SPM ~ 15 - 60 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMLS03000A
CODE	Cu	L	L min	F <sub>0</sub>	F Cls	F <sub>1i</sub>	F <sub>1p</sub>	V <sub>0</sub>	CE	
	mm inch	mm inch	mm inch	Initial force daN lb	daN lb	End force * daN lb	End force ** daN lb	cm <sup>3</sup> in <sup>3</sup>	~Kg ~lb	Cat.
LS 4200 - 025 - A	25 0,98	170 6,69	145 5,71	0 0	4240 9532	6070 13645	7821 17583	195,0 11,90	5,69 12,54	-
LS 4200 - 038 - A	38 1,50	196 7,72	158 6,22	0 0	4240 9532	6509 14632	8733 19633	274,0 16,72	6,48 14,29	-
LS 4200 - 050 - A	50 1,97	220 8,66	170 6,69	0 0	4240 9532	6791 15267	9340 20997	347,0 21,17	6,77 14,93	-
LS 4200 - 063 - A	63,5 2,50	247 9,72	183,5 7,22	150 bar 2175 psi	150 bar 2175 psi	7017 15775	9836 22112	429,0 26,18	6,84 15,08	-
LS 4200 - 080 - A	80 3,15	280 11,02	200 7,87	150 bar 2175 psi	150 bar 2175 psi	7234 16263	10320 23201	529,0 32,28	7,23 15,94	-
LS 4200 - 100 - A	100 3,94	320 12,60	220 8,66	± 5% + 20 °C +68 °F	± 5% + 20 °C +68 °F	7418 16676	10738 24139	650,0 39,66	7,95 17,53	-
LS 4200 - 125 - A	125 4,92	370 14,57	245 9,65	± 5% + 20 °C +68 °F	± 5% + 20 °C +68 °F	7582 17045	11116 24989	801,0 48,88	9,58 21,12	-
LS 4200 - 160 - A	160 6,30	440 17,32	280 11,02	± 5% + 20 °C +68 °F	± 5% + 20 °C +68 °F	7740 17401	11485 25818	1013,0 61,82	10,89 24,01	I
LS 4200 - 200 - A	200 7,87	520 20,47	320 12,60	± 5% + 20 °C +68 °F	± 5% + 20 °C +68 °F	7863 17677	11773 26467	1256,0 76,64	11,03 24,32	I
LS 4200 - 250 - A	250 9,84	620 24,41	370 14,57	± 5% + 20 °C +68 °F	± 5% + 20 °C +68 °F	7967 17911	12021 27025	1559,0 95,13	12,06 26,59	II
LS 4200 - 300 - A	300 11,81	720 28,35	420 16,54	± 5% + 20 °C +68 °F	± 5% + 20 °C +68 °F	8040 18076	12196 27417	1859,0 113,44	13,02 28,70	II



## HOW TO ORDER

(10 pcs) LS 4200-050-A  
(10 pcs) LS 4200-050-A-N

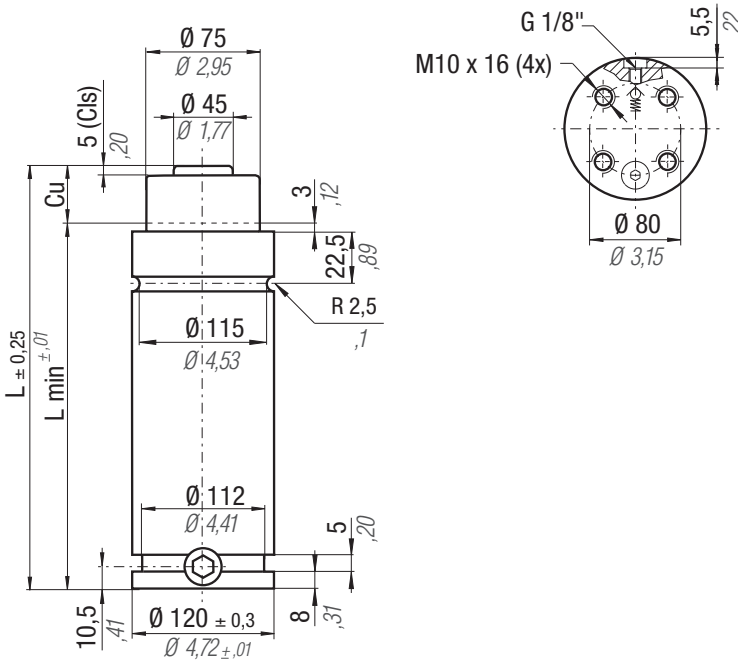




**Info**

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

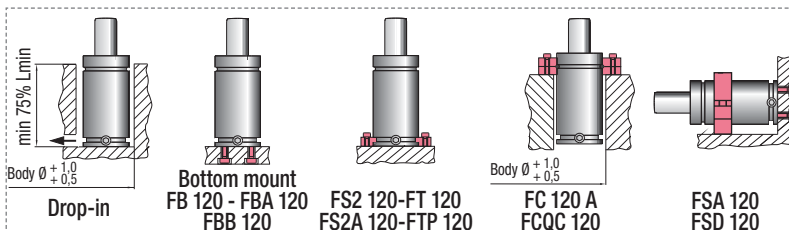
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



	$^{\circ}F$ 32 176	$^{\circ}C$ 0 80	$\Delta P$ $\pm 0,33 \% / ^{\circ}C$	<b>P max</b> 100 bar 1450 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 44,18 cm <sup>2</sup> 6,848 in <sup>2</sup>	<b>SPM</b> ~ 15 - 60 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMLS05000A
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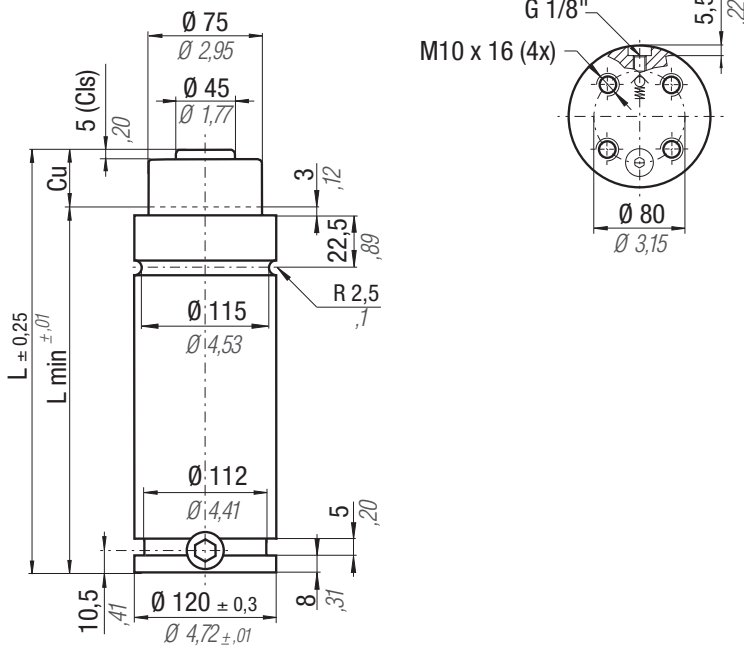
CODE	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>Cls</sub>		F <sub>1i</sub> * End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		~Kg	~lb	Cat.
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
LS 5000 - 025 - A	25	0,98	190	7,48	165	6,50	0	0	4418	9932	6433	14461	8559	19241	353,0	21,54	10,60	23,37	-
LS 5000 - 038 - A	38	1,50	216	8,50	178	7,01					6886	15480	9531	21427	471,0	28,74	12,00	26,46	-
LS 5000 - 050 - A	50	1,97	240	9,45	190	7,48					7172	16123	10164	22850	580,0	35,39	13,20	29,10	-
LS 5000 - 063 - A	63,5	2,50	267	10,51	203,5	8,01					7398	16631	10674	23997	697,0	42,53	13,60	29,98	-
LS 5000 - 080 - A	80	3,15	300	11,81	220	8,66					7612	17112	11166	25102	851,0	51,93	14,10	31,09	-
LS 5000 - 100 - A	100	3,94	340	13,39	240	9,45					7791	17515	11585	26044	1032,0	62,98	15,40	33,95	I
LS 5000 - 125 - A	125	4,92	390	15,35	265	10,43					7950	17872	11960	26887	1259,0	76,83	16,90	37,26	I
LS 5000 - 160 - A	160	6,30	460	18,11	300	11,81					8102	18213	12323	27703	1575,0	96,11	18,70	41,23	I
LS 5000 - 200 - A	200	7,87	540	21,26	340	13,39					8218	18475	12604	28335	1937,0	118,20	21,70	47,84	II
LS 5000 - 250 - A	250	9,84	640	25,20	390	15,35					8317	18697	12844	28875	2390,0	145,84	24,80	54,67	II
LS 5000 - 300 - A	300	11,81	740	29,13	440	17,32	8386	18852	13012	29253	2843,0	173,49	28,00	61,73	II				

LS



**HOW TO ORDER**

(10 pcs) LS 5000-050-A  
(10 pcs) LS 5000-050-A-N

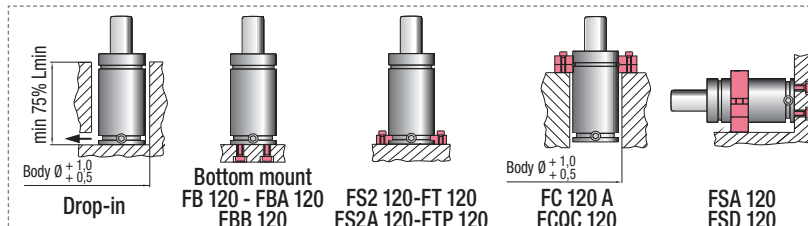


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	$\Delta P$ $\pm 0,33\%/^{\circ}C$	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 44,18 cm <sup>2</sup> 6,848 in <sup>2</sup>	SPM ~ 15 - 60 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMLS05000A	Cu	L	L min	F <sub>0</sub>		F CIs		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg	~lb	Cat.
														Initial force daN	lb	daN	lb	End force * daN	lb	End force ** daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
LS 6600 - 025 - A											25	190	165	0	0	6630	14905	9649	21692	12558	28232	353,0	21,54	10,60	23,37	-
LS 6600 - 038 - A											38	216	178					10329	23221	13985	31440	471,0	28,74	12,00	26,46	-
LS 6600 - 050 - A											50	240	190					10758	24185	14914	33528	580,0	35,39	13,20	29,10	-
LS 6600 - 063 - A											63,5	267	203,5					11097	24946	15662	35210	697,0	42,53	13,60	29,98	-
LS 6600 - 080 - A											80	300	220	150 bar 2175 psi		150 bar 2175 psi		11418	25668	16384	36832	851,0	51,93	14,10	31,09	-
LS 6600 - 100 - A											100	340	240					11687	26273	16998	38214	1032,0	62,98	15,40	33,95	I
LS 6600 - 125 - A											125	390	265	$\pm 5\%$		$\pm 5\%$		11925	26808	17549	39452	1259,0	76,83	16,90	37,26	I
LS 6600 - 160 - A											160	460	300	$+ 20^{\circ}C + 68^{\circ}F$		$+ 20^{\circ}C + 68^{\circ}F$		12152	27320	18081	40648	1575,0	96,11	18,70	41,23	II
LS 6600 - 200 - A											200	540	340					12327	27713	18494	41576	1937,0	118,20	21,70	47,84	II
LS 6600 - 250 - A											250	640	390					12475	28046	18846	42368	2390,0	145,84	24,80	54,67	II
LS 6600 - 300 - A											300	740	440					12579	28278	19093	42922	2843,0	173,49	28,00	61,73	II



## HOW TO ORDER

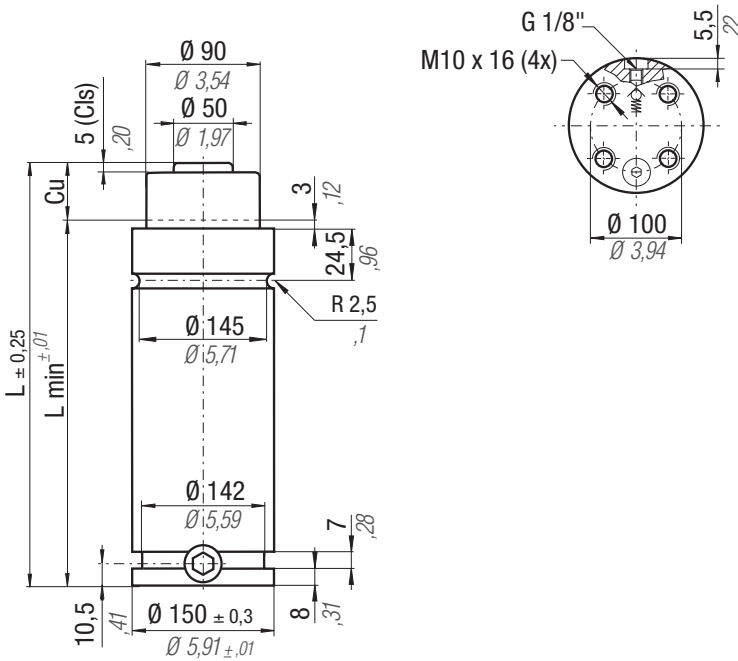
(10 pcs) LS 6600-050-A  
(10 pcs) LS 6600-050-A-N



**Info**

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

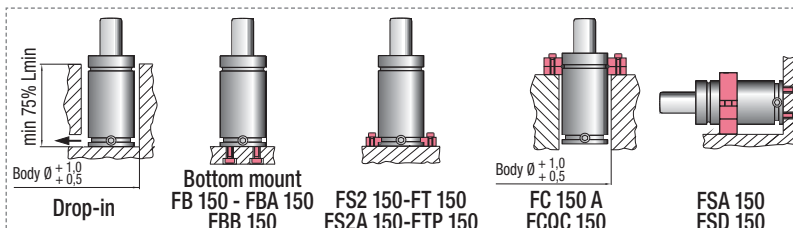
\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



	$^{\circ}\text{F}$ 32 176	$^{\circ}\text{C}$ 0 80	$\Delta P$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 120 bar 1740 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 63,61 cm <sup>2</sup> 9,860 in <sup>2</sup>	<b>SPM</b> ~ 15 - 60 (at 20°C)	<b>Max Speed</b> 1,8 m/s	<b>Maintenance kit</b> 39BMLS07500A
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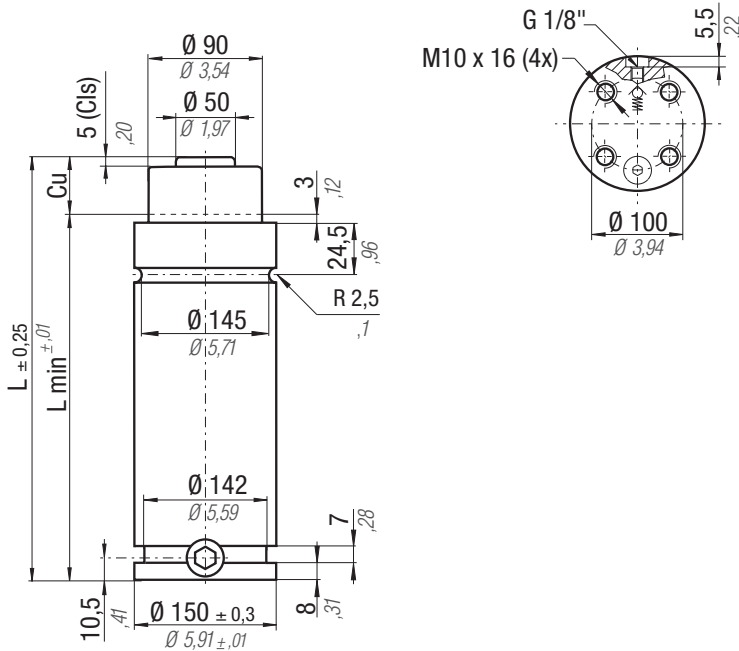
CODE	Cu		L		L min		F <sub>0</sub> Initial force		F Cls		F <sub>1i</sub> * End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>		Cat.		
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
LS 7500 - 025 - A	25	0,98	205	8,07	180	7,09	0	0	7630	17152	10126	22764	12625	28381	654,0	39,91	19,95	43,98	-
LS 7500 - 038 - A	38	1,50	231	9,09	193	7,60					10794	24265	13965	31394	839,0	51,20	21,15	46,63	-
LS 7500 - 050 - A	50	1,97	255	10,04	205	8,07					11223	25230	14852	33390	1010,0	61,63	21,95	48,39	-
LS 7500 - 063 - A	63,5	2,50	282	11,10	218,5	8,60					11573	26017	15590	35049	1195,0	72,92	22,75	50,16	I
LS 7500 - 080 - A	80	3,15	315	12,40	235	9,25					11914	26783	16322	36694	1437,0	87,69	24,55	54,12	I
LS 7500 - 100 - A	100	3,94	355	13,98	255	10,04					12207	27443	16962	38132	1723,0	105,14	26,25	57,87	II
LS 7500 - 125 - A	125	4,92	405	15,94	280	11,02					12472	28039	17548	39450	2079,0	126,87	28,15	62,06	II
LS 7500 - 160 - A	160	6,30	475	18,70	315	12,40					12731	28621	18127	40751	2587,0	157,87	31,55	69,56	II
LS 7500 - 200 - A	200	7,87	555	21,85	355	13,98					12934	29076	18584	41779	3148,0	192,10	35,15	77,49	II
LS 7500 - 250 - A	250	9,84	655	25,79	405	15,94					13108	29467	18981	42671	3361,0	235,61	38,65	85,21	II
LS 7500 - 300 - A	300	11,81	755	29,72	455	17,91	13230	29743	19262	43302	4573,0	279,06	42,55	93,81	II				

LS



**HOW TO ORDER**

(10 pcs) LS 7500-050-A  
(10 pcs) LS 7500-050-A-N

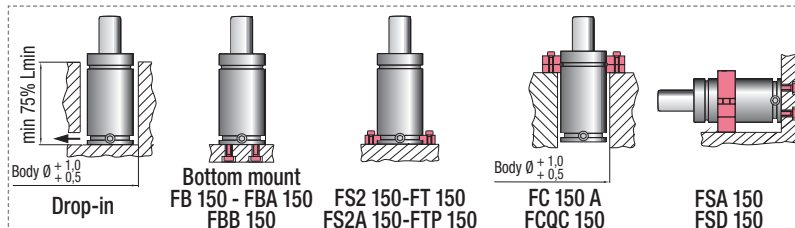


## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytropic end force at 100% Cu - see page 31

CODE	N <sub>2</sub>	°F 32 - 176	°C 0 - 80	$\Delta P$ $\pm 0,33\%/^{\circ}C$	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 63,61 cm <sup>2</sup> 9,860 in <sup>2</sup>	SPM ~ 15 - 60 (at 20°C)	Max Speed 1,8 m/s	Maintenance kit 39BMLS07500A	Cu	L	L min	F <sub>0</sub>		F CIs		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		~Kg	~lb	Cat.			
														Initial force daN	Initial force lb	daN	lb	End force * daN	End force * lb	End force ** daN	End force ** lb	cm <sup>3</sup>	in <sup>3</sup>						
LS 9500 - 025 - A											25	0,98	205	8,07	180	7,09	0	0	9540	21446	12658	28455	15607	35086	646,0	39,41	19,95	43,98	-
LS 9500 - 038 - A											38	1,50	231	9,09	193	7,60					13492	30331	17263	38809	826,0	50,39	21,15	46,63	-
LS 9500 - 050 - A											50	1,97	255	10,04	205	8,07					14029	31538	18361	41277	995,0	60,70	21,95	48,39	-
LS 9500 - 063 - A											63,5	2,50	282	11,10	218,5	8,60					14466	32521	19273	43328	1178,0	71,86	22,75	50,16	I
LS 9500 - 080 - A											80	3,15	315	12,40	235	9,25	150 bar	2175 psi	150 bar	2175 psi	14892	33479	20178	45362	1417,0	86,44	24,55	54,12	II
LS 9500 - 100 - A											100	3,94	355	13,98	255	10,04					15259	34303	20969	47139	1698,0	103,58	26,25	57,87	II
LS 9500 - 125 - A											125	4,92	405	15,94	280	11,02	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	15591	35049	21693	48769	2050,0	125,05	28,15	62,06	II
LS 9500 - 160 - A											160	6,30	475	18,70	315	12,40	$+ 20^{\circ}C + 68^{\circ}F$	$+ 20^{\circ}C + 68^{\circ}F$	$+ 20^{\circ}C + 68^{\circ}F$	$+ 20^{\circ}C + 68^{\circ}F$	15914	35776	22409	50377	2542,0	155,06	31,55	69,56	II
LS 9500 - 200 - A											200	7,87	555	21,85	355	13,98					16167	36345	22974	51649	3105,0	189,41	35,15	77,49	II
LS 9500 - 250 - A											250	9,84	655	25,79	405	15,94					16385	36834	23464	52750	3808,0	232,29	38,65	85,21	II
LS 9500 - 300 - A											300	11,81	755	29,72	455	17,91					16538	37178	23812	53531	4512,0	275,23	42,55	93,81	II



## HOW TO ORDER

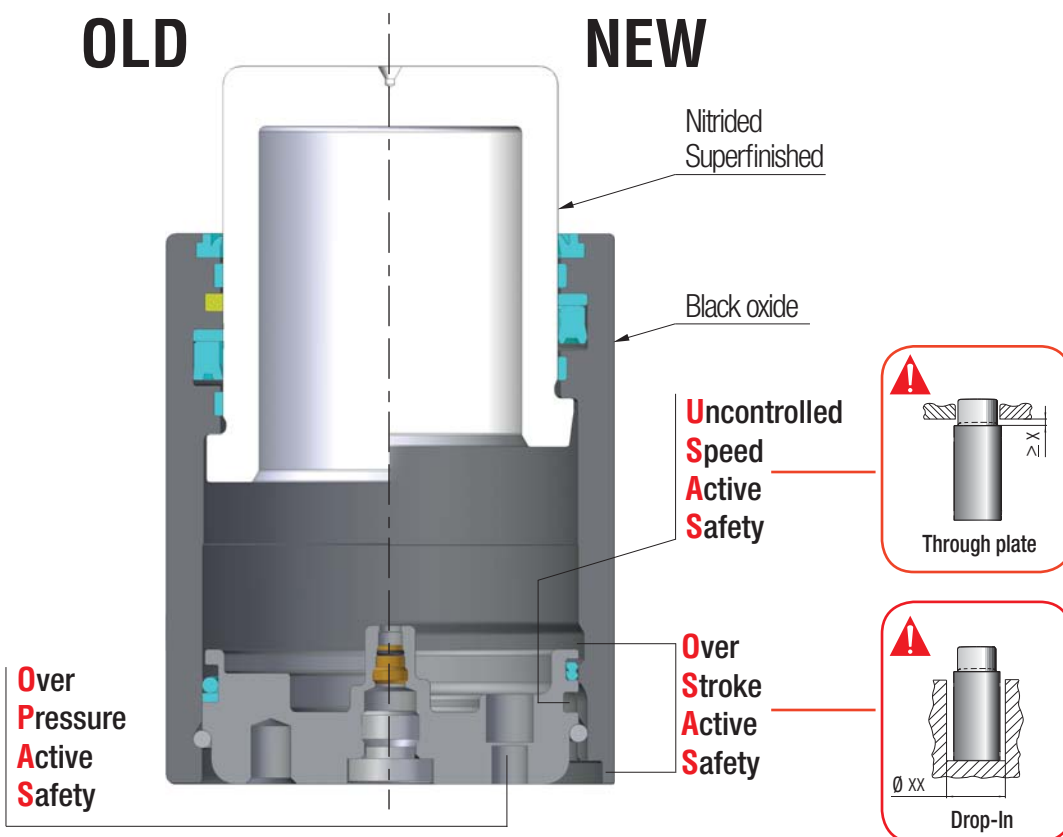
(10 pcs) LS 9500-050-A  
(10 pcs) LS 9500-050-A-N



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## OLD

## NEW



### Range chart

Model	Body Ø		Stroke Cu		Initial force Fo		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
ML 300	25	0,98	10 - 80	0,39 - 3,15	310	697	✓	✓	-	-
ML 500	32	1,26	10 - 80	0,39 - 3,15	510	1147	✓	✓	-	-
ML 1000	38	1,50	10 - 80	0,39 - 3,15	980	2203	✓	✓	✓	-
ML 1000 N	38	1,50	10 - 80	0,39 - 3,15	980	2203	✓	✓	✓	-
ML 1800	50	1,97	15 - 80	0,59 - 3,15	1925	4327	✓	✓	✓	-
ML 1800 N	50	1,97	15 - 80	0,59 - 3,15	1925	4327	✓	✓	✓	-
ML 3000	63	2,48	15 - 80	0,59 - 3,15	3180	11071	✓	✓	✓	-
ML 3000 N	63	2,48	15 - 80	0,59 - 3,15	3180	11071	✓	✓	✓	-
ML 4700	75	2,95	15 - 80	0,59 - 3,15	4925	11071	✓	✓	✓	-
ML 4700 N	75	2,95	15 - 80	0,59 - 3,15	4925	11071	✓	✓	✓	-
ML 7500	95	3,74	15 - 80	0,59 - 3,15	7700	17310	✓	✓	✓	-
ML 7500 N	95	3,74	15 - 80	0,59 - 3,15	7700	17310	✓	✓	✓	-
ML 12000	120	4,72	15 - 80	0,59 - 3,15	12720	28595	✓	✓	✓	-
ML 12000 N	120	4,72	15 - 80	0,59 - 3,15	12720	28595	✓	✓	✓	-



**How to Order**

## ML 1800-050-C - N - EN

Codice cilindro autonomo  
Self-contained cylinder code  
Kode des eingeständigen Gdf.  
Code du cylindre autonome  
Codigo del cilindro autónomo  
Codigo do cilindro autónomo

Collegabile con tubi, fornito scarico e senza valvola unidirezionale, L+20 mm  
Linkable with hoses, supplied without pressure and oneway valve, L+20 mm  
Anschlussfähig mit Leitungen, geliefert ohne Druck und RückschlagVentil, L+20 mm  
Connectable avec tubes, fourni sans pression ni valve unidirectionelle, L+20 mm  
Connectable con tubos, suministrado sin presión y sin válvula unidireccional, L+20 mm  
Acompláveis com tubos, fornecidos sem pressão e sem válvula unidireccional, L+20 mm

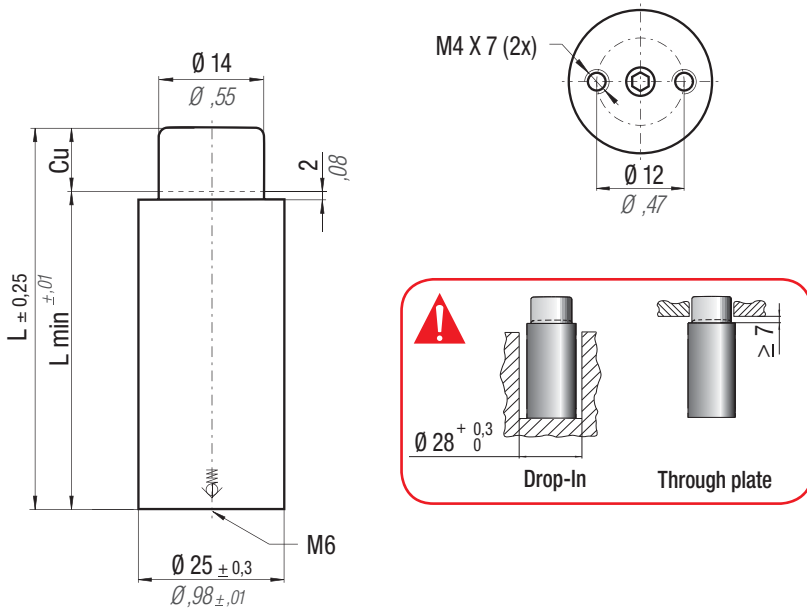
Collegabile EASY MANIFOLD, fornito scarico senza valvola + NIPPLIO di collegamento  
Linkable EASY MANIFOLD, supplied without pressure and valve + NIPPLE connecting  
Anschlussfähig EASY MANIFOLD, geliefert ohne Druck und ohne Ventil + NIPPEL  
Verbindungs  
Connectable EASY MANIFOLD, fourni sans pression ni valve + NIPPLE de connexion  
Connectable EASY MANIFOLD, suministrado sin presión y sin válvula + NIPLE de conexión  
Acompláveis EASY MANIFOLD, fornecidos sem pressão e sem válvula + LIGACÃO  
INTERIOR de conexão



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

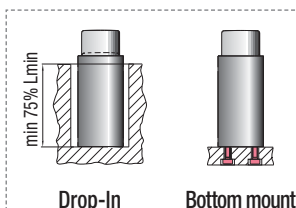
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

N <sub>2</sub>	°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 1,54 cm <sup>2</sup> 0,239 in <sup>2</sup>	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit									
									Disposable									
<b>CODE</b>	<b>NEW</b>		<b>Cu</b>	<b>L</b>	<b>L min</b>	<b>F<sub>0</sub></b>	<b>F<sub>1i</sub></b>	<b>F<sub>1p</sub></b>	<b>V<sub>0</sub></b>		<b>CE</b>							
PHASING OUT from 04/2013			mm	inch	mm	inch	Initial force daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.			
ML 300 - 010 - B	ML 300 - 010 - C	10	0,39	75	2,95	65	2,56	310	697	393	883	476	1070	7,0	0,43	0,18	0,40	-
ML 300 - 015 - B	ML 300 - 015 - C	15	0,59	85	3,35	70	2,76			418	940	524	1178	9,0	0,55	0,19	0,42	-
ML 300 - 025 - B	ML 300 - 025 - C	25	0,98	105	4,13	80	3,15	200 bar 2900 psi		452	1016	592	1331	12,0	0,73	0,22	0,48	-
ML 300 - 038 - B	ML 300 - 038 - C	38	1,50	130	5,12	92	3,62			483	1086	658	1479	16,0	0,98	0,25	0,55	-
ML 300 - 050 - B	ML 300 - 050 - C	50	1,97	155	6,10	105	4,13			494	1111	682	1533	20,0	1,22	0,28	0,62	-
ML 300 - 063 - B	ML 300 - 063 - C	63	2,48	185	7,28	122	4,80	± 5% +20 °C +68 °F		492	1106	678	1524	26,0	1,59	0,33	0,73	-
ML 300 - 080 - B	ML 300 - 080 - C	80	3,15	220	8,66	140	5,51			502	1129	699	1571	32,0	1,95	0,38	0,84	-

ML



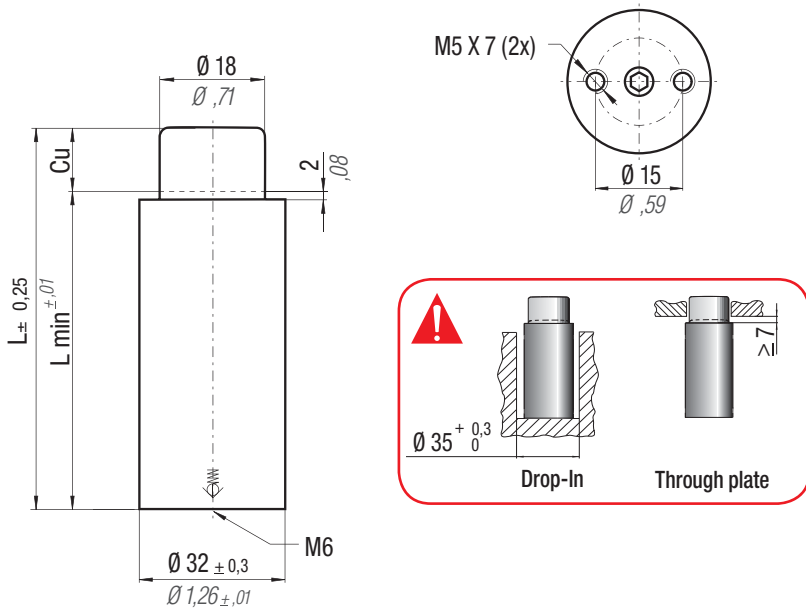
## HOW TO ORDER

(10 pcs) ML300-050-C

## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock


Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

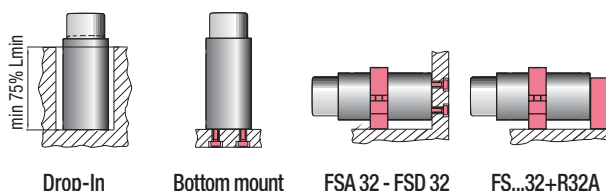


Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

 N <sub>2</sub>		°F 32 176	°C 0 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 2,54 cm <sup>2</sup> 0,394 in <sup>2</sup>	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit Disposable								
CODE	NEW	Cu		L		L min		F <sub>0</sub>	F <sub>1i</sub> *		F <sub>1p</sub> *		V <sub>0</sub>		CE			
PHASING OUT from 04/2013	NEW	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
ML 500 - 010 - B	ML 500 - 010 - C	10	0,39	75	2,95	65	2,56	510	1147	622	1398	734	1650	14,0	0,85	0,30	0,66	-
ML 500 - 015 - B	ML 500 - 015 - C	15	0,59	85	3,35	70	2,76	200 bar 2900 psi		658	1479	801	1801	17,0	1,04	0,33	0,73	-
ML 500 - 025 - B	ML 500 - 025 - C	25	0,98	105	4,13	80	3,15			706	1587	897	2017	23,0	1,40	0,36	0,79	-
ML 500 - 038 - B	ML 500 - 038 - C	38	1,50	130	5,12	92	3,62	± 5% +20 °C +68 °F		752	1691	991	2228	30,0	1,83	0,42	0,93	-
ML 500 - 050 - B	ML 500 - 050 - C	50	1,97	155	6,10	105	4,13			771	1733	1031	2318	37,0	2,26	0,46	1,01	-
ML 500 - 063 - B	ML 500 - 063 - C	63	2,48	190	7,48	127	5,00			753	1693	993	2232	49,0	2,99	0,54	1,19	-
ML 500 - 080 - B	ML 500 - 080 - C	80	3,15	225	8,86	145	5,71			771	1733	1030	2316	60,0	3,66	0,63	1,39	-



## HOW TO ORDER

(10 pcs) ML500-050-C





## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

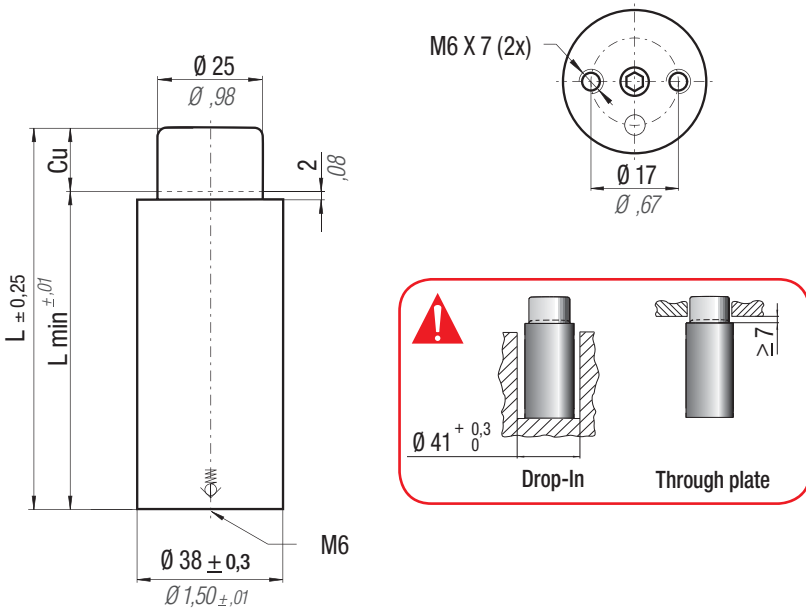
The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock



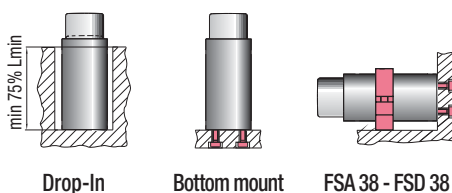
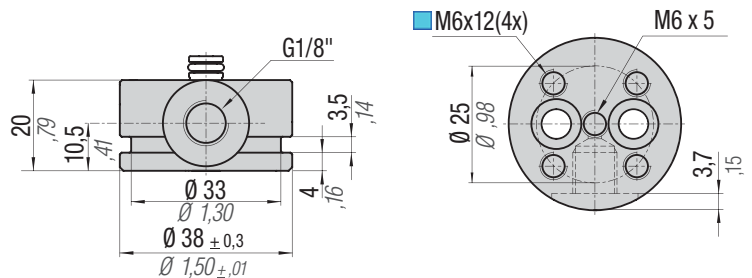
N <sub>2</sub>		°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 4,91 cm <sup>2</sup> 0,761 in <sup>2</sup>	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMMML01000C								
CODE	NEW	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE		
PHASING OUT from 04/2013		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
ML 1000 - 010 - B	ML 1000 - 010 - C	10	0,39	75	2,95	65	2,56	980	2203	1267	2848	1542	3467	22,0	1,34	0,40	0,88	-
ML 1000 - 015 - B	ML 1000 - 015 - C	15	0,59	85	3,35	70	2,76			1357	3051	1719	3864	27,0	1,65	0,43	0,95	-
ML 1000 - 025 - B	ML 1000 - 025 - C	25	0,98	105	4,13	80	3,15	200 bar 2900 psi		1484	3336	1981	4453	36,0	2,20	0,49	1,08	-
ML 1000 - 038 - B	ML 1000 - 038 - C	38	1,50	135	5,31	97	3,82			1538	3458	2095	4710	52,0	3,17	0,58	1,28	-
ML 1000 - 050 - B	ML 1000 - 050 - C	50	1,97	160	6,30	110	4,33			1595	3586	2220	4991	64,0	3,90	0,66	1,46	-
ML 1000 - 063 - B	ML 1000 - 063 - C	63	2,48	205	8,07	142	5,59	± 5%		1498	3368	2010	4519	90,0	5,49	0,80	1,76	-
ML 1000 - 080 - B	ML 1000 - 080 - C	80	3,15	240	9,45	160	6,30	+20 °C +68 °F		1553	3491	2127	4782	107,0	6,53	0,87	1,92	-

ML

## FML 1000

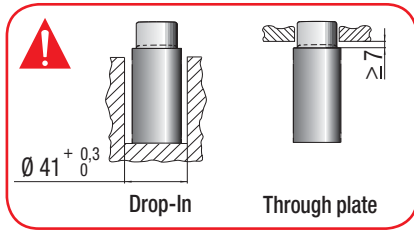
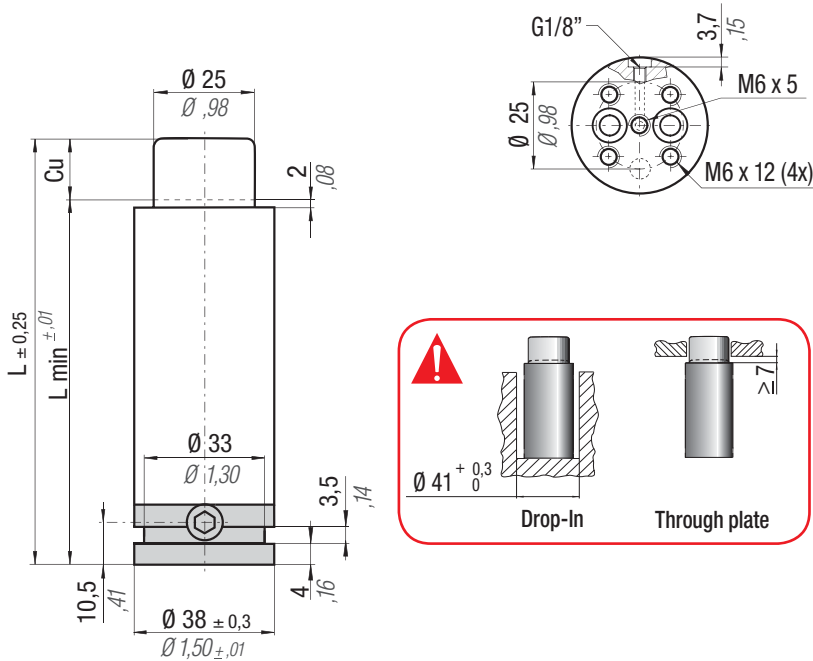
code: 39FML01000A

Kit speciale per trasformare cilindri autonomi  
 Special kit to convert self-contained cylinders  
 Spezial-Set zum Umbau eigenständiger Zylinder  
 Kit spécial pour transformer les cylindres autonomes  
 Kit especial para transformar cilindros autónomos  
 Kit especial para transformar cilindros autónomos



## HOW TO ORDER

(10 pcs) ML1000-050-C



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

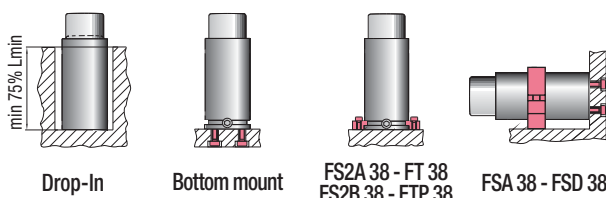


Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolué

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

N <sub>2</sub>		°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 4,91 cm <sup>2</sup> 0,761 in <sup>2</sup>	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML01000C								
CODE	NEW	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE		
PHASING OUT from 04/2013	NEW	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
ML1000-010-B-N	ML1000-010-C-N	10	0,39	95	3,74	85	3,35	980	2203	1267	2848	1542	3467	22,0	1,34	0,56	1,23	-
ML1000-015-B-N	ML1000-015-C-N	15	0,59	105	4,13	90	3,54	200 bar 2900 psi		1357	3051	1719	3864	27,0	1,65	0,59	1,30	-
ML1000-025-B-N	ML1000-025-C-N	25	0,98	125	4,92	100	3,94			1484	3336	1981	4453	36,0	2,20	0,65	1,43	-
ML1000-038-B-N	ML1000-038-C-N	38	1,50	155	6,10	117	4,61	± 5% +20 °C +68 °F		1538	3458	2095	4710	52,0	3,17	0,74	1,63	-
ML1000-050-B-N	ML1000-050-C-N	50	1,97	180	7,09	130	5,12			1595	3586	2220	4991	64,0	3,90	0,82	1,81	-
ML1000-063-B-N	ML1000-063-C-N	63	2,48	225	8,86	162	6,38			1498	3368	2010	4519	90,0	5,49	0,96	2,12	-
ML1000-080-B-N	ML1000-080-C-N	80	3,15	260	10,24	180	7,09	1553	3491	2127	4782	107,0	6,53	1,03	2,27	-		



## HOW TO ORDER

(10 pcs) ML1000-050-C-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

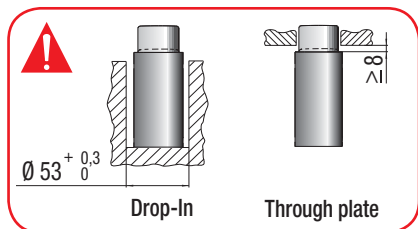
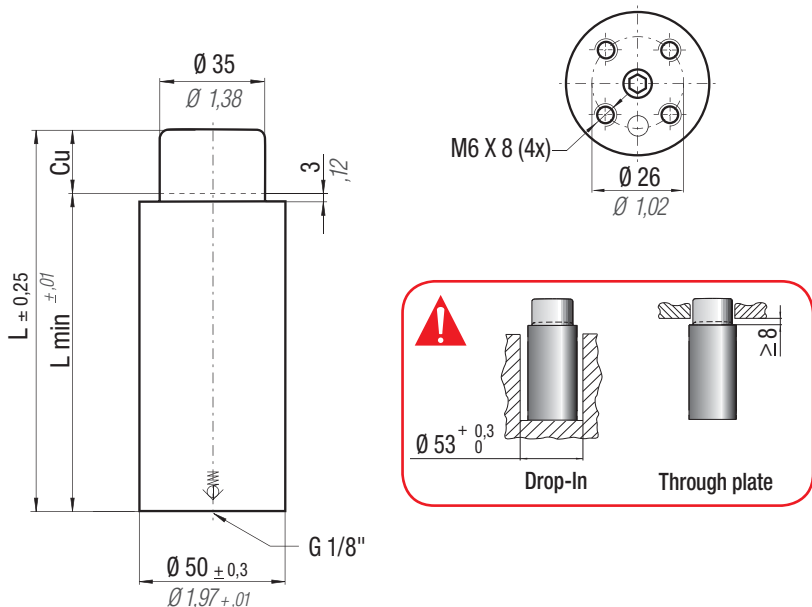
The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolué

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock



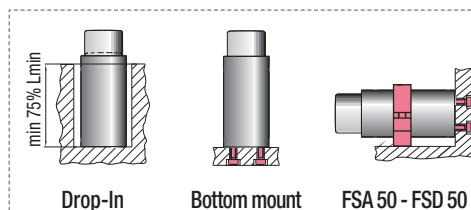
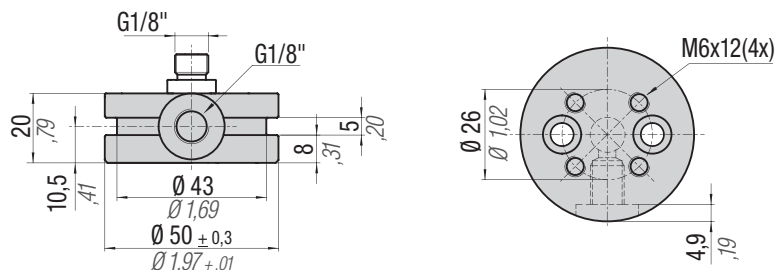
N <sub>2</sub>		°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 9,62 cm <sup>2</sup> 1,491 in <sup>2</sup>	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMMML01800C								
CODE	NEW	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE		
PHASING OUT from 04/2013		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
ML 1800 - 015 - B	ML 1800 - 015 - C	15	0,59	95	3,74	80	3,15	1925	4327	2574	5787	3200	7194	57,0	3,48	0,84	1,85	-
ML 1800 - 025 - B	ML 1800 - 025 - C	25	0,98	115	4,53	90	3,54	200 bar 2900 psi		2825	6351	3706	8331	75,0	4,58	0,92	2,03	-
ML 1800 - 038 - B	ML 1800 - 038 - C	38	1,50	150	5,91	112	4,41			2875	6463	3811	8567	111,0	6,77	1,11	2,45	-
ML 1800 - 050 - B	ML 1800 - 050 - C	50	1,97	175	6,89	125	4,92	± 5% +20 °C +68 °F		3005	6756	4087	9188	134,0	8,17	1,22	2,69	-
ML 1800 - 063 - B	ML 1800 - 063 - C	63	2,48	205	8,07	142	5,59			3069	6899	4224	9496	163,0	9,94	1,38	3,04	-
ML 1800 - 080 - B	ML 1800 - 080 - C	80	3,15	245	9,65	165	6,50			3117	7007	4329	9732	201,0	12,26	1,57	3,46	-

ML

## FML 1800

code: 39FML01800A

Kit speciale per trasformare cilindri autonomi  
 Special kit to convert self-contained cylinders  
 Spezial-Set zum Umbau eigenständiger Zylinder  
 Kit spécial pour transformer les cylindres autonomes  
 Kit especial para transformar cilindros autónomos  
 Kit especial para transformar cilindros autónomos

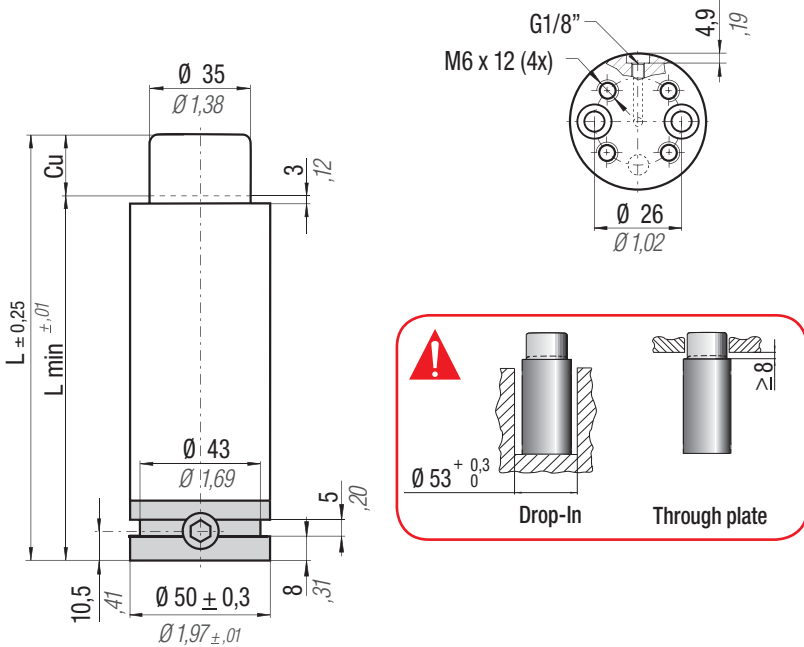


## HOW TO ORDER

(10 pcs) ML1800-050-C

# ML 1800 N

linkable G1/8"



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

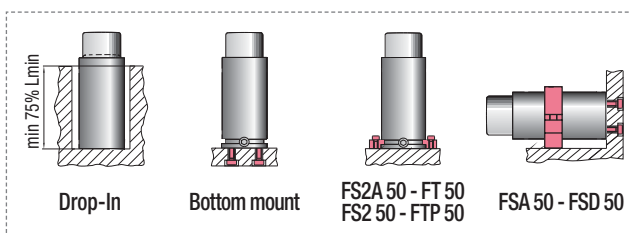


Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolué

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

N <sub>2</sub>	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 9,62 cm <sup>2</sup> 1,491 in <sup>2</sup>	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML01800C
CODE	NEW	Cu	L	L min	F <sub>0</sub>	F <sub>1i</sub> *	F <sub>1p</sub> *	V <sub>0</sub>	CE
PHASING OUT from 04/2013	NEW	mm inch	mm inch	mm inch	Initial force daN lb	End force * daN lb	End force * daN lb	cm <sup>3</sup> in <sup>3</sup>	Cat.
ML1800-015-B-N	ML1800-015-C-N	15 0,59	115 4,53	100 3,94	200 bar 2900 psi ± 5% +20 °C +68 °F	2574 5787	3200 7194	57,0 3,48	1,14 2,51
ML1800-025-B-N	ML1800-025-C-N	25 0,98	135 5,31	110 4,33		2825 6351	3706 8331	75,0 4,58	1,22 2,69
ML1800-038-B-N	ML1800-038-C-N	38 1,50	170 6,69	132 5,20		2875 6463	3811 8567	111,0 6,77	1,41 3,11
ML1800-050-B-N	ML1800-050-C-N	50 1,97	195 7,68	145 5,71		3005 6756	4087 9188	134,0 8,17	1,52 3,35
ML1800-063-B-N	ML1800-063-C-N	63 2,48	225 8,86	162 6,38		3069 6899	4224 9496	163,0 9,94	1,68 3,70
ML1800-080-B-N	ML1800-080-C-N	80 3,15	265 10,43	185 7,28	3117 7007	4329 9732	201,0 12,26	1,87 4,12	



**HOW TO ORDER**

(10 pcs) ML1800-050-C-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

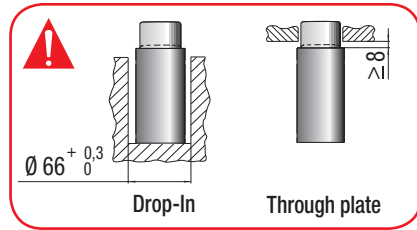
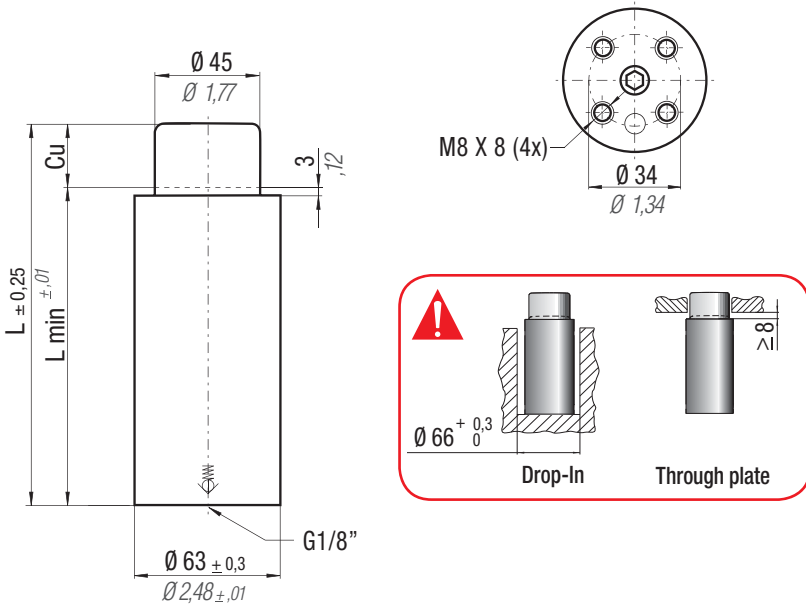
The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock



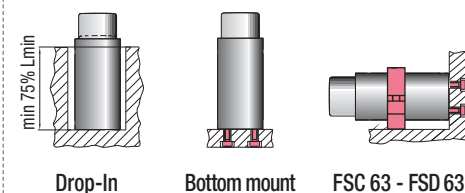
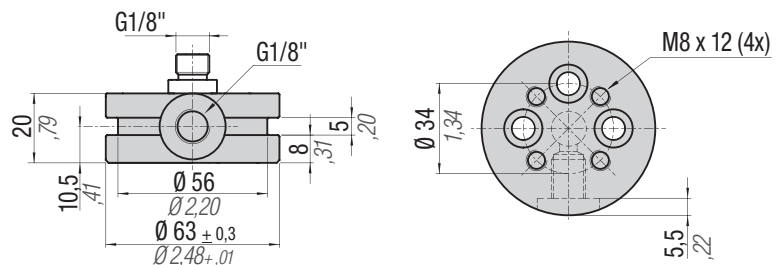
CODE	PHASING OUT from 04/2013	NEW	$\Delta P$		$P_{max}$	$P_{min}$	$S$	SPM	Max Speed	Maintenance kit								
			mm	inch	bar	bar	cm <sup>2</sup>	~ 40 - 80 (at 20°C)	m/s	39BMMML03000B								
ML 3000 - 015 - B	ML 3000 - 015 - C	15	0,59	100	3,94	85	3,35	3180	7149	4110	9240	5007	11256	106,0	6,47	1,33	2,93	-
ML 3000 - 025 - B	ML 3000 - 025 - C	25	0,98	120	4,72	95	3,74	4490	10094	4490	10094	5757	12942	136,0	8,30	1,47	3,24	-
ML 3000 - 038 - B	ML 3000 - 038 - C	38	1,50	150	5,91	112	4,41	4724	10620	4724	10620	6239	14026	185,0	11,29	1,69	3,73	-
ML 3000 - 050 - B	ML 3000 - 050 - C	50	1,97	180	7,09	130	5,12	4810	10813	4810	10813	6419	14430	235,0	14,34	1,92	4,23	-
ML 3000 - 063 - B	ML 3000 - 063 - C	63	2,48	210	8,27	147	5,79	4921	11063	4921	11063	6654	14959	283,0	17,26	2,14	4,72	-
ML 3000 - 080 - B	ML 3000 - 080 - C	80	3,15	250	9,84	170	6,69	5009	11261	5009	11261	6844	15386	349,0	21,29	2,44	5,38	-

ML

## FML 3000

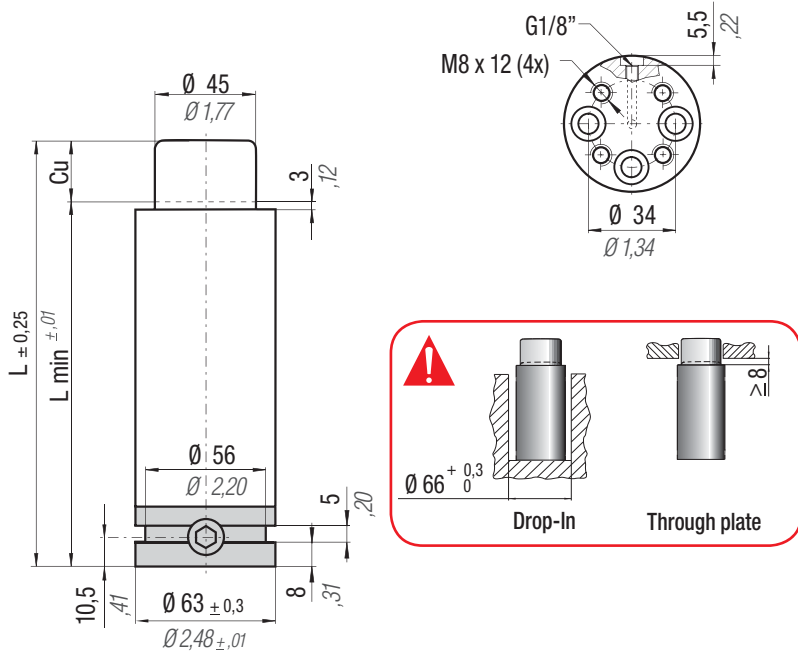
code: 39FML03000A

Kit speciale per trasformare cilindri autonomi  
 Special kit to convert self-contained cylinders  
 Spezial-Set zum Umbau eigenständiger Zylinder  
 Kit spécial pour transformer les cylindres autonomes  
 Kit especial para transformar cilindros autónomos  
 Kit especial para transformar cilindros autónomos



## HOW TO ORDER

(10 pcs) ML3000-050-C



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytropic end force at 100% Cu - see page 31

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

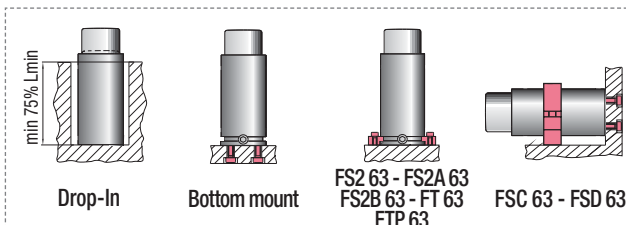


Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolué

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

N <sub>2</sub>		°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 15,90 cm <sup>2</sup> 2,464 in <sup>2</sup>	SPM ~ 40 - 80 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML03000B								
CODE	NEW	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub> *		F <sub>1p</sub> *		V <sub>0</sub>		CE		
PHASING OUT from 04/2013		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
ML3000-015-B-N	ML3000-015-C-N	15	0,59	120	4,72	105	4,13	3180	7149	4110	9240	5007	11256	106,0	6,47	1,71	3,77	-
ML3000-025-B-N	ML3000-025-C-N	25	0,98	140	5,51	115	4,53	200 bar 2900 psi		4490	10094	5757	12942	136,0	8,30	1,85	4,08	-
ML3000-038-B-N	ML3000-038-C-N	38	1,50	170	6,69	132	5,20			4724	10620	6239	14026	185,0	11,29	2,07	4,56	-
ML3000-050-B-N	ML3000-050-C-N	50	1,97	200	7,87	150	5,91	± 5%	+20 °C +68 °F	4810	10813	6419	14430	235,0	14,34	2,30	5,07	-
ML3000-063-B-N	ML3000-063-C-N	63	2,48	230	9,06	167	6,57			4921	11063	6654	14959	283,0	17,26	2,52	5,56	-
ML 3000-080-B-N	ML3000-080-C-N	80	3,15	270	10,63	190	7,48	5009	11261	6844	15386	349,0	21,29	2,82	6,22	-		



## HOW TO ORDER

(10 pcs) ML3000-050-C-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

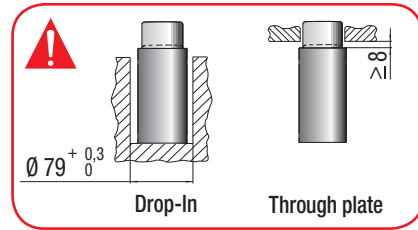
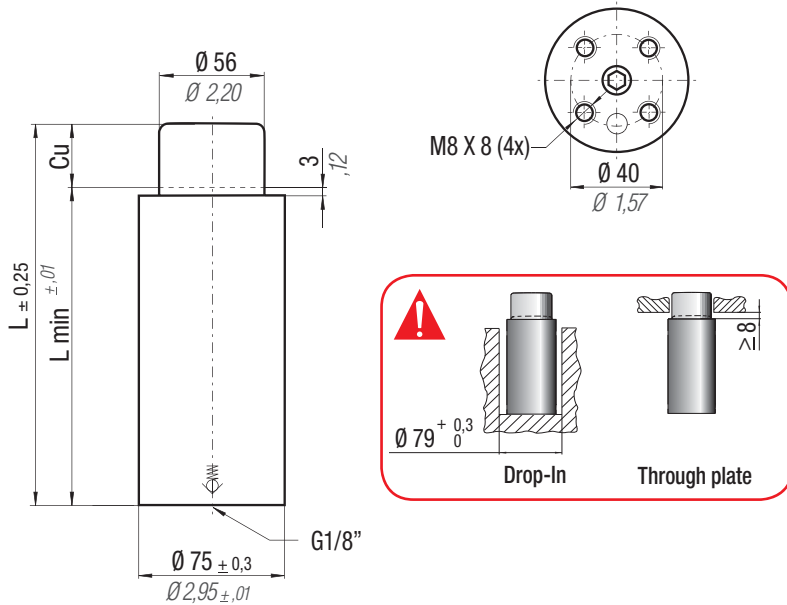
The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock



	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 200 bar 2900 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 24,63 cm <sup>2</sup> 3,817 in <sup>2</sup>	<b>SPM</b> ~ 30 - 70 (at 20°C)	<b>Max Speed</b> 1,6 m/s	<b>Maintenance kit</b> 39BMMLO4700C
--	--------------------------------------	------------------------------------	---	-------------------------------------	-----------------------------------	--	--------------------------------------	-----------------------------	--

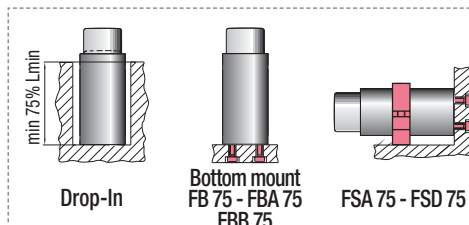
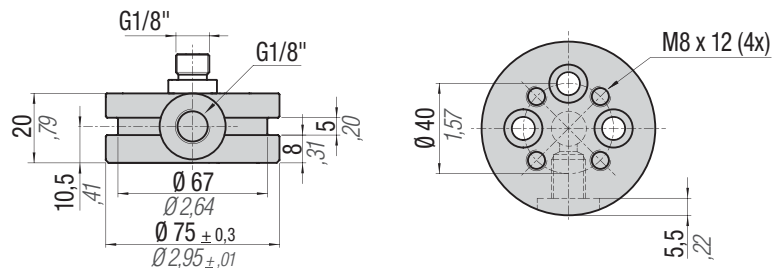
CODE PHASING OUT from 04/2013	NEW	Cu		L		L min		F0 Initial force		F1 <sub>i</sub> End force *		F1 <sub>p</sub> End force *		V0		~Kg ~lb		CE Cat.
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
ML 4700 - 015 - B	ML 4700 - 015 - C	15	0,59	100	3,94	85	3,35	200 bar 2900 psi  ± 5%	11071	6418	14428	7856	17661	159,0	9,70	1,88	4,14	-
ML 4700 - 025 - B	ML 4700 - 025 - C	25	0,98	120	4,72	95	3,74			7036	15818	9085	20424	205,0	12,51	2,08	4,59	-
ML 4700 - 038 - B	ML 4700 - 038 - C	38	1,50	150	5,91	112	4,41			7425	16692	9891	22236	278,0	16,96	2,36	5,20	-
ML 4700 - 050 - B	ML 4700 - 050 - C	50	1,97	180	7,09	130	5,12			7572	17023	10201	22933	353,0	21,53	2,65	5,84	-
ML 4700 - 063 - B	ML 4700 - 063 - C	63	2,48	210	8,27	147	5,79			7757	17438	10598	23825	425,0	25,93	2,92	6,44	-
ML 4700 - 080 - B	ML 4700 - 080 - C	80	3,15	250	9,84	170	6,69	+20 °C +68 °F	7906	17773	10922	24554	523,0	31,90	3,24	7,14	-	

ML

## FML 4700

code: 39FML04700A

Kit speciale per trasformare cilindri autonomi  
 Special kit to convert self-contained cylinders  
 Spezial-Set zum Umbau eigenständiger Zylinder  
 Kit spécial pour transformer les cylindres autonomes  
 Kit especial para transformar cilindros autónomos  
 Kit especial para transformar cilindros autónomos



## HOW TO ORDER

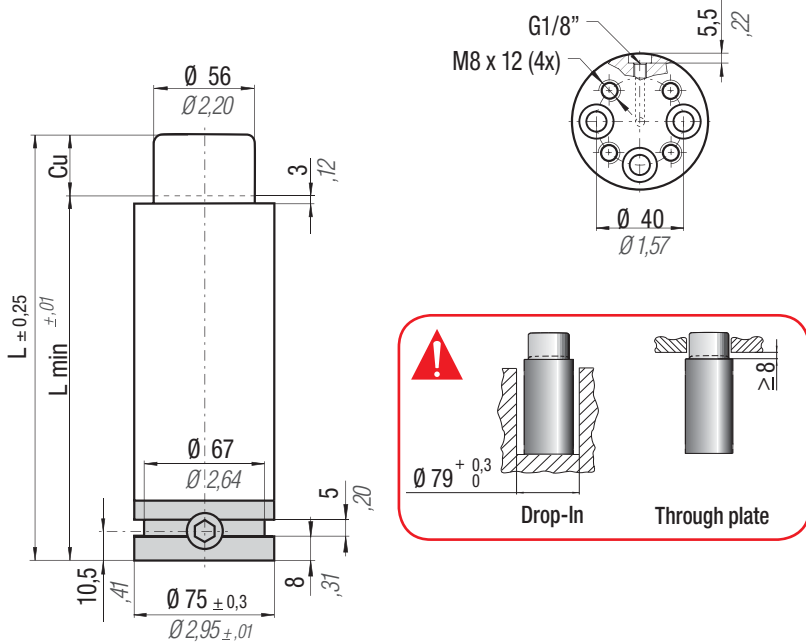
(10 pcs) ML4700-050-C

# ML 4700 N

linkable G1/8"

PED  
97/23/EC

lifepius  
concept



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

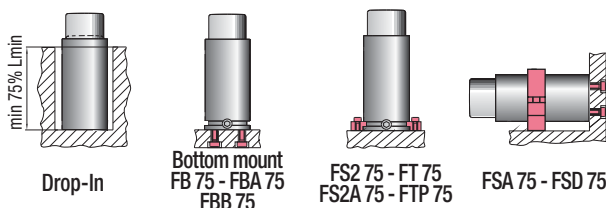


Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta P$ $\pm 0,33\% / ^{\circ}\text{C}$	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 24,63 cm <sup>2</sup> 3,817 in <sup>2</sup>	SPM ~ 30 - 70 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML04700C									
CODE		NEW	Cu	L	L min	F0	F <sub>1i</sub> *	F <sub>1p</sub> *	V0		CE							
PHASING OUT from 04/2013			mm inch	mm inch	mm inch	daN lb	daN lb	daN lb	cm <sup>3</sup> in <sup>3</sup>	~Kg ~lb	Cat.							
ML4700-015-B-N	ML4700-015-C-N	15	0,59	120	4,72	105	4,13	4925	11071	6418	14428	7856	17661	159,0	9,70	2,56	5,64	-
ML4700-025-B-N	ML4700-025-C-N	25	0,98	140	5,51	115	4,53	200 bar 2900 psi		7036	15818	9085	20424	205,0	12,51	2,76	6,08	-
ML4700-038-B-N	ML4700-038-C-N	38	1,50	170	6,69	132	5,20			7425	16692	9891	22236	278,0	16,96	3,04	6,70	-
ML4700-050-B-N	ML4700-050-C-N	50	1,97	200	7,87	150	5,91	7572	17023	10201	22933	353,0	21,53	3,33	7,34	-		
ML4700-063-B-N	ML4700-063-C-N	63	2,48	230	9,06	167	6,57	$\pm 5\%$ +20 °C +68 °F		7757	17438	10598	23825	425,0	25,93	3,60	7,94	-
ML4700-080-B-N	ML4700-080-C-N	80	3,15	270	10,63	190	7,48			7906	17773	10922	24554	523,0	31,90	3,92	8,64	-



## HOW TO ORDER

(10 pcs) ML4700-050-C-N





## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

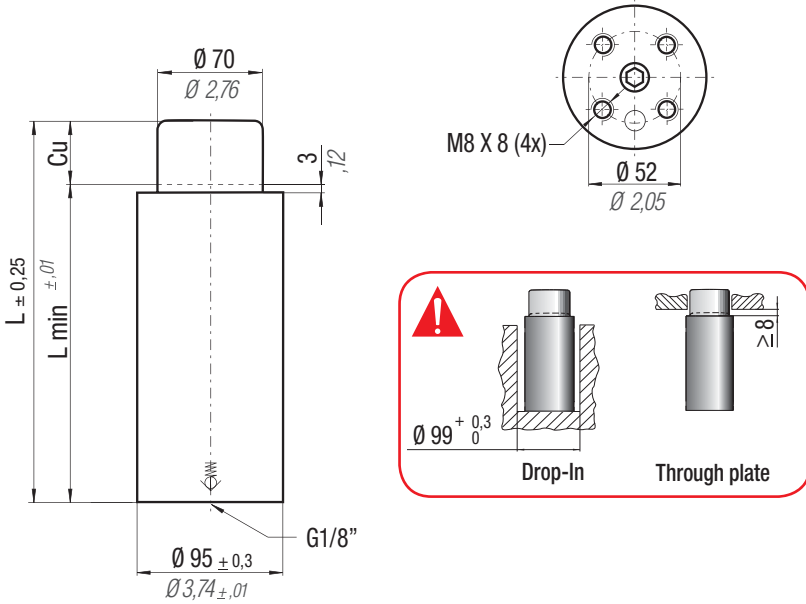
The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolué

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock



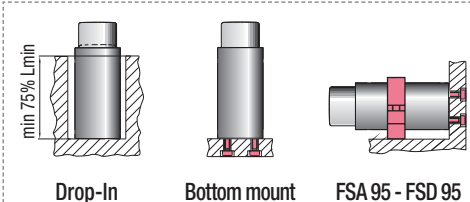
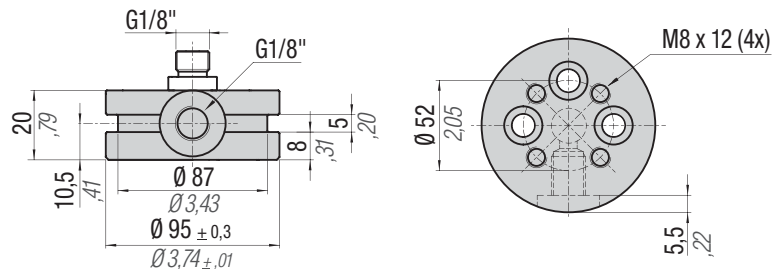
	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 38,48 cm <sup>2</sup> 5,964 in <sup>2</sup>	SPM ~ 20 - 60 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMMML07500C									
<b>CODE</b>	<b>Cu</b>	<b>L</b>	<b>L min</b>	<b>F<sub>0</sub></b>		<b>F<sub>1i</sub></b>		<b>F<sub>1p</sub></b>		<b>V<sub>0</sub></b>		<b>CE</b>						
PHASING OUT from 04/2013				Initial force		End force *		End force *										
NEW				daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.				
ML 7500 - 015 - B	ML 7500 - 015 - C	15	0,59	115	4,53	100	3,94	7700	17310	9707	21822	11660	26213	279,0	17,02	3,53	7,78	-
ML 7500 - 025 - B	ML 7500 - 025 - C	25	0,98	135	5,31	110	4,33	10583	23792	13365	30046	353,0	21,53	3,84	8,47	-		
ML 7500 - 038 - B	ML 7500 - 038 - C	38	1,50	165	6,50	127	5,00	11183	25140	14582	32782	469,0	28,61	4,40	9,70	-		
ML 7500 - 050 - B	ML 7500 - 050 - C	50	1,97	190	7,48	140	5,51	11693	26287	15648	35178	563,0	34,34	4,67	10,30	-		
ML 7500 - 063 - B	ML 7500 - 063 - C	63	2,48	220	8,66	157	6,18	11968	26905	16233	36493	679,0	41,42	5,15	11,35	-		
ML 7500 - 080 - B	ML 7500 - 080 - C	80	3,15	260	10,24	180	7,09	± 5% +20 °C +68 °F	12189	27402	16710	37566	835,0	50,94	5,76	12,70	-	

ML

## FML 7500

code: 39FML07500A

Kit speciale per trasformare cilindri autonomi  
 Special kit to convert self-contained cylinders  
 Spezial-Set zum Umbau eigenständiger Zylinder  
 Kit spécial pour transformer les cylindres autonomes  
 Kit especial para transformar cilindros autónomos  
 Kit especial para transformar cilindros autónomos

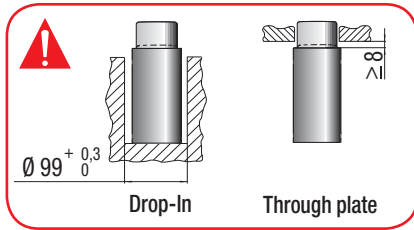
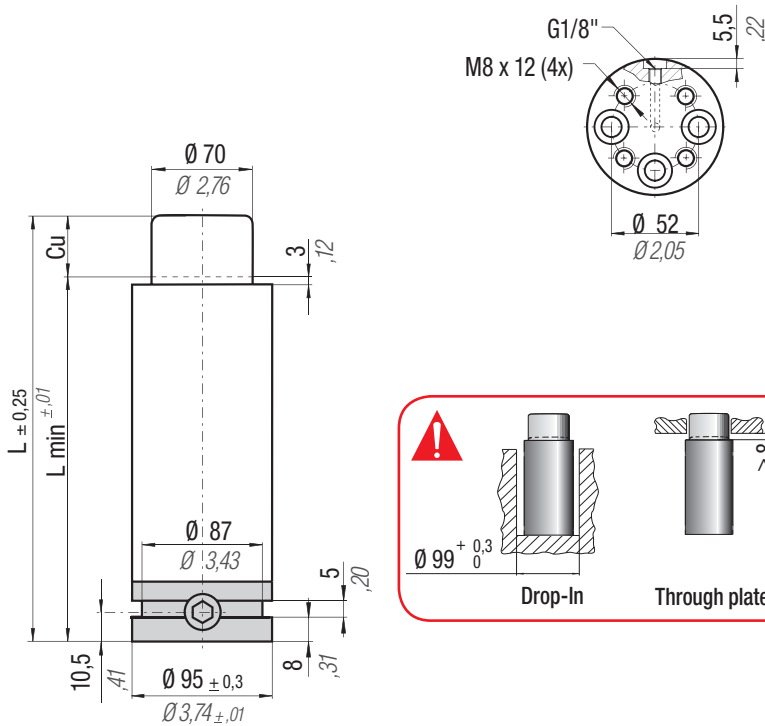


## HOW TO ORDER

(10 pcs) ML7500-050-C

# ML 7500 N

linkable G1/8"



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

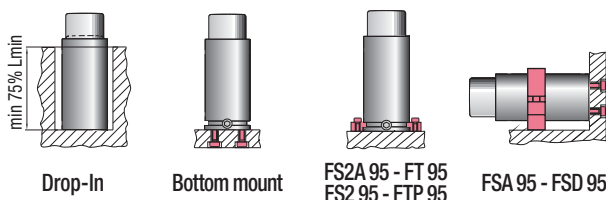


Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

N <sub>2</sub>		°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 38,48 cm <sup>2</sup> 5,964 in <sup>2</sup>	SPM ~ 20 - 60 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML07500C								
CODE	NEW	Cu		L		L min		F <sub>0</sub>	F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE			
PHASING OUT from 04/2013		mm	inch	mm	inch	mm	inch	Initial force	End force *		End force *		cm <sup>3</sup> in <sup>3</sup>		~Kg	~lb	Cat.	
ML7500-015-B-N	ML7500-015-C-N	15	0,59	135	5,31	120	4,72	7700	17310	9707	21822	11660	26213	279,0	17,02	4,63	10,21	-
ML7500-025-B-N	ML7500-025-C-N	25	0,98	155	6,10	130	5,12	200 bar 2900 psi		10583	23792	13365	30046	353,0	21,53	4,94	10,89	-
ML7500-038-B-N	ML7500-038-C-N	38	1,50	185	7,28	147	5,79			11183	25140	14582	32782	469,0	28,61	5,50	12,13	-
ML7500-050-B-N	ML7500-050-C-N	50	1,97	210	8,27	160	6,30	± 5% +20 °C +68 °F		11693	26287	15648	35178	563,0	34,34	5,77	12,72	-
ML7500-063-B-N	ML7500-063-C-N	63	2,48	240	9,45	177	6,97			11968	26905	16233	36493	679,0	41,42	6,25	13,78	-
ML7500-080-B-N	ML7500-080-C-N	80	3,15	280	11,02	200	7,87			12189	27402	16710	37566	835,0	50,94	6,86	15,12	-



## HOW TO ORDER

(10 pcs) ML7500-050-C-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

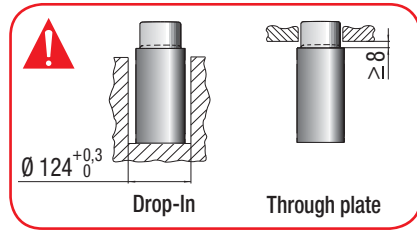
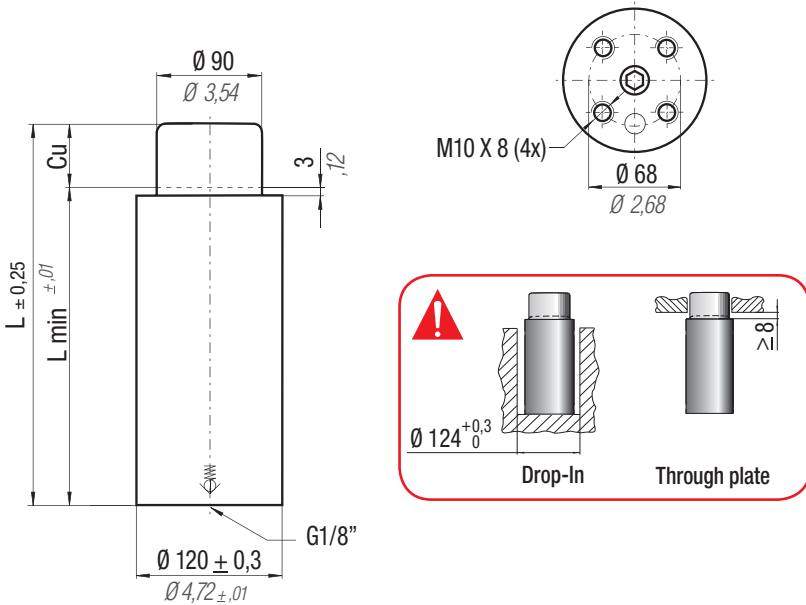
The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolué

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

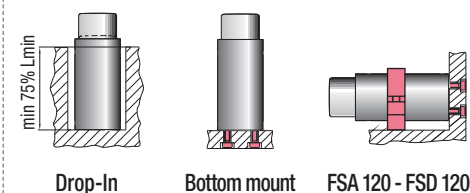
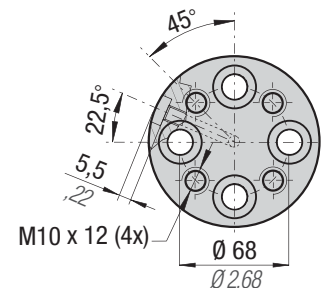
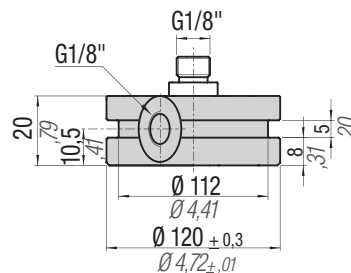


N <sub>2</sub>		°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 200 bar 2900 psi	P min 20 bar 290 psi	S 63,62 cm <sup>2</sup> 9,861 in <sup>2</sup>	SPM ~ 20 - 50 (at 20°C)	Max Speed 1,6 m/s	Maintenance kit 39BMML12000C								
CODE	NEW	Cu		L		L min		F <sub>0</sub>		F <sub>1i</sub>		F <sub>1p</sub>		V <sub>0</sub>		CE		
PHASING OUT from 04/2013		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
ML 12000 - 015 - B	ML 12000 - 015 - C	15	0,59	115	4,53	100	3,94	12720	28595	16321	36691	19799	44510	433,0	26,41	5,84	12,87	-
ML 12000 - 025 - B	ML 12000 - 025 - C	25	0,98	135	5,31	110	4,33	200 bar 2900 psi		17900	40241	22910	51504	550,0	33,55	6,55	14,44	-
ML 12000 - 038 - B	ML 12000 - 038 - C	38	1,50	165	6,50	127	5,00			18978	42664	25128	56490	734,0	44,77	7,25	15,98	-
ML 12000 - 050 - B	ML 12000 - 050 - C	50	1,97	195	7,68	145	5,71	± 5% +20 °C +68 °F		19435	43692	26091	58655	921,0	56,18	8,06	17,77	-
ML 12000 - 063 - B	ML 12000 - 063 - C	63	2,48	225	8,86	162	6,38			19969	44892	27232	61220	1105,0	67,41	9,14	20,15	II
ML 12000 - 080 - B	ML 12000 - 080 - C	80	3,15	265	10,43	185	7,28	20416	45897	28202	63401	1351,0	82,41	9,84	21,69	II		

## FML 12000

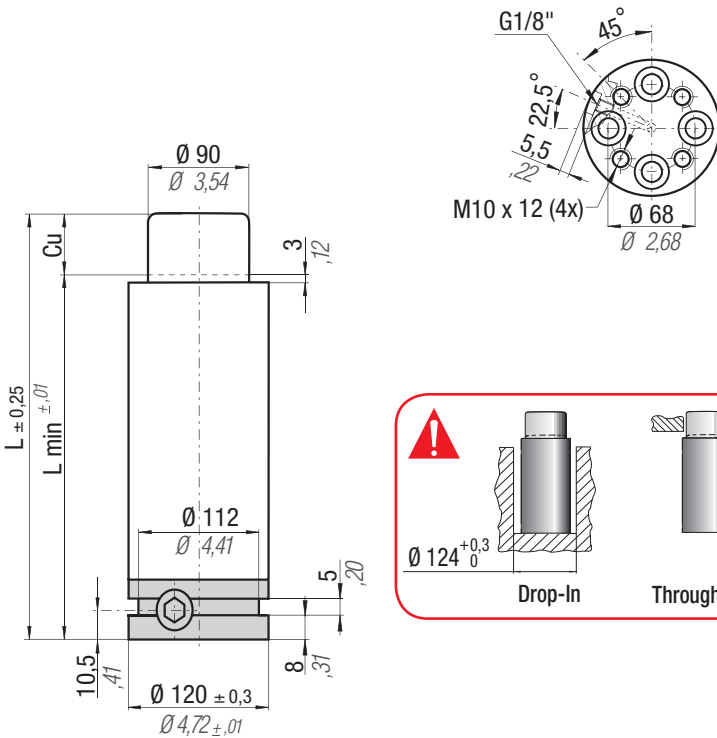
code: 39FML12000A

Kit speciale per trasformare cilindri autonomi  
 Special kit to convert self-contained cylinders  
 Spezial-Set zum Umbau eigenständiger Zylinder  
 Kit spécial pour transformer les cylindres autonomes  
 Kit especial para transformar cilindros autónomos  
 Kit especial para transformar cilindros autónomos



## HOW TO ORDER

(10 pcs) ML12000-050-C



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

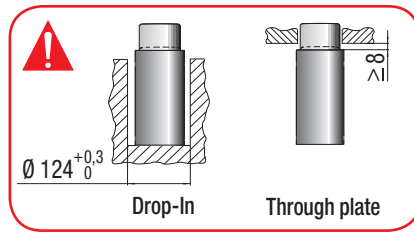
Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



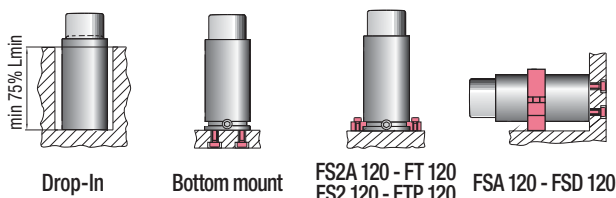
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolué

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock



		$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta P$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 200 bar 2900 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 63,62 cm <sup>2</sup> 9,861 in <sup>2</sup>	<b>SPM</b> ~ 20 - 50 (at 20°C)	<b>Max Speed</b> 1,6 m/s	<b>Maintenance kit</b> 39BMML12000C								
CODE		NEW	<b>Cu</b>	<b>L</b>	<b>L min</b>	<b>F0</b>	<b>F<sub>1i</sub></b>	<b>F<sub>1p</sub></b>	<b>V0</b>		<b>CE</b>							
PHASING OUT from 04/2013			mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.					
ML12000-015-B-N	ML12000-015-C-N	15	0,59	135	5,31	120	4,72	12720	28595	16321	36691	19799	44510	433,0	26,41	7,60	16,76	-
ML12000-025-B-N	ML12000-025-C-N	25	0,98	155	6,10	130	5,12	200 bar 2900 psi		17900	40241	22910	51504	550,0	33,55	8,31	18,32	-
ML12000-038-B-N	ML12000-038-C-N	38	1,50	185	7,28	147	5,79			18978	42664	25128	56490	734,0	44,77	9,01	19,86	-
ML12000-050-B-N	ML12000-050-C-N	50	1,97	215	8,46	165	6,50	$\pm 5\%$		19435	43692	26091	58655	921,0	56,18	9,82	21,65	-
ML12000-063-B-N	ML12000-063-C-N	63	2,48	245	9,65	182	7,17			19969	44892	27232	61220	1105,0	67,41	10,90	24,03	II
ML12000-080-B-N	ML12000-080-C-N	80	3,15	285	11,22	205	8,07	+20 °C	+68 °F	20416	45897	28202	63401	1351,0	82,41	11,60	25,57	II



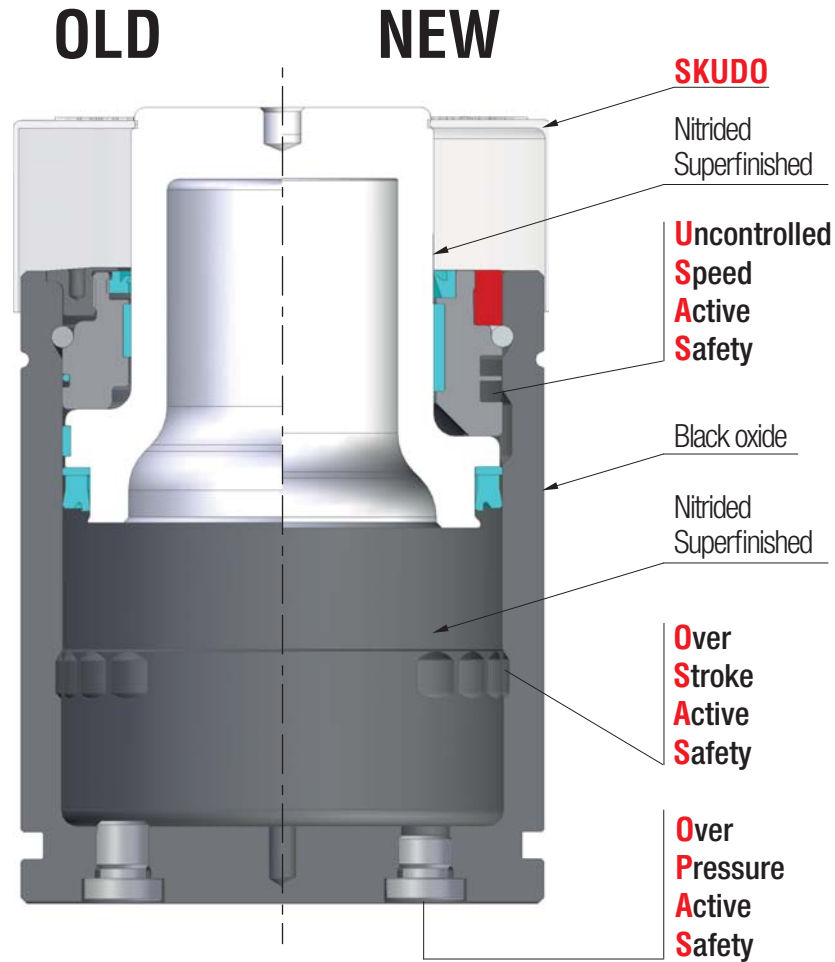
## HOW TO ORDER

(10 pcs) ML12000-050-C-N



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Code : KE \_ \_ \_ \_ - A

Code : KE \_ \_ \_ \_ - B

## Range chart

Model	Body Ø		Stroke Cu		Initial force Fo					
	mm	inch	mm	inch	daN	lb	OSAS	USAS	OPAS	SKUDO
KE 400	25	0.98	10 - 50	0.39 - 1.97	425	955	-	-	-	✓
KE 750	32	1.26	6 - 50	0.39 - 1.97	740	1664	✓	✓	✓	✓
KE 1000	38	1.50	6 - 50	0.24 - 1.97	1060	2383	✓	✓	✓	✓
KE 1800	50	1.97	6 - 50	0.24 - 1.97	1885	4238	✓	✓	✓	✓
KE 3000	63	2.48	10 - 50	0.39 - 1.97	2945	6620	✓	✓	✓	✓
KE 4700	75	2.95	10 - 50	0.39 - 1.97	4675	10510	✓	✓	✓	✓
KE 7500	95	3.74	10 - 50	0.39 - 1.97	7540	16950	✓	✓	✓	✓
KE 12000	120	4.72	10 - 50	0.39 - 1.97	11780	26481	✓	✓	✓	✓
KE 18500	150	5.91	10 - 50	0.39 - 1.97	18410	41386	✓	✓	✓	✓



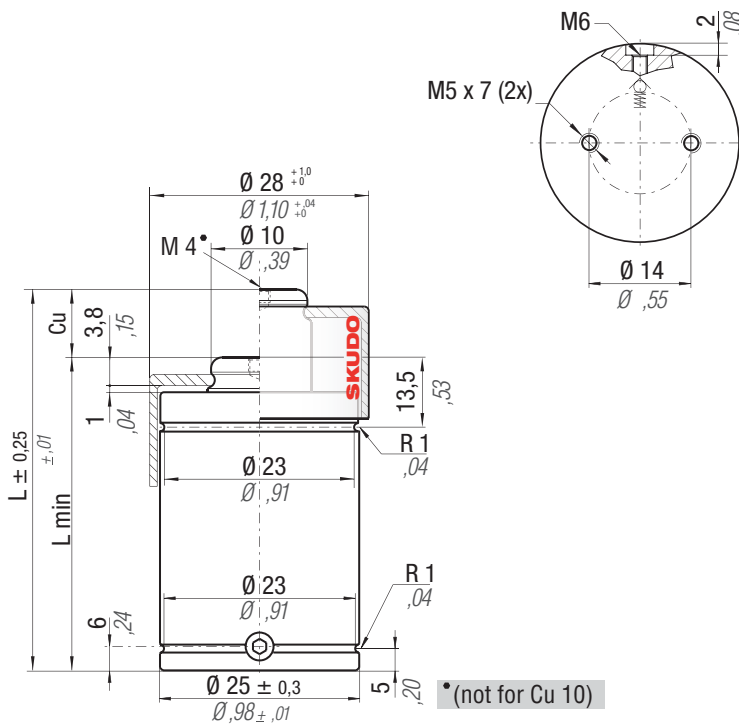
How to Order

## KE 1800-050-B - N - ED

Codice cilindro autonomo  
Self-contained cylinder code  
Kode des eingeständigen Gdf.  
Code du cylindre autonome  
Codigo del cilindro autónomo  
Codigo do cilindro autónomo

Collegabile con tubi, fornito scarico e senza valvola unidirezionale  
Linkable with hoses, supplied without pressure and oneway valve  
Anschlussfähig mit Leitungen, geliefert ohne Druck und RückschlagVentil  
Connectable con tubos, suministrado sin presión y sin válvula unidireccional  
Acompláveis com tubos, fornecidos sem pressão e sem válvula unidireccional

Collegabile EASY MANIFOLD, fornito scarico + guarnizione di collegamento  
Linkable EASY MANIFOLD, supplied without pressure + connecting seal  
Anschlussfähig EASY MANIFOLD, geliefert ohne Druck + Verbindungsdichtung  
Connectable EASY MANIFOLD, fourni sans pression + joint de connexion  
Connectable EASY MANIFOLD, suministrado sin presión + junta de conexión  
Acompláveis EASY MANIFOLD, fornecidos sem pressão + vedantes de conexão



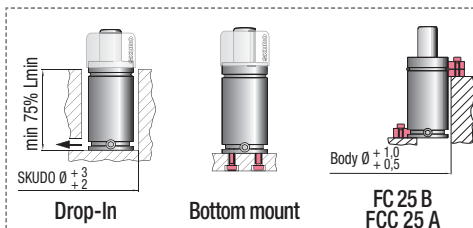
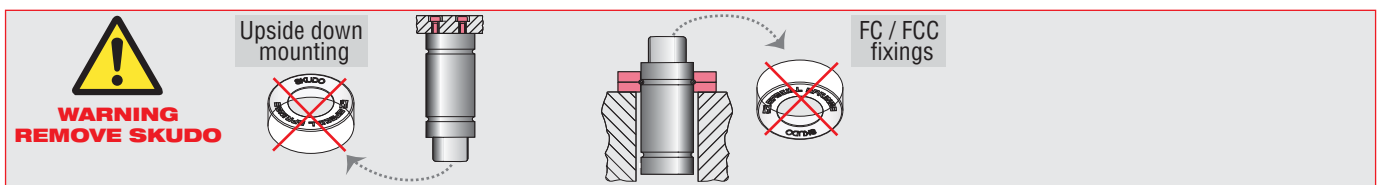
## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

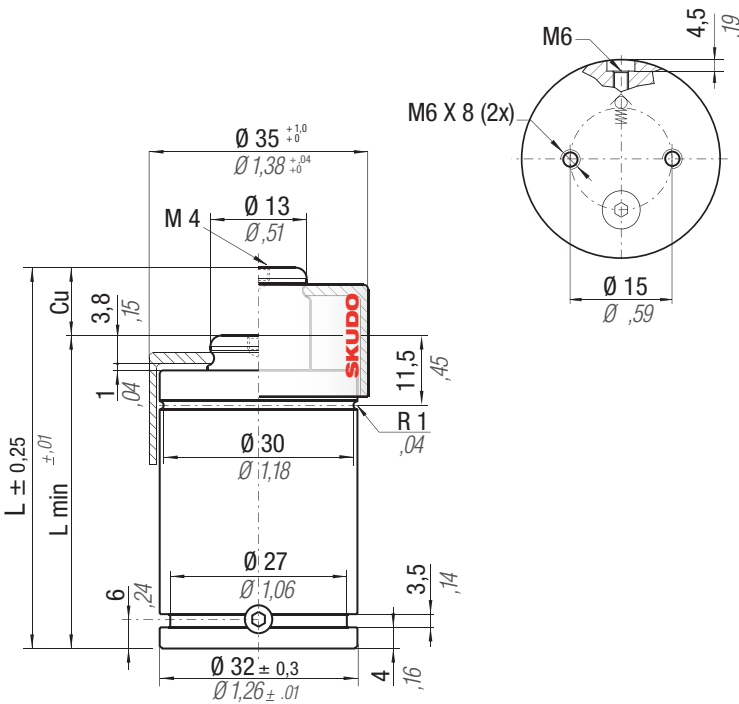
	°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 2,84 cm <sup>2</sup> 0,440 in <sup>2</sup>	SPM ~ 50 - 100 (at 20°C)	Max Speed 0,8 m/s	Maintenance kit Disposabile								
CODE	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> ** End force **		V <sub>0</sub>				
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
KE 400 - 010 - A	10	0,39	70	2,76	60	2,36	425	955	700	1574	1153	2592	6,0	0,37	0,16	0,35	-
KE 400 - 016 - A	16	0,63	91	3,58	75	2,95	150 bar 2175psi  ± 5% + 20 °C + 68 °F		705	1585	1171	2633	10,0	0,61	0,19	0,42	-
KE 400 - 025 - A	25	0,98	120	4,72	95	3,74			716	1610	1162	2612	16,0	0,98	0,23	0,51	-
KE 400 - 032 - A	32	1,26	140	5,51	108	4,25			804	1807	1217	2736	19,0	1,16	0,25	0,55	-
KE 400 - 040 - A	40	1,57	165	6,50	125	4,92			804	1807	1217	2736	24,0	1,46	0,28	0,62	-
KE 400 - 050 - A	50	1,97	195	7,68	145	5,71			812	1825	1238	2783	30,0	1,83	0,32	0,71	-

KE



## HOW TO ORDER

(10 pcs) KE 400-050-A  
(10 pcs) KE 400-050-A-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easyl** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

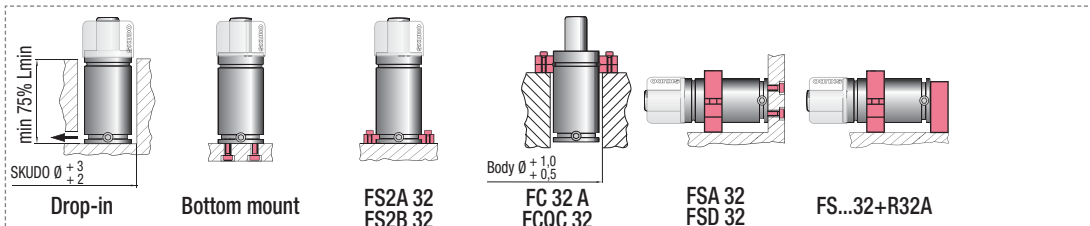
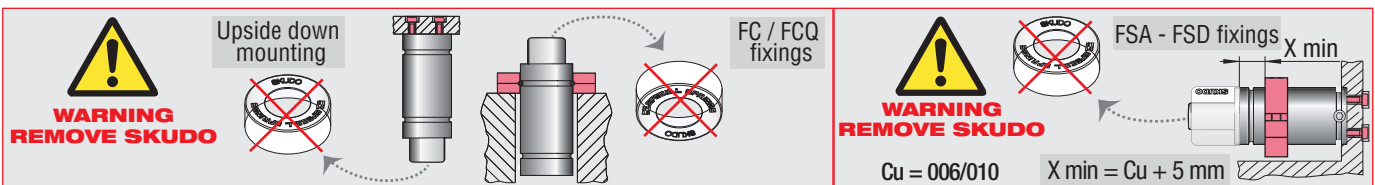


Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

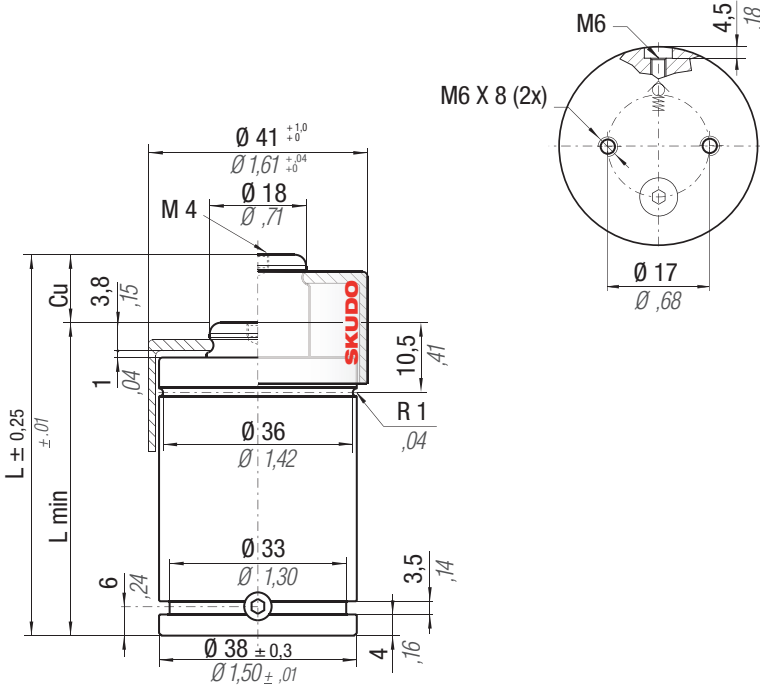
O novo código irá ser fornecido apenas quando o antigo esgotar stock

		°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 4,91 cm <sup>2</sup> 0.761 in <sup>2</sup>	SPM ~ 50 - 100 (at 20°C)	Max Speed 0,8 m/s	Maintenance kit 39BMKE00750B
CODE	NEW	Cu	L	L min	F0	F <sub>1i</sub>	F <sub>1p</sub>	V0	CE	
PHASING OUT from 08/2012		mm inch	mm inch	mm inch	Initial force daN lb	End force * daN lb	End force * daN lb	cm <sup>3</sup> in <sup>3</sup>	~Kg ~lb	Cat.
KE 750 - 006 - A	KE 750 - 006 - B	6 0,24	63 2,48	57 2,24	740 1664 150 bar 2175psi ± 5% + 20 °C +68 °F	1116 2509	1486 3341	9,0 0,55	0,23 0,51	-
KE 750 - 010 - A	KE 750 - 010 - B	10 0,39	75 2,95	65 2,56		1119 2516	1656 3723	13,0 0,79	0,25 0,55	-
KE 750 - 016 - A	KE 750 - 016 - B	16 0,63	93 3,66	77 3,03		1225 2754	1792 4029	19,0 1,16	0,28 0,63	-
KE 750 - 025 - A	KE 750 - 025 - B	25 0,98	120 4,72	95 3,74		1301 2925	1895 4260	28,0 1,71	0,33 0,73	-
KE 750 - 032 - A	KE 750 - 032 - B	32 1,26	140 5,51	108 4,25		1336 3003	1975 4440	35,0 2,14	0,37 0,82	-
KE 750 - 040 - A	KE 750 - 040 - B	40 1,57	165 6,50	125 4,92		1336 3003	1975 4440	44,0 2,68	0,42 0,92	-
KE 750 - 050 - A	KE 750 - 050 - B	50 1,97	195 7,68	145 5,71	1348 3030	2004 4505	54,0 3,29	0,47 1,04	-	



**HOW TO ORDER**  
 (10 pcs) KE 750-050-B  
 (10 pcs) KE 750-050-B-N





## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolué

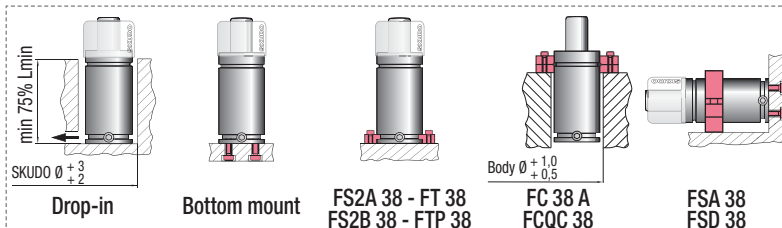
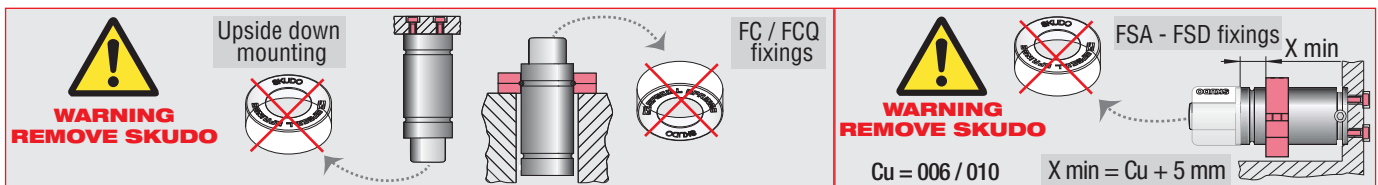
El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

N <sub>2</sub>	°F 32 - 176	°C 0 - 80	ΔP ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 7,07 cm <sup>2</sup> 1,096 in <sup>2</sup>	SPM ~ 50 - 100 (at 20°C)	Max Speed 0,8 m/s	Maintenance kit										
									39BMKE0100B										
<b>CODE</b>																			
PHASING OUT from 08/2012																			
	NEW																		
KE 1000 - 006 - A	**KE 1000 - 006 - B	6	0,24	61	2,40	55	2,17	1060	2383	1733	3896	2412	5422	11,0	0,67	0,33	0,72	-	
KE 1000 - 010 - A	KE 1000 - 010 - B	10	0,39	78	3,07	68	2,68			1680	3777	2297	5164	19,0	1,16	0,38	0,84	-	
KE 1000 - 016 - A	KE 1000 - 016 - B	16	0,63	100	3,94	84	3,31	150 bar		1665	3743	2264	5090	31,0	1,89	0,44	0,97	-	
KE 1000 - 025 - A	KE 1000 - 025 - B	25	0,98	135	5,31	110	4,33	2175psi		1630	3664	2190	4923	51,0	3,11	0,53	1,17	-	
KE 1000 - 032 - A	KE 1000 - 032 - B	32	1,26	167	6,57	135	5,31			1577	3545	2079	4674	69,0	4,21	0,62	1,37	-	
KE 1000 - 040 - A	KE 1000 - 040 - B	40	1,57	195	7,68	155	6,10			1598	3592	2121	4768	84,0	5,12	0,70	1,54	-	
KE 1000 - 050 - A	KE 1000 - 050 - B	50	1,97	230	9,06	180	7,09	± 5% + 20 °C +68 °F		1615	3631	2159	4854	103,0	6,28	0,79	1,74	-	

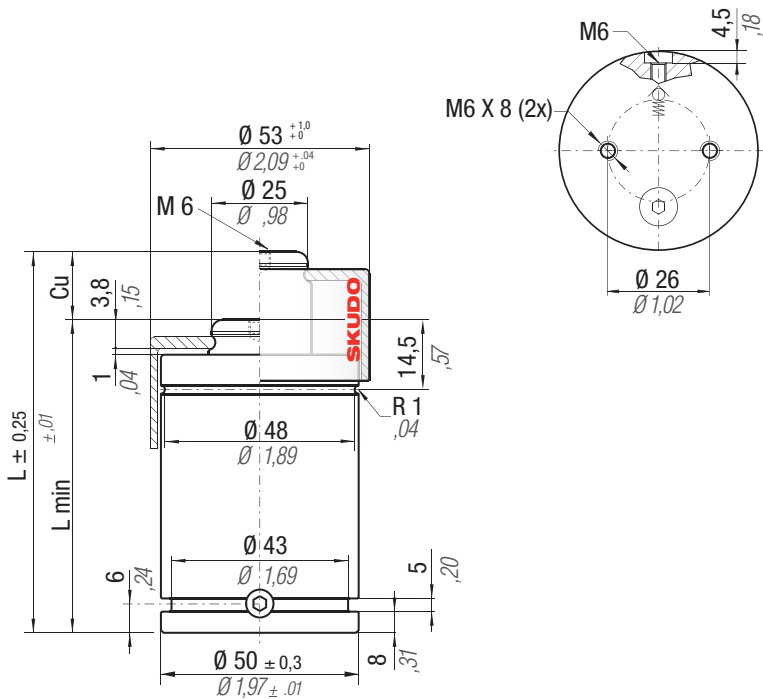
\*\*Disposable

KE



## HOW TO ORDER

(10 pcs) KE 1000-050-B  
(10 pcs) KE 1000-050-B-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easyl** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$\text{°F}$ 32 -176	$\text{°C}$ 0 -80	$\Delta P$ $\pm 0,33\%/\text{°C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 12,57 cm <sup>2</sup> 1,948 in <sup>2</sup>	<b>SPM</b> ~ 50 - 100 (at 20°C)	<b>Max Speed</b> 0,8 m/s	<b>Maintenance kit</b> 39BMKE01800B
--	---------------------------	-------------------------	--------------------------------------	-------------------------------------	-----------------------------------	--	---------------------------------------	-----------------------------	--

CODE PHASING OUT from 08/2012	NEW	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> End force *		V <sub>0</sub>		~Kg ~lb	CE Cat.									
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>											
KE 1800 - 006 - A	KE 1800 - 006 - B	6	0,24	66	2,60	60	2,36	1885 4238 150 bar 2175psi  ± 5% +20 °C +68 °F	2627 5906	3731 8388	23,0 1,40	0,62 1,37	-	KE 1800 - 010 - A	KE 1800 - 010 - B	10	0,39	80	3,15	70	2,76	2748 6178	3860 8678	36,0 2,20	0,68 1,50	-
KE 1800 - 016 - A	KE 1800 - 016 - B	16	0,63	106	4,17	90	3,54							2769 6225	3623 8145	63,0 3,84	0,80 1,76	-								
KE 1800 - 025 - A	KE 1800 - 025 - B	25	0,98	135	5,31	110	4,33							2889 6495	3874 8709	90,0 5,49	0,92 2,04	-								
KE 1800 - 032 - A	KE 1800 - 032 - B	32	1,26	162	6,38	130	5,12							2868 6448	3830 8610	117,0 7,14	1,05 2,31	-								
KE 1800 - 040 - A	KE 1800 - 040 - B	40	1,57	190	7,48	150	5,91							2891 6499	3877 8716	145,0 8,85	1,17 2,58	-								
KE 1800 - 050 - A	KE 1800 - 050 - B	50	1,97	220	8,66	170	6,69							2968 6672	4043 9089	172,0 10,49	1,30 2,87	-								

**WARNING REMOVE SKUDO**

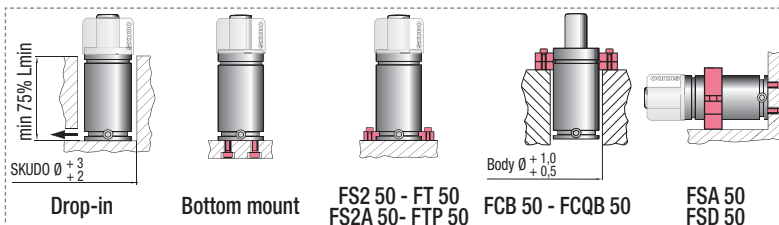
Upside down mounting

FC / FCQ fixings

**WARNING REMOVE SKUDO**

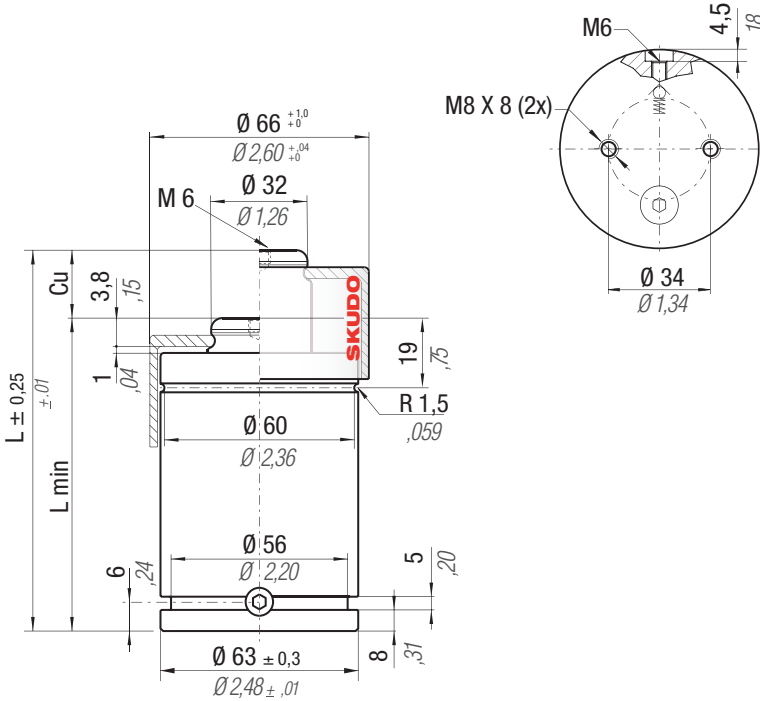
FSA - FSD fixings X min

Cu = 006 / 010    X min = Cu + 5 mm



## HOW TO ORDER

(10 pcs) KE 1800-050-B  
(10 pcs) KE 1800-050-B-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

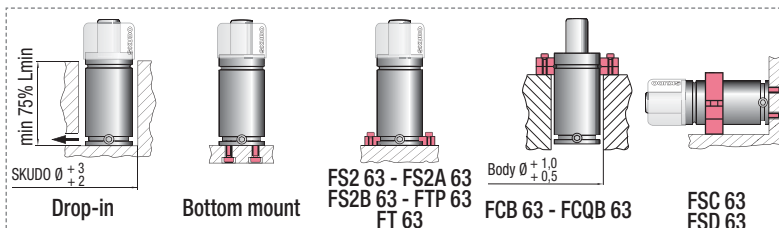
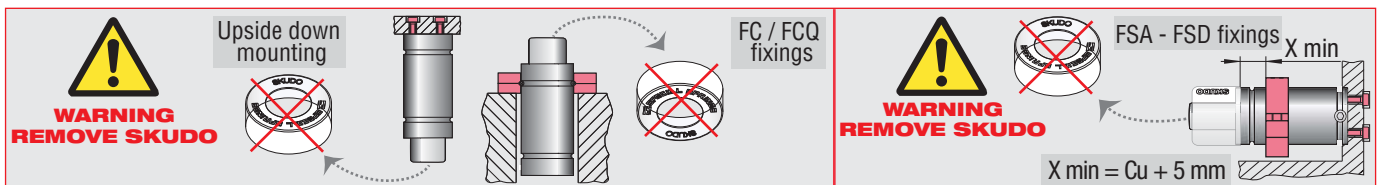
El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	<b>N<sub>2</sub></b>	<b>°F</b> 32 - 176	<b>°C</b> 0 - 80	<b>ΔP</b> ± 0,33 %/°C	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 19,63 cm <sup>2</sup> 3,043 in <sup>2</sup>	<b>SPM</b> ~ 80 - 100 at 20°C	<b>Max Speed</b> 0,8 m/s	<b>Maintenance kit</b> 39BMKE03000B
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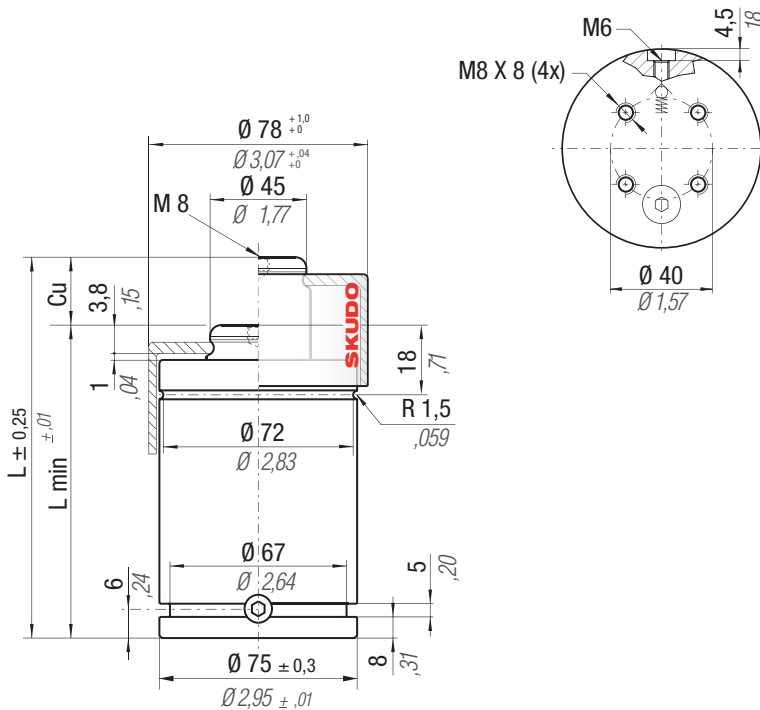
CODE PHASING OUT from 08/2012	NEW	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> End force *		V <sub>0</sub>		~Kg ~lb		CE Cat.
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	-Kg	-lb	
KE 3000 - 010 - A	KE 3000 - 010 - B	10	0,39	85	3,35	75	2,95	2945	6620	4420	9937	6363	14305	53,0	3,23	1,23	2,71	-
KE 3000 - 016 - A	KE 3000 - 016 - B	16	0,63	103	4,06	87	3,43	150 bar 2175psi		4586	10310	6829	15352	80,0	4,88	1,35	2,98	-
KE 3000 - 025 - A	KE 3000 - 025 - B	25	0,98	130	5,12	105	4,13			4906	11029	7176	16132	119,0	7,26	1,54	3,40	-
KE 3000 - 032 - A	KE 3000 - 032 - B	32	1,26	150	5,91	118	4,65	± 5% + 20 °C + 68 °F		5055	11364	7443	16733	147,0	8,97	1,68	3,70	-
KE 3000 - 040 - A	KE 3000 - 040 - B	40	1,57	175	6,89	135	5,31			5146	11569	7445	16737	184,0	11,22	1,86	4,10	-
KE 3000 - 050 - A	KE 3000 - 050 - B	50	1,97	205	8,07	155	6,10	5024	11294	7542	16955	227,0	13,85	2,07	4,56	-		

KE



## HOW TO ORDER

(10 pcs) KE 3000-050-B  
(10 pcs) KE 3000-050-B-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



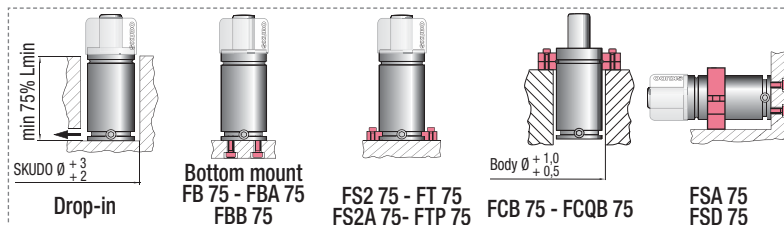
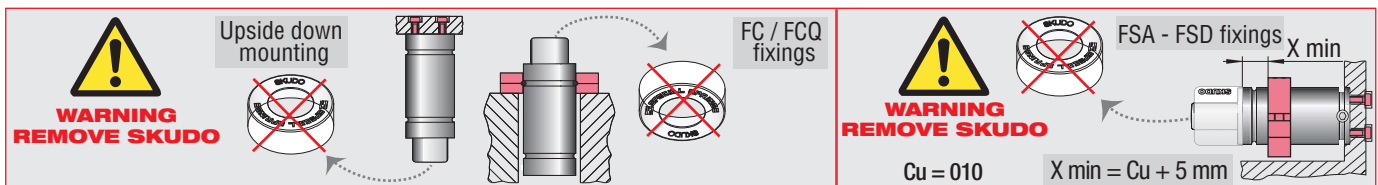
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écolué

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$\text{°F}$ 32 -176	$\text{°C}$ 0 -80	$\Delta P$ $\pm 0,33 \%/^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 31,17 cm <sup>2</sup> 4,831 in <sup>2</sup>	<b>SPM</b> ~ 80 - 100 (at 20°C)	<b>Max Speed</b> 0,8 m/s	<b>Maintenance kit</b> 39BMKE04700B
--	---------------------------	-------------------------	--	-------------------------------------	-----------------------------------	--	---------------------------------------	-----------------------------	--

CODE PHASING OUT from 08/2012	NEW	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> End force *		V <sub>0</sub>		CE		
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	Cat.
KE 4700 - 010 - A	KE 4700 - 010 - B	10	0,39	80	3,15	70	2,76	4675 10510 150 bar 2175psi $\pm 5\%$ $+20^{\circ}\text{C} +68^{\circ}\text{F}$		7356	16537	10013	22510	86,0	5,25	1,60	3,53	-
KE 4700 - 016 - A	KE 4700 - 016 - B	16	0,63	106	4,17	90	3,54			6930	15579	9112	20485	153,0	9,33	1,83	4,03	-
KE 4700 - 025 - A	KE 4700 - 025 - B	25	0,98	135	5,31	110	4,33			7173	16126	9622	21631	224,0	13,66	2,07	4,56	-
KE 4700 - 032 - A	KE 4700 - 032 - B	32	1,26	167	6,57	135	5,31			6914	15543	9079	20410	308,0	18,79	2,37	5,22	-
KE 4700 - 040 - A	KE 4700 - 040 - B	40	1,57	200	7,87	160	6,30			6846	15390	8939	20096	393,0	23,97	2,66	5,86	-
KE 4700 - 050 - A	KE 4700 - 050 - B	50	1,97	240	9,45	190	7,48	6819	15330	8883	19970	496,0	30,26	3,01	6,64	-		



## HOW TO ORDER

(10 pcs) KE 4700-050-B  
(10 pcs) KE 4700-050-B-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easu** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

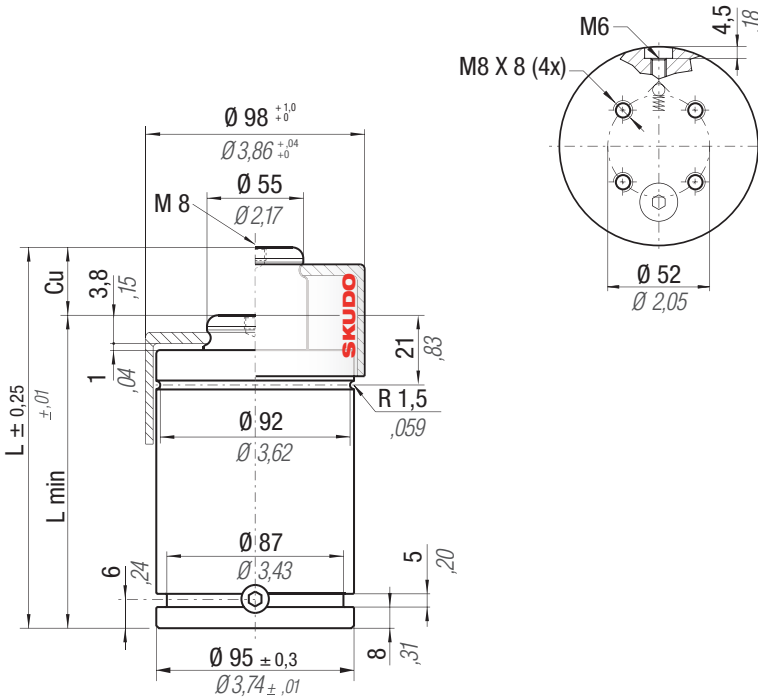
Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

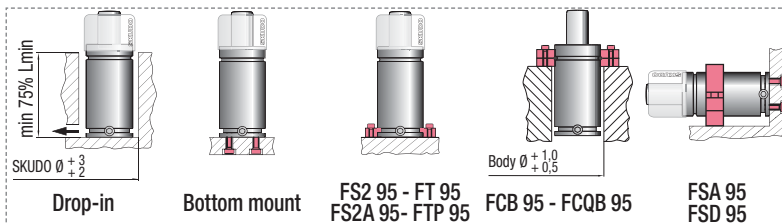
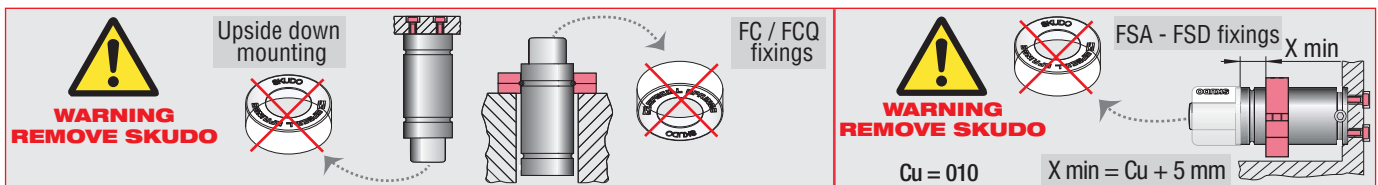
El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock



	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta P$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 50,27 cm <sup>2</sup> 7,791 in <sup>2</sup>	<b>SPM</b> ~ 80 - 100 (at 20°C)	<b>Max Speed</b> 0,8 m/s	<b>Maintenance kit</b> 39BMKE07500B
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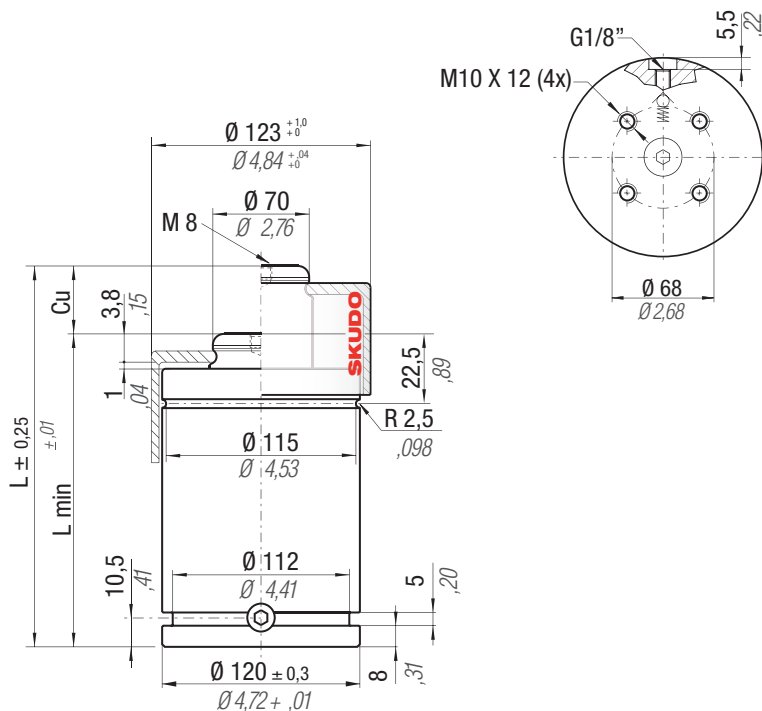
CODE PHASING OUT from 08/2012	NEW	Cu		L		L min		F0 Initial force		F1i End force *		F1p End force *		V0		~Kg		~lb		Cat.
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>					
KE 7500 - 010 - A	KE 7500 - 010 - B	10	0,39	90	3,54	80	3,15	7540	16950	11072	24891	14481	32555	158,0	9,64	2,87	6,33	-	-	-
KE 7500 - 016 - A	KE 7500 - 016 - B	16	0,63	116	4,57	100	3,94	150 bar 2175 psi		10800	24279	13924	31302	266,0	16,23	3,23	7,12	-	-	-
KE 7500 - 025 - A	KE 7500 - 025 - B	25	0,98	145	5,71	120	4,72			11274	25345	14901	33499	379,0	23,12	3,62	7,98	-	-	-
KE 7500 - 032 - A	KE 7500 - 032 - B	32	1,26	182	7,17	150	5,91	10739	24142	13800	31024	540,0	32,94	4,16	9,17	-	-	-	-	
KE 7500 - 040 - A	KE 7500 - 040 - B	40	1,57	210	8,27	170	6,69	$\pm 5\%$ $+ 20\text{ }^{\circ}\text{C} + 68\text{ }^{\circ}\text{F}$		10905	24515	14138	31783	652,0	39,77	4,54	10,01	-	-	-
KE 7500 - 050 - A	KE 7500 - 050 - B	50	1,97	255	10,04	205	8,07			10752	24171	13825	31080	841,0	51,30	5,17	11,40	-	-	-



## HOW TO ORDER

(10 pcs) KE 7500-050-B  
(10 pcs) KE 7500-050-B-N

# KE 12000



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31

**easyl** MANIFOLD - see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist

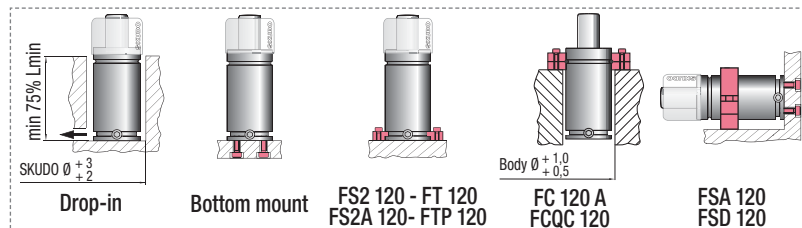
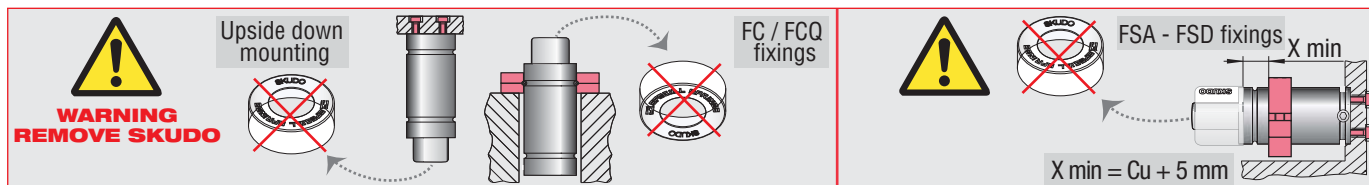
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

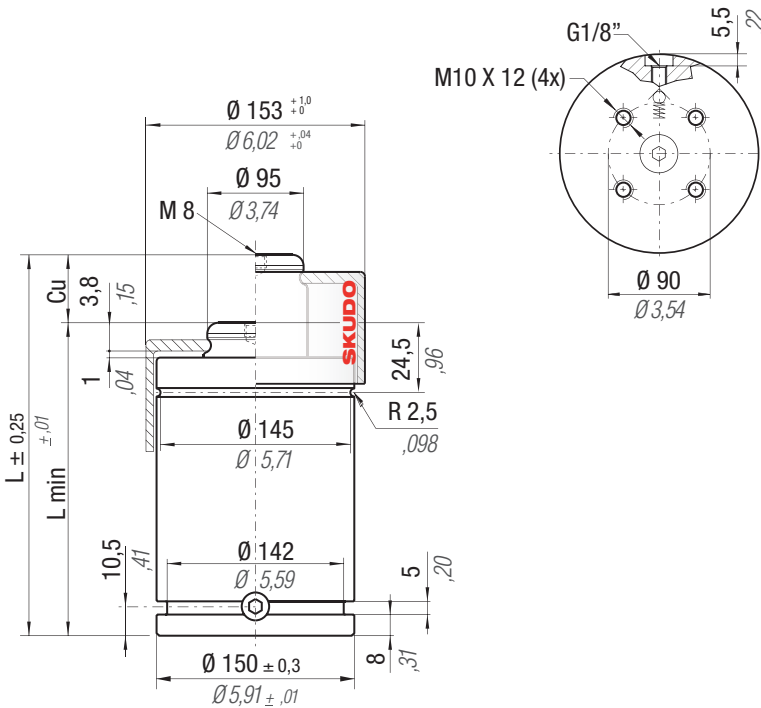


N <sub>2</sub>		°F 32 - 176	°C 0 - 80	$\Delta P$ ± 0,33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 78,54 cm <sup>2</sup> 12,174 in <sup>2</sup>	SPM ~ 50 - 100 (at 20°C)	Max Speed 0,8 m/s	Maintenance kit 39BMKE12000B
CODE	NEW	Cu	L	L min	F <sub>0</sub>	F <sub>1i</sub>	F <sub>1p</sub>	V <sub>0</sub>		
PHASING OUT from 08/2012		mm inch	mm inch	mm inch	Initial force	End force *	End force *	cm <sup>3</sup> in <sup>3</sup>	~Kg ~lb	Cat.
KE 12000 - 010 - A	KE 12000 - 010 - B	10 0,39	100 3,94	90 3,54	11780 26482 150 bar 2175psi ± 5% + 20 °C +68 °F	16699 37541	21398 48105	267,0 16,29	5,50 12,13	-
KE 12000 - 016 - A	KE 12000 - 016 - B	16 0,63	126 4,96	110 4,33		16544 37192	21084 47399	436,5 26,63	6,10 13,45	-
KE 12000 - 025 - A	KE 12000 - 025 - B	25 0,98	155 6,10	130 5,12		17337 38975	22704 51041	613,0 37,39	6,77 14,93	-
KE 12000 - 032 - A	KE 12000 - 032 - B	32 1,26	187 7,36	155 6,10		16952 38110	21913 49262	824,0 50,26	7,54 16,62	-
KE 12000 - 040 - A	KE 12000 - 040 - B	40 1,57	220 8,66	180 7,09		16899 37990	21805 49020	1037,0 63,26	8,31 18,32	I
KE 12000 - 050 - A	KE 12000 - 050 - B	50 1,97	260 10,24	210 8,27		16913 38022	21834 49085	1294,0 78,93	9,25 20,39	II



## HOW TO ORDER

(10 pcs) KE 12000-050-B  
(10 pcs) KE 12000-050-B-N



## Info

\*  $F_{1i}$  = Isothermal end force at 100% Cu - see page 31

\*\*  $F_{1p}$  = Polytrophic end force at 100% Cu - see page 31



- see page 237

Il nuovo codice sarà fornito solo ad esaurimento del vecchio

The new code will be supplied only when the old will be out of stock

Der neue Kode wird geliefert nur wenn der alte nicht mehr im Lager ist



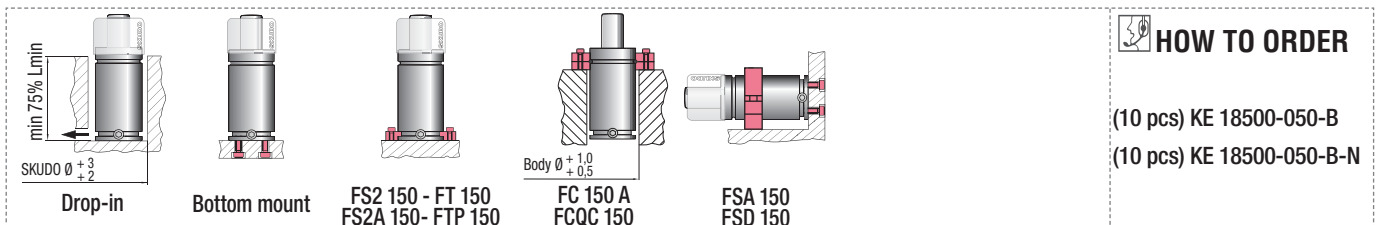
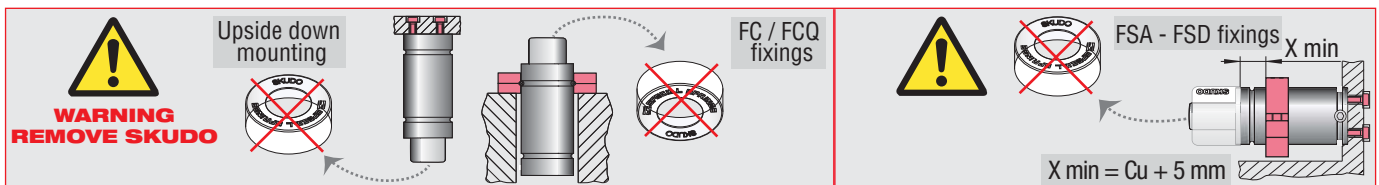
Le nouveau code sera fourni uniquement lorsque le vieux stock sera écoulé

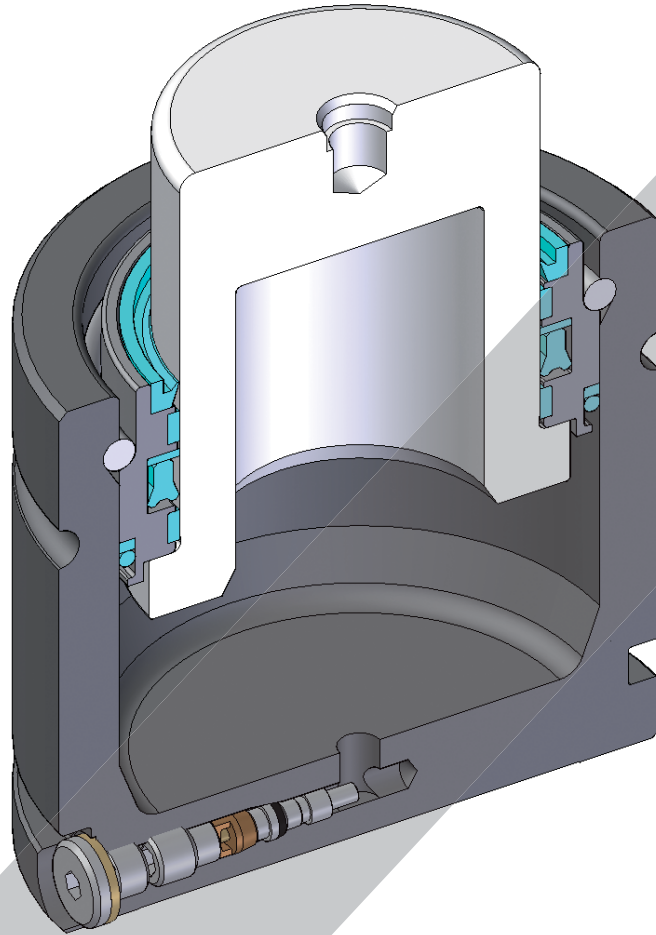
El nuevo código será suministrado sólo cuando el viejo está fuera de stock

O novo código irá ser fornecido apenas quando o antigo esgotar stock

	$^{\circ}\text{F}$ 32 - 176	$^{\circ}\text{C}$ 0 - 80	$\Delta\text{P}$ $\pm 0,33\% / ^{\circ}\text{C}$	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 122,72 cm <sup>2</sup> 19,022 in <sup>2</sup>	<b>SPM</b> ~ 50 - 100 (at 20°C)	<b>Max Speed</b> 0,8 m/s	<b>Maintenance kit</b> 39BMKE18500B
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CODE PHASING OUT from 08/2012	NEW	Cu		L		L min		F <sub>0</sub> Initial force		F <sub>1i</sub> End force *		F <sub>1p</sub> End force *		V <sub>0</sub>		~Kg ~lb		Cat.
		mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm <sup>3</sup>	in <sup>3</sup>			
KE 18500 - 010 - A	KE 18500 - 010 - B	10	0,39	110	4,33	100	3,94	18410	41386	24510	55101	30288	68090	493,0	30,07	9,23	20,35	-
KE 18500 - 016 - A	KE 18500 - 016 - B	16	0,63	136	5,35	120	4,72	150 bar 2175 psi		24765	55674	30788	69214	765,0	46,67	10,20	22,49	-
KE 18500 - 025 - A	KE 18500 - 025 - B	25	0,98	165	6,50	140	5,51			26006	58464	33260	74771	1050,0	64,05	11,22	24,74	I
KE 18500 - 032 - A	KE 18500 - 032 - B	32	1,26	197	7,76	165	6,50	25672	57713	32588	73261	1388,0	84,67	12,43	27,40	II		
KE 18500 - 040 - A	KE 18500 - 040 - B	40	1,57	235	9,25	195	7,68	$\pm 5\%$ $+ 20^{\circ}\text{C} + 68^{\circ}\text{F}$		25356	57003	31957	71842	1791,0	109,25	13,85	30,53	II
KE 18500 - 050 - A	KE 18500 - 050 - B	50	1,97	270	10,63	220	8,66			25797	57994	32838	73823	2142,0	130,66	15,11	33,31	II

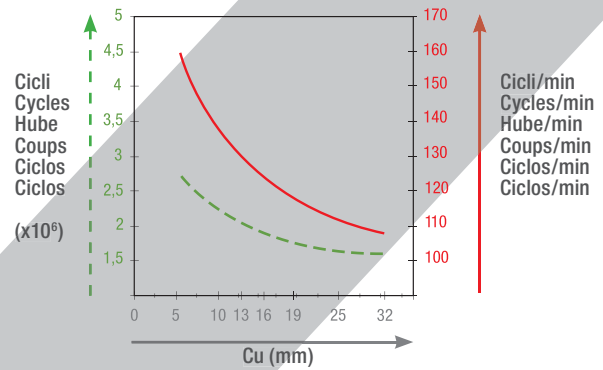
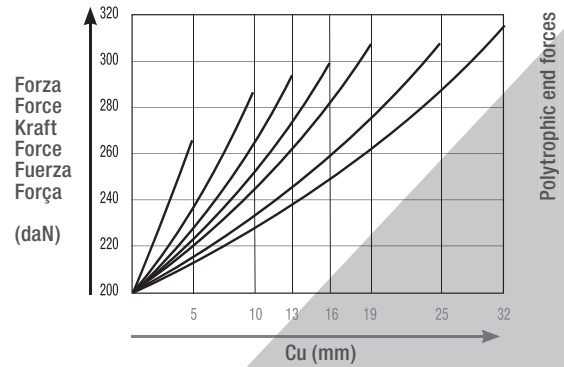
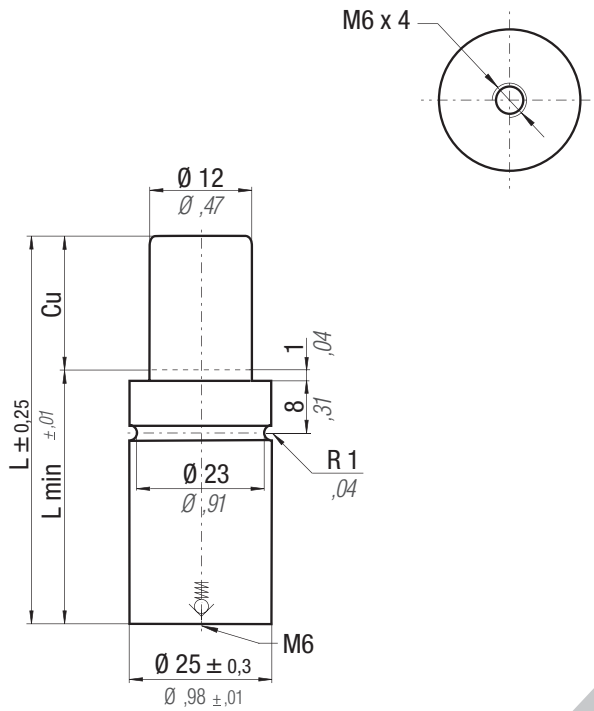




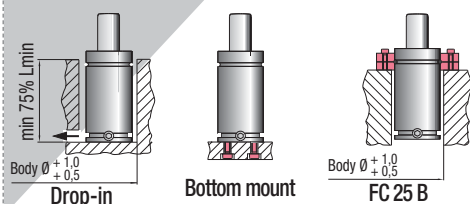
## Range chart

Model	Body Ø		Stroke Cu		Initial force				
	mm	inch	mm	inch	daN	lb	SKUDO	OSAS	OPAS
HR 200	25	0,98	5 - 32	0,20 - 1,26	200	450	-	-	-
HR 300	32	1,26	5 - 125	0,20 - 4,92	300	674	-	-	-
HR 500	38	1,50	5 - 125	0,20 - 4,92	470	1057	-	-	-
HRF 500	M 38 X 1,5	M 38 X 1,5	5 - 125	0,20 - 4,92	470	1057	-	-	-
HR 700	45	1,77	10 - 125	0,39 - 4,92	680	1529	-	-	-
HR 700 N	45	1,77	10 - 125	0,39 - 4,92	680	1529	-	-	-
HRF 700	M 45 X 1,5	M 45 X 1,5	10 - 125	0,39 - 4,92	680	1529	-	-	-
HR 1000	50	1,97	10 - 125	0,39 - 4,92	1060	2383	-	-	-
HR 1000 N	50	1,97	10 - 125	0,39 - 4,92	1060	2383	-	-	-
HRF 1000	M 50 X 1,5	M 50 X 1,5	10 - 125	0,39 - 4,92	1060	2383	-	-	-
HR 1500	63	2,48	10 - 125	0,39 - 4,92	1530	3440	-	-	-
HR 1500 N	63	2,48	10 - 125	0,39 - 4,92	1530	3440	-	-	-
HR 2400	75	2,95	10 - 125	0,39 - 4,92	2385	5362	-	-	-
HR 2400 N	75	2,95	10 - 125	0,39 - 4,92	2385	5362	-	-	-
HR 4200	95	3,74	16 - 125	0,63 - 4,92	4240	9532	-	-	-
HR 4200 N	95	3,74	16 - 125	0,63 - 4,92	4240	9532	-	-	-
HR 6600	120	4,72	16 - 125	0,63 - 4,92	6630	14905	-	-	-
HR 11800	150	5,91	16 - 125	0,63 - 4,92	11780	26482	-	-	-





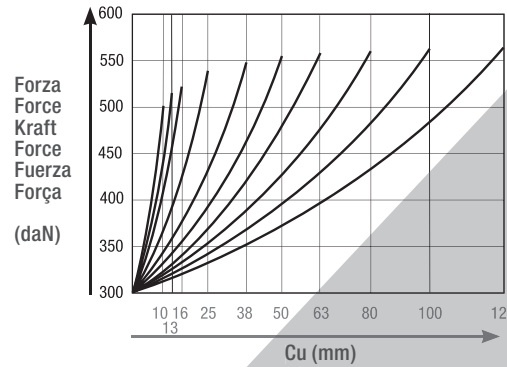
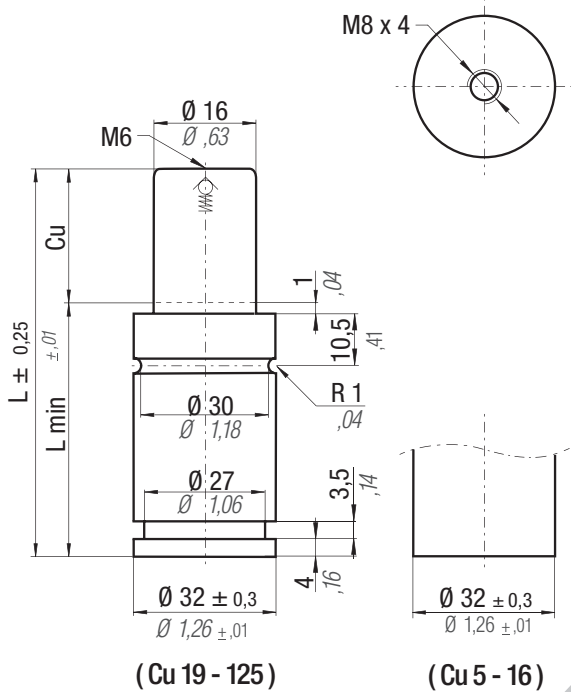
Max Speed	°F	°C		P max	P min	S		Maintenance kit			
1,8 m/s	32	0		175 bar 2538 psi	20 bar 290 psi	1,13 cm <sup>2</sup> 0,175 in <sup>2</sup>		Disposable			
176	80										
CODE	Cu		L		L min		Fo		Vo		CODE
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	
HR 200 - 005 - A	5	0,20	40	1,57	35	1,38			-	-	-
HR 200 - 010 - A	10	0,39	50	1,97	40	1,57	200	450	-	-	-
HR 200 - 013 - A	13	0,51	56	2,20	43	1,69			-	-	-
HR 200 - 016 - A	16	0,63	62	2,44	46	1,81	150 bar	2175 psi	-	-	-
HR 200 - 019 - A	19	0,75	68	2,68	49	1,93			-	-	-
HR 200 - 025 - A	25	0,98	80	3,15	55	2,17	± 5%		-	-	-
HR 200 - 032 - A	32	1,26	94	3,70	62	2,44	+ 20 °C +68 °F		-	-	-
									~Kg	~lb	



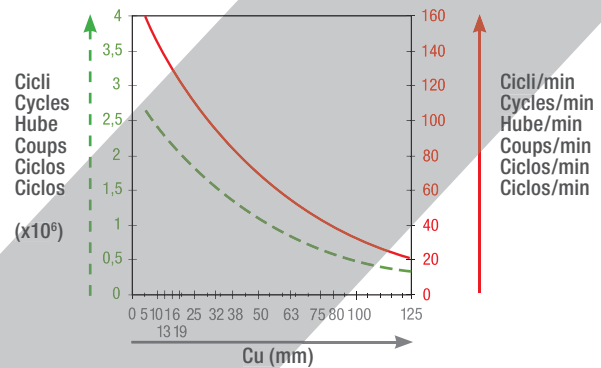
## HOW TO ORDER

(10 pcs) HR200-032-A

**PED**  
97/23/EC



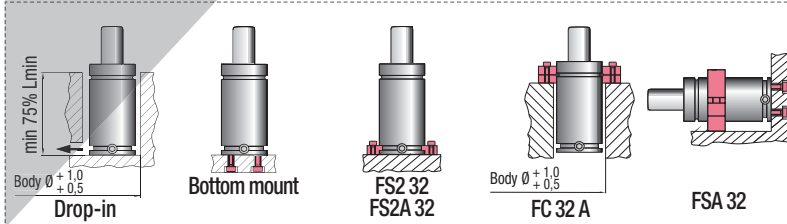
Polytropic end forces



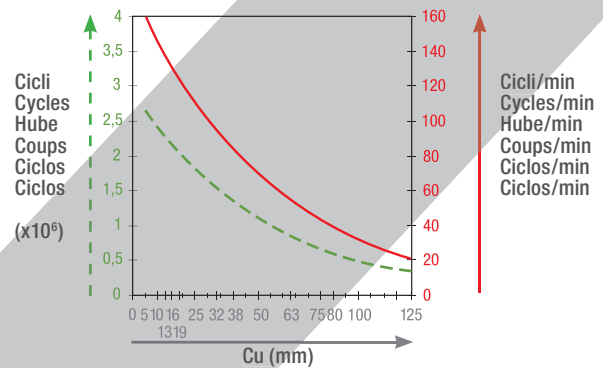
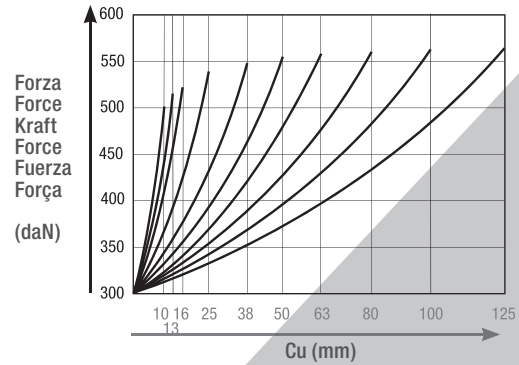
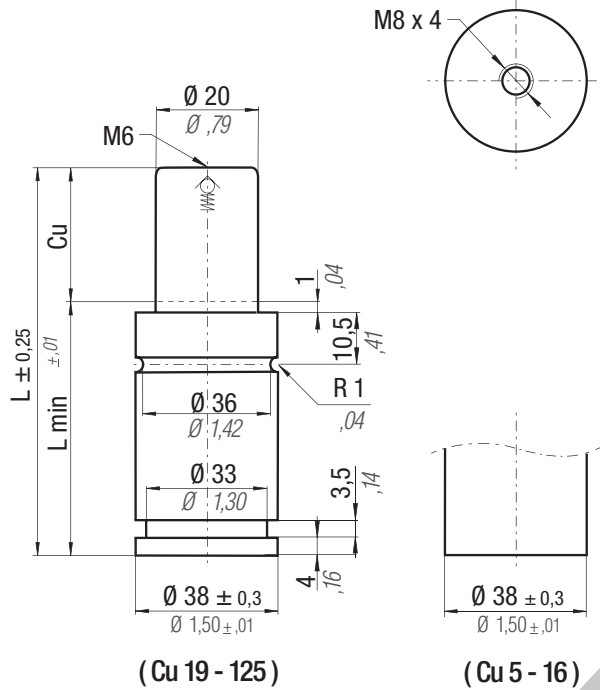
Max Speed	°F	°C		P max	P min	S		Maintenance kit
1,8 m/s	32	0		150 bar 2175 psi	20 bar 290 psi	2,01 cm <sup>2</sup> 0,312 in <sup>2</sup>		39BMHR00300A
176	80							

CODE	Cu		L		L min		Fo		Vo		CODE				
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>		~Kg	~lb		
HR 300 - 005 - A	5	0,20	40	1,57	35	1,38	300	674	-	-	0,17	0,37	-		
HR 300 - 010 - A	10	0,39	50	1,97	40	1,57			-	-	0,18	0,40	-		
HR 300 - 013 - A	13	0,51	56	2,20	43	1,69			-	-	0,19	0,42	-		
HR 300 - 016 - A	16	0,63	62	2,44	46	1,81			-	-	0,20	0,44	-		
HR 300 - 019 - A	19	0,75	68	2,68	49	1,93			-	-	0,22	0,48	-		
HR 300 - 025 - A	25	0,98	80	3,15	55	2,17			-	-	0,25	0,55	-		
HR 300 - 032 - A	32	1,26	94	3,70	62	2,44			-	-	0,27	0,59	-		
HR 300 - 038 - A	38	1,50	106	4,17	68	2,68			-	-	0,29	0,64	-		
HR 300 - 050 - A	50	1,97	130	5,12	80	3,15			± 5%	+ 20 °C +68 °F	-	-	0,34	0,75	-
HR 300 - 063 - A	63	2,48	156	6,14	93	3,66			-		-	0,39	0,86	-	
HR 300 - 075 - A	75	2,95	180	7,09	105	4,13			-		-	0,42	0,92	-	
HR 300 - 080 - A	80	3,15	190	7,48	110	4,33			-		-	0,45	0,99	-	
HR 300 - 100 - A	100	3,94	230	9,06	130	5,12			-		-	0,53	1,17	-	
HR 300 - 125 - A	125	4,92	280	11,02	155	6,10			-	-	0,68	1,50	-		

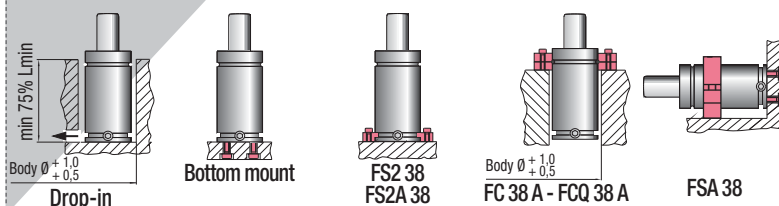


**HOW TO ORDER**  
(10 pcs) HR300-050-A



Max Speed	°F	°C		P max	P min	S		Maintenance kit							
1,8 m/s	32	0		150 bar	20 bar	3,14 cm <sup>2</sup>		39MBHR00500A							
	176	80		2175 psi	290 psi	0,487 in <sup>2</sup>									
CODE	Cu		L		L min		Fo		Vo		CODE				
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb			
HR 500 - 005 - A	5	0,20	40	1,57	35	1,38	470	1057	-	-	0,25	0,55	-		
HR 500 - 010 - A	10	0,39	50	1,97	40	1,57			-	-	0,27	0,60	-	-	-
HR 500 - 013 - A	13	0,51	56	2,20	43	1,69			-	-	0,29	0,64	-	-	-
HR 500 - 016 - A	16	0,63	62	2,44	46	1,81			-	-	0,31	0,68	-	-	-
HR 500 - 019 - A	19	0,75	68	2,68	49	1,93			-	-	0,33	0,73	-	-	-
HR 500 - 025 - A	25	0,98	80	3,15	55	2,17			-	-	0,36	0,79	-	-	-
HR 500 - 032 - A	32	1,26	94	3,70	62	2,44			150 bar	2175 psi	-	-	0,40	0,88	-
HR 500 - 038 - A	38	1,50	106	4,17	68	2,68			± 5%		-	-	0,44	0,97	-
HR 500 - 050 - A	50	1,97	130	5,12	80	3,15			+ 20 °C + 68 °F		-	-	0,50	1,10	-
HR 500 - 063 - A	63	2,48	156	6,14	93	3,66					-	-	0,57	1,26	-
HR 500 - 075 - A	75	2,95	180	7,09	105	4,13					-	-	0,61	1,34	-
HR 500 - 080 - A	80	3,15	190	7,48	110	4,33					-	-	0,66	1,46	-
HR 500 - 100 - A	100	3,94	230	9,06	130	5,12					-	-	0,77	1,70	-
HR 500 - 125 - A	125	4,92	280	11,02	155	6,10					-	-	0,90	1,98	-

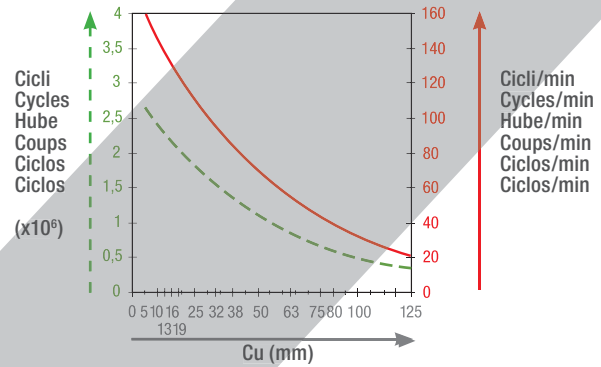
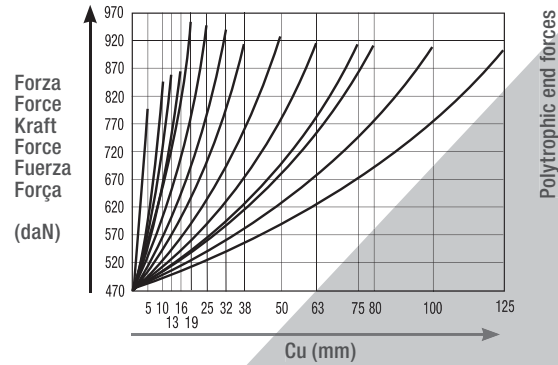
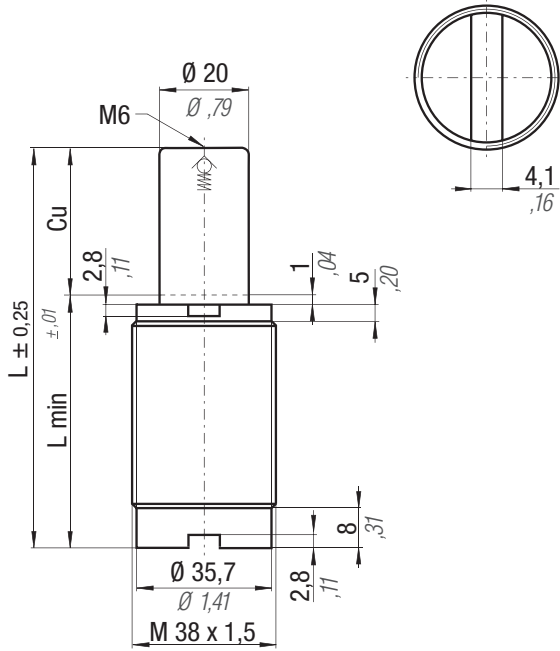
HR  
HRF



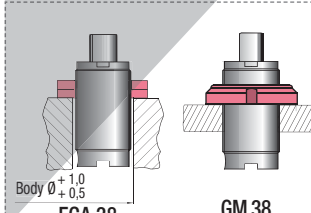
## HOW TO ORDER

(10 pcs) HR500-050-A

**PED**  
97/23/EC

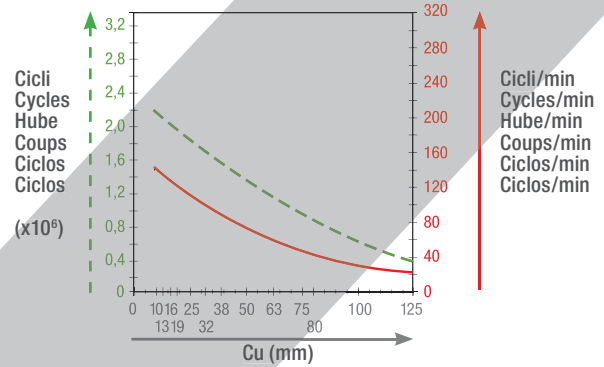
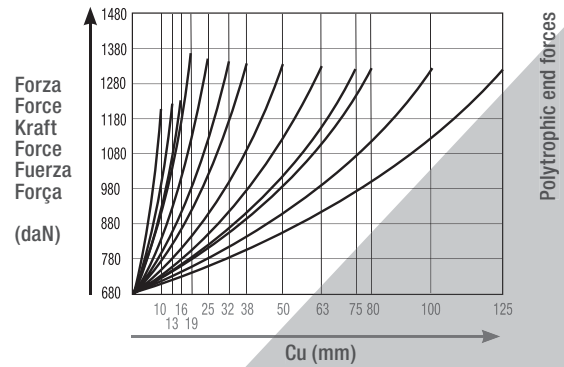
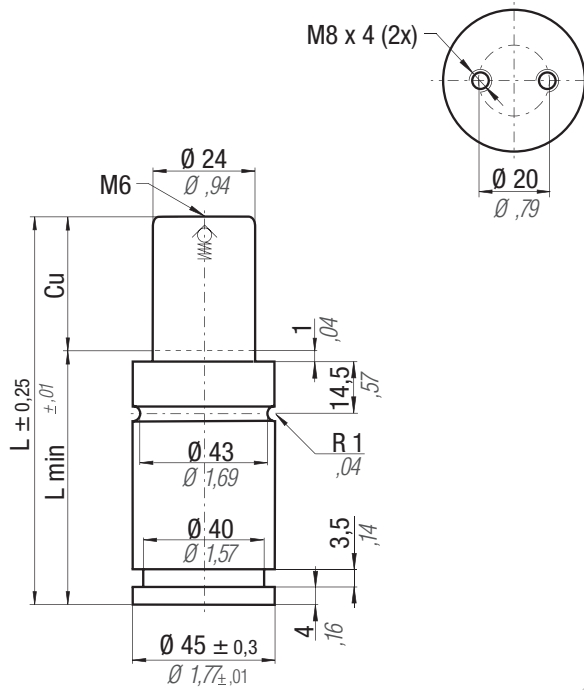


Max Speed	°F	°C		P max	P min	S		Maintenance kit							
1,8 m/s	32	0		150 bar	20 bar	3,14 cm <sup>2</sup>		39BMHR00500A							
	176	80		2175 psi	290 psi	0,487 in <sup>2</sup>									
CODE	Cu		L		L min		Fo		Vo		CODE				
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb			
HRF 500 - 005 - A	5	0,20	40	1,57	35	1,38	470 1057	150 bar	-	-	0,22	0,49	-		
HRF 500 - 010 - A	10	0,39	50	1,97	40	1,57			-	-	0,25	0,55	-		
HRF 500 - 013 - A	13	0,51	56	2,20	43	1,69			-	-	0,27	0,60	-		
HRF 500 - 016 - A	16	0,63	62	2,44	46	1,81			-	-	0,29	0,64	-		
HRF 500 - 019 - A	19	0,75	68	2,68	49	1,93			-	-	0,31	0,68	-		
HRF 500 - 025 - A	25	0,98	80	3,15	55	2,17			-	-	0,33	0,73	-		
HRF 500 - 032 - A	32	1,26	94	3,70	62	2,44			-	-	0,37	0,82	-		
HRF 500 - 038 - A	38	1,50	106	4,17	68	2,68			-	-	0,40	0,88	-		
HRF 500 - 050 - A	50	1,97	130	5,12	80	3,15			± 5%	+ 20 °C + 68 °F	-	-	0,47	1,04	-
HRF 500 - 063 - A	63	2,48	156	6,14	93	3,66			-		-	0,54	1,19	-	
HRF 500 - 075 - A	75	2,95	180	7,09	105	4,13			-		-	0,59	1,30	-	
HRF 500 - 080 - A	80	3,15	190	7,48	110	4,33			-		-	0,63	1,39	-	
HRF 500 - 100 - A	100	3,94	230	9,06	130	5,12			-		-	0,75	1,65	-	
HRF 500 - 125 - A	125	4,92	280	11,02	155	6,10			-		-	0,88	1,94	-	



**HOW TO ORDER**

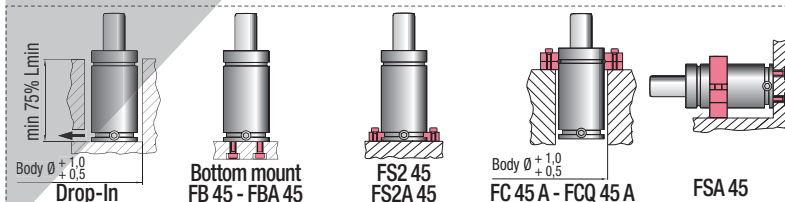
(10 pcs) HRF500-050-A



<b>Max Speed</b> 1,8 m/s	<b>°F</b> 32 176	<b>°C</b> 0 80		<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 4,52 cm <sup>2</sup> 0,701 in <sup>2</sup>		<b>Maintenance kit</b> 39MHR00700A
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CODE	Cu		L		L min		Fo		Vo		CODE		
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
HR 700 - 010 - A	10	0,39	52	2,05	42	1,65	680 1529 150 bar 2175 psi ± 5% + 20 °C +68 °F		-	-	0,39	0,86	-
HR 700 - 013 - A	13	0,51	58	2,28	45	1,77			-	-	0,42	0,93	-
HR 700 - 016 - A	16	0,63	64	2,52	48	1,89			-	-	0,45	0,99	-
HR 700 - 019 - A	19	0,75	70	2,76	51	2,01			-	-	0,48	1,06	-
HR 700 - 025 - A	25	0,98	82	3,23	57	2,24			-	-	0,53	1,17	-
HR 700 - 032 - A	32	1,26	96	3,78	64	2,52			-	-	0,58	1,28	-
HR 700 - 038 - A	38	1,50	108	4,25	70	2,76			-	-	0,62	1,37	-
HR 700 - 050 - A	50	1,97	132	5,20	82	3,23			-	-	0,71	1,57	-
HR 700 - 063 - A	63	2,48	158	6,22	95	3,74			-	-	0,81	1,79	-
HR 700 - 075 - A	75	2,95	182	7,17	107	4,21			-	-	0,85	1,87	-
HR 700 - 080 - A	80	3,15	192	7,56	112	4,41			-	-	0,93	2,05	-
HR 700 - 100 - A	100	3,94	232	9,13	132	5,20			-	-	1,04	2,29	-
HR 700 - 125 - A	125	4,92	282	11,10	157	6,18	-	-	1,28	2,82	-		

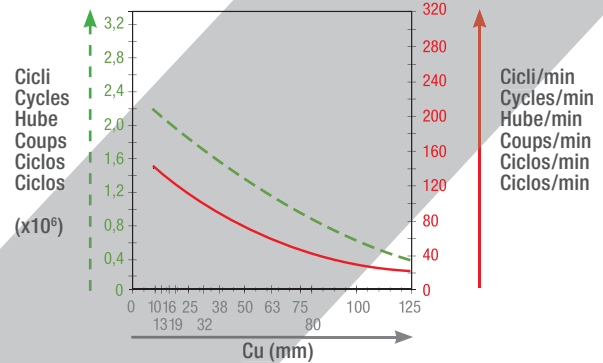
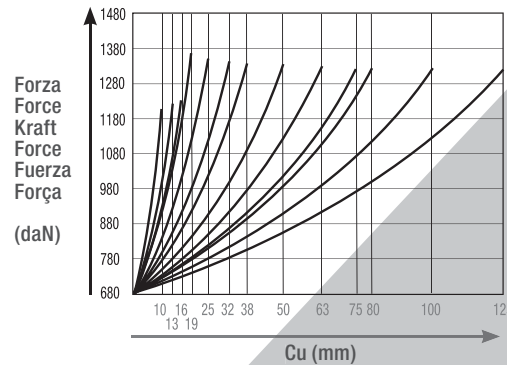
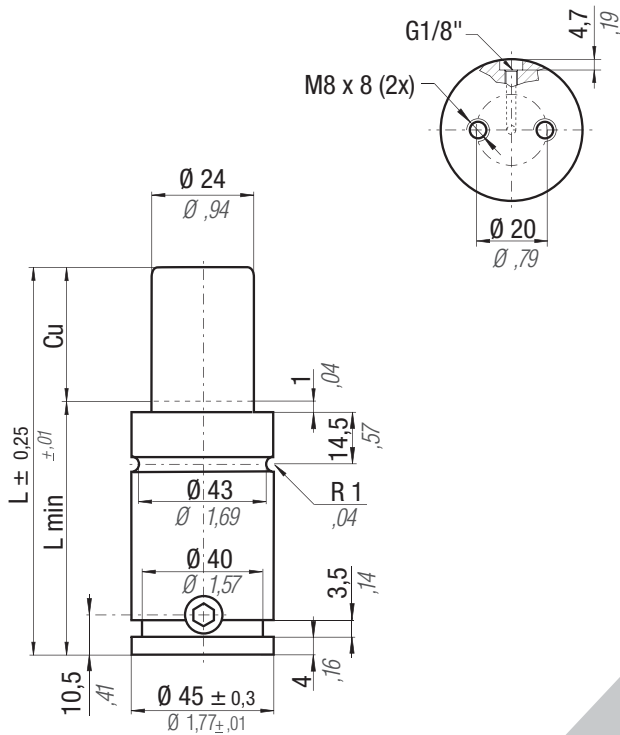
HR  
HRF



## HOW TO ORDER

(10 pcs) HR700-050-A

**FIAT PED**  
Specification 97/23/EC

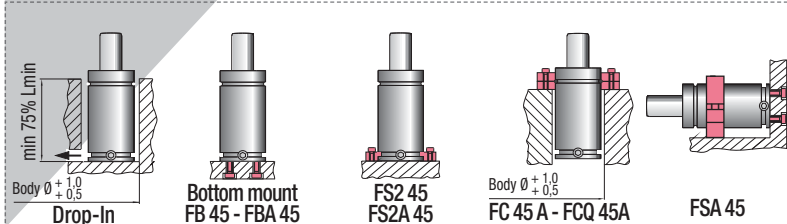


Max Speed	°F	°C		P max	P min	S		Maintenance kit
1,8 m/s	32	0		150 bar	20 bar	4,52 cm <sup>2</sup>		39MHR00700A
	176	80		2175 psi	290 psi	0,701 in <sup>2</sup>		

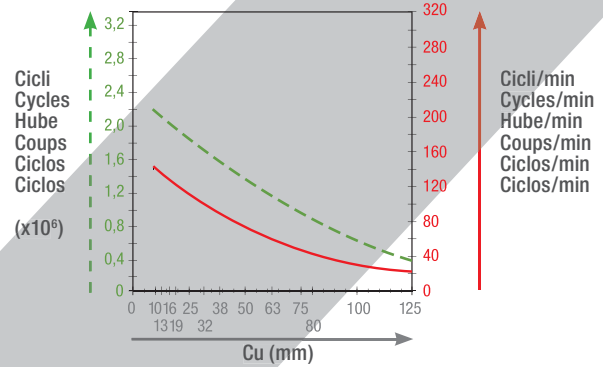
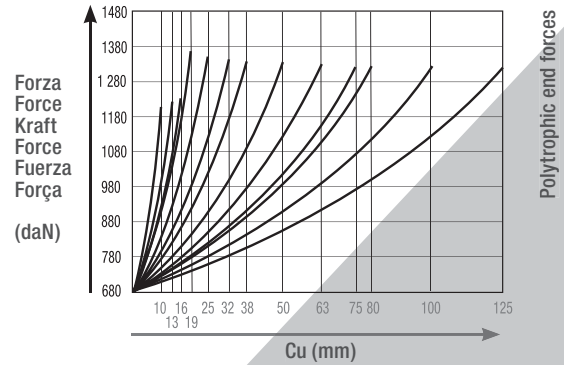
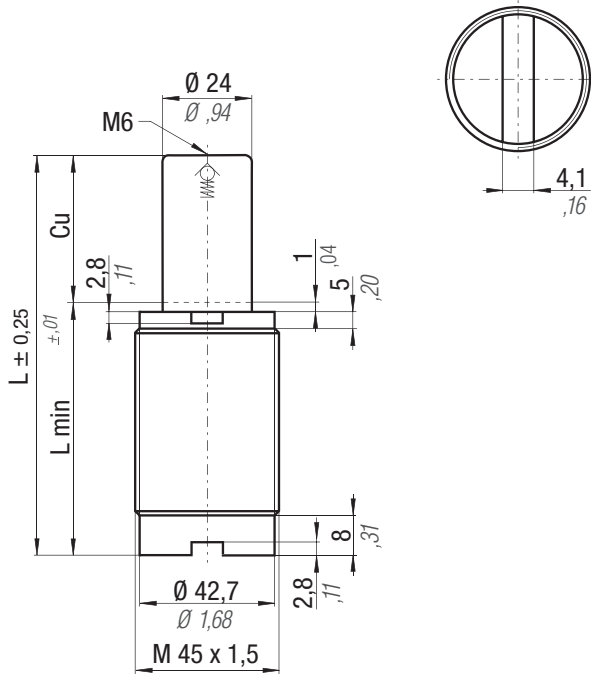
CODE	Cu		L		L min		Fo		Vo		CODE				
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>		~Kg	~lb		
HR 700 - 010 - A - N	10	0,39	62	2,44	52	2,05	680	1529	13,0	0,79	0,48	1,06	HR 700 - 010 - A - N		
HR 700 - 013 - A - N	13	0,51	68	2,68	55	2,17			17,0	1,04	0,52	1,15	HR 700 - 013 - A - N		
HR 700 - 016 - A - N	16	0,63	74	2,91	58	2,28			20,0	1,22	0,55	1,21	HR 700 - 016 - A - N		
HR 700 - 019 - A - N	19	0,75	80	3,15	61	2,40			21,0	1,28	0,58	1,28	HR 700 - 019 - A - N		
HR 700 - 025 - A - N	25	0,98	92	3,62	67	2,64			150 bar	2175 psi	28,0	1,71	0,64	1,41	HR 700 - 025 - A - N
HR 700 - 032 - A - N	32	1,26	106	4,17	74	2,91					36,0	2,20	0,68	1,50	HR 700 - 032 - A - N
HR 700 - 038 - A - N	38	1,50	118	4,65	80	3,15					44,0	2,68	0,72	1,59	HR 700 - 038 - A - N
HR 700 - 050 - A - N	50	1,97	142	5,59	92	3,62					58,0	3,54	0,85	1,87	HR 700 - 050 - A - N
HR 700 - 063 - A - N	63	2,48	168	6,61	105	4,13					73,0	4,45	0,94	2,07	HR 700 - 063 - A - N
HR 700 - 075 - A - N	75	2,95	192	7,56	117	4,61					86,0	5,25	0,98	2,16	HR 700 - 075 - A - N
HR 700 - 080 - A - N	80	3,15	202	7,95	122	4,80	93,0	5,67			1,03	2,27	HR 700 - 080 - A - N		
HR 700 - 100 - A - N	100	3,94	242	9,53	142	5,59	116,0	7,08			1,16	2,56	HR 700 - 100 - A - N		
HR 700 - 125 - A - N	125	4,92	292	11,50	167	6,57	145,0	8,85			1,35	2,98	HR 700 - 125 - A - N		

info pg. 34



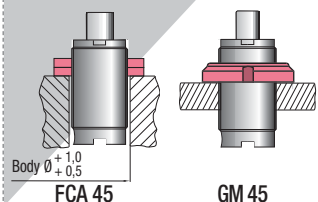
**HOW TO ORDER**

(10 pcs) HR700-050-A-N



Max Speed	°F	°C		P max	P min	S		Maintenance kit							
1,8 m/s	32	0		150 bar	20 bar	4,52 cm <sup>2</sup>		39MHR00700A							
	176	80		2175 psi	290 psi	0,701 in <sup>2</sup>									
CODE	Cu		L		L min		Fo		Vo		CODE				
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>					
HRF 700 - 010 - A	10	0,39	52	2,05	42	1,65	680	1529	-	-	0,35	0,77	-		
HRF 700 - 013 - A	13	0,51	58	2,28	45	1,77			-	-	0,39	0,86	-		
HRF 700 - 016 - A	16	0,63	64	2,52	48	1,89			-	-	0,42	0,93	-		
HRF 700 - 019 - A	19	0,75	70	2,76	51	2,01			-	-	0,45	0,99	-		
HRF 700 - 025 - A	25	0,98	82	3,23	57	2,24			-	-	0,50	1,10	-		
HRF 700 - 032 - A	32	1,26	96	3,78	64	2,52			150 bar	2175 psi	-	-	0,55	1,21	-
HRF 700 - 038 - A	38	1,50	108	4,25	70	2,76			-	-	0,60	1,32	-		
HRF 700 - 050 - A	50	1,97	132	5,20	82	3,23			-	-	0,70	1,54	-		
HRF 700 - 063 - A	63	2,48	158	6,22	95	3,74			± 5%	-	-	0,80	1,76	-	
HRF 700 - 075 - A	75	2,95	182	7,17	107	4,21			+ 20 °C + 68 °F	-	-	0,83	1,83	-	
HRF 700 - 080 - A	80	3,15	192	7,56	112	4,41	-	-	0,89	1,96	-				
HRF 700 - 100 - A	100	3,94	232	9,13	132	5,20	-	-	0,99	2,18	-				
HRF 700 - 125 - A	125	4,92	282	11,10	157	6,18	-	-	1,26	2,78	-				

HR  
HRF

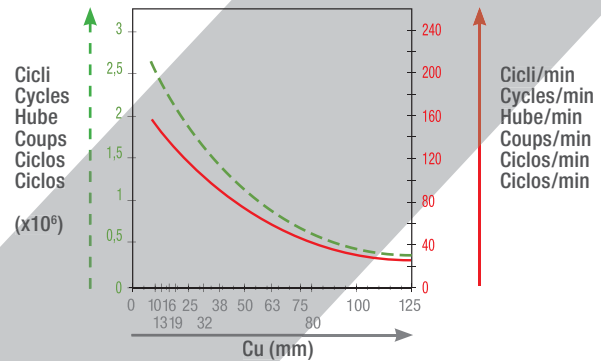
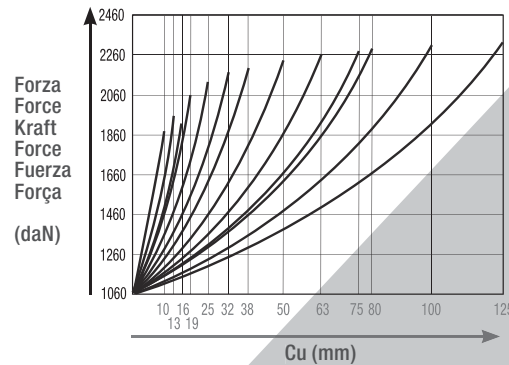
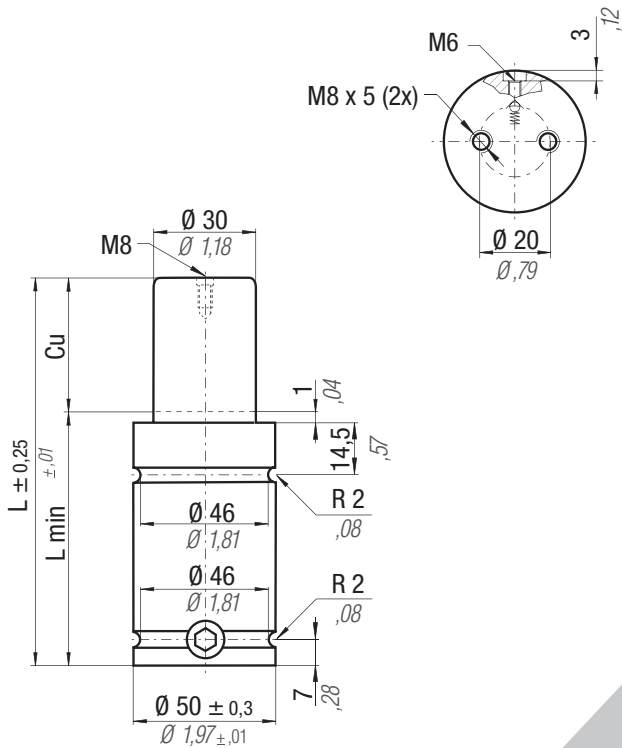


## HOW TO ORDER

(10 pcs) HRF700-050-A



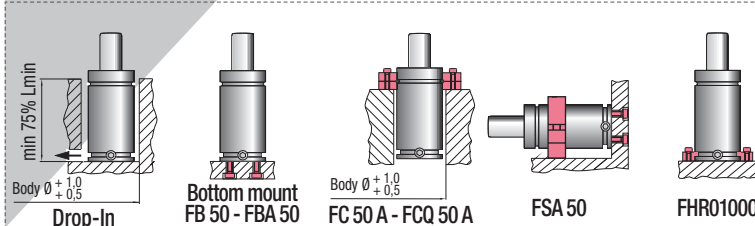
**PED**  
97/23/EC



<b>Max Speed</b> 1,8 m/s	°F 32 - 176	°C 0 - 80	<b>N<sub>2</sub></b>	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 7,07 cm <sup>2</sup> 1,096 in <sup>2</sup>		<b>Maintenance kit</b> 39MHR01000A
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CODE	Cu		L		L min		Fo		Vo		CODE		
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
HR 1000 - 010 - A	10	0,39	58	2,28	48	1,89	1060	2383	25,0	1,53	0,57	1,26	HR 1000 - 010 - A - NA
HR 1000 - 013 - A	13	0,51	64	2,52	51	2,01			30,0	1,83	0,59	1,30	HR 1000 - 013 - A - NA
HR 1000 - 016 - A	16	0,63	70	2,76	54	2,13			35,0	2,14	0,62	1,37	HR 1000 - 016 - A - NA
HR 1000 - 019 - A	19	0,75	76	2,99	57	2,24			40,0	2,44	0,65	1,43	HR 1000 - 019 - A - NA
HR 1000 - 025 - A	25	0,98	88	3,46	63	2,48			49,0	2,99	0,70	1,54	HR 1000 - 025 - A - NA
HR 1000 - 032 - A	32	1,26	102	4,02	70	2,76			60,0	3,66	0,77	1,70	HR 1000 - 032 - A - NA
HR 1000 - 038 - A	38	1,50	114	4,49	76	2,99			70,0	4,27	0,83	1,83	HR 1000 - 038 - A - NA
HR 1000 - 050 - A	50	1,97	138	5,43	88	3,46			88,0	5,37	0,94	2,07	HR 1000 - 050 - A - NA
HR 1000 - 063 - A	63	2,48	164	6,46	101	3,98			109,0	6,65	1,07	2,36	HR 1000 - 063 - A - NA
HR 1000 - 075 - A	75	2,95	188	7,40	113	4,45			128,0	7,81	1,16	2,56	HR 1000 - 075 - A - NA
HR 1000 - 080 - A	80	3,15	198	7,80	118	4,65	136,0	8,30	1,21	2,67	HR 1000 - 080 - A - NA		
HR 1000 - 100 - A	100	3,94	238	9,37	138	5,43	167,0	10,19	1,43	3,15	HR 1000 - 100 - A - NA		
HR 1000 - 125 - A	125	4,92	288	11,34	163	6,42	206,0	12,57	1,70	3,75	HR 1000 - 125 - A - NA		

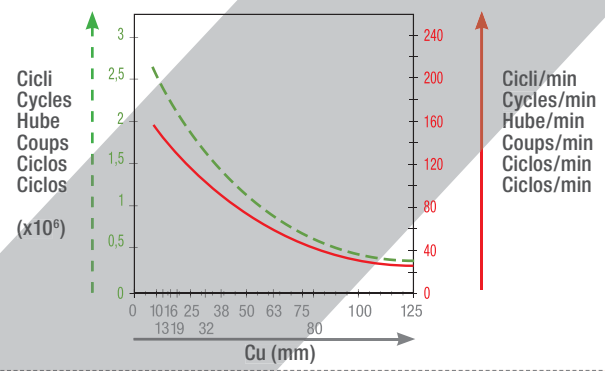
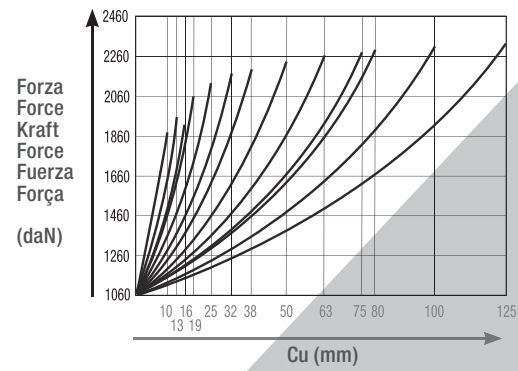
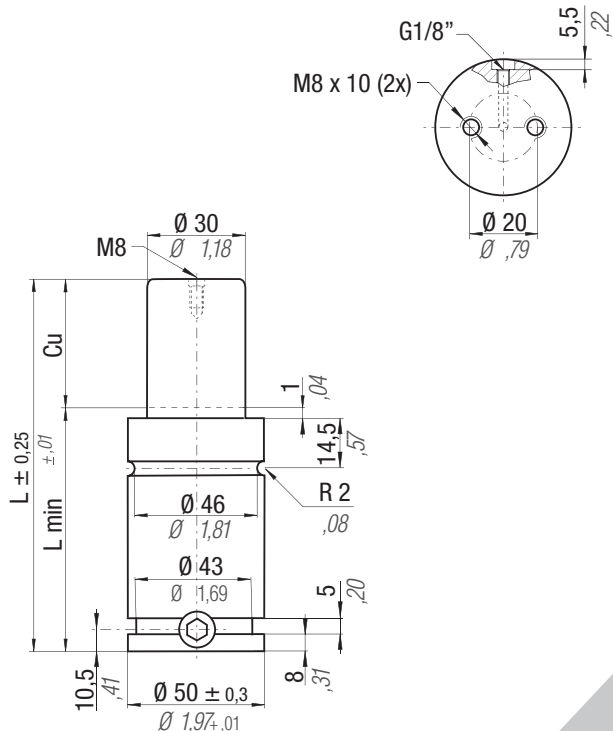
info pg. 34



## HOW TO ORDER

(10 pcs) HR1000-050-A  
(10 pcs) HR1000-050-A-NA



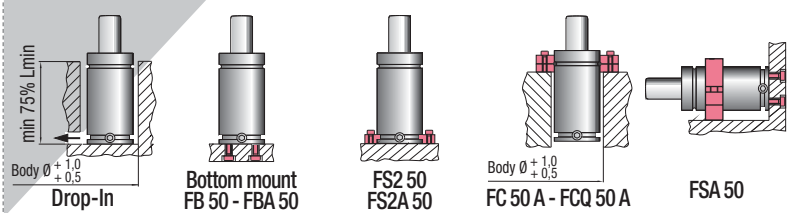


Max Speed	°F	°C		P max	P min	S		Maintenance kit
1,8 m/s	32	0		150 bar 2175 psi	20 bar 290 psi	7,07 cm <sup>2</sup> 1,096 in <sup>2</sup>		39MHR01000A
176	80							

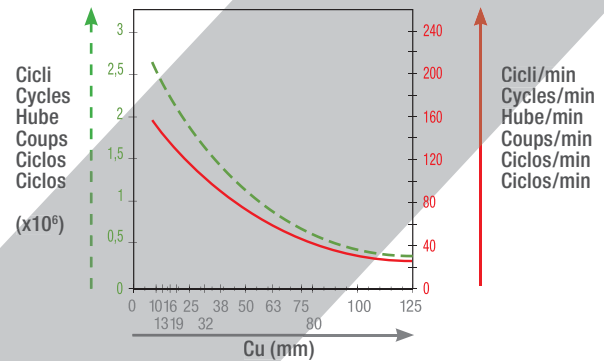
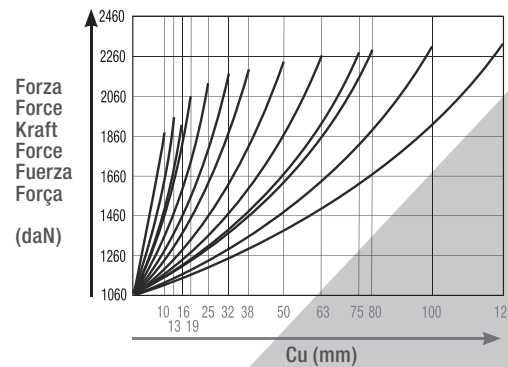
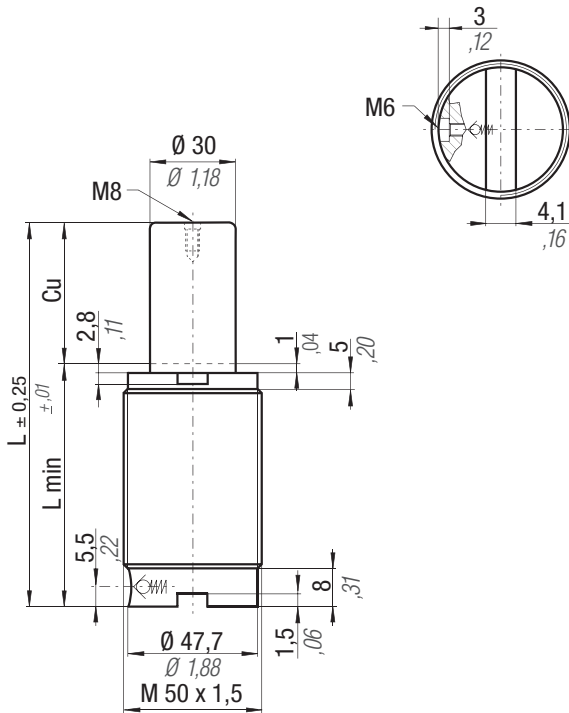
CODE	Cu	L	L min	Fo	Vo	CODE
	mm inch	mm inch	mm inch	daN lb	cm <sup>3</sup> in <sup>3</sup>	
HR 1000 - 010 - A - N	10 0,39	68 2,68	58 2,28	1060 2383 150 bar 2175 psi ± 5% + 20 °C + 68 °F	25,0 1,53	HR 1000 - 010 - A - N
HR 1000 - 013 - A - N	13 0,51	74 2,91	61 2,40		0,70 1,54	HR 1000 - 013 - A - N
HR 1000 - 016 - A - N	16 0,63	80 3,15	64 2,52		0,72 1,58	HR 1000 - 016 - A - N
HR 1000 - 019 - A - N	19 0,75	86 3,39	67 2,64		0,75 1,65	HR 1000 - 019 - A - N
HR 1000 - 025 - A - N	25 0,98	98 3,86	73 2,87		0,78 1,72	HR 1000 - 025 - A - N
HR 1000 - 032 - A - N	32 1,26	112 4,41	80 3,15		0,83 1,83	HR 1000 - 032 - A - N
HR 1000 - 038 - A - N	38 1,50	124 4,88	86 3,39		0,83 1,83	HR 1000 - 038 - A - N
HR 1000 - 050 - A - N	50 1,97	148 5,83	98 3,86		0,90 1,98	HR 1000 - 050 - A - N
HR 1000 - 063 - A - N	63 2,48	174 6,85	111 4,37		0,96 2,11	HR 1000 - 063 - A - N
HR 1000 - 075 - A - N	75 2,95	198 7,80	123 4,84		0,96 2,11	HR 1000 - 075 - A - N
HR 1000 - 080 - A - N	80 3,15	208 8,19	128 5,04		1,07 2,35	HR 1000 - 080 - A - N
HR 1000 - 100 - A - N	100 3,94	248 9,76	148 5,83		1,09 2,35	HR 1000 - 100 - A - N
HR 1000 - 125 - A - N	125 4,92	298 11,73	173 6,81		1,20 2,64	HR 1000 - 125 - A - N
					1,29 2,84	
					1,34 2,95	
					1,56 3,43	
				1,67 3,68		
				1,83 4,03		

info pg. 34



**HOW TO ORDER**  
(10 pcs) HR1000-050-A-N

**PED**  
97/23/EC



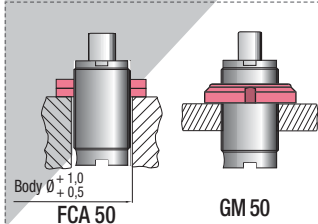
Max Speed	°F	°C		P max	P min	S		Maintenance kit
1,8 m/s	32	0		150 bar	20 bar	7,07 cm <sup>2</sup>		39MHR01000A
	176	80		2175 psi	290 psi	1,096 in <sup>2</sup>		

CODE	Cu	L	L min	Fo	Vo	CODE	
	mm	inch	mm	inch	mm	inch	
HRF 1000 - 010 - A	10	0,39	58	2,28	48	1,89	HRF 1000 - 010 - A - NA
HRF 1000 - 013 - A	13	0,51	64	2,52	51	2,01	HRF 1000 - 013 - A - NA
HRF 1000 - 016 - A	16	0,63	70	2,76	54	2,13	HRF 1000 - 016 - A - NA
HRF 1000 - 019 - A	19	0,75	76	2,99	57	2,24	HRF 1000 - 019 - A - NA
HRF 1000 - 025 - A	25	0,98	88	3,46	63	2,48	HRF 1000 - 025 - A - NA
HRF 1000 - 032 - A	32	1,26	102	4,02	70	2,76	HRF 1000 - 032 - A - NA
HRF 1000 - 038 - A	38	1,50	114	4,49	76	2,99	HRF 1000 - 038 - A - NA
HRF 1000 - 050 - A	50	1,97	138	5,43	88	3,46	HRF 1000 - 050 - A - NA
HRF 1000 - 063 - A	63	2,48	164	6,46	101	3,98	HRF 1000 - 063 - A - NA
HRF 1000 - 075 - A	75	2,95	188	7,40	113	4,45	HRF 1000 - 075 - A - NA
HRF 1000 - 080 - A	80	3,15	198	7,80	118	4,65	HRF 1000 - 080 - A - NA
HRF 1000 - 100 - A	100	3,94	238	9,37	138	5,43	HRF 1000 - 100 - A - NA
HRF 1000 - 125 - A	125	4,92	288	11,34	163	6,42	HRF 1000 - 125 - A - NA

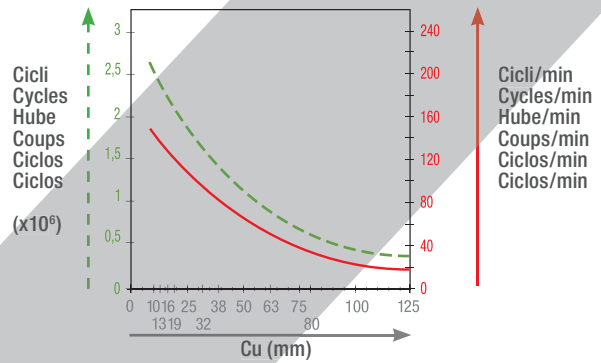
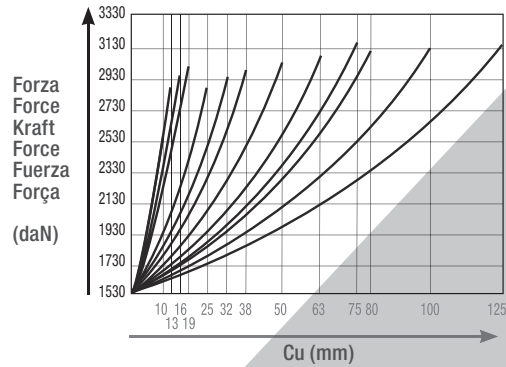
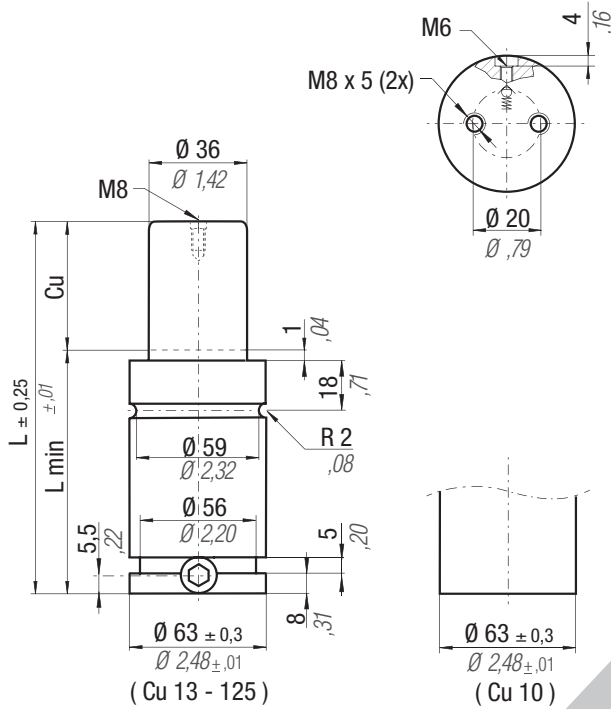
1060 2383  
150 bar 2175 psi  
± 5%  
+ 20 °C +68 °F

info pg. 34



## HOW TO ORDER

(10 pcs) HRF1000-050-A  
(10 pcs) HRF1000-050-A-NA

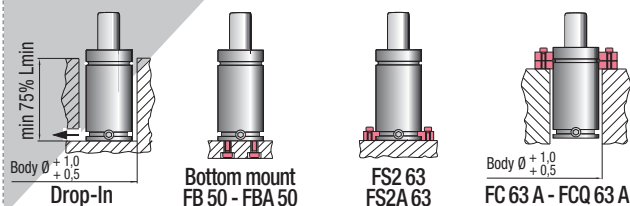


Max Speed	°F	°C		P max	P min	S		Maintenance kit
1,8 m/s	32	0		150 bar	20 bar	10,18 cm <sup>2</sup>		39BMHR01500A
	176	80		2175 psi	290 psi	1,578 in <sup>2</sup>		

CODE	Cu	L	L min	Fo	Vo	CODE	
	mm	inch	mm	inch	cm <sup>3</sup>	inch <sup>3</sup>	
HR 1500 - 010 - A	10	0,39	64	2,52	32,0	1,95	HR 1500 - 010 - A - NA
HR 1500 - 013 - A	13	0,51	70	2,76	39,0	2,38	HR 1500 - 013 - A - NA
HR 1500 - 016 - A	16	0,63	76	2,99	47,0	2,87	HR 1500 - 016 - A - NA
HR 1500 - 019 - A	19	0,75	82	3,23	54,0	3,29	HR 1500 - 019 - A - NA
HR 1500 - 025 - A	25	0,98	94	3,70	68,0	4,15	HR 1500 - 025 - A - NA
HR 1500 - 032 - A	32	1,26	108	4,25	85,0	5,19	HR 1500 - 032 - A - NA
HR 1500 - 038 - A	38	1,50	120	4,72	99,0	6,04	HR 1500 - 038 - A - NA
HR 1500 - 050 - A	50	1,97	144	5,67	128,0	7,81	HR 1500 - 050 - A - NA
HR 1500 - 063 - A	63	2,48	170	6,69	158,0	9,64	HR 1500 - 063 - A - NA
HR 1500 - 075 - A	75	2,95	194	7,64	187,0	11,41	HR 1500 - 075 - A - NA
HR 1500 - 080 - A	80	3,15	204	8,03	199,0	12,14	HR 1500 - 080 - A - NA
HR 1500 - 100 - A	100	3,94	244	9,61	246,0	15,01	HR 1500 - 100 - A - NA
HR 1500 - 125 - A	125	4,92	294	11,57	306,0	18,67	HR 1500 - 125 - A - NA

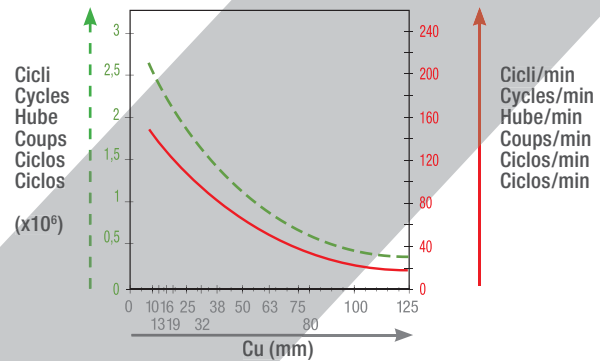
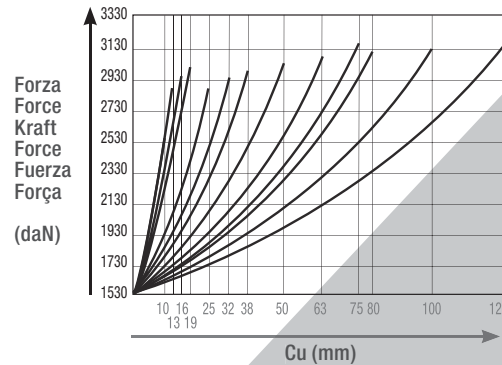
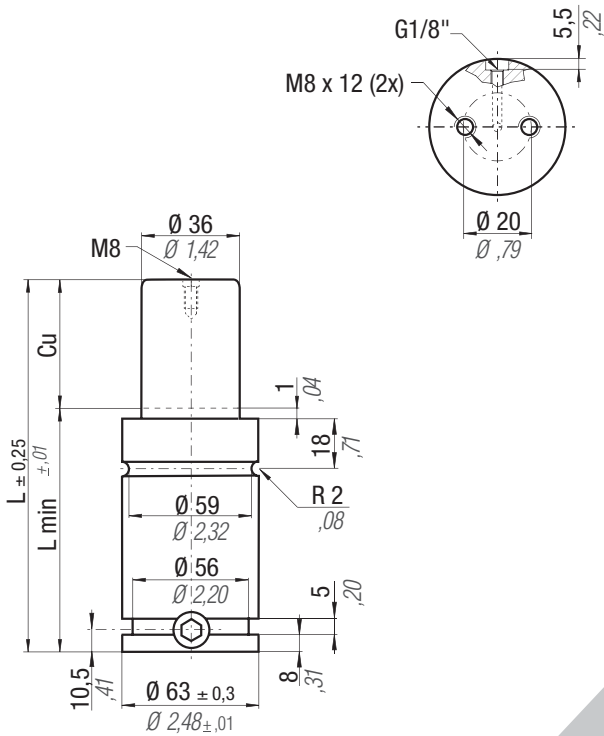
info pg. 34



## HOW TO ORDER

(10 pcs) HR1500-050-A  
(10 pcs) HR1500-050-A-NA

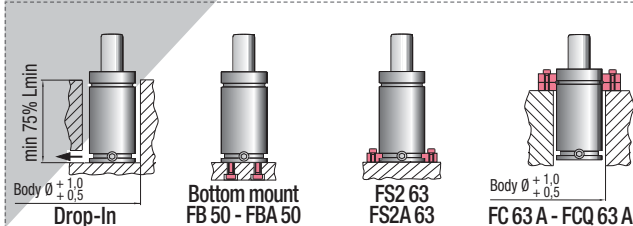
**FIAT PED**  
Specification 97/23/EC



<b>Max Speed</b> 1,8 m/s	°F 32 °C 0	°C 176 °F 80	N <sub>2</sub>	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 10,18 cm <sup>2</sup> 1,578 in <sup>2</sup>		<b>Maintenance kit</b> 39BMHR01500A
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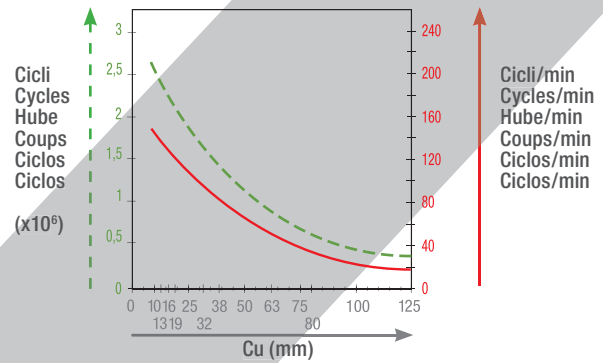
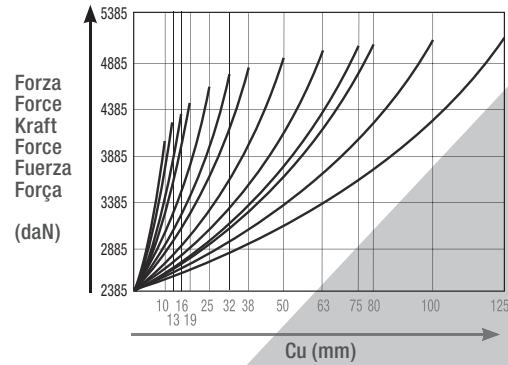
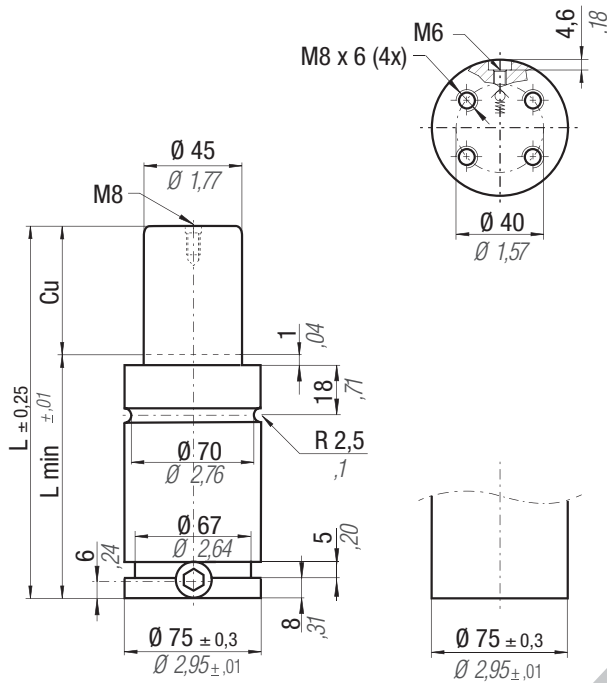
CODE	Cu		L		L min		Fo		Vo		CODE		
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
HR 1500 - 010 - A - N	10	0,39	74	2,91	64	2,52	1530	3440	32,0	1,95	1,02	2,25	HR 1500 - 010 - A - N
HR 1500 - 013 - A - N	13	0,51	80	3,15	67	2,64			39,0	2,38	1,05	2,31	HR 1500 - 013 - A - N
HR 1500 - 016 - A - N	16	0,63	86	3,39	70	2,76			47,0	2,87	1,10	2,43	HR 1500 - 016 - A - N
HR 1500 - 019 - A - N	19	0,75	92	3,62	73	2,87			54,0	3,29	1,15	2,54	HR 1500 - 019 - A - N
HR 1500 - 025 - A - N	25	0,98	104	4,09	79	3,11			68,0	4,15	1,25	2,76	HR 1500 - 025 - A - N
HR 1500 - 032 - A - N	32	1,26	118	4,65	86	3,39			85,0	5,19	1,35	2,98	HR 1500 - 032 - A - N
HR 1500 - 038 - A - N	38	1,50	130	5,12	92	3,62			99,0	6,04	1,44	3,17	HR 1500 - 038 - A - N
HR 1500 - 050 - A - N	50	1,97	154	6,06	104	4,09			128,0	7,81	1,61	3,55	HR 1500 - 050 - A - N
HR 1500 - 063 - A - N	63	2,48	180	7,09	117	4,61			158,0	9,64	1,81	3,99	HR 1500 - 063 - A - N
HR 1500 - 075 - A - N	75	2,95	204	8,03	129	5,08			187,0	11,41	1,90	4,19	HR 1500 - 075 - A - N
HR 1500 - 080 - A - N	80	3,15	214	8,43	134	5,28			199,0	12,14	2,06	4,54	HR 1500 - 080 - A - N
HR 1500 - 100 - A - N	100	3,94	254	10,00	154	6,06			246,0	15,01	2,38	5,25	HR 1500 - 100 - A - N
HR 1500 - 125 - A - N	125	4,92	304	11,97	179	7,05			306,0	18,67	2,86	6,31	HR 1500 - 125 - A - N

info pg. 34



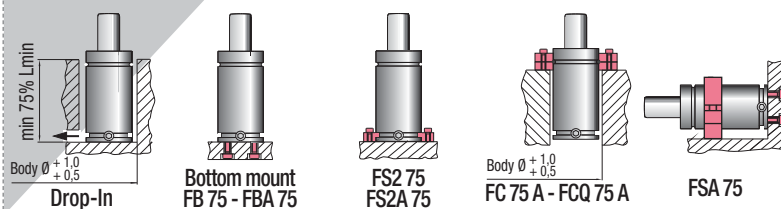
**HOW TO ORDER**

(10 pcs) HR1500-050-A-N



Max Speed	°F	°C		P max	P min	S		Maintenance kit					
1,8 m/s	32	0		150 bar 2175 psi	20 bar 290 psi	15,90 cm <sup>2</sup> 2,465 in <sup>2</sup>		39BMHR02400A					
176	80												
CODE	Cu		L		L min		Fo		Vo		CODE		
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
HR 2400 - 010 - A	10	0,39	65	2,56	55	2,17	2385	5362	50,0	3,05	1,47	3,24	HR 2400 - 010 - A - NA
HR 2400 - 013 - A	13	0,51	71	2,80	58	2,28			61,0	3,72	1,52	3,35	HR 2400 - 013 - A - NA
HR 2400 - 016 - A	16	0,63	77	3,03	61	2,40			72,0	4,39	1,58	3,48	HR 2400 - 016 - A - NA
HR 2400 - 019 - A	19	0,75	83	3,27	64	2,52			82,0	5,00	1,65	3,64	HR 2400 - 019 - A - NA
HR 2400 - 025 - A	25	0,98	95	3,74	70	2,76			104,0	6,34	1,77	3,90	HR 2400 - 025 - A - NA
HR 2400 - 032 - A	32	1,26	109	4,29	77	3,03			129,0	7,87	1,93	4,25	HR 2400 - 032 - A - NA
HR 2400 - 038 - A	38	1,50	121	4,76	83	3,27			150,0	9,15	2,05	4,52	HR 2400 - 038 - A - NA
HR 2400 - 050 - A	50	1,97	145	5,71	95	3,74			193,0	11,77	2,30	5,07	HR 2400 - 050 - A - NA
HR 2400 - 063 - A	63	2,48	171	6,73	108	4,25			240,0	14,64	2,55	5,62	HR 2400 - 063 - A - NA
HR 2400 - 075 - A	75	2,95	195	7,68	120	4,72			283,0	17,26	2,75	6,06	HR 2400 - 075 - A - NA
HR 2400 - 080 - A	80	3,15	205	8,07	125	4,92			301,0	18,36	2,85	6,28	HR 2400 - 080 - A - NA
HR 2400 - 100 - A	100	3,94	245	9,65	145	5,71			372,0	22,69	3,28	7,23	HR 2400 - 100 - A - NA
HR 2400 - 125 - A	125	4,92	295	11,61	170	6,69			462,0	28,18	3,93	8,66	HR 2400 - 125 - A - NA

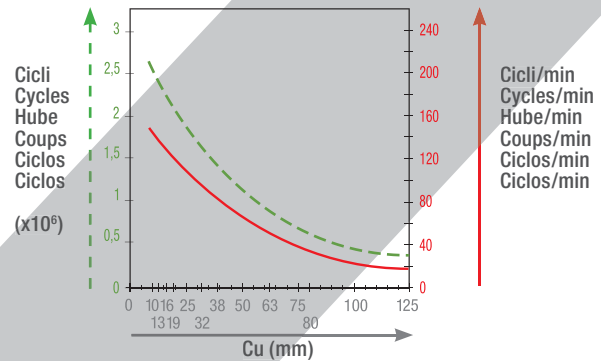
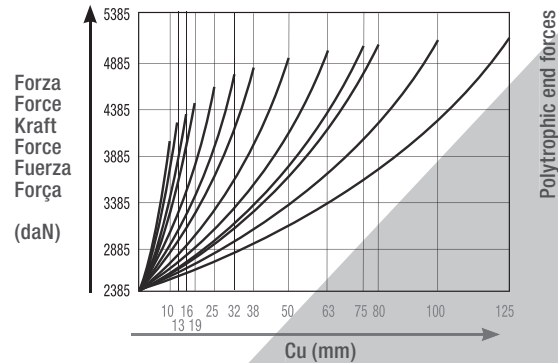
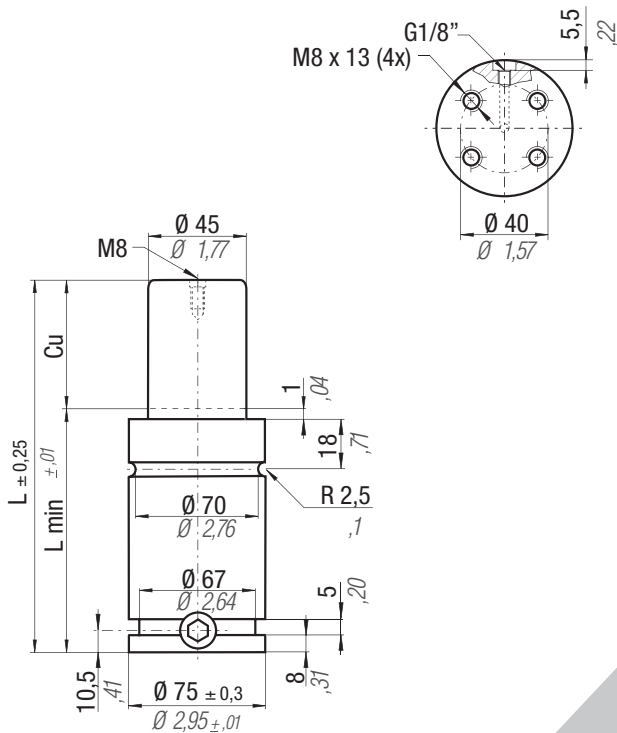
info pg. 34



## HOW TO ORDER

(10 pcs) HR2400-050-A  
(10 pcs) HR2400-050-A-NA

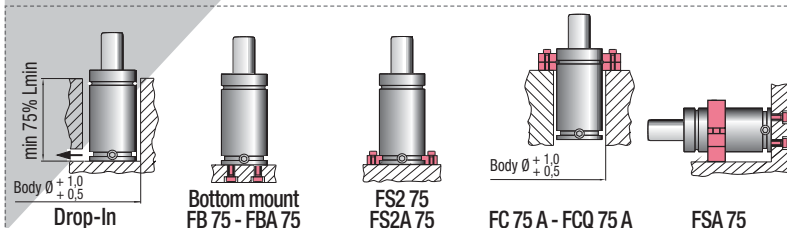
**FIAT PED**  
Specification 97/23/EC



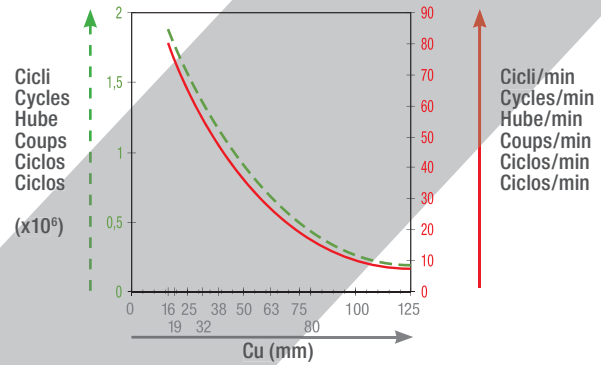
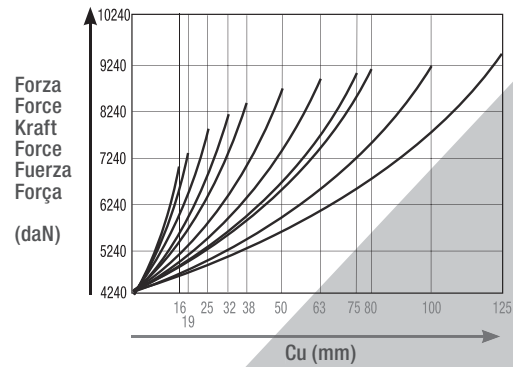
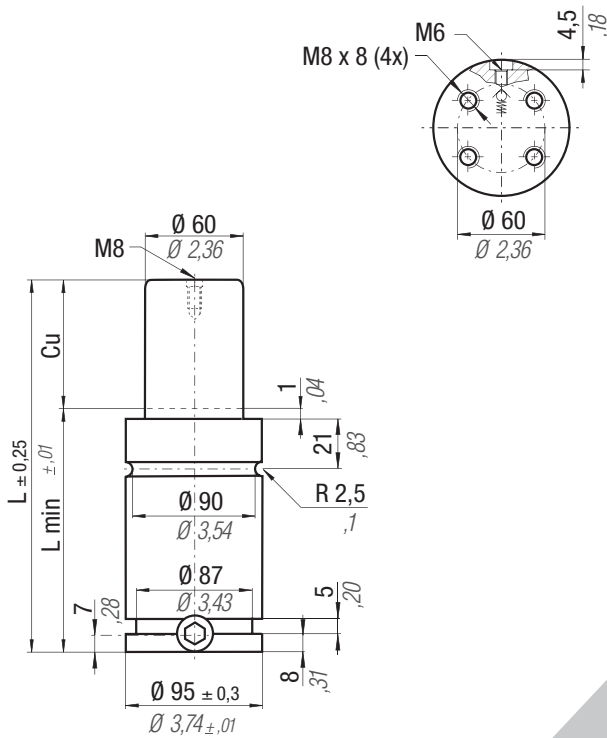
<b>Max Speed</b> 1,8 m/s	<b>°F</b> 32 - 176	<b>°C</b> 0 - 80		<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 15,90 cm <sup>2</sup> 2,465 in <sup>2</sup>		<b>Maintenance kit</b> 39BMHR02400A
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CODE	Cu		L		L min		Fo		Vo		CODE		
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
HR 2400 - 010 - A - N	10	0,39	75	2,95	65	2,56	2385	5362	50,0	3,05	1,76	3,88	HR 2400 - 010 - A - N
HR 2400 - 013 - A - N	13	0,51	81	3,19	68	2,68			61,0	3,72	1,82	4,01	HR 2400 - 013 - A - N
HR 2400 - 016 - A - N	16	0,63	87	3,43	71	2,80			72,0	4,39	1,89	4,17	HR 2400 - 016 - A - N
HR 2400 - 019 - A - N	19	0,75	93	3,66	74	2,91			82,0	5,00	1,94	4,28	HR 2400 - 019 - A - N
HR 2400 - 025 - A - N	25	0,98	105	4,13	80	3,15			104,0	6,34	2,03	4,48	HR 2400 - 025 - A - N
HR 2400 - 032 - A - N	32	1,26	119	4,69	87	3,43			129,0	7,87	2,16	4,76	HR 2400 - 032 - A - N
HR 2400 - 038 - A - N	38	1,50	131	5,16	93	3,66			150,0	9,15	2,30	5,07	HR 2400 - 038 - A - N
HR 2400 - 050 - A - N	50	1,97	155	6,10	105	4,13			193,0	11,77	2,56	5,64	HR 2400 - 050 - A - N
HR 2400 - 063 - A - N	63	2,48	181	7,13	118	4,65			240,0	14,64	2,79	6,15	HR 2400 - 063 - A - N
HR 2400 - 075 - A - N	75	2,95	205	8,07	130	5,12			283,0	17,26	2,90	6,39	HR 2400 - 075 - A - N
HR 2400 - 080 - A - N	80	3,15	215	8,46	135	5,31			301,0	18,36	3,12	6,88	HR 2400 - 080 - A - N
HR 2400 - 100 - A - N	100	3,94	255	10,04	155	6,10			372,0	22,69	3,62	7,98	HR 2400 - 100 - A - N
HR 2400 - 125 - A - N	125	4,92	305	12,01	180	7,09			462,0	28,18	4,02	8,86	HR 2400 - 125 - A - N

info pg. 34



**HOW TO ORDER**  
  
(10 pcs) HR2400-050-A-N



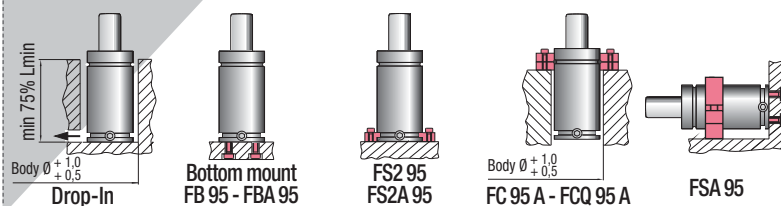
Max Speed	°F	°C		P max	P min	S		Maintenance kit
1,8 m/s	32	0		150 bar 2175 psi	20 bar 290 psi	28,27 cm <sup>2</sup> 4,382 in <sup>2</sup>		39BMHR04200A
176	80							

CODE	Cu	L	L min	Fo	Vo	CODE			
	mm	inch	mm	inch	cm <sup>3</sup>	in <sup>3</sup>			
HR 4200 - 016 - A	16	0,63	97	3,82	144,0	8,78	3,40	7,50	HR 4200 - 016 - A - NA
HR 4200 - 019 - A	19	0,75	103	4,06	162,0	9,88	3,45	7,61	HR 4200 - 019 - A - NA
HR 4200 - 025 - A	25	0,98	115	4,53	198,0	12,08	3,65	8,05	HR 4200 - 025 - A - NA
HR 4200 - 032 - A	32	1,26	129	5,08	240,0	14,64	3,82	8,42	HR 4200 - 032 - A - NA
HR 4200 - 038 - A	38	1,50	141	5,55	276,0	16,84	4,00	8,82	HR 4200 - 038 - A - NA
HR 4200 - 050 - A	50	1,97	165	6,50	348,0	21,23	4,44	9,79	HR 4200 - 050 - A - NA
HR 4200 - 063 - A	63	2,48	191	7,52	425,0	25,93	4,95	10,91	HR 4200 - 063 - A - NA
HR 4200 - 075 - A	75	2,95	215	8,46	497,0	30,32	5,20	11,46	HR 4200 - 075 - A - NA
HR 4200 - 080 - A	80	3,15	225	8,86	527,0	32,15	5,41	11,93	HR 4200 - 080 - A - NA
HR 4200 - 100 - A	100	3,94	265	10,43	647,0	39,47	6,00	13,23	HR 4200 - 100 - A - NA
HR 4200 - 125 - A	125	4,92	315	12,40	797,0	48,62	6,70	14,77	HR 4200 - 125 - A - NA

info pg. 34

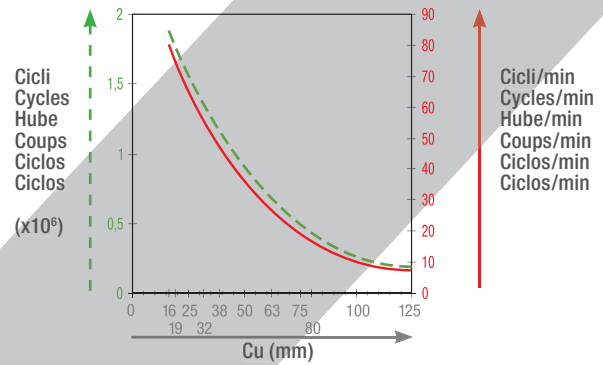
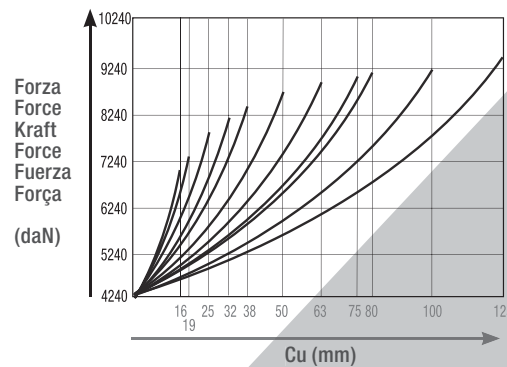
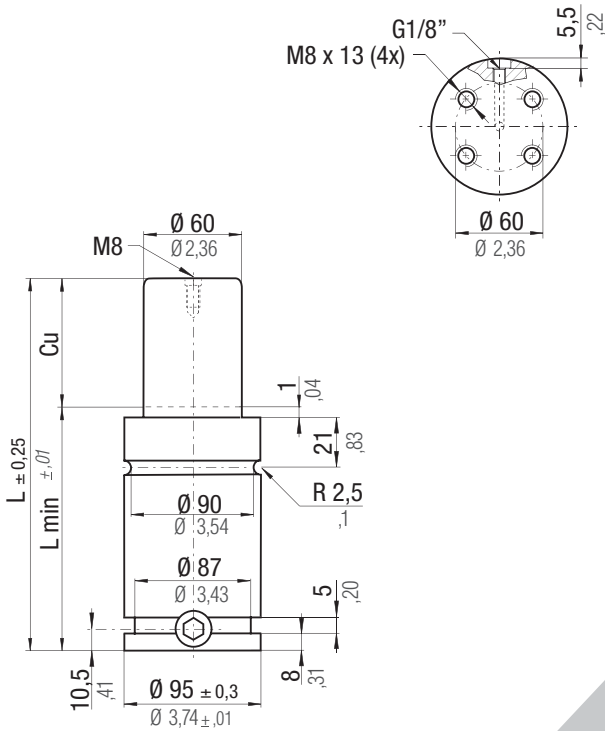
HR  
HRF



### HOW TO ORDER

(10 pcs) HR4200-050-A  
(10 pcs) HR4200-050-A-NA

**FIAT PED**  
Specification 97/23/EC

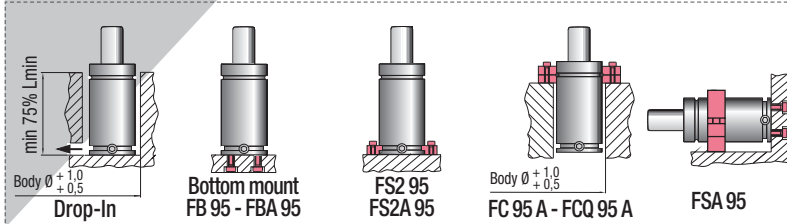


Max Speed	°F	°C		P max	P min	S		Maintenance kit
1,8 m/s	32	0		150 bar	20 bar	28,27 cm <sup>2</sup>		39BMHR04200A
	176	80		2175 psi	290 psi	4,382 in <sup>2</sup>		

CODE	Cu		L		L min		Fo		Vo		CODE		
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>		~Kg	~lb
HR 4200 - 016 - A - N	16	0,63	107	4,21	91	3,58	4240	9532	144,0	8,78	4,00	8,82	HR 4200 - 016 - A - N
HR 4200 - 019 - A - N	19	0,75	113	4,45	94	3,70			162,0	9,88	4,05	8,93	HR 4200 - 019 - A - N
HR 4200 - 025 - A - N	25	0,98	125	4,92	100	3,94			198,0	12,08	4,16	9,17	HR 4200 - 025 - A - N
HR 4200 - 032 - A - N	32	1,26	139	5,47	107	4,21			240,0	14,64	4,39	9,68	HR 4200 - 032 - A - N
HR 4200 - 038 - A - N	38	1,50	151	5,94	113	4,45			276,0	16,84	4,56	10,05	HR 4200 - 038 - A - N
HR 4200 - 050 - A - N	50	1,97	175	6,89	125	4,92			348,0	21,23	4,81	10,60	HR 4200 - 050 - A - N
HR 4200 - 063 - A - N	63	2,48	201	7,91	138	5,43			425,0	25,93	5,35	11,79	HR 4200 - 063 - A - N
HR 4200 - 075 - A - N	75	2,95	225	8,86	150	5,91			497,0	30,32	5,55	12,24	HR 4200 - 075 - A - N
HR 4200 - 080 - A - N	80	3,15	235	9,25	155	6,10			527,0	32,15	5,83	12,85	HR 4200 - 080 - A - N
HR 4200 - 100 - A - N	100	3,94	275	10,83	175	6,89			647,0	39,47	6,51	14,35	HR 4200 - 100 - A - N
HR 4200 - 125 - A - N	125	4,92	325	12,80	200	7,87			797,0	48,62	7,26	16,01	HR 4200 - 125 - A - N

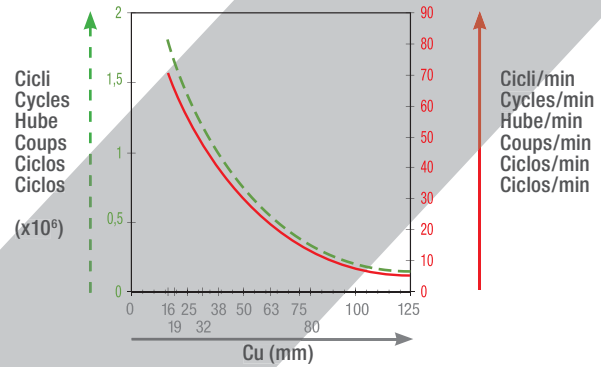
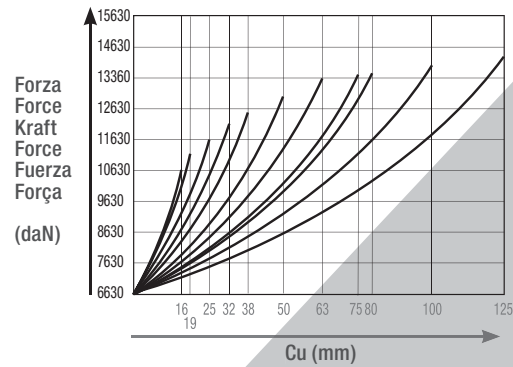
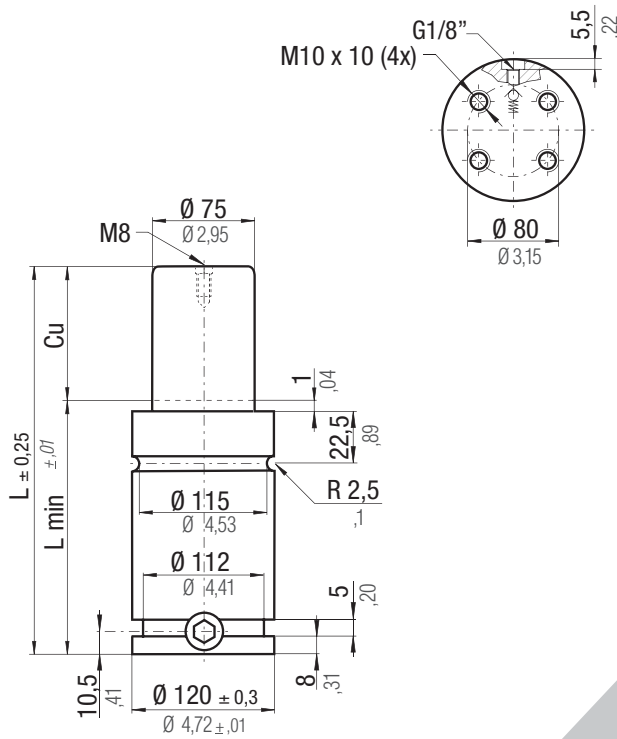
info pg. 34



**HOW TO ORDER**

(10 pcs) HR4200-050-A-N





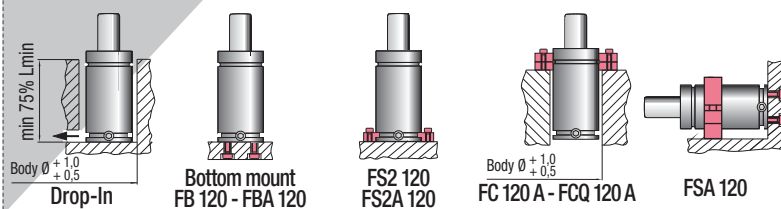
Max Speed	°F	°C		P max	P min	S		Maintenance kit
1,8 m/s	32	0		150 bar 2175 psi	20 bar 290 psi	44,18 cm <sup>2</sup> 6,848 in <sup>2</sup>		39BMHR06600A
176	80							

CODE	Cu	L	L min	Fo	Vo	CODE					
	mm	inch	mm	inch	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb			
HR 6600 - 016 - A	16	0,63	107	4,21	91	3,58	239,0	14,58	6,60	14,55	HR 6600 - 016 - A - N
HR 6600 - 019 - A	19	0,75	113	4,45	94	3,70	267,0	16,29	6,65	14,66	HR 6600 - 019 - A - N
HR 6600 - 025 - A	25	0,98	125	4,92	100	3,94	325,0	19,83	6,82	15,04	HR 6600 - 025 - A - N
HR 6600 - 032 - A	32	1,26	139	5,47	107	4,21	390,0	23,80	7,18	15,83	HR 6600 - 032 - A - N
HR 6600 - 038 - A	38	1,50	151	5,94	113	4,45	448,0	27,34	7,57	16,69	HR 6600 - 038 - A - N
HR 6600 - 050 - A	50	1,97	175	6,89	125	4,92	561,0	34,23	8,18	18,03	HR 6600 - 050 - A - N
HR 6600 - 063 - A	63	2,48	201	7,91	138	5,43	684,0	41,74	8,81	19,42	HR 6600 - 063 - A - N
HR 6600 - 075 - A	75	2,95	225	8,86	150	5,91	797,0	48,64	8,95	19,73	HR 6600 - 075 - A - N
HR 6600 - 080 - A	80	3,15	235	9,25	155	6,10	845,0	51,56	9,10	20,06	HR 6600 - 080 - A - N
HR 6600 - 100 - A	100	3,94	275	10,83	175	6,89	1034,0	63,10	10,70	23,59	HR 6600 - 100 - A - N
HR 6600 - 125 - A	125	4,92	325	12,80	200	7,87	1271,0	77,56	12,50	27,56	HR 6600 - 125 - A - N

info pg. 34

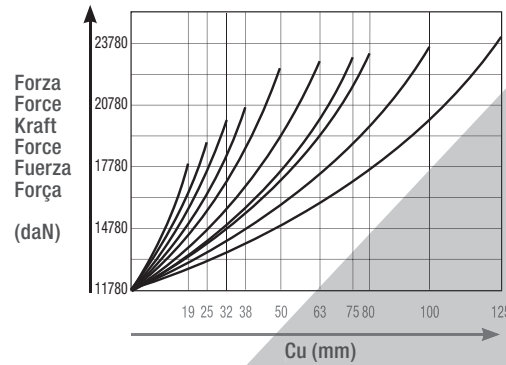
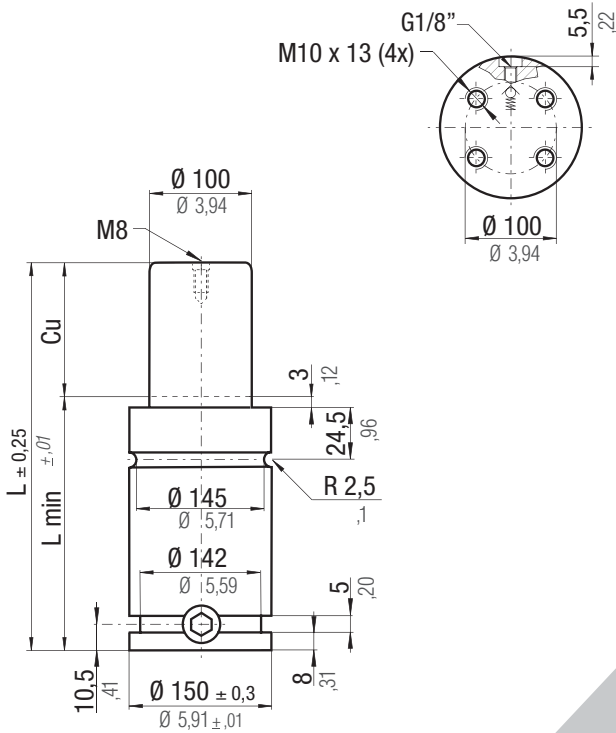
HR HRF



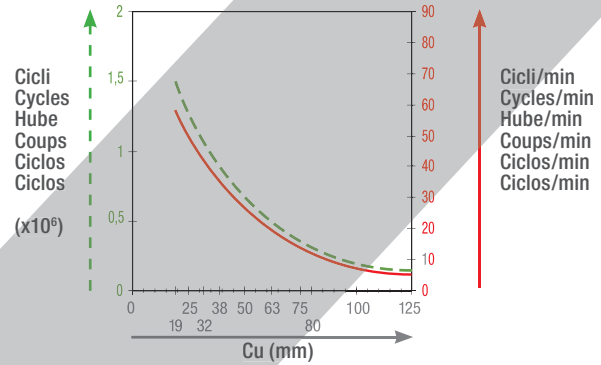
## HOW TO ORDER

(10 pcs) HR6600-050-A  
(10 pcs) HR6600-050-A-N

**PED**  
97/23/EC



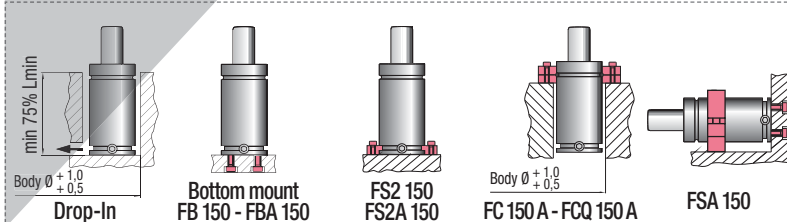
Polytropic end forces



<b>Max Speed</b> 1,8 m/s	<b>°F</b> 32 - 176	<b>°C</b> 0 - 80	<b>N<sub>2</sub></b>	<b>P max</b> 150 bar 2175 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 78,54 cm <sup>2</sup> 12,173 in <sup>2</sup>		<b>Maintenance kit</b> 39BMHR11800A
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CODE	Cu		L		L min		Fo		Vo		CODE			
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb		
HR 11800 - 019 - A	19	0,75	116	4,57	97	3,82	11780	26481	150 bar 2175 psi	559,0	34,11	9,57	21,10	HR 11800 - 019 - A - N
HR 11800 - 025 - A	25	0,98	128	5,04	103	4,06				663,0	40,46	9,96	21,96	HR 11800 - 025 - A - N
HR 11800 - 032 - A	32	1,26	142	5,59	110	4,33				784,0	47,84	10,41	22,95	HR 11800 - 032 - A - N
HR 11800 - 038 - A	38	1,50	154	6,06	116	4,57				887,0	54,13	10,81	23,83	HR 11800 - 038 - A - N
HR 11800 - 050 - A	50	1,97	178	7,01	128	5,04				1095,0	66,82	11,59	25,55	HR 11800 - 050 - A - N
HR 11800 - 063 - A	63	2,48	204	8,03	141	5,55				1320,0	80,55	11,88	26,19	HR 11800 - 063 - A - N
HR 11800 - 075 - A	75	2,95	228	8,98	153	6,02				1527,0	93,18	12,21	26,92	HR 11800 - 075 - A - N
HR 11800 - 080 - A	80	3,15	238	9,37	158	6,22				1614,0	98,49	12,43	27,40	HR 11800 - 080 - A - N
HR 11800 - 100 - A	100	3,94	278	10,94	178	7,01				1960,0	119,61	13,51	29,78	HR 11800 - 100 - A - N
HR 11800 - 125 - A	125	4,92	328	12,91	203	7,99	2392,0	145,97	15,14	33,38	HR 11800 - 125 - A - N			

info pg. 34



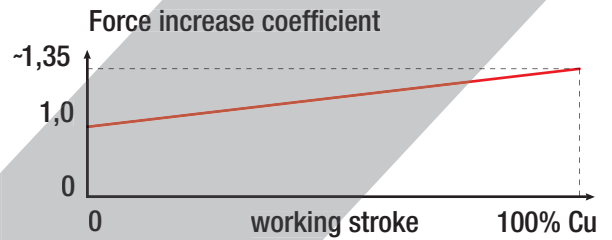
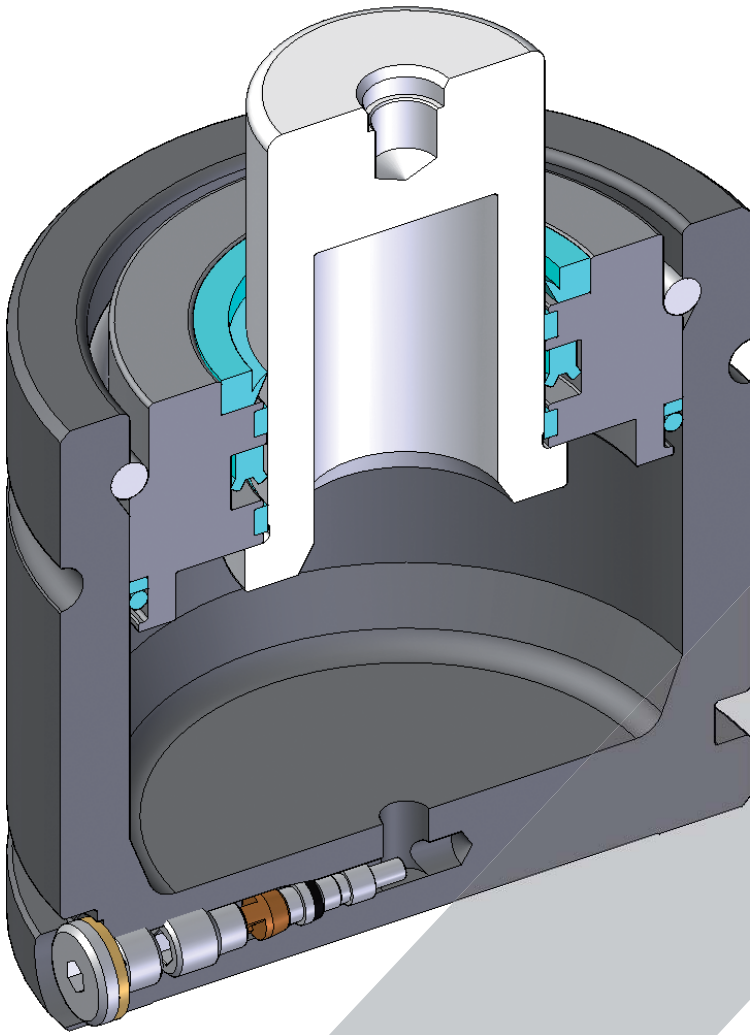
## HOW TO ORDER

(10 pcs) HR11800-050-A  
(10 pcs) HR11800-050-A-N



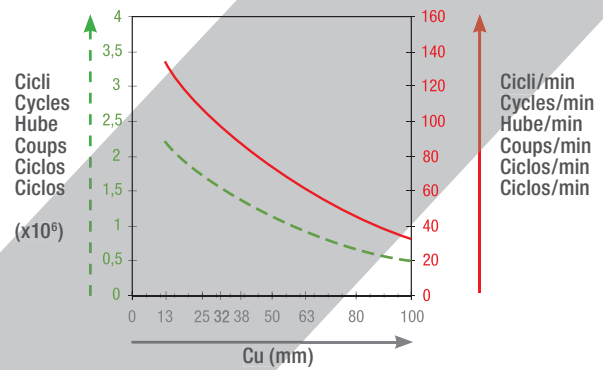
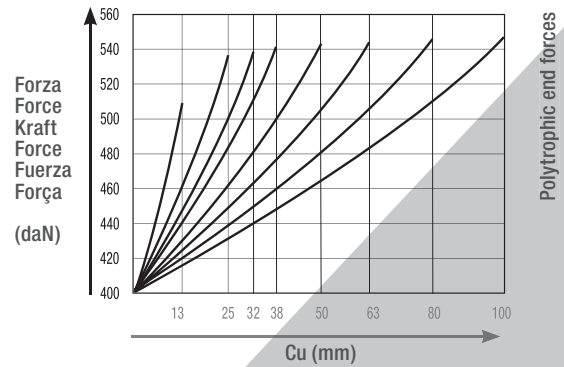
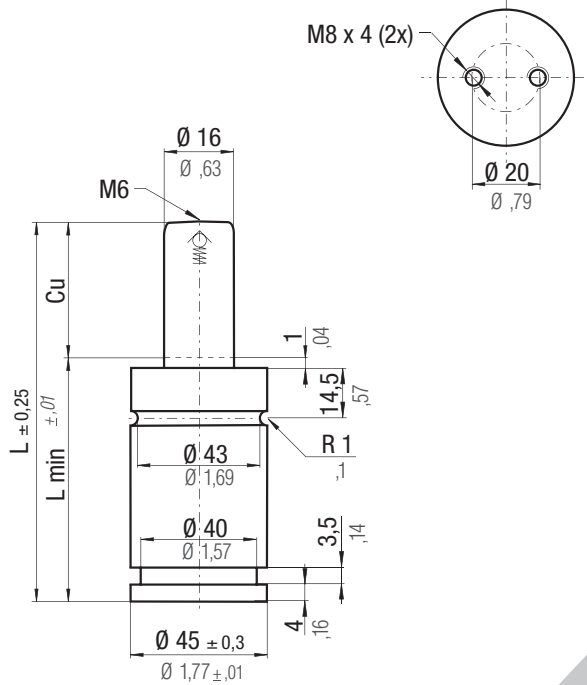
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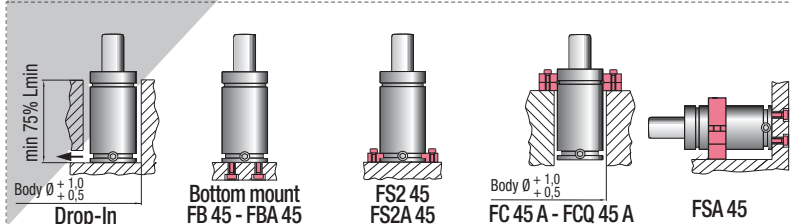


## Range chart

Model	Body Ø		Stroke Cu		Initial force				
	mm	inch	mm	inch	daN	lb	SKUDO	OSAS	OPAS
LI 400	45	1,77	13 - 100	0,51 - 3,94	400	899	-	-	-
LI 400 N	45	1,77	13 - 100	0,51 - 3,94	400	899	-	-	-
LI 900	63	2,48	25 - 125	0,98 - 4,92	900	2023	-	-	-
LI 900 N	63	2,48	25 - 125	0,98 - 4,92	900	2023	-	-	-
LI 1400	75	2,95	25 - 125	0,98 - 4,92	1410	3170	-	-	-
LI 1400 N	75	2,95	25 - 125	0,98 - 4,92	1410	3170	-	-	-
LI 2000	95	3,74	25 - 125	0,98 - 4,92	2035	4575	-	-	-
LI 2000 N	95	3,74	25 - 125	0,98 - 4,92	2035	4575	-	-	-
LI 3200	120	4,72	25 - 125	0,98 - 4,92	3180	7149	-	-	-

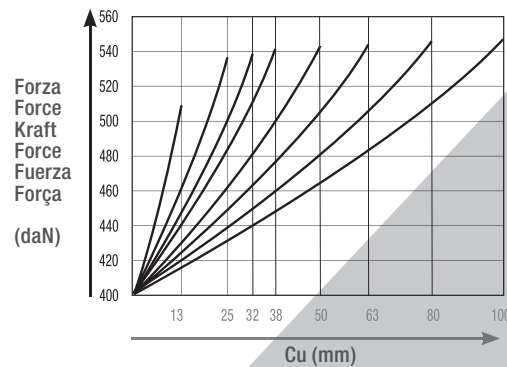
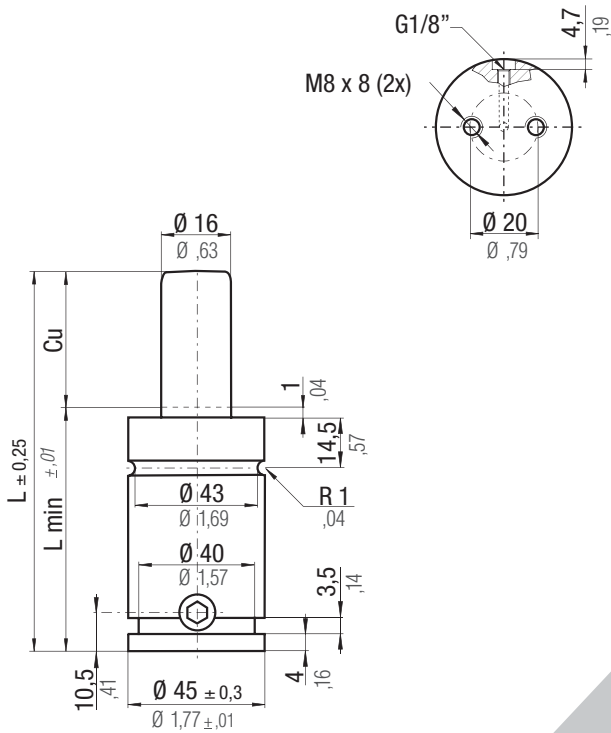


<b>Max Speed</b> 1,8 m/s	<b>°F</b> 32 176	<b>°C</b> 0 80		<b>P max</b> 200 bar 2900 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 2,01 cm <sup>2</sup> 0,312 in <sup>2</sup>		<b>Maintenance kit</b> 39BMLI00400A
<b>CODE</b>	<b>Cu</b>	<b>L</b>	<b>L min</b>	<b>Fo</b>	<b>Vo</b>	<b>CODE</b>		
	mm inch	mm inch	mm inch	daN lb	cm <sup>3</sup> in <sup>3</sup>		~Kg ~lb	
LI 400 - 013 - A	13 0,51	58 2,28	45 1,77		- -	-	0,43 0,95	-
LI 400 - 025 - A	25 0,98	82 3,23	57 2,24	400 899	- -	-	0,50 1,10	-
LI 400 - 032 - A	32 1,26	96 3,78	64 2,52		- -	-	0,55 1,21	-
LI 400 - 038 - A	38 1,50	108 4,25	70 2,76	200 bar 2900 psi	- -	-	0,58 1,28	-
LI 400 - 050 - A	50 1,97	132 5,20	82 3,23		- -	-	0,65 1,43	-
LI 400 - 063 - A	63 2,48	158 6,22	95 3,74		- -	-	0,72 1,59	-
LI 400 - 080 - A	80 3,15	192 7,56	112 4,41	± 5% + 20 °C + 68 °F	- -	-	0,83 1,83	-
LI 400 - 100 - A	100 3,94	232 9,13	132 5,20		- -	-	0,94 2,07	-

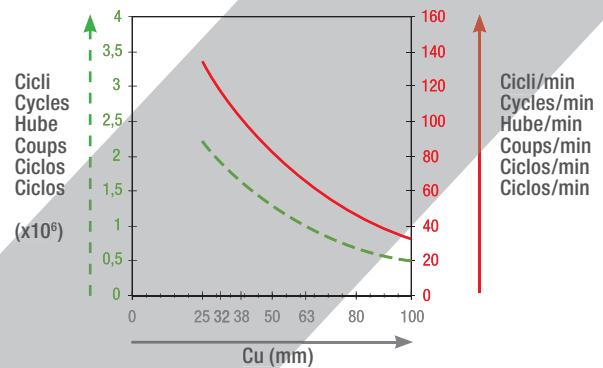


**HOW TO ORDER**

(10 pcs) LI400-050-A

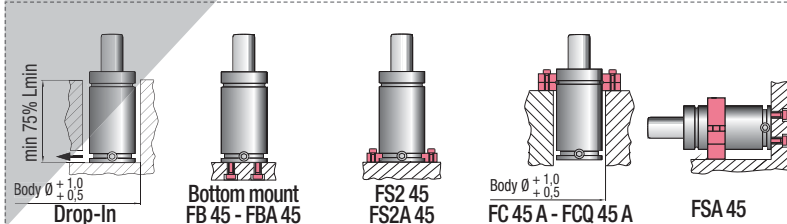


Polytropic end forces



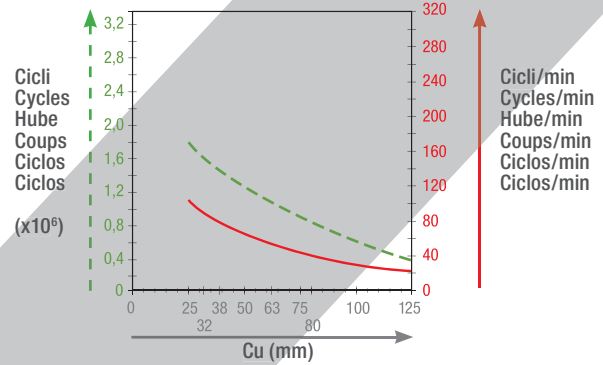
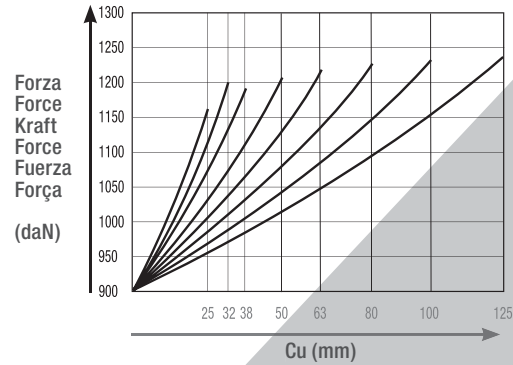
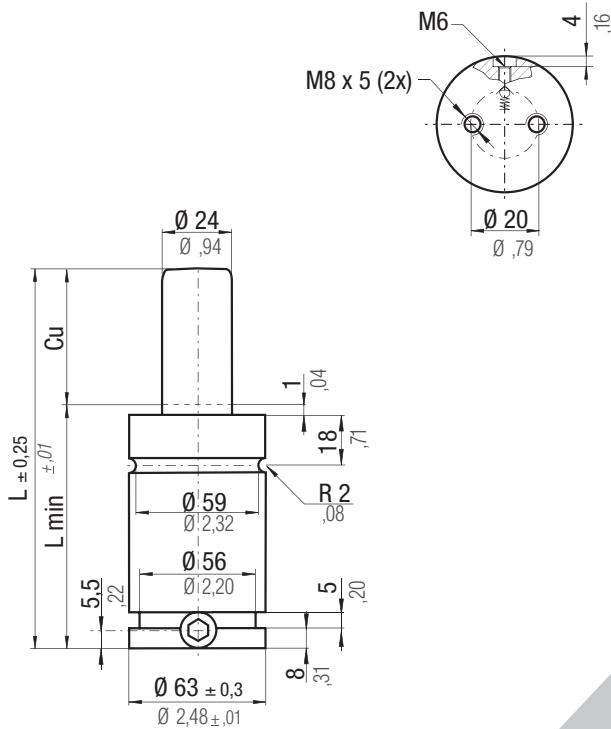
<b>Max Speed</b> 1,8 m/s	<b>°F</b> 32 176	<b>°C</b> 0 80		<b>P max</b> 200 bar 2900 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 2,01 cm <sup>2</sup> 0,312 in <sup>2</sup>		<b>Maintenance kit</b> 39BMLI00400A
<b>CODE</b>	<b>Cu</b>	<b>L</b>	<b>L min</b>	<b>Fo</b>	<b>Vo</b>	<b>CODE</b>		
	mm inch	mm inch	mm inch	daN lb	cm <sup>3</sup> in <sup>3</sup> ~Kg ~lb			
LI 400 - 013 - A - N	13 0,51	68 2,68	55 2,17	400 899 200 bar 2900 psi ± 5% + 20 °C + 68 °F	16,0 0,98 0,48 1,06	LI 400 - 013 - A - N		
LI 400 - 025 - A - N	25 0,98	92 3,62	67 2,64		27,0 1,65 0,55 1,21	LI 400 - 025 - A - N		
LI 400 - 032 - A - N	32 1,26	106 4,17	74 2,91		34,0 2,07 0,60 1,32	LI 400 - 032 - A - N		
LI 400 - 038 - A - N	38 1,50	118 4,65	80 3,15		41,0 2,50 0,63 1,39	LI 400 - 038 - A - N		
LI 400 - 050 - A - N	50 1,97	142 5,59	92 3,62		54,0 3,29 0,70 1,54	LI 400 - 050 - A - N		
LI 400 - 063 - A - N	63 2,48	168 6,61	105 4,13		68,0 4,15 0,77 1,70	LI 400 - 063 - A - N		
LI 400 - 080 - A - N	80 3,15	202 7,95	122 4,80		86,0 5,25 0,88 1,94	LI 400 - 080 - A - N		
LI 400 - 100 - A - N	100 3,94	242 9,53	142 5,59		107,0 6,53 0,99 2,18	LI 400 - 100 - A - N		

info pg. 34



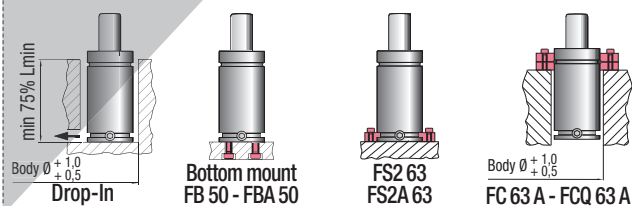
**HOW TO ORDER**

(10 pcs) LI400-050-A-N



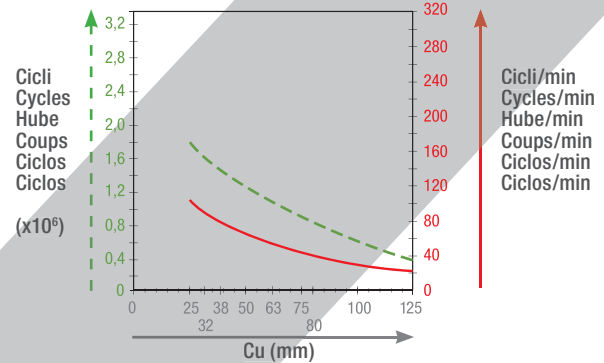
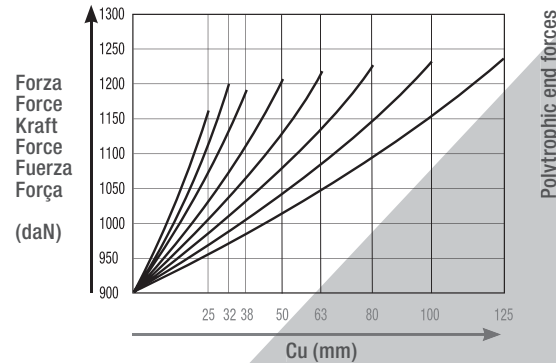
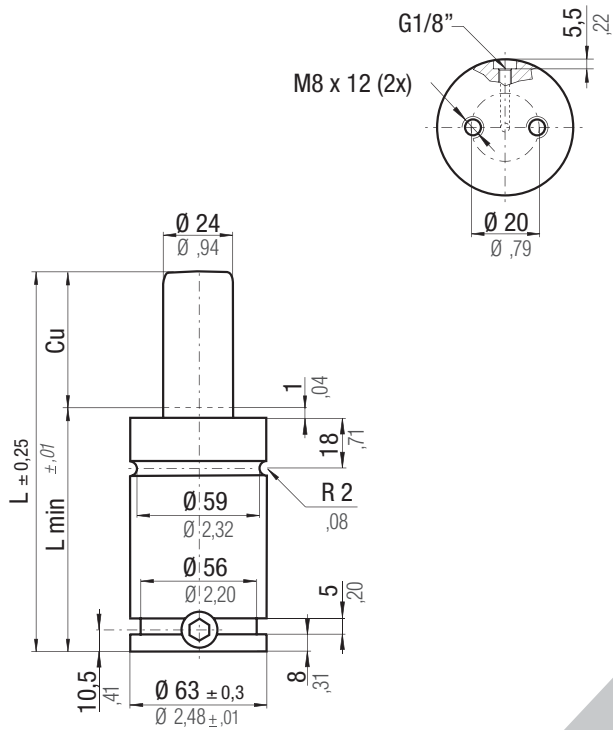
<b>Max Speed</b> 1,8 m/s	<b>°F</b> 32 - 176	<b>°C</b> 0 - 80	<b>N<sub>2</sub></b>	<b>P max</b> 200 bar 2900 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 4,52 cm <sup>2</sup> 0,701 in <sup>2</sup>		<b>Maintenance kit</b> 39BMLI00900A
<b>CODE</b>	<b>Cu</b>	<b>L</b>	<b>L min</b>	<b>F<sub>0</sub></b>	<b>V<sub>0</sub></b>	<b>CODE</b>		
	mm inch	mm inch	mm inch	daN lb	cm <sup>3</sup> in <sup>3</sup> ~Kg ~lb			
LI 900 - 025 - A	25 0,98	94 3,70	69 2,72	900 2023 200 bar 2900 psi ± 5% + 20 °C + 68 °F	24,0 1,46	LI 900 - 025 - A - NA		
LI 900 - 032 - A	32 1,26	108 4,25	76 2,99		38,0 2,32	LI 900 - 032 - A - NA		
LI 900 - 038 - A	38 1,50	120 4,72	82 3,23		51,0 3,11	LI 900 - 038 - A - NA		
LI 900 - 050 - A	50 1,97	144 5,67	94 3,70		76,0 4,64	LI 900 - 050 - A - NA		
LI 900 - 063 - A	63 2,48	170 6,69	107 4,21		103,0 6,28	LI 900 - 063 - A - NA		
LI 900 - 080 - A	80 3,15	204 8,03	124 4,88		139,0 8,48	LI 900 - 080 - A - NA		
LI 900 - 100 - A	100 3,94	244 9,61	144 5,67		182,0 11,10	LI 900 - 100 - A - NA		
LI 900 - 125 - A	125 4,92	294 11,57	169 6,65		235,0 14,34	LI 900 - 125 - A - NA		

info pg. 34



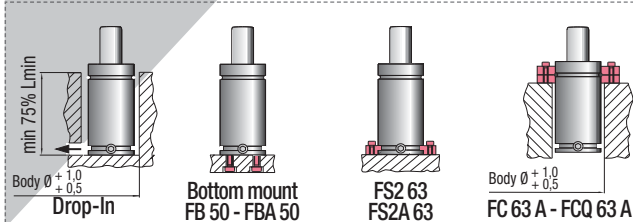
## HOW TO ORDER

(10 pcs) LI900-050-A  
(10 pcs) LI900-050-A-NA



Max Speed	°F	°C		P max	P min	S		Maintenance kit				
1,8 m/s	32	0		200 bar	20 bar	4,52 cm <sup>2</sup>		39BMLI00900A				
	176	- 80		2900 psi	290 psi	0,701 in <sup>2</sup>						
CODE	Cu		L		L min		Fo	Vo	CODE			
	mm	inch	mm	inch	mm	inch	daN	cm <sup>3</sup>				
							lb	in <sup>3</sup>				
LI 900 - 025 - A - N	25	0,98	104	4,09	79	3,11	900	24,0	1,46	1,23	2,71	LI 900 - 025 - A - N
LI 900 - 032 - A - N	32	1,26	118	4,65	86	3,39		38,0	2,32	1,30	2,87	LI 900 - 032 - A - N
LI 900 - 038 - A - N	38	1,50	130	5,12	92	3,62		51,0	3,11	1,37	3,02	LI 900 - 038 - A - N
LI 900 - 050 - A - N	50	1,97	154	6,06	104	4,09		76,0	4,64	1,52	3,35	LI 900 - 050 - A - N
LI 900 - 063 - A - N	63	2,48	180	7,09	117	4,61		103,0	6,28	1,67	3,68	LI 900 - 063 - A - N
LI 900 - 080 - A - N	80	3,15	214	8,43	134	5,28		139,0	8,48	1,87	4,12	LI 900 - 080 - A - N
LI 900 - 100 - A - N	100	3,94	254	10,00	154	6,06		182,0	11,10	2,10	4,63	LI 900 - 100 - A - N
LI 900 - 125 - A - N	125	4,92	304	11,97	179	7,05		235,0	14,34	2,41	5,31	LI 900 - 125 - A - N
							± 5%					
							+ 20 °C					
							+ 68 °F					

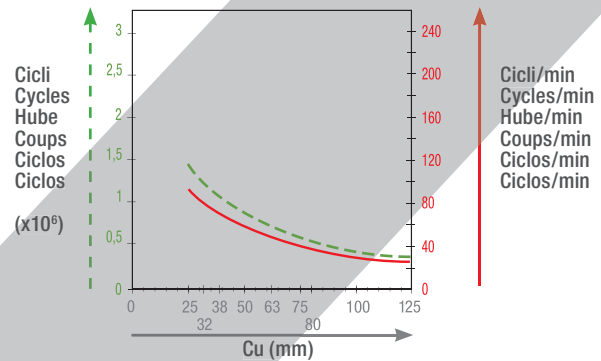
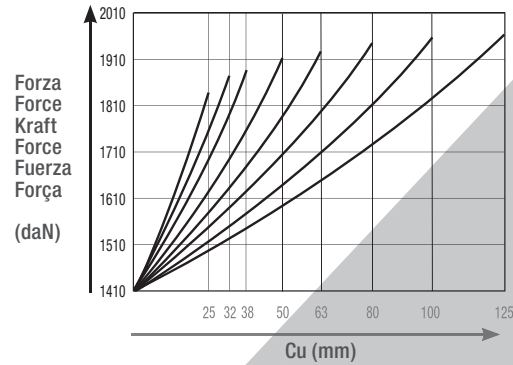
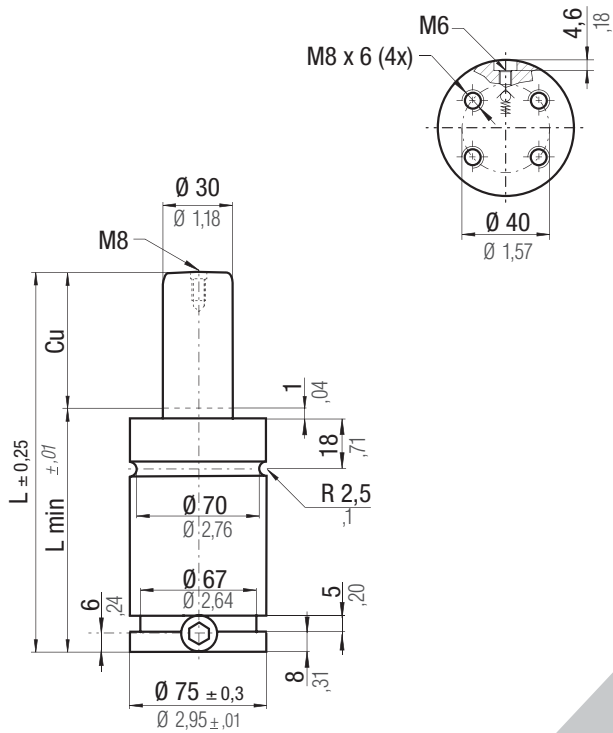
info pg. 34



**HOW TO ORDER**

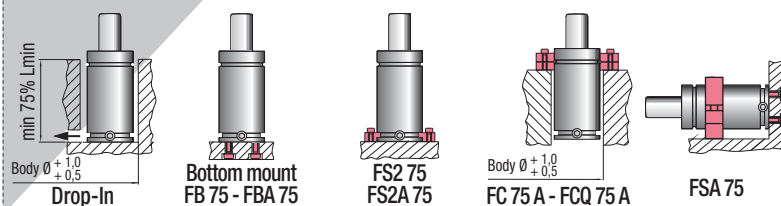
(10 pcs) LI900-050-A-N





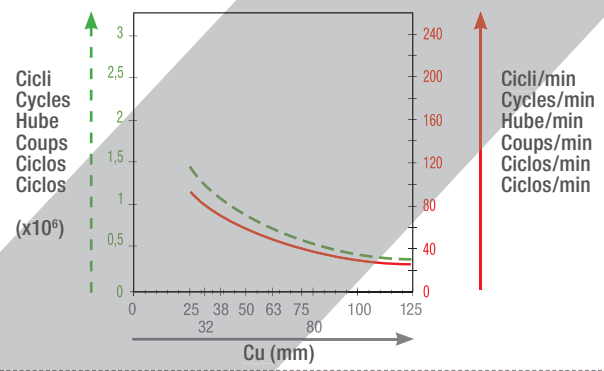
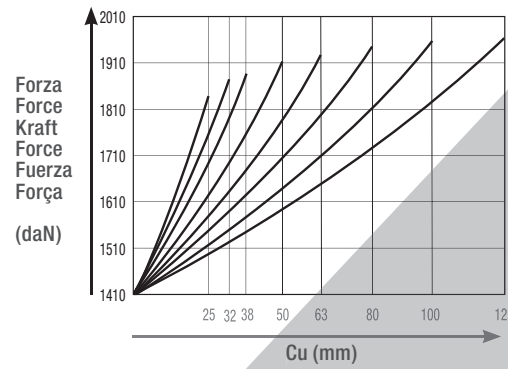
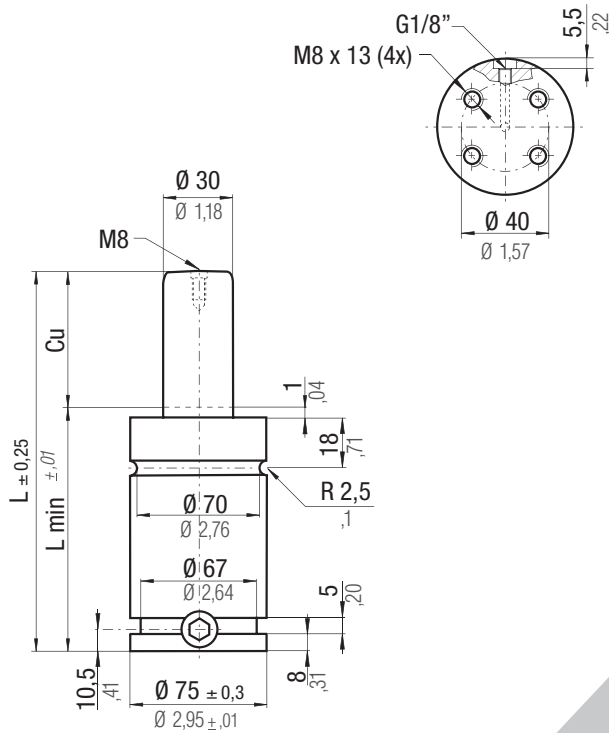
<b>Max Speed</b> 1,8 m/s	<b>°F</b> 32 176	<b>°C</b> 0 80	<b>N<sub>2</sub></b>	<b>P max</b> 200 bar 2900 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 7,07 cm <sup>2</sup> 1,096 in <sup>2</sup>		<b>Maintenance kit</b> 39BMLI01400A	
<b>CODE</b>	<b>Cu</b>	<b>L</b>	<b>L min</b>	<b>F<sub>0</sub></b>	<b>V<sub>0</sub></b>	<b>CODE</b>			
	mm inch	mm inch	mm inch	daN lb	cm <sup>3</sup> in <sup>3</sup>		~Kg	~lb	
LI 1400 - 025 - A	25 0,98	95 3,74	70 2,76	1410 3170 200 bar 2900 psi ± 5% + 20 °C + 68 °F	93,0 5,67 115,0 7,02 134,0 8,18 172,0 10,49 213,0 12,99 266,0 16,23 329,0 20,07 408,0 24,89	LI 1400 - 025 - A - NA LI 1400 - 032 - A - NA LI 1400 - 038 - A - NA LI 1400 - 050 - A - NA LI 1400 - 063 - A - NA LI 1400 - 080 - A - NA LI 1400 - 100 - A - NA LI 1400 - 125 - A - NA	1,62 3,57 1,74 3,84 1,83 4,03 1,99 4,39 2,20 4,85 2,62 5,78 2,77 6,11 3,27 7,21		
LI 1400 - 032 - A	32 1,26	109 4,29	77 3,03						
LI 1400 - 038 - A	38 1,50	121 4,76	83 3,27						
LI 1400 - 050 - A	50 1,97	145 5,71	95 3,74						
LI 1400 - 063 - A	63 2,48	171 6,73	108 4,25						
LI 1400 - 080 - A	80 3,15	205 8,07	125 4,92						
LI 1400 - 100 - A	100 3,94	245 9,65	145 5,71						
LI 1400 - 125 - A	125 4,92	295 11,61	170 6,69						

info pg. 34



## HOW TO ORDER

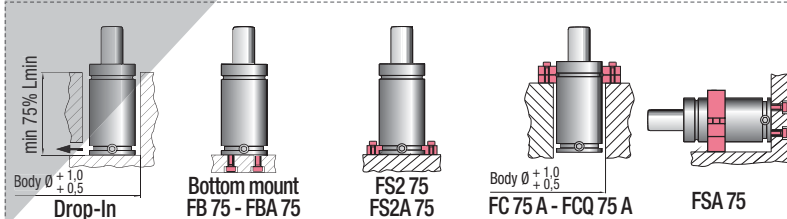
(10 pcs) LI1400-050-A  
(10 pcs) LI1400-050-A-NA



<b>Max Speed</b> 1,8 m/s	°F 32 - 176	°C 0 - 80	N <sub>2</sub>	<b>P max</b> 200 bar 2900 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 7,07 cm <sup>2</sup> 1,096 in <sup>2</sup>		<b>Maintenance kit</b> 39BMLI01400A
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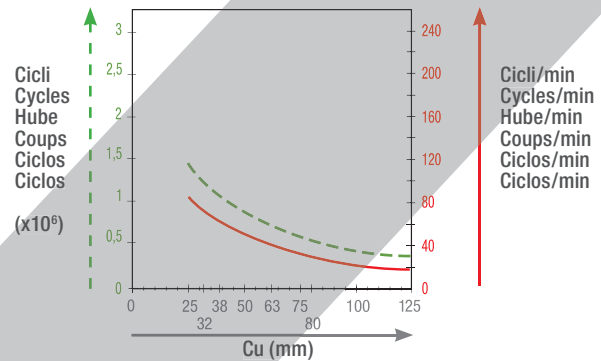
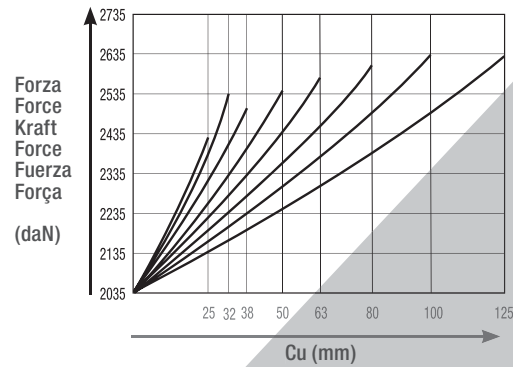
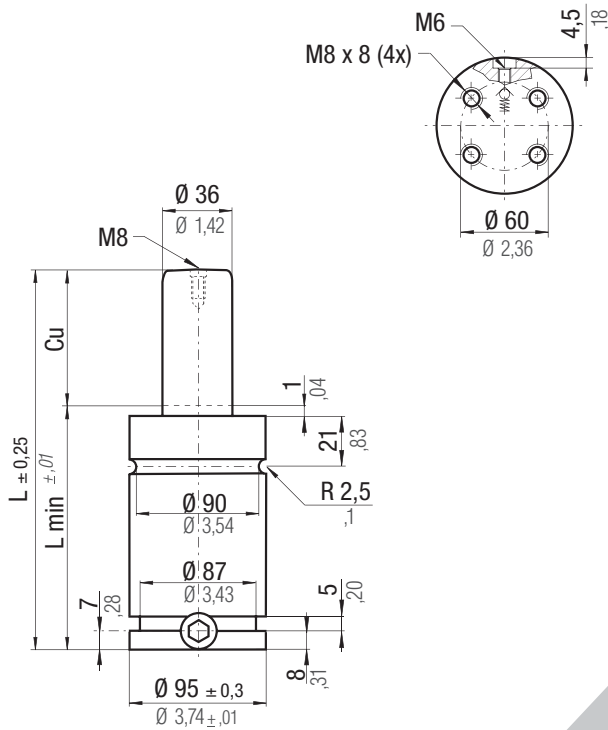
CODE	Cu		L		L min		Fo		Vo		CODE		
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
LI 1400 - 025 - A - N	25	0,98	105	4,13	80	3,15	1410 3170  200 bar 2900 psi  ± 5% + 20 °C + 68 °F		93,0	5,67	1,70	3,75	LI 1400 - 025 - A - N
LI 1400 - 032 - A - N	32	1,26	119	4,69	87	3,43			115,0	7,02	1,80	3,97	LI 1400 - 032 - A - N
LI 1400 - 038 - A - N	38	1,50	131	5,16	93	3,66			134,0	8,18	1,91	4,21	LI 1400 - 038 - A - N
LI 1400 - 050 - A - N	50	1,97	155	6,10	105	4,13			172,0	10,49	2,07	4,56	LI 1400 - 050 - A - N
LI 1400 - 063 - A - N	63	2,48	181	7,13	118	4,65			213,0	12,99	2,27	5,00	LI 1400 - 063 - A - N
LI 1400 - 080 - A - N	80	3,15	215	8,46	135	5,31			266,0	16,23	2,70	5,95	LI 1400 - 080 - A - N
LI 1400 - 100 - A - N	100	3,94	255	10,04	155	6,10			329,0	20,07	2,85	6,28	LI 1400 - 100 - A - N
LI 1400 - 125 - A - N	125	4,92	305	12,01	180	7,09			408,0	24,89	3,35	7,39	LI 1400 - 125 - A - N

info pg. 34



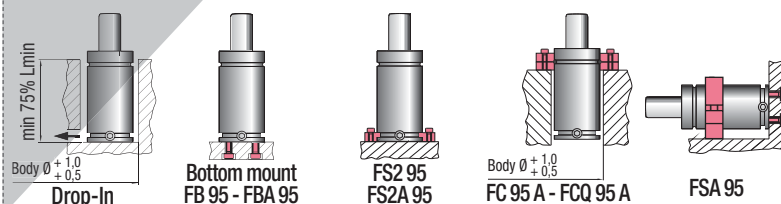
**HOW TO ORDER**

(10 pcs) LI1400-050-A-N



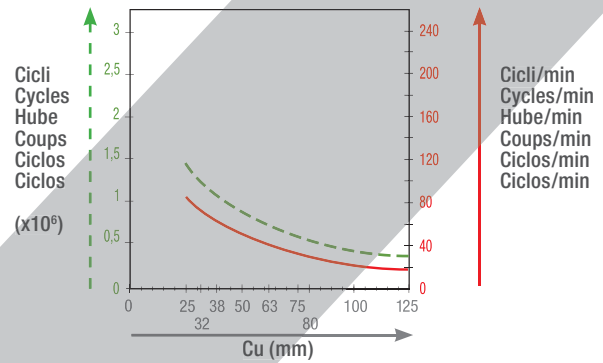
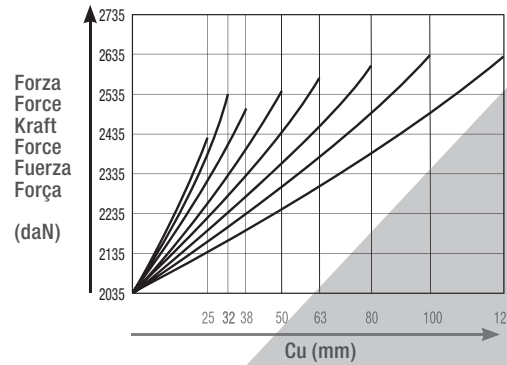
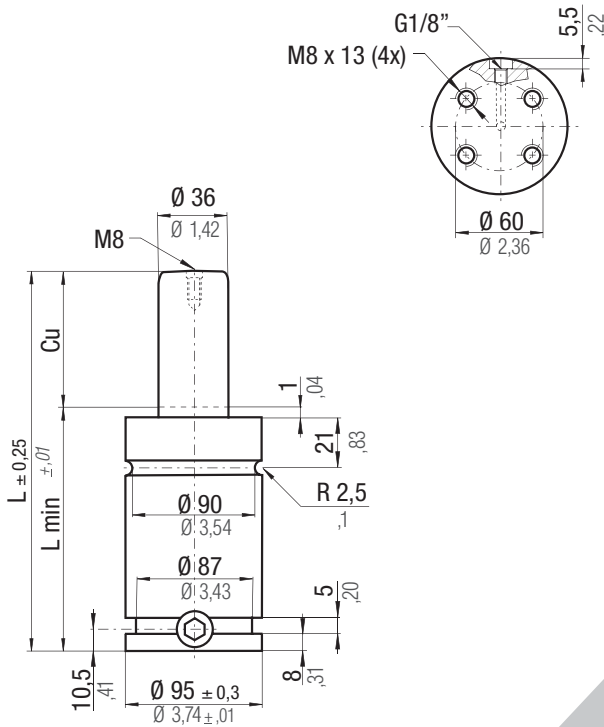
Max Speed	°F	°C		P max	P min	S		Maintenance kit					
1,8 m/s	32	0		200 bar 2900 psi	20 bar 290 psi	10,18 cm <sup>2</sup> 1,578 in <sup>2</sup>		39BMLI02000A					
176		80											
CODE	Cu		L		L min		Fo		Vo		CODE		
	mm	inch	mm	inch	mm	inch	daN	lb	cm <sup>3</sup>	in <sup>3</sup>	~Kg	~lb	
LI 2000 - 025 - A	25	0,98	115	4,53	90	3,54	2035 4575  200 bar 2900 psi  ± 5% + 20 °C + 68 °F		208,0	12,69	3,29	7,25	LI 2000 - 025 - A - NA
LI 2000 - 032 - A	32	1,26	129	5,08	97	3,82			242,0	14,77	3,50	7,72	LI 2000 - 032 - A - NA
LI 2000 - 038 - A	38	1,50	141	5,55	103	4,06			272,0	16,60	3,62	7,98	LI 2000 - 038 - A - NA
LI 2000 - 050 - A	50	1,97	165	6,50	115	4,53			332,0	20,26	3,89	8,58	LI 2000 - 050 - A - NA
LI 2000 - 063 - A	63	2,48	191	7,52	128	5,04			396,0	24,17	4,24	9,35	LI 2000 - 063 - A - NA
LI 2000 - 080 - A	80	3,15	225	8,86	145	5,71			480,0	29,29	4,78	10,54	LI 2000 - 080 - A - NA
LI 2000 - 100 - A	100	3,94	265	10,43	165	6,50			579,0	35,33	5,16	11,38	LI 2000 - 100 - A - NA
LI 2000 - 125 - A	125	4,92	315	12,40	190	7,48			703,0	42,90	5,82	12,83	LI 2000 - 125 - A - NA

info pg. 34



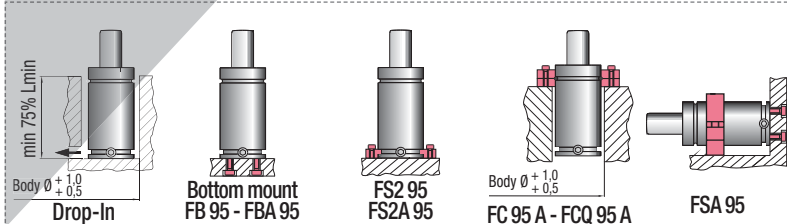
## HOW TO ORDER

(10 pcs) LI2000-050-A  
(10 pcs) LI2000-050-A-N



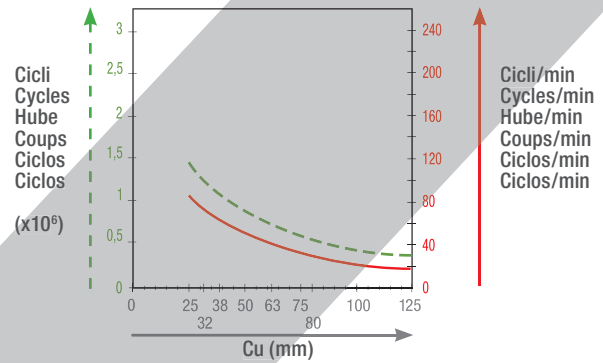
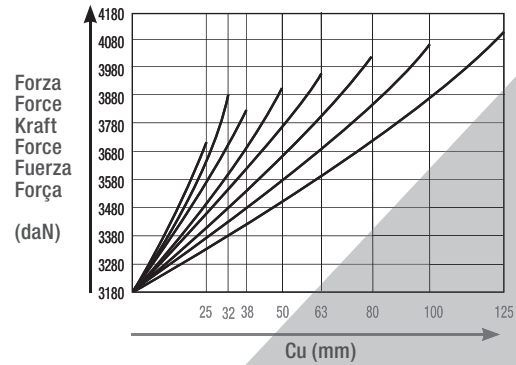
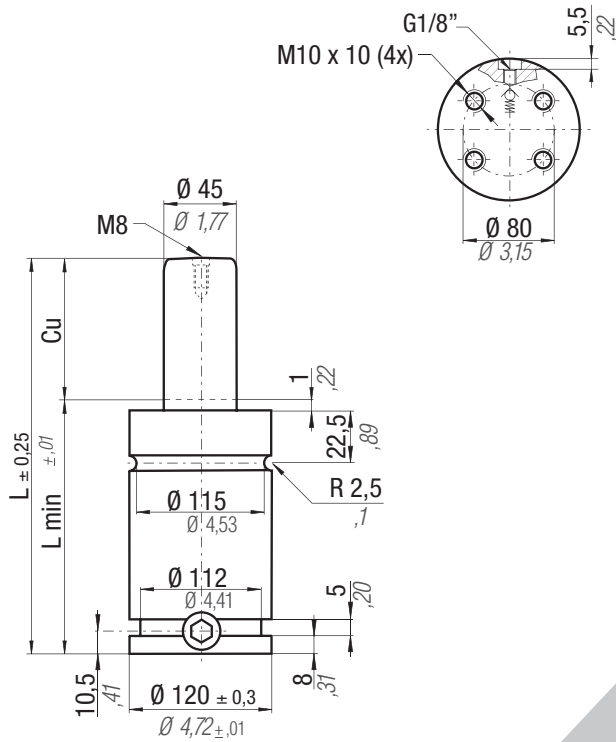
<b>Max Speed</b> 1,8 m/s	°F 32 - 176	°C 0 - 80	N <sub>2</sub>	<b>P max</b> 200 bar 2900 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 10,18 cm <sup>2</sup> 1,578 in <sup>2</sup>		<b>Maintenance kit</b> 39BMLI02000A
<b>CODE</b>	<b>Cu</b>	<b>L</b>	<b>L min</b>	<b>Fo</b>	<b>Vo</b>	<b>CODE</b>		
	mm inch	mm inch	mm inch	daN lb	cm <sup>3</sup> in <sup>3</sup> ~Kg ~lb			
LI 2000 - 025 - A - N	25 0,98	125 4,92	100 3,94	2035 4575  200 bar 2900 psi  ± 5% + 20 °C + 68 °F	208,0 12,69 3,40 7,50	LI 2000 - 025 - A - N		
LI 2000 - 032 - A - N	32 1,26	139 5,47	107 4,21		242,0 14,77 3,57 7,87	LI 2000 - 032 - A - N		
LI 2000 - 038 - A - N	38 1,50	151 5,94	113 4,45		272,0 16,60 3,73 8,22	LI 2000 - 038 - A - N		
LI 2000 - 050 - A - N	50 1,97	175 6,89	125 4,92		332,0 20,26 4,00 8,82	LI 2000 - 050 - A - N		
LI 2000 - 063 - A - N	63 2,48	201 7,91	138 5,43		396,0 24,17 4,35 9,59	LI 2000 - 063 - A - N		
LI 2000 - 080 - A - N	80 3,15	235 9,25	155 6,10		480,0 29,29 4,89 10,78	LI 2000 - 080 - A - N		
LI 2000 - 100 - A - N	100 3,94	275 10,83	175 6,89		579,0 35,33 5,57 12,28	LI 2000 - 100 - A - N		
LI 2000 - 125 - A - N	125 4,92	325 12,80	200 7,87		703,0 42,90 5,93 13,07	LI 2000 - 125 - A - N		

info pg. 34



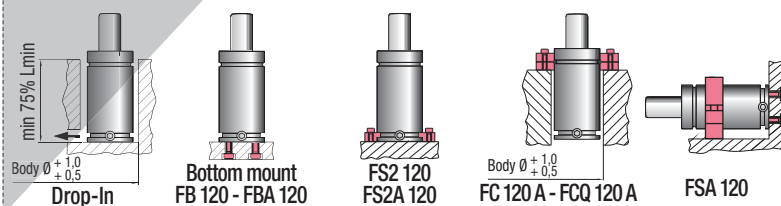
**HOW TO ORDER**

(10 pcs) LI2000-050-A-N



<b>Max Speed</b> 1,8 m/s	<b>°F</b> 32 <b>°C</b> 0 80		<b>P max</b> 200 bar 2900 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 15,90 cm <sup>2</sup> 2,465 in <sup>2</sup>		<b>Maintenance kit</b> 39BMLI03200A
<b>CODE</b>	<b>Cu</b>	<b>L</b>	<b>L min</b>	<b>Fo</b>	<b>Vo</b>	<b>CODE</b>	
	mm inch	mm inch	mm inch	daN lb	cm <sup>3</sup> in <sup>3</sup> ~Kg ~lb		
LI 3200 - 025 - A	25 0,98	125 4,92	100 3,94	3180 7149 200 bar 2900 psi ± 5% + 20 °C + 68 °F	343,0 20,93	LI 3200 - 025 - A - N	
LI 3200 - 032 - A	32 1,26	139 5,47	107 4,21		398,0 24,29	LI 3200 - 032 - A - N	
LI 3200 - 038 - A	38 1,50	151 5,94	113 4,45		445,0 27,16	LI 3200 - 038 - A - N	
LI 3200 - 050 - A	50 1,97	175 6,89	125 4,92		539,0 32,89	LI 3200 - 050 - A - N	
LI 3200 - 063 - A	63 2,48	201 7,91	138 5,43		641,0 39,12	LI 3200 - 063 - A - N	
LI 3200 - 080 - A	80 3,15	235 9,25	155 6,10		774,0 47,23	LI 3200 - 080 - A - N	
LI 3200 - 100 - A	100 3,94	275 10,83	175 6,89		932,0 56,87	LI 3200 - 100 - A - N	
LI 3200 - 125 - A	125 4,92	325 12,80	200 7,87		1127,0 68,77	LI 3200 - 125 - A - N	

info pg. 34



## HOW TO ORDER

(10 pcs) LI3200-050-A  
(10 pcs) LI3200-050-A-N

- I** La seguente tabella indica i riferimenti Special Springs per ogni standards. Vedi esempio sotto riportato.
- GB** The following table shows the references for each Special Springs standards. See example below.
- D** Die folgende Tabelle zeigt die Verweise für jede Special Springs Standards. Siehe Beispiel unten.
- F** Le tableau suivant indique les références pour chacune des normes spéciales Springs. Voir l'exemple ci-dessous.
- E** La siguiente tabla muestra las referencias de las normas especiales para cada Springs. Consulte el siguiente ejemplo.
- P** A tabela a seguir mostra as referências para cada normas especiais molas. Veja o exemplo abaixo.

Reference to standards	Standards	
0	//	Special Springs
1	ISO 11901-2	
2	VDI 3003	
3	B2 4009	BMW
4	W-DX35-62M	Ford
5	W-DX35-80M	Ford
6	W-DX40-80M	Ford
7	90.25.01	General Motors
8	90.25.02	General Motors
9	90.25.03	General Motors
10	90.25.04	General Motors

Reference to standards	Standards	
11	90.25.07	General Motors
12	90.25.455	General Motors
13	B8 0132 110 008 801	Mercedes Benz
14	B8 0138 100 000 001	Mercedes Benz
15	B8 0134 300 000 001	Mercedes Benz
16	B8 0134 400 008 801	Mercedes Benz
17	B8 .....	Mercedes Benz
18	E24.54.815.G	Peugeot - Citroën
19	EM24.54.700	Renault
20	39D 848	Volkswagen

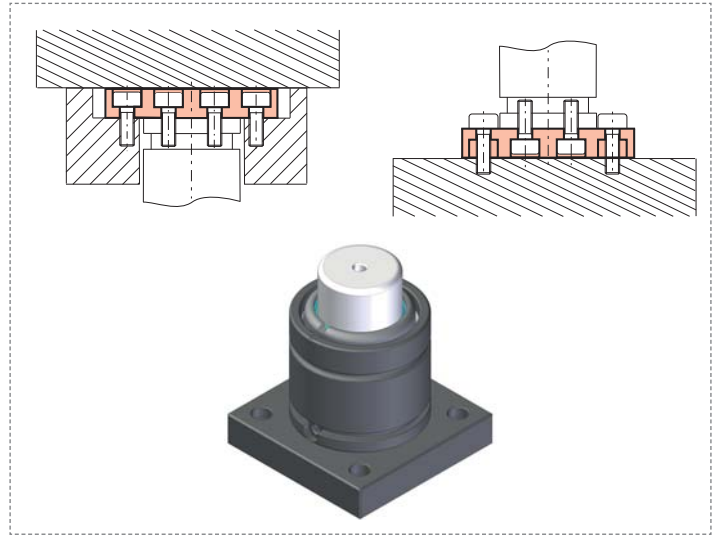
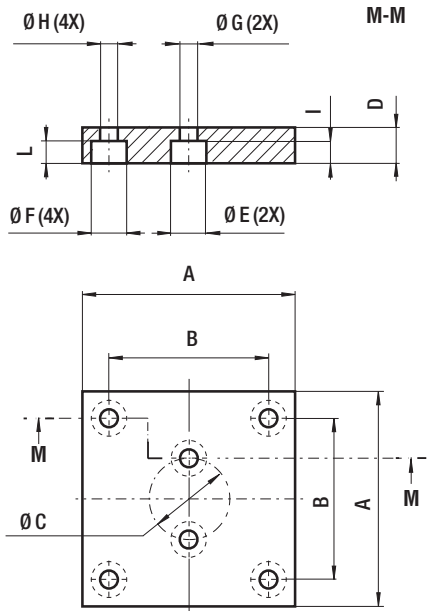
## How to read the table

CODE	Reference to standards	A		B		Ø C		D		Ø E		Ø F		Ø G		Ø H		I		L	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FB 45	1-2-10-18-19	70	2,76	50	1,97	20	0,79	20	0,79	15	0,59	15	0,59	9	0,35	9	0,35	14	0,55	12	0,47

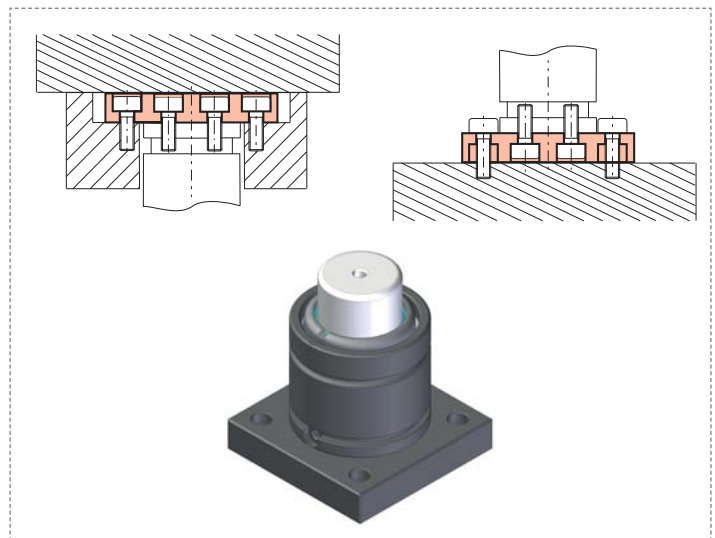
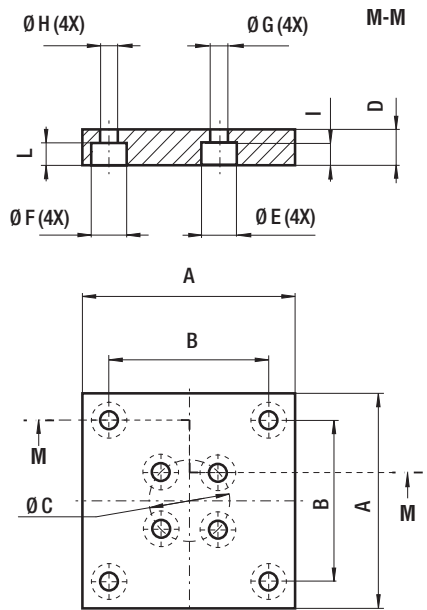
Special Springs CODE

Dimension

1 = ISO 11901-2  
 2 = VDI 3003  
 10 = 90.25.04  
 18 = E24.54.815.G  
 19 = EM24.54.700

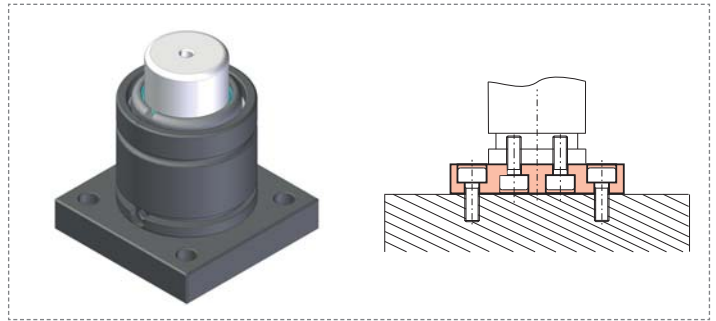
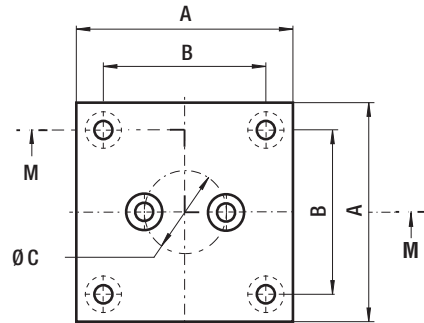
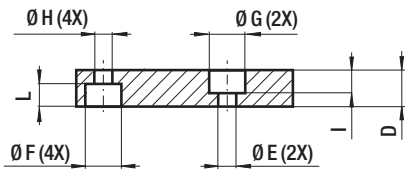


CODE	Reference to standards	A		B		Ø C		D		Ø E		Ø F		Ø G		Ø H		I	L		
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	
FB 45	1-2-10-18-19	70	2,76	50	1,97	20	0,79	20	0,79	15	0,59	15	0,59	9	0,35	9	0,35	14	0,55	12	0,47
FB 50	1-2-10-18-19	75	2,95	56,5	2,22	20	0,79	20	0,79	15	0,59	15	0,59	9	0,35	9	0,35	14	0,55	12	0,47



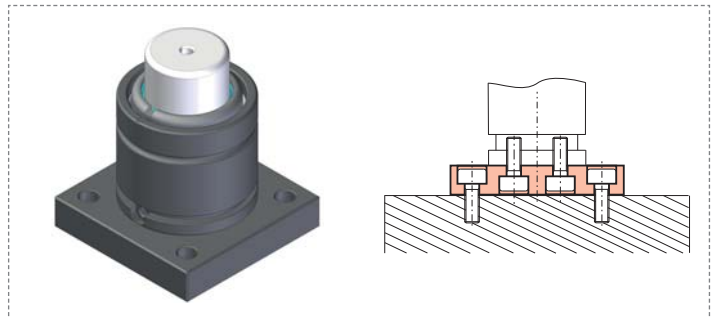
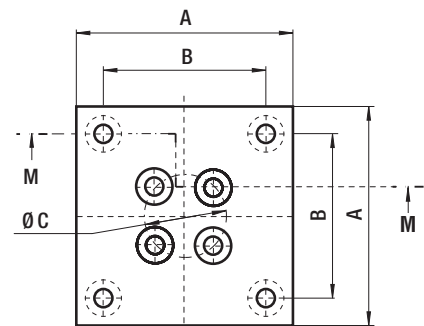
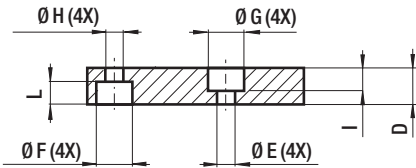
CODE	Reference to standards	A		B		Ø C		D		Ø E		Ø F		Ø G		Ø H		I	L		
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	
FB 75	1-2-10-18-19	100	3,94	73,5	2,89	40	1,57	20	0,79	15	0,59	18	0,71	9	0,35	11	0,43	14	0,55	12	0,47
FB 95	1-2-10-18-19	120	4,72	92	3,62	60	2,36	20	0,79	15	0,59	20	0,79	9	0,35	13,5	0,53	14	0,55	13	0,51
FB 120	1-2-10-18-19	140	5,51	109,5	4,31	80	3,15	20	0,79	18	0,71	20	0,79	11	0,43	13,5	0,53	15	0,59	13	0,51
FB 150	1-2-10-18-19	190	7,48	138	5,43	100	3,94	25	0,98	18	0,71	26	1,02	11	0,43	17,5	0,69	15	0,59	17	0,67
FB 195	1-2-10-18-19	210	8,27	170	6,69	120	4,72	25	0,98	20	0,79	26	1,02	13,5	0,53	17,5	0,69	13	0,51	17	0,67

M-M



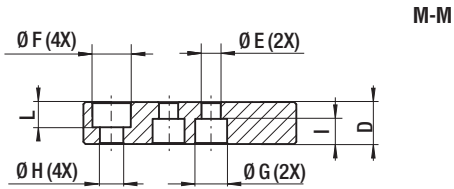
CODE	Reference to standards	A		B		Ø C		D		Ø E		Ø F		Ø G		Ø H		I		L	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBA 45	19	70	2,76	50	1,97	20	0,79	20	0,79	9	0,35	18	0,71	15	0,59	11	0,43	14	0,55	12	0,47
FBA 50	19	75	2,95	56,5	2,22	20	0,79	20	0,79	9	0,35	18	0,71	15	0,59	11	0,43	14	0,55	12	0,47

M-M

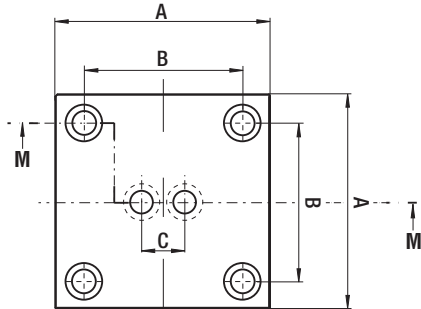
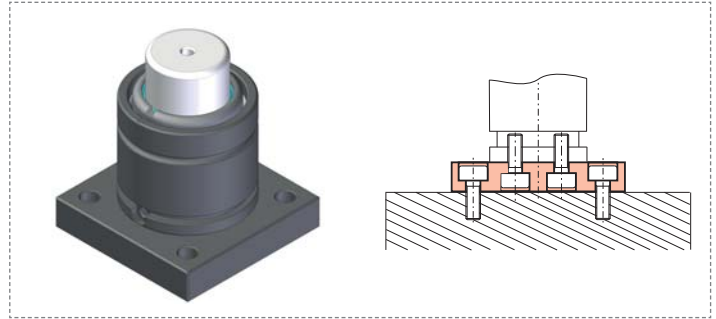


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		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBA 75	19	100	3,94	73,5	2,89	40	1,57	20	0,79	9	0,35	18	0,71	15	0,59	11	0,43	14	0,55	12	0,47
FBA 95	19	120	4,72	92	3,62	60	1,57	20	0,79	9	0,35	20	0,79	15	0,59	13,5	0,53	14	0,55	13	0,51
FBA 120	19	140	5,51	109,5	4,31	80	3,15	20	0,79	11	0,43	20	0,79	18	0,71	13,5	0,53	15	0,59	13	0,51
FBA 150	19	190	7,48	138	5,43	100	3,94	25	0,98	11	0,43	26	1,02	18	0,71	17,5	0,69	15	0,59	17	0,67
FBA 195	19	210	8,27	170	6,69	120	4,72	25	0,98	13,5	0,53	26	1,02	20	0,79	17,5	0,69	15	0,59	17	0,67

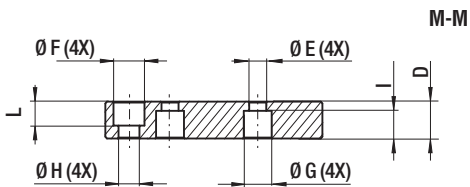




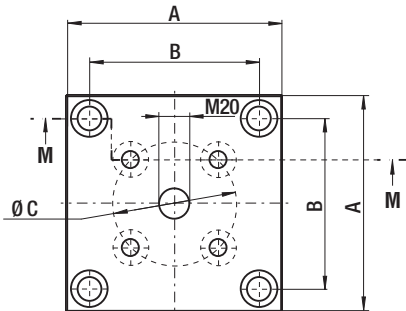
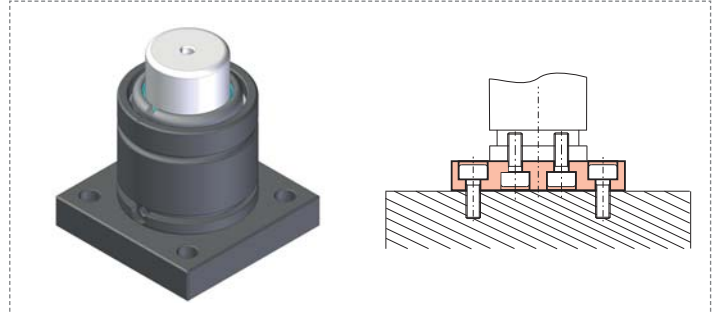
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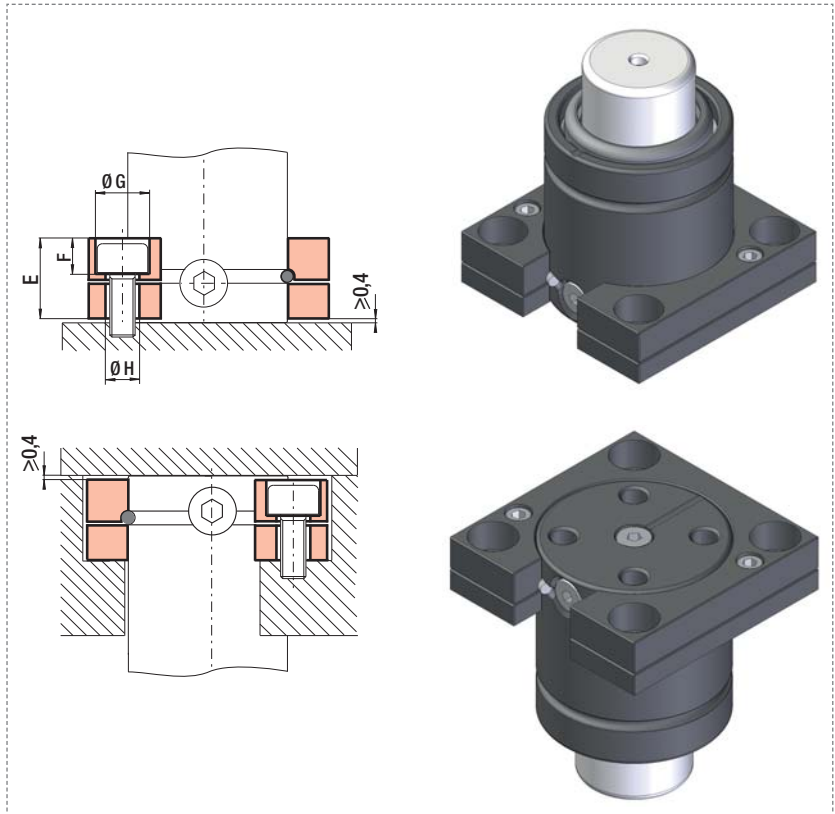
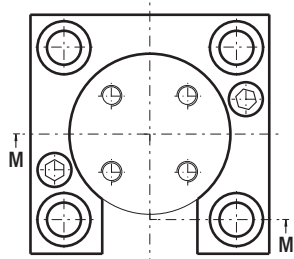
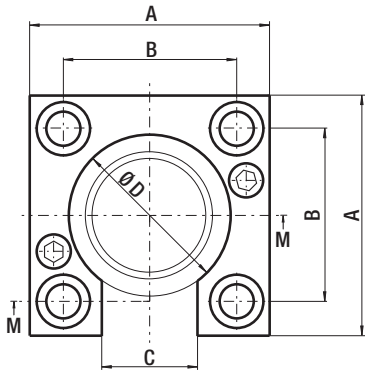
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		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBB 45	3-13	70	2,76	50	1,97	20	0,79	20	0,79	9	0,35	15	0,59	15	0,59	9	0,35	12	0,47	12	0,47
FBB 50	3-13	75	2,95	56,5	2,22	20	0,79	20	0,79	9	0,35	15	0,59	15	0,59	9	0,35	12	0,47	12	0,47
FBB 63	3-13	100	3,94	73,5	2,89	20	0,79	20	0,79	9	0,35	18	0,71	15	0,59	11	0,43	12	0,47	12	0,47



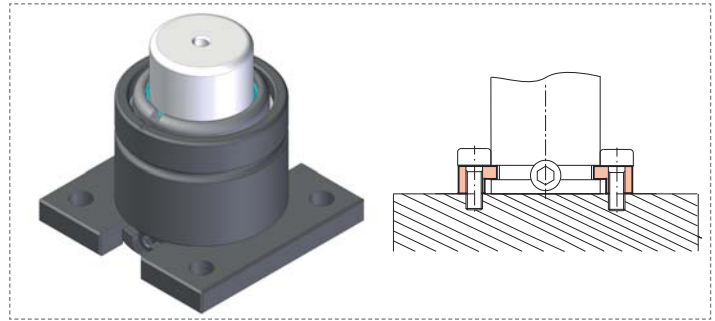
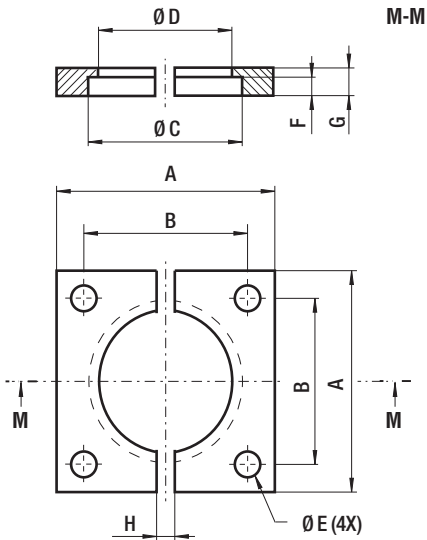
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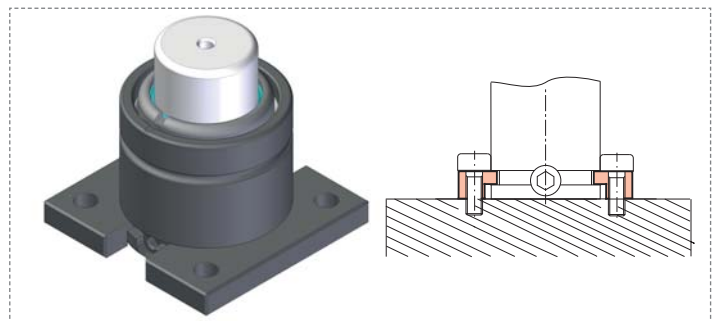
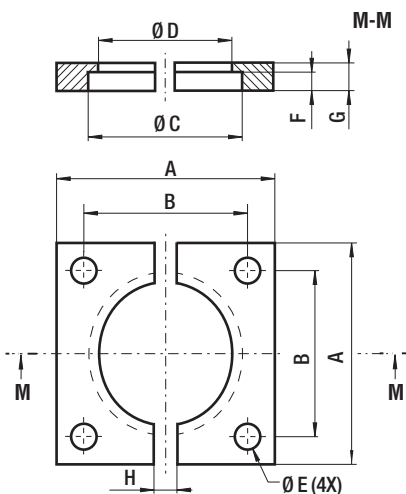
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FBB 75	3-13	100	3,94	73,5	2,89	40	1,57	20	0,79	9	0,35	18	0,71	15	0,59	11	0,43	12	0,47	14	0,55
FBB 95	3-13	120	4,72	92	3,62	60	2,36	20	0,79	9	0,35	20	0,79	15	0,59	13,5	0,53	14	0,55	13	0,51
FBB 120	3-13	140	5,51	109,5	4,31	80	3,15	20	0,79	11	0,43	20	0,79	18	0,71	13,5	0,53	15	0,59	13	0,51
FBB 150	3-13	190	7,48	138	5,43	100	3,94	20	0,79	11	0,43	26	1,02	18	0,71	17,5	0,69	15	0,59	17	0,67
FBB 195	3-13	210	8,27	170	6,69	120	4,72	25	0,98	13,5	0,53	26	1,02	20	0,98	17,5	0,69	15	0,59	17	0,67



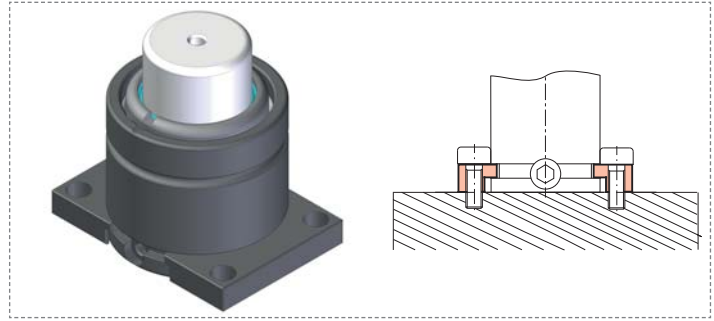
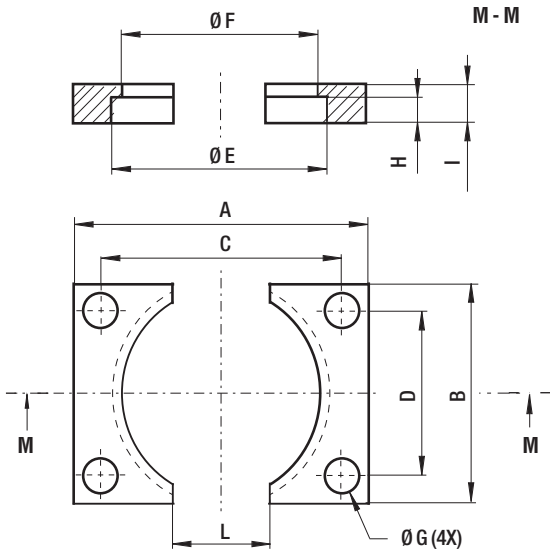
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		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FS1 50	0	75	2,95	53,9	2,12	30	1,18	50,5	1,99	25	,98	11	,43	17	,67	11	,43
FS1 63	0	100	3,94	73,5	2,89	30	1,18	63,5	2,50	25	,98	11	,43	17	,67	11	,43
FS1 75	0	100	3,94	76,2	3,00	30	1,18	75,5	2,97	25	,98	13	,51	20	,79	13	,51
FS1 95	0	125	4,92	98,3	3,87	30	1,18	95,5	3,76	25	,98	13	,51	20	,79	13	,51
FS1 120	0	140	5,51	114,3	4,50	30	1,18	120,5	4,74	25	,98	13	,51	20	,79	13	,51
FS1 150	0	175	6,89	139,7	5,50	30	1,18	150,5	5,93	25	,98	17	,67	25	,98	17	,67



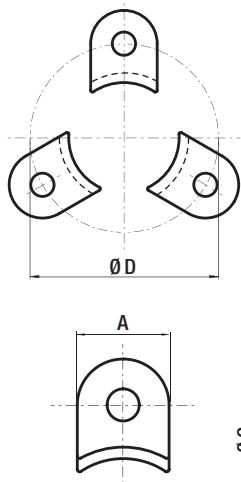
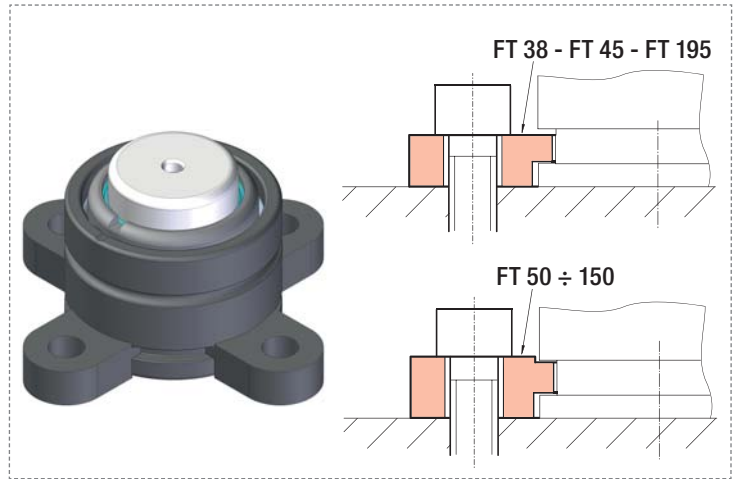
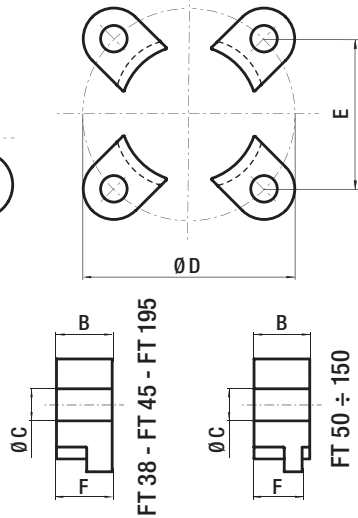
CODE	Reference to standards	A		B		Ø C		Ø D		Ø E		F		G		H	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FS2 32	1-3-4-7-14	50	1,97	35	1,38	32,5	1,28	28,5	1,12	6,6	0,26	4	0,16	7	0,28	5	0,20
FS2 38	1-3-4-7-14	55	2,17	40	1,57	38,5	1,52	34,5	1,36	6,6	0,26	4	0,16	7	0,28	5	0,20
FS2 45	1-2-3-4-7-14-20	70	2,76	50	1,97	45,5	1,79	41,5	1,63	9	0,35	4	0,16	7	0,28	20	0,79
FS2 50	1-2-3-4-7-14-20	75	2,95	56,5	2,22	50,5	1,99	44,5	1,75	9	0,35	8	0,31	12	0,47	24	0,95
FS2 63	0	85	3,35	63,5	2,50	63,5	2,50	57,5	2,26	11	0,43	8	0,31	12	0,47	24	0,95
FS2 75	1-2-3-4-7-14-20	100	3,94	73,5	2,89	75,5	2,97	68,5	2,70	11	0,43	8	0,31	12	0,47	24	0,95
FS2 95	1-2-3-4-7-14-20	120	4,72	92	3,62	95,5	3,76	88,5	3,48	13,5	0,53	8	0,31	12	0,47	24	0,95
FS2 120	1-2-3-4-7-14-20	140	5,51	109,5	4,31	120,5	4,74	113,5	4,47	13,5	0,53	8	0,31	12	0,47	24	0,95
FS2 150	1-2-3-4-7-14-20	190	7,48	138	5,43	150,5	5,93	143,5	5,65	17,5	0,69	8	0,31	12	0,47	24	0,95
FS2 195	1-2-4-7-14-20	210	8,27	170	6,69	195,5	7,70	188	7,40	17,5	0,69	8	0,31	13	0,51	24	0,95



CODE	Reference to standards	A		B		Ø C		Ø D		Ø E		F		G		H	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FS2B 32	2-20	50	1,97	35	1,38	32,5	1,28	28,5	1,12	6,6	0,26	4	0,16	7	0,28	12	0,47
FS2B 38	2-20	55	2,17	40	1,57	38,5	1,52	34,5	1,36	6,6	0,26	4	0,16	7	0,28	12	0,47
FS2B 63	2-3-4-14-20	100	3,94	73,5	2,89	64	2,52	57,5	2,26	11	0,43	8	0,32	12	0,47	24	0,95



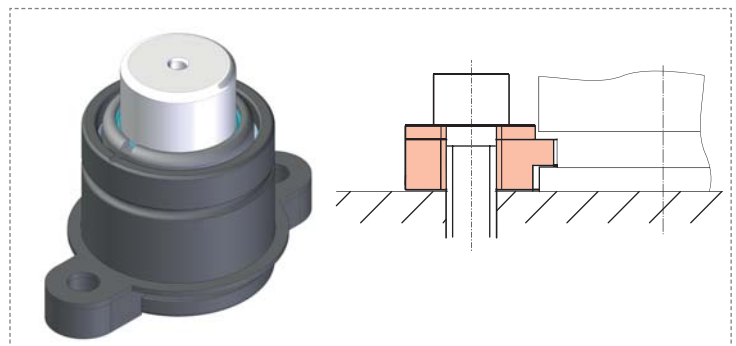
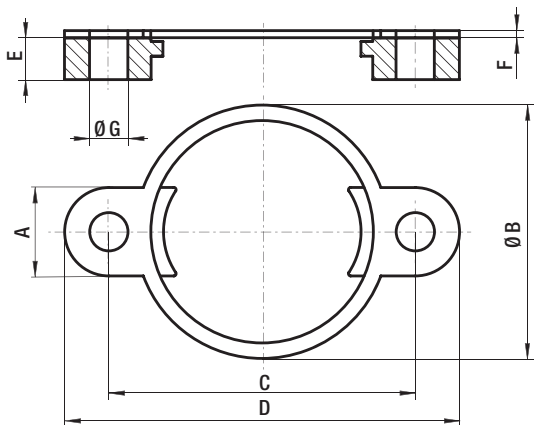
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		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FS2A 32	0	50	1,97	27	1,06	40	1,57	18	0,71	32,5	1,28	28,5	1,12	6,6	0,26	4	0,16	7	0,28	20	0,79
FS2A 38	0	55	2,17	33	1,30	44	1,73	20	0,79	38,5	1,52	34,5	1,36	6,6	0,26	4	0,16	7	0,28	20	0,79
FS2A 45	0	70	2,76	40	1,57	57	2,24	27	1,06	45,5	1,79	41,5	1,63	9	0,35	4	0,16	7	0,28	25	0,98
FS2A 50	0	75	2,95	45	1,77	62	2,44	32	1,26	50,5	1,99	44,5	1,75	9	0,35	8	0,31	12	0,47	25	0,98
FS2A 63	0	85	3,35	58	2,28	69	2,72	42	1,65	63,5	2,50	57,5	2,26	11	0,43	8	0,31	12	0,47	30	1,18
FS2A 75	0	100	3,94	70	2,76	84	3,31	54	2,13	75,5	2,97	68,5	2,70	11	0,43	8	0,31	12	0,47	30	1,18
FS2A 95	0	120	4,72	90	3,54	100	3,94	70	2,76	95,5	3,76	88,5	3,48	13,5	0,53	8	0,31	12	0,47	40	1,57
FS2A 120	0	140	5,51	115	4,53	120	4,72	95	3,74	120,5	4,74	113,5	4,47	13,5	0,53	8	0,31	12	0,47	50	1,97
FS2A 150	0	190	7,48	145	5,71	165	6,50	120	4,72	150,5	5,93	143,5	5,65	17,5	0,69	8	0,31	12	0,47	60	2,36
FS2A 195	0	210	8,27	190	7,48	185	7,28	165	6,50	195,5	7,70	188	7,40	17,5	0,69	8	0,31	13	0,51	80	3,15

**Fig. 1**

**Fig. 2**


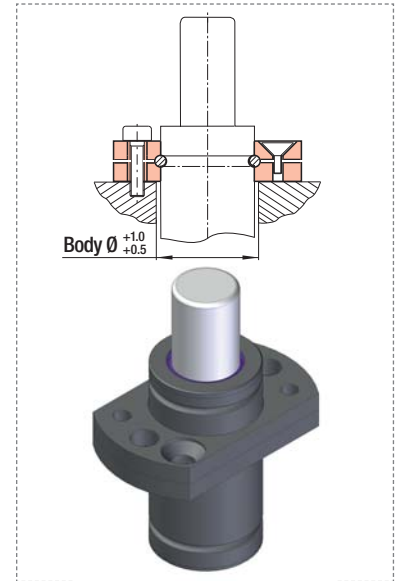
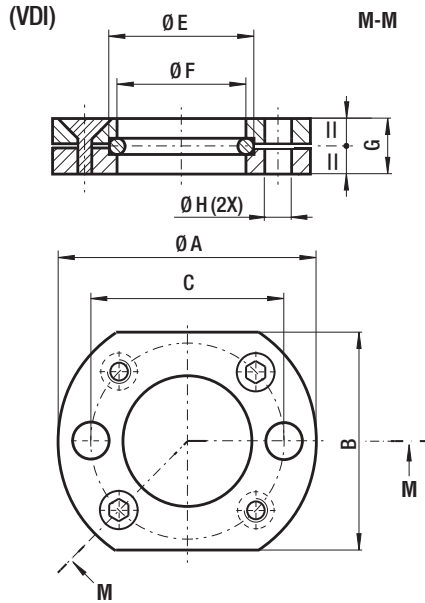
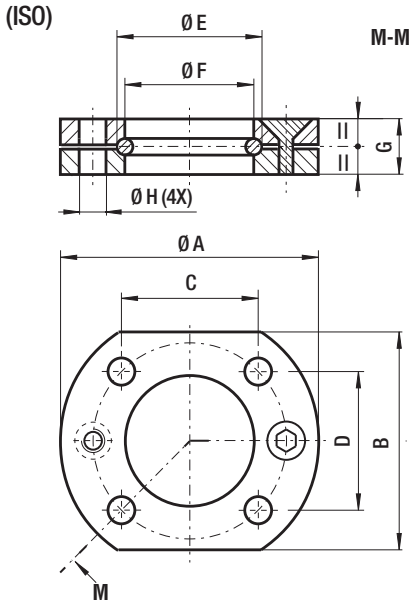
Std. box 1 pz =

Order ex. FT 38 - 3pz =

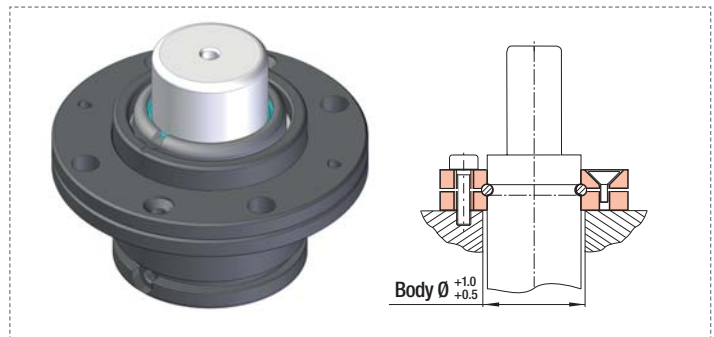
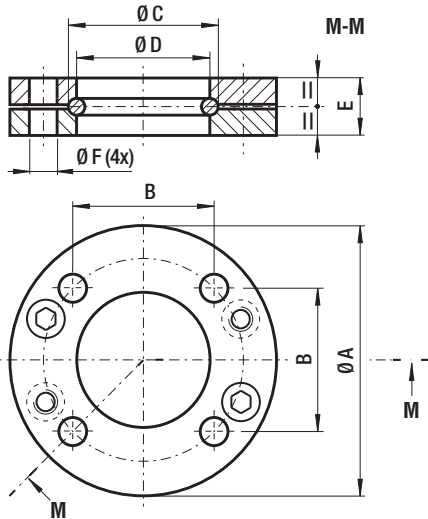
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FT 38	0	20	0,79	7	0,28	7	0,28	56,6	2,23	-	-	7	0,28	Fig. 1
FT 45	0	25	0,98	7	0,28	9	0,35	70,7	2,78	-	-	7	0,28	
FT 50	0	30	1,18	14,2	0,56	13	0,51	80	3,15	-	-	13	0,51	
FT 63	0	30	1,18	14,2	0,56	13	0,51	92	3,62	65	2,56	13	0,51	Fig. 2
FT 75	0	30	1,18	14,2	0,56	13	0,51	104	4,09	73,5	2,89	13	0,51	
FT 95	0	40	1,57	14,2	0,56	17	0,67	130	5,12	92	3,62	13	0,51	
FT 120	0	50	1,97	14,2	0,56	17	0,67	155	6,10	109,5	4,31	13	0,51	
FT 150	0	50	1,97	14,2	0,56	21	0,83	195	7,68	138	5,43	13	0,51	
FT 195	0	58	2,28	16	0,63	21	0,83	240	9,45	169	6,65	16	0,63	



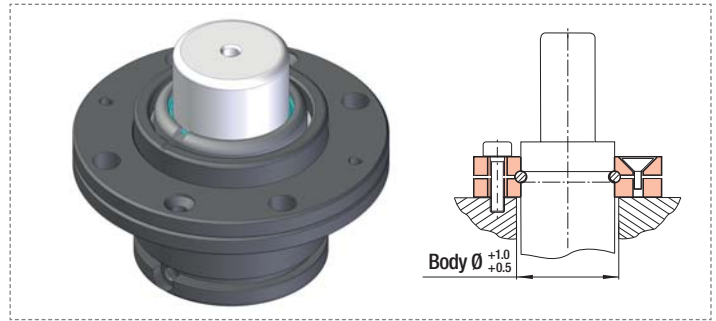
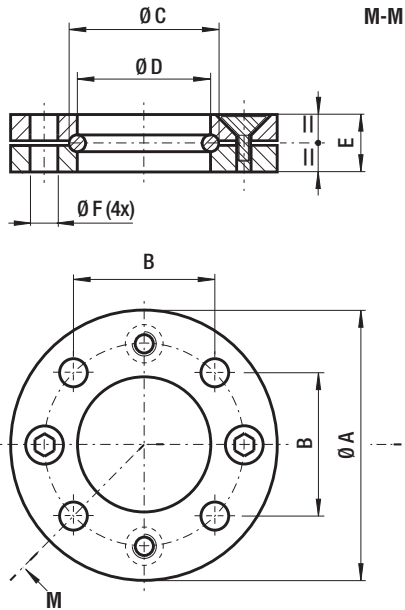
CODE	Reference to standards	A		Ø B		C		D		E		F		Ø G	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FTP 38	0	20	0,79	48	1,89	56,6	2,23	76,6	3,02	7	0,28	2,5	0,10	7	0,28
FTP 45	0	25	0,98	56	2,20	70,7	2,78	95,7	3,77	7	0,28	2,5	0,10	9	0,35
FTP 50	0	30	1,18	61	2,40	80	3,15	110	4,33	14,2	0,56	2,5	0,10	13	0,51
FTP 63	0	30	1,18	73	2,87	92	3,62	122	4,80	14,2	0,56	2,5	0,10	13	0,51
FTP 75	0	30	1,18	86	3,39	104	4,09	134	5,28	14,2	0,56	2,5	0,10	13	0,51
FTP 95	0	40	1,57	106	4,17	130	5,12	170	6,69	14,2	0,56	2,5	0,10	17	0,67
FTP 120	0	50	1,97	131	5,16	155	6,10	205	8,07	14,2	0,56	2,5	0,10	17	0,67
FTP 150	0	50	1,97	170	6,69	195	7,68	245	9,65	14,2	0,56	2,5	0,10	21	0,83



CODE	Reference to standards	Ø A		B		C		D		Ø E		Ø F		G		Ø H	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FC 12 A VDI	0	34	1,34	21	0,83	24	0,94	-	-	13,7	0,54	12,5	0,49	9	0,35	6,6	0,26
FC 15 A VDI	0	37	1,36	24	0,94	27	1,06	-	-	16,7	0,66	15,5	0,61	9	0,35	6,6	0,26
FC 19 B ISO	1-5-18	44	1,73	25	0,98	30	1,18	12	0,47	21	0,83	19,5	0,77	9	0,35	6,6	0,26
FC 25 B ISO	1-5-18	50	1,97	30	1,18	34	1,34	18	0,71	27	1,06	25,5	1,00	9	0,35	6,6	0,26
FCC 19 A VDI	2-3-16-20	44	1,73	25	0,98	32	1,26	-	-	21	0,83	19,5	0,77	9	0,35	6,6	0,26
FCC 25 A VDI	2-3-16-18-20	50	1,97	30	1,18	38	1,50	-	-	27	1,06	25,5	1,00	9	0,35	6,6	0,26

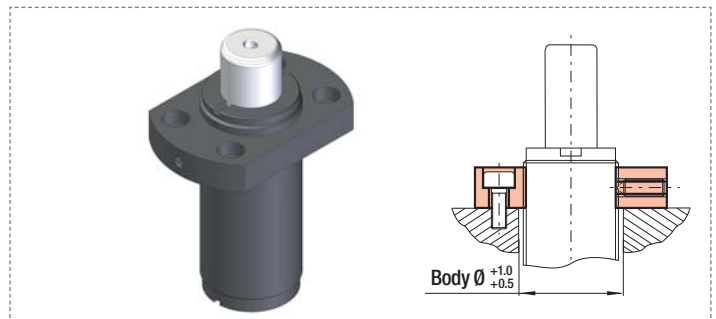
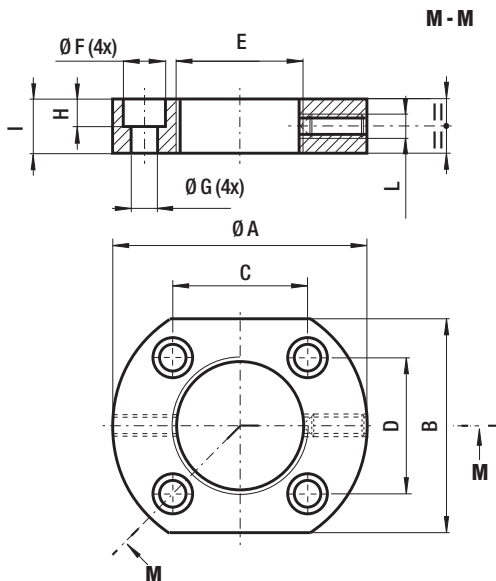


CODE	Reference to standards	Ø A		B		Ø C		Ø D		E		Ø F	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FC 32 A	1-2-3-9-15	60	2,36	35	1,38	34	1,34	32,5	1,28	9	0,35	7	0,28
FC 38 A	1-2-3-9-15	68	2,68	40	1,57	40	1,57	38,5	1,52	9	0,35	7	0,28
FC 45 A	1-2-3-9-15	86	3,39	50	1,97	47	1,85	45,5	1,79	13	0,51	9	0,35
FC 50 A	1-2-3-9-15	95	3,74	56,5	2,22	54	2,13	50,5	1,99	13	0,51	9	0,35
FC 63 A	0	122	4,80	73,5	2,89	67	2,64	63,5	2,50	16	0,63	11	0,43
FC 75 A	1-2-3-9-15	122	4,80	73,5	2,89	80	3,15	75,5	2,97	16	0,63	11	0,43
FC 95 A	1-2-3-9-15	150	5,91	92	3,62	100	3,94	95,5	3,76	18	0,71	13,5	0,53
FC 120 A	1-2-3-9-15	175	6,89	109,5	4,31	125	4,92	120,5	4,74	21	0,83	13,5	0,53
FC 150 A	1-2-3-9-15	220	8,66	138	5,43	155	6,10	150,5	5,93	27	1,06	17,5	0,69
FC 195 A	1-2-9-15	290	11,42	170	6,69	200	7,87	195,5	7,70	27	1,06	17,5	0,69

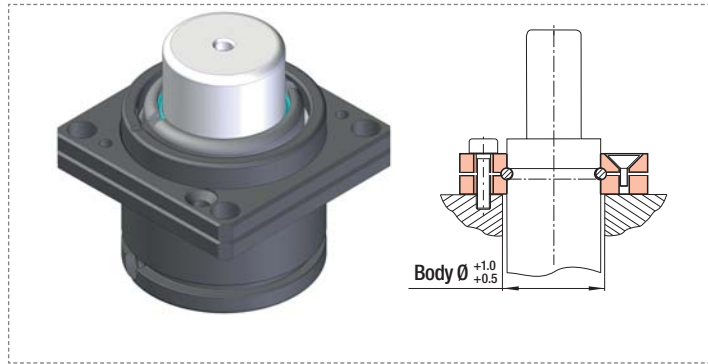
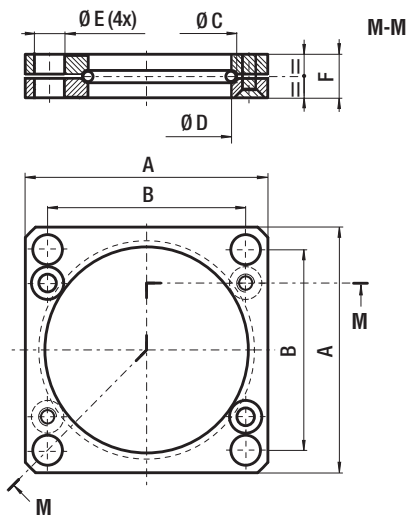


For KE series only

CODE	Reference to standards	Ø A		B		Ø C		Ø D		E		Ø F	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FCB 50	0	95	3,74	56,5	2,22	52	2,05	50,5	1,99	13	0,51	9	0,35
FCB 63	0	122	4,80	73,5	2,89	66	2,60	63,5	2,50	16	0,63	11	0,43
FCB 75	0	122	4,80	73,5	2,89	78	3,07	75,5	2,97	16	0,63	11	0,43
FCB 95	0	150	5,91	92	3,62	98	3,86	95,5	3,76	18	0,71	13,5	0,53



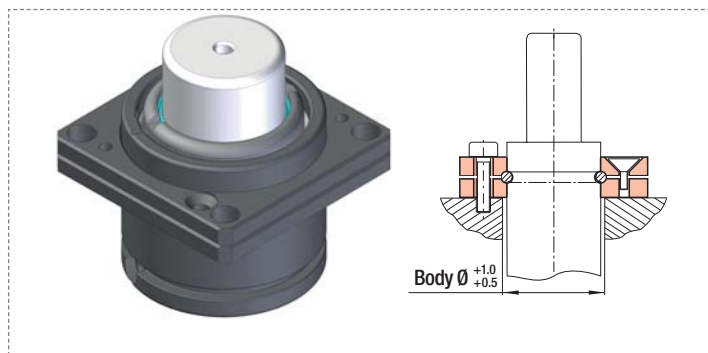
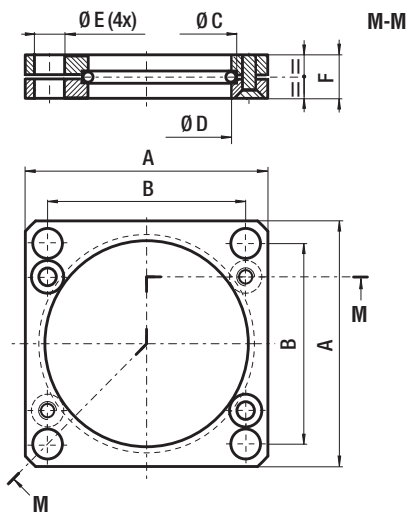
CODE	Reference to standards	Ø A		B		C		D		E	Ø F		Ø G		H		I	L	
		mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	mm	inch	mm	inch			mm
FCA 38	0	75	2,95	50	1,97	50,3	1,98	29	1,14	M 38 x 1,5	14	0,55	9	0,35	8	0,31	12	0,47	M6
FCA 45	0	90	3,54	60	2,36	60	2,36	34	1,34	M 45 x 1,5	14	0,55	9	0,35	8	0,31	16	0,63	M6
FCA 50	0	100	3,94	66	2,60	66	2,60	38	1,50	M 50 x 1,5	14	0,55	9	0,35	8	0,31	16	0,63	M6



CODE		Reference to standards	A		B		Ø C		Ø D		Ø E		F	
PHASING OUT	NEW		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FCQ 32 A	FCQC 32	2-4-8	45	1,77	35	1,38	34	1,34	32,5	1,28	6,6	0,26	9	0,26
FCQ 38 A	FCQC 38	2-1-3-4-8	52	2,05	40	1,57	40	1,57	38,5	1,52	6,6	0,26	9	0,35
FCQ 45 A	FCQC 45	2-1-3-4-8	64	2,52	50	1,97	47	1,85	45,5	1,79	9	0,35	13	0,51
FCQ 50 A	FCQC 50	2-1-3-4-8	70	2,76	56,5	2,22	54	2,13	50,5	1,99	9	0,35	13	0,51
FCQ 63 A	FCQC 63 A	2-3	90	3,54	73,5	2,89	67	2,64	63,45	2,50	11	0,43	16	0,63
FCQC 63	FCQC 63	2-4-20	80	3,15	64	2,52	67	2,64	63,45	2,50	11	0,43	16	0,63
FCQ 75 A	FCQC 75	2-1-3-4-8	90	3,54	73,5	2,89	80	3,15	75,5	2,97	11	0,43	16	0,63
FCQ 95 A	FCQC 95	2-1-3-4-8	110	4,33	92	3,62	100	3,94	95,5	3,76	13,5	0,53	18	0,71
FCQ 120 A	FCQC 120	2-1-3-4-8	130	5,12	109,5	4,31	125	4,92	120,5	4,74	13,5	0,53	21	0,83
FCQ 150 A	FCQC 150	2-1-3-4-8	162	6,38	138	5,43	155	6,10	150,5	5,93	17,5	0,69	27	1,06
FCQ 195 A	FCQC 195	2-1-4-8	210	8,27	170	6,69	200	7,87	195,5	7,70	17,5	0,69	27	1,06

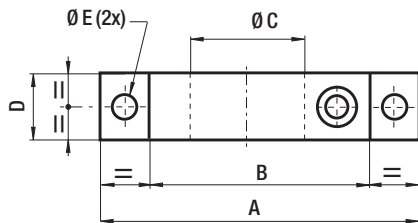
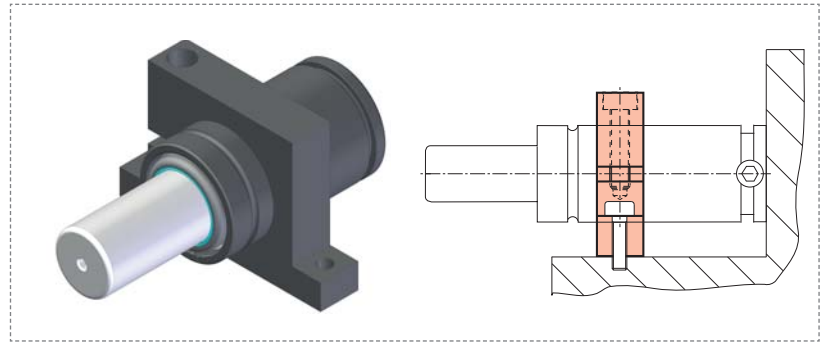
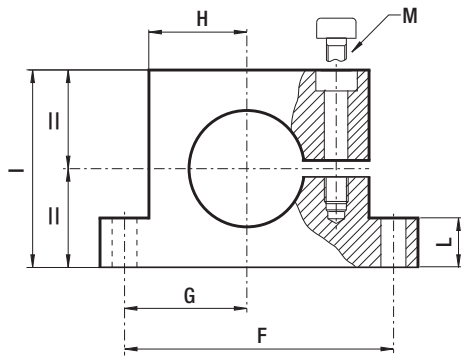
# FCQB

For KE series only



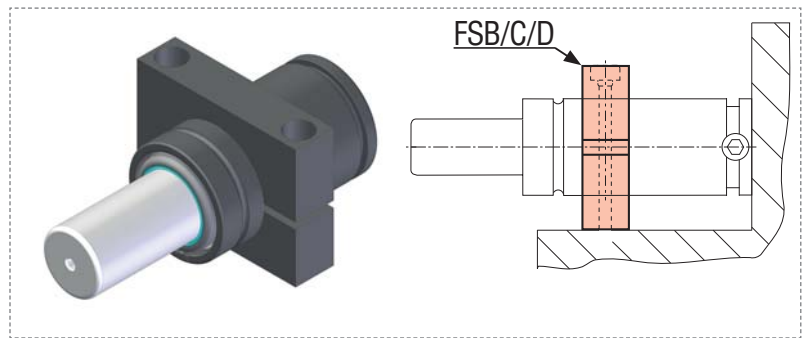
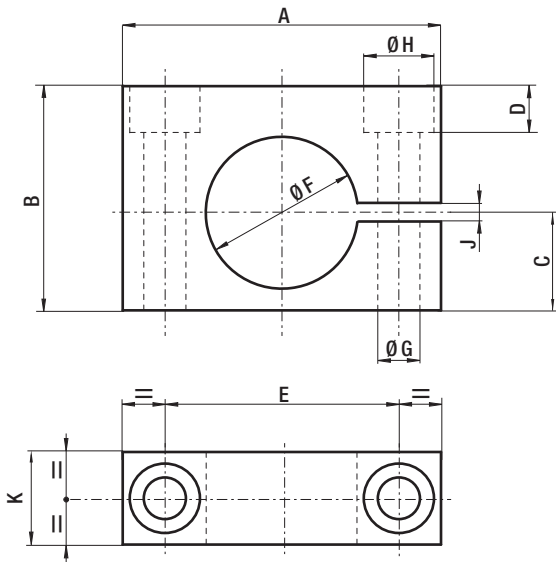
CODE	Reference to standards	A		B		Ø C		Ø D		Ø E		F	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FCQB 50	0	70	2,76	56,5	2,22	52	2,05	50,5	1,99	9	0,35	13	0,51
FCQB 63	0	90	3,54	73,5	2,89	66	2,60	63,5	2,50	11	0,43	16	0,63
FCQB 75	0	90	3,54	73,5	2,89	78	3,07	75,5	2,97	11	0,43	16	0,63
FCQB 95	0	110	4,33	92	3,62	98	3,86	95,5	3,76	13,5	0,53	18	0,71





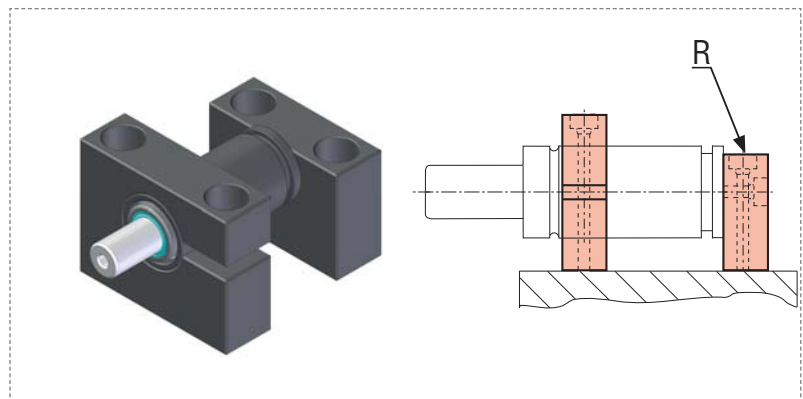
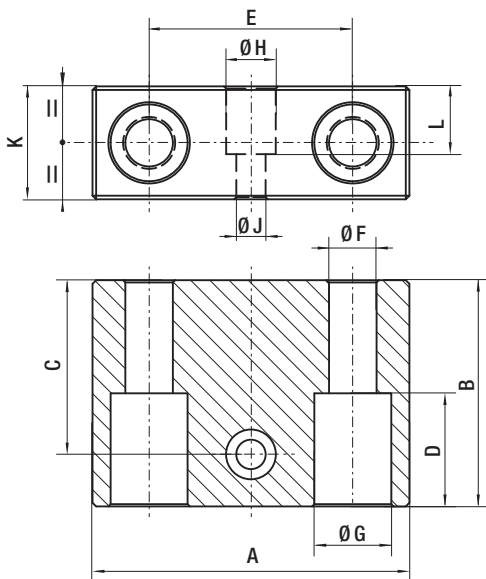
CODE	Reference to standards	A		B		Ø C		D		Ø E		F		G		H		I		L		M
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
FSA 32	1-2-3-11-18	90	3,54	54	2,13	32	1,26	20	0,79	9	0,35	72	2,83	31	1,22	22	0,87	45	1,77	15	0,59	M8
FSA 38	1-2-3-11-18	95	3,74	59	2,32	38	1,50	20	0,79	9	0,35	77	3,03	34	1,34	25	0,98	55	2,17	15	0,59	M8
FSA 45	1-2-3-11-18	100	3,94	64	2,52	45	1,77	20	0,79	9	0,35	82	3,23	37	1,46	28	1,10	60	2,36	15	0,59	M8
FSA 50	1-2-3-11-18	130	5,12	90	3,54	50	1,97	30	1,18	9	0,35	110	4,33	50	1,97	40	1,57	80	3,15	20	0,79	M8
FSA 75	1-2-3-11-18	160	6,30	115	4,53	75	2,95	30	1,18	11	0,43	137	5,39	63,5	2,50	52,5	2,07	105	4,13	20	0,79	M10
FSA 95	1-2-3-11-18	195	7,68	145	5,71	95	3,74	30	1,18	13,5	0,53	170	6,69	80	3,15	67,5	2,66	125	4,92	20	0,79	M12
FSA 120	1-2-3-11-18	220	8,66	165	6,50	120	4,72	30	1,18	13,5	0,53	195	7,68	92,5	3,64	77,5	3,05	148	5,83	20	0,79	M12
FSA 150	1-2-3-11-18	260	10,24	200	7,87	150	5,91	30	1,18	13,5	0,53	230	9,06	110	4,33	95	3,74	200	7,87	20	0,79	M12



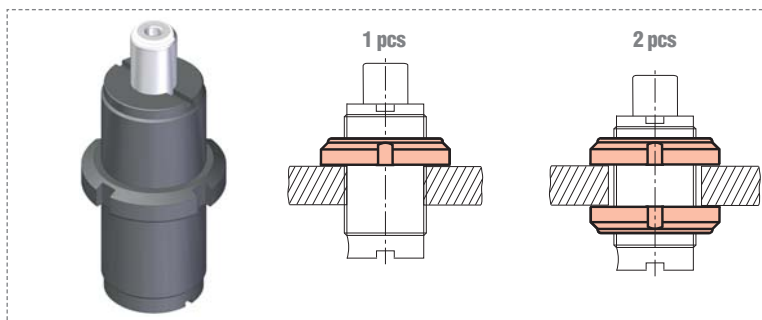
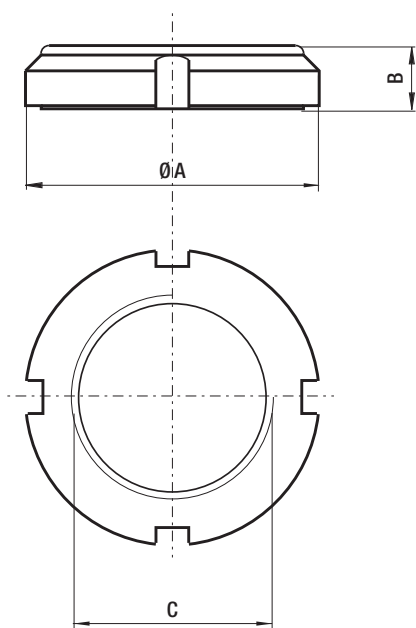


CODE	Reference to standards	A		B		C		D		E		ØF		ØG		ØH		J		K	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FSB 32	6	80	3,15	63	2,48	38,5	1,52	18	0,71	56	2,20	32	1,26	10,5	0,41	17	0,67	6	0,24	25	0,98
FSD 32	2-3-17-20	68	2,68	48	1,89	20,9	0,82	10	0,39	50	1,97	32,5	1,28	9	0,35	15	0,59	4	0,16	20	0,79
FSD 38	2-3-17-20	74	2,91	54	2,13	23,9	0,94	16	0,63	54	2,13	38,5	1,52	9	0,35	15	0,59	4	0,16	20	0,79
FSD 45	2-3-17-20	80	3,15	60	2,36	27,5	1,08	22	0,87	60	2,36	45,5	1,79	9	0,35	15	0,59	4	0,16	20	0,79
FSD 50	2-3-4-17-20	90	3,54	70	2,76	30	1,18	25	0,98	68	2,68	50,5	1,99	11	0,43	18	0,71	5	0,20	30	1,18
FSC 63	0	105	4,13	80	3,15	40	1,57	11	0,43	80	3,15	63	2,48	10,5	0,41	17	0,67	10	0,39	30	1,18
FSD 63	2-17-20	108	4,25	82	3,23	36,5	1,44	27	1,06	84	3,31	63,5	2,50	11	0,43	18	0,71	5	0,20	30	1,18
FSD 75	2-3-4-17-20	125	4,92	94	3,70	42	1,65	32	1,26	100	3,94	75,5	2,97	13,5	0,53	20	0,79	5	0,20	30	1,18
FSD 95	2-3-4-17-20	140	5,51	115	4,53	52,5	2,07	33	1,30	115	4,53	95,5	3,76	13,5	0,53	20	0,79	5	0,20	30	1,18
FSD 120	2-3-17-20	170	6,69	140	5,51	65	2,56	58	2,28	145	5,71	120,5	4,74	13,5	0,53	20	0,79	7	0,28	30	1,18
FSD 150	2-3-17-20	200	7,87	170	6,69	80	3,15	68	2,68	175	6,89	150,5	5,93	13,5	0,53	20	0,79	7	0,28	30	1,18

## R

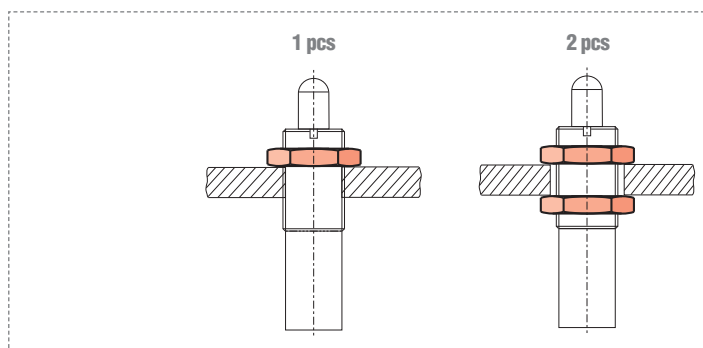
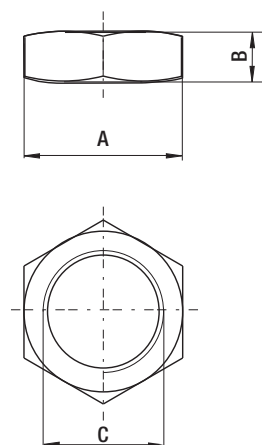


CODE	Reference to standards	A		B		C		D		E		ØF		ØG		ØH		ØJ		L		K	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
R32A	5	70	2,76	50	1,97	38,5	1,52	25	0,98	45	1,77	10,5	0,41	17	0,67	11	0,43	6,5	0,26	15	0,59	25	0,98



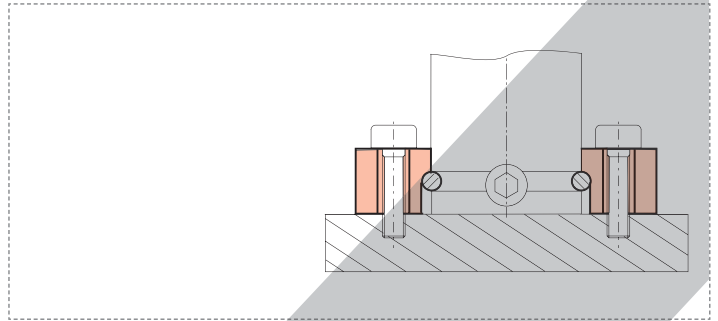
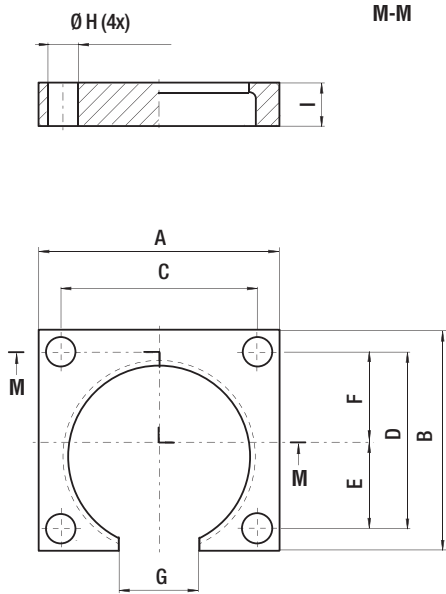
CODE (1 pcs)	Reference to standards	$\varnothing A$		B		C
		mm	inch	mm	inch	
GM 38	0	56	2,20	12	0,47	M 38 X 1,5
GM 45	0	62	2,44	12,3	0,48	M 45 X 1,5
GM 50	0	68	2,68	12,9	0,51	M 50 X 1,5

# DM - DI



CODE (1 pcs)	Reference to standards	A	B		C
			mm	inch	
DM 16	0	S24	8	0,31	M 16 x 1,5
39DM16X2A	0	S24	8	0,31	M 16 x 2
DM 24	0	S36	10	0,39	M 24 x 1,5
DI 1" - 8	0	S38	14	0,55	1" - 8





CODE	Reference to standards	A		B		C		D		E		F		G		Ø H		I	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FHR01000	0	70	2,76	60	2,36	56	2,20	46	1,81	18,5	0,73	27,5	1,08	25	0,98	9	0,35	11,5	0,45

# easy

MANIFOLD

since 1997 ■

the easy way  
to link nitrogen cylinders through plate



**OSAS**  
Over Stroke  
Active Safety



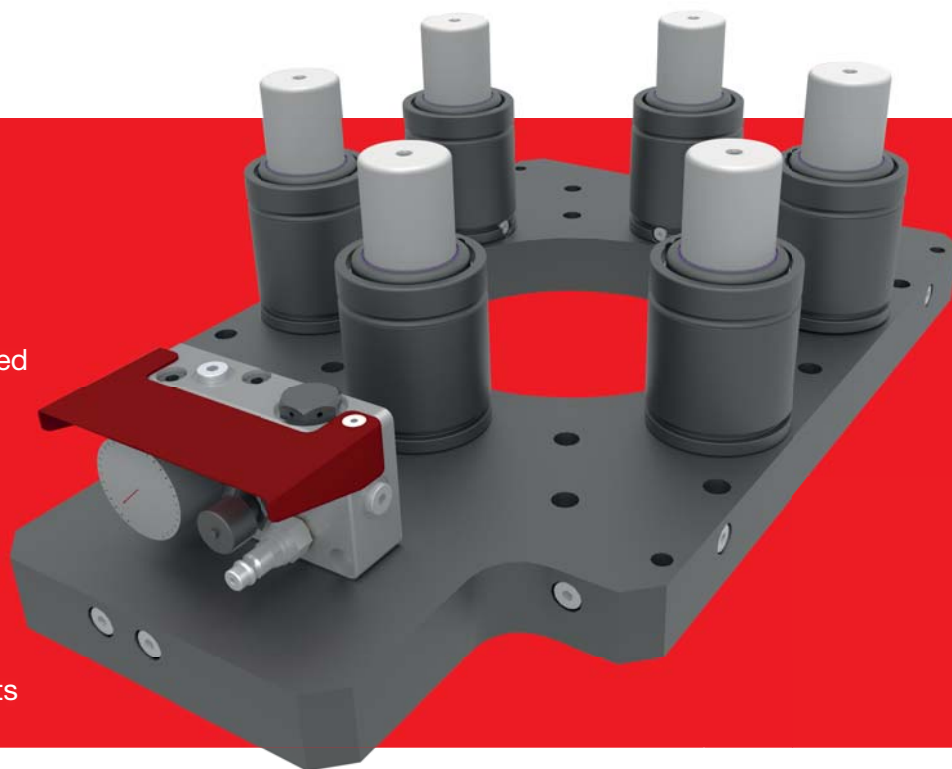
**USAS**  
Uncontrolled Speed  
Active Safety



**OPAS**  
Over Pressure  
Active Safety

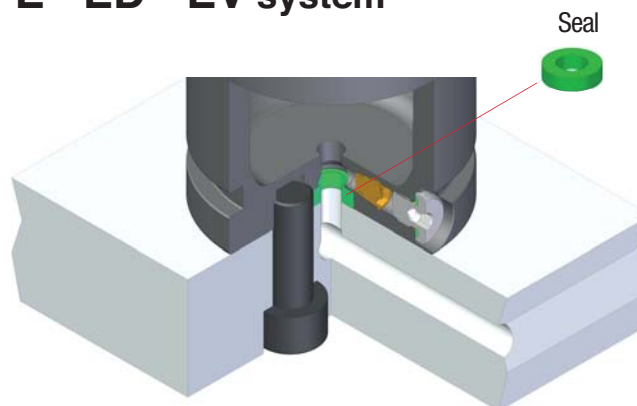


**SKUDO**  
Active Protection  
from Contaminants

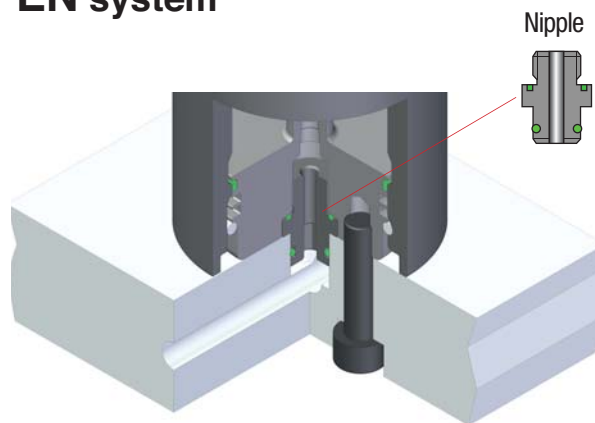


MANI  
FOLD

## E - ED - EV system



## EN system



### I CARATTERISTICHE

- Vantaggiosa alternativa ai tradizionali e costosi cilindri Manifold.
- Grande varietà di combinazioni con l'uso di cilindri standard.
- Totale eliminazione di tubi e raccordi.
- Pressione uniforme nel sistema.
- Facile manutenzione, uguale ai cilindri standard.
- Piastre di collegamento realizzabili direttamente dagli utilizzatori.
- Massima flessibilità di realizzazione degli impianti.
- Nessuna richiesta di utensili speciali per l'installazione.
- **Special Springs è in grado di fornire le piastre/cuscino su specifiche del cliente, collaudate e pronte per l'installazione.**

### GB CHARACTERISTICS:

- An advantageous alternative to conventional and expensive Manifold cylinders.
- Large variety of combinations with the use of standard cylinders.
- Total elimination of hoses and connections.
- Balanced pressure in the system
- Easy maintenance, the same as standard cylinders.
- Connection plates can be made directly by users.
- Maximum flexibility in creation of systems.
- No special tools required for installation.
- **Special Springs can supply the plates/cushion to customer specifications, tested and ready for installation.**

### F CHARACTERISTIQUES:

- Une alternative avantageuse aux traditionnels et coûteux cylindres Manifold.
- Une grande variété de combinaisons avec l'emploi de cylindres standard.
- L'élimination totale de tuyaux et raccords.
- Pression uniforme dans le système
- Entretien facile, comme celui des cylindres standard.
- Plaques de liaison réalisables directement par les utilisateurs.
- Très grande souplesse de réalisation des installations.
- Aucun besoin d'outils spéciaux pour l'installation.
- **Special Springs est en mesure de fournir les plaques/coussin sur spécifications du client, testées et prêtes à être installées.**

### E CARACTERÍSTICAS:

- Ventajosa alternativa a los tradicionales y costosos cilindros Manifold.
- Gran variedad de combinaciones con el uso de cilindros (autónomos) estándar.
- Total eliminación de tubos y racores.
- Presión uniforme en el sistema
- Fácil mantención, igual a la de los cilindros (autónomos) estándar.
- Placas de conexión realizables directamente por los usuarios.
- Máxima flexibilidad de realización de los equipos.
- No se requiere ninguna herramienta especial para la instalación.
- **Special Springs es en grado de proporcionar las placas/cojín sobre especificaciones del cliente, Comprobadas y listas para la instalación.**

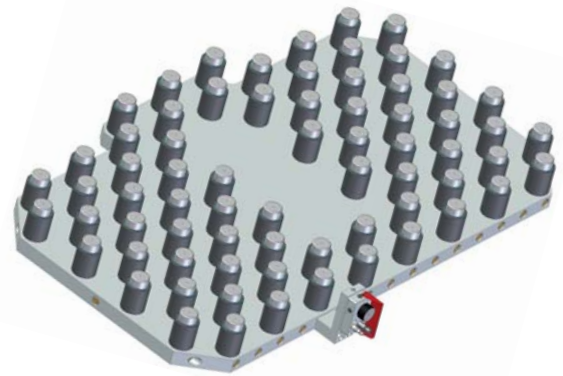
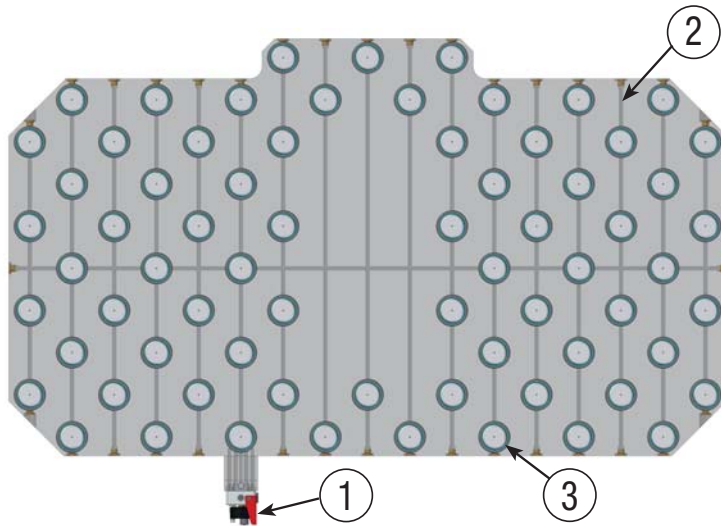
### D EIGENSCHAFTEN

- Preisgünstige Alternative zu herkömmlichen Tankplattensystemen.
- Große Auswahl an Einsatzkombinationen durch Verwendung von Standardzylindern.
- Keine Verwendung von Schläuchen und Anschlüssen.
- Gleichmäßiger Druck im System.
- Wartungsfreundlich.
- Verbundplatten können vom Kunden selbst gefertigt werden.
- Hohe Flexibilität bei den Anwendungen.
- Montage ohne Sonderwerkzeuge.
- **Platten können von Special Springs gefertigt, getestet und vormontiert geliefert werden.**

### P CARACTERÍSTICAS:

- Vantajosa alternativa aos tradicionais e caros cilindros Manifold.
- Grande variedade de combinações com uso de cilindros standard.
- Total eliminação de tubos e junções.
- Pressão uniforme em o sistema.
- Fácil manutenção, igual a dos cilindros standard.
- Chapas de conexão que podem ser realizadas diretamente pelos usuários.
- Máxima flexibilidade de realização das instalações.
- Não é necessário utilizar nenhum tipo de utensílio especial para a instalação.
- **Special Springs pode fornecer chapas/coxim conforme exigência do cliente, testadas e verificadas prontas para a instalação.**

# Design recommendations



**I** Per una facile progettazione e per ridurre i costi di produzione seguire le linee guida di cui sotto

- ① • Per collegare il pannello usare, se possibile, i canali del gas esistenti.  
• In alternativa collegare il pannello con tubi e raccordi.
- ② • Realizzare canali passanti e pulire adeguatamente.  
• Evitare canali ciechi.
- ③ • Evitare interferenza tra i fori di fissaggio dei cilindri e i canali del gas  
• Selezionare cilindri con corse maggiori per aumentare il volume del sistema

**F** Pour une conception plus facile et de l'épargne des coûts de fabrications suivez les instructions ci-dessous

- ① • Pour relier le panneau utiliser, si possible, les canaux du gaz existents  
• Alternativement, joindre le panneau en utilisant des tubes et des raccords
- ② • Réaliser des trous débouchants et nettoyez correctement  
• Eviter les trous sans issue
- ③ • Eviter l'interférence entre les trous de fixation des ressorts et les canaux du gaz  
• Sélectionner des ressorts avec des courses majeures pour augmenter le volume du système

**D** Für eine bessere Empfehlung und produktionskosten zu speichern, folgen Sie die unteren Richtlinien

- ① • Die Kontrollarmatur, wenn möglich, an den vorhandenen Tieflochbohrungen anbringen  
• Alternativ kann die Druckkontrollarmatur mit Schlauchkomponenten angeschlossen werden
- ② • Die Durchgangsbohrungen und Anschlüsse sauber fertigen  
• Die Durchgangsbohrungen nicht blind fertigen
- ③ • Abweichungen zwischen der Lage der Befestigungsgewinde und den Verbindungsbohrungen sind zu vermeiden  
• Um das Volumen des Systems zu vergrößern, wählen Sie Gasdruckfedern mit dem nächst größeren Hub

**GB** For easier design and manufacturing cost-saving follow the guide lines below

- ① • To link the panel, use possibly the existing gas ports.  
• Alternatively, link the panel by using hoses and connections.
- ② • Machine thru-holes and adequately clear the ports.  
• Avoid blind channels.
- ③ • Avoid interference between the cylinder's fixing holes and the gas ports  
• Select cylinders with higher stroke to increase the volume of the system

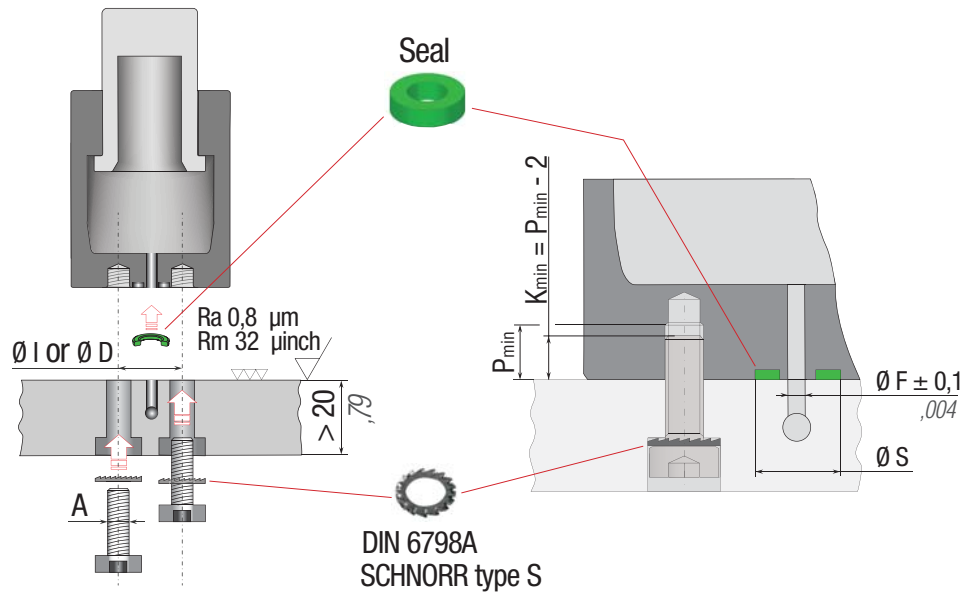
**E** Para facilitar el diseño y para ahorrar costes de producción siguen los lineamientos mencionados a continuación

- ① • Para conectar el panel utilizar, si posible, los canales del gas existentes  
• En alternativa, conectar el panel con tuberías y conexiones
- ② • Realizar orificios pasantes por toda la placa y bien limpiar  
• Evite orificios sin salida
- ③ • Evitar la interferencia entre los orificios de fijacion de los cilindros y los canales de gas  
• Seleccionar los cilindros con carreras mas grande para aumentar el volumen del sistema

**P** Para facilitar o desenho e economizar custos de produção seguir as orientações abaixo mencionados

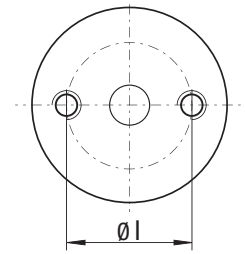
- ① • Para ligar o painel, se possível, usar os canais de gás existentes  
• Em alternativa conecte o painel com tubos e acessórios
- ② • Realizar orificios de passagem par toda a placa e bem limpar  
• Evitar orificios sem saída
- ③ • Evitar a interferência entre os orificios de fixação dos cilindros e os canais de gás  
• Escolher os cilindros com curso mais grande para aumentar o volume do sistema

# E - ED - EV easy manifold system

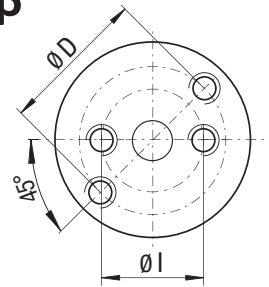


## FIXING PATTERN

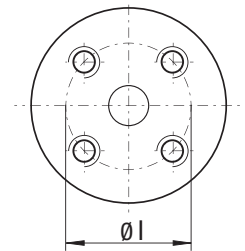
$\alpha$



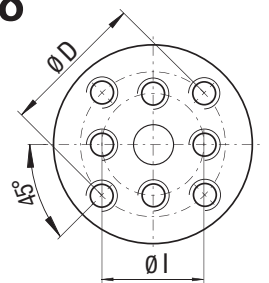
$\beta$



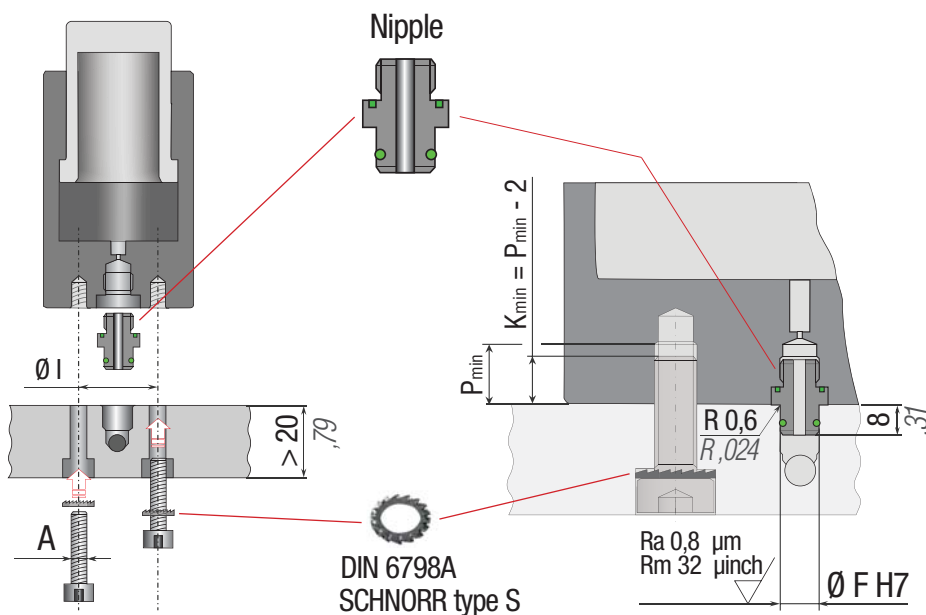
$\gamma$



$\delta$



# EN easy manifold system



**Note** > see page 241

1

Modello con corpo liscio senza cave di fissaggio  
Model with straight body without fixing grooves  
Model mit flachem Körper ohne Befestigungsnuten  
Modèle avec corps lisse sans encoches de fixation  
Modelo con cuerpo parejo sin ranuras de fijación  
Modelo com corpo liso sem ranhuras de fixação

2

Modello con corpo senza foro di caricamento laterale  
Model with body without side charging port  
Model mit Körper ohne Nebenladeloeh  
Modèle avec corps sans trou de charge latéral  
Modelo con cuerpo sin hueco de carga  
Modelo com corpo sem orificio de carregamen



Series	Model	Revision code	Easy manifold system	Fixing pattern	Thread size	Ø I		Ø D		Ø F		Ø S		Seal code	Note	Cover code > see pag 244			
						mm	inch	mm	inch	mm	inch	mm	inch						
RV	350	A	E	α	M6 x 6	20	0,79	-	-							39TE010A			
	500			β	M6 x 6	20	0,79	25	1,00							39TE001A			
	750			γ	M8 x 6	26	1,02			5	0,20	11	0,43	50GE02A	2	39TE002A			
	1000				M8 x 6	34	1,34									39TE003A			
	1200				M8 x 6	34	1,34									39TE009A			
	1500				M8 x 6	34	1,34									39TE004A			
	2400				M8 x 6	40	1,57									39TE005A			
	4200				M8 x 12	60	2,36									39TE006A			
	6600			δ	M10 x 12	80	3,15			8	0,31	15	0,59	50GE01A		39TE007A			
	9500				M10 x 13	100	3,94									39TE008A			
	12000				M10 x 13	100	3,94												
	20000				M12 x 16	120	4,72												
	750				EV	α	M8 x 6	20	0,79									39TE011A	
	1000			M8 x 6		20	0,79												
	1200			M8 x 6		20	0,79												
1500	M8 x 6	20	0,79																
2400																			
RS	350	A	E	β	M6 x 6	20	0,79	25	1,00	5	0,20	11	0,43	50GE02A	2	39TE010A			
	500			γ	M8 x 6	26	1,02									39TE001A			
	750				M8 x 6	26	1,02									39TE002A			
	1000				M8 x 6	34	1,34									39TE003A			
	1200				M8 x 6	34	1,34									39TE009A			
	1500				M8 x 6	34	1,34									39TE004A			
	2400				M8 x 6	40	1,57									39TE005A			
	4200			δ	M8 x 12	60	2,36									39TE006A			
	6600				M10 x 12	80	3,15			8	0,31	15	0,59	50GE01A		39TE007A			
	9500				M10 x 13	100	3,94									39TE004A			
	2400				γ	M8 x 16	40	1,57									39TE005A		
	4200					M8 x 16	60	2,36									39TE006A		
	6600			M10 x 16		80	3,15									39TE004A			
	RG			2400	A	E	γ	M8 x 16	60	2,36			8	0,31	15	0,59	50GE01A	-	39TE005A
				6600				M12 x 16	80	3,15									39TE006A
9500		M12 x 16	80,8	3,18												39TE004A			
RT	2400	A	E	γ	M12 x 16	76,2	3,00								39TE005A				
	4200				M12 x 16	80,8	3,18									39TE006A			
	6600				M12 x 16	100	3,94									39TE007A			
	9500															39TE004A			
S	1500	A	E	α	M8 x 13	40	1,57								39TE005A				
	3000				M8 x 13	60	2,36												
SC	150	D	E	α	M6 x 8	18	0,71	25	1,00	5	0,20	11	0,43	50GE02A	2	39TE012A			
	250			β	M6 x 8	18	0,71												
	500			γ	α	M8 x 13	20	0,79									39TE011A		
	750				M8 x 13	20	0,79										39TE004A		
	1500				M8 x 13	40	1,57									39TE005A			
	3000			δ	M10 x 16	80	3,15			8	0,31	15	0,59	50GE01A	-	39TE006A			
5000	M10 x 16	100	3,94										39TE007A						
7500													39TE008A						
10000																			
H	300	C	E	α	M6 x 8	18	0,71	25	1,00	5	0,20	11	0,43	50GE02A	2	39TE012A			
	500			β	M6 x 8	18	0,71												
	700			γ	α	M8 x 13	20	0,79									39TE011A		
	1000				M8 x 13	20	0,79										39TE004A		
	2400				M8 x 13	40	1,57									39TE005A			
	4200			δ	M8 x 13	60	2,36			8	0,31	15	0,59	50GE01A	-	39TE006A			
	6600				M10 x 16	80	3,15									39TE007A			
	9500				M10 x 16	100	3,94									39TE008A			
18500																			
KE	750	B	ED	α	M6 x 8	24	0,94	26	1,02	5	0,20	11	0,43	50GE02A		39TE010A			
	1000			δ	M6 x 8	20	0,79								39TE001A				
	1800			γ	M6 x 8	26	1,02									39TE003A			
	3000				M8 x 8	34	1,34									39TE009A			
	4700				M8 x 8	40	1,57					22	0,87	50GKS00208	1+2	39TE004A			
	7500				M8 x 8	52	2,05									39TE005A			
	12000				M10 x 12	68	2,68									39TE006A			
	18500				M10 x 12	90	3,54			8	0,31					39TE007A			
1800	C	EN	γ	M6 x 8	26	1,02								39TE003A					
3000				M8 x 8	34	1,34									39TE009A				
4700				M8 x 8	40	1,57									39TE004A				
7500				M8 x 8	52	2,05									39TE005A				
12000													39TE006A						

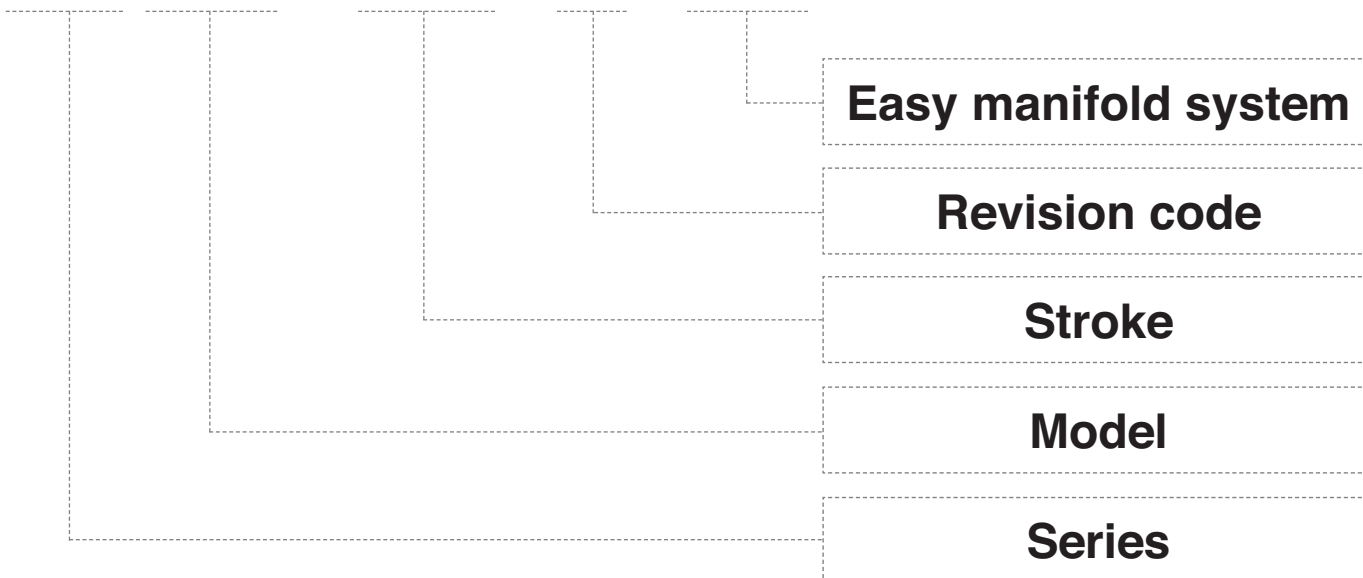


**I** Corse e ingombri uguali al cilindro autonomo  
**GB** Strokes and sizes same to selfcontained cylinder  
**D** Hüben und Abmessungen gleiche zu den Autonomen Gdf

**F** Courses et encombrement égaux à ceux du Cylindre autonome  
**E** Carreras y dimensiones iguales a las del cilindro autónomo  
**P** Cursos e dimensões iguais às do cilindro autónomo

## HOW TO ORDER

# RV 750 - 050 - A - EV



### **I** Stato di fornitura

Tutti i cilindri Easy manifold e le coperture per i fori, sono forniti con guarnizione o nipplo e foglio di installazione

### **GB** Supply status

All the Easy manifold Cylinders and the hole covers, are supplied with square seal or nipple and installation guideline.

### **D** Lieferumfang

Alle Gasdruckfedern und Verschlussplatten für das Verbundplattensystem werden mit den nötigen Dichtungen / Verbindungsstücken und den Installationsrichtlinien ausgeliefert.

### **F** Etat de fourniture

Tous les vérins Easy Manifold et les couvertures pour les trous, sont fournis avec joint ou coupleur et feuille d'installation.

### **E** Estado de abastecimiento

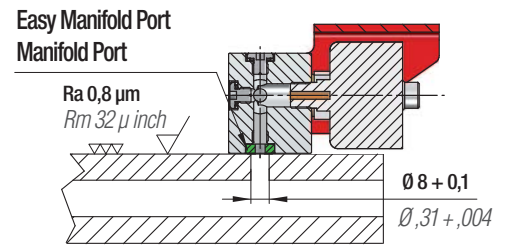
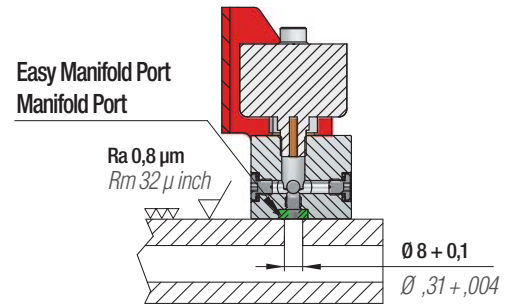
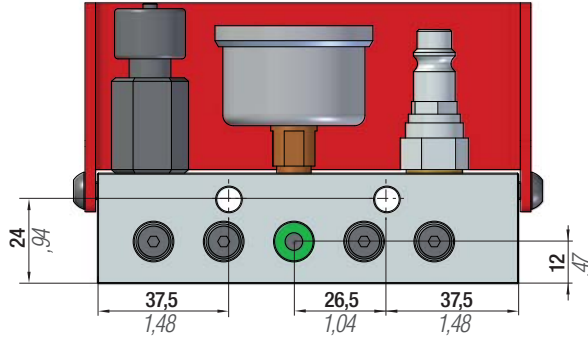
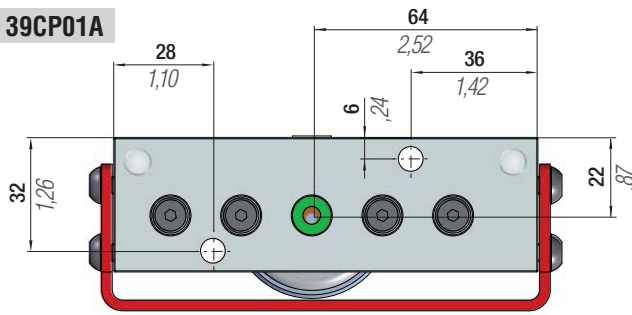
Todos los cilindros Easy Manifold y coberturas para los agujeros, se abastecerán con junta o el Tetón y la hoja de instalación.

### **P** Estado de abastecimento.

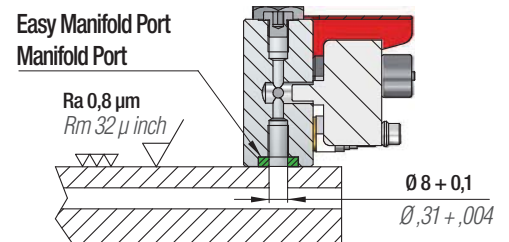
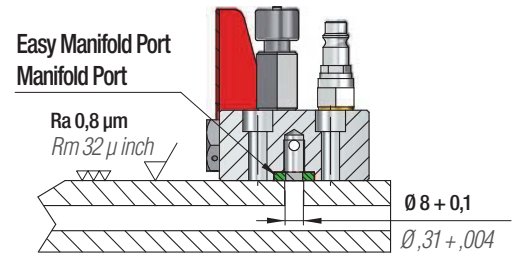
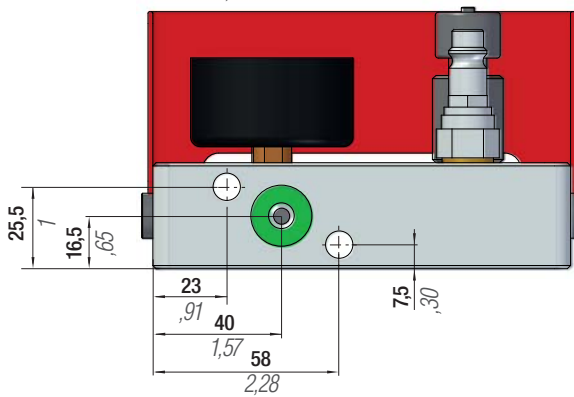
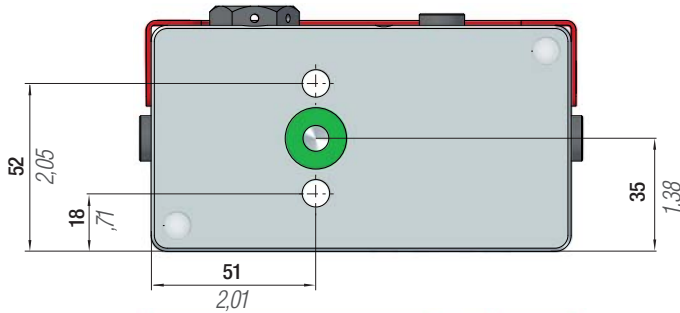
Todos os cilindros Easy Manifold e as capas para os buracos, são fornecidos com junta ou conector e folha de instalação.

# Easy manifold control panel

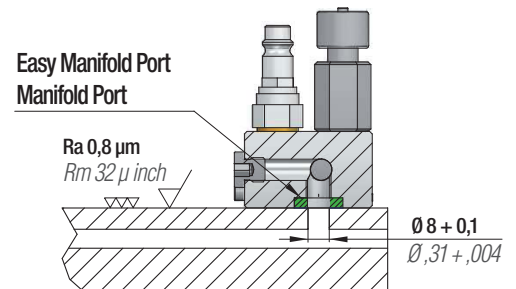
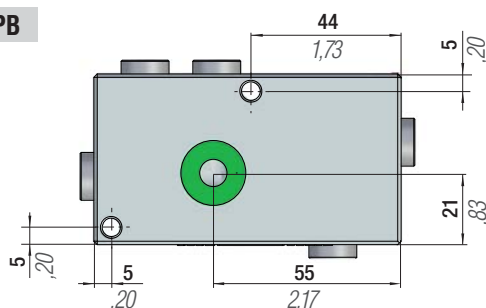
code 39CP01A



code 39CPVC



code 39MCPB



## Hole cover

**I** Quando è richiesta una riduzione della forza del sistema, o del numero di cilindri, è possibile tappare i fori non utilizzati con una copertura dotata di guarnizione, che utilizza gli stessi fissaggi dei cilindri.

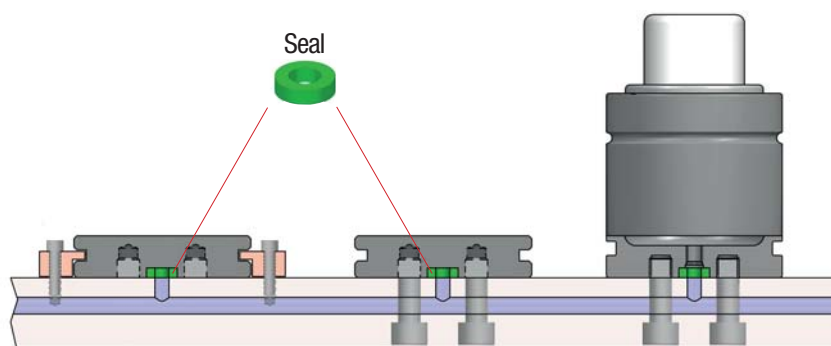
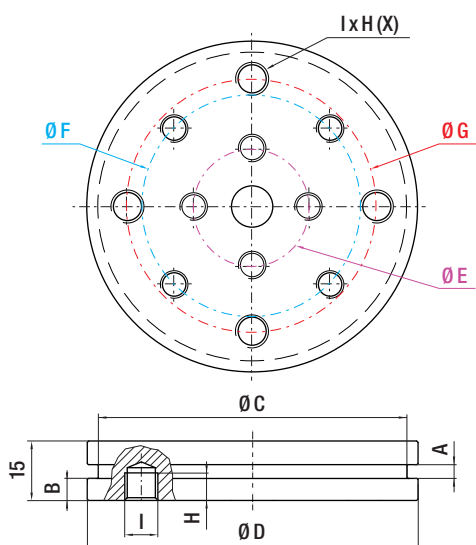
**F** Quand une réduction de la force du système ou du nombre des vérins est requise, on peut boucher les trous qui ne sont pas utilisés, avec un couvercle équipée avec un joint, qui utilise les mêmes trous de fixations des vérins.

**GB** When a reduction either of the system's force, or of the number of cylinders, is required, it is possible to plug the holes which are not used, with a cover provided with a square seal, through the same fixing hoses of the cylinders.

**E** Cuando se necesita de una reducción de la fuerza del sistema, o del número de cilindros, puede tapar los agujeros no utilizados con una cobertura equipada de junta, que utiliza los mismos agujeros de los cilindros.

**D** Mit den Verschlussplatten werden nicht benötigte Bohrungen verschlossen und abgedichtet. Dadurch können einzelne Gasdruckfedern aus einem System entfernt und Kräfte in einem bestimmten Bereich reduziert werden.

**P** Quando você solicita uma redução na força do sistema, ou o número de cilindros, pode tapar os buracos não utilizados com uma tampa com vedação, que usa o mesmo buracos dos cilindros.

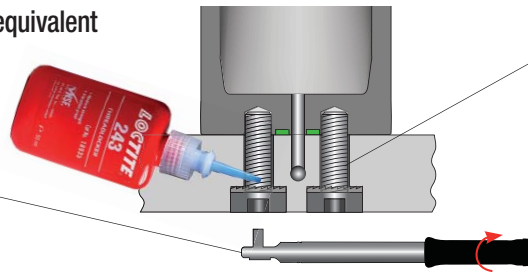


Code	A		B		Ø C		Ø D		Ø E		Ø F		Ø G		I (x)	H	Seal Code	Fixing
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch				
39TE012A					27	1,06	32	1,26	18	0,71	-	-	-	-	M6 (2x)	10	50GE02A	FS2.. 32
39TE010A					33	1,30	38	1,50	20	0,79	24	0,94	-	-	M6 (4x)			
39TE001A	3,5	0,14	4	0,16	40	1,06	45	1,77	20	0,79	-	-	-	-	M8 (2x)			
39TE011A					40	1,57			26	1,02	-	-	-	-	M8 (4x)			
39TE002A					43	1,69	50	1,97	26	1,02	-	-	-	-	M6 (4x)			
39TE003A					56	2,20	63	2,48	-	-	34	1,34	-	-	M8 (4x)	10	50GE01A	FS2.. 50
39TE009A					67	2,64	75	2,95	-	-	53,9	2,12	-	-	M12 (4x)			
39TE004A					87	3,43	95	3,74	-	-	-	-	-	-	M8 (4x)			
39TE005A	5	0,20	8	0,31	112	4,41	120	4,72	52	2,05	60	2,36	-	-	M12 (4x)			
39TE006A					142	5,59	150	5,91	-	-	-	-	76,2	3,00	M12 (4x)			
39TE007A					187	7,36	195	7,68	80	3,15	-	-	68	2,68	M10 (4x)			
									-	-	80,8	3,18	-	-	M12 (4x)			
									100	3,94	-	-	90	3,54	M10 (4x)			
									-	-	100	3,94	-	-	M12 (4x)			
39TE008A	8	0,31							-	-	-	-	-	-	M12 (4x)			

# Mounting recommendations

**⚠ It is always required Loctite 243 or equivalent**

Chiave dinamometrica  
Torque wrench  
Drehmomentschlüssel  
Clé dynamométrique  
Llave dinamométrica  
Chave dinamométrica



Torque force		
M6	class 8.8	max 10,4 Nm
M8	class 8.8	max 24,6 Nm
M10	class 8.8	max 52,4 Nm
M12	class 8.8	max 90 Nm

## I Raccomandazioni

- L' uso di viti di classe superiore alla 8.8, come 9.8, 10.9 e 12.9, é sempre possibile.
- Si raccomanda di NON SUPERARE i valori della coppia di serraggio indicati per la classe 8.8 per qualsiasi classe di viti utilizzata.
- Impegnare sempre il filetto il più possibile, almeno il valore di Kmin.
- Utilizzare SEMPRE i fori di fissaggio previsti.
- Massima attenzione nel montaggio della guarnizione di collegamento tra cilindro e piastra

## GB Advices

- The use of screws of higher class than 8.8, such as 9.8, 10.9 and 12.9, is always allowed.
- DO NOT EXCEED the fixed values for torque force indicated for class 8.8, in any other class of screws used.
- ALWAYS engage thread as much as possible at least Kmin.
- ALWAYS use the fixing holes provided.
- Extreme caution when assembling the connecting seal between plate and cylinder

## D Hinweise

- Schrauben mit einer Festigkeit von 8.8 verwenden. Höhere Festigkeitsklassen wie 9.8, 10.9 und 12.9 sind möglich.
- Das Drehmoment der Festigkeitsklasse 8.8 für andere Festigkeitsklassen nicht überschreiten
- Die komplette Gewindelänge ausnutzen, mind. Kmin
- Alle Befestigungsgewinde verwenden
- Vorsicht bei der Montage der Dichtungen zwischen den Gasdruckfedern und der Platte

## F Recomendacions

- L'usage de vis de classe supérieure au 8.8, tout comme 9.8, 10.9 et 12.9, est toujours possible.
- N'EXCEDEZ PAS la valeur de la couple de serrage indiqués pour la classe 8.8 pour n'importe quelle autre classe de vis utilisée.
- Engager toujours le filetages plus que possible, et au moins Kmin.
- Utiliser TOUJOURS les trous de fixation prévus.
- Une extrême vigilance est recommandée pour l'assemblage du joint entre la plaque et le vérin

## E Recomendaciones

- La utilización de los tornillos superiores a 8,8, como 9.8, 10.9 y 12.9, siempre es posible.
- Le recomendamos que NO HAY QUE SUPERAR los valores de las especificaciones de torsión para tornillos de clase 8.8 utilizados para cualquier clase.
- Siempre enganchar la rosca tanto como sea posible, al menos para Kmin.
- SIEMPRE use los agujeros de fijación previstos
- Máxima atención en el montaje de la junta de conexión entre placa y cilindro.

## P Recomendações

- O uso de limitadores superiores a 8,8, tal como 9,8, 10,9 e 12,9, é sempre possível.
- Recomendamos que você NÃO ULTRAPASSE os valores das especificações de torque para a classe 8,8 por os limitadores utilizados para qualquer classe.
- Sempre envolver a rosca, tanto quanto possível, pelo menos para Kmin.
- Use SEMPRE os furos de fixação fornecidos.
- Máxima atenção quando fixar os vedantes conectores entre a placa e cilindro

- Massima attenzione alla corretta coppia di serraggio da applicare alle viti
- Usare SEMPRE rondelle anti svitamento su cilindri e pannelli
- Usare SEMPRE frena filetti tipo Loctite 243 su cilindri e pannelli
- Non caricare il sistema Easy Manifold con pressione superiore alla massima consentita per specifico modello di cilindro

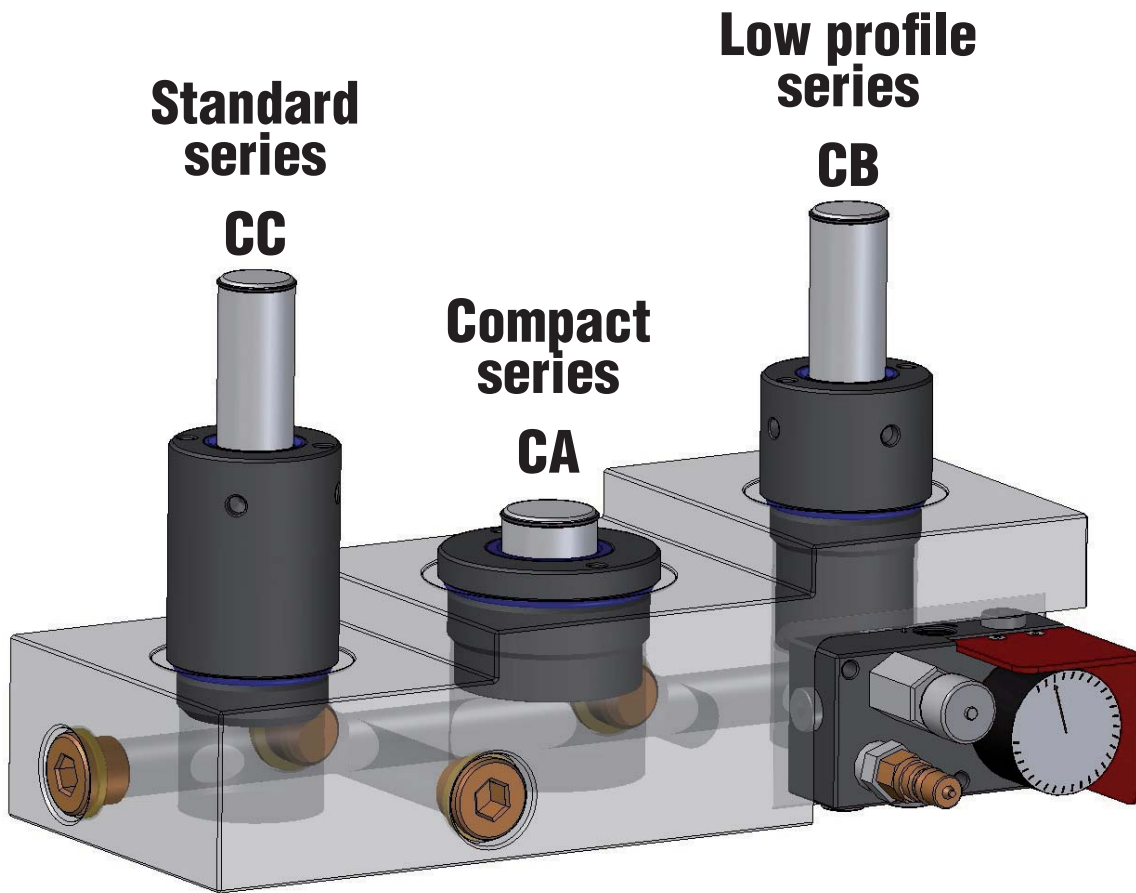
- Extreme caution to tightening torque to be applied to screws
- ALWAYS use lock washers on cylinders and panels.
- ALWAYS use thread lock LOCTITE 243 on cylinders and panels.
- Do not charge the easy manifold system over the maximum allowed pressure for each cylinder model

- Äußerste Vorsicht bzgl. des korrekten Drehmoments beim Einschrauben
- IMMER Sicherungsscheiben auf die Zylindern und Kontrollarmaturen, verwenden
- IMMER eine Schraubensicherung wie z.B. Loctite 243 auf die Zylindern und Kontrollarmaturen, verwenden
- Das Easy Manifold System nicht mit einem höheren Druck laden als dem, der speziell für das Modell der Gasdruckfeder empfohlen wird

- Bien veiller à appliquer le couple de serrage correct aux vis
- TOUJOURS utiliser les rondelles de verrouillage avec les cylindres et les panneaux
- TOUJOURS utiliser la colle frein filet LOCTITE 243 avec les cylindres et les panneaux.
- Ne pas charger le système manifold au delà de la pression autorisée pour chaque modèle de vérin.

- Máxima atención al correcto par de torsión que se aplica a los tornillos.
- Utilizar SIEMPRE arandelas autoblocantes por los cilindros y paneles.
- Utilizar SIEMPRE fijador de rosca tipo Loctite 243 por los cilindros y paneles.
- No cargar el sistema Easy Manifold con presión superior a la máxima permitida para cada tipo de cilindro.

- Máxima atenção no torque de aperto aplicado nos parafusos
- Utilizar SEMPRE as anilhas de travamento nos cilindros e painéis.
- Utilizar SEMPRE o fixador de rosca LOCTITE 243 nos cilindros e painéis.
- Não carregar o sistema EASY MANIFOLD acima da pressão máxima recomendada para cada modelo de cilindro



## I SISTEMA MANIFOLD

- Alternativa ai cilindri autonomi collegati
- Minimo incremento di pressione e forza
- Minimo ingombro
- Assenza di tubi e raccordi
- Grandi forze concentrate
- Monitoraggio e modifica della pressione facilitati attraverso il pannello di controllo
- Facilità di montaggio
- Facilità di manutenzione
- Lunga durata

### CARATTERISTICHE TECNICHE

- Cilindri con tenuta pistone
- Raschiatore di protezione da contaminanti
- Doppia guida autolubrificata
- Corpo cilindro nitruato con durezza ~ Hv 700
- Corpo cilindro lappato con rugosità ~ Ra ≤ 0,05 μ
- Stelo pistone nitruato con durezza ~ Hv 700
- Stelo pistone lappato con rugosità ~ Ra ≤ 0,05 μ
- Pressione massima di caricamento 110 bar a 20°C
- Pressione minima di caricamento 30 bar a 20°C
- Velocità massima 0,6 m/sec
- Progettati in conformità alla Direttiva PED 97/23 EC

## D TANKPLATTENSYSTEM

- Alternativ zu Gasdruckfedern in Verbundanordnung
- Sehr geringer Druck- bzw. Kraftanstieg
- Kleine Einbauabmessungen
- Keine Schlauchverbindungen nötig
- Hohe Kräfte auf engstem Raum
- Einfache Überwachung und Druckänderung über Kontrollarmatur
- Leichte Montage
- Einfache Wartung
- Lange Lebensdauer

### TECHNISCHE DATEN

- Gasdruckfedern mit Kolbendichtung
- Schmutzabstreifer
- Doppelte selbstschmierende Führung
- Nitrierter Zylinderkörper, Härte ~ Hv 700
- Geläppter Zylinderkörper, Rauigkeit ~ Ra ≤ 0,05 μ
- Kolbenstange nitriert, Härte ~ Hv 700
- Geläppte Kolbenstange, Rauigkeit ~ Ra ≤ 0,05 μ
- Max. Fülldruck 110 bar bei 20 °C
- Min. Fülldruck 30 bar bei 20 °C
- Max. Kolbengeschwindigkeit 0,6 m/s
- Konstruktion nach Druckgeräterichtlinie PED 97/23 EC

## E SISTEMA MANIFOLD

- Alternativa a los cilindros autónomos conectados
- Incremento mínimo de presión y fuerza
- Dimensiones mínimas
- Ausencia de tubos y conectores
- Concentración de grandes fuerzas
- Monitorización y modificación de la presión asignada a través del panel de control
- Facilidad de montaje
- Facilidad de mantenimiento
- Larga vida útil

### CARACTERÍSTICAS TÉCNICAS

- Cilindros con guarnición en el pistón
- Escudo protector de agentes externos contaminantes
- Doble guía autolubrificada
- Cuerpo del cilindro nitruado con dureza ~ Hv 700
- Cuerpo del cilindro lapeado con rugosidad ~ Ra ≤ 0,05 μ
- Vástago nitruado con dureza ~ Hv 700
- Vástago lapeado con rugosidad ~ Ra ≤ 0,05 μ
- Presión máxima de carga 110 bar a 20°C
- Presión mínima de carga 30 bar a 20°C
- Velocidad máxima 0,6 m/s
- Diseñados de acuerdo a la Directiva PED 97/23 EC

## GB MANIFOLD SYSTEM

- Alternative choice to hose system
- Low increase of force and pressure
- Minimal heights
- No hoses and/or fittings
- Highest force in the minimum space
- Easy check and charge of pressure through the panel
- Easy mounting
- Easy maintenance
- Long lasting

### TECHNICAL FEATURES

- Piston sealed cylinders
- Rod wiper against contaminants
- Double self lubricating guiding elements
- Nitred body with hardness of ~ Hv 700
- Lapped body with roughness of ~ Ra ≤ 0,05 μ
- Nitred piston rod with hardness of ~ Hv 700
- Lapped piston rod with roughness of ~ Ra ≤ 0,05 μ
- Maximum charging pressure 110 bar a 20°C
- Minimum charging pressure 30 bar a 20°C
- Maximum speed 0,6 m/sec
- In compliance with PED 97/23 EC Directive

## F SYSTÈME MULTIPLE

- Solution alternative au système interconnecté par tuyaux
- Faible augmentation de la force et de la pression
- Hauteurs minimales
- Utilisation d'aucun tuyau ni adaptateur
- Force maximale pour un encombrement minimum
- Vérification aisée de la pression et rechargement facilité grâce au dispositif de gonflage
- Montage facile
- Maintenance facilitée
- Longévité optimale

### CARACTÉRISTIQUES TECHNIQUES

- Vérins avec joint de piston
- Dégrossisseur protégeant de la poussière et de tous contaminants
- Doubles éléments de guidage auto-lubrifiants
- Corps trempé à ~Hv 700
- Corps rodé avec rugosité de ~Ra ≤ 0,05 μ
- Piston nitrué, dureté de ~Hv 700
- Piston rodé avec rugosité de ~Ra ≤ 0,05 μ
- Pression de charge maximale 110 bar à 20°C
- Pression de charge minimale 30 bar à 20°C
- Vitesse maximale 0,6 m/sec conformément à la directive PED97/23

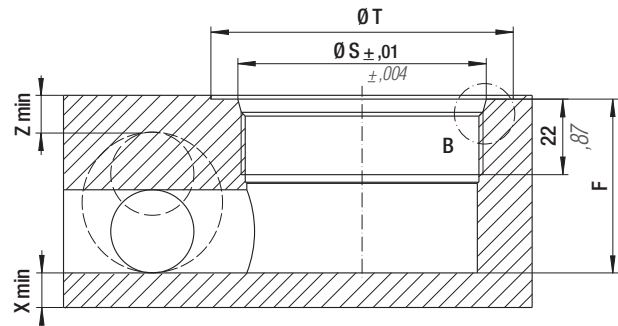
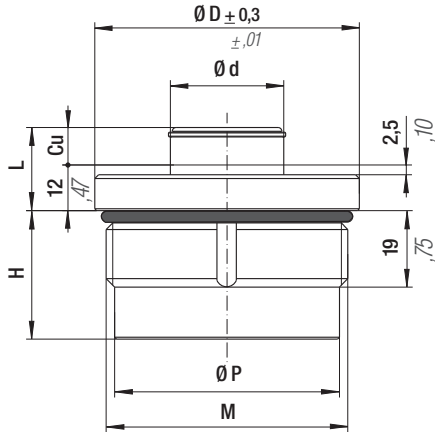
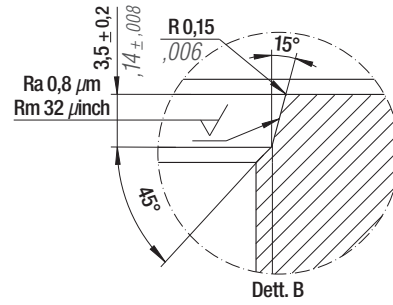
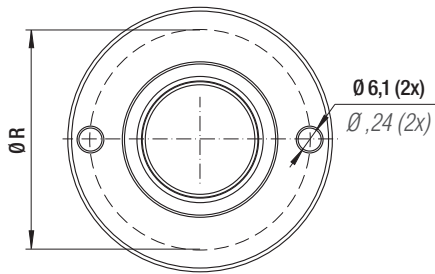
## P SISTEMA MANIFOLD

- Alternativa aos cilindros autónomos interligados
- Incremento mínimo de pressão e força
- Mínimo espaço
- Ausência de tubos e "raccords"
- Grande força concentrada
- Monitorização e modificação da pressão facilitada através do painel de controlo
- De fácil montagem
- De fácil manutenção
- Longa duração

### CARACTERÍSTICAS TÉCNICAS

- Cilindros com estanquidade do êmbolo
- Raspador para protecção contra contaminantes
- Duplo guiamento autolubrificado
- Corpo do cilindro nitruado com dureza - Hv 700
- Corpo do cilindro polido com rugosidade ~Ra ≤ 0,05 μ
- Êmbolo nitruado com dureza - Hv 700
- Êmbolo polido com rugosidade ~Ra ≤ 0,05 μ
- Pressão máxima de carregamento 110 bar a 20°C
- Pressão mínima de carregamento 30 bar a 20°C
- Velocidade máxima 0,6 m/s
- Projectados em conformidade com a Directiva PED 97/23 EC

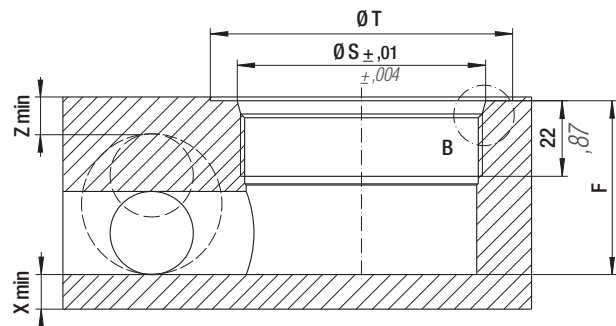
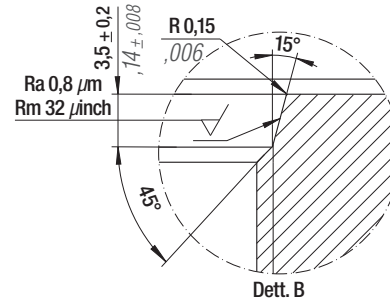
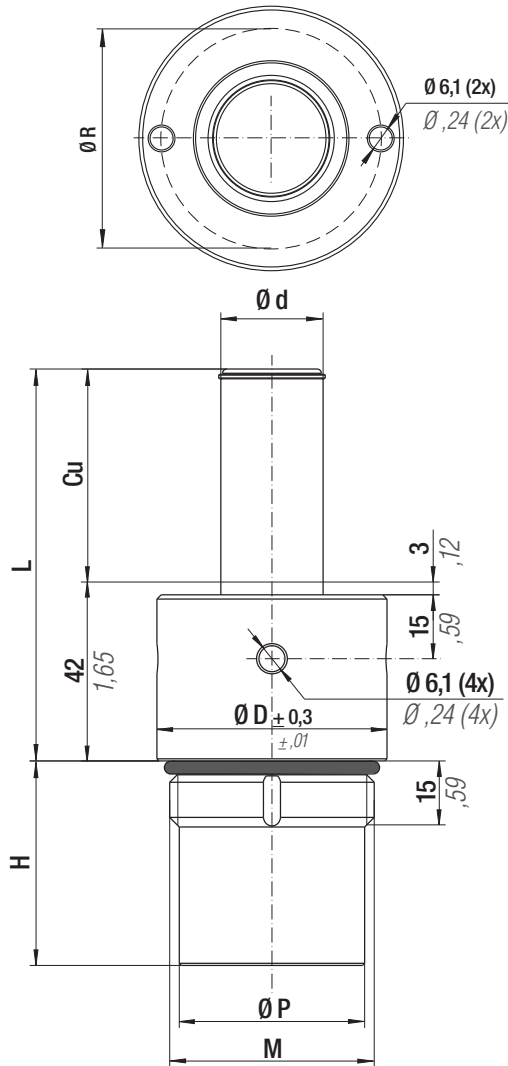
**PEE**  
97/23/EC



<b>Max Speed</b> 0,8 m/s			<b>P max</b> 110 bar 1595 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 22,9 cm <sup>2</sup> 3,55 in <sup>2</sup>		<b>Maintenance kit</b> 39BMCA02500A
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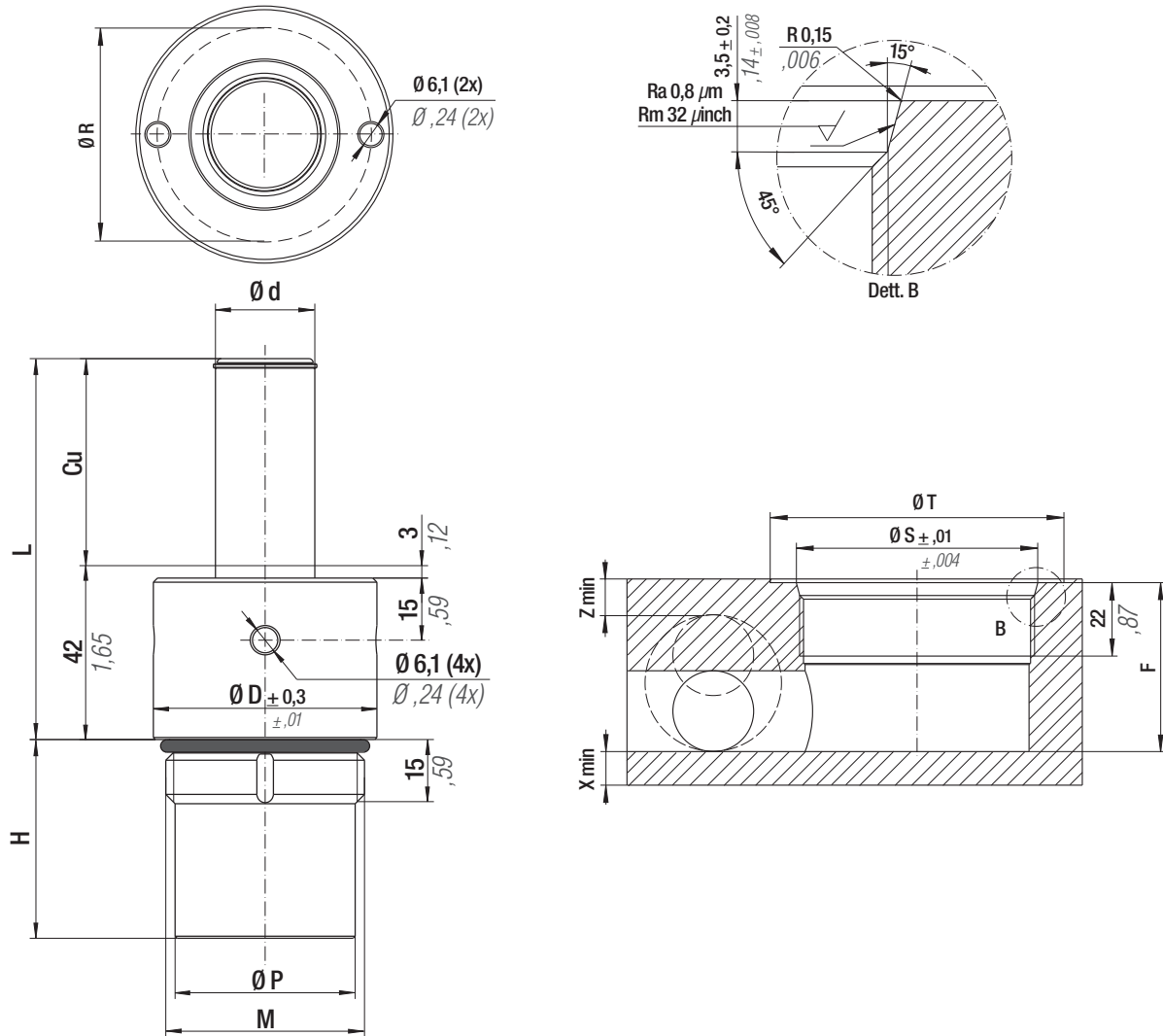
MODEL	F <sub>0</sub>		M	Cu		L		H		Ø D		Ø d		Ø P		Ø R		Ø T		Ø S		F	Xmin		Zmin		
	daN	lb		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	mm	inch	
CA 2500 - 006 - A	2520	5665	M 64 X 2	6	0,24	18	0,71	30	1,18	70	2,76	30	1,18	59,5	2,34	58	2,28	80	3,15	65,9	2,59	33	1,30	10	0,39	8	0,31
CA 2500 - 010 - A	2520	5665	M 64 X 2	10	0,39	22	0,87	34	1,34	70	2,76	30	1,18	59,5	2,34	58	2,28	80	3,15	65,9	2,59	37	1,46	10	0,39	8	0,31
CA 2500 - 015 - A	2520	5665	M 64 X 2	15	0,59	27	1,06	39	1,54	70	2,76	30	1,18	59,5	2,34	58	2,28	80	3,15	65,9	2,59	42	1,65	10	0,39	8	0,31
CA 2500 - 020 - A	2520	5665	M 64 X 2	20	0,79	32	1,26	44	1,73	70	2,76	30	1,18	59,5	2,34	58	2,28	80	3,15	65,9	2,59	47	1,85	10	0,39	8	0,31





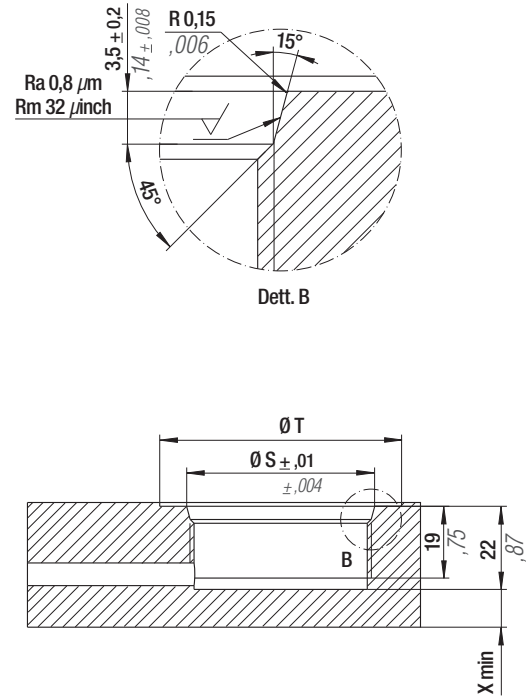
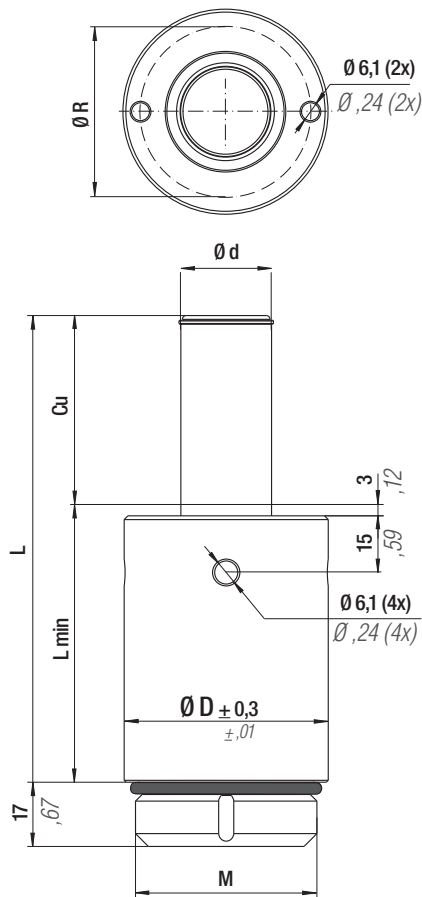
<b>Max Speed:</b> 0,8 m/s			<b>P max</b> 110 bar 1595 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 9,62 cm <sup>2</sup> 1,49 in <sup>2</sup>		<b>Maintenance kit</b> 39BMCC01000A
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MODEL	F <sub>0</sub>	M	Cu	L	H	∅D	∅d	∅P	∅R	∅T	∅S	F	X <sub>min</sub>	Z <sub>min</sub>
	daN   lb		mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	mm   inch	mm   inch
CB 1000 - 025 - A	1060 2383	M 48 X 2	25 0,98	67 2,64	23 0,91	54 2,13	24 0,95	43,5 1,71	44 1,73	64 2,52	49,9 1,97	26,0 1,02	10 0,39	8 0,31
CB 1000 - 038 - A	1060 2383	M 48 X 2	38 1,50	80 3,15	36 1,42	54 2,13	24 0,95	43,5 1,71	44 1,73	64 2,52	49,9 1,97	39,0 1,54	10 0,39	8 0,31
CB 1000 - 050 - A	1060 2383	M 48 X 2	50 1,97	92 3,62	48 1,89	54 2,13	24 0,95	43,5 1,71	44 1,73	64 2,52	49,9 1,97	51,0 2,01	10 0,39	8 0,31
CB 1000 - 075 - A	1060 2383	M 48 X 2	75 2,95	117 4,61	73 2,87	54 2,13	24 0,95	43,5 1,71	44 1,73	64 2,52	49,9 1,97	76,0 2,99	10 0,39	8 0,31
CB 1000 - 100 - A	1060 2383	M 48 X 2	100 3,94	142 5,59	98 3,86	54 2,13	24 0,95	43,5 1,71	44 1,73	64 2,52	49,9 1,97	101,0 3,98	10 0,39	8 0,31
CB 1000 - 150 - A	1060 2383	M 48 X 2z	150 5,91	192 7,56	148 5,83	54 2,13	24 0,95	43,5 1,71	44 1,73	64 2,52	49,9 1,97	151,0 5,94	10 0,39	8 0,31

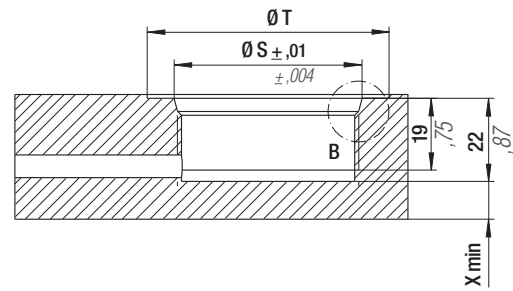
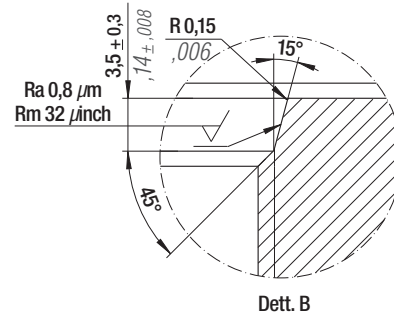
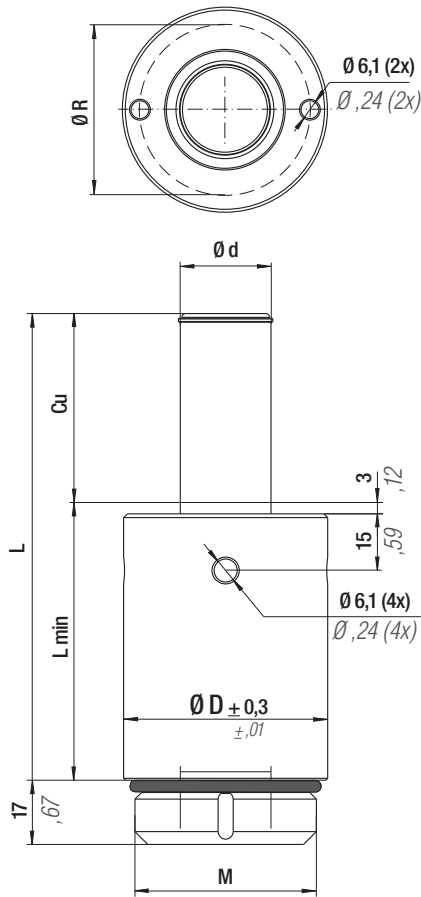


<b>Max Speed</b> 0,8 m/s	°F 32 °C 0	176 80	<b>N<sub>2</sub></b>	<b>P max</b> 110 bar 1595 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 22,9 cm <sup>2</sup> 3,55 in <sup>2</sup>		<b>Maintenance kit</b> 39BMCB02500A
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MODEL	F <sub>0</sub>		M	Cu		L		H		ØD		Ød		ØP		ØR		ØT		ØS		F		Xmin		Zmin	
	daN	lb		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
CB 2500 - 025 - A	2520	5665	M 64 X 2	25	0,98	67	2,64	23	0,91	70	2,76	30	1,18	59,5	2,34	58	2,28	80	3,15	65,9	2,59	26,0	1,02	10	0,39	8	0,31
CB 2500 - 038 - A	2520	5665	M 64 X 2	38	1,50	80	3,15	36	1,42	70	2,76	30	1,18	59,5	2,34	58	2,28	80	3,15	65,9	2,59	39,0	1,54	10	0,39	8	0,31
CB 2500 - 050 - A	2520	5665	M 64 X 2	50	1,97	92	3,62	48	1,89	70	2,76	30	1,18	59,5	2,34	58	2,28	80	3,15	65,9	2,59	51,0	2,01	10	0,39	8	0,31
CB 2500 - 075 - A	2520	5665	M 64 X 2	75	2,95	117	4,61	73	2,87	70	2,76	30	1,18	59,5	2,34	58	2,28	80	3,15	65,9	2,59	76,0	2,99	10	0,39	8	0,31
CB 2500 - 100 - A	2520	5665	M 64 X 2	100	3,94	142	5,59	98	3,86	70	2,76	30	1,18	59,5	2,34	58	2,28	80	3,15	65,9	2,59	101,0	3,98	10	0,39	8	0,31
CB 2500 - 150 - A	2520	5665	M 64 X 2	150	5,91	192	7,56	148	5,83	70	2,76	30	1,18	59,5	2,34	58	2,28	80	3,15	65,9	2,59	151,0	5,94	10	0,39	8	0,31

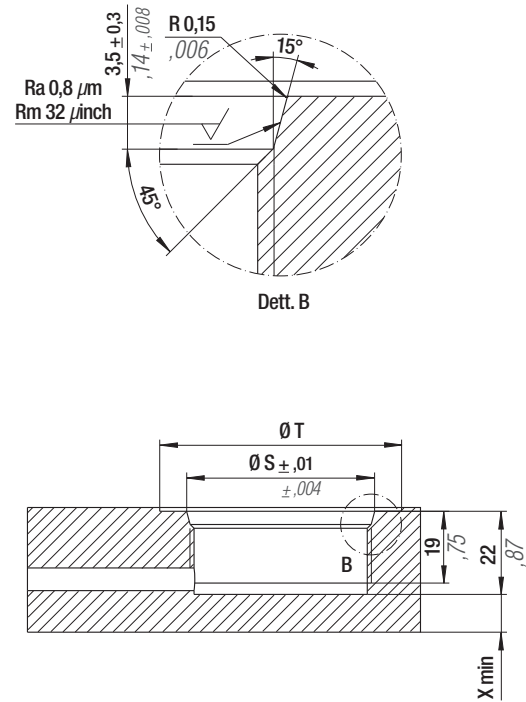
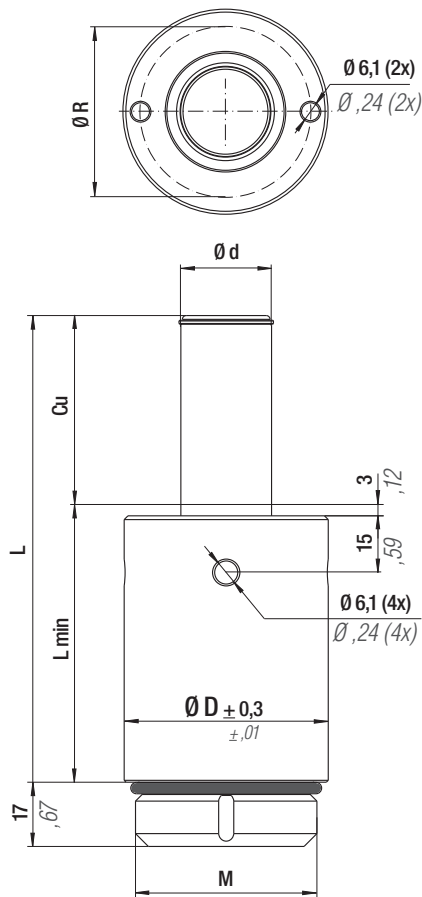


MODEL	F <sub>0</sub>		M	Cu		L		L min		Ø D		Ø d		Ø R		Ø T		Ø S		X min	
	daN	lb		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
CC 0500 - 012 - A	540	1214	M 36 X 2	12,5	0,49	45,5	1,79	33,0	1,30	42	1,65	12	0,47	32	1,26	52	2,05	37,9	1,49	6	0,24
CC 0500 - 025 - A	540	1214	M 36 X 2	25	0,98	70,5	2,78	45,5	1,79	42	1,65	12	0,47	32	1,26	52	2,05	37,9	1,49	6	0,24
CC 0500 - 038 - A	540	1214	M 36 X 2	38	1,50	96,5	3,80	58,5	2,30	42	1,65	12	0,47	32	1,26	52	2,05	37,9	1,49	6	0,24
CC 0500 - 050 - A	540	1214	M 36 X 2	50	1,97	120,5	4,74	70,5	2,78	42	1,65	12	0,47	32	1,26	52	2,05	37,9	1,49	6	0,24
CC 0500 - 075 - A	540	1214	M 36 X 2	75	2,95	170,5	6,71	95,5	3,76	42	1,65	12	0,47	32	1,26	52	2,05	37,9	1,49	6	0,24
CC 0500 - 100 - A	540	1214	M 36 X 2	100	3,94	220,5	8,68	120,5	4,74	42	1,65	12	0,47	32	1,26	52	2,05	37,9	1,49	6	0,24

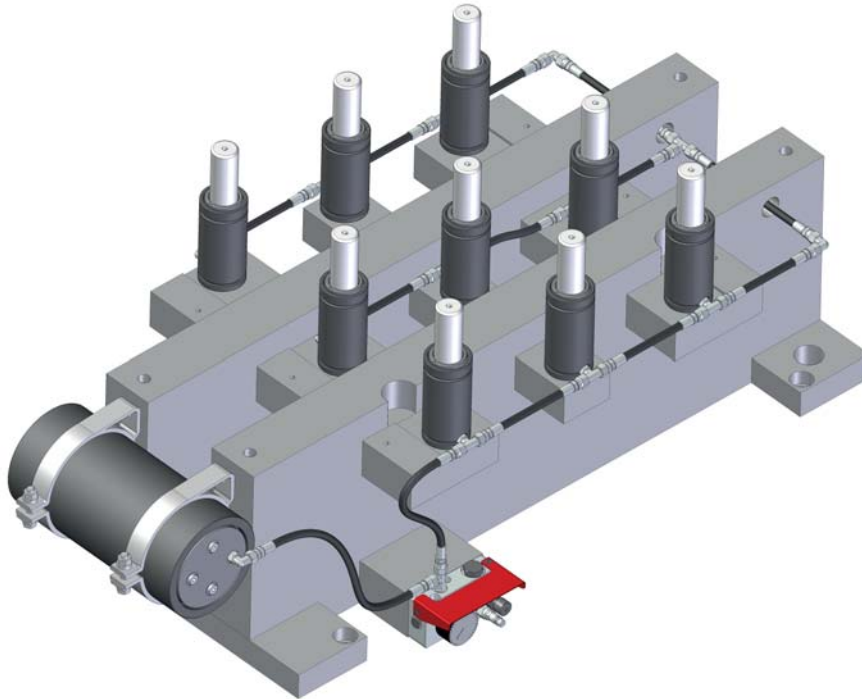


<b>Max Speed</b> 0,8 m/s	<b>°F</b> 32 176	<b>°C</b> 0 80	<b>N<sub>2</sub></b>	<b>P max</b> 110 bar 1595 psi	<b>P min</b> 20 bar 290 psi	<b>S</b> 9,62 cm <sup>2</sup> 1,491 in <sup>2</sup>		<b>Maintenance kit</b> 39BMCC01000A
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MODEL	F <sub>0</sub>		M	Cu		L		L min		Ø D		Ø d		Ø R		Ø T		Ø S		X min	
	daN	lb		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
CC 1000 - 025 - A	1060	2383	M 48 X 2	25	0,98	73,5	2,89	48,5	1,91	54	2,13	24	0,95	44	1,73	64	2,52	49,9	1,97	10	0,39
CC 1000 - 038 - A	1060	2383	M 48 X 2	38	1,50	99,5	3,92	61,5	2,42	54	2,13	24	0,95	44	1,73	64	2,52	49,9	1,97	10	0,39
CC 1000 - 050 - A	1060	2383	M 48 X 2	50	1,97	123,5	4,86	73,5	2,89	54	2,13	24	0,95	44	1,73	64	2,52	49,9	1,97	10	0,39
CC 1000 - 075 - A	1060	2383	M 48 X 2	75	2,95	173,5	6,83	98,5	3,88	54	2,13	24	0,95	44	1,73	64	2,52	49,9	1,97	10	0,39
CC 1000 - 100 - A	1060	2383	M 48 X 2	100	3,94	223,5	8,80	123,5	4,86	54	2,13	24	0,95	44	1,73	64	2,52	49,9	1,97	10	0,39
CC 1000 - 150 - A	1060	2383	M 48 X 2	150	5,91	323,5	12,74	173,5	6,83	54	2,13	24	0,95	44	1,73	64	2,52	49,9	1,97	10	0,39



MODEL	Fo		M	Cu		L		L min		$\varnothing D$		$\varnothing d$		$\varnothing R$		$\varnothing T$		$\varnothing S$		Xmin	
	daN	lb		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
CC 2500 - 025 - A	2520	5665	M 64 X 2	25	0,98	73,5	2,89	48,5	1,91	70	2,76	30	1,18	58	2,28	80	3,15	65,9	2,59	10	0,39
CC 2500 - 038 - A	2520	5665	M 64 X 2	38	1,50	99,5	3,92	61,5	2,42	70	2,76	30	1,18	58	2,28	80	3,15	65,9	2,59	10	0,39
CC 2500 - 050 - A	2520	5665	M 64 X 2	50	1,97	123,5	4,86	73,5	2,89	70	2,76	30	1,18	58	2,28	80	3,15	65,9	2,59	10	0,39
CC 2500 - 075 - A	2520	5665	M 64 X 2	75	2,95	173,5	6,83	98,5	3,88	70	2,76	30	1,18	58	2,28	80	3,15	65,9	2,59	10	0,39
CC 2500 - 100 - A	2520	5665	M 64 X 2	100	3,94	223,5	8,80	123,5	4,86	70	2,76	30	1,18	58	2,28	80	3,15	65,9	2,59	10	0,39
CC 2500 - 150 - A	2520	5665	M 64 X 2	150	5,91	323,5	12,74	173,5	6,83	70	2,76	30	1,18	58	2,28	80	3,15	65,9	2,59	10	0,39



## I VANTAGGI

- Pressione uguale in tutti i cilindri
- Controllo della pressione = controllo della forza
- Aumento/riduzione della pressione = aumento/riduzione della forza attraverso il pannello di controllo anche durante lo stampaggio senza intervento diretto sui cilindri
- Utilizzo di polmoni di compensazione per un ridotto incremento della pressione a fine compressione
- Gestione di impianti e forze diverse nello stesso stampo (uso multipannello MCP+AUMCP)
- Stop di sicurezza con uso pressostato
- Utilizzo tappo di sicurezza con disco di rottura CE
- Flessibilità di collegamento con tubi e raccordi EO - 24°, JIC 37°, Minimesse, Micro 32°, ORFS



I cilindri collegabili a sistema (codice modello + N/NA) sono forniti privi di valvola unidirezionale e con corpo/fondello speciale dove previsto. Per le serie SC/H/HR/LI/LS è possibile trasformare i cilindri autonomi in cilindri collegabili a sistema semplicemente rimuovendo i dispositivi di tenuta dal foro di caricamento. Scaricare completamente la pressione prima di questa operazione. Qualora si rendesse necessario rimuovere uno qualsiasi dei componenti installati, scaricare completamente la pressione attraverso il pannello

## GB BENEFITS

- Same pressure in all cylinders
- Pressure control = force control
- Increase/decrease of pressure = increase/decrease of force by control panel even during stamping operation without direct acting to the cylinders.
- Lower pressure increase by using compensation tank
- Possibility to manage pressure and forces different in the same tool by using the multipanel MCP+AUMCP.
- Safety stop of production by using pressure switch.
- Use of the safety plug with rupture disc CE
- Flexibility by using hose and connection EO - 24°, JIC 37°, Minimesse, Micro 32°, ORFS and couplings and many useful accessories.



The hoses system cylinders (model code + N/NA) are supplied without charging valve and with special body/end plate when specified. However SC/H/HR/LI/LS series can be converted from self-contained to hose system simply removing the charging valve. Assure all pressure is exhausted and rod fully retracted into the body before starting this operation.

In case would be necessary to remove any of the installed components, assure all pressure is exhausted by acting through the control panel.

## D VORTEILE

- Identischer Druck in allen Zylindern
- Druckkontrolle = Kraftkontrolle
- Steigerung/Minderung des Drucks = Erhöhung/Verringerung der Kraft über die Steuerung, auch während der Formung ohne direkten Eingriff an den Zylindern
- Einsatz von Ausgleichbehältern zur Reduzierung von Druckerhöhungen nach dem Drucktank
- Verwaltung verschiedenartiger Anlagen und Leistungen desselben Formprozesses über die Multisteuerung MCP+AUMCP
- Sicherheitsstopp per Druckwächter
- Verwendung eines Sicherheitsverschlusses mit Berstscheibe (CE-Kennzeichnung)
- Flexibilität bei der Verbindung mit Rohren und Anschlüssen EO - 24°, JIC 37°, Minimesse, Micro 32°, ORFS Komponenten.



Zylinder für den Systemanschluss (Modellcode + N/NA) werden ohne Einwegventile und, sofern vorgesehen, mit speziellem Gehäuse/Boden geliefert. Für die Serien SC/H/HR/LI/LS können die autonomen arbeitenden Zylinder in Zylinder mit Systemanschluss abgeändert werden, indem die Dichtungsvorrichtungen an der Luftzufuhröffnung entfernt werden. Lassen Sie die Druckluft vor diesem Arbeitsschritt komplett ab. Falls es sich als notwendig erweisen sollte, einen der installierten Komponenten zu entfernen, muss vorher die Druckluft mittels der Steuerung vollständig abgelassen werden.

## F AVANTAGES

- La même pression dans tous les ressorts
- Contrôle de la pression = contrôle de la force
- Augmentation/réduction de la pression = augmentation/réduction de la force par l'intermédiaire du panneau de contrôle, même durant le moulage, sans aucune intervention directe sur les ressorts
- Utilisation de réservoirs de compensation produisant une petite augmentation de la pression à la fin de la compression
- Gestion d'installations et de forces différentes sur le même outil (utilisation multi-panneaux MCP + AUMCP)
- Arrêt de sécurité à l'aide d'un pressostat
- Utilisation d'un bouchon de sécurité avec disque de rupture CE
- Souplesse du raccordement à l'aide de tubes et de raccords EO - 24°, JIC 37°, Minimes , Micro 32°, ORFS



Les ressorts pouvant être reliés à un système (référence modèle + N/NA) sont livrés sans la vanne unidirectionnelle et avec corps/fond spécial si prévu. Pour les séries SC/H/HR/LI/LS, il est possible de transformer les ressorts autonomes en cylindres pouvant être reliés à un système en ôtant simplement les dispositifs d'étanchéité du trou de chargement.

Décharger complètement la pression avant d'effectuer cette opération. S'il est nécessaire de démonter un des composants installés, décharger complètement la pression par l'intermédiaire du panneau de contrôle.

## E VENTAJAS

- La misma presión en todos los cilindros
- Control de la presión = control de la fuerza
- Aumento/reducción de la presión=aumento/reducción de la fuerza mediante el panel de control incluso en operaciones de estampación sin actuación directa sobre los cilindros
- Pueden emplearse pulmones de compensación para reducir el aumento de la presión al final de la compresión
- Gestión de equipos y fuerzas distintas sobre el mismo molde (uso multipanel MCP+AUMCP)
- Parada de emergencia con presostato
- Tapón de seguridad con disco de ruptura CE
- Flexibilidad de conexión con tubos y acoplamientos EO - 24°, JIC 37°, Minimes , Micro 32°, ORFS



Los cilindros para su conexión en sistema (código modelo + N/NA) se sirven sin válvula unidireccional y con cuerpo/base especiales en los casos en que se requieran. En las series SC/H/HR/LI/LS, los cilindros autónomos pueden transformarse en cilindros para su conexión en sistema con sólo quitar los dispositivos de estanqueidad del orificio de carga.

Antes de realizar esta operación, vaciar completamente la presión.

Si fuera necesario quitar alguno de los componentes instalados, vaciar completamente la presión mediante el panel de control.

## P VANTAGENS

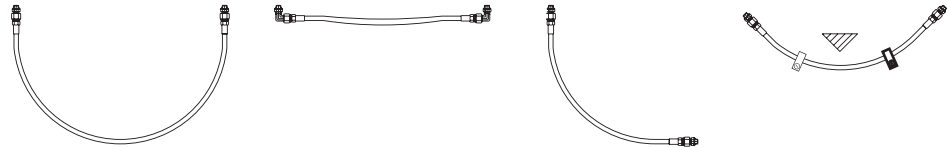
- Pressão igual em todos os cilindros
- Controlo da pressão = controlo da força
- Aumento/redução da pressão=aumento/redução da força através do painel de controlo também durante a estampagem sem intervenção directa sobre os cilindros
- Utilização dos tanques de compensação para redução do aumento da pressão no final da compressão
- Gestão de instalações e de várias forças na mesma Ferramenta (uso do multi-painel MCP+AUMCP)
- Stop de segurança com utilização do pressostato
- Utilização de Bujão de segurança com disco de rotura CE
- Flexibilidade de ligação com tubos e ligações EO - 24°, JIC 37°, Minimes , Micro 32°, ORFS



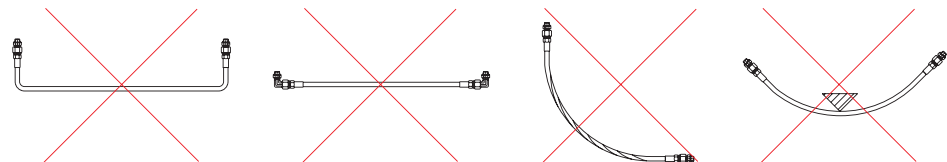
Os cilindros ligáveis em sistema (código do modelo + N/NA) são fornecidos sem válvula unidireccional e com corpo/extremidade especial. Para a série SC/H/HR/LI/LS, é possível transformar os cilindros autónomos em cilindros ligáveis em sistema, bastando remover os dispositivos de retenção do orifício de carga. Descarregar completamente a pressão antes desta operação.

No caso de ser necessário remover um dos componentes instalados, descarregar completamente a pressão através do painel de controlo.

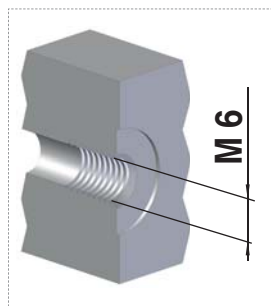
## RIGHT



## WRONG



# LINKED SYSTEM SELECTION



**MINIMESS - CONNECTIONS**  
S12,65x1,5

**TM**

Low gas flow

**MICRO - CONNECTIONS**  
M8x1

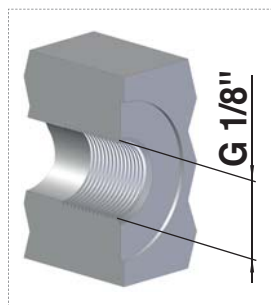
**TSM**

Low gas flow

**JIC 37° - CONNECTIONS**  
7/16"-20 UNF

**TNC**

High gas flow



**ORFS - CONNECTIONS**  
9/16"-18 UNF

**HY 400**

High gas flow

**EO - 24° - CONNECTIONS**  
M12x1,5

**HY 500**

High gas flow



code 39PR04A



Crimping equipment for connections and hoses type:

- EO 24° "HY 500"
- JIC 37° "TNC"
- Minimes "TM"
- Micro 32° "TSM"
- ORFS "HY 400"

code 58UT001A



Forbice taglia tubo  
Scissor for hose  
Schlauchschnideschere  
Ciseaux coupe-tube  
Tijeras cortatubos  
Tesouras corta tubos

## I Caratteristiche

- Pressa trasportabile con pompa oleodinamica manuale
- Segnale luminoso di misura per massima precisione
- Idonea per raccordi dritti, 45° e 90°

### Dati tecnici

- Pressione massima della pompa 300 bar
- Forza di chiusura massima 400 KN
- Dimensioni 200 x 280 x 300 mm
- Peso 11,5 kg

### La fornitura comprende

- Pressa da banco con pompa oleodinamica manuale
- Set completo di matrici Ø 7 - Ø 11,5 - Ø 13
- Forbice speciale taglia tubo
- Manuale d'uso e certificazione di conformità CE

## GB Features

- Transportable press with hydraulic manual pump
- Light indicator of measurement for maximum precision
- Suitable for straight, 45° and 90°

### Technical data

- Maximum pressure 300 bar
- Maximum crimping force 400 KN
- Dimensions 200x280x300 mm
- Weight 11,5 kg

### Delivery includes

- Bench press with hydraulic manual pump
- Complete set of matrices Ø 7 - Ø 11,5 - Ø 13
- Special scissor for hoses
- User manual and declaration of CE conformity

## D Funktionen

- Transportable Presse mit manueller Hydraulikpumpe
- Lichtsignalmessung für höchste Genauigkeit
- Geeignet für gerade, 45° und 90° Anschlüsse

### Technische Daten

- Maximaler Pumpendruck 300 bar - maximale Schließkraft 400 KN
- Abmessungen 200 x 280 x 300 mm
- Gewicht 11,5 kg

### Lieferumfang

- Tischpresse mit manueller Hydraulikpumpe
- Kompletter Satz von Matrizen Ø 7 - Ø 11,5 - Ø 13
- Schlauchschnideschere
- Betriebs- und Instandhaltungsanleitung mit CE-Konformitätserklärung

## F Caractéristiques

- Presse transportable avec pompe oléodynamique manuelle
- Signal lumineux de mesure pour la précision maximale
- Utilisable avec raccords droits, 45° et 90°

### Donnés techniques

- Pression maximale de la pompe 300 bar
- Force de sertissage maximum 400 KN
- Dimensions 200 x 280 x 300 mm
- Poids 11,5 kg

### La fourniture comprend

- Presse de table avec pompe oléodynamique manuelle
- Set complet des matrices Ø 7- Ø 11.5- Ø 13
- Ciseaux spéciales coupe-tube
- Manuel d'usage et certification de conformité CE

## E Características

- Pressa Transportable con bomba oleodinámica manual
- Señal luminoso de medida para la máxima precisión
- Puede ser utilizada con tuberías derechas, 45° y 90°

### Datos técnicos

- Presión máxima de la bomba manual: 300 bar
- Fuerza de crimpado Máximo 400 KN
- Dimensiones 200 x 280 x 300 mm
- Peso 11,5 kg

### El abastecimiento incluye

- Pressa oleodinámica de banco con bomba manual
- Sistema completo de matrices Ø 7- Ø 13 - Ø 11.5
- Tijeras especiales cortatubos
- Manual de utilización y certificación de conformidad CE

## P Características

- Pressa transportável com bomba hidráulica manual
- Luz do sinal de medida para máxima precisão
- Pode ser usado com tubos retos, 45° e 90°

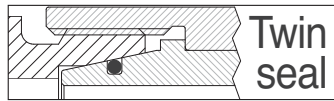
### Dados técnicos

- Pressão máxima da bomba manual: 300 bar
- Força de friso máxima 400 KN
- Dimensões 200 x 280 mm x 300 mm
- Peso 11,5 kg

### A entrega inclui

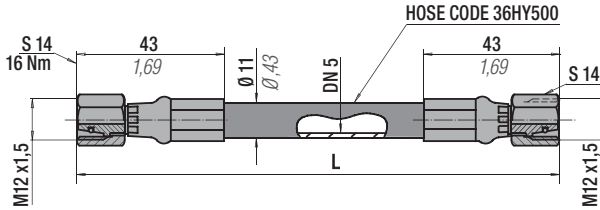
- Pressa hidráulica de banco com bomba manual
- Conjunto completo de matrizes Ø7- Ø11.5- Ø 13
- Tesouras especiais corta tubos
- Manual de utilização e certificação de conformidade CE



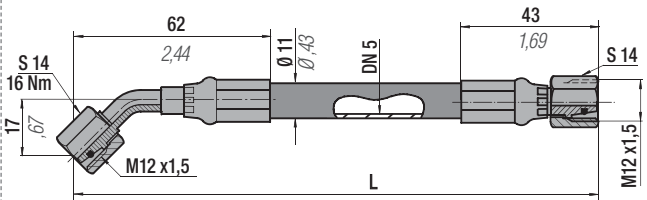


Twin seal

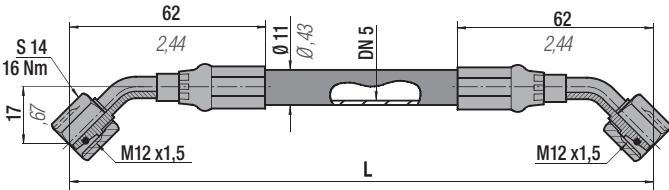
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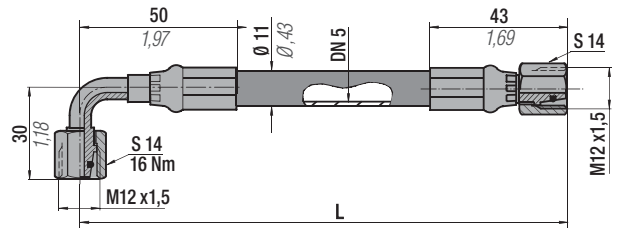
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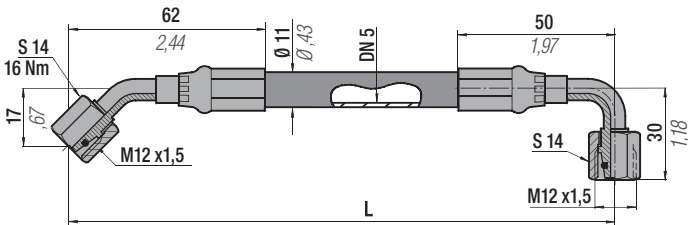
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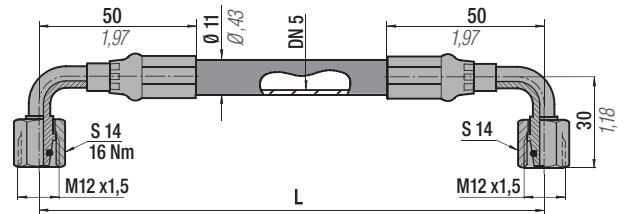
code 36HY50004...



code 36HY50005...



code 36HY50006...



### Technical data

"L" min	120 mm	4,72 in	Volume	18 ml/metre
Operation pressure	345 bar	5003 psi	Dimension	3/16" (external Ø 11 mm)
Burst Pressure	1380 bar at 20°C	20010 psi at 68°F	Material	Thermoplastic
R (bending radius)	40 mm	1,57 in	Standard	SAE 100R8
Operation temperature	-40+ 100°C	-38+212°F	Outer casing	Perforated

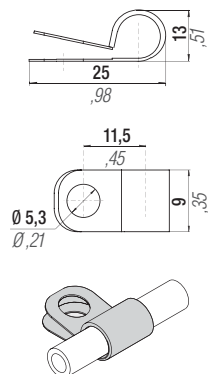


Lunghezza richiesta comprensiva di raccordi terminali  
Length upon request including end hose fittings  
Länge Anfrage einschließlich Ende Schlaucharmaturen

Longueur requise, y compris des raccords d'extrémité  
Longitud requerida, incluyendo accesorios de los extremos  
Comprimento necessário incluindo todos os acessórios

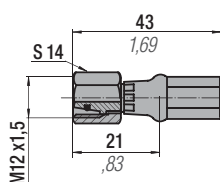
standard L = 120 mm min. - 5 mm upword increase - Example (36HY50001 0300; 36HY50001 0305; ...)

code: 36FF11A

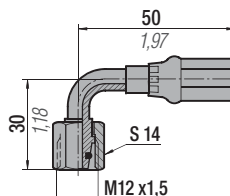


### HOSE FITTINGS

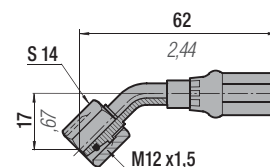
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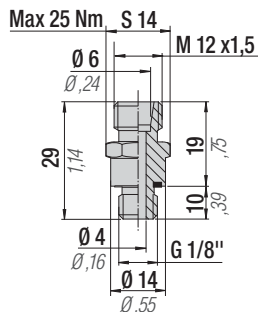
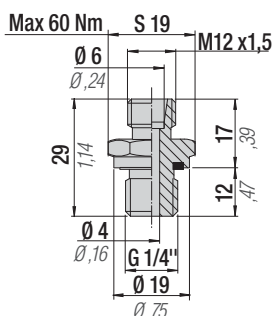
code 36P2402



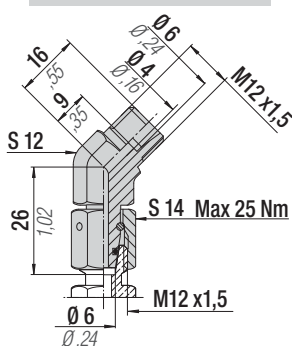
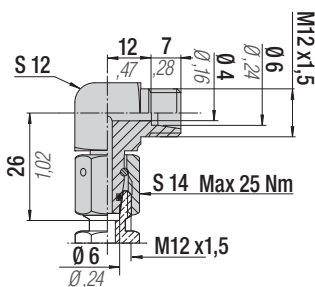
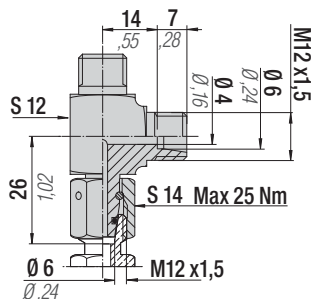
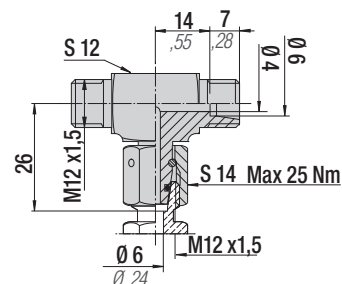
code 36P2403



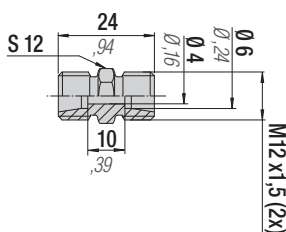
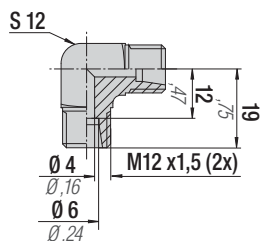
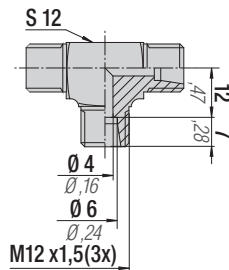
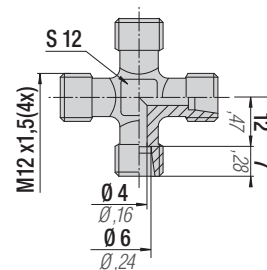
Raccordi tubo-cilindro/pannello - Hose-cylinder/panel connections - Anschlüsse zwischen schlauch und Zylinder/Kontrollarmatur -  
 Raccords tuyau-cylindre/tableau - Conexiones sistema de cilindros/panel - Racord tubo-cilindro/painel

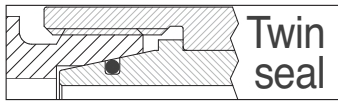
**code 36R2401**

**code 36R2402**


Raccordi di derivazione - Offtake connections - Anschlußstutzen - Raccords de dérivation - Racores - Racord de derivação

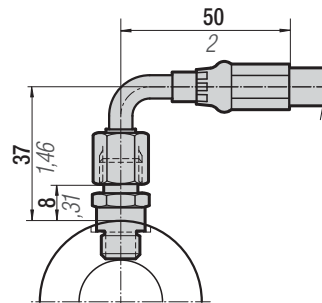
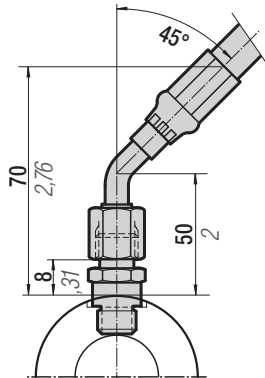
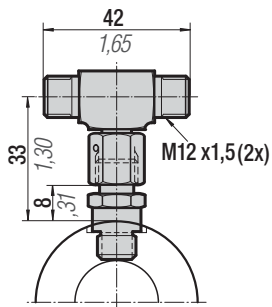
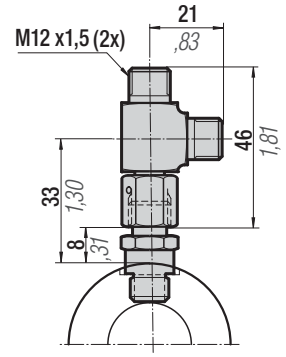
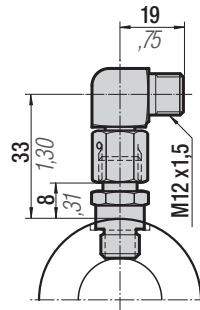
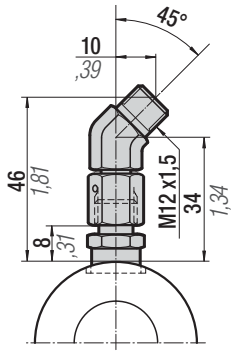
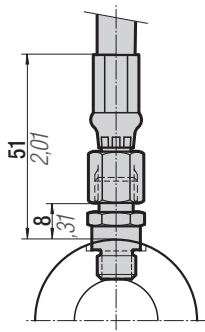
**code 36R2403**

**code 36R2404**

**code 36R2405**

**code 36R2406**


Raccordi tubo-tubo - Hose-hose connections - Anschlüsse zwischen Schlauch und Schlauch - Raccords tuyau-tuyau - Conexiones de tubo a tubo - Racord tubo-tubo

**code 36R2407**

**code 36R2408**

**code 36R2409**

**code 36R2410**




Esempi di installazione - Installation examples - Einbaubeispiele - Exemples de montage - Ejemplos de instalación - Exemplos de instalação

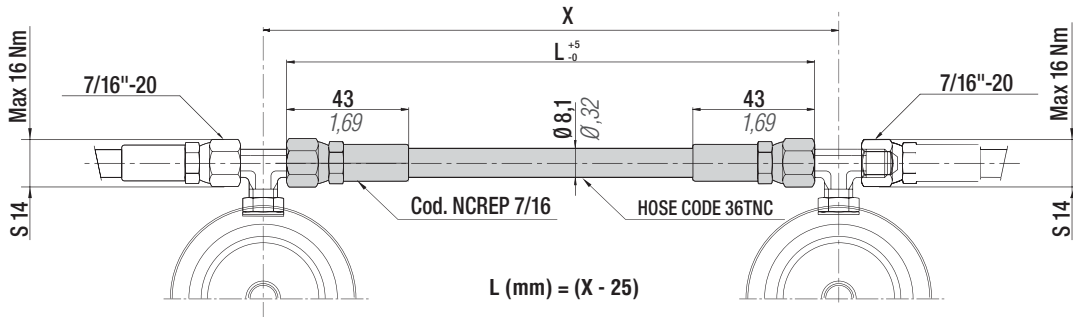




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code TNC 7/16...



Technical data				
"L" min	140 mm	5,51 in	Volume	12,6 ml/metre
Operation pressure	420 bar	6090 psi	Dimension	1/8" (external ø 8,1 mm)
Burst Pressure	1680 bar at 20°C	24360 psi at 68°F	Material	Thermoplastic
R (bending radius)	25 mm	0,98 in	Standard	SAE 100R8
Operation temperature	-40+ 100°C	-38 +212°F	Outer casing	Perforated



Lunghezza standard (mm) inclusive di n. 2 raccordi NCREP 7/16  
Standard lengths (mm) inclusive of no. 2 connections NCREP 7/16  
Standard-Länge (mm) einsch. 2 NCREP 7/16 -Anschlüssen

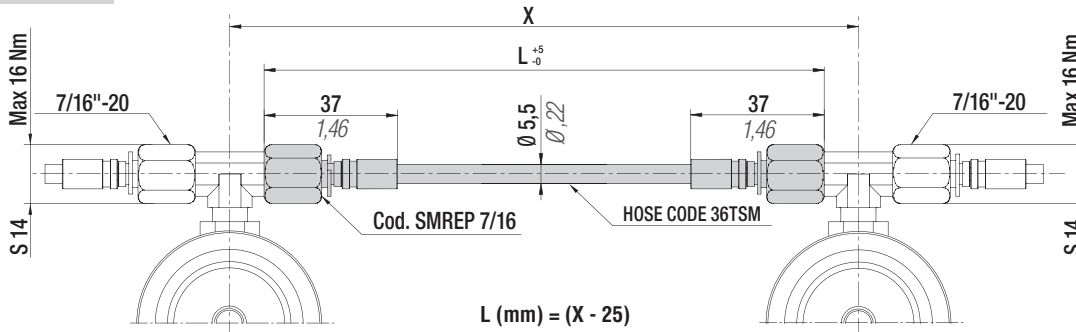
Longueur standard (mm) comprenant 2 raccords NCREP 7/16  
Longitud estándar (mm) con 2 racores incluidos NCREP 7/16  
Comprimento standard (mm) incluído nas 2 ligações NCREP 7/16

standard L = 140 mm min. - 5 mm upword increase - Example (TNC 7/16 140 mm; TNC 7/16 145 mm ...)

code: 36FF09A

TSM JIC 37°  
Hose Ø 5,5 mm

code TSM7/16...



Technical data				
"L" min	90 mm	3,54 in	Volume	3 ml/metre
Operation pressure	630 bar	9135 psi	Dimension	5/64" (external ø 5,5 mm)
Burst Pressure	1890 bar at 20°C	27400 psi at 68°F	Material	Thermoplastic
R (bending radius)	20 mm	0,79 in	Standard	-
Operation temperature	-40+ 100°C	-38 +212°F	Outer casing	Perforated



Lunghezza standard (mm) inclusive di n. 2 raccordi SMREP 7/16  
Standard lengths (mm) inclusive of no. 2 connections SMREP 7/16  
Standard-Länge (mm) einsch. 2 SMREP 7/16 -Anschlüssen

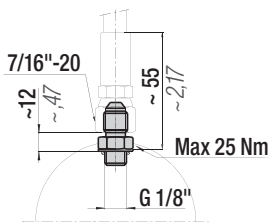
Longueur standard (mm) comprenant 2 raccords SMREP 7/16  
Longitud estándar (mm) con 2 racores incluidos SMREP 7/16  
Comprimento standard (mm) incluído nas 2 ligações SMREP 7/16

standard L = 90 mm min. - 10 mm upword increase - Example (TSM 7/16 90 mm; TSM 7/16 100 mm ...)

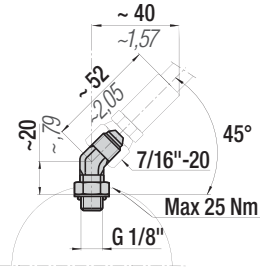
code: 36FF06A

Raccordi tubo-cilindro/pannello - Hose-cylinder/panel connections - Anschlüsse zwischen schlauch und Zylinder/Kontrollarmatur - Raccords tuyau-cylindre/tableau - Conexiones sistema de cilindros/panel - Racord tubo-cilindro/panel

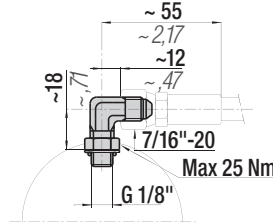
**code RTC-D**



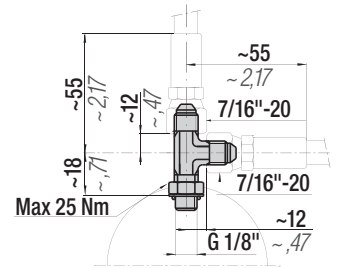
**code RTC-M**



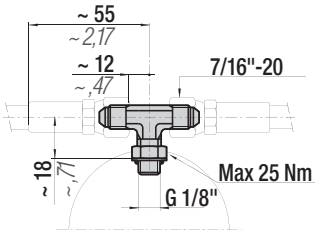
**code RTC-R**



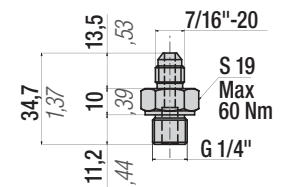
**code RTC-L**



**code RTC-T**

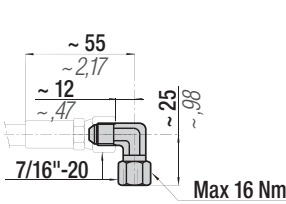


**code 36J01A**

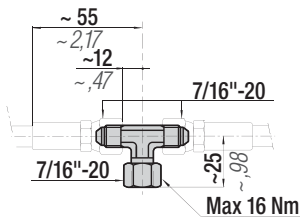


Raccordi di derivazione - Offtake connections - Anschlußstutzen - Raccords de dérivation - Racores - Racord de derivação

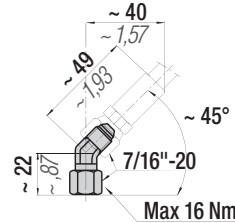
**code RDR**



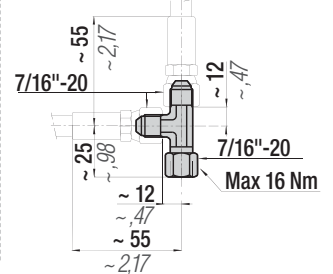
**code RDT**



**code RDM**

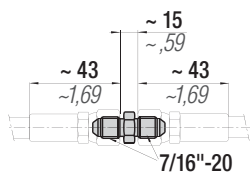


**code RDL**

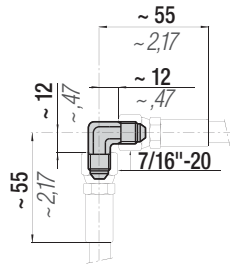


Raccordi tubo-tubo - Hose-hose connections - Anschlüsse zwischen Schlauch und Schlauch - Raccords tuyau-tuyau - Conexiones de tubo a tubo - Racord tubo-tubo

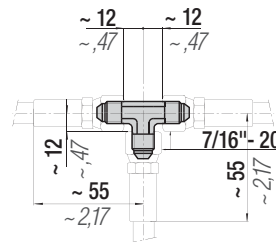
**code RTT-D**



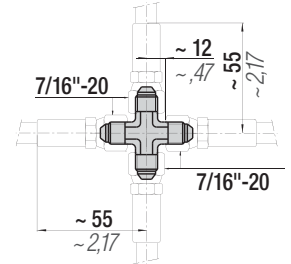
**code RTT-R**



**code RTT-T**



**code RTT-C**



**⚠ Available ONLY for loose supply**

**JIC 37°**  
**Hose Ø 8 mm**

**TNB**

PARKER made

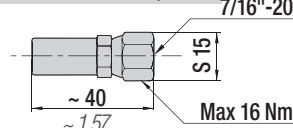
Hose

**code 36TNB**



Hose fittings

**code 36NBREP7/16**

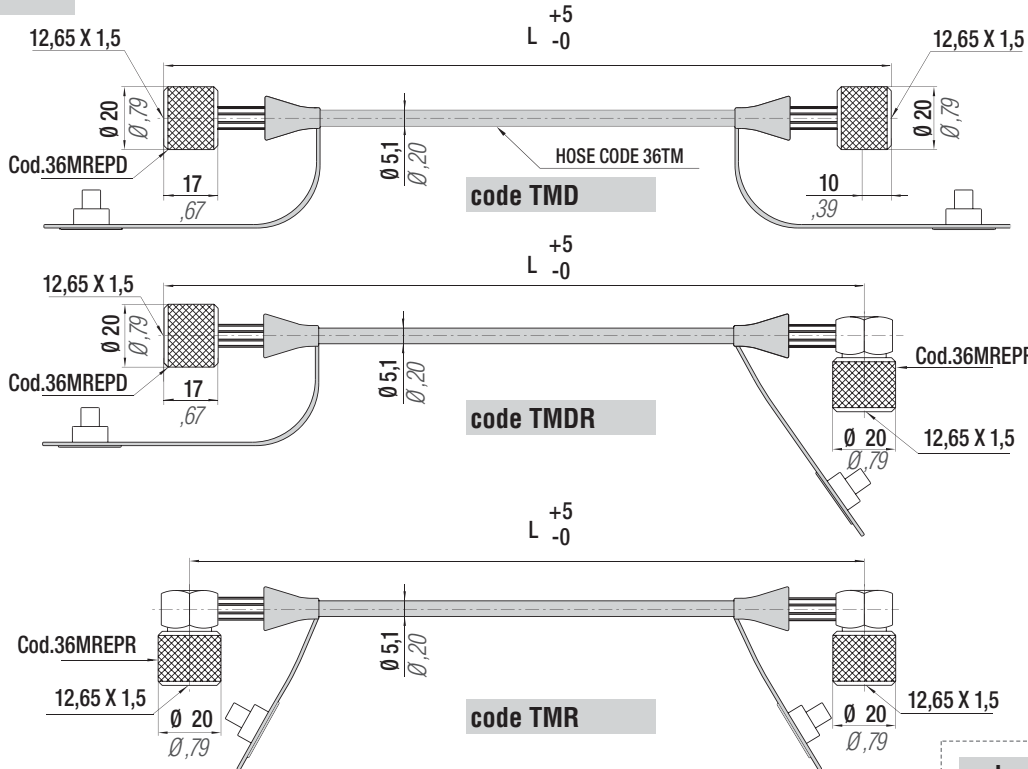


Technical data		
"L" min	140 mm	5,51 in
Operation pressure	415 bar	6017 psi
Burst Pressure	1655 bar at 20°C	24000 psi at 68°F
R (bending radius)	13 mm	0,51 in
Operation temperature	-40+ 100°C	-38+212°F

All dimensions in mm/inch

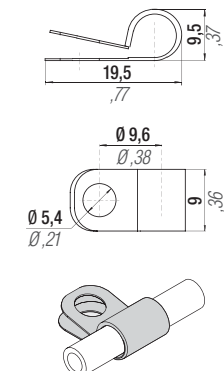


code TM...



Technical data					
"L" min (TMD)	90 mm	3,54 in	Operation temp.	-20 +100°C	-2 +212°F
"L" min (TMDR-TMR)	105 mm	4,13 in	Dimension	5/64" (external Ø 5,1 mm)	
Operation pressure	630 bar	9135 psi	Material	Polyamid	
Burst Pressure	1950 bar at 20°C	28275 psi at 68°F	Standard	-	
R (bending radius)	20 mm	0,79 in	Outer casing	Perforated	

code: 36FF06A



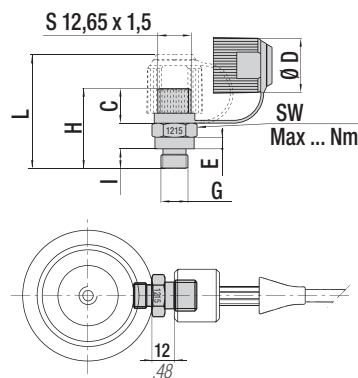
Lunghezza standard (mm) inclusive di n. 2 raccordi MREP D / R  
Standard lengths (mm) inclusive of no. 2 connections MREP D / R  
Standard-Länge (mm) einsch. 2 MREP D / R - Anschlüssen

Longueur standard (mm) comprenant 2 raccords MREP D / R  
Longitud estándar (mm) con 2 racores incluidos MREP D / R  
Comprimento standard (mm) incluido nas 2 ligações MREP D / R

standard L = 90 mm min. - 10 mm upword increase - Example (TM... 90 mm; TM... 100 mm ...)

CONNECTIONS MINIMESS

code RM...



Technical data								
code RM...	G	I	H	L	SW	C	Ø D	E
RMT C <sup>1)</sup>	G 1/8"	8	30	41	14	12	19,5	4
		0,31	1,18	1,61	25 Nm	0,47	0,77	0,16
RMT C0 <sup>1)</sup>	G 1/4"	10	31	39	19	12	17	3
		0,39	1,22	1,54	60 Nm	0,47	0,67	0,12
RMT C0 <sup>2)</sup>	G 1/8"	8	30	-	14	12	-	4
		0,31	1,18	-	25 Nm	0,47	-	0,16
RMT C0 <sup>3)</sup>	G 1/4"	10	31	-	19	12	-	3
		0,39	1,22	-	60 Nm	0,47	-	0,12
RMPT <sup>1)</sup>	7/16-20	9	30	43	17	12	19,5	3
		0,35	1,18	1,69	25 Nm	0,47	0,77	0,12

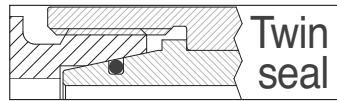


- 1) Con valvola unidirezionale - With one way valve - Mit Rückschlagventil  
Avec valve unidirectionnelle - Con válvula unidireccional - Com válvula unidireccional
- 2) Senza valvola unidirezionale - Without one way valve - Ohne Rückschlagventil  
Sans valve unidirectionnelle - Sin válvula unidireccional - Sem válvula unidireccional

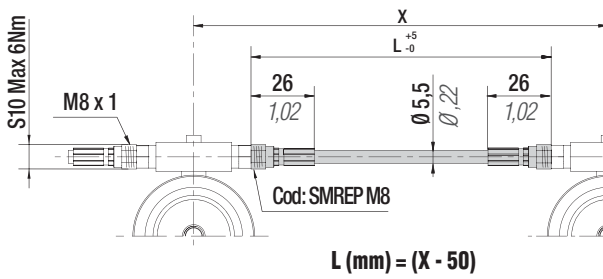
All dimensions in mm/inch



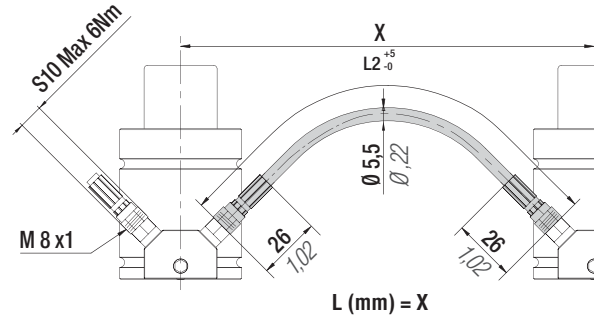




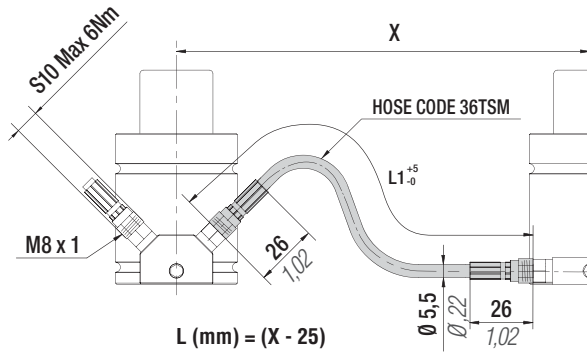
code TSM8...



standard L = 90 mm min. - 10 mm upward increase  
Example (TSM8 090 mm; TSM8 100 mm ...)

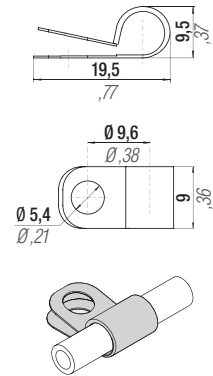


standard L = 190 mm min. - 10 mm upward increase  
Example (TSM8 190 mm; TSM8 200 mm ...)



standard L = 170 mm min. - 10 mm upward increase  
Example (TSM8 170 mm; TSM8 180 mm ...)

code: 36FF06A



Technical data					
"L" min	90 mm	3,54 in	Operation temp.	-40+ 100°C	-38 +212°F
"L1" min	170 mm	6,69 in	Volume	3 ml/metre	
"L2" min	190 mm	7,48 in	Dimension	5/64" (external Ø 5,5 mm)	
Operation pressure	630 bar	9135 psi	Material	Thermoplastic	
Burst Pressure	1890 bar at 20°C	27400 psi at 68°F	Standard	-	
R (bending radius)	20 mm	0,79 in	Outer casing	Perforated	

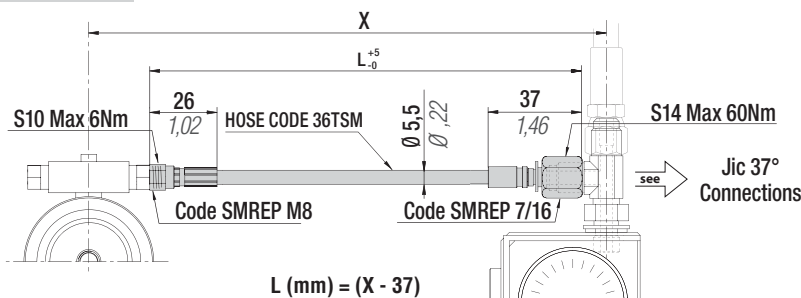


Lunghezze standard (mm) inclusive di n.2 raccordi SMREP M8  
Standard lengths (mm) inclusive of no. 2 connections SMREP M8  
Standard-Länge (mm) einsch. 2 SMREP-Anschlüssen M8

Longueur standard (mm) comprenant 2 raccords SMREP M8  
Longitud estándar (mm) con 2 racores incluidos SMREP M8  
Comprimento standard (mm) incluído nas 2 ligações SMREP M8

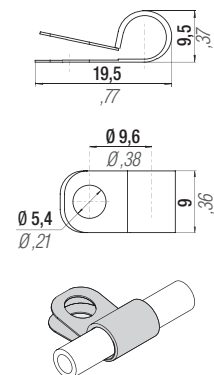
**TSM MICRO 32° and JIC 37°  
Hose Ø 5,5 mm**

code TSM01A...



standard L = min. 90 mm upward increase of 10 mm  
Example (TSM01A 090 mm; TSM01A 100 mm; ...)

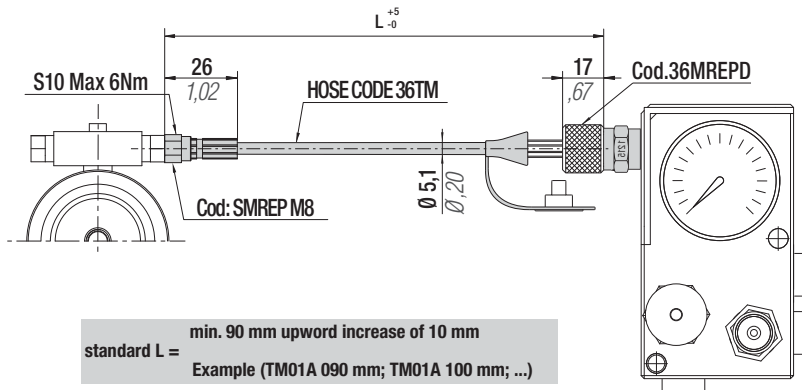
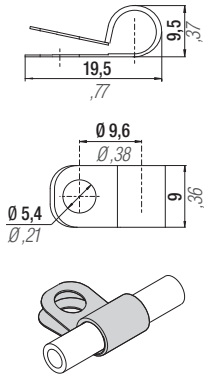
code: 36FF06A



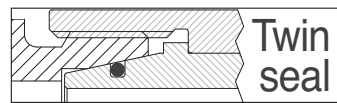
All dimensions in mm/inch

code 39TM01A...

code: 36FF06A



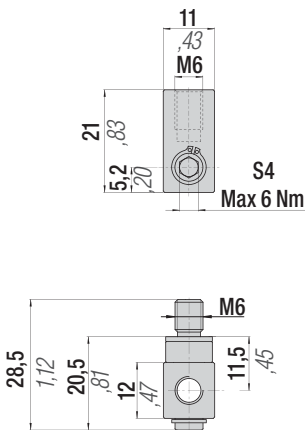
standard L = min. 90 mm upword increase of 10 mm  
Example (TM01A 090 mm; TM01A 100 mm; ...)



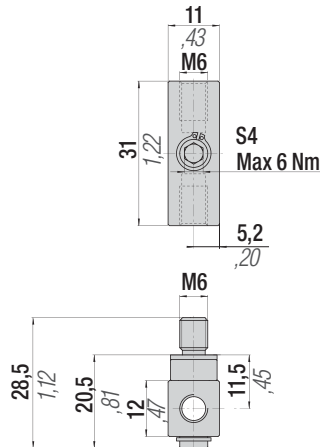
## MICRO 32° CONNECTIONS

Blocchetto tubo-cilindro - Hose-cylinder block - Block, bestehend aus Schlauch-Zylinder - Bloc tube- cylindre - Bloque tubo-cilindro - Bloqueio do tubo-cilindro

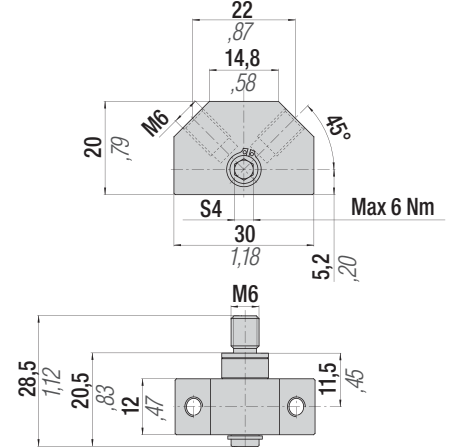
code BDSM01

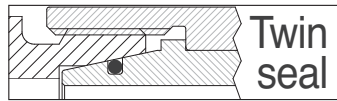


code BDSM02



code BDSM02-45

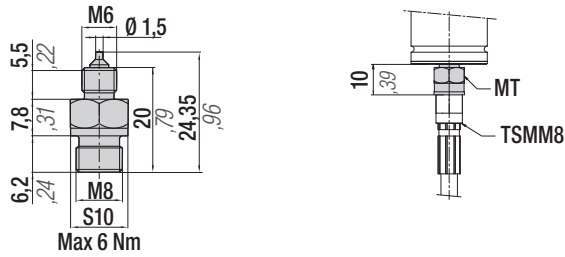




Raccordi tubo-cilindro/pannello - Hose-cylinder/panel connections - Anschlüsse zwischen schlauch und Zylinder/Kontrollarmatur - Raccords tuyau-cylindre/tableau - Conexiones sistema de cilindros/panel - Racord tubo-cilindro/panel

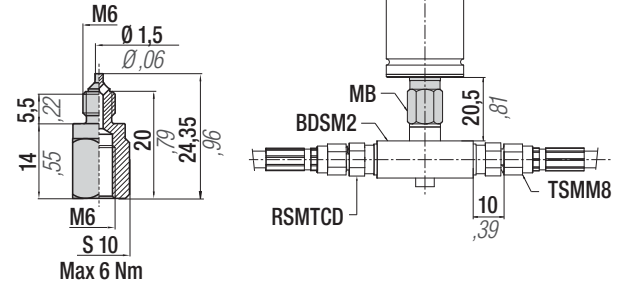
### code MT

(only M series, RV 170 - 320 rev.B)



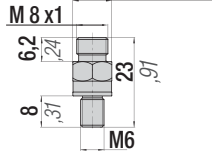
### code MB

(only M series, RV 170 - 320 rev.B)

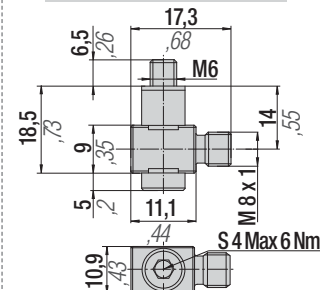


### code RSMTCD

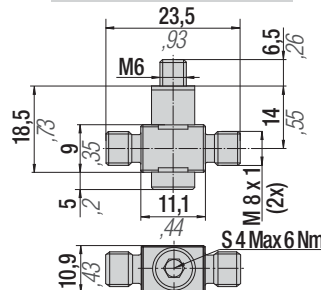
S 10 Max 6 Nm



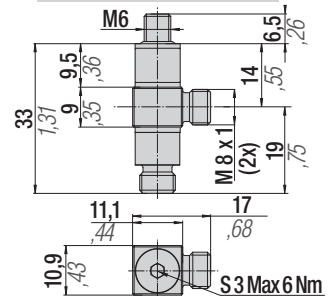
### code 36M08A



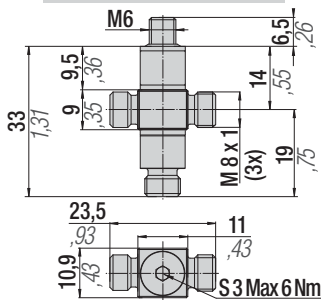
### code 36M09A



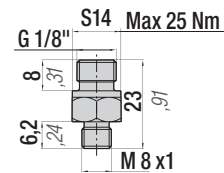
### code 36M10A



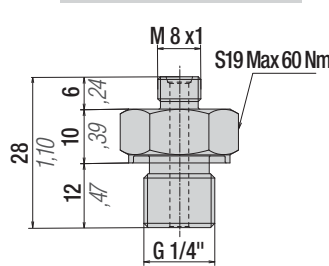
### code 36M11A



### code RSMPD

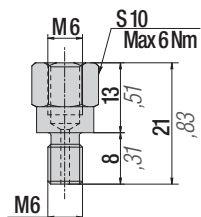


### code 36M03A

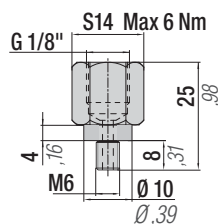


Raccordi di derivazione - Offtake connections - Anschlußstutzen - Raccords de dérivation - Racores - Racord de derivação

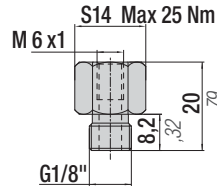
### code 36M02A



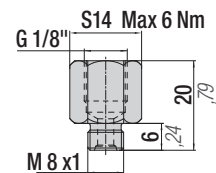
### code 36M04A



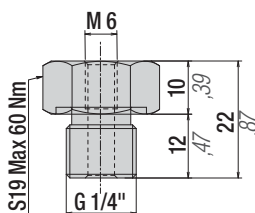
### code 36MTC



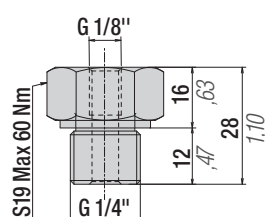
### code 36MTR



### code 36M01A



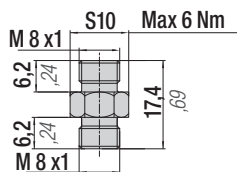
### code 36M12A



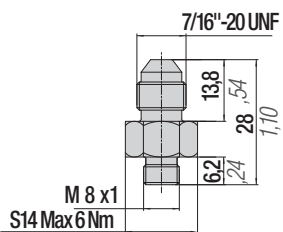
All dimensions in mm/inch

Raccordi tubo-tubo - Hose-hose connections - Anschlüsse zwischen Schlauch und Schlauch - Raccords tuyau-tuyau - Conexiones de tubo a tubo - Racord tubo-tubo

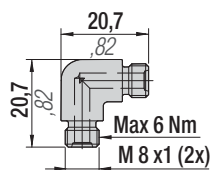
**code 36MTTD**



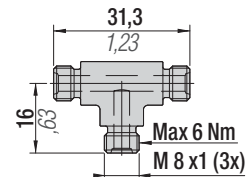
**code 36RTTJM**



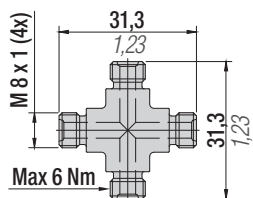
**code 36M05A**



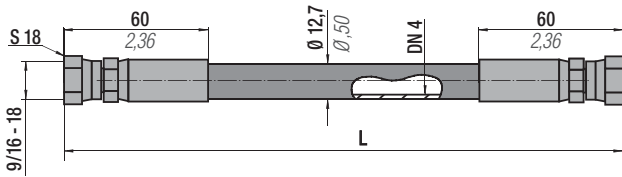
**code 36M06A**



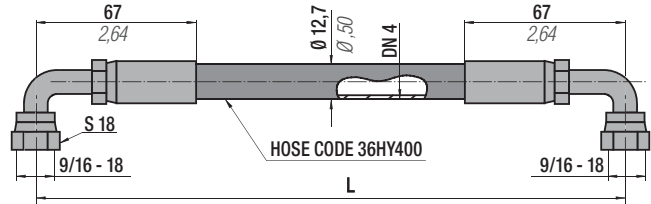
**code 36M07A**



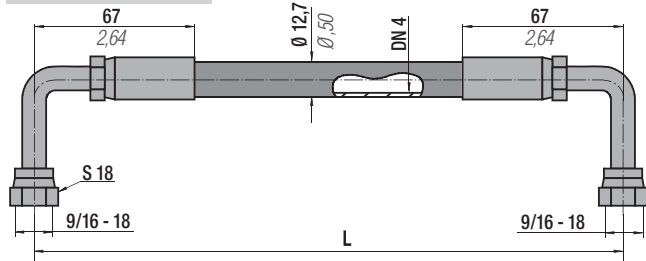
code 36HY40001...



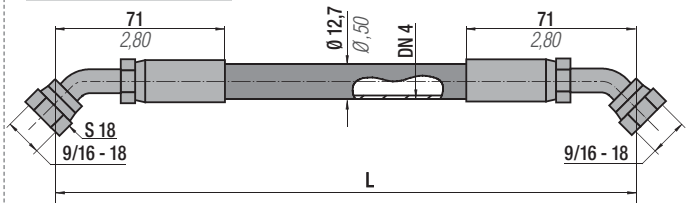
code 36HY40002...



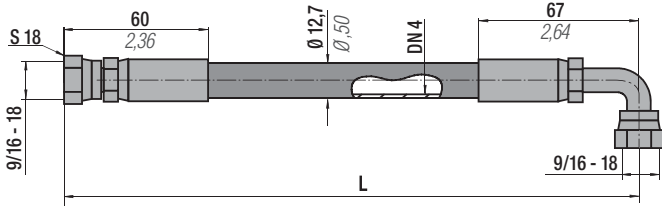
code 36HY40003...



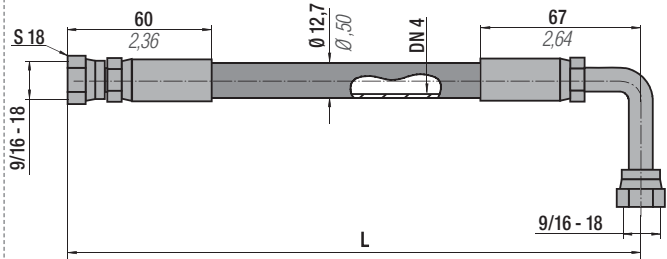
code 36HY40004...



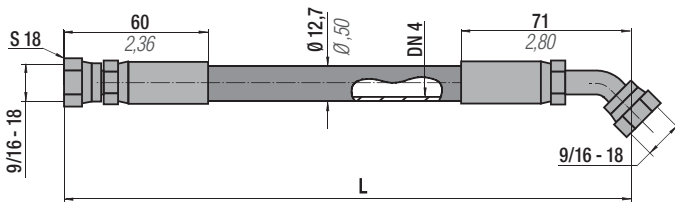
code 36HY40005...



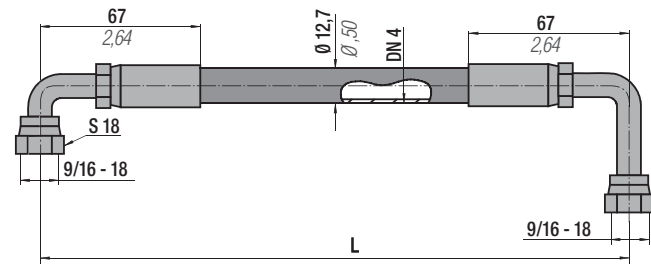
code 36HY40006...



code 36HY40007...



code 36HY40008...



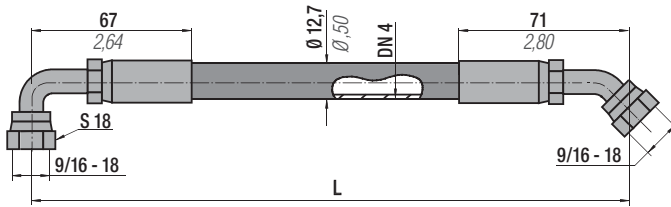
Technical data				
"L" min	255 mm	10,0 in	Volume	32 ml/metre
Operation pressure	345 bar	5003 psi	Dimension	1/4" (external Ø 12,7 mm)
Burst Pressure	1380 bar at 20°C	20010 psi at 68°F	Material	Thermoplastic
R (bending radius)	51 mm	2,01 in	Standard	SAE 100R8
Operation temperature	-40+ 100°C	-38+212°F	Outer casing	Perforated



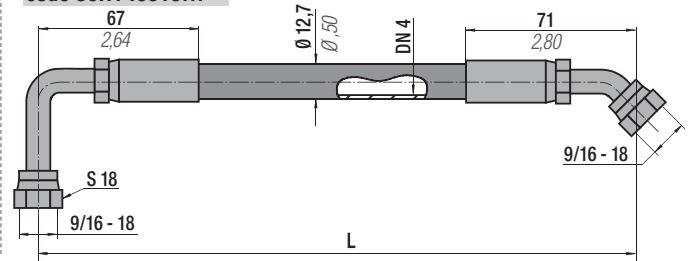
Lunghezza richiesta comprensiva di raccordi terminali  
Length upon request including end hose fittings  
Länge Anfrage einschließlich Ende Schlaucharmaturen  
Longueur requise, y compris des raccords d'extrémité  
Longitud requerida, incluyendo accesorios de los extremos  
Comprimento necessário incluindo todos os acessórios

standard L = 255 mm min. - 10 mm upword increase - Example (36HY40001 0300; 36HY40001 0305; ...)

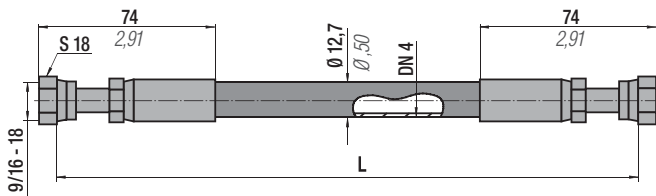
code 36HY40009...



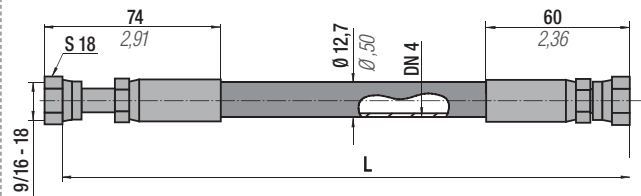
code 36HY40010...



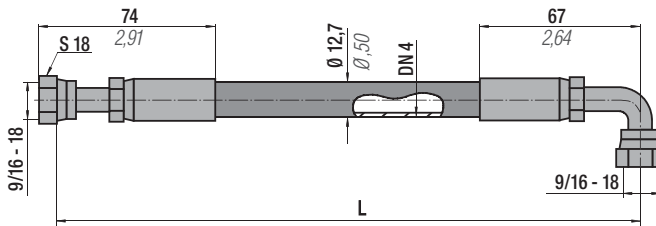
code 36HY40011...



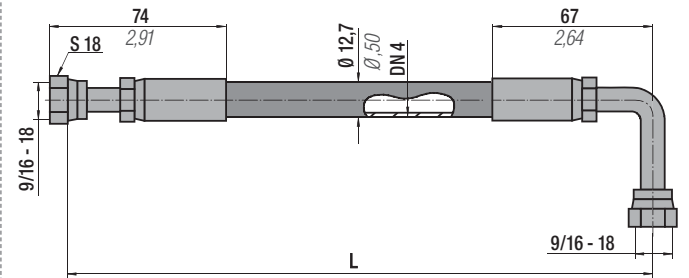
code 36HY40012...



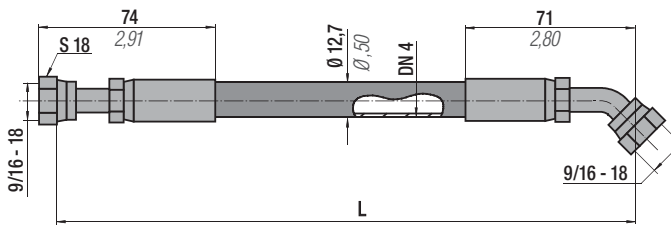
code 36HY40013...



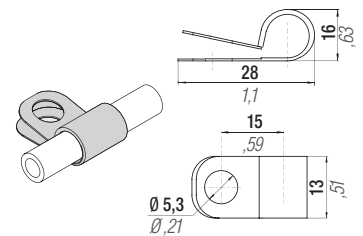
code 36HY40014...



code 36HY40015...



code: 36FF13A



Technical data				
"L" min	255 mm	10,0 in	Volume	32 ml/metre
Operation pressure	345 bar	5003 psi	Dimension	1/4" (external Ø 12,7 mm)
Burst Pressure	1380 bar at 20°C	20010 psi at 68°F	Material	Thermoplastic
R (bending radius)	51 mm	2,01 in	Standard	SAE 100R8
Operation temperature	-40+ 100°C	-38 +212°F	Outer casing	Perforated

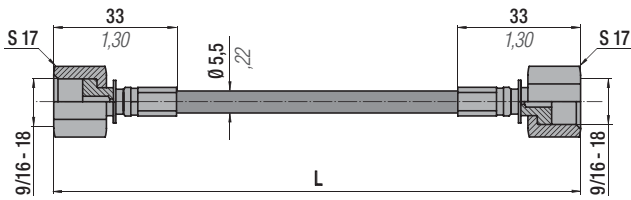


Lunghezza richiesta comprensiva di raccordi terminali  
 Length upon request including end hose fittings  
 Länge Anfrage einschließlich Ende Schlaucharmaturen  
 Longueur requise, y compris des raccords d'extrémité  
 Longitud requerida, incluyendo accesorios de los extremos  
 Comprimento necessário incluindo todos os acessórios

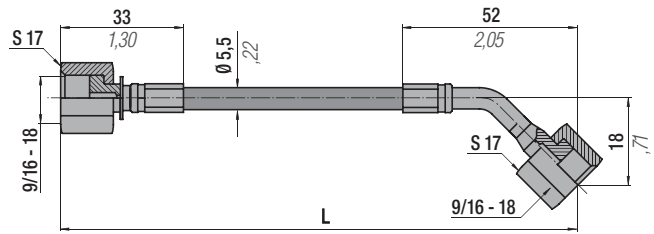
standard L = 255 mm min. - 10 mm upword increase - Example (36HY40001 0300; 36HY40001 0305; ...)



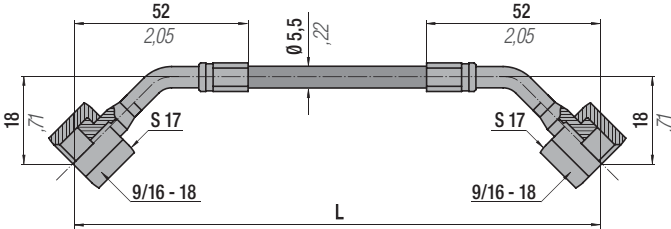
code 36TSM9/1601...



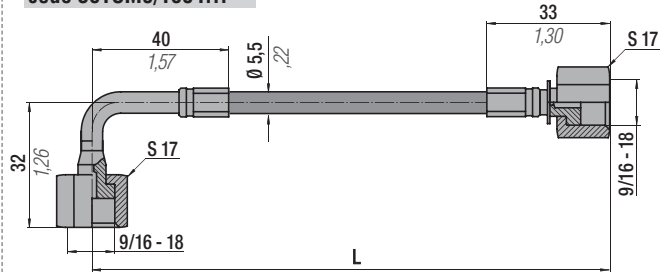
code 36TSM9/1602...



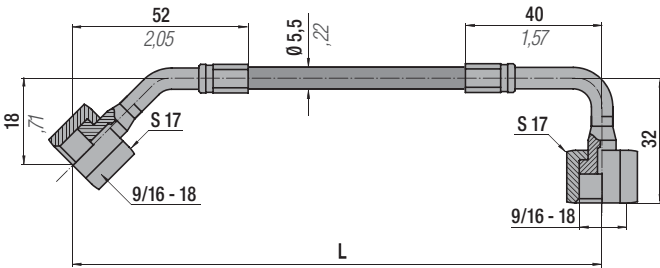
code 36TSM9/1603...



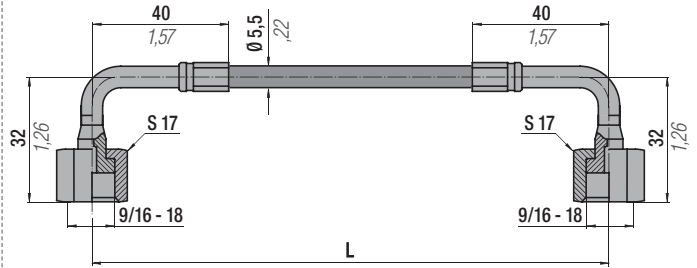
code 36TSM9/1604...



code 36TSM9/1605...



code 36TSM9/1606...



**Technical data**

"L" min	90 mm	3,54 in	Volume	3 ml/metre
Operation pressure	630 bar	9135 psi	Dimension	5/64" (external ø 5,5 mm)
Burst Pressure	1890 bar at 20°C	27400 psi at 68°F	Material	Thermoplastic
R (bending radius)	20 mm	0,79 in	Standard	-
Operation temperature	-40+ 100°C	-38+212°F	Outer casing	Perforated

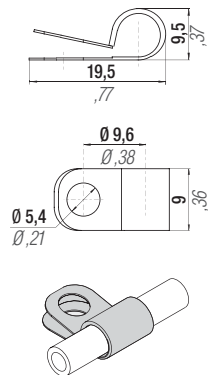


Lunghezza richiesta comprensiva di raccordi terminali  
Length upon request including end hose fittings  
Länge Anfrage einschließlich Ende Schlaucharmaturen

Longueur requise, y compris des raccords d'extrémité  
Longitud requerida, incluyendo accesorios de los extremos  
Comprimento necessário incluindo todos os acessórios

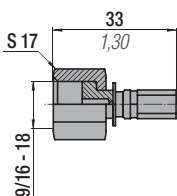
standard L = 90 mm min. - 10 mm upward increase - Example (36TSM9/1601 0300; 36TSM9/1605 0310; ...)

code: 36FF06A

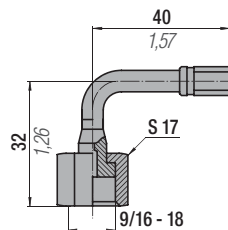


**HOSE FITTINGS**

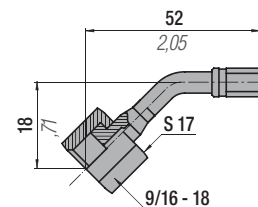
code 36P9/1601



code 36P9/1602



code 36P9/1603



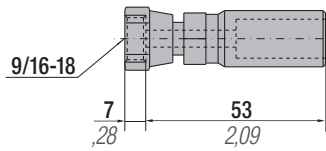
All dimensions in mm/inch



Raccordi tubo - Hose connections - Schlauchanschlüsse - Raccords tuyau - Conexiones tubo - Racordes tubo

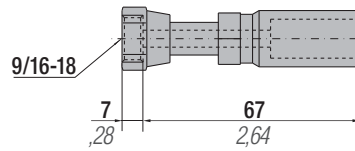
**code S-F**

Straight Swivel



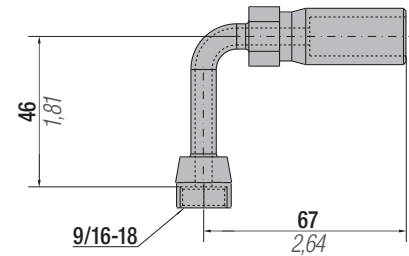
**code S-FL**

Straight Long Swivel



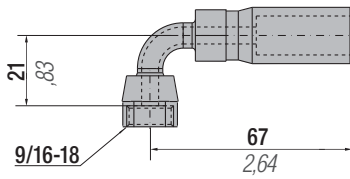
**code H-F90L**

90° Long Swivel



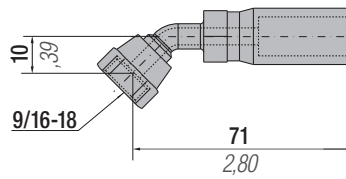
**code H-F**

90° Swivel



**code H-F45**

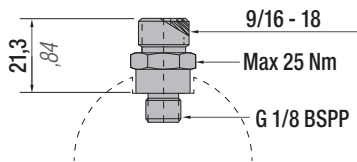
45° Swivel



Raccordi tubo-cilindro/pannello - Hose-cylinder/panel connections - Anschlüsse zwischen schlauch und Zylinder/Kontrollarmatur - Raccords tuyau-cylindre/tableau - Conexiones sistema de cilindros/panel - Racord tubo-cilindro/panel

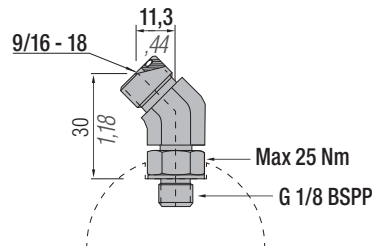
**code PA-S**

Port Adapter - Straight



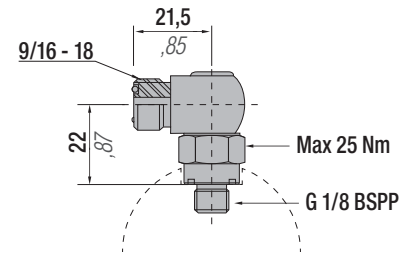
**code PA-AS**

Port Adapter - Angle Swivel



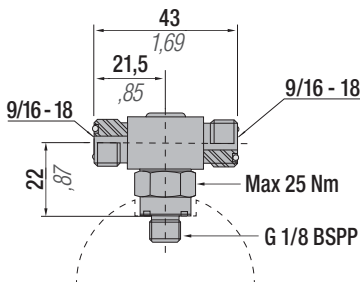
**code PA-E**

Port Adapter - Elbow



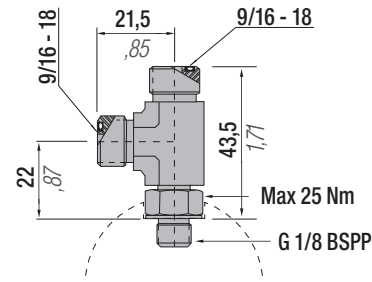
**code PA-BTS**

Port Adapter - Branch Tee Swivel



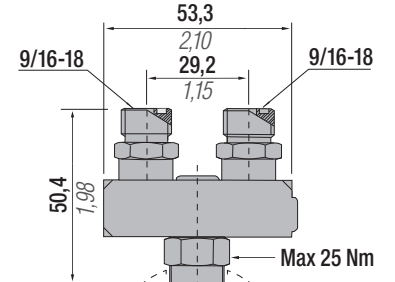
**code PA-RT**

Port Adapter - Rurn Tee



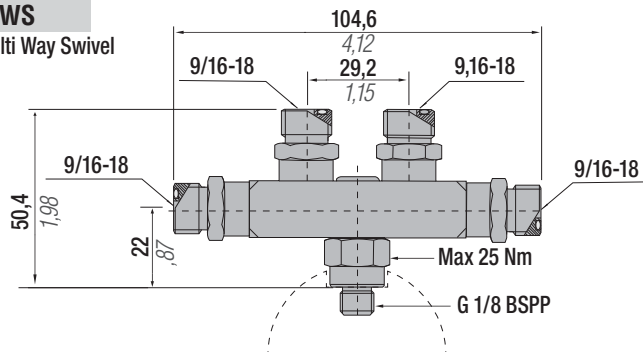
**code PA-TWS**

Port Adapter - Two Way Swivel

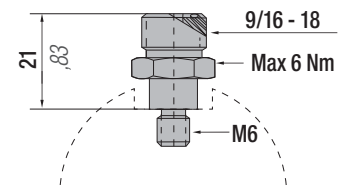


**code PA-MWS**

Port Adapter - Multi Way Swivel



**code PA-M6**

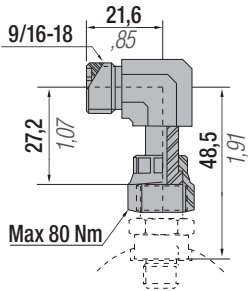


All dimensions in mm/inch

Raccordi di derivazione - Offtake connections - Anschlußstutzen - Raccords de dérivation - Racores - Racord de derivação

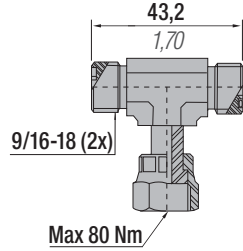
### code SN-A

Swivel Nut-Angle



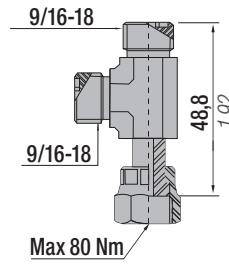
### code SN-BT

Swivel Nut-Branch Tee



### code SN-RT

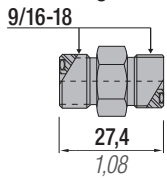
Swivel Nut-Run Tee



Raccordi tubo-tubo - Hose-hose connections - Anschlüsse zwischen Schlauch und Schlauch - Raccords tuyau-tuyau - Conexiones de tubo a tubo - Racord tubo-tubo

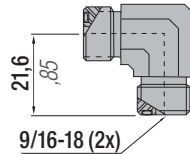
### code F-U

Fitting-Union



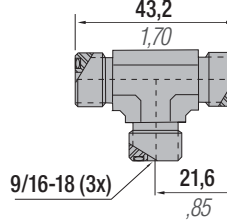
### code F-E

Fitting-Elbow



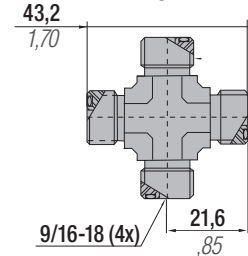
### code F-T

Fitting-Tee



### code F-C

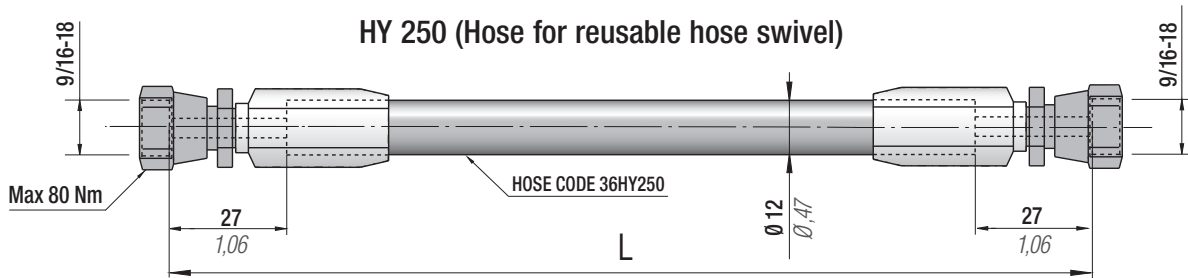
Fitting-Cross



## HY 250

## ORFS - O-ring face seal Hose Ø 12 mm

(available in the North America market only)



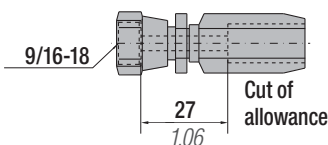
Technical data				
"L" min	254 mm	10,0 in	Volume	31 ml/metre
Operation pressure	190 bar	2750 psi	Dimension	1/4" (external Ø 12 mm)
Burst Pressure	758 bar at 20°C	11000 psi at 68°F	Material	Thermoplastic
R (bending radius)	38 mm	1,5 in	Standard	SAE 100R7
Operation temperature	-40+ 100°C	-38 +212°F	Outer casing	Perforated

standard L = 254 mm min. - Example(3) (36HY40005 12"(305); Length upon request including end hose fittings

## REUSABLE HOSE SWIVELS

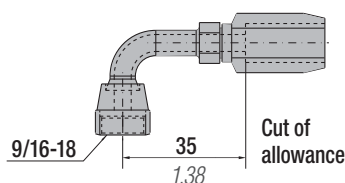
### code SHF-R

Straight Swivel



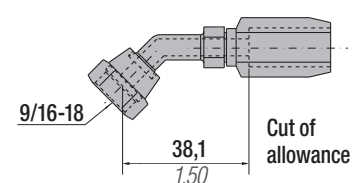
### code HF-R90

90° Swivel



### code HF-R45

45° Swivel



All dimensions in mm/inch



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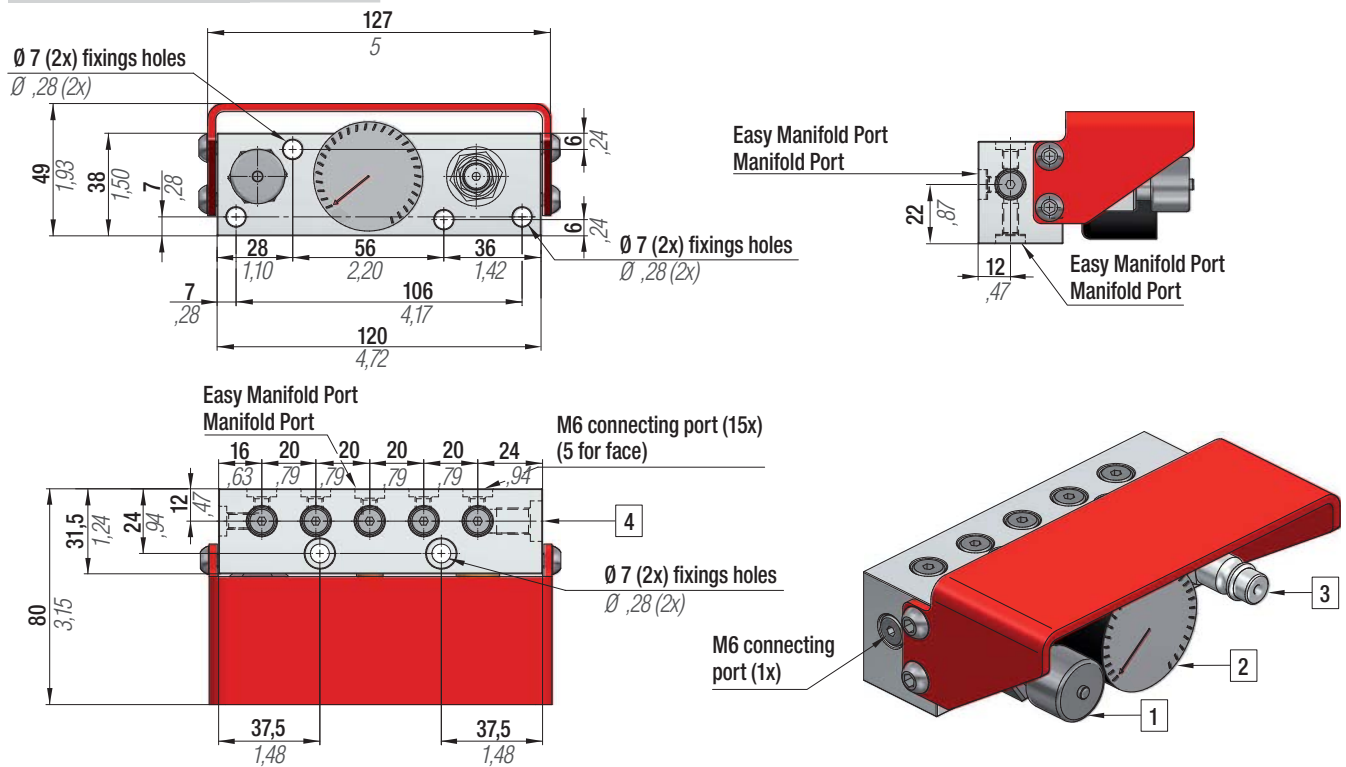
# CONTROL PANEL CP01A

## Easy Manifold compatible



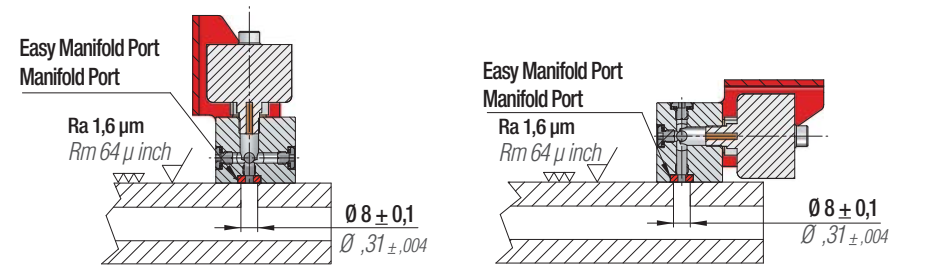
- I** Micro pannello di controllo composto da base in alluminio, manometro, valvola per caricamento e scaricamento, tappo di rottura sovrappressione e protezione in acciaio. Idoneo per le gestione di impianti collegati realizzati con micro hose e micro connections. 16 uscite M6.
- GB** Micro control panel with aluminium base, gauge, charging and discharging valve, overpressure rupture plug and steel protection. Suitable for hose systems equipped with micro hose and micro connections. 16 M6 ports.
- D** Micro-Kontrollarmatur mit Aluminiumsockel, Manometer, Auffüll- und Ablassventil, Überdruck Bruch Stecker und Stahlabdeckung. Geeignet für Verbundsysteme mit Micro-Kupplung und -Schläuchen. 16 M6 Anschlüsse.
- F** Mini panneau de contrôle avec base aluminium, équipé de manomètre, valve de chargement et déchargement, bouchon de rupture de surpression et protection acier ; il est adapté aux systèmes connectés équipés de mini tuyaux et mini connexions. 16 Portes M6.
- E** Micropanel de control con base en aluminio, manómetro, válvula de carga y descarga, enchufe de la ruptura de sobrepresión y protección en acero. Idóneo para la gestión de instalaciones de cilindros conectados entre sí con micro mangueras y micro conectores. 16 salidas M6.
- P** Micro Painel de Controlo com base em alumínio, manómetro, válvula de carga e descarga, plugue ruptura sobrepresão e proteção em aço. Adequado para sistemas de mangueiras, equipado com micro mangueiras e micro conexões. 16 saídas M6.

code 39CP01A      bar / psi



- |   |  |   |  |
|---|--|---|--|
| <p>1- Valvola di scarico<br/>Discharging valve<br/>Auslaßventil<br/>Valve de déchargement<br/>Válvula de desahogo<br/>Válvula de descarga</p> | <p>2- Manometro 0 - 620 bar<br/>Pressure gauge 0 - 620 bar<br/>Manometer 0 - 620 bar<br/>Manomètre 0 - 620 bar<br/>Manómetro 0 - 620 bar<br/>Manómetro 0 - 620 bar</p> | <p>3- Innesto rapido di caricamento Cejn<br/>Quick coupling for charging Cejn<br/>Steckkegel Cejn<br/>Accouplement rapide mâle Cejn<br/>Acoplamiento rápido para carga Cejn<br/>União rápida para carregamento Cejn</p> | <p>4- Tappo di rottura sovrappressione<br/>Over pressure rupture plug<br/>Überdruck Bruch Stecker<br/>Bouchon de rupture de surpression<br/>Enchufe de la ruptura de sobrepresión<br/>Plugue ruptura sobrepresão</p> |
|---|--|---|--|

### Easy Manifold mounting example



All dimensions in mm/inch

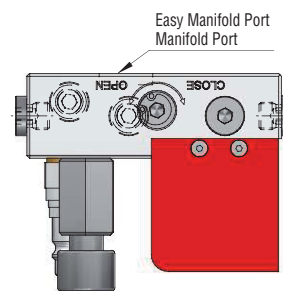
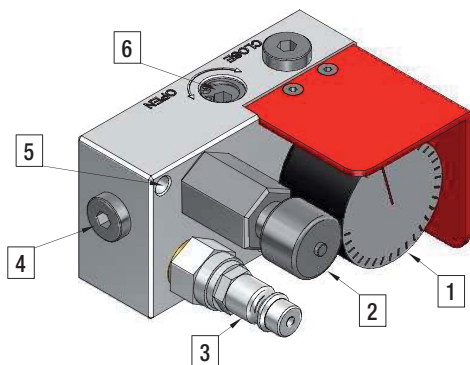
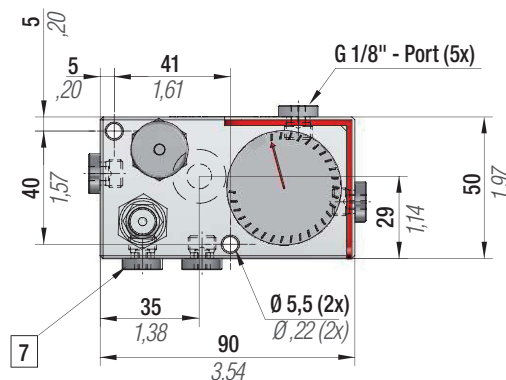
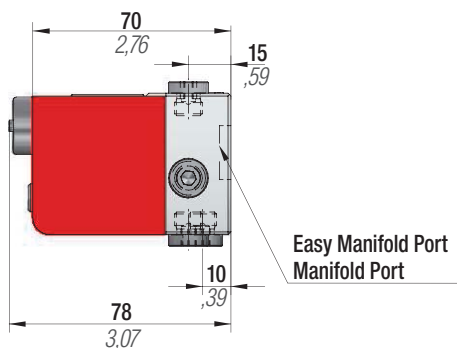


Replace code 39MCPA

# CONTROL PANEL MCPB Easy Manifold compatible

- I** Il mini pannello di controllo Special Springs, grazie a un design miniaturizzato e unico, offre una grande flessibilità d'uso che aumenta con le unità aggiuntive AUMCP. Consiste in un blocchetto di alluminio provvisto di manometro, valvola di caricamento e scaricamento, 4 uscite, valvola d'intercettazione e tappo di rottura sovrappressione.
- GB** The Special Springs mini control panel, thanks to its unique miniaturized design, offers wide flexibility of use, increased when combined with additional AUMCP units. It consists of a aluminium block with pressure gauge, charging and discharging valve, 4 outlets, on-off valve and overpressure rupture plug.
- D** Die Mini-Steuerung Special Springs bietet dank ihres miniaturisierten und einzigartigen Designs größte Benutzungsflexibilität, die mit den zusätzlichen AUMCP-Einheiten noch erhöht wird. Bestehend aus einem Aluminiumblock mit Manometer, Lade- und Entladeventil, 4 Ausgängen, Sperrventil und Überdruck Bruch Stecker.
- F** Grâce à une conception miniaturisée et unique, le mini-panneau de contrôle Special Springs offre une grande souplesse d'utilisation qui augmente avec les unités supplémentaires AUMCP. Il est formé par une plaque en aluminium équipée de manomètre, vanne de chargement et déchargement, 4 sorties, vanne d'arrêt et bouchon de rupture surpression.
- E** El mini-panel de control Special Springs, gracias a su exclusivo diseño miniaturizado, ofrece una gran flexibilidad, que aumenta con las unidades adicionales AUMCP. Consiste en una placa de aluminio con manómetro, válvula de carga y descarga, 4 salidas, válvula de interceptación y enchufe de ruptura de sobrepresión.
- P** O mini-painel de controlo Special Springs, graças a um design miniaturizado e exclusivo, oferece uma grande flexibilidade de utilização que aumenta com as unidades adicionais AUMCP. É composto por um bloco em alumínio com manómetro, válvula de carga e de descarga, 4 saídas, válvula de interceptação e plugue ruptura sobrepresão.

code 39MCPB bar / psi

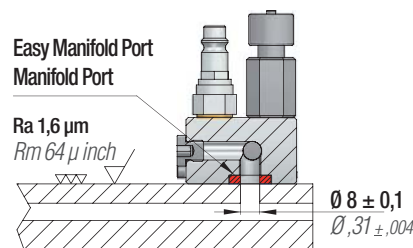


- |  |  |
|--|--|
| <p>1- Manometro 0 - 620 bar<br/>Pressure gauge 0 - 620 bar<br/>Manometer 0 - 620 bar<br/>Manomètre 0 - 620 bar<br/>Manómetro 0 - 620 bar<br/>Manómetro 0 - 620 bar</p> <p>2- Valvola di scarico<br/>Discharging valve<br/>Auslaßventil<br/>Valve de déchargement<br/>Válvula de desahogo<br/>Válvula de descarga</p> <p>3- Innesto rapido di caricamento Cejn<br/>Quick coupling for charging Cejn<br/>Steckkegel Cejn<br/>Accouplement rapide mâle Cejn<br/>Acoplamiento rápido para carga Cejn<br/>União rápida para carregamento Cejn</p> | <p>4- Fori di collegamento 1/8" G (5x)<br/>1/8" G connecting ports (5x)<br/>Anschlussöffnung 1/8" G (5x)<br/>Trous de raccordement 1/8" G (5x)<br/>Agujeros de conexión 1/8" G (5x)<br/>Furo de conexão 1/8 G (5x)</p> <p>5- Fori di fissaggio Ø 5,5 (2x)<br/>Ø 5,5 (2x) fixings holes<br/>Ø 5,5 (2x) Befestigungslöcher<br/>Trous de fixation Ø 5,5 (2x)<br/>Ø 5,5 (2x) orificios de sujeción<br/>Orificios de fixação de Ø 5,5 (2x)</p> <p>6- Valvola di intercettazione<br/>Shut off valve<br/>Sperrventil<br/>Valve d'arrêt<br/>Válvula de interceptación<br/>Válvula de fecho</p> |
|--|--|

- 7- Tappo di rottura sovrappressione  
Over pressure rupture plug  
Überdruck Bruch Stecker  
Bouchon de rupture de surpression  
Enchufe de la ruptura de sobrepresión  
Plugue ruptura sobrepresão

**new**

## Easy Manifold mounting example



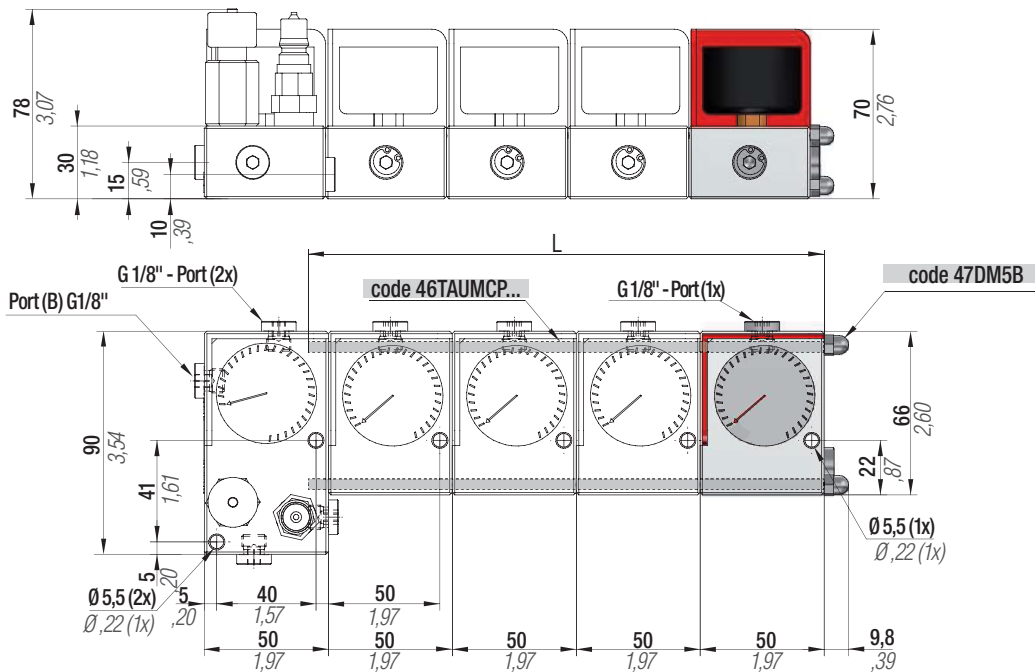
All dimensions in mm/inch

# CONTROL PANEL AUMCP

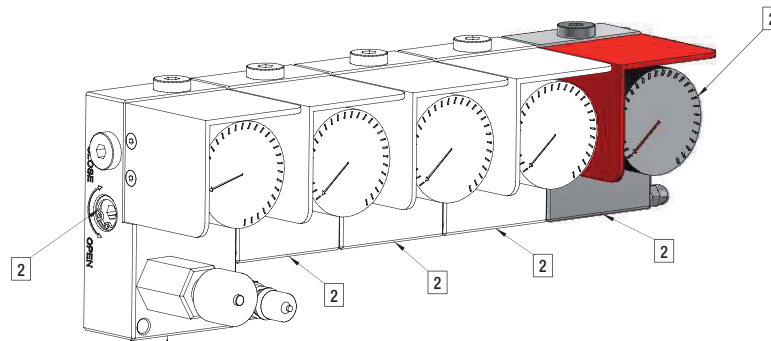


- I** Unità addizionali per minipannello MCPA. Ideali per gestire impianti o cilindri singoli con pressioni diverse nello stesso stampo. Ogni unità include un manometro, una valvola di intercettazione e 1 uscita. Combinazione massima prevista 1 MCPA + 4 AUMCP.
- GB** Additional units for the mini control panel MCPA. Ideal for operating hoses systems or single cylinders with different pressures in the same mould. Each unit includes pressure gauge, on-off valve and 1 outlet. Designed for a maximum combination of 1 MCPA + 4 AUMCP.
- D** Zusätzliche Einheiten für die Ministeuerung MCPA. Ideal zur Verwaltung von Anlagen oder einzelnen Zylindern, die beim selben Formprozess verschiedene Druckwerte aufweisen. Jede Einheit ist mit einem Manometer, einem Sperrventil und einem Ausgang ausgestattet. Maximal mögliche Kombination: 1 MCPA + 4 AUMCP.
- F** Unités supplémentaires pour le mini-panneau MCPA. L'idéal pour gérer des installations ou des cylindres seuls sous des pressions différentes dans le même moule. Chaque unité inclut un manomètre, une vanne d'arrêt et 1 sortie. Combinaison maximum prévue: 1 MCPA + 4 AUMCP.
- E** Unidades adicionales para mini-panel MCPA. Ideales para la gestión de sistemas o de cilindros aislados con presiones distintas en un mismo molde. Cada unidad incluye un manómetro, una válvula de interceptación y 1 salida. Combinación máxima prevista 1 MCPA + 4 AUMCP.
- P** Unidade adicional para mini-painel MCPA. Ideais para gerir instalações ou cilindros individuais com pressões diferentes na mesma ferramenta. Cada unidade inclui um manómetro, uma válvula de intercepção e 1 saída. Combinação máxima prevista 1 MCPA + 4 AUMCP.

code 39AUMCP      bar / psi



- 1- Manometro 0 - 620 bar  
Pressure gauge 0 - 620 bar  
Manometer 0 - 620 bar  
Manomètre 0 - 620 bar  
Manómetro 0 - 620 bar  
Manómetro 0 - 620 bar
- 2- Valvola di intercettazione  
Shut off valve  
Sperrventil  
Valve d'arrêt  
Válvula de interceptación  
Válvula de fecho

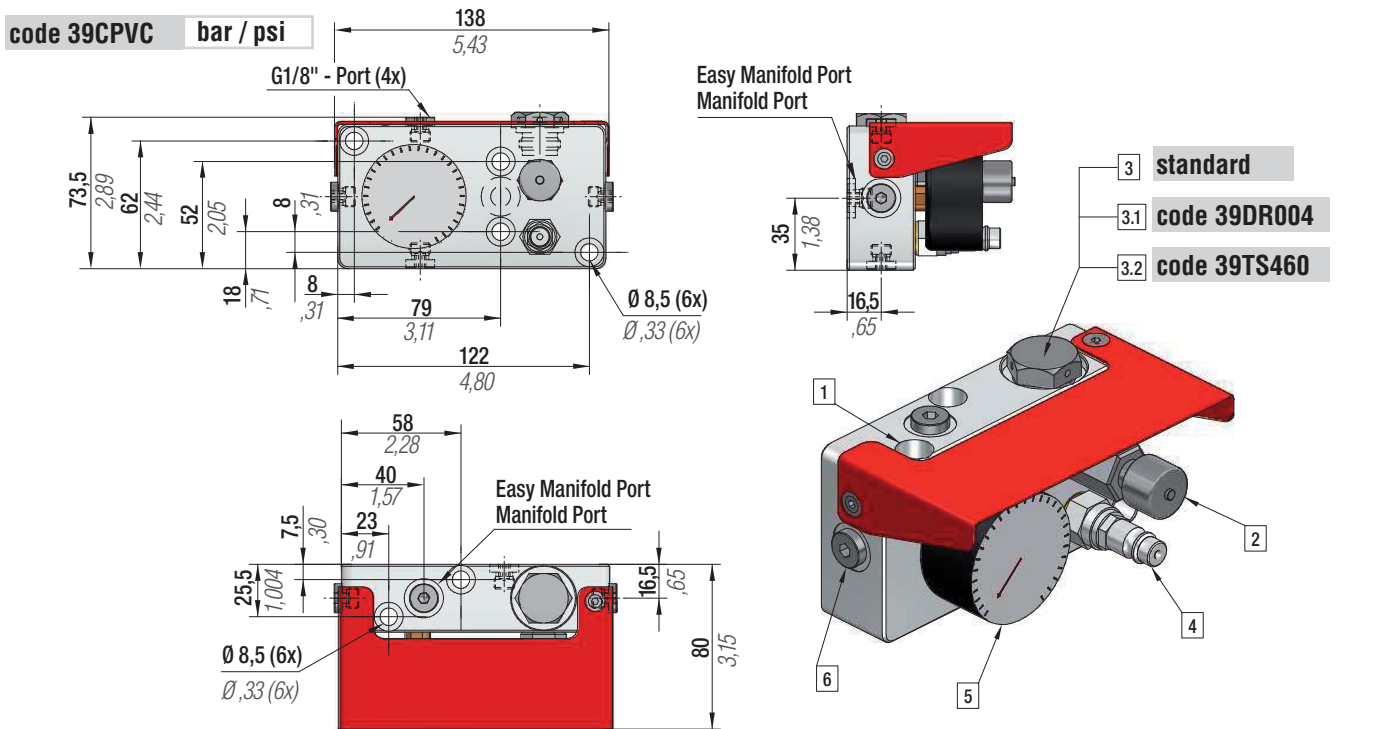


Ordering	Code	Q.ty	L	
(1) MCPA + (1) AUMPC	46TAUMCP01	2	65	2,56
(1) MCPA + (2) AUMPC	46TAUMCP02	2	115	4,53
(1) MCPA + (3) AUMPC	46TAUMCP03	2	165	6,5
(1) MCPA + (4) AUMPC	46TAUMCP04	2	215	8,46

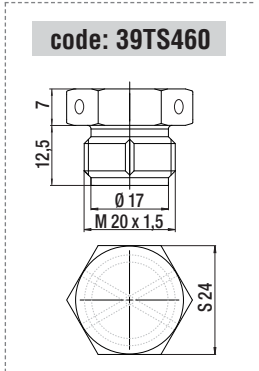
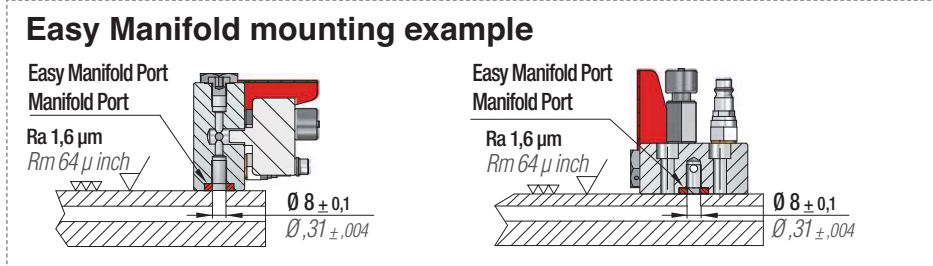
All dimensions in mm/inch

Ordering example: (1) MCPA + (4) AUMPC

- I** Pannello standard per caricamento, regolazione, scaricamento e controllo della pressione nel sistema collegato. Consiste in una base provvista di manometro, valvola di caricamento e scaricamento, 3 uscite, protezione in acciaio. Può essere equipaggiato con disco di rottura (opzionale).
- GB** Standard control panel to charge, adjust and check the pressure in the connected system. It consists of a plate with pressure gauge, charging and discharging valve, 3 outlets, steel case and can be equipped with a rupture disc (optional).
- D** Standard-Schalttafel zur Ladung, Regulierung, Entladung und Kontrolle des Drucks im angeschlossenen System. Bestehend aus einer Basis mit Manometer, Lade- und Entladeventil, 3 Ausgängen sowie Schutz aus Stahl. Kann mit einer Berstscheibe ergänzt werden (Zubehör).
- F** Panneau standard pour le chargement, le réglage, le déchargement et le contrôle de la pression dans le système relié. Il est formé par une embase équipée de manomètre, vanne de chargement et déchargement, 3 sorties, protection en acier. Il peut être équipé d'un disque de rupture (option).
- E** Panel standard para la carga, regulación, descarga y control de la presión en sistemas de cilindros conectados. Consiste en una base con un manómetro Válvula de carga y descarga, 3 salidas, protección en acero. Puede equiparse con disco de ruptura (opcional).
- P** Painel standard para carga, regulação, descarga e controlo da pressão no sistema ligado. É composto por uma base com manómetro. Válvula de carga e de descarga, 3 saídas, protecção em aço. Pode ser equipado com disco de rotura (opcional).



- 1- Fori di fissaggio Ø 8,5 (6x)  
Ø 8,5 (6x) fixing holes  
Ø 8,5 (6x) Befestigungslöcher  
Trous de fixation Ø 8,5 (6 x)  
Ø 8,5 (6x) orificio de sujeción  
Orificios de fixação de Ø 8,5 (6x)
- 2- Valvola di scarico  
Discharging valve  
Auslaßventil  
Valve de déchargement  
Válvula de desahogo  
Válvula de descarga
- 3- STANDARD - M 20  
Tappo di chiusura  
Port plug  
Stecker  
Bouchon  
Enchufe  
Plugue
- 3.1- OPTION - M 20  
Tappo di rottura sovrappressione  
Over pressure rupture plug  
Überdruck Bruch Stecker  
Bouchon de rupture de surpression  
Enchufe de ruptura de sobrepresión  
Plugue ruptura sobrepresão
- 3.2- OPTION - M 20 (460 bar)  
Tappo di sicurezza sovrappressione CE  
Overpressure safety plug CE  
Überdruck Sicherheitsstecker CE  
Bouchon de sécurité surpression CE  
Enchufe de seguridad sobrepresion CE  
Bujão de segurança sobrepresão CE
- 4- Innesto rapido per caricamento Cejn  
Quick coupling for charging Cejn  
Steckkegel Cejn  
Accouplement rapide mâle Cejn  
Acoplamiento rápido para carga Cejn  
União rápida para carregamento Cejn
- 5- Manometro 0 - 620 bar  
Pressure gauge 0 - 620 bar  
Manômetor 0 - 620 bar  
Manomètre 0 - 620 bar  
Manómetro 0 - 620 bar  
Manômetro 0 - 620 bar
- 6- Fori di collegamento 1/8"G (4x)  
1/8"G connecting ports (4x)  
Anschlussöffnung 1/8"G (4x)  
Trous de raccordement 1/8"G (4x)  
Agujeros de conexión 1/8"G (4x)  
Furo de conexão 1/8"G (4x)



All dimensions in mm/inch

# CONTROL PANEL CP02A / CP08A / CP11A (FORD and GM North America die Standard)

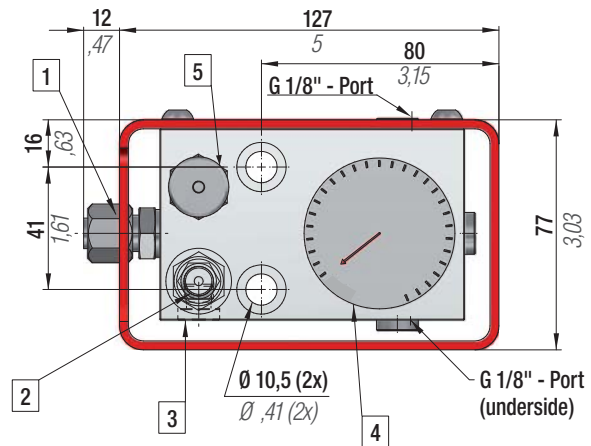
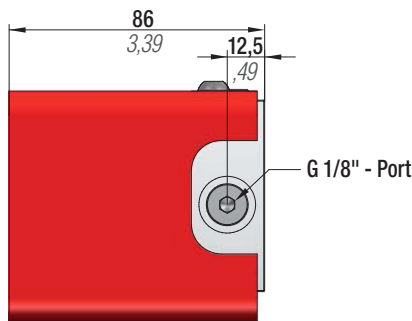


- I** Pannello di controllo secondo standard Ford e GM Nord America. Base in alluminio provvista di manometro, valvola di caricamento e scaricamento, adattatore 9/16-18 UNF ORFS, tappo di rottura sovrappressione e protezione in acciaio. 3 uscite G1/8" per gestione sistemi collegati.
- GB** Control panel according to Ford and GM North America standards. Made up of aluminium base. Gauge, charging and discharging valve, 9/16-18 UNF ORFS adapter, over pressure rupture plug and steel protection. 3 ports G1/8".
- D** Kontrollarmatur gem. Ford und GM North America Normen. Aufgebaut auf Aluminiumsockel. Manometer, Auffüll- und Ablassventil, 9/16-18 UNF ORFS Adapter, Überdruck Bruch Stecker und Stahlabdeckung. 3 G1/8" Anschlüsse.
- F** Panneau de contrôle selon les standards Ford et GM, Amérique du Nord, base en aluminium. Manomètre, valve de chargement et déchargement, adaptateur 9/16-18 UNF ORFS, Bouchon de rupture de surpression et protection acier, 3 ports G1/8".
- E** Panel de control según standard Ford y GM Norte America. Base de aluminio con manómetro, válvula de carga y descarga, adaptador 9/16-18 UNF ORFS, Enchufe de ruptura de sobrepresión y protección en acero. 3 salidas G1/8" para sistemas de cilindros conectados.
- P** Painel de controlo de acordo com os Standards Ford e GM América do Norte. Fabricado a partir de uma base de alumínio, manómetro, válvula de carga e descarga, adaptador ORFS 9/16-18 UNF, Plugue ruptura sobrepresão e protecção em aço. 3 saídas G1/8" para sistemas de gestão relacionados.

code 39CP02A      bar / psi

code 39CP08A      bar / MPa      ■

code 39CP11A without over pressure rupture plug      bar / psi      ■



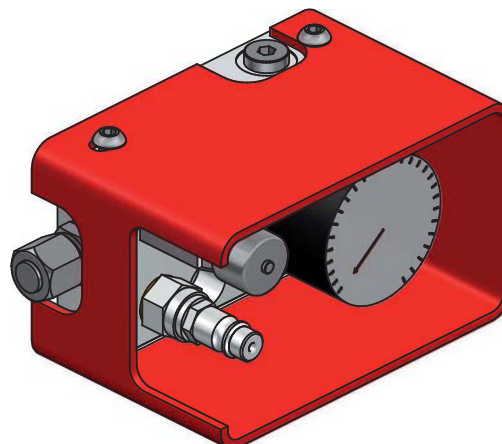
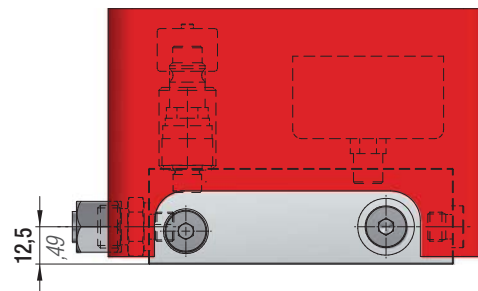
- 1- Adattatore tenuta frontale 9/16 - 18 UNF  
O-Ring Face Seal Adapter 9/16 - 18 UNF  
O-ring-Dichtung Adapter 9/16 - 18 UNF  
Joint torique adaptateur 9/16-18 UNF  
O-ring face seal adapter 9/16 - 18 UNF  
Adaptador de vedação frontal 9/16 - 18 UNF

- 5- Valvola di scarico  
Discharging valve  
Auslaßventil  
Valve de décharg ment  
Válvula de desahogo  
Válvula de descarga

- 2- Innesto rapido di caricamento Cejn  
Quick coupling for charging Cejn  
Steckkegel Cejn  
Accouplement rapide mâle Cejn  
Acoplamiento rápido para carga Cejn  
União rápida para carregamento Cejn

- 3- Tappo di rottura sovrappressione  
Over pressure rupture plug  
Überdruck Bruch Stecker  
Bouchon de rupture de surpression  
Enchufe de la ruptura de sobrepresión  
Plugue ruptura sobrepresão

- 4- Manometro 0 - 620 bar  
Pressure gauge 0 - 620 bar  
Manometer 0 - 620 bar  
Manomètre 0 - 620 bar  
Manómetro 0 - 620 bar  
Manómetro 0 - 620 bar



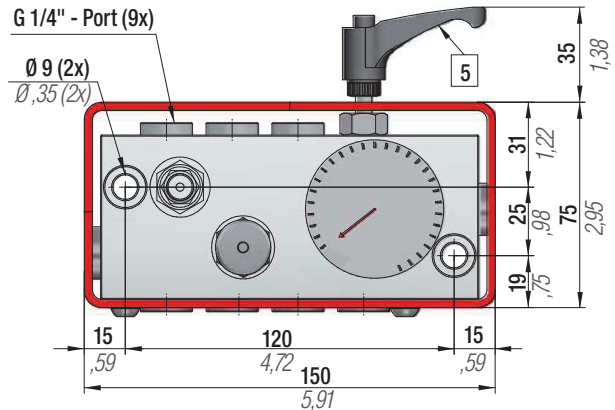
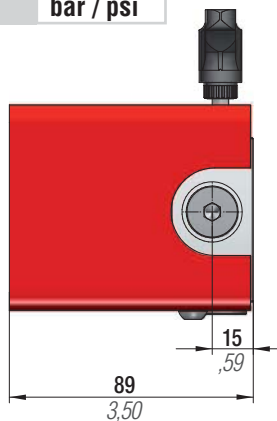
All dimensions in mm/inch



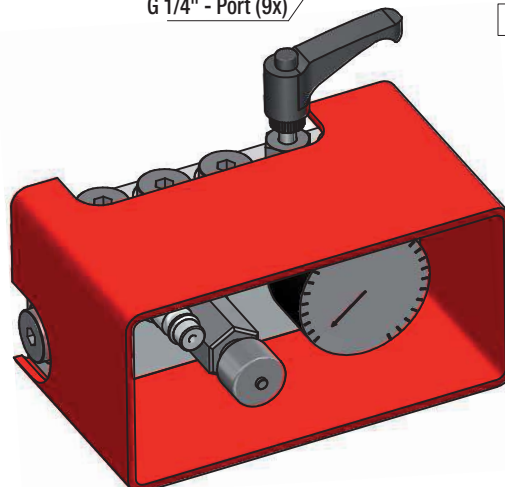
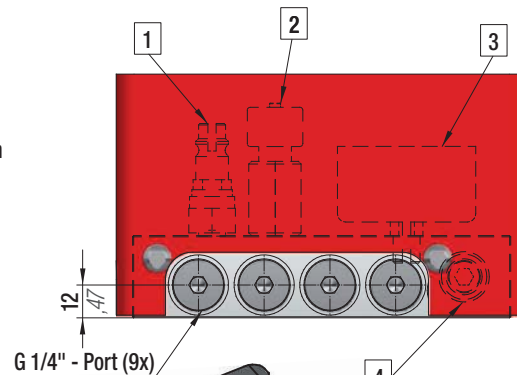
- I** Pannello di controllo con base in alluminio provvisto di manometro con valvola di intercettazione (shut-off valve), valvola di caricamento e scaricamento, tappo di rottura sovrappressione, protezione in acciaio, 9 uscite da 1/4" gas per gestione sistemi collegati. La valvola di intercettazione protegge il manometro dalla pressione pulsante durante il normale funzionamento. Per controllare e regolare la pressione dell'impianto bisogna aprire la valvola di intercettazione del manometro.
- GB** Control panel with aluminium base, gauge with shut-off valve, charging and discharging valve, over pressure rupture plug, steel protection. 9 G1/4" ports for hose systems managing. With shut-off valve closed the gauge is protected from pulsating pressure during operation. For checking and adjusting the pressure the interception valve on the gauge must be opened.
- D** Kontrollarmatur mit Aluminiumsockel, Manometer mit Sperrventil, Auffüll- und Ablassventil, Überdruck Bruch Stecker und Stahlabdeckung. 9 G1/4" Anschlüsse zur Steuerung der Verbundsysteme. Das Schließen des Manometers mit dem Sperrventil schützt vor Druckschwankungen während des Arbeitsgangs. Zum Prüfen und Einstellen des Drucks muss das Sperrventil am Manometer geöffnet sein.
- F** Panneau de contrôle avec embase aluminium, équipé de manomètre à valve d'arrêt, valve de chargement et déchargement, bouchon de rupture de surpression et protection acier. Ports 9 G1/4" pour gestion de la connectique. Lorsque la valve d'arrêt est fermée, le manomètre est protégé des vibrations dues à la pression durant les opérations. Pour contrôler et ajuster la pression, il convient d'ouvrir la valve d'interception au niveau du manomètre.
- E** Panel de control con base de aluminio, manómetro con válvula de interceptación (shut-off valve), válvula de carga y descarga, enchufe de ruptura de sobrepresión protección en acero. 9 salidas G1/4" para gestión de sistemas interconectados. Con válvula de interceptación cerrada el manómetro está protegido desde el pico de presión durante un funcionamiento normal. Para controlar y regular la presión abrir la válvula de interceptación del manómetro.
- P** Painel de Controlo com base em alumínio, manómetro com válvula de obturação, plugue ruptura sobrepresão e proteção em aço. 9 furos\* G1/4" para uso de sistemas de mangueiras. Com a válvula de obturação fechada fica protegido das pressões existentes durante a operação. Para verificar e ajustar a pressão, a válvula de intercepção no manómetro tem que estar aberta.

code 39CP03A

bar / psi



- 1- Innesto rapido di caricamento Cejn  
Quick coupling for charging Cejn  
Steckkegel Cejn  
Accouplement rapide mâle Cejn  
Acoplamiento rápido para carga Cejn  
União rápida para carregamento Cejn
- 2- Valvola di scarico  
Discharging valve  
Auslaßventil  
Valve de déchargement  
Válvula de desahogo  
Válvula de descarga
- 3- Manometro 0 - 620 bar  
Pressure gauge 0 - 620 bar  
Manometer 0 - 620 bar  
Manomètre 0 - 620 bar  
Manómetro 0 - 620 bar  
Manómetro 0 - 620 bar
- 4- Tappo di rottura sovrappressione  
Over pressure rupture plug  
Überdruck Bruch Stecker)  
Bouchon de rupture de surpression  
Enchufe de la ruptura de sobrepresión  
Plugue ruptura sobrepresão
- 5- Valvola di intercettazione  
Shut off valve  
Sperrventil  
Valve d'arrêt  
Válvula de interceptación  
Válvula de fecho



All dimensions in mm/inch

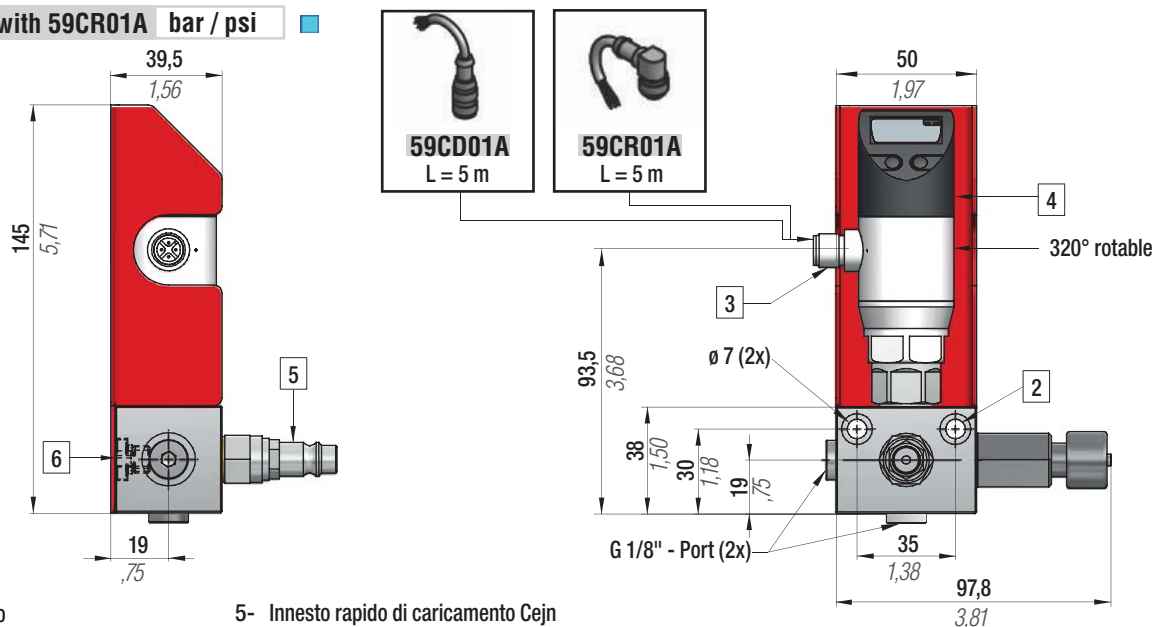
# CONTROL PANEL CP06A / CP09A



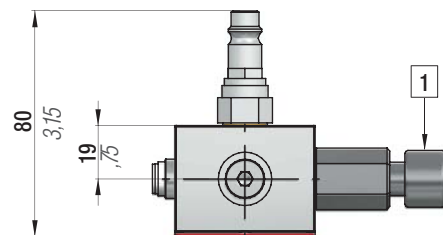
- I** Pannello di controllo con base in alluminio provvisto di sensore di pressione con display digitale , valvola di caricamento e scaricamento, tappo di rottura sovrappressione, protezione in acciaio, 2 uscite da 1/8" gas per gestione sistemi collegati. Collegando direttamente il sensore di pressione al controllo pressa è possibile impostare un range di lavoro desiderato al di fuori del quale il dispositivo invierà un segnale di allarme.
- GB** Control panel with aluminium base, equipped with pressure sensor with digital display, charging and discharging valve, over pressure rupture plug, steel protection and two 1/8" gas outlets for hose system managing. By connecting directly the pressure sensor with the Press control unit, it is possible to set a desired working range, outside this value, the controll unit will send an alarm signal.
- D** Kontrollarmatur mit Aluminiumsockel, ausgestattet mit Drucksensor aus digitaler Display, auffüll- und Ablassventil, Überdruck Bruch Stecker, Stahlabdeckung und zwei 1/8" Anschlüsse zur Steuerung der Verbundsysteme. Bei der direkten Verbindung des Drucksensors mit Pressesteuerung es ist möglich eine erwünschte Arbeitsreichweite anzulegen, außerhalb diese Wert wird der Steuerung ein Alarm Signal zu senden.
- F** Panneau de contrôle avec embase en aluminium, équipé de senseur de pression à écran numérique, valve de chargement-déchargement, Bouchon de rupture de surpression, protection en acier et deux sorties 1/8 gaz pour la gestion des systèmes connectés. En reliant directement le senseur de pression au système de gestion de la presse on peut établir un éventail désiré des valeurs de travail, au dehors de ces valeurs, le dispositif émettra un signal d'alarme.
- E** Panel de control con base de aluminio, provisto de sensor de presión con display digital, válvula de carga y descarga, Enchufe de ruptura de sobrepresión, protección en acero, 2 salidas de 1/8" gas para gestión de sistemas conectados. Conectando directamente el sensor de presión al control de la prensa es posible determinar unos rangos de trabajo, fuera de los cuales el dispositivo envía una señal de alarma.
- P** Painel de controlo com base de alumínio, equipado com sensor de pressão digital, válvula de carga e descarga, Plugue ruptura sobrepresão, sistema de protecção de aço e duas tomadas de 1/8" gas para ligação a mangueiras. ao ligar directamente o sensor de pressão com a unidade de controlo, é possível definir o funcionamento desejado, fora destes valores, a unidade de controlo envia um sinal de alarme.

code 39CP06A with 59CD01A bar / psi

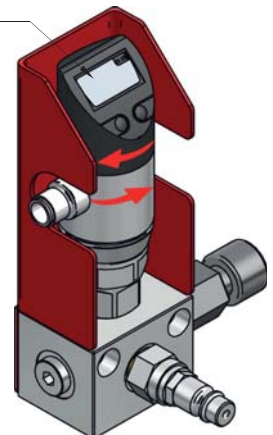
code 39CP09A with 59CR01A bar / psi



- 1- Valvola di scarico  
Discharging valve  
Auslaßventil  
Valve de déchargement  
Válvula de desahogo  
Válvula de descarga
- 2- Fori di fissaggio  $\varnothing 7$  (2x)  
 $\varnothing 7$  (2x) fixing holes  
 $\varnothing 7$  (2x) Befestigungslöcher  
Trous de fixation  $\varnothing 7$  (2 x)  
 $\varnothing 7$  (2x) orificio de sujeción  
Orifícios de fixação de  $\varnothing 7$  (2x)
- 3- Connettore elettrico M12 4-pin 320° ruotabile  
Electrical M12 4-pin connector 320° rotatable  
Elektrische M12 4-pin 320° drehbar  
Connecteur électrique M12 4-pin 320° rotatif  
Eléctrica Conector M12 4-pin 320° giratorio  
Conector eléctrico M12 4-pin 320° rotativo
- 4- Sensore di pressione 0 - 600 bar display digitale 320° ruotabile  
Pressure sensor 0 - 600 bar digital display 320° rotatable  
Manometer 0 - 600 bar digitale Anzeige 320° drehbar  
Manomètre 0 - 600 bar affichage numérique 320° rotatif  
Manómetro 0 - 600 bar display digital se puede girar 320°  
Manómetro 0 - 600 bar display digital bar pode ser girado 320°
- 5- Innesto rapido di caricamento Cejn  
Quick coupling for charging Cejn  
Steckkegel Cejn  
Accouplement rapide mâle Cejn  
Acoplamiento rápido para carga Cejn  
União rápida para carregamento Cejn
- 6- Tappo di rottura sovrappressione  
Over pressure rupture plug  
Überdruck Bruch Stecker  
Bouchon de rupture de surpression  
Enchufe de la ruptura de sobrepresión  
Plugue ruptura sobrepresão



Digital display 320° rotabile



Technical data	
Nominal pressure	0 - 600 bar
Operating voltage U <sub>o</sub>	18...36 V DC
Output current max.	500 mA
No-load supply current I <sub>o</sub> max	≤ 50 mA
Switching frequency f	200 Hz
Temperature range	- 25°C... + 85°C
Degree of protection as per IEC 60529 IP 67 when connected	
Output : digital data (switching points only ) 2 x PNP, NO/NC selection	

All dimensions in mm/inch

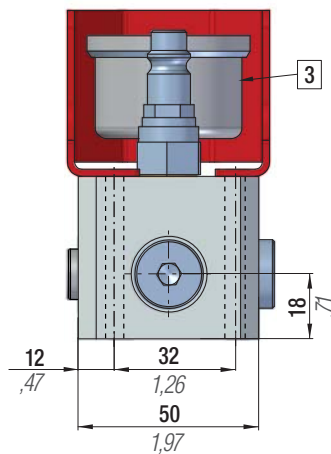
- I** Pannello di controllo con base in alluminio provvisto di manometro, valvola di caricamento e scaricamento, tappo di rottura sovrappressione, protezione in acciaio, 3 uscite da 1/4" gas e un uscita da 1/8" gas per gestione sistemi collegati.
- GB** Control panel with aluminium base, equipped with gauge, charging and discharging valve, over pressure rupture plug, steel protection and three 1/4" and one 1/8" gas outlets for hose system managing.
- D** Kontrollarmatur mit Aluminiumsockel, Manometer, auffüll- und Ablassventil, Überdruck Bruch Stecker, Stahlabdeckung, drei 1/4" und eine 1/8" Gas Anschlüsse zur Steuerung der Verbundsysteme.
- F** Panneau de contrôle avec base en aluminium pourvu de manomètre, valve de chargement-déchargement, bouchon de rupture de surpression, protection en acier et trois sorties 1/4 gaz et une sortie 1/8 gaz pour la gestion des systèmes connectés.
- E** Panel de control con base de aluminio provisto de manómetro, válvula de carga y descarga, enchufe de la ruptura de sobrepresión, protección en acero, 3 salidas de 1/4 " gas y 1 salida de 1/8" gas para gestión de sistemas conectados.
- P** Painel de controlo com base de alumínio, equipado com manómetro, válvula de carga e descarga, plugue ruptura sobrepresão, sistema de protecção de aço, três tomadas de 1/4" e uma 1/8" gas para ligação a mangueiras.

**code 39CP07A**      **bar / psi**

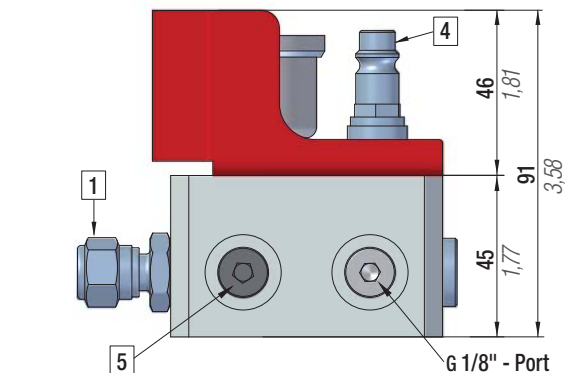
**code 39CP10A whit pressure switch**      **bar / psi**      ■

**code 39CP12A without over pressure rupture plug**      **bar / psi**      ■

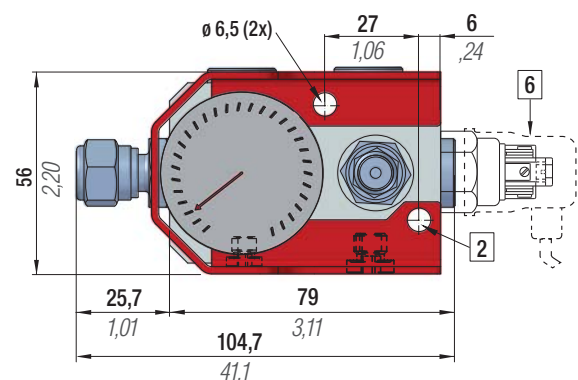
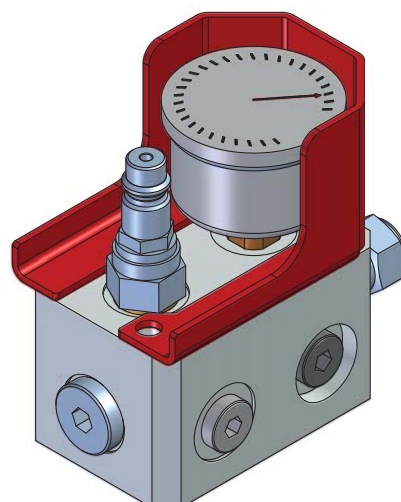
- 1- Valvola di scarico  
Discharging valve  
Auslaßventil  
Valve de déchargement  
Válvula de desahogo  
Válvula de descarga
- 2- Fori di fissaggio  $\varnothing$  6,5 (2x)  
 $\varnothing$  6,5 (2x) fixing holes  
 $\varnothing$  6,5 (2x) Befestigungslöcher  
Trous de fixation  $\varnothing$  6,5 (2 x)  
 $\varnothing$  6,5 (2x) orificio de sujeción  
Orifícios de fixação de  $\varnothing$  6,5 (2x)
- 3- Manometro 0 - 600 bar  
Pressure gauge 0 - 600 bar  
Manometer 0 - 600 bar  
Manomètre 0 - 600 bar  
Manómetro 0 - 600 bar  
Manómetro 0 - 600 bar



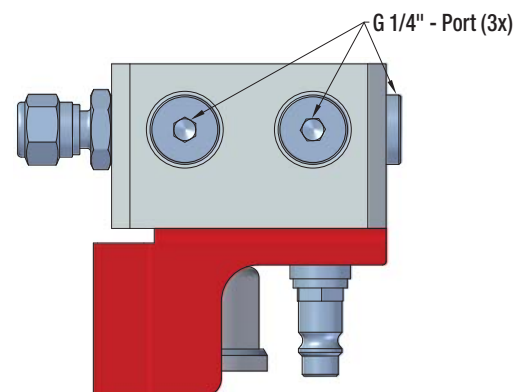
- 4- Innesto rapido di caricamento Cejn  
Quick coupling for charging Cejn  
Steckkegel Cejn  
Accouplement rapide mâle Cejn  
Acoplamiento rápido para carga Cejn  
União rápida para carregamento Cejn



- 5- Tappo di rottura sovrappressione  
Over pressure rupture plug  
Überdruck Bruch Stecker  
Bouchon de rupture de surpression  
Enchufe de la ruptura de sobrepresión  
Plugue ruptura sobrepresão



- 6- Pressostato 50 ÷ 300 bar  
Pressure switch 50 ÷ 300 bar  
Druckwächter 50 ÷ 300 bar  
Pressostat 50 ÷ 300 bar  
Presostato 50 ÷ 300 bar  
Pressostato 50 ÷ 300 bar



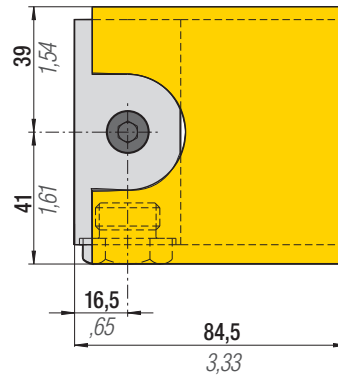
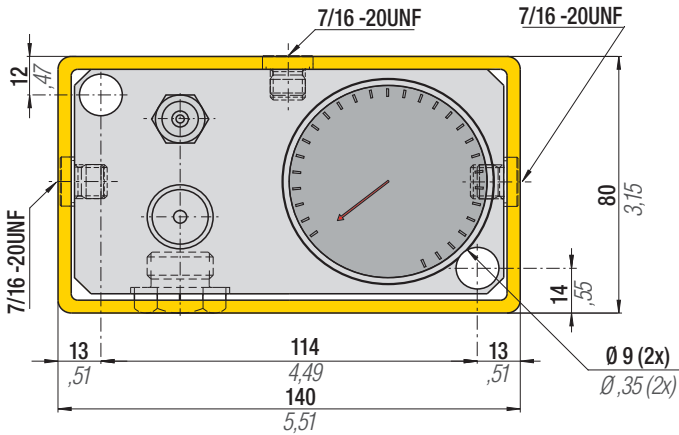
All dimensions in **mm/inch**

# CONTROL PANEL CPVD (Fiat standard)

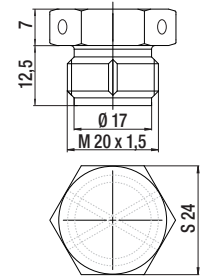


code 39CPVD

bar / psi



code: 39TS460



1- STANDARD size M 20

Tappo di chiusura  
Port plug  
Stecker  
Bouchon  
Enchufe  
Plugue

1.1- OPTIONAL size M 20

Tappo di rottura sovrappressione  
Over pressure rupture plug  
Überdruck Bruch Stecker  
Bouchon de rupture de surpression  
Enchufe de ruptura de sobrepresión  
Plugue ruptura sobrepresão

1.2- OPTIONAL size M 20 (460 bar)

Tappo di sicurezza sovrappressione CE  
Overpressure safety plug CE  
Überdruck Sicherheitsstecker CE  
Bouchon de sécurité surpression CE  
Enchufe de seguridad sobrepresion CE  
Bujão de segurança sobrepresão CE

2- Valvola di scarico

Discharging valve  
Auslaßventil  
Valve de déchargement  
Válvula de desahogo  
Válvula de descarga

3- Manometro 0 - 620 bar

Pressure gauge 0 - 620 bar  
Manometer 0 - 620 bar  
Manomètre 0 - 620 bar  
Manómetro 0 - 620 bar  
Manómetro 0 - 620 bar

4- Innesto rapido per caricamento ISO 7241-1 Series B

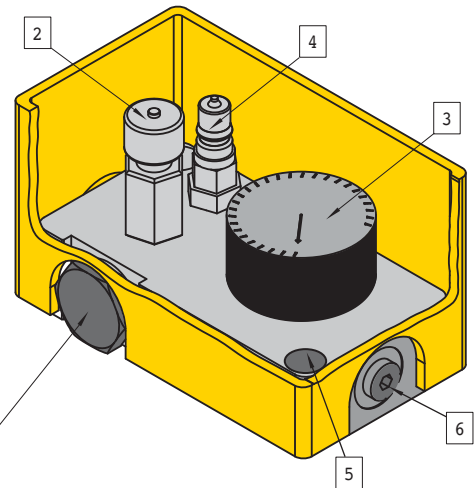
Quick coupling for charging ISO 7241-1 Series B  
Steckkegel ISO 7241-1 Series B  
Accouplement rapide mâle ISO 7241-1 Series B  
Acoplamiento rápido para carga ISO 7241-1 Series B  
União rápida para carregamento ISO 7241-1 Series B

5- Fori di fissaggio Ø 9 (2x)

Ø 9 (2x) fixing holes  
Ø 9 (2x) Befestigungslöcher  
Trous de fixation Ø 5,5 (2 x)  
Ø 9 (2x) orificio de sujeción  
Orifícios de fixação de Ø 9 (2x)

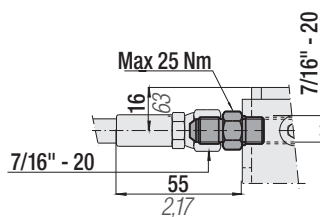
6- Fori di collegamento 7/16-20 UNF (3x)

7/16-20 UNF connecting ports (3x)  
Anschlussöffnung 7/16-20 UNF (3x)  
Trous de raccordement 7/16-20 UNF (3x)  
Agujeros de conexión 7/16-20 UNF (3x)  
Furo de conexão 7/16-20 UNF (3x)

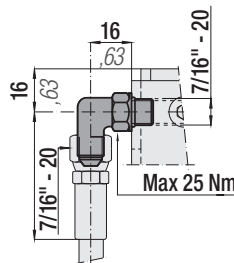


## CONTROL PANEL CPVD (FIAT standard) - Hose connections

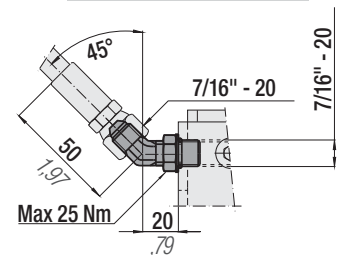
code RPT-D



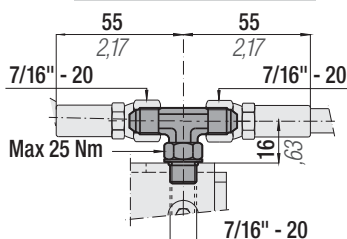
code RPT-R



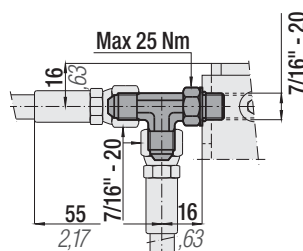
code RPT-M



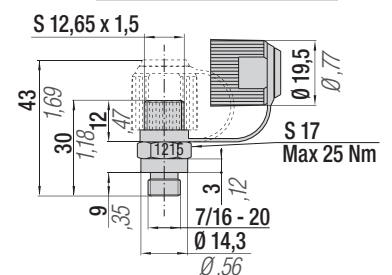
code RPT-T



code RPT-L



code RMPT



All dimensions in mm/inch

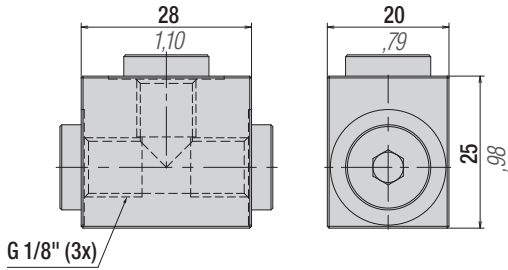


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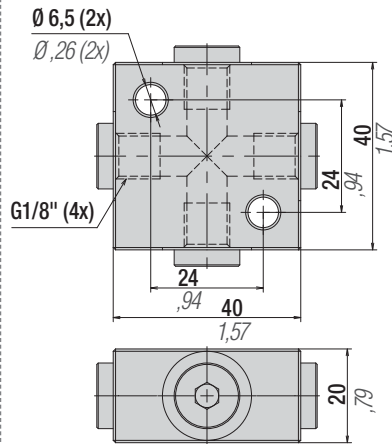
# DISTRIBUTION BLOCKS



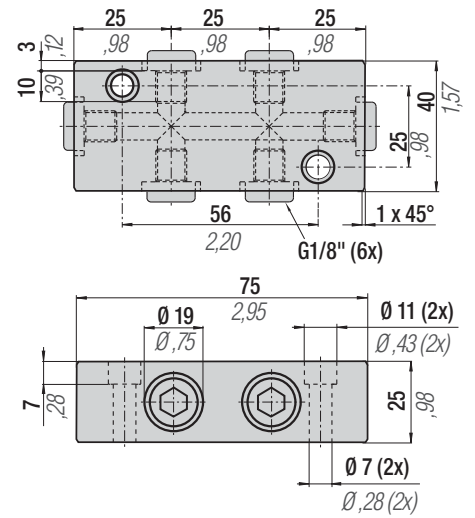
code 39BD0301A



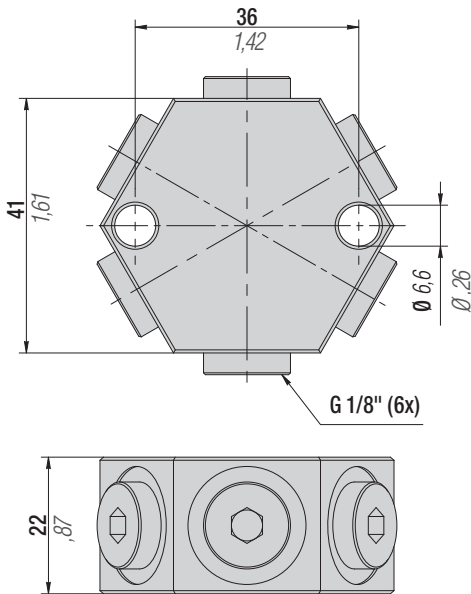
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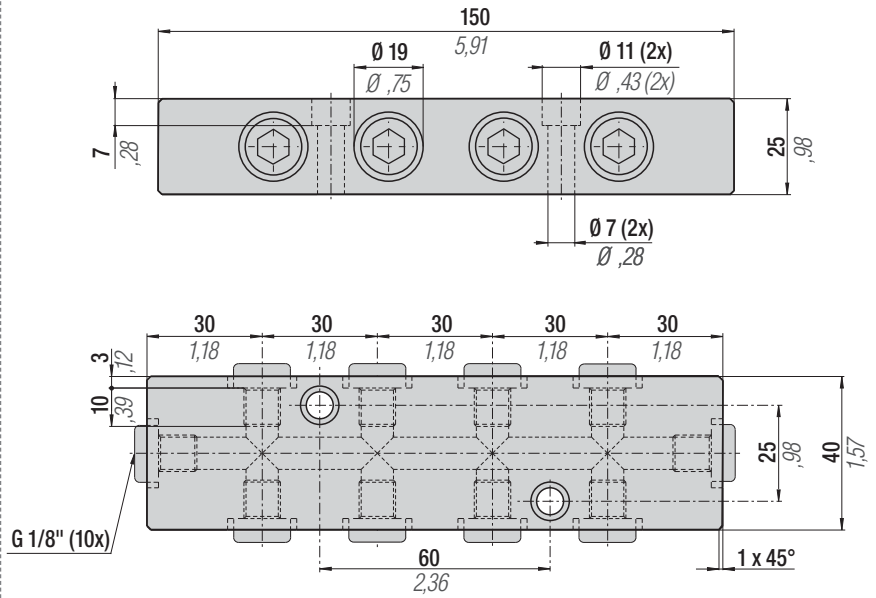
code 39BD06A



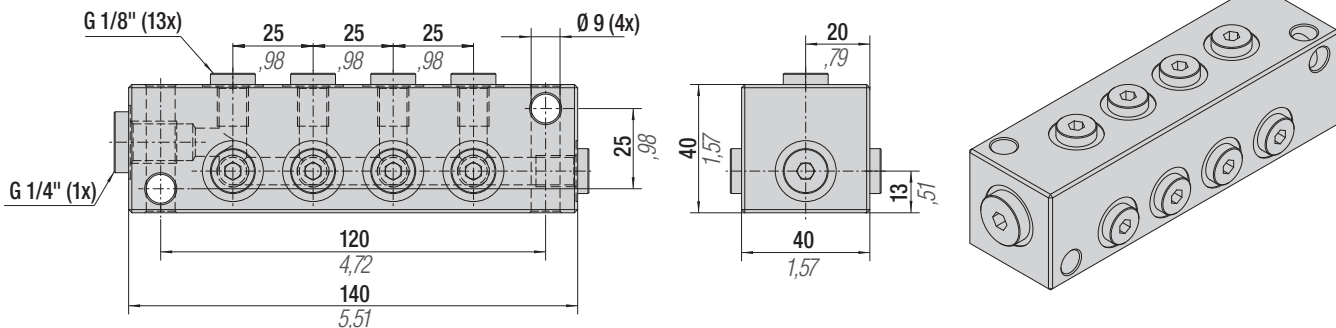
code 39BD0603A



code 39BD10A

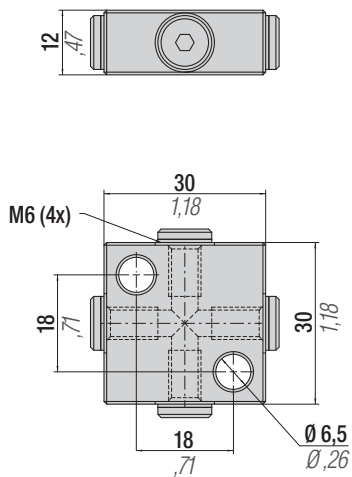


code 39BD1401A

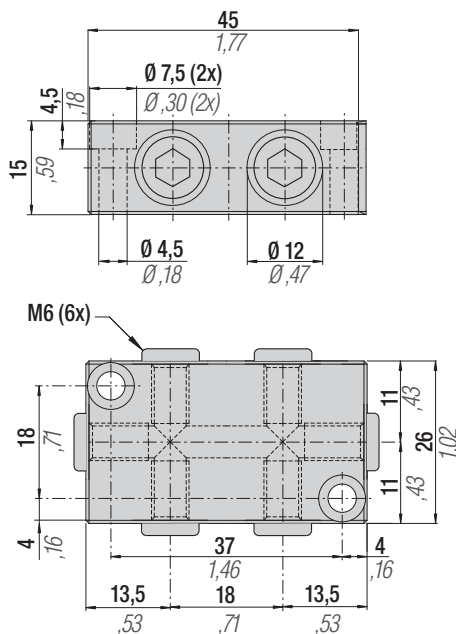


All dimensions in mm/inch

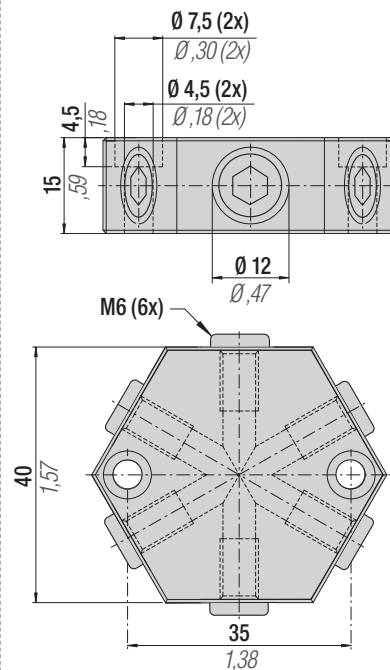
code 39BD0402A



code BD06/1



code BD06/2



# COMPENSATION TANKS



**I** Nel modo di funzionamento non autonomo i cilindri possono essere collegati ad un polmone di compensazione esterno. Lo scopo principale è contenere l'aumento di pressione nel sistema entro limiti prefissati e minori rispetto al normale incremento dato dalla compressione degli steli-pistoni. La determinazione del volume di compensazione richiesto è facilmente calcolabile applicando la seguente formula:

$$V_p = n \cdot \{[S \cdot x \cdot R / (R-1)] - V_0\}$$

$V_p$  = volume del polmone [cm<sup>3</sup>]

$n$  = numero di cilindri componenti il sistema

$S$  = sezione dello stelo (pistone per serie KE)  
di ogni singolo cilindro [cm<sup>2</sup>]

$x$  = corsa effettiva di lavoro [cm]

$R$  = rapporto tra pressione finale ed iniziale del sistema [max 1,4]

$V_0$  = volume iniziale di ogni singolo cilindro [cm<sup>3</sup>]

Esempio:

Forza richiesta ~6000 daN ed  $R=1,1$  (10%). Si scelgono n. 4 SC1500-50 (oppure n. 2 SC3000-50) Il volume richiesto è di circa 1300 cm<sup>3</sup> e quindi la scelta sarà per il polmone tipo PC-3. Un eventuale maggior volume del polmone non è un problema. Inoltre possono essere collegati tra loro più polmoni di compensazione per ottenere volumi più prossimi a quelli richiesti

**GB** Gas cylinders operating in non self-contained mode may be connected to a compensation tank. The principal aim is to limit the pressure within the system to a lower figure than would normally be obtained with standard compression rates. The compensation tank volume may be easily found using the following formula:

$$V_p = n \cdot \{[S \cdot x \cdot R / (R-1)] - V_0\}$$

$V_p$  = compensation volume [cm<sup>3</sup>]

$n$  = no. of gas cylinders required.

$S$  = Area of rod (piston for series KE) in [cm<sup>2</sup>]

$x$  = effective working stroke in [cm]

$R$  = Ratio between final required pressure and initial pressure of the system [max 1,4]

$V_0$  = Initial volume of each cylinder in [cm<sup>3</sup>]

Example:

Force required ~6000 daN and  $R = 1,1$  (10%). No. of cylinders = 4 Type SC1500-50 (or 2 Type SC3000-50). The compensation volume required is approximately 1300 cm<sup>3</sup>. Therefore, the compensation tank required will be type PC-3. Extra volume in the tank is generally not a problem, and to obtain more accurate volume, extra tanks may be connected in the system

**D** Im gesteuerten Funktionsmodus können die Zylinder an einen Ausgleichspeicher angeschlossen werden. Hauptzweck ist es, den Druckaufbau im System innerhalb der vorgegebenen Grezwerte und unter der zulässigen Zunahme durch den Druck der Kolbenstangen zu halten. Die Bestimmung des notwendigen Ausgleichsvolumens kann mit folgender Formel leicht errechnet werden:

$$V_p = n \cdot \{[S \cdot x \cdot R / (R-1)] - V_0\}$$

$V_p$  = Speichervolumen [cm<sup>3</sup>]

$n$  = Anzahl der Zylinder im System

$S$  = Stangenquerschnitt (Kolben für Serie KE)  
jedes einzelnen Zylinders [cm<sup>2</sup>]

$x$  = tatsächlicher Arbeitshub [cm]

$R$  = Verhältnis zwischen Anfangs- und Enddruck des Systems [max 1,4]

$V_0$  = Anfangsvolumen jedes einzelnen Zylinders [cm<sup>3</sup>]

Beispiel:

Benötigte Kraft ca. 6000 daN,  $R = 1,1$  (10%) Nr. 4 SC1500-50 (oder Nr. 2 SC3000-50) Das benötigte Volumen beträgt ca. 1300 cm<sup>3</sup>, die Wahl des Speichers fällt daher auf den Typ PC-3. Auch ein eventuelles höheres Speicher volumen stellt kein Problem dar. Außerdem können mehrere Ausgleichspeicher aneinander geschlossen werden, um die benötigten Volumina zu erhalten

**F** Dans le mode de fonctionnement non autonome, les vérins peuvent être reliés à un réservoir de compensation. L'objectif principal est de contenir l'élévation de la pression, dans le système, dans les limites préétablies et inférieures par rapport à l'augmentation normale provoquée par la compression des tiges-pistons. La détermination du volume de compensation requis se calcule facilement en utilisant la formule suivante:

$$V_p = n \cdot \{[S \cdot x \cdot R / (R-1)] - V_0\}$$

$V_p$  = volume du réservoir [cm<sup>3</sup>]

$n$  = nombre de vérins composant le système

$S$  = section de la tige (piston pour série KE)  
de chaque vérin [cm<sup>2</sup>]

$x$  = course réelle de travail [cm]

$R$  = rapport entre pression finale et initiale du système [max 1,4]

$V_0$  = volume initial de chaque vérin [cm<sup>3</sup>]

Exemple:

Force requise env. 6000 daN et  $R = 1,1$  (10%) 4 SC1500-50 (ou bien 2 SC3000-50) Le volume requis est d'environ 1300 cm<sup>3</sup> et le choix se portera donc sur le réservoir de type PC-3. A noter qu'un plus grand volume éventuel du réservoir ne représente pas un problème. De plus, les réservoirs peuvent être couplés pour obtenir les volumes voisinant ceux requis.



**E** Los cilindros de gas en funcionamiento no autónomo pueden conectarse a un pulmón de compensación. El objetivo principal es limitar la presión del sistema, reduciéndola a un valor menor que el que normalmente se obtendría con tasas de compresión standard. El volumen del pulmón de compensación puede calcularse fácilmente mediante la siguiente fórmula:

$$V_p = n \cdot \left[ \frac{S \cdot x \cdot R}{R-1} \right] - V_0$$

$V_p$  = volumen de compensación [cm<sup>3</sup>]

$n$  = nº de cilindros de gas necesarios.

$S$  = Área del vástago (pistón en la serie KE) en [cm<sup>2</sup>]

$x$  = carrera efectiva en [cm]

$R$  = Cociente entre la presión final necesaria y la presión inicial del sistema max 1,4

$V_0$  = Volumen inicial de cada cilindro en [cm<sup>3</sup>]

Ejemplo:

Fuerza necesaria ~6000 daN y  $R = 1,1$  (10%).

Nº de cilindros = 4 Tipo SC1500-50 (ó 2 Tipo SC3000-50). El volumen de compensación necesario es de aproximadamente 1300 cm<sup>3</sup>.

Por lo tanto, el pulmón de compensación será del tipo PC-3. Por lo general, un pulmón con volumen extra no constituye problema. Para obtener un volumen más exacto, puede ser necesario conectar más pulmones al sistema

**P** Os cilindros de gás que operam em modo não autónomo podem ser ligados a um depósito de compensação. O principal objectivo é limitar o aumento de pressão dentro do sistema a um valor inferior ao que se obteria normalmente com taxas de compressão normalizadas. O volume do depósito de compensação pode ser facilmente determinado utilizando a fórmula seguinte:

$$V_p = n \cdot \left[ \frac{S \cdot x \cdot R}{R-1} \right] - V_0$$

$V_p$  = volume de compensação [cm<sup>3</sup>]

$n$  = nº de cilindros de gás necessários.

$S$  = Área do embolo (pistão para a série KE) em [cm<sup>2</sup>]

$x$  = curso de trabalho efectivo em [cm]

$R$  = Relação entre a pressão final requerida e a pressão inicial do sistema [max 1,4]

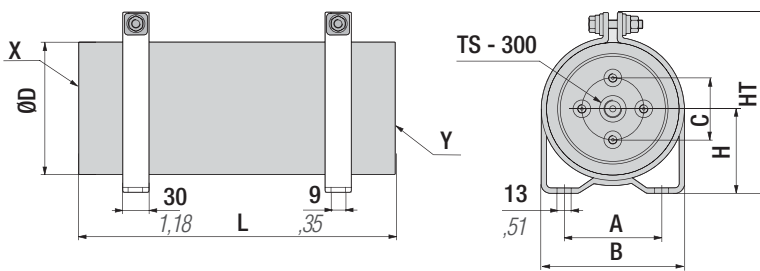
$V_0$  = Volume inicial de cada cilindro em [cm<sup>3</sup>]

Exemplo:

Força requerida ~6000 daN e  $R = 1,1$  (10%).

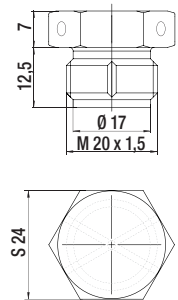
Nº de cilindros = 4 Tipo SC1500-50 (ou 2 Tipo SC3000-50). O volume de compensação requerido é de aproximadamente 1300 cm<sup>3</sup>. Logo, o depósito de compensação requerido é do tipo PC-3. O volume suplementar no depósito não é geralmente um problema e, para obter um volume mais preciso, podem ser ligados ao sistema depósitos suplementares

Codice Code Bestallnr. Code Codigo	Ø D		L		A		H		HT		B		Faccia X X Side Seite X Face X Cara X Face X	Faccia Y Y Side Seite Y Face Y Cara Y Face Y	C		Raccordi Fittings Anschlüsse Raccords Racores Ligações	Volume Volume Volumen Volume Volume		CE Cat.
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		cm <sup>3</sup>	in <sup>3</sup>	
39PC001A	100	3,94	290	11,42	90	3,54	58	2,28	140	5,51	125	4,92	G1/8" (3x)	G1/8" (4x)	40	1,57	RTC RMTD RSMPTD	1000	61,02	-
39PC003A	150	5,91	310	12,20	136	5,35	83	3,27	190	7,48	172	6,77	G1/8" (4x)	G1/8" (4x)	70	2,76		3000	183,07	II
39PC005A	150	5,91	475	18,70	136	5,35	83	3,27	190	7,48	172	6,77	G1/8" (4x)	G1/8" (4x)	70	2,76		5000	305,12	II
39PC008A	200	7,87	415	16,34	212	8,35	108	4,25	242	9,53	252	9,92	G1/8" (6x)	G1/8" (6x)	97	3,82		8000	488,18	II
39PC010A	200	7,87	505	19,88	212	8,35	108	4,25	242	9,53	252	9,92	G1/8" (6x)	G1/8" (6x)	97	3,82		9960	607,79	II

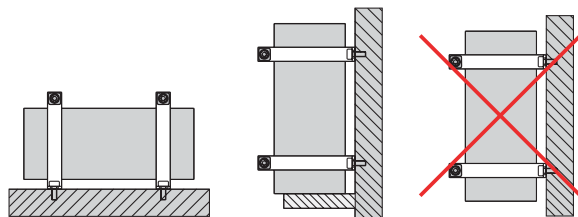


code: TS - 300 (300 bar)

- Tappo di sicurezza sovrappressione CE
- Overpressure safety plug CE
- Überdruck Sicherheitsstecker CE
- Bouchon de sécurité surpression CE
- Enchufe de seguridad sobrepresion CE
- Bujão de segurança sobrepresão CE



Esempio - Example - Beispiel - Exemple - Ejemplo - Exemplo:



**I** Pressione massima di caricamento: P= 150 bar

**GB** Maximum charging pressure: P= 150 bar

**D** Max. Fülldruck: P= 150 bar

**F** Pression maximale: P= 150 bar

**E** Presión máxima de carga P = 150 bar

**P** Pressão máxima de carregamento: P= 150 bar



All dimensions in mm/inch

# AIR SYSTEMS TANKS

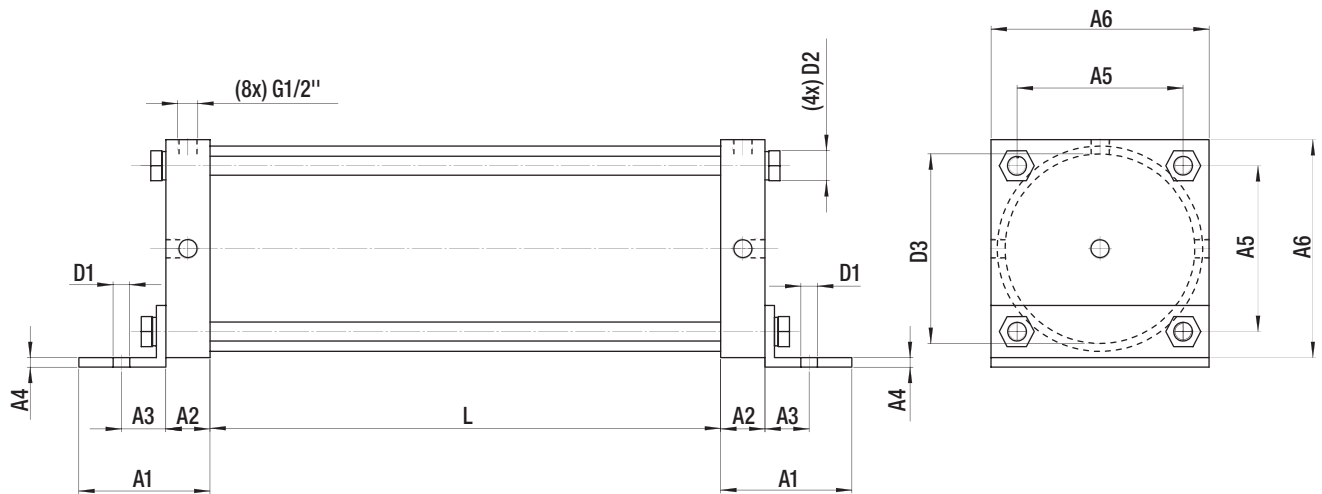


- I** Le tabelle sotto riportate devono essere utilizzate, in fase di progettazione, per determinare il numero, il volume e le dimensioni dei serbatoi aria a bordo stampi. Tabella volumi (litri): volume d'aria necessario per cilindro pneumatico in relazione al diametro e alla corsa.
- GB** The tables below must be used, during design, to define the number, volume and sizes of the air tanks on the dies. Volume table (litres): volume of air needed for the pneumatic cylinder in relation to the diameter and stroke.
- D** Die untenstehenden Tabellen werden in der Planungsphase für die Bestimmung der Anzahl, des Volumens und der Abmessung der Luftbehälter an Bord der Formen benutzt. Tabelle der Volumen (Liter): Das für Pneumatikzylinder in Bezug auf Durchmesser und Hub notwendige Luftvolumen
- F** Les tableaux reportés ci-dessous doivent être utilisés, lors de la conception, pour déterminer le nombre, le volume et les dimensions des réservoirs d'air sur le bord des moules. Tableau des volumes (litres) : volume d'air nécessaire par cylindre pneumatique par rapport au diamètre et à la course.
- E** Las tablas propuestas abajo deben ser utilizadas, en la fase de diseño, para determinar el número, el volumen y las dimensiones de los tanques de aire al borde de moldes. Tabla de volúmenes (litros): volumen de aire necesario para cilindro neumático en relación al diámetro y a la carrera.
- P** As tabelas abaixo devem ser usadas na fase de design de forma a determinar o número, o volume e o tamanho do reservatório de ar da ferramenta.

Cilindro pneumatico Pneumatic cylinder Pneumatikzylinder Vérin pneumatique Cilindro neumático Cilindro pneumático		Corse standard - Standard Strokes - Standardhübe - Course standard - Carreras estándar - Cursos standard																	
		mm   inch																	
		25	40	50	60	75	100	125	150	175	0,98	1,57	1,97	2,36	2,95	3,94	4,92	5,91	6,89
		Volume - Volume - Volumens - Volume - Volumen - Volume																	
		dm <sup>3</sup>   in <sup>3</sup>																	
mm	inch																		
Ø 32	Ø 1,26	0,020	0,032	0,040	0,048	0,060	0,080	0,100	0,120	0,140	1,220	1,953	2,441	2,929	3,661	4,882	6,102	7,323	8,543
Ø 40	Ø 1,57	0,031	0,050	0,063	0,075	0,094	0,126	0,157	0,189	0,221	1,892	3,051	3,844	4,577	5,736	7,689	9,581	11,533	13,486
Ø 50	Ø 1,97	0,049	0,078	0,098	0,118	0,147	0,196	0,245	0,294	0,343	2,990	4,760	5,980	7,201	8,970	11,961	14,951	17,941	20,931
Ø 63	Ø 2,48	0,078	0,125	0,158	0,187	0,234	0,312	0,390	0,488	0,546	4,760	7,628	9,642	11,411	14,280	19,039	23,799	29,780	33,319
Ø 80	Ø 3,15	0,126	0,201	0,251	0,302	0,377	0,503	0,528	0,754	0,880	7,689	12,266	15,317	18,429	23,006	30,700	32,221	46,012	53,701
Ø 100	Ø 3,94	0,196	0,314	0,393	0,471	0,589	0,785	0,982	1,177	1,374	11,961	19,161	23,982	28,742	35,943	47,904	59,925	71,825	83,847
Ø 125	Ø 4,92	0,308	0,491	0,614	0,738	0,920	1,227	1,534	1,841	2,147	18,795	29,963	37,469	45,036	56,142	74,876	93,610	112,34	131,02
Ø 160	Ø 6,30	0,502	0,804	1,005	1,208	1,508	2,010	2,513	3,016	3,519	30,634	49,063	61,329	73,717	92,024	122,66	153,35	184,05	214,74
Ø 200	Ø 7,87	0,785	1,257	1,571	1,885	2,356	3,142	3,928	4,712	5,498	47,904	76,707	95,868	115,03	143,77	191,74	239,70	287,54	335,51

- I** Per cilindri pneumatici funzionanti a doppio effetto (d.e.) determinare il volume attraverso la tabella. Per cilindri pneumatici funzionanti a semplice effetto (s.e.) determinare sempre il volume tramite la tabella e moltiplicare il risultato ottenuto per 3. Sommare tutti i volumi dei vari cilindri pneumatici a bordo stampo per ricavare la capacità totale (dm<sup>3</sup>) del serbatoio. Scegliere il serbatoio in relazione alla capacità totale ricavata (dm<sup>3</sup>) ed allo spazio disponibile sullo stampo.
- GB** For double acting pneumatic cylinders (d.e.) use the table to define the volume. For single-acting pneumatic cylinders (s.e.) still use the table to define the volume and multiply the result obtained by 3. Add all the volumes of the various pneumatic cylinders on the die to obtain the total capacity (dm<sup>3</sup>) of the tank. Choose the tank in relation to the total capacity obtained (dm<sup>3</sup>) and to the space available on the die.
- D** Für Pneumatikzylinder mit Doppelleffekt (d.e.) wird das Volumen auf Grund der Tabelle bestimmt. Für Pneumatik Zylindern mit Einzeleffekt (s.e.), immer das Volume aufgrund der Tabelle bestimmen, dann der Ergebnis bei 3 multiplizieren. Aller Volumen der verschiedene Pneumatik Zylindern außer der Form summen, um das totale Fassungsvermögen des Tanks (dm<sup>3</sup>) zu ergeben. Der Tankbehälter in Verbindung mit der bestimmte Fassungsvermögen (dm<sup>3</sup>), und mit dem verfügbare Raum auf der Form, auszuwählen.
- F** Pour les cylindres pneumatiques fonctionnant à double effet (d.e.), déterminer le volume au moyen du tableau. Pour les cylindres pneumatiques fonctionnant à effet simple (s.e.), déterminer toujours le volume au moyen du tableau et multiplier le résultat obtenu par 3. Sommes tous les volumes des différents cylindres pneumatiques sur le bord du moule pour obtenir la capacité totale (dm<sup>3</sup>) du réservoir. Choix du réservoir par rapport à la capacité totale obtenue (dm<sup>3</sup>) et à l'espace disponible sur le moule.
- E** Para cilindros neumáticos funcionantes a doble efecto (d. e.) determinar el volumen por medio de la tabla. Para cilindros neumáticos funcionantes a simple efecto (s. e.) determinar siempre el volumen por medio de la tabla y multiplique el resultado obtenido por 3. Sumar todos los volúmenes de los varios cilindros neumáticos en el borde de la prensa para calcular la capacidad total (dm<sup>3</sup>) del depósito. Selección del tanque en relación a la capacidad total relevada (dm<sup>3</sup>) y a el espacio disponible en la prensa
- P** Para cilindros pneumáticos de duplo efeito (d.e), o volume deve ser determinado de acordo com a tabela. Para cilindros pneumáticos de efeito único, o volume deve ser determinado de acordo com a mesma tabela. o resultado deve ser multiplicado por 3. Para saber a capacidade total (litros) do reservatório, deve somar todos os volumes dos cilindros pneumáticos. A escolha da capacidade do reservatório, está relacionada com o cálculo da capacidade total (litros) e o espaço disponível na ferramenta.

All dimensions in mm/inch



Codice Code Bestallnr. Code Codigo Código	Volume Volume Volumen Volume Volume Volume	A1		A2		A3		A4		A5		A6		D1		D2		D3		L		Peso Weight Gewicht Poids Peso Peso	CE			
		dm <sup>3</sup>	in <sup>3</sup>	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			~Kg	~lb	Cat.
		39SRA1003A	3	0,12	83	3,27	28	1,10	34	1,34	6	0,24	105	4,13	138	5,43	10,5	0,41	M12	120	4,72			271	10,67	14
39SRA1004A	4	0,16	83	3,27	28	1,10	34	1,34	6	0,24	105	4,13	138	5,43	10,5	0,41	M12	120	4,72	360	14,17	15,7	34,6	I		
39SRA1005A	5	0,20	83	3,27	28	1,10	34	1,34	6	0,24	105	4,13	138	5,43	10,5	0,41	M12	120	4,72	449	17,68	17,4	38,4	I		
39SRA1006A	6	0,24	83	3,27	28	1,10	34	1,34	6	0,24	105	4,13	138	5,43	10,5	0,41	M12	120	4,72	538	21,18	19,1	42,1	I		
39SRA1008A	8	0,31	83	3,27	28	1,10	34	1,34	6	0,24	105	4,13	138	5,43	10,5	0,41	M12	120	4,72	716	28,19	22,5	49,6	I		
39SRA2003A	3	0,12	83	3,27	28	1,10	34	1,34	6	0,24	127	5,00	168	6,61	12,5	0,49	M12	150	5,91	175	6,89	17,2	37,9	Art 3.3		
39SRA2004A	4	0,16	83	3,27	28	1,10	34	1,34	6	0,24	127	5,00	168	6,61	12,5	0,49	M12	150	5,91	232	9,13	18,4	40,6	I		
39SRA2005A	5	0,20	83	3,27	28	1,10	34	1,34	6	0,24	127	5,00	168	6,61	12,5	0,49	M12	150	5,91	289	11,38	19,7	43,4	I		
39SRA2006A	6	0,24	83	3,27	28	1,10	34	1,34	6	0,24	127	5,00	168	6,61	12,5	0,49	M12	150	5,91	346	13,62	21,0	46,3	I		
39SRA2008A	8	0,31	83	3,27	28	1,10	34	1,34	6	0,24	127	5,00	168	6,61	12,5	0,49	M12	150	5,91	460	18,11	23,6	52,0	I		
39SRA2010A	10	0,39	83	3,27	28	1,10	34	1,34	6	0,24	127	5,00	168	6,61	12,5	0,49	M12	150	5,91	574	22,60	26,2	57,8	I		
39SRA2012A	12	0,47	83	3,27	28	1,10	34	1,34	6	0,24	127	5,00	168	6,61	12,5	0,49	M12	150	5,91	688	27,09	28,7	63,3	I		
39SRA3004A	4	0,16	83	3,27	28	1,10	34	1,34	6	0,24	163	6,42	218	8,58	12,5	0,49	M16	200	7,87	132	5,20	26,3	58,0	I		
39SRA3005A	5	0,20	83	3,27	28	1,10	34	1,34	6	0,24	163	6,42	218	8,58	12,5	0,49	M16	200	7,87	164	6,46	27,3	60,2	I		
39SRA3006A	6	0,24	83	3,27	28	1,10	34	1,34	6	0,24	163	6,42	218	8,58	12,5	0,49	M16	200	7,87	196	7,72	28,3	62,4	I		
39SRA3008A	8	0,31	83	3,27	28	1,10	34	1,34	6	0,24	163	6,42	218	8,58	12,5	0,49	M16	200	7,87	260	10,24	30,3	66,8	I		
39SRA3010A	10	0,39	83	3,27	28	1,10	34	1,34	6	0,24	163	6,42	218	8,58	12,5	0,49	M16	200	7,87	324	12,76	32,4	71,4	I		
39SRA3012A	12	0,47	83	3,27	28	1,10	34	1,34	6	0,24	163	6,42	218	8,58	12,5	0,49	M16	200	7,87	388	15,28	34,4	75,8	I		
39SRA3015A	15	0,59	83	3,27	28	1,10	34	1,34	6	0,24	163	6,42	218	8,58	12,5	0,49	M16	200	7,87	484	19,06	37,4	82,5	II		
39SRA3018A	18	0,71	83	3,27	28	1,10	34	1,34	6	0,24	163	6,42	218	8,58	12,5	0,49	M16	200	7,87	580	22,83	40,4	89,0	II		
39SRA3022A	22	0,87	83	3,27	28	1,10	34	1,34	6	0,24	163	6,42	218	8,58	12,5	0,49	M16	200	7,87	708	27,87	44,4	97,9	II		



50°C	122°F	Temperatura max esercizio - Max. operating temperature - max. Betriebstemperatur Température maximum de fonctionnement - Temperatura máx. de ejercicio - Temepratura Max operacional.
15 bar	218 psi	P. max esercizio - Maximum operating pressure - max: Betriebsdruck Pression Max de Fonctionnement - Presión máx de ejercicio - Pressão máxima de operação.
25 bar	363 psi	Pressione di collaudo - Testing pressure - Druckprüfung Pression d'essais - Probar la presión - Pressão de teste.

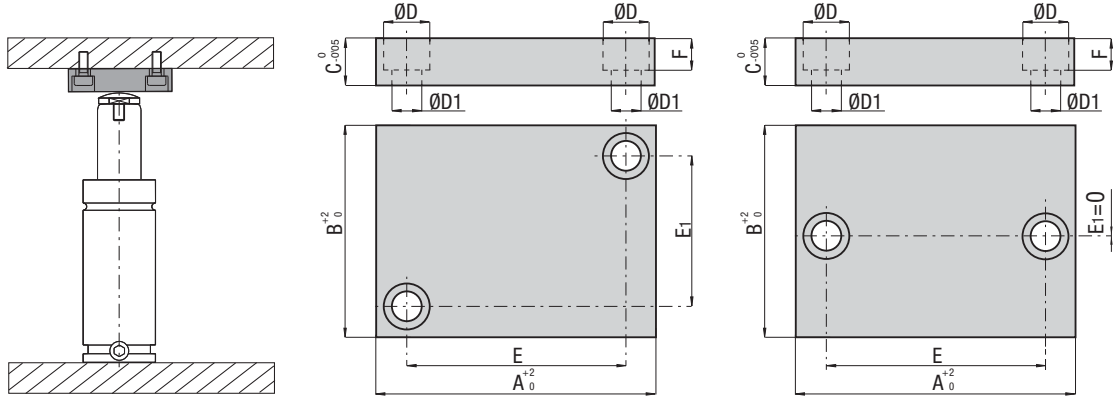
All dimensions in mm/inch

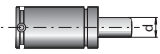
# ACCESSORIES



- I** Piastra di contrasto      Temperato
- GB** Counter plate          Hardened
- D** Stellplatten              Gehärtet
- F** Plaques d'appui          Tempré
- E** Placas de soporte        Templado
- P** Placas de apoi            Temperado

49 - 52 HRC



CODE		A		B		C		Ø D		Ø D1		E		E1		F			
PHASING OUT	NEW	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		inch	
PS040040	39PA040040A <sup>1)5)</sup>	40	1,57	40	1,57	15	0,59	15	0,59	9	0,35	21	0,83	21	0,83	10	0,39	d ≤ 20	,79
	39PAB040040A <sup>4)7)</sup>	40	1,57	40	1,57	12	0,47	11	0,43	7	0,28	24	0,94	24	0,94	7	0,28	d ≤ 20	,79
-	39PAA040040A	40	1,57	40	1,57	15	0,59	11	0,43	7	0,28	24	0,94	24	0,94	7	0,28	d ≤ 20	,79
PS056056	39PA056056A <sup>3)5)</sup>	56	2,20	56	2,20	20	0,79	18	0,71	11	0,43	32	1,26	32	1,26	13	0,51	d ≤ 36	1,42
	39PA060060A <sup>4)7)</sup>	60	2,36	60	2,36	15	0,59	15	0,59	9	0,35	40	1,57	40	1,57	9	0,35	d ≤ 36	1,42
-	39PAA060060A <sup>6)</sup>	60	2,36	60	2,36	12	0,47	14	0,55	9	0,35	38	1,50	38	1,50	9	0,35	d ≤ 36	1,42
-	39PA070070A <sup>1)4)7)</sup>	70	2,76	70	2,76	15	0,59	15	0,59	9	0,35	50	1,97	50	1,97	9	0,35	d ≤ 60	2,36
PS071071	39PA071071A <sup>5)</sup>	71	2,80	71	2,80	20	0,79	18	0,71	11	0,43	48	1,89	48	1,89	13	0,51	d ≤ 60	2,36
-	39PA080080A <sup>2)</sup>	80	3,15	80	3,15	16	0,63	15	0,59	9	0,35	62	2,44	0	0	10	0,39	d ≤ 65	2,56
-	39PAB090090A	90	3,54	90	3,54	12	0,47	15	0,59	9	0,35	64	2,52	64	2,52	9	0,35	d ≤ 80	3,15
-	39PAA090090A <sup>1)</sup>	90	3,54	90	3,54	15	0,59	15	0,59	9	0,35	70	2,76	70	2,76	9	0,35	d ≤ 80	3,15
-	39PA090090A <sup>2)3)5)</sup>	90	3,54	90	3,54	20	0,79	18	0,71	11	0,43	67	2,64	67	2,64	13	0,51	d ≤ 80	3,15
-	39PAC090090A <sup>6)</sup>	90	3,54	90	3,54	12	0,47	14	0,55	9	0,35	70	2,76	70	2,76	9	0,35	d ≤ 80	3,15
-	39PA100100A <sup>2)</sup>	100	3,94	100	3,94	16	0,63	15	0,59	9	0,35	82	3,23	0	0	10	0,39	d ≤ 90	3,54
-	39PAA100100A <sup>4)7)</sup>	100	3,94	100	3,94	20	0,79	18	0,71	11	0,43	74	2,91	74	2,91	11	0,43	d ≤ 90	3,54
-	39PAB100100A <sup>6)</sup>	100	3,94	100	3,94	12	0,47	14	0,55	9	0,35	81	3,19	81	3,19	9	0,35	d ≤ 90	3,54
-	39PAA140140A <sup>4)</sup>	140	5,51	140	5,51	20	0,79	18	0,71	11	0,43	110	4,33	110	4,33	11	0,43	d ≤ 130	5,12
-	39PA140140A <sup>3)5)</sup>	140	5,51	140	5,51	20	0,79	18	0,71	11	0,43	110	4,33	110	4,33	13	0,51	d ≤ 130	5,12
PS050025	39PA050025A <sup>1)5)</sup>	50	1,97	25	0,98	12	0,47	11	0,43	7	0,28	32	1,26	8	0,31	8	0,31	d ≤ 15	,59
-	39PA050030A <sup>5)</sup>	50	1,97	30	1,18	12	0,47	11	0,43	7	0,28	40	1,57	14	0,55	8	0,31	d ≤ 20	,79
PS055030	39PA055030A <sup>1)</sup>	55	2,17	30	1,18	12	0,47	11	0,43	7	0,28	40	1,57	14	0,55	8	0,31	d ≤ 20	,79
-	39PA055032A <sup>2)</sup>	55	2,17	32	1,26	16	0,63	15	0,59	9	0,35	37	1,46	0	0	10	0,39	d ≤ 20	,79
-	39PA065050A <sup>2)</sup>	65	2,56	50	1,97	16	0,63	15	0,59	9	0,35	47	1,85	0	0	10	0,39	d ≤ 36	1,42
PS070035	39PA070035A <sup>1)5)</sup>	70	2,76	35	1,38	15	0,59	15	0,59	9	0,35	48	1,89	14	0,55	10	0,39	d ≤ 30	1,18
PS075050	39PA075050A <sup>1)5)</sup>	75	2,95	50	1,97	15	0,59	15	0,59	9	0,35	56	2,20	30	1,18	10	0,39	d ≤ 36	1,42
-	39PA080060A <sup>2)</sup>	80	3,15	60	2,36	16	0,63	15	0,59	9	0,35	62	2,44	0	0	10	0,39	d ≤ 55	2,17
-	39PAA085060A <sup>5)</sup>	85	3,35	60	2,36	15	0,59	15	0,59	9	0,35	56	2,20	40	1,57	10	0,39	d ≤ 55	2,17
PS085060	39PA085060A <sup>1)</sup>	85	3,35	60	2,36	15	0,59	15	0,59	9	0,35	66	2,60	40	1,57	10	0,39	d ≤ 55	2,17
PS100080	39PA100080A <sup>1)5)</sup>	100	3,94	80	3,15	20	0,79	18	0,71	11	0,43	72	2,83	56	2,20	12	0,47	d ≤ 70	2,76
PS110100	39PA110100A <sup>5)</sup>	110	4,33	100	3,94	20	0,79	18	0,71	11	0,43	85	3,35	75	2,95	12	0,47	d ≤ 100	3,94

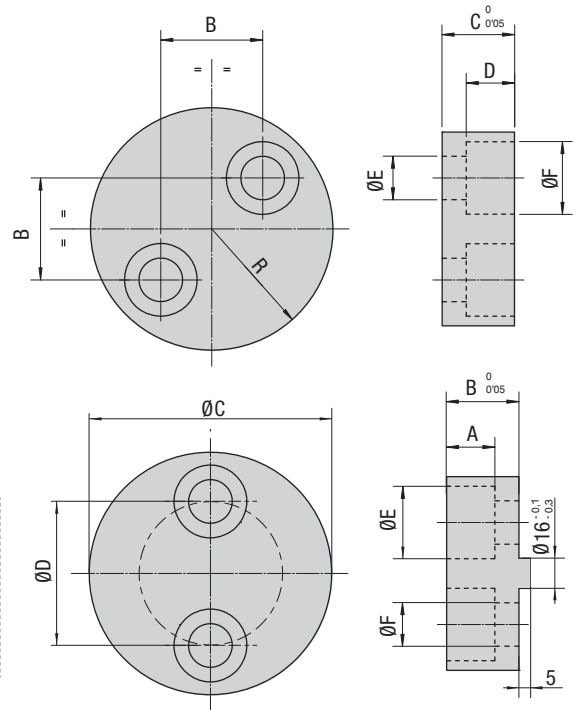
1) VDI 3003 2) Volvo Norm 3) Renault Norm 4) Volkswagen 5) Fiat 6) Mercedes Benz 7) BMW

All dimensions in mm/inch

- |           |                             |           |                    |
|-----------|-----------------------------|-----------|--------------------|
| <b>I</b>  | <b>Piastra di contrasto</b> | Temperato |                    |
| <b>GB</b> | <b>Counter plate</b>        | Hardened  |                    |
| <b>D</b>  | <b>Stellplatten</b>         | Gehärtet  |                    |
| <b>F</b>  | <b>Plaques d'appui</b>      | Tempré    | <b>49 - 52 HRC</b> |
| <b>E</b>  | <b>Placas de soporte</b>    | Templado  |                    |
| <b>P</b>  | <b>Placas de apoi</b>       | Temperado |                    |

CODE	R		B		C		D		ØE		ØF			
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		
39PA050A <sup>5)</sup>	25	0,98	21	0,83	15	0,59	10	0,39	9	0,35	15	0,59	d < 15	0,59
39PA070A <sup>5)</sup>	35	1,38	32	1,26	20	0,79	13	0,51	11	0,43	18	0,71	d < 25	0,98
39PA094A <sup>5)</sup>	47	1,85	48	1,89	20	0,79	13	0,51	11	0,43	18	0,71	d < 50	1,97

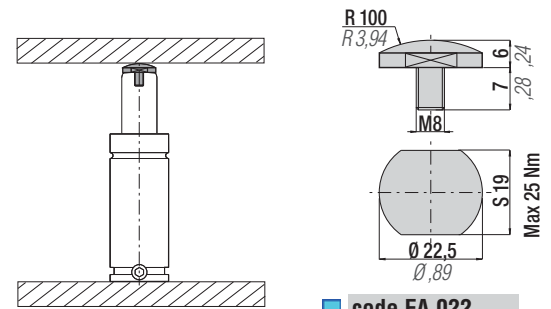
<sup>5)</sup> Fiat



CODE	A		B		ØC		ØD		ØE		ØF			
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		
39PA098A <sup>4)</sup>	12	0,47	20	0,79	98	3,86	73	2,87	20	0,79	13,5	0,53	d < 50	1,97
39PA113A <sup>4)</sup>	12	0,47	20	0,79	113	4,45	88	3,46	20	0,79	13,5	0,53	d < 65	2,58
39PA128A <sup>4)</sup>	12	0,47	20	0,79	128	5,04	103	4,06	20	0,79	13,5	0,53	d < 80	3,15
39PA143A <sup>4)</sup>	12	0,47	20	0,79	143	5,63	118	4,65	20	0,79	13,5	0,53	d < 95	3,74

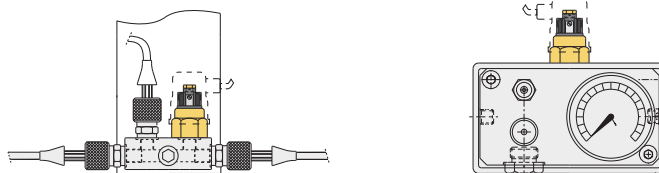
<sup>4)</sup> Volkswagen

- |           |                                |           |                    |
|-----------|--------------------------------|-----------|--------------------|
| <b>I</b>  | <b>Calotta</b>                 | Temperato |                    |
| <b>GB</b> | <b>Thrust plates</b>           | Hardened  |                    |
| <b>D</b>  | <b>Schaftkappe</b>             | Gehärtet  |                    |
| <b>F</b>  | <b>Calotte pour tiges</b>      | Tempré    | <b>49 - 52 HRC</b> |
| <b>E</b>  | <b>Casquillo para vástagos</b> | Templado  |                    |
| <b>P</b>  | <b>Calote para embolo</b>      | Temperado |                    |



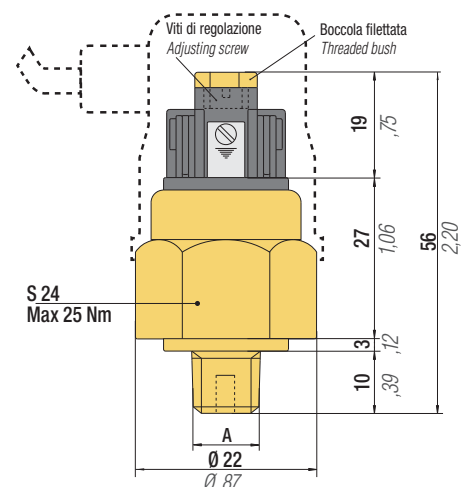
code FA 022

- |           |                        |                                |                     |
|-----------|------------------------|--------------------------------|---------------------|
| <b>I</b>  | <b>Pressostato</b>     | Tensione di lavoro 48 V max    | Normalmente aperto  |
| <b>GB</b> | <b>Pressure switch</b> | Operating voltage 48 V max     | Normally opened     |
| <b>D</b>  | <b>Druckwächter</b>    | Arbeitsspannung 48 V max       | Normalerweise offen |
| <b>F</b>  | <b>Pressostat</b>      | Tension d'utilisation 48 V max | Normalement ouvert  |
| <b>E</b>  | <b>Presostato</b>      | Tensión de trabajo 48 V max    | Normalmente abierto |
| <b>P</b>  | <b>Pressostato</b>     | Tensão de Trabalho 48 V max    | Normalmente aberto  |



CODE	A	Range
PMM150A	1/8 " BSPT	50:150 bar
PMM300A	1/8 " BSPT	50:300 bar
PMM150A01	1/4 " BSPT	50:150 bar
PMM300A01	1/4 " BSPT	50:300 bar

## PRESSURE SWITCH



All dimensions in mm/inch

## code 39DMA



- I** Dispositivo completo per le operazioni di controllo, riduzione/aumento della pressione o caricamento di cilindri autonomi e sistemi collegati.
- GB** Complete device designed and built for checking operations, decreasing/increasing pressure, or charging self-contained cylinders and linked systems.
- D** Komplette Vorrichtung zur Kontrolle Operationen, Verminderung / Erhöhung des Drucks, oder Ladung die Selbstständigen gasdruckfedern und verbundenen Systemen.
- F** Dispositif complet pour les opérations de contrôle, réduction/augmentation de la pression ou chargement de cylindres autonomes et systèmes reliés.
- E** Dispositivo completo para las operaciones de control, reducción/aumento de la presión o carga de cilindros autónomos y sistemas conectados.
- P** Dispositivo completo para as operações de controle, redução/aumento da pressão ou carregamento dos cilindros autônomos e sistemas conectados.

### 39DMA includes:

No. 1	39DMCILA	No. 1	39DMCPVA	No. 1	39IR01A	No. 1	ADM01	No. 1	ADM02
No. 1	ADM03	No. 1	ADM04	No. 1	ADM05	No. 1	ADM06	No. 1	ADM08
No. 1	Declaration of CE conformity		No. 1	User manual					

## code 39DMCILA



- I** Manometro 0 ÷ 315 bar - 2 manopole - valvola di riduzione/scarico pressione - adattatore fisso G1/8" - attacco rapido maschio Cejn - Incluso nel set cod. 39DMA.
- GB** 0 ÷ 315 bar gauge - 2 hand knobs - pressure limitation/discharging valve - G1/8" built in adapter - quickfit male Cejn - included in the set with code 39DMA
- D** Manometro 0 ÷ 315 bar - 2 Drehknöpfe - Entlüftungsventil - fester Adapter G1/8" - Schnellverschlusskupplung Stecker Cejn - im. 39DMA Ausstattung inbegriffen.
- F** Manomètre 0 ÷ 315 bar - 2 poignées - soupape de réduction/déchargement pression - Adaptateur fixe G1/8" - enclenchement instantané mâle Cejn - joint dans le kit avec code. 39DMA.
- E** Manómetro 0 ÷ 315 bar - 2 perillas - válvula de reducción/descarga de presión - adaptador fijo G1/8" - enganche rápido macho Cejn incluido en el set con código. 39DMA.
- P** Manômetro 0 ÷ 315 bar/psi - 2 manoplas - válvula de redução/descarga pressão - adaptador fixo G1/8" - engate rápido macho Cejn - incluído em conjunto código. 39DMA

## code 39DMCPVA



1/4" BSP

- I** 3 mt di tubo - attacco rapido femmina Cejn - valvola ON/OFF - valvola di scarico tubo - 1 innesto rapido supplementare (SOLO PER CPVB - CPVD) - Incluso nel set cod. 39DMA.
- GB** 3 Mt high pressure hose- quickfit female Cejn- shut-off valve- hose release valve -additional quick coupling (ONLY FOR CPVB - CPVD) - Included in the set with code 39DMA.
- D** 3 Meter Schlauch- Schnellverschlusskupplung Muffe Cejn- Sperrventil- Rohr Ablassventil- 1 zusätzliche Schnellverschluss Kupplung (NUR FÜR CPVB-CPVD KONTROLLARMATUR) - im. 39DMA Ausstattung inbegriffen.
- F** 3 m de tuyau - enclenchement instantané femelle Cejn - soupape ON/OFF - soupape de déchargement tuyau - 1 enclenchement instantané supplémentaire (UNIQUEMENT POUR CPVB - CPVD) - joint en le jeu cod. 39DMA.
- E** 3 mt de tubo - enganche rápido hembra Cejn - válvula ON/OFF - válvula de descarga tubo - 1 inserción rápida suplementaria (SÓLO PARA CPVB - CPVD) - incluido en el set cod. 39DMA.
- P** 3 mt de tubo - engate rápido fêmea Cejn - válvula ON/OFF - válvula de descarga tubo - 1 engate rápido suplementar (SOMENTE PARA CPVB - CPVD) - incluído em conjunto cod. 39DMA.

## code 39IR01A



ISO 72 - C - 2 - 2 - RP

- I** Innesto rapido femmina per dispositivo 39DMCPVA (USARE SOLO CON PANNELLI CPVB - CPVD).
- GB** Quick female coupling for device 39DMCPVA (SUITABLE ONLY FOR CPVB - CPVD PANELS).
- D** Schnellverschlusskupplung Muffe für Ausstattung 39DMCPVA (NUR FÜR CPVB - CPVD KONTROLLARMATUR)
- F** Enclenchement instantané femelle pour dispositif 39DMCPVA (N'UTILISER QU'AVEC PANNEAUX CPVB - CPVD).
- E** Inserción rápida hembra para dispositivo 39DMCPVA (USO SOLAMENTE CON PANELES CPVB - CPVD).
- P** Engate rápido fêmea para dispositivo 39DMCPVA (USE UNICAMENTE COM PAINÉIS CPVB - CPVD).

## code 39IRFA



Cejn 358

- I** Innesto rapido femmina per dispositivo 39DMCPV (NON USARE CON PANNELLI CPVB - CPVD).
- GB** Quick female coupling for device 39DMCPV (NOT SUITABLE FOR CPVB - CPVD PANELS).
- D** Schnellverschlusskupplung Muffe für Ausstattung 39DMCPV (NICHT MIT CPVB - CPVD ARMATUR VERWENDEN)
- F** Enclenchement instantané femelle pour dispositif 39DMCPV (NE PAS UTILISER AVEC PANNEAUX CPVB - CPVD).
- E** Inserción rápida hembra para dispositivo 39DMCPV (NO USAR CON PANELES CPVB - CPVD).
- P** Engate rápido fêmea para dispositivo 39DMCPV (NÃO USE COM PAINÉIS CPVB - CPVD).

code 39QDFV01 for 1/8G thread  
code 39QDFV02 for M6 thread  
code 39QDFV03 for M6 thread

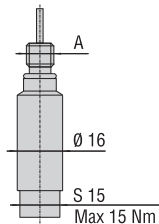


- I** Adattatore per caricamento diretto con innesto rapido maschio Cejin.
- GB** Cejin male quick fit adapter for direct charging.
- D** Adapter für direkt Ladung mit Schnellverschlusskupplung Stecker Cejin
- F** Adaptateur direct pour le chargement avec enclenchement instantané mâle Cejin.
- E** Adaptador directo para la carga con enganche rápido macho Cejin.
- P** Adaptador direto para la carga con engate rápido macho Cejin.

>>> see tab below.

Code	39QDFV01	39QDFV03	39QDFV02	39QDFV03	39QDFV02	39QDFV02	39QDFV02	39QDFV03	39QDFV01
Modello	ML1800-12000	HR300 Cu 5-16	NE16, NE24 (rev A)	SC150, SC250	K40	HR200	NE16 - NE24 (revB)	ML500-1000 (rev B+C)	SC500-10000,
Model		HR500 Cu 5-16	HR1000-4200	SCF250, H300	ML300	MCS19	NG16 - NG24		SCF500-750
Modell		HR700 Cu 10-16	HRF1000	H500, HF500		MCS19-TBM	M50 - M70		H700-18500
Model		HRF700 Cu 10-16	LI900-2000	HR500 Cu 25-125		MCS19-TBI	M90 - MS90		HF700-1000
Modelo		ML500		HR700 Cu 19-125		MCS19-TEM	M90 TBM - TBI - TEM		HR6600-11800
Modelo		ML1000		HRF500 Cu 25-125		MCS25	M200 - MS200		LI3200
		LI400 Cu 13		HRF700 Cu 19-125			M300		LS1500-9500
				LI400 Cu 25-100			KE400-7500		KE12000-18500
							RV170-2400		S500-S3000
							RS170-2400		RV4200-RV20000
							SC150 - 250 (rev D)		RS4200-RS9500
							H 300 - 500 (rev C)		RF750-RF2400
							ML300 (rev B+C)		RG750-RG6600
									RT350-RT9500
									ML1800-ML12000 (rev B+C)
A	G1/8"	M6	M6	M6	M6	M6	M6	M6	G 1/8"
Code	ADM01	ADM02	ADM03	ADM04	ADM05	ADM06	ADM08	ADM09	Direttamente con 39DMA (senza adattatore) Directly with 39DMA (without adapter) Direkt mit 39DMA (ohne Adapter) Directement avec 39DMA (sans adaptateur) Directamente con 39DMA (sin adaptador) Directamente com 39DMA (sem adaptador)

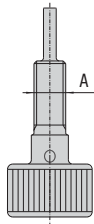
code ADM...



- I** Adattatore per dispositivo 39DMCILA.
- GB** Adapter for 39DMCILA device.
- D** Adapter für 39DMCILA Vorrichtung.
- F** Adaptateur pour dispositif 39DMCILA.
- E** Adaptador para dispositivo 39DMCILA.
- P** Adaptador para dispositivo 39DMCILA.

>>> see tab above.

code DDS-...



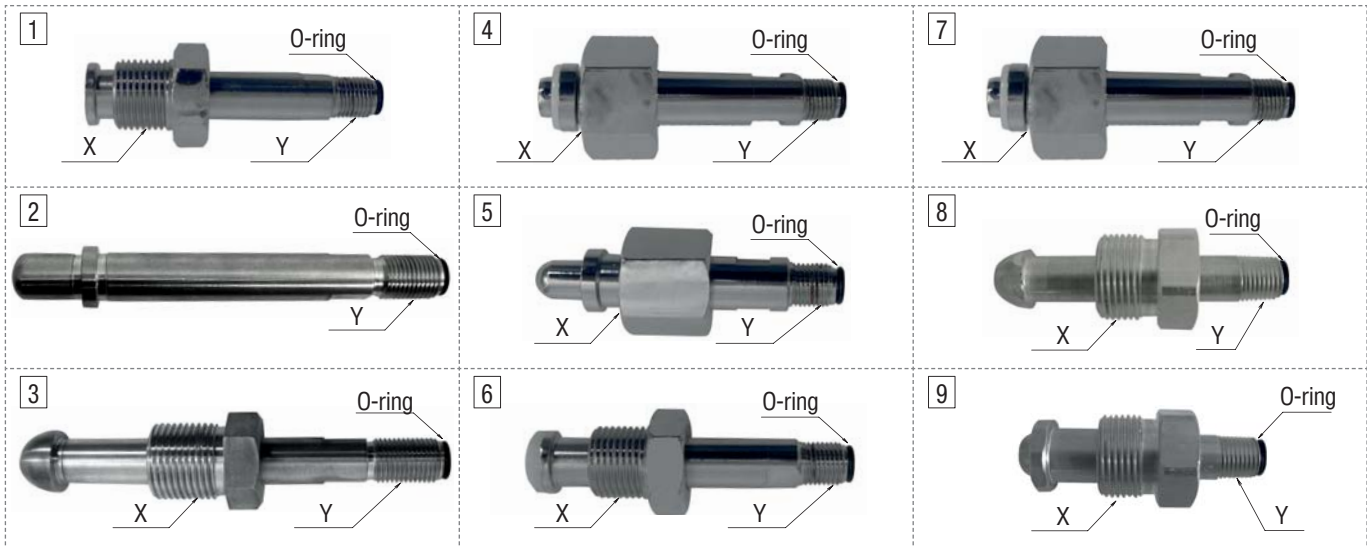
- I** Dispositivo di scaricamento.
- GB** Discharging device.
- D** Ablassvorrichtung.
- F** Dispositif de déchargement.
- E** Dispositivo de descarga.
- P** Dispositivo de descarga.

Code	DDS-M6/1	DDS-M6/2	DDS-M6/3	DDS-1/8G1	DDS-1/8G	
A	M6	M6	M6	G 1/8"	G 1/8"	
Model	MCS K ML (rev. A) HR LI	NE (rev. A) SC H HR LI	NE (rev. B) NG M MS KE	ML (rev. B + C) RV RS SC (rev. D) H (rev. C)	K ML (rev. A)	SC H HR LI LS KE ML (rev.B) S RV RS RF RT RG

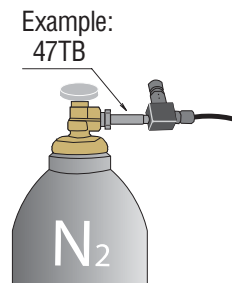
# ACCESSORIES



## code 47T...



CODE	IMG	Y	X	COUNTRY
47TB	1	1/4" BSP	W 21,7x1/14" - Male - UNI 4409	Italy
47TB01	2	1/4" BSP	-	China - Korea
47TB02	3	1/4" BSP	14 G 7/16" - Male	Japan - Indonesia
47TB03	4	1/4" BSB	W24,32x1/14" - Female - DIN 477 - 10 N2	Germany
47TB04	5	1/4" BSP	MFE 29 - 650 CXR133 - Female	France
47TB05	6	1/4" BSP	W 21,7x1/14" - Male	India
47TB06	7	1/4" BSB	G 3/4"	Russia
47TB07	8	1/4" BSB	W 24,5x1/14" - Male ( ≤ 206 bar / 3000 psi )	USA
47TB08	9	1/4" BSB	W 26,41x1/14" - Male ( > 206 bar / 3000 psi )	USA



**I** Tubo per collegamento tra riduttore e bombola gas Azoto

**F** Tuyau pour le lien entre le réducteur et la bouteille de gaz Azote

**GB** Connecting hose between pressure regulator and nitrogen tank

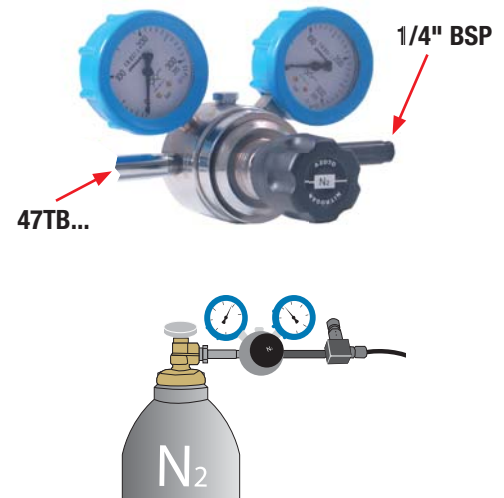
**E** Tubo para conexión entre reductor y bombona gas Nitrógeno

**D** Verbindungsrohr zwischen Druckminderer und Stickstoff-Gasflasche

**P** Tubo para ligação entre reductor e garrafa de gás Azoto

## code 39R....

CODE	Riduttore di pressione + attacco Pressure reducer + connection Druckminderer + Verbindung Réducteur de pression + jonction Reductor de presión + enganche Redutor de pressão + engate	COUNTRY
39RP	39R + 47TB	Italy
39RP01	39R + 47TB01	China - Korea
39RP02	39R + 47TB02	Japan - Indonesia
39RP03	39R + 47TB03	Germany
39RP04	39R + 47TB04	France
39RP05	39R + 47TB05	India
39RP06	39R + 47TB06	Russia
39RP07	39R + 47TB07	USA



**I** Riduttore di pressione completo di attacco bombola per controllare e ridurre la pressione.

**F** Réducteur de pression complet avec jonction de bouteille pour contrôler et réduire la pression.

**GB** Pressure reducer complete with cylinder connection to control and reduce the pressure.

**E** Reductor de presión completo con enganche de las bombonas para controlar y reducir la presión.

**D** Druckminderer vollständig mit Flasche verbindungs, um die Druck zu überwachen und verringern

**P** Redutor de pressão completo com engate para controlar e reduzir a pressão.



**code CMC**



**code CMCT**



**code CMC-...**



**code 39PM02A**



**I** Serie completa di accessori per lo smontaggio ed il rimontaggio dei cilindri

**CMC** = set completo

**CMCT** = solo set utensili

**CMC-...** = set accessori per determinata famiglia di cilindri  
(es. CMC-SC 10000)

**39PM02A** = Pressa manuale per assemblaggio stelo, boccola e anello di ritegno a C

**GB** Complete set of hardware for dismantling and assembling nitrogen cylinders

**CMC** = full set

**CMCT** = tool set only

**CMC-...** = set of accessories for a specific family of cylinders  
(ex. CMC-SC 10000)

**39PM02A** = Table manual press for assembly of piston-rod, assembled bushing and retaining C-ring

**D** Werkzeugeset zum Zerlegen und Zusammenbauen von Stickstoffzylindern

**CMC** = Komplettsset

**CMCT** = nur Werkzeugeset

**CMC-...** = Zubehörset für bestimmte Zylindertypen (z. B. CMC-SC 10000)

**39PM02A** = Manuelle Presse zur Montage von Kolbenstange, Buchse und Sprengring

**F** Ensemble complet du petit matériel de montage et démontage des ressorts gaz

**CMC** = jeu complet

**CMCT** = uniquement jeu d'outils

**CMC-...** = jeu d'accessoires pour une famille donnée de cylindres  
(ex.: CMC-SC 10000)

**39PM02A** = Presse manuelle pour l'assemblage de la queue, douille et bague d'étanchéité en C

**E** Serie completa de accesorios para el desmontado y remontado de los cilindros

**CMC** = set completo

**CMCT** = sólo set de herramientas

**CMC-...** = set de accesorios para una determinada familia de cilindros  
(p.ej. CMC-SC 10000)

**39PM02A** = Prensa manual para ensamblaje perno, casquillo y anillo de retención a C

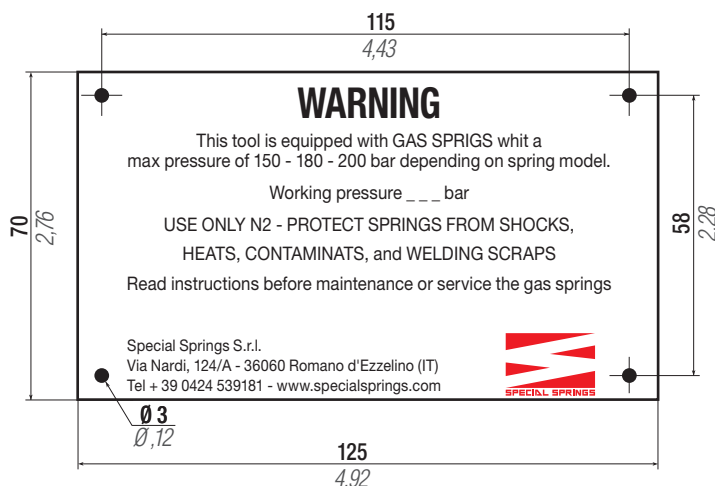
**P** Série completa de acessórios para a desmontagem e montagem dos cilindros

**CMC** = conjunto completo

**CMCT** = apenas utensílios de conjunto

**CMC-...** = acessórios de conjunto para determinada família de cilindros  
(ex. CMC-SC 10000)

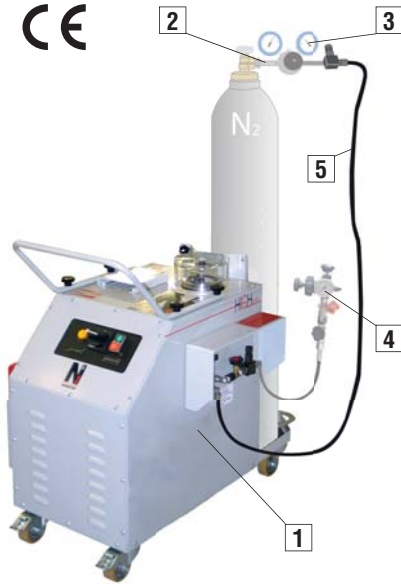
**39PM02A** = Prensa manual para ensambadura haste, bucha e aro de retenção a C



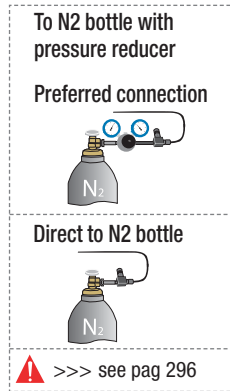
## WARNING PLATE

<b>I</b> Targhetta	<b>Codice</b>	<b>39TAR-I</b>
<b>GB</b> Advice plate	<b>Code</b>	<b>39TAR-GB</b>
<b>D</b> Schilder	<b>Bestell-nummer</b>	<b>39TAR-D</b>
<b>F</b> Plaquettes	<b>Référence</b>	<b>39TAR-F</b>
<b>E</b> Placas	<b>Codigo</b>	<b>39TAR-E</b>
<b>P</b> Etiquetas	<b>Codigo</b>	<b>39TAR-P</b>

# ACCESSORIES



Booster carrellato per il caricamento di grandi volumi di azoto, con azionamento elettro-idraulico per la massima velocità.  
 Wheeled Booster for the filling of large volumes of nitrogen, with electro-hydraulic start-up for the maximum speed.  
 Ein fahrbares Booster, für die Ladung aus großen Mengen von Stickstoff, mit elektrohydraulischer Antrieb für die Maximaldrehzahl.  
 Booster à chariot, pour la charge de grands volumes d'azote, avec actionnement électro-hydraulique pour la vitesse maximum.  
 Booster sobre ruedas para la carga de grandes volúmenes de nitrógeno con accionamiento electro-hidráulico para la velocidad máxima.  
 Booster rodado para o carregamento de grandes volumes de nitrogênio com acionamento eletro-hidráulico para a velocidade máxima.



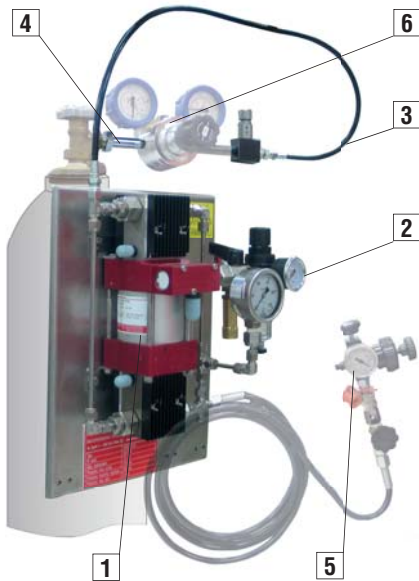
CODE	Booster + Connection (see page 292) 1 + 2	COUNTRY
39NCU01A	Booster unit + 47TB	Italy
39NCU10A	+ 47TB01	China - Korea
39NCU11A	+ 47TB02	Japan - Indonesia
39NCU12A	+ 47TB03	Germany
39NCU13A	+ 47TB04	France
39NCU14A	+ 47TB05	India
39NCU15A	+ 47TB06	Russia
39NCU22A	+ 47TB07	USA
39NCU23A	+ 47TB08	USA

- |   |  |   |   |  |
|---|--|---|---|--|
| <p><b>1 -</b><br/>Unità booster<br/>Booster unit<br/>Booster Gerät<br/>Unité Booster<br/>Unidad Booster<br/>Unidade Booster</p> | <p><b>2 -</b><br/>Attacco per bombola (v. pg. 296)<br/>Connection for bottle (see p. 296)<br/>Ansatz für die Flasche (siehe s. 296)<br/>Décapage pour bombonne (voir p. 296)<br/>Ataque a la Bombona (ver pag. 296)<br/>Ataque a Bottle (ver p. 296)</p> | <p><b>3 -</b><br/>Riduttore di pressione - non incluso<br/>Pressure reducer - not included<br/>Druckminderer - nicht inbegriffen<br/>Réducteur de pression - non inclus<br/>Reductor de presión - no incluido<br/>Redutor de pressão - não incluido</p> | <p><b>4 -</b><br/>Dispositivo di caricamento DMA - non incluso (v. pg. 294)<br/>Charging device DMA - not included (see p. 294)<br/>Ladung Vorrichtung DMA - nicht inbegriffen (siehe s. 294)<br/>Dispositif de charge DMA - non inclus (voir p. 294)<br/>Dispositivo de carga DMA - no incluido (ver pag. 294)<br/>Dispositivo de carregamento de DMA - não incluido (ver p 294)</p> | <p><b>5 -</b><br/>Tubo collegamento bombola con valvola di scarico<br/>Connecting hose from the bottle to the valve discharging<br/>Verbindung Schlauche des Flasche mit Auslassventil<br/>Tube pour la connexion bombonne avec valve de décharge<br/>Tubo de conexión de la Bombona con la válvula de descarga<br/>Tubo de ligação Frasco com a válvula de descarga</p> |
|---|--|---|---|--|

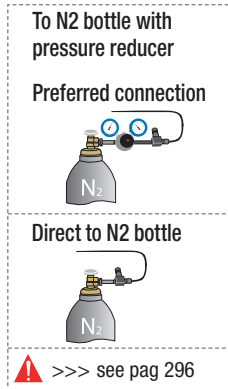
<p><b>I</b> <b>Caratteristiche - vantaggi</b> - Massima sicurezza, minimi tempi di caricamento - Arresto automatico alla pressione impostata - Segnale luminoso di fine ciclo - Valvola di sicurezza per sovrappressione - Pompa elettrica - Pressione di uscita regolabile - Telaio carrellato con alloggiamento bombola N2 - Utilizzare con set di caricamento DMA (opzionale)</p> <p><b>La fornitura comprende</b> - Unità booster - 3 mt di tubo per collegamento a bombola o riduttore di pressione + attacco per bombola</p>	<p><b>GB</b> <b>Features- advantages</b> - maximum safety, low charging time - automatic stop when the set pressure is reached - Light indicator of cycle end - Safety valve for overpressure - Electric pump - Adjustable output pressure - Wheeled cart with N2 bottle housing - To be used with charging set DMA (optional)</p> <p><b>The supply includes</b> - Booster unit - 3 mt hose for connecting the bottle or pressure reducer + bottle connection</p>	<p><b>D</b> <b>Eigenheiten -Vorteile</b> - Maximale Sicherheit, minimale Befüllzeiten - Automatisches Anhalten beim Erreichen des Drucks - Leuchtsignal bei Zyklusende - Überdruck-Sicherheitsventil - Elektrische Pumpe - Einstellbarer Output-Druck - Fahrbares Gestell mit Ablagefach für N2-Gasflasche - Zum Einsatz mit der DMA Ladevorrichtung (optional)</p> <p><b>Die Lieferung beinhaltet</b> - Booster Gerät - 3 Meters Schlauch für den Anschluss zur Flasche oder zum Druckminderer + Ansatz für die Flasche</p>	<p><b>F</b> <b>Caractéristiques- avantages</b> - sécurité maximum, temps de chargement minimum - arrêt automatique à la pression établie - signal lumineux de fin de cycle - valve de sécurité pour la surpression - pompe électrique - Pression de sortie réglable - Châssis à chariot avec logement de bonbonne N2 - À utiliser avec le set de chargement DMA (en option)</p> <p><b>La fourniture inclut</b> - Unité booster - 3 mt de tube pour la connexion à la bombonne ou au réducteur de pression + Décapage bombonne</p>	<p><b>E</b> <b>Características - Ventajas</b> - Máxima seguridad, tiempo mínimo de carga. - Parada automática en la presión elegida - Señal luminosa de final de ciclo - Válvula de seguridad para sobrepresión - Bomba eléctrica - Presión de salida regulable - Chasis sobre ruedas y alojamiento para botella de N2 - Utilizar combinado con set de carga DMA (opcional)</p> <p><b>El suministro incluye</b> - Unidad Booster - Tubo de 3 mt para conexión a la bombona o al reductor de presión + Ataque Bombona</p>	<p><b>P</b> <b>Características - Benefícios</b> - Máxima segurança, tempos de carregamento mais baixos - Paragem automática quando atingida a pressão especificada - Sinal luminoso de fim de ciclo - Válvula de segurança activa sobrepressão - Bomba eléctrica - Saída de pressão ajustável - Quadro rodado com alojamento para tank N2 - Utilizado com o conjunto de carregamento DMA (opcional)</p> <p><b>O fornecimento inclui</b> - Unidade Booster - 3 mt tubo para ligação ao cilindro de azoto ou de reductor de pressão + Ataque a Bottle</p>
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	Pmax	Pmin	Vm	°F °C	H L P L x P x H	Kg
230/400/415/440/ 480/575 V - 50 Hz / 60Hz	210 bar 3045 psi	30 bar 435 psi	1300 NL / min *	0 - 45 °C 32 - 113 °F	600 x 560 x 680 mm 24 x 22 x 27 inch	138 Kg 304 lbs

\* Il rendimento volumetrico varia in funzione di PN2 - The volumetric efficiency varies according to PN2 - Der Liefergrad ändert sich in Abhängigkeit vom PN2  
 Le rendement volumétrique varie en fonction de PN2 - El rendimiento volumétrico varia en función de Pair et PN2- O rendimento volumétrico varia em função da PN2



Booster portatile compatto per caricamento azoto con azionamento pneumatico  
 Compact portable booster for the filling of nitrogen, with pneumatic start-up  
 Ein kompakter und Portabler Booster für die Ladung von Stickstoff, mit pneumatischer Betätigung  
 Booster compacte et portable pour la charge avec azote, avec actionnement pneumatique  
 Booster compacto y portátil para la carga con nitrógeno con accionamiento neumático  
 Booster compacto e portátil para carregar com nitrogênio com acionamento pneumático



CODE	Booster + Connection (see page 292)	COUNTRY
39NCU03A	Booster unit + 47TB	Italy
39NCU04A	+ 47TB01	China - Korea
39NCU05A	+ 47TB02	Japan - Indonesia
39NCU06A	+ 47TB03	Germany
39NCU07A	+ 47TB04	France
39NCU08A	+ 47TB05	India
39NCU09A	+ 47TB06	Russia
39NCU26A	+ 47TB07	USA
39NCU27A	+ 47TB08	USA

- 1 - Unità booster  
Booster unit  
Booster Gerät  
Unité Booster  
Unidad Booster  
Unidade Booster
- 2 - Valvola sicurezza e ingresso aria  
Safety valve and air inlet  
Sicherheit Ventile und Luft Eingang  
Valve de sécurité et entrée de l'air  
Válvula de Seguridad y ingreso aire  
Válvula de segurança e entrada de ar
- 3 - Tubo collegamento bombola con valvola di scarico  
Connecting hose from the bottle to the valve discharging  
Verbindung Schlauche des Flasche mit Auslassventil  
Tube pour la connexion bombonne avec valve de décharge  
Tubo de conexión de la Bombona con la válvula de descarga  
Tubo de ligação Frasco com a válvula de descarga
- 4 - Attacco per bombola (v. pg. 296)  
Connection for bottle (see p. 296)  
Ansatz für die Flasche (siehe s. 296)  
Décapage pour bombonne (voir p. 296)  
Ataque a la Bombona (ver pág. 296)  
Ataque a Bottle (ver p. 296)
- 5 - Dispositivo di caricamento DMA - non incluso (v. pg. 294)  
Charging device DMA - not included (see p. 294)  
Ladung Vorrichtung DMA - nicht inbegriffen (siehe s. 294)  
Dispositif de charge DMA - non inclus (voir p. 294)  
Dispositivo de carga DMA - no incluido (ver pág. 294)  
Dispositivo de carregamento de DMA - não incluído (ver p 294)
- 6 - Riduttore di pressione - non incluso  
Pressure reducer - not included  
Druckminderer - nicht inbegriffen  
Réducteur de pression - non inclus  
Reductor de presión - no incluido  
Redutor de pressão - não incluído

**I**

**Caratteristiche - Vantaggi**

- Compatto, leggero e portatile
- Massimo utilizzo del volume bombola N2
- Installazione diretta su bombola N2
- Valvola di sicurezza output N2 max 220 bar

**La fornitura comprende**

- Unità booster completa di valvola di sicurezza
- Supporto per bombola
- 1 mt di tubo per collegamento a bombola o riduttore di pressione + attacco per bombola

**GB**

**Features - Advantages**

- Compact, light and portable
- Max use of the nitrogen bottle N2
- Direct installation on the N2 bottle
- Safety N2 output valve max 220 bar

**The supply includes**

- Booster unit provided with safety valve
- Bottle support
- 1 mt hose for connecting the bottle or pressure reducer + bottle connection

**D**

**Eigenschaften – Vorteile**

- Kompakt, leicht und portabel.
- Maximaler Nutzung der Stickstoffflasche N2.
- Direkter Installation am Stickstoffflasche N2.
- Sicherheit Ventile von N2 Ausgabe, max. 220 bar

**Die Lieferung beinhaltet**

- Booster Gerät versehen mit Sicherheit Ventile.
- Träger für die Stickstoffflasche.
- 1 Meters Schlauch für den Anschluss zur Flasche oder zum Druckminderer + Ansatz für die Flasche

**F**

**Caractéristiques –Avantages**

- Compacte, léger et portable
- Utilisation maximale de la bombonne d'azote N2
- Installation directe sur la bombonne d'azote N2
- Valve de sortie N2 sécurisé max 220 bar

**La fourniture inclut**

- Unité booster équipé avec valve de sécurité
- Support pour bombonne
- 1 mt de tube pour la connexion à la bombonne ou au réducteur de pression + Décapage bombonne

**E**

**Características - Ventajas**

- Compacto, ligero y portátil
- Uso máximo de la bombona de nitrógeno N2
- Instalación directamente sobre la bombona de N2
- Válvula de seguridad, output N2 max 220 bar

**El suministro incluye**

- Unidad Booster equipado con válvula de seguridad
- Soporte para la bombona de nitrógeno
- Tubo de 1 mt para la conexión a la bombona o al reductor de presión + Ataque Bombona

**P**

**Características - Benefícios**

- Compacto, leve e portátil
- Máxima utilização do cilindro de nitrogênio N2
- Instalação diretamente sobre o cilindro de N2
- Válvula de segurança, saída máxima de 220 bar N2

**O fornecimento inclui**

- Unidade Booster equipado com válvula de segurança
- O suporte para o cilindro de nitrogênio
- 1 mt tubo para ligação ao cilindro de azoto ou de redutor de pressão + Ataque a Bottle

<b>AIR</b>	<b>Pmax</b>	<b>Pmin</b>	<b>Vm</b>	<b>°F °C</b>	<b>L x P x H</b>	<b>Kg</b>
1 - 10 bar 15 - 145 psi	220 bar 3190 psi	30 bar 435 psi	280 NL / min *	0 - 45 °C 32 - 113 °F	230 x 350 x 230 mm 9 x 13 x 9 inch	10,8 Kg 23,8 lbs

\* Il rendimento volumetrico varia in funzione di Pair e PN2 - The volumetric efficiency varies according to Pair and PN2 - Der Liefergrad ändert sich in Abhängigkeit vom Pair und PN2  
 Le rendement volumétrique varie en fonction de Pair et PN2 - El rendimiento volumétrico varia en función de Pair et PN2 - O rendimento volumétrico varia em função da Pair e PN2

# ACCESSORIES



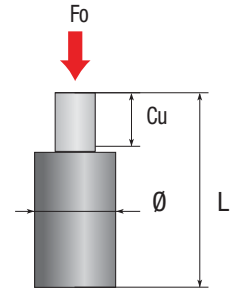
code FT7500

Digital force tester

code FT500



code 59VCATM02



CODE	F0		Ø		L		Cu	
	daN	lb	mm	inch	mm	inch	mm	inch
FT500	0 ÷ 500	0 ÷ 1124	12 ÷ 120	0,47 ÷ 4,72	40 ÷ 400	1,57 ÷ 15,75	5 ÷ 125	0,20 ÷ 4,92
FT7500	0 ÷ 7500	0 ÷ 16861						

code IPC/DIG

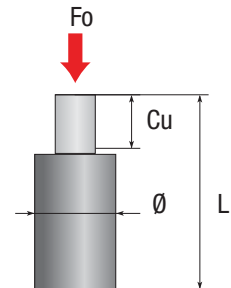
Digital force tester



code 59VCM051



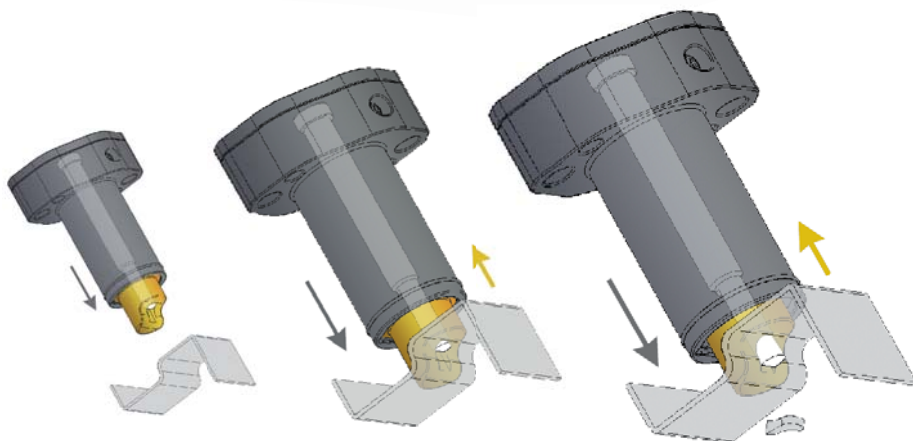
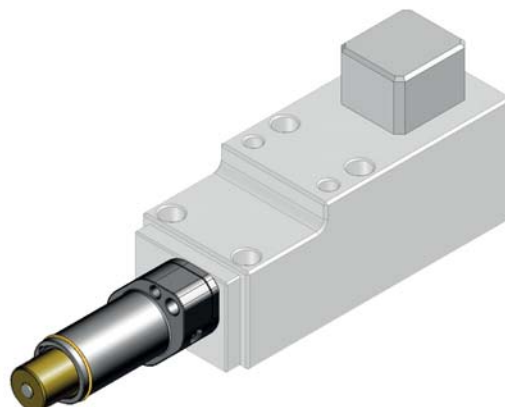
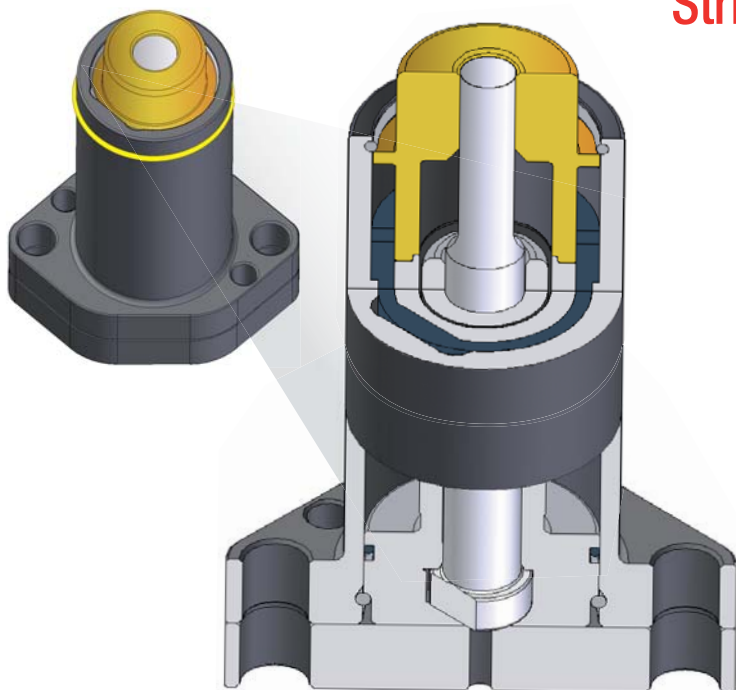
code 59RE150



CODE	F0		Ø		L		Cu	
	daN	lb	mm	inch	mm	inch	mm	inch
IPC/DIG	0 ÷ 20.000	0 ÷ 16861	12 ÷ 195	0,47 ÷ 7,68	40 ÷ 760	1,57 ÷ 29,92	5 ÷ 300	0,47 ÷ 11,81

# NITROGEN PUNCHING UNIT

Initial force up to 2000 daN  
Stripping force up to 4000 daN



**I** Richiedere o scaricare dal sito [www.specialsprings.com](http://www.specialsprings.com) il catalogo.

**GB** Ask for or download the catalogue from our web site [www.specialsprings.com](http://www.specialsprings.com).

**D** Den Katalog anfordern oder von unserer Internetseite [www.specialsprings.com](http://www.specialsprings.com) herunterladen.

**F** Demandez ou téléchargez notre catalogue à partir de notre site web [www.specialsprings.com](http://www.specialsprings.com).

**E** Solicitar o descargar de la web [www.specialsprings.com](http://www.specialsprings.com) el catálogo.

**P** Requerer ou descarregar no site [www.specialsprings.com](http://www.specialsprings.com) o catálogo.

**I**

- Testa prelamiera estraibile e sagomabile
- Facile posizionamento e fissaggio
- Elevata forza di estrazione
- Dimensioni compatte
- Adatto per punzoni ISO 8020
- Non è richiesto l'uso di altro portapunzone
- Ideale per uso combinato con unità cam

**F**

- Tête de bronze que peut être modelée et extraite
- Positionnement facile
- Force élevée de extraction
- Dimensions compactes
- Indiqué pour poinçons ISO 8020
- Il ne demande pas l'emploi de autre poinçon
- Idéal à utiliser avec l'unité CAM

**GB**

- Stripper head removable and mouldable
- Easy positioning
- High and adjustable holding and stripping force
- Compact dimensions
- Suitable for ISO 8020 shoulder style punch
- Doesn't require the use of standard retainer
- Ideal for combined use with cam unit

**E**

- Cabeza de despegador desmontable y moldeable
- Fácil posicionamiento
- Fuerza de extracción superior y ajustable
- Dimensiones compactas
- Apropiado para punzon con cabeza ISO 8020
- No requiere uso de porta punzon estandar
- Ideal para utilizar con carro

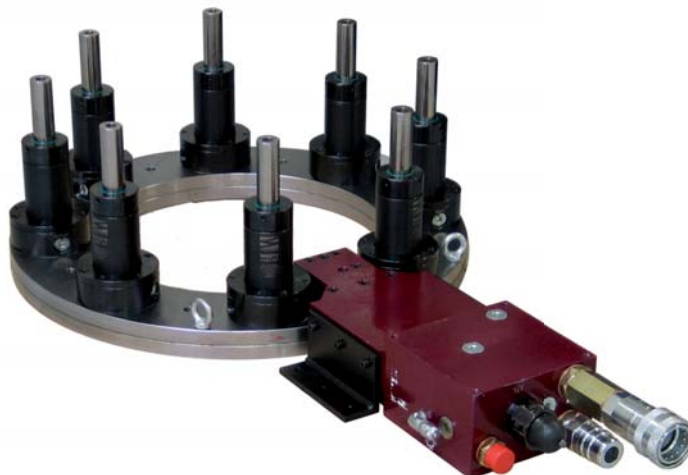
**D**

- Niederhalterkopf herausnehmbar und mit bearbeitbarer Kontur
- Einfache Positionierung
- Hohe und einstellbare Niederhalter- und Abstreiferkraft
- Kompakte Größe
- Geeignet für Schneidstempel ISO 8020
- Andere Stempelhalteplatten sind nicht erforderlich
- Ideal für den Einsatz in Kombination mit Schiebern

**P**

- Cabeça de corte fácil remoção e maquinavel
- Fácil posicionamento
- Fixação alta e ajustável e força de corte
- Dimensões compactas
- Adequado para punção o ISO 8020 respigado
- Não necessita do uso de um retentor normalizado
- Ideal para uso combinado com uma unidade CAM

# CYLINDERS WITH CONTROLLED RETURN



## I VANTAGGI DEL SISTEMA SPECIAL SPRINGS

- Ritorno degli steli dei cilindri indipendente dal ciclo pressa.
- Velocità di ritorno degli steli dei cilindri indipendente dalla velocità della pressa.
- Velocità di ritorno degli steli dei cilindri costante e regolabile.
- Forza di contrasto dei cilindri costante, crescente o decrescente da inizio a fine ciclo di lavoro.
- Utilizzo parziale della corsa dei cilindri possibile senza apportare modifiche al sistema.
- Continuo smaltimento del calore con scambiatori di calore sull'unità di comando.
- Massima affidabilità del sistema garantita dal fluido idraulico continuamente rigenerato.

## GB ADVANTAGES OF THE SPECIAL SPRINGS SYSTEM

- Return stroke of the cylinder rods independent from press cycle.
- Return speed of cylinder rods independent from press speed.
- Return speed of cylinder rods constant and adjustable.
- Cylinder contrasting force: constant, increasing or decreasing from beginning to end of working cycle.
- Partial use of cylinder stroke possible without system modifications.
- Continuous dispersal of the heat by heat exchanger on the command unit.
- Maximum system reliability guaranteed by the constant renewal of the hydraulic fluid.

## D DIE VORTEILE DES SYSTEMS VON SPECIAL SPRINGS

- Rücklauf der Kolbenstangen unabhängig vom Pressenzklus.
- Rücklaufgeschwindigkeit der Kolbenstangen unabhängig von der Pressengeschwindigkeit.
- Rücklaufgeschwindigkeit der Kolbenstangen konstant und einstellbar.
- Gegenkraft der Zylinder konstant, zunehmend oder abnehmend von Anfang bis Ende des Arbeitszyklus.
- Teilnutzung vom Hub der Zylinder möglich, ohne dass dazu Systemänderungen erforderlich sind.
- Kontinuierliche Ableitung der Wärme, durch einen Wärmeaustauscher im Hydraulikaggregat.
- Maximale Zuverlässigkeit des Systems, garantiert durch eine kontinuierliche Filtrierung und Temperierung des Hydrauliköls.

## F LES AVANTAGES DE SPECIAL SPRINGS SYSTÈME

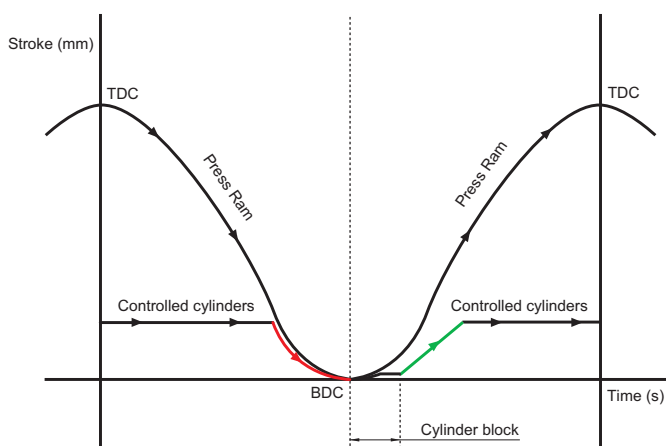
- Course de retour des pistons indépendante du cycle de la presse.
- Vitesse de remontée des pistons indépendante de la vitesse de la presse.
- Vitesse de remontée des pistons constante et réglable.
- Force d'opposition du vérin : constante, croissante ou décroissante du début à la fin du cycle de travail.
- Utilisation partielle de la course possible sans modification du système.
- Dispersion continue de la chaleur avec un échangeur thermique sur l'unité de commande.
- Fiabilité maximale du système garantie par le renouvellement permanent du fluide hydraulique.

## E VENTAJAS DEL SISTEMA SPECIAL SPRINGS

- Retorno del cilindro independiente del ciclo de la prensa.
- Velocidad de retorno del vástago independiente del ciclo de la prensa.
- Velocidad de retorno del vástago constante a regulable.
- Fuerza de contraste del cilindro: constante, aumentable o disminuible de principio a fin del ciclo de trabajo.
- Posibilidad de utilizar incluso parcialmente la carrera sin necesidad de modificar el sistema.
- Continua dispersión del calor con un intercambiador de calor en la unidad de control.
- Fiabilidad máxima del troquel garantizada por la constante renovación del fluido en el sistema.

## P VANTAGENS DO SISTEMA SPECIAL SPRINGS

- Curso de retorno do cilindro independente do ciclo da prensa.
- Velocidade de retorno do êmbolo independente do ciclo da prensa.
- Velocidade de retorno do êmbolo constante ou regulável.
- Força do cilindro: constante ou variável (maior ou menor força) do início ao fim do ciclo de trabalho.
- Possibilidade de se usar também parcialmente o curso sem ter necessidade de modificar o sistema.
- Contínua dissipação do calor com um permutador de calor na unidade de comando.
- Máxima fiabilidade da ferramenta garantida pela renovação constante do fluido no sistema.



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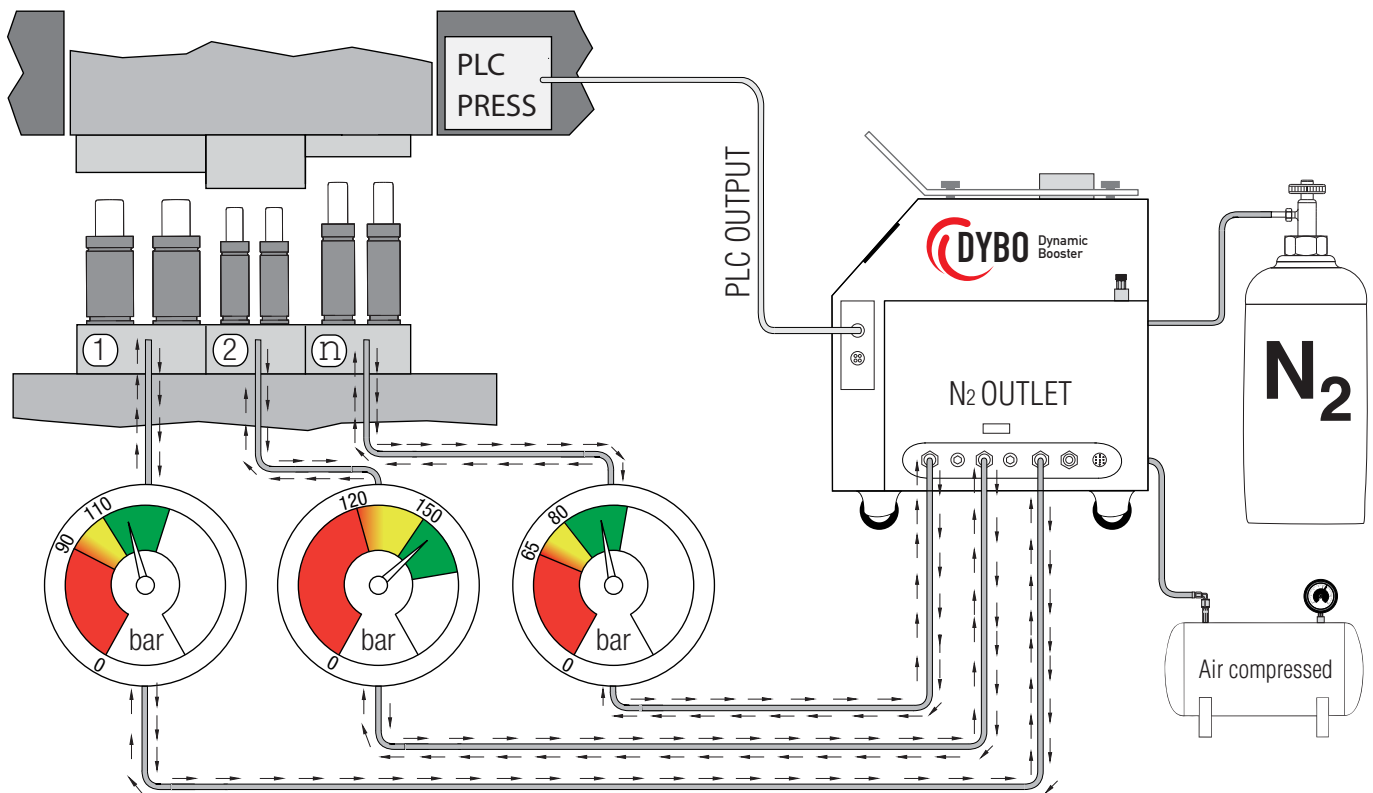
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# DYBO Dynamic Booster Pat. pending

- I** Controllo e regolazione multi zone della pressione di cilindri a gas collegati a sistema
- GB** Multi zone monitor and regulation of pressure of linked nitrogen gas springs system
- D** Mehrkreislauf Überwachung und Regulierung der Drucks den Gasdruckfedern in ein Verbundsystem
- F** Contrôle et saisi multizone de la pression dans les ressorts gaz reliés en système.
- E** Control y regulación multizona de la presión en los cilindros de gas conectados con el sistema.
- P** Controle e regulação multi-zona da pressão nos cilindros de gás conectados ao sistema.



# new













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