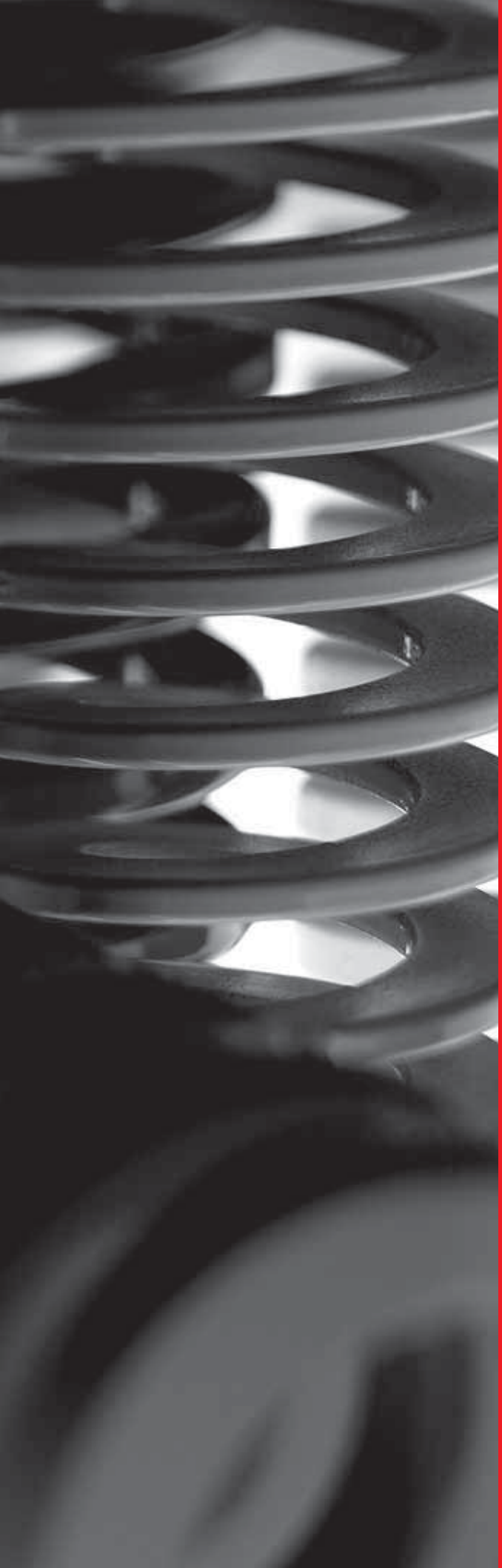


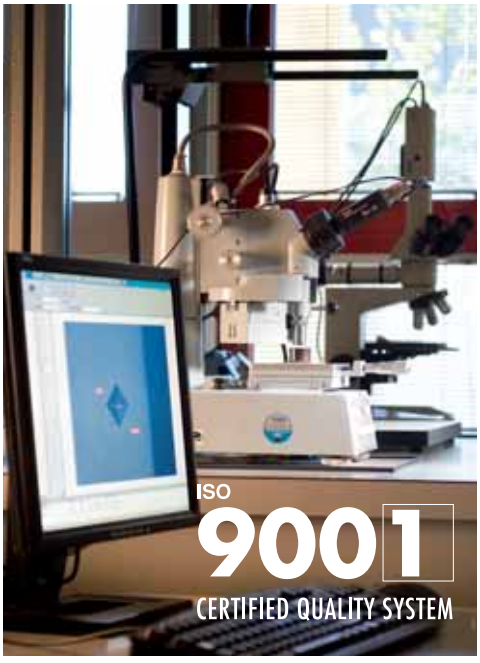
Die springs
Muelles para moldes
Ressorts de compression

Die Springs to ISO 10243 : 2010
Oval Wire Die Springs to US Standard

INCH & METRIC SIZES

SPECIAL SPRINGS

www.specialsprings.com



EN Ongoing research and development, along with strict quality assurance procedures in compliance with ISO 9001, ensure very high levels of dimensional accuracy, durability and reliability.

ES La continuada actividad de investigación y desarrollo unida a los severos controles de proceso, según el estándar ISO 9001, garantizan un producto con características dimensionales, de duración y fiabilidad superiores.

FR L'activité permanente dans le domaine de la recherche et du développement, ainsi que des contrôles qualités du processus de fabrication selon la norme ISO 9001, garantissent l'obtention d'un produit ayant de meilleures caracteristiques dimensionnelles, de durée et de fiabilité.

EN CAD SPRINGS, the first and revolutionary integrated software to calculate, select and generate Special Springs' die springs, available also on CADenas Partserver library.

ES CAD SPRINGS, el primer y revolucionario software integrado de cálculo, selección y creación paramétrica de los muelles para moldes Special Springs, disponible también sobre partserver de CADenas.

FR CAD SPRINGS, le premier logiciel révolutionnaire intégré de calcul, sélection et création paramétrique des ressorts pour moules Special Springs, également disponible sur partserver de CADenas.

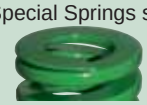
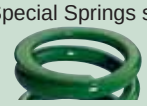
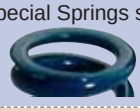
www.partcommunity.com

EN The stated service life values are not guaranteed due to the impossibility to consider all variables on the real working conditions of the springs.

ES Continuados tests internos de fiabilidad han permitido indicar valores de duración en función de las deflexiones y de las recomendaciones de uso.
Estos valores no son garantizados debido al elevado número de variables en las reales condiciones de trabajo.

FR Des tests internes continus de fiabilité ont permis d'indiquer des valeurs de durée en fonction des déflexions et des recommandations d'utilisation.
Ces valeurs ne sont pas garanties à cause du grand nombre de variables dans les conditions réelles de travail.

Range Summary

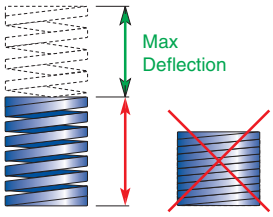
	Standard	Color Color Couleur	Wire Perfil Fil	Load Carga Charge	+ 3.000.000 cycles	~ 1.500.000 cycles	300-500.000 cycles	100-200.000 cycles
VL	Special Springs std	Light green Verde claro Verte claire (RAL 6019)		Super-light Super-ligero Extra-légère	30 % L_0	40 % L_0	45 % L_0	50 % L_0
V	Special Springs std 	Green Verde Verte (RAL 6002)		Light Ligero Lègère	25 % L_0	30 % L_0	35 % L_0	40 % L_0
B	ISO 10243	Blue Azul marino Bleue (RAL 5003)		Medium Medio Moyenne	25 % L_0	30 % L_0	33,75 % L_0	37,5 % L_0
R	ISO 10243	Red Rojo Rouge (RAL 3000)		Heavy Fuerte Forte	20 % L_0	25 % L_0	27,5 % L_0	30 % L_0
G	ISO 10243	Yellow Amarillo Jaune (RAL 1004)		Extra-Heavy Extra-Fuerte Extra-Forte	17 % L_0	20 % L_0	22,5 % L_0	25 % L_0
A	Special Springs std	Silver Plateado Argent (RAL 9006)		Ultra-Heavy Ultra-Fuerte Ultra-Forte	10 % L_0	12 % L_0	13,5 % L_0	15 % L_0
W	Special Springs std	White Blanco Blanc (RAL 9016)		Hyper-strong Hyper-forte Hyper-fuerte	5% L_0	6,5% L_0	7,5% L_0	8,3 - 14% L_0
TW	Special Springs std 	Green Verde Verte (RAL 6002)		Light Ligero Lègère	25 % L_0	30 % L_0	35 % L_0	40 % L_0
TB	Special Springs std 	Blue Azul Bleu (RAL 5003)		Medium Medio Moyenne	25 % L_0	30 % L_0	33,75 % L_0	37,5 % L_0
TR	Special Springs std	Red Rojo Rouge (RAL 3000)		Heavy Fuerte Forte	20 % L_0	25 % L_0	27,5 % L_0	30 % L_0
L	Special Springs std	Not painted Muelles no pintados Ressorts non-peints		-	16 % L_0	24 % L_0	38 % L_0	32 % L_0
MBL	US standard	Silver-Blue Plateado-Azul Argent-Bleu (RAL 5003)		Light Ligero Lègère	25 % L_0	40 % L_0	45 % L_0	50 % L_0
MHR	US standard	Silver-Red Plateado-Rojo Argent-Rouge (RAL 3000)		Medium Médio Moyenne	20 % L_0	25 % L_0	31 % L_0	37 % L_0
HGO	US standard	Silver-Gold Plateado-Oro Argent-Or (RAL XXXX)		Heavy Fuerte Forte	15 % L_0	20 % L_0	25 % L_0	30 % L_0
XHG	US standard	Silver-Green Plateado-Verde Argent-Verte (RAL 6002)		Extra-Heavy Extra-Fuerte Extra-Forte	15 % L_0	20 % L_0	22,5 % L_0	25 % L_0

Use Recommendations

EN The correct use of Special Springs' die springs assure performance levels well above the lifetime values indicated. Before using the springs, carefully read all the recommendations.
Incorrect use can significantly reduce the expected lifetime and may cause damages or injury.

ES El uso correcto de los muelles Special Springs asegura prestaciones mucho más elevadas que las indicaciones de duración proporcionadas. Antes de utilizar los muelles, lean atentamente todas las recomendaciones. Usos incorrectos reducen significativamente los valores de duración y pueden provocar situaciones de peligro y daños.

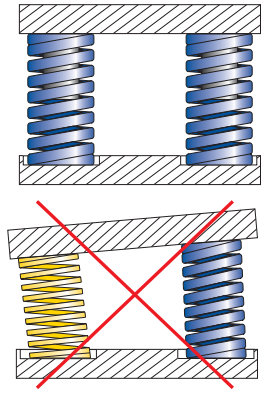
FR L'utilisation correcte des ressorts Special Springs assure des performances bien supérieures aux indications de durée fournies. Avant d'utiliser les ressorts, lire attentivement toutes les recommandations. Des utilisations incorrectes réduisent significativement les valeurs de durée et sont la cause de danger et de dommages.



EN Do not exceed the maximum deflection as indicated in the tabs (column D) as it may cause sudden failure of the springs and damages on the tool.
Do not store springs in compressed state for long time as it may cause abnormal fatigue to the springs.

ES No utilizar los muelles más allá de la máxima deflexión, de esa manera se evitan aflojamientos repentinos y daños al molde.
No almacenar los muelles en posición comprimida durante mucho tiempo, de esa manera se evitan estrés anormales y aflojamientos repentinos.

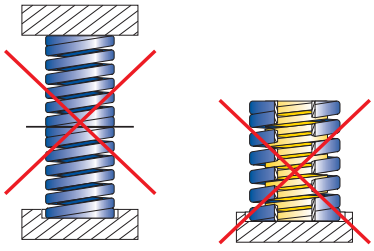
FR Ne pas utiliser les ressorts au-delà de la déflexion maximum, on évite ainsi des affaissements subits et des dommages au moule. Ne pas stocker les ressorts en position comprimée pendant longtemps, on évite ainsi des stress anormaux et des affaissements subits.



EN When using different type of springs in parallel simultaneously ensure that overall deflection and force guarantee a balanced load. When setting the springs ensure the best perpendicularity to the working surface to avoid early failure of the springs.

ES Si utilizan muelles diferentes simultáneamente, comprueben que las deflexiones y las fuerzas estén equilibradas. Garanticen la máxima perpendicularidad a los planos de contacto para evitar prematuros aflojamientos de los muelles.

FR Eviter l'utilisation de ressorts superposés non-complètement guidés ou insérés les uns dans les autres. Danger de dommages aux personnes ou aux choses.



EN Avoid to using springs in vertical group not fully guided or using springs inserted in each other as it may cause serious damage or injury.

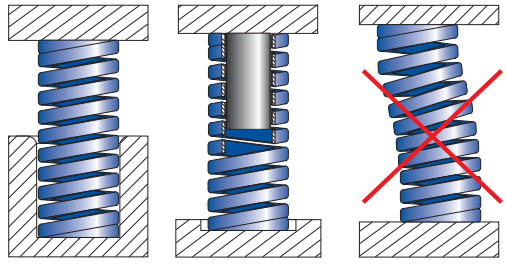
ES Evitar el uso de muelles superpuestos que no estén completamente guiados o insertados los unos en los otros. Peligro de daños a personas o cosas.

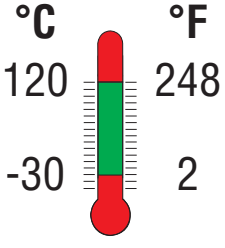
FR Ne pas stocker les ressorts en position comprimée pendant longtemps, on évite ainsi des stress anormaux et des affaissements subits.

EN The bigger the guide the longer the lifetime. It is essential to guide all springs with a free length /diameter ratio exceeding 3.5.

ES Cuanto mayor sea el conjunto de dispositivos de guía, mayor será la duración de los muelles. Es absolutamente necesario guiar todos los muelles con una relación de longitud/diámetro mayor de 3,5.

FR Plus le guidage est important et plus la durée des ressorts sera longue. Il est absolument nécessaire de guider tous les ressorts avec un rapport longueur/diamètre supérieur à 3,5.



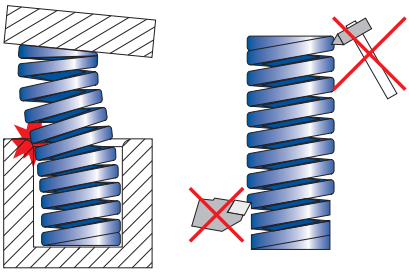


EN Best working temperature – 30°C + 120°C. Over 120°C and up to 250°C should be considered an average loss of 1% on springs rate for every 40°C.

ES Temperatura de utilización - 30 °C y +120 °C. Más allá de los 120 °C y hasta un máximo de 250 °C, hay que tener en cuenta una pérdida de carga del 1% aproximadamente cada 40 °C.

FR Température d'utilisation - 30 °C e +120 °C. Au-delà de 120 °C et jusqu'à un maximum 250 °C il faut considérer une perte de charge de 1% environ tous les 40 °C.

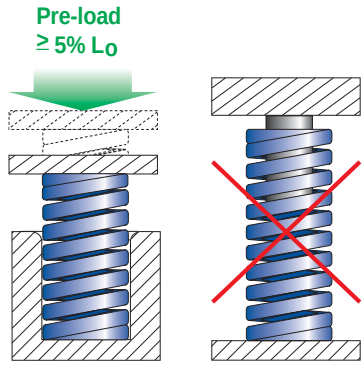
Use Recommendations



EN Any alteration on the surface of the springs (cutting, grinding, scratches, etc.) may significantly reduce the expected lifetime.
Always replace the damaged springs with new ones.

ES Cualquier daño sobre la superficie de los muelles (cortes, abrasiones, amoladuras) puede reducir significativamente la esperada duración.
Sustituir siempre los muelles dañados.

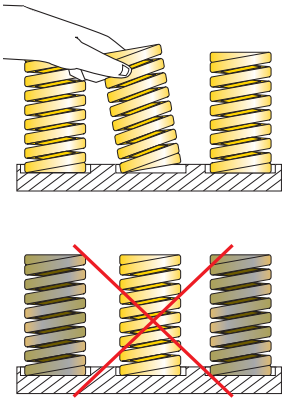
FR Tout dommage sur la surface des ressort (coupures, abrasions, meulages) peut réduire significativement la durée prévue. Il faut toujours remplacer les ressorts endommagés.



EN The bigger the pre-load the longer the lifetime of the springs for the same total deflection (% of Lo). Thus longer springs with bigger pre-load will assure longer lifetime.
It is recommended to apply a minimum pre-load of 5% of the free length.

ES A paridad de deflexión total, cuanto mayor es la precarga, mayor será la duración de los muelles, por lo tanto los muelles de mayor longitud a paridad de fuerza total garantizan una mayor duración. Aconsejamos una precarga mínima del 5% de la longitud libre.

FR A égalité de déflexion totale, plus la précharge est importante, et plus la durée des ressorts sera longue, donc des ressorts de longueur plus importante à égalité de force totale garantissent une plus longue durée. Nous conseillons une précharge minimum de 5% de la longueur libre.



EN If one spring collapses, an imbalanced load will occur, possibly damaging the other springs. Replace all springs. An advance planned maintenance according to the indicated lifetime of the springs will benefit in avoiding damages and saving of money.

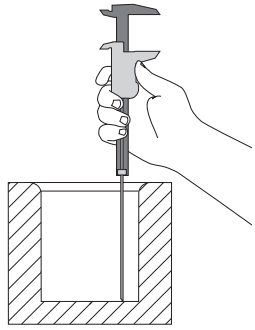
ES Un muelle colapsado crea un desequilibrio de las cargas con daños a los demás muelles o al molde.
Sustituir todos los muelles. Una sustitución programada de los muelles en función de la duración indicada en las tablas previene daños y reduce costes.

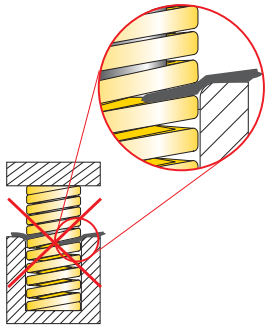
FR Un ressort affaissé crée un déséquilibre des charges avec des dommages aux autres ressorts et au moule. Remplacer tous les ressorts. Un remplacement programmé des ressorts en fonction de la durée indiquée sur les tableaux évite des dommages et réduit les coûts.

EN Tool maintenance can vary the original working deflection of the springs. Please always check the real working stroke of the springs to avoid early failure of the springs or damages in the tool.

ES Las manutenciones del molde pueden modificar la deflexión de trabajo original de los muelles. Controlar siempre las reales deflexiones para evitar prematuros aflojamientos de los muelles o daños al molde.

FR Les entretiens du moule peuvent modifier la déflexion du travail original des ressorts. Il faut toujours contrôler les déflexions réelles pour éviter des affaissements prématurés des ressorts ou des dommages au moule.





EN The presence of scraps or any solid piece between coils causes a reduction of springs deflection with overloads and early failure of the springs with damage in the tool. Take care to avoid that.

ES La presencia de cuerpos extraños entre las espiras de los muelles provoca reducciones de carrera, sobrecargas y rupturas de los muelles con daños al molde. Hacer lo posible para evitarlo.

FR La présence de corps étrangers entre les spires des ressorts provoque des réductions de course, des surcharges et des ruptures des ressorts avec des dommages au moule. Il faut faire le possible pour l'éviter.

Springs Selection

EN The following selection guide-line is essential for an easy and fast selection of the springs. Please specify the following working parameters: expected lifetime (ex.: 3.000.000 cycles), hole diameter (ex.: 16 mm), total spring force (ex.: 380 N) and total spring working deflection including pre-load (ex.: 5 mm).

ES El criterio siguiente permite una fácil y rápida selección de los muelles: es suficiente definir los siguientes parámetros de proyecto: duración (ej. 3.000.000 ciclos), diámetro de alojamiento (ej. 16 mm), fuerza total (ej. 380 N) y deflexión total de uso con precarga (ej. 5 mm).

FR Le critère suivant permet une sélection facile et rapide des ressorts, il suffit de définir les paramètres de projet suivants: durée (ex. 3.000.000 cycles), diamètre de logement (ex. 16 mm), force totale (ex. 380 N) et déflexion totale de travail avec précharge (ex. 5 mm).

EN Through the tabs on pages 7 and 8 cross the expected lifetime section (ex.: 3.000.000 cycles) with the hole diameter required (ex.: 16 mm).

ES Las tablas de las páginas 7 y 8 permiten identificar el valor de duración (3.000.000) y diámetro de alojamiento (16 mm) requeridos.

FR Les tableaux des pages 7 et 8 permettent de repérer la valeur de durée (3.000.000) et le diamètre de logement (16 mm) nécessaires.

EN The intersection of the expected lifetime with the hole diameter shows different forces. Select the one closest to your need.

ES De la intersección del número de ciclos y diámetro se obtienen una serie de fuerzas. Elegir la fuerza más cercana a aquella requerida redondeando por exceso si fuese preciso.

FR De l'intersection du nombre de cycles et du diamètre on obtient une série de forces. Choisir la force la plus proche de celle qui est nécessaire en arrondissant par excès au besoin.

EN After selecting the proper force box (ex.: 380 N) look to the corresponding load range of springs (ex.: R - heavy load).

ES Una vez elegida la fuerza requerida (380 N) se identifica la correspondiente serie de muelles (R - carga fuerte).

FR Après avoir choisi la force nécessaire (380 N) on repère la série correspondante de ressorts (R - charge forte).

EN Then go to the R series standard tabs, on the column A corresponding to the expected lifetime of 3.000.000 cycles and select the required total spring deflection.

ES En las páginas de los muelles serie R, y en correspondencia de la columna A (3.000.000 ciclos), se identifica la deflexión requerida.

FR Sur les pages des ressorts série R, et en correspondance de la colonne A (3.000.000 cycles), on repère la déflexion nécessaire.

EN Once selected the total springs deflection (ex.: 5 mm) select the corresponding spring code (ex.: R 16-025). The bigger the pre-load the longer the lifetime of springs for the same total deflection (% of Lo).

ES Una vez elegida la deflexión de proyecto (5 mm) se identifica el código del muelle correspondiente (R 16 - 025). A paridad de deflexión total (% de Lo), cuanto mayor sea la precarga, mayor será la duración de los muelles.

FR Après avoir choisi la déflexion de projet (5 mm) on repère le code du ressort correspondant (R16 - 025). A égalité de déflexion totale (% de Lo), plus la précharge est importante et plus la durée des ressorts sera longue.

Springs Selection

RECTANGULAR WIRE SECTION

Estimated Life	Hole diameter (mm) 10	12.5	16	20	25	32	40	50	63	Series
	Load (N)									
+ 3.000.000 cycles	-	-	-	220	410	485	745	1560	-	VL
	70	130	185	315	560	830	1130	2320	3250	V
	110	190	330	525	845	1520	2030	3050	5310	B
	125	200	380	935	1560	2530	3270	4860	8440	R
	145	230	455	1090	1760	2800	4770	6820	11890	G
	-	-	-	-	4090	6350	7700	12280	-	A
	Load (N)									
~ 1.500.000 cycles	-	-	-	290	540	650	1000	2120	-	VL
	80	150	220	380	675	990	1360	2780	3900	V
	130	230	400	625	1010	1830	2430	3660	6370	B
	155	250	480	1170	1950	3170	4090	6070	10560	R
	170	270	535	1280	2070	3290	5610	8030	13990	G
	-	-	-	-	4910	7620	9240	14730	-	A
	Load (N)									
300 -500.000 cycles	-	-	-	330	610	730	1120	2380	-	VL
	95	180	260	440	780	1160	1590	3240	4540	V
	150	255	450	705	1140	2060	2730	4120	7170	B
	170	275	525	1290	2140	3480	4490	6670	11610	R
	195	305	605	1440	2320	3700	6300	9020	15740	G
	-	-	-	-	5530	8570	10400	16580	-	A
	Load (N)									
100 -200.000 cycles	-	-	-	365	680	810	1250	2650	-	VL
	110	200	300	500	890	1320	1810	3710	5190	V
	170	280	500	780	1260	2280	3040	4580	7960	B
	185	300	570	1400	2340	3800	4900	7280	12660	R
	215	340	670	1605	2585	4120	7010	10040	17330	G
	-	-	-	-	6140	9520	11550	18420	-	A

EN The stated service life values are obtained from in-house reliability tests and are not guaranteed due to the impossibility to consider all variables on the real working conditions of the springs.
The selecting guide-line is an approximate method of spring selection, it is always recommended to refer to the standard tabs before using the spring.

ES Los valores de duración indicados en la tabla se obtienen por pruebas internas y no son garantizados debido al elevado número de variables en las reales condiciones de trabajo. El método indicado para la selección de los muelles es aproximativo, por eso aconsejamos hacer siempre referencia a las tablas para la selección.

FR Los valores de duración indicados en la tabla se obtienen por pruebas internas y no son garantizados debido al elevado número de variables en las reales condiciones de trabajo. El método indicado para la selección de los muelles es aproximativo, por eso aconsejamos hacer siempre referencia a las tablas para la selección.

Springs Selection

ROUND WIRE SECTION

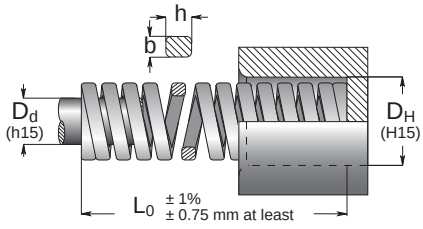
Estimated Life	Hole diameter (mm)									Series
	10	12.5	16	20	25	32	40	50	63	
	Load (N)									
+3.000.000 cycles	25	50	100	-	-	-	-	-	-	TV
	70	130	175	-	-	-	-	-	-	TB
	100	175	360	-	-	-	-	-	-	TR
	Load (N)									
~1.500.000 cycles	30	60	115	-	-	-	-	-	-	TV
	90	150	210	-	-	-	-	-	-	TB
	120	220	450	-	-	-	-	-	-	TR
	Load (N)									
300.000 500.000 cycles	35	70	135	-	-	-	-	-	-	TV
	100	170	240	-	-	-	-	-	-	TB
	135	240	500	-	-	-	-	-	-	TR
	Load (N)									
100.000 200.000 cycles	40	80	150	-	-	-	-	-	-	TV
	110	190	290	-	-	-	-	-	-	TB
	150	260	545	-	-	-	-	-	-	TR

OVAL WIRE SECTION

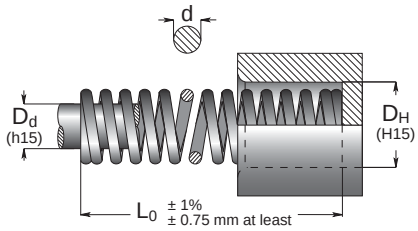
Estimated Life	Hole diameter (mm)									Series
	9.5	13	16	19.5	25.5	32	38.5	51	63	
	Load (N)									
Long	90	118	180	317	517	781	947	2457	3269	MBL
	93	143	252	433	644	1318	1631	2548	4160	MHR
	85	147	284	633	1132	1920	2197	3517	-	HGO
	136	193	375	753	1524	2412	3944	6092	-	XHG
	Load (N)									
Medium	143	188	288	506	912	1249	1514	3929	5226	MBL
	116	180	316	543	806	1649	2040	3186	5204	MHR
	114	196	378	840	1507	2556	2925	4685	-	HGO
	181	256	500	1002	2028	3212	5251	8114	-	XHG
	Load (N)									
Short	179	235	360	633	1140	1561	1892	4912	6533	MBL
	172	266	467	802	1192	2439	3018	4713	7696	MHR
	170	294	567	1260	2260	3835	4388	7028	-	HGO
	226	321	626	1253	2538	4018	6570	10149	-	XHG

How To Read

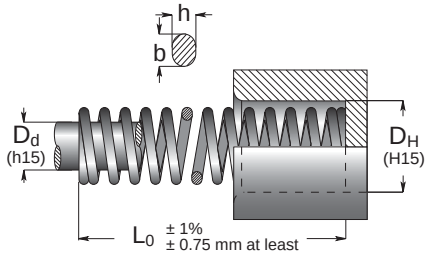
RECTANGULAR WIRE



ROUND WIRE



OVAL WIRE



Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A __% L_0	B __% L_0	C __% L_0	D __% L_0	E approx.
	b x h, d			± 10%	+ 3.000.000	~ 1.500.000	300 - 500.000	100 - 200.000	do not use
	mm	mm	mm	N/mm	mm N	mm N	mm N	mm N	mm N

D_H -hole diameter.
-diámetro del agujero de alojamiento.
-diamètre du trou de logement.

D_d -rod diameter.
-diámetro de la clavija de guía.
-diamètre de l'arbre de guidage.

bxh / d -cross wire section.
-sección del perfil.
-section du profilé.

L_0 -spring free length.
-longitud libre del muelle.
-longueur libre du ressort.

R -spring rate (load required for 1mm deflection).
-carga necesaria para desviar el muelle de 1 milímetro.
-charge exigée pour comprimer le ressort 1mm.

A -advised total working deflection for an estimated life + 3.000.000 cycles.
-desviación total de trabajo aconsejada para + 3.000.000 ciclos.
-déflexion totale conseillée pour une durée du ressort supérieure à 3.000.000 de cycles.

B -advised total working deflection for an estimated life ~ 1.500.000 cycles.
-desviación total de trabajo aconsejada para ~ 1.500.000 ciclos.
-déflexion totale conseillée pour une durée du ressort d'environ 1.500.000 cycles.

C -advised total working deflection for an estimated life 300.000 - 500.000 cycles.
-desviación total de trabajo aconsejada para 300.000 - 500.000 ciclos.
-déflexion totale conseillée pour une durée du ressort d'environ 300.000 – 500.000 cycles.

D -advised total working deflection for an estimated life 100.000 - 200.000 cycles.
-desviación total de trabajo aconsejada para 100.000 - 200.000 ciclos.
-déflexion totale maximum pour une durée du ressort d'environ 100.000 – 200.000 cycles.

E -solid deflection (approximate value).
-deflexión por muelle a bloque (valor de aproximación).
-déflexion approximative pour ressort à bloc.

approx. -quantity for standard packaging.
-número de piezas por confección.
-nombre de pièces par boîte.

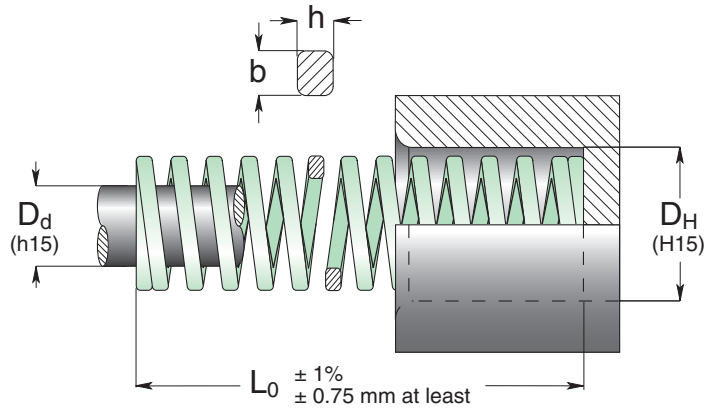
VL SERIES

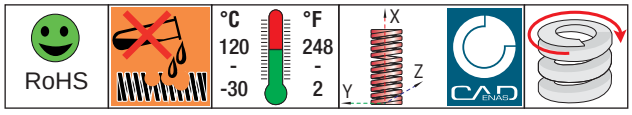
Special Springs standard Rectangular Wire

EN Extra-light load springs
Light green color

ES Muelles carga extra-ligera
Color verde claro

FR Ressorts charge extra-légère
Couleur verte claire





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 30% L_0		B 40% L_0		C 45% L_0		D 50% L_0		E approx. do not use	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000			
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
VL 20 - 025	3.9 x 1.7	20	10	25	29.4	7.5	221	10.0	294	11.3	331	12.5	368	13.9	50
VL 20 - 032				32	22.6	9.6	217	12.8	289	14.4	325	16.0	362	18.2	50
VL 20 - 038				38	18.6	11.4	212	15.2	283	17.1	318	19.0	353	22.0	25
VL 20 - 044				44	15.7	13.2	207	17.6	276	19.8	311	22.0	345	25.8	25
VL 20 - 051				51	13.7	15.3	210	20.4	279	23.0	314	25.5	349	30.3	25
VL 20 - 064				64	11.3	19.2	217	25.6	289	28.8	325	32.0	362	38.9	25
VL 20 - 076				76	9.8	22.8	223	30.4	298	34.2	335	38.0	372	47.0	25
VL 20 - 089				89	8.3	26.7	222	35.6	295	40.1	332	44.5	369	55.7	20
VL 20 - 102				102	7.4	30.6	226	40.8	302	45.9	340	51.0	377	64.2	20
VL 20 - 115				115	6.4	34.5	221	46.0	294	51.8	331	57.5	368	72.9	10
VL 20 - 127				127	5.9	38.1	225	50.8	300	57.2	337	63.5	375	80.7	10
VL 20 - 139				139	5.4	41.7	225	55.6	300	62.6	338	69.5	375	88.4	10
VL 20 - 152				152	4.9	45.6	223	60.8	298	68.4	335	76.0	372	96.7	10
VL 20 - 305				305	2.5	91.5	229	122	305	137	343	153	381	196	10
VL 25 - 025	5.4 x 2.2	25	12.5	25	53.9	7.5	404	10.0	539	11.3	606	12.5	674	12.9	50
VL 25 - 032				32	42.2	9.6	405	12.8	540	14.4	608	16.0	675	17.2	25
VL 25 - 038				38	35.8	11.4	408	15.2	544	17.1	612	19.0	680	20.7	25
VL 25 - 044				44	31.4	13.2	414	17.6	553	19.8	622	22.0	691	24.4	25
VL 25 - 051				51	27.0	15.3	413	20.4	551	23.0	620	25.5	689	28.5	25
VL 25 - 064				64	21.6	19.2	415	25.6	553	28.8	622	32.0	691	36.5	25
VL 25 - 076				76	18.1	22.8	413	30.4	550	34.2	619	38.0	688	43.9	20
VL 25 - 089				89	15.2	26.7	406	35.6	541	40.1	609	44.5	676	51.4	20
VL 25 - 102				102	13.2	30.6	404	40.8	539	45.9	606	51.0	673	59.3	20
VL 25 - 115				115	11.8	34.5	407	46.0	543	51.8	611	57.5	679	67.2	10
VL 25 - 127				127	10.6	38.1	404	50.8	538	57.2	606	63.5	673	74.4	10
VL 25 - 139				139	9.6	41.7	400	55.6	534	62.6	600	69.5	667	81.6	10
VL 25 - 152				152	8.8	45.6	401	60.8	535	68.4	602	76.0	669	89.5	10
VL 25 - 178				178	7.6	53.4	406	71.2	541	80.1	609	89.0	676	105	10
VL 25 - 203				203	6.7	60.9	408	81.2	544	91.4	612	102	680	121	10
VL 25 - 305				305	4.4	91.5	403	122	537	137	604	153	671	182	5
VL 32 - 038	6.5 x 2.6	32	16	38	43.1	11.4	491	15.2	655	17.1	737	19.0	819	19.9	20
VL 32 - 044				44	37.3	13.2	492	17.6	656	19.8	739	22.0	821	23.5	20
VL 32 - 051				51	32.4	15.3	496	20.4	661	23.0	744	25.5	826	27.6	20
VL 32 - 064				64	25.5	19.2	490	25.6	653	28.8	734	32.0	816	35.2	20
VL 32 - 076				76	21.6	22.8	492	30.4	657	34.2	739	38.0	821	42.4	20
VL 32 - 089				89	18.1	26.7	483	35.6	644	40.1	725	44.5	805	50.0	10
VL 32 - 102				102	15.7	30.6	480	40.8	641	45.9	721	51.0	801	57.6	10
VL 32 - 115				115	14.2	34.5	490	46.0	653	51.8	735	57.5	817	65.5	10
VL 32 - 127				127	12.7	38.1	484	50.8	645	57.2	726	63.5	806	72.5	10
VL 32 - 139				139	11.6	41.7	484	55.6	645	62.6	726	69.5	806	79.4	10
VL 32 - 152				152	10.6	45.6	483	60.8	644	68.4	725	76.0	806	87.3	10
VL 32 - 178				178	9.0	53.4	481	71.2	641	80.1	721	89.0	801	103	5
VL 32 - 203				203	7.8	60.9	475	81.2	633	91.4	713	102	792	118	5
VL 32 - 254				254	6.4	76.2	488	102	650	114	732	127	813	148	5
VL 32 - 305				305	5.3	91.5	485	122	647	137	727	153	808	178	5

How to order: VL 50 - 152 (Series D_H - L_0)

1 N = 0.1 daN = 0.102 kgf Load (N) = R (N/mm) x Deflection (mm)

Special Springs standard Rectangular Wire

SERIES VL

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 30% L_0		B 40% L_0		C 45% L_0		D 50% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
VL 40 - 051	40	20	51	48.1	15.3	736	20.4	981	23.0	1104	25.5	1227	28.0	20
VL 40 - 064			64	39.2	19.2	753	25.6	1004	28.8	1129	32.0	1254	36.2	10
VL 40 - 076			76	33.3	22.8	759	30.4	1012	34.2	1139	38.0	1265	43.7	10
VL 40 - 089			89	28.4	26.7	758	35.6	1011	40.1	1137	44.5	1264	51.7	10
VL 40 - 102			102	24.5	30.6	750	40.8	1000	45.9	1125	51.0	1250	59.8	10
VL 40 - 115			115	22.1	34.5	762	46.0	1017	51.8	1144	57.5	1271	67.9	10
VL 40 - 127			127	19.6	38.1	747	50.8	996	57.2	1120	63.5	1245	75.2	5
VL 40 - 139			139	17.7	41.7	738	55.6	984	62.6	1107	69.5	1230	82.4	5
VL 40 - 152			152	16.2	45.6	739	60.8	985	68.4	1108	76.0	1231	90.6	5
VL 40 - 178			178	13.7	53.4	732	71.2	975	80.1	1097	89.0	1219	106	5
VL 40 - 203			203	12.3	60.9	749	81.2	999	91.4	1124	101	1248	122	5
VL 40 - 254			254	9.8	76.2	747	102	996	114	1120	127	1245	154	2
VL 40 - 305	8.0 x 3.4		305	8.3	91.5	759	122	1013	137	1139	152	1266	185	2
VL 50 - 064	50	25	64	86.3	19.2	1657	25.6	2209	28.8	2485	32.0	2762	35.1	5
VL 50 - 076			76	70.6	22.8	1610	30.4	2146	34.2	2415	38.0	2683	42.2	5
VL 50 - 089			89	59.8	26.7	1597	35.6	2129	40.1	2395	44.5	2661	50.3	5
VL 50 - 102			102	52.0	30.6	1591	40.8	2122	45.9	2387	51.0	2652	58.4	5
VL 50 - 115			115	46.1	34.5	1590	46.0	2121	51.8	2386	57.5	2651	66.1	5
VL 50 - 127			127	42.2	38.1	1608	50.8	2144	57.2	2412	63.5	2680	73.8	5
VL 50 - 139			139	38.2	41.7	1593	55.6	2124	62.6	2389	69.5	2655	80.9	5
VL 50 - 152			152	34.3	45.6	1564	60.8	2085	68.4	2346	76.0	2607	89.0	2
VL 50 - 178			178	29.4	53.4	1570	71.2	2093	80.1	2355	89.0	2617	105	2
VL 50 - 203			203	25.5	60.9	1553	81.2	2071	91.4	2329	101	2588	121	2
VL 50 - 254			254	20.6	76.2	1570	102	2093	114	2355	127	2616	152	2
VL 50 - 305	10.5 x 4.1		305	17.2	91.5	1574	122	2098	137	2361	152	2623	184	2

Load (N) = R (N/mm) x Deflection (mm) 1 N = 0.1 daN = 0.102 kgf

How to order: VL 50 - 152 (Series D_H - L_0)

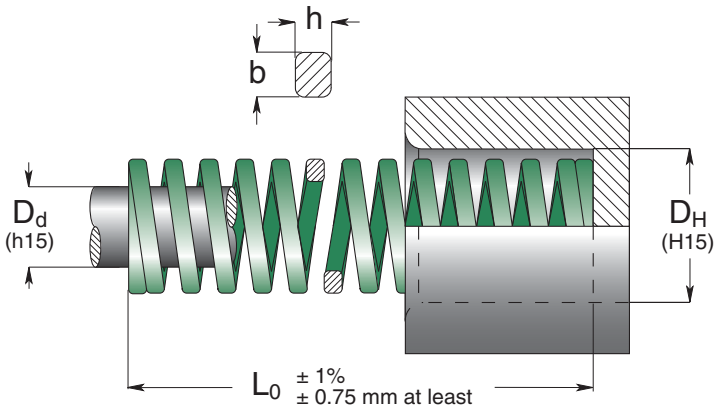
V SERIES

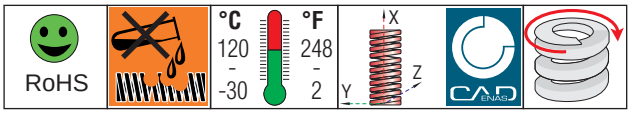
ISO 10243 Rectangular Wire

EN Light load springs
Green color

ES Muelles carga ligera
Color verde

FR Ressorts charge légère
Couleur verte





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 30% L_0		C 35% L_0		D 40% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
V 10 - 025			25	10	6.3	63	7.5	75	8.8	88	10.0	100	13.5	50
V 10 - 032			32	8.5	8.0	68	9.6	82	11.2	95	12.8	109	17.5	50
V 10 - 038			38	6.8	9.5	65	11.4	78	13.3	90	15.2	103	20.8	50
V 10 - 044	10	5	44	6.0	11.0	66	13.2	79	15.4	92	17.6	106	23.9	50
V 10 - 051			51	5.0	12.8	64	15.3	77	17.9	89	20.4	102	28.9	25
V 10 - 064			64	4.3	16.0	69	19.2	83	22.4	96	25.6	110	36.1	25
V 10 - 076			76	3.2	19.0	61	22.8	73	26.6	85	30.4	97	43.2	25
V 10 - 305	1.7 x 1.1		305	1.1	76.3	84	91.5	101	107	117	122	134	178	10
V 13 - 025			25	17.9	6.3	113	7.5	134	8.8	157	10.0	179	13.2	50
V 13 - 032			32	16.4	8.0	131	9.6	157	11.2	184	12.8	210	18.0	50
V 13 - 038			38	13.6	9.5	129	11.4	155	13.3	181	15.2	207	21.0	50
V 13 - 044			44	12.1	11.0	133	13.2	160	15.4	186	17.6	213	24.0	25
V 13 - 051	12.5	6.3	51	11.4	12.8	146	15.3	174	17.9	203	20.4	233	28.7	25
V 13 - 064			64	9.3	16.0	149	19.2	179	22.4	208	25.6	238	35.8	25
V 13 - 076			76	7.1	19.0	135	22.8	162	26.6	189	30.4	216	42.7	25
V 13 - 089			89	5.4	22.3	120	26.7	144	31.2	168	35.6	192	50.4	20
V 13 - 102			102	4.1	25.5	105	30.6	125	35.7	146	40.8	167	58.4	10
V 13 - 305	2.4 x 1.4		305	1.4	76.3	107	91.5	128	107	149	122	171	172	10
V 16 - 025			25	23.4	6.3	147	7.5	176	8.8	205	10.0	234	12.6	50
V 16 - 032			32	22.9	8.0	183	9.6	220	11.2	256	12.8	293	16.4	50
V 16 - 038			38	19.3	9.5	183	11.4	220	13.3	257	15.2	293	19.7	25
V 16 - 044			44	17.1	11.0	188	13.2	226	15.4	263	17.6	301	22.5	25
V 16 - 051	16	8	51	15.7	12.8	201	15.3	240	17.9	280	20.4	320	26.3	25
V 16 - 064			64	10.7	16.0	171	19.2	205	22.4	240	25.6	274	33.3	25
V 16 - 076			76	10.0	19.0	190	22.8	228	26.6	266	30.4	304	40.2	20
V 16 - 089			89	8.6	22.3	192	26.7	230	31.2	268	35.6	306	47.6	20
V 16 - 102			102	7.8	25.5	199	30.6	239	35.7	278	40.8	318	55.4	20
V 16 - 115			115	6.6	28.8	190	34.5	228	40.3	266	46.0	304	60.8	10
V 16 - 305	3.2 x 1.5		305	2.5	76.3	191	91.5	229	107	267	122	305	165	10
V 20 - 025			25	55.8	6.3	352	7.5	419	8.8	488	10.0	558	12.1	50
V 20 - 032			32	45.0	8.0	360	9.6	432	11.2	504	12.8	576	15.3	50
V 20 - 038			38	33.3	9.5	316	11.4	380	13.3	443	15.2	506	18.9	25
V 20 - 044			44	30.0	11.0	330	13.2	396	15.4	462	17.6	528	21.5	25
V 20 - 051			51	24.5	12.8	314	15.3	375	17.9	437	20.4	500	25.0	25
V 20 - 064			64	20.0	16.0	320	19.2	384	22.4	448	25.6	512	31.1	25
V 20 - 076	20	10	76	16.0	19.0	304	22.8	365	26.6	426	30.4	486	37.3	25
V 20 - 089			89	14.0	22.3	312	26.7	374	31.2	436	35.6	498	44.5	20
V 20 - 102			102	12.0	25.5	306	30.6	367	35.7	428	40.8	490	51.1	20
V 20 - 115			115	10.9	28.8	314	34.5	376	40.3	439	46.0	501	58.2	10
V 20 - 127			127	9.5	31.8	302	38.1	362	44.5	422	50.8	483	64.9	10
V 20 - 139			139	8.4	35.0	294	42.0	353	48.7	409	56.0	470	71.5	10
V 20 - 152			152	7.5	38.0	285	45.6	342	53.2	399	60.8	456	78.8	10
V 20 - 305	4.0 x 2.1		305	4.0	76.3	305	91.5	366	107	427	122	488	157	10

How to order: V 50 - 152 (Series D_H - L_0)

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)

ISO 10243 Rectangular Wire

SERIES V

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 30% L_0		C 35% L_0		D 40% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
V 25 - 025			25	100	6.3	630	7.5	750	8.8	875	10.0	1000	11.9	50
V 25 - 032			32	80.3	8.0	642	9.6	771	11.2	899	12.8	1028	16.0	25
V 25 - 038			38	62.0	9.5	589	11.4	707	13.3	825	15.2	942	18.3	25
V 25 - 044			44	52.9	11.0	582	13.2	698	15.4	815	17.6	931	21.4	25
V 25 - 051			51	44.0	12.8	563	15.3	673	17.9	785	20.4	898	24.9	25
V 25 - 064			64	35.2	16.0	563	19.2	676	22.4	788	25.6	901	31.4	25
V 25 - 076			76	28.0	19.0	532	22.8	638	26.6	745	30.4	851	37.5	20
V 25 - 089	25	12.5	89	24.0	22.3	535	26.7	641	31.2	748	35.6	854	43.5	20
V 25 - 102			102	21.1	25.5	538	30.6	646	35.7	753	40.8	861	51.1	20
V 25 - 115			115	18.7	28.8	539	34.5	645	40.3	753	46.0	860	58.1	10
V 25 - 127			127	16.7	31.8	531	38.1	636	44.5	742	50.8	848	64.1	10
V 25 - 139			139	15.3	35.0	536	42.0	643	48.7	744	56.0	857	70.4	10
V 25 - 152			152	14.0	38.0	532	45.6	638	53.2	745	60.8	851	77.1	10
V 25 - 178			178	12.5	44.5	556	53.4	668	62.3	779	71.2	890	93.1	10
V 25 - 203			203	10.4	50.8	528	60.9	633	71.1	739	81.2	844	103	10
V 25 - 305	5.4 x 2.7		305	7.0	76.3	534	91.5	641	107	747	122	854	156	5
V 32 - 038			38	94.0	9.5	893	11.4	1072	13.3	1250	15.2	1429	18.3	20
V 32 - 044			44	79.5	11.0	875	13.2	1049	15.4	1224	17.6	1399	21.5	20
V 32 - 051			51	67.0	12.8	858	15.3	1025	17.9	1196	20.4	1367	25.5	20
V 32 - 064			64	53.0	16.0	848	19.2	1018	22.4	1187	25.6	1357	31.9	20
V 32 - 076			76	44.0	19.0	836	22.8	1003	26.6	1170	30.4	1338	38.6	20
V 32 - 089			89	37.2	22.3	830	26.7	993	31.2	1159	35.6	1324	46.5	10
V 32 - 102	32	16	102	32.0	25.5	816	30.6	979	35.7	1142	40.8	1306	53.2	10
V 32 - 115			115	29.0	28.8	835	34.5	1001	40.3	1167	46.0	1334	60.0	10
V 32 - 127			127	25.0	31.8	795	38.1	953	44.5	1111	50.8	1270	66.7	10
V 32 - 139			139	23.0	35.0	805	42.0	966	48.7	1119	56.0	1288	71.8	10
V 32 - 152			152	21.5	38.0	817	45.6	980	53.2	1144	60.8	1307	78.5	10
V 32 - 178			178	18.2	44.5	810	53.4	972	62.3	1134	71.2	1296	94.4	5
V 32 - 203			203	15.8	50.8	803	60.9	962	71.1	1123	81.2	1283	107	5
V 32 - 254			254	12.5	63.5	794	76.2	953	88.9	1111	102	1270	136	5
V 32 - 305	6.8 x 3.3		305	10.3	76.3	786	91.5	942	107	1100	122	1257	163	5
V 40 - 051			51	92.0	12.8	1178	15.3	1408	17.9	1642	20.4	1877	25.5	20
V 40 - 064			64	73.0	16.0	1168	19.2	1402	22.4	1635	25.6	1869	31.4	10
V 40 - 076			76	63.0	19.0	1197	22.8	1436	26.6	1676	30.4	1915	37.8	10
V 40 - 089			89	51.0	22.3	1137	26.7	1362	31.2	1589	35.6	1816	44.3	10
V 40 - 102			102	43.0	25.5	1097	30.6	1316	35.7	1535	40.8	1754	50.7	10
V 40 - 115	40	20	115	39.6	28.8	1140	34.5	1366	40.3	1594	46.0	1822	58.1	10
V 40 - 127			127	37.0	31.8	1177	38.1	1410	44.5	1645	50.8	1880	64.6	5
V 40 - 139			139	32.0	35.0	1120	42.0	1344	48.7	1557	56.0	1792	70.1	5
V 40 - 152			152	28.0	38.0	1064	45.6	1277	53.2	1490	60.8	1702	76.6	5
V 40 - 178			178	25.2	44.5	1121	53.4	1346	62.3	1570	71.2	1794	90.4	5
V 40 - 203			203	22.7	50.8	1153	60.9	1382	71.1	1613	81.2	1843	102	5
V 40 - 254			254	17.0	63.5	1080	76.2	1295	88.9	1511	102	1727	129	2
V 40 - 305	8.1 x 4.0		305	14.8	76.3	1129	91.5	1354	107	1580	122	1806	156	2
V 50 - 064			64	156	16.0	2496	19.2	2995	22.4	3494	25.6	3994	31.0	5
V 50 - 076			76	125	19.0	2375	22.8	2850	26.6	3325	30.4	3800	37.2	5
V 50 - 089			89	109	22.3	2431	26.7	2910	31.2	3395	35.6	3880	43.6	5
V 50 - 102			102	94.0	25.5	2397	30.6	2876	35.7	3356	40.8	3835	50.3	5
V 50 - 115			115	81.0	28.8	2333	34.5	2795	40.3	3260	46.0	3726	58.1	5
V 50 - 127	50	25	127	71.0	31.8	2258	38.1	2705	44.5	3156	50.8	3607	63.7	5
V 50 - 139			139	66.5	35.0	2328	42.0	2793	48.7	3235	56.0	3724	69.5	5
V 50 - 152			152	60.0	38.0	2280	45.6	2736	53.2	3192	60.8	3648	76.5	2
V 50 - 178			178	52.0	44.5	2314	53.4	2777	62.3	3240	71.2	3702	91.9	2
V 50 - 203			203	44.0	50.8	2235	60.9	2680	71.1	3126	81.2	3573	105	2
V 50 - 254			254	35.0	63.5	2223	76.2	2667	88.9	3112	102	3556	131	2
V 50 - 305	10.9 x 5.3		305	28.5	76.3	2175	91.5	2608	107	3042	122	3477	155	2
V 63 - 076			76	189	19.0	3591	22.8	4309	26.6	5027	30.4	5746	36.5	5
V 63 - 089			89	158	22.3	3523	26.7	4219	31.2	4922	35.6	5625	43.4	5
V 63 - 102			102	131	25.5	3341	30.6	4009	35.7	4677	40.8	5345	49.7	5
V 63 - 115			115	116	28.8	3341	34.5	4002	40.3	4669	46.0	5336	55.6	5
V 63 - 127	63	38	127	103	31.8	3275	38.1	3924	44.5	4578	50.8	5232	62.7	2
V 63 - 152			152	84.3	38.0	3203	45.6	3844	53.2	4485	60.8	5125	77.1	2
V 63 - 178			178	71.5	44.5	3182	53.4	3818	62.3	4454	71.2	5091	92.2	2
V 63 - 203			203	61.7	50.8	3134	60.9	3758	71.1	4384	81.2	5010	103	2
V 63 - 254			254	47.0	63.5	2985	76.2	3581	88.9	4178	102	4775	130	2
V 63 - 305	11.0 x 7.8		305	38.2	76.3	2915	91.5	3495	107	4078	122	4660	157	2

Load (N) = R (N/mm) x Deflection (mm) 1 N = 0.1 daN = 0.102 kgf

How to order: V 50 - 152 (Series D_H - L_0)

B SERIES

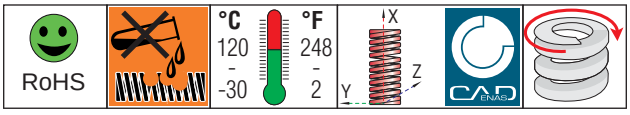
ISO 10243 Rectangular Wire

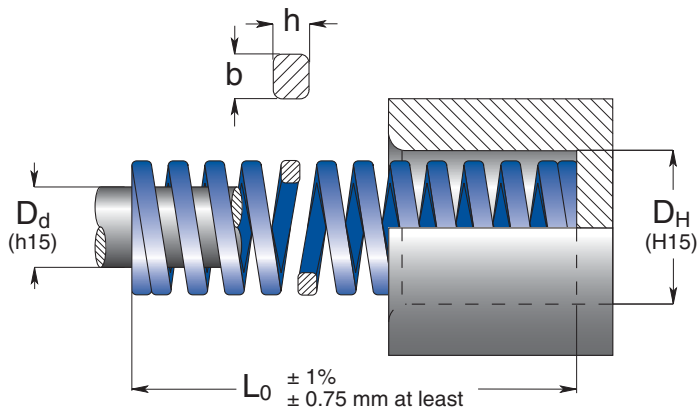
SPECIAL SPRINGS

EN Medium load springs
Blue color

ES Muelles carga mediana
Color azul marino

FR Ressorts charge moyenne
Couleur bleue





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 30% L_0		C 33.75% L_0		D 37.5% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
B 10 - 025	10	5	25	16.0	6.3	101	7.5	120	8.4	135	9.4	150	10.2	50
B 10 - 032			32	13.0	8.0	104	9.6	125	10.8	140	12.0	156	14.2	50
B 10 - 038			38	11.9	9.5	113	11.4	136	12.8	153	14.3	170	16.8	50
B 10 - 044			44	10.3	11.0	113	13.2	136	14.9	153	16.5	170	19.4	50
B 10 - 051			51	8.9	12.8	114	15.3	136	17.2	153	19.1	170	23.4	25
B 10 - 064			64	7.5	16.0	120	19.2	144	21.6	162	24.0	180	28.2	25
B 10 - 076			76	5.3	19.0	101	22.8	121	25.7	136	28.5	151	34.2	25
B 10 - 305	1.9 x 1.3		305	1.6	76.3	122	91.5	146	103	165	114	183	134	10
B 13 - 025	12.5	6.3	25	30.0	6.3	189	7.5	225	8.4	253	9.4	282	11.9	50
B 13 - 032			32	24.8	8.0	198	9.6	238	10.8	268	12.0	298	16.2	50
B 13 - 038			38	21.4	9.5	203	11.4	244	12.8	274	14.3	306	18.7	50
B 13 - 044			44	18.5	11.0	204	13.2	244	14.9	275	16.5	305	21.3	25
B 13 - 051			51	15.5	12.8	198	15.3	237	17.2	267	19.1	296	25.6	25
B 13 - 064			64	12.1	16.0	194	19.2	232	21.6	261	24.0	290	32.4	25
B 13 - 076			76	10.2	19.0	194	22.8	233	25.7	262	28.5	291	39.0	25
B 13 - 089			89	8.4	22.3	187	26.7	224	30.0	252	33.4	281	45.9	20
B 13 - 102			102	6.3	25.5	161	30.6	193	34.4	217	38.3	241	52.3	10
B 13 - 305	2.5 x 1.5		305	2.1	76.3	160	91.5	192	103	216	114	240	153	10
B 16 - 025	16	8	25	49.4	6.3	311	7.5	371	8.4	417	9.4	464	10.5	50
B 16 - 032			32	37.1	8.0	297	9.6	356	10.8	401	12.0	445	13.2	50
B 16 - 038			38	33.9	9.5	322	11.4	386	12.8	435	14.3	485	17.2	25
B 16 - 044			44	30.0	11.0	330	13.2	396	14.9	446	16.5	495	19.4	25
B 16 - 051			51	26.4	12.8	338	15.3	404	17.2	454	19.1	504	24.2	25
B 16 - 064			64	20.5	16.0	328	19.2	394	21.6	443	24.0	492	29.2	25
B 16 - 076			76	17.8	19.0	338	22.8	406	25.7	457	28.5	507	36.3	20
B 16 - 089			89	15.2	22.3	339	26.7	406	30.0	457	33.4	508	41.7	20
B 16 - 102			102	13.5	25.5	344	30.6	413	34.4	465	38.3	517	48.9	20
B 16 - 115			115	11.8	28.8	340	34.5	407	38.8	458	43.1	509	53.1	10
B 16 - 305	3.2 x 2.0		305	4.8	76.3	366	91.5	439	103	494	114	549	142	10
B 20 - 025	20	10	25	98.0	6.3	617	7.5	735	8.4	827	9.4	921	10.5	50
B 20 - 032			32	72.6	8.0	581	9.6	697	10.8	784	12.0	871	13.9	50
B 20 - 038			38	56.0	9.5	532	11.4	638	12.8	718	14.3	801	16.6	25
B 20 - 044			44	47.5	11.0	523	13.2	627	14.9	705	16.5	784	18.8	25
B 20 - 051			51	41.7	12.8	534	15.3	638	17.2	718	19.1	796	23.1	25
B 20 - 064			64	32.3	16.0	517	19.2	620	21.6	698	24.0	775	27.5	25
B 20 - 076			76	25.1	19.0	477	22.8	572	25.7	644	28.5	715	33.8	25
B 20 - 089			89	22.0	22.3	491	26.7	587	30.0	661	33.4	735	39.7	20
B 20 - 102			102	19.8	25.5	505	30.6	606	34.4	682	38.3	758	47.3	20
B 20 - 115			115	18.1	28.8	521	34.5	624	38.8	703	43.1	780	52.5	10
B 20 - 127			127	16.6	31.8	528	38.1	632	42.9	712	47.6	790	56.9	10
B 20 - 139			139	15.1	35.0	529	42.0	634	46.9	708	52.5	793	62.1	10
B 20 - 152			152	13.2	38.0	500	45.6	600	51.3	677	57.0	750	67.6	10
B 20 - 305	4.1 x 2.4		305	6.1	76.3	465	91.5	558	103	628	114	698	143	10

How to order: B 50 - 152 (Series D_H - L_0)

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)

ISO 10243
Rectangular Wire

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 30% L_0		C 33.75% L_0		D 37.5% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
B 25 - 025			25	147	6.3	926	7.5	1103	8.4	1240	9.4	1382	10.2	50
B 25 - 032			32	118	8.0	944	9.6	1133	10.8	1274	12.0	1416	13.7	25
B 25 - 038			38	93.0	9.5	884	11.4	1060	12.8	1193	14.3	1330	15.7	25
B 25 - 044			44	80.8	11.0	889	13.2	1067	14.9	1200	16.5	1333	18.2	25
B 25 - 051			51	68.6	12.8	878	15.3	1050	17.2	1181	19.1	1310	21.7	25
B 25 - 064			64	53.0	16.0	848	19.2	1018	21.6	1145	24.0	1272	26.0	25
B 25 - 076			76	43.2	19.0	821	22.8	985	25.7	1108	28.5	1231	32.3	20
B 25 - 089	25	12.5	89	38.2	22.3	852	26.7	1020	30.0	1147	33.4	1276	38.0	20
B 25 - 102			102	33.0	25.5	842	30.6	1010	34.4	1136	38.3	1264	43.0	20
B 25 - 115			115	28.0	28.8	806	34.5	966	38.8	1087	43.1	1207	48.6	10
B 25 - 127			127	25.9	31.8	824	38.1	987	42.9	1110	47.6	1233	53.7	10
B 25 - 139			139	23.2	35.0	812	42.0	974	46.9	1088	52.5	1218	59.4	10
B 25 - 152			152	20.8	38.0	790	45.6	948	51.3	1067	57.0	1186	63.8	10
B 25 - 178			178	17.8	44.5	792	53.4	951	60.1	1069	66.8	1189	76.6	10
B 25 - 203			203	15.8	50.8	803	60.9	962	68.5	1082	76.1	1202	88.4	10
B 25 - 305	5.4 x 3.3		305	10.2	76.3	778	91.5	933	103	1050	114	1167	135	5
B 32 - 038			38	185	9.5	1758	11.4	2109	12.8	2373	14.3	2646	16.3	20
B 32 - 044			44	158	11.0	1738	13.2	2086	14.9	2346	16.5	2607	18.9	20
B 32 - 051			51	134	12.8	1715	15.3	2050	17.2	2306	19.1	2559	23.1	20
B 32 - 064			64	99.0	16.0	1584	19.2	1901	21.6	2138	24.0	2376	28.5	20
B 32 - 076			76	80.5	19.0	1530	22.8	1835	25.7	2065	28.5	2294	34.2	20
B 32 - 089			89	69.1	22.3	1541	26.7	1845	30.0	2076	33.4	2308	40.4	10
B 32 - 102	32	16	102	58.8	25.5	1499	30.6	1799	34.4	2024	38.3	2252	48.0	10
B 32 - 115			115	51.5	28.8	1483	34.5	1777	38.8	1999	43.1	2220	54.3	10
B 32 - 127			127	44.8	31.8	1425	38.1	1707	42.9	1920	47.6	2132	59.2	10
B 32 - 139			139	42.3	35.0	1481	42.0	1777	46.9	1984	52.5	2221	65.3	10
B 32 - 152			152	37.8	38.0	1436	45.6	1724	51.3	1939	57.0	2155	73.0	10
B 32 - 178			178	32.5	44.5	1446	53.4	1736	60.1	1952	66.8	2171	84.5	5
B 32 - 203			203	28.9	50.8	1468	60.9	1760	68.5	1980	76.1	2199	96.9	5
B 32 - 254			254	21.4	63.5	1359	76.2	1631	85.7	1835	95.3	2039	121	5
B 32 - 305	6.8 x 4.0		305	18.3	76.3	1396	91.5	1674	103	1884	114	2094	147	5
B 40 - 051			51	182	12.8	2330	15.3	2785	17.2	3130	19.1	3476	21.4	20
B 40 - 064			64	140	16.0	2240	19.2	2688	21.6	3024	24.0	3360	26.8	10
B 40 - 076			76	108	19.0	2052	22.8	2462	25.7	2770	28.5	3078	32.7	10
B 40 - 089			89	90.7	22.3	2023	26.7	2422	30.0	2724	33.4	3029	39.0	10
B 40 - 102			102	81.0	25.5	2066	30.6	2479	34.4	2788	38.3	3102	44.1	10
B 40 - 115	40	20	115	71.8	28.8	2068	34.5	2477	38.8	2787	43.1	3095	50.6	10
B 40 - 127			127	62.7	31.8	1994	38.1	2389	42.9	2687	47.6	2985	55.9	5
B 40 - 139			139	57.5	35.0	2013	42.0	2415	46.9	2697	52.5	3019	61.8	5
B 40 - 152			152	51.6	38.0	1961	45.6	2353	51.3	2647	57.0	2941	67.5	5
B 40 - 178			178	44.1	44.5	1962	53.4	2355	60.1	2649	66.8	2946	77.2	5
B 40 - 203			203	36.7	50.8	1864	60.9	2235	68.5	2514	76.1	2793	91.8	5
B 40 - 254			254	30.1	63.5	1911	76.2	2294	85.7	2580	95.3	2869	113	2
B 40 - 305	8.2 x 4.7		305	24.6	76.3	1877	91.5	2251	103	2532	114	2814	138	2
B 50 - 064			64	209	16.0	3344	19.2	4013	21.6	4514	24.0	5016	28.2	5
B 50 - 076			76	168	19.0	3192	22.8	3830	25.7	4309	28.5	4788	34.9	5
B 50 - 089			89	140	22.3	3122	26.7	3738	30.0	4205	33.4	4676	39.2	5
B 50 - 102			102	119	25.5	3035	30.6	3641	34.4	4097	38.3	4558	47.3	5
B 50 - 115			115	106	28.8	3053	34.5	3657	38.8	4114	43.1	4569	52.6	5
B 50 - 127	50	25	127	97.0	31.8	3085	38.1	3696	42.9	4158	47.6	4617	59.8	5
B 50 - 139			139	87.0	35.0	3045	42.0	3654	46.9	4081	52.5	4568	65.1	5
B 50 - 152			152	80.0	38.0	3040	45.6	3648	51.3	4104	57.0	4560	70.8	2
B 50 - 178			178	69.5	44.5	3093	53.4	3711	60.1	4175	66.8	4643	84.2	2
B 50 - 203			203	59.8	50.8	3038	60.9	3642	68.5	4097	76.1	4551	96.5	2
B 50 - 229			229	50.9	57.3	2917	68.7	3497	77.3	3934	85.9	4372	108	2
B 50 - 254			254	43.9	63.5	2788	76.2	3345	85.7	3763	95.3	4184	122	2
B 50 - 305	11.1 x 5.8		305	38.6	76.3	2945	91.5	3532	103	3973	114	4416	147	2
B 63 - 076			76	312	19.0	5928	22.8	7114	25.7	8003	28.5	8892	30.7	5
B 63 - 089			89	260	22.3	5798	26.7	6942	30.0	7810	33.4	8684	36.5	5
B 63 - 102			102	221	25.5	5636	30.6	6763	34.4	7608	38.3	8464	43.6	5
B 63 - 115			115	187	28.8	5386	34.5	6452	38.8	7258	43.1	8060	48.9	5
B 63 - 127	63	38	127	168	31.8	5342	38.1	6401	42.9	7201	47.6	7997	54.2	2
B 63 - 152			152	136	38.0	5168	45.6	6202	51.3	6977	57.0	7752	65.7	2
B 63 - 178			178	114	44.5	5073	53.4	6088	60.1	6849	66.8	7615	76.5	2
B 63 - 203			203	100	50.8	5080	60.9	6090	68.5	6851	76.1	7610	88.0	2
B 63 - 229			229	89.2	57.3	5111	68.7	6128	77.3	6894	85.9	7662	104	2
B 63 - 254			254	78.4	63.5	4978	76.2	5974	85.7	6721	95.3	7472	112	2
B 63 - 305	11.5 x 9.1		305	64.7	76.3	4937	91.5	5920	103	6660	114	7402	134	2

Load (N) = R (N/mm) x Deflection (mm) 1 N = 0.1 daN = 0.102 kgf

How to order: B 50 - 152 (Series D_H - L_0)

R SERIES

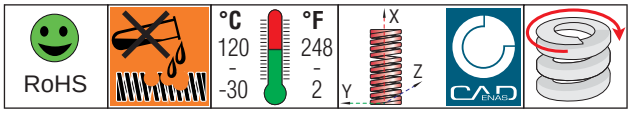
ISO 10243 Rectangular Wire

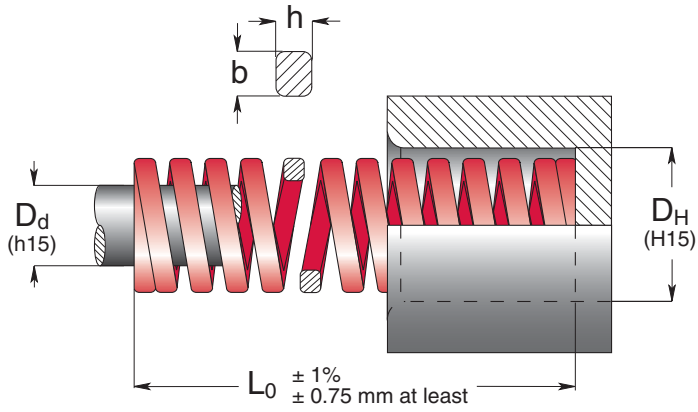
SPECIAL SPRINGS

EN Heavy load springs
Red color

ES Muelles carga fuerte
Color rojo

FR Ressorts charge forte
Couleur rouge





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 20% L_0		B 25% L_0		C 27.5% L_0		D 30% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
R 10 - 025	10	5	25	22.1	5.0	111	6.3	139	6.9	152	7.5	166	9.2	50
R 10 - 032			32	17.5	6.4	112	8.0	140	8.8	154	9.6	168	12.1	50
R 10 - 038			38	17.1	7.6	130	9.5	162	10.5	179	11.4	195	13.2	50
R 10 - 044			44	15.0	8.8	132	11.0	165	12.1	182	13.2	198	15.1	50
R 10 - 051			51	12.8	10.2	131	12.8	164	14.0	180	15.3	196	19.5	25
R 10 - 064			64	10.7	12.8	137	16.0	171	17.6	188	19.2	205	21.8	25
R 10 - 076			76	7.5	15.2	114	19.0	143	20.9	157	22.8	171	27.9	25
R 10 - 305	1.9 x 1.5		305	2.1	61.0	128	76.3	160	83.9	176	91.5	192	127	10
R 13 - 025	12.5	6.3	25	42.1	5.0	211	6.3	265	6.9	289	7.5	316	9.8	50
R 13 - 032			32	33.2	6.4	212	8.0	266	8.8	292	9.6	319	13.6	50
R 13 - 038			38	29.3	7.6	223	9.5	278	10.5	306	11.4	334	14.6	50
R 13 - 044			44	24.6	8.8	216	11.0	271	12.1	298	13.2	325	18.1	25
R 13 - 051			51	19.6	10.2	200	12.8	251	14.0	275	15.3	300	22.3	25
R 13 - 064			64	15.0	12.8	192	16.0	240	17.6	264	19.2	288	27.3	25
R 13 - 076			76	13.2	15.2	201	19.0	251	20.9	276	22.8	301	33.1	25
R 13 - 089			89	11.4	17.8	203	22.3	254	24.5	279	26.7	304	38.9	20
R 13 - 102			102	8.4	20.4	171	25.5	214	28.1	236	30.6	257	43.8	10
R 13 - 305	2.4 x 1.9		305	2.8	61.0	171	76.3	214	83.9	235	91.5	256	140	10
R 16 - 025	16	8	25	75.7	5.0	379	6.3	477	6.9	520	7.5	568	8.4	50
R 16 - 032			32	52.8	6.4	338	8.0	422	8.8	465	9.6	507	10.5	50
R 16 - 038			38	48.5	7.6	369	9.5	461	10.5	507	11.4	553	13.6	25
R 16 - 044			44	42.8	8.8	377	11.0	471	12.1	518	13.2	565	15.9	25
R 16 - 051			51	37.1	10.2	378	12.8	475	14.0	520	15.3	568	18.9	25
R 16 - 064			64	30.3	12.8	388	16.0	485	17.6	533	19.2	582	24.9	25
R 16 - 076			76	25.7	15.2	391	19.0	488	20.9	537	22.8	586	29.2	20
R 16 - 089			89	21.7	17.8	386	22.3	484	24.5	531	26.7	579	34.5	20
R 16 - 102			102	19.3	20.4	394	25.5	492	28.1	541	30.6	591	39.1	20
R 16 - 115			115	15.7	23.0	361	28.8	452	31.6	497	34.5	542	44.0	10
R 16 - 305	3.1 x 2.5		305	7.1	61.0	433	76.3	542	83.9	596	91.5	650	104	10
R 20 - 025	20	10	25	216	5.0	1080	6.3	1361	6.9	1485	7.5	1620	8.3	50
R 20 - 032			32	168	6.4	1075	8.0	1344	8.8	1478	9.6	1613	10.9	50
R 20 - 038			38	129	7.6	980	9.5	1226	10.5	1348	11.4	1471	12.5	25
R 20 - 044			44	112	8.8	986	11.0	1232	12.1	1355	13.2	1478	15.0	25
R 20 - 051			51	94.0	10.2	959	12.8	1203	14.0	1318	15.3	1438	17.6	25
R 20 - 064			64	72.1	12.8	923	16.0	1154	17.6	1269	19.2	1384	22.6	25
R 20 - 076			76	59.7	15.2	907	19.0	1134	20.9	1248	22.8	1361	27.5	25
R 20 - 089			89	50.5	17.8	899	22.3	1126	24.5	1236	26.7	1348	31.7	20
R 20 - 102			102	44.2	20.4	902	25.5	1127	28.1	1240	30.6	1353	37.5	20
R 20 - 115			115	38.4	23.0	883	28.8	1106	31.6	1214	34.5	1325	42.6	10
R 20 - 127			127	34.1	25.4	866	31.8	1084	34.9	1191	38.1	1299	45.5	10
R 20 - 139			139	31.0	28.0	868	35.0	1085	38.2	1185	42.0	1302	50.1	10
R 20 - 152			152	28.2	30.4	857	38.0	1072	41.8	1179	45.6	1286	55.8	10
R 20 - 305	4.0 x 3.3		305	15.0	61.0	915	76.3	1145	83.9	1258	91.5	1373	114	10

How to order: R 50 - 152 (Series D_H - L_0)

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)

ISO 10243
Rectangular Wire

SERIES R

R
Metric

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 20% L_0		B 25% L_0		C 27.5% L_0		D 30% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
R 25 - 025			25	375	5.0	1875	6.3	2363	6.9	2578	7.5	2813	8.5	50
R 25 - 032			32	297	6.4	1901	8.0	2376	8.8	2614	9.6	2851	11.0	25
R 25 - 038			38	219	7.6	1664	9.5	2081	10.5	2289	11.4	2497	12.6	25
R 25 - 044			44	187	8.8	1646	11.0	2057	12.1	2263	13.2	2468	14.8	25
R 25 - 051			51	156	10.2	1591	12.8	1997	14.0	2188	15.3	2387	17.9	25
R 25 - 064			64	123	12.8	1574	16.0	1968	17.6	2165	19.2	2362	23.1	25
R 25 - 076			76	99.0	15.2	1505	19.0	1881	20.9	2069	22.8	2257	26.3	20
R 25 - 089	25	12.5	89	84.0	17.8	1495	22.3	1873	24.5	2056	26.7	2243	30.5	20
R 25 - 102			102	73.0	20.4	1489	25.5	1862	28.1	2048	30.6	2234	37.3	20
R 25 - 115			115	65.0	23.0	1495	28.8	1872	31.6	2056	34.5	2243	41.9	10
R 25 - 127			127	57.7	25.4	1466	31.8	1835	34.9	2015	38.1	2198	46.2	10
R 25 - 139			139	52.7	28.0	1476	35.0	1845	38.2	2014	42.0	2213	49.3	10
R 25 - 152			152	47.8	30.4	1453	38.0	1816	41.8	1998	45.6	2180	55.7	10
R 25 - 178			178	41.0	35.6	1460	44.5	1825	49.0	2007	53.4	2189	65.1	10
R 25 - 203			203	35.8	40.6	1453	50.8	1819	55.8	1999	60.9	2180	74.5	10
R 25 - 305	5.5 x 4.2		305	22.9	61.0	1397	76.3	1747	83.9	1921	91.5	2095	110	5
R 32 - 038			38	388	7.6	2949	9.5	3686	10.5	4055	11.4	4423	12.5	20
R 32 - 044			44	324	8.8	2851	11.0	3564	12.1	3920	13.2	4277	14.9	20
R 32 - 051			51	272	10.2	2774	12.8	3482	14.0	3815	15.3	4162	17.8	20
R 32 - 064			64	212	12.8	2714	16.0	3392	17.6	3731	19.2	4070	22.4	20
R 32 - 076			76	172	15.2	2614	19.0	3268	20.9	3595	22.8	3922	26.1	20
R 32 - 089			89	141	17.8	2510	22.3	3144	24.5	3451	26.7	3765	30.8	10
R 32 - 102	32	16	102	122	20.4	2489	25.5	3111	28.1	3422	30.6	3733	36.8	10
R 32 - 115			115	107	23.0	2461	28.8	3082	31.6	3384	34.5	3692	41.4	10
R 32 - 127			127	93.0	25.4	2362	31.8	2957	34.9	3248	38.1	3543	44.4	10
R 32 - 139			139	86.0	28.0	2408	35.0	3010	38.2	3287	42.0	3612	48.5	10
R 32 - 152			152	78.0	30.4	2371	38.0	2964	41.8	3260	45.6	3557	54.8	10
R 32 - 178			178	67.2	35.6	2392	44.5	2990	49.0	3289	53.4	3588	63.6	5
R 32 - 203			203	59.1	40.6	2399	50.8	3002	55.8	3299	60.9	3599	72.5	5
R 32 - 254			254	46.4	50.8	2357	63.5	2946	69.9	3241	76.2	3536	92.8	5
R 32 - 305	7.1 x 5.4		305	38.0	61.0	2318	76.3	2899	83.9	3187	91.5	3477	112	5
R 40 - 051			51	350	10.2	3570	12.8	4480	14.0	4909	15.3	5355	17.0	20
R 40 - 064			64	269	12.8	3443	16.0	4304	17.6	4734	19.2	5165	21.9	10
R 40 - 076			76	219	15.2	3329	19.0	4161	20.9	4577	22.8	4993	26.7	10
R 40 - 089			89	190	17.8	3382	22.3	4237	24.5	4650	26.7	5073	31.3	10
R 40 - 102			102	163	20.4	3325	25.5	4157	28.1	4572	30.6	4988	37.1	10
R 40 - 115			115	142	23.0	3266	28.8	4090	31.6	4491	34.5	4899	41.0	10
R 40 - 127	40	20	127	128	25.4	3251	31.8	4070	34.9	4470	38.1	4877	46.5	5
R 40 - 139			139	115	28.0	3220	35.0	4025	38.2	4396	42.0	4830	53.1	5
R 40 - 152			152	105	30.4	3192	38.0	3990	41.8	4389	45.6	4788	56.1	5
R 40 - 178			178	89	35.6	3168	44.5	3961	49.0	4357	53.4	4753	67.4	5
R 40 - 203			203	77	40.6	3126	50.8	3912	55.8	4299	60.9	4689	76.2	5
R 40 - 254			254	61	50.8	3099	63.5	3874	69.9	4261	76.2	4648	96.2	2
R 40 - 305	8.4 x 6.2		305	51	61.0	3111	76.3	3891	83.9	4278	91.5	4667	115	2
R 50 - 064			64	413	12.8	5286	16.0	6608	17.6	7269	19.2	7930	22.4	5
R 50 - 076			76	339	15.2	5153	19.0	6441	20.9	7085	22.8	7729	26.5	5
R 50 - 089			89	288	17.8	5126	22.3	6422	24.5	7049	26.7	7690	31.5	5
R 50 - 102			102	245	20.4	4998	25.5	6248	28.1	6872	30.6	7497	37.6	5
R 50 - 115			115	215	23.0	4945	28.8	6192	31.6	6799	34.5	7418	42.7	5
R 50 - 127	50	25	127	192	25.4	4877	31.8	6106	34.9	6706	38.1	7315	47.5	5
R 50 - 139			139	168	28.0	4704	35.0	5880	38.2	6422	42.0	7056	51.8	5
R 50 - 152			152	154	30.4	4682	38.0	5852	41.8	6437	45.6	7022	57.8	2
R 50 - 178			178	134	35.6	4770	44.5	5963	49.0	6559	53.4	7156	68.5	2
R 50 - 203			203	117	40.6	4750	50.8	5944	55.8	6532	60.9	7125	77.6	2
R 50 - 254			254	89	50.8	4521	63.5	5652	69.9	6217	76.2	6782	97.9	2
R 50 - 305	11.1 x 7.6		305	73	61.0	4453	76.3	5570	83.9	6123	91.5	6680	121	2
R 63 - 076			76	618	15.2	9394	19.0	11742	20.9	12916	22.8	14090	24.7	5
R 63 - 089			89	515	17.8	9167	22.3	11485	24.5	12605	26.7	13751	30.0	5
R 63 - 102			102	438	20.4	8935	25.5	11169	28.1	12286	30.6	13403	35.1	5
R 63 - 115			115	370	23.0	8510	28.8	10656	31.6	11701	34.5	12765	37.5	5
R 63 - 127	63	38	127	333	25.4	8458	31.8	10589	34.9	11630	38.1	12687	45.9	2
R 63 - 152			152	269	30.4	8178	38.0	10222	41.8	11244	45.6	12266	56.5	2
R 63 - 178			178	226	35.6	8046	44.5	10057	49.0	11063	53.4	12068	66.8	2
R 63 - 203			203	198	40.6	8039	50.8	10058	55.8	11053	60.9	12058	78.8	2
R 63 - 254			254	155	50.8	7874	63.5	9843	69.9	10827	76.2	11811	102	2
R 63 - 305	11.6 x 12.3		305	128	61.0	7808	76.3	9766	83.9	10736	91.5	11712	122	2

Estimated life 100.000 cycles

Load (N) = R (N/mm) x Deflection (mm) 1 N = 0.1 daN = 0.102 kgf How to order: R 50 - 152 (Series D_H - L_0)

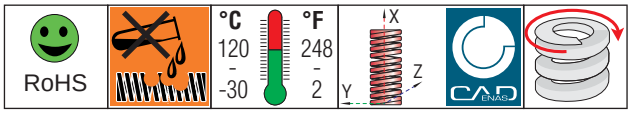
G SERIES

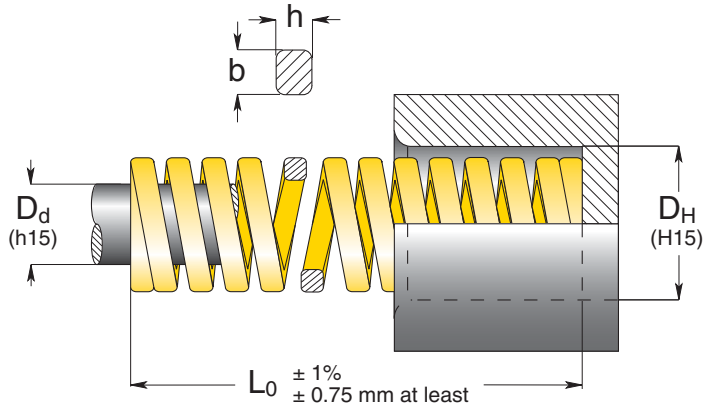
ISO 10243 Rectangular Wire

EN Extra-heavy load springs
Yellow color

ES Muelles carga extra-fuerte
Color amarillo

FR Ressorts charge extra-forte
Couleur jaune





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 17% L_0		B 20% L_0		C 22.5% L_0		D 25% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
G 10 - 025			25	36.8	4.3	158	5.0	184	5.6	207	6.3	232	7.7	50
G 10 - 032			32	27.9	5.4	151	6.4	179	7.2	201	8.0	223	10.6	50
G 10 - 038			38	23.7	6.5	154	7.6	180	8.6	203	9.5	225	12.6	50
G 10 - 044	10	5	44	19.2	7.5	144	8.8	169	9.9	190	11.0	211	13.8	50
G 10 - 051			51	16.5	8.7	144	10.2	168	11.5	189	12.8	211	16.2	25
G 10 - 064			64	13.2	10.9	144	12.8	169	14.4	190	16.0	211	20.4	25
G 10 - 076			76	10.9	12.9	141	15.2	166	17.1	186	19.0	207	25.2	25
G 10 - 305	1.9 x 1.6		305	2.6	51.9	135	61.0	159	68.6	178	76.3	198	111	10
G 13 - 025			25	58.5	4.3	252	5.0	293	5.6	329	6.3	369	8.1	50
G 13 - 032			32	43.9	5.4	237	6.4	281	7.2	316	8.0	351	9.9	50
G 13 - 038			38	36.0	6.5	234	7.6	274	8.6	308	9.5	342	12.9	50
G 13 - 044			44	30.3	7.5	227	8.8	267	9.9	300	11.0	333	14.1	25
G 13 - 051	12.5	6.3	51	26.2	8.7	228	10.2	267	11.5	301	12.8	335	17.4	25
G 13 - 064			64	21.2	10.9	231	12.8	271	14.4	305	16.0	339	21.0	25
G 13 - 076			76	17.1	12.9	221	15.2	260	17.1	292	19.0	325	26.4	25
G 13 - 089			89	14.5	15.1	219	17.8	258	20.0	290	22.3	323	31.5	20
G 13 - 102			102	12.7	17.3	220	20.4	259	23.0	291	25.5	324	36.0	10
G 13 - 305	2.6 x 2.0		305	4.3	51.9	223	61.0	262	68.6	295	76.3	328	111	10
G 16 - 025			25	118	4.3	507	5.0	590	5.6	664	6.3	743	8.5	50
G 16 - 032			32	89.0	5.4	481	6.4	570	7.2	641	8.0	712	11.0	50
G 16 - 038			38	72.1	6.5	469	7.6	548	8.6	616	9.5	685	13.2	25
G 16 - 044			44	60.9	7.5	457	8.8	536	9.9	603	11.0	670	14.7	25
G 16 - 051	16	8	51	52.3	8.7	455	10.2	533	11.5	600	12.8	669	17.7	25
G 16 - 064			64	41.2	10.9	449	12.8	527	14.4	593	16.0	659	21.9	25
G 16 - 076			76	34.1	12.9	440	15.2	518	17.1	583	19.0	648	27.8	20
G 16 - 089			89	29.5	15.1	445	17.8	525	20.0	591	22.3	658	31.2	20
G 16 - 102			102	25.6	17.3	443	20.4	522	23.0	588	25.5	653	37.9	20
G 16 - 115			115	22.4	19.6	439	23.0	515	25.9	580	28.8	645	44.5	10
G 16 - 305	3.2 x 2.9		305	8.4	51.9	436	61.0	512	68.6	576	76.3	641	113	10
G 20 - 025			25	293	4.3	1260	5.0	1465	5.6	1648	6.3	1846	6.9	50
G 20 - 032			32	224	5.4	1210	6.4	1434	7.2	1613	8.0	1792	9.4	50
G 20 - 038			38	177	6.5	1151	7.6	1345	8.6	1513	9.5	1682	12.0	25
G 20 - 044			44	149	7.5	1118	8.8	1311	9.9	1475	11.0	1639	13.5	25
G 20 - 051			51	128	8.7	1114	10.2	1306	11.5	1469	12.8	1638	16.2	25
G 20 - 064			64	99.0	10.9	1079	12.8	1267	14.4	1426	16.0	1584	21.2	25
G 20 - 076	20	10	76	81.7	12.9	1054	15.2	1242	17.1	1397	19.0	1552	24.7	25
G 20 - 089			89	69.5	15.1	1049	17.8	1237	20.0	1392	22.3	1550	28.8	20
G 20 - 102			102	60.6	17.3	1048	20.4	1236	23.0	1391	25.5	1545	34.8	20
G 20 - 115			115	53.0	19.6	1039	23.0	1219	25.9	1371	28.8	1526	39.0	10
G 20 - 127			127	47.5	21.6	1026	25.4	1207	28.6	1357	31.8	1511	43.0	10
G 20 - 139			139	43.0	23.8	1023	28.0	1204	31.3	1345	35.0	1505	45.3	10
G 20 - 152			152	39.0	25.8	1006	30.4	1186	34.2	1334	38.0	1482	50.4	10
G 20 - 305	4.1 x 3.8		305	21.2	51.9	1100	61.0	1293	68.6	1455	76.3	1618	103	10

How to order: G 50 - 152 (Series D_H - L_0)

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)

ISO 10243
Rectangular Wire

SERIES G

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 17% L_0		B 20% L_0		C 22.5% L_0		D 25% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
G 25 - 025	25	12.5	25	459	4.3	1974	5.0	2295	5.6	2582	6.3	2892	7.3	50
G 25 - 032			32	374	5.4	2020	6.4	2394	7.2	2693	8.0	2992	10.7	25
G 25 - 038			38	300	6.5	1950	7.6	2280	8.6	2580	9.5	2850	12.0	25
G 25 - 044			44	244	7.5	1830	8.8	2147	9.9	2416	11.0	2684	14.4	25
G 25 - 051			51	208	8.7	1810	10.2	2122	11.5	2392	12.8	2662	17.4	25
G 25 - 064			64	161	10.9	1755	12.8	2061	14.4	2318	16.0	2576	21.4	25
G 25 - 076			76	131	12.9	1690	15.2	1991	17.1	2240	19.0	2489	26.9	20
G 25 - 089			89	111	15.1	1676	17.8	1976	20.0	2220	22.3	2475	30.9	20
G 25 - 102			102	96.3	17.3	1666	20.4	1965	23.0	2210	25.5	2456	36.7	20
G 25 - 115			115	85.7	19.6	1680	23.0	1971	25.9	2217	28.8	2468	40.3	10
G 25 - 127			127	76.3	21.6	1648	25.4	1938	28.6	2180	31.8	2426	45.1	10
G 25 - 139			139	66.0	23.8	1571	28.0	1848	31.3	2066	35.0	2310	47.6	10
G 25 - 152			152	63.5	25.8	1638	30.4	1930	34.2	2172	38.0	2413	53.5	10
G 25 - 178			178	53.9	30.3	1633	35.6	1919	40.1	2159	44.5	2399	63.9	10
G 25 - 203			203	47.0	34.5	1622	40.6	1908	45.7	2147	50.8	2388	70.2	10
G 25 - 305	5.4 x 4.6		305	30.9	51.9	1604	61.0	1885	68.6	2121	76.3	2358	110	5
G 32 - 038	32	16	38	480	6.5	3120	7.6	3648	8.6	4128	9.5	4560	11.4	20
G 32 - 044			44	390	7.5	2925	8.8	3432	9.9	3861	11.0	4290	13.7	20
G 32 - 051			51	320	8.7	2784	10.2	3264	11.5	3680	12.8	4096	15.6	20
G 32 - 064			64	269	10.9	2934	12.8	3446	14.4	3876	16.0	4307	20.0	20
G 32 - 076			76	219	12.9	2825	15.2	3329	17.1	3745	19.0	4161	24.4	20
G 32 - 089			89	180	15.1	2723	17.8	3209	20.0	3611	22.3	4021	29.7	10
G 32 - 102			102	155	17.3	2682	20.4	3162	23.0	3557	25.5	3953	35.1	10
G 32 - 115			115	140	19.6	2744	23.0	3220	25.9	3623	28.8	4032	39.0	10
G 32 - 127			127	124	21.6	2678	25.4	3150	28.6	3543	31.8	3943	42.8	10
G 32 - 139			139	112	23.8	2673	28.0	3144	31.3	3512	35.0	3931	48.6	10
G 32 - 152			152	102	25.8	2632	30.4	3101	34.2	3488	38.0	3876	52.4	10
G 32 - 178			178	88.2	30.3	2672	35.6	3140	40.1	3532	44.5	3925	60.9	5
G 32 - 203			203	76.0	34.5	2622	40.6	3086	45.7	3471	50.8	3861	69.2	5
G 32 - 254			254	60.8	43.2	2627	50.8	3089	57.2	3475	63.5	3861	88.1	5
G 32 - 305	7.3 x 5.9		305	49.0	51.9	2543	61.0	2989	68.6	3363	76.3	3739	104	5
G 40 - 051	40	20	51	628	8.7	5464	10.2	6406	11.5	7206	12.8	8038	15.0	20
G 40 - 064			64	487	10.9	5308	12.8	6234	14.4	7013	16.0	7792	19.5	10
G 40 - 076			76	379	12.9	4889	15.2	5761	17.1	6481	19.0	7201	23.3	10
G 40 - 089			89	321	15.1	4847	17.8	5714	20.0	6428	22.3	7158	26.7	10
G 40 - 102			102	281	17.3	4861	20.4	5732	23.0	6449	25.5	7166	33.8	10
G 40 - 115			115	245	19.6	4802	23.0	5635	25.9	6339	28.8	7056	36.2	10
G 40 - 127			127	221	21.6	4774	25.4	5613	28.6	6315	31.8	7028	40.7	5
G 40 - 139			139	195	23.8	4641	28.0	5460	31.3	6103	35.0	6825	44.5	5
G 40 - 152			152	168	25.8	4334	30.4	5107	34.2	5746	38.0	6384	49.6	5
G 40 - 178			178	150	30.3	4545	35.6	5340	40.1	6015	44.5	6675	59.9	5
G 40 - 203			203	132	34.5	4554	40.6	5359	45.7	6029	50.8	6706	67.1	5
G 40 - 254			254	107	43.2	4622	50.8	5436	57.2	6115	63.5	6795	86.3	2
G 40 - 305	8.4 x 7.5		305	87.8	51.9	4557	61.0	5356	68.6	6025	76.3	6699	104	2
G 50 - 064	50	25	64	709	10.9	7728	12.8	9075	14.4	10210	16.0	11344	19.3	5
G 50 - 076			76	572	12.9	7379	15.2	8694	17.1	9781	19.0	10868	24.2	5
G 50 - 089			89	475	15.1	7173	17.8	8455	20.0	9512	22.3	10593	28.0	5
G 50 - 102			102	405	17.3	7007	20.4	8262	23.0	9295	25.5	10328	33.5	5
G 50 - 115			115	352	19.6	6899	23.0	8096	25.9	9108	28.8	10138	38.6	5
G 50 - 127			127	316	21.6	6826	25.4	8026	28.6	9030	31.8	10049	41.4	5
G 50 - 139			139	289	23.8	6878	28.0	8092	31.3	9046	35.0	10115	47.3	5
G 50 - 152			152	239	25.8	6166	30.4	7266	34.2	8174	38.0	9082	50.2	2
G 50 - 178			178	215	30.3	6515	35.6	7654	40.1	8611	44.5	9568	61.1	2
G 50 - 203			203	187	34.5	6452	40.6	7592	45.7	8541	50.8	9500	67.7	2
G 50 - 254			254	153	43.2	6610	50.8	7772	57.2	8744	63.5	9716	87.0	2
G 50 - 305	11.5 x 9.0		305	127	51.9	6591	61.0	7747	68.6	8715	76.3	9690	104	2
G 63 - 076	63	38	76	952	12.9	12280	15.2	14470	-	-	-	-	15.5	5
G 63 - 089			89	819	15.1	12360	17.8	14580	-	-	-	-	20.0	5
G 63 - 102			102	700	17.3	12110	20.4	14280	23.0	16065	25.5	17850	30.7	5
G 63 - 115			115	620	19.6	12152	23.0	14260	25.9	16043	28.8	17860	34.9	5
G 63 - 127			127	565	21.6	12204	25.4	14351	28.6	16145	31.8	17967	38.0	2
G 63 - 152			152	458	25.8	11816	30.4	13923	34.2	15664	38.0	17404	47.2	2
G 63 - 178			178	384	30.3	11635	35.6	13670	40.1	15379	44.5	17088	55.8	2
G 63 - 203			203	337	34.5	11627	40.6	13682	45.7	15392	50.8	17120	64.8	2
G 63 - 254			254	263	43.2	11362	50.8	13360	57.2	15030	63.5	16701	86.7	2
G 63 - 305	11.6 x 14.9		305	218	51.9	11314	61.0	13298	68.6	14960	76.3	16633	106	2

Estimated life 100.000 cycles

Load (N) = R (N/mm) x Deflection (mm) 1 N = 0.1 daN = 0.102 kgf How to order: G 50 - 152 (Series D_H - L_0)

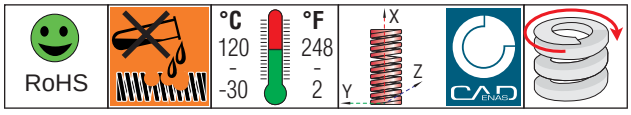
A SERIES

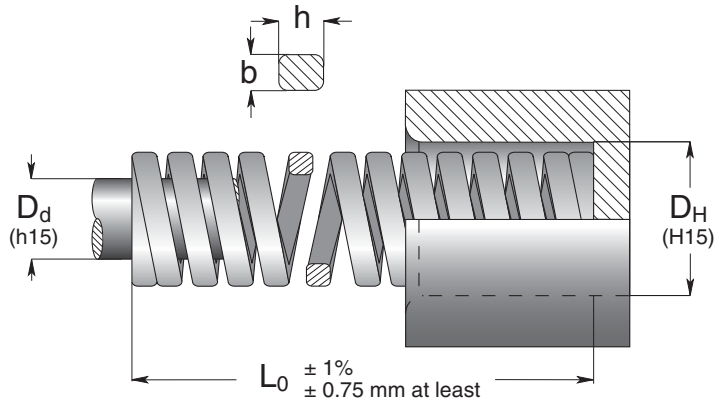
Special Springs standard Rectangular Wire

EN Ultra-heavy load springs
Silver color

ES Muelles carga ultra-fuerte
Color plateado

FR Ressorts charge ultra-forte
Couleur argent





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 10% L_0		B 12% L_0		C 13.5% L_0		D 15% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
A 25 - 064	25	12.5	64	644	6.4	4122	7.7	4959	8.6	5564	9.6	6182	13	25
A 25 - 076			76	556	7.6	4226	9.1	5060	10.3	5705	11.4	6338	16	20
A 25 - 089			89	462	8.9	4112	10.7	4943	12.0	5551	13.4	6168	20	20
A 25 - 102			102	390	10.2	3978	12.2	4758	13.8	5370	15.3	5967	23	20
A 25 - 115			115	360	11.5	4140	13.8	4968	15.5	5589	17.3	6210	26	10
A 25 - 127			127	326	12.7	4140	15.2	4955	17.1	5589	19.1	6210	28	10
A 25 - 152			152	255	15.2	3876	18.2	4641	20.5	5233	22.8	5814	34	10
A 25 - 178			178	230	17.8	4094	21.4	4922	24.0	5527	26.7	6141	39	10
A 25 - 203			203	202	20.3	4101	24.4	4929	27.4	5536	30.5	6151	45	10
A 25 - 305	5.6 x 7.5		305	136	30.5	4148	36.6	4978	41.2	5600	45.8	6222	63	5
A 32 - 064	32	16	64	1077	6.4	6892	7.7	8270	8.6	9305	9.6	10337	13	20
A 32 - 076			76	874	7.6	6642	9.1	7971	10.3	8967	11.4	9964	16	20
A 32 - 089			89	721	8.9	6419	11	7702	12.0	8663	13.3	9628	20	10
A 32 - 102			102	620	10	6324	12	7589	13.8	8537	15.3	9486	23	10
A 32 - 115			115	560	12	6440	14	7728	15.5	8694	17.2	9660	26	10
A 32 - 127			127	496	13	6299	15	7559	17.1	8504	19.0	9449	28	10
A 32 - 152			152	408	15	6202	18	7442	20.5	8372	22.8	9302	34	10
A 32- 178			178	353	18	6280	21	7536	24.0	8483	26.7	9420	39	5
A 32 - 203			203	304	20	6171	24	7405	27.4	8331	30.4	9257	45	5
A 32 - 254			254	243	25	6177	30	7413	34.3	8332	38.1	9266	62	5
A 32 - 305	7.5 x 9.2		305	196	31	5978	37	7174	41.2	8070	45.7	8967	75	5
A 40 - 089	40	20	89	880	8.9	7832	10.7	9416	12.0	10573	13.4	11748	20	10
A 40 - 102			102	762	10.2	7772	12.2	9296	13.8	10493	15.3	11659	23	10
A 40 - 115			115	679	11.5	7809	13.8	9370	15.5	10541	17.3	11713	26	10
A 40 - 127			127	622	12.7	7899	15.2	9454	17.1	10664	19.1	11849	28	5
A 40 - 152			152	509	22.8	7737	18.2	9264	20.5	10445	22.8	11605	36	5
A 40 - 178			178	429	17.8	7636	21.4	9181	24.0	10309	26.7	11454	43	5
A 40 - 203			203	374	20.3	7592	24.4	9126	27.4	10249	30.5	11388	49	5
A 40 - 254			254	296	25.4	7518	30.5	9028	34.3	10150	38.1	11278	62	2
A 40 - 305	8.5 x 11.0		305	246	30.5	7530	36.6	9004	41.2	10129	45.8	11255	75	2
A 50 - 089	50	25	89	1410	8.9	12549	10.7	15087	12.0	16941	13.4	18824	19	5
A 50 - 102			102	1215	10.2	12393	12.2	14823	13.8	16731	15.3	18590	22	5
A 50 - 115			115	1076	11.5	12374	13.8	14849	15.5	16705	17.3	18561	25	5
A 50 - 127			127	968	12.7	12294	15.2	14714	17.1	16596	19.1	18440	28	5
A 50 - 152			152	806	15.2	12251	18.2	14669	20.5	16539	22.8	18377	34	2
A 50 - 178			178	698	17.8	12424	21.4	14937	24.0	16773	26.7	18637	40	2
A 50 - 203			203	612	20.3	12424	24.4	14933	27.4	16772	30.5	18635	45	2
A 50 - 254			254	472	25.4	11989	30.5	14396	34.3	16185	38.1	17983	58	2
A 50 - 305	11.8 x 13.5		305	388	30.5	11834	36.6	14201	41.2	15976	45.8	17751	70	2

How to order: A 50 - 152 (Series D_H - L_0)

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)

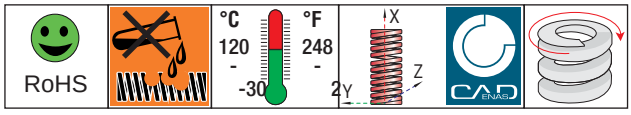
Special Springs standard
Rectangular Wire

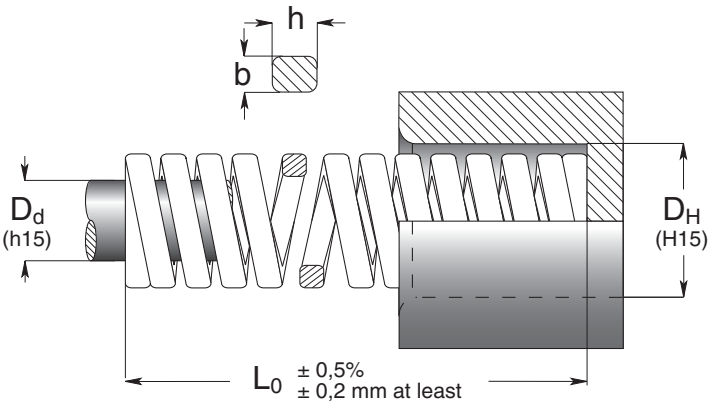
SERIES **W**

EN Hyper-strong
White color

ES Hyper-fuerte
color blanco

FR Hyper-forte
Couleur blanche





A N
W E
Metric W

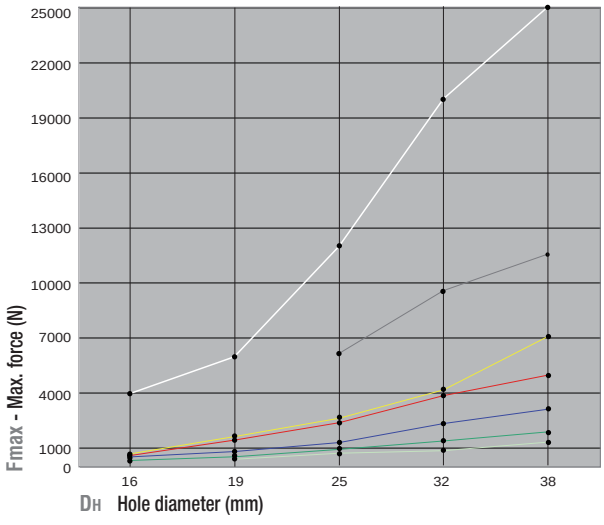
Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	F max		approx. do not use	
	b x h			± 10%				
	mm	mm	mm	N/mm	mm	N	mm	Pcs
W 16 - 020	16	6.3	20	1818	2.2	4000	3.0	16
W 16 - 035			35	1000	4.0		5.5	16
W 16 - 050			50	615	6.5		8.0	12
W 16 - 075			75	400	10.0		12.5	8
W 16 - 100	4.6 x 5.0		100	286	14.0		16.3	8
W 19 - 025	19	8	25	2400	2.5	6000	3.4	16
W 19 - 040			40	1333	4.5		5.9	16
W 19 - 050			50	1000	6.0		7.8	12
W 19 - 075			75	600	10.0		12.4	8
W 19 - 100	5.1 x 6.5		100	429	14.0		16.5	8
W 25 - 030	25	10	30	4800	2.5	12000	3.0	10
W 25 - 050			50	2400	5.0		5.9	10
W 25 - 075			75	1500	8.0		9.5	4
W 25 - 100			100	1000	12.0		14.7	4
W 25 - 125	6.9 x 9.1		125	857	14.0		16.9	4
W 32 - 035	32	12.5	35	6667	3.0	20000	3.7	8
W 32 - 050			50	3636	5.5		6.3	8
W 32 - 075			75	2222	9.0		11.3	4
W 32 - 100			100	1538	13.0		14.9	4
W 32 - 125			125	1250	16.0		18.3	2
W 32 - 150	9.25 x 10.8		150	1053	19.0		21.7	2
W 38 - 040	38	16	40	7143	3.5	25000	4.5	4
W 38 - 050			50	5000	5.0		5.9	4
W 38 - 075			75	2778	9.0		10.4	4
W 38 - 100			100	1923	13.0		15.0	2
W 38 - 150			150	1316	19.0		22.4	2
W 38 - 200	10.5 x 12.6		200	926	27.0		29.9	2

EN

Features that are unparalleled on the market thanks to the superior Special Springs production technology.
MAXIMUM FORCE UP TO 6 TIMES THE EXTRA STRONG SPRINGS (ISO standard yellow color).
MAXIMUM FORCE OVER 2 TIMES THE ULTRA STRONG SPRINGS (Special Springs standard silver coulor).
Ideal for applications that involve extremely large loads with short working strokes and that have to go for as long as possible without maintenance, in difficult environments with large amounts of contaminants and high temperatures.

ES

Características únicas en el mercado, gracias a la superior tecnología de producción de Special Springs:
MÁXIMA CARGA HASTA 6 VECES LA SERIE EXTRA-FUERTE (ISO standard color amarillo)
MÁXIMA CARGA MÁS DE 2 VECES LA SERIE ULTRA-FUERTE (Special Springs standard color plata)
Ideales para aplicaciones que requieren cargas muy altas con recorridos de trabajo cortos, allí donde se necesite la máxima duración sin mantenimiento, en ambientes difíciles con intensa presencia de contaminantes y altas temperaturas.



	SERIES	STANDARD	LOAD
	VL	Special Springs	Extra-light
	V	ISO 10243	Light
	B	ISO 10243	Medium
	R	ISO 10243	Strong
	G	ISO 10243	Extra-Strong
	A	Special Springs	Ultra-Strong
	W	Special Springs	Hyper-strong

FR

Des caractéristiques uniques sur le marché grâce à la technologie de production supérieure Special Springs :
CHARGE MAXIMUM JUSQU'À 6 FOIS LES RESSORTS EXTRA-FORT (ISO standard couleur jaune)
CHARGE MAXIMUM PLUS DE 2 FOIS LES RESSORTS ULTRA-FORT (Special Springs standard couleur argent)
L'idéal pour des applications qui exigent des charges extrêmement élevées et des courses de travail réduites ainsi qu'une longévité maximale sans entretien,
dans des milieux difficiles marqués par une présence élevée de contaminants et des températures élevées.

Load (N) = R (N/mm) x Deflection (mm) 1 N = 0.1 daN = 0.102 kgf

How to order: W 38 - 150 (Series D_H - L_0)

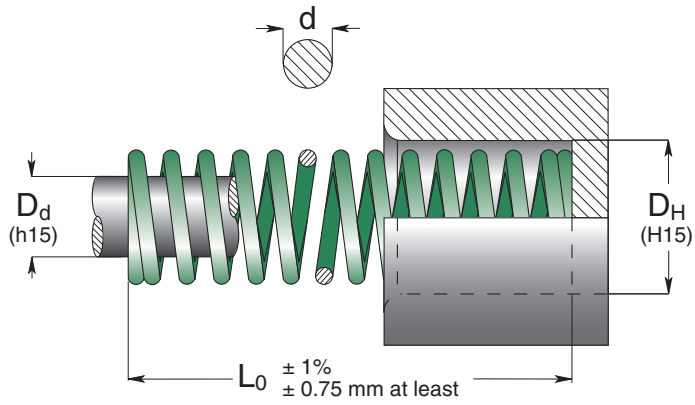
TV SERIES

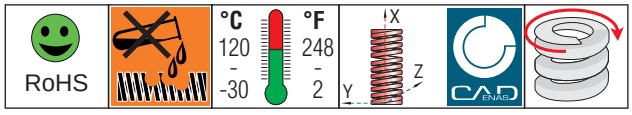
Special Springs standard Round Wire

EN Light load springs
Green color

ES Muelles carga ligera
Color verde

FR Ressorts charge lègére
Couleur verte





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 30% L_0		C 35% L_0		D 40% L_0		E approx.	
	d			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
TV 10 - 025	10	5	25	4.4	6.3	28	7.5	33	8.8	39	10.0	44	13.2	50
TV 10 - 032			32	3.4	8.0	27	9.6	33	11.2	38	12.8	44	16.5	50
TV 10 - 038			38	2.8	9.5	26	11.4	32	13.3	37	15.2	42	19.8	50
TV 10 - 044			44	2.4	11.0	26	13.2	31	15.4	37	17.6	42	23.1	50
TV 10 - 051			51	2.1	12.8	27	15.3	32	17.9	37	20.4	43	26.9	25
TV 10 - 064			64	1.6	16.0	26	19.2	31	22.4	36	25.6	42	33.3	25
TV 10 - 076			76	1.3	19.0	25	22.8	30	26.6	35	30.4	40	39.6	25
TV 10 - 305	1.1		305	0.3	76.3	24	91.5	29	107	32	122	38	157	10
TV 13 - 025	12.5	6.3	25	8.5	6.3	53	7.5	64	8.8	74	10.0	85	13.5	50
TV 13 - 032			32	6.5	8.0	52	9.6	62	11.2	73	12.8	83	16.8	50
TV 13 - 038			38	5.3	9.5	51	11.4	61	13.3	70	15.2	81	20.3	50
TV 13 - 044			44	4.4	11.0	49	13.2	59	15.4	68	17.6	78	23.9	25
TV 13 - 051			51	3.8	12.8	48	15.3	58	17.9	68	20.4	78	26.9	25
TV 13 - 064			64	2.9	16.0	47	19.2	56	22.4	65	25.6	75	33.3	25
TV 13 - 076			76	2.5	19.0	48	22.8	57	26.6	67	30.4	76	41.1	25
TV 13 - 089			89	2.1	22.3	48	26.7	57	31.2	65	35.6	76	48.3	20
TV 13 - 305	1.5		305	0.6	76.3	45	91.5	54	107	64	122	73	163	10
TV 16 - 025	16	8	25	17.9	6.3	112	7.5	134	8.8	157	10.0	179	14.7	50
TV 16 - 032			32	13.5	8.0	108	9.6	129	11.2	151	12.8	173	18.5	50
TV 16 - 038			38	10.5	9.5	100	11.4	120	13.3	140	15.2	160	22.4	25
TV 16 - 044			44	8.8	11.0	96	13.2	116	15.4	136	17.6	154	25.9	25
TV 16 - 051			51	7.6	12.8	97	15.3	116	17.9	136	20.4	155	30.0	25
TV 16 - 064			64	5.9	16.0	95	19.2	114	22.4	132	25.6	152	37.8	25
TV 16 - 076			76	4.8	19.0	91	22.8	109	26.6	128	30.4	145	45.2	20
TV 16 - 089			89	4.0	22.3	90	26.7	108	31.2	125	35.6	144	52.8	20
TV 16 - 102			102	3.5	25.5	90	30.6	108	35.7	125	40.8	144	60.7	20
TV 16 - 305	2		305	1.1	76.3	85	91.5	103	107	117	122	137	184	10

How to order: TV 16 - 102 (Series D_H - L_0)

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)

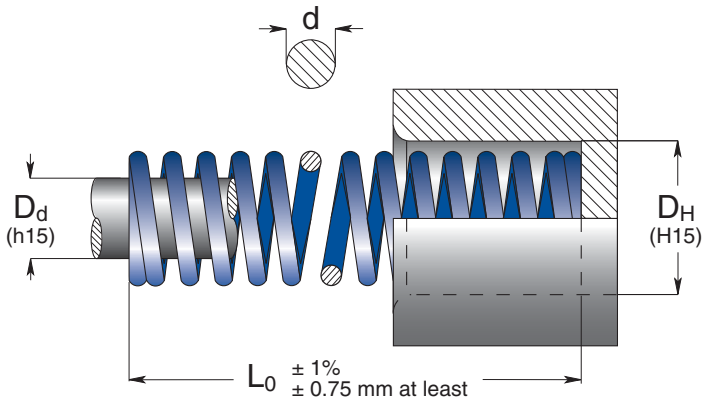
Special Springs standard Round Wire

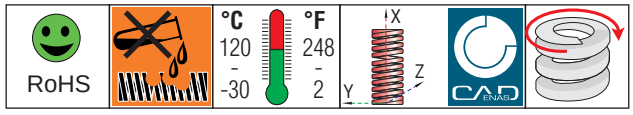
SERIES TB

EN Medium load springs
Blue color

ES Muelles carga mediana
Color azul marino

FR Ressorts charge moyenne
Couleur bleue





Round Wire Metric

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 30% L_0		C 33.75% L_0		D 37.5% L_0		E approx.	
	d			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
TB 10 - 025	10	5	25	12.3	6.3	77	7.5	92	8.4	104	9.4	115	10.4	50
TB 10 - 032			32	9.5	8.0	76	9.6	91	10.8	103	12.0	113	13.2	50
TB 10 - 038			38	7.8	9.5	74	11.4	88	12.8	100	14.3	111	16.0	50
TB 10 - 044			44	6.5	11.0	72	13.2	86	14.9	97	16.5	108	18.5	50
TB 10 - 051			51	5.6	12.8	72	15.3	86	17.2	96	19.1	108	21.1	25
TB 10 - 064			64	4.5	16.0	71	19.2	86	21.6	97	24.0	107	26.4	25
TB 10 - 076			76	3.7	19.0	70	22.8	84	25.7	95	28.5	105	31.8	25
TB 10 - 305	1.5		305	0.9	76.3	68	91.5	82	103	93	114	102	129	10
TB 13 - 025	12.5	6.3	25	21.7	6.3	136	7.5	163	8.4	183	9.4	204	11.2	50
TB 13 - 032			32	16.8	8.0	134	9.6	161	10.8	181	12.0	202	14.0	50
TB 13 - 038			38	13.8	9.5	131	11.4	158	12.8	177	14.3	197	17.3	50
TB 13 - 044			44	11.6	11.0	127	13.2	153	14.9	172	16.5	191	19.8	25
TB 13 - 051			51	10.0	12.8	127	15.3	153	17.2	172	19.1	191	22.9	25
TB 13 - 064			64	7.8	16.0	125	19.2	150	21.6	168	24.0	187	28.4	25
TB 13 - 076			76	6.4	19.0	122	22.8	146	25.7	164	28.5	183	34.3	25
TB 13 - 089			89	5.6	22.3	125	26.7	150	30.0	168	33.4	188	41.4	20
TB 13 - 305	1.8		305	1.5	76.3	118	91.5	141	103	154	114	176	139	10
TB 16 - 025	16	8	25	31.9	6.3	199	7.5	239	8.4	269	9.4	299	10.9	50
TB 16 - 032			32	24.0	8.0	192	9.6	230	10.8	259	12.0	288	13.7	50
TB 16 - 038			38	19.4	9.5	185	11.4	222	12.8	249	14.3	277	16.5	25
TB 16 - 044			44	16.1	11.0	177	13.2	213	14.9	239	16.5	266	19.3	25
TB 16 - 051			51	13.8	12.8	176	15.3	212	17.2	238	19.1	265	22.1	25
TB 16 - 064			64	10.7	16.0	171	19.2	205	21.6	231	24.0	256	27.4	25
TB 16 - 076			76	8.8	19.0	166	22.8	200	25.7	226	28.5	250	33.0	20
TB 16 - 089			89	7.5	22.3	167	26.7	200	30.0	225	33.4	250	38.6	20
TB 16 - 102			102	6.5	25.5	167	30.6	200	34.4	224	38.3	250	44.5	20
TB 16 - 305	2.2		305	2.1	76.3	159	91.5	191	103	216	114	238	134	10

Load (N) = R (N/mm) x Deflection (mm) 1 N = 0.1 daN = 0.102 kgf

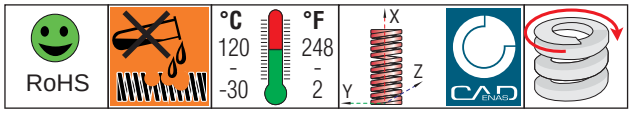
How to order: TB 16 - 102 (Series D_H - L_0)

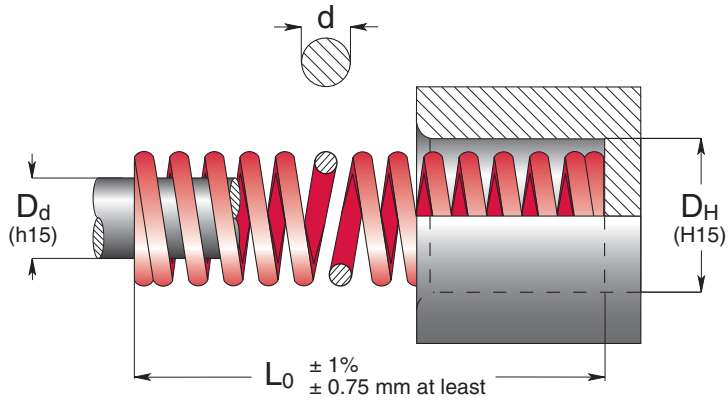
TR SERIES

EN Heavy load springs
Red color

ES Muelles carga fuerte
Color rojo

FR Ressorts charge forte
Couleur rouge





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 20% L_0		B 25% L_0		C 27.5% L_0		D 30% L_0		E approx. do not use	
	d			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000			
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
TR 10 - 025	10	5	25	20.7	5.0	103	6.3	129	6.9	142	7.5	155	8.6	50
TR 10 - 032			32	16.1	6.4	103	8.0	129	8.8	142	9.6	155	10.9	50
TR 10 - 038			38	13.0	7.6	98	9.5	123	10.5	136	11.4	148	13.2	50
TR 10 - 044			44	10.9	8.8	96	11.0	119	12.1	132	13.2	143	14.7	50
TR 10 - 051			51	9.6	10.2	98	12.8	123	14.0	135	15.3	147	17.8	25
TR 10 - 064			64	7.7	12.8	98	16.0	123	17.6	136	19.2	147	22.9	25
TR 10 - 076			76	6.3	15.2	96	19.0	119	20.9	132	22.8	143	26.9	25
TR 10 - 305	1.6		305	1.5	61.0	93	76.3	116	83.9	126	91.5	139	110	10
TR 13 - 025	12.5	6.3	25	37.5	5.0	187	6.3	234	6.9	258	7.5	281	8.9	50
TR 13 - 032			32	28.9	6.4	185	8.0	231	8.8	254	9.6	277	11.2	50
TR 13 - 038			38	23.5	7.6	178	9.5	223	10.5	246	11.4	268	13.7	50
TR 13 - 044			44	19.6	8.8	173	11.0	216	12.1	237	13.2	259	15.7	25
TR 13 - 051			51	17.3	10.2	177	12.8	221	14.0	243	15.3	265	18.8	25
TR 13 - 064			64	13.5	12.8	173	16.0	216	17.6	238	19.2	259	23.6	25
TR 13 - 076			76	11.2	15.2	170	19.0	213	20.9	234	22.8	256	28.4	25
TR 13 - 089			89	9.5	17.8	168	22.3	210	24.5	233	26.7	252	33.0	20
TR 13 - 305	2.2		305	2.7	61.0	162	76.3	203	83.9	226	91.5	244	114	10
TR 16 - 025	16	8	25	81.6	5.0	408	6.3	510	6.9	561	7.5	612	9.1	50
TR 16 - 032			32	61.3	6.4	392	8.0	490	8.8	539	9.6	588	11.4	50
TR 16 - 038			38	49.9	7.6	379	9.5	474	10.5	521	11.4	569	14.2	25
TR 16 - 044			44	40.8	8.8	359	11.0	449	12.1	494	13.2	539	16.3	25
TR 16 - 051			51	35.6	10.2	363	12.8	453	14.0	499	15.3	544	18.8	25
TR 16 - 064			64	27.8	12.8	356	16.0	446	17.6	489	19.2	535	23.9	25
TR 16 - 076			76	22.8	15.2	346	19.0	433	20.9	477	22.8	519	29.0	20
TR 16 - 089			89	19.6	17.8	349	22.3	436	24.5	480	26.7	524	34.3	20
TR 16 - 102			102	17.0	20.4	347	25.5	433	28.1	477	30.6	520	39.4	20
TR 16 - 305	2.8		305	5.4	61.0	330	76.3	413	83.9	453	91.5	495	119	10

How to order: TR 16 - 102 (Series D_H - L_0)

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)

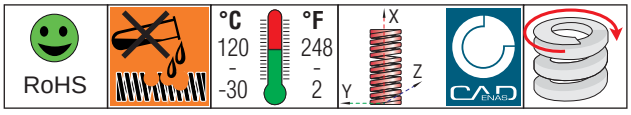
Special Springs standard Round Wire

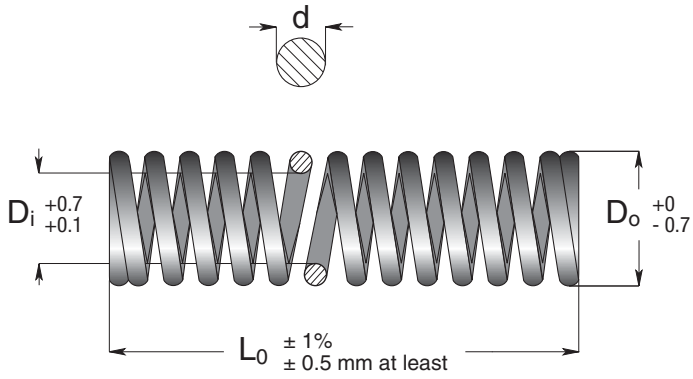
SERIES L

EN Non painted with anti-rust lubricant

ES Muelles no pintados con lubricación antióxido

FR Ressorts non.peintsd avec huilange antirouille





Round Wire Metric

D_o spring outside diameter.
diámetro externo del muelle.
diamètre extérieur du ressort.

D_i spring inside diameter.
diámetro interior del muelle.
diamètre interièur du ressort.

d wire diameter.
diámetro del hilo.
diamètre du fil.

L_0 spring free length.
longitud libre del muelle.
longueur libre du ressort.

R spring rate, load (N) required for 1 mm deflection.
carga (N) necesaria para desviar el muelle de 1 milímetro.
charge (N) exigée pour comprimer le ressort 1mm.

A advised working deflection for long spring life.
deflexión aconsejada para una larga duración del muelle.
course conseillée pour une longue durée du ressort.

B advised working deflection for medium spring life.
deflexión aconsejada para una media duración del muelle
course conseillée pour durée moyenne du ressort.

C maximum operating deflection.
deflexión máxima permitida.
course maximale pour le fonctionnement.

Code	D_o Outside Diameter	D_i Inside Diameter	L_0 Free Length	R Spring Constant	A 16% L_0		B 24% L_0		C 38 % L_0		D 32% L_0	
	d			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N
L 3 - 010	3	2	10	2.94	1.6	4.4	2.4	6.62	2.8	6.9	3.2	8.8
L 3 - 015			15	1.96	2.4		3.6		4.2		4.8	
L 3 - 020			20	0.98	3.2		4.8		5.6		6.4	
L 3 - 025	0,4		25	0.98	4		6		7.0		8	
L 4 - 010	4	2,6	10	4.9	1.6	7.8	2.4	11.6	2.8	14.5	3.2	15.7
L 4 - 015			15	2.94	2.4		3.6		4.2		4.8	
L 4 - 020			20	2.94	3.2		4.8		5.6		6.4	
L 4 - 025			25	1.96	4		6		7.0		8	
L 4 - 030	0,6		30	1.96	4.8		7.2		8.4		9.6	
L 6 - 015	6	4	15	7.85	2.4	17.7	3.6	26.5	4.2	32.4	4.8	35.5
L 6 - 020			20	5.88	3.2		4.8		5.6		6.4	
L 6 - 025			25	4.9	4		6		7.0		8	
L 6 - 030			30	3.92	4.8		7.2		8.4		9.6	
L 6 - 035	0,9		35	2.94	5.6		8.4		9.8		11.2	

Load (N) = R (N/mm) x Deflection (mm) 1 N = 0.1 daN = 0.102 kgf

How to order: L 6 - 030 (Series D_H - L_0)

Code	D_o Outside Diameter	D_i Inside Diameter	L_0 Free Length	R Spring Constant	A 16% L_0		B 24% L_0		C 38 % L_0		D 32% L_0	
	d			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N
L 8 - 015	8	5,4	15	12.75	2.4	31.4	3.6	47.1	4.2	55.6	4.8	62.8
L 8 - 020			20	9.81	3.2		4.8		5.6		6.4	
L 8 - 025			25	7.85	4		6		7.0		8	
L 8 - 030			30	6.86	4.8		7.2		8.4		9.6	
L 8 - 035			35	5.88	5.6		8.4		9.8		11.2	
L 8 - 040	1,2		40	4.9	6.4		9.6		11.2		12.8	
L 10 - 025	10	6,5	25	12.75	4	49	6	73.6	7.0	85.8	8	98
L 10 - 030			30	9.81	4.8		7.2		8.4		9.6	
L 10 - 035			35	8.83	5.6		8.4		9.8		11.2	
L 10 - 040			40	7.85	6.4		9.6		11.2		12.8	
L 10 - 045			45	6.86	7.2		10.8		12.6		14.4	
L 10 - 050	1,5		50	5.88	8		12		14.0		16	
L 12 - 025	12	8	25	17.65	4	70.6	6	106.9	7.0	124.1	8	141.2
L 12 - 030			30	14.71	4.8		7.2		8.4		9.6	
L 12 - 035			35	12.75	5.6		8.4		9.8		11.2	
L 12 - 040			40	10.79	6.4		9.6		11.2		12.8	
L 12 - 045			45	9.81	7.2		10.8		12.6		14.4	
L 12 - 050			50	8.83	8		12		14.0		16	
L 12 - 055			55	7.85	8.8		13.2		15.4		17.6	
L 12 - 060	1,8		60	7.85	9.6		14.4		16.8		19.2	
L 14 - 025	14	9,3	25	24.52	4	96.1	6	144.2	7.0	167.7	8	192.2
L 14 - 030			30	19.61	4.8		7.2		8.4		9.4	
L 14 - 035			35	17.65	5.6		8.4		9.8		11.2	
L 14 - 040			40	14.71	6.4		9.6		11.2		12.8	
L 14 - 045			45	13.73	7.2		10.8		12.6		14.4	
L 14 - 050			50	11.77	8		12		14.0		16	
L 14 - 055			55	10.79	8.8		13.2		15.4		17.6	
L 14 - 060			60	9.81	9.6		14.4		16.8		19.2	
L 14 - 065			65	8.83	10.4		15.6		18.2		20.8	
L 14 - 070	2,2		70	8.83	11.2		16.8		19.6		22.4	
L 16 - 025	16	10,7	25	31.38	4	125.5	6	188.3	7.0	219.8	8	251.1
L 16 - 030			30	26.48	4.8		7.2		8.4		9.4	
L 16 - 035			35	22.56	5.6		8.4		9.8		11.2	
L 16 - 040			40	19.61	6.4		9.6		11.2		12.8	
L 16 - 045			45	17.65	7.2		10.8		12.6		14.4	
L 16 - 050			50	15.69	8		12		14.0		16	
L 16 - 055			55	14.71	8.8		13.2		15.4		17.6	
L 16 - 060			60	12.75	9.6		14.4		16.8		19.2	
L 16 - 065			65	11.77	10.4		15.6		18.2		20.8	
L 16 - 070			70	10.79	11.2		16.8		19.6		22.4	
L 16 - 075			75	10.79	12		18		21.0		24	
L 16 - 080	2,4		80	9.81	12.8		19.2		22.4		25.6	
L 18 - 025	18	12	25	40.21	4	158.9	6	238.3	7.0	280.4	8	317.7
L 18 - 030			30	33.34	4.8		7.2		8.4		9.4	
L 18 - 035			35	28.44	5.6		8.4		9.8		11.2	
L 18 - 040			40	24.52	6.4		9.6		11.2		12.8	
L 18 - 045			45	22.56	7.2		10.8		12.6		14.4	
L 18 - 050			50	19.61	8		12		14.0		16	
L 18 - 055			55	17.65	8.8		13.2		15.4		17.6	
L 18 - 060			60	16.67	9.6		14.4		16.8		19.2	
L 18 - 065			65	15.69	10.4		15.6		18.2		20.8	
L 18 - 070			70	14.71	11.2		16.8		19.6		22.4	
L 18 - 075			75	13.73	12		18		21.0		24	
L 18 - 080			80	12.75	12.8		19.2		22.4		25.6	
L 18 - 090	2,8		90	10.79	14.4		21.6		25.2		28.8	
L 20 - 025	20	13,5	25	49.03	4	196.1	6	294.2	7.0	346.3	8	392.3
L 20 - 030			30	41.19	4.8		7.2		8.4		9.4	
L 20 - 035			35	35.3	5.6		8.4		9.8		11.2	
L 20 - 040			40	30.4	6.4		9.6		11.2		12.8	
L 20 - 045			45	27.46	7.2		10.8		12.6		14.4	
L 20 - 050			50	24.52	8		12		14.0		16	
L 20 - 055			55	22.56	8.8		13.2		15.4		17.6	
L 20 - 060			60	20.59	9.6		14.4		16.8		19.2	
L 20 - 065			65	18.63	10.4		15.6		18.2		20.8	
L 20 - 070			70	17.65	11.2		16.8		19.6		22.4	
L 20 - 075			75	16.67	12		18		21.0		24	
L 20 - 080			80	15.69	12.8		19.2		22.4		25.6	
L 20 - 090			90	13.73	14.4		21.6		25.2		28.8	
L 20 - 100	3		100	12.75	16		24		28.0		32	

How to order: L 6 - 030 (Series D_H - L_0)

1 N = 0.1 daN = 0.102 kgf Load (N) = R (N/mm) x Deflection (mm)

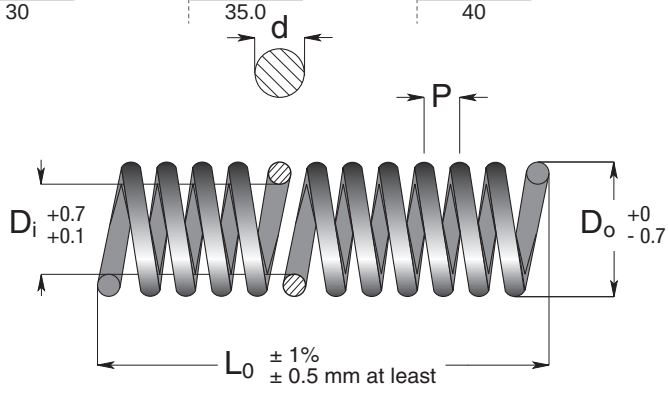
Code	D_o Outside Diameter	D_i Inside Diameter	L_0 Free Length	R Spring Constant	A 16% L_0		B 24% L_0		C 38 % L_0		D 32% L_0	
	d			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N
L 22 - 025	22	14,7	25	59.82	4	237.3	6	356	7.0	415.9	8	474.6
L 22 - 030			30	49.03	4.8		7.2		8.4		9.4	
L 22 - 035			35	42.17	5.6		8.4		9.8		11.2	
L 22 - 040			40	37.27	6.4		9.6		11.2		12.8	
L 22 - 045			45	33.34	7.2		10.8		12.6		14.4	
L 22 - 050			50	29.42	8		12		14.0		16	
L 22 - 055			55	27.46	8.8		13.2		15.4		17.6	
L 22 - 060			60	24.52	9.6		14.4		16.8		19.2	
L 22 - 065			65	22.56	10.4		15.6		18.2		20.8	
L 22 - 070			70	21.57	11.2		16.8		19.6		22.4	
L 22 - 075			75	19.61	12		18		21.0		24	
L 22 - 080			80	18.63	12.8		19.2		22.4		25.6	
L 22 - 090			90	16.67	14.4		21.6		25.2		28.8	
L 22 - 100	3,4		100	14.71	16		24		28.0		32	
L 25 - 025	25	17	25	76.49	4	307	6	459.9	7.0	537.9	8	613.9
L 25 - 030			30	63.74	4.8		7.2		8.4		9.6	
L 25 - 035			35	54.92	5.6		8.4		9.8		11.2	
L 25 - 040			40	48.05	6.4		9.6		11.2		12.8	
L 25 - 045			45	42.17	7.2		10.8		12.6		14.4	
L 25 - 050			50	38.25	8		12		14.0		16	
L 25 - 055			55	35.3	8.8		13.2		15.4		17.6	
L 25 - 060			60	32.36	9.6		14.4		16.8		19.2	
L 25 - 065			65	29.42	10.4		15.6		18.2		20.8	
L 25 - 070			70	27.46	11.2		16.8		19.6		22.4	
L 25 - 075			75	25.5	12		18		21.0		24	
L 25 - 080			80	23.54	12.8		19.2		22.4		25.6	
L 25 - 090			90	21.57	14.4		21.6		25.2		28.8	
L 25 - 100	3,8		100	19.61	16		24		28.0		32	
L 30 - 050	30	20	50	51.94	8	414	12	621	14.0	724.6	16	828
L 30 - 060			60	44.1	9.6		14.4		16.8		19.2	
L 30 - 070			70	37.24	11.2		16.8		19.6		22.4	
L 30 - 080			80	32.34	12.8		19.2		22.4		25.6	
L 30 - 090			90	28.42	14.4		21.6		25.2		28.8	
L 30 - 100			100	25.48	16		24		28.0		32	
L 30 - 125	4,5		125	20.58	20		30		35.0		40	

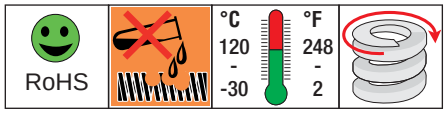
Round Wire Metric

EN Long size open ends

ES Piezas desmochadas con terminales abiertos

FR Ressorts avec longueur ébauché





Code	D_o Outside Diameter	D_i Inside Diameter	d Wire Diameter	L_0 Free Length	P Pitch
	mm	mm	mm	mm	mm
L 03 - 300	3	2.0	0.4	300	1.04
L 04 - 300	4	2.6	0.6	300	1.50
L 06 - 300	6	4.0	0.9	300	2.00
L 08 - 300	8	5.4	1.2	300	2.80
L 10 - 300	10	6.5	1.5	300	3.50
L 12 - 300	12	8.0	1.8	300	4.30
L 14 - 300	14	9.3	2.2	300	4.80
L 16 - 300	16	10.7	2.4	300	5.50
L 18 - 300	18	12.0	2.8	300	5.30
L 20 - 300	20	13.5	3.0	300	6.80
L 22 - 300	22	14.7	3.4	300	6.70
L 25 - 300	25	17.0	3.8	300	8.20

Load (N) = R (N/mm) x Deflection (mm) 1 N = 0.1 daN = 0.102 kgf

How to order: L 6 - 300 (Series D_H - L_0)

MBL SERIES

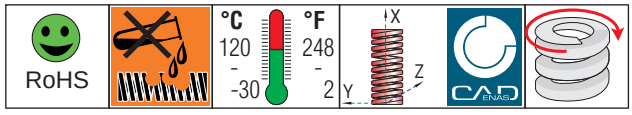
US standard
Oval Wire

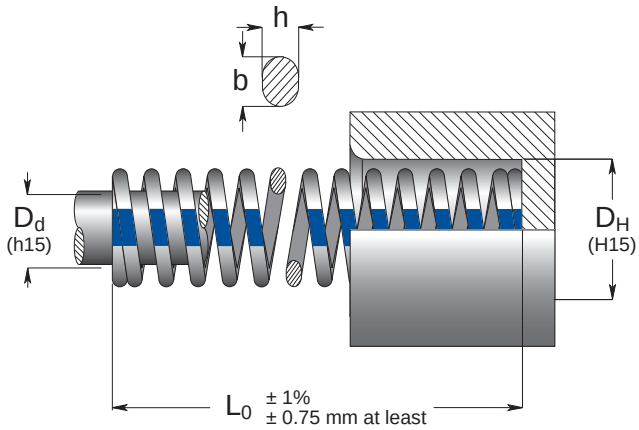
SPECIAL SPRINGS

EN Light load springs
Silver-blue color

ES Muelles carga ligera
Color plateado-azul

FR Ressorts de charge légère
Argent-bleu





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 40% L_0		C 45% L_0		D 50% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
MBL 10 - 025			25	14.4	6.3	91	10.0	144	11.3	162	12.5	180	13.5	50
MBL 10 - 032			32	12.3	8.0	98	12.8	157	14.4	177	16.0	197	17.5	50
MBL 10 - 038			38	9.8	9.5	93	15.2	149	17.1	168	19.0	186	20.8	50
MBL 10 - 044	9,5	4,7	44	8.8	11.0	97	17.6	155	19.8	174	22.0	194	23.9	50
MBL 10 - 051			51	7.5	12.8	96	20.4	153	23.0	172	25.5	191	28.9	25
MBL 10 - 064			64	4.9	16.0	78	25.6	125	28.8	141	32.0	157	36.1	25
MBL 10 - 076			76	3.8	19.0	72	30.4	116	34.2	130	38.0	144	43.2	25
MBL 10 - 305	1,96 x 1,00		305	1.2	76.3	92	122.0	146	137.3	165	152.5	183	178.7	10
MBL 13 - 025			25	18.9	6.3	119	10.0	189	11.3	213	12.5	236	13.2	50
MBL 13 - 032			32	15.4	8.0	123	12.8	197	14.4	222	16.0	246	18.0	50
MBL 13 - 038			38	13.5	9.5	128	15.2	205	17.1	231	19.0	257	21.0	50
MBL 13 - 044			44	11.8	11.0	130	17.6	208	19.8	234	22.0	260	24.0	25
MBL 13 - 051	13	7	51	10.0	12.8	128	20.4	204	23.0	230	25.5	255	28.7	25
MBL 13 - 064			64	7.6	16.0	122	25.6	195	28.8	219	32.0	243	35.8	25
MBL 13 - 076			76	5.9	19.0	112	30.4	179	34.2	202	38.0	224	42.7	25
MBL 13 - 089			89	4.8	22.3	107	35.6	171	40.1	192	44.5	214	50.4	20
MBL 13 - 102			102	3.4	25.5	87	40.8	139	45.9	156	51.0	173	58.4	10
MBL 13 - 305	2,50 x 1,46		305	1.6	76.3	122	122.0	195	137.3	220	152.5	244	172.0	10
MBL 16 - 025			25	22.9	6.3	144	10.0	229	11.3	258	12.5	286	12.7	50
MBL 16 - 032			32	22.5	8.0	180	12.8	288	14.4	324	16.0	360	16.6	50
MBL 16 - 038			38	18.9	9.5	180	15.2	287	17.1	323	19.0	359	20.0	25
MBL 16 - 044			44	16.8	11.0	185	17.6	296	19.8	333	22.0	370	23.4	25
MBL 16 - 051	16	8,7	51	15.4	12.8	197	20.4	314	23.0	353	25.5	393	26.8	25
MBL 16 - 064			64	10.5	16.0	168	25.6	269	28.8	302	32.0	336	33.2	25
MBL 16 - 075			76	9.8	19.0	186	30.4	298	34.2	335	38.0	372	41.8	20
MBL 16 - 089			89	8.4	22.3	187	35.6	299	40.1	336	44.5	374	48.6	20
MBL 16 - 102			102	7.7	25.5	196	40.8	314	45.9	353	51.0	393	55.5	20
MBL 16 - 115			115	5.9	28.8	170	46.0	271	51.8	305	57.5	339	62.2	10
MBL 16 - 305	2,80 x 1,88		305	2.5	76.3	191	122.0	305	137.3	343	152.5	381	170.9	10
MBL 19 - 025			25	53.0	6.3	334	10.0	530	11.3	596	12.5	663	12.7	50
MBL 19 - 032			32	43.1	8.0	345	12.8	552	14.4	621	16.0	690	17.0	50
MBL 19 - 038			38	34.3	9.5	326	15.2	521	17.1	587	19.0	652	20.3	25
MBL 19 - 044			44	30.4	11.0	334	17.6	535	19.8	602	22.0	669	23.5	25
MBL 19 - 051			51	25.5	12.8	326	20.4	520	23.0	585	25.5	650	27.4	25
MBL 19 - 064			64	20.6	16.0	330	25.6	527	28.8	593	32.0	659	34.7	25
MBL 19 - 076	19,5	9,5	76	16.2	30.4	492	38.0	616	34.2	554	42.4	687	42.4	25
MBL 19 - 089			89	14.2	22.3	317	35.6	506	40.1	569	44.5	632	48.9	20
MBL 19 - 102			102	12.2	25.5	311	40.8	498	45.9	560	51.0	622	56.6	20
MBL 19 - 115			115	11.0	28.8	317	46.0	506	51.8	569	57.5	633	64.1	10
MBL 19 - 127			127	9.8	31.8	312	50.8	498	57.2	560	63.5	622	71.7	10
MBL 19 - 140			140	8.3	35.0	291	56.0	465	63.0	523	70.0	581	79.8	10
MBL 19 - 152			152	7.2	38.0	274	60.8	438	68.4	492	76.0	547	85.9	10
MBL 19 - 305	4,00 x 2,00		305	4.1	76.3	313	122.0	500	137.3	563	152.5	625	167.8	10

How to order: MBL 38 - 102 (Series D_H - L_0)

1 N = 0.1 daN = 0.102 kgf Load (N) = R (N/mm) x Deflection (mm)

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 40% L_0		C 45% L_0		D 50% L_0		E approx. do not use	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000			
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
MBL 26 - 025	25,5	13	25	107.9	6.3	680	10.0	1079	11.3	1214	12.5	1349	12.6	50
MBL 26 - 032			32	80.4	8.0	643	12.8	1029	14.4	1158	16.0	1286	16.1	25
MBL 26 - 038			38	62.8	9.5	597	15.2	955	17.1	1074	19.0	1193	19.1	25
MBL 26 - 044			44	52.0	11.0	572	17.6	915	19.8	1030	22.0	1144	22.9	25
MBL 26 - 051			51	43.1	12.8	552	20.4	879	23.0	989	25.5	1099	27.3	25
MBL 26 - 064			64	35.3	16.0	565	25.6	904	28.8	1017	32.0	1130	33.3	25
MBL 26 - 076			76	29.4	19.0	559	30.4	894	34.2	1005	38.0	1117	39.5	20
MBL 26 - 089			89	24.5	22.3	546	35.6	872	40.1	981	44.5	1090	47.7	20
MBL 26 - 102			102	21.6	25.5	551	40.8	881	45.9	991	51.0	1102	56.4	20
MBL 26 - 115			115	18.6	28.8	536	46.0	856	51.8	963	57.5	1070	62.2	10
MBL 26 - 127			127	17.2	31.8	547	50.8	874	57.2	983	63.5	1092	69.4	10
MBL 26 - 140			140	15.7	35.0	550	56.0	879	63.0	989	70.0	1099	76.9	10
MBL 26 - 152			152	14.7	38.0	559	60.8	894	68.4	1005	76.0	1117	83.0	10
MBL 26 - 178			178	12.7	44.5	565	71.2	904	80.1	1017	89.0	1130	98.6	10
MBL 26 - 203			203	10.8	50.8	549	81.2	877	91.4	987	101.5	1096	111.9	10
MBL 26 - 305	5,50 x 2,50		305	7.4	76.3	565	122.0	903	137.3	1016	152.5	1129	165.4	5
MBL 32 - 038	32	16	38	88.3	9.5	839	15.2	1342	17.1	1510	19.0	1678	19.2	20
MBL 32 - 044			44	76.5	11.0	842	17.6	1346	19.8	1515	22.0	1683	22.4	20
MBL 32 - 051			51	60.8	12.8	778	20.4	1240	23.0	1395	25.5	1550	25.8	20
MBL 32 - 064			64	49.0	16.0	784	25.6	1254	28.8	1411	32.0	1568	33.1	20
MBL 32 - 076			76	41.2	19.0	783	30.4	1252	34.2	1409	38.0	1566	39.9	20
MBL 32 - 089			89	35.3	22.3	787	35.6	1257	40.1	1414	44.5	1571	47.1	10
MBL 32 - 102			102	30.4	25.5	775	40.8	1240	45.9	1395	51.0	1550	54.4	10
MBL 32 - 115			115	27.5	28.8	792	46.0	1265	51.8	1423	57.5	1581	61.1	10
MBL 32 - 127			127	23.5	31.8	747	50.8	1194	57.2	1343	63.5	1492	68.2	10
MBL 32 - 140			140	21.6	35.0	756	56.0	1210	63.0	1361	70.0	1512	75.7	10
MBL 32 - 152			152	19.6	38.0	745	60.8	1192	68.4	1341	76.0	1490	82.3	10
MBL 32 - 178			178	17.7	44.5	788	71.2	1260	80.1	1418	89.0	1575	97.3	5
MBL 32 - 203			203	14.7	50.8	747	81.2	1194	91.4	1343	101.5	1492	110.2	5
MBL 32 - 254			254	12.7	63.5	806	101.6	1290	114.3	1452	127.0	1613	137.9	5
MBL 32 - 305	6,90 x 3,00		305	9.8	76.3	748	122.0	1196	137.3	1345	152.5	1495	163.8	5
MBL 38 - 051	38,5	19,5	51	71.4	12.8	042	20.4	1661	23.0	1639	25.5	2076	26.3	20
MBL 38 - 064			64	62.8	16.0	1005	25.6	1608	28.8	1809	32.0	2010	33.1	10
MBL 38 - 076			76	51.0	19.0	969	30.4	1550	34.2	1744	38.0	1938	39.9	10
MBL 38 - 089			89	43.1	22.6	961	35.6	1534	40.1	1726	44.5	1918	47.4	10
MBL 38 - 102			102	36.3	25.5	926	40.8	1481	45.9	1666	51.0	1851	54.7	10
MBL 38 - 115			115	32.4	28.8	933	46.0	1490	51.8	1677	57.5	1863	61.4	10
MBL 38 - 127			127	29.4	31.8	935	50.8	1494	57.2	1680	63.5	1867	68.1	5
MBL 38 - 140			140	27.0	35.0	945	56.0	1512	63.0	1701	70.0	1890	76.8	5
MBL 38 - 152			152	24.5	38.0	931	60.8	1490	68.4	1676	76.0	1862	82.5	5
MBL 38 - 178			178	21.6	44.5	961	71.2	1539	80.1	1730	89.0	1922	97.9	5
MBL 38 - 203			203	18.6	50.8	945	81.2	1510	91.4	1699	101.5	1888	110.3	5
MBL 38 - 254			254	14.7	63.5	933	101.6	1494	114.3	1680	127.0	1867	140.0	2
MBL 38 - 305	8,00 x 3,50		305	10.8	76.3	824	122.0	1318	137.3	1482	152.5	1647	164.1	2
MBL 51 - 064	51	25,5	64	156.9	16.0	2510	25.6	4017	28.8	4519	32.0	5021	32.1	5
MBL 51 - 076			76	132.4	19.0	2516	30.4	4025	34.2	4528	38.0	5031	41.2	5
MBL 51 - 089			89	114.7	22.3	2558	35.6	4083	40.1	4594	44.5	5104	48.1	5
MBL 51 - 102			102	98.1	25.5	2502	40.8	4002	45.9	4503	51.0	5003	54.7	5
MBL 51 - 115			115	87.3	28.8	2514	46.0	4016	51.8	4518	57.5	5020	62.2	5
MBL 51 - 127			127	77.5	31.8	2465	50.8	3937	57.2	4429	63.5	4921	69.4	5
MBL 51 - 140			140	69.6	35.0	2436	56.0	3898	63.0	4385	70.0	4872	76.8	5
MBL 51 - 152			152	64.7	38.0	2459	60.8	3934	68.4	4425	76.0	4917	81.9	2
MBL 51 - 178			178	53.0	44.5	2359	71.2	3774	80.1	4245	89.0	4717	98.1	2
MBL 51 - 203			203	47.1	50.8	239	81.2	3825	91.4	4303	101.5	4781	112.5	2
MBL 51 - 254			254	37.5	63.5	2381	101.6	3810	114.3	4286	127.0	4763	141.2	2
MBL 51 - 305	11,50 x 5,00		305	31.4	76.3	2396	122.0	3831	137.3	4310	152.5	4789	169.9	2
MBL 63 - 076	63	38	76	189.3	19.0	3597	30.4	5755	34.2	6474	38.0	7193	38.4	5
MBL 63 - 089			89	156.9	22.3	3499	35.6	5586	40.1	6284	44.5	6982	46.0	5
MBL 63 - 102			102	133.4	25.5	3402	40.8	5443	45.9	6123	51.0	6803	52.8	5
MBL 63 - 115			115	116.7	28.8	3361	46.0	5368	51.8	6039	57.5	6710	59.7	5
MBL 63 - 127			127	104.0	31.8	3307	50.8	5283	57.2	5944	63.5	6604	67.4	2
MBL 63 - 140			140	93.1	35.0	3259	56.0	5214	63.0	5865	70.0	6517	74.7	2
MBL 63 - 152			152	84.3	28.0	3203	60.8	5125	68.4	5766	76.0	6407	81.9	2
MBL 63 - 178			178	82.6	44.5	3231	71.2	5169	80.1	6616	89.0	6461	98.5	2
MBL 63 - 203			203	62.8	50.8	3190	81.2	5099	91.4	5737	101.5	6374	109.1	2
MBL 63 - 254			254	47.1	63.5	2991	101.6	4785	114.3	5384	127.0	5982	140.2	2
MBL 63 - 305	11,76 x 7,20		305	38.2	76.3	2915	122.0	4660	137.3	5243	152.5	5826	162.9	2

Load (N) = R (N/mm) x Deflection (mm) 1 N = 0.1 daN = 0.102 kgf

How to order: MBL 38 - 102 (Series D_H - L_0)

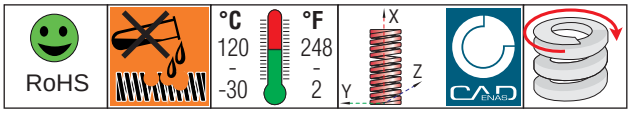
MHR SERIES

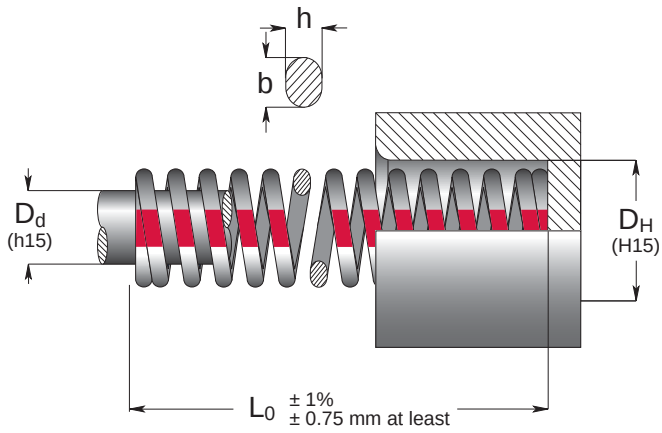
US standard Oval Wire

EN Medium load springs
Silver-red color

ES Muelles carga mediana
Color plateado-rojo

FR Ressorts charge moyenne
Couleur argent-rouge





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 20% L_0		B 25% L_0		C 31% L_0		D 37% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
MHR 10 - 025			25	17.7	5.0	89	6.3	112	7.8	137	9.3	165	10.2	50
MHR 10 - 032			32	15.2	6.4	97	8.0	122	9.9	151	11.8	179	14.2	50
MHR 10 - 038			38	13.2	7.6	100	9.5	125	11.8	155	14.1	186	16.8	50
MHR 10 - 044	9.5	4.7	44	11.3	8.8	99	11.0	124	13.6	154	16.3	184	19.4	50
MHR 10 - 051			51	8.4	10.2	86	12.8	108	15.8	133	18.9	159	23.4	25
MHR 10 - 064			64	7.2	12.8	92	16.0	115	19.8	143	23.7	171	28.2	25
MHR 10 - 076			76	5.8	15.2	88	19.0	110	23.6	137	28.1	163	34.2	25
MHR 10 - 305	1.90 x 1.30		305	1.5	61.0	91	76.3	114	94.6	142	112.9	169	133.8	10
MHR 13 - 025			25	30.4	5.0	152	6.3	192	7.8	236	9.3	283	11.9	50
MHR 13 - 032			32	22.1	6.4	141	8.0	177	9.9	219	11.8	261	16.2	50
MHR 13 - 038			38	19.1	7.6	145	9.5	181	11.8	225	14.1	269	18.7	50
MHR 13 - 044			44	16.1	8.8	142	11.0	177	13.6	220	16.3	262	21.3	25
MHR 13 - 051	13	7	51	15.0	10.2	153	12.8	192	15.8	237	18.9	284	25.6	25
MHR 13 - 064			64	11.8	12.8	151	16.0	189	19.8	234	23.7	280	32.4	25
MHR 13 - 076			76	9.8	15.2	149	19.0	186	23.6	231	28.1	275	39.0	25
MHR 13 - 089			89	8.1	17.8	144	22.3	181	27.6	223	32.9	266	45.9	20
MHR 13 - 102			102	6.3	20.4	129	25.5	161	31.6	199	37.7	238	52.3	10
MHR 13 - 305	2.50 x 1.50		305	2.1	61.0	128	76.3	160	94.6	199	112.9	237	152.5	10
MHR 16 - 025			25	56.8	5.0	284	6.3	358	7.8	440	9.3	528	10.5	50
MHR 16 - 032			32	38.2	6.4	244	8.0	306	9.9	379	11.8	451	13.2	50
MHR 16 - 038			38	33.3	7.6	253	9.5	316	11.8	392	14.1	470	17.2	25
MHR 16 - 044			44	29.2	8.8	257	11.0	321	13.6	398	16.3	476	19.4	25
MHR 16 - 051	16	8.7	51	25.5	10.2	260	12.8	326	15.8	403	18.9	482	24.2	25
MHR 16 - 064			64	19.6	12.8	251	16.0	314	19.8	389	23.7	464	29.2	25
MHR 16 - 076			76	16.2	15.2	246	19.0	308	23.6	382	28.1	455	36.3	20
MHR 16 - 089			89	13.7	17.8	244	22.3	306	27.6	378	32.9	451	41.7	20
MHR 16 - 102			102	12.7	20.4	259	15.5	324	31.6	402	37.7	479	48.9	20
MHR 16 - 115			115	10.3	23.0	237	28.8	297	35.7	367	42.6	439	53.1	10
MHR 16 - 305	3.20 x 2.00		305	3.9	61.0	238	76.3	298	94.6	369	112.9	440	141.6	10
MHR 19 - 025			25	99.0	5.0	495	6.3	624	7.8	767	9.3	921	10.8	50
MHR 19 - 032			32	77.5	6.4	496	8.0	620	9.9	769	11.8	915	13.9	50
MHR 19 - 038			38	55.9	7.6	425	9.5	531	11.8	659	14.1	788	17.1	25
MHR 19 - 044			44	50.0	8.8	440	11.0	550	13.6	682	16.3	815	19.6	25
MHR 19 - 051			51	42.2	10.2	430	12.8	540	15.8	667	18.9	798	22.4	25
MHR 19 - 064			64	33.3	12.8	426	16.0	533	19.8	661	23.7	789	28.5	25
MHR 19 - 076	19.5	9.5	76	25.0	15.2	380	19.0	475	23.6	589	28.1	703	335	25
MHR 19 - 089			89	23.1	17.8	411	22.3	515	27.6	637	32.9	760	40.2	20
MHR 19 - 102			102	20.6	20.4	420	25.5	525	31.6	651	37.7	777	45.5	20
MHR 19 - 115			115	18.6	23.0	428	28.8	536	35.7	663	42.6	792	50.3	10
MHR 19 - 127			127	17.7	25.4	450	31.8	563	39.4	697	47.0	832	56.6	10
MHR 19 - 140			140	16.2	28.0	454	35.0	567	43.4	703	51.8	839	61.9	10
MHR 19 - 152			152	13.9	30.4	423	38.0	528	47.1	655	56.2	781	67.6	10
MHR 19 - 305	4.00 x 2.40		305	6.4	61.0	390	76.3	488	94.6	605	112.9	723	136.3	10

How to order: MHR 38 - 102 (Series D_H - L_0)

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)

US standard Oval Wire

Code	D_H Hole Diameter b x h	D_d Rod Diameter b x h	L_0 Free Length	R Spring Constant ± 10%	A 20% L_0 + 3.000.000		B 25% L_0 ~ 1.500.000		C 31% L_0 300 - 500.000		D 37% L_0 100 - 200.000		E approx. do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
MHR 26 - 025	25.5	13	25	137.3	5.0	687	6.3	865	7.8	1064	9.3	1277	9.9	50
MHR 26 - 032			32	105.9	6.4	678	8.0	847	9.9	1051	11.8	1250	13.3	25
MHR 26 - 038			38	88.3	7.6	671	9.5	839	11.8	1040	14.1	1245	16.5	25
MHR 26 - 044			44	76.5	8.8	673	11.0	842	13.6	1043	16.3	1247	19.3	25
MHR 26 - 051			51	63.7	10.2	650	12.8	815	15.8	1007	18.9	1204	22.0	25
MHR 26 - 064			64	49.0	12.8	627	16.0	874	19.8	972	23.7	1161	27.4	25
MHR 26 - 076			76	41.7	15.2	634	19.0	792	23.6	982	28.1	1172	32.8	20
MHR 26 - 089			89	35.8	17.8	637	22.3	798	27.6	988	32.9	1178	39.0	20
MHR 26 - 102			102	31.9	20.4	651	25.5	813	31.6	1009	37.7	1203	44.7	20
MHR 26 - 115			115	27.0	23.0	621	28.8	778	35.7	963	42.6	1150	49.8	10
MHR 26 - 127			127	24.5	25.4	622	31.8	779	39.4	965	47.0	1152	56.3	10
MHR 26 - 140			140	22.6	28.0	633	35.0	791	43.4	981	51.8	1171	63.0	10
MHR 26 - 152			152	19.6	30.4	598	38.0	745	47.1	924	56.2	1102	66.2	10
MHR 26 - 178			178	17.7	35.6	630	44.5	788	55.2	977	65.9	1166	77.9	10
MHR 26 - 203			203	15.7	40.6	637	50.8	798	62.9	988	75.1	1179	88.5	10
MHR 26 - 305	5.50 x 3.00		305	10.8	61.0	659	76.3	824	94.6	1021	112.9	1219	136.6	5
MHR 32 - 038	32	16	38	196.1	7.6	1490	9.5	1863	11.8	2310	14.1	2765	16.1	20
MHR 32 - 044			44	176.5	8.8	1553	11.0	1942	13.6	2407	16.3	2877	18.5	20
MHR 32 - 051			51	147.1	10.2	1500	12.8	1883	15.8	2326	18.9	2780	21.4	20
MHR 32 - 064			64	107.9	12.8	1381	16.0	1726	19.8	2141	23.7	2557	27.4	20
MHR 32 - 076			76	90.2	15.2	1371	19.0	1714	23.6	2125	28.1	2535	32.7	20
MHR 32 - 089			89	74.5	17.8	1326	22.3	1661	27.6	2055	32.9	2451	39.1	10
MHR 32 - 102			102	64.7	20.4	1320	25.5	1650	31.6	2046	37.7	2439	43.4	10
MHR 32 - 115			115	55.9	23.0	1286	28.8	1610	35.7	1993	42.6	2381	49.7	10
MHR 32 - 127			127	47.1	25.4	1196	31.8	1498	39.4	1854	47.0	2214	54.1	10
MHR 32 - 140			140	44.1	28.0	1235	35.0	1544	43.4	1914	51.8	2284	60.0	10
MHR 32 - 152			152	40.7	30.4	1237	38.0	1547	47.1	1918	56.2	2287	66.8	10
MHR 32 - 178			178	34.3	35.6	1221	44.5	1526	55.2	1893	65.9	2260	78.2	5
MHR 32 - 203			203	31.4	40.6	1275	50.8	1595	62.9	1976	75.1	2358	87.2	5
MHR 32 - 254			254	22.1	50.8	1123	63.5	1403	78.7	1740	94.0	2077	110.3	5
MHR 32 - 305	7.20 x 4.00		305	20.6	61.0	1257	76.3	1572	94.6	1948	112.9	2326	133.4	5
MHR 38 - 051	38.5	19.5	51	178.5	10.2	1821	12.8	2285	15.8	2822	18.9	3374	21.5	20
MHR 38 - 064			64	132.4	12.8	1695	16.0	2118	19.8	2627	23.7	3138	26.3	10
MHR 38 - 076			76	107.9	15.2	1640	19.0	2050	23.6	2542	28.1	3032	33.2	10
MHR 38 - 089			89	94.1	17.8	1675	22.3	2098	27.6	2596	32.9	3096	40.0	10
MHR 38 - 102			102	82.4	20.4	1681	25.5	2101	31.6	2605	37.7	3106	44.7	10
MHR 38 - 115			115	73.7	23.0	1695	28.8	2123	35.7	2627	42.6	3140	50.1	10
MHR 38 - 127			127	62.8	25.4	1595	31.8	1997	39.4	2472	47.0	2952	55.2	5
MHR 38 - 140			140	58.8	28.0	1646	35.0	2058	43.4	2552	51.8	3046	61.3	5
MHR 38 - 152			152	52.0	30.4	1581	38.0	1976	47.1	2450	56.2	222	67.6	5
MHR 38 - 178			178	44.1	35.6	1570	44.5	1962	55.2	2433	65.9	2906	79.2	5
MHR 38 - 203			203	37.3	40.6	1514	50.8	1895	62.9	2347	75.1	2801	89.7	5
MHR 38 - 254			254	31.4	50.8	1595	63.5	1994	78.7	2472	94.0	2952	113.0	2
MHR 38 - 305	8.00 x 5.10		305	24.5	61.0	1495	76.3	1869	94.6	2316	112.9	2766	138.7	2
MHR 51 - 064	51	25.5	64	210.8	12.8	2698	16.0	3373	19.8	4182	23.7	4996	27.3	5
MHR 51 - 076			76	171.6	15.2	2608	19.0	3260	23.6	4043	28.1	4822	31.1	5
MHR 51 - 089			89	142.2	17.8	2531	22.3	3171	27.6	3923	32.9	4678	38.2	5
MHR 51 - 102			102	119.6	20.4	2440	25.5	3050	31.6	3782	37.7	4509	43.5	5
MHR 51 - 115			115	107.9	23.0	2482	28.8	3108	35.7	3847	42.6	4597	48.3	5
MHR 51 - 127			127	100.0	25.4	2540	31.8	3180	39.4	3937	47.0	4700	55.1	5
MHR 51 - 140			140	90.2	28.0	2526	35.0	3157	43.4	3915	51.8	4672	61.4	5
MHR 51 - 152			152	84.3	30.4	2563	38.0	3203	47.1	3972	56.2	4738	67.5	2
MHR 51 - 178			178	71.1	35.6	2531	44.5	3164	55.2	3923	65.9	4685	79.1	2
MHR 51 - 203			203	61.8	40.6	2509	50.8	3139	62.9	3889	75.1	4641	89.2	2
MHR 51 - 254			254	49.5	50.8	2515	63.5	3143	78.7	3898	94.0	4653	113.2	2
MHR 51 - 305	11.40 x 5.80		305	43.1	61.0	2629	76.3	3289	94.6	4075	112.9	4866	143.4	2
MHR 63 - 076	63	38	76	300.1	15.2	4562	19.0	5702	23.6	7070	28.1	8433	29.3	5
MHR 63 - 089			89	240.3	17.8	4277	22.3	5359	27.6	6630	32.9	4906	36.1	5
MHR 63 - 102			102	211.8	20.4	4321	25.5	5401	31.6	6697	37.7	4985	43.9	5
MHR 63 - 115			115	188.3	23.0	4331	28.8	5423	35.7	6713	42.6	8022	48.4	5
MHR 63 - 127			127	162.8	25.4	4135	31.8	5177	39.4	6409	47.0	7652	55.2	2
MHR 63 - 140			140	156.9	28.0	1393	35.0	5491	43.4	6809	51.8	8127	63.9	2
MHR 63 - 152			152	147.1	30.4	4472	38.0	5590	47.1	6931	56.2	8267	66.0	2
MHR 63 - 178			178	108.9	35.6	3877	44.5	4846	55.2	6009	65.9	7177	76.9	2
MHR 63 - 203			203	94.1	40.6	3820	50.8	4780	62.9	5922	75.1	7067	86.7	2
MHR 63 - 229			229	86.3	45.8	3953	57.2	4945	71.0	6126	84.7	7310	99.0	2
MHR 63 - 254			254	75.5	50.8	3835	63.5	4794	78.7	5945	94.0	7097	112.2	2
MHR 63 - 305	11.50 x 9.70		305	64.7	61.0	3947	76.3	4937	94.6	6117	112.9	7305	132.9	2

Load (N) = R (N/mm) x Deflection (mm) 1 N = 0.1 daN = 0.102 kgf How to order: MHR 38 - 102 (Series D_H - L_0)

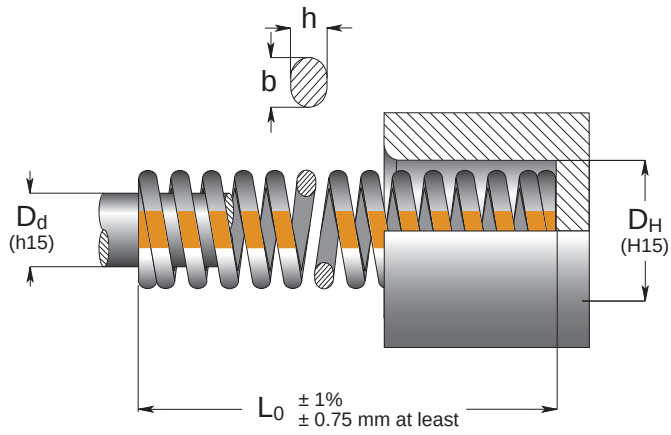
HGO SERIES

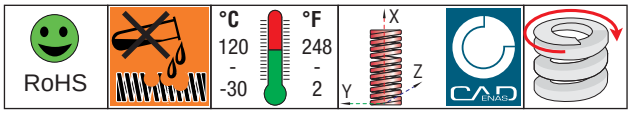
US standard Oval Wire

EN Heavy load springs
Silver-gold color

ES Muelles carga fuerte
Color plateado-oro

FR Ressorts charge forte
Couleur argent-or





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 15% L_0		B 20% L_0		C 25% L_0		D 30% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
HGO 10 - 025	9.5	4.7	25	22.5	3.8	86	5.0	113	6.3	141	7.5	169	9.2	50
HGO 10 - 032			32	18.6	4.8	89	6.4	119	8.0	149	9.6	179	12.1	50
HGO 10 - 038			38	15.9	5.7	91	7.6	121	9.5	151	11.4	181	13.2	50
HGO 10 - 044			44	13.7	6.6	90	8.8	121	11.0	151	13.2	181	15.1	50
HGO 10 - 051			51	11.8	7.7	91	10.2	120	12.8	150	15.3	180	19.5	25
HGO 10 - 064			64	8.8	9.6	84	12.8	113	16.0	141	19.2	169	21.8	25
HGO 10 - 076			76	6.4	11.4	73	15.2	97	19.0	122	22.8	146	27.9	25
HGO 10 - 305	1.90 x 1.50		305	1.7	45.8	78	61.0	104	76.3	130	91.5	156	127.2	10
HGO 13 - 025	13	7	25	37.3	3.8	142	5.0	187	6.3	233	7.5	280	9.8	50
HGO 13 - 032			32	32.5	4.8	156	6.4	208	8.0	260	9.6	312	13.6	50
HGO 13 - 038			38	28.4	5.7	162	7.6	216	9.5	270	11.4	324	14.6	50
HGO 13 - 044			44	24.5	6.6	162	8.8	216	11.0	270	13.2	323	18.1	25
HGO 13 - 051			51	18.6	7.7	143	10.2	190	12.8	237	15.3	285	22.3	25
HGO 13 - 064			64	15.7	9.6	151	12.8	201	16.0	251	19.2	301	27.3	25
HGO 13 - 076			76	13.7	11.4	156	15.2	208	19.0	260	22.8	312	33.1	25
HGO 13 - 089			89	10.8	13.4	145	17.8	192	22.3	240	26.7	288	38.9	20
HGO 13 - 102			102	7.4	15.3	113	20.4	151	25.5	189	30.6	226	43.8	10
HGO 13 - 305	2.40 x 1.90		305	3.1	45.8	142	61.0	189	76.3	236	91.5	284	139.7	10
HGO 16 - 025	16	8.7	25	78.2	3.8	297	5.0	391	6.3	489	7.5	587	8.4	50
HGO 16 - 032			32	49.8	4.8	287	6.4	383	8.0	398	9.6	574	10.5	50
HGO 16 - 038			38	41.0	5.7	291	7.6	388	9.5	390	11.4	581	13.6	25
HGO 16 - 044			44	43.1	6.6	284	8.8	379	11.0	474	13.2	569	15.9	25
HGO 16 - 051			51	38.2	7.7	294	10.2	390	12.8	487	15.3	584	18.9	25
HGO 16 - 064			64	31.4	9.6	301	12.8	402	16.0	502	19.2	603	24.9	25
HGO 16 - 076			76	12.5	11.4	279	15.2	372	19.0	238	22.8	559	29.2	20
HGO 16 - 089			89	20.6	13.4	276	17.8	367	22.3	458	26.7	550	34.5	20
HGO 16 - 102			102	18.6	15.3	285	20.4	379	25.5	474	30.6	569	39.1	20
HGO 16 - 115			115	15.7	17.3	272	23.0	361	28.8	451	34.5	542	44.0	10
HGO 16 - 305	3.10 x 2.50		305	5.7	45.8	261	61.0	348	76.3	435	91.5	522	103.6	10
HGO 19 - 025	19.5	9.5	25	181.4	3.8	689	5.0	907	6.3	1134	7.5	1361	8.5	50
HGO 19 - 032			32	137.3	4.8	659	6.4	879	8.0	1098	9.6	1318	11.0	50
HGO 19 - 038			38	107.9	5.7	615	7.6	820	9.5	1025	11.4	1230	12.7	25
HGO 19 - 044			44	94.1	6.6	621	8.8	828	11.0	1035	13.2	1242	15.2	25
HGO 19 - 051			51	78.5	7.7	604	10.2	801	12.8	1001	15.3	1201	17.8	25
HGO 19 - 064			64	65.0	9.6	624	12.8	832	16.0	1040	19.2	1248	22.9	25
HGO 19 - 076			76	56.9	11.4	649	15.2	865	19.0	1081	22.8	1297	27.8	25
HGO 19 - 089			89	47.1	13.4	6341	17.8	838	22.3	1048	26.7	1258	32.1	20
HGO 19 - 102			102	41.2	15.3	630	20.4	840	25.5	1051	30.6	1261	37.1	20
HGO 19 - 115			115	36.3	17.3	628	23.0	835	28.8	1044	34.5	1252	43.0	10
HGO 19 - 127			127	32.4	19.1	619	25.4	823	31.8	1029	38.1	1234	46.8	10
HGO 19 - 140			140	29.4	21.0	617	28.0	823	35.0	1029	42.0	1235	53.1	10
HGO 19 - 152			152	25.5	22.8	581	30.4	775	38.0	969	45.6	1263	56.4	10
HGO 19 - 305	4.00 x 3.20		305	14.7	45.8	673	61.0	897	76.3	1121	91.5	1345	115.3	10

How to order: HGO 38 - 102 (Series D_H - L_0)

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)

US standard Oval Wire

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 15% L_0		B 20% L_0		C 25% L_0		D 30% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
HGO 26 - 025	25.5	13	25	333.4	3.8	1267	5.0	1667	6.3	2084	7.5	2501	7.7	50
HGO 26 - 032			32	257.4	4.8	1236	6.4	1647	8.0	2059	9.6	2471	10.6	25
HGO 26 - 038			38	210.8	5.7	1202	7.6	1602	9.5	2003	11.4	2403	12.8	25
HGO 26 - 044			44	176.5	6.6	1165	8.8	1553	11.0	1942	13.2	2330	15.2	25
HGO 26 - 051			51	148.1	7.7	1140	10.2	1511	12.8	1888	15.3	2266	17.7	25
HGO 26 - 064			64	119.6	9.6	1148	12.8	1531	16.0	1914	19.2	2296	22.9	20
HGO 26 - 076			76	100.0	11.4	1140	15.2	1520	19.0	1900	22.8	2280	27.5	20
HGO 26 - 089			89	83.4	13.4	1118	17.8	1485	22.3	1856	26.7	2227	32.6	20
HGO 26 - 102			102	73.6	15.3	1126	20.4	1501	25.5	1877	30.6	2252	39.7	10
HGO 26 - 115			115	63.7	17.3	1102	23.0	1465	28.8	1831	34.5	2198	42.7	10
HGO 26 - 127			127	56.9	19.1	1087	25.4	1445	31.8	1807	38.1	2168	47.9	10
HGO 26 - 140			140	51.0	21.0	1071	28.0	1428	35.0	1785	42.0	2142	52.9	10
HGO 26 - 152			152	47.1	22.8	1074	30.4	1432	38.0	1790	45.6	2148	57.0	10
HGO 26 - 178			178	41.2	26.7	100	35.6	1467	44.5	1833	53.4	2200	68.2	10
HGO 26 - 203			203	36.3	30.5	1107	40.6	1474	50.8	1842	60.9	2211	77.4	10
HGO 26 - 305	5.50 x 4.10		305	22.6	45.8	1035	61.0	1379	76.3	1723	91.5	2068	113.0	5
HGO 32 - 038	32	16	38	362.9	5.7	2069	7.6	2758	9.5	3448	11.4	4137	12.6	20
HGO 32 - 044			44	307.9	6.6	2032	8.8	2710	11.0	3387	13.2	4064	13.7	20
HGO 32 - 051			51	262.8	7.7	2024	10.2	2681	12.8	3351	15.3	4021	16.0	20
HGO 32 - 064			64	205.9	9.6	1977	12.8	2636	16.0	3294	19.2	3953	21.8	20
HGO 32 - 076			76	171.6	11.4	1956	15.2	2608	19.0	3260	22.8	3912	26.7	20
HGO 32 - 089			89	147.1	13.4	1971	17.8	2618	22.3	3273	26.7	3928	29.9	10
HGO 32 - 102			102	127.5	15.3	1951	20.4	2601	25.5	3251	30.6	3902	37.1	10
HGO 32 - 115			115	112.8	17.3	1951	23.0	2594	28.8	3243	34.5	3892	41.6	10
HGO 32 - 127			127	121.0	19.1	1929	25.4	2565	31.8	3842	38.1	3848	45.1	10
HGO 32 - 140			140	88.3	21.0	1854	28.0	2472	35.0	3091	42.0	3709	51.0	10
HGO 32 - 152			152	80.9	22.8	1845	30.4	2459	38.0	3074	45.6	3689	54.6	10
HGO 32 - 178			178	68.6	26.7	1832	35.6	2442	44.5	3053	53.4	3683	65.0	5
HGO 32 - 203			203	59.8	30.5	1824	40.6	2428	50.8	3035	60.9	3842	75.7	5
HGO 32 - 254			254	46.9	38.1	1787	50.8	2383	63.5	2978	76.2	3574	95.6	5
HGO 32 - 305	7.40 x 5.20		305	39.2	45.8	1795	61.0	2391	76.3	2989	91.5	3587	118.0	5
HGO 38 - 051	38.5	19.5	51	313.8	7.7	2416	10.2	3201	12.8	4001	15.3	4801	21.4	20
HGO 38 - 064			64	230.5	9.6	2213	12.8	2750	16.0	3688	19.2	4426	28.8	10
HGO 38 - 076			76	196.1	11.4	2236	15.2	2781	19.0	3726	22.8	4471	33.6	10
HGO 38 - 089			89	171.6	13.4	2299	17.8	3054	22.3	3818	26.7	4582	40.3	10
HGO 38 - 102			102	142.2	15.3	2176	20.4	2901	25.5	3626	30.6	4351	46.1	10
HGO 38 - 115			115	124.5	17.3	2154	23.0	2864	28.8	3579	34.5	4295	52.2	10
HGO 38 - 127			127	112.8	19.1	2154	25.4	2865	31.8	3581	38.1	4298	58.4	5
HGO 38 - 140			140	103.0	21.0	2163	28.0	2884	35.0	3605	42.0	4326	64.5	5
HGO 38 - 152			152	93.2	22.8	2125	30.4	2833	38.0	3542	45.6	4250	70.8	5
HGO 38 - 178			178	80.4	26.7	2147	35.6	2862	44.5	3578	53.4	4293	82.0	5
HGO 38 - 203			203	70.6	30.5	2153	40.6	2866	50.8	3583	60.9	4300	95.8	5
HGO 38 - 254			254	56.9	38.1	2168	50.8	2891	63.5	3613	76.2	4336	118.6	5
HGO 38 - 305	8.50 x 5.70		305	47.1	45.8	2157	61.0	2873	76.3	3591	91.5	4310	145.5	5
HGO 51 - 064	51	25.5	64	392.3	9.6	3766	12.8	5021	16.0	6277	19.2	7532	22.5	5
HGO 51 - 076			76	328.5	11.4	3745	15.2	4993	19.0	6242	22.8	7490	27.2	5
HGO 51 - 089			89	274.6	13.4	3680	17.8	4888	22.3	6110	26.7	7332	32.0	5
HGO 51 - 102			102	235.4	15.3	3602	20.4	4802	25.5	6003	30.6	7203	36.9	5
HGO 51 - 115			115	205.9	17.3	3562	23.0	4736	28.8	5920	34.5	7104	42.8	5
HGO 51 - 127			127	186.3	19.1	3558	25.4	4732	31.8	5915	38.1	7098	47.5	5
HGO 51 - 140			140	166.7	21.0	3501	28.0	4668	35.0	5835	42.0	7001	54.2	5
HGO 51 - 152			152	147.1	22.8	3354	30.4	4472	38.0	5590	45.6	6708	58.1	2
HGO 51 - 178			178	127.5	26.7	3404	35.6	4539	44.5	5674	53.4	6809	69.6	2
HGO 51 - 203			203	112.8	30.5	3440	40.6	4580	50.8	5725	60.9	6870	80.3	2
HGO 51 - 254			254	88.3	38.1	3364	50.8	4486	63.5	5607	76.2	6728	101.7	2
HGO 51 - 305	11.66 x 7.20		305	70.6	45.8	3233	61.0	4307	76.3	5383	91.5	6460	123.9	2

Load (N) = R (N/mm) x Deflection (mm) 1 N = 0.1 daN = 0.102 kgf

How to order: HGO 38 - 102 (Series D_H - L_0)

XHG SERIES

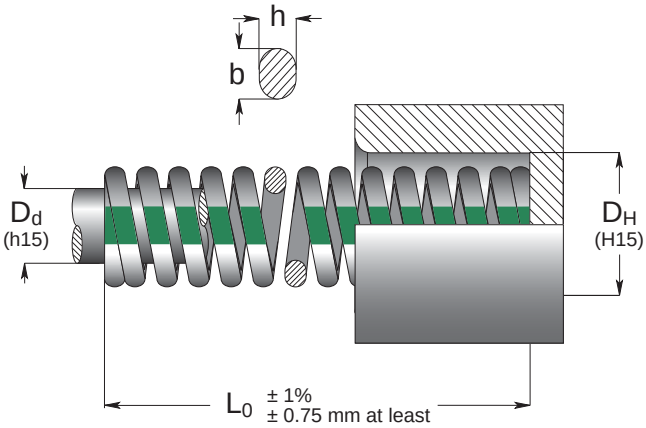
US standard Oval Wire

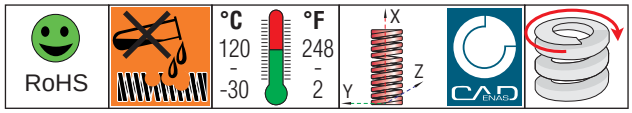
SPECIAL SPRINGS

EN Extra-heavy load springs
Silver-green color

ES Muelles carga extra-fuerte
Color plateado-verde

FR Ressorts charge extra-forte
Couleur argent-verte





Code	D_H Hole Diameter b x h	D_d Rod Diameter b x h	L_0 Free Length	R Spring Constant ± 10%	A 15% L_0 + 3.000.000		B 20% L_0 ~ 1.500.000		C 22,5% L_0 300 - 500.000		D 25% L_0 100 - 200.000		E approx. do not use	
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
XHG 10 - 025	9.5	4.7	25	38.5	3.8	146	5.0	193	5.6	217	6.3	243	7.9	50
XHG 10 - 032			32	29.7	4.8	143	6.4	190	7.2	214	8.0	238	10.9	50
XHG 10 - 038			38	25.4	5.7	145	7.6	193	8.6	217	9.5	241	13.4	50
XHG 10 - 044			44	20.2	6.6	133	8.8	178	9.9	200	11.0	222	13.8	50
XHG 10 - 051			51	17.6	7.7	136	10.2	180	11.5	202	12.8	225	16.8	25
XHG 10 - 064			64	14.0	9.6	134	12.8	179	14.4	202	16.0	224	20.2	25
XHG 10 - 076			76	11.4	11.4	130	15.2	173	17.1	195	19.0	217	25.9	25
XHG 10 - 305	1.97 x 1.50		305	2.6	45.8	119	61.0	159	68.6	178	76.3	198	113.5	10
XHG 13 - 025	13	7	25	56.1	3.8	213	5.0	281	5.6	316	6.3	353	8.5	50
XHG 13 - 032			32	42.1	4.8	202	6.4	269	7.2	303	8.0	337	10.5	50
XHG 13 - 038			38	35.0	5.7	200	7.6	266	8.6	299	9.5	333	12.8	50
XHG 13 - 044			44	29.8	6.6	197	8.8	262	9.9	295	11.0	328	14.0	25
XHG 13 - 051			51	24.5	7.7	198	10.2	250	11.5	281	12.8	314	16.1	25
XHG 13 - 064			64	20.2	9.6	194	12.8	259	14.4	291	16.0	323	21.1	25
XHG 13 - 076			76	15.8	11.4	180	15.2	240	17.1	270	19.0	300	24.5	25
XHG 13 - 089			89	14.0	13.4	188	17.8	249	20.0	280	22.3	312	30.0	20
XHG 13 - 102			102	10.8	15.3	165	20.4	220	23.0	248	25.5	275	35.6	10
XHG 13 - 305	2.50 x 2.00		305	4.4	45.8	202	61.0	268	68.6	302	76.3	336	104.7	10
XHG 16 - 025	16	8.7	25	110.3	3.8	419	5.0	552	5.6	620	6.3	695	7.8	50
XHG 16 - 032			32	82.3	4.8	395	6.4	527	7.2	593	8.0	658	10.2	50
XHG 16 - 038			38	66.7	5.7	380	7.6	507	8.6	570	9.5	634	12.2	25
XHG 16 - 044			44	56.1	6.6	370	8.8	494	9.9	555	11.0	617	14.0	25
XHG 16 - 051			51	50.8	7.7	391	10.2	518	11.5	583	12.8	650	16.6	25
XHG 16 - 064			64	38.5	9.6	370	12.8	493	14.4	554	16.0	616	79.5	25
XHG 16 - 076			76	31.5	11.4	359	15.2	479	17.1	539	19.0	599	25.8	20
XHG 16 - 089			89	28.0	13.4	375	17.8	498	20.0	561	22.3	624	29.5	20
XHG 16 - 102			102	23.6	15.3	361	20.4	481	23.0	542	25.5	602	33.9	20
XHG 16 - 115			115	20.6	17.3	356	12.0	474	25.9	533	28.8	593	38.3	10
XHG 16 - 305	3.10 x 2.76		305	7.8	45.8	357	61.0	476	68.6	535	76.3	595	89.9	10
XHG 19 - 025	19.5	9.5	25	205.9	3.8	782	5.0	1030	5.6	1158	6.3	1297	7.1	50
XHG 19 - 032			32	166.7	4.8	800	6.4	1067	7.2	1200	8.0	1334	9.4	50
XHG 19 - 038			38	132.4	5.7	755	7.5	1006	8.6	1132	9.5	1258	11.6	25
XHG 19 - 044			44	117.7	6.6	777	8.8	1036	9.9	1165	11.0	1295	13.9	25
XHG 19 - 051			51	98.1	7.7	755	10.2	1001	11.5	1126	12.8	1256	16.2	25
XHG 19 - 064			64	83.4	9.6	801	12.8	1068	14.4	1201	16.0	1334	21.5	25
XHG 19 - 076			76	68.6	11.4	782	15.2	1043	17.1	1173	19.0	1303	25.0	25
XHG 19 - 089			89	54.9	13.4	736	17.8	977	20.0	1099	21.8	1224	30.4	20
XHG 19 - 102			102	48.1	15.3	736	20.4	981	23.0	1104	16.0	1227	34.9	20
XHG 19 - 115			115	41.2	17.3	713	12.0	948	25.9	1066	19.0	1187	42.0	10
XHG 19 - 127			127	38.2	19.1	730	15.4	970	28.6	1092	22.3	1215	46.4	10
XHG 19 - 140			140	33.3	21.0	699	28.0	932	31.5	1049	25.5	1166	49.1	10
XHG 19 - 152			152	31.4	22.8	716	30.4	955	34.2	1074	28.8	1193	53.5	10
XHG 19 - 305	4.00 x 3.60		305	16.5	45.8	756	61.0	1007	68.6	1132	76.3	1259	115.0	10

How to order: XHG 38 - 102 (Series D_H - L_0)

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)

US standard Oval Wire

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 15% L_0		B 20% L_0		C 22,5% L_0		D 25% L_0		E approx. do not use	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000			
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
XHG 26 - 025	25.5	13	25	441.3	3.8	1677	5.0	2207	5.6	2482	6.3	2780	6.7	50
XHG 26 - 032			32	343.2	4.8	1647	6.4	2196	7.2	2471	8.0	2746	9.5	25
XHG 26 - 038			38	323.6	5.7	1845	7.6	2459	8.6	2767	9.5	3074	11.8	25
XHG 26 - 044			44	264.8	6.6	1748	8.8	2330	9.9	2622	11.0	2913	14.1	25
XHG 26 - 051			51	201.0	7.7	1548	10.2	2050	11.5	2306	12.8	2573	17.0	25
XHG 26 - 064			64	156.9	9.6	1506	12.8	2008	14.4	2259	16.0	2510	21.0	25
XHG 26 - 076			76	127.5	11.4	1454	15.2	1938	17.1	2180	19.0	2423	24.9	20
XHG 26 - 089			89	107.9	13.4	1446	17.8	1921	20.0	2161	22.3	2406	29.9	20
XHG 26 - 102			102	96.1	15.3	1470	20.4	1960	23.0	2205	25.5	2451	33.9	20
XHG 26 - 115			115	84.3	17.3	1458	23.0	1939	25.9	2181	28.8	2428	39.1	10
XHG 26 - 127			127	75.5	19.1	1442	25.4	1918	28.6	2157	31.8	2401	42.2	10
XHG 26 - 140			140	63.7	21.0	1338	28.0	1784	31.5	2007	35.0	2230	47.7	10
XHG 26 - 152			152	62.8	22.8	1432	30.4	1909	34.2	2148	38.0	2386	51.1	10
XHG 26 - 178			178	53.9	26.7	1439	35.6	1919	40.1	2159	44.5	2399	62.1	10
XHG 26 - 203			203	46.1	30.5	1406	40.6	1872	45.7	2106	50.8	2342	70.0	10
XHG 26 - 305	5.50 x 4.70		305	33.3	45.8	1525	61.0	2031	68.6	2285	76.3	2541	105.5	5
XHG 32 - 038	32	16	38	470.7	5.7	2683	7.6	3577	8.6	4024	9.5	4472	10.2	20
XHG 32 - 044			44	392.3	6.6	2589	8.8	3452	9.9	3884	11.0	4315	13.0	20
XHG 32 - 051			51	333.4	7.7	2567	10.2	3401	11.5	3826	12.8	4268	15.3	20
XHG 32 - 064			64	264.8	9.6	2542	12.8	3389	14.4	3813	16.0	4237	20.4	20
XHG 32 - 076			76	215.7	11.4	2459	15.2	3279	17.1	3688	19.0	4098	23.2	20
XHG 32 - 089			89	166.7	13.4	2234	17.8	2967	20.0	3338	22.3	3717	28.3	10
XHG 32 - 102			102	147.1	15.3	2251	20.4	3001	23.0	3376	25.5	3751	33.4	10
XHG 32 - 115			115	137.3	17.3	2375	23.0	3158	25.9	3553	28.8	3954	38.6	10
XHG 32 - 127			127	127.5	19.1	2435	25.4	3239	28.6	3643	31.8	4055	41.3	10
XHG 32 - 140			140	112.8	21.0	2369	28.0	3158	31.5	3553	35.0	3948	45.0	10
XHG 32 - 152			152	103.0	22.8	2348	30.4	3131	34.2	3523	38.0	3914	49.9	10
XHG 32 - 178			178	92.2	26.7	2462	35.6	3282	40.1	3693	44.5	4103	58.1	5
XHG 32 - 203			203	75.5	34.5	2303	40.6	3065	45.7	3448	50.8	3835	66.0	5
XHG 32 - 254			254	60.8	38.1	2316	50.8	3089	57.2	3475	63.5	3861	82.7	5
XHG 32 - 305	7.40 x 6.00		305	49.0	45.8	2244	61.0	2989	68.6	3363	6.03	3739	99.5	5
XHG 38 - 051	38.5	19.5	51	539.4	7.7	4153	10.2	5502	11.5	6190	12.8	6904	13.8	20
XHG 38 - 064			64	460.9	9.6	4425	12.8	5900	14.4	6637	16.0	7374	19.9	10
XHG 38 - 076			76	353.0	11.4	4024	15.2	5366	17.1	6036	19.0	6707	22.9	10
XHG 38 - 089			89	294.2	13.4	3942	17.8	5237	20.0	5891	22.3	6561	28.9	10
XHG 38 - 102			102	255.0	15.3	3902	20.4	5202	23.0	5852	25.5	6503	31.9	10
XHG 38 - 115			115	255.6	17.3	3903	23.0	5189	25.9	6614	28.8	6497	36.2	10
XHG 38 - 127			127	201.0	19.1	3839	25.4	5105	28.6	5744	31.8	6392	41.0	5
XHG 38 - 140			140	186.3	21.0	3912	28.0	5216	31.5	5868	35.0	6521	45.3	5
XHG 38 - 152			152	166.7	22.8	3801	30.4	5068	34.2	5701	38.0	6335	50.2	5
XHG 38 - 178			178	147.1	26.7	3928	35.6	5237	40.1	5891	44.5	6546	57.7	5
XHG 38 - 203			203	127.5	30.5	3889	40.6	5177	45.7	5824	50.8	6477	68.7	5
XHG 38 - 254			254	98.1	38.1	3738	50.8	4983	57.2	5606	63.5	6229	84.3	2
XHG 38 - 305	8.50 x 7.50		305	83.4	45.8	3820	61.0	5087	68.6	5723	76.3	6363	105.3	2
XHG 51 - 064	51	25.5	64	645.3	9.6	6195	12.8	8260	14.4	9292	16.0	10325	16.5	5
XHG 51 - 076			76	554.1	11.4	6317	15.2	8422	17.1	9475	19.0	10528	20.9	5
XHG 51 - 089			89	451.1	13.4	6045	17.8	8030	20.0	9033	22.3	10060	23.9	5
XHG 51 - 102			102	402.1	15.3	6152	20.4	8203	23.0	9228	25.5	10254	29.3	5
XHG 51 - 115			115	343.2	17.3	5937	23.0	7894	25.9	8880	28.8	9884	32.3	5
XHG 51 - 127			127	313.8	19.1	5994	25.4	7971	28.6	8967	31.8	9979	36.7	5
XHG 51 - 140			140	284.4	21.0	5972	28.0	7963	31.5	8959	35.0	9954	40.7	5
XHG 51 - 152			152	264.8	22.8	6037	30.4	8050	34.2	9056	38.0	10062	44.1	2
XHG 51 - 178			178	225.6	26.7	6024	35.6	8031	40.1	9035	44.8	10039	51.6	2
XHG 51 - 203			203	193.7	30.5	5908	40.6	7864	45.7	8847	50.8	9840	57.6	2
XHG 51 - 254			254	153.0	38.1	5829	50.8	7772	57.2	8744	63.5	9716	73.3	2
XHG 51 - 305	11.40 x 9.30		305	146.1	45.8	6691	61.0	8912	68.6	10026	76.3	11147	89.2	2

Load (N) = R (N/mm) x Deflection (mm) 1 N = 0.1 daN = 0.102 kgf

How to order: XHG 38 - 102 (Series D_H - L_0)

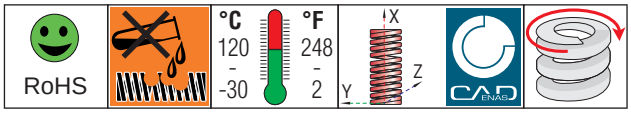
VL SERIES

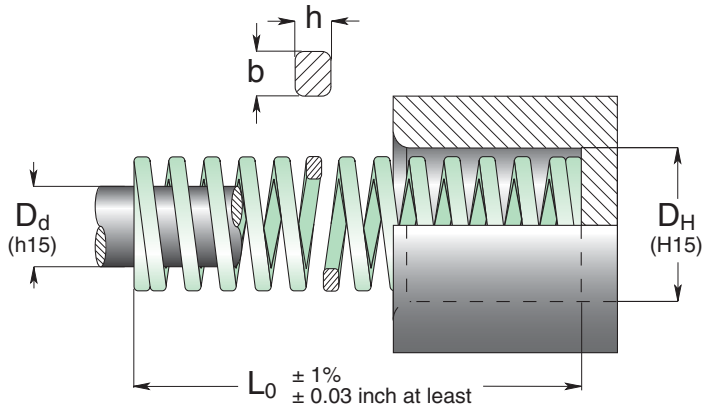
Special Springs standard Rectangular Wire

EN Extra-light load springs
Light green color

ES Muelles carga extra-ligera
Color verde claro

FR Ressorts charge extra-légère
Couleur verte claire





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 30% L_0		B 40% L_0		C 45% L_0		D 50% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	inch	inch	inch	lbs/0.1 in.	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
VL 20 - 025	3/4	3/8	1	16.8	0.30	50	0.39	66	0.44	74	0.49	83	0.55	50
VL 20 - 032			1 1/4	12.9	0.38	49	0.50	65	0.57	73	0.63	81	0.72	50
VL 20 - 038			1 1/2	10.6	0.45	48	0.60	64	0.67	72	0.75	79	0.87	25
VL 20 - 044			1 3/4	9.0	0.52	47	0.69	62	0.78	70	0.87	78	1.02	25
VL 20 - 051			2	7.8	0.60	47	0.80	63	0.90	71	1.00	79	1.19	25
VL 20 - 064			2 1/2	6.5	0.76	49	1.01	65	1.13	73	1.26	81	1.53	25
VL 20 - 076			3	5.6	0.90	50	1.20	67	1.35	75	1.50	84	1.85	25
VL 20 - 089			3 1/2	4.7	1.05	50	1.40	66	1.58	75	1.75	83	2.19	20
VL 20 - 102			4	4.2	1.20	51	1.61	68	1.81	76	2.01	85	2.53	20
VL 20 - 115			4 1/2	3.7	1.36	50	1.81	66	2.04	75	2.26	83	2.87	10
VL 20 - 127			5	3.4	1.50	51	2.00	68	2.25	76	2.50	84	3.18	10
VL 20 - 139			5 1/2	3.1	1.64	51	2.19	68	2.46	76	2.74	84	3.48	10
VL 20 - 152			6	2.8	1.80	50	2.39	67	2.69	75	2.99	84	3.81	10
VL 20 - 305	0.16 x 0.06		12	1.4	3.60	52	4.80	69	5.40	77	6.00	86	7.73	10
VL 25 - 025	1	1/2	1	30.8	0.30	91	0.39	121	0.44	137	0.49	152	0.51	50
VL 25 - 032			1 1/4	24.1	0.38	91	0.50	122	0.57	137	0.63	152	0.68	25
VL 25 - 038			1 1/2	20.5	0.45	92	0.60	122	0.67	138	0.75	153	0.81	25
VL 25 - 044			1 3/4	17.9	0.52	93	0.69	124	0.78	140	0.87	155	0.96	25
VL 25 - 051			2	15.4	0.60	93	0.80	124	0.90	140	1.00	155	1.12	25
VL 25 - 064			2 1/2	12.3	0.76	93	1.01	124	1.13	140	1.26	155	1.44	25
VL 25 - 076			3	10.3	0.90	93	1.20	124	1.35	139	1.50	155	1.73	20
VL 25 - 089			3 1/2	8.7	1.05	91	1.40	122	1.58	137	1.75	152	2.02	20
VL 25 - 102			4	7.5	1.20	91	1.61	121	1.81	136	2.01	151	2.33	20
VL 25 - 115			4 1/2	6.7	1.36	92	1.81	122	2.04	137	2.26	153	2.65	10
VL 25 - 127			5	6.1	1.50	91	2.00	121	2.25	136	2.50	151	2.93	10
VL 25 - 139			5 1/2	5.5	1.64	90	2.19	120	2.46	135	2.74	150	3.21	10
VL 25 - 152			6	5.0	1.80	90	2.39	120	2.69	136	2.99	151	3.52	10
VL 25 - 178			7	4.3	2.10	91	2.80	122	3.15	137	3.50	152	4.15	10
VL 25 - 203			8	3.8	2.40	92	3.20	122	3.60	138	4.00	153	4.75	10
VL 25 - 305	0.21 x 0.08		12	2.5	3.60	91	4.80	121	5.40	136	6.00	151	7.18	5
VL 32 - 038	1 1/4	5/8	1 1/2	24.6	0.45	110	0.60	147	0.67	166	0.75	184	0.78	20
VL 32 - 044			1 3/4	21.3	0.52	111	0.69	148	0.78	166	0.87	185	0.93	20
VL 32 - 051			2	18.5	0.60	112	0.80	149	0.90	167	1.00	186	1.09	20
VL 32 - 064			2 1/2	14.6	0.76	110	1.01	147	1.13	165	1.26	184	1.39	20
VL 32 - 076			3	12.3	0.90	111	1.20	148	1.35	166	1.50	185	1.67	20
VL 32 - 089			3 1/2	10.3	1.05	109	1.40	145	1.58	163	1.75	181	1.97	10
VL 32 - 102			4	9.0	1.20	108	1.61	144	1.81	162	2.01	180	2.27	10
VL 32 - 115			4 1/2	8.1	1.36	110	1.81	147	2.04	165	2.26	184	2.58	10
VL 32 - 127			5	7.3	1.50	109	2.00	145	2.25	163	2.50	181	2.85	10
VL 32 - 139			5 1/2	6.6	1.64	109	2.19	145	2.46	163	2.74	181	3.13	10
VL 32 - 152			6	6.1	1.80	109	2.39	145	2.69	163	2.99	181	3.44	10
VL 32 - 178			7	5.1	2.10	108	2.80	144	3.15	162	3.50	180	4.05	5
VL 32 - 203			8	4.5	2.40	107	3.20	142	3.60	160	4.00	178	4.63	5
VL 32 - 254			10	3.7	3.00	110	4.00	146	4.50	165	5.00	183	5.83	5
VL 32 - 305	0.25 x 0.10		12	3.0	3.60	109	4.80	146	5.40	164	6.00	182	7.02	5

How to order: VL 50 - 152 (Series D_H - L_0)

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

Special Springs standard Rectangular Wire

SERIES VL

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 30% L_0		B 40% L_0		C 45% L_0		D 50% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	inch	inch	inch	lbs/0.1 in.	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
VL 40 - 051	1 1/2	3/4	2	27.5	0.60	166	0.80	221	0.90	249	1.00	276	1.10	20
VL 40 - 064			2 1/2	22.4	0.76	169	1.01	226	1.13	254	1.26	282	1.43	10
VL 40 - 076			3	19.0	0.90	171	1.20	228	1.35	256	1.50	285	1.72	10
VL 40 - 089			3 1/2	16.2	1.05	171	1.40	227	1.58	256	1.75	284	2.04	10
VL 40 - 102			4	14.0	1.20	169	1.61	225	1.81	253	2.01	281	2.35	10
VL 40 - 115			4 1/2	12.6	1.36	171	1.81	229	2.04	258	2.26	286	2.67	10
VL 40 - 127			5	11.2	1.50	168	2.00	224	2.25	252	2.50	280	2.96	5
VL 40 - 139			5 1/2	10.1	1.64	166	2.19	221	2.46	249	2.74	277	3.24	5
VL 40 - 152			6	9.3	1.80	166	2.39	222	2.69	249	2.99	277	3.57	5
VL 40 - 178			7	7.8	2.10	165	2.80	219	3.15	247	3.50	274	4.19	5
VL 40 - 203			8	7.0	2.40	169	3.20	225	3.60	253	4.00	281	4.81	5
VL 40 - 254			10	5.6	3.00	168	4.00	224	4.50	252	5.00	280	6.05	2
VL 40 - 305	0.31 x 0.13		12	4.7	3.60	171	4.80	228	5.40	256	6.00	285	7.30	2
VL 50 - 064	2	1	2 1/2	49.3	0.76	373	1.01	497	1.13	560	1.26	621	1.38	5
VL 50 - 076			3	40.3	0.90	362	1.20	483	1.35	544	1.50	604	1.66	5
VL 50 - 089			3 1/2	34.2	1.05	359	1.40	479	1.58	539	1.75	599	1.98	5
VL 50 - 102			4	29.7	1.20	358	1.61	477	1.81	537	2.01	597	2.30	5
VL 50 - 115			4 1/2	26.3	1.36	358	1.81	477	2.04	537	2.26	596	2.60	5
VL 50 - 127			5	24.1	1.50	362	2.00	482	2.25	543	2.50	603	2.91	5
VL 50 - 139			5 1/2	21.8	1.64	358	2.19	478	2.46	538	2.74	597	3.19	5
VL 50 - 152			6	19.6	1.80	352	2.39	469	2.69	528	2.99	587	3.50	2
VL 50 - 178			7	16.8	2.10	353	2.80	471	3.15	530	3.50	589	4.15	2
VL 50 - 203			8	14.6	2.40	349	3.20	466	3.60	524	4.00	582	4.75	2
VL 50 - 254			10	11.8	3.00	353	4.00	471	4.50	530	5.00	589	5.99	2
VL 50 - 305	0.41 x 0.16		12	9.8	3.60	354	4.80	472	5.40	532	6.00	590	7.23	2

VL
Inch

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

How to order: VL 50 - 152 (Series D_H - L_0)

V SERIES

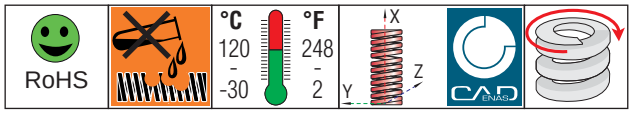
ISO 10243 Rectangular Wire

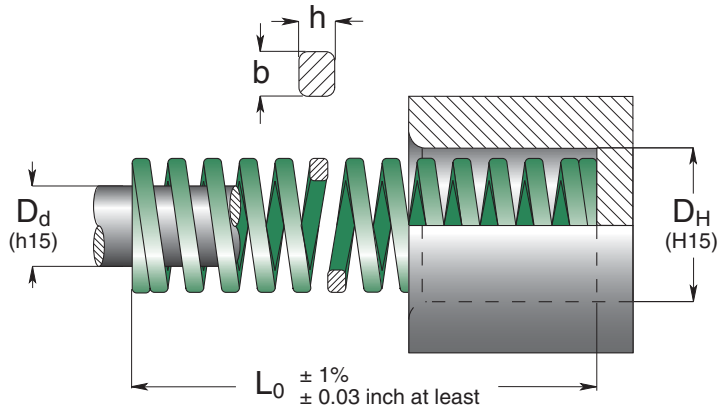
SPECIAL SPRINGS

EN Light load springs
Green color

ES Muelles carga ligera
Color verde

FR Ressorts charge légère
Couleur verte





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 30% L_0		C 35% L_0		D 40% L_0		E approx.	
	b x h			± 10%	+ 3,000,000		~ 1,500,000		300 - 500,000		100 - 200,000		do not use	
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
V 10 - 025	3/8	3/16	1	5.7	0.25	14	0.30	17	0.34	20	0.39	23	0.53	50
V 10 - 032			1 1/4	4.9	0.31	15	0.38	18	0.44	21	0.50	25	0.69	50
V 10 - 038			1 1/2	3.9	0.37	15	0.45	18	0.52	20	0.60	23	0.82	50
V 10 - 044			1 3/4	3.4	0.43	15	0.52	18	0.61	21	0.69	24	0.94	50
V 10 - 051			2	2.9	0.50	14	0.60	17	0.70	20	0.80	23	1.14	25
V 10 - 064			2 1/2	2.5	0.63	16	0.76	19	0.88	22	1.01	25	1.42	25
V 10 - 076			3	1.8	0.75	14	0.90	16	1.05	19	1.20	22	1.70	25
V 10 - 305	0,06 x 0,04		12	0.6	3.00	19	3.60	23	4.20	26	4.80	30	7.04	10
V 13 - 025	1/2	9/32	1	10.2	0.25	25	0.30	30	0.34	35	0.39	40	0.52	50
V 13 - 032			1 1/4	9.4	0.31	29	0.38	35	0.44	41	0.50	47	0.71	50
V 13 - 038			1 1/2	7.8	0.37	29	0.45	35	0.52	41	0.60	47	0.83	50
V 13 - 044			1 3/4	6.9	0.43	30	0.52	36	0.61	42	0.69	48	0.94	25
V 13 - 051			2	6.5	0.50	33	0.60	39	0.70	46	0.80	52	1.13	25
V 13 - 064			2 1/2	5.3	0.63	34	0.76	40	0.88	47	1.01	54	1.41	25
V 13 - 076			3	4.1	0.75	30	0.90	36	1.05	43	1.20	49	1.68	25
V 13 - 089			3 1/2	3.1	0.88	27	1.05	32	1.23	38	1.40	43	1.98	20
V 13 - 102			4	2.3	1.00	24	1.20	28	1.41	33	1.61	38	2.30	10
V 13 - 305	0,09 x 0,05		12	0.8	3.00	24	3.60	29	4.20	34	4.80	38	6.77	10
V 16 - 025	5/8	11/32	1	13.4	0.25	33	0.30	40	0.34	46	0.39	53	0.50	50
V 16 - 032			1 1/4	13.1	0.31	41	0.38	50	0.44	58	0.50	66	0.65	50
V 16 - 038			1 1/2	11.0	0.37	41	0.45	50	0.52	58	0.60	66	0.78	25
V 16 - 044			1 3/4	9.8	0.43	42	0.52	51	0.61	59	0.69	68	0.89	25
V 16 - 051			2	9.0	0.50	45	0.60	54	0.70	63	0.80	72	1.04	25
V 16 - 064			2 1/2	6.1	0.63	38	0.76	46	0.88	54	1.01	62	1.31	25
V 16 - 076			3	5.7	0.75	43	0.90	51	1.05	60	1.20	68	1.58	20
V 16 - 089			3 1/2	4.9	0.88	43	1.05	52	1.23	60	1.40	69	1.87	20
V 16 - 102			4	4.5	1.00	45	1.20	54	1.41	63	1.61	72	2.18	20
V 16 - 115			4 1/2	3.8	1.13	43	1.36	51	1.58	60	1.81	68	2.39	10
V 16 - 305	0,12 x 0,06		12	1.4	3.00	43	3.60	52	4.20	60	4.80	69	6.51	10
V 20 - 025	3/4	3/8	1	31.9	0.25	79	0.30	94	0.34	110	0.39	126	0.48	50
V 20 - 032			1 1/4	25.7	0.31	81	0.38	97	0.44	113	0.50	130	0.60	50
V 20 - 038			1 1/2	19.0	0.37	71	0.45	86	0.52	100	0.60	114	0.74	25
V 20 - 044			1 3/4	17.1	0.43	74	0.52	89	0.61	104	0.69	119	0.85	25
V 20 - 051			2	14.0	0.50	71	0.60	84	0.70	98	0.80	113	0.98	25
V 20 - 064			2 1/2	11.4	0.63	72	0.76	86	0.88	101	1.01	115	1.22	25
V 20 - 076			3	9.1	0.75	68	0.90	82	1.05	96	1.20	109	1.47	25
V 20 - 089			3 1/2	8.0	0.88	70	1.05	84	1.23	98	1.40	112	1.75	20
V 20 - 102			4	6.9	1.00	69	1.20	83	1.41	96	1.61	110	2.01	20
V 20 - 115			4 1/2	6.2	1.13	71	1.36	85	1.58	99	1.81	113	2.29	10
V 20 - 127			5	5.4	1.25	68	1.50	81	1.75	95	2.00	109	2.56	10
V 20 - 139			5 1/2	4.8	1.38	66	1.65	79	1.92	92	2.20	106	2.81	10
V 20 - 152			6	4.3	1.50	64	1.80	77	2.09	90	2.39	103	3.10	10
V 20 - 305	0,16 x 0,08		12	2.3	3.00	69	3.60	82	4.20	96	4.80	110	6.20	10

How to order: V 50 - 152 (Series D_H - L_0)

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

ISO 10243
Rectangular Wire

SERIES V

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 30% L_0		C 35% L_0		D 40% L_0		E approx.	
	b x h			± 10%	+ 3,000,000		~ 1,500,000		300 - 500,000		100 - 200,000		do not use	
	inch	inch	inch	lbs/0,1 in.	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
V 25 - 025	1	1/2	1	57.2	0.25	142	0.30	169	0.34	197	0.39	225	0.47	50
V 25 - 032			1 1/4	45.9	0.31	144	0.38	173	0.44	202	0.50	231	0.63	25
V 25 - 038			1 1/2	35.4	0.37	133	0.45	159	0.52	186	0.60	212	0.72	25
V 25 - 044			1 3/4	30.2	0.43	131	0.52	157	0.61	183	0.69	209	0.84	25
V 25 - 051			2	25.1	0.50	127	0.60	151	0.70	177	0.80	202	0.98	25
V 25 - 064			2 1/2	20.1	0.63	127	0.76	152	0.88	178	1.01	203	1.24	25
V 25 - 076			3	16.0	0.75	120	0.90	144	1.05	168	1.20	191	1.48	20
V 25 - 089			3 1/2	13.7	0.88	120	1.05	144	1.23	168	1.40	192	1.71	20
V 25 - 102			4	12.1	1.00	121	1.20	145	1.41	170	1.61	194	2.01	20
V 25 - 115			4 1/2	10.7	1.13	121	1.36	145	1.58	169	1.81	194	2.29	10
V 25 - 127			5	9.5	1.25	119	1.50	143	1.75	167	2.00	191	2.52	10
V 25 - 139			5 1/2	8.7	1.38	121	1.65	145	1.92	168	2.20	193	2.77	10
V 25 - 152			6	8.0	1.50	120	1.80	144	2.09	168	2.39	191	3.04	10
V 25 - 178			7	7.1	1.75	125	2.10	150	2.45	175	2.80	200	3.67	10
V 25 - 203			8	5.9	2.00	119	2.40	142	2.80	166	3.20	190	4.04	10
V 25 - 305	0,21 x 0,11		12	4.0	3.00	120	3.60	144	4.20	168	4.80	192	6.14	5
V 32 - 038	1 1/4	5/8	1 1/2	53.7	0.37	201	0.45	241	0.52	281	0.60	322	0.72	20
V 32 - 044			1 3/4	45.4	0.43	197	0.52	236	0.61	276	0.69	315	0.85	20
V 32 - 051			2	38.3	0.50	193	0.60	231	0.70	269	0.80	308	1.00	20
V 32 - 064			2 1/2	30.3	0.63	191	0.76	229	0.88	267	1.01	305	1.26	20
V 32 - 076			3	25.1	0.75	188	0.90	226	1.05	264	1.20	301	1.52	20
V 32 - 089			3 1/2	21.3	0.88	187	1.05	223	1.23	261	1.40	298	1.83	10
V 32 - 102			4	18.3	1.00	184	1.20	220	1.41	257	1.61	294	2.09	10
V 32 - 115			4 1/2	16.6	1.13	188	1.36	225	1.58	263	1.81	300	2.36	10
V 32 - 127			5	14.3	1.25	179	1.50	214	1.75	250	2.00	286	2.63	10
V 32 - 139			5 1/2	13.1	1.38	181	1.65	217	1.92	252	2.20	290	2.83	10
V 32 - 152			6	12.3	1.50	184	1.80	221	2.09	258	2.39	294	3.09	10
V 32 - 178			7	10.4	1.75	182	2.10	219	2.45	255	2.80	292	3.72	5
V 32 - 203			8	9.0	2.00	181	2.40	216	2.80	253	3.20	289	4.22	5
V 32 - 254			10	7.1	2.50	179	3.00	214	3.50	250	4.00	286	5.37	5
V 32 - 305	0,27 x 0,13		12	5.9	3.00	177	3.60	212	4.20	248	4.80	283	6.41	5
V 40 - 051	1 1/2	3/4	2	52.6	0.50	265	0.60	317	0.70	370	0.80	422	1.00	20
V 40 - 064			2 1/2	41.7	0.63	263	0.76	315	0.88	368	1.01	421	1.24	10
V 40 - 076			3	36.0	0.75	269	0.90	323	1.05	377	1.20	431	1.49	10
V 40 - 089			3 1/2	29.1	0.88	256	1.05	306	1.23	358	1.40	409	1.74	10
V 40 - 102			4	24.6	1.00	247	1.20	296	1.41	346	1.61	395	2.00	10
V 40 - 115			4 1/2	22.6	1.13	257	1.36	307	1.58	359	1.81	410	2.29	10
V 40 - 127			5	21.1	1.25	265	1.50	317	1.75	370	2.00	423	2.54	5
V 40 - 139			5 1/2	18.3	1.38	252	1.65	302	1.92	351	2.20	403	2.76	5
V 40 - 152			6	16.0	1.50	239	1.80	287	2.09	335	2.39	383	3.02	5
V 40 - 178			7	14.4	1.75	252	2.10	303	2.45	353	2.80	404	3.56	5
V 40 - 203			8	13.0	2.00	259	2.40	311	2.80	363	3.20	415	4.03	5
V 40 - 254			10	9.7	2.50	243	3.00	291	3.50	340	4.00	389	5.07	2
V 40 - 305	0,32 x 0,16		12	8.5	3.00	254	3.60	305	4.20	356	4.80	406	6.15	2
V 50 - 064	2	1	2 1/2	89.2	0.63	562	0.76	674	0.88	787	1.01	899	1.22	5
V 50 - 076			3	71.4	0.75	534	0.90	641	1.05	749	1.20	855	1.46	5
V 50 - 089			3 1/2	62.3	0.88	547	1.05	655	1.23	764	1.40	873	1.72	5
V 50 - 102			4	53.7	1.00	539	1.20	647	1.41	756	1.61	863	1.98	5
V 50 - 115			4 1/2	46.3	1.13	525	1.36	629	1.58	734	1.81	838	2.29	5
V 50 - 127			5	40.6	1.25	508	1.50	609	1.75	711	2.00	812	2.51	5
V 50 - 139			5 1/2	38.0	1.38	524	1.65	628	1.92	728	2.20	838	2.74	5
V 50 - 152			6	34.3	1.50	513	1.80	616	2.09	719	2.39	821	3.01	2
V 50 - 178			7	29.7	1.75	521	2.10	625	2.45	729	2.80	833	3.62	2
V 50 - 203			8	25.1	2.00	503	2.40	603	2.80	704	3.20	804	4.12	2
V 50 - 254			10	20.0	2.50	500	3.00	600	3.50	701	4.00	800	5.14	2
V 50 - 305	0,43 x 0,21		12	16.3	3.00	489	3.60	587	4.20	685	4.80	782	6.10	2
V 63 - 076	2 1/2	1 1/2	3	108.0	0.75	808	0.90	970	1.05	1132	1.20	1293	1.44	5
V 63 - 089			3 1/2	90.3	0.88	793	1.05	949	1.23	1108	1.40	1266	1.71	5
V 63 - 102			4	74.9	1.00	752	1.20	902	1.41	1053	1.61	1203	1.96	5
V 63 - 115			4 1/2	66.3	1.13	752	1.36	900	1.58	1051	1.81	1201	2.19	5
V 63 - 127			5	58.9	1.25	737	1.50	883	1.75	1031	2.00	1177	2.47	2
V 63 - 152			6	48.2	1.50	721	1.80	865	2.09	1010	2.39	1153	3.04	2
V 63 - 178			7	40.9	1.75	716	2.10	859	2.45	1003	2.80	1145	3.63	2
V 63 - 203			8	35.3	2.00	705	2.40	846	2.80	987	3.20	1127	4.07	2
V 63 - 254			10	26.9	2.50	672	3.00	806	3.50	941	4.00	1074	5.13	2
V 63 - 305	0,43 x 0,31		12	21.8	3.00	656	3.60	786	4.20	918	4.80	1049	6.20	2

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

How to order: V 50 - 152 (Series D_H - L_0)

B SERIES

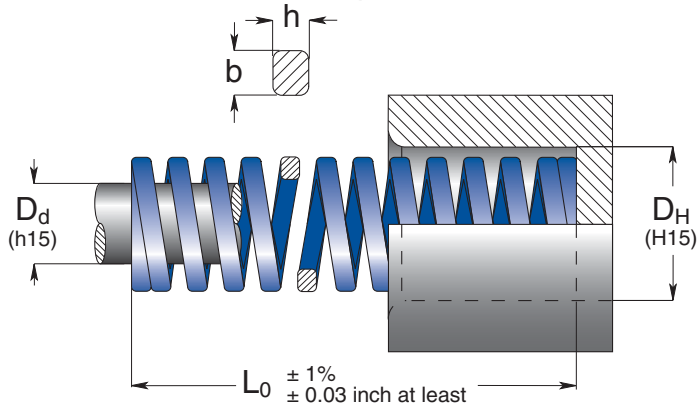
ISO 10243 Rectangular Wire

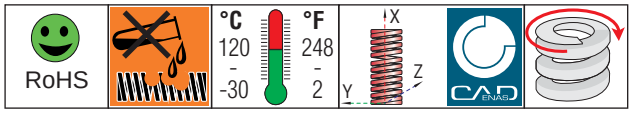
SPECIAL SPRINGS

EN Medium load springs
Blue color

ES Muelles carga mediana
Color azul marino

FR Ressorts charge moyenne
Couleur bleue





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 30% L_0		C 33,75% L_0		D 37,5% L_0		E approx.	
	b x h			± 10%	+ 3,000,000		~ 1,500,000		300 - 500,000		100 - 200,000		do not use	
	inch	inch	inch	lbs/0,1 in.	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
B 10 - 025	3/8	3/16	1	9.1	0.25	23	0.30	27	0.33	31	0.37	34	0.40	50
B 10 - 032			1 1/4	7.4	0.31	23	0.38	28	0.43	32	0.47	35	0.56	50
B 10 - 038			1 1/2	6.8	0.37	25	0.45	31	0.51	35	0.56	38	0.66	50
B 10 - 044			1 3/4	5.9	0.43	25	0.52	31	0.59	35	0.65	38	0.76	50
B 10 - 051			2	5.1	0.50	26	0.60	31	0.68	35	0.75	38	0.92	25
B 10 - 064			2 1/2	4.3	0.63	27	0.76	32	0.86	37	0.94	41	1.11	25
B 10 - 076			3	3.0	0.75	23	0.90	27	1.02	31	1.12	34	1.35	25
B 10 - 305	0,07 x 0,05		12	0.9	3.00	27	3.60	33	4.08	37	4.50	41	5.27	10
B 13 - 025	1/2	9/32	1	17.1	0.25	43	0.30	51	0.33	57	0.37	63	0.47	50
B 13 - 032			1 1/4	14.2	0.31	45	0.38	54	0.43	61	0.47	67	0.64	50
B 13 - 038			1 1/2	12.2	0.37	46	0.45	55	0.51	62	0.56	69	0.74	50
B 13 - 044			1 3/4	10.6	0.43	46	0.52	55	0.59	62	0.65	69	0.84	25
B 13 - 051			2	8.9	0.50	45	0.60	53	0.68	61	0.75	67	1.01	25
B 13 - 064			2 1/2	6.9	0.63	44	0.76	52	0.86	59	0.94	65	1.28	25
B 13 - 076			3	5.8	0.75	44	0.90	52	1.02	59	1.12	65	1.54	25
B 13 - 089			3 1/2	4.8	0.88	42	1.05	50	1.19	57	1.31	63	1.81	20
B 13 - 102			4	3.6	1.00	36	1.20	43	1.37	49	1.51	54	2.06	10
B 13 - 305	0,1 x 0,06		12	1.2	3.00	36	3.60	43	4.08	49	4.50	54	6.00	10
B 16 - 025	5/8	11/32	1	28.2	0.25	70	0.30	83	0.33	95	0.37	104	0.41	50
B 16 - 032			1 1/4	21.2	0.31	67	0.38	80	0.43	91	0.47	100	0.52	50
B 16 - 038			1 1/2	19.4	0.37	72	0.45	87	0.51	99	0.56	109	0.68	25
B 16 - 044			1 3/4	17.1	0.43	74	0.52	89	0.59	101	0.65	111	0.76	25
B 16 - 051			2	15.1	0.50	76	0.60	91	0.68	103	0.75	113	0.95	25
B 16 - 064			2 1/2	11.7	0.63	74	0.76	89	0.86	100	0.94	111	1.15	25
B 16 - 076			3	10.2	0.75	76	0.90	91	1.02	104	1.12	114	1.43	20
B 16 - 089			3 1/2	8.7	0.88	76	1.05	91	1.19	104	1.31	114	1.64	20
B 16 - 102			4	7.7	1.00	77	1.20	93	1.37	105	1.51	116	1.93	20
B 16 - 115			4 1/2	6.7	1.13	77	1.36	92	1.54	104	1.70	115	2.09	10
B 16 - 305	0,12 x 0,08		12	2.7	3.00	82	3.60	99	4.08	112	4.50	124	5.57	10
B 20 - 025	3/4	3/8	1	56.0	0.25	139	0.30	165	0.33	188	0.37	207	0.41	50
B 20 - 032			1 1/4	41.5	0.31	131	0.38	157	0.43	178	0.47	196	0.55	50
B 20 - 038			1 1/2	32.0	0.37	120	0.45	144	0.51	163	0.56	180	0.65	25
B 20 - 044			1 3/4	27.1	0.43	118	0.52	141	0.59	160	0.65	176	0.74	25
B 20 - 051			2	23.8	0.50	120	0.60	144	0.68	163	0.75	179	0.91	25
B 20 - 064			2 1/2	18.5	0.63	116	0.76	140	0.86	158	0.94	174	1.08	25
B 20 - 076			3	14.3	0.75	107	0.90	129	1.02	146	1.12	161	1.33	25
B 20 - 089			3 1/2	12.6	0.88	110	1.05	132	1.19	150	1.31	165	1.56	20
B 20 - 102			4	11.3	1.00	114	1.20	136	1.37	155	1.51	171	1.86	20
B 20 - 115			4 1/2	10.3	1.13	117	1.36	140	1.54	159	1.70	176	2.07	10
B 20 - 127			5	9.5	1.25	119	1.50	142	1.70	161	1.87	178	2.24	10
B 20 - 139			5 1/2	8.6	1.38	119	1.65	143	1.86	161	2.07	178	2.44	10
B 20 - 152			6	7.5	1.50	113	1.80	135	2.03	154	2.24	169	2.66	10
B 20 - 305	0,16 x 0,09		12	3.5	3.00	105	3.60	126	4.08	142	4.50	157	5.65	10

How to order: B 50 - 152 (Series D_H - L_0)

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

ISO 10243
Rectangular Wire

Code	D_H Hole Diameter b x h	D_d Rod Diameter b x h	L_0 Free Length	R Spring Constant ± 10%	A 25% L_0 + 3.000.000		B 30% L_0 ~ 1.500.000		C 33.75% L_0 300 - 500.000		D 37.5% L_0 100 - 200.000		E approx. do not use	
	inch	inch	inch	lbs/0.1 in.	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	lbs
B 25 - 025	1	1/2	1	84.0	0.25	208	0.30	248	0.33	281	0.37	311	0.40	50
B 25 - 032			1 1/4	67.4	0.31	212	0.38	255	0.43	289	0.47	319	0.54	25
B 25 - 038			1 1/2	53.1	0.37	199	0.45	239	0.51	271	0.56	299	0.62	25
B 25 - 044			1 3/4	46.2	0.43	200	0.52	240	0.59	272	0.65	300	0.72	25
B 25 - 051			2	39.2	0.50	198	0.60	236	0.68	268	0.75	295	0.85	25
B 25 - 064			2 1/2	30.3	0.63	191	0.76	229	0.86	260	0.94	286	1.02	25
B 25 - 076			3	24.7	0.75	185	0.90	222	1.02	251	1.12	277	1.27	20
B 25 - 089			3 1/2	21.8	0.88	192	1.05	230	1.19	260	1.31	287	1.50	20
B 25 - 102			4	18.9	1.00	189	1.20	227	1.37	258	1.51	284	1.69	20
B 25 - 115			4 1/2	16.0	1.13	181	1.36	217	1.54	247	1.70	272	1.91	10
B 25 - 127			5	14.8	1.25	185	1.50	222	1.70	252	1.87	277	2.11	10
B 25 - 139			5 1/2	13.3	1.38	183	1.65	219	1.86	247	2.07	274	2.34	10
B 25 - 152			6	11.9	1.50	178	1.80	213	2.03	242	2.24	267	2.51	10
B 25 - 178			7	10.2	1.75	178	2.10	214	2.38	243	2.63	268	3.02	10
B 25 - 203			8	9.0	2.00	181	2.40	216	2.72	246	3.00	270	3.48	10
B 25 - 305	0.21 x 0.13		12	5.8	3.00	175	3.60	210	4.08	238	4.50	263	5.32	5
B 32 - 038	1 1/4	5/8	1 1/2	105.7	0.37	396	0.45	475	0.51	538	0.56	595	0.64	20
B 32 - 044			1 3/4	90.3	0.43	391	0.52	469	0.59	532	0.65	587	0.74	20
B 32 - 051			2	76.6	0.50	386	0.60	461	0.68	523	0.75	576	0.91	20
B 32 - 064			2 1/2	56.6	0.63	356	0.76	428	0.86	485	0.94	535	1.12	20
B 32 - 076			3	46.0	0.75	344	0.90	413	1.02	468	1.12	516	1.35	20
B 32 - 089			3 1/2	39.5	0.88	347	1.05	415	1.19	471	1.31	519	1.59	10
B 32 - 102			4	33.6	1.00	337	1.20	405	1.37	459	1.51	507	1.89	10
B 32 - 115			4 1/2	29.4	1.13	334	1.36	400	1.54	453	1.70	500	2.14	10
B 32 - 127			5	25.6	1.25	321	1.50	384	1.70	436	1.87	480	2.33	10
B 32 - 139			5 1/2	24.2	1.38	333	1.65	400	1.86	450	2.07	500	2.57	10
B 32 - 152			6	21.6	1.50	323	1.80	388	2.03	440	2.24	485	2.87	10
B 32 - 178			7	18.6	1.75	325	2.10	391	2.38	443	2.63	488	3.33	5
B 32 - 203			8	16.5	2.00	330	2.40	396	2.72	449	3.00	495	3.81	5
B 32 - 254			10	12.2	2.50	306	3.00	367	3.40	416	3.75	459	4.76	5
B 32 - 305	0.27 x 0.16		12	10.5	3.00	314	3.60	377	4.08	427	4.50	471	5.78	5
B 40 - 051	1 1/2	3/4	2	103.8	0.50	523	0.60	625	0.68	707	0.75	781	0.84	20
B 40 - 064			2 1/2	80.0	0.63	504	0.76	605	0.86	686	0.94	756	1.06	10
B 40 - 076			3	61.7	0.75	462	0.90	554	1.02	628	1.12	693	1.29	10
B 40 - 089			3 1/2	51.8	0.88	455	1.05	545	1.19	618	1.31	682	1.54	10
B 40 - 102			4	46.3	1.00	465	1.20	558	1.37	632	1.51	698	1.74	10
B 40 - 115			4 1/2	41.0	1.13	465	1.36	557	1.54	632	1.70	696	1.99	10
B 40 - 127			5	35.8	1.25	449	1.50	538	1.70	610	1.87	672	2.20	5
B 40 - 139			5 1/2	32.9	1.38	453	1.65	543	1.86	612	2.07	679	2.43	5
B 40 - 152			6	29.5	1.50	441	1.80	529	2.03	600	2.24	662	2.66	5
B 40 - 178			7	25.2	1.75	441	2.10	530	2.38	601	2.63	663	3.04	5
B 40 - 203			8	21.0	2.00	419	2.40	503	2.72	570	3.00	628	3.61	5
B 40 - 254			10	17.2	2.50	430	3.00	516	3.40	585	3.75	646	4.44	2
B 40 - 305	0.32 x 0.18		12	14.1	3.00	422	3.60	506	4.08	574	4.50	633	5.44	2
B 50 - 064	2	1	2 1/2	119.4	0.63	752	0.76	903	0.86	1024	0.94	1129	1.11	5
B 50 - 076			3	96.0	0.75	718	0.90	862	1.02	977	1.12	1077	1.37	5
B 50 - 089			3 1/2	80.0	0.88	702	1.05	841	1.19	954	1.31	1052	1.54	5
B 50 - 102			4	68.0	1.00	683	1.20	819	1.37	929	1.51	1026	1.86	5
B 50 - 115			4 1/2	60.6	1.13	687	1.36	823	1.54	933	1.70	1028	2.07	5
B 50 - 127			5	55.4	1.25	694	1.50	832	1.70	943	1.87	1039	2.35	5
B 50 - 139			5 1/2	49.7	1.38	685	1.65	822	1.86	926	2.07	1028	2.56	5
B 50 - 152			6	45.7	1.50	684	1.80	821	2.03	931	2.24	1026	2.79	2
B 50 - 178			7	39.7	1.75	696	2.10	835	2.38	947	2.63	1045	3.31	2
B 50 - 203			8	34.2	2.00	684	2.40	819	2.72	929	3.00	1024	3.80	2
B 50 - 229			9	29.1	2.26	656	2.70	787	3.07	892	3.38	984	4.27	2
B 50 - 254			10	25.1	2.50	627	3.00	753	3.40	854	3.75	941	4.80	2
B 50 - 305	0.44 x 0.23		12	22.1	3.00	663	3.60	795	4.08	901	4.50	994	5.78	2
B 63 - 076	2 1/2	1 1/2	3	178.3	0.75	1334	0.90	1601	1.02	1815	1.12	2001	1.21	5
B 63 - 089			3 1/2	148.6	0.88	1305	1.05	1562	1.19	1771	1.31	1954	1.44	5
B 63 - 102			4	126.3	1.00	1268	1.20	1522	1.37	1726	1.51	1904	1.72	5
B 63 - 115			4 1/2	106.9	1.13	1212	1.36	1452	1.54	1646	1.70	1814	1.93	5
B 63 - 127			5	96.0	1.25	1202	1.50	1440	1.70	1633	1.87	1799	2.13	2
B 63 - 152			6	77.7	1.50	1163	1.80	1395	2.03	1583	2.24	1744	2.59	2
B 63 - 178			7	65.2	1.75	1141	2.10	1370	2.38	1553	2.63	1713	3.01	2
B 63 - 203			8	57.2	2.00	1143	2.40	1370	2.72	1554	3.00	1712	3.46	2
B 63 - 229			9	51.0	2.26	1150	2.70	1379	3.07	1564	3.38	1724	4.09	2
B 63 - 254			10	44.8	2.50	1120	3.00	1344	3.40	1524	3.75	1681	4.43	2
B 63 - 305	0.45 x 0.36		12	37.0	3.00	1111	3.60	1332	4.08	1511	4.50	1665	5.27	2

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

How to order: B 50 - 152 (Series D_H - L_0)

R SERIES

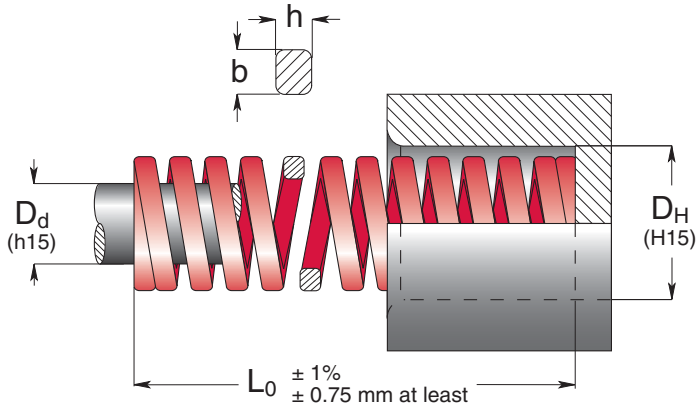
ISO 10243 Rectangular Wire

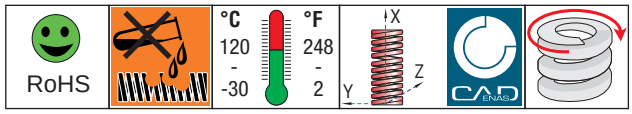
SPECIAL SPRINGS

EN Heavy load springs
Red color

ES Muelles carga fuerte
Color rojo

FR Ressorts charge forte
Couleur rouge





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 20% L_0		B 25% L_0		C 27,5% L_0		D 30% L_0		E approx.	
	b x h			± 10%	+ 3,000,000		~ 1,500,000		300 - 500,000		100 - 200,000		do not use	
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
R 10 - 025	3/8	3/16	1	12.6	0.20	25	0.25	31	0.28	42	0.30	37	0.36	50
R 10 - 032			1 1/4	10.0	0.25	25	0.31	32	0.35	43	0.38	38	0.48	50
R 10 - 038			1 1/2	9.8	0.30	29	0.37	36	0.42	50	0.45	44	0.52	50
R 10 - 044			1 3/4	8.6	0.35	30	0.43	37	0.49	51	0.52	45	0.59	50
R 10 - 051			2	7.3	0.40	29	0.50	37	0.56	50	0.60	44	0.77	25
R 10 - 064			2 1/2	6.1	0.50	31	0.63	38	0.71	52	0.76	46	0.86	25
R 10 - 076			3	4.3	0.60	26	0.75	32	0.84	44	0.90	38	1.10	25
R 10 - 305	0,07 x 0,06		12	1.2	2.40	29	3.00	36	3.36	49	3.60	43	5.01	10
R 13 - 025	1/2	9/32	1	24.1	0.20	47	0.25	60	0.28	81	0.30	71	0.39	50
R 13 - 032			1 1/4	19.0	0.25	48	0.31	60	0.35	81	0.38	72	0.54	50
R 13 - 038			1 1/2	16.7	0.30	50	0.37	63	0.42	85	0.45	75	0.57	50
R 13 - 044			1 3/4	14.1	0.35	49	0.43	61	0.49	83	0.52	73	0.71	25
R 13 - 051			2	11.2	0.40	45	0.50	56	0.56	77	0.60	68	0.88	25
R 13 - 064			2 1/2	8.6	0.50	43	0.63	54	0.71	73	0.76	65	1.07	25
R 13 - 076			3	7.5	0.60	45	0.75	56	0.84	77	0.90	68	1.30	25
R 13 - 089			3 1/2	6.5	0.70	46	0.88	57	0.98	78	1.05	68	1.53	20
R 13 - 102			4	4.8	0.80	38	1.00	48	1.12	66	1.20	58	1.72	10
R 13 - 305	0,09 x 0,07		12	1.6	2.40	38	3.00	48	3.36	65	3.60	58	5.50	10
R 16 - 025	5/8	11/32	1	43.3	0.20	85	0.25	107	0.28	145	0.30	128	0.33	50
R 16 - 032			1 1/4	30.2	0.25	76	0.31	95	0.35	129	0.38	114	0.41	50
R 16 - 038			1 1/2	27.7	0.30	83	0.37	104	0.42	141	0.45	124	0.54	25
R 16 - 044			1 3/4	24.5	0.35	85	0.43	106	0.49	144	0.52	127	0.63	25
R 16 - 051			2	21.2	0.40	85	0.50	107	0.56	145	0.60	128	0.74	25
R 16 - 064			2 1/2	17.3	0.50	87	0.63	109	0.71	148	0.76	131	0.98	25
R 16 - 076			3	14.7	0.60	88	0.75	110	0.84	150	0.90	132	1.15	20
R 16 - 089			3 1/2	12.4	0.70	87	0.88	109	0.98	148	1.05	130	1.36	20
R 16 - 102			4	11.0	0.80	89	1.00	111	1.12	151	1.20	133	1.54	20
R 16 - 115			4 1/2	9.0	0.91	81	1.13	102	1.27	138	1.36	122	1.73	10
R 16 - 305	0,12 x 0,1		12	4.1	2.40	97	3.00	122	3.36	166	3.60	146	4.08	10
R 20 - 025	3/4	3/8	1	123.4	0.20	243	0.25	306	0.28	413	0.30	365	0.33	50
R 20 - 032			1 1/4	96.0	0.25	242	0.31	302	0.35	412	0.38	363	0.43	50
R 20 - 038			1 1/2	73.7	0.30	221	0.37	276	0.42	375	0.45	331	0.49	25
R 20 - 044			1 3/4	64.0	0.35	222	0.43	277	0.49	377	0.52	333	0.59	25
R 20 - 051			2	53.7	0.40	216	0.50	271	0.56	367	0.60	324	0.69	25
R 20 - 064			2 1/2	41.2	0.50	208	0.63	260	0.71	353	0.76	311	0.89	25
R 20 - 076			3	34.1	0.60	204	0.75	255	0.84	347	0.90	306	1.08	25
R 20 - 089			3 1/2	28.9	0.70	202	0.88	253	0.98	344	1.05	303	1.25	20
R 20 - 102			4	25.3	0.80	203	1.00	254	1.12	345	1.20	304	1.48	20
R 20 - 115			4 1/2	21.9	0.91	199	1.13	249	1.27	338	1.36	298	1.68	10
R 20 - 127			5	19.5	1.00	195	1.25	244	1.40	332	1.50	292	1.79	10
R 20 - 139			5 1/2	17.7	1.10	195	1.38	244	1.53	330	1.65	293	1.97	10
R 20 - 152			6	16.1	1.20	193	1.50	241	1.68	328	1.80	289	2.20	10
R 20 - 305	0,16 x 0,13		12	8.6	2.40	206	3.00	258	3.36	350	3.60	309	4.49	10

How to order: R 50 - 152 (Series D_H - L_0)

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

ISO 10243
Rectangular Wire

SERIES R

Code	D_H Hole Diameter b x h	D_d Rod Diameter b x h	L_0 Free Length	R Spring Constant ± 10%	A 20% L_0 + 3,000,000		B 25% L_0 ~ 1,500,000		C 27,5% L_0 300 - 500,000		D 30% L_0 100 - 200,000		E approx. do not use	
	inch	inch	inch	lbs/0,1 in.	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
R 25 - 025	1	1/2	1	214.3	0.20	422	0.25	532	0.27	580	0.30	633	0.33	50
R 25 - 032			1 1/4	169.7	0.25	428	0.31	535	0.35	588	0.38	641	0.43	25
R 25 - 038			1 1/2	125.2	0.30	374	0.37	468	0.41	515	0.45	562	0.50	25
R 25 - 044			1 3/4	106.9	0.35	370	0.43	463	0.48	509	0.52	555	0.58	25
R 25 - 051			2	89.2	0.40	358	0.50	449	0.55	493	0.60	537	0.70	25
R 25 - 064			2 1/2	70.3	0.50	354	0.63	443	0.69	487	0.76	531	0.91	25
R 25 - 076			3	56.6	0.60	339	0.75	423	0.82	466	0.90	508	1.04	20
R 25 - 089			3 1/2	48.0	0.70	336	0.88	421	0.96	463	1.05	505	1.20	20
R 25 - 102			4	41.7	0.80	335	1.00	419	1.10	461	1.20	503	1.47	20
R 25 - 115			4 1/2	37.1	0.91	336	1.13	421	1.25	463	1.36	505	1.65	10
R 25 - 127			5	33.0	1.00	330	1.25	413	1.38	454	1.50	495	1.82	10
R 25 - 139			5 1/2	30.1	1.10	332	1.38	415	1.50	454	1.65	498	1.94	10
R 25 - 152			6	27.3	1.20	327	1.50	409	1.65	450	1.80	491	2.19	10
R 25 - 178			7	23.4	1.40	329	1.75	411	1.93	452	2.10	493	2.56	10
R 25 - 203			8	20.5	1.60	327	2.00	409	2.20	450	2.40	491	2.93	10
R 25 - 305	0,22 x 0,16		12	13.1	2.40	314	3.00	393	3.30	432	3.60	471	4.34	5
R 32 - 038	1 1/4	5/8	1 1/2	221.7	0.30	664	0.37	829	0.41	913	0.45	995	0.49	20
R 32 - 044			1 3/4	185.2	0.35	641	0.43	802	0.48	883	0.52	962	0.59	20
R 32 - 051			2	155.4	0.40	624	0.50	783	0.55	859	0.60	936	0.70	20
R 32 - 064			2 1/2	121.2	0.50	611	0.63	763	0.69	840	0.76	916	0.88	20
R 32 - 076			3	98.3	0.60	588	0.75	735	0.82	809	0.90	882	1.03	20
R 32 - 089			3 1/2	80.6	0.70	565	0.88	707	0.96	777	1.05	847	1.21	10
R 32 - 102			4	69.7	0.80	560	1.00	700	1.10	771	1.20	840	1.45	10
R 32 - 115			4 1/2	61.2	0.91	554	1.13	693	1.25	762	1.36	831	1.63	10
R 32 - 127			5	53.1	1.00	531	1.25	665	1.38	731	1.50	797	1.75	10
R 32 - 139			5 1/2	49.1	1.10	542	1.38	677	1.50	740	1.65	813	1.91	10
R 32 - 152			6	44.6	1.20	533	1.50	667	1.65	734	1.80	800	2.16	10
R 32 - 178			7	38.4	1.40	538	1.75	673	1.93	741	2.10	807	2.50	5
R 32 - 203			8	33.8	1.60	540	2.00	675	2.20	743	2.40	810	2.85	5
R 32 - 254			10	26.5	2.00	530	2.50	663	2.75	730	3.00	796	3.65	5
R 32 - 305	0,28 x 0,21		12	21.7	2.40	522	3.00	652	3.30	718	3.60	782	4.40	5
R 40 - 051	1 1/2	3/4	2	200.0	0.40	803	0.50	1008	0.55	1105	0.60	1205	0.67	20
R 40 - 064			2 1/2	153.7	0.50	775	0.63	968	0.69	1066	0.76	1162	0.86	10
R 40 - 076			3	125.2	0.60	749	0.75	936	0.82	1031	0.90	1123	1.05	10
R 40 - 089			3 1/2	108.6	0.70	761	0.88	953	0.96	1047	1.05	1141	1.23	10
R 40 - 102			4	93.2	0.80	748	1.00	935	1.10	1029	1.20	1122	1.46	10
R 40 - 115			4 1/2	81.2	0.91	735	1.13	920	1.25	1011	1.36	1102	1.61	10
R 40 - 127			5	73.2	1.00	731	1.25	916	1.38	1007	1.50	1097	1.83	5
R 40 - 139			5 1/2	65.7	1.10	725	1.38	906	1.50	990	1.65	1087	2.09	5
R 40 - 152			6	60.0	1.20	718	1.50	898	1.65	988	1.80	1077	2.21	5
R 40 - 178			7	50.9	1.40	713	1.75	891	1.93	981	2.10	1069	2.65	5
R 40 - 203			8	44.0	1.60	703	2.00	880	2.20	968	2.40	1055	3.00	5
R 40 - 254			10	34.9	2.00	697	2.50	872	2.75	959	3.00	1046	3.79	2
R 40 - 305	0,33 x 0,24		12	29.1	2.40	700	3.00	875	3.30	963	3.60	1050	4.52	2
R 50 - 064	2	1	2 1/2	236.0	0.50	1189	0.63	1487	0.69	1637	0.76	1784	0.88	5
R 50 - 076			3	193.7	0.60	1159	0.75	1449	0.82	1595	0.90	1739	1.04	5
R 50 - 089			3 1/2	164.6	0.70	1153	0.88	1445	0.96	1587	1.05	1730	1.24	5
R 50 - 102			4	140.0	0.80	1125	1.00	1406	1.10	1547	1.20	1687	1.48	5
R 50 - 115			4 1/2	122.9	0.91	1113	1.13	1393	1.25	1531	1.36	1669	1.68	5
R 50 - 127			5	109.7	1.00	1097	1.25	1374	1.38	1510	1.50	1646	1.87	5
R 50 - 139			5 1/2	96.0	1.10	1058	1.38	1323	1.50	1446	1.65	1588	2.04	5
R 50 - 152			6	88.0	1.20	1053	1.50	1317	1.65	1449	1.80	1580	2.28	2
R 50 - 178			7	76.6	1.40	1073	1.75	1342	1.93	1477	2.10	1610	2.70	2
R 50 - 203			8	66.9	1.60	1069	2.00	1337	2.20	1471	2.40	1603	3.06	2
R 50 - 254			10	50.9	2.00	1017	2.50	1272	2.75	1400	3.00	1526	3.85	2
R 50 - 305	0,44 x 0,3		12	41.7	2.40	1002	3.00	1253	3.30	1379	3.60	1503	4.75	2
R 63 - 076	2 1/2	1 1/2	3	353.2	0.60	2114	0.75	2642	0.82	2908	0.90	3170	0.97	5
R 63 - 089			3 1/2	294.3	0.70	2063	0.88	2584	0.96	2838	1.05	3094	1.18	5
R 63 - 102			4	250.3	0.80	2010	1.00	2513	1.10	2766	1.20	3016	1.38	5
R 63 - 115			4 1/2	211.5	0.91	1915	1.13	2398	1.25	2635	1.36	2872	1.48	5
R 63 - 127			5	190.3	1.00	1903	1.25	2383	1.38	2619	1.50	2855	1.81	2
R 63 - 152			6	153.7	1.20	1840	1.50	2300	1.65	2532	1.80	2760	2.22	2
R 63 - 178			7	129.2	1.40	1810	1.75	2263	1.93	2491	2.10	2715	2.63	2
R 63 - 203			8	113.2	1.60	1809	2.00	2263	2.20	2489	2.40	2713	3.10	2
R 63 - 254			10	88.6	2.00	1772	2.50	2215	2.75	2438	3.00	2657	4.00	2
R 63 - 305	0,46 x 0,48		12	73.2	2.40	1757	3.00	2197	3.30	2417	3.60	2635	4.82	2

Estimated life 100,000 cycles

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

How to order: R 50 - 152 (Series D_H - L_0)

G SERIES

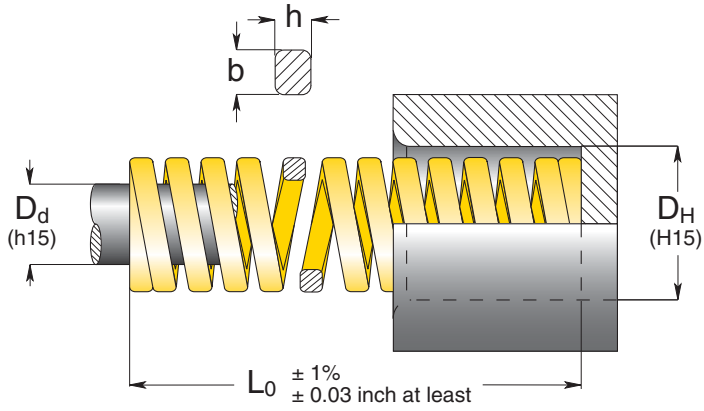
ISO 10243 Rectangular Wire

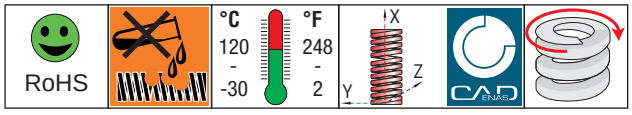
SPECIAL SPRINGS

EN Extra-heavy load springs
Yellow color

ES Muelles carga extra-fuerte
Color amarillo

FR Ressorts charge extra-forte
Couleur jaune





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 17% L_0		B 20% L_0		C 22,5% L_0		D 25% L_0		E approx.	
	b x h			± 10%	+ 3,000,000		~ 1,500,000		300 - 500,000		100 - 200,000		do not use	
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
G 10 - 025	3/8	3/16	1	21.0	0.17	36	0.20	41	0.22	47	0.25	52	0.30	50
G 10 - 032			1 1/4	15.9	0.21	34	0.25	40	0.28	45	0.31	50	0.42	50
G 10 - 038			1 1/2	13.5	0.26	35	0.30	41	0.34	46	0.37	51	0.50	50
G 10 - 044			1 3/4	11.0	0.30	32	0.35	38	0.39	43	0.43	47	0.54	50
G 10 - 051			2	9.4	0.34	32	0.40	38	0.45	43	0.50	47	0.64	25
G 10 - 064			2 1/2	7.5	0.43	32	0.50	38	0.57	43	0.63	47	0.80	25
G 10 - 076			3	6.2	0.51	32	0.60	37	0.67	42	0.75	47	0.99	25
G 10 - 305	0,07 x 0,06		12	1.5	2.04	30	2.40	36	2.70	40	3.00	45	4.36	10
G 13 - 025	1/2	9/32	1	33.4	0.17	57	0.20	66	0.22	74	0.25	83	0.32	50
G 13 - 032			1 1/4	25.1	0.21	53	0.25	63	0.28	71	0.31	79	0.39	50
G 13 - 038			1 1/2	20.6	0.26	53	0.30	62	0.34	69	0.37	77	0.51	50
G 13 - 044			1 3/4	17.3	0.30	51	0.35	60	0.39	68	0.43	75	0.56	25
G 13 - 051			2	15.0	0.34	51	0.40	60	0.45	68	0.50	75	0.69	25
G 13 - 064			2 1/2	12.1	0.43	52	0.50	61	0.57	69	0.63	76	0.83	25
G 13 - 076			3	9.8	0.51	50	0.60	59	0.67	66	0.75	73	1.04	25
G 13 - 089			3 1/2	8.3	0.59	49	0.70	58	0.79	65	0.88	73	1.24	20
G 13 - 102			4	7.3	0.68	50	0.80	58	0.90	66	1.00	73	1.42	10
G 13 - 305	0,10 x 0,08		12	2.5	2.04	50	2.40	59	2.70	66	3.00	74	4.38	10
G 16 - 025	5/8	11/32	1	67.4	0.17	114	0.20	133	0.22	149	0.25	167	0.33	50
G 16 - 032			1 1/4	50.9	0.21	108	0.25	128	0.28	144	0.31	160	0.43	50
G 16 - 038			1 1/2	41.2	0.26	106	0.30	123	0.34	139	0.37	154	0.52	25
G 16 - 044			1 3/4	34.8	0.30	103	0.35	121	0.39	136	0.43	151	0.58	25
G 16 - 051			2	29.9	0.34	102	0.40	120	0.45	135	0.50	151	0.70	25
G 16 - 064			2 1/2	23.5	0.43	101	0.50	119	0.57	134	0.63	148	0.86	25
G 16 - 076			3	19.5	0.51	99	0.60	117	0.67	131	0.75	146	1.09	20
G 16 - 089			3 1/2	16.9	0.59	100	0.70	118	0.79	133	0.88	148	1.23	20
G 16 - 102			4	14.6	0.68	100	0.80	117	0.90	132	1.00	147	1.49	20
G 16 - 115			4 1/2	12.8	0.77	99	0.91	116	1.02	131	1.13	145	1.75	10
G 16 - 305	0,12 x 0,11		12	4.8	2.04	98	2.40	115	2.70	130	3.00	144	4.47	10
G 20 - 025	3/4	3/8	1	167.4	0.17	284	0.20	330	0.22	371	0.25	415	0.27	50
G 20 - 032			1 1/4	128.0	0.21	272	0.25	323	0.28	363	0.31	403	0.37	50
G 20 - 038			1 1/2	101.2	0.26	259	0.30	303	0.34	341	0.37	378	0.47	25
G 20 - 044			1 3/4	85.2	0.30	252	0.35	295	0.39	332	0.43	369	0.53	25
G 20 - 051			2	73.2	0.34	251	0.40	294	0.45	331	0.50	369	0.64	25
G 20 - 064			2 1/2	56.6	0.43	243	0.50	285	0.57	321	0.63	356	0.83	25
G 20 - 076			3	46.7	0.51	237	0.60	279	0.67	315	0.75	349	0.97	25
G 20 - 089			3 1/2	39.7	0.59	236	0.70	278	0.79	313	0.88	349	1.13	20
G 20 - 102			4	34.6	0.68	236	0.80	278	0.90	313	1.00	348	1.37	20
G 20 - 115			4 1/2	30.3	0.77	234	0.91	274	1.02	309	1.13	343	1.54	10
G 20 - 127			5	27.1	0.85	231	1.00	272	1.13	306	1.25	340	1.69	10
G 20 - 139			5 1/2	24.6	0.94	230	1.10	271	1.23	303	1.38	339	1.78	10
G 20 - 152			6	22.3	1.02	226	1.20	267	1.35	300	1.50	333	1.98	10
G 20 - 305	0,16 x 0,15		12	12.1	2.04	248	2.40	291	2.70	328	3.00	364	4.07	10

How to order: G 50 - 152 (Series D_H - L_0)

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

ISO 10243
Rectangular Wire

SERIES G

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 17% L_0		B 20% L_0		C 22,5% L_0		D 25% L_0		E approx.	
	b x h			± 10%	+ 3,000,000		~ 1,500,000		300 - 500,000		100 - 200,000		do not use	
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
G 25 - 025			1	262.3	0.17	444	0.20	516	0.22	581	0.25	651	0.29	50
G 25 - 032			1 1/4	214.0	0.21	455	0.25	539	0.28	607	0.31	674	0.42	25
G 25 - 038			1 1/2	171.9	0.26	430	0.30	516	0.34	584	0.37	636	0.47	25
G 25 - 044			1 3/4	139.4	0.30	412	0.35	483	0.39	544	0.43	604	0.57	25
G 25 - 051			2	118.6	0.34	406	0.40	476	0.45	536	0.50	598	0.69	25
G 25 - 064			2 1/2	92.0	0.43	395	0.50	464	0.57	522	0.63	580	0.84	25
G 25 - 076			3	74.8	0.51	380	0.60	447	0.67	504	0.75	559	1.06	20
G 25 - 089	1	1/2	3 1/2	63.2	0.59	376	0.70	443	0.79	498	0.88	554	1.22	20
G 25 - 102			4	55.0	0.68	375	0.80	442	0.90	498	1.00	553	1.44	20
G 25 - 115			4 1/2	49.0	0.77	378	0.91	443	1.02	499	1.13	555	1.59	10
G 25 - 127			5	43.6	0.85	371	1.00	436	1.13	491	1.25	546	1.78	10
G 25 - 139			5 1/2	39.4	0.94	369	1.10	434	1.23	485	1.38	543	1.87	10
G 25 - 152			6	36.3	1.02	369	1.20	434	1.35	489	1.50	543	2.11	10
G 25 - 178			7	30.8	1.19	367	1.40	432	1.58	486	1.75	540	2.52	10
G 25 - 203			8	26.9	1.36	365	1.60	429	1.80	483	2.00	537	2.76	10
G 25 - 305	0,21 x 0,18		12	17.7	2.04	361	2.40	424	2.70	477	3.00	531	4.33	5
G 32 - 038			1 1/2	275.1	0.26	715	0.30	825	0.34	935	0.37	1018	0.45	20
G 32 - 044			1 3/4	223.5	0.30	670	0.35	782	0.39	872	0.43	961	0.54	20
G 32 - 051			2	183.4	0.34	623	0.40	734	0.45	825	0.50	917	0.61	20
G 32 - 064			2 1/2	153.8	0.43	660	0.50	775	0.57	873	0.63	969	0.79	20
G 32 - 076			3	124.9	0.51	634	0.60	747	0.67	841	0.75	934	0.96	20
G 32 - 089			3 1/2	103.0	0.59	613	0.70	722	0.79	813	0.88	905	1.17	10
G 32 - 102	1 1/4	5/8	4	88.6	0.68	603	0.80	711	0.90	801	1.00	889	1.38	10
G 32 - 115			4 1/2	80.0	0.77	617	0.91	725	1.02	816	1.13	907	1.54	10
G 32 - 127			5	70.9	0.85	603	1.00	709	1.13	798	1.25	887	1.69	10
G 32 - 139			5 1/2	64.2	0.94	601	1.10	707	1.23	791	1.38	884	1.91	10
G 32 - 152			6	58.3	1.02	592	1.20	698	1.35	785	1.50	872	2.06	10
G 32 - 178			7	50.4	1.19	601	1.40	707	1.58	795	1.75	883	2.40	5
G 32 - 203			8	43.4	1.36	590	1.60	694	1.80	782	2.00	869	2.72	5
G 32 - 254			10	34.7	1.70	591	2.00	695	2.25	782	2.50	869	3.47	5
G 32 - 305	0,29 x 0,23		12	28.0	2.04	572	2.40	673	2.70	757	3.00	841	4.10	5
G 40 - 051			2	358.9	0.34	1229	0.40	1441	0.45	1623	0.50	1809	0.59	20
G 40 - 064			2 1/2	278.3	0.43	1194	0.50	1403	0.57	1579	0.63	1753	0.77	10
G 40 - 076			3	216.6	0.51	1100	0.60	1296	0.67	1459	0.75	1620	0.92	10
G 40 - 089			3 1/2	183.5	0.59	1091	0.70	1286	0.79	1447	0.88	1611	1.05	10
G 40 - 102			4	160.6	0.68	1094	0.80	1290	0.90	1452	1.00	1612	1.33	10
G 40 - 115	1 1/2	3/4	4 1/2	140.0	0.77	1080	0.91	1268	1.02	1427	1.13	1588	1.43	10
G 40 - 127			5	126.3	0.85	1074	1.00	1263	1.13	1422	1.25	1581	1.60	5
G 40 - 139			5 1/2	108.6	0.94	1017	1.10	1197	1.23	1338	1.38	1496	1.75	5
G 40 - 152			6	96.0	1.02	975	1.20	1149	1.35	1294	1.50	1436	1.95	5
G 40 - 178			7	83.4	1.19	995	1.40	1170	1.58	1317	1.75	1462	2.36	5
G 40 - 203			8	75.4	1.36	1025	1.60	1206	1.80	1357	2.00	1509	2.64	5
G 40 - 254			10	61.2	1.70	1040	2.00	1223	2.25	1377	2.50	1529	3.40	2
G 40 - 305	0,33 x 0,29		12	50.2	2.04	1025	2.40	1205	2.70	1357	3.00	1507	4.08	2
G 50 - 064			2 1/2	405.2	0.43	1739	0.50	2042	0.57	2299	0.63	2552	0.76	5
G 50 - 076			3	326.9	0.51	1660	0.60	1956	0.67	2202	0.75	2445	0.95	5
G 50 - 089			3 1/2	271.5	0.59	1614	0.70	1902	0.79	2142	0.88	2383	1.10	5
G 50 - 102			4	231.5	0.68	1577	0.80	1859	0.90	2093	1.00	2324	1.32	5
G 50 - 115			4 1/2	201.2	0.77	1552	0.91	1822	1.02	2051	1.13	2281	1.52	5
G 50 - 127	2	1	5	180.6	0.85	1536	1.00	1806	1.13	2033	1.25	2261	1.63	5
G 50 - 139			5 1/2	156.6	0.94	1467	1.10	1726	1.23	1929	1.38	2158	1.86	5
G 50 - 152			6	136.6	1.02	1387	1.20	1635	1.35	1840	1.50	2043	1.98	2
G 50 - 178			7	122.9	1.19	1466	1.40	1722	1.58	1939	1.75	2153	2.41	2
G 50 - 203			8	106.9	1.36	1452	1.60	1708	1.80	1923	2.00	2138	2.67	2
G 50 - 254			10	87.4	1.70	1487	2.00	1749	2.25	1969	2.50	2186	3.43	2
G 50 - 305	0,45 x 0,35		12	72.6	2.04	1483	2.40	1743	2.70	1962	3.00	2180	4.07	2
G 63 - 076			3	544.1	0.51	3048	0.60	3591	0.67	3665	0.75	4489	0.83	5
G 63 - 089			3 1/2	468.1	0.59	2973	0.70	3504	0.79	3693	0.88	4390	1.01	5
G 63 - 102			4	400.1	0.68	2896	0.80	3415	0.90	3617	1.00	4269	1.21	5
G 63 - 115			4 1/2	354.3	0.77	2778	0.91	3260	1.02	3612	1.13	4082	1.37	5
G 63 - 127	2 1/2	1 1/2	5	322.9	0.85	2746	1.00	3229	1.13	3635	1.25	4043	1.50	2
G 63 - 152			6	261.7	1.02	2659	1.20	3133	1.35	3527	1.50	3916	1.86	2
G 63 - 178			7	219.5	1.19	2618	1.40	3076	1.58	3463	1.75	3845	2.20	2
G 63 - 203			8	192.6	1.36	2616	1.60	3078	1.80	3466	2.00	3852	2.55	2
G 63 - 254			10	150.3	1.70	2556	2.00	3006	2.25	3384	2.50	3758	3.41	2
G 63 - 305	0,46 x 0,59		12	124.6	2.04	2546	2.40	2992	2.70	3368	3.00	3742	4.16	2

Estimated life 100,000 cycles

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

How to order: G 50 - 152 (Series D_H - L_0)

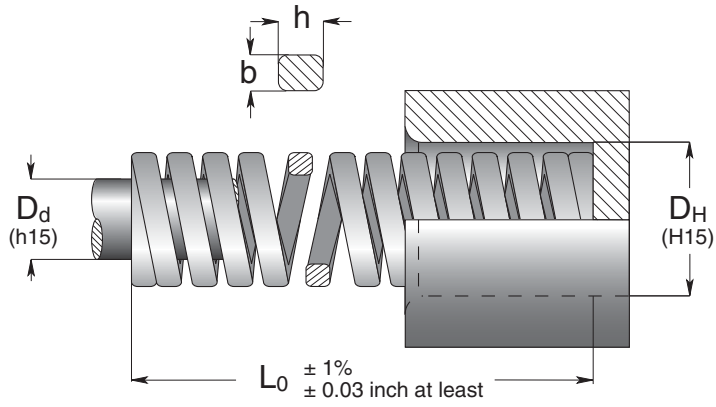
A SERIES

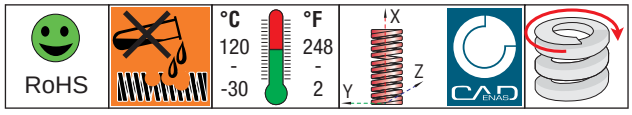
Special Springs standard Rectangular Wire

EN Ultra-heavy load springs
Silver color

ES Muelles carga ultra-fuerte
Color plateado

FR Ressorts charge ultra-forte
Couleur argent





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 10% L_0		B 12% L_0		C 13,5% L_0		D 15% L_0		E approx.	
	b x h			± 10%	+ 3,000,000		~ 1,500,000		300 - 500,000		100 - 200,000		do not use	
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
A 25 - 064	1	1/2	2 1/2	368.0	0.25	927	0.30	1116	0.34	1253	0.38	1391	0.51	25
A 25 - 076			3	317.8	0.30	951	0.36	1139	0.40	1284	0.45	1426	0.63	20
A 25 - 089			3 1/2	264.0	0.35	925	0.42	1112	0.47	1250	0.53	1388	0.79	20
A 25 - 102			4	222.9	0.40	895	0.48	1071	0.54	1209	0.60	1343	0.91	20
A 25 - 115			4 1/2	205.7	0.45	932	0.54	1118	0.61	1258	0.68	1397	1.02	10
A 25 - 127			5	186.3	0.50	932	0.60	1115	0.68	1258	0.75	1397	1.10	10
A 25 - 152			6	145.7	0.60	872	0.72	1044	0.81	1178	0.90	1308	1.34	10
A 25 - 178			7	131.4	0.70	921	0.84	1107	0.95	1244	1.05	1382	1.54	10
A 25 - 203			8	115.4	0.80	923	0.96	1109	1.08	1246	1.20	1384	1.77	10
A 25 - 305	0,22 x 0,29		12	77.7	1.20	933	1.44	1120	1.62	1261	1.80	1400	2.48	5
A 32 - 064	1 1/4	5/8	2 1/2	615.5	0.25	1551	0.30	1861	0.34	2095	0.38	2326	0.51	20
A 32 - 076			3	499.5	0.30	1494	0.36	1793	0.40	2019	0.45	2242	0.63	20
A 32 - 089			3 1/2	412.1	0.35	1444	0.43	1733	0.47	1950	0.53	2166	0.79	10
A 32 - 102			4	354.3	0.39	1423	0.47	1708	0.54	1922	0.60	2134	0.91	10
A 32 - 115			4 1/2	320.0	0.47	1449	0.55	1739	0.61	1958	0.68	2174	1.02	10
A 32 - 127			5	283.5	0.51	1417	0.59	1701	0.68	1915	0.75	2126	1.10	10
A 32 - 152			6	233.2	0.59	1395	0.71	1674	0.81	1885	0.90	2093	1.34	10
A 32- 178			7	201.7	0.71	1413	0.83	1696	0.95	1910	1.05	2120	1.54	5
A 32 - 203			8	173.7	0.79	1388	0.94	1666	1.08	1876	1.20	2083	1.77	5
A 32 - 254			10	138.9	0.98	1390	1.18	1668	1.35	1876	1.50	2085	2.44	5
A 32 - 305	0,29 x 0,36		12	112.0	1.22	1345	1.46	1614	1.62	1817	1.80	2018	2.95	5
A 40 - 089	1 1/2	3/4	3 1/2	502.9	0.35	1762	0.42	2119	0.47	2381	0.53	2643	0.79	10
A 40 - 102			4	435.5	0.40	1749	0.48	2092	0.54	2363	0.60	2623	0.91	10
A 40 - 115			4 1/2	388.0	0.45	1757	0.54	2108	0.61	2373	0.68	2635	1.02	10
A 40 - 127			5	355.5	0.50	1777	0.60	2127	0.68	2401	0.75	2666	1.10	5
A 40 - 152			6	290.9	0.90	1741	0.72	2084	0.81	2352	0.90	2611	1.42	5
A 40 - 178			7	245.2	0.70	1718	0.84	2066	0.95	2321	1.05	2577	1.69	5
A 40 - 203			8	213.7	0.80	1708	0.96	2053	1.08	2308	1.20	2562	1.93	5
A 40 - 254			10	169.2	1.00	1692	1.20	2031	1.35	2285	1.50	2538	2.44	2
A 40 - 305	0,33 x 0,43		12	140.6	1.20	1694	1.44	2026	1.62	2281	1.80	2532	2.95	2
A 50 - 089	2	1	3 1/2	805.8	0.35	2824	0.42	3395	0.47	3814	0.53	4235	0.75	5
A 50 - 102			4	694.4	0.40	2788	0.48	3335	0.54	3767	0.60	4183	0.87	5
A 50 - 115			4 1/2	614.9	0.45	2784	0.54	3341	0.61	3761	0.68	4176	0.98	5
A 50 - 127			5	553.2	0.50	2766	0.60	3311	0.68	3737	0.75	4149	1.10	5
A 50 - 152			6	460.6	0.60	2756	0.72	3301	0.81	3724	0.90	4135	1.34	2
A 50 - 178			7	398.9	0.70	2795	0.84	3361	0.95	3777	1.05	4193	1.57	2
A 50 - 203			8	349.8	0.80	2795	0.96	3360	1.08	3776	1.20	4193	1.77	2
A 50 - 254			10	269.7	1.00	2698	1.20	3239	1.35	3644	1.50	4046	2.28	2
A 50 - 305	0,46 x 0,53		12	221.7	1.20	2663	1.44	3195	1.62	3597	1.80	3994	2.76	2

How to order: A 50 - 152 (Series D_H - L_0)

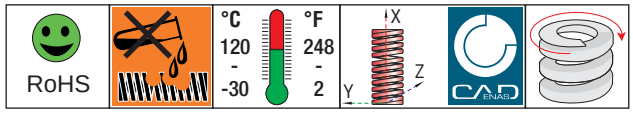
Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

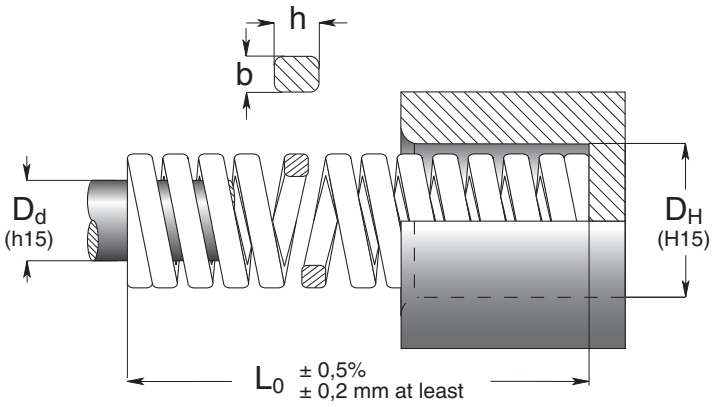
Special Springs Standard Rectangular Wire

EN Hyper-strong
White color

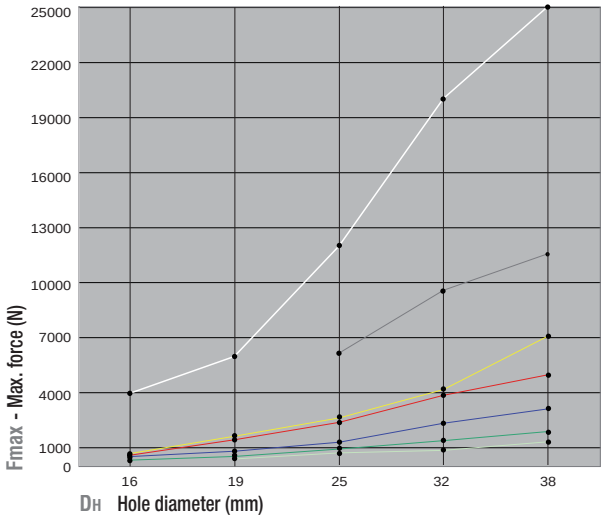
ES Hyper-fuerte
color blanco

FR Hyper-forte
Couleur blanche





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	F max	approx. do not use	
	b x h			± 10%			
	inch	inch	inch	lbs/0,1 in.	inch	lbs	inch	Pcs
W 16 - 020	5/8	9/32	0.79	1035	0.09	900	0.12	16
W 16 - 035			1.38	569	0.16		0.22	16
W 16 - 050			1.97	350	0.26		0.31	12
W 16 - 075			2.95	228	0.39		0.49	8
W 16 - 100	0,18 x 0,20		3.94	163	0.55		0.64	8
W 19 - 025	3/4	11/32	0.98	1367	0.10	1350	0.13	16
W 19 - 040			1.57	759	0.18		0.23	16
W 19 - 050			1.97	569	0.24		0.31	12
W 19 - 075			2.95	342	0.39		0.49	8
W 19 - 100	0,20 x 0,26		3.94	244	0.55		0.65	8
W 25 - 030	1	3/8	1.18	2733	0.10	2700	0.12	10
W 25 - 050			1.97	1367	0.20		0.23	10
W 25 - 075			2.95	854	0.31		0.37	4
W 25 - 100			3.94	569	0.47		0.58	4
W 25 - 125	0,27 x 0,36		4.92	488	0.55		0.67	4
W 32 - 035	1 1/4	1/2	1.38	3797	0.12	4500	0.15	8
W 32 - 050			1.97	2071	0.22		0.25	8
W 32 - 075			2.95	1265	0.35		0.44	4
W 32 - 100			3.94	876	0.51		0.59	4
W 32 - 125			4.92	712	0.63		0.72	2
W 32 - 150	0,36 x 0,42		5.91	600	0.75		0.85	2
W 38 - 040	1 1/2	5/8	1.57	4068	0.14	5620	0.18	4
W 38 - 050			1.97	2847	0.20		0.23	4
W 38 - 075			2.95	1582	0.35		0.41	4
W 38 - 100			3.94	1095	0.51		0.59	2
W 38 - 150			5.91	749	0.75		0.88	2
W 38 - 200	0,41 x 0,50		7.87	527	1.06		1.18	2



	SERIES	STANDARD	LOAD
	VL	Special Springs	Extra-light
	V	ISO 10243	Light
	B	ISO 10243	Medium
	R	ISO 10243	Strong
	G	ISO 10243	Extra-Strong
	A	Special Springs	Ultra-Strong
	W	Special Springs	Hyper-strong

EN

Features that are unparalleled on the market thanks to the superior Special Springs production technology.
MAXIMUM FORCE UP TO 6 TIMES THE EXTRA STRONG SPRINGS (ISO standard yellow color).
MAXIMUM FORCE OVER 2 TIMES THE ULTRA STRONG SPRINGS (Special Springs standard silver coulor).
Ideal for applications that involve extremely large loads with short working strokes and that have to go for as long as possible without maintenance, in difficult environments with large amounts of contaminants and high temperatures.

ES

Características únicas en el mercado, gracias a la superior tecnología de producción de Special Springs:
MÁXIMA CARGA HASTA 6 VECES LA SERIE EXTRA-FUERTE (ISO standard color amarillo)
MÁXIMA CARGA MÁS DE 2 VECES LA SERIE ULTRA-FUERTE (Special Springs standard color plata)
Ideales para aplicaciones que requieren cargas muy altas con recorridos de trabajo cortos, allí donde se necesite la máxima duración sin mantenimiento, en ambientes difíciles con intensa presencia de contaminantes y altas temperaturas.

FR

Des caractéristiques uniques sur le marché grâce à la technologie de production supérieure Special Springs :
CHARGE MAXIMUM JUSQU'À 6 FOIS LES RESSORTS EXTRA-FORT (ISO standard couleur jaune)
CHARGE MAXIMUM PLUS DE 2 FOIS LES RESSORTS ULTRA-FORT (Special Springs standard couleur argent)
L'idéal pour des applications qui exigent des charges extrêmement élevées et des courses de travail réduites ainsi qu'une longévité maximale sans entretien,
dans des milieux difficiles marqués par une présence élevée de contaminants et des températures élevées.

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

How to order: W 38 - 150 (Series D_H - L_0)

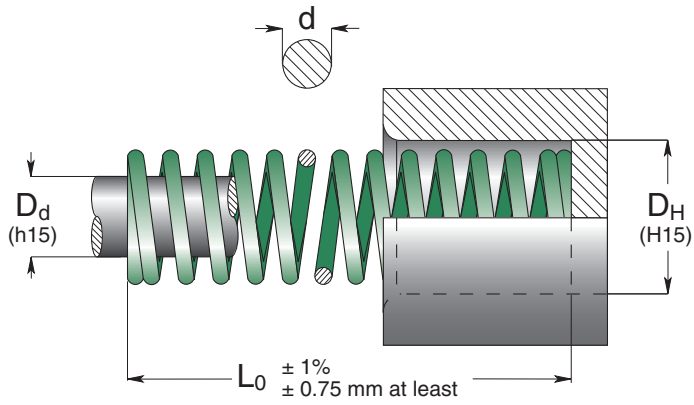
TV SERIES

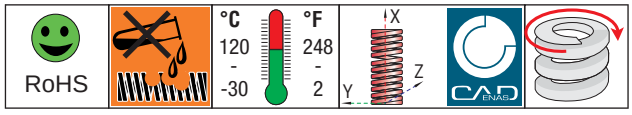
Special Springs standard Round Wire

EN Light load springs
Green color

ES Muelles carga ligera
Color verde

FR Ressorts charge lègére
Couleur verte





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 30% L_0		C 35% L_0		D 40% L_0		E approx. do not use	
	d			± 10%	+ 3,000,000		~ 1,500,000		300 - 500,000		100 - 200,000			
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	lbs
TV 10 - 025	3/8	3/16	1	2.5	0.25	6	0.30	7	0.34	9	0.39	10	0.52	50
TV 10 - 032			1 1/4	1.9	0.31	6	0.38	7	0.44	9	0.50	10	0.65	50
TV 10 - 038			1 1/2	1.6	0.37	6	0.45	7	0.52	8	0.60	9	0.78	50
TV 10 - 044			1 3/4	1.4	0.43	6	0.52	7	0.61	8	0.69	9	0.91	50
TV 10 - 051			2	1.2	0.50	6	0.60	7	0.70	8	0.80	10	1.06	25
TV 10 - 064			2 1/2	0.9	0.63	6	0.76	7	0.88	8	1.01	9	1.31	25
TV 10 - 076			3	0.7	0.75	6	0.90	7	1.05	8	1.20	9	1.56	25
TV 10 - 305	0,04		12	0.2	3.00	5	3.60	7	4.20	7	4.80	9	6.19	10
TV 13 - 025	1/2	9/32	1	4.9	0.25	12	0.30	14	0.34	17	0.39	19	0.53	50
TV 13 - 032			1 1/4	3.7	0.31	12	0.38	14	0.44	16	0.50	19	0.66	50
TV 13 - 038			1 1/2	3.0	0.37	11	0.45	14	0.52	16	0.60	18	0.80	50
TV 13 - 044			1 3/4	2.5	0.43	11	0.52	13	0.61	15	0.69	18	0.94	25
TV 13 - 051			2	2.2	0.50	11	0.60	13	0.70	15	0.80	18	1.06	25
TV 13 - 064			2 1/2	1.7	0.63	11	0.76	13	0.88	15	1.01	17	1.31	25
TV 13 - 076			3	1.4	0.75	11	0.90	13	1.05	15	1.20	17	1.62	25
TV 13 - 089			3 1/2	1.2	0.88	11	1.05	13	1.23	15	1.40	17	1.90	20
TV 13 - 305	0,06		12	0.3	3.00	10	3.60	12	4.20	14	4.80	16	6.41	10
TV 16 - 025	5/8	11/32	1	10.2	0.25	25	0.30	30	0.34	35	0.39	40	0.58	50
TV 16 - 032			1 1/4	7.7	0.31	24	0.38	29	0.44	34	0.50	39	0.73	50
TV 16 - 038			1 1/2	6.0	0.37	23	0.45	27	0.52	31	0.60	36	0.88	25
TV 16 - 044			1 3/4	5.0	0.43	22	0.52	26	0.61	31	0.69	35	1.02	25
TV 16 - 051			2	4.3	0.50	22	0.60	26	0.70	31	0.80	35	1.18	25
TV 16 - 064			2 1/2	3.4	0.63	21	0.76	26	0.88	30	1.01	34	1.49	25
TV 16 - 076			3	2.7	0.75	20	0.90	25	1.05	29	1.20	33	1.78	20
TV 16 - 089			3 1/2	2.3	0.88	20	1.05	24	1.23	28	1.40	32	2.08	20
TV 16 - 102			4	2.0	1.00	20	1.20	24	1.41	28	1.61	32	2.39	20
TV 16 - 305	0,08		12	0.6	3.00	19	3.60	23	4.20	26	4.80	31	7.24	10

How to order: TV 16 - 102 (Series D_H - L_0)

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

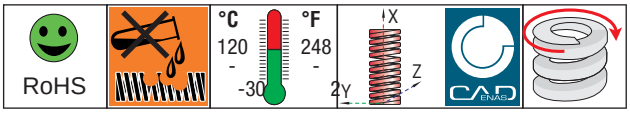
Special Springs standard Round Wire

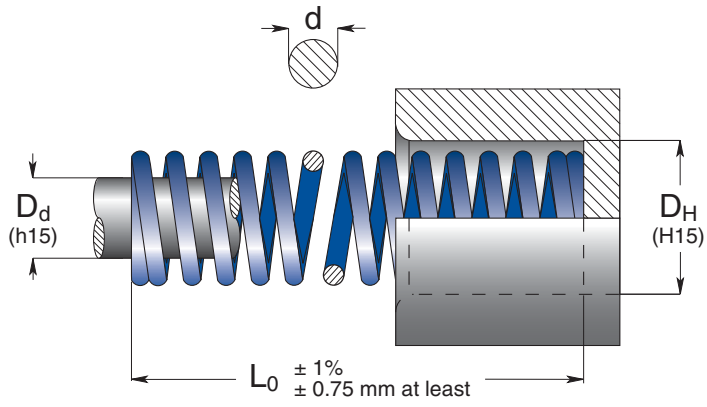
SERIES TB

EN Medium load springs
Blue color

ES Muelles carga mediana
Color azul marino

FR Ressorts charge moyenne
Couleur bleue





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 30% L_0		C 33,75% L_0		D 37,5% L_0		E approx. do not use	
	d			± 10%	+ 3,000,000		~ 1,500,000		300 - 500,000		100 - 200,000			
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
TB 10 - 025	3/8	3/16	1	7.0	0.25	17	0.30	21	0.33	23	0.37	26	0.41	50
TB 10 - 032			1 1/4	5.4	0.31	17	0.38	20	0.43	23	0.47	25	0.52	50
TB 10 - 038			1 1/2	4.5	0.37	17	0.45	20	0.50	23	0.56	25	0.63	50
TB 10 - 044			1 3/4	3.7	0.43	16	0.52	19	0.58	22	0.65	24	0.73	50
TB 10 - 051			2	3.2	0.50	16	0.60	19	0.68	22	0.75	24	0.83	25
TB 10 - 064			2 1/2	2.6	0.63	16	0.76	19	0.85	22	0.94	24	1.04	25
TB 10 - 076			3	2.1	0.75	16	0.90	19	1.01	21	1.12	24	1.25	25
TB 10 - 305	0,06		12	0.5	3.00	15	3.60	18	4.05	21	4.50	23	5.06	10
TB 13 - 025	1/2	9/32	1	12.4	0.25	31	0.30	37	0.33	41	0.37	46	0.44	50
TB 13 - 032			1 1/4	9.6	0.31	30	0.38	36	0.43	41	0.47	45	0.55	50
TB 13 - 038			1 1/2	7.9	0.37	29	0.45	36	0.50	40	0.56	44	0.68	50
TB 13 - 044			1 3/4	6.6	0.43	29	0.52	34	0.58	39	0.65	43	0.78	25
TB 13 - 051			2	5.7	0.50	29	0.60	34	0.68	39	0.75	43	0.90	25
TB 13 - 064			2 1/2	4.5	0.63	28	0.76	34	0.85	38	0.94	42	1.12	25
TB 13 - 076			3	3.7	0.75	27	0.90	33	1.01	37	1.12	41	1.35	25
TB 13 - 089			3 1/2	3.2	0.88	28	1.05	34	1.18	38	1.31	42	1.63	20
TB 13 - 305	0,07		12	0.9	3.00	27	3.60	32	4.05	35	4.50	40	5.49	10
TB 16 - 025	5/8	11/32	1	18.2	0.25	45	0.30	54	0.33	61	0.37	67	0.43	50
TB 16 - 032			1 1/4	13.7	0.31	43	0.38	52	0.43	58	0.47	65	0.54	50
TB 16 - 038			1 1/2	11.1	0.37	42	0.45	50	0.50	56	0.56	62	0.65	25
TB 16 - 044			1 3/4	9.2	0.43	40	0.52	48	0.58	54	0.65	60	0.76	25
TB 16 - 051			2	7.9	0.50	40	0.60	48	0.68	53	0.75	60	0.87	25
TB 16 - 064			2 1/2	6.1	0.63	38	0.76	46	0.85	52	0.94	58	1.08	25
TB 16 - 076			3	5.0	0.75	37	0.90	45	1.01	51	1.12	56	1.30	20
TB 16 - 089			3 1/2	4.3	0.88	38	1.05	45	1.18	51	1.31	56	1.52	20
TB 16 - 102			4	3.7	1.00	38	1.20	45	1.36	50	1.51	56	1.75	20
TB 16 - 305	0,09		12	1.2	3.00	36	3.60	43	4.05	49	4.50	54	5.26	10

Round Wire Inch

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

How to order: TB 16 - 102 (Series D_H - L_0)

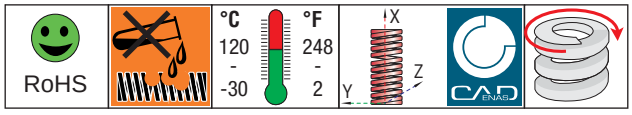
TR SERIES

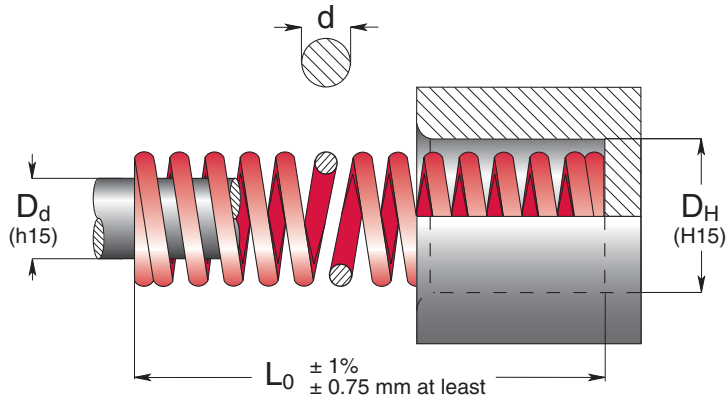
Special Springs standard Round Wire

EN Heavy load springs
Red color

ES Muelles carga fuerte
Color rojo

FR Ressorts charge forte
Couleur rouge





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 20% L_0		B 25% L_0		C 27,5% L_0		D 30% L_0		E approx. do not use	
	d			± 10%	+ 3,000,000		~ 1,500,000		300 - 500,000		100 - 200,000			
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
TR 10 - 025	3/8	3/16	1	11.8	0.20	23	0.25	29	0.27	32	0.30	35	0.34	50
TR 10 - 032			1 1/4	9.2	0.25	23	0.31	29	0.35	32	0.38	35	0.43	50
TR 10 - 038			1 1/2	7.4	0.30	22	0.37	28	0.41	31	0.45	33	0.52	50
TR 10 - 044			1 3/4	6.2	0.35	22	0.43	27	0.48	30	0.52	32	0.58	50
TR 10 - 051			2	5.5	0.40	22	0.50	28	0.55	30	0.60	33	0.70	25
TR 10 - 064			2 1/2	4.4	0.50	22	0.63	28	0.69	31	0.76	33	0.90	25
TR 10 - 076			3	3.6	0.60	22	0.75	27	0.82	30	0.90	32	1.06	25
TR 10 - 305	0,06		12	0.9	2.40	21	3.00	26	3.30	28	3.60	31	4.32	10
TR 13 - 025	1/2	9/32	1	21.4	0.20	42	0.25	53	0.27	58	0.30	63	0.35	50
TR 13 - 032			1 1/4	16.5	0.25	42	0.31	52	0.35	57	0.38	62	0.44	50
TR 13 - 038			1 1/2	13.4	0.30	40	0.37	50	0.41	55	0.45	60	0.54	50
TR 13 - 044			1 3/4	11.2	0.35	39	0.43	49	0.48	53	0.52	58	0.62	25
TR 13 - 051			2	9.9	0.40	40	0.50	50	0.55	55	0.60	60	0.74	25
TR 13 - 064			2 1/2	7.7	0.50	39	0.63	49	0.69	53	0.76	58	0.93	25
TR 13 - 076			3	6.4	0.60	38	0.75	48	0.82	53	0.90	58	1.12	25
TR 13 - 089			3 1/2	5.4	0.70	38	0.88	47	0.96	52	1.05	57	1.30	20
TR 13 - 305	0,09		12	1.5	2.40	36	3.00	46	3.30	51	3.60	55	4.49	10
TR 16 - 025	5/8	11/32	1	46.6	0.20	92	0.25	115	0.27	126	0.30	138	0.36	50
TR 16 - 032			1 1/4	35.0	0.25	88	0.31	110	0.35	121	0.38	132	0.45	50
TR 16 - 038			1 1/2	28.5	0.30	85	0.37	107	0.41	117	0.45	128	0.56	25
TR 16 - 044			1 3/4	23.3	0.35	81	0.43	101	0.48	111	0.52	121	0.64	25
TR 16 - 051			2	20.3	0.40	82	0.50	102	0.55	112	0.60	122	0.74	25
TR 16 - 064			2 1/2	15.9	0.50	80	0.63	100	0.69	110	0.76	120	0.94	25
TR 16 - 076			3	13.0	0.60	78	0.75	97	0.82	107	0.90	117	1.14	20
TR 16 - 089			3 1/2	11.2	0.70	79	0.88	98	0.96	108	1.05	118	1.35	20
TR 16 - 102			4	9.7	0.80	78	1.00	97	1.10	107	1.20	117	1.55	20
TR 16 - 305	0,11		12	3.1	2.40	74	3.00	93	3.30	102	3.60	111	4.68	10

How to order: TR 16 - 102 (Series D_H - L_0)

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

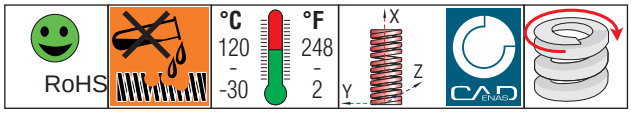
Special Springs standard Round Wire

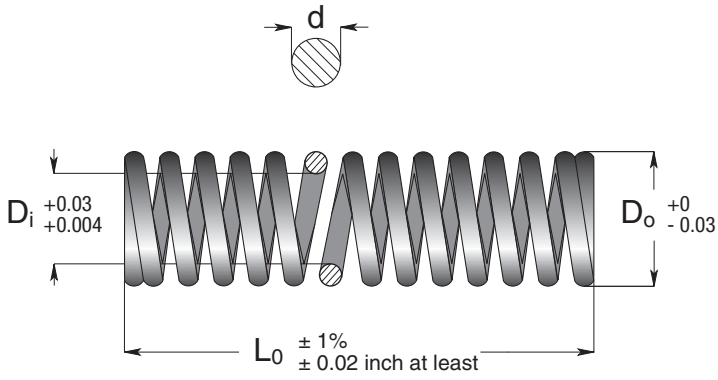
SERIES L

EN Non painted with anti-rust lubricant

ES Muelles no pintados con lubricación antióxido

FR Ressorts non.peintsd avec huilange antirouille





D_o spring outside diameter.
diámetro externo del muelle.
diamètre extérieur du ressort.

D_i spring inside diameter.
diámetro interior del muelle.
diamètre interièur du ressort.

d wire diameter.
diámetro del hilo.
diamètre du fil.

L_0 spring free length.
longitud libre del muelle.
longueur libre du ressort.

R spring rate, load (N) required for 1 mm deflection.
carga (N) necesaria para desviar el muelle de 1 milímetro.
charge (N) exigée pour comprimer le ressort 1mm.

A advised working deflection for long spring life.
deflexión aconsejada para una larga duración del muelle.
course conseillée pour une longue durée du ressort.

B advised working deflection for medium spring life.
deflexión aconsejada para una media duración del muelle
course conseillée pour durée moyenne du ressort.

C maximum operating deflection.
deflexión máxima permitida.
course maximale pour le fonctionnement.

Code	D_o Outside Diameter	D_i Inside Diameter	L_0 Free Length	R Spring Constant	A 16% L_0		B 24% L_0		C 38 % L_0		D 32% L_0	
	d			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000	
	inch	inch	inch	lbs/0.1 in.	inch	lbs	inh	lbs	inch	lbs	inch	lbs
L 3 - 010			3/8	1.68	0.06		0.09		0.11		0.13	
L 3 - 015	1/8	5/64	9/16	1.12	0.09	1	0.14	1.5	0.17	1.7	0.19	2
L 3 - 020			3/4	0.56	0.13		0.19		0.22		0.25	
L 3 - 025	0,01		1	0.56	0.16		0.24		0.28		0.31	
L 4 - 010			3/8	2.8	0.06		0.09		0.11		0.13	
L 4 - 015	5/32	7/64	9/16	1.68	0.09		0.14		0.17		0.19	
L 4 - 020			3/4	1.68	0.13	2	0.19	2.6	0.22	3.1	0.25	3.5
L 4 - 025			1	1.12	0.16		0.24		0.28		0.31	
L 4 - 030	0,02		13/16	1.12	0.19		0.28		0.33		0.38	
L 6 - 015			9/16	4.48	0.09		0.14		0.17		0.19	
L 6 - 020	15/64	5/32	3/4	3.36	0.13		0.19		0.22		0.25	
L 6 - 025			1	2.8	0.16	4	0.24	6	0.28	7	0.31	8
L 6 - 030			13/16	2.24	0.19		0.28		0.33		0.38	
L 6 - 035	0,03		1 3/8	1.68	0.22		0.33		0.39		0.44	
L 8 - 015			9/16	7.29	0.09		0.14		0.17		0.19	
L 8 - 020			3/4	5.61	0.13		0.19		0.22		0.25	
L 8 - 025	11/32	7/32	1	4.48	0.16	7	0.24	11	0.28	13	0.31	14
L 8 - 030			13/16	3.92	0.19		0.28		0.33		0.38	
L 8 - 035			1 3/8	3.36	0.22		0.33		0.39		0.44	
L 8 - 040	0,05		1 5/8	2.8	0.25		0.38		0.44		0.5	
L 10 - 025			1	7.29	0.16		0.24		0.28		0.31	
L 10 - 030			13/16	5.61	0.19		0.28		0.33		0.38	
L 10 - 035	3/8	1/4	1 3/8	5.05	0.22		0.33		0.39		0.44	
L 10 - 040			1 5/8	4.48	0.25	11	0.38	17	0.44	20	0.5	22
L 10 - 045			1 3/4	3.92	0.28		0.43		0.50		0.57	
L 10 - 050	0,06		2	3.36	0.31		0.47		0.55		0.63	
L 12 - 025			1	10.09	0.16		0.24		0.28		0.31	
L 12 - 030			13/16	8.41	0.19		0.28		0.33		0.38	
L 12 - 035			1 3/8	7.29	0.22		0.33		0.39		0.44	
L 12 - 040	15/32	11/32	1 5/8	6.17	0.25		0.38		0.44		0.5	
L 12 - 045			1 3/4	5.61	0.28	16	0.43	24	0.50	28	0.57	32
L 12 - 050			2	5.05	0.31		0.47		0.55		0.63	
L 12 - 055			2 1/8	4.48	0.35		0.52		0.61		0.69	
L 12 - 060	0,07		2 3/8	4.48	0.38		0.57		0.67		0.76	

Round Wire Inch

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

How to order: L 6 - 030 (Series D_H - L_0)

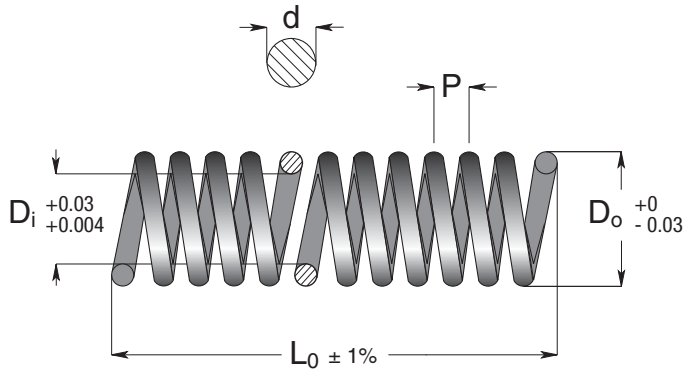
Special Springs Standard Round Wire

Code	D_o Outside Diameter	D_i Inside Diameter	L_0 Free Length	R Spring Constant	A 16% L_0		B 24% L_0		C 38 % L_0		D 32% L_0	
	d			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000	
	inch	inch	inch	lbs/0.1 in.	inch	lbs	inch	lbs	inch	lbs	inch	lbs
L 14 - 025	9/16	3/8	1	14.02	0.16	22	0.24	32	0.28	38	0.31	43
L 14 - 030			1 3/16	11.21	0.19		0.28		0.33		0.38	
L 14 - 035			1 3/8	10.09	0.22		0.33		0.39		0.44	
L 14 - 040			1 5/8	8.41	0.25		0.38		0.44		0.5	
L 14 - 045			1 3/4	7.85	0.28		0.43		0.50		0.57	
L 14 - 050			2	6.73	0.31		0.47		0.55		0.63	
L 14 - 055			2 1/8	6.17	0.35		0.52		0.61		0.69	
L 14 - 060			2 3/8	5.61	0.38		0.57		0.67		0.76	
L 14 - 065			2 9/16	5.05	0.41		0.61		0.72		0.82	
L 14 - 070	0,08		2 3/4	5.05	0.44		0.66		0.77		0.88	
L 16 - 025	5/8	13/32	1	17.94	0.16	28	0.24	42	0.28	49	0.31	56
L 16 - 030			1 3/16	15.14	0.19		0.28		0.33		0.38	
L 16 - 035			1 3/8	12.9	0.22		0.33		0.39		0.44	
L 16 - 040			1 5/8	11.21	0.25		0.38		0.44		0.5	
L 16 - 045			1 3/4	10.09	0.28		0.43		0.50		0.57	
L 16 - 050			2	8.97	0.31		0.47		0.55		0.63	
L 16 - 055			2 1/8	8.41	0.35		0.52		0.61		0.69	
L 16 - 060			2 3/8	7.29	0.38		0.57		0.67		0.76	
L 16 - 065			2 9/16	6.73	0.41		0.61		0.72		0.82	
L 16 - 070			2 3/4	6.17	0.44		0.66		0.77		0.88	
L 16 - 075			2 15/16	6.17	0.47		0.71		0.83		0.94	
L 16 - 080	0,09		3 5/32	5.61	0.5		0.76		0.89		1.01	
L 18 - 025	11/16	15/32	1	22.99	0.16	36	0.24	54	0.28	63	0.31	71
L 18 - 030			1 3/16	19.06	0.19		0.28		0.33		0.38	
L 18 - 035			1 3/8	16.26	0.22		0.33		0.39		0.44	
L 18 - 040			1 5/8	14.02	0.25		0.38		0.44		0.5	
L 18 - 045			1 3/4	12.9	0.28		0.43		0.50		0.57	
L 18 - 050			2	11.21	0.31		0.47		0.55		0.63	
L 18 - 055			2 1/8	10.09	0.35		0.52		0.61		0.69	
L 18 - 060			2 3/8	9.53	0.38		0.57		0.67		0.76	
L 18 - 065			2 9/16	8.97	0.41		0.61		0.72		0.82	
L 18 - 070			2 3/4	8.41	0.44		0.66		0.77		0.88	
L 18 - 075			2 15/16	7.85	0.47		0.71		0.83		0.94	
L 18 - 080			2 5/32	7.29	0.5		0.76		0.89		1.01	
L 18 - 090	0,11		3 1/2	6.17	0.57		0.85		0.99		1.13	
L 20 - 025	3/4	9/17	1	28.04	0.16	44	0.24	66	0.28	77	0.31	88
L 20 - 030			1 3/16	23.55	0.19		0.28		0.33		0.38	
L 20 - 035			1 3/8	20.18	0.22		0.33		0.39		0.44	
L 20 - 040			1 5/8	17.38	0.25		0.38		0.44		0.5	
L 20 - 045			1 3/4	15.7	0.28		0.43		0.50		0.57	
L 20 - 050			2	14.02	0.31		0.47		0.55		0.63	
L 20 - 055			2 1/8	12.9	0.35		0.52		0.61		0.69	
L 20 - 060			2 3/8	11.77	0.38		0.57		0.67		0.76	
L 20 - 065			2 9/16	10.65	0.41		0.61		0.72		0.82	
L 20 - 070			2 3/4	10.09	0.44		0.66		0.77		0.88	
L 20 - 075			2 15/16	9.53	0.47		0.71		0.83		0.94	
L 20 - 080			2 5/32	8.97	0.5		0.76		0.89		1.01	
L 20 - 090			3 1/2	7.85	0.57		0.85		0.99		1.13	
L 20 - 100	0,12		4	7.29	0.63		0.94		1.10		1.26	
L 22 - 025	7/8	9/16	1	34.21	0.16	53	0.24	80	0.28	94	0.31	107
L 22 - 030			1 3/16	28.04	0.19		0.28		0.33		0.38	
L 22 - 035			1 3/8	24.11	0.22		0.33		0.39		0.44	
L 22 - 040			1 5/8	21.31	0.25		0.38		0.44		0.5	
L 22 - 045			1 3/4	12.06	0.28		0.43		0.50		0.57	
L 22 - 050			2	16.82	0.31		0.47		0.55		0.63	
L 22 - 055			2 1/8	15.7	0.35		0.52		0.61		0.69	
L 22 - 060			2 3/8	14.02	0.38		0.57		0.67		0.76	
L 22 - 065			2 9/16	12.9	0.41		0.61		0.72		0.82	
L 22 - 070			2 3/4	12.33	0.44		0.66		0.77		0.88	
L 22 - 075			2 15/16	11.21	0.47		0.71		0.83		0.94	
L 22 - 080			2 5/32	10.65	0.5		0.76		0.89		1.01	
L 22 - 090			3 1/2	9.53	0.57		0.85		0.99		1.13	
L 22 - 100	0,13		4	8.41	0.63		0.94		1.10		1.26	

How to order: L 6 - 030 (Series D_H - L_0)

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

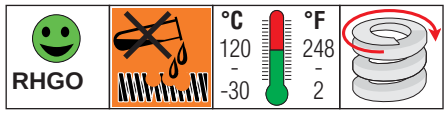
Code	D_o Outside Diameter	D_i Inside Diameter	L_0 Free Length	R Spring Constant	A 16% L_0		B 24% L_0		C 38 % L_0		D 32% L_0	
	d			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000	
	inch	inch	inch	lbs/0.1 in.	inch	lbs	inch	lbs	inch	lbs	inch	lbs
L 25 - 025	1	11/16	1	43.74	0.16	69	0.24	104	0.28	121	0.31	138
L 25 - 030			1 3/16	36.45	0.19		0.28		0.33		0.38	
L 25 - 035			1 3/8	31.4	0.22		0.33		0.39		0.44	
L 25 - 040			1 5/8	27.48	0.25		0.38		0.44		0.5	
L 25 - 045			1 3/4	24.11	0.28		0.43		0.50		0.57	
L 25 - 050			2	21.87	0.31		0.47		0.55		0.63	
L 25 - 055			2 1/8	20.18	0.35		0.52		0.61		0.69	
L 25 - 060			2 3/8	18.5	0.38		0.57		0.67		0.76	
L 25 - 065			2 9/16	16.82	0.41		0.61		0.72		0.82	
L 25 - 070			2 3/4	15.7	0.44		0.66		0.77		0.88	
L 25 - 075			2 15/16	14.58	0.47		0.71		0.83		0.94	
L 25 - 080			2 5/32	13.46	0.5		0.76		0.89		1.01	
L 25 - 090			3 1/2	12.33	0.57		0.85		0.99		1.13	
L 25 - 100	0,15		4	11.21	0.63		0.94		1.10		1.26	
L 30 - 050	1 3/16	3/4	2	29.7	0.31	93	0.47	140	0.55	163	0.63	186
L 30 - 060			2 3/8	25.22	0.38		0.57		0.67		0.76	
L 30 - 070			2 3/4	21.29	0.44		0.66		0.77		0.88	
L 30 - 080			3 5/32	18.49	0.5		0.76		0.89		1.01	
L 30 - 090			3 1/2	16.25	0.57		0.85		0.99		1.13	
L 30 - 100			4	14.57	0.63		0.94		1.10		1.26	
L 30 - 125	0,18		4 8/9	11.77	0.79		1.18		1.38		1.57	



EN Long size open ends

ES Piezas desmochadas con terminales abiertos

FR Ressorts avec longueur ébauché



Code	D_o	D_i	d	L_0	P
	inch	inch	inch	inch	inch
L 03 - 300	0.12	0.08	0.01	11.8	0.04
L 04 - 300	0.16	0.10	0.02	11.8	0.06
L 06 - 300	0.24	0.16	0.03	11.8	0.08
L 08 - 300	0.31	0.21	0.05	11.8	0.11
L 10 - 300	0.39	0.25	0.06	11.8	0.14
L 12 - 300	0.47	0.31	0.07	11.8	0.17
L 14 - 300	0.55	0.37	0.08	11.8	0.18
L 16 - 300	0.63	0.42	0.09	11.8	0.22
L 18 - 300	0.71	0.47	0.11	11.8	0.21
L 20 - 300	0.79	0.53	0.12	11.8	0.27
L 22 - 300	0.87	0.58	0.13	11.8	0.26
L 25 - 300	1.00	0.67	0.15	11.8	0.32

Round Wire Inch

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

How to order: L 6 - 300 (Series D_H - L_0)

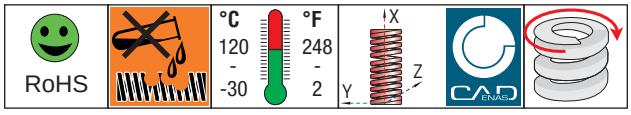
MBL SERIES

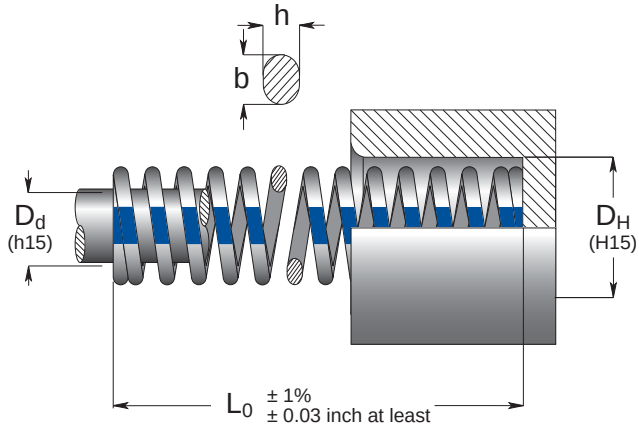
US standard Oval Wire

EN Light load springs
Silver-blue color

ES Muelles carga ligera
Color plateado-azul

FR Ressorts de charge légère
Argent-bleu





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 40% L_0		C 45% L_0		D 50% L_0		E approx. do not use	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000			
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
MBL 10 - 025	3/8	3/16	1	8.2	0.25	21	0.40	33	0.45	37	0.50	41	0.53	50
MBL 10 - 032			1 1/4	7.0	0.31	22	0.50	35	0.56	39	0.63	44	0.69	50
MBL 10 - 038			1 1/2	5.6	0.38	21	0.60	34	0.68	38	0.75	42	0.82	50
MBL 10 - 044			1 3/4	5.0	0.44	22	0.70	35	0.79	39	0.88	44	0.94	50
MBL 10 - 051			2	4.3	0.50	22	0.80	34	0.90	39	1.00	43	1.14	25
MBL 10 - 064			2 1/2	2.8	0.63	18	1.00	28	1.13	32	1.25	35	1.42	25
MBL 10 - 076			3	2.2	0.75	17	1.20	26	1.35	30	1.50	33	1.70	25
MBL 10 - 305	0.07 x 0.04		12	0.7	3.00	21	4.80	34	5.40	38	6.00	42	7.04	10
MBL 13 - 025	1/2	9/32	1	10.	0.25	27	0.40	43	0.45	45	0.50	54	0.52	50
MBL 13 - 032			1 1/4	8.8	0.31	27	0.50	44	0.56	50	0.63	55	0.71	50
MBL 13 - 038			1 1/2	7.7	0.38	29	0.60	46	0.68	52	0.75	58	0.83	50
MBL 13 - 044			1 3/4	6.7	0.44	29	0.70	47	0.79	53	0.88	59	0.94	25
MBL 13 - 051			2	5.7	0.50	29	0.80	46	0.90	51	1.00	57	1.13	25
MBL 13 - 064			2 1/2	4.3	0.63	27	1.00	43	1.13	48	1.25	54	1.41	25
MBL 13 - 076			3	3.4	0.75	26	1.20	41	1.35	46	1.50	51	1.68	25
MBL 13 - 089			3 1/2	2.7	0.88	24	1.40	38	1.58	43	1.75	47	1.98	20
MBL 13 - 102			4	1.9	1.00	19	1.60	30	1.8	34	2.00	38	2.30	10
MBL 13 - 305	0.10 x 0.06		12	0.9	3.00	27	4.80	43	5.4	49	6.00	54	6.77	10
MBL 16 - 025	5/8	11/32	1	13.1	0.25	33	0.40	52	0.45	59	0.50	66	0.50	50
MBL 16 - 032			1 1/4	12.	0.31	40	0.50	64	0.56	68	0.63	81	0.65	50
MBL 16 - 038			1 1/2	10.	0.38	41	0.60	65	0.68	68	0.75	81	0.79	25
MBL 16 - 044			1 3/4	9.6	0.44	42	0.70	67	0.79	76	0.88	84	0.92	25
MBL 16 - 051			2	8.8	0.50	44	0.80	70	0.9	79	1.00	88	1.06	25
MBL 16 - 064			2 1/2	6.0	0.63	38	1.00	60	1.13	68	1.25	75	1.31	25
MBL 16 - 076			3	5.6	0.75	42	1.20	67	1.35	76	1.50	84	1.65	20
MBL 16 - 089			3 1/2	4.8	0.88	42	1.40	67	1.58	76	1.75	84	1.91	20
MBL 16 - 102			4	4.4	1.00	44	1.60	70	1.8	79	2.00	88	2.19	20
MBL 16 - 115			4 1/2	3.4	1.13	38	1.80	61	2.03	69	2.25	77	2.45	10
MBL 16 - 305	0.11 x 0.07		12	1.4	3.00	42	4.80	67	5.4	76	6.00	84	6.73	10
MBL 19 - 025	3/4	3/8	1	30.	0.25	76	0.40	121	0.45	135	0.50	152	0.50	50
MBL 19 - 032			1 1/4	24.	0.31	76	0.50	123	0.56	135	0.63	155	0.67	50
MBL 19 - 038			1 1/2	19.	0.38	74	0.60	118	0.68	128	0.75	147	0.80	25
MBL 19 - 044			1 3/4	17.	0.44	77	0.70	122	0.79	134	0.88	153	0.93	25
MBL 19 - 051			2	14.	0.50	73	0.80	117	0.90	126	1.00	146	1.08	25
MBL 19 - 064			2 1/2	11.8	0.63	74	1.00	118	1.13	133	1.25	148	1.37	25
MBL 19 - 076			3	9.3	0.75	70	1.20	112	1.35	126	1.50	140	1.67	25
MBL 19 - 089			3 1/2	8.1	0.88	71	1.40	113	1.58	128	1.75	142	1.93	20
MBL 19 - 102			4	7.0	1.00	70	1.60	112	1.8	126	2.00	140	2.23	20
MBL 19 - 115			4 1/2	6.3	1.13	71	1.80	113	2.03	128	2.25	142	2.52	10
MBL 19 - 127			5	5.6	1.25	70	2.00	112	2.25	126	2.50	140	2.82	10
MBL 19 - 140			5 1/2	4.7	1.38	65	2.20	103	2.48	116	2.75	129	3.14	10
MBL 19 - 152			6	4.1	1.50	62	2.40	98	2.7	111	3.00	123	3.38	10
MBL 19 - 305	0.16 x 0.08		12	2.3	3.00	69	4.80	110	5.4	124	6.00	138	6.61	10

How to order: MBL 38 - 400(Series D_H - L_0)

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

US standard Oval Wire

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 25% L_0		B 40% L_0		C 45% L_0		D 50% L_0		E	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	approx.
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
MBL 26 - 025	0.22 x 0.10	1	1	61.6	0.25	154	0.40	246	0.45	277	0.50	308	0.50	50
MBL 26 - 032			1 1/4	45.9	0.31	142	0.50	230	0.56	258	0.63	289	0.63	25
MBL 26 - 038			1 1/2	35.9	0.38	136	0.60	215	0.68	242	0.75	269	0.75	25
MBL 26 - 044			1 3/4	29.7	0.44	131	0.70	208	0.79	234	0.88	261	0.90	25
MBL 26 - 051			2	24.6	0.50	123	0.80	197	0.90	221	1.00	246	1.07	25
MBL 26 - 064			2 1/2	20.2	0.63	127	1.00	202	1.13	227	1.25	253	1.31	25
MBL 26 - 076			3	16.8	0.75	126	1.20	202	1.35	227	1.50	252	1.56	20
MBL 26 - 089			3 1/2	14.0	0.88	123	1.40	196	1.58	221	1.75	245	1.88	20
MBL 26 - 102			4	12.3	1.00	123	1.60	197	1.8	221	2.00	246	2.22	20
MBL 26 - 115			4 1/2	10.6	1.13	120	1.80	191	2.03	215	2.25	239	2.45	10
MBL 26 - 127			5	9.8	1.25	123	2.00	196	2.25	221	2.50	245	2.73	10
MBL 26 - 140			5 1/2	9.0	1.38	124	2.20	198	2.48	223	2.75	248	3.03	10
MBL 26 - 152			6	8.4	1.50	126	2.40	202	2.7	227	3.00	252	3.27	10
MBL 26 - 178			7	7.3	1.75	128	2.80	204	3.15	230	3.50	256	3.88	10
MBL 26 - 203			8	6.2	2.00	124	3.20	198	3.6	223	4.00	248	4.41	10
MBL 26 - 305			12	4.2	3.00	126	4.80	202	5.4	227	6.00	252	6.51	5
MBL 32 - 038	0.27 x 0.12	1 1/4	1 1/2	50.4	0.38	192	0.60	302	0.68	340	0.75	378	0.76	20
MBL 32 - 044			1 3/4	43.7	0.44	192	0.70	306	0.79	344	0.88	385	0.88	20
MBL 32 - 051			2	34.7	0.50	174	0.80	278	0.90	312	1.00	347	1.02	20
MBL 32 - 064			2 1/2	28.0	0.63	176	1.00	280	1.13	315	1.25	350	1.30	20
MBL 32 - 076			3	23.5	0.75	176	1.20	282	1.35	317	1.50	353	1.57	20
MBL 32 - 089			3 1/2	20.2	0.88	178	1.40	283	1.58	318	1.75	354	1.85	10
MBL 32 - 102			4	17.4	1.00	174	1.60	278	1.8	313	2.00	348	2.14	10
MBL 32 - 115			4 1/2	15.7	1.13	177	1.80	283	2.03	318	2.25	353	2.41	10
MBL 32 - 127			5	13.4	1.25	168	2.00	268	2.25	302	2.50	335	2.69	10
MBL 32 - 140			5 1/2	12.3	1.38	170	2.20	271	2.48	304	2.75	338	2.98	10
MBL 32 - 152			6	11.2	1.50	168	2.40	269	2.7	302	3.00	336	3.24	10
MBL 32 - 178			7	10.1	1.75	177	2.80	283	3.15	318	3.50	354	3.83	5
MBL 32 - 203			8	8.4	2.00	168	3.20	269	3.6	302	4.00	336	4.34	5
MBL 32 - 254			10	7.3	2.50	183	4.00	292	4.5	329	5.00	365	5.43	5
MBL 32 - 305			12	5.6	3.00	168	4.80	269	5.4	302	6.00	336	6.45	5
MBL 38 - 051	0.31 x 0.14	1 1/2	2	46.5	0.50	233	0.80	372	0.90	419	1.00	465	1.04	20
MBL 38 - 064			2 1/2	35.9	0.63	226	1.00	359	1.13	404	1.25	449	1.30	10
MBL 38 - 076			3	29.1	0.75	218	1.20	349	1.35	393	1.50	437	1.57	10
MBL 38 - 089			3 1/2	24.6	0.88	216	1.40	344	1.58	387	1.75	431	1.87	10
MBL 38 - 102			4	20.7	1.00	207	1.60	331	1.8	373	2.00	414	2.15	10
MBL 38 - 115			4 1/2	18.5	1.13	209	1.80	333	2.03	375	2.25	416	2.42	10
MBL 38 - 127			5	16.8	1.25	210	2.00	336	2.25	378	2.50	420	2.68	5
MBL 38 - 140			5 1/2	15.4	1.38	213	2.20	339	2.48	381	2.75	424	3.02	5
MBL 38 - 152			6	14.0	1.50	210	2.40	336	2.7	378	3.00	420	3.25	5
MBL 38 - 178			7	12.3	1.75	215	2.80	344	3.15	387	3.50	431	3.85	5
MBL 38 - 203			8	10.6	2.00	212	3.20	339	3.6	382	4.00	424	4.34	5
MBL 38 - 254			10	8.4	2.50	210	4.00	336	4.5	378	5.00	420	5.51	2
MBL 38 - 305			12	6.2	3.00	186	4.80	298	5.4	335	6.00	372	6.46	2
MBL 51 - 064	0.45 x 0.20	2	2 1/2	89.6	0.63	564	1.00	896	1.13	1008	1.25	1120	1.26	5
MBL 51 - 076			3	75.6	0.75	567	1.20	907	1.35	1021	1.50	1134	1.62	5
MBL 51 - 089			3 1/2	65.5	0.88	576	1.40	917	1.58	1032	1.75	1146	1.89	5
MBL 51 - 102			4	56.0	1.00	560	1.60	896	1.8	1008	2.00	1120	2.15	5
MBL 51 - 115			4 1/2	49.8	1.13	563	1.80	896	2.03	1008	2.25	1121	2.45	5
MBL 51 - 127			5	44.3	1.25	554	2.00	886	2.25	997	2.50	1108	2.73	5
MBL 51 - 140			5 1/2	39.7	1.38	548	2.20	873	2.48	983	2.75	1092	3.02	5
MBL 51 - 152			6	36.9	1.50	554	2.40	886	2.7	996	3.00	1107	3.22	2
MBL 51 - 178			7	30.3	1.75	530	2.80	848	3.15	954	3.50	1061	3.86	2
MBL 51 - 203			8	26.9	2.00	538	3.20	861	3.6	968	4.00	1076	4.43	2
MBL 51 - 254			10	21.4	2.50	535	4.00	856	4.5	963	5.00	1070	5.56	2
MBL 51 - 305			12	17.9	3.00	537	4.80	859	5.4	967	6.00	1074	6.69	2
MBL 63 - 076	0.46 x 0.28	2 1/2	3	108.1	0.75	811	1.20	1297	1.35	1459	1.50	1622	1.51	5
MBL 63 - 089			3 1/2	89.6	0.88	788	1.40	1254	1.58	1411	1.75	1568	1.81	5
MBL 63 - 102			4	76.2	1.00	762	1.60	1219	1.8	1372	2.00	1524	2.08	5
MBL 63 - 115			4 1/2	66.6	1.13	753	1.80	1199	2.03	1349	2.25	1499	2.35	5
MBL 63 - 127			5	59.4	1.25	743	2.00	1188	2.25	1337	2.50	1485	2.65	2
MBL 63 - 140			5 1/2	53.2	1.37	729	2.20	1170	2.48	1317	2.75	1463	2.97	2
MBL 63 - 152			6	48.1	1.50	722	2.40	1154	2.7	1299	3.00	1443	3.22	2
MBL 63 - 178			7	41.5	1.75	726	2.80	1162	3.15	1307	3.50	1453	3.88	2
MBL 63 - 203			8	35.9	2.00	718	3.20	1149	3.6	1292	4.00	1436	4.30	2
MBL 63 - 254			10	26.9	2.50	673	4.00	1076	4.5	1211	5.00	1345	5.52	2
MBL 63 - 305			12	21.8	3.00	654	4.80	1046	5.4	1177	6.00	1308	6.41	2

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

How to order: MBL 38 - 400(Series D_H - L_0)

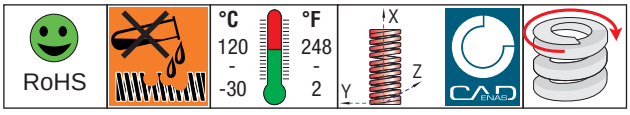
MHR SERIES

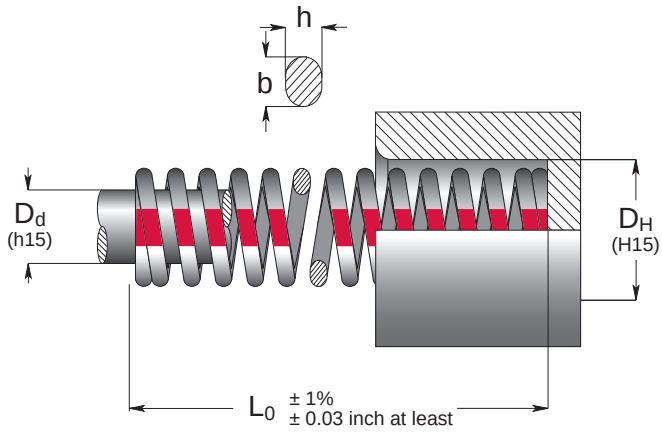
US standard Oval Wire

EN Medium load springs
Silver-red color

ES Muelles carga mediana
Color plateado-rojo

FR Ressorts charge moyenne
Couleur argent-rouge





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 20% L_0		B 25% L_0		C 31% L_0		D 37% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	inch	inch	inch	lbs/0,1 in.	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
MHR 10 - 025	3/8	3/16	1	10.1	0.20	20	0.25	25	0.31	31	0.37	37	0.40	50
MHR 10 - 032			1 1/4	8.7	0.25	22	0.31	27	0.38	33	0.46	40	0.56	50
MHR 10 - 038			1 1/2	7.5	0.30	23	0.38	29	0.47	35	0.56	42	0.66	50
MHR 10 - 044			1 3/4	6.5	0.35	23	0.44	29	0.55	35	0.65	42	0.76	50
MHR 10 - 051			2	4.8	0.40	19	0.50	24	0.62	30	0.74	36	0.92	25
MHR 10 - 064			2 1/2	4.1	0.50	21	0.63	26	0.78	32	0.93	38	1.11	25
MHR 10 - 076			3	3.3	0.60	20	0.75	25	0.93	31	1.11	37	1.35	25
MHR 10 - 305	0.07 x 0.05		12	0.8	2.40	19	3.00	24	3.72	30	4.44	36	5.27	10
MHR 13 - 025	1/2	9/32	1	17.4	0.20	35	0.25	44	0.31	54	0.37	64	0.47	50
MHR 13 - 032			1 1/4	12.6	0.25	32	0.31	39	0.38	48	0.46	58	0.64	50
MHR 13 - 038			1 1/2	10.9	0.30	33	0.38	41	0.47	51	0.56	61	0.74	50
MHR 13 - 044			1 3/4	9.2	0.35	32	0.44	40	0.55	50	0.65	60	0.84	25
MHR 13 - 051			2	8.6	0.40	34	0.50	43	0.62	53	0.74	64	1.01	25
MHR 13 - 064			2 1/2	6.7	0.50	34	0.63	42	0.78	52	0.93	62	1.28	25
MHR 13 - 076			3	5.6	0.60	34	0.75	42	0.93	52	1.11	62	1.54	25
MHR 13 - 089			3 1/2	4.6	0.70	32	0.88	40	1.09	50	1.30	60	1.81	20
MHR 13 - 102			4	3.6	0.80	29	1.00	36	1.24	45	1.48	53	2.06	10
MHR 13 - 305	0.10 x 0.06		12	1.2	2.40	29	3.00	36	3.72	45	4.44	53	6.00	10
MHR 16 - 025	5/8	11/32	1	32.4	0.20	65	0.25	81	0.31	100	0.37	120	0.41	50
MHR 16 - 032			1 1/4	21.8	0.25	55	0.31	68	0.38	84	0.46	100	0.52	50
MHR 16 - 038			1 1/2	19.0	0.30	57	0.38	72	0.47	90	0.56	106	0.68	25
MHR 16 - 044			1 3/4	16.7	0.35	58	0.44	73	0.55	91	0.65	109	0.76	25
MHR 16 - 051			2	14.6	0.40	58	0.50	73	0.62	91	0.74	108	0.95	25
MHR 16 - 064			2 1/2	11.2	0.50	56	0.63	71	0.78	87	0.93	104	1.15	25
MHR 16 - 076			3	9.3	0.60	56	0.75	70	0.93	86	1.11	103	1.43	20
MHR 16 - 089			3 1/2	7.8	0.70	55	0.88	69	1.09	85	1.30	101	1.64	20
MHR 16 - 102			4	7.3	0.80	58	1.00	73	1.24	91	1.48	108	1.93	20
MHR 16 - 115			4 1/2	5.9	0.90	53	1.13	67	1.4	83	1.67	99	2.09	10
MHR 16 - 305	0.13 x 0.08		12	2.2	2.40	53	3.00	66	3.72	82	4.44	98	5.57	10
MHR 19 - 025	3/4	3/8	1	56.5	0.20	113	0.25	141	0.31	175	0.37	209	0.43	50
MHR 19 - 032			1 1/4	44.3	0.25	111	0.31	137	0.38	170	0.46	204	0.55	50
MHR 19 - 038			1 1/2	31.9	0.30	96	0.38	121	0.47	150	0.56	179	0.67	25
MHR 19 - 044			1 3/4	28.6	0.35	100	0.44	126	0.55	156	0.65	186	0.77	25
MHR 19 - 051			2	24.1	0.40	96	0.50	121	0.62	149	0.74	178	0.88	25
MHR 19 - 064			2 1/2	19.0	0.50	95	0.63	120	0.78	148	0.93	177	1.12	25
MHR 19 - 076			3	14.3	0.60	86	0.75	107	0.93	133	1.11	159	1.32	25
MHR 19 - 089			3 1/2	13.2	0.70	92	0.88	116	1.09	144	1.30	172	1.58	20
MHR 19 - 102			4	11.8	0.80	94	1.00	118	1.24	146	1.48	175	1.79	20
MHR 19 - 115			4 1/2	10.6	0.90	95	1.13	120	1.4	149	1.67	177	1.98	10
MHR 19 - 127			5	10.1	1.00	101	1.25	126	1.55	157	1.85	187	2.23	10
MHR 19 - 140			5 1/2	9.3	1.10	102	1.38	128	1.71	159	2.04	190	2.44	10
MHR 19 - 152			6	7.9	1.20	95	1.50	119	1.86	147	2.22	175	2.66	10
MHR 19 - 305	0.16 x 0.09		12	3.7	2.40	89	3.00	111	3.72	138	4.44	164	5.37	10

How to order: MHR 38 - 400(Series D_H - L_0)

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 20% L_0		B 25% L_0		C 31% L_0		D 37% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
MHR 26 - 025	1	1/2	1	78.4	0.20	157	0.25	196	0.31	243	0.37	290	0.39	50
MHR 26 - 032			1 1/4	60.5	0.25	151	0.31	188	0.38	233	0.46	278	0.52	25
MHR 26 - 038			1 1/2	50.4	0.30	151	0.38	192	0.47	237	0.56	282	0.65	25
MHR 26 - 044			1 3/4	43.7	0.35	153	0.44	192	0.55	238	0.65	284	0.76	25
MHR 26 - 051			2	36.4	0.40	146	0.50	182	0.62	226	0.74	269	0.87	25
MHR 26 - 064			2 1/2	28.0	0.50	140	0.63	176	0.78	219	0.93	260	1.08	25
MHR 26 - 076			3	23.8	0.60	143	0.75	179	0.93	221	1.11	264	1.29	20
MHR 26 - 089			3 1/2	20.4	0.70	143	0.88	180	1.09	223	1.30	265	1.54	20
MHR 26 - 102			4	18.2	0.80	146	1.00	182	1.24	226	1.48	269	1.76	20
MHR 26 - 115			4 1/2	15.4	0.90	139	1.13	174	1.4	216	1.67	257	1.96	10
MHR 26 - 127			5	14.0	1.00	140	1.25	175	1.55	217	1.85	259	2.22	10
MHR 26 - 140			5 1/2	12.9	1.10	142	1.38	178	1.71	221	2.04	263	2.48	10
MHR 26 - 152			6	11.2	1.20	134	1.50	168	1.86	208	2.22	249	2.61	10
MHR 26 - 178			7	10.1	1.40	141	1.75	177	2.17	219	2.59	262	3.07	10
MHR 26 - 203			8	9.0	1.60	144	2.00	180	2.48	223	2.96	266	3.48	10
MHR 26 - 305	0.22 x 0.12		12	6.2	2.40	149	3.00	186	3.72	231	4.44	275	5.38	5
MHR 32 - 038	1 1/4	5/8	1 1/2	112.0	0.30	336	0.38	426	0.47	528	0.56	627	0.63	20
MHR 32 - 044			1 3/4	100.8	0.35	353	0.44	444	0.55	550	0.65	655	0.73	20
MHR 32 - 051			2	84.0	0.40	336	0.50	420	0.62	521	0.74	622	0.84	20
MHR 32 - 064			2 1/2	61.6	0.50	308	0.63	388	0.78	481	0.93	573	1.08	20
MHR 32 - 076			3	51.5	0.60	309	0.75	386	0.93	479	1.11	572	1.29	20
MHR 32 - 089			3 1/2	42.5	0.70	298	0.88	374	1.09	464	1.30	553	1.54	10
MHR 32 - 102			4	36.9	0.80	295	1.00	369	1.24	458	1.48	546	1.71	10
MHR 32 - 115			4 1/2	31.9	0.90	287	1.13	360	1.4	447	1.67	533	1.96	10
MHR 32 - 127			5	26.9	1.00	269	1.25	336	1.55	417	1.85	498	2.13	10
MHR 32 - 140			5 1/2	25.2	1.10	277	1.38	348	1.71	431	2.04	514	2.36	10
MHR 32 - 152			6	23.2	1.20	278	1.50	348	1.86	432	2.22	515	2.63	10
MHR 32 - 178			7	19.6	1.40	274	1.75	343	2.17	425	2.59	508	3.08	5
MHR 32 - 203			8	17.9	1.60	286	2.00	358	2.48	444	2.96	530	3.43	5
MHR 32 - 254			10	12.6	2.00	252	2.50	315	3.1	391	3.70	466	4.34	5
MHR 32 - 305	0.28 x 0.16		12	11.8	2.40	283	3.00	354	3.72	439	4.44	524	5.25	5
MHR 38 - 051	1 1/2	3/4	2	101.9	0.40	408	0.50	510	0.62	632	0.74	754	0.85	20
MHR 38 - 064			2 1/2	75.6	0.50	378	0.63	476	0.78	591	0.93	703	1.04	10
MHR 38 - 076			3	61.6	0.60	370	0.75	462	0.93	573	1.11	684	1.31	10
MHR 38 - 089			3 1/2	53.7	0.70	376	0.88	473	1.09	586	1.30	698	1.57	10
MHR 38 - 102			4	47.1	0.80	377	1.00	471	1.24	584	1.48	697	1.76	10
MHR 38 - 115			4 1/2	42.1	0.90	379	1.13	476	1.4	590	1.67	703	1.97	10
MHR 38 - 127			5	35.9	1.00	359	1.25	449	1.55	556	1.85	664	2.17	5
MHR 38 - 140			5 1/2	33.6	1.10	370	1.38	464	1.71	575	2.04	685	2.41	5
MHR 38 - 152			6	29.7	1.20	356	1.50	446	1.86	552	2.22	659	2.66	5
MHR 38 - 178			7	25.2	1.40	353	1.75	441	2.17	547	2.59	653	3.12	5
MHR 38 - 203			8	21.3	1.60	341	2.00	426	2.48	528	2.96	630	3.53	5
MHR 38 - 254			10	17.9	2.00	358	2.50	448	3.1	555	3.70	662	4.45	2
MHR 38 - 305	0.31 x 0.20		12	14.0	2.40	336	3.00	420	3.72	521	4.44	622	5.46	2
MHR 51 - 064	2	1	2 1/2	120.4	0.50	602	0.63	759	0.78	941	0.93	1120	1.07	5
MHR 51 - 076			3	98.0	0.60	588	0.75	735	0.93	911	1.11	1088	1.22	5
MHR 51 - 089			3 1/2	81.2	0.70	568	0.88	715	1.09	886	1.30	1056	1.50	5
MHR 51 - 102			4	68.3	0.80	546	1.00	683	1.24	847	1.48	1011	1.71	5
MHR 51 - 115			4 1/2	61.6	0.90	554	1.13	696	1.4	863	1.67	1029	1.90	5
MHR 51 - 127			5	57.1	1.00	571	1.25	714	1.55	885	1.85	1056	2.17	5
MHR 51 - 140			5 1/2	51.5	1.10	567	1.38	711	1.71	881	2.04	1051	2.42	5
MHR 51 - 152			6	48.1	1.20	577	1.50	722	1.86	895	2.22	1068	2.66	2
MHR 51 - 178			7	40.6	1.40	568	1.75	711	2.17	881	2.59	1052	3.11	2
MHR 51 - 203			8	35.3	1.60	565	2.00	706	2.48	875	2.96	1045	3.51	2
MHR 51 - 254			10	28.3	2.00	566	2.50	708	3.1	877	3.70	1047	4.46	2
MHR 51 - 305	0.44 x 0.28		12	24.6	2.40	590	3.00	738	3.72	915	4.44	1092	5.65	2
MHR 63 - 076	2 1/2	1 1/2	3	171.4	0.60	1028	0.75	1286	0.93	1594	1.11	1903	1.15	5
MHR 63 - 089			3 1/2	137.2	0.70	960	0.88	1207	1.09	1497	1.30	1784	1.42	5
MHR 63 - 102			4	120.9	0.80	967	1.00	1209	1.24	1499	1.48	1789	1.73	5
MHR 63 - 115			4 1/2	107.5	0.90	968	1.13	1215	1.4	1506	1.67	1795	1.91	5
MHR 63 - 127			5	93.0	1.00	930	1.25	1163	1.55	1442	1.85	1721	2.17	2
MHR 63 - 140			5 1/2	89.6	1.10	985	1.38	1232	1.71	1533	2.03	1819	2.39	2
MHR 63 - 152			6	84.0	1.20	1008	1.50	1260	1.86	1562	2.22	1865	2.60	2
MHR 63 - 178			7	62.2	1.40	871	1.75	1089	2.17	1350	2.59	1611	3.03	2
MHR 63 - 203			8	53.7	1.60	859	2.00	1074	2.48	1332	2.96	1590	3.41	2
MHR 63 - 229			9	49.3	1.80	887	2.25	1109	2.79	1375	3.33	1642	3.90	2
MHR 63 - 254			10	43.1	2.00	862	2.50	1078	3.1	1336	3.70	1595	4.42	2
MHR 63 - 305	0.45 x 0.38		12	36.9	2.40	886	3.00	1107	3.72	1373	4.44	1638	5.23	2

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

How to order: MHR 38 - 400(Series D_H - L_0)

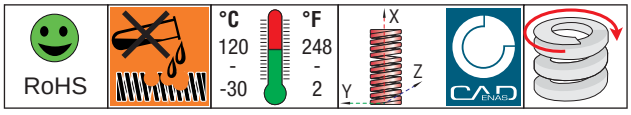
HGO SERIES

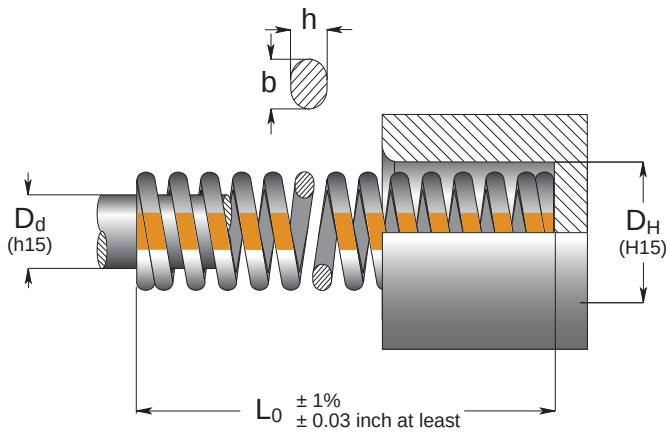
US standard Oval Wire

EN Heavy load springs
Silver-gold color

ES Muelles carga fuerte
Color plateado-oro

FR Ressorts charge forte
Couleur argent-or





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 15% L_0		B 20% L_0		C 25% L_0		D 30% L_0		E approx. do not use	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000			
	inch	inch	inch	lbs/0,1 in.	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
HGO 10 - 025	3/8	3/16	1	12.8	0.15	19	0.20	26	0.25	32	0.30	38	0.36	50
HGO 10 - 032			1 1/4	10.6	0.19	20	0.25	27	0.31	33	0.38	40	0.48	50
HGO 10 - 038			1 1/2	9.0	0.23	21	0.30	27	0.38	34	0.45	41	0.52	50
HGO 10 - 044			1 3/4	7.8	0.26	20	0.35	27	0.44	34	0.53	41	0.59	50
HGO 10 - 051			2	6.7	0.30	20	0.40	27	0.50	34	0.60	40	0.77	25
HGO 10 - 064			2 1/2	5.0	0.38	19	0.50	25	0.63	31	0.75	37	0.86	25
HGO 10 - 076			3	3.7	0.45	17	0.60	22	0.75	28	0.90	33	1.10	25
HGO 10 - 305	0.07 x 0.06		12	1.0	1.80	18	2.40	24	3.00	30	3.60	36	5.01	10
HGO 13 - 025	1/2	9/32	1	21.6	0.15	32	0.20	43	0.25	54	0.30	65	0.39	50
HGO 13 - 032			1 1/4	18.6	0.19	35	0.25	46	0.31	58	0.38	71	0.54	50
HGO 13 - 038			1 1/2	16.2	0.23	37	0.30	49	0.38	61	0.45	73	0.57	50
HGO 13 - 044			1 3/4	14.0	0.26	36	0.35	49	0.44	61	0.53	74	0.71	25
HGO 13 - 051			2	10.6	0.30	32	0.40	42	0.50	53	0.60	64	0.88	25
HGO 13 - 064			2 1/2	9.0	0.38	34	0.50	45	0.63	56	0.75	68	1.07	25
HGO 13 - 076			3	7.8	0.45	35	0.60	47	0.75	59	0.90	70	1.30	25
HGO 13 - 089			3 1/2	6.2	0.53	33	0.70	43	0.88	54	1.05	65	1.53	20
HGO 13 - 102			4	4.2	0.60	25	0.80	34	1.00	42	1.20	50	1.72	10
HGO 13 - 305	0.09 x 0.07		12	1.8	1.80	32	2.40	43	3.00	54	3.60	65	5.50	10
HGO 16 - 025	5/8	11/32	1	44.6	0.15	67	0.20	89	0.25	112	0.30	134	0.33	50
HGO 16 - 032			1 1/4	34.1	0.19	65	0.25	85	0.31	107	0.38	130	0.41	50
HGO 16 - 038			1 1/2	29.1	0.23	67	0.30	87	0.38	109	0.45	131	0.54	25
HGO 16 - 044			1 3/4	24.6	0.26	64	0.35	86	0.44	108	0.53	130	0.63	25
HGO 16 - 051			2	21.8	0.30	65	0.40	87	0.50	109	0.60	131	0.74	25
HGO 16 - 064			2 1/2	17.9	0.38	68	0.50	90	0.63	112	0.75	134	0.98	25
HGO 16 - 076			3	14.0	0.45	63	0.60	84	0.75	105	0.90	126	1.15	20
HGO 16 - 089			3 1/2	11.8	0.53	63	0.70	83	0.88	103	1.05	124	1.36	20
HGO 16 - 102			4	10.6	0.60	64	0.80	85	1.00	106	1.20	127	1.54	20
HGO 16 - 115			4 1/2	9.0	0.68	61	0.90	81	1.13	101	1.35	122	1.73	10
HGO 16 - 305	0.12 x 0.10		12	3.2	1.80	58	2.40	77	3.0	96	3.60	115	4.08	10
HGO 19 - 025	3/4	3/8	1	103.6	0.15	155	0.20	207	0.25	259	0.30	311	0.33	50
HGO 19 - 032			1 1/4	78.4	0.19	149	0.25	196	0.31	245	0.38	298	0.43	50
HGO 19 - 038			1 1/2	61.6	0.23	142	0.30	185	0.38	231	0.45	277	0.50	25
HGO 19 - 044			1 3/4	53.7	0.26	140	0.35	188	0.44	235	0.53	285	0.60	25
HGO 19 - 051			2	44.8	0.30	134	0.40	179	0.50	224	0.60	269	0.70	25
HGO 19 - 064			2 1/2	37.1	0.38	141	0.50	186	0.63	232	0.75	278	0.90	25
HGO 19 - 076			3	32.5	0.45	146	0.60	195	0.75	244	0.90	293	1.09	25
HGO 19 - 089			3 1/2	26.9	0.53	143	0.70	188	0.88	235	1.05	282	1.26	20
HGO 19 - 102			4	23.5	0.60	141	0.80	188	1.0	235	1.20	282	1.46	20
HGO 19 - 115			4 1/2	20.7	0.68	141	0.90	186	1.13	233	1.35	279	1.69	10
HGO 19 - 127			5	18.5	0.75	139	1.00	185	1.25	231	1.50	278	1.84	10
HGO 19 - 140			5 1/2	16.8	0.83	139	1.10	185	1.38	231	1.65	277	2.09	10
HGO 19 - 152			6	14.6	0.90	131	1.20	175	1.5	219	1.80	263	2.22	10
HGO 19 - 305	0.16 x 0.13		12	8.4	1.80	151	2.40	202	3.0	252	3.60	302	4.54	10

How to order:HGO 150 - 400(Series D_H - L_0)

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

US standard Oval Wire

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 15% L_0		B 20% L_0		C 25% L_0		D 30% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
HGO 26 - 025			1	190.4	0.15	286	0.20	381	0.25	476	0.30	571	0.30	50
HGO 26 - 032			1 1/4	147.0	0.19	279	0.25	368	0.31	459	0.38	559	0.42	25
HGO 26 - 038			1 1/2	120.4	0.23	277	0.30	361	0.38	452	0.45	542	0.50	25
HGO 26 - 044			1 3/4	100.8	0.26	262	0.35	353	0.44	441	0.53	534	0.60	25
HGO 26 - 051			2	84.6	0.30	254	0.40	338	0.50	423	0.60	508	0.70	25
HGO 26 - 064			2 1/2	68.3	0.38	260	0.50	342	0.63	427	0.75	512	0.90	20
HGO 26 - 076			3	57.1	0.45	257	0.60	343	0.75	428	0.90	514	1.08	20
HGO 26 - 089	1	1/2	3 1/2	47.6	0.53	252	0.70	333	0.88	417	1.05	500	1.28	20
HGO 26 - 102			4	42.0	0.60	252	0.80	336	1.0	420	1.20	504	1.56	10
HGO 26 - 115			4 1/2	36.4	0.68	248	0.90	328	1.13	410	1.35	491	1.68	10
HGO 26 - 127			5	32.5	0.75	244	1.00	325	1.25	406	1.50	488	1.89	10
HGO 26 - 140			5 1/2	29.1	0.83	242	1.10	320	1.38	400	1.65	480	2.08	10
HGO 26 - 152			6	26.9	0.90	242	1.20	323	1.5	404	1.80	484	2.24	10
HGO 26 - 178			7	23.5	1.05	247	1.40	329	1.75	411	2.10	494	2.69	10
HGO 26 - 203			8	20.7	1.20	248	1.60	331	2.0	414	2.40	497	3.05	10
HGO 26 - 305	0.22 x 0.16		12	12.9	1.80	232	2.40	310	3.0	387	3.60	464	4.45	5
HGO 32 - 038			1 1/2	207.2	0.23	477	0.30	622	0.38	777	0.45	932	0.50	20
HGO 32 - 044			1 3/4	175.8	0.26	457	0.35	615	0.44	769	0.53	932	0.54	20
HGO 32 - 051			2	150.1	0.30	450	0.40	600	0.50	751	0.60	901	0.63	20
HGO 32 - 064			2 1/2	117.6	0.38	447	0.50	588	0.63	735	0.75	882	0.86	20
HGO 32 - 076			3	98.0	0.45	441	0.60	588	0.75	735	0.90	882	1.05	20
HGO 32 - 089			3 1/2	84.0	0.53	445	0.70	588	0.88	735	1.05	882	1.18	10
HGO 32 - 102	1 1/4	5/8	4	72.8	0.60	437	0.80	582	1.0	728	1.20	874	1.46	10
HGO 32 - 115			4 1/2	64.4	0.68	438	0.90	580	1.13	725	1.35	869	1.64	10
HGO 32 - 127			5	57.7	0.75	433	1.00	577	1.25	721	1.50	866	1.78	10
HGO 32 - 140			5 1/2	50.4	0.83	418	1.10	554	1.38	693	1.65	832	2.01	10
HGO 32 - 152			6	46.2	0.90	416	1.20	554	1.5	693	1.80	832	2.15	10
HGO 32 - 178			7	39.2	1.05	412	1.40	549	1.75	686	2.10	823	2.56	5
HGO 32 - 203			8	34.1	1.20	409	1.60	546	2.0	682	2.40	818	2.98	5
HGO 32 - 254			10	26.8	1.50	402	2.00	536	2.5	670	3.00	804	3.76	5
HGO 32 - 305	0.29 x 0.20		12	22.4	1.80	403	2.40	538	3.0	672	3.60	806	4.65	5
HGO 38 - 051			2	179.2	0.30	538	0.40	717	0.50	896	0.60	1075	0.84	20
HGO 38 - 064			2 1/2	131.6	0.38	500	0.50	658	0.63	823	0.75	987	1.13	10
HGO 38 - 076			3	112.0	0.45	504	0.60	672	0.75	840	0.90	1008	1.32	10
HGO 38 - 089			3 1/2	98.0	0.53	519	0.70	686	0.88	858	1.05	1029	1.59	10
HGO 38 - 102			4	81.2	0.60	487	0.80	650	1.0	812	1.20	974	1.81	10
HGO 38 - 115	1 1/2	3/4	4 1/2	71.1	0.68	483	0.90	640	1.13	800	1.35	960	2.06	10
HGO 38 - 127			5	64.4	0.75	483	1.00	644	1.25	805	1.50	966	2.30	5
HGO 38 - 140			5 1/2	58.8	0.83	488	1.10	647	1.38	809	1.65	970	2.54	5
HGO 38 - 152			6	53.2	0.90	479	1.20	638	1.5	798	1.80	958	2.79	5
HGO 38 - 178			7	45.9	1.05	482	1.40	643	1.75	803	2.10	964	3.23	5
HGO 38 - 203			8	40.3	1.20	484	1.60	645	2.0	806	2.40	967	3.77	5
HGO 38 - 254			10	32.5	1.50	488	2.00	650	2.5	813	3.00	975	4.67	5
HGO 38 - 305	0.34 x 0.22		12	26.9	1.80	484	2.40	646	3.0	807	3.60	968	5.73	5
HGO 51 - 064			2 1/2	224.0	0.38	851	0.50	1120	0.63	1400	0.75	1680	0.89	5
HGO 51 - 076			3	187.6	0.45	844	0.60	1126	0.75	1407	0.90	1688	1.07	5
HGO 51 - 089			3 1/2	156.8	0.53	831	0.70	1098	0.88	1372	1.05	1646	1.26	5
HGO 51 - 102			4	134.4	0.60	806	0.80	1075	1.0	1344	1.20	1613	1.45	5
HGO 51 - 115			4 1/2	117.6	0.68	800	0.90	1058	1.13	1323	1.35	1588	1.69	5
HGO 51 - 127	2	1	5	106.4	0.75	798	1.00	1064	1.25	1330	1.50	1596	1.87	5
HGO 51 - 140			5 1/2	95.2	0.83	790	1.10	1047	1.38	1309	1.65	1571	2.13	5
HGO 51 - 152			6	84.0	0.90	756	1.20	1008	1.5	1260	1.80	1512	2.29	2
HGO 51 - 178			7	72.8	1.05	764	1.40	1019	1.75	1274	2.10	1529	2.74	2
HGO 51 - 203			8	64.4	1.20	773	1.60	1030	2.0	1288	2.40	1546	3.16	2
HGO 51 - 254			10	50.4	1.50	756	2.00	1008	2.5	1260	3.00	1512	4.00	2
HGO 51 - 305	0.46 x 0.28		12	40.3	1.80	725	2.40	967	3.0	1209	3.60	1451	4.88	2

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

How to order: HGO 38 - 400(Series D_H - L_0)

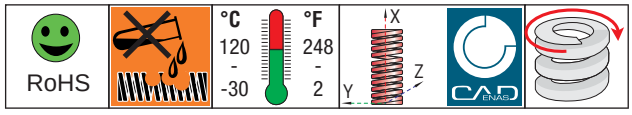
XHG SERIES

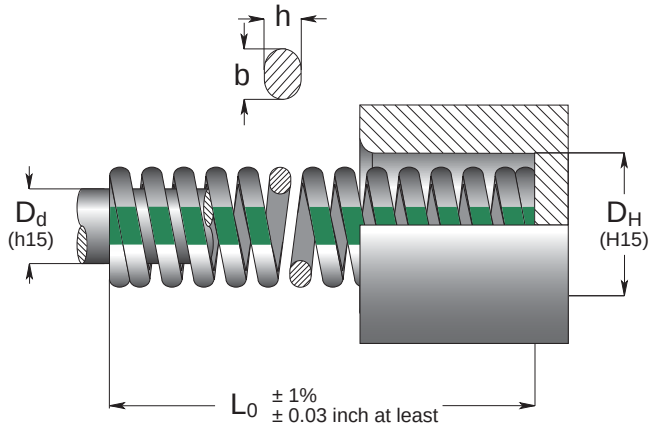
US standard Oval Wire

EN Extra-heavy load springs
Silver-green color

ES Muelles carga extra-fuerte
Color plateado-verde

FR Ressorts charge extra-forte
Couleur argent-verte





Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 15% L_0		B 20% L_0		C 22,5% L_0		D 25% L_0		E approx. do not use	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000			
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
XHG 10 - 025	3/8	3/16	1	22.0	0.15	33	0.20	44	0.23	50	0.25	55	0.31	50
XHG 10 - 032			1 1/4	17.0	0.19	32	0.25	43	0.28	48	0.31	53	0.43	50
XHG 10 - 038			1 1/2	14.5	0.23	33	0.30	44	0.34	49	0.38	55	0.53	50
XHG 10 - 044			1 3/4	11.5	0.26	30	0.35	40	0.39	45	0.44	51	0.54	50
XHG 10 - 051			2	10.0	0.30	30	0.40	40	0.45	45	0.50	50	0.66	25
XHG 10 - 064			2 1/2	8.0	0.38	30	0.50	40	0.56	45	0.63	50	0.80	25
XHG 10 - 076			3	6.5	0.45	29	0.60	39	0.68	44	0.75	49	1.02	25
XHG 10 - 305	0.08 x 0.06		12	1.5	1.80	27	2.40	36	2.70	41	3.00	45	4.47	10
XHG 13 - 025	1/2	9/32	1	32.0	0.15	48	0.20	64	0.23	72	0.25	80	0.33	50
XHG 13 - 032			1 1/4	24.0	0.19	46	0.25	60	0.28	68	0.31	74	0.41	50
XHG 13 - 038			1 1/2	20.0	0.23	46	0.30	60	0.34	68	0.38	76	0.50	50
XHG 13 - 044			1 3/4	17.0	0.26	44	0.35	60	0.39	67	0.44	75	0.55	25
XHG 13 - 051			2	14.0	0.30	42	0.40	56	0.45	63	0.50	70	0.63	25
XHG 13 - 064			2 1/2	11.5	0.38	44	0.50	58	0.56	65	0.63	72	0.83	25
XHG 13 - 076			3	9.0	0.45	41	0.60	54	0.68	61	0.75	68	0.96	25
XHG 13 - 089			3 1/2	8.0	0.53	42	0.70	56	0.79	63	0.88	70	1.18	20
XHG 13 - 102			4	6.2	0.60	37	0.80	50	0.90	56	1.00	62	1.40	10
XHG 13 - 305	0.10 x 0.08		12	2.5	1.80	45	2.40	60	2.70	68	3.00	75	4.12	10
XHG 16 - 025	5/8	11/32	1	63.0	0.15	95	0.20	126	0.23	142	0.25	158	0.31	50
XHG 16 - 032			1 1/4	47.0	0.19	89	0.25	118	0.28	132	0.31	146	0.40	50
XHG 16 - 038			1 1/2	38.1	0.23	88	0.30	114	0.34	129	0.38	145	0.48	25
XHG 16 - 044			1 3/4	32.0	0.26	83	0.35	112	0.39	126	0.44	141	0.55	25
XHG 16 - 051			2	29.0	0.30	87	0.40	116	0.45	131	0.50	145	0.65	25
XHG 16 - 064			2 1/2	22.0	0.38	84	0.50	110	0.56	124	0.63	139	0.77	25
XHG 16 - 076			3	18.0	0.45	81	0.60	108	0.68	122	0.75	135	1.02	20
XHG 16 - 089			3 1/2	16.0	0.53	85	0.70	112	0.79	126	0.88	141	1.16	20
XHG 16 - 102			4	13.5	0.60	81	0.80	108	0.90	122	1.00	135	1.33	20
XHG 16 - 115			4 1/2	11.8	0.68	80	0.90	106	1.01	119	1.13	133	1.51	10
XHG 16 - 305	0.12 x 0.11		12	4.5	1.80	81	2.40	108	2.70	122	3.00	135	3.54	10
XHG 19 - 025	3/4	3/8	1	117.	0.15	176	0.20	235	0.23	263	0.25	294	0.28	50
XHG 19 - 032			1 1/4	95.2	0.19	181	0.25	238	0.28	268	0.31	295	0.37	50
XHG 19 - 038			1 1/2	75.6	0.23	174	0.30	227	0.34	255	0.38	287	0.46	25
XHG 19 - 044			1 3/4	67.2	0.26	175	0.35	235	0.39	265	0.44	296	0.55	25
XHG 19 - 051			2	56.0	0.30	168	0.40	224	0.45	252	0.50	280	0.64	25
XHG 19 - 064			2 1/2	47.6	0.38	181	0.50	238	0.56	268	0.63	300	0.85	25
XHG 19 - 076			3	39.2	0.45	176	0.60	235	0.68	265	0.75	294	0.98	25
XHG 19 - 089			3 1/2	31.3	0.53	166	0.70	219	0.79	246	0.88	275	1.20	20
XHG 19 - 102			4	27.5	0.60	165	0.80	220	0.90	248	1.00	275	1.37	20
XHG 19 - 115			4 1/2	23.5	0.68	160	0.90	212	1.01	238	1.13	266	1.65	10
XHG 19 - 127			5	21.8	0.75	164	1.00	218	1.13	245	1.25	273	1.83	10
XHG 19 - 140			5 1/2	19.0	0.83	158	1.10	209	1.24	235	1.38	262	1.93	10
XHG 19 - 152			6	17.9	0.90	161	1.20	215	1.35	242	1.50	269	2.11	10
XHG 19 - 305	0.16 x 0.14		12	9.4	1.80	169	2.40	226	2.70	254	3.00	282	4.53	10

How to order: XHG 38 - 400(Series D_H - L_0)

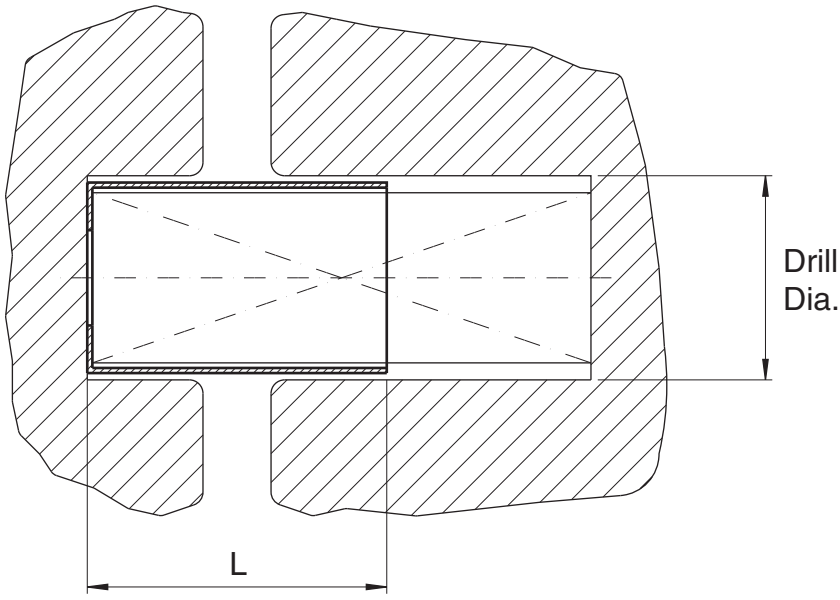
Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

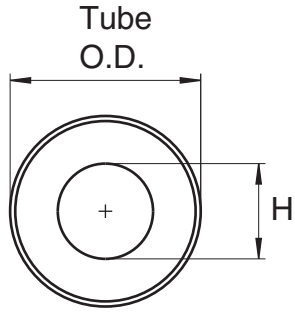
US standard Oval Wire

Code	D_H Hole Diameter	D_d Rod Diameter	L_0 Free Length	R Spring Constant	A 15% L_0		B 20% L_0		C 22,5% L_0		D 25% L_0		E approx.	
	b x h			± 10%	+ 3.000.000		~ 1.500.000		300 - 500.000		100 - 200.000		do not use	
	inch	inch	inch	lbs/0,1 in,	inch	lbs	inch	lbs	inch	lbs	inch	lbs	inch	Pcs
XHG 26 - 025			1	252.0	0.15	378	0.20	504	0.23	567	0.25	630	0.26	50
XHG 26 - 032			1 1/4	196.0	0.19	372	0.25	490	0.28	551	0.31	608	0.37	25
XHG 26 - 038			1 1/2	184.8	0.23	425	0.30	554	0.34	624	0.38	702	0.46	25
XHG 26 - 044			1 3/4	151.2	0.26	393	0.35	529	0.39	595	0.44	665	0.56	25
XHG 26 - 051			2	114.8	0.30	344	0.40	459	0.45	517	0.50	574	0.67	25
XHG 26 - 064			2 1/2	89.6	0.38	340	0.50	448	0.56	504	0.63	564	0.83	25
XHG 26 - 076			3	72.8	0.45	328	0.60	437	0.68	491	0.75	546	0.98	20
XHG 26 - 089	1	1/2	3 1/2	61.6	0.53	326	0.70	431	0.79	485	0.88	542	1.18	20
XHG 26 - 102			4	54.9	0.60	329	0.80	439	0.90	494	1.00	549	1.33	20
XHG 26 - 115			4 1/2	48.1	0.68	327	0.90	433	1.01	487	1.13	544	1.54	10
XHG 26 - 127			5	43.1	0.75	323	1.00	431	1.13	485	1.25	539	1.66	10
XHG 26 - 140			5 1/2	36.4	0.83	302	1.10	400	1.24	450	1.38	502	1.88	10
XHG 26 - 152			6	35.9	0.90	323	1.20	431	1.35	485	1.50	539	2.01	10
XHG 26 - 178			7	30.8	1.05	323	1.40	431	1.58	485	1.75	539	2.44	10
XHG 26 - 203			8	26.3	1.20	316	1.60	421	1.8	473	2.00	526	2.76	10
XHG 26 - 305	0.22 x 0.18		12	19.0	1.80	342	2.40	456	2.7	513	3.00	570	4.15	5
XHG 32 - 038			1 1/2	268.8	0.23	618	0.30	806	0.34	907	0.38	1021	0.40	20
XHG 32 - 044			1 3/4	220.4	0.26	582	0.35	784	0.39	868	0.44	986	0.51	20
XHG 32 - 051			2	190.4	0.30	571	0.40	762	0.45	857	0.50	952	0.60	20
XHG 32 - 064			2 1/2	151.2	0.38	575	0.50	756	0.56	851	0.63	953	0.80	20
XHG 32 - 076			3	123.2	0.45	554	0.60	739	0.68	832	0.75	924	0.91	20
XHG 32 - 089			3 1/2	95.2	0.53	505	0.70	666	0.79	750	0.88	838	1.11	10
XHG 32 - 102			4	84.0	0.60	504	0.80	672	0.90	756	1.00	840	1.31	10
XHG 32 - 115	1 1/4	5/8	4 1/2	78.4	0.68	533	0.90	706	1.01	794	1.13	886	1.52	10
XHG 32 - 127			5	72.8	0.75	546	1.00	728	1.13	819	1.25	910	1.63	10
XHG 32 - 140			5 1/2	64.4	0.83	535	1.10	708	1.24	797	1.38	889	1.77	10
XHG 32 - 152			6	58.8	0.90	529	1.20	706	1.35	794	1.50	882	1.96	10
XHG 32 - 178			7	52.6	1.05	552	1.40	736	1.58	828	1.75	921	2.29	5
XHG 32 - 203			8	43.1	1.20	517	1.60	690	1.8	776	2.00	862	2.60	5
XHG 32 - 254			10	34.7	1.50	521	2.00	694	2.25	781	2.50	868	3.26	5
XHG 32 - 305	0.29 x 0.24		12	28.0	1.80	504	2.40	672	2.7	756	3.00	840	3.92	5
XHG 38 - 051			2	308.0	0.30	924	0.40	1232	0.45	1386	0.50	1540	0.54	20
XHG 38 - 064			2 1/2	263.2	0.38	1000	0.50	1316	0.56	1481	0.63	1658	0.78	10
XHG 38 - 076			3	201.6	0.45	907	0.60	1210	0.68	1361	0.75	1512	0.90	10
XHG 38 - 089			3 1/2	168.0	0.53	890	0.70	1176	0.79	1323	0.88	1478	1.10	10
XHG 38 - 102			4	145.6	0.60	874	0.80	1165	0.90	1310	1.00	1456	1.26	10
XHG 38 - 115			4 1/2	128.8	0.68	876	0.90	1159	1.01	1304	1.13	1455	1.43	10
XHG 38 - 127	1 1/2	3/4	5	114.8	0.75	861	1.00	1148	1.13	1292	1.25	1435	1.61	5
XHG 38 - 140			5 1/2	106.4	0.83	883	1.10	1170	1.24	1317	1.38	1468	1.78	5
XHG 38 - 152			6	95.2	0.90	857	1.20	1142	1.35	1285	1.50	1428	1.98	5
XHG 38 - 178			7	84.0	1.05	882	1.40	1176	1.58	1323	1.75	1470	2.27	5
XHG 38 - 203			8	72.8	1.20	874	1.60	1165	1.8	1310	2.00	1456	2.70	5
XHG 38 - 254			10	56.0	1.50	840	2.00	1120	2.25	1260	2.50	1400	3.32	2
XHG 38 - 305	0.33 x 0.29		12	47.6	1.80	857	2.40	1142	2.7	1285	3.00	1428	4.15	2
XHG 51 - 064			2 1/2	368.5	0.38	1400	0.50	1843	0.56	2073	0.63	2322	0.65	5
XHG 51 - 076			3	316.4	0.45	1424	0.60	1898	0.68	2136	0.75	2373	0.82	5
XHG 51 - 089			3 1/2	257.6	0.53	1365	0.70	1803	0.79	2029	0.88	2267	0.94	5
XHG 51 - 102			4	229.6	0.60	1378	0.80	1837	0.90	2066	1.00	2296	1.15	5
XHG 51 - 115			4 1/2	196.0	0.68	1333	0.90	1764	1.01	1985	1.13	2215	1.27	5
XHG 51 - 127	2	1	5	179.2	0.75	1344	1.00	1792	1.13	2016	1.25	2240	1.44	5
XHG 51 - 140			5 1/2	162.4	0.83	1348	1.10	1786	1.24	2010	1.38	2241	1.60	5
XHG 51 - 152			6	151.2	0.90	1361	1.20	1814	1.35	2041	1.50	2268	1.74	2
XHG 51 - 178			7	128.8	1.05	1352	1.40	1803	1.58	2029	1.75	2254	2.03	2
XHG 51 - 203			8	110.6	1.20	1327	1.60	1770	1.8	1991	2.00	2212	2.27	2
XHG 51 - 254			10	87.4	1.50	1311	2.00	1748	2.25	1967	2.50	2185	2.89	2
XHG 51 - 305	0.45 x 0.37		12	83.4	1.80	1501	2.40	2002	2.7	2252	3.00	2502	3.51	2

Load (lbs) = R (lbs/0.1 inch) x 10 x Deflection (inch)

How to order: XHG 38 - 400(Series D_H - L_0)





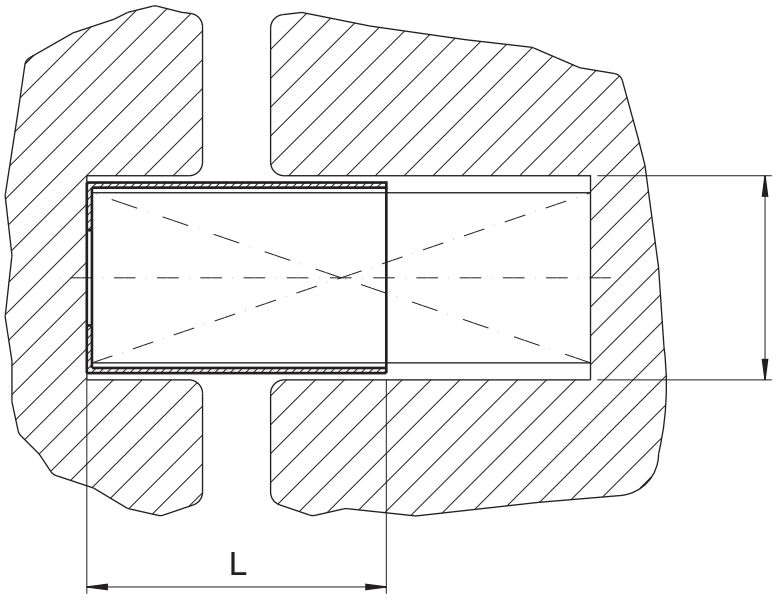
Springs O.D.	Drill Dia.	Tube O.D	H
mm	mm	mm	mm
20	24	21.7	11
25	30	28.0	14
32	36	34.4	19
40	43	40.8	25
50	56	53.4	35

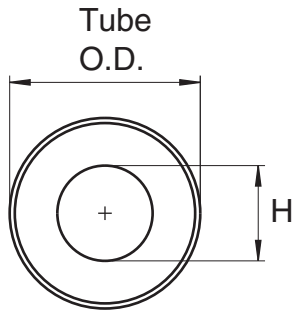
Material: rolled, cold steel

How to order:

example: SC100-40 (O.A.L. - O.D.)

CATALOG NUMBERS					
O. A. L. L	O.D 20	O.D 25	O.D 32	O.D 40	O.D 50
	mm	mm	mm	mm	mm
SC100	20	25	32	40	50
SC125	20	25	32	40	50
SC150	20	25	32	40	50
SC175	20	25	32	40	50
SC200	20	25	32	40	50
SC225	20	25	32	40	50
SC250	20	25	32	40	50
SC275	20	25	32	40	50
SC300	20	25	32	40	50
SC325	20	25	32	40	50
SC350	20	25	32	40	50
SC375	20	25	32	40	50
SC400	20	25	32	40	50
SC425	20	25	32	40	50
SC450	20	25	32	40	50
SC475	20	25	32	40	50
SC500	20	25	32	40	50
SC550	20	25	32	40	50
SC600	20	25	32	40	50
SC650	20	25	32	40	50
SC700	20	25	32	40	50
SC800	20	25	32	40	50
SC900	20	25	32	40	50
SC1000	20	25	32	40	50
SC1100	20	25	32	40	50
SC1200	20	25	32	40	50





Springs O.D.	Drill Dia.	Tube O.D	H
inch	inch	inch	inch
3 /4	29/32	0.855	7/16
1	1 5/32	1.105	9/16
1 1/4	1 13/32	1.355	3/4
1 1/2	1 21/32	1.605	31/32
2	2 5/32	2.105	1 3/8

Material: rolled, cold steel

How to order:

example: SC100-75 (O.A.L. - O.D.)

CATALOG NUMBERS					
O. A. L. L	O.D 0.75	O.D 1.00	O.D 1.25	O.D 1.50	O.D 2.00
	inch	inch	inch	inch	inch
SC100	75	100	125	150	200
SC125	75	100	125	150	200
SC150	75	100	125	150	200
SC175	75	100	125	150	200
SC200	75	100	125	150	200
SC225	75	100	125	150	200
SC250	75	100	125	150	200
SC275	75	100	125	150	200
SC300	75	100	125	150	200
SC325	75	100	125	150	200
SC350	75	100	125	150	200
SC375	75	100	125	150	200
SC400	75	100	125	150	200
SC425	75	100	125	150	200
SC450	75	100	125	150	200
SC475	75	100	125	150	200
SC500	75	100	125	150	200
SC550	75	100	125	150	200
SC600	75	100	125	150	200
SC650	75	100	125	150	200
SC700	75	100	125	150	200
SC800	75	100	125	150	200
SC900	75	100	125	150	200
SC1000	75	100	125	150	200
SC1100	75	100	125	150	200
SC1200	75	100	125	150	200

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Catalog code
9800A10221012

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