Level | Pressure | Flow | Temperature | Liquid Analysis | Registration | Systems Components | Services | Solutions

Technical Information

Cleanfit CPA474

Retractable plastic process assembly with ball valve for pH and ORP electrodes

Application

- Chemical industry
- Wastewater / industrial water
- Power plants
- Refuse incinerators

This assembly is very well suited to applications which require the save separation from the process during the service step and for media which have a tendency to stick at the electrode holder.

Your benefits

- Safety:
  - Process termination with ball valve
  - Only plastics (PP, PVDF, PEEK) in contact with medium
  - Stainless steel version for high temperature and high pressure applications
- Comfortable operation:
  - Assembly service in ongoing process: total disassembly of assembly body possible with closed ball valve (e.g. for exchanging sealing rings, electrode holder etc.)
  - Various immersion depths (tank/pipe installation)
  - Sealing water to screen off rinse chamber
- Automation even for difficult processes:
  - Fully-automatic calibration and cleaning in conjunction with Topcal CPC310
- Easy installation:
  - Version with pneumatic ball valve drive with all hoses installed

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Endress+Hauser

People for Process Automation

Function and system design

Principle

The "Measure" and "Service" operating statuses can be changed in the following ways:
- Manually
- Pneumatically
- Pneumatically via Topcal CPC310 or Topclean CPC30 with optional CPR40 rinsing block
- All versions possible with limit position switch.

Principle sequence when moving the retractable assembly
- from "Service" to "Measure"
  - Open ball valve
  - Move assembly
- from "Measure" to "Service"
  - Move assembly
  - Close ball valve

In the "Service" status (sensor moved back into the assembly), the ball valve seals the assembly off from the process. This means that cleaning and calibration can take place and electrodes can be changed without interrupting the process.

Warning!
The **rinse chamber** and the **rinse connections** of the assemblies are **in open contact with the medium in the measuring position,** or at least when moving, and are thus exposed to the **process pressure**. For this reason, the inlet and outlet of the rinse chamber **must** be **protected by valves**. These valves are available from Endress+Hauser as accessories (see product structure, "Additional equipment"). These valves close automatically in the pneumatic version.

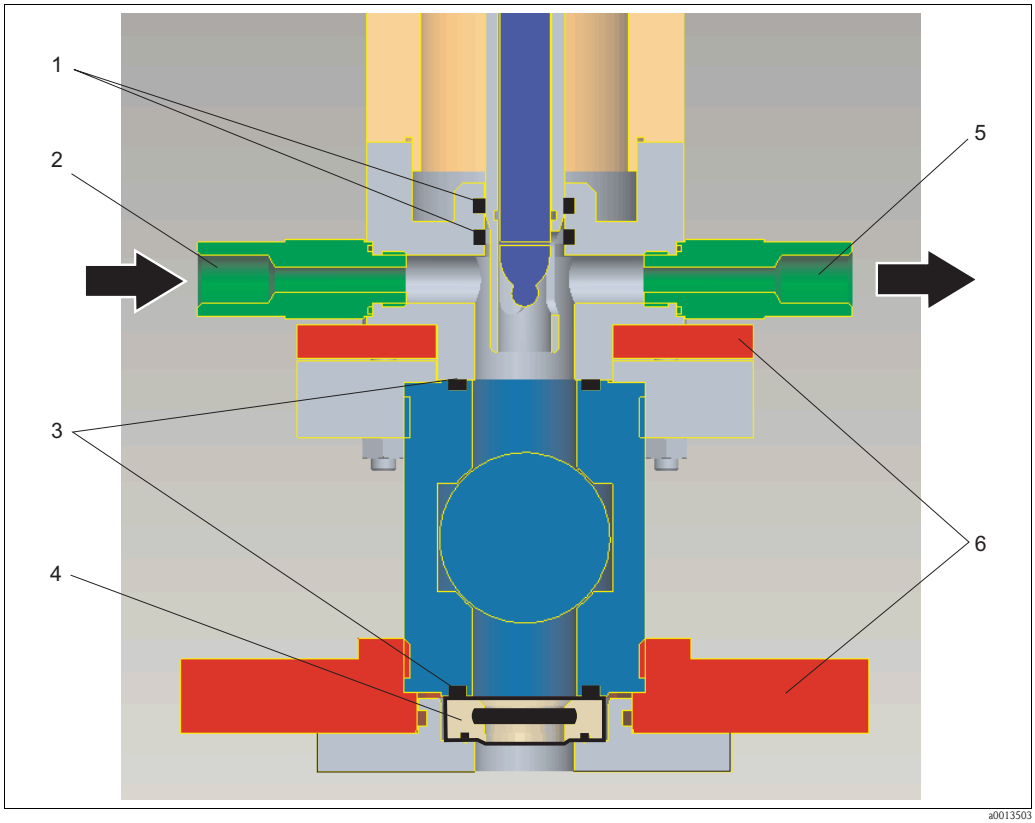
Sealing water function

For the sealing-water function the assembly must be equipped with a pneumatic outlet safety seal for rinse chamber outlet (see chapter "Accessories").

Sealing system

Both O-rings (pos. 1) perform the sealing function between the pneumatical drive and the rinse chamber. The process side of the ball valve is optionally equipped with a scraper (see "product structure").

Caution!
When the assembly is in the service position and the ball valve is open, the process pressure acts on the rinse connections. Therefore the rinse connections must be equipped with inlet and outlet safety seal.



Sealing system and chamber design

1 Sealing between pneumatic drive / rinse chamber with 2 O-rings
2 Rinse chamber inlet
3 Sealing of the ball valve with 2 O-rings
4 Scraper PEEK with 2 O-rings
5 Rinse chamber outlet with manual or pneumatic outlet safety seal
6 Stainless steel flange (version with stainless steel cylinder)

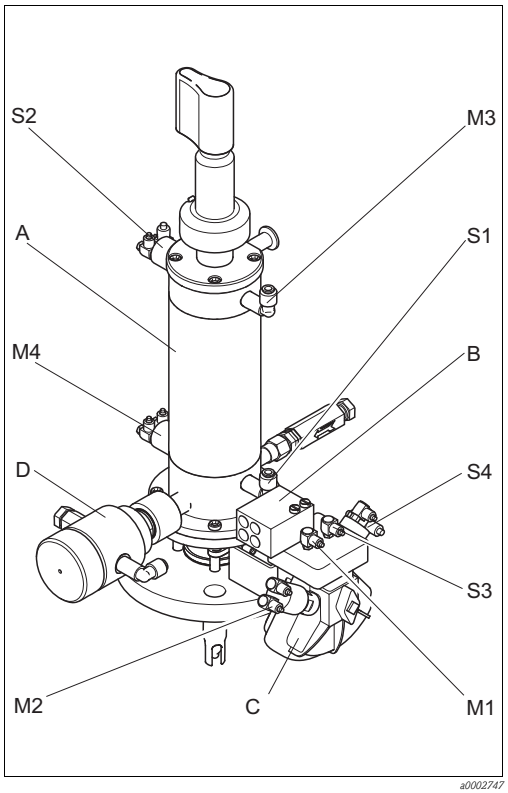
Limit position switches

The pneumatic limit position switches serve as control elements and determine the sequence of the individual steps.

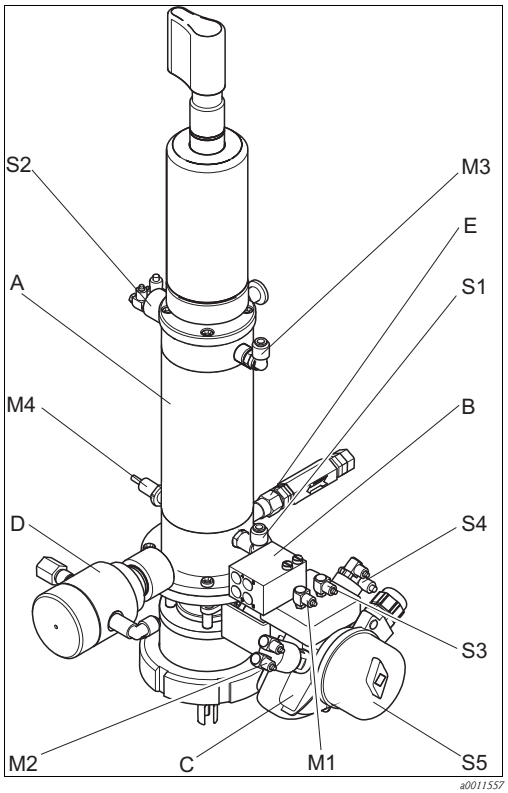
The following types of limit position switches are available depending on the order version (product structure, "Assembly operation, ball valve"):

- "Pneumatic limit position switch" version: 4 pneumatic switches (type, see "Mechanical construction")
- "Electric limit position switch" version: 3 pneumatic and 2 inductive switches (types, see "Mechanical construction")

Function



Pneumatic limit position switches



Electrical limit position switches

A Assembly cylinder
B Pneumatic connection block
C Ball valve drive

Measuring:

M1 Pneumatics "Open ball valve"
M2 Limit position switch "Ball valve open"
M3 Pneumatics "Assembly Measuring"
M4 Limit position switch "Assembly Measuring"

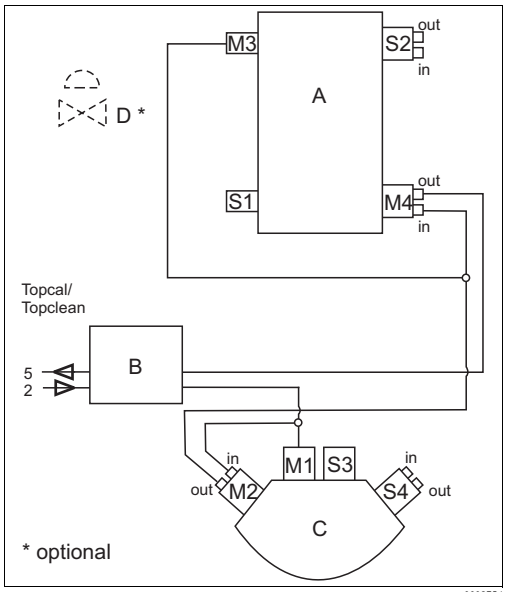
D Rinsing input / output
E Rinse inlet with non-return valve

Service:

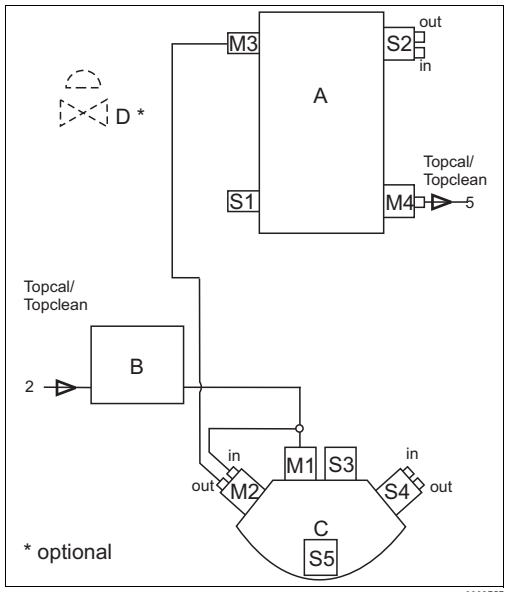
S1 Pneumatics "Assembly Service"
S2 Limit position switch "Assembly Service"
S3 Pneumatics "Close ball valve"
S4 Limit position switch (pneu.) "Ball valve closed"
S5 Limit position switch (el.) "Ball valve closed"

Assembly moving principle

Moving from "Service" position into "Measure" position



Move to "Measuring" position, version with pneumatic limit position switches

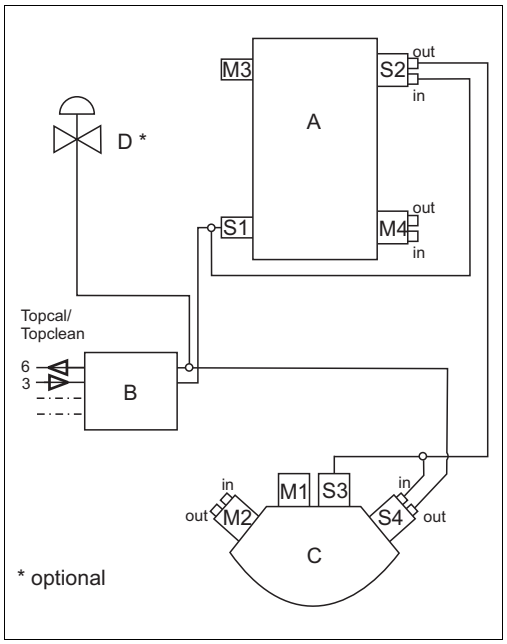


Move to "Measuring" position, version with electric limit position switches

in *Pneumatic input, limit position switch*
out *Pneumatic output, limit position switch*
5 *Feedback signal "Assembly measuring"*
2 *Compressed air input "Start measuring"*
A *Assembly cylinder*
B *Pneumatics connection block*
C *Ball valve drive*
D *Outlet safety seal for rinse chamber*

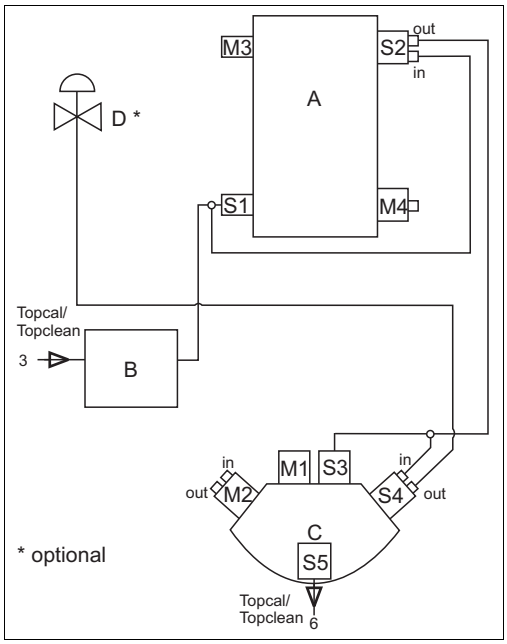
1. Compressed air is provided at position M1 (pneumatic "Open ball valve"). At the same time, compressed air is applied to M2 (limit position switch "Ball valve open").
   The ball valve (C) opens. **The rinse chamber outlet valve (D) must be closed.**
2. When the ball valve is completely open, the limit position switch M2 forwards compressed air to the pneumatics of the pressure cylinder, input "Assembly measuring" (M3) and simultaneously to the limit position switch "Assembly measuring" (M4).
   The electrode holder moves out of the assembly into the medium.
3. Once the limit position is reached, the limit position switch M4 sends a signal (5, "Assembly measuring" feedback signal) to the transmitter / DCS or to Topcal / Topclean.

Moving from "Measure" position into "Service" position



Move to "Service" position, version with pneumatic limit position switches

in	*Pneumatic input, limit position switch*
out	*Pneumatic output, limit position switch*
6	*Feedback signal "Assembly service"*
3	*Compressed air input "Start service"*

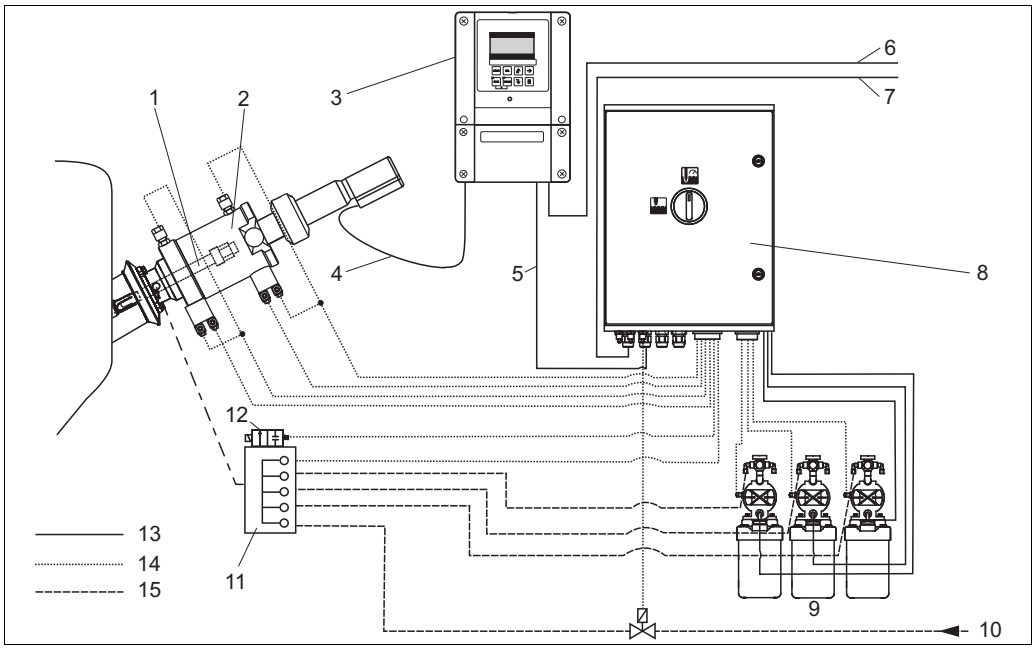


Move to "Service" position, version with electric limit position switches

A	*Assembly cylinder*
B	*Pneumatics connection block*
C	*Ball valve drive*
D	*Outlet safety seal for rinse chamber*

1. Compressed air is simultaneously provided at the pneumatics of the pressure cylinder, input "Assembly service" (S1) and at the limit position switch "Assembly service" (S2). The electrode holder moves from the medium into the assembly.
2. When the limit position is reached, the limit position switch S2 forwards pressure to position S3 (close ball valve) and position S4 (limit position switch "Ball valve closed") simultaneously.
   The ball valve (C) closes.
3. Once the ball valve is completely closed, a signal (6, "Assembly service" feedback signal) is sent from the limit position switch S4 (or the limit position switch S5 in case of the version with electric limit position switches) to the transmitter / DCS or to Topcal / Topclean. At the same time, pressure is applied to the rinse chamber outlet valve (D).
   Valve D opens as long as the pressure is applied. Any drop in pressure causes this valve to close.

Measuring system



Measuring system with pneumatic control

1	*pH/ORP sensor*	*9*	*Canisters for cleaning and buffer solutions*
2	*Assembly Cleanfit*	*10*	*Superheated steam/water/cleaning solutions (optional)*
3	*Transmitter Mycom CPM153*	*11*	*Rinse block*
4	*Special measuring cable*	*12*	*Rinse water valve*
5	*Communication / power supply cable*	*13*	*Power/signal cables*
6	*Power supply Mycom*	*14*	*Air hoses*
7	*Power supply CPG310*	*15*	*Media*
8	*Control unit CPG310*		

Installation

Installation instructions

A Glass electrode: Installation angle of at least 15° from the horizontal

B ISFET pH-sensor Tophit: No restrictions, recommended 0 ... 180°

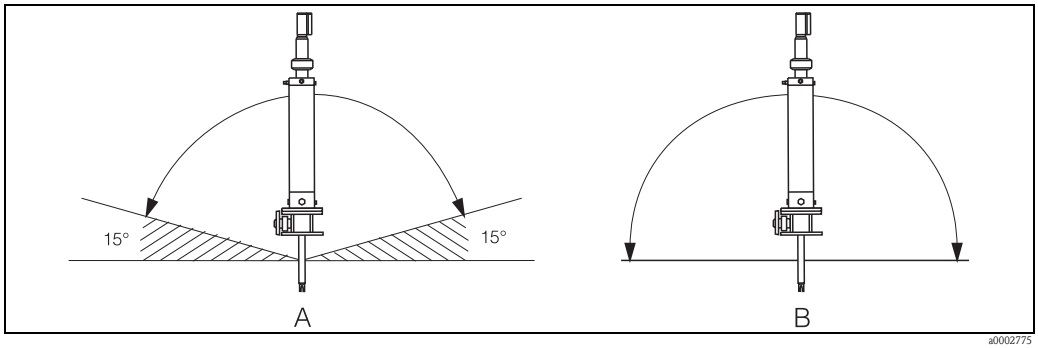


Fig. 1: Permitted orientations depending on the sensor used

Caution!

- For all assemblies with stainless steel pressure cylinders, we recommend to use a flanged version when installing with inclined orientation. Otherwise, the weight of the assembly could affect the safety of the process connection.
- Avoid a siphon effect[1)] at the rinse chamber outlet when installing with inclined orientation. The inlet to the rinse chamber must be from below.

1) Siphon effect: line emptied by vacuum

Pneumatic connections for automatic operation

Requirements:
- air pressure of 4 to 6 bar (60 to 90 psi)
- air must be filtered (40 µm) and be free of water and oil
- no continuous air consumption
- minimum nominal diameter of the air lines: 4 mm (0.16 inches).

Caution!
There must be a pressure-reducing valve upstream if the air pressure can increase to above 6 bar (90 psi) (including any short pressure surges).
We recommend you also use a pneumatic throttle for lower pressures. This results in a smoother assembly operation. Endress+Hauser offers such a throttle as an accessory (see chapter "Accessories").

Environment

Ambient temperature range

Ambient temperature not below 0 °C (32 °F).
With an optional inlet/outlet safety seal, the ambient temperature may not exceed 80 °C (176 °F).

Process

Pressure

PA pressure cylinder:	max. 6 bar (87 psi)
Stainless steel pressure cylinder:	max. 10 bar (145 psi) at 40 °C (104 °F)
Pneumatic outlet safety seal:	continuous operation: 10 bar (145 psi) / 40 °C (104 °F) short time (max. 1 h): 4 bar (72.5 psi) / 130 °C (266 °F)
Manual outlet safety seal:	10 bar (145 psi) / 20 °C (68 °F), 2 bar (29 psi) / 130 °C (266 °F)

Caution!
During insertion/retraction the process pressure may not exceed 4 bar (58 psi) with manually actuated assemblies!

Temperature

See pressure-temperature diagram.

Pressure-temperature diagram

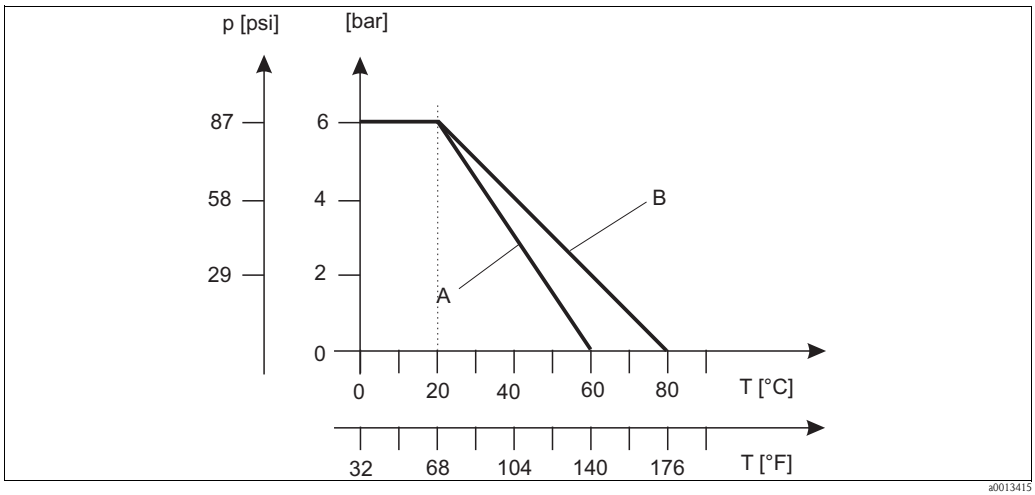


Fig. 2: Pressure-temperature diagram CPA474 version with plastic pressure cylinder (PA)

A Electrode holder + ball valve PP
B Electrode holder PEEK/PVDF, ball valve PVDF

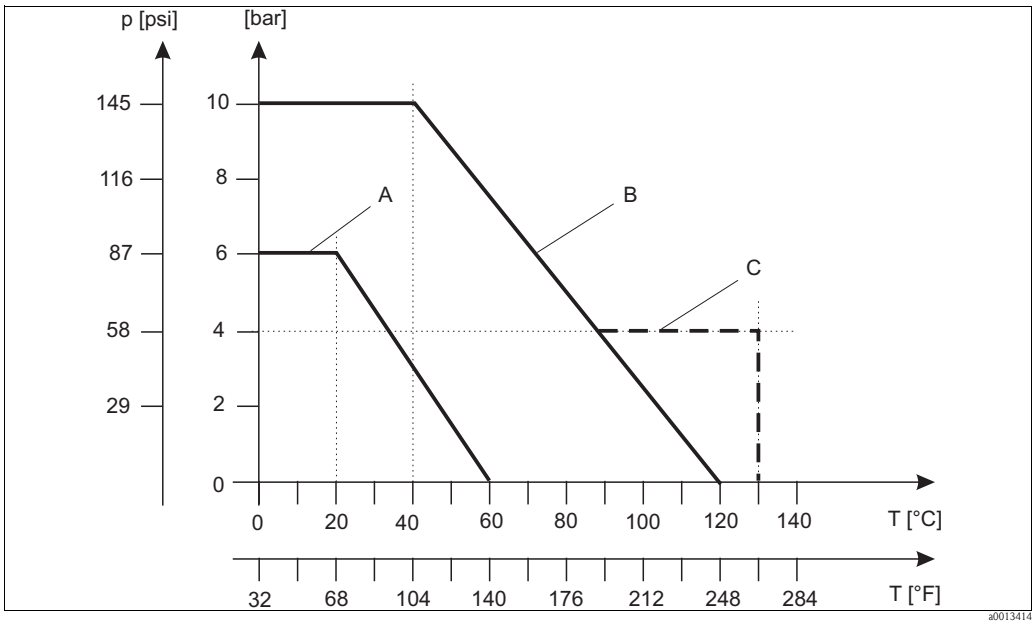


Fig. 3: Pressure-temperature diagram CPA474 version with stainless steel pressure cylinder

A Electrode holder + ball valve PP
B Electrode holder PEEK/PVDF, ball valve PVDF
C Electrode holder PEEK/PVDF, ball valve PVDF, short time (max. 1 hr)

Caution!
During insertion/retraction the process pressure may not exceed 4 bar (58 psi) with manually actuated assemblies.

Flow velocity

Max. 3 m/s (9.8 ft/s)

Note!
- A flow of 2 to 3 m/s (6.5 to 9.8 ft/s) should not be exceeded as otherwise measurable potentials can develop at the electrode.
- Within the permitted limits, mechanical stability does not depend on temperature and immersion depth.

Mechanical construction

Design, dimensions

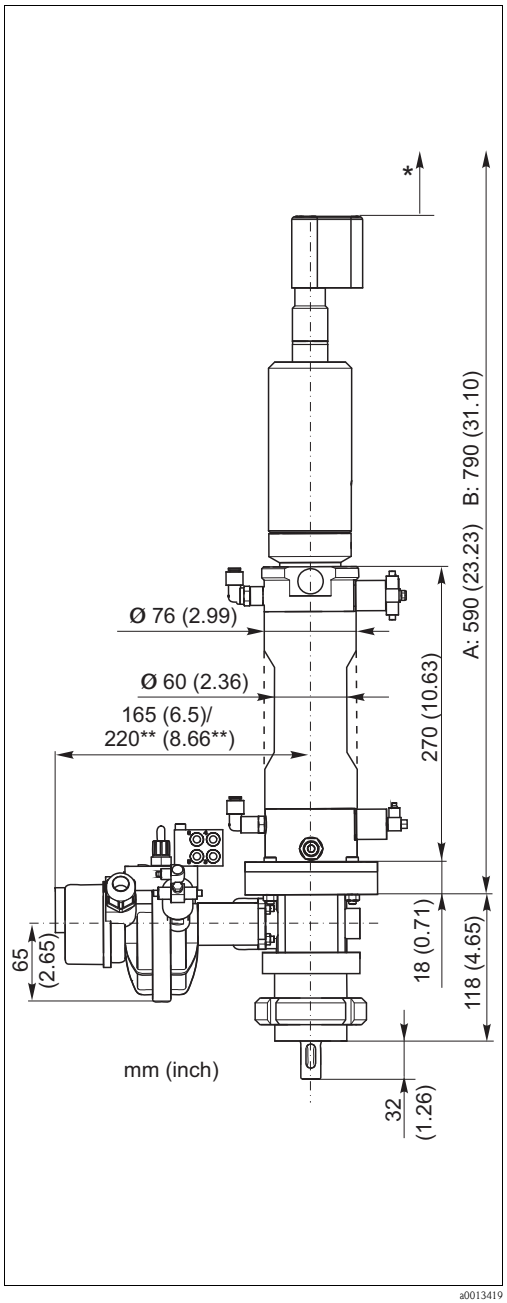


Fig. 4: Assembly version: pneumatic, short, for KCl sensors, thread adapter nut

* *Stroke*
** *Version with electric limit position switches*

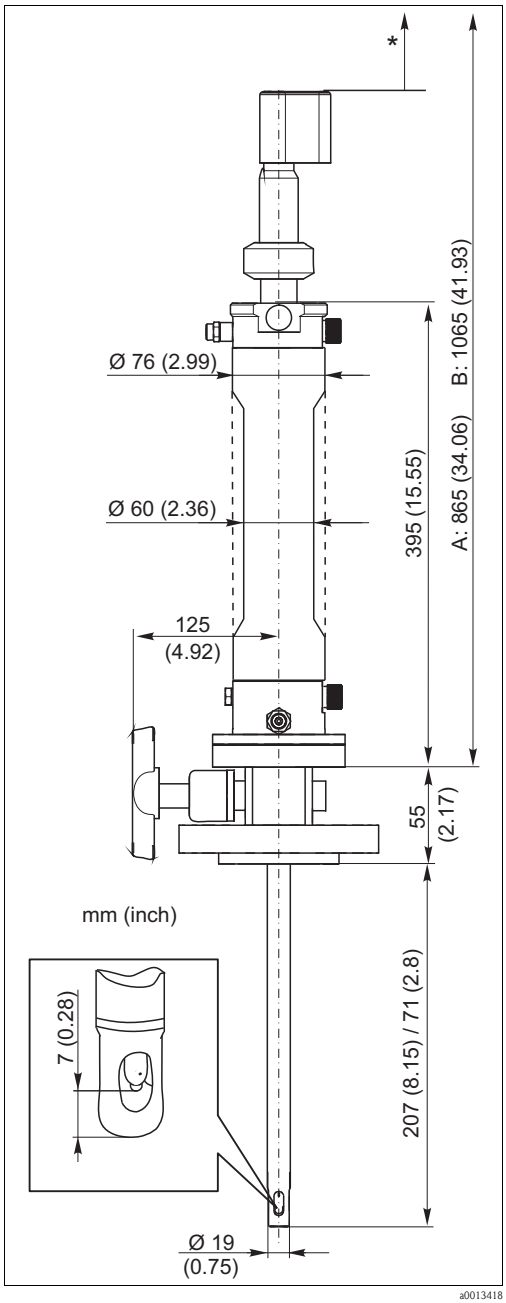
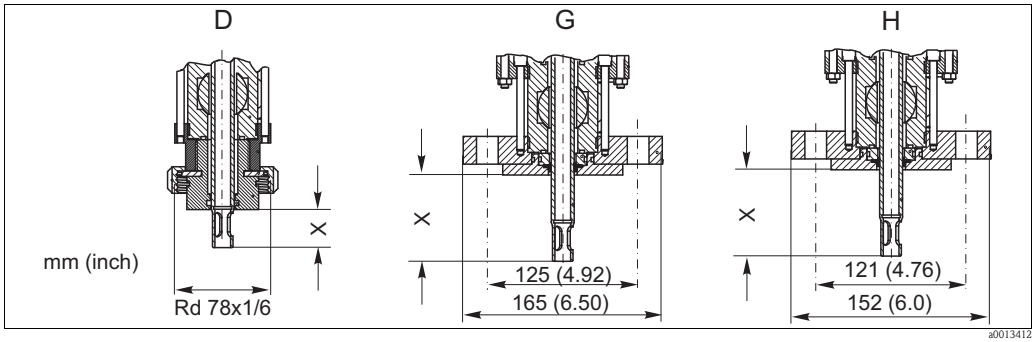


Fig. 5: Assembly version: manual, long, for gel sensors, flange

Short version / long version
A Assembly in service position
B Assembly in service position plus required mounting clearance
* *Stroke*

Process connection



Process connections

Process connection		X short version	X long version
D	Thread adapter nut DN 50	32 mm (1.26")	Not applicable
G	Flange DN 50	71 mm (2.80")	207 mm (8.15")
H	Flange ANSI 2"	71 mm (2.80")	207 mm (8.15")

Fitted sensors

Short version	pH glass electrodes, Gel 225 mm (8.9")
	pH glass electrodes, KCl 425 mm (16.7")
	pH ISFET sensors, Gel, 225 mm (8.9")
	pH ISFET sensors, KCl, 425 mm (16.7")
Long version	pH glass electrodes, Gel, 360 mm (14.2")
	pH ISFET sensors, Gel, 360 mm (14.2")

Weight

3 – 8 kg (6.6 – 17.6 lb), depending on the pressure cylinder material, the process connection, the drive and additional equipment, see product structure.

Materials

In contact with medium:	
Seals	EPDM / FPM / perfluoroelastomer
Electrode holder	PP / PEEK / PVDF
Ball valve	PP / PVDF
Inlet safety seal	PVDF, PTFE, Viton®
Outlet safety seal	PVDF
Rinse connection socket	PVDF
Not in contact with medium:	
Pressure cylinder	PA / stainless steel 1.4404 (AISI 316 L)
Process flange[1)]	stainless steel 1.4404 (AISI 316 L)
El. limit position switch	fore-part PBT, cable PVC

1) for stainless steel assembly version

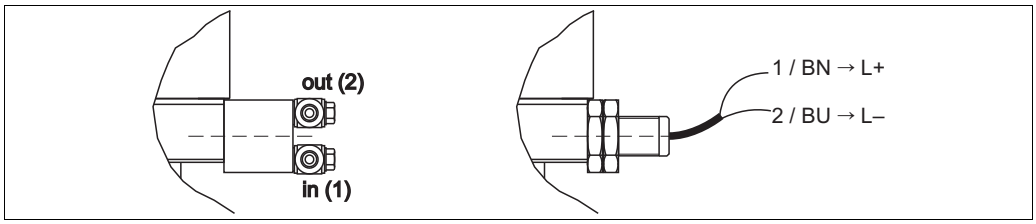
Rinse fittings

2 x G¼ (internal) or
2 x NPT ¼" (internal)

Limit position switches

Pneumatic: 3/2 way valve; thread M 12 x 1;
connection for hoses with OD = 6 mm (0.24")

Electric: inductive (NAMUR type); cable length: 10 m (32.8 ft);
housing material: stainless steel; thread M 12 x 1;
nominal voltage: 8 V
⟨Ex⟩II 1G EEx ia IIC T6; switching distance: 2 mm, flush



Limit position switches, left: pneumatic (1 = compressed air inlet, 2 = compressed air outlet) right: electric (NAMUR)

Note!
The position of the input resp. the output may be different from the figure. Please, refer to the marks at the limit position switch: "1" is the input (in), "2" is the output (out).

Inlet and outlet safety seal

Optionally the assembly is supplied with a non-return valve on the inlet side of the rinse chamber (inlet safety seal) and an outlet valve (pneumatic outlet safety seal) resp. a ball valve (manual outlet safety seal, see product structure).

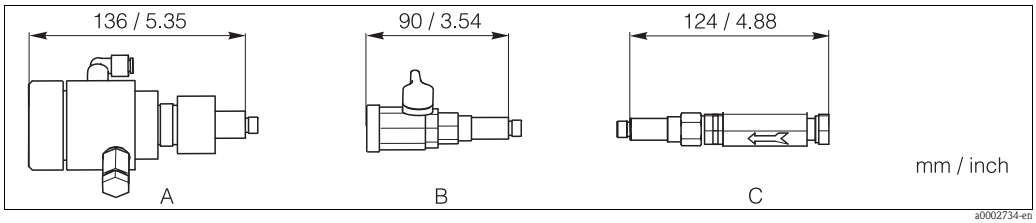


Fig. 6: Inlet / outlet safety seals for rinse chamber

A Pneumatic outlet safety seal
B Manual outlet safety seal
C Non-return valve (inlet safety seal)

Caution!
An outlet safety seal is definitely required if the rinse chamber does not remain sealed with the drain plug[2)].

Inlet safety seal (optional)

The non-return valve prevents medium from penetrating from the rinse chamber into the rinse water inlet.

2) also applies in "Measure" position

Pneumatic outlet safety seal (optional)

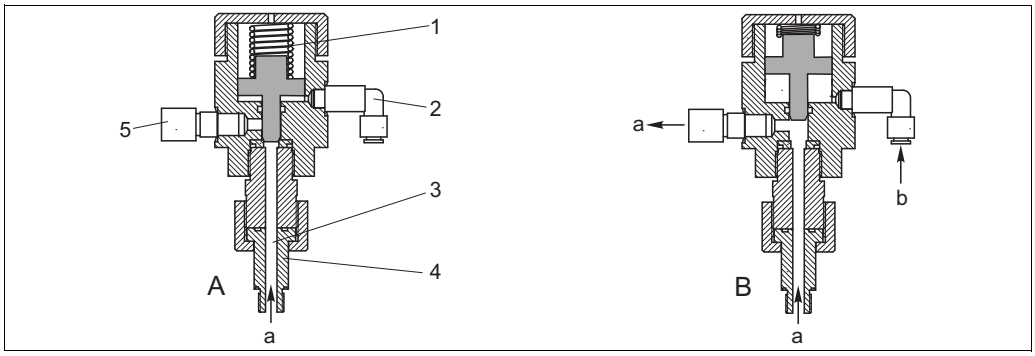


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Fig. 7: Functional diagram of the pneumatic valve on the outlet side of the rinse chamber
A: Valve closed (no connection between rinse water and rinse chamber)
B: Valve open (rinse water can enter rinse chamber)

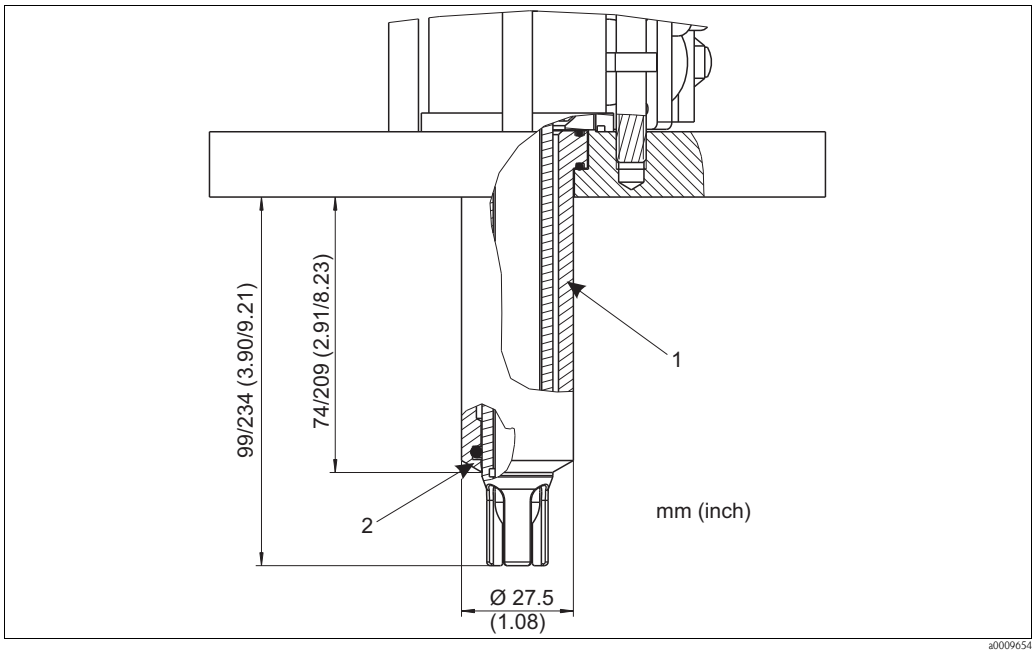
1 Compression spring
2 Compressed air input
3 Inlet from the rinse chamber outlet
4 Rinse connection socket
5 Rinse water outlet
a Rinse water
b Compressed air

Manual outlet safety seal (optional)

The manual safety seal is a ball valve made of PVDF. You have to drive it manually.

Scraper ring

The scraper rings are especially recommended in the following cases:
- If the rinse chamber, otherwise open to the process, should be protected during operation.
- If material sticking to the electrode holder (caused by the medium) should be scraped off when moving to service mode.



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Packing sleeve (short/long immersion depth)

1 Sleeve (PEEK)
2 Scraper

Certificates and approvals

Test reports

Inspection certificate 3.1 acc. to EN 10204 on demand.

Ordering information

Scope of delivery

The scope of delivery comprises:
- Cleanfit assembly (ordered version)
- Operating Instructions (English)

Product structure

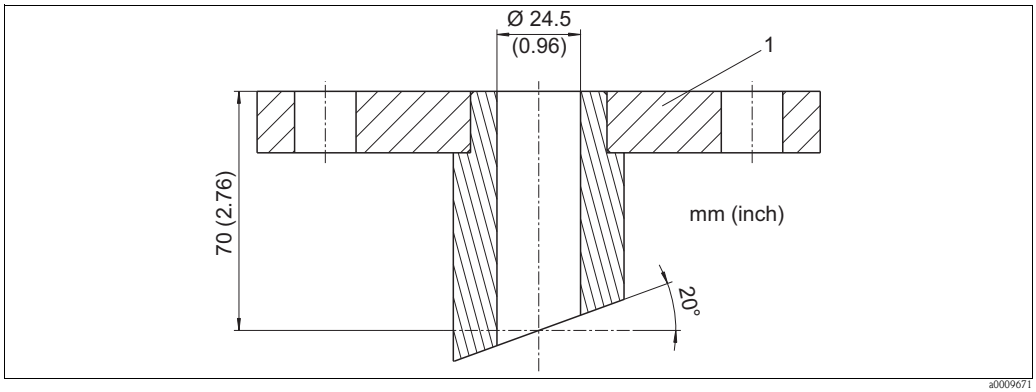
Assembly drive, ball valve									
A	Assembly + ball valve: manual (convertable to pneumatic)								
B	Assembly: pneumatic, ball valve: manual, without limit position switches (retrofittable)								
C	Assembly: pneumatic, ball valve: manual, with pneumatic limit position switches								
D	Assembly: pneumatic, ball valve: manual, with electric limit position switches (Ex and Non-Ex)								
E	Assembly + ball valve: pneumatic, with pneumatic limit position switches								
F	Assembly + ball valve: pneumatic, with electric limit position switches (Ex and Non-Ex)								
Y	Special version acc. to customer specification								
	Assembly version								
	1	Version with plastic (PA) cylinder with PEEK scraper: max. 6 bar (87 psi)							
	2	Version with stainless steel cylinder with PEEK scraper: max. 10 bar (145 psi)							
	3	Version with plastic (PA) cylinder without PEEK scraper: max. 6 bar (87 psi), i.e. the rinse chamber is **not** sealed off the medium!							
	4	Version with stainless steel cylinder with PEEK scraper: max. 10 bar (145 psi), i.e. the rinse chamber is **not** sealed off the medium!							
	9	Special version acc. to customer specification (packing sleeve, see chapter "Accessories")							
		Electrode type							
		A	For gel electrodes and pH ISFET sensors with Pg 13.5						
		B	For liquid KCl electrodes and ISFET sensors with Pg 13.5 and hose connection head (type ESS)						
		Y	Special version acc. to customer specification						
			Immersion depth						
			1	Short version up to 71 mm (2.8 inches) with PA cylinder (possible sensor lengths: type A = 225 mm (8.9 inches), type B = 425 mm (16.7 inches)) Assembly versions 1 and 3 only!					
			2	Short version up to 71 mm (2.8 inches) with stainless steel 1.4404 (AISI 316L) cylinder (possible sensor lengths: type A = 225 mm (8.9 inches), type B = 425 mm (16.7 inches)) Assembly versions 2 and 4 only!					
			3	Long version up to 207 mm (8.15 inches) with PA cylinder (possible sensor lengths: type A = 360 mm (14.2 inches)) Assembly versions 1 and 3 only!					
			4	Long version up to 207 mm (8.15 inches) with stainless steel 1.4404 (AISI 316L) cylinder (possible sensor lengths: type A = 360 mm (14.2 inches)) Assembly versions 2 and 4 only!					
			9	Special version acc. to customer specification					
				Assembly material (in contact with medium)					
				A	Sensor holder: PP, ball valve: PP (max. 80°C (176 °F))				
				B	Sensor holder: PEEK, ball valve: PVDF (max. 130°C (266 °F))				
				C	Sensor holder: PVDF, ball valve: PVDF (max. 130°C (266 °F))				
				Y	Special version acc. to customers specification				
					Seal material (in contact with medium)				
					1	EPDM (for food applications preferred)			
					2	FPM (Viton®, for process applications preferred)			
					3	Perfluoroelastomer			
					9	Special version acc. to customer specification			
						Process connection			
						D	Thread adapter nut DN 50 (for flow assembly CPA240), immersion depth 1,2 only		
						G	Flange DN 50, PN 16		
						H	Flange ANSI 2", 150 lbs		
						Y	Special version acc. to customer specification		
							Optional equipment		
							3	With pneumatic inlet/outlet safety seal (2 x G ¼ internal thread /PVDF safety plug)	
							4	With pneumatic inlet/outlet safety seal (2 x NPT ¼" internal thread / PVDF safety plug)	
							5	With manual inlet/outlet safety seal (2 x G ¼ internal thread / PVDF safety plug)	
							6	With manual inlet/outlet safety seal (2 x NPT ¼" internal thread / PVDF safety plug)	
							7	With rinse connection sockets, 2 x G ¼ internal thread **(version 1, 2 only!)** (with PVDF safety plug)	
							8	With rinse connection sockets 2 x NPT ¼" internal thread **(version 1, 2 only!)** (with PVDF safety plug)	
							9	Special version acc. to customer specification	
CPA474-									complete order code

Accessories

Note!
In the following sections, you find the accessories available at the time of issue of this documentation.
For information on accessories that are not listed here, please contact your local service or sales representation.

Process adapter

Welded fitting DN 50 (70 mm), inclined, material: 1.4571 (AISI 316 Ti);
- order no. 71098682



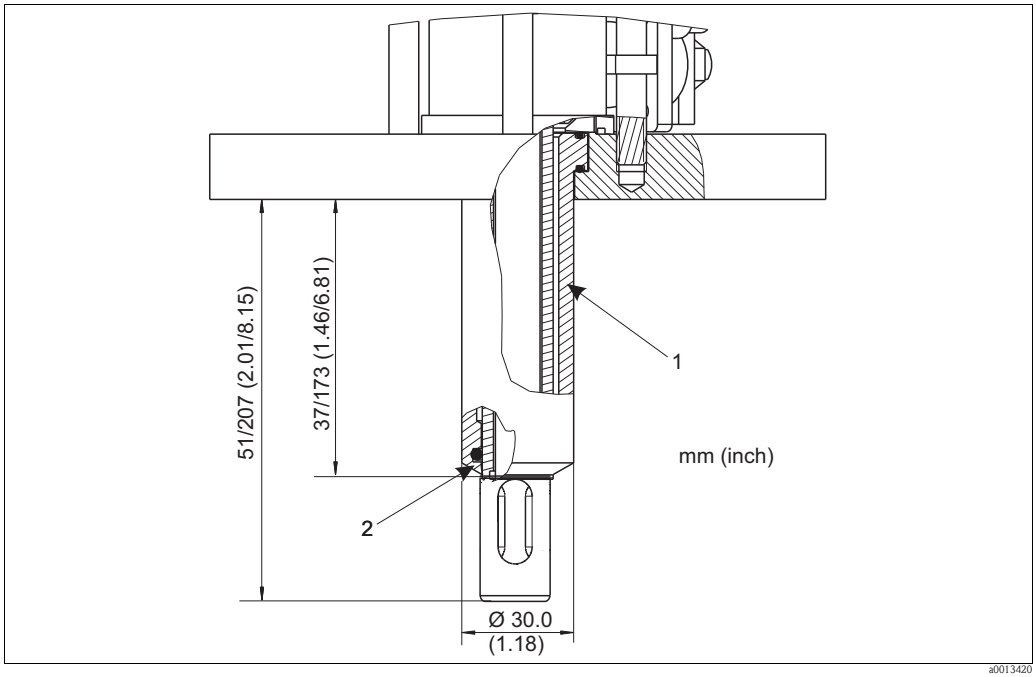
Welded fitting

1 Flange DN 50 / PN16

Packing sleeve

Sleeve
- For short immersion depth CPA474-*9******, material: PEEK
- order no. C-PA040121-10

Sleeve
- For long immersion depth CPA474-*9******, material: PEEK
- order no. C-PA100323-50



Sleeve (short immersion depth / long immersion depth)

1 Sleeve (PEEK)
2 Scraper of sleeve with O-ring

Water filter and pressure reducer	Filter set CPC310 ■ Water filter (dirt trap) 100 µm, complete, incl. angle bracket; ■ Order no. 71031661 Pressure reducer kit ■ Complete, incl. manometer and angle bracket; ■ Order no. 51505755
Rinse connection adapter	■ Rinse connection adapter CPR40 for connecting 2 or 4 different media. Order acc. to product structure, see Technical Information (TI342C/07/en).
Flow assembly	Flowfit CPA240 ■ pH/redox flow assembly for processes with a high level of requirements ■ Technical Information TI179C/07/en
Pneumatic throttle	Pneumatic throttle for the reduction of the assembly moving speed, ■ G1/8 threaded connection ■ order no. 50036864
Hose connections for rinse chamber	■ Hose connection set, for Cleanfit assemblies, PVDF, G ¼, D12 order no. 51511724 ■ Hose connection set, for Cleanfit assemblies, stainless steel 1.4404 (AISI 316L), NPT ¼", D12 order no. 51511725 ■ Hose connection set, for Cleanfit assemblies, PVDF, NPT ¼", D12 order no. 51511726 ■ Hose connection set, for Cleanfit assemblies, stainless steel 1.4404 (AISI 316L), NPT ¼", D16 order no. 51511722 ■ Hose connection set, for Cleanfit assemblies, PVDF, NPT ¼", D16 order no. 51511723 ■ Hose connection set, for Cleanfit assemblies, stainless steel 1.4404 (AISI 316L), G ¼, D16 order no. 51511590 ■ Hose connection set, for Cleanfit assemblies, PVDF, G ¼, D16 order no. 51511591
Limit position switches	Set of pneumatic limit position switches (2 pieces); ■ order no. 51502874 Set of electric limit position switches, Ex and non-Ex (2 pieces); ■ order no. 51502873
Inlet / outlet safety seal	■ Pneumatic outlet safety seal for rinse chamber outlet: G ¼, order no. 51511935 NPT ¼", order no. 51511936 ■ Manual outlet safety seal for rinse chamber outlet, G ¼, order no. 51511937 NPT ¼", order no. 51511938 ■ Non-return valve (inlet safety seal) for rinse chamber inlet, G ¼, order no. 51511939 NPT ¼", order no. 51511940

Sensors

Sensors are available in following sizes:
- Gel sensors in 225 mm for short version of CPA474
- Gel sensors in 360 mm for long version of CPA474
- KCl sensors in 425 mm for short version of CPA474

Glass electrodes

Orbisint CPS11/CPS11D
- pH sensor for process applications
- Optionally with Memosens technology
- With PTFE diaphragm
- Ordering acc. to product structure, see Technical Information (TI028C/07/en)

Orbisint CPS12/CPS12D
- ORP electrode for process applications
- Optionally with Memosens technology
- With PTFE diaphragm
- Ordering acc. to product structure, see Technical Information (TI367C/07/en)

Ceraliquid CPS41/CPS41D
- pH sensor
- Optionally with Memosens technology
- With ceramics diaphragm and liquid KCl electrolyte
- Ordering acc. to product structure, see Technical Information (TI079C/07/en)

Ceraliquid CPS42/CPS42D
- ORP electrode
- Optionally with Memosens technology
- With ceramics diaphragm and liquid KCl electrolyte
- Ordering acc. to product structure, see Technical Information (TI373C/07/en)

Ceragel CPS71/CPS71D
- pH sensor
- Optionally with Memosens technology
- With double chamber reference system and integrated bridge electrolyte
- Ordering acc. to product structure, see Technical Information (TI245C/07/en)

Ceragel CPS72/CPS72D
- ORP electrode
- Optionally with Memosens technology
- With double chamber reference system and integrated bridge electrolyte
- Ordering acc. to product structure, see Technical Information (TI374C/07/en)

Orbipore CPS91/CPS91D
- pH sensor
- Optionally with Memosens technology
- With open aperture for media with high dirt load
- Ordering acc. to product structure, see Technical Information (TI375C/07/en)

ISFET sensors

Tophit CPS471/CPS471D
- Sterilizable and autoclavable ISFET sensor for food and pharmaceuticals, process technology,
- water treatment and biotechnology;
- Ordering acc. to product structure, see Technical Information (TI283C/07/en)

Tophit CPS441/CPS441D
- Sterilizable ISFET sensor for media with low conductivity, with liquid KCl electrolyte;
- Ordering acc. to product structure, see Technical Information (TI352C/07/en)

Tophit CPS491/CPS491D
- ISFET sensor with open aperture for media with high dirt load;
- Ordering acc. to product structure, see Technical Information (TI377C/07/en)

Cables

CPK9 special measuring cable
- For sensors with TOP68 plug-in head, for high-temperature and high-pressure applications, IP 68
- Ordering acc. to product structure, see Technical Information (TI118C/07/en)

CPK1 special measuring cable
- For pH/ORP electrodes with GSA plug-in head
- Ordering acc. to product structure, see Technical Information (TI118C/07/en)

CPK12 special measuring cable
- For pH/ORP glass electrodes and ISFET sensors with TOP68 plug-in head
- Ordering acc. to product structure, see Technical Information (TI118C/07/en)

CYK10 Memosens data cable
- For digital sensors with Memosens technology
- Ordering according to product structure, see Technical Information (TI376C/07/en)

Transmitters

Liquiline CM42
- Modular two-wire transmitter, stainless steel or plastic, field or panel instrument
- Various Ex approvals (ATEX, FM, CSA, Nepsi, TIIS)
- HART, PROFIBUS or FOUNDATION Fieldbus available
- Ordering acc. to product structure, see Technical Information (TI381C/07/en)

Liquisys CPM223/253
- Transmitter for pH and ORP, field or panel-mounted housing
- HART or PROFIBUS available
- Ordering acc. to product structure, see Technical Information (TI194C/07/en)

Mycom CPM153
- Transmitter for pH and ORP, one or two channel version, Ex or non-Ex
- HART or PROFIBUS available
- Ordering acc. to product structure, see Technical Information (TI233C/07/en)

Measuring, cleaning and calibration systems

Topcal CPC310
- Fully automatic measuring, cleaning and calibration system; Ex or non-Ex
- In-situ cleaning and calibration, automatic sensor monitoring
- Ordering acc. to product structure, Technical Information TI404C/07/en

Topclean CPC30
- Fully automatic measuring and cleaning system; Ex or non-Ex
- In-situ cleaning, automatic sensor monitoring
- Ordering acc. to product structure, see Technical Information TI235C/07/en

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People for Process Automation