

CleanFit P CPA 472 **Retractable Assembly for** **pH/Redox Measurement**

Compact Retractable Assembly for Installation of **pH/ORP Electrodes in Tanks or Pipelines**



This compact retractable assembly permits automatic cleaning, calibration and replacement of the electrode while the tank is full or under process conditions with pressures of up to 6 bar. The material in contact with the medium is plastic.

Areas of application

- Chemical industry
- Waste water treatment
- Plant design
- Tanks and process vats
- Pipelines or pipes

Benefits at a glance

- Compact design
- For pH/ORP electrodes
- Electrode can be cleaned and calibrated without interrupting the process; electrode life is extended
- Reliable separation from process by stop bolt and O-ring seals
- Simple removal and installation of electrode during ongoing process
- Adaptation to process requirements by great variety of materials and designs available
- Can be automated with a pneumatic or electric control system

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Area of application

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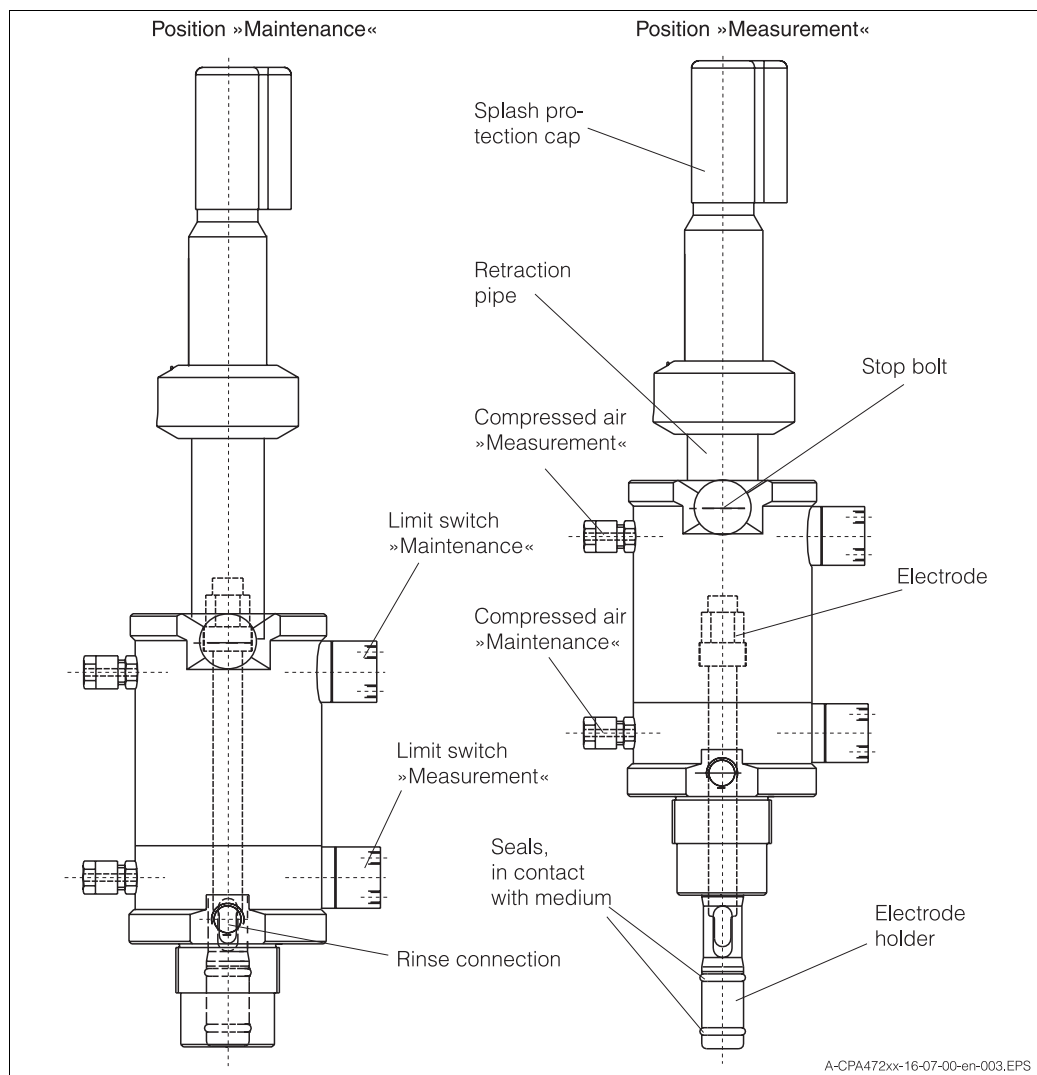
The retractable assembly CleanFit P CPA 472 is intended for reliable in-process measurement of pH value and ORP. This assembly has been designed as a compact retractable assembly for the chemical industry, for plant design and for waste water treatment. Without having to interrupt the process, the electrode can be

- separated from the process and moved to a rinse chamber manually or pneumatically;
- rinsed with water or cleaning solution;
- kept moist during interruptions in operation;
- removed; or
- calibrated.

The CleanFit P CPA 472 assembly is available in versions with polypropylene (PP), polyether ether ketone (PEEK) or polyvinylidene fluoride (PVDF) as the material in contact with the medium. Depending on the application, you can choose the short assembly version (for use with 120 mm gel electrodes or 225 mm liquid KCl electrodes, immersion depth up to 110 mm) or the long assembly version (for use with 225 mm liquid KCl electrodes, electrode immersion depth up to 215 mm). The most commonly used process connections are available (see section Process connections).

Function and construction

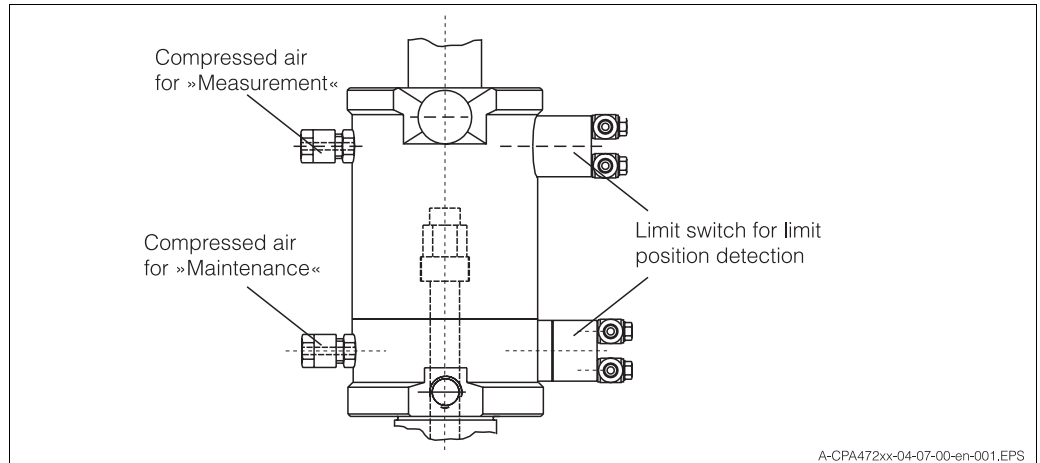
Function



Auxiliary energy / connections

Pneumatic connections for automatic assembly actuation

(if equipped accordingly)



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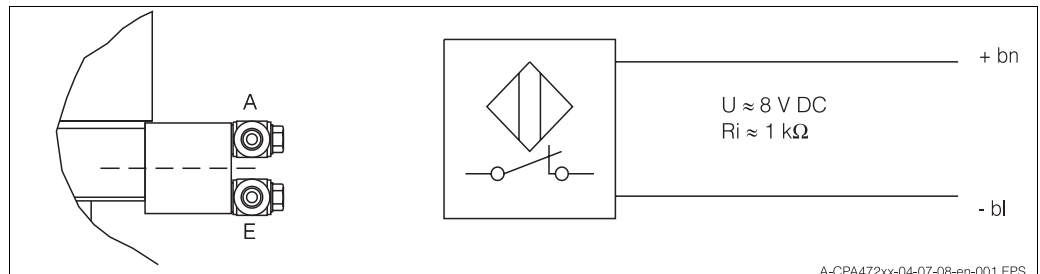
The CleanFit P CPA 472 assembly is operated with an air pressure of 4 to 8 bar. The air must be filtered (40 μm) and free from water and oil. There is no continuous pressure demand. The air lines must have a minimum nominal diameter of 4 mm.



Note:

If pressure increases to above 8 bar are possible (including short peak pressures), a pressure reducer must be installed.

Connections for limit position detection



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Left: Pneumatic limit switch (E: compressed air inlet, A: compressed air outlet)

Right: Electric limit switch

The lower limit switches are always used for the »Measurement« function, the upper switches for the »Maintenance« function.

Operating conditions (installation)

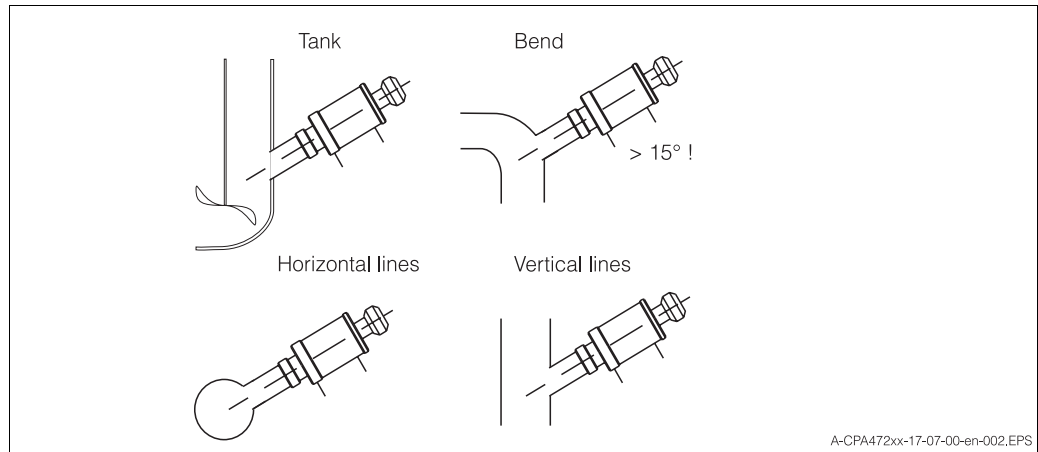
Place of installation

The CleanFit P CPA 472 assembly is suitable for mounting on tanks or pipelines. Appropriate sockets are to be provided.



Note:

An installation angle of at least 15° from the horizontal is mandatory.

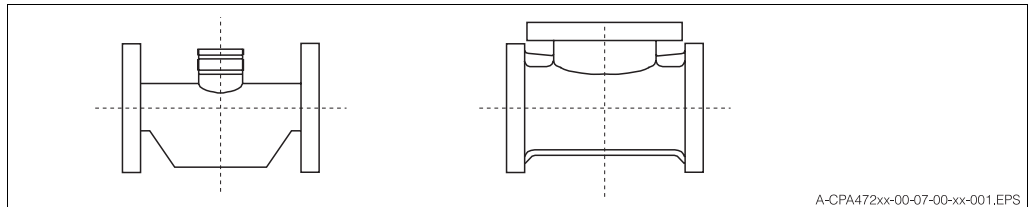


Examples for installation; Installation angle at least 15° from the horizontal



Note:

- Pipe installation of the assembly requires a nominal diameter of at least DN 80.
- A flow chamber is to be used for smaller pipe diameters. Flow chambers are available as accessories (DN 25, PVDF or DN 50, PP; refer to Accessories section for order numbers).



left: Flow chamber DN 25, PVDF

right: Flow chamber DN 50, PP

Operating conditions (environment)

Ambient temperature

The ambient temperature must not drop below 0 °C.



Caution:
Danger of frost damage!

If temperatures below 0 °C are possible, the assembly, air and water lines are to be heated.

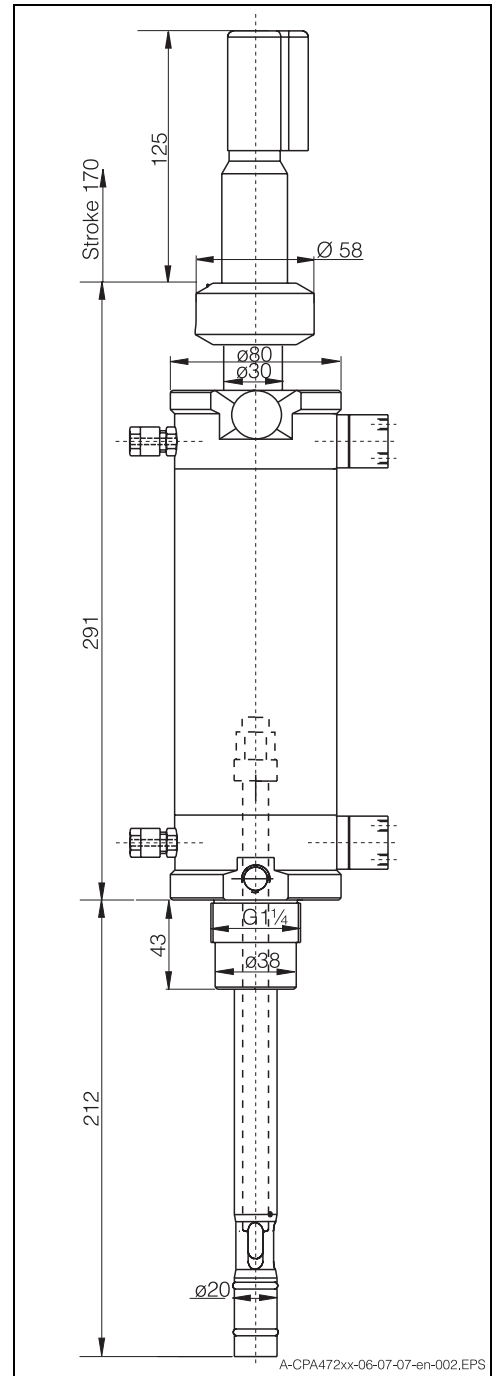
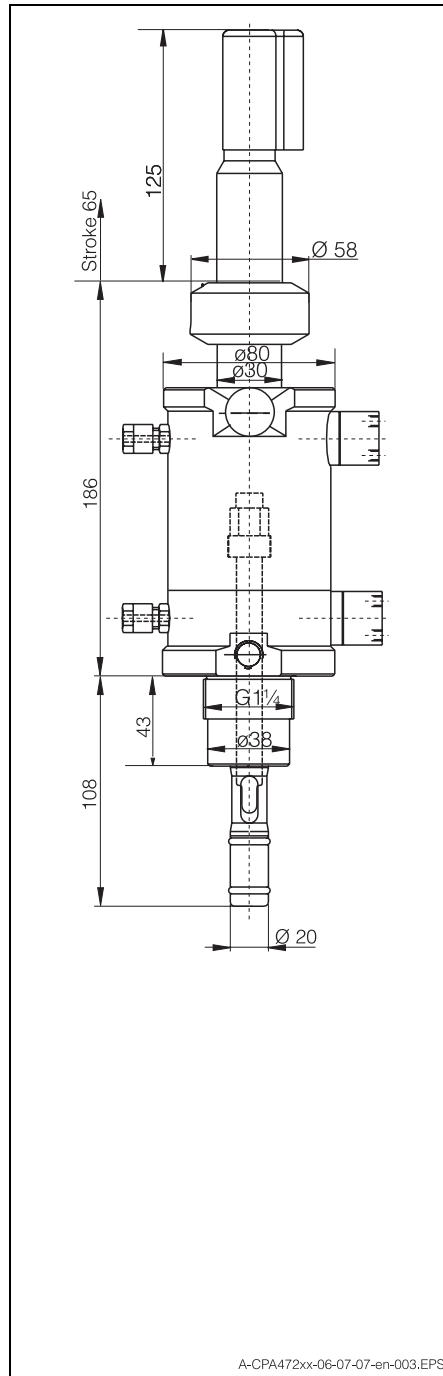
Operating conditions (process)

Process temperature range 0 ... 90 °C (depending on material selected and process pressure)

Process pressure range 0 ... 4 bar for manual actuation
0 ... 6 bar for pneumatic actuation

Design

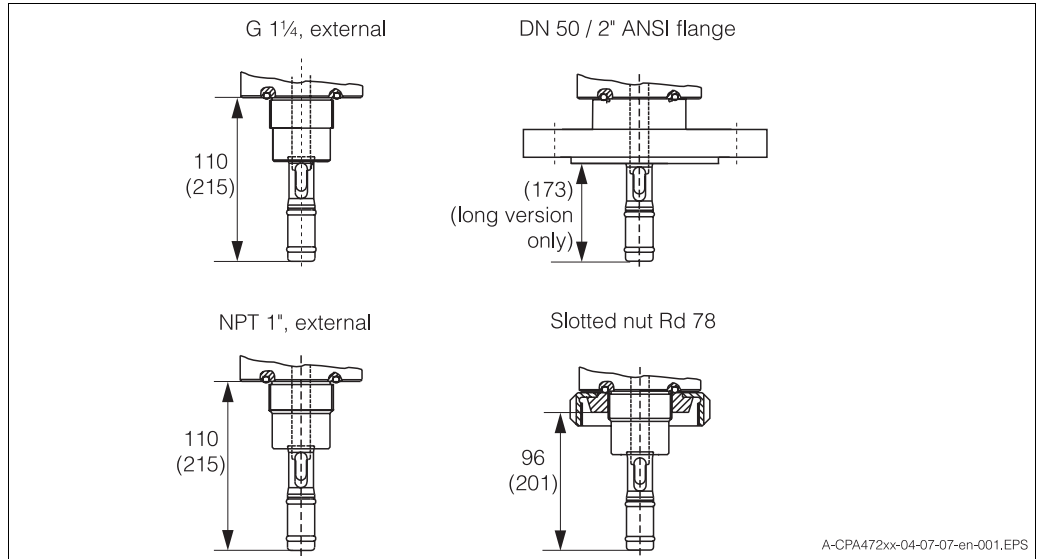
Design, dimensions



Left: CleanFit P CPA 472 in short version (for electrode length of 120 mm, gel electrode CPS11)

Right: CleanFit P CPA 472 in long version (for electrode length of 225 mm, gel electrode CPS 11)

Weight	Short version approx. 1.5 kg Long version approx. 3 kg
Electrodes	Short version: gel electrodes: 120 mm KCl electrode with KCl refilling: 225 mm Long version: gel electrodes: 225 mm
Process connection	G 1¼ external thread, DN 50 flange, 2" ANSI flange, NPT 1" external thread, slotted nut Rd 78



The immersion depth in mm is specified for each connection type (values in brackets are for long assembly version)

Certificates and approvals

Ex approval	The electric limit switches are protection type EEx ia IIC T1 / T2 / T3 / T4 / T5 / T6 (approval number: PTB no. Ex - 83 / 2023 X)
CE mark	The measuring system fulfills the stipulations of the EC directives. Endress+Hauser certifies successful testing of the device by application of the CE mark.

Product overview

Product overview for CleanFit P CPA 472

		Drive type and limit switches	
	A	Manual (cannot be converted to pneumatic)	
	B	Pneumatic without limit switches (suitable for retrofitting)	
	C	Pneumatic with 2 pneumatic limit switches	
	D	Pneumatic with 2 electric limit switches	
	E	Pneumatic with 2 electric Ex limit switches	
	Y	Special version to customer specifications	
		Sealing of electrode holder	
	1	Standard version	
	9	Special version to customer specifications	
		Electrode type	
	A	For gel electrodes with Pg 13.5	
	B	For KCl electrodes with Pg 13.5 hose connection head (immersion depth 1 only)	
	Y	Special version to customer specifications	
		Immersion depth	
	1	Short version: up to 110 mm (depending on process connection) (possible electrode lengths: A = 120 mm, B = 225 mm)	
	2	Long version: up to 215 mm (depending on process connection) (possible electrode length: A = 225 mm)	
	9	Special version to customer specifications	
		Assembly material (in contact with medium)	
	A	PP	
	B	PEEK	
	C	PVDF	
	D	PVDF with PEEK electrode holder	
	Y	Special version to customer specifications	
		Seal material	
	2	FPM (VITON®)	
	3	KALREZ®	
	9	Special version to customer specifications	
		Process connection	
	A	G 1¼ external thread	
	B	NPT 1" external thread	
	C	Slotted nut Rd 78 DIN 11851-3 in stainless steel	
	D	PP-DN 50 flange (immersion depth 2 only)	
	E	PP flange, ANSI 2" (immersion depth 2 only)	
	Y	Special version to customer specifications	
		Optional equipment	
	1	Without rinse connection (retrofitting not possible)	
	3	With rinse connection 2 x G ¼ internal thread	
	4	With rinse connection 2 x NPT ¼" internal thread	
	9	Special version to customer specifications	
CPA 472-			complete order code



Accessories

Welding socket	G1¼, internal thread, PP; order no.:51502809 G1¼, internal thread, PVDF; order no.: 51502810 Rd 78 external thread, PP; order no.: 51502811 Rd 78 external thread, PVDF; order no.: 51502812
Flow chamber	DN 50, PP; order no.: 51502815 DN 25, PVDF, order no.: 51502816
Set of seals for contact with medium	FPM (VITON®); order no.: 51502813 KALREZ®; order no.: 51502814
pH/ORP combination electrodes, lengths 120 mm	Orbisint W CPS 11/12
pH/ORP combination electrodes, length 225 mm	Orbisint W CPS 11/12 Ceraliquid P CPS 41/42 (with SSA or ESS head)
Hose connection set	G ¼, DN 12, PVDF (2 pcs.); order no.: 50090491
Retrofit Kit limit switches	pneumatic limit switches (2 pcs.); order no.: 51502874 electric limit switches (ex, 2 pcs.); order no.: 51502873

Supplementary documentation

Supplementary documentation	<input type="checkbox"/> TI Orbisint W CPS 11/12/13 (order no. 50054649) <input type="checkbox"/> TI Ceraliquid P CPS 41/42/43 (order no. 50059346)
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