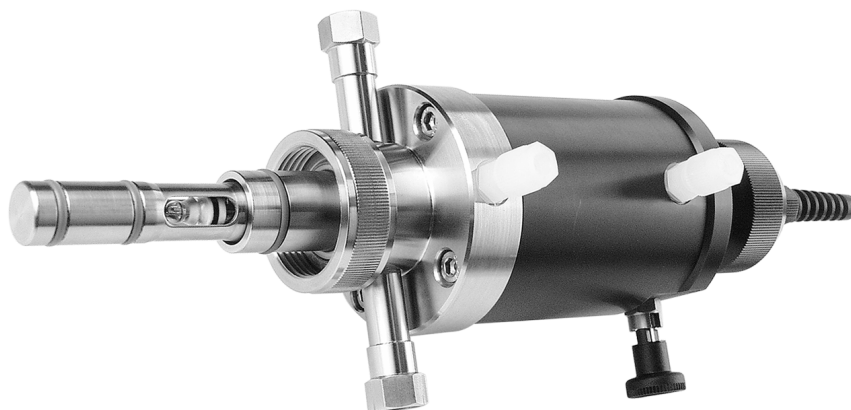


CleanFit P CPA 471

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 stainless steel.

Areas of application

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

Benefits at a glance

- Compact design
- 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

Area of application

The retractable assembly CleanFit P CPA 471 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 industrial effluent 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;
- sterilised; or
- calibrated.

The CleanFit P CPA 471 assembly is available in stainless steel as the material in contact with the medium, and in a housing made of stainless steel or polyamide (PA). 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 101 mm) or the long assembly version (for use with 225 mm gel electrodes, electrode immersion depth up to 208 mm). The most commonly used process connections are available (see section Process connections).

The sterilisable version of the electrode holder is used to monitor processes which demand a high degree of purity, e.g. in the foodstuffs industry and in biotechnology.

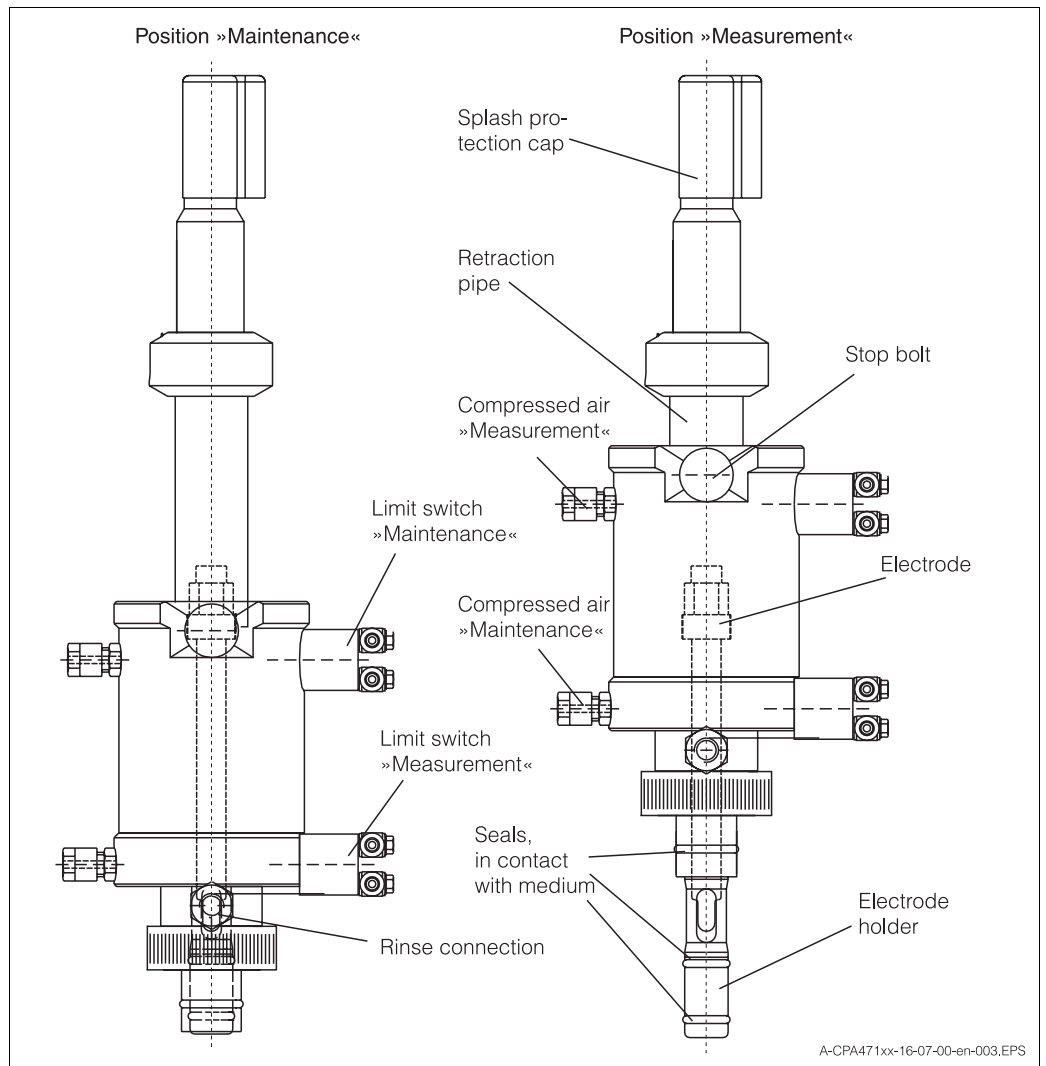


Left: Sterilisable version of electrode holder

Right: Standard version of electrode holder

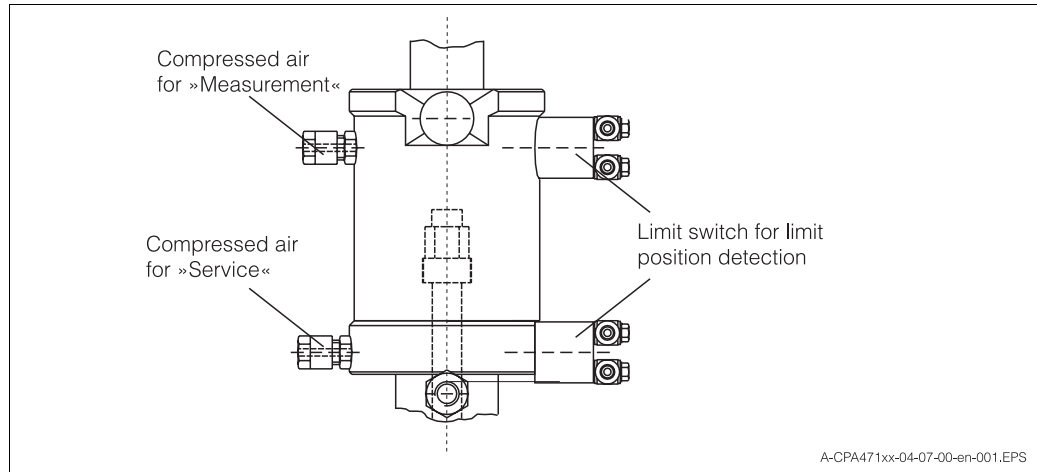
Function and construction

Function



Auxiliary energy / connections

Pneumatic connections for automatic assembly actuation (if equipped accordingly)



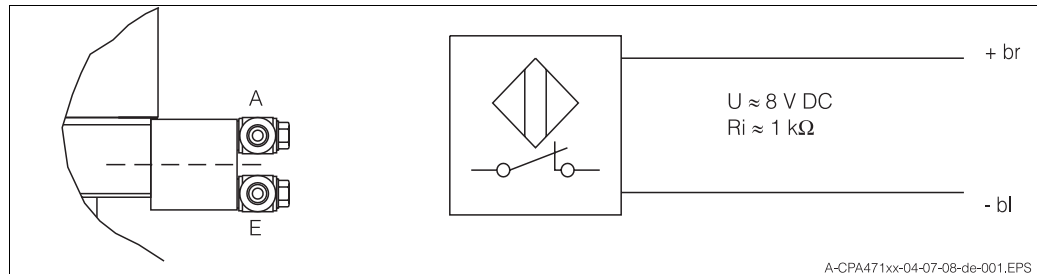
The CleanFit P CPA 471 assembly is operated with an air pressure of 4 to 8 bar. The air must be filtered (40 µm) and free from water and oil. There is no continuous pressure demand. The air lines must have a minimum nominal diameter of 4 mm.



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



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)

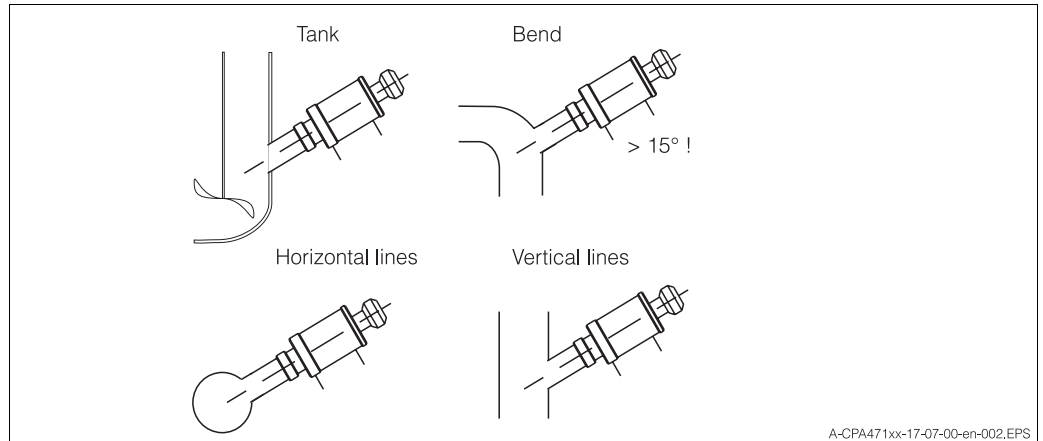
Place of installation

The CleanFit P CPA 471 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.

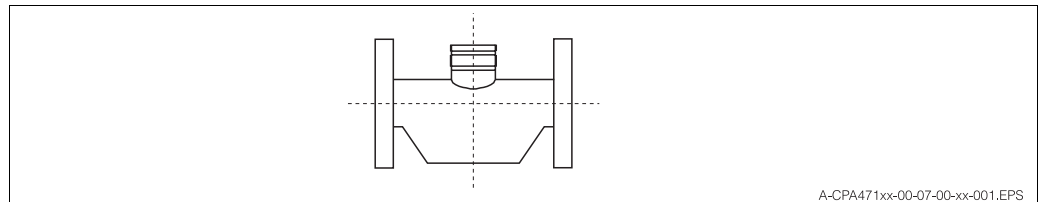


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Note:

- 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. The flow chamber is available as an accessory (DN 25, stainless steel 316L; order no. see section Accessories).



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Flow chamber DN 25, stainless steel 316L

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

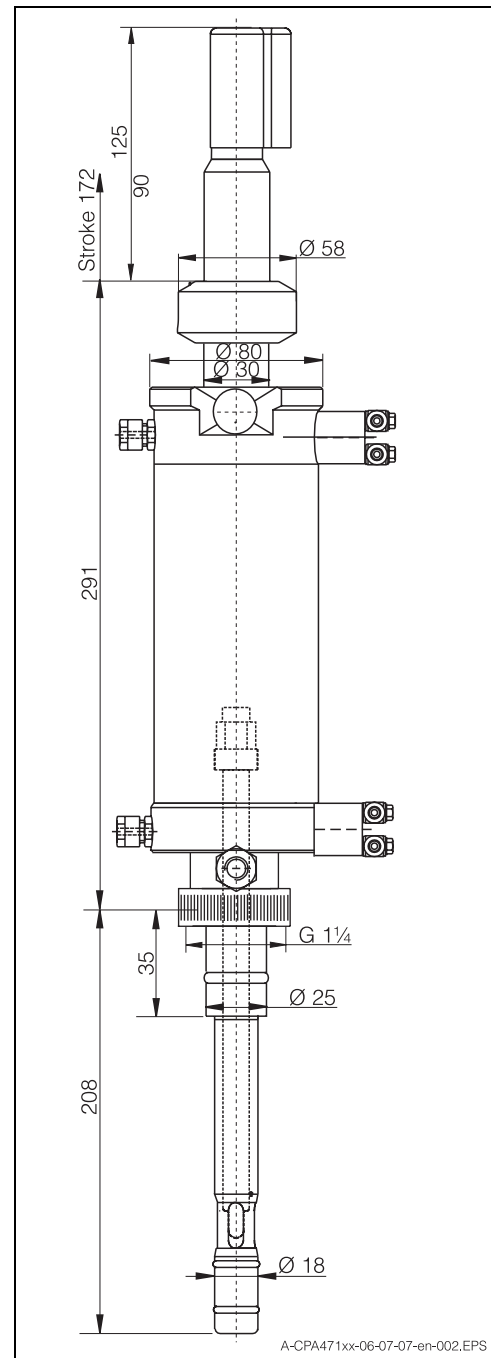
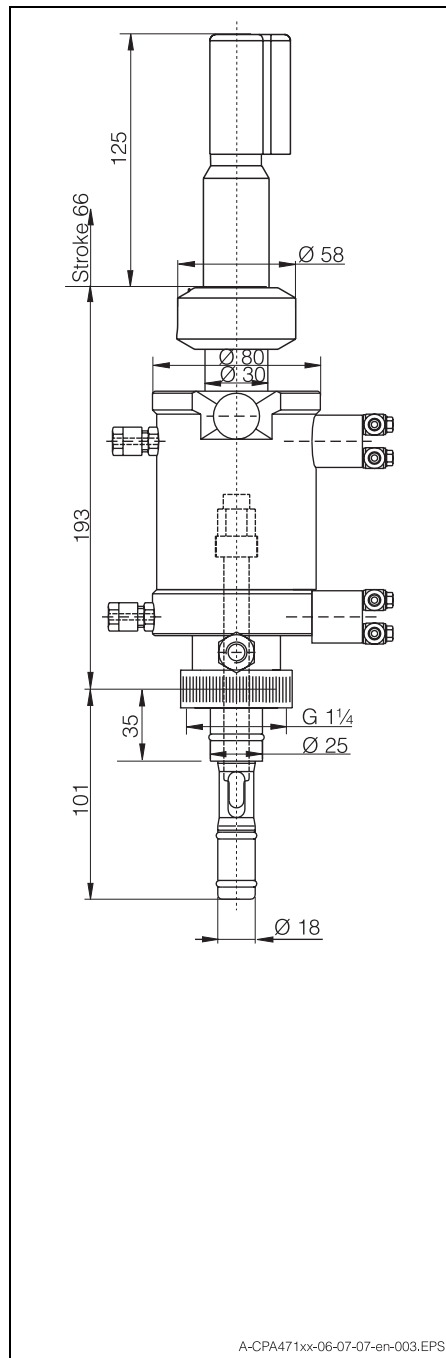
0 ... 90 °C (depending on material selected and process pressure)
up to 135 °C for version with stainless steel housing

Process pressure range

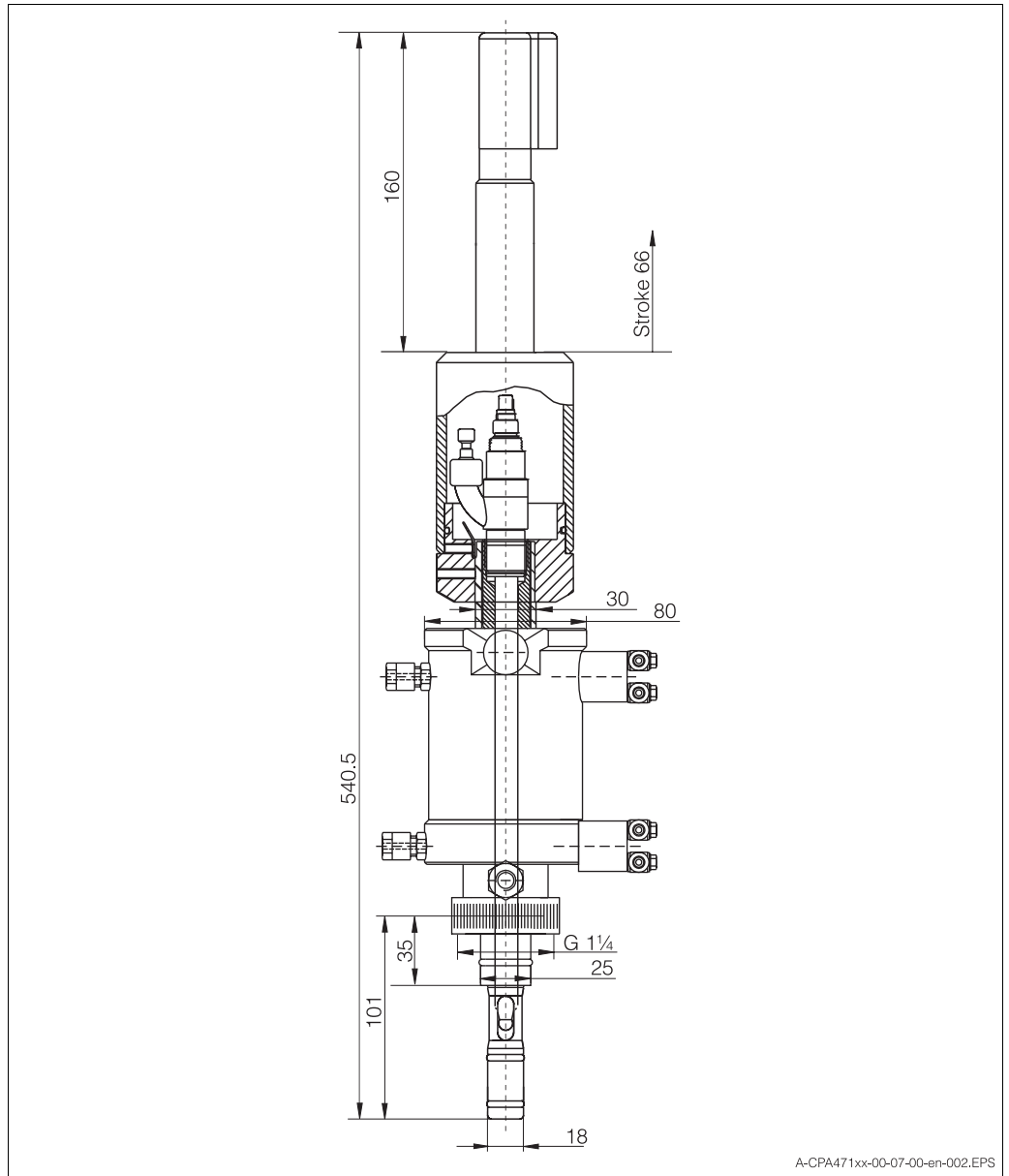
0 ... 4 bar for manual actuation
0 ... 6 bar for pneumatic actuation

Design

Design, dimensions



Left: CleanFit P CPA 471 in short version (for electrode length of 120 mm, gel electrodes CPS 11)
 Right: CleanFit P CPA 471 in long version (for electrode length of 225, gel electrodes CPS 11)



CleanFit P CPA 471 in short version with 225 mm liquid KCl electrode Ceraliquid CPS 41
(with hose connection for refilling with KCl)

Materials in contact with medium

Electrode holder: stainless steel 316L
Seals: EPDM, VITON®, KALREZ®, PTFE

Materials not in contact with medium

Housing: PA, stainless steel 316Ti

Rinse connections

2 x G 1/4 (inside),
2 x NPT 1/4" (inside)

Pneumatic requirements

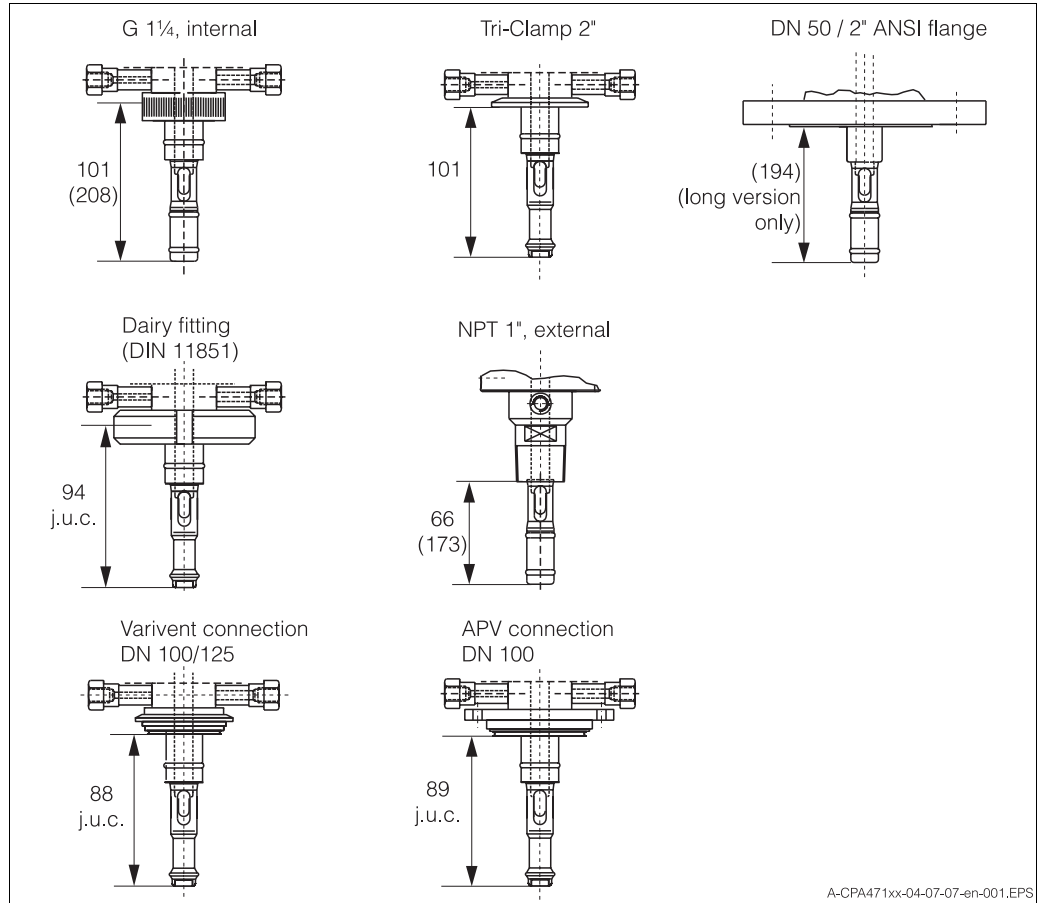
Pressure 4 ... 8 bar
Filtered air (40 µm), water-free, oil-free
The air hoses must have a minimum nominal diameter of 4 mm.

Limit switches

Pneumatic 3/2-way valve,
electric limit switch

Weight	Short version approx. 2.5 kg Long version approx. 9 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 internal thread, Tri-Clamp 2", DN 50 flange, 2" ANSI flange, dairy fitting (DIN 11851), NPT 1" external thread, Varivent, APV



The immersion depth in mm is specified for each connection type (values in brackets are for long assembly version)
(j.u.c.: just under construction, dimensions can vary slightly)

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 CPA 471 assembly conforms to the relevant regulations and European standards.



Product overview

Product overview for CleanFit P CPA 471

		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 (only process connections A, B, G, H)	
	2	Sterilisable version (immersion depth 1 only, process connection A, C, D, E, F, equipped with optional rinse fitting 3, 4)	
	9	Special version to customer specifications	
		Electrode holder	
	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 101 mm (depending on process connection) (possible electrode lengths: A = 120 mm, B = 225 mm)	
	2	Long version: up to 208 mm (depending on process connection) (possible electrode length: A = 225 mm)	
	9	Special version to customer specifications	
		Assembly material (in contact with medium)	
	A	316L in contact with medium, with PA housing	
	B	316L in contact with medium, with 316Ti housing	
	C	316L in contact w. medium, with test cert. 3.1B acc. to EN10204, with PA housing	
	D	316L in contact w. medium, with test certificate 3.1B acc. to EN10204, with 316Ti housing	
	Y	Special version to customer specifications	
		Seal material (in contact with medium)	
	1	EPDM	
	2	VITON®	
	3	KALREZ®	
	9	Special version to customer specifications	
		Process connection	
	A	G 1¼ internal thread (union)	
	B	NPT 1¼" external thread	
	C	Tri-Clamp 2"	
	D	Dairy pipe NW 50	
	E	Varivent DN 100/125	
	F	APV DN 100	
	G	DN 50 flange (immersion depth 2 only)	
	H	2" ANSI flange (immersion depth 2 only)	
	Y	Special version to customer specifications	
		Optional equipment	
	1	Without rinse connection (retrofitting not possible)	
	3	With rinse fitting 2 x G ¼ internal thread	
	4	With rinse fitting 2 x NPT ¼" internal thread	
	9	Special version to customer specifications	
CPA 471-		complete order code	

Accessories

Welding socket	G 1¼, straight, stainless steel 316L; order no.: 51502798 G 1¼ inclined 15°, stainless steel 316L; order no.: 51502799	
Blind plug for G 1¼ process connection	Stainless steel 316L with VITON® seal G 1¼ connection, internal thread; order no.: 51502800	
Flow chamber	DN 25, stainless steel 316L; order no.: 51502801	
Set of seals for contact with medium	Electrode holder standard version:	EPDM; order no.: 51502802 VITON®; order no.: 51502803 KALREZ®; order no.: 51502804
	Electrode holder sterilisable version:	EPDM; order no.: 51502805 VITON®; order no.: 51502806 KALREZ®; order no.: 51502807
pH/ORP combination electrodes, length 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, stainless steel 316L (2 pcs.); order no.: 51502808	
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. 50052557) <input type="checkbox"/> TI CeraLiquid P CPS 41/42/43 (order no. 50058726)
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