

Technical Information

Cleanfit CPA451

Manually operated retractable assembly for water, wastewater and process media



Application

- Industrial and communal waste water treatment
- Water conditioning
- Condensate cleaning

Your benefits

- Safe and reliable process termination possible under nearly all conditions
- Process pressure up to 10 bar (145 psi), manually operated up to 2 bar (29 psi)
- Cleaning possible due to rinse water connection
- Rinse water connection can be used as sealing water inlet
- Sensor monitoring and cleaning without process interrupt

Function and system design

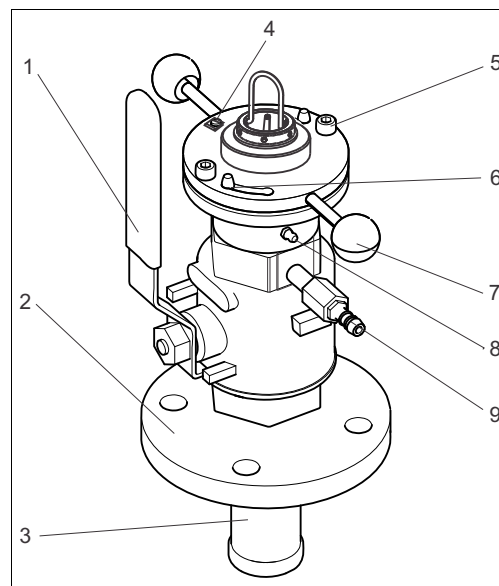
Function

The assembly is manually operated.

i The vent cock or the rinse connections (if used) are in open contact with the medium in the measuring position and when the assembly is moving, and are therefore exposed to the process pressure. Make sure that the vent cock or the rinse connections (if used) are closed when moving the assembly!

In the "Service" state (sensor moved back into the assembly as far as possible and **ball valve closed**), the assembly is sealed off from the process by the ball valve. This means that cleaning and calibration can be performed, or the sensor can be replaced, without interrupting the process.

The assembly can be moved manually under process conditions up to a process pressure of approx. 2 bar (29 psi).



- 1 Hand lever for opening/closing the ball valve
- 2 Process connection (flange DN 50 / PN 16; example)
- 3 Retraction pipe
- 4 Terminal for potential equalization
- 5 Securing screws
- 6 Bayonet lock
- 7 Handles
- 8 Grease nipple
- 9 Ball valve for venting or rinse connection

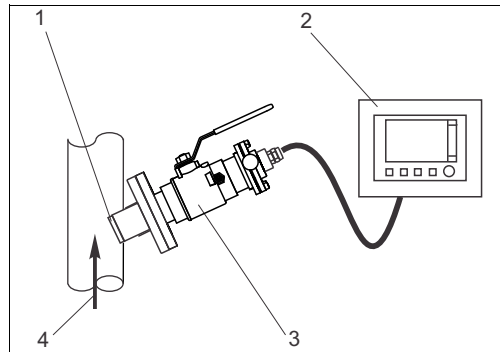
Assembly in operational state (ball valve open)

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Measuring system

A complete measuring system comprises:

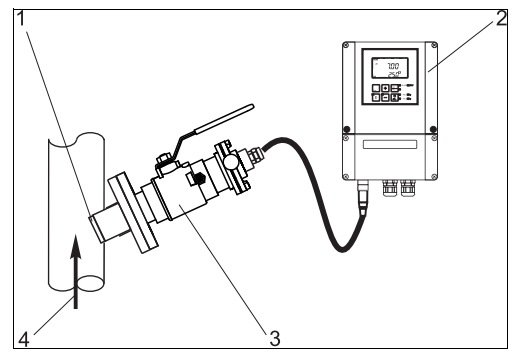
- Cleanfit CPA451 assembly
- Orbipac CPF81D/CPF82D/CPF81 or CPF82 pH/ORP electrode
- Liquiline CM44x or Liquisys M CPM223/253 transmitter



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Measuring system with CPF81D or CPF82D

- 1 Orbipac CPF81D or CPF82D pH/ORP electrode
- 2 Liquiline CM44x multichannel transmitter
- 3 Cleanfit CPA451 retractable assembly
- 4 Flow direction of the medium



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Measuring system with CPF81 or CPF82

- 1 Orbipac CPF81 or CPF82 pH/ORP electrode
- 2 Liquisys M CPM253
- 3 Cleanfit CPA451 retractable assembly
- 4 Flow direction of the medium

Installation

Installation instructions

Install the assembly in places with uniform flow conditions. The minimum pipe diameter is DN 80.

- i** The installation instructions depend on the sensor used. Detailed installation instructions are provided in both the Technical Information and the Operating Instructions for the sensor in question.

Environment

Ambient temperature range 0 to 50 °C (32 to 122 °F)

Process

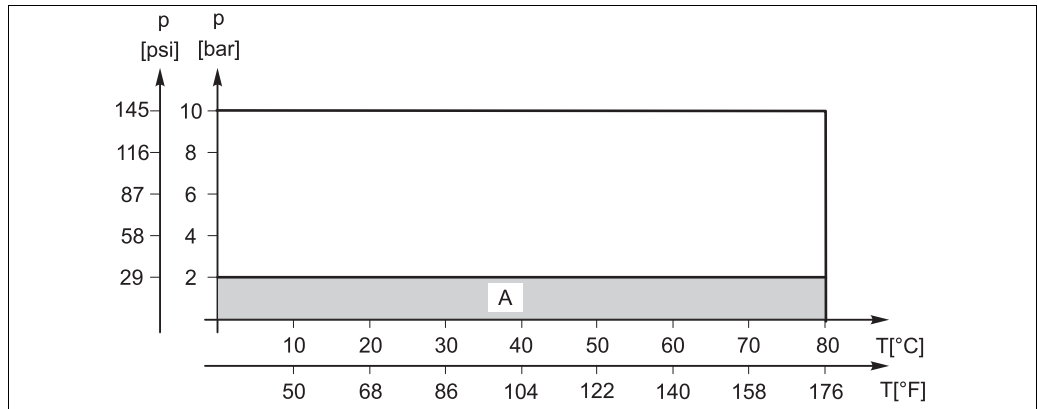
Medium pressure Max. 10 bar (145 psi)

- i** For manual insertion/retraction of the assembly the medium pressure may not exceed 2 bar (29 psi)!
Also take the process conditions of the sensor used into consideration!

Medium temperature 0 to 80 °C (32 to 176 °F)

- i** Take the maximum medium temperature for the sensor into consideration!

Pressure-temperature ratings



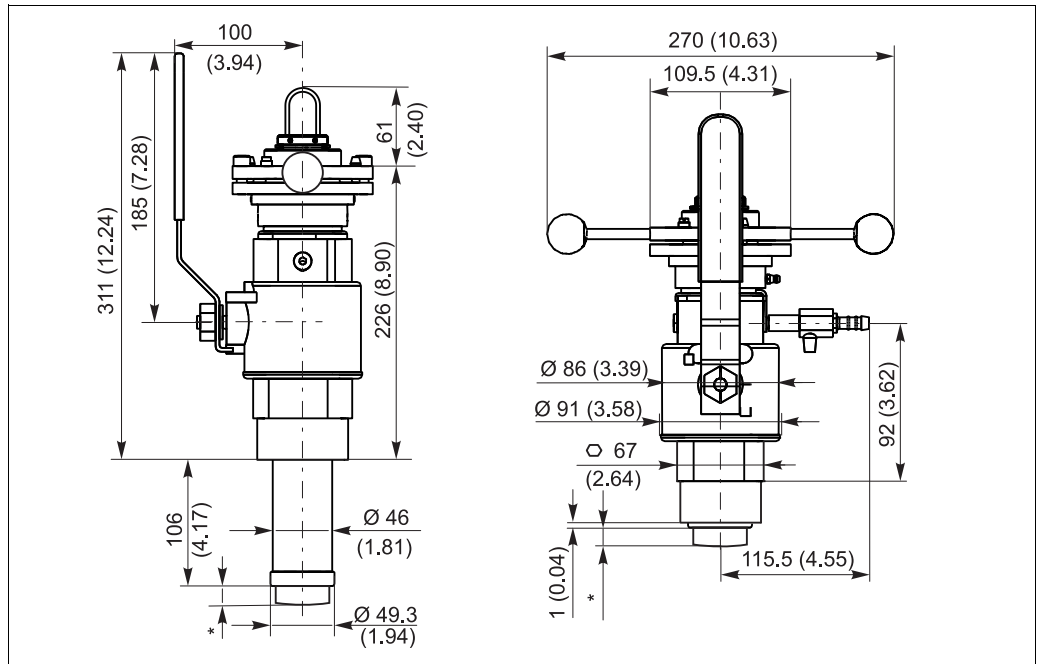
Pressure-temperature ratings

A Range in which the assembly can be operated manually

Mechanical construction

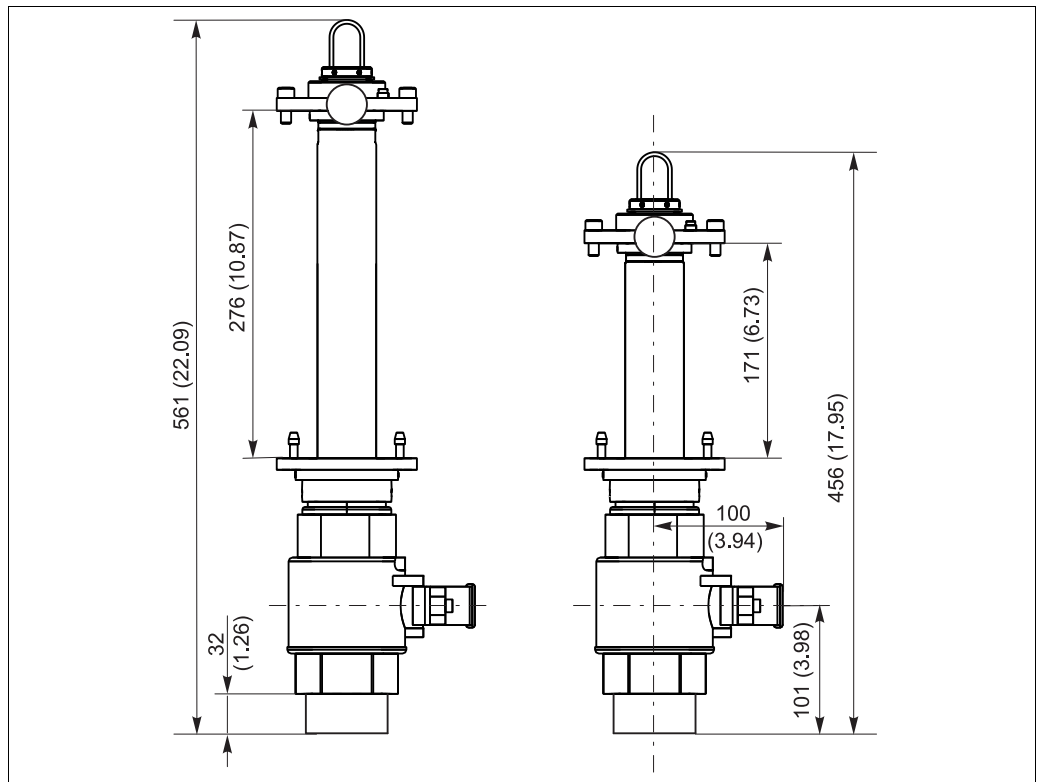
Design, dimensions

Assembly with G2 thread and weld-in adapter in measuring position (long and short stroke)



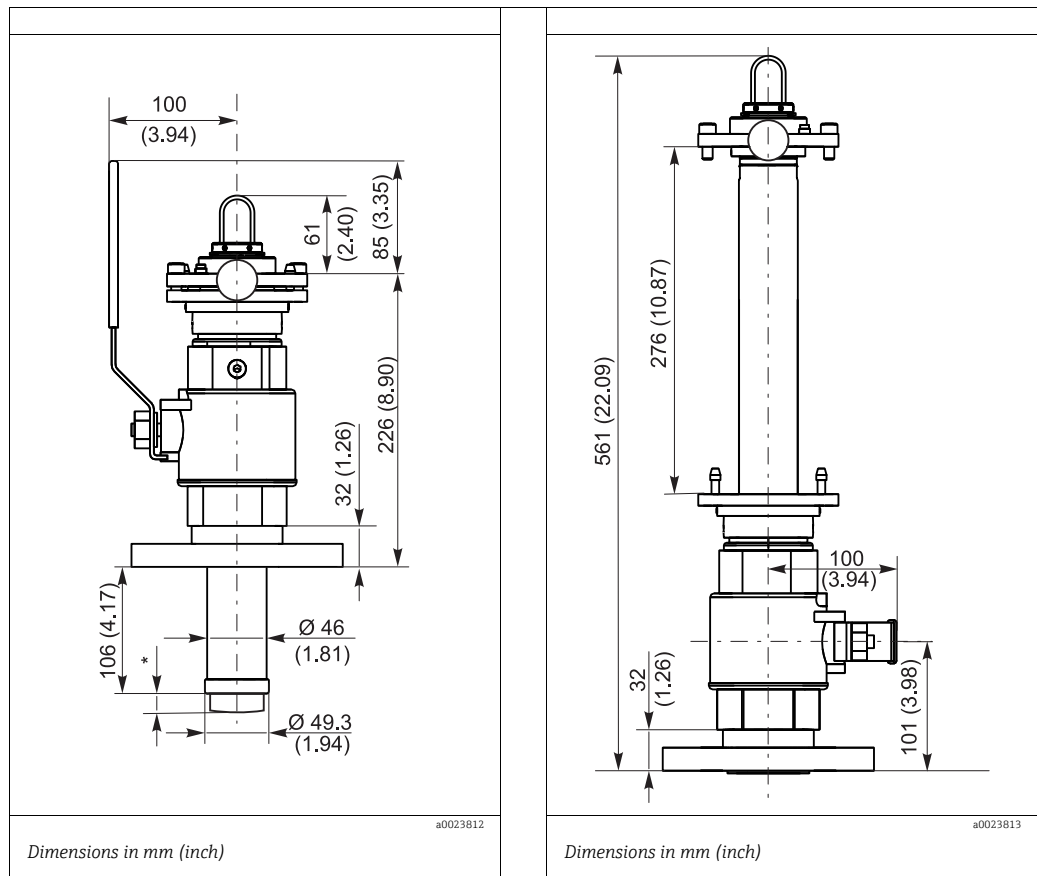
Dimensions in mm (inch)

Assembly with G2 thread and weld-in adapter in service position (long and short stroke)



Dimensions in mm (inch)

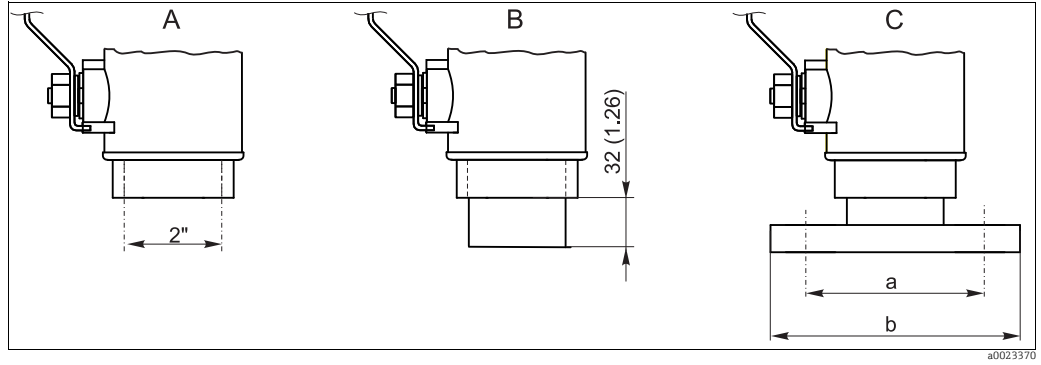
Assembly with flange connection (only for long stroke)



* Dimensions depend on sensor:
 CPF81-xx2: 6 mm (0.35")
 CPF81/82-xx1: 17 mm (0.67")

Sensors	CPF81D/CPF82D/CPF81/CPF82
Weight	Depending on version: 8 to 11 kg (17.6 to 24.3 lbs)
Materials	<p>Wetted: Viton (seals) Stainless steel 1.4404 (AISI 316L) Nickel-plated brass (vent cock or rinse connection)</p> <p>Not wetted: Stainless steel 1.4404 (AISI 316L)</p>

Process connections



Process connections. Dimensions in mm (inch)

- A Internal thread G2
- B Internal thread G2 with weld-in adapter
- C Flange DN 50 / PN 16 (as per EN 1092-1) and flange ANSI 2" / 150 lbs
 a: DN 50: Ø 125 (4.92), ANSI 2": Ø 120.7 (4.75)
 b: DN 50: Ø 165 (6.50), ANSI 2": Ø 152.4 (6.00)

Rinse connection nozzles

2 x G1/8 (internal)

Connection options:

- 2 x ball valve with hose connection OD 9 mm (see "Accessories")
 (A ball valve is included in the delivery for the assembly. On its own it acts as a vent cock.)
- Customer's own rinse connections with G1/8 external thread

Vent cock

Ball valve with hose connection OD 9 mm

Ordering information

Product page

You can create a valid and complete order code on the Internet using the Configurator.

Enter the following address in your browser to access the product page:
www.endress.com/cpa451

Product Configurator

You can find the navigation area on the right of the product page.

1. Under "Device support", click "Configure the selected product".
 ↳ The Configurator opens in a new window.
2. Configure the device as per your requirements by selecting all the options.
 ↳ In this way, you receive a valid and complete order code.
3. Export the order code as a PDF file or Excel file. To do so, click the appropriate button at the top of the window.

Product structure



The product structures always reflect the situation at the time of publication. You can create a current and complete order code on the Internet using the Configurator.

Sensor stroke	
A	Short stroke, approx. 170 mm (only process connections A+B)
B	Long stroke, approx. 270 mm
Sensor type / connection	
3	For CPF81D/CPF82D/CPF81/CPF82 with NPT 3/4", sensor length approx. 140 mm
Process connection	
A	G2 internal thread
B	G2 internal thread incl. weld-in adapter h = 50 mm
C	Flange DN 50 / PN 16 as per EN 1092-1
D	Flange ANSI 2" / 150 lbs
CPA451-	complete order code

Accessories

Assembly

Ball valve for rinse chamber

- As rinse connection complementing or replacing the venting ball cock supplied;
- Order No. 51512982

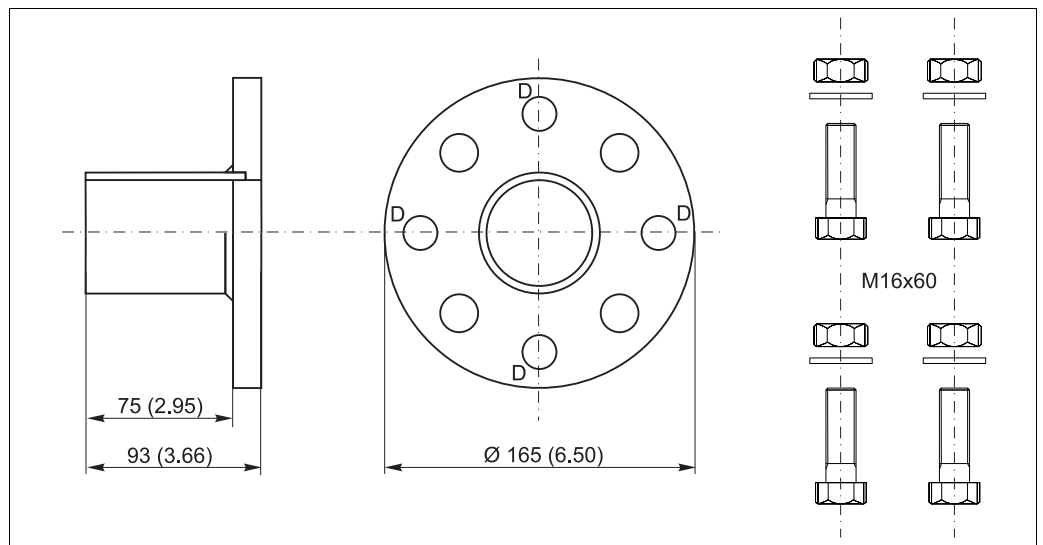
O-ring set

- Viton + FPM
- Order No. 51512981

Process connection adapter

Welding socket

- Welding socket for pipe diameter from 80 mm, with combination flange DN 50 / ANSI 2":
 - Bores for flange DN 50: 4 x 90° Ø18 on bolt circle Ø125 (4.92)
 - Bores for flange ANSI 2": 4 x 90° Ø19 on bolt circle Ø121 (4.75)
- Flange seal, 4 screws M16x60, 4 nuts M16 incl. washers,
- Stainless steel 1.4571 (AISI 316 Ti)
- Order No. 50080249

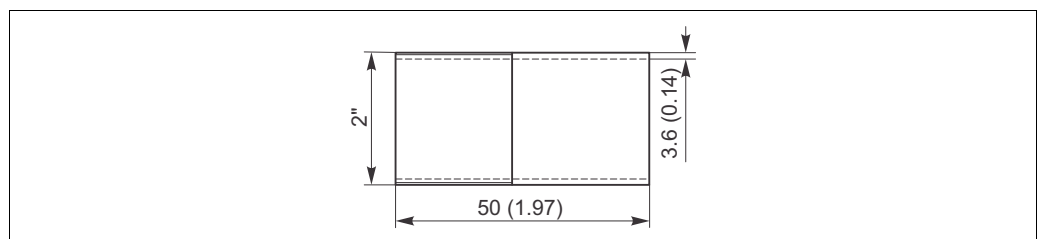


Welding socket, dimensions in mm (inch)

D: Markings for bores, flange DN 50

Welding nipple

- Welding nipple for 2" thread
- Stainless steel 1.4404 (AISI 316L)
- Order No. 71265347



Welding nipple, dimensions in mm (inch)

Sensors

Orbipac CPF81 and CPF81D

- Compact pH electrode, analog or with digital Memosens technology
- For installation or immersion in industrial water and wastewater
- Order as per product structure, www.products.endress.com/cpf81 or www.products.endress.com/cpf81d
- Technical Information TI00191C/07/EN

Orbipac CPF82 and CPF82D

- Compact ORP electrode, analog or with digital Memosens technology
- For installation or immersion in industrial water and wastewater
- Order as per product structure, www.products.endress.com/cpf82 or www.products.endress.com/cpf82d
- Technical Information TI00191C/07/EN

www.addresses.endress.com
