

Technical Information

Unifit CPA842

Process assembly

For safe installation of 12 mm sensors (Pg 13.5) in the food, beverage and life sciences industries

Simple - Safe - Hygienic - Reliable

Application

- Process assembly for 12 mm sensors such as pH glass sensors, pH ISFET and oxygen sensors, etc.
- Food and beverage industry
- Life sciences
- Chemical industry

Your benefits

- Robust assembly
- Meets the criteria of 3-A standard 74-05, the European Hygienic Engineering and Design Group (EHEDG) and ASME BPE
- Suitable for in-place cleanability and in-line steam sterilizability
- Flush-mounted, gap-free electrode seal (sealing ring)
- Electropolished surface $R_a = 0.38 \mu\text{m}$ or $0.76 \mu\text{m}$ (stainless steel 1.4435 (AISI 316 L))
- Hygienic process connections
- Easy to adapt to existing process



Table of contents

Function and system design	3
Mode of operation	3
Measuring system	3
Dependability	3
Installation	4
Mechanical construction	4
Dimensions	4
Design	5
Process connections	6
Immersion depth	8
Leakage monitoring	8
Weight	9
Materials	9
Environment	9
Ambient temperature	9
Storage temperature	9
Process	9
Process temperature	9
Process pressure	9
Flow velocity	9
Pressure temperature load curve	10
Certificates and approvals	11
Ordering information	12
Product page	12
Product Configurator	12
Scope of delivery	12
Accessories	12
Installation accessories	12
Seals	13
Sensors (selection)	13

Function and system design

Mode of operation

The assembly is used as a stationary holder for installing 12mm sensors. It can be installed either vertically or at an angle in pipes or reactors. The assembly protects the sensor and seals it off from the process. It is suitable for:

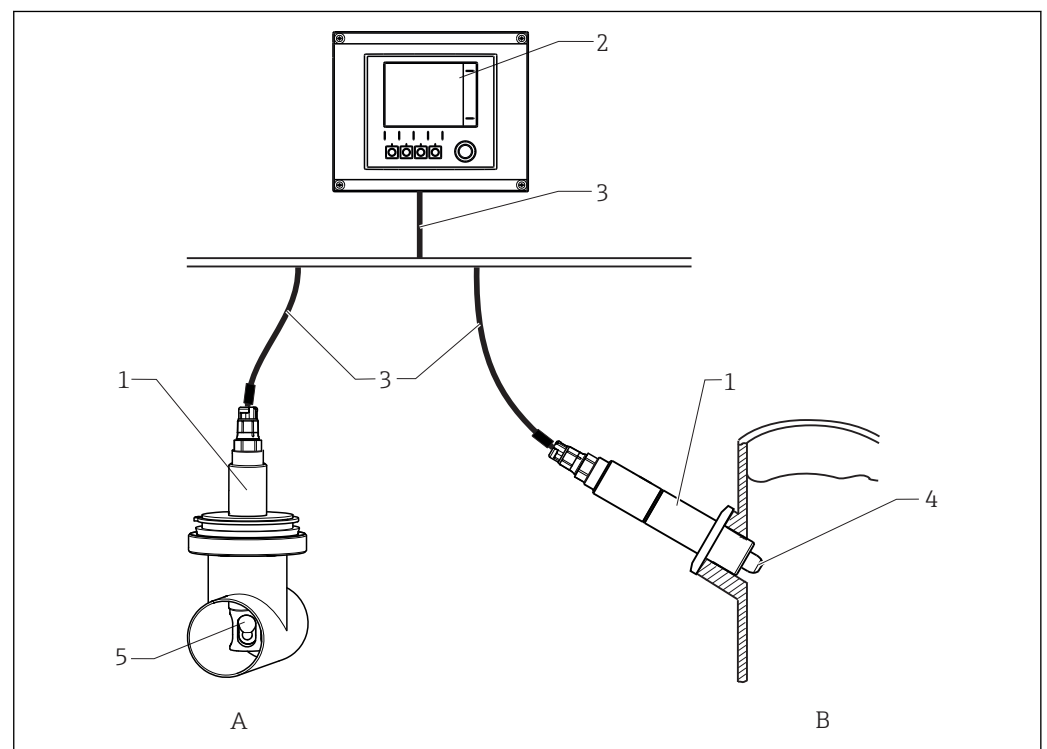
- CIP (cleaning in place)
- SIP (sterilization in place)

The versions in stainless steel 1.4435 (AISI 316 L) and Alloy C22 are autoclavable.

Measuring system

A complete measuring system comprises:

- Unifit CPA842 assembly
- 120 mm sensor, e.g. CPS171D, Orbisint CPS11D, CLS82D, Oxymax COS22D or COS81D with or without Memosens technology
- Transmitter, e.g. Liquiline CM44x
- measuring cable, e.g. CYK10



1 Measuring system (example)

- 1 Unifit CPA842 assembly
- 2 Transmitter Liquiline CM44x
- 3 Measuring cable CYK10
- 4 Sensor COS81D
- 5 Sensor CPS171D
- A Installation in pipe
- B Installation in tank

Dependability

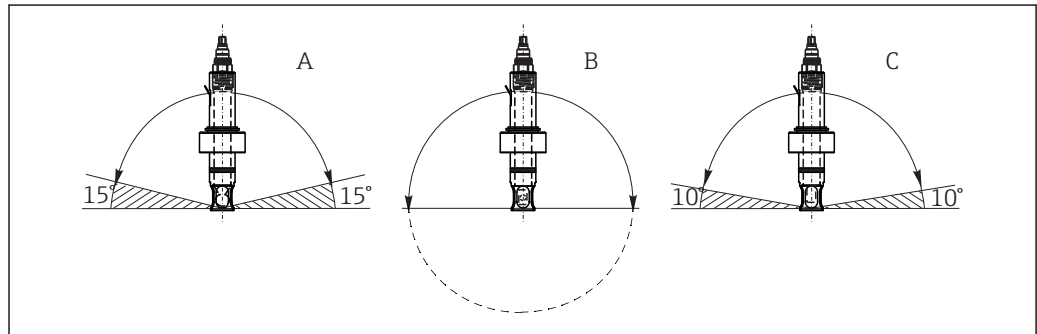
- The assemblies are manufactured in accordance with Endress+Hauser's certified quality criteria.
- The fixed assembly is manufactured from high-grade materials:
 - Stainless steel 1.4435 (AISI 316 L)
 - Alloy C22
 - Resistant plastics such as PVDF or PEEK
 Only these materials and the relevant seal are in contact with the process medium.
- The assembly can be cleaned and sterilized inline in accordance with EHEDG criteria.
- Certified versions and certificates are available, depending on the version.

Installation

- ▶ The assembly is designed for installation on tanks and pipes. Suitable process connections must be available at the customer site for this purpose.
- ▶ The mounting seal, which seals the adapter from the process nozzle, must be provided by the customer (except in versions DN 25 Standard and DN 25 B. Braun port).
- ▶ Install the assembly only if the vessel is empty and the process is unpressurized.

The assembly can be mounted at any angle from 0° to 360°. The installation conditions of the sensor used must be complied with.

Example:



A0034731

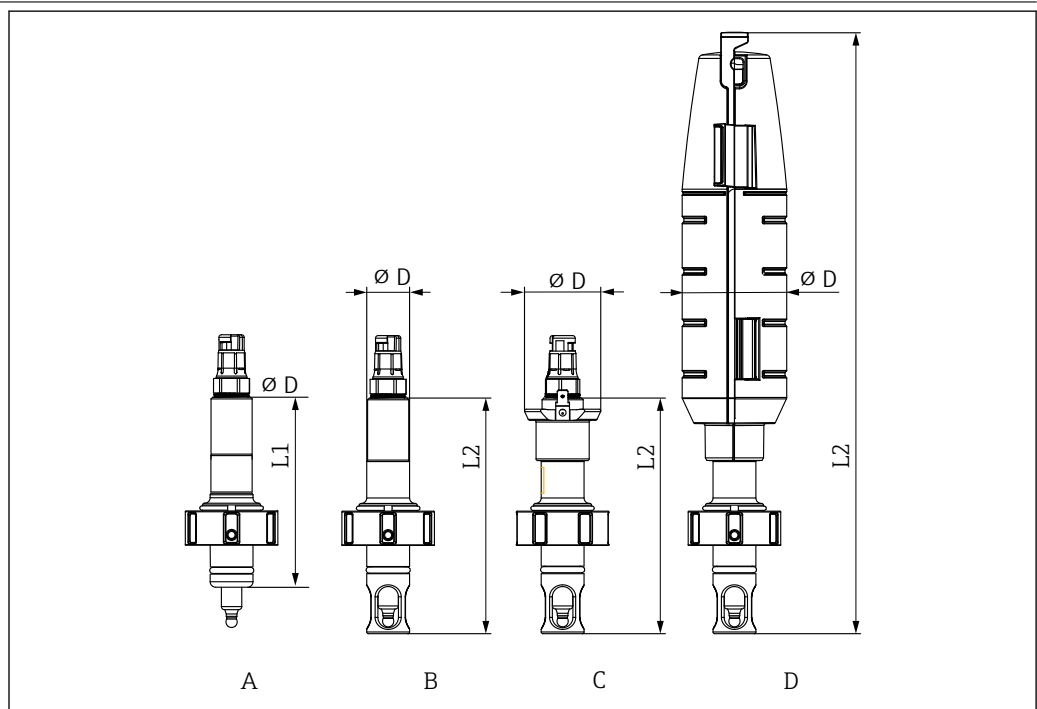
2 Permitted angle of installation depending on sensor

- | | | |
|---|----------------------|--|
| A | Glass pH sensor: | Installation angle at least 15° from the horizontal |
| B | ISFET pH sensor: | No restrictions, recommended 0 to 180°, where buildup can occur. |
| C | Conductivity sensor: | Installation angle at least 10° from the horizontal |

i Operate the CLS82D conductivity sensor only with an assembly without sensor protection - no restriction regarding installation angle.

Mechanical construction

Dimensions

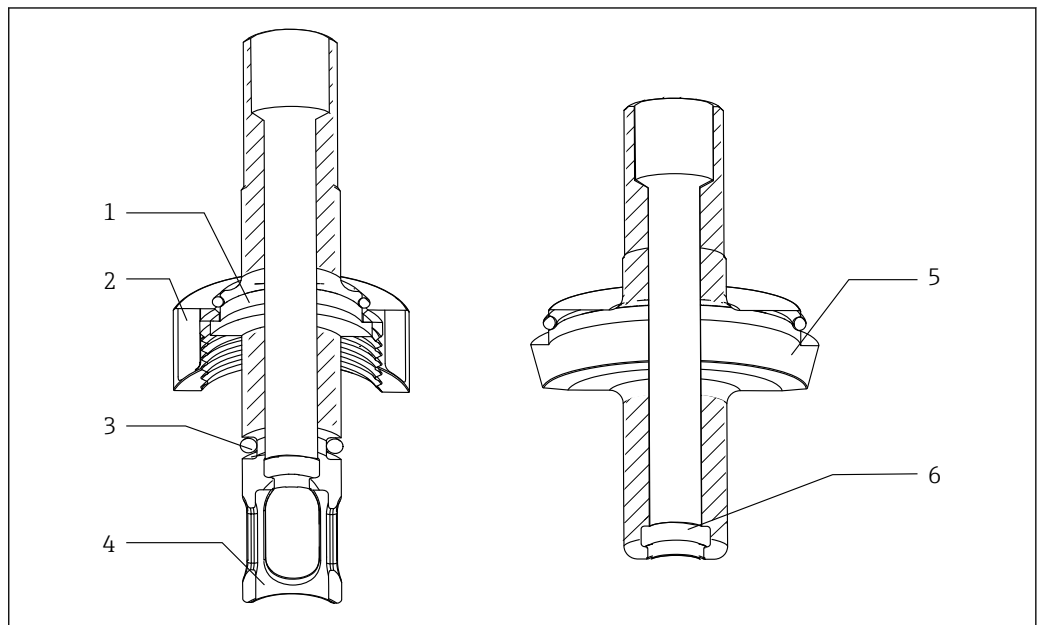


A0034653

3 Dimensions in mm (in)

	A	B	C	D
	Standard	Sensor protection	Sensor protection with PAL	Sensor protection with protection cover
	CPA842-XXXXXX1	CPA842-XXXXXX1+NB	CPA842-XXXXXX1+NA	CPA842-XXXXXX1+NC
no sensor protection L1	110 (4.33)	110 (4.33)	110 (4.33)	323.5 (12.74)
no sensor protection L2	137.5 (5.41)	137.5 (5.41)	137.5 (5.41)	351 (13.81)
Diameter D	25 (1)	44.5 (1.75)	44.5 (1.75)	61 (2.40)

Design

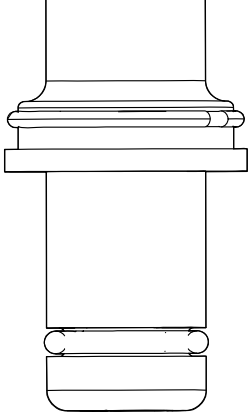
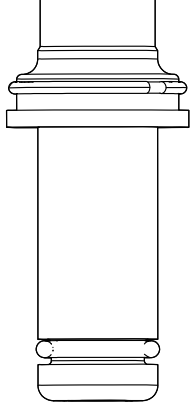
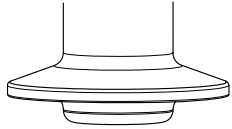
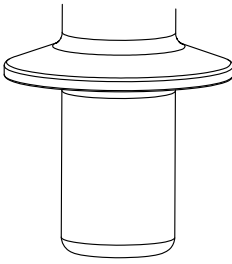


A0035050

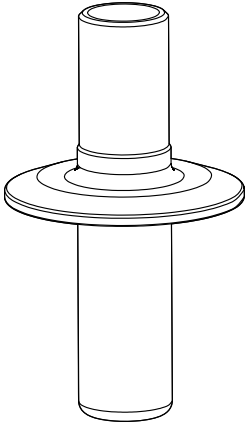
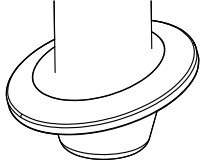
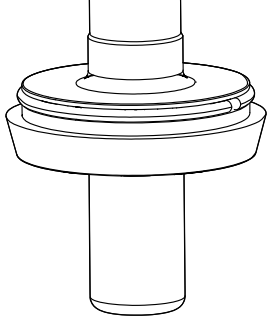
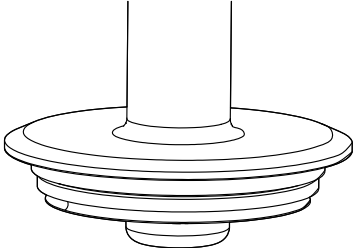
4 Design

- 1 Process connection
- 2 Thread adapter nut
- 3 O-ring
- 4 Sensor protection
- 5 Process connection
- 6 Molded seal

Process connections

Process connection	
DN25 standard	
DN25 B.Braun port	
Clamp 1.5" short with OD of 50.5 mm corresponds to NW 38 ISO 2852	
Clamp 1.5" long with OD of 50.5 mm <ul style="list-style-type: none"> ■ complies with ASME-BPE 2009 ■ corresponds to DN 40 DIN 32676 2001 ■ corresponds to NW 38 ISO 2852 	

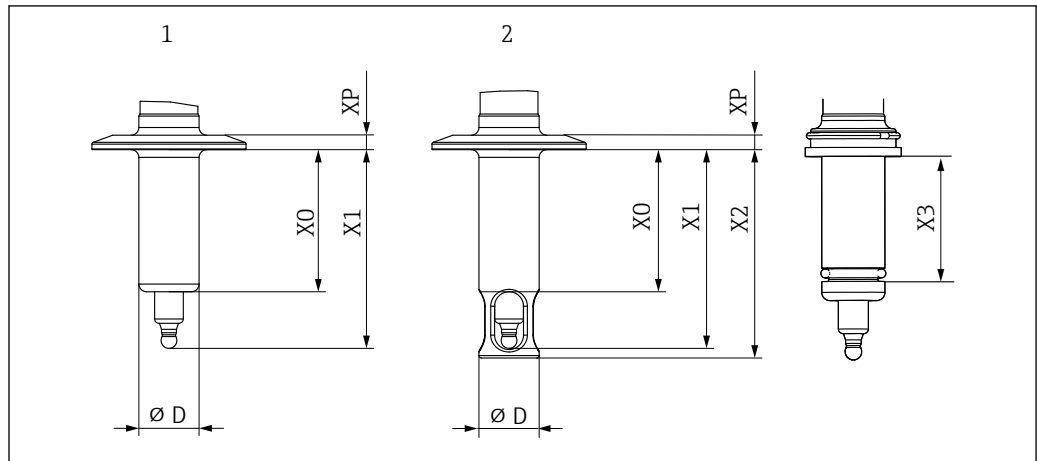
A0035539

Process connection	
<p>Clamp 2" with OD of 64 mm</p> <ul style="list-style-type: none"> ▪ complies with ASME-BPE 2009 ▪ corresponds to DN 50 DIN 32676 2001 ▪ corresponds to NW 51-40 ISO 2852 	
<p>Clamp 1.5" angled at 15°</p>	
<p>Dairy fitting DN 50 DIN 11851 (EHEDG approval only with seal from Siersema)</p>	
<p>Varivent flange N (DN 40 to 125)</p>	

A0034978

A0034979

Immersion depth

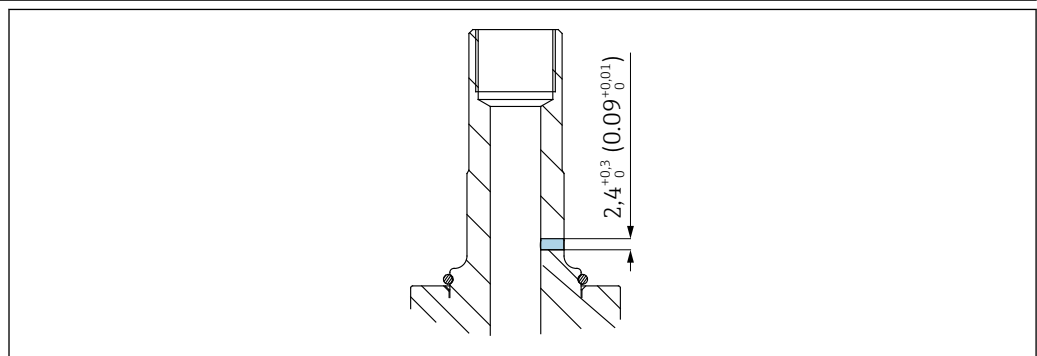


A0034652

5 Immersion depth in mm (in)

Process connection	Feature 40	X0	X1	X2	D	XP	X3
DN25 standard	AA	37.5 (1.46)	61 (2.4)	65 (2.6)	25 (1)	11 (0.43)	29 (0.1)
DN25 B.Braun port	AB	57 (2.24)	80.5 (3.17)	84.5 (33.3)	25 (1)	11 (0.43)	49 (0.16)
Clamp 1.5" short	AC	6 (0.24)	29.5 (1.16)	84.5 (33.3)	25 (1)	7 (0.27)	
Clamp 1.5" long	AD	39 (1.53)	62.5 (2.46)	66.5 (2.61)	25 (1)	7 (0.27)	
Clamp 2"	AE	59 (2.23)	82.5 (3.25)	86.5 (3.4)	25 (1)	6 (0.24)	
Clamp 1.5" - angled at 15°	AF	17.8 (0.7)	41.3 (1.63)	--	--	6 (0.24)	
Dairy fitting DN50	AG	41 (1.61)	64.5 (2.53)	68.5 (2.7)	25 (1)	19.5 (0.77)	
Varivent N 68mm DN40-125	AH	6 (0.24)	29.5 (1.16)	33.5 (1.32)	25 (1)	16.5 (0.65)	

Leakage monitoring



A0034691

6 Leakage monitoring

Leakage monitoring (a hole above the process connection) indicates a possible defect in the molded seal that causes medium to escape in small quantities from the monitoring opening. The molded seal must then be replaced.



Leakage monitoring is absolutely essential for 3-A approval (please note when ordering).

Weight	Assembly with process connection A ... U:0.3 to 1.4 kg (0.7 to 3.1 lbs) depending on version Protection cover: Approx. 0.2 kg (0.4 lbs)
---------------	--

Materials	<p><i>In contact with medium</i></p> <p>Seals: Molded seal made of EPDM, FDA-compliant as per 21CFR 177.2600, USP Class VI Molded seal made of FKM, FDA-compliant as per 21CFR 177.2600, USP Class VI O-ring made of silicone, FDA-compliant as per 21CFR 177.2600, USP Class VI Molded seal FFKM, FDA-compliant as per 21CFR 177.2600, USP Class V</p> <p>Assembly: Stainless steel 1.4435 (AISI 316 L)</p> <p>Lubricant for seals (except for silicone): Klüber Paraliq GTE703 USP87 Class VI, FDA 21CFR 178.3570, USDA-H1, NSF51, NSF61</p> <p><i>Not in contact with medium</i></p> <p>Mounted parts: Stainless steel 1.4404 (AISI 316L)</p> <p>Pal connection: 1.4301</p> <p>Protection cover: PP137 conductive</p>
------------------	--

Environment

Ambient temperature	-15 to +70 °C (5 to +160 °F)
----------------------------	------------------------------

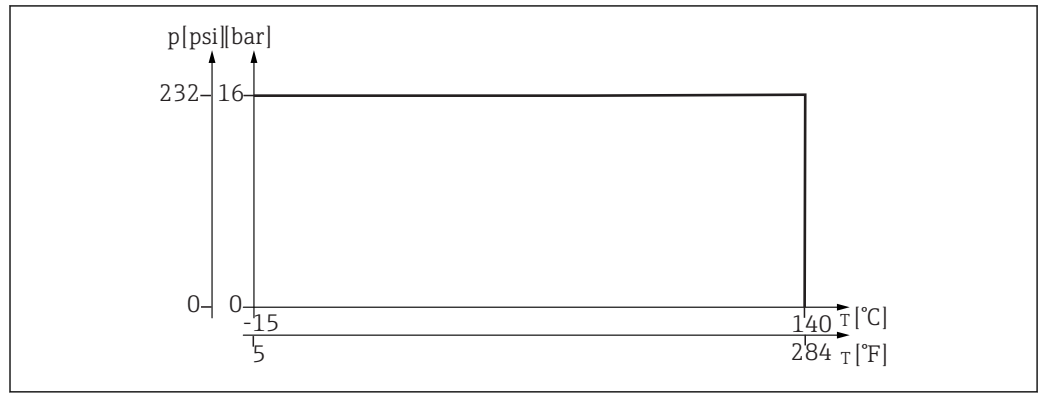
Storage temperature	-15 to +70 °C (5 to +160 °F)
----------------------------	------------------------------

Process

Process temperature	Pay attention to electrode specification. -15 to 140 °C (+5 to 280 °F)
----------------------------	---

Process pressure	Pay attention to electrode specification. Stainless steel 16 bar (232 psi) up to 140 °C (284 °F)
-------------------------	---

Flow velocity	Pay attention to electrode specification. To avoid cavitation, flow velocities in the process should be < 7.5 m/s (24.6 ft/s) at 1 bar and 20°C (68°F). Higher flow velocities are possible at higher pressures.
----------------------	--

Pressure temperature load curve

A0034663-EN

7 Temperature values for stainless steel 1.4435 (AISI 316 L)

Certificates and approvals

ADI-free

No materials or ingredients derived from animals are used during the entire production of all the parts in contact with the process. (certified in pharmaceutical CoC)

Biological reactivity (USP Class VI) (optional)

The plastic and elastomer product components that are in contact with the medium have passed the biological reactivity tests as per USP <87> and <88> Class VI. (certified in pharmaceutical CoC)

EHEDG

The assembly has been certified as per the requirements of EHEDG TYPE EL Class I (cleanability) and as per EHEDG Type EL Aseptic Class I (cleanability and sterility).

ASME BPE

The assembly has been developed according to ASME BPE Standard 2016 and meets the relevant requirements of sections GR, SD, DT, MJ, SF, SG, PM, MM and PI relating to assemblies.

FDA

All seals in contact with the medium comply with the relevant regulations of the U.S. Food and Drug Administration (FDA). (certified in FDA declaration of conformity and pharmaceutical CoC)

Regulation (EC) 1935/2004

The assembly meets the requirements for materials that come into contact with food.

3-A Sanitary

Meets the requirements of 3-A Sanitary Standards.



Suitable process connections and seals must be used for hygienic designs as per EHEDG, ASME BPE or 3-A.

3.1 Inspection certificate as per EN 10204

This certificate certifies the traceability of the materials used including the pipe material. In addition, if the relevant option is selected when ordering, the delta-ferrite content and the surface roughness are checked from a metrology point of view and specified in the certificate. .

ATEX- 2014/34/EU

The assembly does not fall within the scope of the directive. However, if conditions for safe use are adhered to, it may be deployed in the hazardous area.

DRGL- 2014/68/EU / PED- 2014/68/EU

The assembly has been manufactured according to good engineering practice as per Article 4, Paragraph 3 of the Pressure Equipment Directive 2014/68/EU and is therefore not required to bear the CE label.

Ordering information

Product page

www.endress.com/cpa842

Product Configurator

On the product page there is a **Configure** button to the right of the product image.

1. Click this button.
 - ↳ The Configurator opens in a separate window.
2. Select all the options to configure the device in line with your requirements.
 - ↳ In this way, you receive a valid and complete order code for the device.
3. Export the order code as a PDF or Excel file. To do so, click the appropriate button on the right above the selection window.

i For many products you also have the option of downloading CAD or 2D drawings of the selected product version. Click the **CAD** tab for this and select the desired file type using picklists.

Scope of delivery

The delivery comprises:

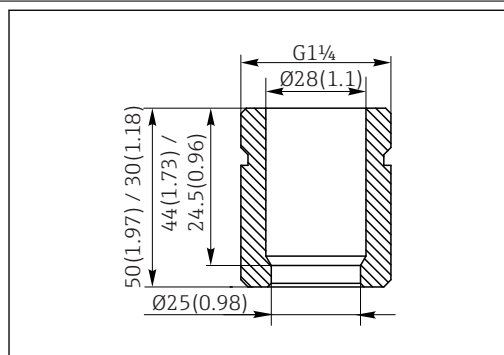
- Assembly in the version ordered
- Process seal for process connections: DN25 standard, DN25 B. and Braun port
- Dust caps to protect PG13.5 thread
- Operating Instructions

Accessories

The following are the most important accessories available at the time this documentation was issued.

- ▶ For accessories not listed here, please contact your Service or Sales Center.

Installation accessories



8 Welding socket, straight, in mm (in)

Safety welding socket DN25

- Straight, stainless steel 1.4435, L=50
- Order number: 51508049
- Only for CPA842-xxxxxAA

Safety welding socket DN25

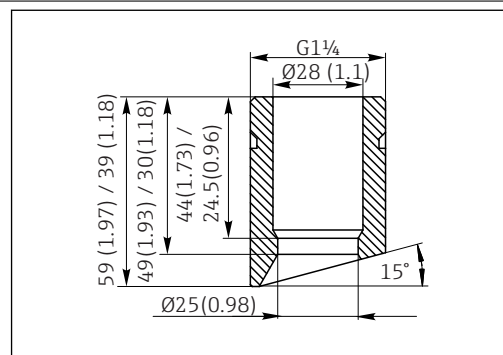
- Angled, stainless steel 1.4435, L=50/60
- Order number: 51508050
- Only for CPA842-xxxxxAA

Safety welding socket DN25

- Straight, stainless steel 1.4435, L=30
- Order number: 51508051
- Only for CPA842-xxxxxAA

Safety welding socket DN25

- Angled, stainless steel 1.4435, L=30/40
- Order number: 51508052
- Only for CPA842-xxxxxAA



9 Welding socket, angled, in mm (in)

Dummy plug

- Dummy plug G1 1/4 DN25 standard, 316L, FKM-FDA
Order number, nozzle length 30 mm: 71213701
- Dummy plug G1 1/4 DN25 B. Braun, 316L, FKM-FDA
Order number, nozzle length 50 mm: 71213702

Protection cover

Sensor

Sensor dummy 120mm, 316L, Ra=0.38


Lubricant

Klüber Paraliq GTE 703 grease (60g)

Seals


- Kit, seal, wetted, EPDM
- Kit, seal, wetted, FKM
- Kit, FKM seals, DN25 G1 1/4, wetted parts
- Kit, FFKM seals, excl. G1 1/4, wetted parts
- O-ring, silicone FDA (USP Class VI)

Sensors (selection)

 Information on the area of application of other sensors can be found on the product page. To find compatible sensors, use the "Select & Size" link, for example, to the right of the product photo.


Memosens CPS171D

- pH electrode for bio-fermenters with digital Memosens technology
- Product Configurator on the product page: www.endress.com/cps171d

 Technical Information TI01254C

Orbisint CPS11D

- pH electrode for process technology
- Optional SIL version for connecting to SIL transmitter
- With dirt-repellent PTFE diaphragm

 Technical Information TI00028C

Orbisint CPS12D

ORP sensor for process technology

 Technical Information TI00367C

Ceraliquid CPS41D

pH electrode with ceramic junction and KCl liquid electrolyte

 Technical Information TI00079C

Memosens CPS76D

- Combined pH/ORP sensor for process technology
- Hygienic and sterile applications
- With Memosens technology
- Product Configurator on the product page: www.endress.com/cps76d

 Technical Information TI00506C

Memosens CPS16D

- Combined pH/ORP sensor for process technology
- With dirt-repellent PTFE diaphragm
- With Memosens technology
- Product Configurator on the product page: www.endress.com/cps16D

 Technical Information TI00503C

Memosens CPS96D

- Combined pH/ORP sensor for chemical processes
- With poison-resistant reference with ion trap
- With Memosens technology
- Product Configurator on the product page: www.endress.com/cps96d

 Technical Information TI00507C

Tophit CPS471D

- Sterilizable and autoclavable ISFET sensor for food and pharmaceuticals, process engineering
- Water treatment and biotechnology



Technical Information TI00283C

Memosens COS81D

- Sterilizable, optical sensor for dissolved oxygen
- With Memosens technology
- Product Configurator on the product page: www.endress.com/cos81d



Technical Information TI01201C

Oxymax COS22D / COS22

- Sterilizable sensor for dissolved oxygen
- With Memosens technology or as an analog sensor
- Product Configurator on the product page: www.endress.com/cos22d or www.endress.com/cos22



Technical Information TI00446C

OUSBT66

- NIR absorption sensor for measuring cell growth and biomass
- Sensor version suitable for pharmaceutical industry
- Product Configurator on the product page: www.endress.com/ousbt66



Technical Information TI00469C

www.addresses.endress.com
