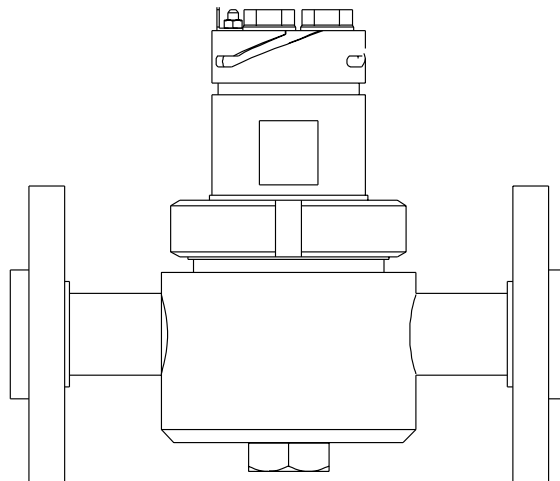
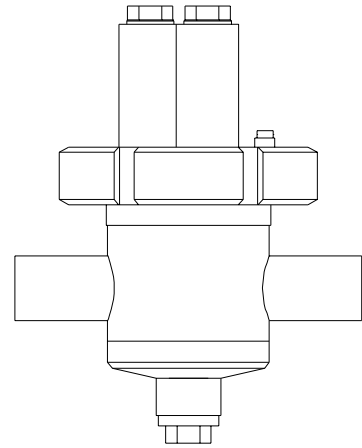
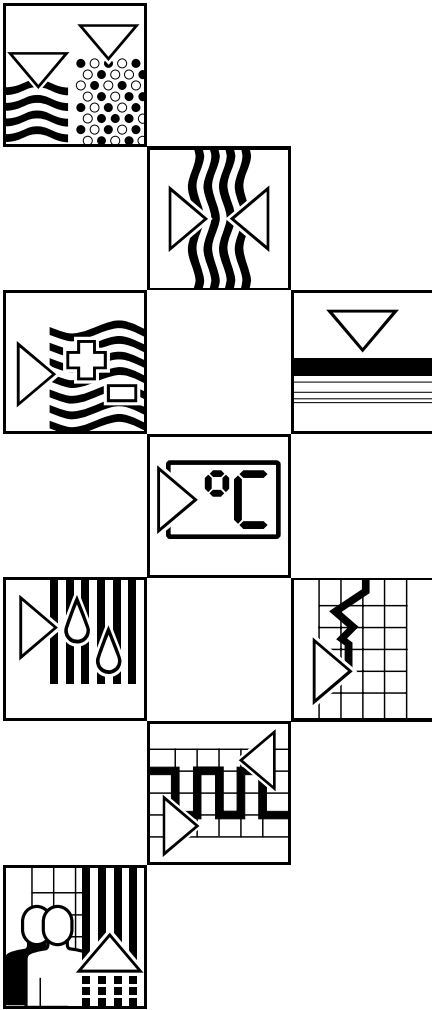


FlowFit P CPA 240 Flow Assembly for pH/Redox Sensors

Operating Instructions



Quality made by
Endress+Hauser



ISO 9001

Endress + Hauser

Nothing beats know-how



Table of Contents

1	General Information	2
1.1	Symbols used	2
1.2	Unpacking	2
1.3	Intended use	2
1.4	Safety notes	2
2	Description of the Assembly	3
2.1	Versions	3
2.2	Order code	3
2.3	Dimensions	4
2.4	Measuring system	8
3	Installation	9
3.1	Installation of the assembly	9
3.2	Installation of electrodes and measuring cables	10
4	Maintenance	11
4.1	Cleaning	11
4.2	Calibration	12
5	Accessories	13
5.1	Chemoclean spray cleaning system	13
5.2	Sonoclean ultrasonic cleaning system	14
5.3	Electrolyte reservoir CPY 7	15
6	Technical Data	16
7	Index	17

1 General Information

1.1 Symbols used

**Warning:**

This symbol alerts to hazards which may cause serious injuries as well as damage if ignored.

**Note:**

This symbol indicates important items of information.

**Caution:**

This symbol alerts to possible malfunctions due to operator error.

1.2 Unpacking

Inspect for any damaged packaging or damaged contents. Inform the post office or freight carrier of any damage. Damaged goods must be stored until the matter has been settled.

Check that the delivery is complete and agrees with the shipping documents. Check product type and version on the nameplate against your order.

The delivery includes:

- FlowFit P CPA 240 assembly
- Operating Instructions BA 179C/07/en.

If you have any questions, consult your supplier or Endress + Hauser sales office (see back page of this operating instructions for addresses).

1.3 Intended use

The FlowFit P CPA 240 is intended for the fitting of pH, redox or temperature sensors in pipes. The assembly version is designed for universal use in drinking water, feedwater and waste water environments and in chemical industry.

1.4 Safety notes

**Warning:**

- The notes and warnings in these operating instructions must be strictly adhered to!
- Faults on the assembly may only be remedied by authorised and properly trained personnel.
- If faults cannot be remedied, the assembly must be removed from service and secured to prevent accidental start-up.

2 Description of the Assembly

2.1 Versions

The FlowFit P CPA 240 flow assembly is available in two material versions (stainless steel and PVDF). For use according to specific customer requirements, assemblies for installing in pipes with horizontal flow are available with

various process connections. In addition an assembly is available with an inlet at the bottom and a horizontal outlet.

2.2 Order code

You can identify variants by means of the order code on the nameplate.

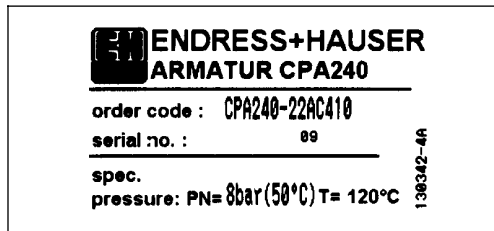
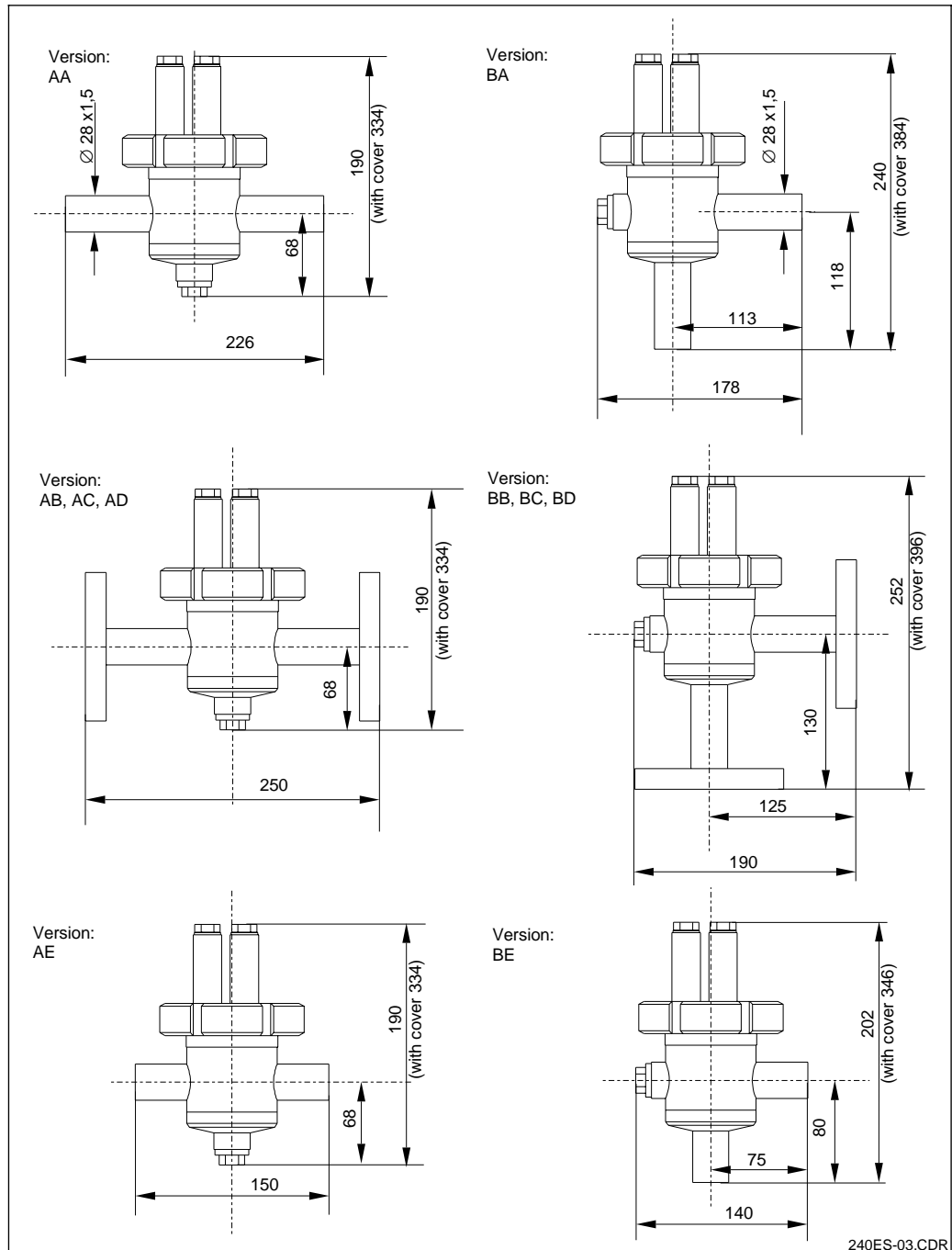


Fig. 2.1 Nameplate of CPA 240

Flow assemblyFlowFit P CPA 240	
<p>Assembly / PAL materials 21 PVDF / PAL: Hastelloy C4 22 PVDF / PAL: tantalum 30 Stainless steel 1.4404 99 Special version</p>	
<p>Flow vessel A Horizontal flow B With inlet bottom side Y Special version</p>	
<p>Process coupling A Weld on connection for pipe DN 25 B Flange DN 25 PN 16 C Flange ANSI 1" 150 lbs D Flange JIS 10K 25A E Thread (F)NPT 1/2 " Y Special version</p>	
<p>Sealing material 1 EPDM 2 Viton 3 Chemraz 4 Fluoraz 9 Special version</p>	
<p>Features 10 Basic version 20 Assembly desiliconised 30 Material certificate acc. to EN 10204-3.1B 99 Special version</p>	
<p>CPA 240-</p>	<p>complete order code</p>

2.3 Dimensions

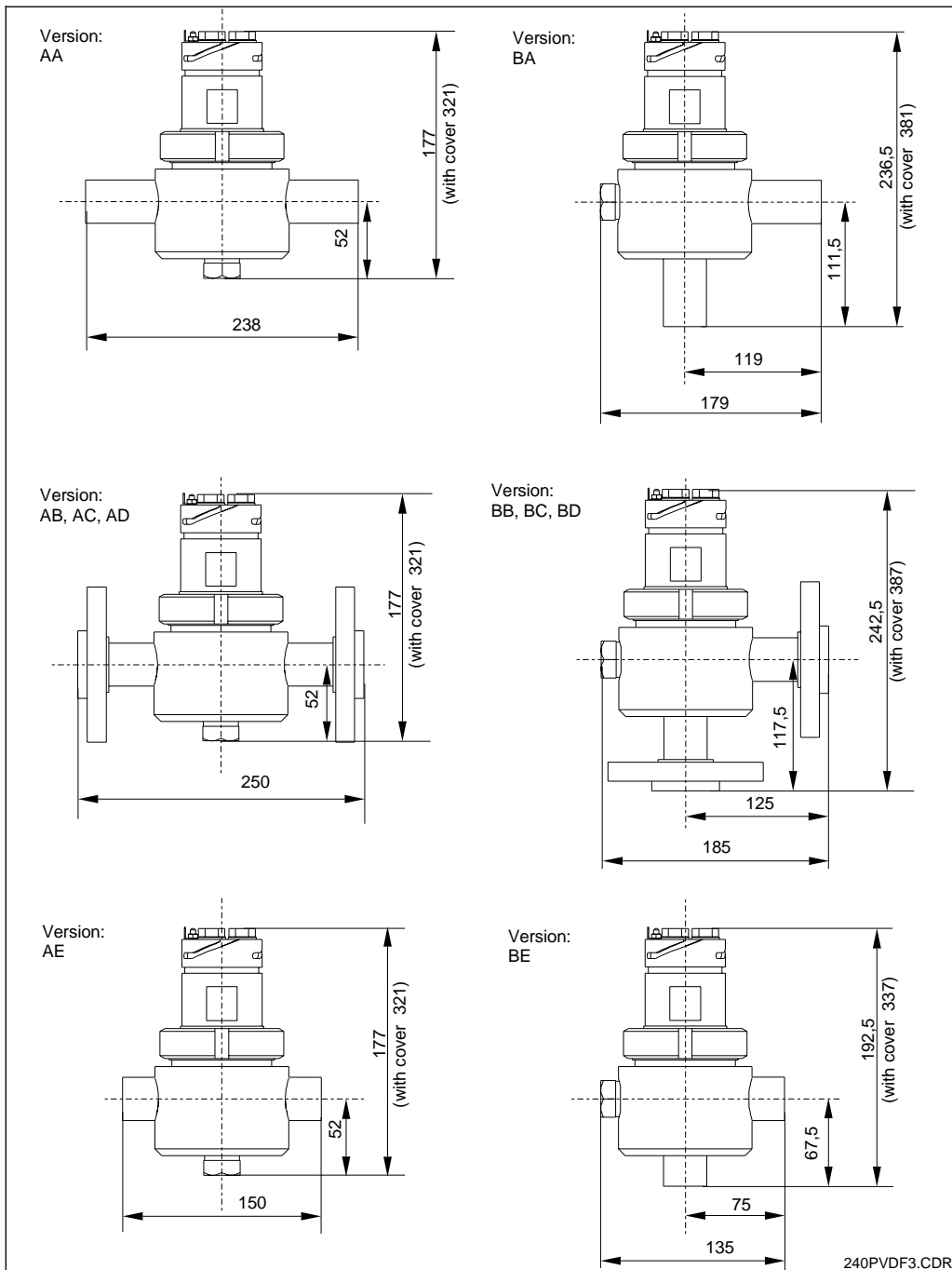
2.3.1 Versions



Versions of stainless steel assemblies

The protection cover supplied with the assembly is not shown.

Fig. 2.2



Versions of stainless steel assemblies

The protection cover supplied with the assembly is not shown.

Fig. 2.3

2.3.2 Sectional diagrams

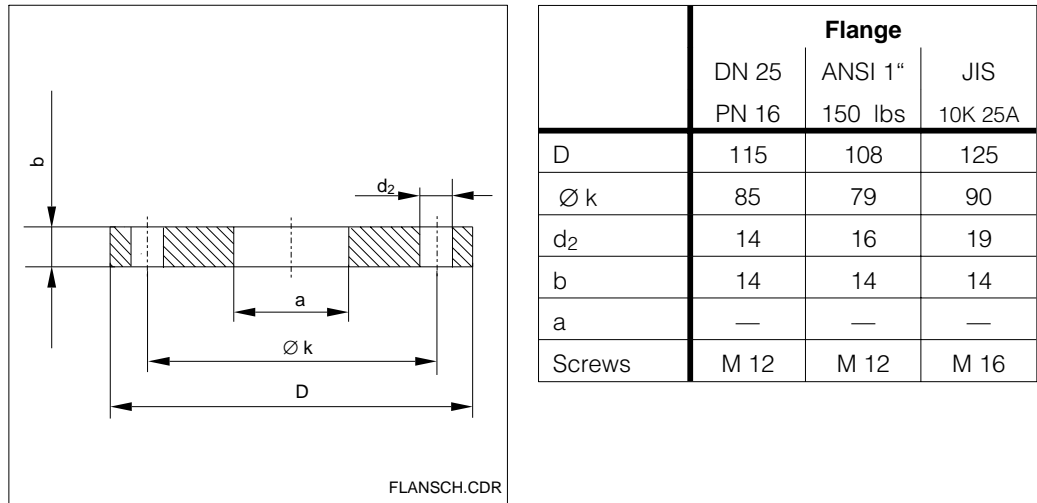


Fig. 2.5 Flange dimensions of stainless steel assembly

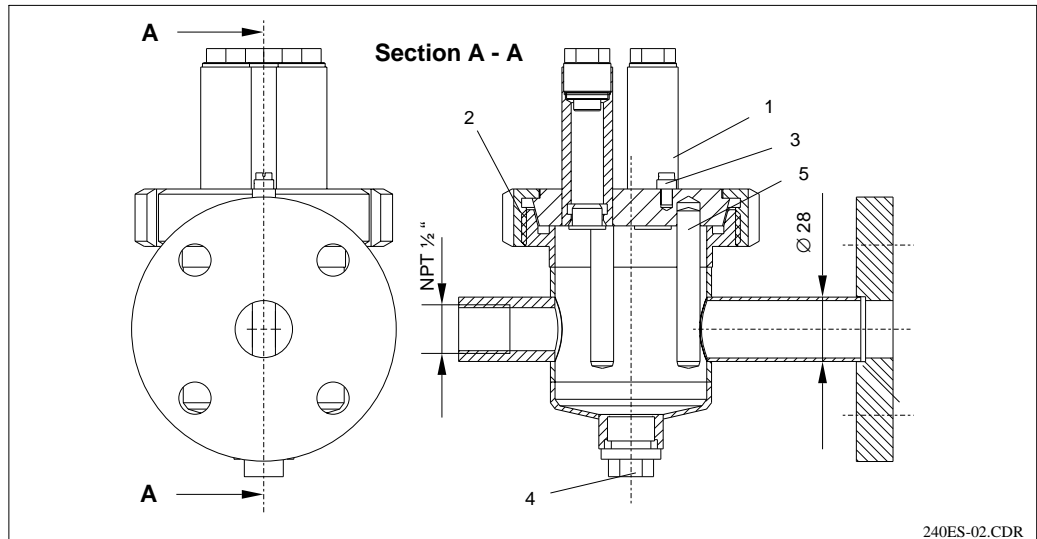


Fig. 2.4

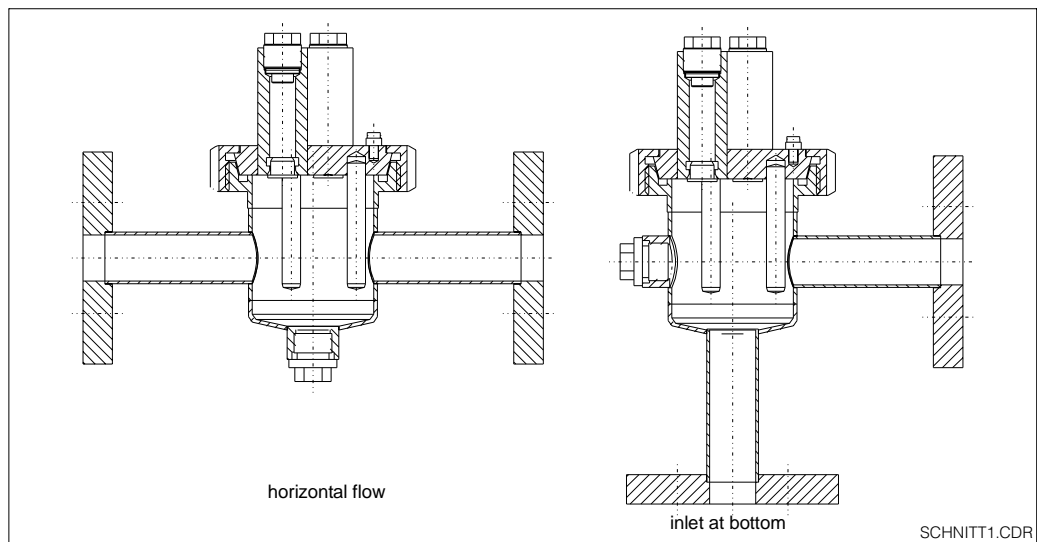


Fig. 2.6 Sectional drawing of stainless steel version

	Flange		
	DN 25 PN 16	ANSI 1 " 150 lbs	JIS 10K 25A
D	115	115	125
Ø k	85	79	90
d ₂	14	16	19
b	14	14	14
a	42	42	42
Screws	M 12	M 12	M 16

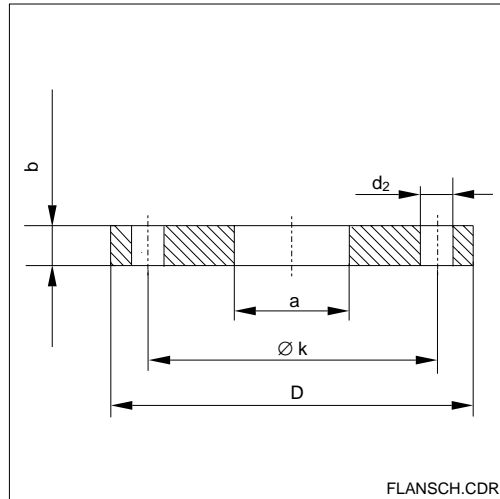
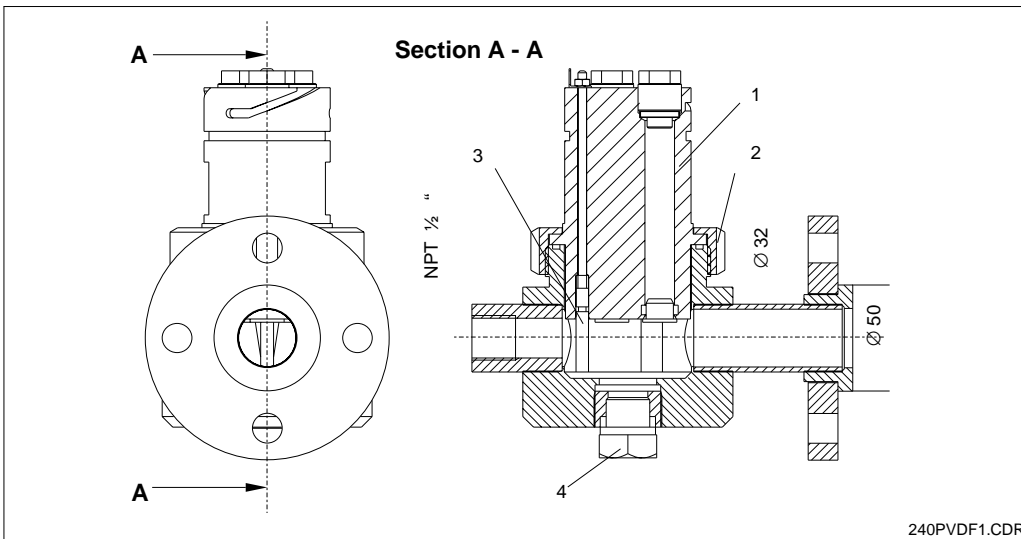


Fig. 2.7 Loose flange dimensions of PVDF assembly



Construction of PVDF assembly (2 different versions):
 - left with 1/2" NPT
 - right with DN 25 flange

- 1 Electrode holder
- 2 Union nut
- 3 Potential matching pin
- 4 Drain screw

Fig. 2.8

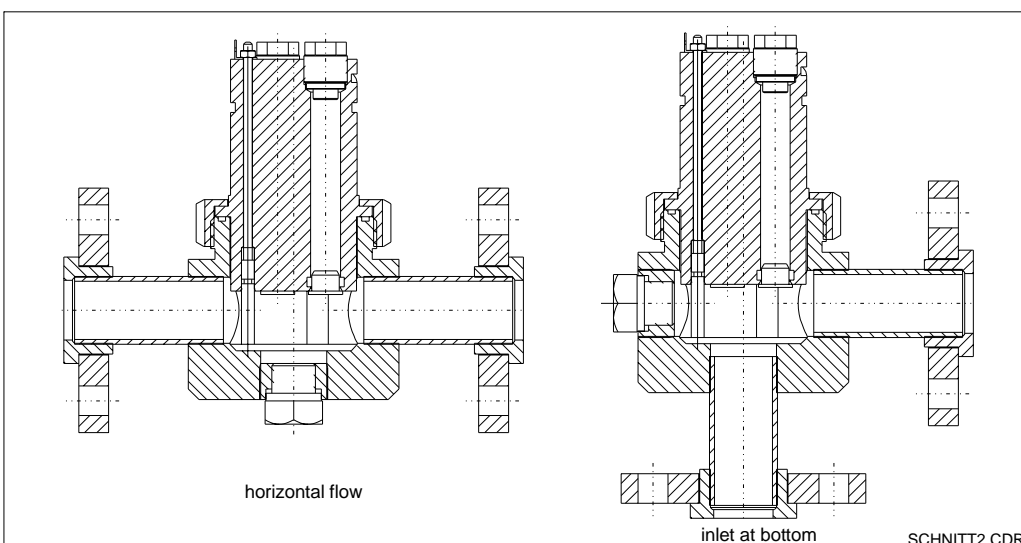


Fig. 2.9 Sectional drawing of PVDF version

2.4 Measuring system

A complete measuring system comprises:

- the FlowFit P CPA 240 flow assembly
- maximum 3 electrodes from the CPS range of length 120 mm and diameter 12 mm
- pH/redox transmitter (e.g. MyPro CPM 431 or Mycom CPM 152)
- measuring cable CPK 1, CPK 2 or CPK 7 (terminated).

Optional:

- Pt 100 temperature sensor
- VBA junction box and measuring cable PMK or CYK 71 (not terminated) for cable extension.

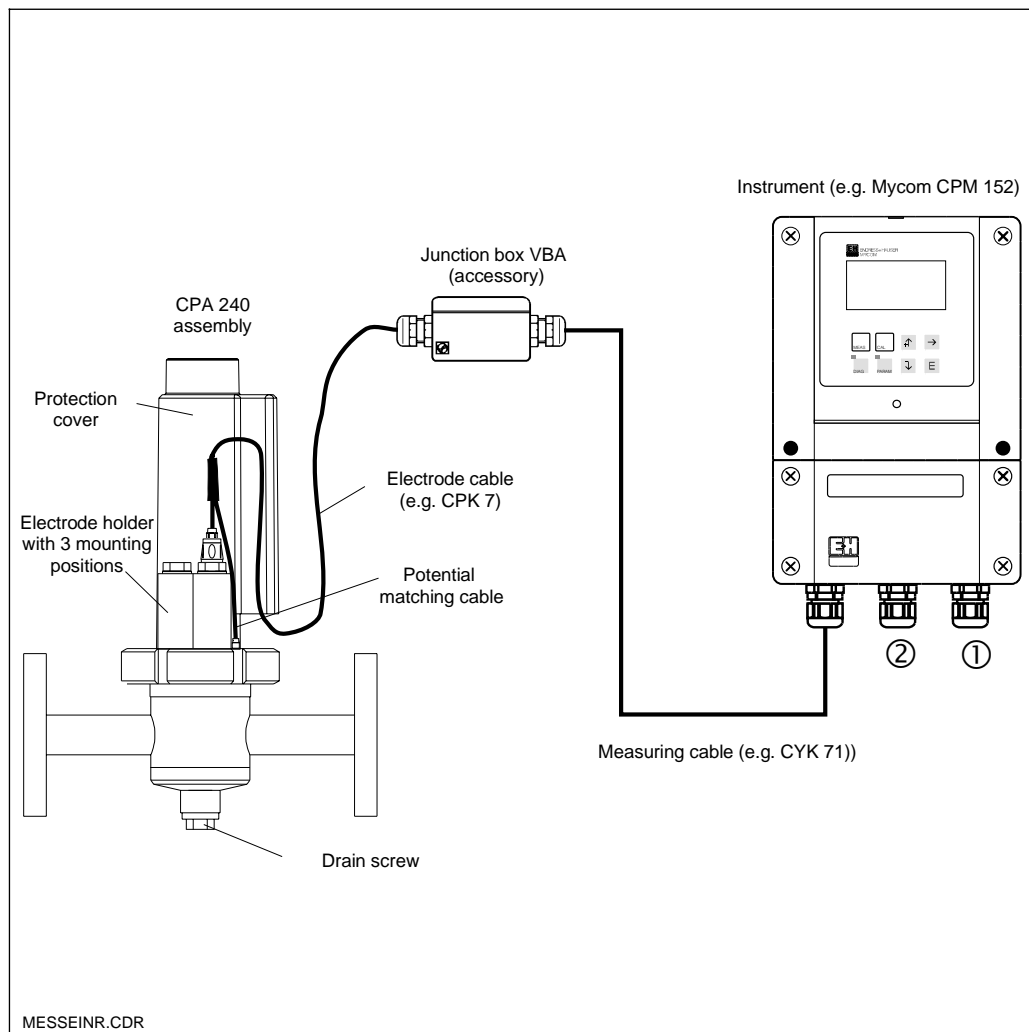


Fig. 2.10

3 Installation

3.1 Installation of the assembly

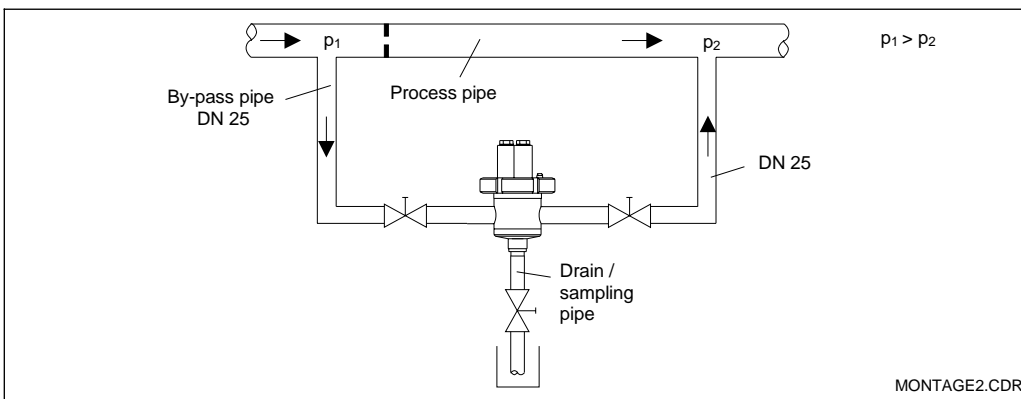
The flow assembly should only be installed in pipes at locations where the pipe cannot run dry. Installation in the by-pass is preferable to installation in the process pipe as the by-pass pipe can be blocked off without interrupting the process. This permits measurement, sampling and maintenance of the electrode without interrupting the process.

The drain screw fitted to the flow assembly base permits the connection of outlet or sampling pipes.



Warning:

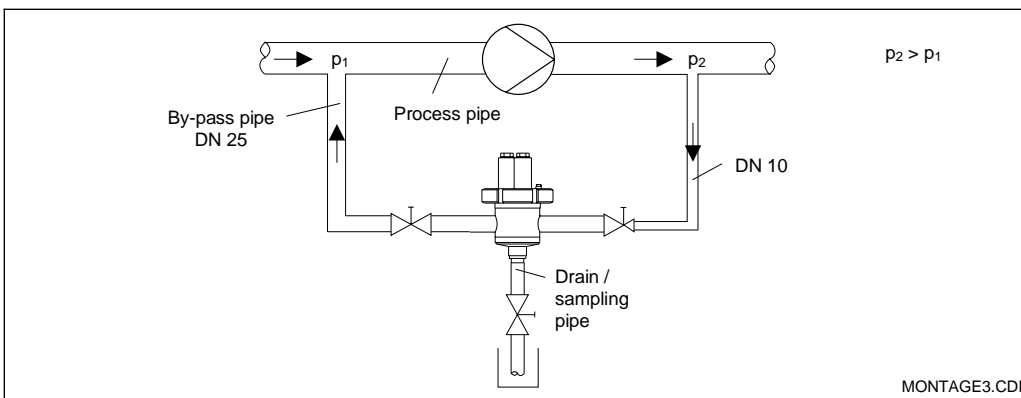
- Depressurise the pipe before installing or removing the assembly.
- The medium pressure in the pipe must not exceed the maximum permissible flow assembly or electrode pressure.



Pipe by-pass

The pressure build-up necessary to produce flow through the sampling by-pass is produced by a plate orifice in the process pipe.

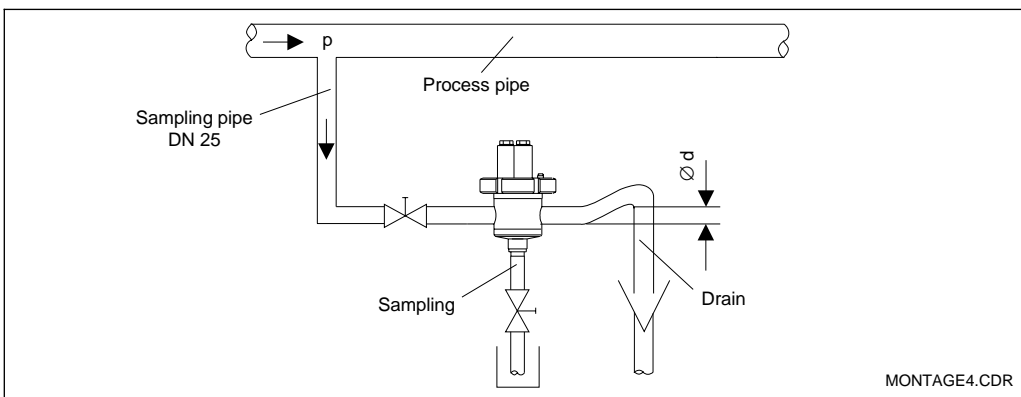
Fig. 3.1



Pump by-pass

The pressure build-up necessary to produce flow through the sampling by-pass is produced by a booster pump in the process pipe.

Fig. 3.2

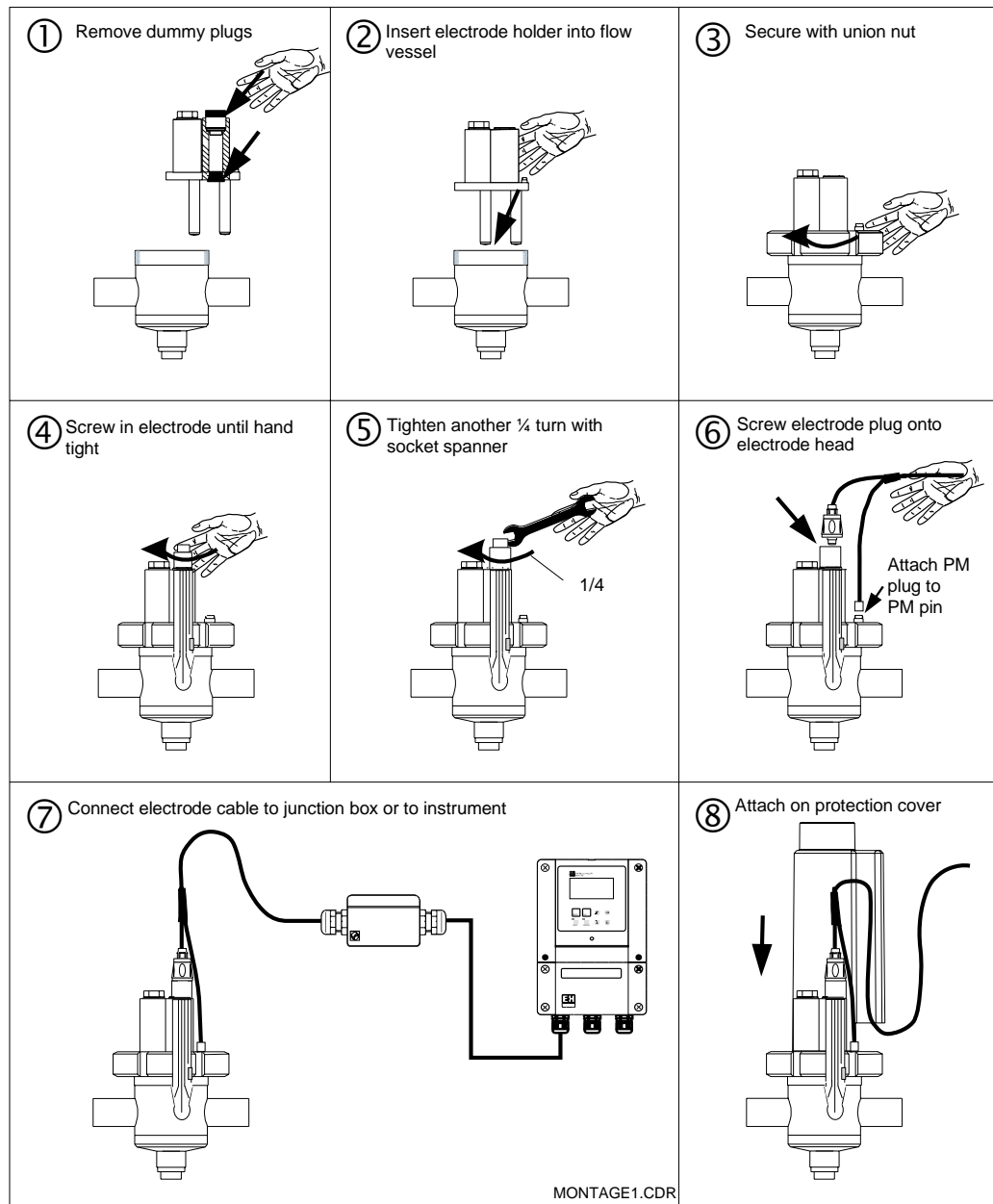


Sampling pipe

Stub pipe branching off from the process pipe without raising pressure.

Fig. 3.3

3.2 Installation of electrodes and measuring cables



Note:

- Close off unused electrode positions with dummy plugs.
- 2 electrodes with KCl fluid and hose connection cannot be installed.

- Before screwing in the electrodes inspect seat and cleanliness of the O-ring seal.
- Inspect all the O-rings on the flow assembly for damage at regular intervals.
- Required mounting clearance above protection cover: 120 mm

4 Maintenance

Electrode soiling may impair measurement to such an extent that the electrode ceases to function, e.g. due to:

- coatings on the pH-sensitive glass membrane → poor response time and low sensitivity or slope.
- soiling or blockage of the membrane → poor response time and unstable measured values.

To ensure reliable measurement clean the electrodes regularly. The frequency and intensity of cleaning depend on the medium to be measured.

4.1 Cleaning

Clean the electrodes:

- before every calibration
- regularly during operation, if necessary.

Cleaning can be carried out manually or with an automatic cleaning system such as Chemoclean or Sonoclean.



Caution:

- Do not use abrasive cleaning agents on the electrodes. This could lead to irreparable malfunctions of the measuring surfaces.
- After cleaning, thoroughly rinse the whole system with water (if possible, distilled or de-ionised). Any residue of cleaning agents may severely impair measurement.
- The measuring system must be re-calibrated after each cleaning.

Manual cleaning

All parts coming in contact with the medium, such as electrodes or flow assembly, must be cleaned regularly. When an outlet or sampling pipe is installed, rinse the drain on the base of the flow assembly.

- Light soiling can be removed with suitable cleaning agents.
- More severe soiling can be removed by brushing carefully with a soft brush and a suitable cleaning agent.

- Stubborn dirt may be dissolved by soaking the appropriate parts in the cleaning fluid.

Automatic cleaning

Cyclic automatic cleaning in an installed condition may be carried out by the Chemoclean automatic spray cleaning system. The complete system includes the CYR 10 injector box and the CYR 20 programmer (see Chapter 5, Accessories). Various diluted chemicals or pressurised water may be used as cleaning agents depending on the type of soiling.

Use the Sonoclean automatic ultrasonic cleaning system (see Chapter 5, Accessories) for automatic cleaning without cleaning agents.

Selection of cleaning agents

The cleaning agent chosen is dependent on the type of soiling. The most frequent type of soiling and the appropriate cleaning agents are listed in the following table:

Type of soiling	Cleaning agent
Grease, lubricants, oils	Detergents or water-soluble organic solvents (e.g. alcohol)
Lime deposits or metal hydroxides	3% HCl
Sulphate deposits from precipitation reactions	Mixture of 3% HCl with a 1% Titriplex (EDTA)
Protein deposits (food industry)	Mixture of 3% HCl with saturated Pepsin

4.2 Calibration

Careful, regular calibration is essential for reliable, accurate measurement. The calibration intervals depend on the particular application and the required measuring accuracy.

The calibration intervals must be individually determined in practice for each application. To begin with it is advisable to calibrate more often, e.g. once a week to get to know the operating behaviour.

Calibration steps:

- Depressurise the assembly (vent using the drain plug or drain valve, if necessary).
- Remove electrode holder by taking off protective cover and unscrewing union nut.
- Clean electrodes and assembly (see Chapter 4.1). Automatic cleaning: clean before removing electrode holder.
- Check electrodes for mechanical damage.
- Fill calibration vessel with buffer solution.
- Calibrate measuring system according to instructions for measuring instrument.
- Rinse electrode with water.
- Refit electrode holder in assembly.



Caution:

- Do not allow electrodes to stand in distilled water.
- Do not allow electrodes to stand dry.

5 Accessories

The following accessories can be ordered separately:

- Chemoclean spray cleaning system comprising:
 - CYR 10 injector (see Technical Information TI 046C/07/en, Order No. 50014223)
 - CYR 20 programmer (see Technical Information TI 046C/07/en, Order No. 50014223)
- Sonoclean ultrasonic cleaning system
- KCl reservoir CPY 7 with CPY 4 electrolyte solution (see Operating Instructions BA 128C/07/d-e, Order No. 50069155)
- CPY 2 calibration solution
- Calibrating vessel.

The following spare parts can be reordered:

- O-ring sets

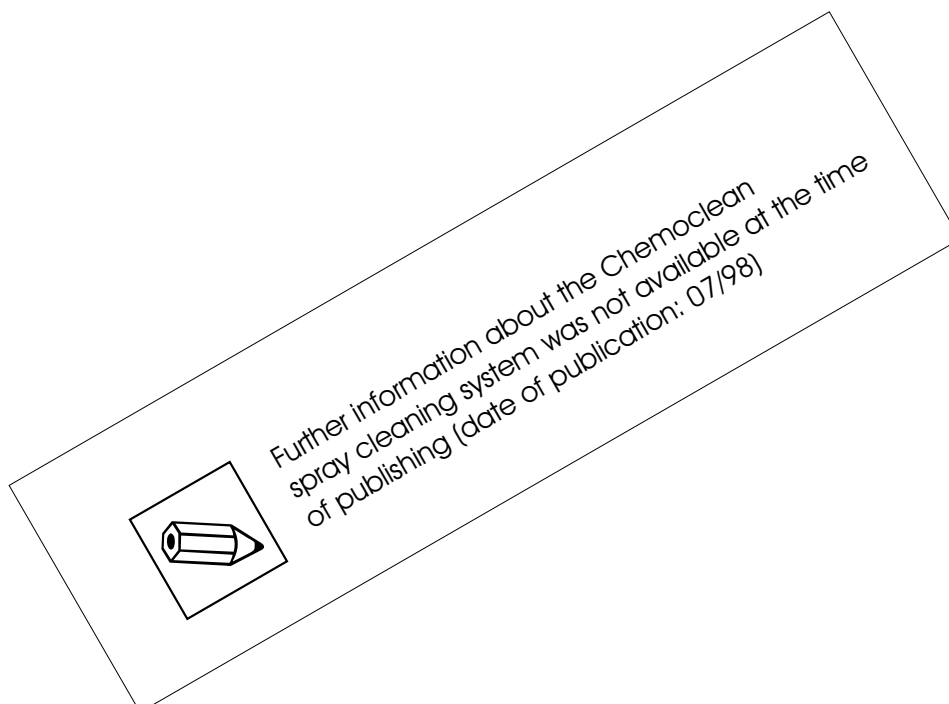
Assembly Sealing material	PVDF	Stainless steel
EPDM	50089408	50089412
Viton	50089409	50089413
Chemraz	50089410	50089414
Fluoraz	50089411	50089415

5.1 Chemoclean spray cleaning system

The Chemoclean spray cleaning system is used for automatic electrode cleaning. The best cleaning results can be obtained by using the correct cleaning agent. This ensures the correct functioning of the sensor.

The Chemoclean cleaning system for the CPA 240 flow assembly comprises:

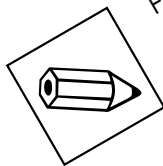
- Chemoclean spray head (shipment due in 07/98)
- cleaning injector CYR 10
- cleaning control system (e.g. CYR 20 programmer or CPM 152 transmitter)



5.2 Sonoclean ultrasonic cleaning system

The Sonoclean ultrasonic cleaning system is used to clean electrodes without the use of cleaning agents.

Dirt particles adhering to the electrodes are loosened by pressure fluctuations produced by ultrasound.

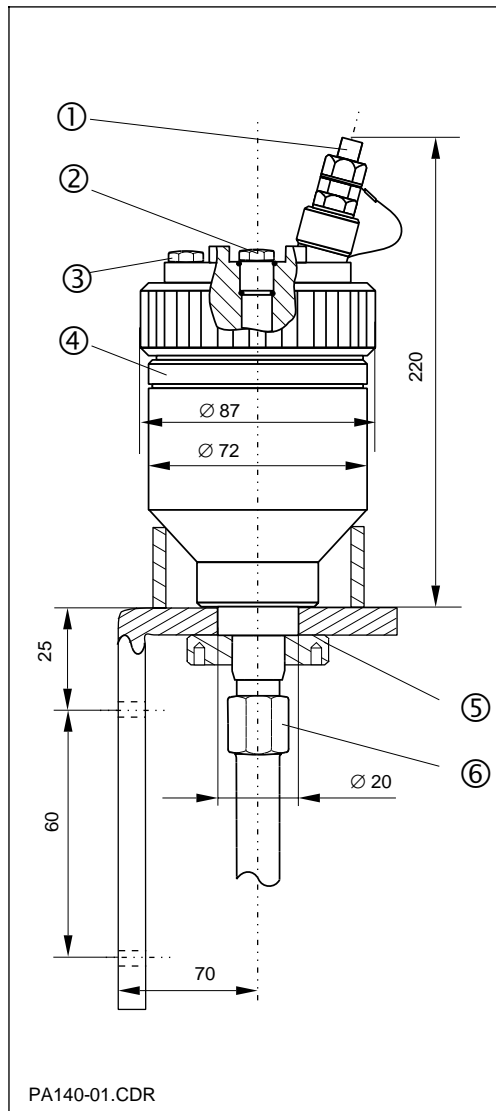


Further information about the Sonoclean ultrasonic cleaning system was not available at the time of publishing.

5.3 Electrolyte reservoir CPY 7

The CPY 7 electrolyte reservoir is used to supply fluid-filled electrodes. When a reference electrode is installed, the reservoir vessel can be used as an electrolyte bridge. The reservoir is filled with KCl electrolyte solution CPY 4.

For more information, see Operating Instructions CPY 7 (BA128C/07/d-e).



Electrolyte reservoir CPY7 (wall-mounted version)

- ① Valve
- ② Dummy plug; reference electrode position
- ③ Dummy plug; manometer position
- ④ Filling mark
- ⑤ Securing nut for electrolyte vessel
- ⑥ Hose coupling

Fig. 5.1

6 Technical Data

General data

Manufacturer	Endress+Hauser Conducta GmbH+Co.
Designation	FlowFit P CPA 240 flow assembly

Number of mounting positions in sensor holder	3 x Pg 13.5
Thread on sampling connection	G 1/2"

Process connection

A	Weld on connection for DN 25 (Ø 28 x 1.5)
B	Flange DN 25 PN 16
C	Flange ANSI 1" 150 lbs.
D	Flange JIS 10K 25A
E	Thread (F)NPT 1/2 "

Weight

PVDF	approx. 2 kg
Stainless steel 1.4404	approx. 3 - 4.5 kg

Materials in contact with medium

Flow assembly	PVDF / stainless steel 1.4404
O-rings	EPDM / Viton / Chemraz / Fluoraz
Potential matching pin	C4 Hastelloy / tantalum
Dummy plugs	PEEK
Shock protection bolts	PVDF / stainless steel 1.4404

Materials not in contact with medium

Protective cover	PES
Union nut	stainless steel 1.44301

Operating data

Operating pressure

PVDF version	max. 8 bar (at 50°C)
Stainless steel 1.4404 version	max. 10 bar

Operating temperature

PVDF version	0 ... +120°C
Stainless steel 1.4404 version	-15 ... +150°C (EPDM 140°C)

Subject to modifications

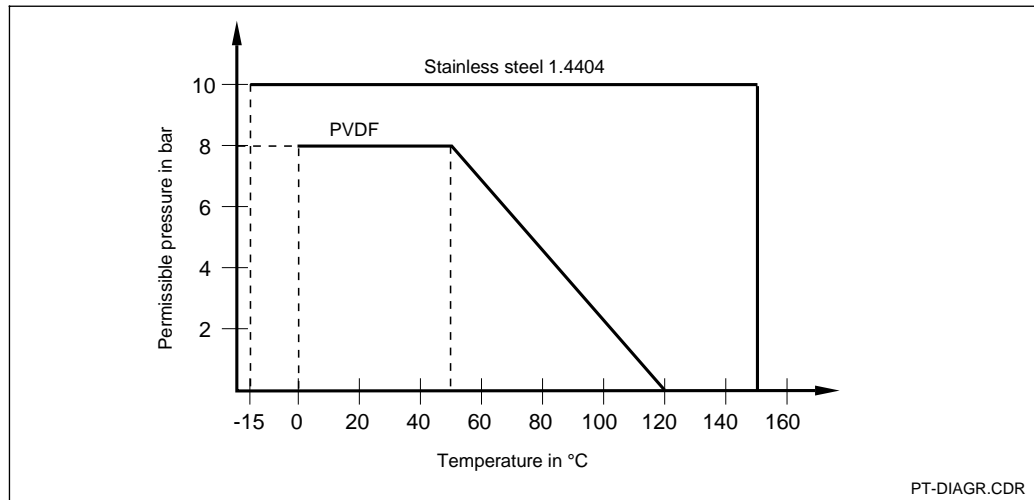


Fig. 6.1 Pressure / temperature diagram



Note:

The operating limits of the system are determined by the operating limits of the individual components used (assembly, sensors, cables, accessories, etc.).

7 Index

A

Accessories 13-15
Automatic cleaning 11

B

By-Pass 9

C

Calibration 12
Calibration intervals 12
Chemoclean 11, 13
Cleaning 11
Cleaning agents 11

D

Damaged goods 2
Delivery 2
Description of the assembly 3-8
Dimensions 4
Drain screw 6-9
Dummy plug 10

E

Electrode holder 6
Electrodes 8
Electrolyte reservoir 15
Electrolyte solution 15

F

Flange 6-7
Flow assembly 9

G

General information 2

I

Installation 9-10
Installation of electrodes 10
Installation of measuring cables 10
Installation of the assembly 9
Intended use 2

J

Junction box 8

M

Maintenance 11-12
Manual cleaning 11
Materials 16
Measuring cable 8
Measuring system 8
Medium pressure 9

N

Nameplate 3

O

O-ring sets 13
Operating pressure 16
Operating temperature 16
Order code 3
Outlet pipe 9, 11

P

Potential matching cable 8
Potential matching pin 6-7
Pressure 9
Process 9
Process connection 16
Protection cover 8, 10

S

Safety notes 2
Sampling pipe 9
Sectional drawing 6-7
Shock protection bolt 6
Soiling 11
Sonoclean 11, 14
Spare parts 13
Spray cleaning system 11, 13
Symbols 2

T

Technical data 16
Temperature sensor 8
Transmitter 8

U

Ultrasonic cleaning system 11, 14
Unpacking 2
Use 2

V

Versions 3-4

W

Weight 16

Europe

Austria

□ Endress+Hauser Ges.m.b.H.
Wien
Tel. (01) 880 56-0, Fax (01) 880 56-35

Belarus

Belorgsintez
Minsk
Tel. (01 72) 26 31 66, Fax (01 72) 26 31 11

Belgium / Luxembourg

□ Endress+Hauser S.A./N.V.
Brussels
Tel. (02) 248 06 00, Fax (02) 248 05 53

Bulgaria

INTERTECH-AUTOMATION
Sofia
Tel. (02) 65 28 09, Fax (02) 65 28 09

Croatia

□ Endress+Hauser GmbH+Co.
Zagreb
Tel. (01) 660 14 18, Fax (01) 660 14 18

Cyprus

I+G Electrical Services Co. Ltd.
Nicosia
Tel. (02) 48 47 88, Fax (02) 48 46 90

Czech Republic

□ Endress+Hauser GmbH+Co.
Praha
Tel. (026) 6 78 42 00, Fax (026) 6 78 41 79

Denmark

□ Endress+Hauser A/S
Søborg
Tel. (31) 67 31 22, Fax (31) 67 30 45

Estonia

Elvi-Aqua
Tartu
Tel. (7) 42 27 26, Fax (7) 42 27 27

Finland

□ Endress+Hauser Oy
Espoo
Tel. (90) 85 91 61 55, Fax (90) 85 91 60 55

France

□ Endress+Hauser
Huningue
Tel. 89 69 67 68, Fax 89 69 48 02

Germany

□ Endress+Hauser Messtechnik GmbH+Co.
Weil am Rhein
Tel. (0 76 21) 9 75-01, Fax (0 76 21) 9 75-555

Great Britain

□ Endress+Hauser Ltd.
Manchester
Tel. (01 61) 2 86 50 00, Fax (01 61) 9 98 18 41

Greece

I & G Building Services Automation S.A.
Athens
Tel. (01) 9 24 15 00, Fax (01) 9 22 17 14

Hungary

Mile Ipari-Elektro
Budapest
Tel. (01) 2 61 55 35, Fax (01) 2 61 55 35

Iceland

Vatnshreinsun HF
Reykjavik
Tel. (05) 88 96 16, Fax (05) 88 96 13

Ireland

Flomeaco Company Ltd.
Kildare
Tel. (045) 86 86 15, Fax (045) 86 81 82

Italy

□ Endress+Hauser Italia S.p.A.
Cernusco s/N Milano
Tel. (02) 92 10 64 21, Fax (02) 92 10 71 53

Jugoslavia

Meris d.o.o.
Beograd
Tel. (11) 4 44 29 66, Fax (11) 4 30 04 3

Latvia

Raita Ltd.
Riga
Tel. (02) 25 47 95, Fax (02) 7 25 89 33

Lithuania

Agava Ltd.
Kaunas
Tel. (07) 20 24 10, Fax (07) 20 74 14

Netherland

□ Endress+Hauser B.V.
Naarden
Tel. (0 35) 6 95 86 11, Fax (0 35) 6 95 88 25

Norway

□ Endress+Hauser A/S
Tranby
Tel. (0 32) 85 10 85, Fax (0 32) 85 11 12

Poland

□ Endress+Hauser Polska Sp. z o.o.
Warszawy
Tel. (0 22) 7 20 10 90, Fax (0 22) 7 20 10 85

Portugal

Tecnis - Tecnica de Sistemas Industriais
Linda-a-Velha
Tel. (01) 4 17 26 37, Fax (01) 4 18 52 78

Romania

Romconseng SRL
Bucharest
Tel. (01) 4 10 16 34, Fax (01) 4 10 16 34

Russia

□ Endress+Hauser Moscow Office
Moscow
Tel., Fax: see Endress+Hauser GmbH+Co.
Instruments International

Slovak Republic

Transcom Technik s.r.o.
Bratislava
Tel. (7) 5 21 31 61, Fax (7) 5 21 31 81

Slovenia

□ Endress+Hauser D.O.O.
Ljubljana
Tel. (0 61) 1 59 22 17, Fax (0 61) 1 59 22 98

Spain

□ Endress+Hauser S.A.
Barcelona
Tel. (93) 4 80 33 66, Fax (93) 4 73 38 39

Sweden

□ Endress+Hauser AB
Sollentuna
Tel. (08) 6 26 16 00, Fax (08) 6 26 94 77

Switzerland

□ Endress+Hauser AG
Reinach/BL 1
Tel. (0 61) 7 15 62 22, Fax (0 61) 7 11 16 50

Turkey

Intek Endüstriyel Ölçü ve Kontrol Sistemleri
Istanbul
Tel. (02 12) 2 75 13 55, Fax (02 12) 2 66 27 75

Ukraine

Industria Ukraina
Kiev
Tel. (44) 2 68 52 13, Fax (44) 2 68 52 13

Africa

Egypt

Anasia
Heliopolis/Cairo
Tel. (02) 4 17 90 07, Fax (02) 4 17 90 08

Morocco

Oussama S.A.
Casablanca
Tel. (02) 24 13 38, Fax (02) 40 26 57

Nigeria

J F Technical Invest. Nig. Ltd.
Lagos
Tel. (1) 6 23 45 46, Fax (1) 6 23 45 48

South Africa

□ Endress+Hauser Pty. Ltd.
Sandton
Tel. (0 11) 4 44 13 86, Fax (0 11) 4 44 19 77

Tunisia

Controle, Maintenance et Regulation
Tunis
Tel. (01) 79 30 77, Fax (01) 78 85 95

America

Argentina

□ Endress+Hauser Argentina S.A.
Buenos Aires
Tel. (01) 5 23 80 08, Fax (01) 5 22 05 46

Bolivia

Tritec S.R.L.
Cochabamba
Tel. (0 42) 5 69 93, Fax (0 42) 5 09 81

Brazil

□ Samson Endress+Hauser Ltda.
Sao Paulo
Tel. (0 11) 5 36 34 55, Fax (0 11) 5 36 30 67

Canada

□ Endress+Hauser Ltd.
Burlington, Ontario
Tel. (9 05) 6 81 92 92, Fax (9 05) 6 81 94 44

Chile

DIN Instrumentos Ltda.
Santiago
Tel. (02) 2 05 01 00, Fax (02) 2 25 81 39

Colombia

Colsein Ltd.
Bogota D.C.
Tel. (01) 2 36 76 59, Fax (01) 6 10 78 68

Costa Rica

EURO-TEC S.A.
San Jose
Tel. 2 96 15 42, Fax 2 96 15 42

Ecuador

Insetec Cia. Ltda.
Quito
Tel. (02) 25 12 42, Fax (02) 46 18 33

Guatemala

ACISA Automatizacion Y Control Industrial S.A.
Ciudad de Guatemala, C.A.
Tel. (02) 34 59 85, Fax (02) 32 74 31

Mexico

□ Endress+Hauser I.I.
Mexico City
Tel. (5) 5 68 96 58, Fax (5) 5 68 41 83

Paraguay

Incoel S.R.L.
Asuncion
Tel. (021) 21 39 89, Fax (021) 2 65 83

Uruguay

Circular S.A.
Montevideo
Tel. (02) 92 57 85, Fax (02) 92 91 51

USA

□ Endress+Hauser Inc.
Greenwood, Indiana
Tel. (3 17) 5 35-71 38, Fax (3 17) 5 35-14 89

Venezuela

H. Z. Instrumentos C.A.
Caracas
Tel. (02) 9 79 88 13, Fax (02) 9 79 96 08

Asia

China

□ Endress+Hauser Shanghai
Instrumentation Co. Ltd.
Shanghai
Tel. (0 21) 6 46 46 7 00, Fax (0 21) 6 47 4 78 60

□ Endress+Hauser Beijing Office

Beijing
Tel. (0 10) 68 34 40 58, Fax: (0 10) 68 34 40 68

Hong Kong

□ Endress+Hauser (H.K.) Ltd.
Hong Kong
Tel. 25 28 31 20, Fax 28 65 41 71

India

□ Endress+Hauser India Branch Office
Mumbai
Tel. (0 22) 6 04 55 78, Fax (0 22) 6 04 02 11

Indonesia

PT Grama Bazita
Jakarta
Tel. (21) 7 97 50 83, Fax (21) 7 97 50 89

Japan

□ Sakura Endress Co., Ltd.
Tokyo
Tel. (04 22) 5 40 6 11, Fax (04 22) 5 50 2 75

Malaysia

□ Endress+Hauser (M) Sdn. Bhd.
Petaling Jaya, Selangor Darul Ehsan
Tel. (03) 7 33 48 48, Fax (03) 7 33 88 00

Pakistan

Speedy Automation
Karachi
Tel. (021) 7 72 29 53, Fax (021) 7 73 68 84

Papua-Neuguinea

SBS Electrical Pty Limited
Port Moresby
Tel. 53 25 11 88, Fax 53 25 95 56

Philippines

Brenton Industries Inc.
Makati Metro Manila
Tel. (2) 8 43 06 61-5, Fax (2) 8 17 57 39

Singapore

□ Endress+Hauser (S.E.A.) Pte., Ltd.
Singapore
Tel. 4 68 82 22, Fax 4 66 68 48

South Korea

□ Endress+Hauser (Korea) Co., Ltd.
Seoul
Tel. (02) 6 58 72 00, Fax (02) 6 59 28 38

Taiwan

Kingjarl Corporation
Taipei R.O.C.
Tel. (02) 7 18 39 38, Fax (02) 7 13 41 90

Thailand

□ Endress+Hauser Ltd.
Bangkok
Tel. (2) 996 78 11-20, Fax (2) 996 78 10

Vietnam

Tan Viet Bao Co. Ltd.
Ho Chi Minh City
Tel. (08) 8 33 52 25, Fax (08) 8 33 52 27

Iran

Telephone Technical Services Co. Ltd.
Tehran
Tel. (0 21) 8 74 67 50, Fax (0 21) 8 73 72 95

Israel

Instrumetrics Industrial Control Ltd.
Tel-Aviv
Tel. (03) 6 48 02 05, Fax (03) 6 47 19 92

Jordan

A.P.Parpas Engineering S.A.
Amman
Tel. (06) 5 53 92 83, Fax (06) 5 53 92 05

Kingdom of Saudi Arabia

Anasia
Jeddah
Tel. (02) 6 71 00 14, Fax (02) 6 72 59 29

Kuwait

Kuwait Maritime & Mercantile Co. K.S.C.
Safat
Tel. 2 43 47 52, Fax 2 44 14 86

Lebanon

Nabil Ibrahim
Jbel
Tel. (3) 25 40 51, Fax (9) 94 40 80

Sultanate of Oman

Mustafa & Jawad Science & Industry Co.
L.L.C.
Ruwi
Tel. 60 20 09, Fax 60 70 66

United Arab Emirates

Descon Trading EST.
Dubai
Tel. (04) 35 95 22, Fax (04) 35 96 17

Yemen

Yemen Company for Ghee and Soap Industry
Taiz
Tel. (04) 23 06 64, Fax (04) 21 23 38

Australia + New Zealand

Australia

GEC Alstom LTD.
Sydney
Tel. (02) 96 45 07 77, Fax (02) 97 43 70 35

New Zealand

EMC Industrial Instrumentation
Auckland
Tel. (09) 4 44 92 29, Fax (09) 4 44 11 45

All other countries

□ Endress+Hauser GmbH+Co.
Instruments International
D-Weil am Rhein
Germany
Tel. (0 76 21) 9 75-02, Fax (0 76 21) 9 75 34 5

□ Companies of the Endress+Hauser Group



50088966

Endress + Hauser

Nothing beats know-how

