Operating Instructions
Ecofit CPA640

Universal compact assembly for the installation of 120 mm sensors for all areas of water management and industry

Endress+Hauser

People for Process Automation
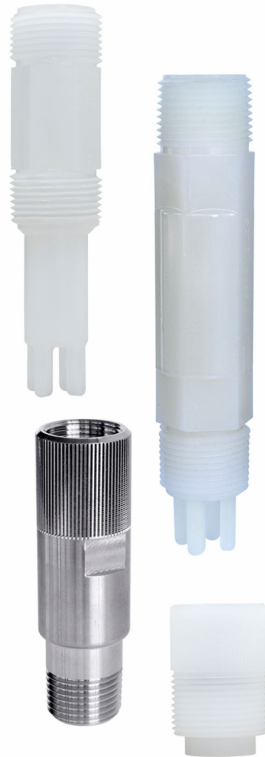
1   Document information

1.1   Warnings

Structure of information	Meaning
⚠ DANGER **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation **will** result in a fatal or serious injury.
⚠ WARNING **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation **can** result in a fatal or serious injury.
⚠ CAUTION **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or more serious injuries.
NOTICE **Cause/situation** If necessary, Consequences of non-compliance (if applicable) ▶ Action/note	This symbol alerts you to situations which may result in damage to property.

1.2   Symbols

🛈	Additional information, tips
☑	Permitted
☑☑	Recommended
☒	Forbidden or not recommended
📖	Reference to device documentation
📄	Reference to page
🖾	Reference to graphic
↳	Result of a step

1.2.1   Symbols on the device

⚠–📖	Reference to device documentation
⊠	Do not dispose of products bearing this marking as unsorted municipal waste. Instead, return them to the manufacturer for disposal under the applicable conditions.

2 Basic safety instructions

2.1 Requirements for the personnel

- Installation, commissioning, operation and maintenance of the measuring system may be carried out only by specially trained technical personnel.
- The technical personnel must be authorized by the plant operator to carry out the specified activities.
- The electrical connection may be performed only by an electrical technician.
- The technical personnel must have read and understood these Operating Instructions and must follow the instructions contained therein.
- Faults at the measuring point may only be rectified by authorized and specially trained personnel.

> Repairs not described in the Operating Instructions provided must be carried out only directly at the manufacturer's site or by the service organization.

2.2 Intended use

Ecofit Ecofit is an adapter designed for the installation of sensors with Ø 12 mm (0.47") in NPT process connections in:
- wastewater treatment
- water treatment
- condensate treatment
- water cooling

Use of the device for any purpose other than that described, poses a threat to the safety of people and of the entire measuring system and is therefore not permitted.

The manufacturer is not liable for damage caused by improper or non-designated use.

2.3 Workplace safety

As the user, you are responsible for complying with the following safety conditions:
- Installation guidelines
- Local standards and regulations
- Regulations for explosion protection

Electromagnetic compatibility
- The product has been tested for electromagnetic compatibility in accordance with the applicable international standards for industrial applications.
- The electromagnetic compatibility indicated applies only to a product that has been connected in accordance with these Operating Instructions.

2.4 Operational safety

Before commissioning the entire measuring point:

1. Verify that all connections are correct.

2. Ensure that electrical cables and hose connections are undamaged.

3. Do not operate damaged products, and protect them against unintentional operation.

4. Label damaged products as defective.

During operation:

▶ If faults cannot be rectified:
products must be taken out of service and protected against unintentional operation.

2.5 Product safety

The product is designed to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which it is safe to operate. The relevant regulations and international standards have been observed.

3 Incoming acceptance and product identification

3.1 incoming acceptance

1. Verify that the packaging is undamaged.
   ↳ Notify the supplier of any damage to the packaging.
   Keep the damaged packaging until the issue has been resolved.

2. Verify that the contents are undamaged.
   ↳ Notify the supplier of any damage to the delivery contents.
   Keep the damaged goods until the issue has been resolved.

3. Check that the delivery is complete and nothing is missing.
   ↳ Compare the shipping documents with your order.

4. Pack the product for storage and transportation in such a way that it is protected against impact and moisture.
   ↳ The original packaging offers the best protection.
   Make sure to comply with the permitted ambient conditions.

If you have any questions, please contact your supplier or your local Sales Center.

3.2 Product identification

3.2.1 Nameplate

The nameplate provides you with the following information on your device:
- Manufacturer identification
- Order code
- Extended order code
- Serial number
- Safety information and warnings
- Certificate information
- CSA C/US mark

- Warning statements
- Control drawing number
- Certificate number

▶ Compare the information on the nameplate with the order.

3.2.2   Identifying the product

Product page

www.endress.com/cpa640

Interpreting the order code

The order code and serial number of your product can be found in the following locations:
- On the nameplate
- In the delivery papers

Obtaining information on the product

1. Go to www.endress.com.

2. Page search (magnifying glass symbol): Enter valid serial number.

3. Search (magnifying glass).
   ↳ The product structure is displayed in a popup window.

4. Click the product overview.
   ↳ A new window opens. Here you fill information pertaining to your device, including the product documentation.

Manufacturer's address

Endress+Hauser Conducta GmbH+Co. KG
Dieselstraße 24
70839 Gerlingen
Germany

3.3   Scope of delivery

The scope of delivery comprises:
- Ordered version of assembly
- Operating Instructions

4 Mounting

4.1 Mounting requirements

- The assembly can only be installed if the process is unpressurized and the container is empty.
- The assembly is designed for installation on containers or pipes.
- Appropriate process connections must be provided for the installation.
- Make sure the orientation is correct. Information can be found in the manual of the sensor used.

Process connections depend on the assembly version:

Assembly version	Process connection
CPA640-A/B***	NPT ½"
CPA640-C/D***	NPT ¾"
CPA640-E***	NPT 1"
CPA640-G/I***	M25x1.5

4.1.1   Dimensions
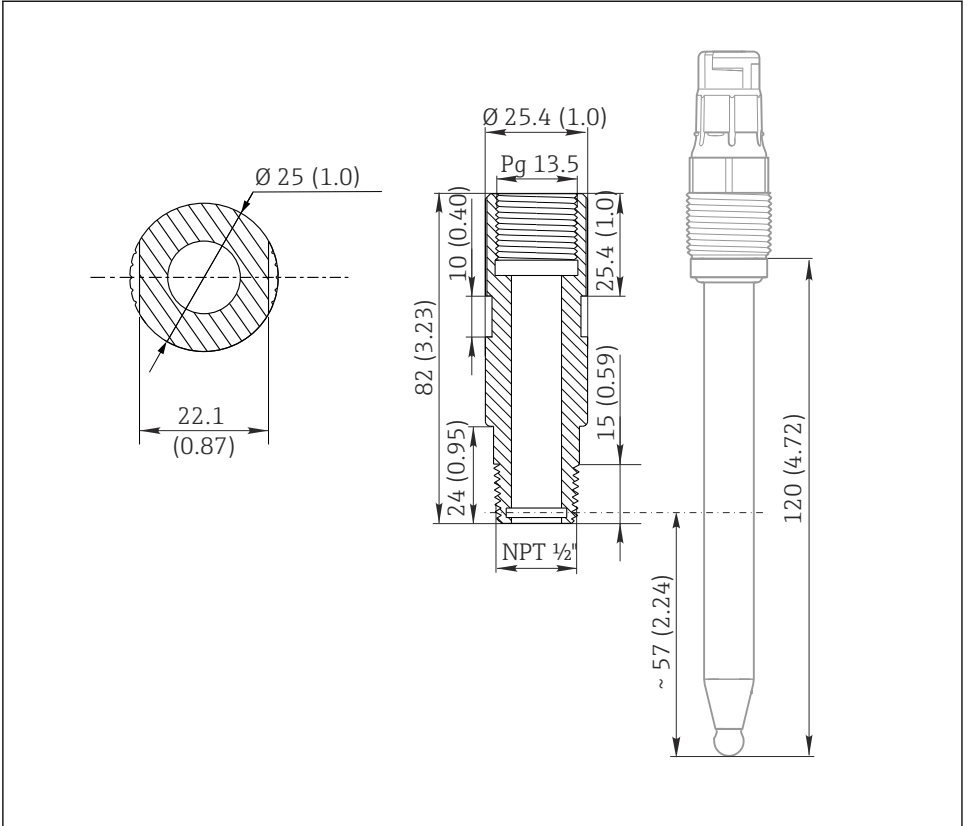
⊠ *1   CPA640-A/B***. Unit of measurement mm (in)*
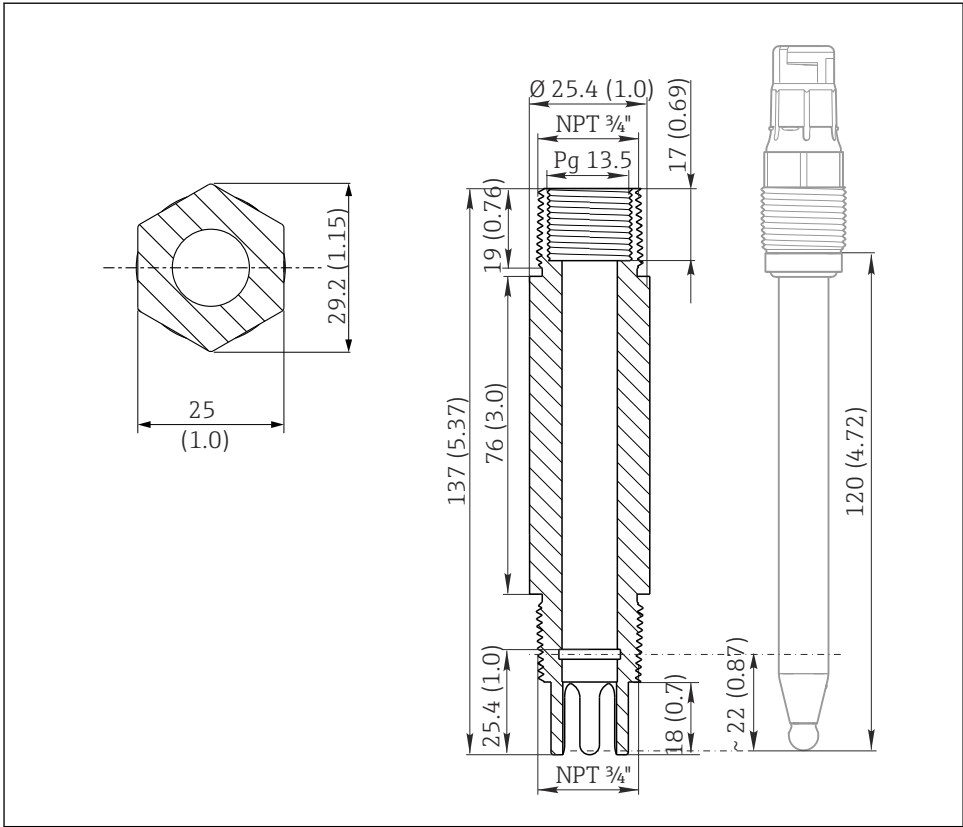
2   CPA640-C/D***. Unit of measurement mm (in)
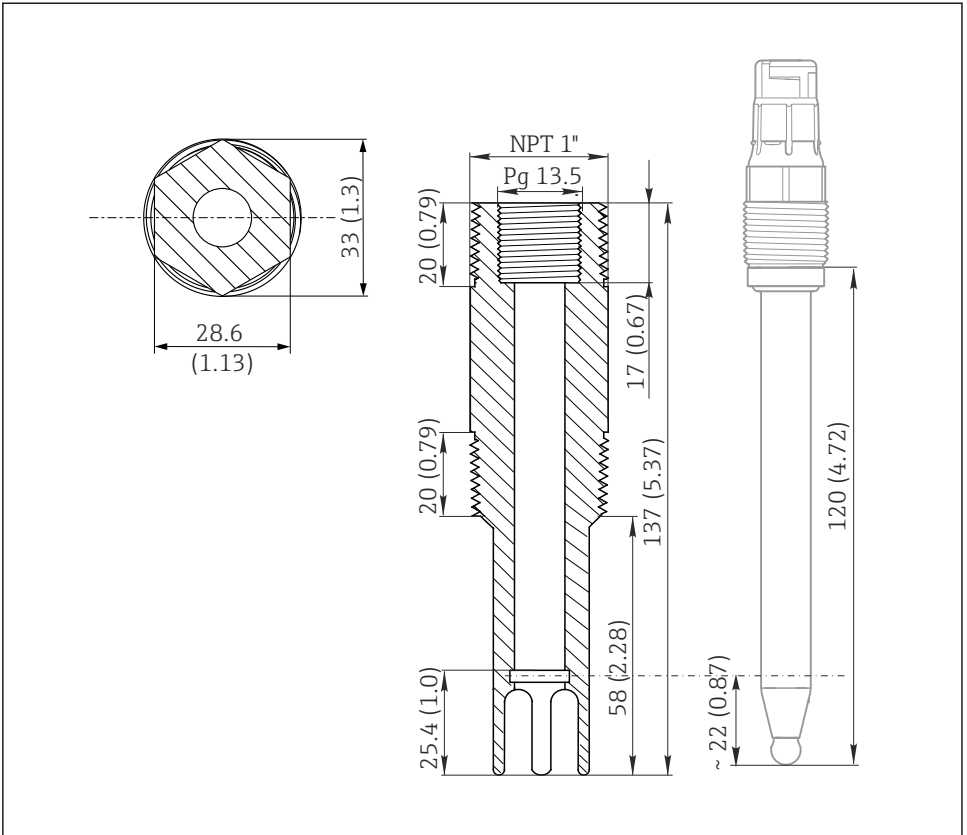
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⊞ *3   CPA640-E***. Unit of measurement mm (in)*

Ø 25 (1.0)

20.4 (0.8)

Pg 13.5

17 (0.67)

38 (1.50)

5 (0.20)

Ø 12.3 (0.48)

Ø 18 (0.71)

M 25x1.5

~ 115 (4.53)

120 (4.72)
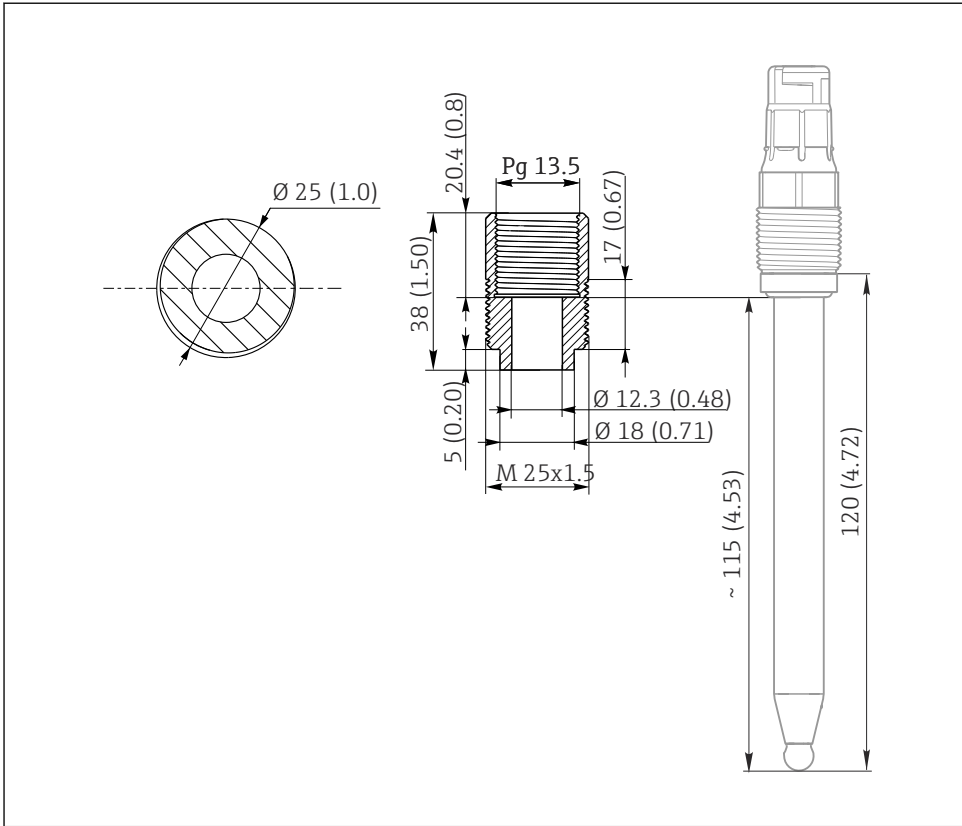
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🖾 4   *CPA640-G/I***. Unit of measurement mm (in)*

4.2   Mounting the assembly

⚠ CAUTION

Open connection to the medium
Risk of injury from high pressure, high temperature or chemical hazards if process medium escapes.
▶ Mount the assembly only if containers or pipes are empty and unpressurized.
▶ Wear suitable protective clothing, such as protective gloves, goggles etc., to protect yourself from injury.

1.   Make sure that the container, flow assembly or process pipe are unpressurized and empty.

2.   Remove the plug from the process connection.

3.   Screw the assembly into the process connection until hand-tight.

4. Install a sensor or a dummy plug in the assembly.
    ↳ Start up the process again and put the measuring point into operation if necessary.

4.3   Post-mounting check

• Assembly undamaged?
• Is the orientation correct?
• Is a sensor or dummy plug installed in the assembly?

5   Maintenance

5.1   Cleaning the assembly

⚠ CAUTION

Open connection to the medium
Risk of injury from high pressure, high temperature or chemical hazards if process medium escapes.
▶ Before each maintenance task, ensure that the container, flow assembly or process pipe is unpressurized, empty and rinsed.
▶ Wear suitable protective clothing, such as protective gloves, goggles etc., to protect yourself from medium residue.

⚠ WARNING

Solvents containing halogens and acetone
Health hazard if inhaled. Solvents (e.g. chloroform) can cause cancer and destroy plastic parts of the assembly or sensor (acetone).
▶ Never use acetone or any solvents containing halogens.

The assembly must be cleaned at regular intervals. The frequency and intensity of the cleaning depend on the medium.

1. Remove light dirt and fouling with suitable cleaning solutions; see table.

2. Remove heavy soiling using a soft brush and a suitable cleaning agent.

3. For very persistent dirt, soak the parts in a cleaning solution. Then clean the parts with a brush.

Most common types of fouling and suitable cleaning agents

Fouling	Suitable cleaning agent
Greases and oils	Agents containing surfactants (alkaline agents) or water-soluble organic solvents (halogen-free, e.g. ethanol)
Limescale deposits, metal hydroxide buildup, lyophobic biological buildup	Approx. 3% hydrochloric acid
Sulfide deposits	Mixture of 3% hydrochloric acid and thiocarbamide (commercially available)

Fouling	Suitable cleaning agent
Protein buildup	Mixture of 3% hydrochloric acid and. pepsin (commercially available)
Fibers, suspended substances	Pressurized water, possibly. surface-active agents
Light biological buildup	Pressurized water

6 Repair

6.1 Return

The product must be returned if repairs or a factory calibration are required, or if the wrong product was ordered or delivered. As an ISO-certified company and also due to legal regulations, Endress+Hauser is obliged to follow certain procedures when handling any returned products that have been in contact with medium.

To ensure the swift, safe and professional return of the device:

▶ Refer to the website www.endress.com/support/return-material for information on the procedure and conditions for returning devices.

6.2 Disposal

The device contains electronic components. The product must be disposed of as electronic waste.

▶ Observe the local regulations.

7   Accessories

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

Listed accessories are technically compatible with the product in the instructions.

1. Application-specific restrictions of the product combination are possible.

    Ensure conformity of the measuring point to the application. This is the responsibility of the operator of the measuring point.

2. Pay attention to the information in the instructions for all products, particularly the technical data.

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

7.1   Device-specific accessories

7.1.1   pH sensors

Ceragel CPS71
- pH electrode with reference system including ion trap
- Product Configurator on the product page: www.endress.com/cps71

📖 Technical Information TI00245C

Memosens CPS71E
- pH sensor for chemical process applications
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps71e

📖 Technical Information TI01496C

Ceraliquid CPS41
- pH electrode with ceramic junction and KCl liquid electrolyte
- Product Configurator on the product page: www.endress.com/cps41

📖 Technical Information TI00079C

Memosens CPS41E
- pH sensor for process technology
- With ceramic junction and KCl liquid electrolyte
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps41e

📖 Technical Information TI01495C

Memosens CPS77E
• Sterilizable and autoclavable ISFET sensor for pH measurement
• Digital with Memosens 2.0 technology
• Product Configurator on the product page: www.endress.com/cps77e

📘 Technical Information TI01396

7.1.2 ORP sensors

Ceragel CPS72
• ORP electrode with reference system including ion trap
• Product Configurator on the product page: www.endress.com/cps72

📘 Technical Information TI00374C

Memosens CPS72E
• ORP sensor for chemical process applications
• Digital with Memosens 2.0 technology
• Product Configurator on the product page: www.endress.com/cps72e

📘 Technical Information TI01576C

7.1.3 Oxygen sensors

Oxymax COS22
• Sterilizable sensor for dissolved oxygen
• With Memosens technology or as an analog sensor
• Product Configurator on the product page: www.endress.com/cos22

📘 Technical Information TI00446C

Memosens COS22E
• Hygienic amperometric oxygen sensor with maximum measurement stability over multiple
  sterilization cycles
• Digital with Memosens 2.0 technology
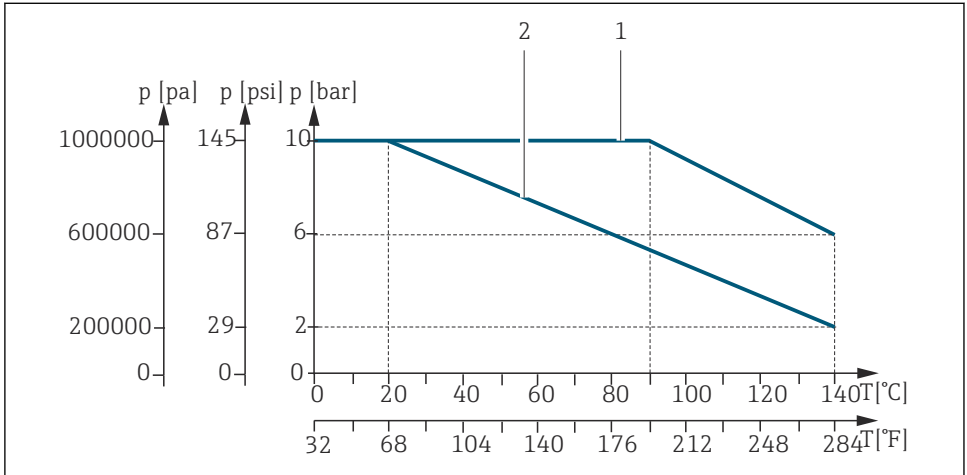• Product Configurator on the product page: www.endress.com/cos22e

📘 Technical Information TI01619C

8 Technical data

8.1 Process

8.1.1 Pressure-temperature ratings

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⊞ *5   temperature/pressure ratings*

1   Stainless steel 1.4404/1.4435 (AISI 316L), MONEL
2   PVDF

8.2 Mechanical construction

8.2.1 Dimensions
→ Section "Installation"

8.2.2 Weight
Approx. 0.1 to 0.3 kg (0.22 to 0.66 lbs) depending on the version

8.2.3 Materials

Adapter body
  CPA640-A/C/E/G***   PVDF (polyvinylidenefluoride)
  CPA640-B/D***   Stainless steel 316L (1.4404/14435))
  CPA640-I***   MONEL
Sealing ring   FDM (VITON), EPDM, CHEMRAZ, KALREZ
Endress+Hauser supplies DIN/EN process connections with stainless steel threaded
connection in accordance with AISI 316L (DIN/EN material number 1.4404 or 14435).

In terms of their stability-temperature property, the materials 1.4404 and 1.4435 are grouped in EN 1092-1 table 18 under 13E0. The chemical composition of the two materials can be identical.

8.2.4   Process connections

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