



Level



Pressure



Flow



Temperature



Liquid  
Analysis



Registration



Systems  
Components



Services



Solutions

## Technical Information

# Flowfit CYA251

Flow assembly for nitrate/SAC, turbidity and oxygen sensors



### Application

The CYA251 flow assembly is designed for the installation of sensors with a diameter of 40 mm (1.57"). It can be used in all applications where the process medium is transported in pipes or is sampled and made available in closed pipes.

The primary areas of application comprise:

- Drinking water
- Monitoring of surface water
- Analytical stations
- Process applications
- Wastewater technology

### Your benefits

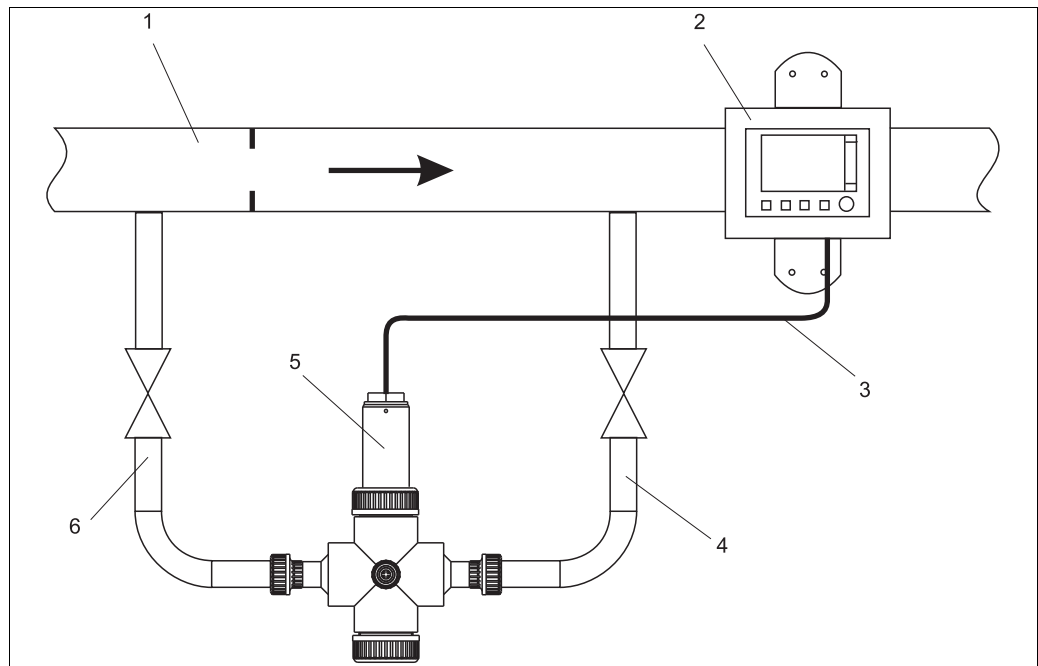
- Simple wall or pipe-mounting
- Variable installation
- Self-venting by suitable mounting
- Short response times thanks to low internal volume.
- Automatic cleaning via cleaning nozzle (compressed air or water)
- Manual cleaning via cleaning port (depending on sensor)

## Function and system design

### Measuring principle

A complete measuring system comprises:

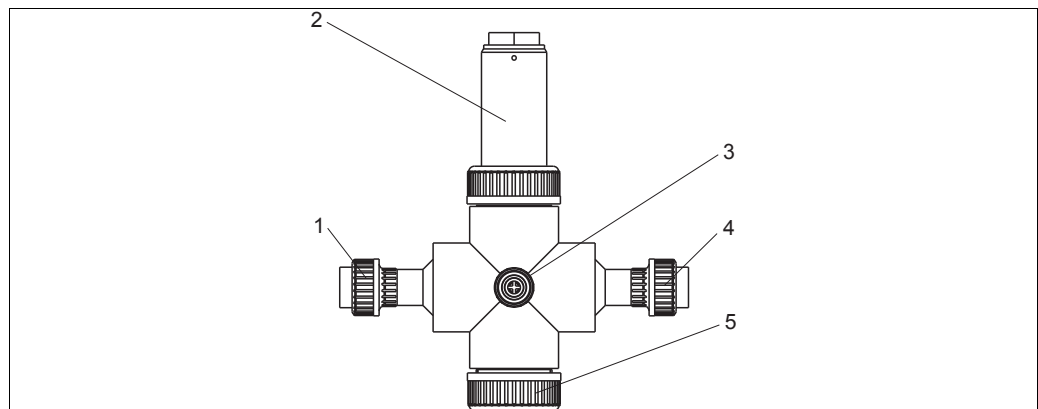
- Flowfit CYA251 flow assembly
- A 40 mm sensor, e.g. CAS51D
- Transmitter, e.g. Liquiline CM442
- Measuring cable



Measuring system (example)

- 1 Process pipe
- 2 Liquiline CM442 transmitter
- 3 Measuring cable
- 4 Return line with shutoff valve
- 5 CYA251 flow assembly with 40 mm sensor
- 6 Inlet with shutoff valve

### Components



Flow assembly components

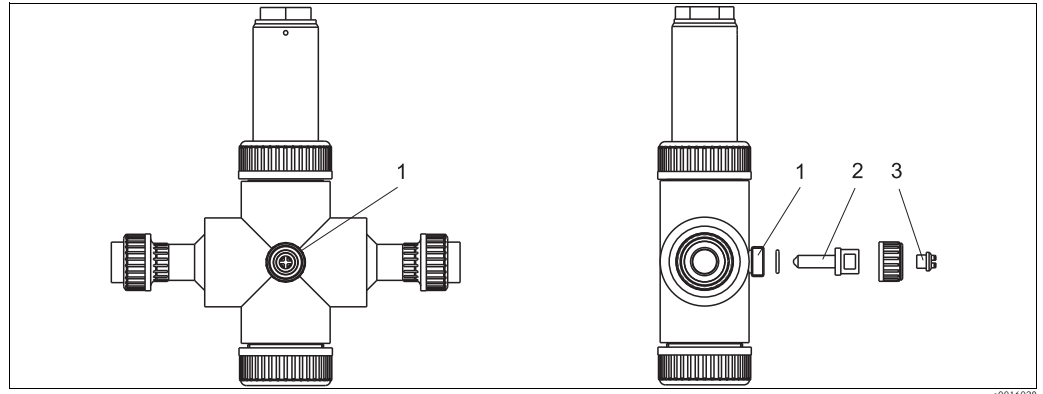
- 1 Inlet process connection
- 2 Sensor adapter (sensor-dependent)
- 3 Cleaning connection (cleaning nozzle is optional)
- 4 Outlet process connection
- 5 Cleaning port

**Cleaning**

The flow assembly is optionally fitted with a cleaning nozzle. You can connect compressed air or water at a G $\frac{1}{4}$  connection for cleaning purposes.

At the G $\frac{1}{4}$  cleaning connection you can connect:

- Compressed air via the enclosed check valve (G $\frac{1}{4}$  to 6 mm) or
- Water



*Optional cleaning*

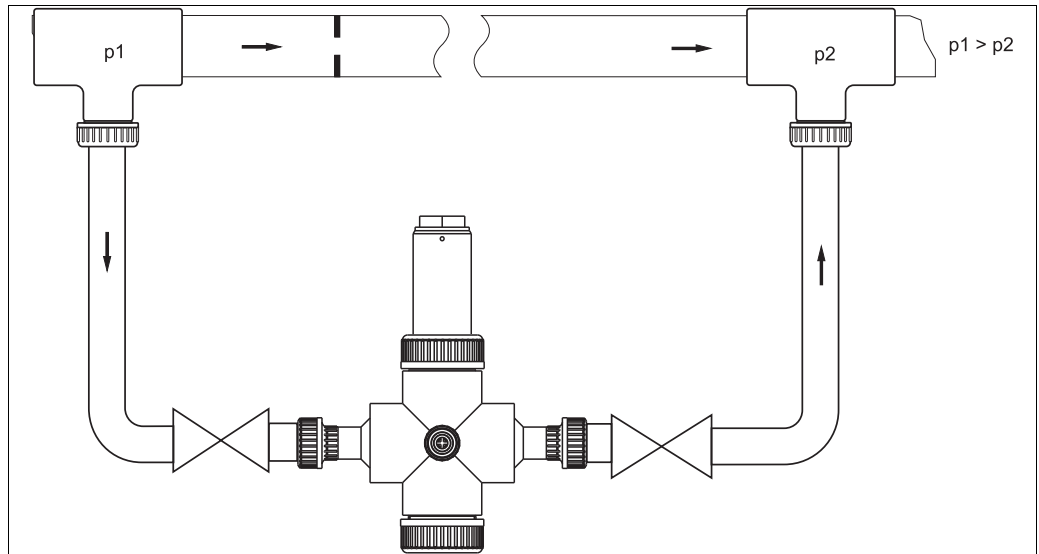
- 1 Cleaning connection
- 2 Cleaning nozzle with G $\frac{1}{4}$  threaded connection
- 3 Plug

Manual cleaning via the lower cleaning port is possible with the turbidity and oxygen sensors but not with the CAS51D sensor.

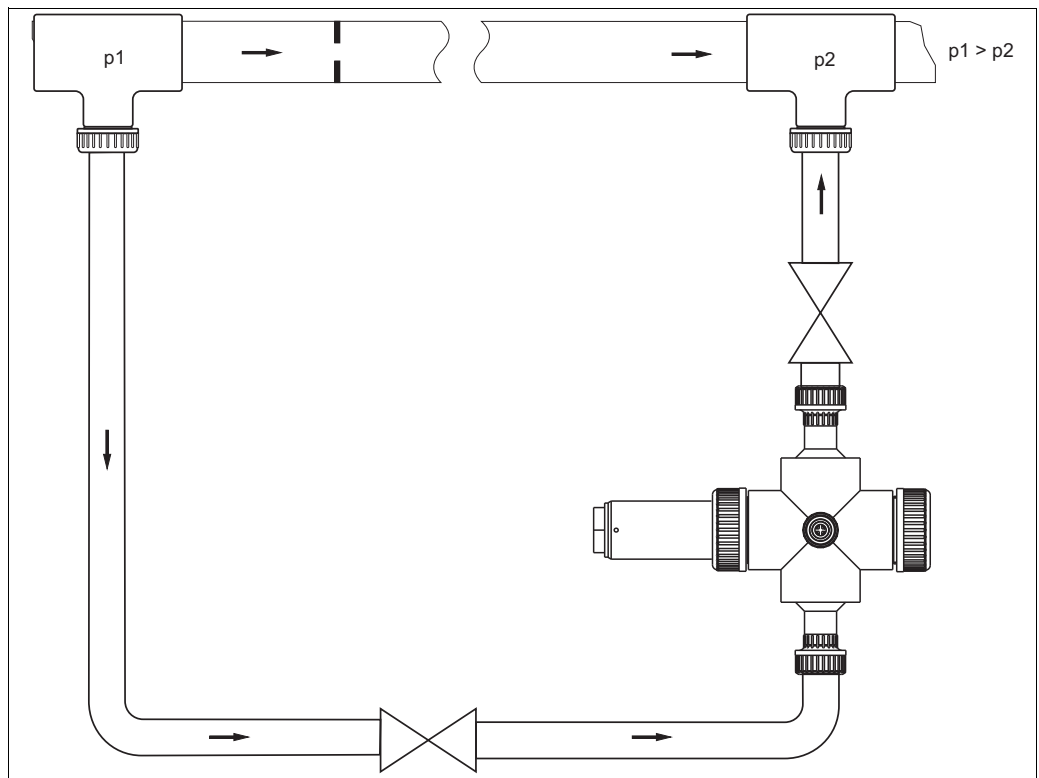
## Installation

### Installation instructions

To ensure that medium flows through the assembly in a bypass configuration, the pressure  $p_1$  must be greater than the pressure  $p_2$ . This is achieved by installing an orifice plate in the main pipe.

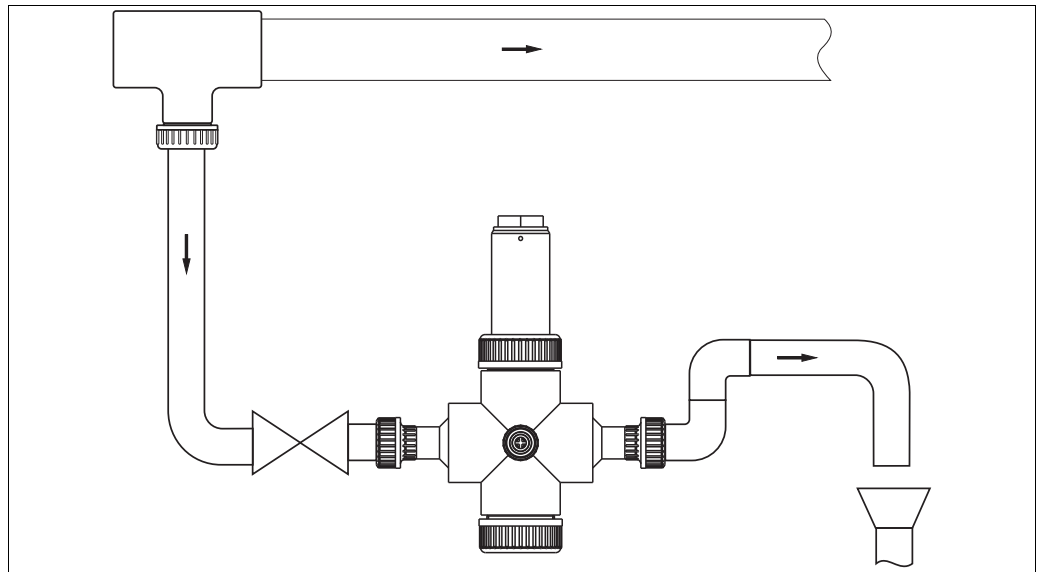


Connection example involving a bypass and an orifice plate in the main pipe



Connection example involving a bypass and an orifice plate in the main pipe (assembly rotated by  $90^\circ$ ; inlet at bottom)

No measures to increase pressure are required for branch pipes that branch off from the main pipe.

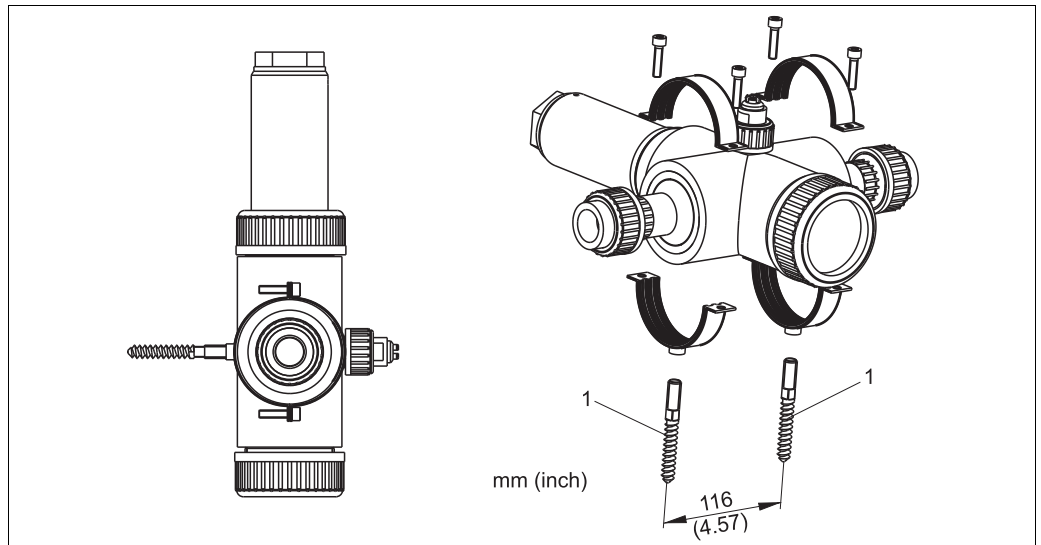


Connection example involving an open outlet

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The inlet and outlet connection of the flow assembly are always identical. The inlet and outlet side are not specified by the flow assembly and can therefore be selected to suit the particular application.

**Wall holder unit**



Wall holder unit

1 Hanger bolt STST 10x60 (forms part of the delivery)

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## Environment

**Ambient temperature** 0 to 50 °C (32 to 120 °F)

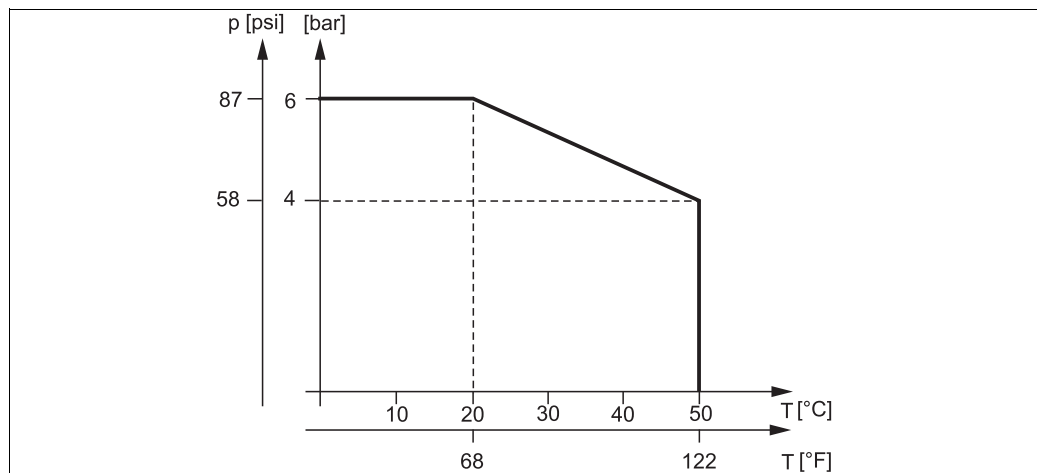
**Storage temperature** 0 to 50 °C (32 to 120 °F)

## Process

**Process temperature** 0 to 50 °C (32 to 122 °F), not freezing

**Process pressure** Max. 6 bar (87 psi) at 20 °C (68 °F) and 4 bar (58 psi) at 50 °C (122 °F)

### Pressure-temperature diagram



Pressure-temperature diagram

### Flow

Depends on the sensor used and the sensor's properties.

Typical values: For oxygen sensors approx. 200 l/h (53 gal/hr)

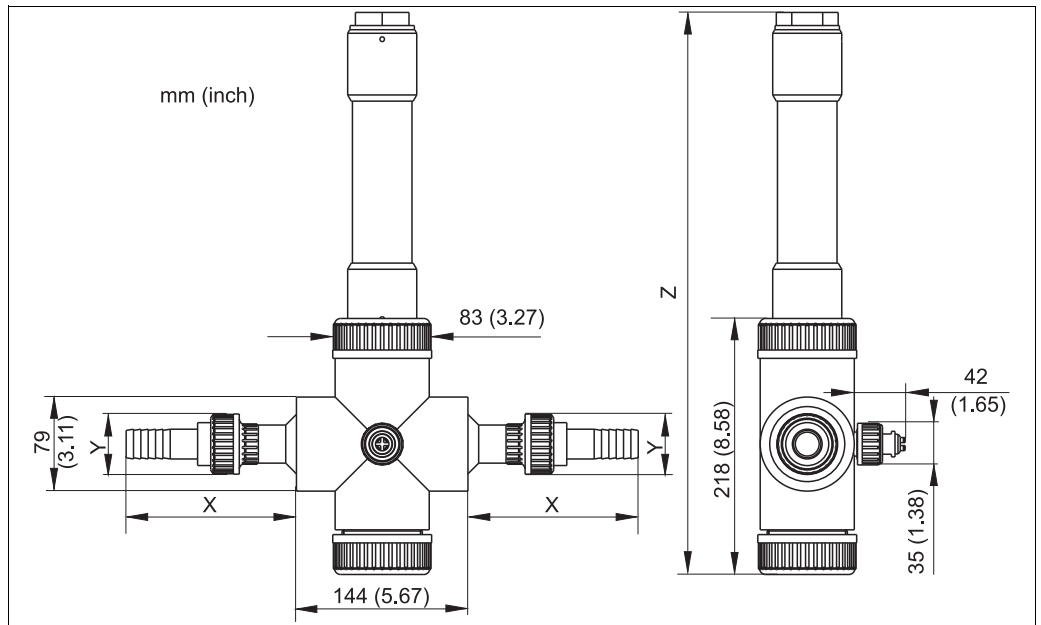
For turbidity and UV sensors approx. 100 l/h (26.5 gal/hr)

Minimum value: Depends on the parameter to be measured but must be such that representative measured values are still delivered.

Maximum value: It is not recommended to operate above 300 l/h (80 gal/hr).

## Mechanical construction

### Dimensions



Dimensions

Sensor	CAS51D 2 mm	CAS51D 8 mm	CAS51D 40 mm	COS51D COS41	COS61D COS61 COS31	CUS31 CUS41	CUS51D
Z mm(inch)	468 (18.43)	471 (18.54)	477 (18.78)	284 (11.18)	326 (12.83)	325 (12.80)	332 (13.07)

Connections	NPT 3/4"	Rp 3/4	DN 25	ANSI 1"	Hose D20	G1 1/4
X mm(inch)	83 (3.27)	83 (3.27)	83 (3.27)	50 (1.97)	137 (5.39)	61 (2.40)
Y mm(inch)	50.5 (1.99)	50.5 (1.99)	50.5 (1.99)	115 (4.53)	50.5 (1.99)	44.5 (1.75)

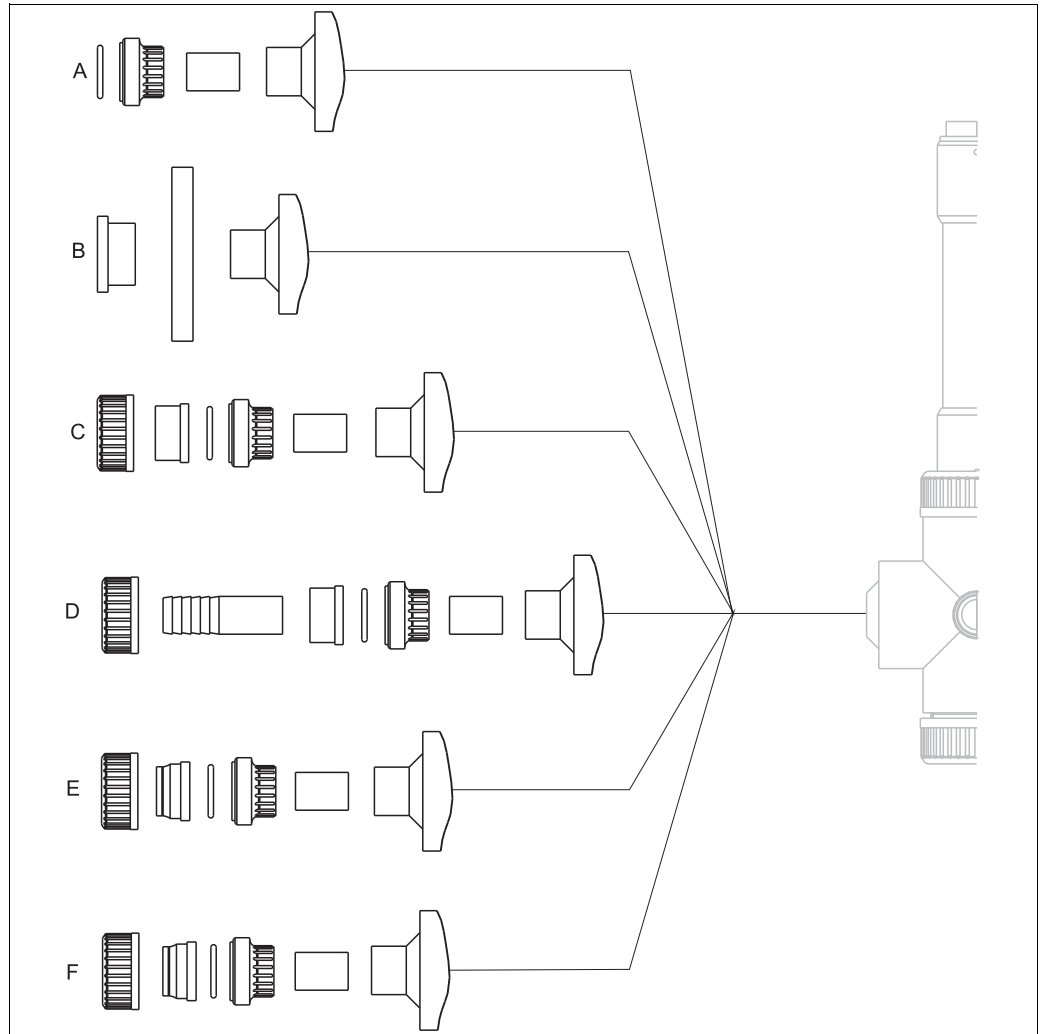
### Weight

1.5 to 1.8 kg (3.3 to 4.0 lbs), depending on the version

### Materials

EPDM (seals)  
PVC  
PP (flange)

## Process connections



## Process connections

- A External thread G1 1/4, PVC  
 B Flange ANSI 1", PVC  
 C Glue-in port DN 25, PVC  
 D Hose D20, PVC  
 E Internal thread Rp 3/4", PVC  
 F Internal thread NPT 3/4", PVC

## Fitted sensors

- SAC or nitrate measurement  
CAS51D
- Oxygen measurement  
COS31, COS41, COS51D, COS 61 and COS61D
- Turbidity measurement  
CUS31, CUS41 and CUS51D



## Ordering information

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### Order code

Enter the following address in your browser to access the product page:  
[www.products.endress.com/cya251](http://www.products.endress.com/cya251)

1. You can choose from the following options on the product page located on the right:

Product page function
:: Add to product list
:: Price & order information
:: Compare this product
:: Configure this product

2. Click "Configure this product".
3. The configurator opens in a separate window. You can now configure your device and receive the complete order code that applies for the device.
4. Afterwards, export the order code as a PDF or Excel file. To do so, click the appropriate button at the top of the page.

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### Scope of delivery

The scope of delivery comprises:

- Flow assembly in the version ordered (contains the sensor adapter and process connection)
- Accessories ordered
- Adapter with check valve (for optional cleaning only, 6 mm connection for compressed air)
- 1 tube of lubricant (for O-rings)
- Operating Instructions, English

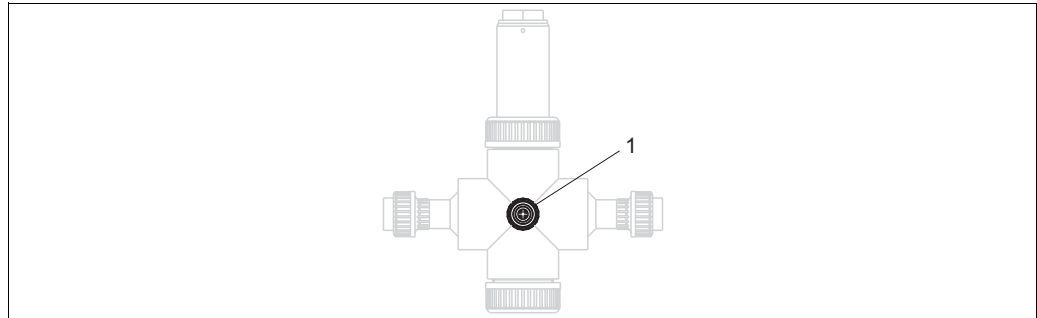
When the flow assembly is delivered, the cleaning port and cleaning connection are fitted with dummy plugs.

## Accessories

### Cleaning nozzle

Cleaning nozzle for CYA251

- For automatic sensor cleaning.
- Order number: 71144328 (suitable for the CAS51D sensor (2 mm or 8 mm gap))
- Order number: 71144330 (suitable for the CAS51D sensor (40 mm gap))
- Order number: 71144331 (suitable for the CUS51D, COS51D, COS61D, COS61, COS31, COS41 sensors)
- Order number: 71144332 (suitable for the CUS31, CUS41 sensors)



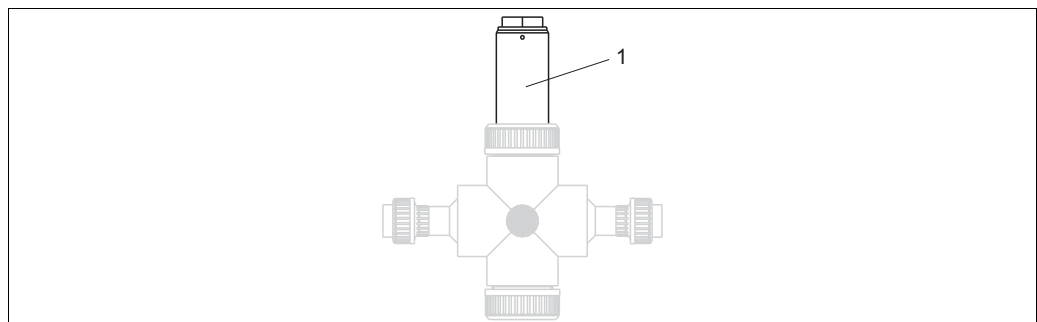
CYA251 with cleaning nozzle

1 Cleaning nozzle

### Sensor adapter

Sensor adapter for CYA251

- Adapter for installing the following sensors:
- Order number: 71144333 (suitable for the COS61D, COS61, COS31 sensors)
- Order number: 71144334 (suitable for the COS41, COS51D sensors)
- Order number: 71144335 (suitable for the CUS51D sensor)
- Order number: 71144336 (suitable for the CUS31, CUS41 sensors)
- Order number: 71144337 (suitable for the CAS51D sensor (2 mm gap))
- Order number: 71144338 (suitable for the CAS51D sensor (8 mm gap))
- Order number: 71144339 (suitable for the CAS51D sensor (40 mm gap))



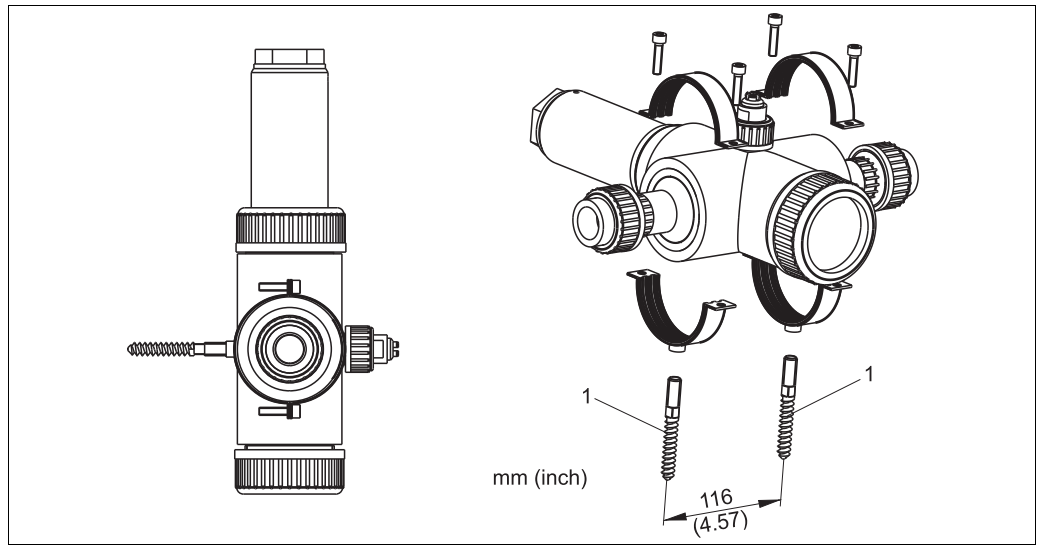
CYA251 with sensor adapter

1 Sensor adapter

**Wall holder unit**

Wall mounting kit for CYA251

- Order number: 71144369



Wall mounting kit

- 1 Hanger bolt STST 10x60 mm

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