

Armatures for analytical probes

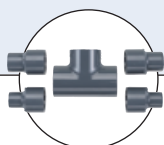


Type 8200 can be combined with...



Type S020

INSERTION fitting



Pipe and fitting



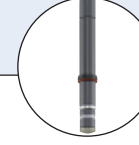
Type 8203

pH/ORP probe



Type 8221

Conductivity probe



Type 8232

Chlorine Sensor



Sockets

Accessories

The holders range for analytical 120 mm probes (pH/ORP/conductivity) covers many types of applications:

- General purpose
- Water treatment
- Food & Beverage
- Pharmaceutical/Biotechnology.

A wide range of process connection is available for:

- General purpose holders
 - Mounting on pipes
 - Mounting on tanks
- Hygienic holders

These holders are designed for hygienic applications.

- The 3-rod holders which ensure a good sensor protection allow an easy cleaning. Due to a sanitary design steam sterilisation, autoclavation, CIP and SIP cleanings are possible.

- The direct welding holders save space and are designed for installation in fermenters and many other applications with tanks and pipes. Steam sterilisation, autoclavation, CIP are possible.

- The 15° version with 2" (DN50/40) connection adapted for GEA Tuchenhausen VARINLINE process connections enables positioning of the probe in relation to the flow or in vertical pipes.

A special holder, the analytical measurement chamber Type 8200, is designed to be used with the chlorine sensor Type 8232.

General data

Process connection

General purpose

G2" for use with INSERTION fitting Type S020

G1" for use with T-Fitting

Sticking for use with T-Fitting d32xd32 up to d32xd110

Immersion fitting with fixing kit for use on tanks

Hygienic holder

G1 1/4" (28 or 46 mm O-ring position)

Clamp diameter 50.5 mm (1 1/2")

2" (DN50/40) connection adapted for GEA Tuchenhausen VARIN-LINE process connections

Direct welding on pipe

Measurement chamber

Screwings (straight for inlet, elbow for outlet) 1/4" external thread to 6/8 hose; mounting nut (to fasten the sensor); hose sleeve (to sample)

Medium temperature

Temperature limits may depend on the inserted probe. Refer to the relevant instruction manual or technical data on next page. If the temperature ranges given for the holder and the inserted probe are different, use the most restrictive range.

Medium pressure

Pressure limits may depend on the inserted probe. Refer to the relevant instruction manual or technical data on next page. If the pressure ranges given for the holder and the inserted probe are different, use the most restrictive range.

Environment

Ambient temperature

Temperature limits may depend on the inserted probe. Refer to the relevant instruction manual or data sheet for more details

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сайт: burkert.pro-solution.ru | эл. почта: btb@pro-solution.ru
телефон: 8 800 511 88 70

 General purpose holder G2" connection	
Materials	
Body	Stainless steel 316L 1.4404, PVC
Seal	FKM (EPDM option)
Medium temperature	with S020 fitting in PVC: 0 to 50°C (32 to 122°F), Stainless steel: -20 to 130°C (5 to 266°F)
Medium pressure	with S020 fitting in PVC: PN10 (145 PSI), Stainless steel: PN16 (232 PSI)

 General purpose holder Immersion fitting with fixing kit	
Materials	
Sensor holder	PVDF
Extension tube	PP
Seal	FKM (EPDM option)
Screws	Stainless steel
Medium temperature	0 to 80°C (32 to 176°F)

 Hygienic holder - short immersion depth Clamp diameter 50.5 mm (1½") connection	
Materials	
Body	Stainless steel (316L/1.4435)
Seal	EPDM (FDA)
Medium temperature	-10 to 135°C (14 to 275°F)
Medium pressure	Max. 6 bar (max. 87 PSI)

 Hygienic holder 2" (DN50/40) connection adapted for GEA Tuchenhausen VARIN-LINE process connections	
Materials	
Body	Stainless steel (316L/1.4435)
Seal	EPDM (FDA)
Medium temperature	-10 to 135°C (14 to 275°F)
Medium pressure	Max. 6 bar (max. 87 PSI)

 Analytical measurement chamber	
Materials	
Body	PMMA polished, beveled edges
Mounting nut	PVC-U grey
O-ring holder	PVDF nature
Slide ring (30x25.5x4)	PETP black
O-ring (30x2.6)	FPM
O-ring (25x2.5)	Silicone
Hose connection	PA
Inlet ball valve	PVC-U
Float	PEEK, steel 1.0037
O-ring flat (12x6x2)	Silicone transparent
Sample valve	
Ball valve (with hose sleeve)	PVC-U
Elbow screwing	Stainless steel
Medium temperature	Max. 45°C (max. 113°F)
Medium pressure	Max. 4 bar (max. 58 PSI) - Permitted operating pressure of the sensor has to be respected

 General purpose holder G1" or stick connection	
Materials	
Body	PVC
Seal	FKM
Medium temperature	0 to 50°C (32 to 122°F)
Medium pressure	PN10 (145 PSI)

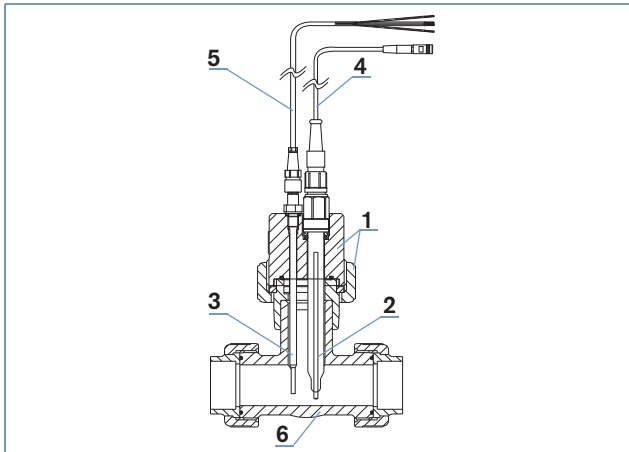
 Hygienic holder G1¼" connection (28 or 46 mm O-ring position)	
Materials	
Body	Stainless steel (316L/1.4435)
Seal	EPDM (FDA)
Medium temperature	-10 to 135°C (14 to 275°F)
Medium pressure	Max. 6 bar (max. 87 PSI)

 Hygienic holder - long immersion depth Clamp diameter 50.5 mm (1½") connection	
Materials	
Body	Stainless steel (316L/1.4404)
Seal	FKM
Medium temperature	-10 to 135°C (14 to 275°F)
Medium pressure	Max. 6 bar (max. 87 PSI)

 Hygienic holder Direct welding connection	
Materials	
Body	Stainless steel (316L/1.4435)
Seal	EPDM (FDA)
Medium temperature	-10 to 140°C (14 to 284°F)
Medium pressure	Max. 16 bar (max. 232 PSI)

Installation example of Type 8200

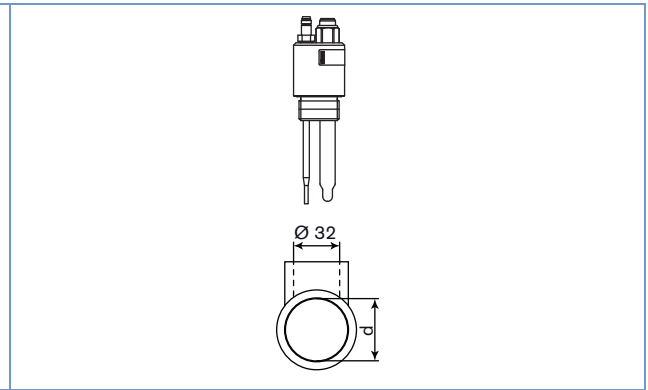
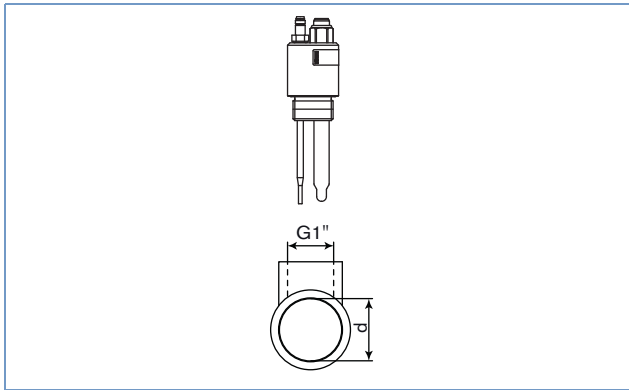
Probe holder Type 8200 for installation on Bürkert fitting S020



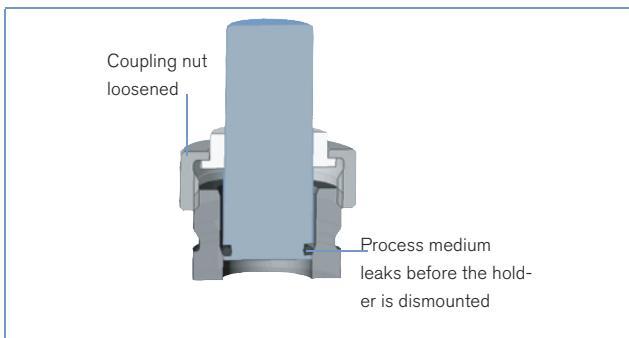
A complete pH/ORP/conductivity sensor consists of

1. Complete probe holder Type 8200 with nut and seals
2. pH/O.R.P probe or conductivity probe with PG13.5 connection
3. Pt1000/liquid earth rod (option, if needed)
4. Shielded cable for pH/ORP or conductivity cable varioPin (6.0)
5. Shielded cable for Pt1000/liquid earth rod (option, if needed)
6. Bürkert fitting S020 (G2" connection)

G1" or sticking probes holders Type 8200 for installation on T-Fitting



G1 1/4" probes holder with O-ring position of 28 or 46 mm Type 8200 for installation on sockets



The G1 1/4" probes holder with O-ring position of 28 mm or 46 mm has to be mounted into sockets which are welded on pipes or tanks.

Sockets 15°

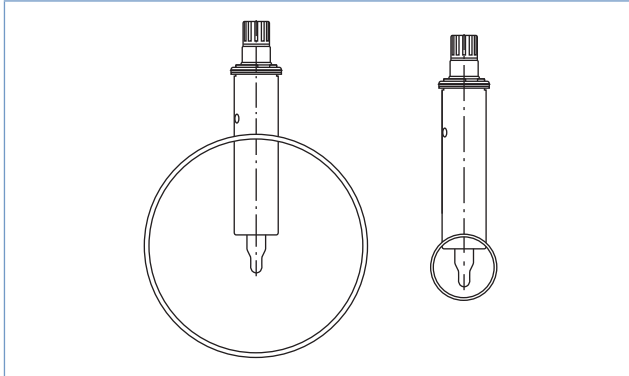
Robust weld-in socket with 15° angle to be mounted on tanks.

The sockets have a safety construction. The socket seals only if the o-ring of the holder is exactly at the right place.

Otherwise the medium leaks through the G1 1/4" coupling nut.

Installation example of Type 8200 (continuation)

Direct welding probes holder Type 8200 for installation on pipe

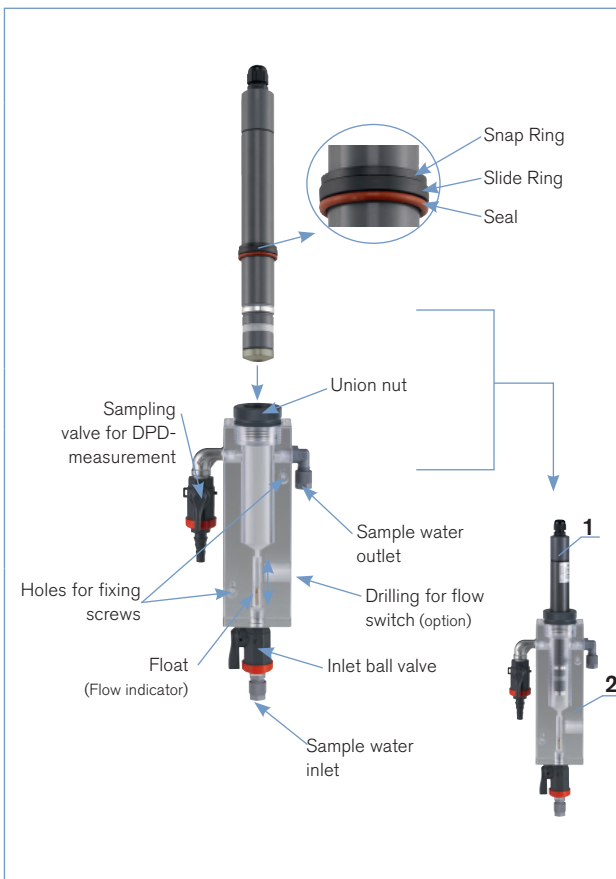


The steel mantle can be welded into a hole in the tank wall at virtually any depth.

As a result the probe is always immersed to exactly the desired position in the tank.

The O-ring can be easily replaced thanks to the « seal pusher » part. By screwing in an adapter instead of a pH sensor, conductivity sensors can be mounted practically flush with the holder and is then designed in accordance with EHEDG guidelines.

Analytical measurement chamber Type 8200



A complete chlorine sensor consists of

1. an analytical measurement chamber Type 8200 with nut and seals
2. a chlorine sensor Type 8232



Do not install the sensor in the main pipe. Measure only in bypass with use of the analytical measuring chamber Type 8200.

- Respect the sensor pressure and temperature ranges.
- Close the water inlet ball valve of the analytical measurement chamber Type 8200.
- Avoid installations that allow air bubbles to enter the measuring water.
- Stop the circulation of fluid, cut off the pressure and drain the pipe before loosening the process connections.

Installing the analytical measurement chamber Type 8200 on the support.

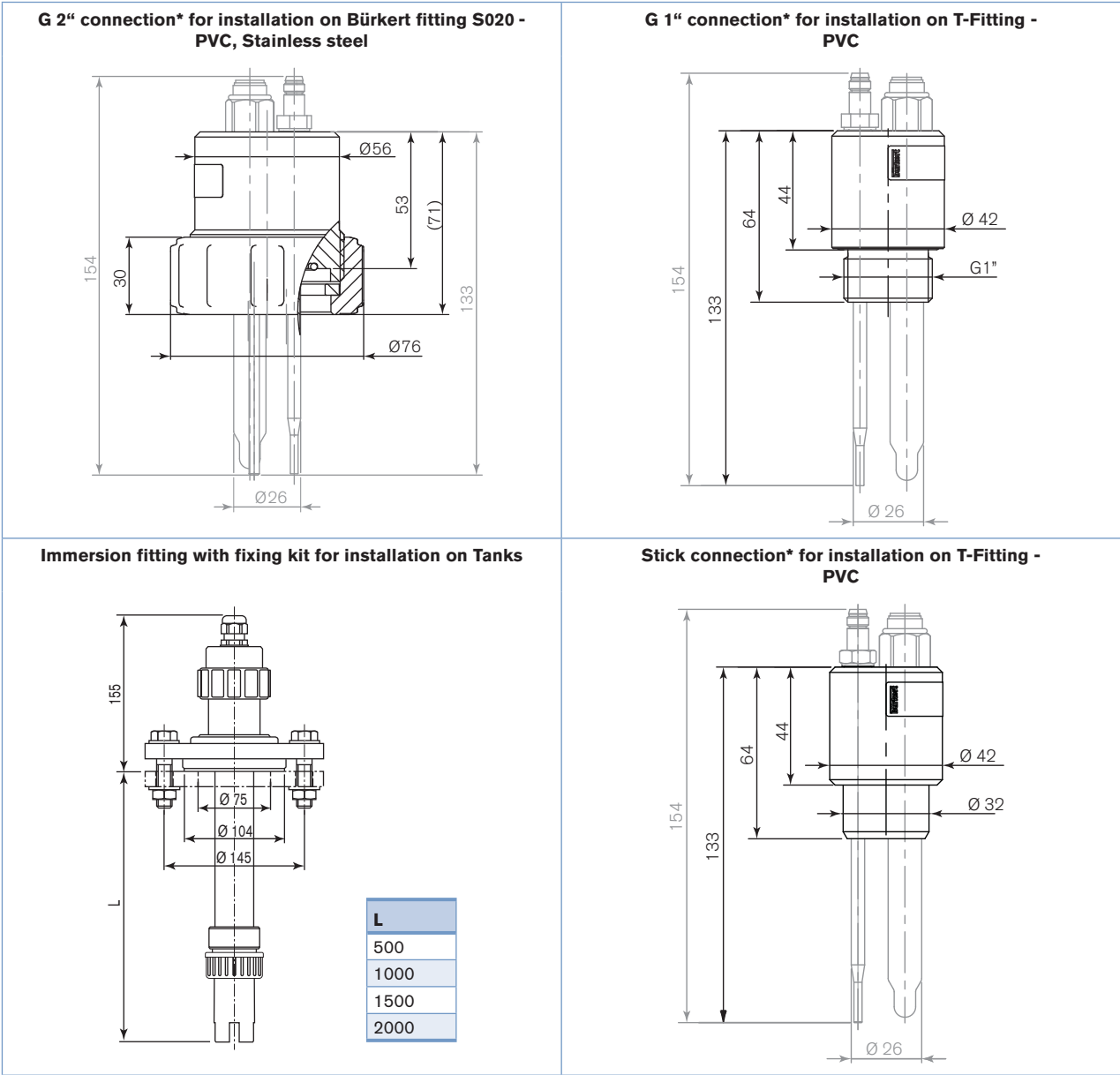


- For the choose of the installation place for the analytical measurement chamber Type 8200, please consider the max. height of the chlorine sensor (approx. 220 mm without cable connected), so it can be set up in this analytical measurement chamber.

- A. Drill holes in the support according to the dimensions indicated on the dimension drawing on page 7.
- B. Mount the analytical measurement chamber Type 8200 with two screws (recommendation: M4x60 mm pan head screw or hexagon socket head screw. The screws are not provided) onto the support.
- C. Connect the water inlet of the analytical measurement chamber with a 6/8 hose to the sample water source.
- D. Connect the water outlet of the analytical measurement chamber with a 6/8 hose to the drain for example.
- E. Install the chlorine sensor (see operating instruction manual)
- F. Establish the circulation of the fluid.
- G. Open the water inlet ball valve.

Dimensions [mm]

General purpose holder

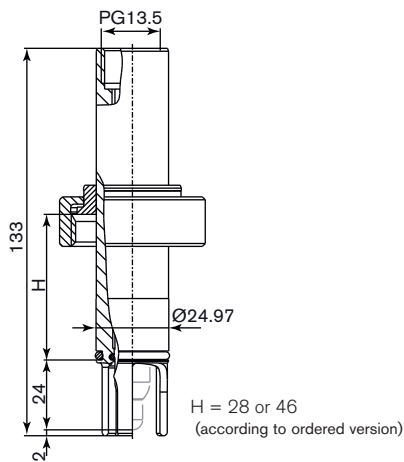


* with analytical probe and Pt1000/liquid earth rod - have to be ordered separately

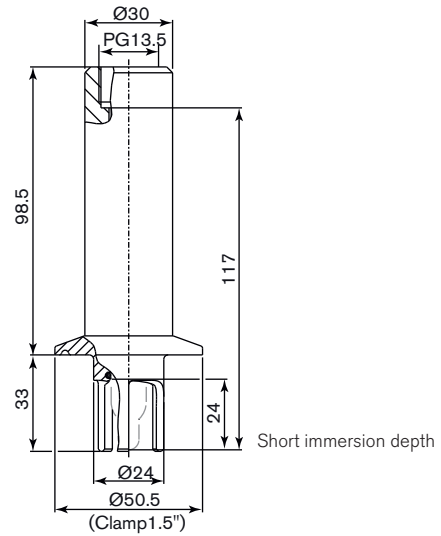
Dimensions [mm] (continuation)

Hygienic holder

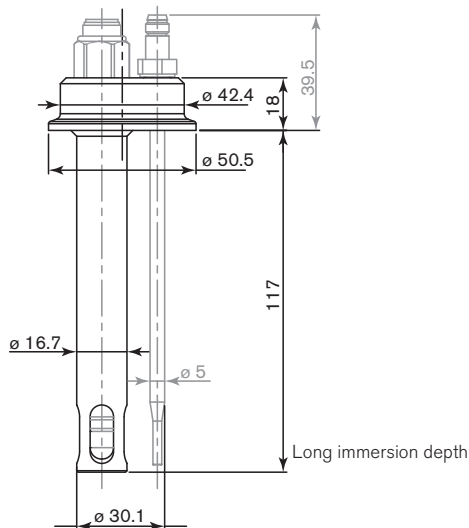
G1¼" connection - Stainless steel 316L/ DIN1.4435



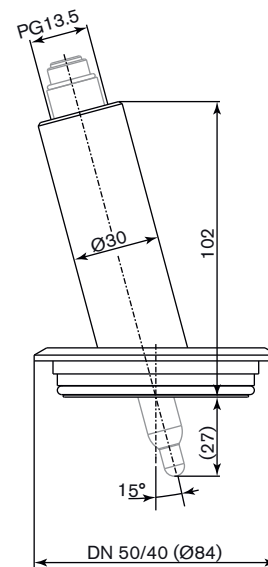
Clamp connection - Stainless steel 316L / DIN1.4435



Clamp connection* - Stainless steel 316L

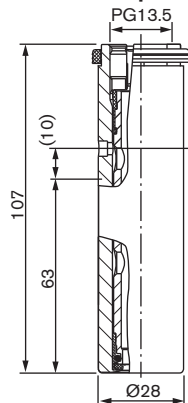


2" (DN50/40) connection* adapted for GEA Tuchenhausen VARINLINE process connections - Stainless steel 316L/ DIN1.4435

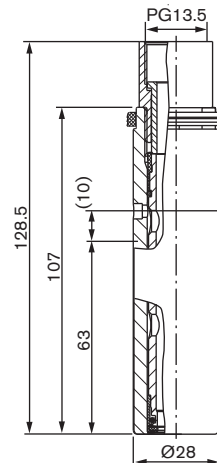


Direct welding connection - Stainless steel 316L/ DIN1.4435

without adapter



with adapter

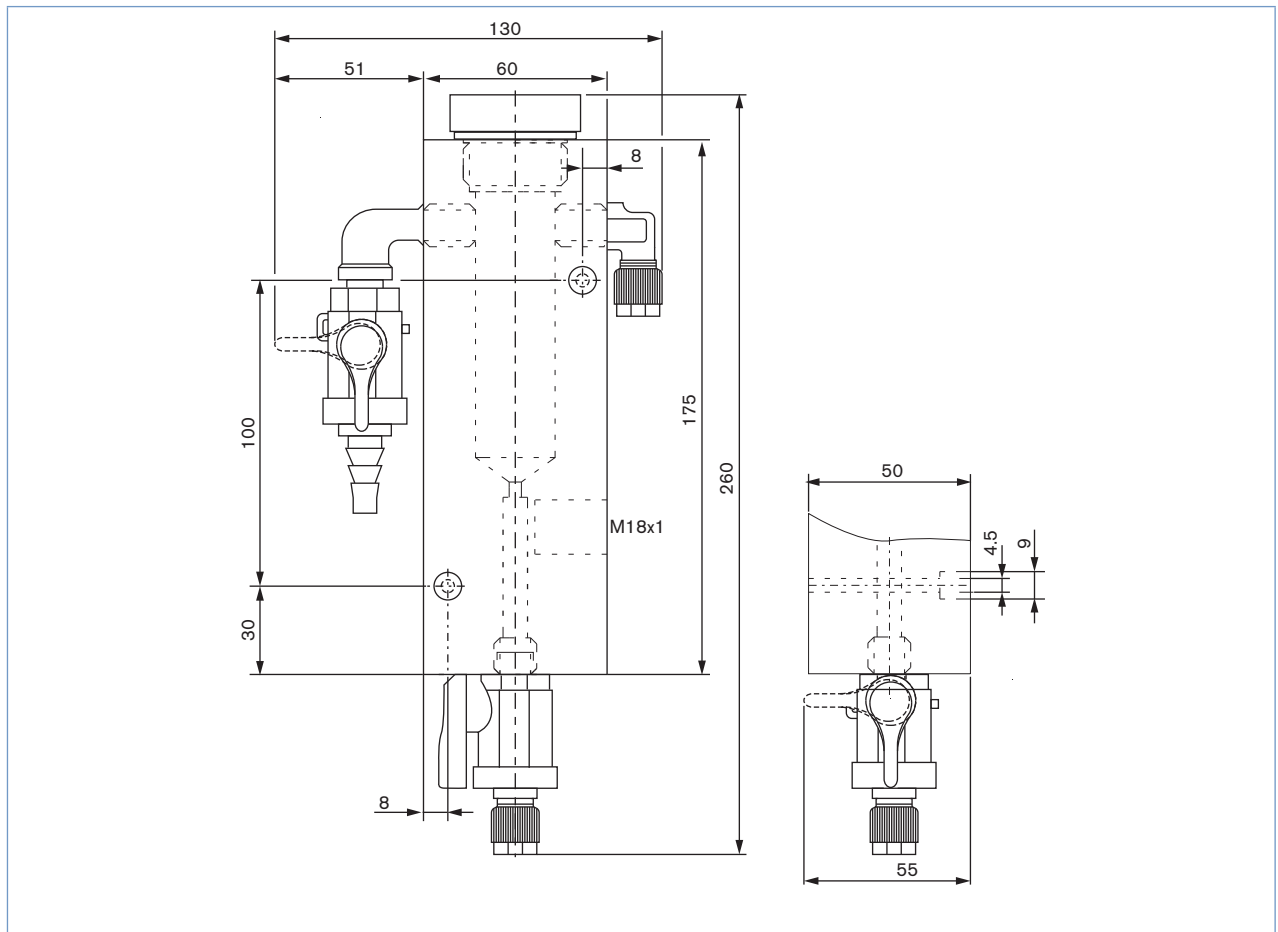


Standard EHEDG approved design:
with adapter and conductivity probe
Type 8221

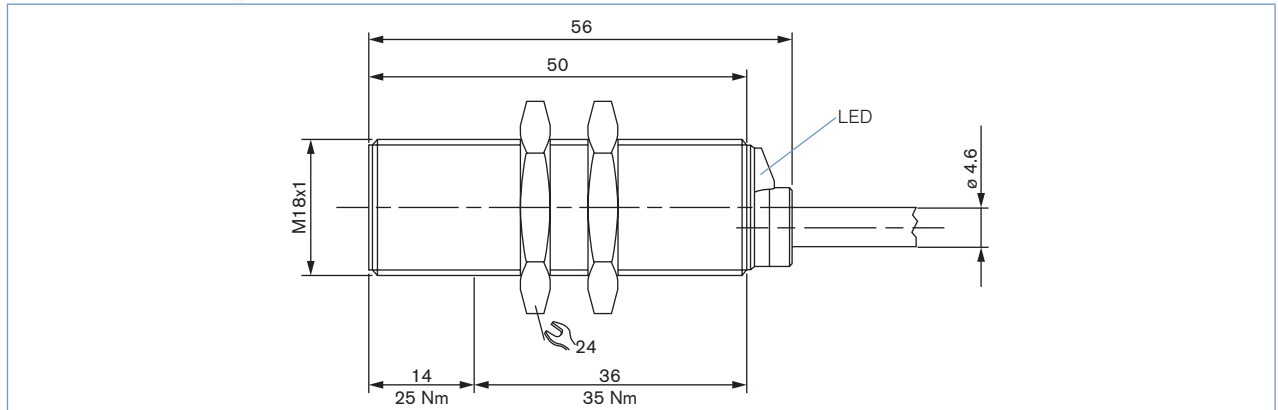
* with analytical probe and Pt1000/liquid earth rod - have to be ordered separately

Dimensions [mm] (continuation)

Analytical measurement chamber



Flow switch for analytical measurement chamber (option)



Ordering information for complete pH/ORP sensor using Type 8200

■ Combining the probe holder Type 8200 with fittings Type S020

Available fitting DN		DN15	DN32	DN50	DN65	DN100	DN200
	T-Fitting 						
	Weld-in socket 						
	Fusion spigot 						
	Analytical measurement using probe holder G2" connection for S020		Note A				

Note A: Only use plastic fitting **in analytical version** with true union acc. to DIN8063 (PVC), to DIN16962 (PP) or to ISO10931 (PVDF), see data sheet Type S020

■ pH/O.R.P sensor for tank or pipe installation

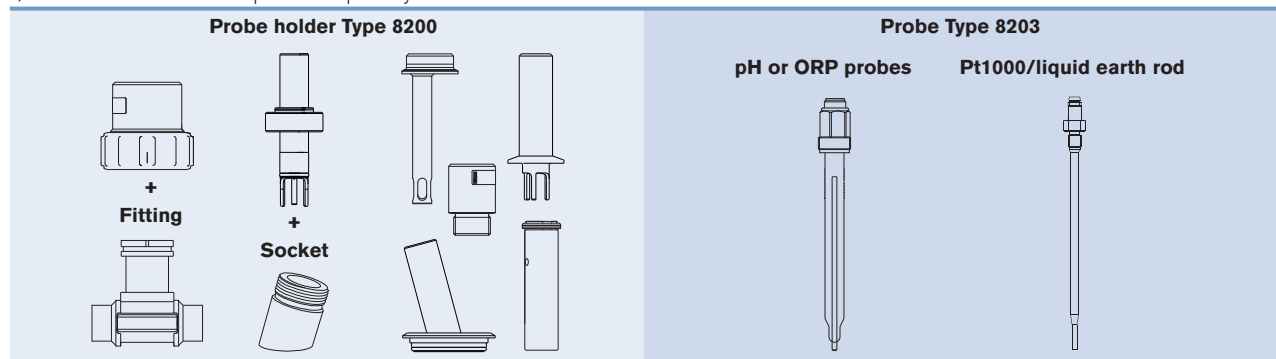
A complete pH/ORP sensor consists of a probe holder Type 8200 with seals, a pH or O.R.P probe Type 8203, a Pt1000/liquid earth rod (option) and a fitting according to the selected holder.

The following information is necessary for the selection of a complete device:

- **Item no.** of the desired probe holder **Type 8200** (see ordering chart, p. 10)
- **Item no.** of the selected pH or O.R.P probe **Type 8203** (see separate data sheet) [More info.](#)
- **Item no.** of the Pt1000/liquid earth rod if needed (see separate data sheet Type 8203)
- **Item no.** of the selected fitting **Type S020** (DN15 - DN200) **only** if probe holder with G 2" connection (see separate data sheet) [More info.](#) or of the select socket **only** if probes holder with G 1 1/4" connection with o-ring position of 28 or 46 mm (see ordering chart, p. 10)

When you click on the orange box "More info.", you will come to our website for the resp. product where you can download the data sheet.

→ You have to order the components separately.



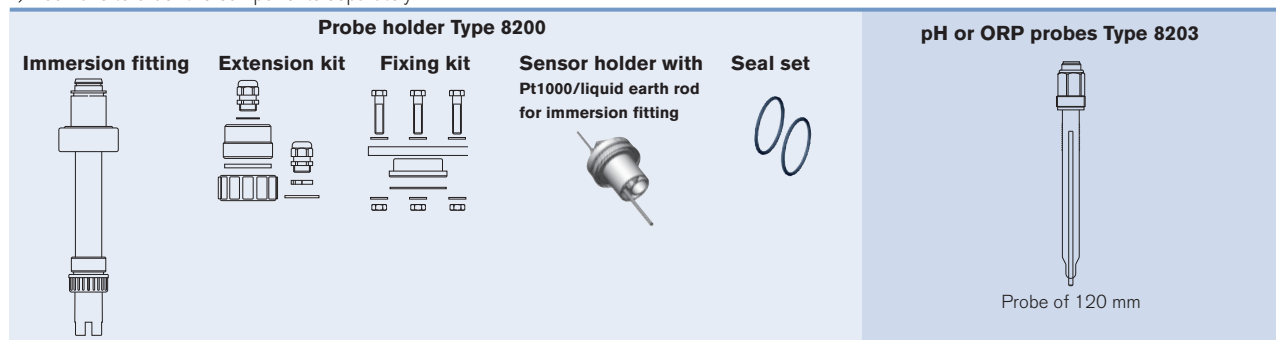
■ pH/O.R.P sensor for tank installation with the immersion fitting

A complete pH/ORP sensor for tank installation consists of an immersion fitting, an extension kit for immersion fitting, a fixing kit (flange DN65 with stainless steel screws), a probe holder with Pt1000/liquid earth rod, a pH or ORP probe Type 8203 and a seal.

The following information is necessary for the selection of a complete device:

- **Item no.** of the immersion fitting (see ordering chart of probe holders, p. 10)
- **Item no.** of the extension kit for the immersion fitting (see ordering chart of accessories, p. 10)
- **Item no.** of the fixing kit (flange DN65 with stainless steel screws - see ordering chart of accessories, p. 10)
- **Item no.** of the probe holder for immersion fitting with Pt1000/liquid earth rod (see ordering chart of probe holder, p. 10)
- **Item no.** of the 120 mm pH or ORP probe **Type 8203** (see separate data sheet) [More info.](#)
- **Item no.** of the seal set if EPDM desired (see ordering chart of accessories, p. 10)

→ You have to order the components separately.



Ordering information for complete conductivity sensor using Type 8200

■ Conductivity sensor for tank or pipe installation

A complete conductivity sensor consists of a probes holder Type 8200 and a conductivity probe.

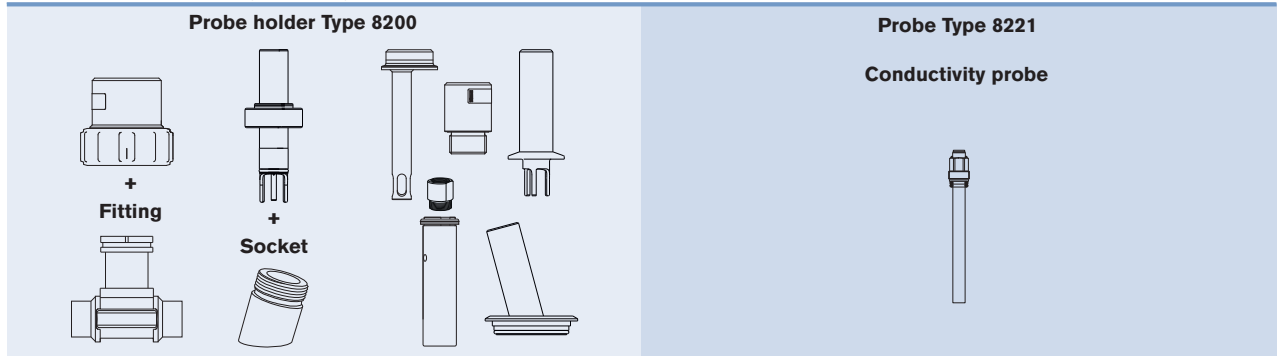
The following information is necessary for the selection of a complete device:

- **Item no.** of the probes holder **Type 8200** (see ordering chart of probes holder, p. 10)
- **Item no.** of the selected conductivity probe (see separate data sheet Type 8221)

[More info.](#)

When you click on the orange box "More info.", you will come to our website for the resp. product where you can download the data sheet.

→ You have to order the components separately.



Ordering information for complete chlorine sensor using Type 8200

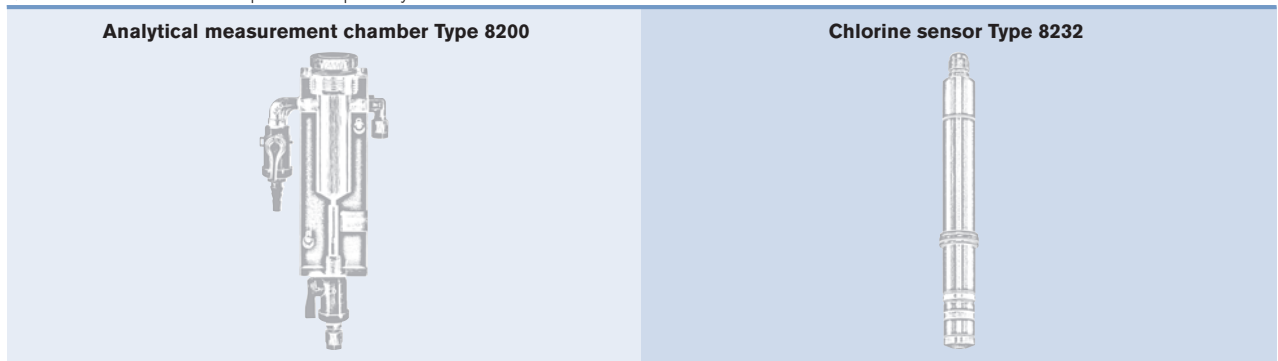
A complete chlorine sensor consists of an analytical measurement chamber Type 8200 and a chlorine sensor.

The following information is necessary for the selection of a complete device:

- **Item no.** of the analytical measurement chamber **Type 8200** (see ordering chart of analytical measurement chamber, p. 10)
- **Item no.** of the selected chlorine sensor (see separate data sheet Type 8232)
- **Item no.** of the flow switch for continuous monitoring of the flow (optional) (see ordering chart of analytical measurement chamber, p. 10)

[More info.](#)

→ You have to order the components separately.



Ordering chart - probe holders Type 8200

Specifications	Version	Material	Boring for temperature probe Pt1000	Protection tube	Item no.
G2" connection for installation on Bürkert fitting S020	standard	PVC	No	Yes	429 224
			Yes	Yes	429 228
		Stainless steel	No	Yes	429 227
			Yes	Yes	429 231
G1" connection	short	PVC	No	No	429 220
			Yes	No	429 221
Stick connection	short	PVC	No	No	564 236
			Yes	No	563 475
For immersion fitting	Pt1000/liquid earth rod in stainless steel	PVDF	Yes	Yes	418 889
	Pt1000/liquid earth rod in titanium	PVDF	Yes	Yes	418 890
Immersion fitting	L=0.5 m	PP	No	Yes	419 567
	L=1.0 m	PP	No	Yes	419 568
	L=1.5 m	PP	No	Yes	419 569
	L=2.0 m	PP	No	Yes	419 570
G1¼" connection	High=28	Stainless steel 316L	No	Yes	562 431
	High=46	Stainless steel 316L	No	Yes	562 432
Clamp 1½" connection - (dia. 50.5 mm)	Short immersion depth	Stainless steel 316L	No	Yes	558 885
	Long immersion depth	Stainless steel 316L	Yes	Yes	429 235
2" (DN50/40) connection adapted for GEA Tuchenhausen VARINLINE process connections	15°	Stainless steel 316L	No	Yes	562 433
Hygienic direct welding connection	Standard	Stainless steel 316L/ DIN1.4435	No	No	561728

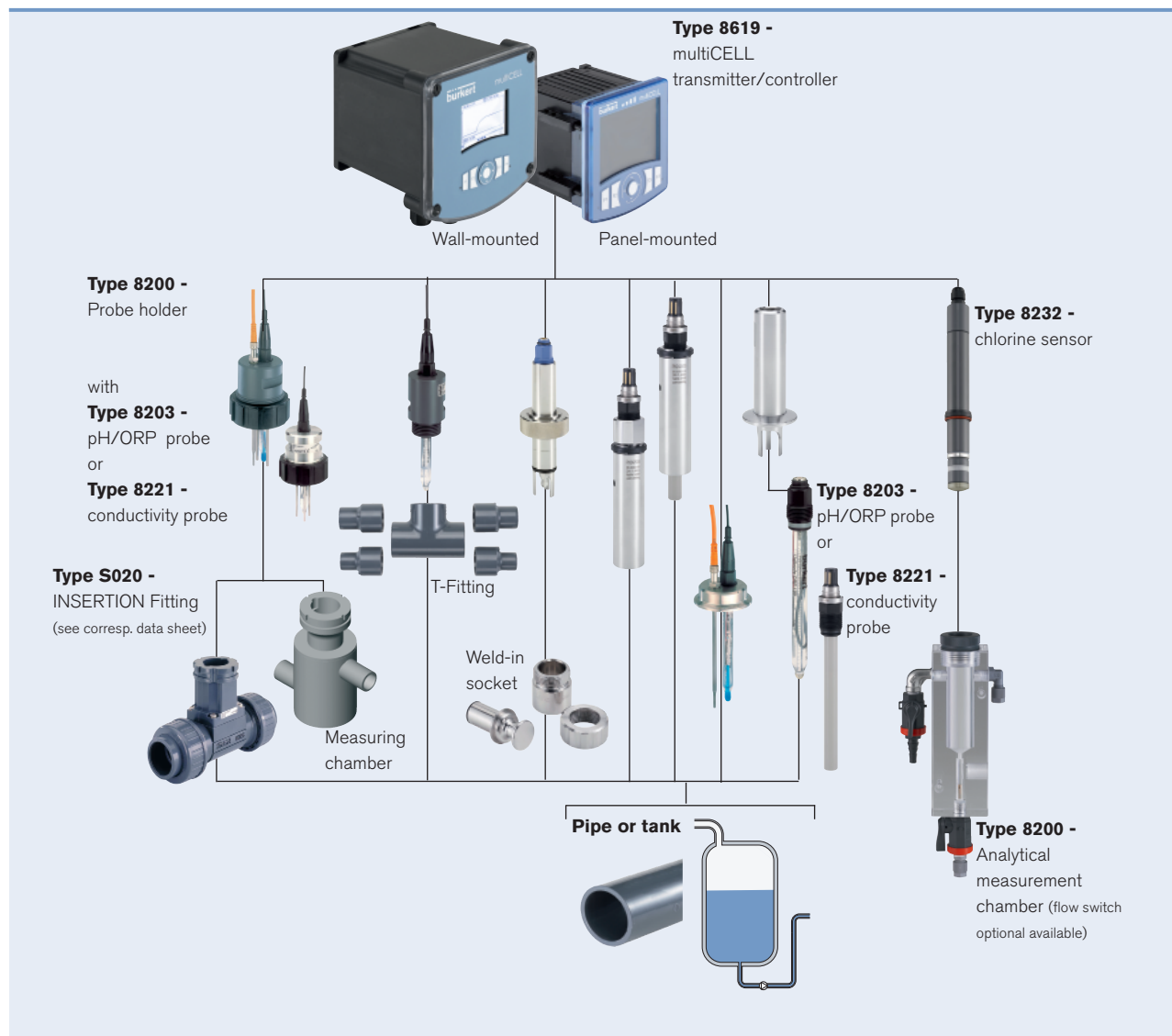
Ordering chart - Analytical measurement chamber Type 8200

Description	Item no.
Analytical measurement chamber	566 054
Flow switch for analytical measurement chamber, PNP, 2 m cable (optional)	772 858

Ordering chart for accessories

Description	Item no.
Set with FKM seal for the general purpose holder G2" connection	429 264
Set with 1 green FKM + 1 black EPDM seal for the general purpose holder G2" connection	552 111
Extension kit for the immersion fitting L= X m	562 573
Fixing kit - flange DN65 with stainless steel screws for the immersion fitting L= X m	413 615
Weld-in socket 15° L=28 for holder G1¼"	737 241
Weld-in socket 15° L=46 for holder G1¼"	737 260
Adapter for hygienic direct welding connection and conductivity probe	563 477

Interconnection possibilities with other Bürkert devices

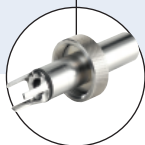


pH/O.R.P. probe



- For many different types of installations and applications
- Large selection of probe for a wide range of holder
- Useable for pipe DN15 to DN200

Type 8203 can be combined with...



Type 8200

Probe holder



Type 8200

Probe holder to install in Type S020 Fitting



Type 8619

multiCELL transmitter/controller



Type 8202

ELEMENT pH/O.R.P. meter



Type 8202

ELEMENT neutrino pH/O.R.P. meter

The pH or O.R.P. Bürkert meter is a modular device designed for the measurement of:

- the pH in clean liquids or liquids containing solids, sulphides or proteins.
- the oxidation-reduction potential in clean liquids or liquids containing solids, sulphides or proteins which may present low conductivity.

The probes of Type 8203 are available in various models:

■ for pH

- Type PLASTRODE pH 120 mm
- Type FLATRODE pH 120 mm
- Type LOGOTRODE pH 120 mm
- Type UNITRODE PLUS pH 120 mm
- Type CERATRODE pH 120 mm
- Type FERMTRODE VP pH 120 mm

■ for O.R.P.

- Type FLATRODE O.R.P 120 mm
- Type LOGOTRODE O.R.P 120 mm
- Type UNITRODE PLUS O.R.P 120 mm

General data

Measuring range

Bürkert pH probe
Bürkert O.R.P. probe

0... 14 pH
-2000 mV... +2000 mV

Medium temperature

Temperature limits may depend on the inserted probe. Refer to the relevant instruction manual or technical data on next page. If the temperature ranges given for the holder and the inserted probe are different, use the most restrictive range.

Medium pressure

Pressure limits may depend on the inserted probe. Refer to the relevant instruction manual or technical data on next page. If the pressure ranges given for the holder and the inserted probe are different, use the most restrictive range.

Temperature compensation (option for pH measurement)

automatic (integrated Pt100 or Pt1000) or manual compensation reference temperature 25°C (77°F)

Electrical connection

Coaxial shielded cables with connector for pH/O.R.P. and 4-wire cable for Pt1000/Liquid earth rod

Electrical data

Output

Analog signal, to be connected to ELEMENT or ELEMENT neutrino pH/O.R.P. meter Type 8202 or multi-CELL transmitter/controller Type 8619

Environment

Ambient temperature

Temperature limits may depend on the inserted probe. Refer to the relevant instruction manual or technical data on next page for more details

pH probe - specific technical data

Probe	PLASTRODE pH 120	FLATRODE pH 120	LOGOTRODE pH 120
Medium	- cost effective probe for drinking water, aquarium, swimming-pool...	- Contaminated (viscous, suspended solids, small sized solids, paints, cosmetics, foodstuffs)	- Clean (drinking water, cooling-water, aquarium, swimming-pool...)
Measuring range	0... 14 pH	0... 14 pH	0... 14 pH
Medium pressure	0 - 6 bar (0 - 87 PSI)	0 - 6 bar (0 - 87 PSI)	0 - 6 bar (0 - 87 PSI)
Medium temperature	-10°C to +40°C (14°F to 104°F)	0°C to +80°C (32°F to 176°F)	-10°C to +60°C (14°F to 140°F)
Ambient temperature			
Operation	0°C to +60°C (32°F to 140°F)	0°C to +60°C (32°F to 140°F)	0°C to +60°C (32°F to 140°F)
Storage	4°C to +30°C (39.2°F to 86°F)	4°C to +30°C (39.2°F to 86°F)	4°C to +30°C (39.2°F to 86°F)
Minimal conductivity	50 µS/cm	50 µS/cm	2 µS/cm
Max. pressure at max. temperature	6 bar (87 PSI)	4 bar (58 PSI)	6 bar (87 PSI)
No. of diaphragms	1	1	1
Diaphragm	"single pore™"	Annular and centered, in High Density Polyethylen	"single pore™"
Reference electrolyte	polymer	Acrylamide gel KNO ₃ /3.5M KCl-AgCl	polymer
EHEDG	No	No	No
Temperature sensor	No	No	No
Electrical connector	S7/S8	S7/S8	S7/S8

	UNITRODE PLUS pH 120	CERATRODE pH 120	FERMTRODE pH 120
Medium	- Contaminated (waste water, cooling water, electroplating, paints, cosmetics...) - containing sulfides/proteins (tannery, animal breeding, waste water, foodstuffs, cosmetics, biotechnology)	- High pressure, high flowrate applications	biotechnology, pharma, food industry - containing proteins, cell cultures, injectable - applications requiring biocompatibility or suitability for food contact guarantee
Measuring range	0... 14 pH	0... 14 pH	0... 14 pH
Medium pressure	0 - 16 bar if medium temperature < +100°C (0 - 232 PSI if medium temperature < 212°F) 0 - 10 bar if medium temperature between 100°C and +130°C (0 - 145 PSI if medium temperature between 212°F and 266°F)	0 - 16 bar at 25°C (0 - 232 PSI at 77°F) 0 - 6 bar at 130°C (0 - 87 PSI at 266°F)	0 - 6 bar (0 - 87 PSI)
Medium temperature	0°C to +130°C (32°F to 266°F)	0°C to +130°C (32°F to 266°F)	0°C to +140°C (32°F to 284°F)
Ambient temperature			
Operation	0°C to +60°C (32°F to 140°F)	0°C to +60°C (32°F to 140°F)	0°C to +60°C (32°F to 140°F)
Storage	4°C to +30°C (39.2°F to 86°F)	4°C to +30°C (39.2°F to 86°F)	4°C to +30°C (39.2°F to 86°F)
Minimal conductivity	2 µS/cm	50 µS/cm	100 µS/cm
Max. pressure at max. temperature	6 bar (87 PSI)	6 bar (87 PSI)	6 bar (87 PSI)
No. of diaphragms	2	3	1
Diaphragm	"single pore™"	HP ceramics	HP-COATRAMIC
Reference electrolyte	polymer	gel	Pressurized FOODLYTE
EHEDG	No	No	Yes
Temperature sensor	No	No	Yes, Pt100
Electrical connector	S7/S8	S7/S8	VP 6.0 multipin connector

O.R.P. probe - specific technical data

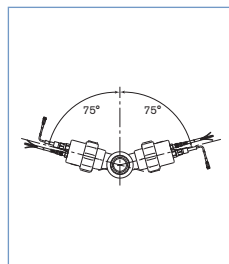
Probe	FLATRODE O.R.P. 120	LOGOTRODE O.R.P. 120	UNITRODE PLUS O.R.P. 120
Medium	- Contaminated (viscous, suspended solids, small sized solids, paints, cosmetics, foodstuffs)	- Clean liquids (cooling-water, waste water or slightly contaminated) - with low conductivity (pure or rainwater...>2 µS/cm)	- Clean liquids (drinking water, aquarium, swimming-pool...) - Contaminated (waste water, cooling water, electroplating, paints...) - with low conductivity (pure or rainwater...>2 µS/cm) - containing sulfides/proteins (tannery, animal breeding, waste water, foodstuffs, cosmetics, biotechnology...)
Measuring range	-2000... +2000 mV	-2000... +2000 mV	-2000... +2000 mV
Medium pressure	0 - 6 bar (0 - 87 PSI)	0 - 6 bar (0 - 87 PSI)	0 - 16 bar if medium temperature < +100°C (0 - 232 PSI if medium temperature < 212°F) 0 - 10 bar if medium temperature between 100°C and +130°C (0 - 145 PSI if medium temperature between 212°F and 266°F)
Medium temperature	0°C to +80°C (32°F to 176°F)	-10°C to +60°C (14°F to 140°F)	0°C to +130°C (32°F to 266°F)
Ambient temperature Operation	0°C to +60°C (32°F to 140°F)	0°C to +60°C (32°F to 140°F)	0°C to +60°C (32°F to 140°F)
Storage	4°C to +30°C (39.2°F to 86°F)	4°C to +30°C (39.2°F to 86°F)	4°C to +30°C (39.2°F to 86°F)
Minimal conductivity	50 µS/cm	2 µS/cm	2 µS/cm
Max. pressure at max. temperature	4 bar (58 PSI)	6 bar (87 PSI)	6 bar (87 PSI)
No. of diaphragms	1	1	2
Diaphragm	Annular and centered, in High Density Polyethylen	"single pore" [™]	"single pore" [™]
Reference electrolyte	Acrylamide gel KNO ₃ /3.5M KCl-AgCl	polymer	polymer
EHEDG	No	No	No
Temperature sensor	No	No	No
Electrical connector	S7/S8	S7/S8	S7/S8

Principle of operation

The pH or redox probe built up on a glass membrane with variable sensitivity according to the pH or the redox, which must be screwed into the selected probe holder Type 8200, connected to the e.g. transmitter/controller 8619. The probe with S7/S8 electrical connector can be screwed into the pH/O.R.P. ELEMENT meter 8202 (standard or neutrino version) too. The probe must be calibrated with buffer solution before the installation of the sensor into the pipe.

- ▶ When a pH probe is immersed into the solution a difference in potential is formed due to ions (H⁺) between the glass membrane and the solution. This difference in potential measured in relation to a reference electrode is directly proportional to the pH value (59.16 mV per pH unit at 25°C). The pH meter can be calibrated in 1-point (Offset at pH 7) or in 2-points (Offset at pH 7 and Span at pH 4 or pH 10).
- ▶ When a redox probe is immersed into the solution an ion exchange occurs between the oxidised and the reduced state of an electrolyte. The generated cell voltage is the oxidation-reduction potential value. The O.R.P. meter can only be calibrated in 1-point (Offset).

Installation of the sensor



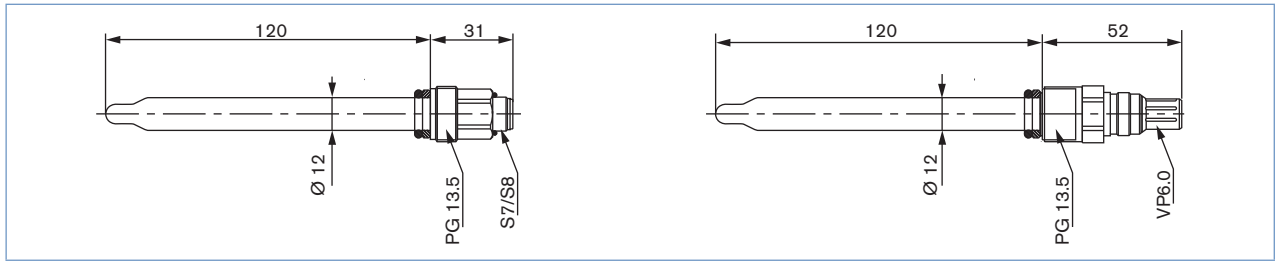
The device has to be installed with a maximum angle of 75 degrees against the vertical onto an horizontal pipe. Select and install the required fitting onto the pipe, according to specific requirements of the device and fitting material (temperature and pressure). After having connected the device to the Type 8619 (pH/O.R.P.) multiCELL transmitter/controller and having calibrated the unit, cautiously install the complete pH/O.R.P. meter on the fitting.

In order to get reliable measurement air bubbles must be avoided.

Please ensure that the mounting location provides a continuous and complete immersion of the probe in the flow stream.

The probe must continuously be immersed into the measuring fluid in order to protect it from drying out. The device must be protected from constant heat radiation and other environmental influences, such as direct exposure to sunlight.

Dimensions [mm]



Ordering information for complete pH/O.R.P. sensor

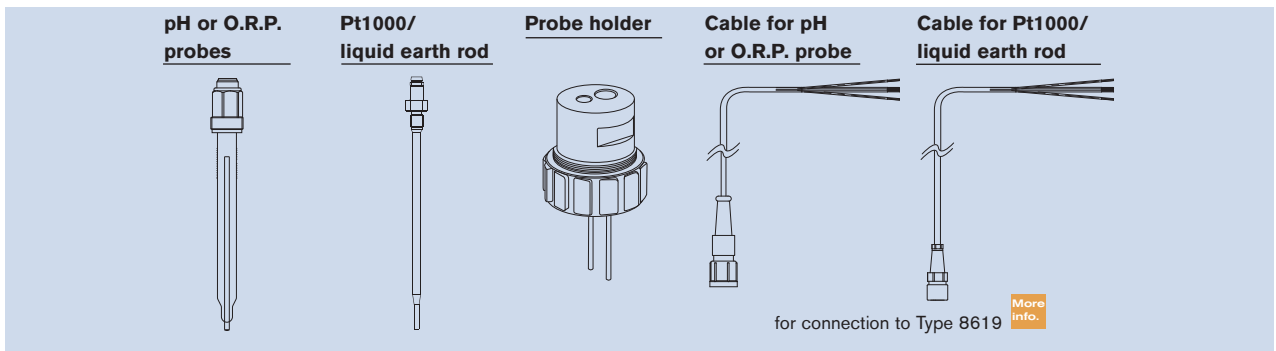
A complete pH/O.R.P. sensor consists of a pH or O.R.P. probe Type 8203, a Pt1000/liquid earth rod (option), a probes holder Type 8200 with seals, a pH/O.R.P. shielded cable, a Pt1000/liquid earth rod shielded cable (option).

The following information is necessary for the selection of a complete device:

- **Item no.** of the desired probes holder **Type 8200** (see separate data sheet)
- **Item no.** of the selected pH or O.R.P. probe **Type 8203** (see ordering chart, p. 5)
- **Item no.** of the Pt1000/liquid earth rod, if needed (see ordering chart, p. 5)
- **Item no.** of the pH/O.R.P. shielded cable (see ordering chart, p. 5)
- **Item no.** of the Pt1000/liquid earth rod shielded cable, if needed (see ordering chart, p. 5)

When you click on the orange box "More info," you will come to our website for the resp. product where you can download the data sheet.

→ You have to order the components separately.



Ordering information for complete pH/O.R.P. meter

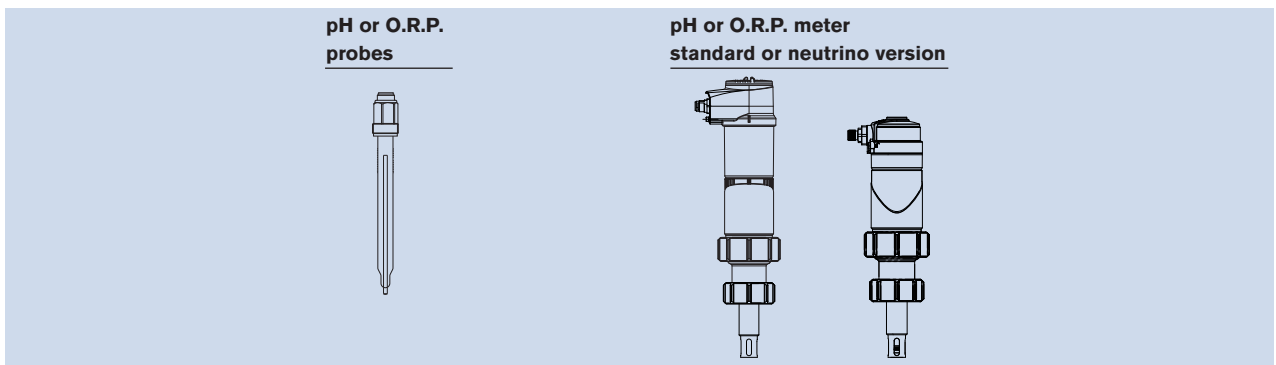
A complete pH/O.R.P. meter consists of a replaceable standard 120 mm pH or O.R.P. probe Type 8203 and a pH or O.R.P. meter Type 8202.

The following information is necessary for the selection of a complete device:

- **Item no.** of the selected pH or O.R.P. probe **Type 8203** (see ordering chart, p. 5)
- **Item no.** of the selected pH/O.R.P. meter **Type 8202** (see separate data sheet)

When you click on the orange box "More info," you will come to our website for the resp. product where you can download the data sheet.

→ You have to order the components separately.



Ordering chart for probe

Probe	Description	Item no.
PLASTRODE pH 120 mm	pH probe -10... 40°C, 0... 6 bar, pH 0... 14	560 377
FLATRODE pH 120 mm	pH probe 0... 80°C, 0... 6 bar, pH 0... 14	561 025
LOGOTRODE pH 120 mm	pH probe -10... 60°C, 0... 6 bar, pH 0... 14	427 114
UNITRODE PLUS pH 120 mm	pH probe 0... 130°C, 0... 16 bar, pH 0... 14	560 376
CERATRODE pH 120 mm	pH probe 0... 130°C, 0... 16 bar, pH 0... 14	418 319
FERMTRODE pH 120 mm	pH probe 0... 140°C, 0... 6 bar, pH 0... 14	561 727

Probe	Description	Item no.
FLATRODE O.R.P. 120 mm	O.R.P. probe 0... 80°C, 0... 6 bar, -2000... +2000 mV	561 027
LOGOTRODE O.R.P. 120 mm	O.R.P. probe -10... 60°C, 0... 6 bar, -2000... +2000 mV	560 379
UNITRODE PLUS O.R.P. 120 mm	O.R.P. probe 0... 130°C, 0... 16 bar, -2000... +2000 mV	560 378

Probe	Description	Item no.
Temperature probe	Pt1000/liquid earth rod - in stainless steel	427 023
Temperature probe	Pt1000/liquid earth rod - in titanium	560 317

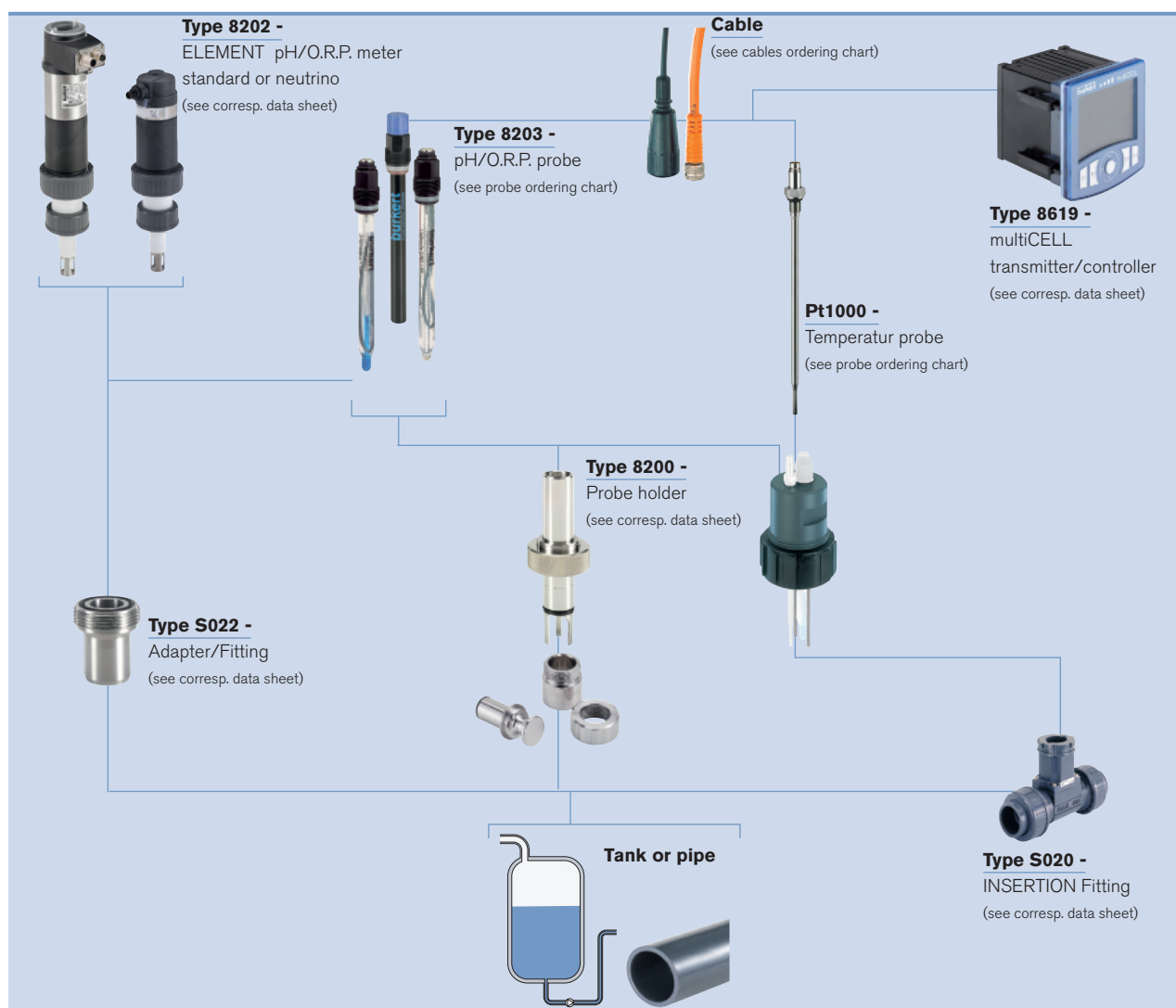
Ordering chart for cables for probes

Description	Item no.
pH/O.R.P. coaxial cable with standard probe plug - 3 m (for connection between 8619 transmitter and pH/O.R.P. probe mounting into Type 8200)	561 904
pH/O.R.P. coaxial cable with standard probe plug - 5 m (for connection between 8619 transmitter and pH/O.R.P. probe mounting into Type 8200)	561 905
pH/O.R.P. coaxial cable with standard probe plug - 10 m (for connection between 8619 transmitter and pH/O.R.P. probe mounting into Type 8200)	561 906
pH/O.R.P. cable with VarioPin (VP 6.0) probe plug - 3 meters (for connection between 8619 transmitter and pH/O.R.P. probe mounting into Type 8200)	554 855
pH/O.R.P. cable with VarioPin (VP 6.0) probe plug - 5 meters (for connection between 8619 transmitter and pH/O.R.P. probe mounting into Type 8200)	554 856
pH/O.R.P. cable with VarioPin (VP 6.0) probe plug - 10 meters (for connection between 8619 transmitter and pH/O.R.P. probe mounting into Type 8200)	554 857
Pt1000/liquid earth rod 4-wire cable with M8 connector - 2 m (for connection between 8619 transmitter and Pt1000/liquid earth rod mounting into Type 8200)	427 110
Pt1000/liquid earth rod 4-wire cable with M8 connector - 3 m (for connection between 8619 transmitter and Pt1000/liquid earth rod mounting into Type 8200)	561 907
Pt1000/liquid earth rod 4-wire cable with M8 connector - 5 m (for connection between 8619 transmitter and Pt1000/liquid earth rod mounting into Type 8200)	427 113
Pt1000/liquid earth rod 4-wire cable with M8 connector - 10 m (for connection between 8619 transmitter and Pt1000/liquid earth rod mounting into Type 8200)	554 822
Pt1000/liquid earth rod 4-wire cable with plug-in connector - 5 m (for connection between 8619 transmitter and Pt1000/liquid earth rod mounting into the immersion fitting Type 8200)	562 627
Pt1000/liquid earth rod 4-wire cable with plug-in connector - 10 m (for connection between 8619 transmitter and Pt1000/liquid earth rod mounting into the immersion fitting Type 8200)	562 628

Ordering chart for accessories

Description	Item no.
Storage solution for probe (KCl 3M), 500 ml	418 557
Cleaning solution set for probe, 3 x 500 ml	560 949
Buffer solution, 500 ml, pH = 4.01	418 540
Buffer solution, 500 ml, pH = 7	418 541
Buffer solution, 500 ml, pH = 10.01	418 543
Buffer solution, 500 ml, O.R.P. = 475 mV	418 555
Factory 2-point pH calibration certificate	550 673
Factory 1-point O.R.P. calibration certificate	550 674

Interconnection possibilities with other Bürkert devices



To find your nearest Bürkert office, click on the orange box →



In case of special application conditions,
please consult for advice.

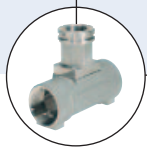
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1402/6_EU-en_00895193

Conductivity sensor



Type 8220 can be combined with...



Type S020

INSERTION fitting



Type 8225

Wall-mounted
conductivity transmitter



Type 8225

Panel-mounted
conductivity transmitter



Type 8619

multiCELL -
Multifunction transmitter/controller

- Compact version for DN15 to DN200
- Large capabilities of conductivity measurement through different cells
- Large range of process connections with various fittings

The conductivity sensor is a compact probe with integrated conductivity electrodes. Four conductivity probes having different cell constants are available and offer a large measurement range. The Pt1000 for automatic temperature compensation is integrated in the sensor housing.

The sensor transmits directly an analog signal and is fitted with a standard EN 175301-803 plug connector.

The sensor has to be connected to the Bürkert conductivity transmitter Type 8225 for panel or wall mounting or to the multiCELL transmitter/controller Type 8619 via a shielded cable (maximal cable length of 10 m).

The conductivity sensor can be installed into a pipe by using INSERTION fitting Type S020 which is available in different materials (details see data sheet Type S020). In its longer version it can also be installed in tanks or containers by using an industrial immersion fitting.

General data	
Compatibility	With fittings S020 (see corresponding data sheet)
Materials	
Housing	PC
Screws	Stainless steel
Cable plug	PA
Wetted parts materials	
Fitting	Brass, Stainless steel 1.4404/316L, PVC, PP or PVDF
Sensor holder	PVDF
Pt1000	Stainless steel 1.4571 (316Ti)
Seal	FKM (EPDM included in delivery)
Electrode	Stainless steel for cell constant C = 0.01 or 0.1 Graphite for cell constant C = 1.0 or 10
Electrical connection	Cable plug EN 175301-803
Complete device data (fitting + sensor)	
Pipe diameter	DN15 to DN200
Conductivity measurement	
Measuring range	0.05 µS/cm ... 200 mS/cm (depending on cell constant)
Accuracy	typical: 3% o. MV.* - max.: 5% o. MV.*
Temperature measurement	
Measuring range	-50 to +150°C
Resolution	0.1°C
Accuracy	± 1°C
For temperature compensation	automatic (integrated Pt1000) - reference temperature 25°C
Medium temperature	With fitting in PVC: 0...+50°C (32 to 122°F) - PP: 0...+80°C (32 to 176°F) - PVDF, stainless steel, brass: 0...+100°C (32 to 212°F)
Fluid pressure max.	PN10 (see pressure / temperature chart)

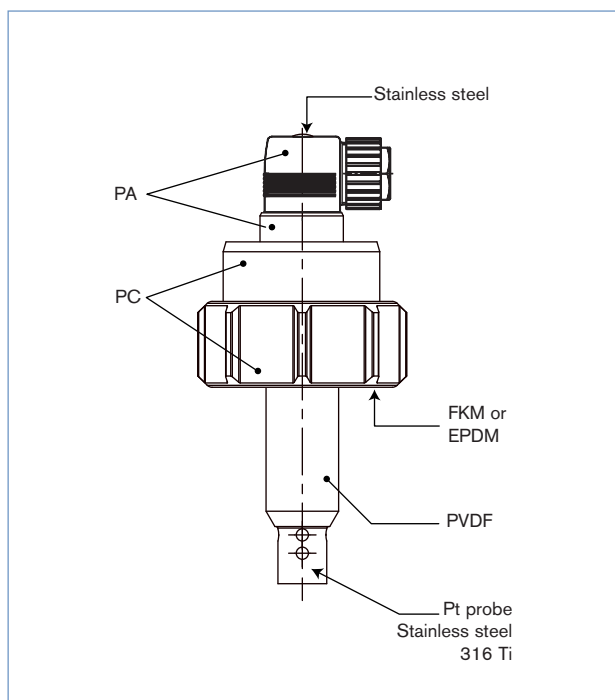
* o. MV. = of measured value

Electrical data	
Power supply	none
Connection cable (between 8220 and remote 8225 or 8619)	4 x 0.2... 1.5mm ² shielded, max. length 10 m
Output	Analog signal, to be connected to remote electronic module Type 8225 or Type 8619
Environment	
Ambient temperature Operation and storage	0 to +60°C (32 to 140°F)
Relative humidity	≤ 80 %, without condensation
Standards, directives and approvals	
Standard and directives	
EMC	EN 61000-6-3 (2001), EN 61000-6-2 (2001)
Security	EN 61010-1 (2001)
Pressure	Complying with article 3 of §3 from 97/23/CE directive.*
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

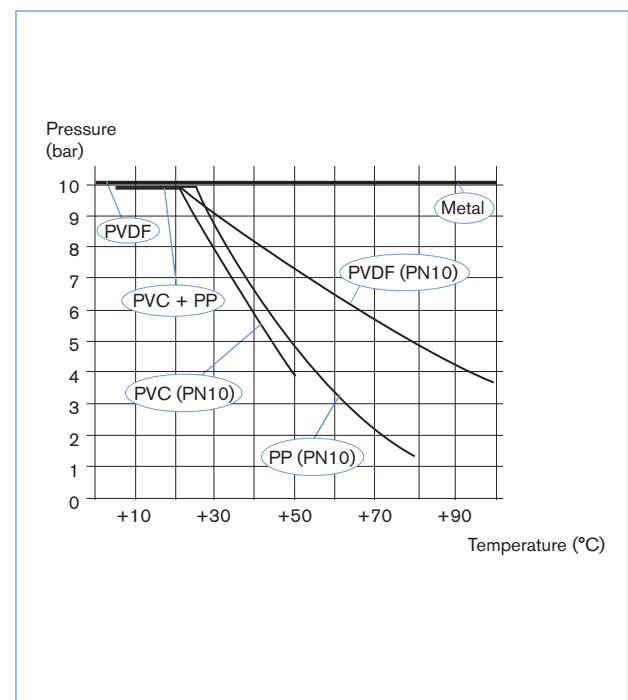
* For the 97/23/CE pressure directive, the device can only be used under following conditions (depend on max. pressure, pipe diameter and fluid).

Type of fluid	Conditions
Fluid group 1, §1.3.a	DN25 only
Fluid group 2, §1.3.a	DN ≤ 32 or DN > 32 and PN*DN ≤ 1000
Fluid group 1, §1.3.b	DN ≤ 200
Fluid group 2, §1.3.b	DN ≤ 200

Materials view



Pressure / temperature chart



Principle of operation - Electrodes measuring range

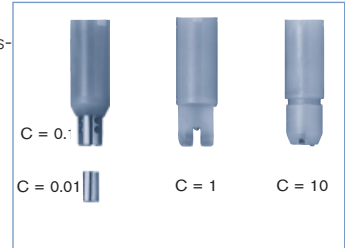
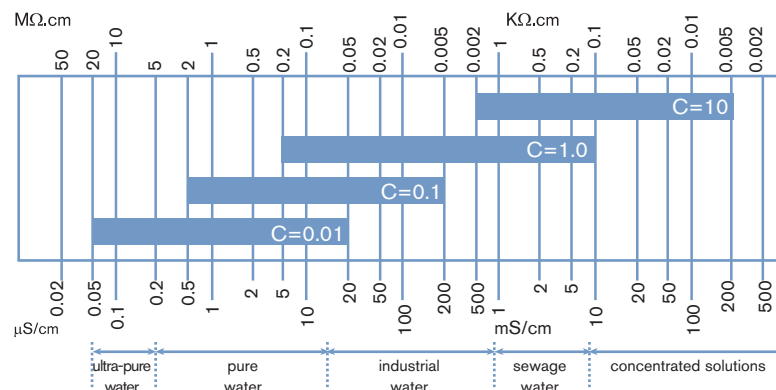
Conductivity is defined as the ability of a solution to conduct electrical current. The load carriers are ions (E.G. dissolved salt or acids). In order to measure conductivity, 2 electrodes are used which are set at a fixed distance apart and with a known specified surface. An AC voltage source from the connected transmitter Type 8225 or transmitter/controller Type 8619 is supplied to the electrodes. The measured current is a direct function of the conductivity of the solution.

A 4... 20 mA standard signal proportional to the conductivity is available as output signal at the connected transmitter.

Different electrode designs are required based on selected cell constant.

The conductivity transmitter can be fitted with 4 different measuring cells with constants $C = 0.01$; 0.1 ; 1 and 10 .

The cell is selected according to the measuring range and medium by using the table below.



Installation

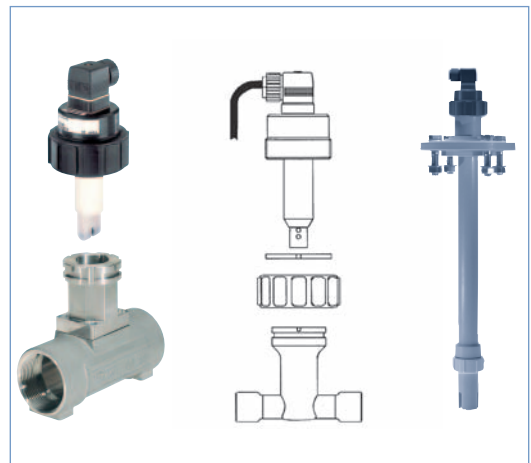
The compact conductivity sensor 8220 can be installed into any Bürkert INSERTION fitting (S020).

Select and install the required fitting onto the pipe, according to specific requirements of the sensor and fitting material (temperature and pressure). Then cautiously install the unit on the fitting and tighten with the nut.

With a cell constant $C = 10$, the opening hole of the small channel must be located on the flow inlet side.

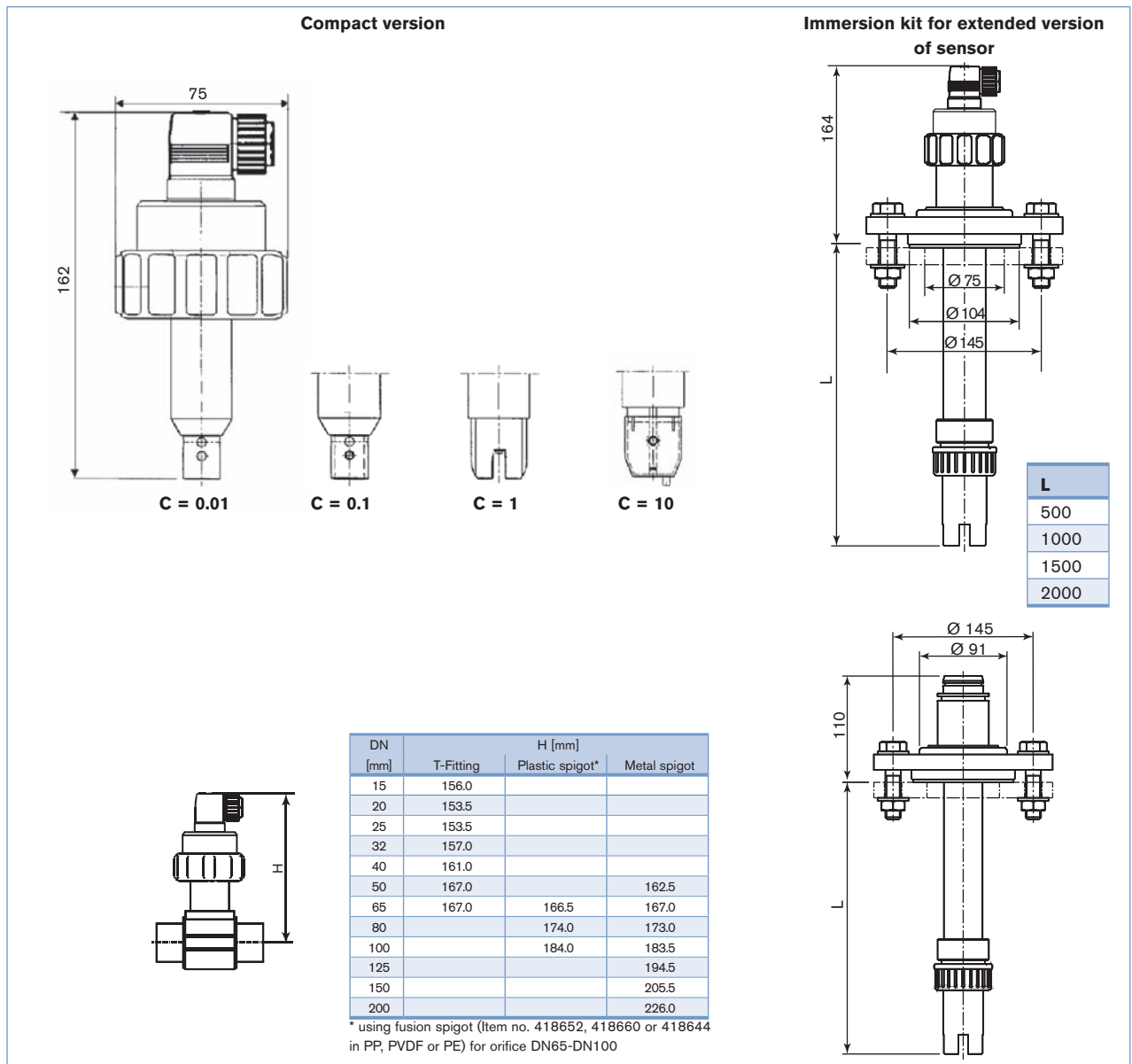
The sensor can be installed in any position. In order to get a reliable measurement, air bubbles must be avoided and the mounting location must ensure that the electrode is continuously and completely immersed in the flow stream.

The transmitter must be protected from constant heat radiation and other environmental influences, such as direct exposure to sunlight.



An industrial immersion kit allows installation of the **longer version of the sensor** having a cell constant $C = 0.01$; 0.1 or 1 into tanks or containers. The following lengths are available: 500, 1500, 2000 mm. Special lengths on request.

Dimensions [mm]



Combining the conductivity sensor Type 8220 with fittings Type S020

Available fitting DN	T-fitting S020 	DN15  DN65
	Welding tab S020 	DN50  DN200
	Fusion spigot S020 	DN65  DN100
Conductivity measurement 8220		DN15  Note A  DN200

Note A: Only use plastic fitting **in analytical version** with true union acc. to DIN 8063 (PVC), to DIN 16962 (PP) or to ISO 10931 (PVDF), see data sheet Type S020

Ordering information for a complete conductivity measurement equipment

A complete conductivity measurement equipment consists of a conductivity sensor Type 8220, a remote conductivity transmitter Type 8225 or a multiCELL transmitter/controller Type 8619 and a Bürkert INSERTION fitting Type S020.

The following information is necessary for the selection of a complete device:

- **Item no.** of the desired conductivity sensor **Type 8220** (see ordering chart, below)
- **Item no.** of the desired conductivity transmitter **Type 8225** (wall-mounted or panel-mounted version - see separate data sheet) or multiCELL transmitter/controller **Type 8619** (see separate data sheet) [More info.](#)
- **Item no.** of the selected INSERTION fitting **Type S020** (DN15 - DN200 - see separate data sheet) [More info.](#)

When you click on the orange box "More info.", you will come to our website for the resp. product where you can download the data sheet.

→ You have to order three components.

Ordering chart for conductivity sensor Type 8220

Specifications	Measuring range	Cell constant	Electrode materials	Electrical connection	Item no.
Sensor	0.05 $\mu\text{S/cm}$... 20 $\mu\text{S/cm}$	C = 0.01	Stainless steel	EN 175301-803	426 872
	0.5 $\mu\text{S/cm}$... 200 $\mu\text{S/cm}$	C = 0.1	Stainless steel	EN 175301-803	426 873
	5 $\mu\text{S/cm}$... 10 mS/cm	C = 1	Graphite	EN 175301-803	426 874
	0.5 mS/cm ... 200 mS/cm	C = 10	Graphite	EN 175301-803	426 875

Ordering information for tank installation

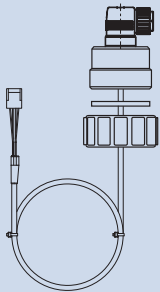
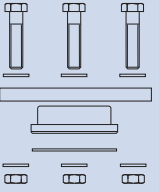
Tank installation with a conductivity sensor Type 8220 in a longer version.

A conductivity sensor Type 8220 for tank installation is made up of a conductivity probe, an immersion kit which is consisting of an immersion fitting, an extension cable kit for immersion fitting, a fixing kit (flange DN65 with stainless steel screws) and has to be connected to a remote conductivity transmitter Type 8225 or a multiCELL transmitter/controller Type 8619.

The following information is necessary for the selection of a complete device:

- **Item no.** of the desired conductivity probe** (see accessories ordering chart on p. 6)
- **Item no.** of the immersion fitting (see accessories ordering chart on p. 6)
- **Item no.** of the extension cable kit for the immersion fitting (see accessories ordering chart on p. 6)
- **Item no.** of the fixing kit (flange DN65 with stainless steel screws: see accessories ordering chart on p. 6)
- **Item no.** of the desired conductivity transmitter **Type 8225** (wall-mounted or panel-mounted version - see separate data sheet) or multiCELL transmitter/controller **Type 8619** (see separate data sheet) [More info.](#)

→ You have to order five components.

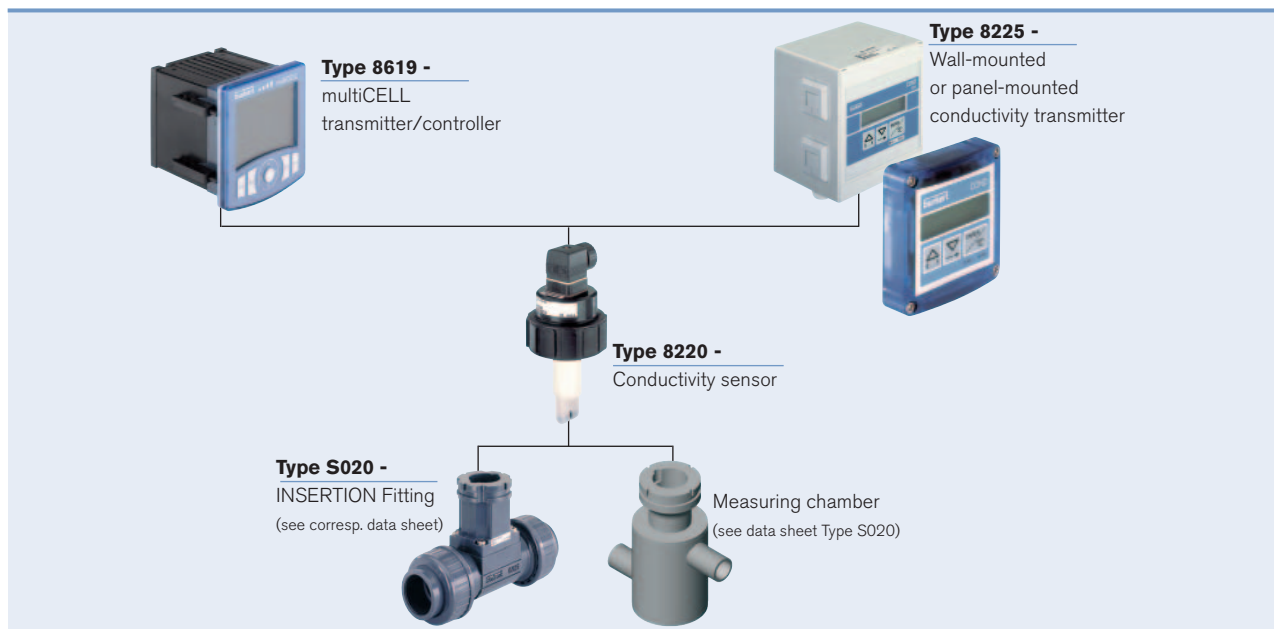
Remote conductivity transmitter Type 8225	Immersion fitting	Extension cable kit	Fixing kit
 or multiCELL transmitter/controller Type 8619 			 Conductivity probe** 

** For the tank installation only probes with cell constant C=0.01, 0.1 or 1 are available

Ordering chart for accessories for conductivity sensor Type 8220

Description	Item no.
Set with 2 cable glands M20x1.5 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20x1.5 + 2 multiway seals 2x6 mm	449 755
Cable plug EN 175301-803 with cable gland (Type 2508)	438 811
Cable plug EN 175301-803 with NPT1/2 " reduction without cable gland (Type 2509) - UR and UL approval	162 673
Mounting ring (open) for S020 fitting	619 205
PC - nut	619 204
Set with 1 green FKM + 1 black EPDM seal	552 111
Conductivity probe C = 0.01 (with stainless steel electrode) for mounting with immersion kit	633 367
Conductivity probe C = 0.1 (with stainless steel electrode) for mounting with immersion kit	631 647
Conductivity probe C = 1 (with graphite electrode) for mounting with immersion kit	418 217
Immersion fitting in PP, L = 0.5 m	419 567
Immersion fitting in PP, L = 1.0 m	419 568
Immersion fitting in PP, L = 1.5 m	419 569
Immersion fitting in PP, L = 2.0 m	419 570
Extension cable kit including a 0.7 m cable (for immersion fitting, L ≤ 0.5 m to use with 8225 remote transmitter or with 8619 multiCELL transmitter/controller)	437 615
Extension cable kit including a 1.7 m cable (for immersion fitting, L ≤ 1.5 m to use with 8225 remote transmitter or with 8619 multiCELL transmitter/controller)	437 617
Extension cable kit including a 2.2 m cable (for immersion fitting, L ≤ 2.0 m to use with 8225 remote transmitter or with 8619 multiCELL transmitter/controller)	437 618
Fixing kit (flange DN65 with stainless steel screws)	413 615
Factory 2-point conductivity calibration certificate	550 675

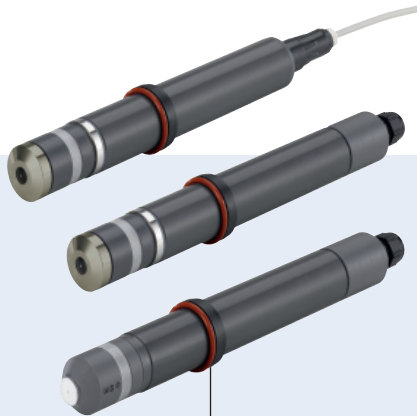
Interconnection possibilities with other Bürkert devices



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In case of special application conditions,
please consult for advice.Subject to alteration.
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1401/2_EU-en_00895157



Chlorine Sensor

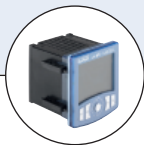
- Trace Sensor with three electrodes for a measuring at low concentrations
- Chlorine Sensor with three electrodes and greatly reduced pH dependency
- Chlorine Sensor with two electrodes

Type 8232 can be combined with...



Type 8200

Analytical measurement chamber



Type 8619

Panel-mounted multiCELL transmitter/controller



Type 8619

Wall-mounted multiCELL transmitter/controller

The 8232 from Bürkert is an electrochemical sensor designed for the measurement of the free chlorine concentration generated from inorganic sources (chlorine gas, sodium hypochlorite,...).

The Type 8232 offer a range of three models:

- the Cl-trace sensor (Item no. 565164) with three electrodes, is suitable for the measuring of chlorine at very low concentrations. The membrane of this sensor is less affected by biofouling. It is available with a voltage output on a four-pin fixed connector (connector with cable has to be ordered separately).
- the chlorine sensor (Item no. 566052) with three electrodes, has a sensor having a greatly reduced pH-dependency. This model delivers a current output on a two-pin terminal through a cable gland and is designed to be used in a swimming pool, drinking or sea water. The fluid must contain a minimum chlorine concentration ($\geq 0,1$ ppm).
- the chlorine sensor (Item no. 566051) with two electrodes, delivers a current output on a two-pin terminal through a cable gland. It is designed to be used using in a swimming pool, drinking or process water having similar qualities as drinking water. The fluid to be measured must not contain any surfactants or abrasive particles and its pH value must be at a constant level. The fluid must contain a minimum chlorine concentration ($\geq 0,1$ ppm).

General data	
Compatibility	with probe holder Type 8200 version analytical measuring chamber (see corresponding data sheet)
Fluid temperature	Temperature range depends on the used sensor. Refer to the corresponding instruction manual or technical data on next page. If the temperature ranges given for the holder and the used sensor are different, use the most restrictive range.
Fluid pressure	Pressure range depends on the used sensor. Refer to the corresponding instruction manual or technical data on next page. If the pressure ranges given for the holder and the used sensor are different, use the most restrictive range. Pressure drops are not allowed; the membrane could be damaged
Fluid flow rate	approx. 30 l/h mounted in analytical measurement chamber 8200, the measuring value depends on the flow rate (Ensure constant flow rate)
Temperature compensation	automatic (integrated temperature sensor)
Fluidic connection	see corresponding data sheet Type 8200 "Analytical measurement chamber"
Maintenance¹⁾	Control of the measuring signal Change of the membrane cap Change of the electrolyte
	Regularly, min. once a week Once a year Every 3 - 6 months
Environment	
Ambient temperature	Depend on the sensor model, but same temperature as the fluid (see next page)
Operation	▪ Probe: +5 to +40°C (41 to 104°F) (frost protected, dry and without electrolyte)
Storage	▪ Membrane cap: used membrane caps can not be stored ▪ Electrolyte: +5 to +25°C (41 to 77°F) (1 year in original bottle protected from sunlight)
Relative humidity	< 90%, without condensation
Max. height above sea level	max. 2000 m

¹⁾ depending on water quality; values are recommended for drinking water

Technical data, *continued*

Sensor	Trace Sensor - Item no. 565 164	Chlorine sensor - Item no. 566 052	Chlorine sensor - Item no. 566 051
Materials	Microporous hydrophilic membrane, PVC, stainless steel 1.4571 see materials view drawing	Microporous hydrophilic membrane, PVC-U, stainless steel 1.4571 see materials view drawing	Semi permeable hydrophobic membrane, PVC-U see materials view drawing
Chlorine sensor	Membrane covered - amperometric potentiostatic 3 electrodes system with electronic inside	Membrane covered - amperometric potentiostatic 3 electrodes system with electronic inside	Membrane covered - amperometric 2 electrodes system with electronic inside
Membrane cap	M48.2 with intern holder (G-holder)	M48.2 with intern holder (G-holder)	M20
Chlorine measurement			
Measuring range	0.005... 2 ppm	0.01... 20 ppm	0.01... 20 ppm
Sensor resolution	0.001 ppm	0.01 ppm	0.01 ppm
Polarization time	approx. 24 hours after initial operation; approx. 6 hours after maintenance operation	After first start-up and maintenance operations approx. 2 hours	After first start-up and maintenance operations approx. 1 hour
Response time (t ₉₀)	120 s	120 s	30 s
Zero point adjustment	not necessary	not necessary	not necessary
Slope calibration	With the 8619 multiCELL*, - generate a stable chlorine concentration in the measuring water, use DPD-1 method - if no chlorine in the measuring water is allowed, use an external calibration equipment (see accessories ordering chart on page 6) and the DPD-1 method	With the 8619 multiCELL*, by the analytical determination DPD-1 method (Reference value)	With the 8619 multiCELL*, by the analytical determination DPD-1 method (Reference value)
Interferences	- ClO ₂ , O ₃ influence the signal strongly - high concentrations of bound chlorine may influence the sensor - reducing agents can influence the measuring value	- ClO ₂ , O ₃ influence the signal strongly - high concentrations of bound chlorine may influence the sensor - reducing agents can influence the measuring value	- ClO ₂ , O ₃ , reducing agents can influence the measuring value. - Electrolytically generated chlorine with a cell without membrane can produce trouble
Fluid	- Water having similar qualities to drinking water	- Swimming pool water, drinking water, sea water - Surfactants are partially tolerated	- Swimming pool water, drinking water, service water, process water - free of any surfactants - with constant pH value
Chlorination agents	Inorganic chlorine compounds : NaOCl (sodium hypochlorite), Ca(OCl) ₂ , chlorine gas, electrolytically generated chlorine	Inorganic chlorine compounds : NaOCl (sodium hypochlorite), Ca(OCl) ₂ , chlorine gas, electrolytically generated chlorine	Inorganic chlorine compounds : NaOCl (sodium hypochlorite), Ca(OCl) ₂ , chlorine gas, chlorine electrolysis with membrane cell (unsuitable: chlorine electrolysis without membrane cell)
Fluid pH range	pH 6.5... pH 9	pH 4... pH 9	pH 6... pH 8 (attention to the dissociation equilibrium HOCl)
Max. fluid pressure	0.5 bar (no pressure drops) (7.25 PSI)	0.5 bar (no pressure drops) (7.25 PSI)	1 bar (no pressure drops) (14.5 PSI)
Fluid temperature	5 to +40°C (41 to 104°F)	5 to +45°C (41 to 113°F)	5 to +45°C (41 to 113°F)
Reference electrolyte	ECN1 gel	ECS2.1 gel	ECL1
Temperature sensor	Yes	Yes	Yes
Electrical connector	4-pin fixed connector	2-pin terminal (2 x 1 mm ²) via a cable gland	2-pin terminal (2 x 1 mm ²) via a cable gland
Recommended cable	Connector with 4 x 0.14 mm ² wire, not shielded (has to be ordered separately, see accessories ordering chart on page 6)	Diameter 4 mm, 2 x 0.25 mm ² wire, not shielded	Diameter 4 mm, 2 x 0.25 mm ² wire, not shielded

* NOTE: Analogue Input Board necessary.

Software version of Input board must be A.03.00 or higher; - "otherwise contact your local Bürkert support" -

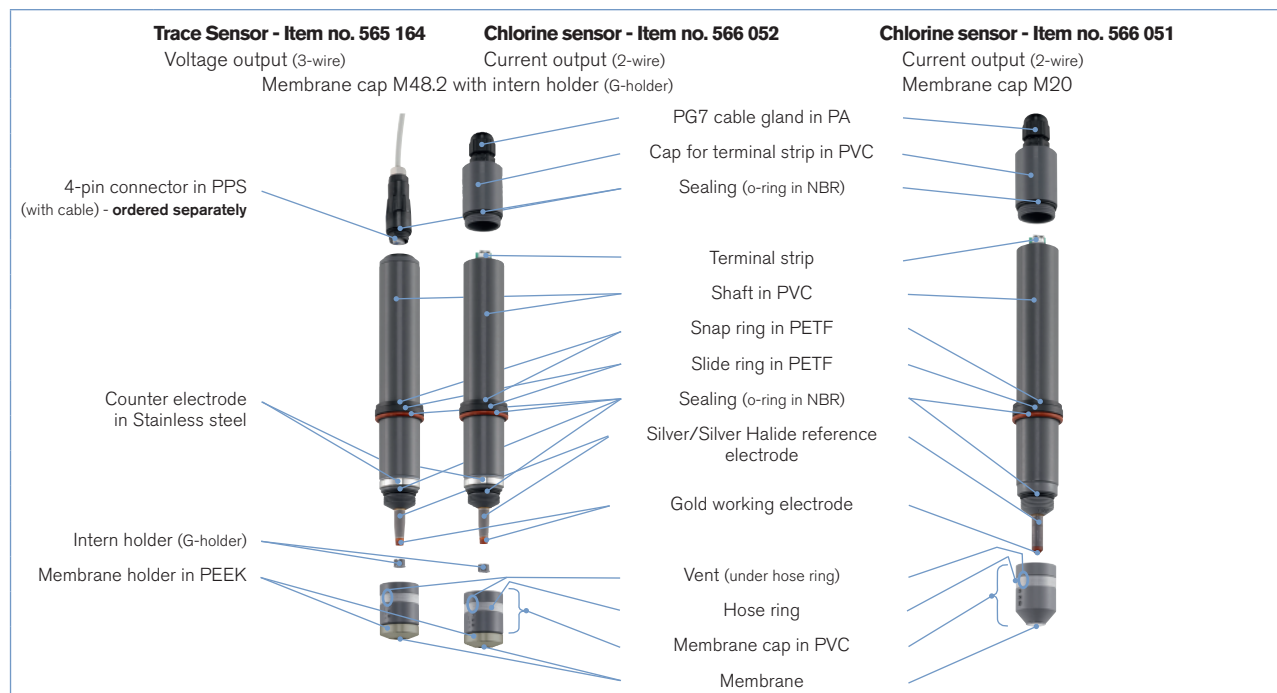
Technical data, continued

Electrical data			
Sensor	Trace Sensor - Item no. 565 164	Chlorine sensor - Item no. 566 052	Chlorine sensor - Item no. 566 051
Operating voltage	22.5 - 26 V DC, filtered and regulated (otherwise the probe may be damaged)	12 - 30 V DC, filtered and regulated (through the 8619 multiCELL Controller)	12 - 30 V DC, filtered and regulated (through the 8619 multiCELL Controller)
Current consumption	20 mA approx	4 mA approx. (max. current by overloading: 30 mA)	4 mA approx. (max. current by overloading: 30 mA)
Output (only for connection to 8619 multiCELL)	Voltage: ▪ Analog 0 - 2 V (max. 2.5 V) ▪ galvanically insulated	Current: ▪ 4... 20 mA (uncalibrated - 16 mA/measuring range in ppm=nominal slope in mA/ppm) ▪ not galvanically insulated* ▪ Max. loop impedance: 50 Ω at 12 V DC, 900 Ω at 30 V DC	Current: ▪ 4... 20 mA (uncalibrated - 16 mA/measuring range in ppm=nominal slope in mA/ppm) ▪ not galvanically insulated* ▪ Max. loop impedance: 50 Ω at 12 V DC, 900 Ω at 30 V DC

* A potential-free electrical connection is necessary as the chlorine sensor is not equipped with a galvanic isolation.

Standards, directives and approvals	
EMC Approvals	EN 61326-1 CE

Materials view drawing



Principle of operation

The chlorine sensor is a two or three-electrode measuring system (depends on variant) covered with a membrane. The membrane cap filled with special electrolyte, protects the working and reference electrodes from direct contact with the measuring water. With this measuring method, ionic substances in the water are held back by the membrane, whereas the substance to be determined (disinfectant or chlorine) can pass through the membrane without restriction. The diffusion of the substance through the membrane ensures that the concentrations on both sides of the membrane are equal and causes on contact with the electrolyte an electrical signal on the working electrode.

The 2-electrode measuring system consists of a working electrode and a reference electrode, between which a certain voltage (polarization voltage) is applied. The 3-electrode measuring system consists of a working electrode, a reference electrode and a counter electrode.

The measuring signal at the working electrode is proportional to the concentration of the disinfectant or to the chlorine concentration and is amplified by the electronics of the sensor. The measuring signal is independent from the temperature of the measuring water due to an integrated temperature compensation.

Installation of the sensor



The requirements for maintaining and monitoring a constant flow rate of the analysed water, necessitate the use of an adapted measuring chamber. Thus the sensor Type 8232 has to be installed in the analytical measuring chamber Type 8200. Otherwise the liability for a proper function of the sensor and personal injury and damage to the equipment resulting from that use in another measurement chamber will be declined.

This analytical measurement chamber has to be installed so that the inserted chlorine sensor is in an upright position, and so that the incoming flow rate comes from the bottom up to the membrane.

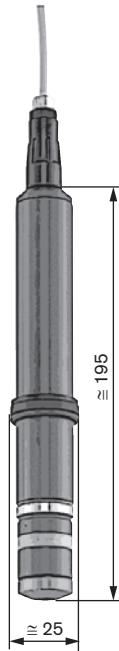
Gas bubbles at the membrane obstruct the inflow of the substance, which leads to incorrect measuring signals.

For continuous flow monitoring, an inductive flow switch is available optionally, to be mounted in analytical measurement chamber type 8200.

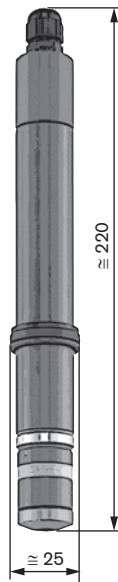
Do not install the sensor in the main pipe. Measure only in bypass with use of the analytical measuring chamber Type 8200.

Dimensions [mm]

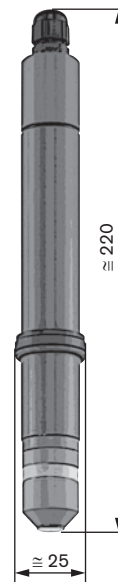
Trace Sensor - Item no. 565 164



Chlorine sensor - Item no. 566 052



Chlorine sensor - Item no. 566 051



Ordering information for complete chlorine measuring system

A complete chlorine measuring system consists of a chlorine sensor Type 8232, a connector with cable (if needed, depends on the version of the Type 8232), an analytical measurement chamber Type 8200, an electrolyte (the delivery includes one electrolyte bottle) and the multiCELL controller Type 8619*.

The following information is necessary for the selection of a complete system:

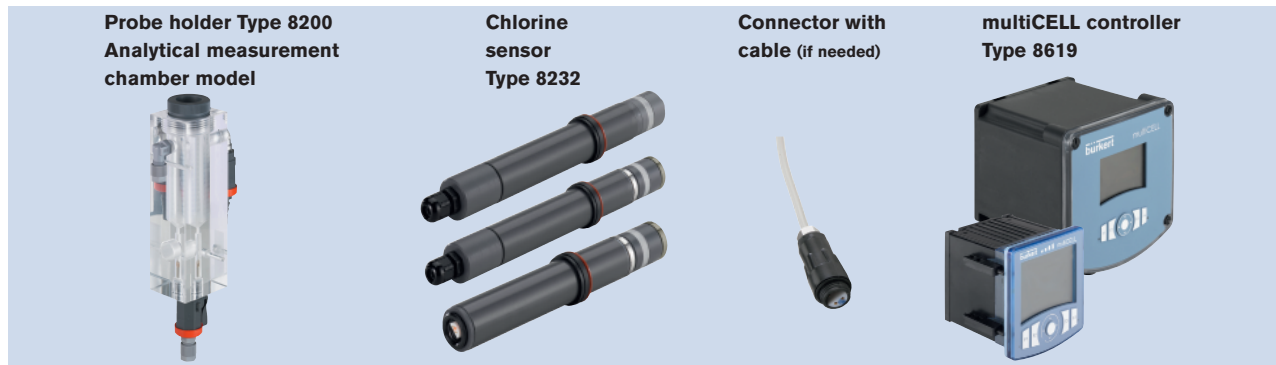
- **Item no.** of the analytical measurement chamber **Type 8200** (see separate data sheet)
- **Item no.** of the desired chlorine sensor **Type 8232** (see ordering chart, p. 5)
- **Item no.** of the connector with cable, if needed (see ordering chart, p. 6)
- **Item no.** of the multiCELL controller **Type 8619** (see separate data sheet)

More info.

More info.

When you click on the orange box "More info.", you will come to our website for the resp. product where you can download the data sheet.

→ You have to order the components separately.



* **NOTE:** Analogue Input Board necessary.

Software version of Input board must be the version A.03.00 or higher; "otherwise contact your local Bürkert support"

Ordering chart for chlorine sensor

Version	Description	Number of electrodes	Measuring range	Output	Item no.
 Trace sensor	Measures at very low chlorine concentrations	3	0.005... 2 ppm	0 - 2 V (max. 2.5 V)	565 164
 Chlorine sensor	Measures the concentration of free chlorine with greatly reduced pH dependency	3	0.01... 20 ppm	4... 20 mA	566 052
 Chlorine sensor	Measures the concentration of free chlorine	2	0.01... 20 ppm	4... 20 mA	566 051

Note: Each sensor is delivered with 100 ml Electrolyte and one membrane cap.

Feature overview for sensor selection

	Trace sensor Item no. 565 164	Chlorine sensor Item no. 566 052	Chlorine sensor Item no. 566 051
Works in water without chlorine	Yes	No	No
Measures trace concentrations	Yes	No	No
Galvanically isolated	Yes	No	No
Potentiometric measurement	Yes	Yes	No
Greatly reduced pH dependency	Yes ¹⁾	Yes	No
Surfactants are partially tolerated	Yes	Yes	No
Temperature compensation	Yes	Yes	Yes
Zero-Point stability	Yes	Yes	Yes
Membrane covered	Yes	Yes	Yes
Two-wire device	No	Yes	Yes

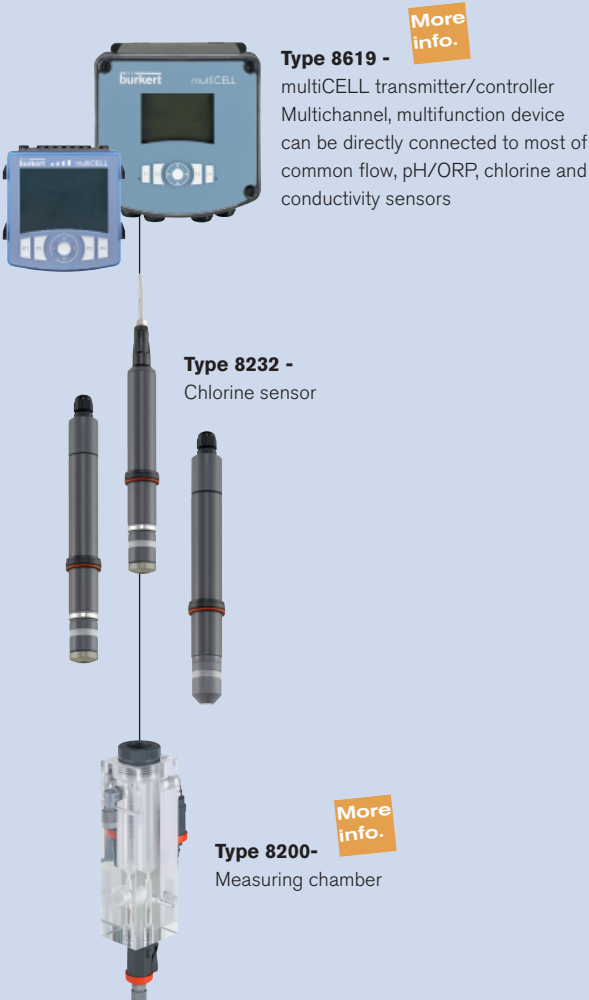
¹⁾ Trace sensor has a higher pH dependency compared to Item no. 566 052

Ordering chart for accessories

Description	Item no.
Electrolyte for Trace sensor with 3 electrodes (Item no. 565 164), ECN1 gel, 100 ml	566 060
Electrolyte for chlorine sensor with 3 electrodes (Item no. 566 052), ECS2.1 gel, 100 ml	566 059
Electrolyte for chlorine sensor with 2 electrodes (Item no. 566 051), ECL1, 100 ml	566 058
 Membrane cap for chlorine sensor with 3 electrodes, M48.2 with intern holder (G-holder)	566 057
 Membrane cap for chlorine sensor with 2 electrodes, M20	566 056
External calibration device ¹⁾	565 163
4-pin connector with cable	565 385
Photometer MD100, measuring range 0.01 ...6 ppm	566 393
DPD-1 reagent (100 Tablets)	566 394

1) Only needed if measuring water contains no chlorines

Interconnection possibilities with other Bürkert devices



Type 8619 -
multiCELL transmitter/controller
Multichannel, multifunction device
can be directly connected to most of
common flow, pH/ORP, chlorine and
conductivity sensors

Type 8232 -
Chlorine sensor

Type 8200-
Measuring chamber

To find your nearest Bürkert office, click on the orange box →

In case of special application conditions,
please consult for advice.

Subject to alteration.
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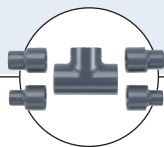
Type S022 can be combined with...



Type 8202
pH or O.R.P.
meter



Type 8222
Resistive conductivity
meter



Pipe and fitting



Saddle

INSERTION Adapter/Fitting for analytical devices

- Universal adapter/fitting for Type 8202 and 8222 measuring devices in pure, aggressive or polluted liquids
- Adaptation into standard piping systems or conversion of Bürkert S020 fittings to S022 fittings
- Pipe diameters from DN06 (with reduction) to DN110 (plastic) or bigger (stainless steel)

The adapter/fitting or measuring chamber is used to connect the compact analytical ELEMENT measuring device into piping systems.

Different versions of adapters/ fittings are available:

Adapters:

- PVC-U adapter to stick into equal or reduced standard metric or ASTM Tee fitting
- PP adapter to weld into equal d32 standard metric Tee fitting
- Stainless steel adapter to weld
- PVC threaded adapter to screw on tank or pipe
- PVC, PP, stainless steel adapter for conversion of S020 Bürkert fitting into S022 fitting.

Fittings in PVC:

- metric or ASTM Tee fitting
 - True union connection
 - weld end connection
- saddle

General data

Pipe diameter	DN06 (with reduction) to DN110 (plastic) or bigger (stainless steel)
Process connection	
Adapter	Solvent, fusion, welding, threaded and to connect with screws
Fitting	Metric or ASTM True union or weld ends; saddle
Materials	
Adapter	PVC, PP, stainless steel - delivered with 2 seals, 1 FKM and EPDM
Fitting	
Seal	FKM, EPDM
Body & adapter	PVC&PVC, PP&PVC

Medium data

Medium temperature	See pressure-temperature chart on next page. Temperature limits may depend on inserted measuring device ¹⁾ .
Medium pressure (max.)	PN10 (plastic) or PN16 (metal). Pressure limits may depend on inserted measuring device ¹⁾ .

Environment

Ambient temperature	Temperature limits may depend on inserted measuring device ¹⁾ .
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¹⁾ Please refer to appropriate instruction manual or data sheet for more details.

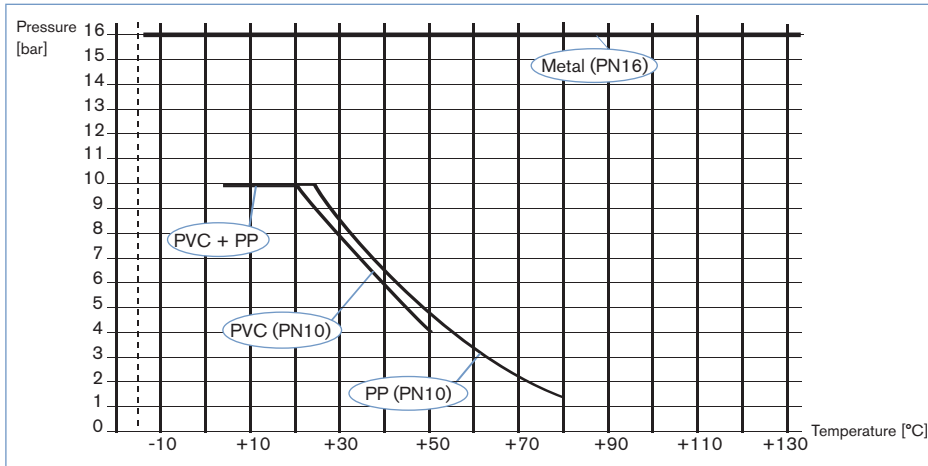
Standards, directives and approvals

Directive - Pressure	Complying with article 3 of §3 from 97/23/CE directive.*
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* For the 97/23/CE pressure directive, the device can only be used under following conditions (dependent on max. pressure, pipe diameter and fluid).

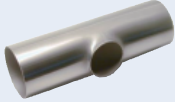
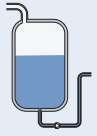
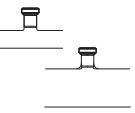
Type of fluid	Conditions
Fluid group 1, §1.3.a	Only DN ≤ 25
Fluid group 2, §1.3.a	DN ≤ 32, or DN > 32 and PN*DN ≤ 1000
Fluid group 1, §1.3.b	DN ≤ 25, or DN > 25 and PN*DN ≤ 2000
Fluid group 2, §1.3.b	DN ≤ 125

Pressure / temperature chart

**Note:**

Always take the lowest max. medium temperature of both adapter and used ELEMENT measuring device.

Adaptation overview

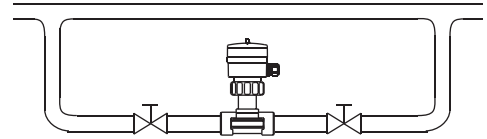
Adapter/ fitting S022					
	PVC-U, PP metric or ASTM	Stainless steel	PVC-U, G or NPT 1 1/4" screw-on	PVC-U, PP, stainless steel for Bürkert fitting body	
Piping systems					
Final products					
DN	32 to 110 (06 to 25 with reduction)	Respect recommendations of installation	Respect recommendations of installation	Respect recommendations of installation	32 to 50

Installation and recommendations

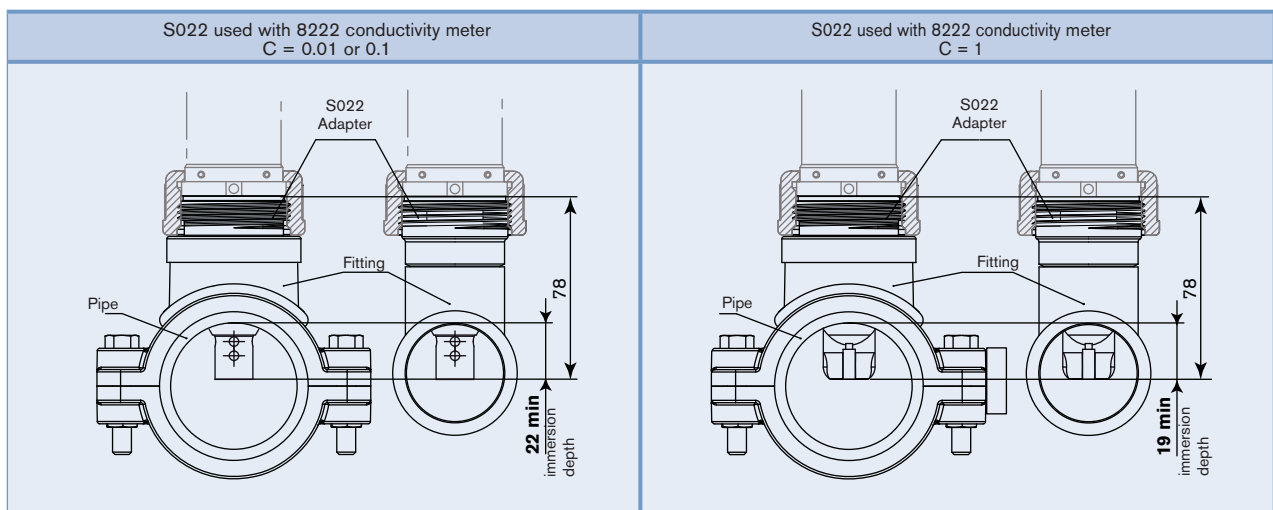
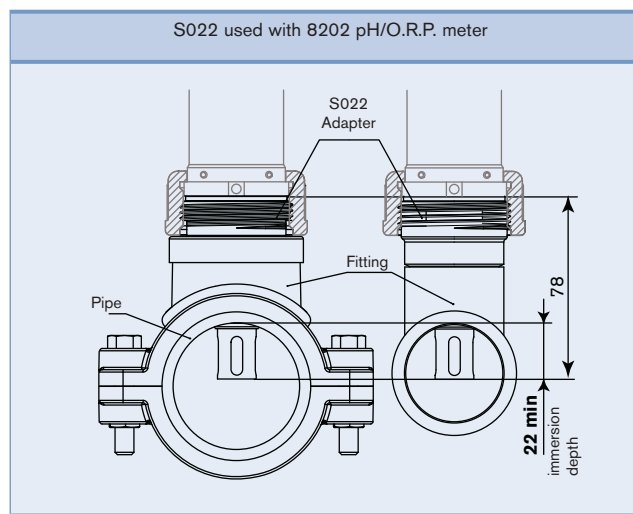
For pH and ORP measurements, we recommend a "U"- form bypass installation to ensure that the electrode is maintained in a wet condition and enable the customer to calibrate the unit without stopping the whole process or to use the special designed measuring chamber.

The specially designed measuring chamber enables to install the measuring device in all pipe systems, either directly in the main stream or in a by-pass line. Additionally it enables to keep the electrode always wet and isolates it easily from the main stream for calibration purposes.

Pressure and temperature ratings must be respected according to the selected adapter material. Be sure that the sensor element is completely covered with liquid. Avoid dead legs which interfere the local fluid exchange.



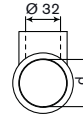
When mounting the adapter into a T-fitting, a tank or directly into a pipe, please ensure that the minimum immersion depth of the electrode is respected (refer to the under drawing).



Dimensions for adapter/fitting S022

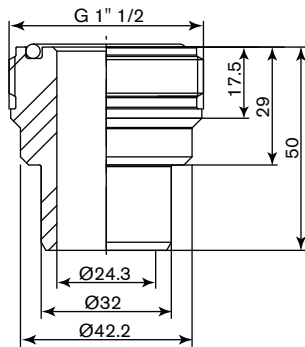
INSERTION adapter for connection into T-fitting or pipe

Note: T-fitting to use for mounting the S022, shown in the opposite drawing



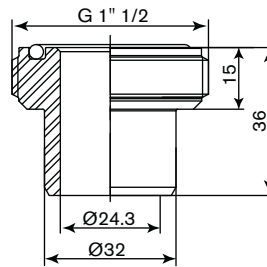
Metric solvent adapter PVC-U / FKM, EPDM

To stick on Tee fitting d32x32 or d40x32
with solvent socket



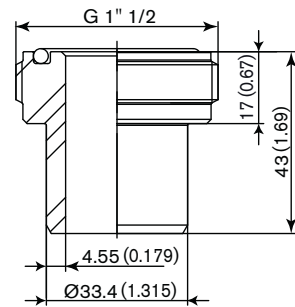
Metric solvent adapter PVC-U / FKM, EPDM

To stick on Tee fitting d50x32 to d50-110x32
with solvent socket



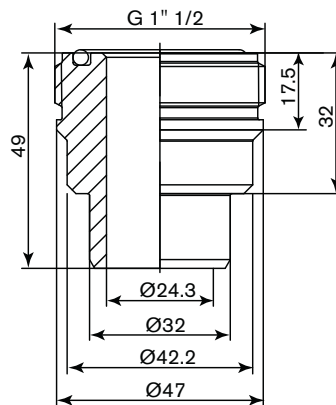
ASTM solvent adapter PVC-U / FKM, EPDM

To stick on Tee fitting 1"x1" to 3"x1"
with solvent socket



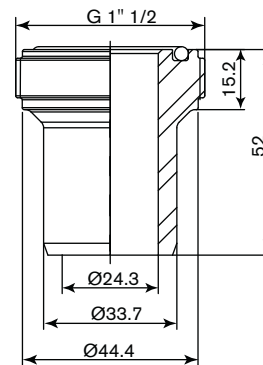
Metric fusion adapter PP / FKM, EPDM

To weld on Tee fitting d32x32
with fusion socket



Metric welding Stainless steel / FKM, EPDM

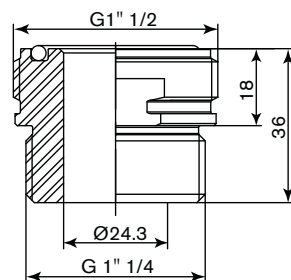
To weld directly on pipe



INSERTION adapter for connection on tank or pipe

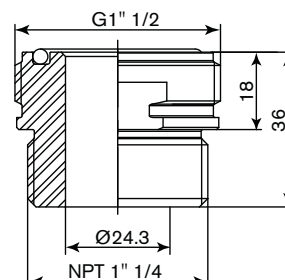
G 1 1/4" screw-on adapter PVC-U / FKM, EPDM

to screw on tank or pipe



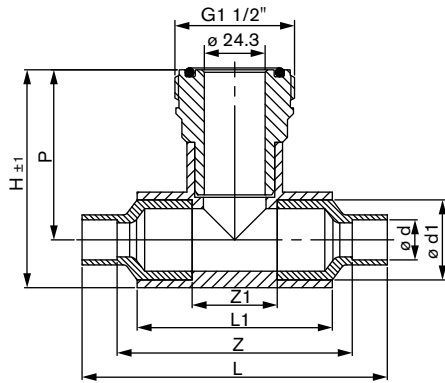
NPT 1 1/4" screw-on adapter PVC-U / FKM, EPDM

to screw on tank or pipe

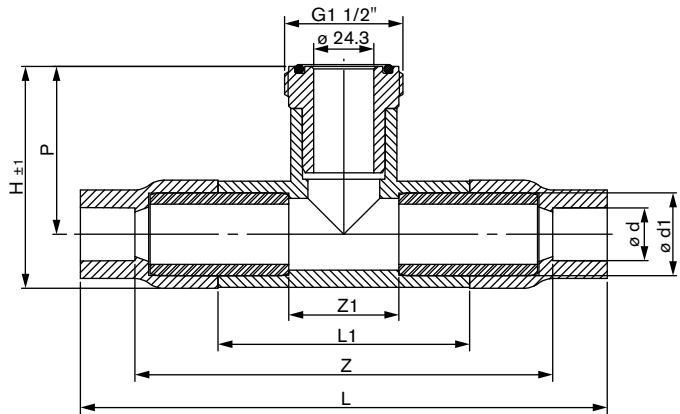


Dimensions for adapter/fitting S022

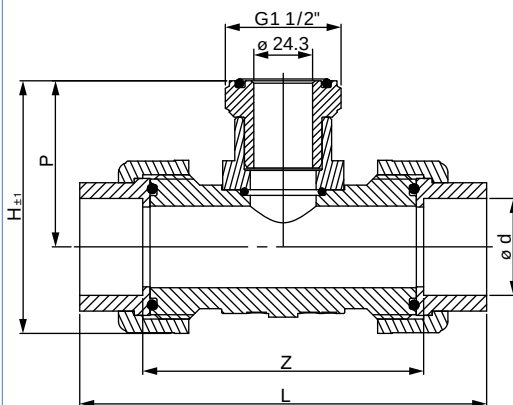
Fitting with metric solvent ends connection in PVC



Fitting with ASTM solvent ends connection in PVC



DN [mm]	P [mm]	H [mm]	Standard	L [mm]	L1 [mm]	Z [mm]	Z1 [mm]	Ø d [mm] [inch]	Ø d1 [mm] [inch]
10	68	87	Metric	122	78	94	34	16	32
	-	-	ASTM	-	-	-	-	-	-
15	68	87	Metric	126	78	94	34	20	32
	68	89	ASTM	213	102	168	44	1/2"	1"
20	68	87	Metric	132	78	94	34	25	32
	68	89	ASTM	224	102	175	44	3/4"	1"
25	68	87	Metric	-	78	-	34	-	32
	68	89	ASTM	-	102	-	44	-	1"
32	70	99	Metric	-	98	-	46	-	40
	71	98	ASTM	-	108	-	44	-	1 1/4"
40	65	96	Metric	-	118	-	56	-	50
	74	104	ASTM	-	114	-	44	-	1 1/2"
50	71	110	Metric	-	146	-	70	-	63
	77	114	ASTM	-	121	-	44	-	2"
65	78	124	Metric	-	168	-	80	-	75
	84	128	ASTM	-	133	-	44	-	2 1/2"
80	92	147	Metric	-	194	-	92	-	90
	87	140	ASTM	-	140	-	44	-	3"
100	104	171	Metric	-	234	-	112	-	110
	-	-	ASTM	-	-	-	-	-	-

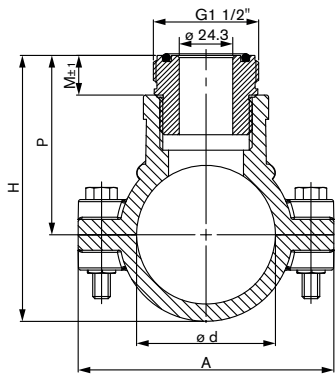
Fitting with metric or ASTM true union connection
with spigot and nut in PVC

DN [mm]	P [mm]	H [mm]	Standard	L [mm]	Z [mm]	Ø d [mm] [inch]
15	69	104	Metric	148	116	20
			ASTM	162	116	1/2"
20	69	104	Metric	154	116	25
			ASTM	168	116	3/4"
25	69	104	Metric	160	116	32
			ASTM	174	116	1"
32	69	104	Metric	168	116	40
			ASTM	170	116	1 1/4"
40	72	113	Metric	188	126	50
			ASTM	190	126	1 1/2"
50	79	129	Metric	212	136	63
			ASTM	214	136	2"

Dimensions for adapter/fitting S022

Fitting with saddle

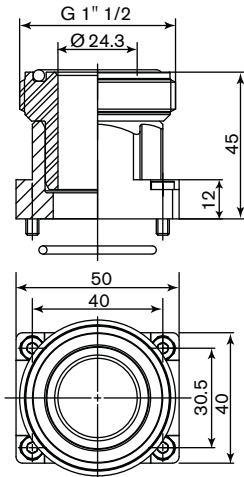
PP Body material
& PVC adapter
EPDM seal material



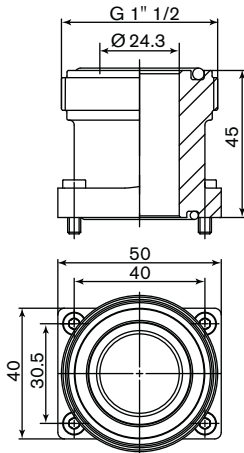
DN [mm]	M [mm]	P [mm]	H [mm]	A [mm]	Ø D [mm]
50	18	82	121	116	63
65	18	89	134	129	75
80	18	96	148	144	90
100	18	107	170	166	110
110	18	113	184	181	125

Adapter to convert S020 T-fitting to S022

Adapter
PVC-U or PP/ FKM, EPDM
For Bürkert fitting body - DN32 or bigger

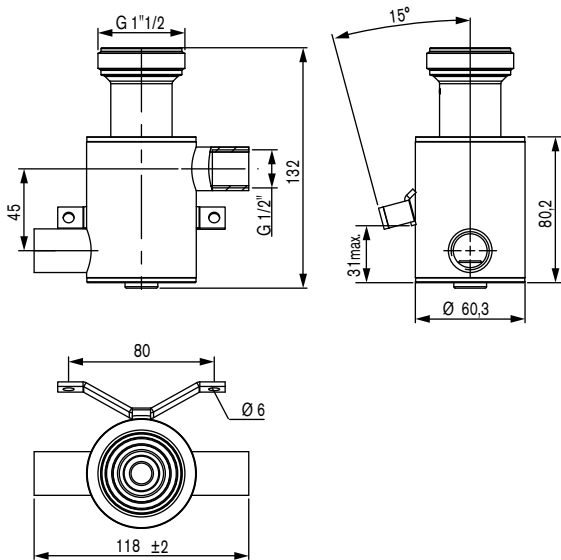


Adapter
Stainless steel / FKM, EPDM
For Bürkert fitting body - DN32 or bigger



Measuring chamber

Stainless steel
316L - 1.4404



Ordering chart for adapter/fitting S022

	Description	Materials Body / Seal ¹⁾	Type of installation or DN	Item no.
Insertion adapter for connection into T-fitting or pipe				
	Metric solvent adapter with G 1 1/2" external threaded for ELEMENT measuring device connection	PVC-U / FKM, EPDM	To stick on Tee fitting d32x32 or d40x32 with solvent socket	560 705
	Metric solvent adapter with G 1 1/2" external threaded for ELEMENT measuring device connection	PVC-U / FKM, EPDM	To stick on Tee fitting d50x32 to d50-110x32 with solvent socket	560 706
	ASTM solvent adapter with G 1 1/2" external threaded for ELEMENT measuring device connection	PVC-U / FKM, EPDM	To stick on Tee fitting 1"x1" to 3"x1" with solvent socket	561 227
	Metric fusion adapter with G 1 1/2" external threaded for ELEMENT measuring device connection	PP / FKM, EPDM	To weld on Tee fitting d32x32 with fusion socket	561 229
	Metric welding adapter Ø 33.7 with G 1 1/2" external threaded for ELEMENT measuring device connection	Stainless steel / FKM, EPDM	To weld directly on pipe	561 232
Insertion adapter for connection into T-fitting or pipe				
	G 1 1/4" screw-on adapter with G 1 1/2" external threaded for ELEMENT measuring device connection	PVC-U / FKM, EPDM	To screw on tank or pipe	560 707
	NPT 1 1/4" screw-on adapter with G 1 1/2" external threaded for ELEMENT measuring device connection	PVC-U / FKM, EPDM	To screw on tank or pipe	561 228
Adapter for conversion of S020 T-fitting to S022 T-fitting				
	Adapter with G 1 1/2" external threaded for ELEMENT measuring device connection	PVC-U / FKM, EPDM	For Bürkert fitting body ≥ DN32 ²⁾	560 854
	Adapter with G 1 1/2" external threaded for ELEMENT measuring device connection	PP / FKM, EPDM	For Bürkert fitting body ≥ DN32 ²⁾	561 230
	Adapter with G 1 1/2" external threaded for ELEMENT measuring device connection	Stainless steel / FKM, EPDM	For Bürkert fitting body ≥ DN32 ²⁾	561 233
INSERTION fitting for connection on pipe				
	Fitting with metric solvent ends connection with G 1 1/2" external threaded for ELEMENT measuring device connection	PVC / FKM	10	559 640
			15	559 641
			20	559 642
			25	559 643
			32	559 644
			40	559 645
			50	559 646
			65	559 647
			80	559 648
			100	559 649
	Fitting with ASTM solvent ends connection with G 1 1/2" external threaded for ELEMENT measuring device connection	PVC / FKM	15	560 815
			20	560 816
			25	560 817
			32	560 818
			40	560 819
			50	560 820
			65	560 821
			80	560 822

¹⁾ 1 FKM and 1 EPDM seals for the measuring device connection are supplied with each adapter.

²⁾ or analytical true union fitting (DN15 - DN25)

Ordering chart for adapter/fitting S022

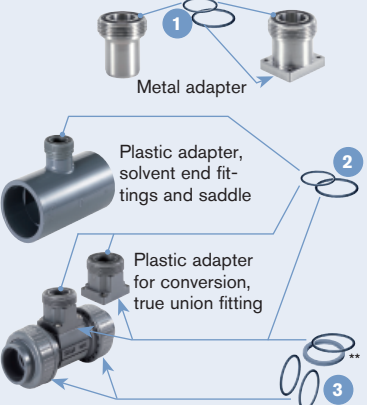
	Description	Materials Body / Seal ¹⁾	Type of installation or DN	Item no.
Insertion fitting for connection on pipe				
	Fitting with metric true union connection with spigot and nut for pipe connection and with G 1 1/2" external threaded for ELEMENT measuring device connection	PVC / FKM	15	560 671
			20	560 672
			25	560 673
			32	560 674
			40	560 675
			50	560 676
	Fitting with ASTM true union connection with spigot and nut for pipe connection and with G 1 1/2" external threaded for ELEMENT measuring device connection	PVC / FKM	15	560 691
			20	560 692
			25	560 693
			32	560 694
			40	560 695
			50	560 696
	Fitting with saddle with G 1 1/2" external threaded for ELEMENT measuring device connection	PP Body & PVC adapter / EPDM	50	560 700
			65	560 701
			80	560 702
			100	560 703
			110	560 704
Measuring chamber				
	Measuring chamber with G 1 1/2" external threaded for ELEMENT measuring device connection	Stainless steel 316L - 1.4404	Pipe connection: G 1/2"	563 552

¹⁾ 1 FKM and 1 EPDM seals for the measuring device connection are supplied with each adapter.

i Further versions on request

Materials
PVC-C, PVDF with FKM or EPDM seal

Ordering chart - accessories for adapter/fitting S022 (has to be ordered separately)

Number on Drawing	Description	Item no.
 Metal adapter Plastic adapter, solvent end fittings and saddle Plastic adapter for conversion, true union fitting ** O-ring to use for holder with lug, Flat seal to use for holder with groove (old version)	Stopper in stainless steel with union nut and O-ring (EPDM and FKM)	562 625
	Stopper in PVC with union nut and O-ring (EPDM and FKM)	562 541
	1 FKM O-ring set - for metal adapter	561 654
1	EPDM O-ring set - for metal adapter	561 653
2	FKM O-ring set - for plastic adapter, solvent end fittings and saddle	561 399
2	EPDM O-ring set - for plastic adapter, solvent end fittings and saddle	561 398
3	FKM O-ring set - for plastic adapter or true union fitting DN15 up DN32	431 558
3	FKM O-ring set - for plastic adapter or true union fitting DN40	431 559
3	FKM O-ring set - for plastic adapter or true union fitting DN50	431 560
3	EPDM O-ring set - for plastic adapter or true union fitting DN15 up DN32	431 564
3	EPDM O-ring set - for plastic adapter or true union fitting DN40	431 565
3	EPDM O-ring set - for plastic adapter or true union fitting DN50	431 566

*To find your nearest Bürkert office, click on the orange box →

In case of special application conditions,
please consult for advice.

Subject to alteration.
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Казань +7 (843) 207-19-05			Ярославль +7 (4852) 67-02-35

сайт: burkert.pro-solution.ru | эл. почта: btk@pro-solution.ru
телефон: 8 800 511 88 70