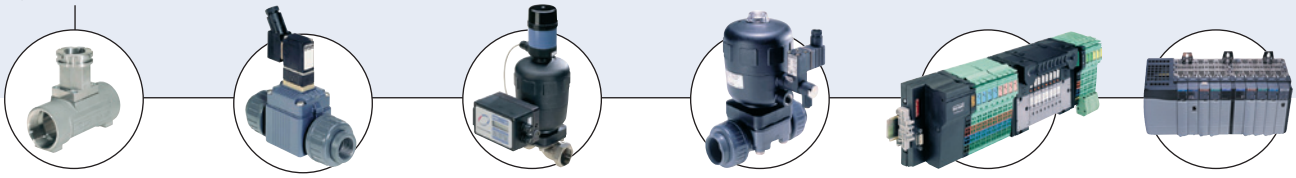
burkert
FLUID CONTROL SYSTEMS

DTS 1000082476 EN Version: C Status: PO (Phase out | Phase out | Phase out) printed: 21.01.2015

Digital inductive conductivity transmitter

- Optimal solution for conductivity measurements in difficult fluids (polluted, dirty,...)
- PEEK/PPA version for CIP applications
- Large range of process connections with various fittings
- Multi language, menu-guided operation

Type 8226 can be combined with...



Type S020
INSERTION fitting

Type 6642
Solenoid valve

Type 2731
Diaphragm valve for continuous control

Type 2030
On/Off Diaphragm valve

Type 8644
Valve islands

PLC

The conductivity transmitter Type 8226 combines a conductivity sensor and an electronic module with a display in an IP65 enclosure. The sensor component consists of a pair of magnetic coils in a PP, PVDF or PEEK housing. The cell constant is an average value over the whole measuring range. It can be re-adjusted depending on application.

The integrated temperature sensor for automatic compensation is a standard feature in the conductivity sensor housing.

The transducer component converts the measured signal and displays the actual value. The conductivity transmitter can be installed into pipe by using INSERTION fitting Type S020 available in stainless steel, brass or plastics.

General data	
Compatibility	with fittings S020 (see corresp. datasheet)
Materials	
Housing, cover, lid, nut	PC glass reinforced fibre (if PVDF sensor) PPA glass reinforced fibre (if PP, PEEK sensor)
Front panel foil	Polyester
Screws	Stainless steel
Cable plug / gland	PA
Wetted parts materials	
Fitting	Brass, stainless steel 1.4404/316L, PVC, PP or PVDF
Sensor holder	PP, PVDF or PEEK
Seal	FKM or EPDM
Display	15 x 60 mm, 8-digit LCD, alphanumeric, 15 segments, 9 mm high
Electrical connections	Cable plug EN 175301-803 or cable glands M 20 x 1.5
Connection cable	shielded cable with 1.5 mm² max. cross-section

Complete device data (fitting + Electronics)	
Pipe diameter	1/2" - 4" *(DN 15 to 200)* (1/2" - 1" for PVC only)
Conductivity measurement	
Measurement type	inductive conductivity measurement
Measuring range	100 µS/cm...2 S/cm (cond.) or 0.5...10 kΩ.cm (resis.)
Accuracy	± 2 % of reading
Temperature measurement	
Measurement type	Numeric measurement
Measuring range	-40°F to 248°F *(-40°C to +120°C)*
Accuracy	0.9°F *(0.5°C)* from 32°F to 238°F *(0°C to 110°C)* and ± 1.8°F *(1°C)* from -40°F to 32°F *(-40°C to 0°C)* and 238°F to 248°F *(110°C to 120°C)*
Temperature compensation	automatic (with standardized integrated temperature sensor) - reference temperature 77°F *(25°C)*
Medium temperature max.	with fitting in PVC: 122°F *(50°C)*, - PP: 176°F *(80°C)* PVDF: 212°F *(100°C)* - stainless steel, brass: 248°F *(120°C)*
Medium pressure max.	85 PSI *(PN6)* (see pressure / temperature chart)

Electrical data	
Power supply	12-30 V DC (regulated and filtered ±5%) or 115/230 V AC
Current consumption	
with sensor	
Transmitter with relays	12 V DC-supply: 150 mA - 24 V DC-supply: 90 mA 115/230 V AC-supply: 150 mA
Transmitter without relay	12 V DC-supply: 70 mA - 24 V DC-supply: 60 mA 115/230 VAC-supply: 150 mA
Output	4-20 mA programmable, proportional to conductivity or temperature max. load: 1000 Ω at 30 V DC; 800 Ω at 24 V DC; 450 Ω at 15 V DC; 330 Ω at 12 V DC;
Relays	2 relays, freely programmable, 3A, 230 V AC

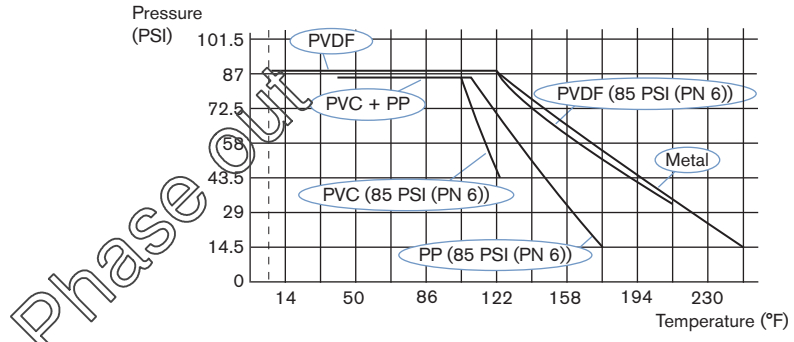
Environment	
Ambient temperature	32°F to 140°F *(0°C to +60°C)* (Operation and storage)
Relative humidity	≤ 80 %, non condensated

Standards, directives and approvals	
Protection class	IP65 with cable plug or cable gland mounted and tightened, blanked if not used
Standard and directives	
EMC	EN 50081-2 (1993), EN 50082-2 (1995)
Security	EN 61010-1 (1995)
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	Forbidden
Fluid group 2, §1.3.a	DN ≤ 4"
Fluid group 1, §1.3.b	DN ≤ 4"
Fluid group 2, §1.3.b	DN ≤ 4"

Pressure / temperature chart



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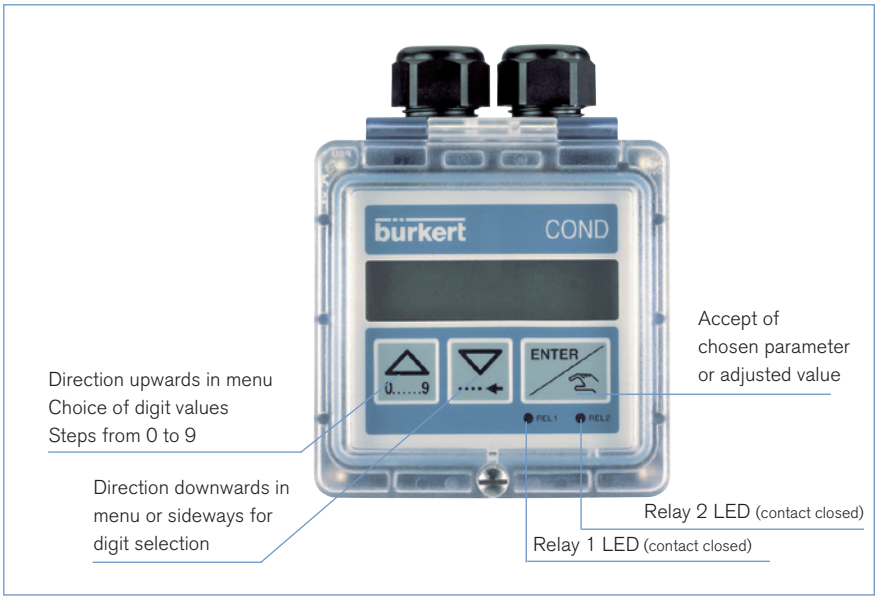
Operation and display

Customized adjustments, such as measuring range, engineering units and alarm setpoints can be carried out menu-supported on site via a multi-lingual display. The operation is classified according to three levels.

Main Menu
- conductivity
- temperature
- output current
- HOLD function

Calibration Menu
- language
- engineering units
- cell constant
- temperature compensation
- measuring range 4-20 mA
- relay function
- filter selection

Test Menu
- Offset
- Span
- Temperature correction
- conductivity non compensated
- simulation of conductivity
- calibration of the zero point



Principle of operation

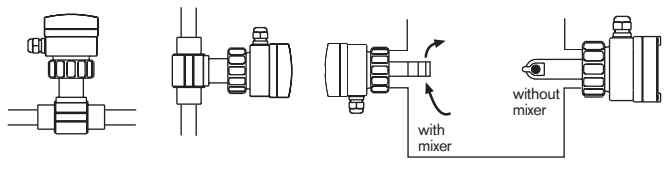
The conductivity is defined as the ability of a solution to conduct electrical current. The load carriers are ions (E.G. dissolved salt or acids). In order to measure conductivity, an AC voltage source is connected to the primary magnetic coil. The magnetic field induced generates a current in the secondary magnetic coil. The intensity of this induced current is a direct function of the conductivity of the solution.

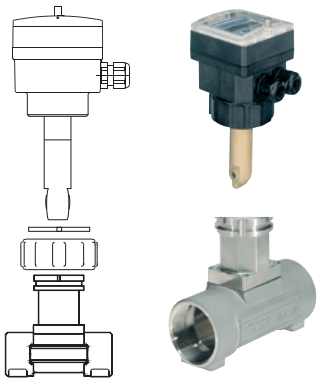
A 4....20 mA standard signal is available as output signal, proportional to the conductivity or the temperature of the fluid. The transmitter is available, in option, with 2 relays.

The transmitter without relay or with 2 additionnal relays (limits values freely adjustable) functions in a three wire circuit and requires a power supply of 12...30 V DC. The device is available with an integrated power supply of 115/230 V AC.

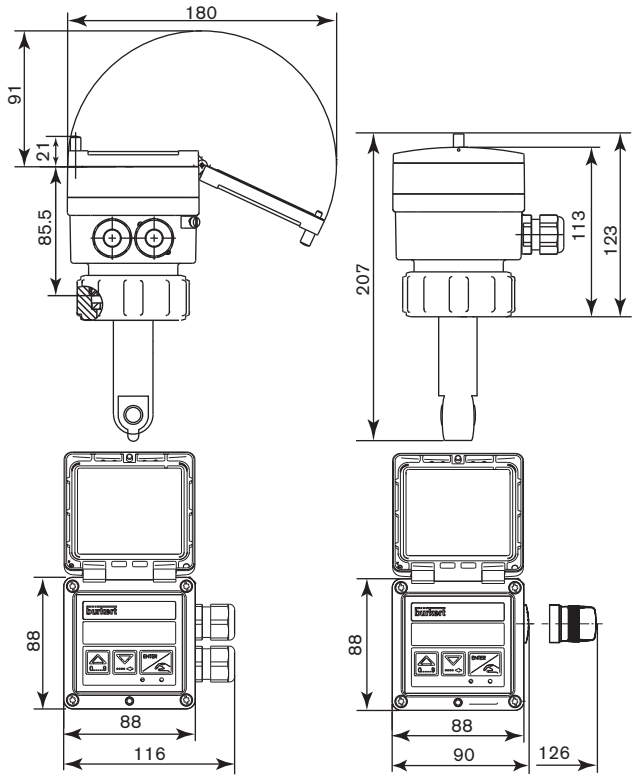
Installation

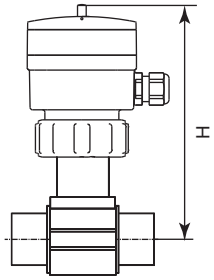
The 8226 conductivity transmitter can be installed into any Bürkert INSERTION fitting (S020).
Select and install the required fitting onto the pipe, according to specific requirements of the sensor and fitting material (temperature and pressure). Then, cautiously install the unit on the fitting, and tighten with the nut. The transmitter can be installed in any position. In order to get a reliable measurement, air bubbles must be avoided. The transmitter must be protected from constant heat radiation and other environmental influences, such as direct exposure to sunlight.





Dimensions [mm]





Orifice	H		
	T-Fitting	Plastic spigot*	St. St. spigot
15	187		
20	185		
25	185		
32	188		
40	192		
50	198		193
65	198	206	199
80		212	204
100		219	214
110			
125			225
150			236
180			
200			257

* using fusion spigot (Item no. 418652, 418660 or 418644 in PP, PVDF or PE) for orifice DN 65-100

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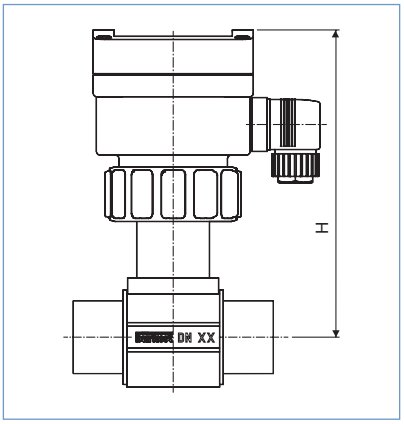
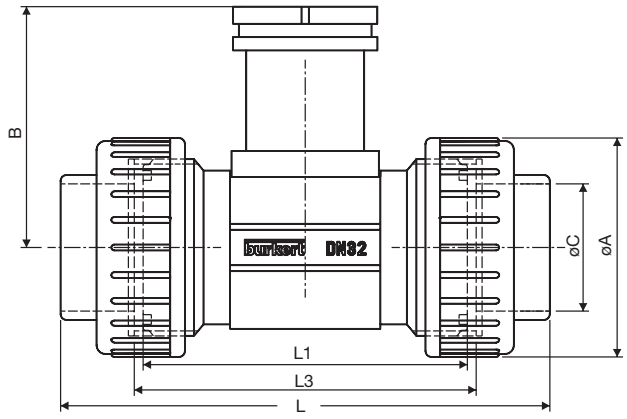
Dimensions [mm] – fitting S020, 1 1/4" – 2" (DN 32 – 50) for transmitter 8226



Variable Dimensions [mm]		
Port	DN	H
1 1/4"	32	176.78
1 1/2"	40	177.80
2"	50	183.90

Applicable for all fitting materials
1 1/4" to 2" (DN 32–50) process connections.

True Union – PVC, PP, PVDF



Compact Version– Dimensions [mm] True Union									
Port	DN	B	A	L		C		L1	L3
				DIN	ASTM	DIN	ASTM		
1 1/4"	32	81.4	74	168	170.0	40	42.2	110	116
1 1/2"	40	85.2	83	188	190.2	50	48.3	120	127
2"	50	91.5	103	212	213.6	63	60.3	130	136

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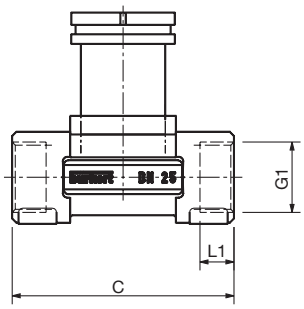
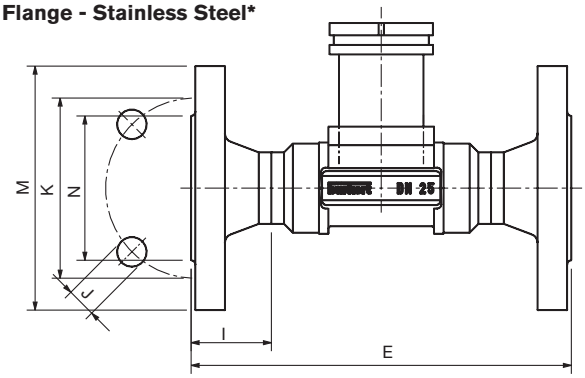
Dimensions [mm] – fittings S020, 1 1/4" – 2" (DN 32 – 50)

Female Threaded Port - Stainless Steel / Brass



Material Stainless Steel: DIN 1.4404; BS 316L

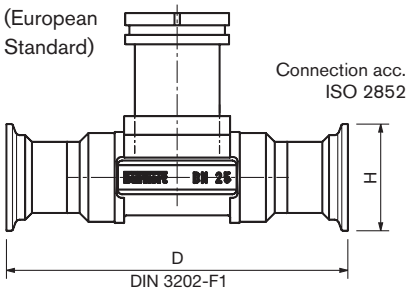
Flange - Stainless Steel*



Material: B.S. 316 L

Clamp**
(European Standard)

Connection acc. ISO 2852



Material: B.S. 316 L

Compact Version– Dimensions [mm]													
Port	DN	Length Dimensions			Thread		Clamp	Flange Dimensions					
		C	D	E	G1	L1	H	Norm*	I	J	K	M	N
1/14"	32	120	180	180	NPT 1 1/4	21.0	50.5	ANSI	31.0	4 X 15.8	88.9	117	63.5
1 1/2"	40	130	200	200	NPT 1 1/2	20.0	64.0	ANSI	36.0	4 X 15.8	98.4	127	73.0
2"	50	150	230	230	NPT 2	24.0	77.5	ANSI	41.0	4 X 19.0	120.6	152	92.1

* Flange: ANSI B16–5–1988, length according to DIN 3201–F1
** U.S. Clamp available upon request

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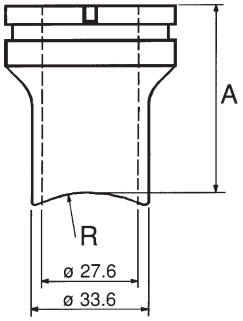
Dimensions [mm] – fitting S020, 2 1/2" – 4" (DN 65 – 100)

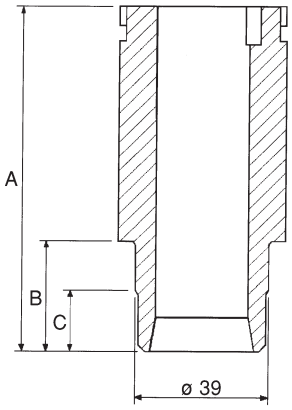
Weld–o–Let Fittings with Radius – Stainless Steel

Material: 316L (B.S.)



Variable Dimensions [mm]			
Port	DN	A	R
2 1/2"	65	54.5	36.7
3"	80	53.1	44.5
4"	100	50.7	57.2

Weld–o–Let Fittings – PE, PP, PVDF*

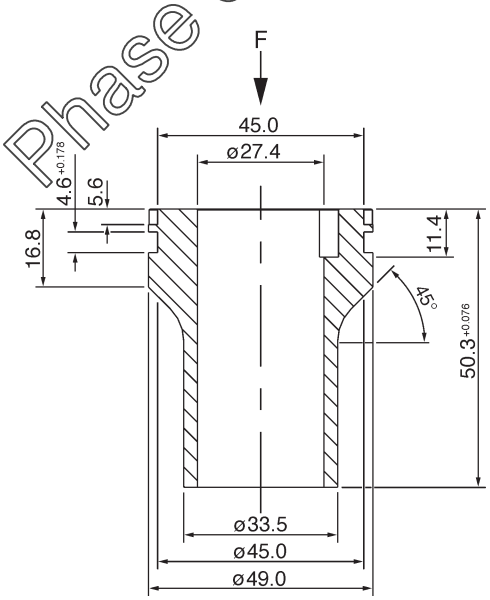


Variable Dimensions [mm]							
(DN)	A	PE		PP		PVDF	
B	C	B	C	B	C	B	C
65 - 100	72.5	13	-	13	-	10.4	-

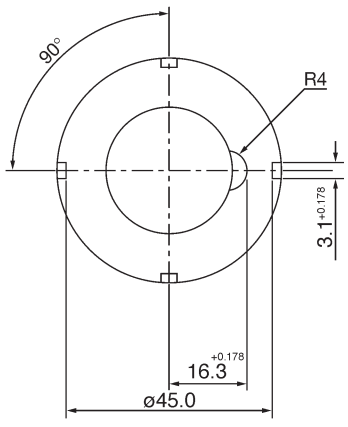
*For metric pipe only.

Weld–o–Let Fittings for Side–Wall Mounting

Phase Out



View F



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Ordering chart for compact conductivity transmitter Type 8226

A compact conductivity transmitter Type 8226 consists of:
- an INSERTION conductivity transmitter 8226
- an INSERTION fitting Type S020 (DN15 - DN 200) (Refer to corresponding datasheet - has to be ordered separately)

Specifications	Voltage supply	Output	Relays	Electrode holder version	Seal	Electrical connection	Item no.
Compact[1)]	12-30 V DC	4-20 mA	None	PP	FKM	EN 175301-803	558 768
						2 cable glands	558 769
				PVDF	FKM	EN 175301-803	431 673
						2 cable glands	431 674
				PEEK	EPDM	EN 175301-803	440 321
						2 cable glands	440 322
			2	PP	FKM	2 cable glands	558 770
				PVDF	FKM	2 cable glands	431 679
				PEEK	EPDM	2 cable glands	440 324
	115/230 V AC	4-20 mA	None	PP	FKM	2 cable glands	558 771
				PVDF	FKM	2 cable glands	431 677
				PEEK	EPDM	2 cable glands	440 323
			2	PP	FKM	2 cable glands	558 772
				PVDF	FKM	2 cable glands	431 681
				PEEK	EPDM	2 cable glands	440 325

[1)] 1 Kit including a black EPDM gasket for the sensor, an obturator for an M20 x 1.5 cable gland, a 2 x 6 mm multiway seal and a mounting instruction sheet is supplied with each transmitter with cable glands or 1 Kit including a green FKM and a black EPDM gaskets is supplied with each transmitter with connection EN175301-803.

Ordering data for brass fittings Type S020

Specifications	Diameters	Materials	Item no.
Brass – Female NPT–Threaded Ports	1 1/4" (DN 32)	Brass, FKM	428 721
	1 1/2" (DN 40)	Brass, FKM	428 722
	2" (DN 50)	Brass, FKM	428 723

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Ordering data for plastic fittings Type S020

Specifications	Diameters	Materials	Item no.
PP – True Union with Metric Weld Ends	DN 32	PP, FKM	428 691
	DN 40	PP, FKM	428 692
	DN 50	PP, FKM	428 693
PP – Weld–o–Let	DN 65 – 100	PP	418 650
PVDF – True Union with Weld Ends	DN 15	PVDF, FKM	430 843
	DN 40	PVDF, FKM	428 704
	DN 50	PVDF, FKM	428 705
PVDF – Weld-o-Let	DN 65 – 100	PVDF	418 658
PVC – True Union ASTM	1/2" (DN 15)	PVC, FKM	550 154
	3/4" (DN 20)	PVC, FKM	550 155
	1" (DN 25)	PVC, FKM	550 156
	1 1/4" (DN 32)	PVC, FKM	428 685
	1 1/2" (DN 40)	PVC, FKM	428 686
	2" (DN 50)	PVC, FKM	428 687
PE – Weld–o–Let	DN 65 – 100	PE	418 642
PVC – Saddles	2 1/2" (DN 65)	PVC, NBR	413 469
	3" (DN 80)	PVC, NBR	413 470
	4" (DN 100)	PVC, NBR	98146019

Ordering data for stainless steel fittings Type S020

Specifications	Diameters	Materials	Item no.
SS – Female NPT–Threaded Ports	1 1/4" (DN 32)	SS, FKM	428 745
	1 1/2" (DN 40)	SS, FKM	428 746
	2" (DN 50)	SS, FKM	428 747
SS – European Tri–Clamp (ISO 2852)	DN 32	SS, FKM	428 769
	DN 40	SS, FKM	428 770
	DN 50	SS, FKM	428 771
SS – ANSI Flanges (ANSI B16–5–1988)	1 1/4" (DN 32)	SS, FKM	428 781
	1 1/2" (DN 40)	SS, FKM	428 782
	2" (DN 50)	SS, FKM	428 783
SS – Weld-o-Let	2 1/2" (DN 65)	SS	418 112
	3" (DN 80)	SS	418 113
	4" (DN 100)	SS	418 114
SS – Weld-o-Let for Side–Wall Mounting	—	SS	415 294

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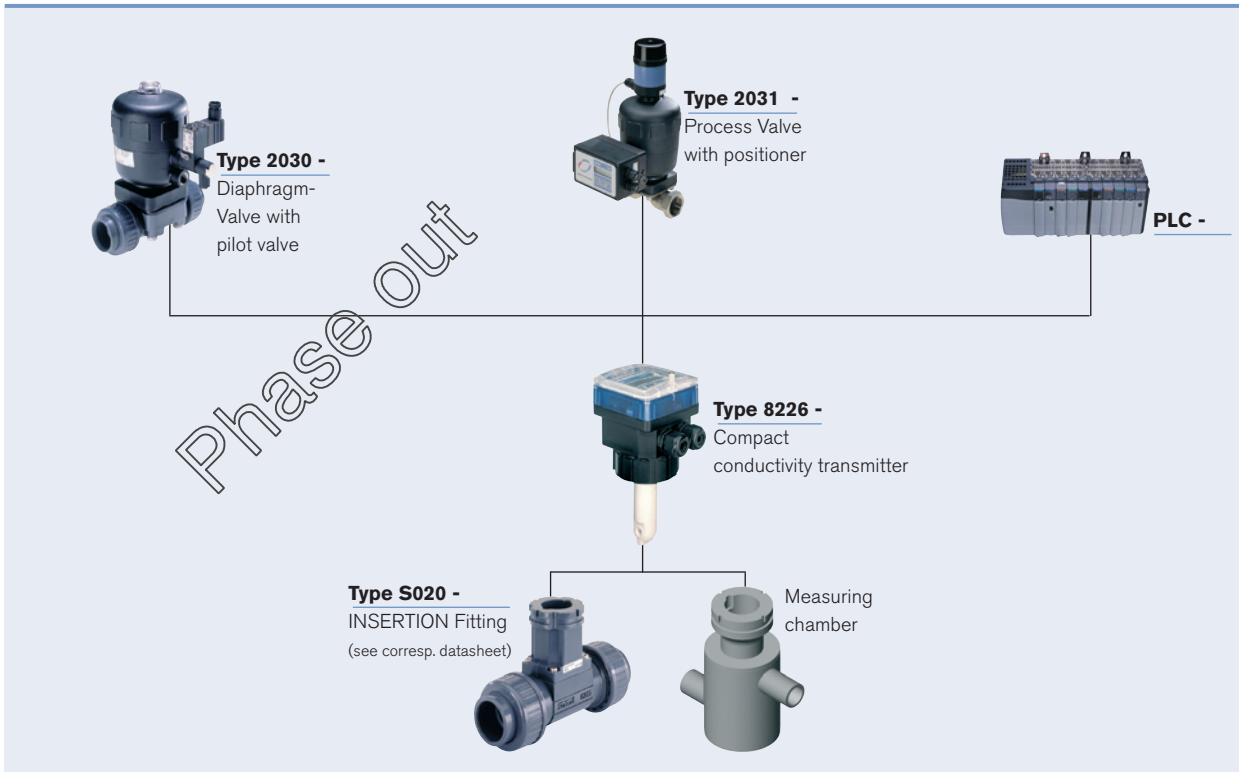
Ordering chart for accessories for conductivity transmitter Type 8226

Description	Item no.
Set with 2 cable glands M20 x 1.5 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5 + 2 multiway seals 2 x 6 mm	449 755
Set with 2 reductions M20 x 1.5 / NPT1/2" + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5	551 782
Set with 1 stopper for unused cable gland M20 x 1.5 + 1 multiway seal 2 x 6 mm for cable gland + 1 black EPDM gasket for the sensor + 1 mounting instruction sheet	551 775
Set with 1 green FKM + 1 black EPDM gaskets	552 111
Ring	619 205
PC - nut	619 204
Inductive conductivity sensor in PP	558 794
Inductive conductivity sensor in PVDF	427 139
Inductive conductivity sensor in PEEK	440 230
Cable plug EN 175301-803 with cable gland (Type 2508)	438 811
Cable plug EN 175301-803 with NPT1/2" reduction (Type 2509) - UR and UL approval	162 673
Factory 2-point conductivity calibration certificate	550 675
Measuring chamber stainless steel 316L (1.4404)[1)] with G 1/2" connection thread	553 611

1) other materials on request

Interconnection possibilities with other Bürkert devices



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