

## CCP-P-200P



- electronic pressure switch
- nominal pressure: from 0...100 mbar up to 0...40 bar
- 1 or 2 independent PNP contacts, freely configurable
- output signals: 2-wire: 4...20mA; 3-wire: 4...20mA / 0...10V
- flush welded stainless steel sensor
- accuracy 0.35 % / 0.25 % span
- indication of measured values on a 4-digit LED display
- rotatable and configurable display module
- optional: cooling element up to 300°C, configurable contacts

The electronic pressure switch **CCP-P-200P** is the successful combination of intelligent pressure switch and digital display and is suitable for the usage with viscous and pasty media. As standard the CCP-P-200P offers a PNP contact and a rotatable display module with 4-digit LED display. Optional versions like e.g. an analogue output complete the profile.

## PREFERRED AREAS OF USE ARE



Food industry



Pharmacy

## TECHNICAL DATA

Input pressure range <sup>1</sup>																
Nominal pressure gauge <sup>1</sup>	[bar]	-1 ... 0*	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6	10	16	25	40
Nominal pressure abs.*	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6	10	16	25	40
Overpressure	[bar]	5	0.5	1	1	2	5	5	10	10	20	40	40	80	80	105
Burst pressure	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120	210
Vacuum resistance		P <sub>N</sub> < 1 bar: unlimited vacuum resistance										P <sub>N</sub> < 1 bar: on request				

<sup>1</sup> consider the pressure resistance of fitting and clamps<sup>\*</sup>for 0 ... 1 bar abs. or -1 ... 0 bar gauge max. temperature 70°C

Contact <sup>2</sup>															
Standard	1 PNP contact														
Options	2 independent PNP contacts														
Max. switching current	4 ... 20 mA / 2- and 3-wire: contact rating 125 mA, short-circuit resistant; V <sub>Switch</sub> = V <sub>s</sub> - 2V 0 ... 10 V / 3-wire: contact rating 125 mA, short-circuit resistant														
Accuracy of contacts <sup>3</sup>	standard: P <sub>N</sub> < 0.4 bar: ± 0.5 % span option: P <sub>N</sub> 0.4 bar: ± 0.25 % span														
Repeatability	± 0.1 % span														
Switching frequency	max. 10 Hz														
Switching cycles	> 100 x 10 <sup>6</sup>														
Delay time	0 ... 100 sec														
<sup>2</sup> max. 1 contact for 2-wire current signal with plug ISO 4400 no contact possible with 3-wire in combination with plug ISO 4400															
<sup>3</sup> accuracy according to EN IEC 62828-2 – limit point adjustment (non-linearity, hysteresis, repeatability)															
Analogue output (optionally) / Supply															
2-wire current signal	4 ... 20 mA / V <sub>s</sub> = 13 ... 36 V <sub>DC</sub> permissible load: R <sub>max</sub> = [(V <sub>s</sub> - V <sub>s min</sub> ) / 0.02 A] W														
3-wire current signal	4 ... 20 mA / V <sub>s</sub> = 19 ... 30 V <sub>DC</sub> adjustable (turn-down of span 5:1) <sup>4</sup> permissible load: R <sub>max</sub> = 500 W														
3-wire voltage signal	0 ... 10 V / V <sub>s</sub> = 15 ... 36 V <sub>DC</sub> permissible load: R <sub>min</sub> = 10 kW														
Without analogue output	V <sub>s</sub> = 15 ... 36 V <sub>DC</sub>														
Accuracy <sup>3</sup>	standard: P <sub>N</sub> < 0.4 bar: ± 0.5 % span option: P <sub>N</sub> 0.4 bar: ± 0.25 % span														
<sup>4</sup> with turn-down of span the analogue signal is adjusted automatically to the new measuring range															



**Thermal errors (O set and Span)<sup>5</sup> / Permissible temperatures**

Nominal pressure P <sub>N</sub> [bar]	-1 ... 0	< 0.40	0.40
Tolerance band [% span] in compensated range [°C]	± 0.75 -20 ... 85	± 1.5 0 ... 50	± 0.75 -20 ... 85
Permissible temperatures	medium <sup>6</sup> : electronics / environment: storage:	-40 ... 125 °C for filling fluid silicon oil -10 ... 125 °C for filling fluid food compatible oil -40 ... 85 °C -40 ... 100 °C	
Permissible temperature medium for cooling element <sup>7</sup>	filling fluid silicon oil filling fluid food compatible oil	overpressure: -40 ... 300 °C overpressure: -10 ... 250 °C	vacuum: -40 ... 150 °C <sup>8</sup> vacuum: -10 ... 150 °C <sup>8</sup>

<sup>5</sup> an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions.<sup>6</sup> max. temperature of the medium for nominal pressure gauge > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C<sup>7</sup> max. temperature depends on the used sealing material, type of seal and installation<sup>8</sup> also for P<sub>abs</sub> ≤ 1 bar**Electrical protection**

Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

**Mechanical stability**

Vibration	5 g RMS (25 ... 2000 Hz)	according to DIN EN 60068-2-6
Shock	100 g / 11 msec	according to DIN EN 60068-2-27

**Filling fluids**

Standard	silicon oil
Options	food compatible oil (with FDA approval) (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request

**Materials**

Pressure port / Housing	stainless steel 1.4404 (316 L)	others on request
Display housing	PA 6.6, Polycarbonate	

Seals (media wetted)	standard: FKM (recommended for medium temperatures 200 °C) option: FFKM (recommended for medium temperatures < 260 °C) clamp and dairy pipe: without
Diaphragm	standard: stainless steel 1.4435 (316 L) option: Hastelloy® C-276 (2.4819); Tantalum on request

Media wetted parts	pressure port, seals, diaphragm
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**Miscellaneous**

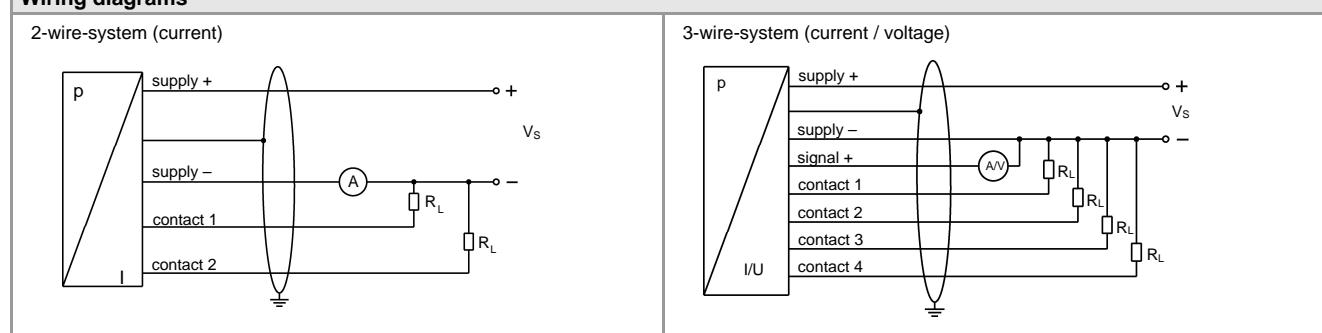
Display	4-digit, red 7-segment-LED display, digit height 7 mm, range of indication -1999 ... +9999; accuracy 0.1 % ± 1 digit; digital damping 0.3 ... 30 sec (programmable); measured value update 0.0 ... 10 sec (programmable)
EHEDG certificate Type EL Class I	EHEDG conformity is only ensured in combination with an approved seal. This is e.g. for - Clamp (C61, C62, C63): T-ring-seal from Combifit International B.V. - Varivent (P41): EPDM-O-ring which is FDA-listed - dairy pipe (M73, M75, M76): ASEPTO-STAR k-flex upgrade seal by Kieselmann GmbH

Current consumption (without contacts)	2-wire signal output current: max. 25 mA 3-wire signal output current: approx. 45 mA + signal current 3-wire signal output voltage: approx. 45 mA
Ingress protection	IP 65

Installation position	any (standard calibration in a vertical position with the pressure port connection down; different installation position for P <sub>N</sub> 2 bar have to be specified in the order)
Surface roughness	pressure port R <sub>a</sub> < 0.8 µm (media wetted parts) diaphragm R <sub>a</sub> < 0.15 µm weld seam R <sub>a</sub> < 0.8 µm

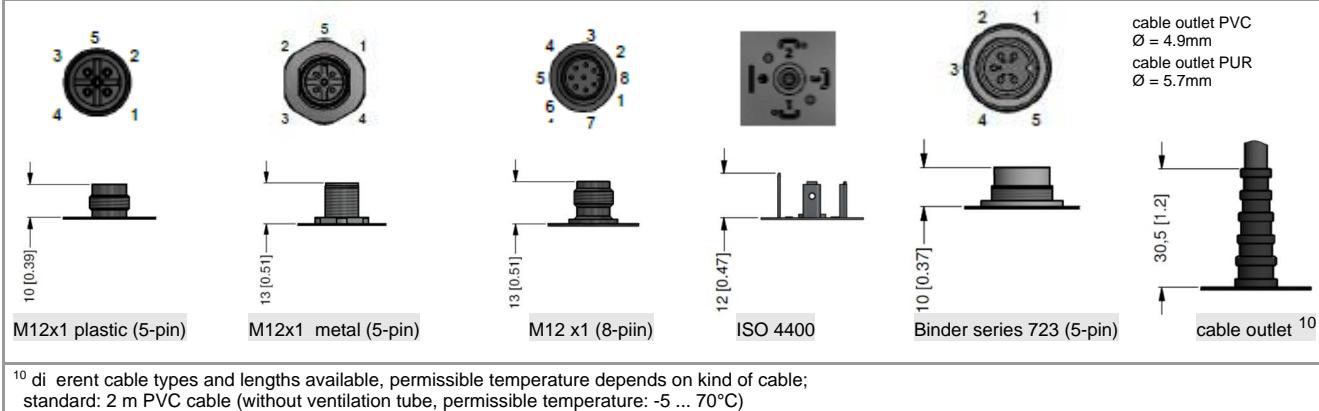
Weight	approx. 160 ... 250 g
Operational life	> 100 x 10 <sup>6</sup> cycles

CE-conformity	EMC Directive: 2014/30/EU
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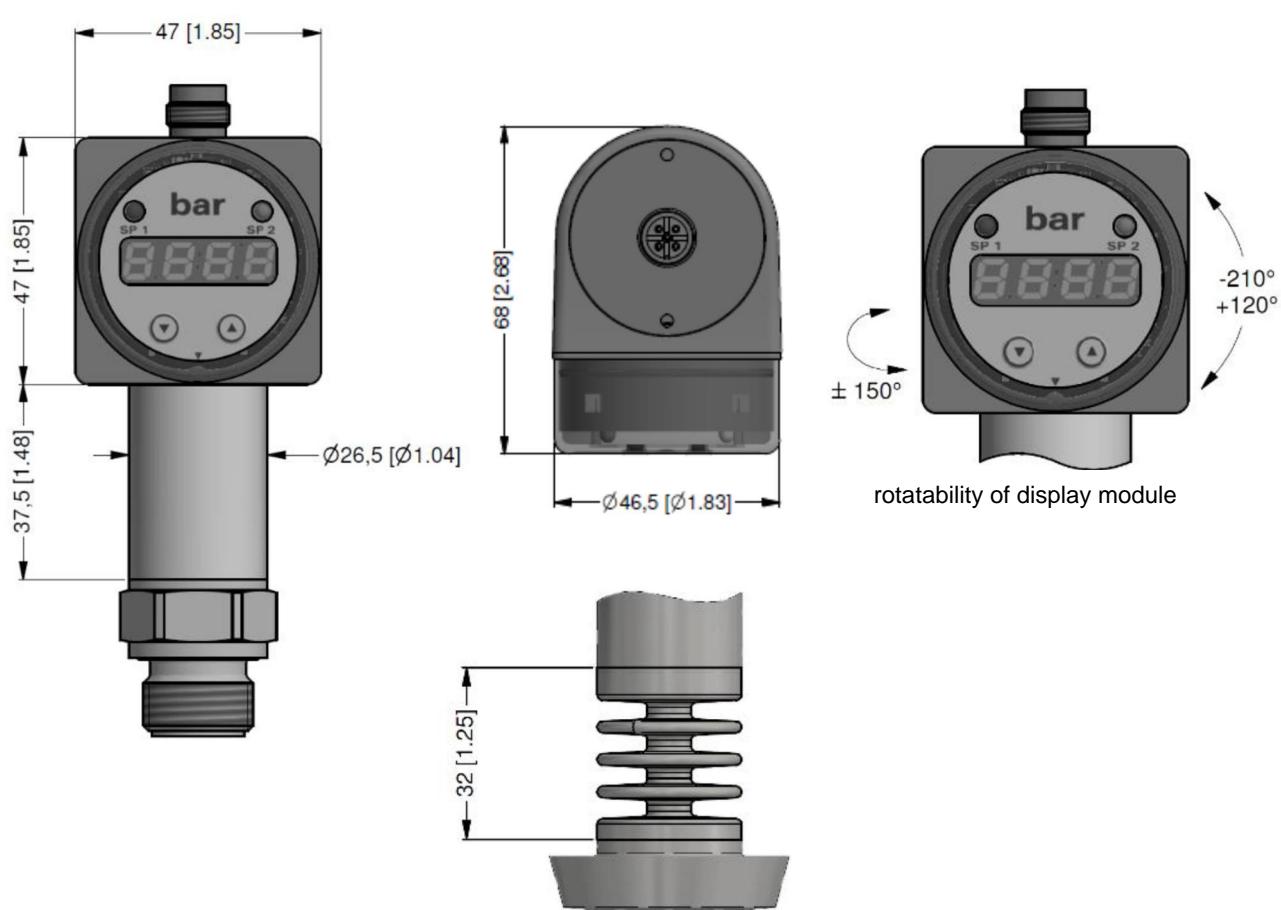
**ELECTRICAL CONNECTION****Wiring diagrams**

**Pin configuration**

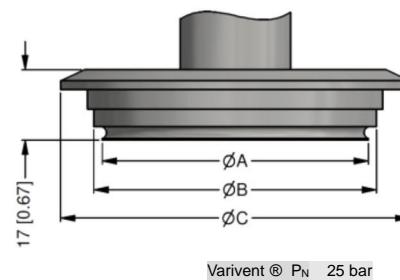
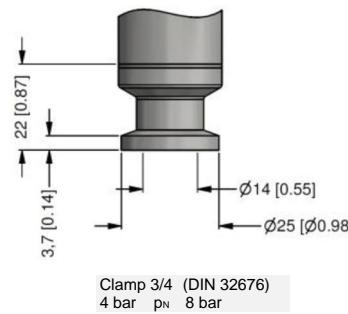
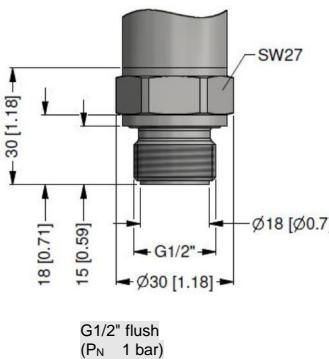
Electrical connection	M12x1 plastic (5-pin)	M12x1 metal (5-pin)	M12x1 plastic (8-pin)	ISO 4400	Binder series 723 (5-pin)	cable colours (DIN 47100)
Supply +	1		1		1	wh (white)
Supply -	3	3	3	2	3	bn (brown)
Signal + (only 3-wire)	2	2	2	3	2	gn (green)
Contact 1	4	4	4	3	4	gy (grey)
Contact 2	5	5	5	-	5	pk (pink)
Contact 3	-	-	6	-	-	-
Contact 4	-	-	7	-	-	-
Shield	via pressure port	plug housing/ pressure port	via pressure port	ground con- tact	plug housing/ pressure port	ye/gn (yellow / green)

**Electrical connections (dimensions in mm)**

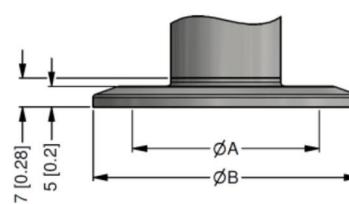
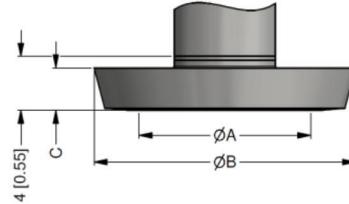
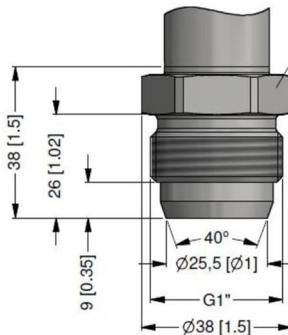
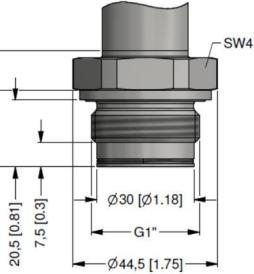
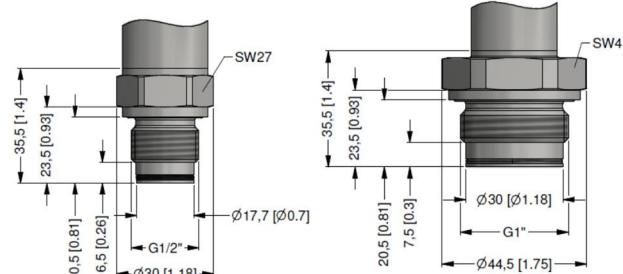
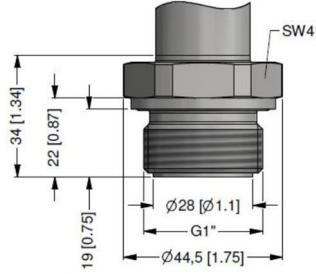
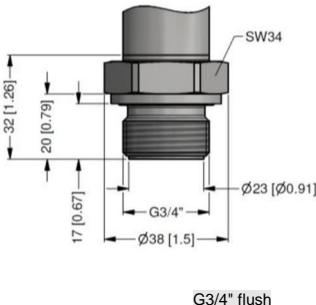
<sup>10</sup> different cable types and lengths available, permissible temperature depends on kind of cable;  
standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70°C)

**DIMENSION DRAWINGS**

## MECHANICAL CONNECTION



dimensions in mm [in]	
size	DN 40/50
A	64 [2.52]
B	68 [2.68]
C	84 [3.31]



dimensions in mm		
size	DN 25	DN 40
A	23	32
B	44	56
C	10	10
$P_N$ [bar]	0,25 40	0,25 40

dimensions in mm			
size	3/4"	DN 25	DN 32
A	14	23	32
B	25	50,5	50,5
$P_N$ [bar]	4 8	0,25 16	16

metric threads and other versions on request



## ORDER CODE

CCP-P-200P-		<input type="checkbox"/>												
<b>Pressure</b>		<input type="checkbox"/>												
Gauge		7	8	5										
Absolute		7	8	6										
<b>Input [bar]</b>		<input type="checkbox"/>												
0 ... 0,1					1	0	0	0						
0 ... 0,16					1	6	0	0						
0 ... 0,25					2	5	0	0						
0 ... 0,4					4	0	0	0						
0 ... 0,6					6	0	0	0						
0 ... 1					1	0	0	1						
0 ... 1,6					1	6	0	1						
0 ... 2,5					2	5	0	1						
0 ... 4					4	0	0	1						
0 ... 6					6	0	0	1						
0 ... 10					1	0	0	2						
0 ... 16					1	6	0	2						
0 ... 25					2	5	0	2						
0 ... 40					4	0	0	2						
-1 ... 0					X	1	0	2						
Customer		9	9	9										
Customer - underpressure		X	X	X	X									
<b>Analogue output</b>		<input type="checkbox"/>												
4 ... 20 mA / 2-wire								1						
0 ... 20 mA / 3-wire								2						
0 ... 10 V / 3-wire								3						
4 ... 20 mA / 3-wire								7						
Customer								9						
<b>Switching output</b>		<input type="checkbox"/>												
Without switching contact								0						
1 switching contact (3-wire output only with 5-pin connector) <sup>1</sup>								1						
2 switching contacts (only with 5-pin connector) <sup>1</sup>								2						
<b>Accuracy</b>		<input type="checkbox"/>												
0,5 % ( $P_N < 0,4$ bar)								5						
0,35 % ( $P_N > 0,4$ bar)								3						
0,25 % ( $P_N > 0,4$ bar)								2						
0,5 % including Calibration Certificate ( $P_N < 0,4$ bar)								T						
0,35 % including Calibration Certificate ( $P_N > 0,4$ bar)								S						
0,25 % including Calibration Certificate ( $P_N > 0,4$ bar)								R						
Table of measured values for accuracy 0,5 %								N						
Table of measured values for accuracy 0,35 %								M						
Customer								9						
<b>Electrical connection</b>		<input type="checkbox"/>												
Connector DIN 43650 (ISO 4400) (IP 65) <sup>1</sup>								1	0	0				
Cable gland PG7 / cable length specify (IP 65)								4	0	0				
+ PVC cable / 1 m														
Connector M 12 x 1 (5-pin) (IP 65)								N	0	1				
Connector M 12 x 1 (5-pin) (IP 65) - metal								N	1	1				
Binder series 723 (5-pin) (IP 65)								A	0	0				
Customer								9	9	9				
<b>Mechanical connection</b>		<input type="checkbox"/>												
G 1/2" DIN 3852 ( $P_N > 2,5$ bar) (only with seals)								Z	0	0				
M 20 x 1,5 DIN 3852 ( $P_N > 2,5$ bar) (only with seals)								D	0	4				
G 3/4" DIN 3852 ( $P_N > 0,6$ bar) (only with seals)								Z	3	0				
G 1" DIN 3852 ( $P_N > 0,25$ bar) (only with seals)								Z	3	1				
G 1 1/2" DIN 3852 (only with seals)								Z	3	3				
G 2" DIN 3852								Z	3	4				
G 1" DIN 3852 flush 2x O ring ( $P_N > 0,25$ bar)								Z	5	7				
G 1/2" DIN 3852 flush 2x O ring ( $P_N > 1$ bar)								Z	6	1				
G 3/4" DIN 3852 flush 2x O ring ( $P_N > 1$ bar)								Z	6	6				
1/8" - 27 NPT (without seals, monel pressure port, tantal membrane)								Z	9	2				
G1" cone seal (without seals)								K	3	1				
Clamp DN 3/4" (4 bar < $P_N <$ 8 bar) (without seals)								C	6	8				
Clamp DN 1" (DN 25) (0,4 bar < $P_N <$ 16 bar) (without seals)								C	6	1				
Clamp DN 1 1/2" (DN 32) (0,4 bar < $P_N <$ 16 bar) (without seals)								C	6	2				
Clamp DN 2" (DN 50) (0,4 bar < $P_N <$ 16 bar) (without seals)								C	6	3				
DIN 11851 DN 25 ( $P_N > 0,6$ bar) (without seals) <sup>2</sup>								M	7	3				
DIN 11851 DN 40 ( $P_N > 0,4$ bar) (without seals) <sup>2</sup>								M	7	5				
DIN 11851 DN 50 ( $P_N > 0,25$ bar) (without seals) <sup>2</sup>								M	7	6				
"sandwich" DN 25 (without seals)								S	6	1				



"sandwich" DN 50 (without seals)	S	7	6
"sandwich" DIN 2501 DN 80 (without seals)	S	8	0
M 22 x 1,5 DIN 3852 ( $P_N > 2,5$ bar) (only with seals)	D	1	5
Flange DN 25/PN 40 DIN 2501 (without seals)	F	2	0
Flange DN 40/PN 40 DIN 2501 (without seals)	F	2	2
Flange DN 50/PN 40 DIN 2501 (without seals)	F	2	3
Flange DN 80/PN 16 DIN 2501 (without seals)	F	1	4
Flange DN 100/PN 16 DIN 2501 (without seals)	F	2	5
Varivent® DN 40/50 (without seals)	P	4	1
Customer		9	9
<b>Diaphragm</b>			
Stainless steel 1.4435			1
Hastelloy ® C-276 (2.4819)			H
Tantalum			T
Customer			9
<b>Seals - wetted media (only for inch thread)</b>			
Without seals (Clamp, dairy pipe DIN, sandwich, flange, varivent)			0
Viton (FKM)			1
EPDM			3
FFKM			7
Customer			9
<b>Filling Fluids</b>			
Silicone oil			1
Edible oil for foodstu industry (temperature max. 150 °C)			2
Halocarbon			C
Customer			9
<b>Special version</b>			
Standard		0	0
With cooling element from 125 °C up to 150 °C		1	5
With cooling element from 150 °C up to 300 °C (max. 200 °C permanent)		2	0
Customer		9	9

1 - with connector ISO 4400 and output 2-wire version only max. 1 contact possible; with 3-wire version no contact possible

Manufacture of the first 1000 units of the new model will be completed by June 30.

3.1 prot.