

APZ 3420 s

SANITARY PRESSURE TRANSMITTER WITH FLUSH DIAPHRAGM



DESCRIPTION

APZ 3420 s is a sanitary version of our standard pressure transmitter with the flush diaphragm. All-welded design and smooth surfaces ensure absence of zones for potential contaminants collection. Process connection options of taper socket with grooved union nut as per DIN 11851 and clamping socket as per DIN 32676 provide quick disconnection for diaphragm cleaning. Optionally, APZ 3420 s can be equipped with a heat sink element for high temperature media applications.

SPECIFICATIONS

Pressure ranges: 100 mbar to 40 bar

Basic accuracy: up to $\pm 0.25\%$

Outputs: 4...20 mA (Ex ia optional); 0...20 mA; 0...10 V; 0...5 V; HART®; RS-485 / Modbus RTU; other

Sensor: silicon piezoresistive

Pressure port: taper socket with grooved union per as DIN 11851, clamping socket as per DIN 32676, Tri-Clamp; other

Fill fluid: Food grade oil, FDA approved*

Media temperature: -40...+125 °C (up to +300 °C with heat sink option)

Ambient temperature: -40...+85 °C

Optional: field housing with/without graphics display

Optional: heat sink (up to +300 °C)

Optional: pressure port with optional capillary tube

APPLICATIONS

Food and beverage plants

Pharmaceutical plants

Biotechnology industry

Cosmetics manufacturing

* Upon request

Appearance, mounting kit contents and/or specifications are subject to change without prior notice. We are constantly working on further improvement of our products.
Delivery is subject to standard terms of delivery.
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TECHNICAL SPECIFICATIONS

MEASURING RANGES

Pressure range, bar		Overpressure, bar	Burst pressure, bar	Pressure range, bar		Overpressure, bar	Burst pressure, bar
Gauge	Absolute			Gauge	Absolute		
-1...0	-			0...2.5	0...2.5	6.0	8.0
0...0.1	-	1.0	1.5	0...4.0	0...4.0	15	20
0...0.16	-	1.0	1.5	0...6.0	0...6.0	15	20
0...0.25	0...0.25	1.0	1.5	0...10	0...10	30	40
0...0.40	0...0.40	1.0	1.5	0...16	0...16	60	80
0...0.60	0...0.60	3.0	4.0	0...25	0...25	60	80
0...1.0	0...1.0	3.0	4.0	0...40	0...40	100	150
0...1.6	0...1.6	6.0	8.0				

PERFORMANCE	P > 0.4 bar	P ≤ 0.4 bar
Accuracy, % of span*	≤ ±0.25 (standard) / 0.20 (option)	≤ ±0.5 (standard)
Temperature effect (% of span / 10 °C)	≤ ±0.15	≤ ±0.25
Compensated range	-20...+80 °C	0...+80 °C
Compensated range (option)	-40...+60 °C	-40...+60 °C
Power supply effect	≤ ±0.05% of span / 10 V	
Load resistance effect	≤ ±0.05% of span / kOhm (transmitters with current output)	
Long-term stability	≤ ±0.1% of span / year	
Response time (10 ... 90%)	≤ 5 ms with analog output, ≤ 200 ms with digital output	

* Accuracy includes non-linearity, hysteresis and non-repeatability.

OPERATING CONDITIONS

Medium temperature	-40...+125 °C; option: -20...+150 °C, 0...+300 °C (depends on diaphragm seal design and fill fluid)		
Ambient temperature	-40...+85 °C		
Storage temperature	-40...+85 °C		
Approval	0Ex ia IIC T6...T4 Ga X		
Temperature class	T4	T5	T6
Ambient temperature	-20...+80 °C	-20...+60 °C	-20...+50 °C
Vibration resistance	10 g RMS, 20–2000 Hz		
Shock resistance	100 g / 11 ms		
Service life	> 100 x 10 ⁶ cycles		

MECHANICAL SPECIFICATIONS

Pressure port material	stainless steel 316L (1.4404)
Housing material	stainless steel 316L (1.4404)
Seal	FKM; EPDM; NBR
Diaphragm	stainless steel 316L (1.4435)
Wetted parts	diaphragm, process connection, seals
Pressure port	clamping socket as per DIN 32676: DN 25 (1") / DN 40 (1 1/2") / DN 50 (2"); taper socket with grooved union as per DIN 11851: DN 25 / DN 40 / DN 50; G 1" DIN 3852 Flush diaphragm, EHEDG

Electrical connection	Ingress protection	Cross section	Cable diameter
DIN 43650A (4 pin)	IP65	1.5 mm ²	6...8 mm
Binder 723 (5 pin)	IP67	0.75 mm ²	6...8 mm
M12x1 (5 pin)	IP67	0.75 mm ²	6...8 mm
Buccaneer (4 pin)	IP68	1.5 mm ²	6...8 mm
Cable gland, M12x1.5	IP67	0.14 mm ²	5 mm
Cable gland, stainless steel	IP68	0.14 mm ²	7.5 mm
Field housing, cable gland M20x1.5	IP67	1.5 mm ²	7...10 mm

DIGITAL DISPLAY (only for field housing version)

Display type	OLED 128x64 pixels (30x16 mm)
Displayed units	bar, mbar, MPa, kPa, Pa, psi, mmHg, mWc, ftH ₂ O, %, mA, user
Displayed values range	-1999...9999
Display accuracy	0.1 % of span ± 1 digit
Settling time	< 1 s (with damping disabled)
Damping	0.3...30 s (programmable)

ELECTRICAL SPECIFICATIONS

Output signal	Power supply, U _s	Load resistance, R	Power consumption
4...20 mA / 2-wire	12...36 V	$\leq [(U_s - 12 \text{ V}) / 0.02 \text{ A}] \text{ Ohm}^*$	$\leq 26 \text{ mA}$
4...20 mA / HART®	18...42 V (with display)	$\leq [(U_s - 18 \text{ V}) / 0.02 \text{ A}] \text{ Ohm}^*$ (with display)	
4...20 mA / 3-wire	12...36 V	$\leq 500 \text{ Ohm}$	$< 7 \text{ mA}$
0...20 mA / 3-wire		$\geq 10 \text{ kOhm}$	
0...10 V / 3-wire			
0...5 V / 3-wire	5 V	$\geq 5 \text{ kOhm}$	$\leq 2 \text{ mA}$
0.5...4.5 V / 3-wire			$\leq 7 \text{ mA}$
0.5...4.5 V / 3-wire	6...15 V		$\leq 7 \text{ mA}$
RS-485 / Modbus RTU	12...36 V	-	$\leq 7 \text{ mA}$

* For 4...20 mA / HART® output signal, minimum load resistance for digital communication: 250 Ohm.

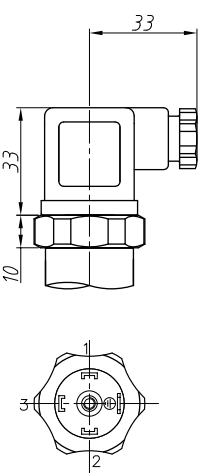
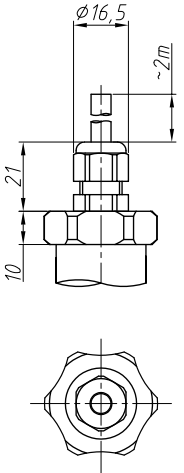
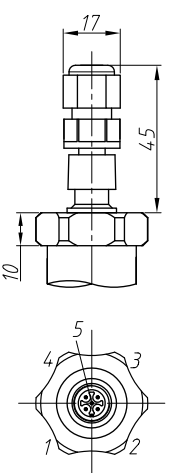
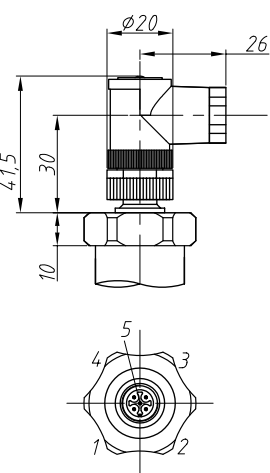
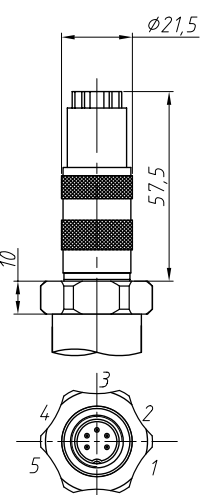
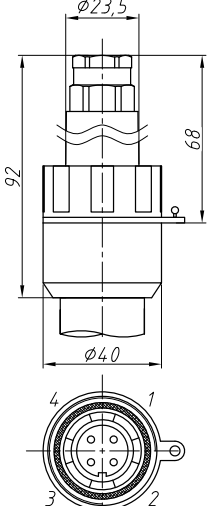
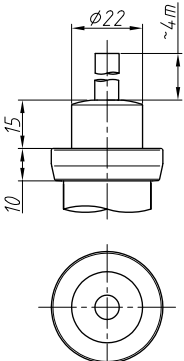
Safe values for intrinsically safe design 0Ex ia IIC T6...T4 Ga X:

Parameter	2-wire	3-wire, 4-wire
Maximum voltage, U _i	28 V	6 V
Maximum current, I _i	93 mA	60 mA
Maximum power, P _i	660 mW	100 mW
Maximum internal inductance, L _i	10 µH	10 µH
Maximum internal capacitance, C _i	15 nF	500 nF

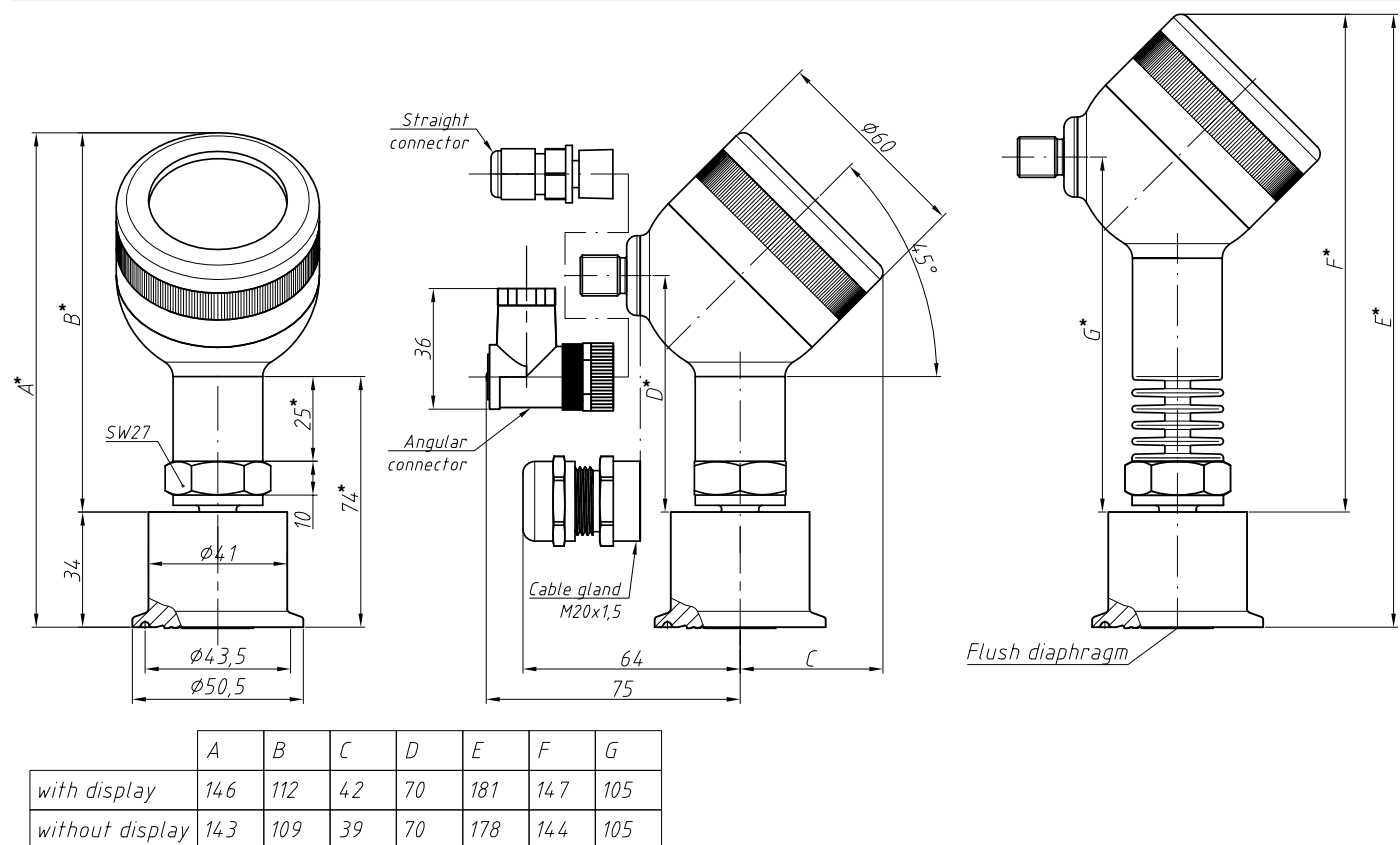
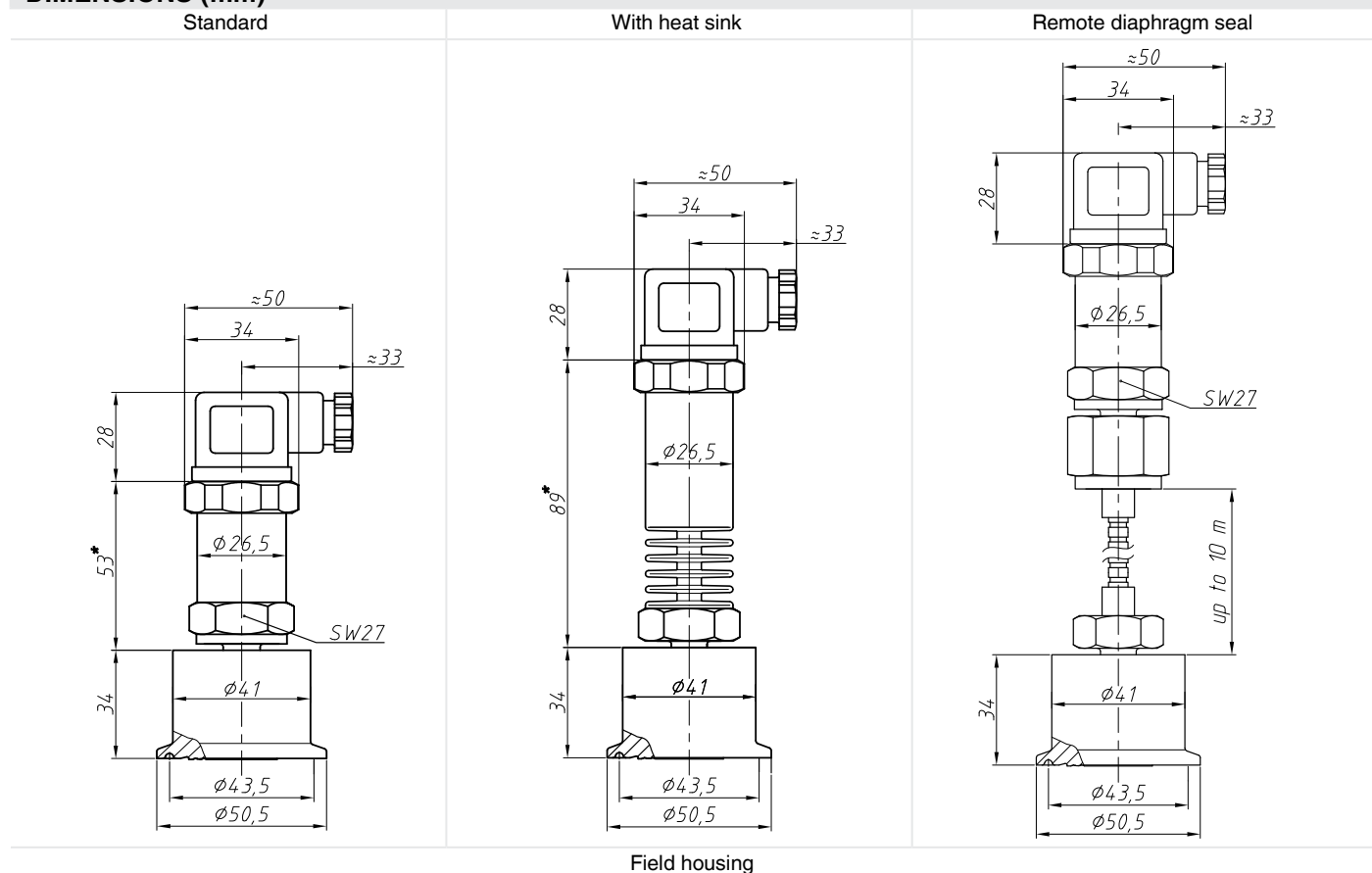
ELECTRICAL CONNECTIONS / PIN ASSIGNMENT

Circuits		DIN 43650	M12x1	Binder 723	Buccaneer	Cable gland	Field housing with M20x1.5 cable gland
2-wire	power +	1	1	3	1	white	2
	power -	2	2	4	2	brown	3
	shield	GND	4	5	4	yellow-green	1
3-wire	power +	1	1	3	1	white	2
	power -	2	2	4	2	brown	3
	signal +	3	3	1	3	green	4
	shield	GND	4	5	4	yellow-green	1
RS-485 4-wire	power +	-	3	3	-	white	-
	power -	-	1	1	-	brown	-
	A	-	4	4	-	yellow	-
	B	-	5	5	-	green	-
	shield	-	2	2	-	yellow-green	-

ELECTRICAL CONNECTIONS, DIMENSIONS (mm)

DIN 43650A (IP65)	Cable gland M12x1.5 (IP67)	M12x1 straight connector (IP67)	M12x1 angular connector (IP67)
			
Binder 723 (IP67)	Buccaneer (IP68)	Stainless steel cable gland (IP68)	
			

DIMENSIONS (mm)



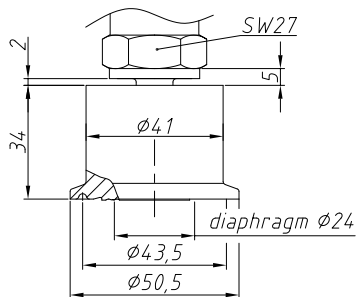
* Housing of Ex ia version is 25 mm longer.

Housing of pressure transmitter with RS485 / ModbusRTU output signal is 34 mm longer.

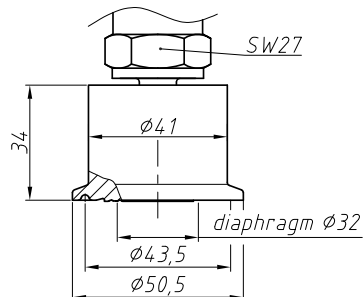
Housing of pressure transmitter with HART® output signal is 42 mm longer.

PRESSURE PORTS, DIMENSIONS (mm)

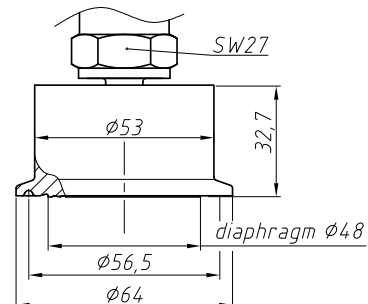
Clamping socket as per
DIN 32676 DN 25 (1")



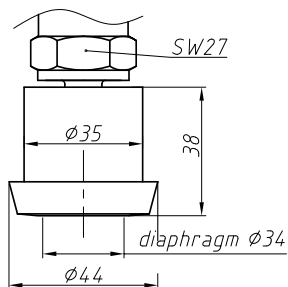
Clamping socket as per
DIN 32676 DN 40 (1 1/2")



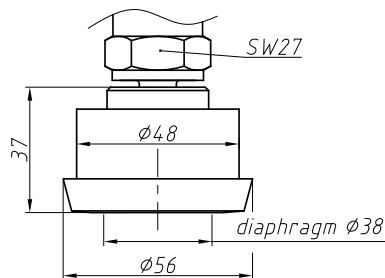
Clamping socket as per
DIN 32676 DN 50 (2")



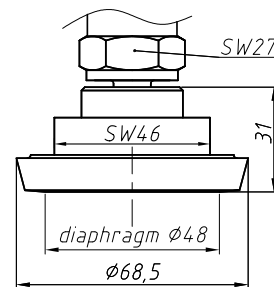
Taper socket with grooved union as per
DIN 11851 DN 25



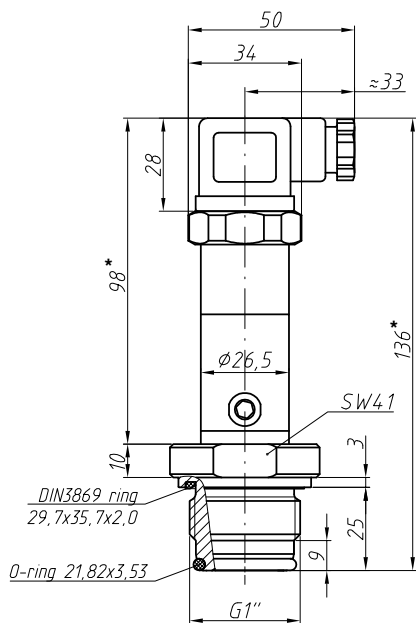
Taper socket with grooved union as per
DIN 11851 DN 40



Taper socket with grooved union as per
DIN 11851 DN 50



G1" Flush diaphragm, EHEDG



ORDERING CODE

APZ 3420 s		-X	-X	-XXXX	-X	-XX	-X	-XXX	-X	-XX
MEASUREMENT TYPE										
Gauge		G								
Absolute ($0.25 \leq P \leq 40$ bar)		A								
Vacuum, LRL = -1 bar		V								
UNIT OF MEASUREMENT										
bar		B								
kg/cm ²		S								
mH ₂ O		W								
kPa		H								
Other (specify when ordering)		X								
UPPER RANGE LIMIT (URL)										
bar, kg/cm ²		mH ₂ O		kPa						
0.10	0100	1.0	1000	10	1001					
0.16	0160	1.6	1600	16	1601					
0.25	0250	2.5	2500	25	2501					
0.40	0400	4.0	4000	40	4001					
0.60	0600	6.0	6000	60	6001					
1.0	1000	10	1001	100	1002					
1.6	1600	16	1601	160	1602					
2.5	2500	25	2501	250	2502					
4.0	4000	40	4001	400	4002					
6.0	6000	60	6001	600	6002					
10	1001	100	1002	1000	1003					
16	1601	160	1602	Other	XXXX					
25	2501	250	2502							
40	4001	Other	XXXX							
Other	XXXX									
ACCURACY										
0.25% (P > 0.4 bar) (standard)				C						
0.50% (P ≤ 0.4 bar) (standard)				D						
0.20% (P > 0.4 bar)				B						
Other (specify when ordering)				X						
ELECTRICAL CONNECTION										
DIN 43650A		10								
Binder 723		20								
M12x1, straight connector		30								
M12x1, angular connector		31								
Cable gland M12x1.5 + cable 2 m		40								
Stainless steel cable gland + cable 4 m		41								
Buccaneer		50								
Field housing without display, cable gland M20x1.5		60								
Field housing with display, cable gland M20x1.5		67								
Field housing with display, straight connector M12x1		64								
Field housing with display, angular connector M12x1		65								
Other (specify when ordering)		XX								
OUTPUT SIGNAL										
4...20 mA / 2-wire (standard)		A								
4...20 mA / 2-wire, 0Ex ia IIC T6...T4 Ga X		Q								
4...20 mA / 3-wire		B								
0...20 mA / 3-wire		C								
0...5 mA / 3-wire		S								
0...10 V / 3-wire		D								
0...5 V / 3-wire		E								
0.5...4.5 V / 3-wire, U _s = 5 V, 0Ex ia IIC T6...T4 Ga X		R								
0.5...4.5 V / 3-wire, U _s = 6...15 V		K								
RS-485 / Modbus RTU		M								
4...20 mA / HART®		H								
Other (specify when ordering)		X								

ORDERING CODE (CONTINUED)

	APZ 3420 s	-X	-X	-XXXX	-X	-XX	-X	-XXX	-X	-XX
PRESSURE PORT										
	Clamping socket as per DIN 32676 1"/DN 25 ($0.6 \leq P \leq 16$ bar)							C25		
	Clamping socket as per DIN 32676 1 1/2"/DN 40 ($0.1 \leq P \leq 16$ bar)							C40		
	Clamping socket as per DIN 32676 2"/DN 50 ($0.1 \leq P \leq 16$ bar)							C50		
	Taper socket with grooved union as per DIN 11851 DN 25 ($0.6 \leq P \leq 40$ bar)							M25		
	Taper socket with grooved union as per DIN 11851 DN 40 ($0.1 \leq P \leq 40$ bar)							M40		
	Taper socket with grooved union as per DIN 11851 DN 50 ($0.1 \leq P \leq 25$ bar)							M50		
	G 1" DIN 3852 Flush diaphragm ($0.1 \leq P \leq 40$ bar), EHEDG							719		
	Hygienic connection with optional capillary tube							RSHXXX**		
	Other (specify when ordering)							XXX		
DIAPHRAGM SEAL FILL FLUID										
	Silicone oil (-40...+ 150 °C)*							S		
	Food grade oil (-20...+ 150 °C)*							F		
	High temperature silicone oil (0...+ 300 °C)*							T		
	Other (specify when ordering)							X		
VERSION										
	Standard (up to +125 °C)*							00		
	Zero trim for 4...20 mA / 2-wire output (requires ZCON 100 configurator)							01		
	Heat sink (for high-temperature media up to +300 °C)*							30		
	Temperature compensated in the range of -40...+60 °C							46		
	Compound filled version							16		
	Other (specify when ordering)							XX		

* Maximum operating temperature of the transmitter is the minimal value of the two determined by the diaphragm seal, fill fluid and the version (standard, with a radiator). Minimal operating temperature of the transducer is that of the fill fluid.

** Select parameters from Table 1. A unique code will be assigned to this combination. For example the RSH4 code was assigned to a combination flange DN 50 / PN 40, capillary tube 6 m, 316L diaphragm, no seal.

Table 1

Diaphragm seal	Size	Fill fluid	Capillary tube length	Diaphragm material
RSH – Hygienic	DIN 32676: Clamp DN 25 (1"), DN 40 (1½"), DN 50 (2") DIN 11851: DN 25, DN 40, DN 50.	Silicone oil, High temperature silicone oil, Food grade oil	Direct mounting, With capillary tube – length 0.5 to 10 m	316L stainless steel

Example: APZ 3420 s-G-B-4001-B-10-A-C50-S-00 A

ACCESSORIES

				
DZ 10 Pressure snubber	ZCON 100 Zero trim and range selection device	ANZ 200 Plug-in display for transmitters with 4-20 mA output	PZ 1024 Power supply unit	BZ 05 / BZ 10 Dry air junction box for submersible transmitters