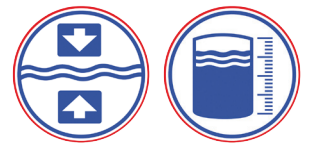


Flush-mounted pressure and filling level transmitter - TPF 050 D - series



FEATURES

- **OUTPUT SIGNAL 4...20mA, TURNDOWN 4**
- **ACCURACY $\leq \pm 0.2\%$ FS**
- **SIMPLE CALIBRATION, EVEN WITHOUT DISCONNECTION OF THE TRANSMITTER, THROUGH SWITCHABLE POWER SUPPLY PLANT/ CALIBRATOR SUPPLY**
- **SIMPLE PARAMETERING VIA 2-KEY CONCEPT AND MULTIPLE-COLOUR STATUS LED**
- **WITH HYGIENIC AND STANDARD PROCESS CONNECTIONS AS A FIXED CONNECTION**
- **VACUUM AND OVERLOAD SAFE**
- **FOR MEASUREMENT OF THE PRESSURE AND FILLING LEVEL IN TANKS AND PIPES WITH BASIC REQUIREMENTS**
- **EASY TO CLEAN AND HIGH PROTECTION CLASS IP 67 AND IP 69K**

DESCRIPTION

The TPF050D pressure transmitter is suitable for measuring of the pressure and filling level in pipes and tanks, even with small nominal diameters. Depending on the process connection, the flush-mounted measuring cell with stainless steel membrane enables measuring ranges of $-1/0 \dots 0.35\text{bar}$ to $-1/0 \dots 100\text{bar}$. The robust stainless steel field housing and the checked protection classes IP 67 and IP 69K withstand all aggressive and residue-free cleaning procedures such as those required in the food and pharmaceuticals industry.

The 050D series pressure transmitters are equipped with a micro-processor controlled electronics system and an accuracy of $\leq \pm 0.2\%$ FS. They are parametrised with a simple and user-friendly operating concept via 2 keys and a multi-colour status LED. A TurnDown of up to 4 can be set using the full and empty adjustment.

A wide range of hygienic and non-hygienic process connections is available for the TPF050D. The process connection adapters available include: ISO 228 G1" screw-in threads with an elastomer-free sealing cone and press screw, conical couplings or DIN 11851, VARIVENT® males threads with $\varnothing 50\text{mm}$ or $\varnothing 68\text{mm}$, DRD. Customer-specific solutions are also possible.

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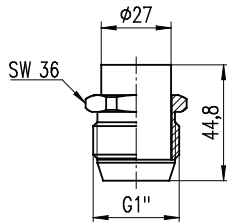
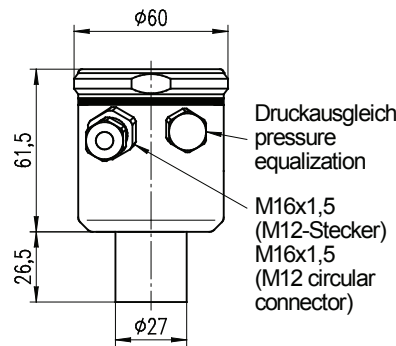
TECHNICAL DATA

General details									
Device type/measuring principle	TPF050D: piezoresistive								
Input									
Measuring ranges	TPF050D								
Standard nominal measuring range [bar]	Relative	OP	Absolute	OP	Relative	OP	Absolute	OP	
OP = overload protection [bar]	0 to 0.35	1			-1/0 to 10	30	0 to 10	30	
	0 to 1	3	0 to 1	3	-1/0 to 30	90	0 to 30	90	
Special measuring ranges are available on request.	-1/0 to 2.5	8	0 to 2.5	8	-1/0 to 100	250	0 to 100	250	
All measurement cells are vacuum safe	-1/0 to 5	15	0 to 5	15					
Setting the measuring ranges	via the 2 keys within the transmitter								
Setting ranges	Measuring range begin	zero:	0 to 75%	of the sensor's nominal measuring span					TD=4
	Measuring span	span:	25 to 100%	of the sensor's nominal measuring span					
Burst pressure DIN16086	>= 4-fold nominal measuring range								
Output									
Output signal	2-wire: 4 to 20mA with a test circuit connection in the device								
Fault signal	22mA								
Current limitation	3.8mA and 21mA (normal operation, cannot be set)								
Measuring accuracy									
Reference conditions	acc. to DIN IEC 770								
Linearity, hysteresis and repeatability acc. to the limit point method DIN IEC 770	≤ ± 0.2% of the sensor nominal measuring range								
Activation time	< 2 s (The device will carry out a self-test.)								
Setting time	< 1s								
Long-time drift	≤ 0.2% of the span per year								
Thermal hysteresis	≤ 0.2% of the sensor's nominal measuring range / 10K (-20 to +80°C) from 4 bar ≤ 0.3% of the sensor's nominal measuring range / 10K (-20 to +80°C) up to 0.6 bar								
Conditions of use									
Installation position / calibration position	Any position / standing vertically								
Medium temperature	T1: -40 °C to +125 °C (140 °C for max. an hour) T2: -40...+200°C (high-temperature version)								
Ambient storage temperature	-40...+85°C (below -20 °C danger of cable breakage)								
Protection class acc. to EN60529	IP 67 and IP 69K								
Electromagnetic compatibility	acc. to EN 61326-1								
Construction									
Electrical connection	- Standard: M16x1.5 cable screw connection, nickel-plated brass (stainless steel available on request) - Optional: M12x1 round plug-in connector, nickel-plated brass (stainless steel available on request) - Optional: angle plug acc. to EN 175301-803 - Optional: reference cable								
Process connection	- All standard flush-mounted process connections and those commonly used by the manufacturer - Membrane, flush-welded on the front, CrNiSt, other materials available on request								
Construction									
Materials	- Field housing / lid: CrNiSt 1.4301 (304) - Electronics cast: Silgel - Housing seal: FPM (Viton®) - Pressure compensation element: Polyamide - Process connection / connection adapter: CrNiSt 1.4404 (304) - Process membrane: CrNiSt 1.4435/1.4404 (316L) - Reference cable, 5-wire with reference tube: PUR (recommended: 80 m maximum)								
Filling fluid	Silicon oil (FDA)								
Display and operation									
Display	Multiple-colour status LED								
Operation	2-key concept								
Auxiliary energy resources									
Power supply / burden	12...30V DC, max. burden: (V _{supply} - 12V) / 22mA								
Accessories 050D									
Certificates	Calibration certificate Declaration of conformity Material certificate acc. to EN 10204								
Process connection adapter	See order information								

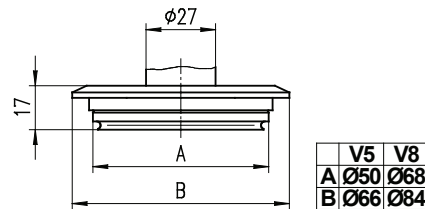
Flush-mounted pressure and filling level transmitter - TPF 050 D - series

DIMENSIONAL DRAWINGS (dimensions in mm)

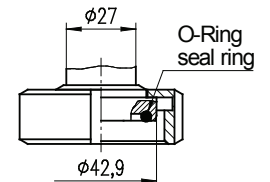
TPF 050D ... _K(M)



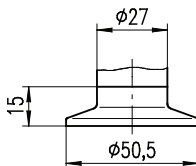
Einschraubgewinde ISO 228 - G1"
 elastomerfreier Dichtkonus (K3)
 external thread ISO 228 - G1"
 cone for sealing without elastomer (K3)



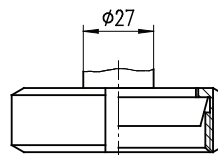
VARIVENT-Flansch - $\phi 50$ (V5), $\phi 68$ (V8)
 VARIVENT-flange - $\phi 50$ (V5), $\phi 68$ (V8)



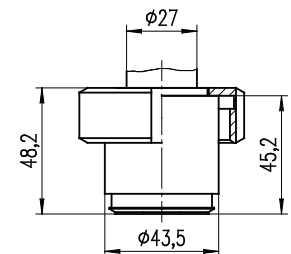
Bundstutzen DIN 11864-1
 Form A, DN25 (A2)
 collar nozzle DIN 11864-1
 form A, DN25 (A2)



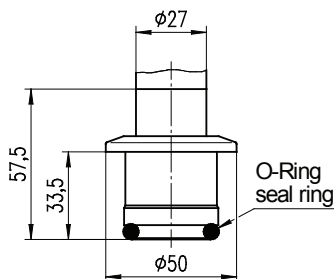
Clamp (C4)
 DIN 32676 - DN25-40



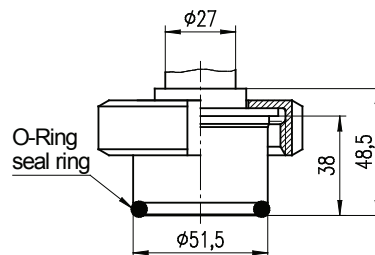
Kegelstutzen DIN 11851
 conical nozzle DIN 11851
 DN25 (M2), DN40 (M4), DN50 (M5)



UP00 mit Nutmutter DN25 (U2)
 UP00 with slotted nut DN25 (U2)



Clamp DN40 mit Tubus (CS)
 clamp DN40 with nozzle (CS)



Tubus mit O-Ring und Nutmutter DN40 (T4)
 nozzle with seal ring and slotted nut DN40 (T4)

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ORDER INFORMATION for TPF

Process connection

A2	Female unions with DIN 11864-1 form A groove union nut, DN25, PN40, 316L
C4	Clamp DIN32676 DN25 to DN40, PN25, flush-mounted, 316L
CS	Clamp DN40 with tube L=33.5mm and O-ring seal (EPDM80, FDA-conform), flush-mounted, 316L
K3	G1" ISO 228 screw-in thread with elastomer-free sealing cone and union nut, adjustable flush-mounted, 316L
M2	Conical coupling with DIN 11851 groove union nut, DN25, PN40 flush-mounted 316L
M4	Conical coupling with DIN 11851 groove union nut, DN40, PN40 flush-mounted 316L
M5	Conical coupling with DIN 11851 groove union nut, DN50, PN25, flush-mounted 316L
T4	Tube with O-ring seal and DIN11851 DN40 groove nut, slush-mounted 316L
U2	UP00 with DN25 groove nut, PN10, flush-mounted, 316L
V5	VARIVENT® Ø=50mm, PN16, flush-mounted, 316L
V8	VARIVENT® Ø=68mm, PN16, flush-mounted, 316L
S9	Alternative process connection available on request

Sensor measuring range / pressure type

C	0.35bar max. overload 1bar
E	1bar max. overload 3bar
G	2.5bar max. overload 8bar
J	5bar max. overload 15bar
K	10bar max. overload 30bar
M	30bar max. overload 90bar
Q	100bar max. overload 250bar
R	Relative pressure, overpressure (0...xxxbar)
N	Relative pressure, overpressure (0...xxxbar)
A	Absolute pressure

Electrical connection

K	M16x1.5 cable screw connection
M	M12x1 round plug-in connector
R05	Reference cable 5m, permanently connected
R10	Reference cable 10m, permanently connected
R15	Reference cable 15m, permanently connected
R20	Reference cable 20m, permanently connected
R25	Reference cable 25m, permanently connected
RXX	Reference cable, length over 25m, please specify in plain text (max. 80m)

Design options

T1	Normal temperature version
T2	High temperature version for medium temperatures up to 200°C,

TPF050D

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Nominal measurement area if deviates from the sensor measurement area

Please observe the permissible nominal pressure of the process connection selected.
All specifications and certifications specified are only guaranteed when Hengesbach original components are used.
Our devices are subject to constant development; subject to technical modification.