



The HWF series of Gefran are pressure transmitters with HART communication protocol for using in high temperature environment with explosive atmosphere presence.

The main characteristic of this series is the capability to read pressure of the media up to 315°C.

The constructive principle is based on the hydraulic transmission of the pressure.

The fluid-filled system assures the temperature stability. The physical measure is transformed in a electrical measure by means of strain-gauge technology.

MAIN FEATURES

- Pressure ranges from: 0-35 to 0-1000 bar / 0-500 to 0-15000 psi
- Accuracy: < ±0.25% FS (H); < ±0.5% FS (M)
- FM approval for potentially explosive atmospheres
- 1/2-20UNF, M18x1.5 standard threads, mounting flange Ø 66.3mm (2.61")
- Autozero function on board / external option
- 17-7 PH corrugated diaphragm with GTP+ coating

HWF0 The rigid rod configuration provides fast and easy installation

HWF1 The flexible rod configuration is suitable for applications demanding greater thermal isolation and where installation would otherwise be difficult.

HWF2 This configuration lets you measure process pressure and temperature at the same point with a single installation.

HWF3 The configuration with exposed tip is ideal for applications in limited space.

HWF4 Configuration with flange for specific applications.

The transmitters have been designed and manufactured according to FM standards with the following types of protection and features:

- Explosion-proof (XP) for Class I, Division 1, Groups A, B, C and D
- Dust-Ignitionproof (DIP) for Classes II, III, Division 1, Groups E, F and G
- Indoor and outdoor areas classified as hazardous: Type 4X, IP67
- Rated ambient temperature of T5 Ta = -20°C to +85°C, T6 Ta = -20°C to +60°C

List of applicable standards:

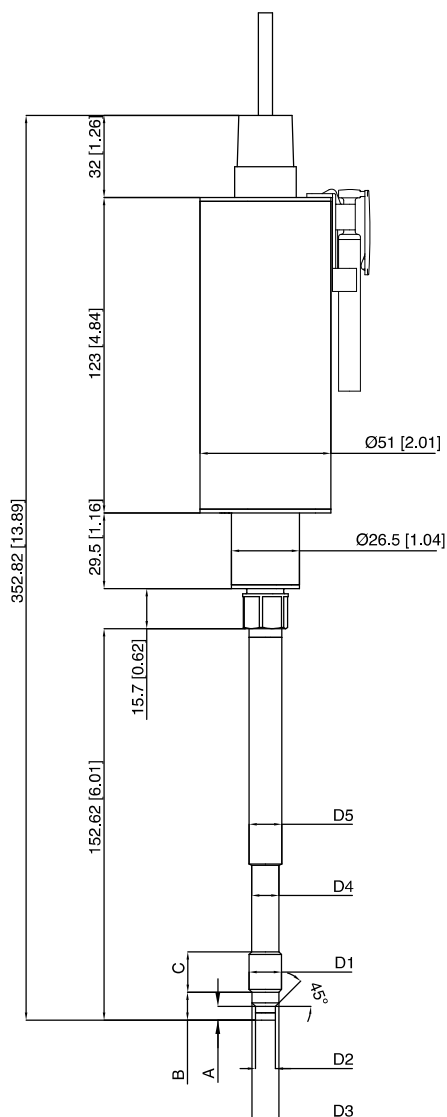
- FM3600
- FM3615
- FM3616
- FM3810
- ANSI/NEMA 250
- ANSI/IEC 60529

TECHNICAL SPECIFICATIONS

Accuracy (1)	H <±0.25%FS (range ≥100bar/1500psi) M <±0.5%FS
Resolution	16 Bit
Measurement range	0..35 to 0..1000bar 0..500 to 0..15000psi
Rangeability	3:1
Maximum overpressure (without degrading performances)	2 x FS 1.5 x FS above 500bar/7500psi
Measurement principle	Extensimetric strain gauge
Power supply	13...30Vdc
Maximum current absorption	23mA
Output signal Full Scale (FS)	20mA
Zero balance (tolerance ± 0.25% FS)	4mA
Calibration signal	80% FS
Power supply polarity reverse protection	YES
Compensated temperature range housing	0...+85°C
Operating temperature range housing	-30...+85°C
Storage temperature range housing	-40...+125°C
Thermal drift in compensated range: Zero / Calibration / Sensibility	< 0.02% FS/°C
Diaphragm maximum temperature	315°C / 600°F
Zero drift due to change in process temperature (zero)	< 0.04 bar/°C
Standard material in contact with process medium	Diaphragm: • 17-7 PH corrugated diaphragm with GTP+ coating Stem: • 17-4 PH
Thermocouple (model HWF2)	STD: type "J" (isolated junction)
Protection degree	IP67, NEMA 4X
FS = Full scale output (1) BFSL method (Best Fit Straight Line): includes combined effects of Non-Linearity, Hysteresis and Repeatability (according to IEC 62828-2)	

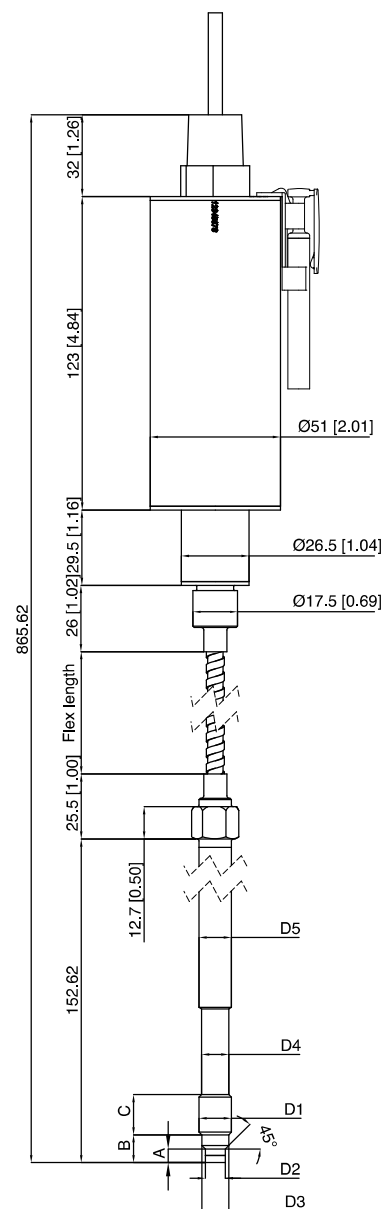
MECHANICAL DIMENSIONS

HWF0



D1	1/2 - 20UNF	D1	M18x1.5
D2	ø7.8 -0.05 [ø0.31" -0.002]	D2	ø10 -0.05 [ø0.394" -0.002]
D3	ø10.5 -0.025 [ø0.41" -0.001]	D3	ø16 -0.08 [ø0.63" -0.003]
D4	ø10.67 [ø0.42"]	D4	ø16 -0.4 [ø0.63" -0.016]
D5	ø12.7 [ø0.5"]	D5	ø18 [ø0.71"]
A	5.56 -0.26 [0.22" -0.01]	A	6 -0.26 [0.24" -0.01]
B	11.2 [0.44"]	B	14.8 -0.4 [0.58" -0.016]
C	15.74 [0.62"]	C	19 [0.75"]
Ch [Hex]	16 [5/8"]	Ch [Hex]	19 [3/4"]

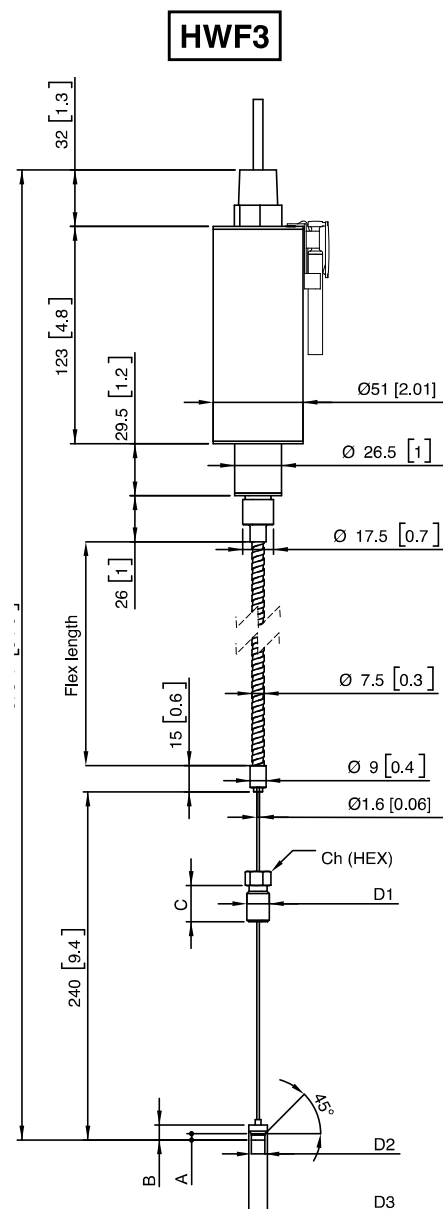
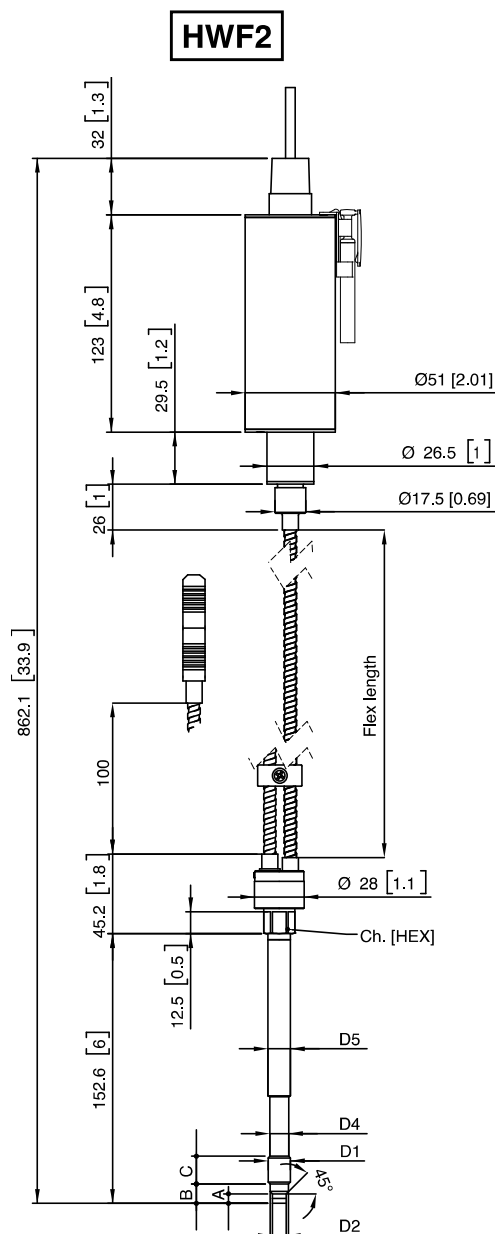
HWF1



NOTE: dimensions refer to rigid stem length option "4" (153 mm– 6")

WARNING: For installation use a maximum tightening torque of 56 Nm (500 in-lb)

MECHANICAL DIMENSIONS

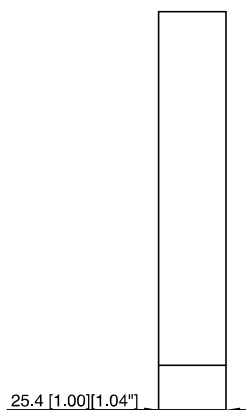
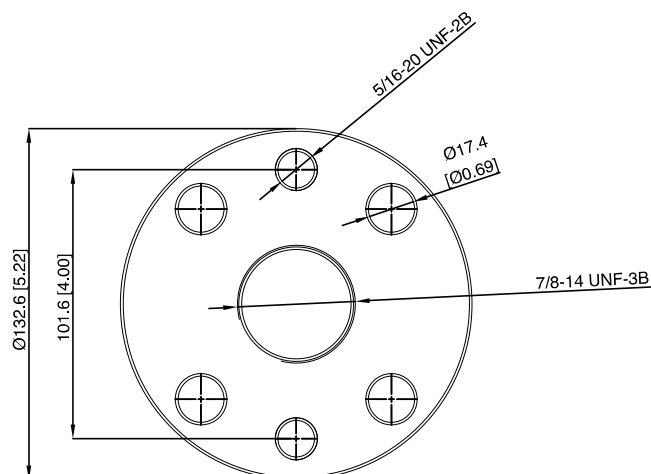
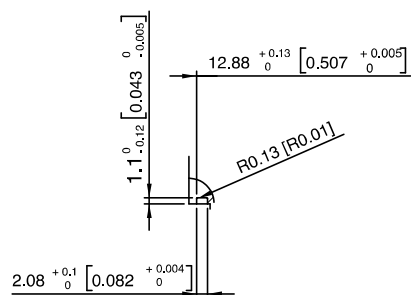
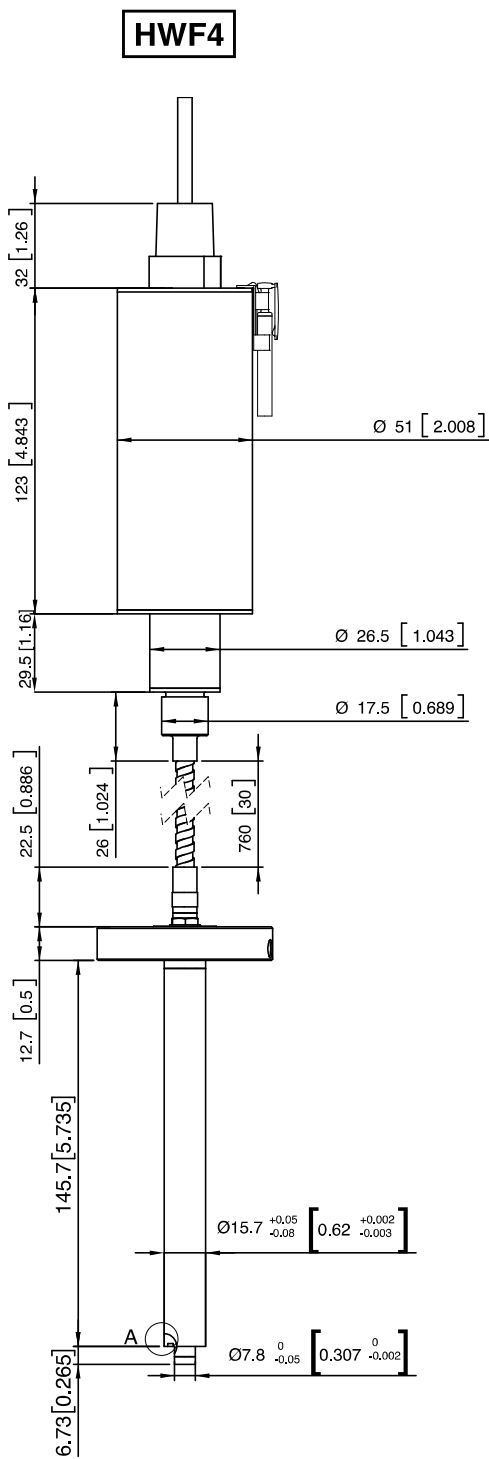


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D4	Ø10.67 [Ø0.42"]	D4	Ø16 -0.4 [Ø0.63" -0.016]
D5	Ø12.7 [Ø0.5"]	D5	Ø18 [Ø0.71"]
A	5.56 -0.26 [0.22" -0.01]	A	6 -0.26 [0.24" -0.01]
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NOTE: dimensions refer to rigid stem length option "4" (153 mm– 6")

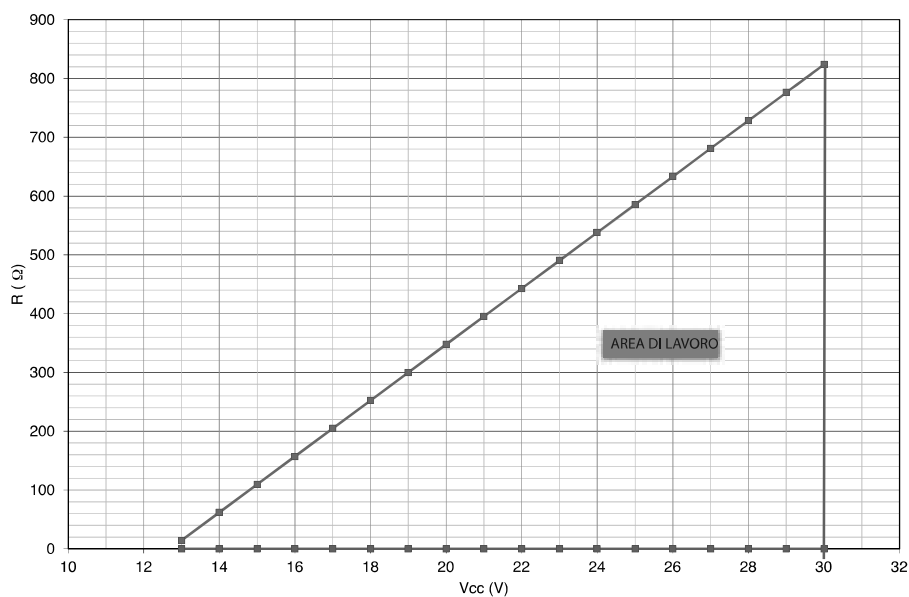
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MECHANICAL DIMENSIONS



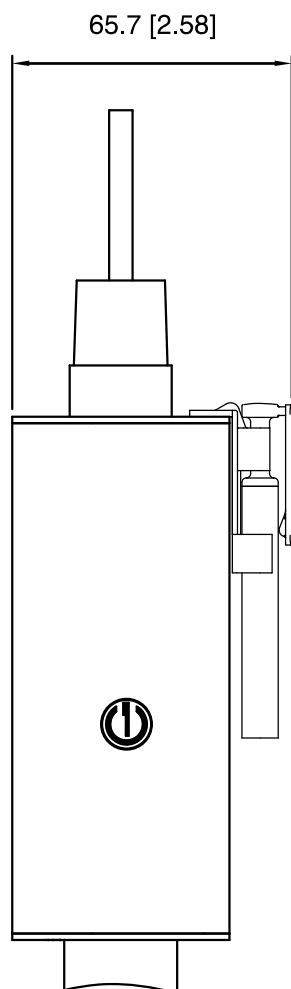
NOTE: dimensions refer to rigid stem length option “4” (153 mm–6”)

LOAD DIAGRAM



The diagram shows the optimum ratio between load and power supply for transmitters with 4...20mA output. For correct function, use a combination of load resistance and voltage that falls within the two lines in the graph above.

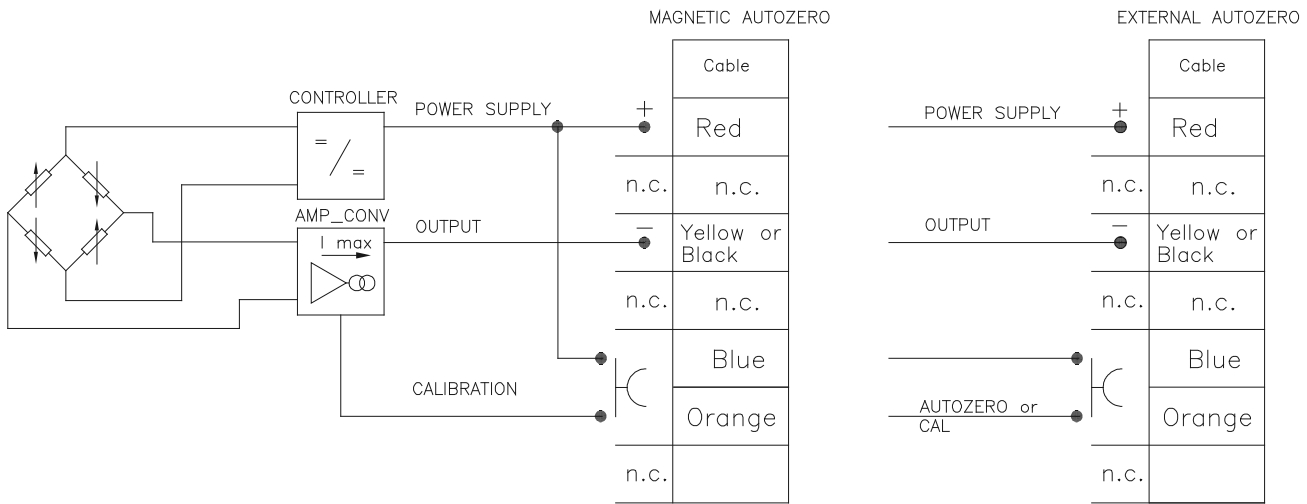
AUTOZERO FUNCTION



The Autozero function is activated through a magnetic contact (external magnet supplied with the sensor). The Autozero function can be activated through HART command as well. See the manual for a complete Autozero function explanation.

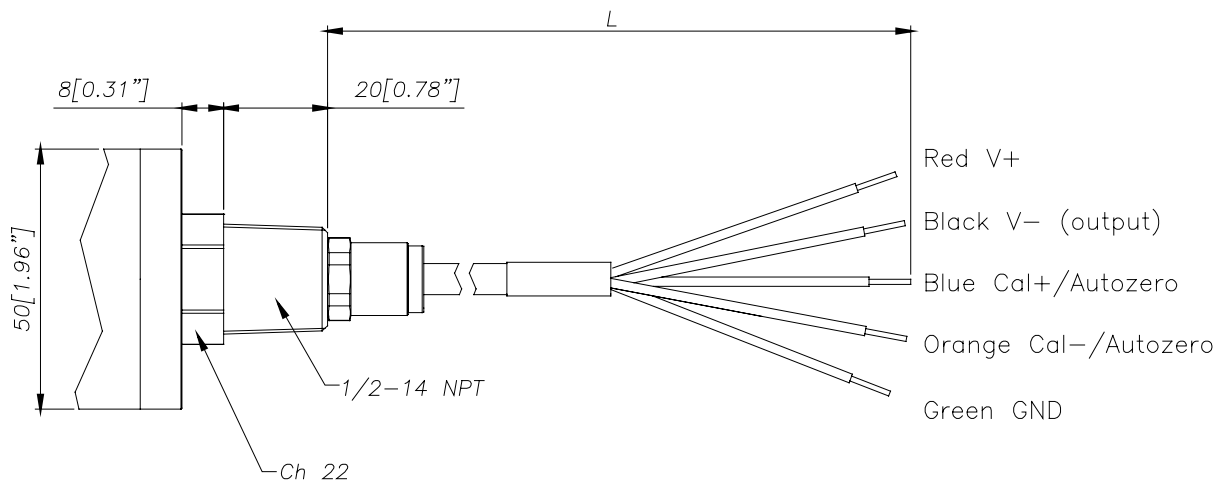
ELECTRICAL CONNECTIONS

CURRENT OUTPUT



The cable shield is tied to both sides, i.e. to the sensor connector and to the controller

Cable outlet (1/2 14-NPT)
Current output
L = 1 m



ACCESSORIES

- Accessories**
- Mounting bracket
 - Dummy plug for 1/2-20UNF
 - Dummy plug for M18x1.5
 - Drill kit for 1/2-20UNF
 - Drill kit for M18x1.5
 - Cleaning kit for 1/2-20UNF
 - Cleaning kit for M18x1.5
 - Fixing pen clip
 - Autozero pen

Thermocouples for model HWF2
Type "J" (for rigid rod 153mm - 6")

- SF18
- SC12
- SC18
- KF12
- KF18
- CT12
- CT18
- PKIT1032
- PKIT378

TTER 601

Cable color code	
Conn.	Wire
A-2	Red
B-4	Black
C-1	White
D-6	Green
E-7	Blue
F-3	Orange
5	Grey
8	Pink

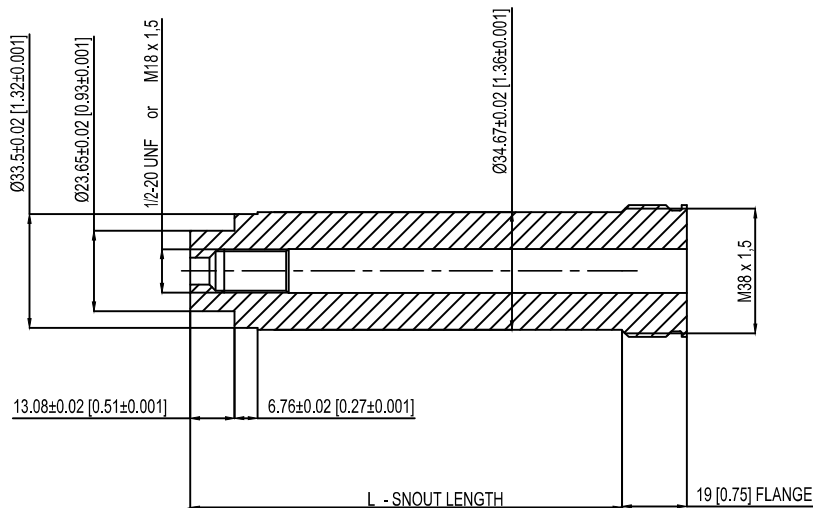
PROCESS FLANGE ADAPTER

The process flange adapter is a sensor accessory that allows for the installation of 1/2-20 UNF or M18x1.5 melt pressure sensor in a button seal style process mounting port. The adapter is made with an adapter body with different snout lengths plus an adapter flange available in different sizes (see tables and drawing below). Each combination of snout and flange is available according to the ordering information with a specific ordering code.

SPECIFICATIONS

- Pressure range: according to the selected sensor (up to 1000 bar/15000 psi max)
- Temperature range: according to the selected sensor
- Material of construction: 17-4PH Stainless steel

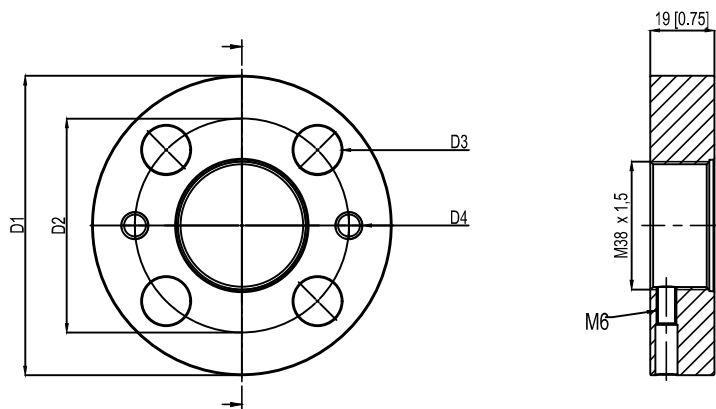
ADAPTER BODY



1/2-20 UNF	L - SNOUT LENGTH
STE1020	127 [5]
STE1021	51,6 [2,031]

M18 X 1,5	L - SNOUT LENGTH
STE1022	127 [5]
STE1023	51,6 [2,031]

ADAPTER FLANGE



	FLA960	FLA961
D1	82,6 [3,25]	88,9 [3,50]
D2	54 [2,14]	63,5 [2,50]
D3	13,2 [0,52]	14,3 [0,56]
D4	5/16-18 UNC	5/16-18 UNC

ORDER CODE

KIT - 5 - 0 - 1

Snout length	
5 inch [127 mm]	5
2,031 inch [51,6 mm]	2

Flange type (see technical drawing)	
FLA960	0
FLA961	1

Thread dimensions	
1/2-20 UNF	1
M18 x 1,5	4

ADAPTER GASKESTS			
Material	Dimensions	Max Pressure	Ord. Code
Aluminium	30.2 mm [1.19"] OD 24.1 mm [.950"] ID	200 bar/3000 psi	RON360
AISI 303 SS	30.2 mm [1.19"] OD 24.1 mm [.950"] ID	700 bar/10000 psi	RON361

Example:

KIT501

Process adapter with 5" snout length, 82.6 mm size flange, suitable for 1/2-20 UNF melt sensor

ORDER CODE

HW		-	-	-	-	-	-	-	-	-	-	-	0000 X 000 X 0				
													000= Special executions				
OUTPUT SIGNAL															Tclass	Tamb	
4...20mA	F												5	T5	-20°C / 85°C		
													6	T6	-20°C / 60°C		
VERSION													E	External Autozero (*)			
Rigid rod	0												0	Magnetic Autozero			
Rigid + flexible rod	1												(*) as an alternative to the CAL function				
With thermocouple	2(*)																
Exposed capillary	3																
Flange mounting	4												0	Standard 4...20mA			
(*) Not FM Approved																	
CONNECTOR													FLEXIBLE ROD LENGTH (mm/inches)				
NPT Cable	N												Standard (HWF0)				
													0	none			
ACCURACY CLASS													Standard (HWF1, HWF2, HWF4)				
0.25% FS (ranges ≥ 100 bar/1500 psi)	H												D	457mm	18"		
													E	610mm	24"		
0.5% FS	M												F	760mm	30"		
															Standard (HWF3)		
													L	711mm	28"		
															Available on request		
													A	76mm	3"		
													B	152mm	6"		
													C	300mm	12"		
													G	914mm	36"		
													H	1067mm	42"		
													I	1220mm	48"		
													J	1372mm	54"		
													K	1520mm	60"		
															RIGID ROD LENGTH HWF0, HWF1, HWF2, HWF3 (mm / inches)		
													Standard (HWF0, HWF1, HWF2)				
													4	153mm	6"		
													5	318mm	12,5"		
															Standard (HWF3)		
													0	none			
															Available on request		
													1	38mm	1,5"		
													2	50mm	2"		
THREADING																	
Standard																	
1/2 - 20 UNF													1				
M18 x 1.5													4				
Flange mounting ø 66,3mm (2.61")													6				

MEASUREMENT RANGE			
bar		psi	
35	B35U	500	P05C
50	B05D	750	P75D
70	B07D	1000	P01M
100	B01C	1500	P15C
200	B02C	3000	P03M
350	B35D	5000	P05M
500	B05C	7500	P75C
700	B07C	10000	P10M
1000	B01M	15000	P15M

Example

HWF1-N-M-B07C-1-4-D-P-0-0-5 2130X000X00

Melt pressure transmitter, 4...20mA output with HART protocol, NPT cable, 0.5% accuracy, 700 bar pressure range, 1/2-20 UNF threading, 153 mm (6") rigid rod, 457 mm (18") flexible rod, FM approval temperature class T5 Tamb -20°C...85°C.

Sensors are manufactured in compliance with:

- EMC compatibility directive: 2014/30/EU
- RoHS directive: 2011/65/EU
- FM standard

Electrical installation requirements and conformity certificate are available on our web site:
www.cefiran.com

GEFRAN spa reserves the right to make any kind of design or functional modification at any moment without prior notice.

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