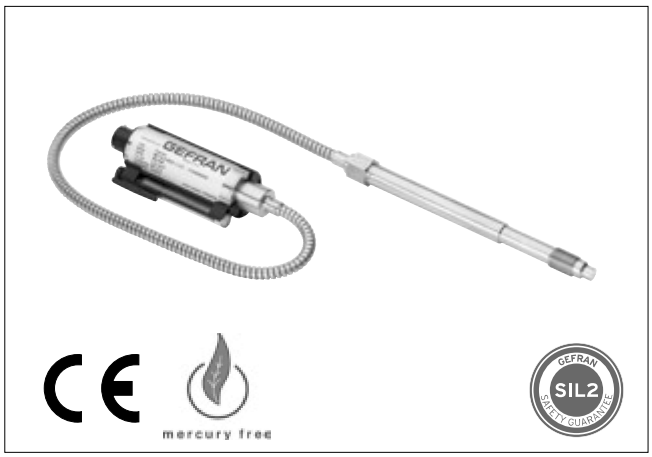
GEFRAN

OIL FILLED MELT PRESSURE TRANSMITTERS

W7_SIL2 SERIES *Voltage output*



The W7 series of Gefran, are pressure transmitters for using in High temperature environment.
The main characteristic of this series is the capability to read temperature of the media up to 315°C.
The constructive principle is based on the hydraulic trasmission of the pressure.
The fluid-filled system assures the temperature stability.
The phisical quantity is transformed in a electrical measure by means the thick film strain-gauge technology.
The SIL2 certified version makes the product suitable for use in the Functional Safety applications, particularly in the process plants for the production of polymers, where it is an assential requirement.

MAIN FEATURES

- Pressure ranges from:
  0-17 to 0-1000 bar / 0-250 to 0-15000 psi
- Accuracy: < ±0.25% FS (H); < ±0.5% FS (M)
- Fluid-filled system for temperature stability
- Oil filling meets FDA requirements CFR 178.3620 and CFR 172.878
- SIL2 approvals for Functional Safety
- 1/2-20UNF, M18x1.5 standard threads; other types available on request
- Other diaphragms available on request
- Autozero function on board / external option
- Drift Autocompensation function (SP version)
- 17-7 PH corrugated diaphragm with GTP+ coating

GTP+ (advanced protection)
Coating with high resistance against corrosion, abrasion and high temperature

AUTOZERO FUNCTION

All signal variations in the absence of pressure can be eliminated by using the Autozero function.
This function is activated by closing a magnetic contact located on the transmitter housing.
The procedure is permitted only with pressure at zero.

AUTOCOMPENSATES INFLUENCE OF MELT TEMPERATURE

Thanks to internal self-compensation, the WSP series transmitter cancels the effect of pressure signal variation caused by variation of Melt temperature.
This reduces at the minimum the read error caused by heating of the filling fluid (typical of all sensors built with “filled” technology).

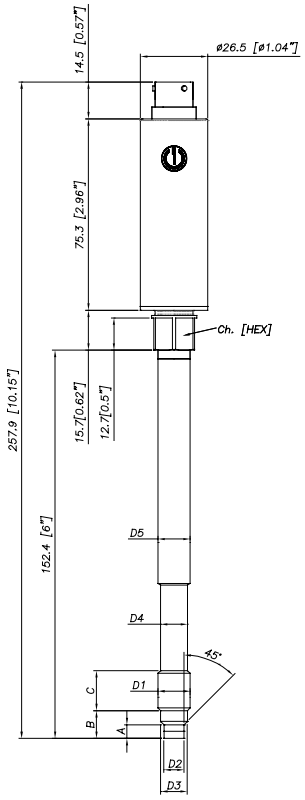
TECHNICAL SPECIFICATIONS

Accuracy (1)	**H** <±0.25%FS (100...1000 bar) **M** <±0.5%FS (17...1000 bar)
Resolution	Infinite
Measurement range	0..17 to 0..1000bar 0..250 to 0..15000psi
Maximum overpressure (without degrading performances)	2 x FS 1.5 x FS above 1000bar/15000psi
Measurement principle	Extensimetric thick film
Power supply	10...30Vdc (B) 15...30Vdc (C,7)
Maximum current absorption	25mA
Insulation resistance (at 50Vdc)	>1000 MOhm
Output signal Full Scale FS	10.5Vdc (7) - 5.1Vdc (B) 10.1Vdc (C)
Zero balance (tolerance ± 0.25% FS)	0.5Vdc (7) - 0.1Vdc (B,C)
Zero signals adjustment (tolerance ± 0.25% FS)	“Autozero” function
Span adjustment within ± 5% FS	See Manual
Maximum allowed load	1mA
Electronic response time (10...90% FS)	~ 1ms
Output noise (RMS 10-400Hz)	< 0.025% FS
Calibration signal	80% FS
Output short circuit and reverse polarity protection	YES
Compensated temperature range	0...+85°C
Operating temperature range	-30...+105°C
Storage temperature range	-40...+125°C
Thermal drift in compesated 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
Zero drift temperature for Auto-compensated version (SP) within the temperature range 20°C-315°C inclusive the drift temperature of the housing	< 0.005 bar/°C 100 ≤ p < 500 bar 0.0022 %FS/°C p ≥ 500 bar
Standard material in contact with process medium	Diaphragm: • 17-7PH corrugated diaphragm with GTP+ Stem: • 17-4 PH
Thermocouple (model W72)	STD: type “J” (isolated junction)
Protection degree (with 6-pole female connector CON300)	IP66
SIL2 certification	IEC/EN 62061 IEC 61508

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).

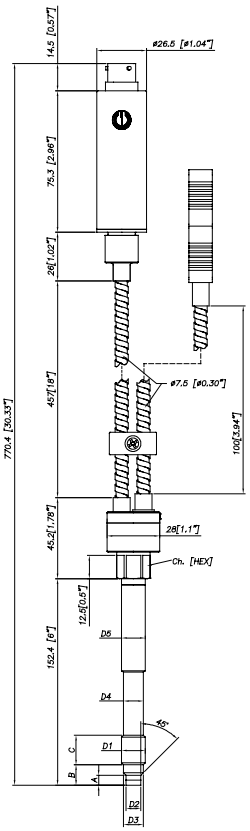
MECHANICAL DIMENSIONS

W70

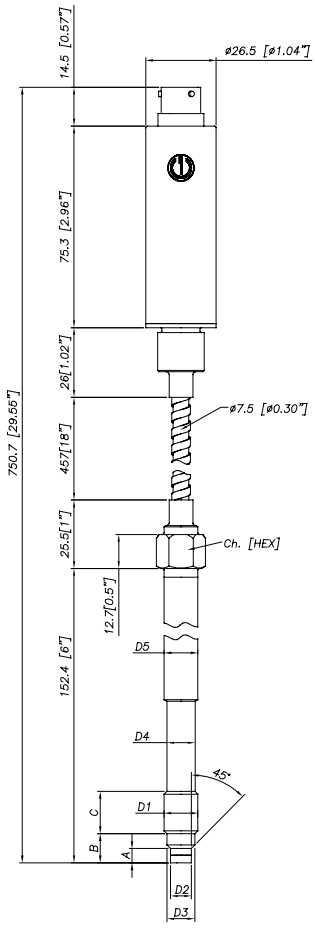


D1	1/2 - 20UNF
D2	ø7.8 -0.05 [ø0.31" -0.002]
D3	ø10.5 -0.025 [ø0.41" -0.001]
D4	ø10.67 [ø0.42"]
D5	ø12.7 [ø0.5"]
A	5.56 -0.26 [0.22" -0.01]
B	11.2 [0.44"]
C	15.74 [0.62"]
Ch [Hex]	16 [5/8"]

W72

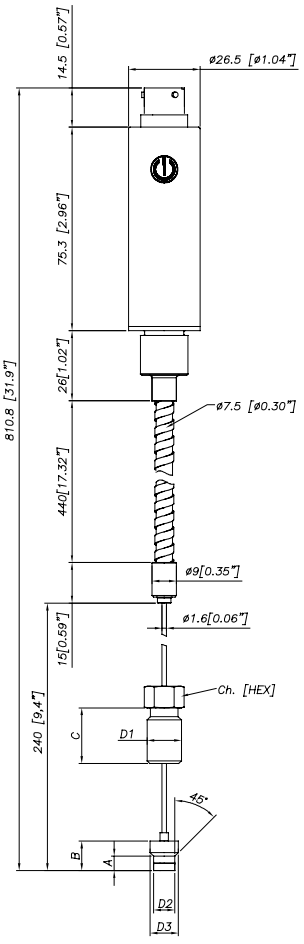


W71



D1	M18x1.5
D2	ø10 -0.05 [ø0.394" -0.002]
D3	ø16 -0.08 [ø0.63" -0.003]
D4	ø16 -0.4 [ø0.63" -0.016]
D5	ø18 [ø0.71"]
A	6 -0.26 [0.24" -0.01]
B	14.8 -0.4 [0.58" -0.016]
C	19 [0.75"]
Ch [Hex]	19 [3/4"]

W73



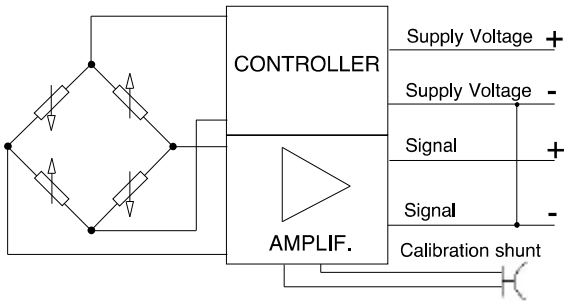
Exposed capillary	
D1	1/2-20UNF
D2	.307/.305" [7.80/7.75mm]
D3	.414/.412" [10.52/10.46mm]
A	.125/.120" [3.18/3.05mm]
B	.318/.312" [8.08/7.92mm]
C	.81" [20.6mm]

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)

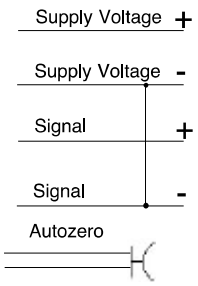
ELECTRICAL CONNECTIONS

VOLTAGE OUTPUT (B, C, 7)



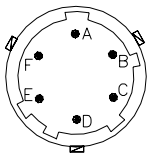
MAGNETIC AUTOZERO
6-pin
C
D
A
B
E - F

Shield drain wire is tied to connector via cable clamp



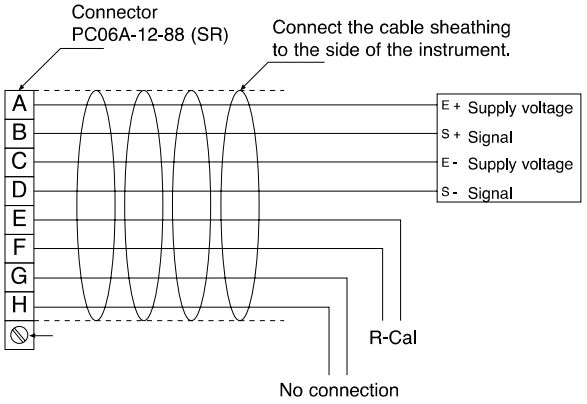
EXTERNAL AUTOZERO
6-pin
C
D
A
B
E - F

6 pin connector
VPT07RA10-6PT2
(PT02A-10-6P)



8 pin connector
PC02E-12-8P Bendix

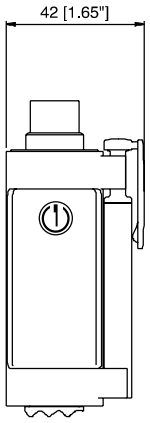
8-pin connector



Magnetic Autozero version
A = Excitation + (white)
B = Signal + (red)
C = Excitation - (green)
D = Signal - (black)
E = R-Cal (blue)
F = R-Cal (brown)
G = no connection
H = no connection

External Autozero version
A = Excitation + (white)
B = Signal + (red)
C = Excitation - (green)
D = Signal - (black)
E = Autozero (blue)
F = Autozero (brown)
G = no connection
H = no connection

AUTOZERO FUNCTION



The Autozero function is activated through a magnetic contact (external magnet supplied with the sensor).
See the manual for a complete Autozero function explanation.

ACCESSORIES

Connectors	
6-pin mating connector (IP66 protection degree)	**CON300**
8-pin mating connector	**CON307**
Extension cables	
6-pin connector with 8m (25ft) cable	**C08WLS**
6-pin connector with 15m (50ft) cable	**C15WLS**
6-pin connector with 25m (75ft) cable	**C25WLS**
6-pin connector with 30m (100ft) cable	**C30WLS**
8-pin connector with 8m (25ft) cable	**E08WLS**
8-pin connector with 15m (50ft) cable	**E15WLS**
8-pin connector with 25m (75ft) cable	**E25WLS**
8-pin connector with 30m (100ft) cable	**E30WLS**
Other lengths	**consult factory**
Accessories	
Mounting bracket	**SF18**
Dummy plug for 1/2-20UNF	**SC12**
Dummy plug for M18x1.5	**SC18**
Drill kit for 1/2-20UNF	**KF12**
Drill kit for M18x1.5	**KF18**
Cleaning kit for 1/2-20UNF	**CT12**
Cleaning kit for M18x1.5	**CT18**
Fixing pen clip	**PKIT309**
Autozero pen	**PKIT312**
Thermocouple for W72 model	
Type “J” (153mm - 6” stem)	**TTER 601**

Cable color code 6 wires	
Conn.	**Wire**
A	Red
B	Black
C	White
D	Green
E	Blue
F	Orange

Cable color code 8 wires	
Conn.	**Wire**
A	White
B	Red
C	Green
D	Black
E	Blue
F	Orange
G	n.c.
H	n.c.

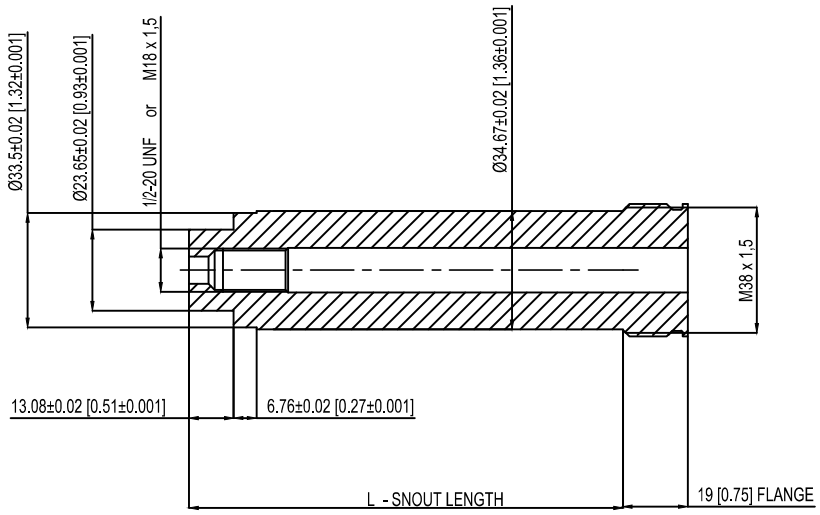
PROCESS FLANGE ADAPTER

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 adpter 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

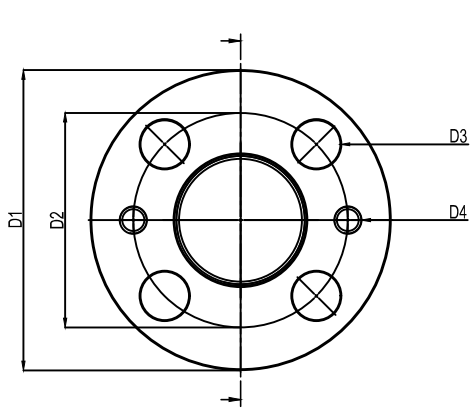
ADAPTER BODY

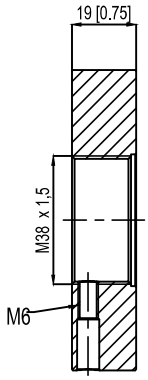


1/2-20 UNF	L -SNOUT LENGTH
STE1020	127 [5]
STE1021	51,6 [2,031]

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

W - □ - □ - □ - □ - □ - □□□□ - □ - □ - □ - □ - □ - 000

Autocompensation (*)	SP
Standard	-

(*) available for ranges > to 100bar
(*) not available with W73 version

OUTPUT SIGNAL	
0.5 .. 10.5Vdc	7
0.1 .. 10.1Vdc	C
0.1 .. 5.1Vdc	B

CONFIGURATION	
Rigid stem	0
Rigid stem + flexible	1
With thermocouple	2
Exposed capillary	3

CONNECTOR	
Standard	
6 pin	6
8 pin	8

ACCURACY CLASS	
0.25% FS (ranges ≥ 100 bar/1500 psi)	H
0.5% FS	M

RANGE			
bar		**psi**	
17	**B17U**	**250**	**P25D**
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**

000= Standard version
Special or customized versions available on request

E	External autozero
-	Magnetic autozero

S	SIL2 certification

FLEXIBLE LENGTH (mm / inches)		
Standard (W70)		
0	none	
Standard (W71, W72)		
D	457mm	18”
E	610mm	24”
F	760mm	30”
Standard (W73)		
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 STEM LENGTH (mm / inches)		
Standard (W70, W71, W72)		
4	153mm	6”
5	318mm	12.5”
Standard (W73)		
0	none	
Available on request		
1	38mm	1.5”
2	50mm	2”
3	76mm	3”
6	350mm	14”
7	400mm	16”
8	456mm	18”

THREAD	
Standard	
1	1/2 - 20 UNF
4	M18 x 1.5

Examples

W72-6-M-B07C-1-4-D-S
Melt pressure transmitter with type “J” thermocouple, 0.5.. 10.5Vdc output, 6-pin connector, 1/2-20UNF thread, 700 bar full scale, 0,5% accuracy class, 153 mm (6”) rigid stem, 457mm (18”) flexible capillary, SIL2 certification.

Sensors are manufactured in compliance with:
- EMC compatibility directive: 2014/30/EU
- RoHS directive: 2011/65/EU

Electrical installation requirements and Conformity certificate are available on our web site: www.gefran.com

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