

Pressure gauges

RUEGER

FT PBX 100-150-E-9.02

Sole agent : PT. Instrumentation Engineering and Services (08111371371)

All stainless steel construction PBX100, PBX150 (1.18)



These instruments are designed for use in food, beverage, pharmaceutical, cryogenics, chemical and petrochemical processing industries, and in conventional and nuclear power plants. They are built to resist the most severe operating conditions created by the ambient environment and the process medium. An Argonarc welded case/socket strengthen the whole construction. A leak tight fit is ensured if the instrument is filled with a dampening fluid to prevent damage due to vibration. The advantages of filling the case of the instrument with a dampening fluid are: reduced pointer fluctuation, reduced wear of rotating parts of the movement, avoidance of contamination to the internal parts by corrosive atmosphere gases, avoidance of condensation of the front window lens, ensuring the instruments are suitable for use on equipment with very high pulsation and severe vibration.

Functional and constructive characteristics

PBX100X..., PBX150X... Fillable (ref. 1.18.2)

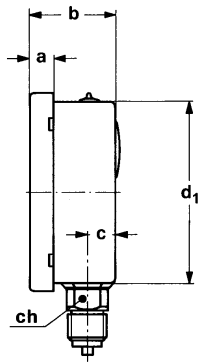
Accuracy class: 1 as per EN 837.1.
Ambient temperature: -25...+65 °C.
Process fluid temperature: -40...+150 °C.
Working pressure (referred to the full scale value): max 90% for pulsating pressure; 100% for static pressure.
Over pressure limit: 30% of full scale value.
Special over pressure: 50% of full scale value, for pressure ranges ≤ 400 bar (max 1 hour).
Protection: IP 67 as per IEC 529.
Socket material: AISI 316L st.st.
Elastic element: AISI 316L st. st. seamless tube.
Welding: AISI 316 TIG.
Case: AISI 304 st.st.
Ring: AISI 304 st.st. , bayonet lock.
Window: plexiglas, 4 mm thick.
Movement: stainless steel with internal limit stops for minimum and maximum pressure (reinforced on DS 150).
Dial: aluminium, white with black markings and "▼" symbol at the edges of the scale value.
Special dial: ranges different from standard, custom artworks available on request.
Pointer: aluminium, micrometric adjustable.
Gasket, blow out vent and filling plug: EPDM
Note: suitable for glycerine filling, other filling fluids available on request (see OPTIONS table).

PBX100L..., PBX150L... Liquid filled (ref. 1.18.3)

Ambient temperature: max +65 °C, (see DAMPING LIQUIDS table on page 4 for further information)
Process fluid temperature: +65 °C.
Protection: IP 67 as per IEC 529.
Damping liquids: glycerine 98% (see DAMPING LIQUIDS table on page 4 for others filling fluid).
Other features: as type PBX100-150X_

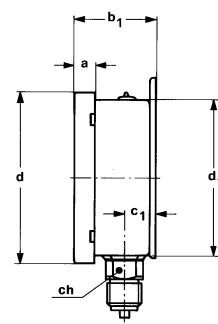
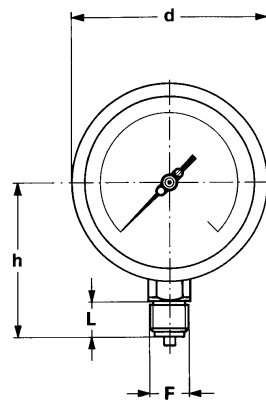
All stainless steel construction PBX100, PBX150 (1.18)

TYPE, DIMENSIONS AND WEIGHTS



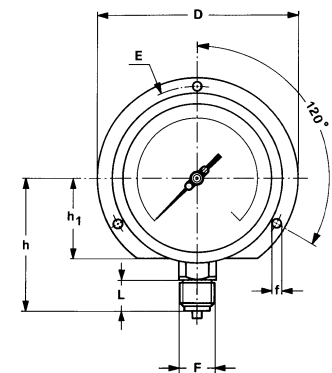
TYPE A

stem mounting; lower connection.



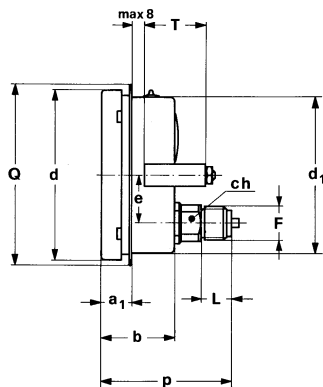
TYPE C

surface mounting, back flange; lower connection.



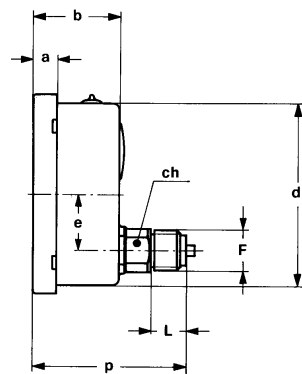
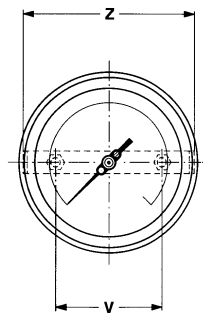
DS	Type	a	b	b ₁	c	c ₁	d	d ₁	f	h ₁	D	E	ch	Weight 18.1-2	Weight 18.3
100	A-C	13	48.5	52.5	15	19	110.5	101	6	52	130	118	22	0.53 kg	0.86 kg
150	A-C	15	50.5	54	15.5	19	161	149.5	6	85	190	175	22	1.02 kg	1.72 kg

(dimensions in mm)



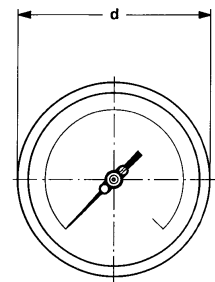
TYPE B

flush mounting, "U" -Clamp; back connection.



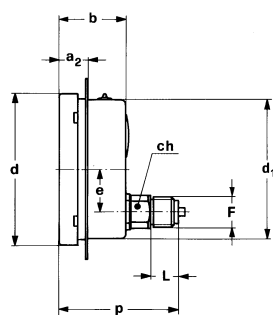
TYPE D

stem mounting; back connection.



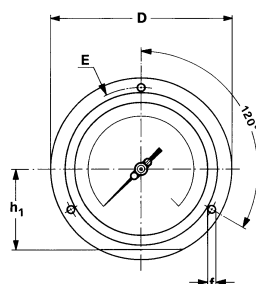
DS	Type	a	a ₁	a ₂	b	d	d ₁	e	f	h ₁	D	E	Q	T	V	Z	ch	Weight 18.1-2	Weight 18.3
100	B-D-E	13	20	20	48.5	110.5	101	31	6	—	130	118	112	41.5	70	112	22	0.52 kg	0.85 kg
150	B-D-E	15	20.5	25.5	50.5	161	149.5	48	6	85	190	175	164	41.5	106	155	22	0.95 kg	1.65 kg

(dimensions in mm)



TYPE E

flush mounting, front flange; back connection.



PROCESS CONNECTIONS

F	DS 100			DS 150		
	L	h	p	L	h	p
1/4" BSP M	13	79	85	13	110	83.5
1/4" NPT M	15	81	87	15	112	85.5
3/8" BSP M	16	86	87	16	117	85.5
3/8" NPT M	16	86	87	16	117	85.5
1/2" BSP M	20	86	87	20	117	85.5
1/2" BSP M tapered	20	86	87	20	117	85.5
1/2" NPT M	20	86	87	20	117	85.5
M20 x 1.5 M	20	86	87	20	117	85.5

(dimensions in mm)

All stainless steel construction PBX100, PBX150 (1.18)

RANGES - "E" = available ranges for PBX100; "G" = available ranges for PBX150.

PRESSURE

TAB. 1

RANGE	bar	kPa	MPa	bar ext.	bar ext.	bar ext.
				psi int.	kPa int.	MPa int.
0...0.6 (1)	EG			EG	EG	
0...1	EG			EG	EG	
0...1.6	EG		EG	EG	EG	
0...2.5	EG		EG	EG	EG	
0...4	EG		EG	EG	EG	
0...6	EG		EG	EG	EG	
0...10	EG		EG	EG		EG
0...16	EG		EG	EG		EG
0...25	EG		EG	EG		EG
0...40	EG		EG	EG		EG
0...60	EG	EG	EG	EG	EG	
0...100	EG	EG	EG	EG	EG	
0...160	EG	EG	EG	EG	EG	
0...250	EG	EG		EG		EG
0...300	E					
0...400	EG	EG		EG		EG
0...600	EG	EG		EG		EG
0...1000	EG	EG		EG		EG
0...1600	EG	EG		EG		EG
0...2500		EG				

(1) not available for PBX100-150L_

TAB. 2

RANGE	psi	psi int.	psi ext.	psi ext.
		kPa ext.	bar int.	Kg/cm ² int.
0...15	EG	EG	EG	EG
0...30	EG	EG	EG	EG
0...60	EG	EG	EG	EG
0...100	EG	EG	EG	EG
0...160	EG	EG	EG	EG
0...200	EG	EG	EG	EG
0...300	EG	EG	EG	EG
0...400	EG	EG	EG	EG
0...600	EG	EG	EG	EG
0...1000	EG	EG	EG	EG
0...1500	EG	EG	EG	EG
0...2000	EG	EG	EG	EG
0...3000	EG	EG	EG	EG
0...4000	EG	EG	EG	EG
0...5000	EG	EG	EG	EG
0...6000	EG	EG	EG	EG
0...10000	EG	EG	EG	EG
0...15000	EG	EG	EG	EG
0...20000	EG	EG	EG	EG
0...30000 (1)	E	E	E	E

(1) working pressure: max 75% of the full scale value over
pressure limit: 10% of the full scale value

VACUUM & COMPOUND

TAB. 4

RANGE	bar	kPa	bar ext.	bar ext.
			psi int.*	kPa int.
-1...0	EG		EG	EG
-1...0.6	EG		EG	EG
-1...1.5	EG		EG	EG
-1...3	EG		EG	EG
-1...5	EG		EG	EG
-1...9	EG		EG	EG
-1...15	EG		EG	EG
-1...24	EG		EG	EG
-100...0		EG		
-100...150		EG		
-100...300		EG		
-100...500		EG		
-100...900		EG		
-100...1500		EG		
-100...2400		E		

* vacuum unit of measurement: "inHg"

TAB. 3 – Receiver

External	Internal 0÷100 linear	Internal 0÷100 quadratic
0.2...1 bar	EG	EG
0.2...1 Kg/cm ²	EG	EG
3...15 psi	EG	EG
20...100 kPa	EG	EG

TAB. 5

RANGE	psi*	psi int.*	psi ext.*	psi ext.*
		psi int.*	bar int.	Kg/cm ² int.
-30...0	EG	EG	EG	EG
-30...15	EG	EG	EG	EG
-30...30	EG	EG	EG	EG
-30...150	EG	—	EG	—

* vacuum unit of measurement: "inHg"

TAB. 6 – NH3

bar external	NH3 internal	
-1...5	-70...+9°C	E
-1...9	-70...+25°C	E
-1...15	-70...+40°C	E
-1...24	-70...+56°C	E

All stainless steel construction PBX100, PBX150 (1.18)

OPTIONS - "E" = available for PBX100; "G" = available for PBX150.

Description		fillable	filled
Inductive and mechanical eletrics contacts			
AISI 316 st.st. case and ring		EG	EG
Monel version (2)		EG	EG
Monel version for fluoridric acid (2)			
NACE version(3)		EG	EG
Accuracy class: 06 as per EN 837.1 (7)		EG	
Non-adjustable pointer		EG	EG
Maximum pointer IP 44			
Maximum pointer IP65		EG	EG
AISI 304 st.st. movement, whit brass gearing (4)		E	E
St.st. movement with 4mm reinforced sector		EG	EG
Suitable for filling with silicone (6)		EG	
Silicone filling (6)			EG
Overpressure 50% of the full scale value		EG	EG
Tropicalisation		EG	EG
AISI 316 st.st. label		EG	EG
Plexiglas window		STD	STD
Safety glass window		EG	EG
Restrictor 0,7mm		STD	STD

(2) best descriptions on pages 5-6.

(3) for pressure ranges > 60 bar see Monel version on page 6.

(4) accuracy class: 1 as per EN 937.1. without internal stops.

(5) std for pressure ranges ≥ 60 bar.

(6) window gasket: silicone rubber; blow out vent & filling plug: VITON.

(7) not available for receivers.

DAMPING LIQUIDS

Damping liquids	Ambient temperature
Gliceryne 98%	+15...+65 °C (+60...+150 °F)
Silicone oil	-45...+65 °C (-50...+150 °F)

INSTRUMENTS FOR OXYGEN

To suit safety criteria of standard EN837.1-2, the pressure gauges for oxigen service must be solid-front type (with baffle wall and safety bursting back).

Pressure gauges suitable for this service are detailed on PBXSF100-150 fillable or filled sheet.

All stainless steel construction PBX100, PBX150 (1.18)

ACCESSORIES

Diaphragm seals: a complete range of diaphragm seals are available with a choice of materials of construction . Specifically for corrosive and difficult process fluids plus hygienic applications. For further details refer to corresponding data-sheets .

Adjustable over-load protector: this is useful for installations which may generate high overpressures; the pressure gauges is automatically excluded at the pre-set pressure and cut in again automatically when the operating pressure returns to normal. For further details refer to our catalogue MA48A-49A.

Valves: for construction details and for use limits refer to our data-sheet MA.

Pigtail and siphons: recommended with temperatures of 65°C (150°F) or over. For further details refer to our data-sheet MA 05/5.

Pressure snubbers: for further details refer to our data-sheet MA05/45-MA05/47.

SPECIAL VERSION PBX100, PBX150 (1.18)

PBX100 MONEL, PBX150 MONEL (option E07)

This version is applicable on model PBX100 and PBX150 (fillable and filled).

Differ from std. versions by:

Socket material: MONEL 400.

Elastic element: MONEL 400 seamless tube.

Welding: MONEL 400 TIG.

Ranges: the same of std. version up to 600 bar (excluding 0/5000 psi).

Leak Test: Helium Test leak Search (1×10^{-7} mbar x l x s⁻¹).

Other features: as type fillable and filled.



PROCESS CONNECTION

Thread	
1/2" BSP M	
1/2" NPT M	

OPTIONS - "E" = available for PBX100 MONEL; "G" = available for PBX150 MONEL.

Description	fillable	filled
AISI 316 st.st. case and ring	EG	EG
NACE version	EG	EG
Non-adjustable pointer	EG	EG
Maximum pointer IP 44		
Maximum pointer IP65	EG	EG
St.st. movement with 4mm reinforced sector	EG	EG
St. st. movement with reinforced sector	E	E
Suitable for filling with silicon (1)	EG	
Silicone filling (1)		EG
Tropicalisation	EG	EG
AISI 316 st.st. label	EG	EG
Plexiglas window	STD	STD
Safety glass window	EG	EG

(1) window gasket: silicone rubber; blow out vent & filling plug: VITON.

Sole agent : PT. Instrumentation Engineering and Services (08111371371)

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BUILT-IN LOW-ACTION CONTACT TYPE M

TYPE M Hz

INSTRUMENT	: class 1
MINIMAL RANGE	: 1 bar
CONNECTOR	: cable junction box, SEE BELOW
HYSTERESIS	: max. 1% up and down
SETPOINT(S)	: from outside with key
WINDOW	: PMMA - plexiglass
POINTER	: black (adjustable see page 24)
CONTACT POINTER(S)	: red

example:

PBX100XA
+ M-12 Hz



ELECTRICAL SWITCH CAPACITY

AC	: 50 VA (max. 250V)
DC	: 30 W (max. 250V)

CONTACT TYPE	SWITCH FUNCTION	CABLE JUNCTION BOX	CASE DIMENSIONS				
			100	160	96x96	144x144	72x144
M-1 Hz		<p>Hirschmann</p>					
M-2 Hz							
M-3 Hz							
M-11 Hz							
M-12 Hz							
M-21 Hz							
M-22 Hz							
M-xx Hz +GS	<p>example: S-21 Hz GS</p>	<p>Wiebrock</p>					
M-33 Hz							N.A.
M-33 Hz+GS							N.A.
M-xxx Hz	functions to be specified at order						N.A.
M-xxxx Hz	functions to be specified at order		O.D.	O.D.	O.D.	O.D.	N.A.
OPTION			EXTRA COSTS				
Lx	LIQUID FILLED CASE (ONDINA)				N.A.	N.A.	N.A.