Type M93X.D1 All-Welded System (AWS)

Type M93X.D1 all-welded gauge/diaphragm seal systems are a drop-in retrofit for existing gauges. This assembly eliminates all potential leak paths and has a tamper-resistant construction. The all-welded system is ideal for installations where tightly controlled fugitive emissions and safety are a concern. The M93X.D1 is well-suited for applications in the chemical, petrochemical and process industries.



Type M93X.D1 AWS

Design

This all-welded gauge assembly is constructed using WIKA gauge model number 23X.34 and diaphragm seal model number L990.34. The diaphragm is recessed within the all-welded seal body. The pressure gauge is back-welded to the seal upper housing to eliminate another potential leak path. The threaded seal fill port has been removed to ensure a tamper resistant design. Additional process wetted materials, process connections, system fill fluids and accessories are available to meet the rigorous demands of most applications

Standard Features

Construction
All-welded design

Pressure Rating, Maximum
1,500 psi and 5,000 psi

Ranges
Vacuum, compound and positive pressure up to 5000 psi

Operating Temperature
0 to 300°F (-18°C to 149°C)

Ambient Temperature
-40°F to 140°F (-40°C to 60°C)

Gauge Features

Dial Size
4½" process gauge

Process Connection
¼" NPT & ½" NPT male or female

Process Wetted Materials

316L stainless steel

Case Material
Fiberglass reinforced thermoplastic

Case Fill
Glycerin (optional)

Window
Acrylic

Dial
White aluminum with black lettering

Pointer
Black aluminum

Accuracy
±0.5% of span

Temperature effect
Process and ambient change, see Technical Data, page 4

System Fill Fluid
Silicone oil, DC200-10cSt.
Identification: Engraved in upper seal housing

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Available Options

- Cooling element 4” (up to 500F) and 8” (up to 750F) long
- Severe pressure pulsation protection
- Other system fill fluids
- Additional process connections
- Window materials (safety glass, instrument glass)
- Certifications material 3.1 and NIST
- Flushing ports w/o plug
- Case liquid filled
- Other material wetted parts
- Dampened movement
- Ethanol Configuration

Description Code – M93X.D1

M932.D1 160PSI 1/2NPTM SS, SS -0, SS, OPTIONS

Options
KN68 = DC200 - 10
KN2 = DC200-50
KN21 = Halocarbon 6.3
KN3.2 = High temperature oil
CE = 4” cooling element
CE8 = 8” Cooling element
SG = Safety glass window
MC = Material certificate 3.1
NACE = NACE applications
R0.6 = Standard eestrictor
R0.3 = Super eestrictor
GF = Glycerin case fill
SF = Silicone case fill
O2 = Clean for oxygen use
SI-free = Silicon free
ETH = Ethanol configuration
TAG = Stainless steel tag plate
INST = Instrument glass

Diaphragm Material
SS = 316L stainless steel
MO = Monel® 400
HC = Hastelloy® C-276

Flushing Connection
0 = None
1 = 1/8” NPT female
2 = 1/4” NPT female

Lower Housing Material
SS = 316 stainless steel
MO = Monel® 400
HC = Hastelloy® C-276

Upper Housing Material
SS = 316 stainless steel

Process Connection
1/4NPTF = 1/4” NPT female
1/2NPTF = 1/2” NPT female
3/4NPTF = 3/4” NPT female
1.0NPTF = 1” NPT female
1/4NPTM = 1/4” NPT male
1/2NPTM = 1/2” NPT male
3/4NPTM = 3/4” NPT male
1.0NPTM = 1.0” NPT male

Pressure Range
160 psi

Diaphragm Seal Design
M93X.D1 = All-Welded Diaphragm Seal

M93X.D1 Smart Code Configuration

Field No.	Code	
		Case filling for vibration protection
	2	Without
	3	Glycerine (standard)
	P	Silicone, 1000 cSt
1	?	Other - please specify
		Nominal gauge size
2	U	4½"
		Unit
	P	psi
3	S	Special pressure range
		Range
	V310	-30 inHg...0
	V321	-30 inHg...15 psi
	V331	-30 inHg...30 psi
	V352	-30 inHg...60 psi
	V379	-30 inHg...100 psi
	V412	-30 inHg...160 psi
	V415	-30 inHg...200 psi
	G310	0 psi...15 psi
	G321	0 psi...30 psi
	G341	0 psi...60 psi
	G369	0 psi...100 psi
	G411	0 psi...160 psi
	G414	0 psi...200 psi
	G421	0 psi...300 psi
	G428	0 psi...400 psi
	G441	0 psi...600 psi
	G469	0 psi...1000 psi
	G510	0 psi...1500 psi
	G514	0 psi...2000 psi
	G521	0 psi...3000 psi
	G534	0 psi...5000 psi
4	????	Other - please specify
		2nd scale / special scale
	K	2nd scale kg/cm²
	B	2nd scale bar
	L	2nd scale kPa
5	Z	Without
		Connection position Dry Filled
	U	Lower mount
	3	Lower back mount
6	??	Other - please specify
		Window
	A	Acrylic
	G	Flat instrument glass
7	H	Laminated safety glass

M93X.D1 Smart Code Configuration

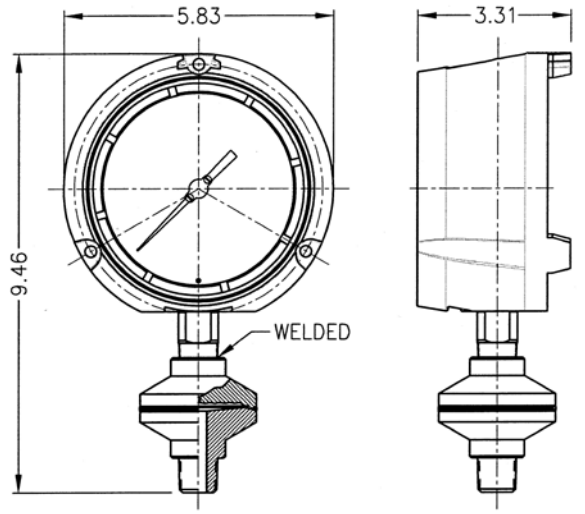
Field No.	Code	
		Process connection
	GNB	1/4" NPT-male
	GND	1/2" NPT-male
	GN2	1/4" NPT-female
	GN4	1/2" NPT-female
8	???	Other - please specify
		Diaphragm material
	A2	Stainless steel 316L (1.4435)
	A7	Hastelloy® C276 (2.4819)
	A8	Monel® 400 (2.4360)
	D1	Duplex 2205 (1.4462)
9	??	Other - please specify
		Lower housing material
	A2	Stainless steel 316L (1.4435)
	A7	Hastelloy® C276 (2.4819)
	A8	Monel® 400 (2.4360)
	D1	Duplex 2205 (1.4462)
10	??	Other - please specify
		Fill fluid
	B2	KN 68 - DC 200 (10 cSt)
	A1	KN 2 - silicon oil
	A2	KN 32 - DC 704
	E1	KN 21 - halocarbon
11	??	Other - please specify
		Flushing connection
	1	Without
	3	1 x 1/4" NPT
	5	2 x 1/4" NPT
12	??	Other - please specify
		Special design features
	Z	Without
	A	Clean for O2 service
13	?	Other - please specify
		Quality certificates
	Z	Without
	2	Certificate 2.2 EN 10204
14	3	Certificate 3.1 EN 10204
		Additional order details
	Z	Without
15	T	Additional order details

Order Code:

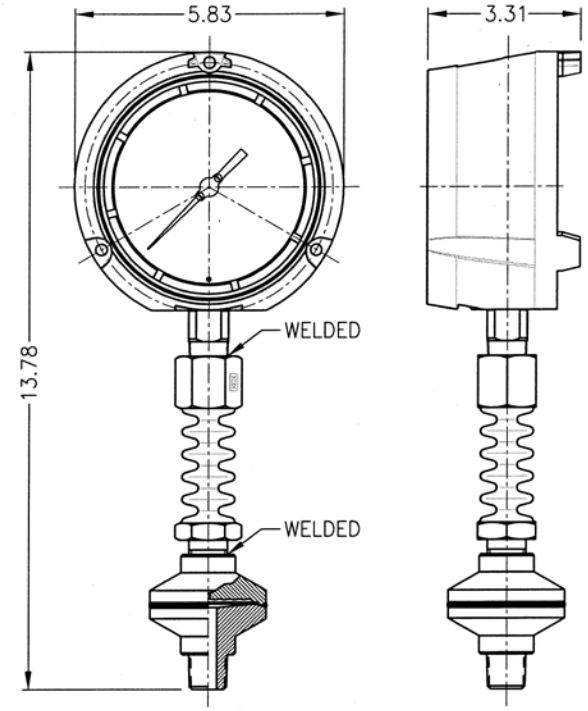
	1		2		3	4	5		6	7		8	9	10	11	12		13	14	15*
M93		.D1 -		-				-			-						-			

*Additional order details _____

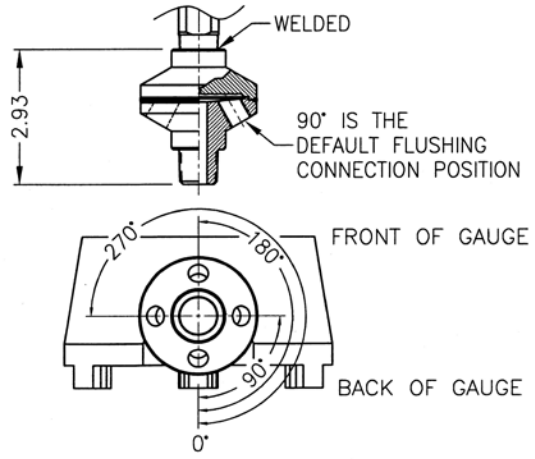
Standard Configuration



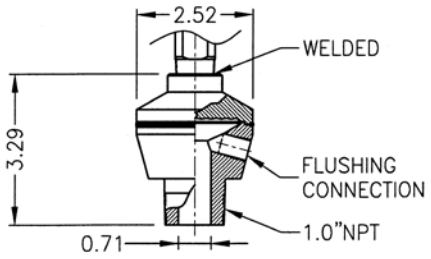
4” Cooling Element installed



Flushing Port Location



Ethanol Configuration



Technical Data

Overall weight: No case fill: 3.50 lbs. Case filled: 4.60 lbs.

Temperature effect[2)]

Fill fluid	KN68	KN7	KN2	KN59	KN21	KN3.2[1)]	
Ambient	0.21	0.10	0.21	0.20	0.18	0.16	PSI per 10F change
Process	0.04	0.02	0.04	0.03	0.03	0.04	

[1)] Values including 4” cooling element
[2)] Units filled at 70F (base temperature)

Modifications may take place and materials specified may be replaced by others without prior notice.
Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing.

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