

Diaphragm-Type Sanitary Gauge Assembly

Type M932.3A - Dry Case

Type M933.3A - Liquid Filled Case

WIKA Datasheet M93X.3A

Applications

- Pharmaceutical Industry
- Biotechnology
- Food & Beverage

Description

Design

All-welded construction in full compliance with '3A' third party standards and meets the most rigorous biopharmaceutical industry specifications. This assembly has all the advantages of the 23X.50 series mechanical gauge (ASME B40.100 & EN 837-1) and WIKA combines it with a superior designed sanitary diaphragm seal. All external stainless steel surfaces are electropolished and the wetted components have full material identification and traceability. The diaphragm and its body have matching convolution patterns to greatly reduce potential diaphragm damage due to mishandling and to minimize temperature effects.

Gauge Nominal Size

2-1/2" or 4" – Lower and Back Mount

Process Connection

1-1/2" to 4" Tri-Clamp® ('3A' third party compliant)

Pressure Range

Vacuum and 0 to 15 psi up to 0 to 1000 psi, includes compound ranges (maximum working pressure is limited by installation clamp rating). Clamp provided by customer.

Operating Temperature

Ambient: +25°F to +140°F (-4°C to +60°C) – dry or glycerine filled case
 Process: +25°F to +300°F (-4°C to +149°C)
 Autoclave: 300°F for one hour
 (polysulfone window and dry case w/weep holes)

Dial

White aluminum with black lettering

Accuracy (Ref. @ 73° F)

2-1/2": ±2/1/2% of span
 4": ±1.0% of span



M93X.3A Sanitary Gauge

Temperature Effects

0.06 psi maximum per every 10°F process and ambient temperature change

System Fill (FDA compliant)

Glycerine, KN 7 - Non-vacuum application
 Mineral Oil, KN 92 - Vacuum application

Wetted Material

316L stainless steel electropolished
 Nominal surface finish $R_a \leq 15 \mu\text{inch}$ (0.38 μm) per ASME BPE SF4 (except for weld seam)

Case Material

304 stainless steel electropolished case with vent plug and stainless steel electropolished twist lock removable bayonet ring

Window

Polycarbonate or Polysulfone

Pointer

Black aluminum, micro-adjustable, designed for zero adjustment in field

Bourdon Tube & Movement

316L stainless steel bourdon tube and stainless steel movement

Weather Protection

Weather tight to NEMA 4X / IP65 (without optional autoclave weep holes)

**Serial Number and Part Number
Engraved in case of gauge**

**Material Identification and Heat Numbers
Engraved in seal body or gauge case**

Documentation

Calibration Conformance Report supplied with each assembly (not a direct substitute for NIST certificate). Material Conformance documents supplied with each assembly (not a substitute for 3.1 EN 10204 material certificate).

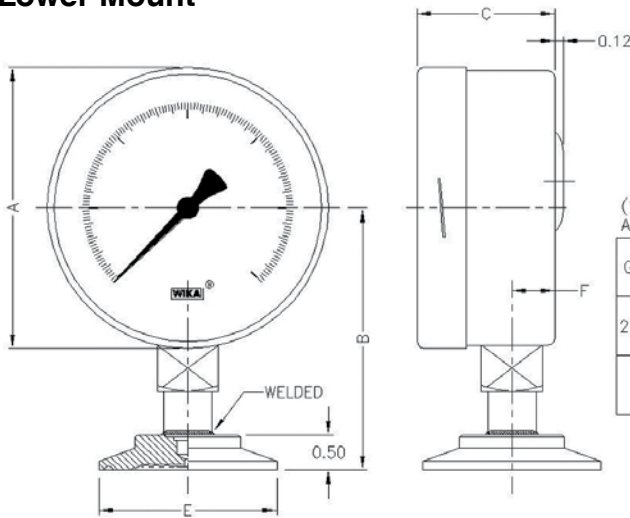
Available Options

See Selection Guide (over)

Additional pressure ranges available upon request.

To determine the effects of temperature and response time in a specific application, contact the factory for an **Application Questionnaire**. The information provided will allow WIKA Technical Support to accurately model your application parameters using state-of-the-art computer simulation techniques.

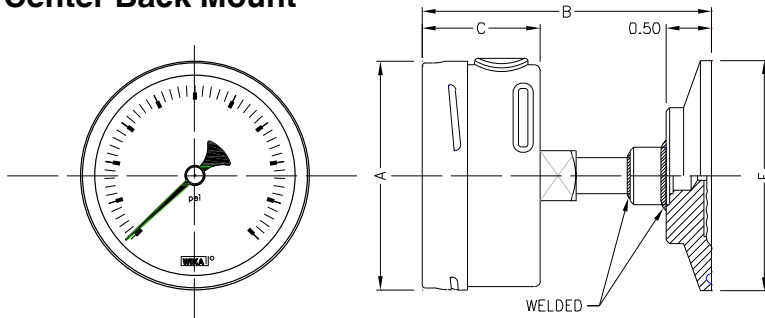
2½" & 4" Lower Mount



(1)=NOMINAL SIZE
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED

GAUGE	SEAL	A(1)	B	C	E	F
2-1/2"	1.5" TRI-CLAMP	2.5	2.5	1.34	1.98	.37
	2.0" TRI-CLAMP				2.52	
4"	1.5" TRI-CLAMP	4.0	3.9	1.95	1.98	0.61
	2.0" TRI-CLAMP				2.52	

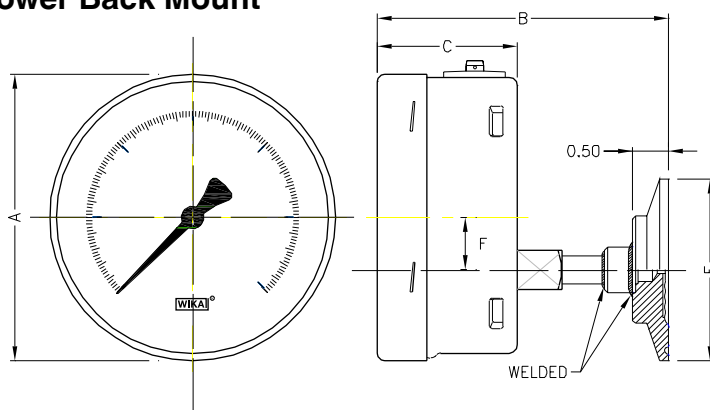
2½" Center Back Mount



(1)=NOMINAL SIZE
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED

GAUGE	SEAL	A(1)	B	C	E
2.5"	1.5" TRI-CLAMP	2.5	3.1	1.30	1.98
	2.0" TRI-CLAMP				2.52

4" Lower Back Mount



(1)=NOMINAL SIZE
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED

GAUGE	SEAL	A(1)	B	C	E	F
4"	1.5" TRI-CLAMP	4.0	4.05	1.95	1.98	0.73
	2.0" TRI-CLAMP				2.52	

M93X.3A Selection Guide

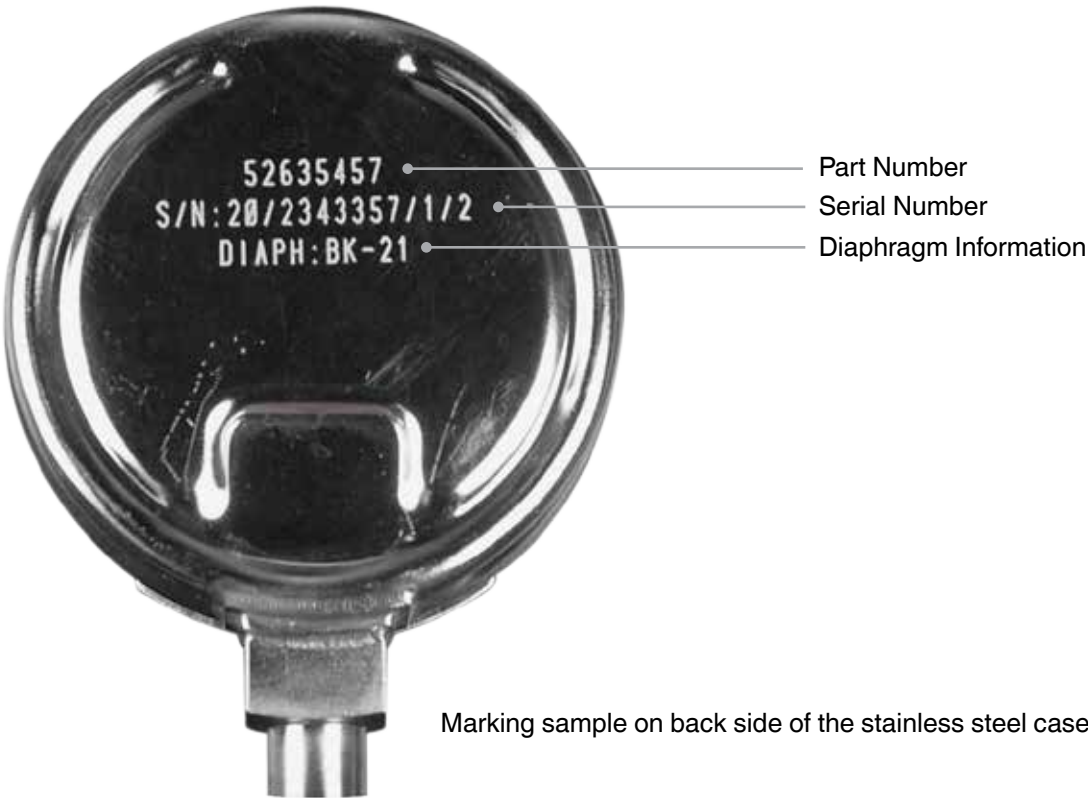
M93X.3A Selection Guide			M93X.3A Selection Guide				
Field no.	Code	Description - Stainless Steel Gauge 2½" or 4" with Diaphragm Seal - all SST Internals	Field no.	Code	Description - Stainless Steel Gauge 2½" or 4" with Diaphragm Seal - all SST Internals		
1	Dial Size		6	Process Connection (see note 6)			
	25	2½" Gauge case		10	1.0 " connector		
	40	4.0" Gauge case		15	1.5 " connector		
2		Pressure Range		20	2.0 " connector		
		V000		-30 inHg...0 Vacuum	25	2.5 " connector	
		C030		-30 inHg ... 30 psi Compound Range	30	3.0 " connector	
		C060	-30 inHg ... 60 psi Compound Range	40	4.0 " connector		
		C100	-30 inHg ... 100 psi Compound Range	7		Wetted Parts Material	
C160	-30 inHg ... 160 psi Compound Range	ES	Electropolished 316L SS (1.4435) Ra ≤ 15 µin (except for weld seam)				
P015	0...15psi Gauge pressure range	MO	Monel 400 (2.4360)				
P030	0...30 psi Gauge pressure range	HC	Hastelloy C276 (2.4819)				
P060	0...60 psi Gauge pressure range	XX	Other - consult factory	8		System Fill	
P100	0...100 psi Gauge pressure range	07	KN7 - Glycerine 99.7% USP (1000cSt) - (see note 1) FDA 21 CFR 182.1320				
P160	0...160 psi Gauge pressure range	59	KN59 - Neobee M20 FDA 21 CFR 172.856, 174.5				
P200	0...200 psi Gauge pressure range	92	KN92 - MINERAL OIL Lubepharm (23cSt) FDA 21 CFR 172.878, 178.3620(a): USP, EP				
P300	0...300 psi Gauge pressure range	93	KN93 - DC200 SILICONE OIL (350cSt Food Grade) FDA 21 CFR 173.340				
P400	0...400 psi Gauge pressure range	XX	Other - consult factory	9		Window Material	
P600	0...600 psi Gauge pressure range	LPC	Polycarbonate				
XXXX	Other - consult factory	LPS	Polysulfone				
3		Pressure Units		10		Options - (see note 2)	
		PX	PSI - Single scale			FGL	Glycerine case fill - change model # to M933.3A
		PC	PSI outside / Kg/cm ² inside in red			XEP	Wetted parts electro-polished w/ certificate (see note 4)
		PK	PSI outside / KPA inside in red			XMT	Material Certificate 3.1 EN10204 (metal only) (see note 4)
		PB	PSI outside / BAR inside in red	WSS	Instrument TAG, stainless steel		
		SP	Special scale	RS6	Restrictor, SS 0.6 orifice		
4		Connector Location		RS3	Restrictor, SS 0.3 orifice	CE2	2" Cooling element - (see note 3) (Tmax +350°F)
		LM	Lower mount	CE4	4" Cooling Element - (Tmax +500°F)	XAC	Autoclave design, case with 2 weep holes (see note 5)
		BK	Center back mount (2½") or Lower back mount (4.0")	XNI	NIST Certificate of Calibration per 3.1 EN10204	XXX	Other - consult factory
5		Diaphragm Seal Design					
		22	Tri-Clamp®				
		57F	Cherry Burrell - I-Line Female				
		57M	Cherry Burrell - I-Line Male				
		58	APC				
		XX	Other - consult factory				

Notes:

- 1) Glycerine (07) is not available for vacuum & compound pressure measurement ranges. Consult factory for exceptions.
- 2) List options in alphabetical order at the end of the configuration code.
- 3) Cooling elements are welded to the diaphragm seal
- 4) All product under this model series is provided with calibration protocol, electropolish finish, and material based information report as standard. Documentation per 2.2 EN10204
- 5) Autoclave design requires polysulfone window (LPS) and dry gauge case (M932.3A).
- 6) Size limitation for Cherry Burrel and APC both available in 1.5" and 2".

Order Sample

MODEL	DIAL SIZE	PRESSURE RANGE	PRESSURE UNIT	CONNECTOR LOCATION	DIAPHRAGM SEAL DESIGN	PROCESS CONNECTION	WETTED PARTS MATERIAL	SYSTEM FILL	WINDOW MATERIAL	OPTIONS
M932.3A	40	P100	PX	LM	22	20	ES	92	LPC	XXX
Field no.	1	2	3	4	5	6	7	8	9	10



Marking sample on back side of the stainless steel case



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