

# 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 Ra ≤ 15 μinch (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).

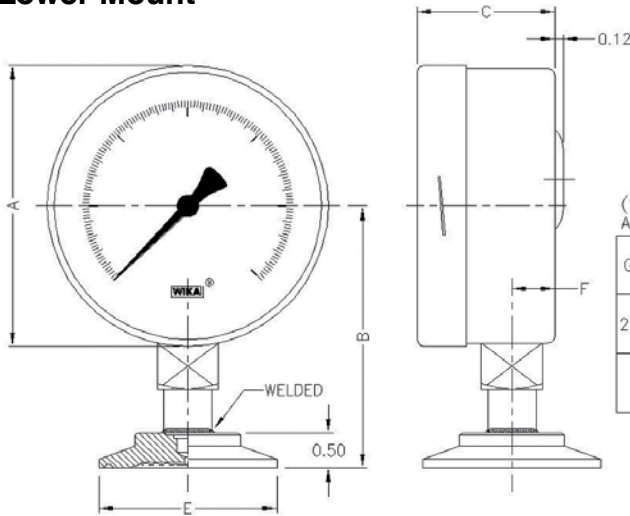
**Available Options**

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.

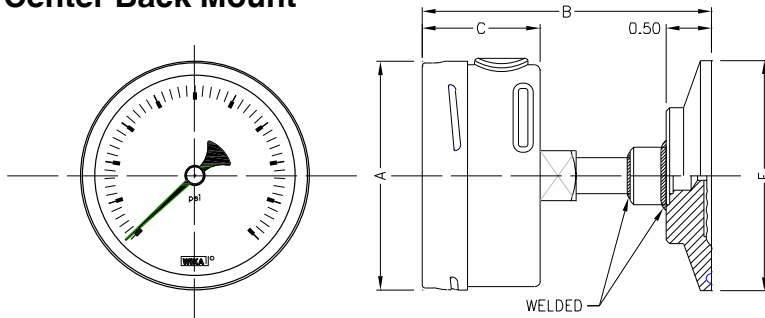
**2½" & 4" Lower Mount**



(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	

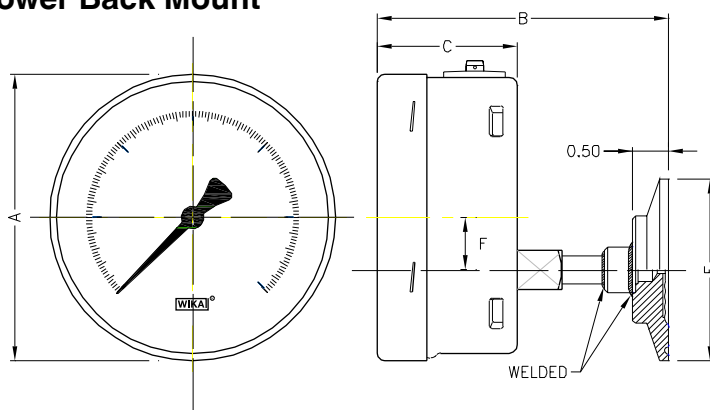
**2½" Center Back Mount**



(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	<b>Dial Size</b>		6	<b>Process Connection (see note 6)</b>	
	25	2½" Gauge case		10	1.0 " connector
	40	4.0" Gauge case		15	1.5 " connector
2	<b>Pressure Range</b>			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	<b>Wetted Parts Material</b>	
	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
	P100	0...100 psi Gauge pressure range	8	<b>System Fill</b>	
	P160	0...160 psi Gauge pressure range		07	KN7 - Glycerine 99.7% USP (1000cSt) - (see note 1) FDA 21 CFR 182.1320
	P200	0...200 psi Gauge pressure range		59	KN59 - Neobee M20 FDA 21 CFR 172.856, 174.5
	P300	0...300 psi Gauge pressure range		92	KN92 - MINERAL OIL Lubepharm (23cSt) FDA 21 CFR 172.878, 178.3620(a): USP, EP
	P400	0...400 psi Gauge pressure range		93	KN93 - DC200 SILICONE OIL (350cSt Food Grade) FDA 21 CFR 173.340
	P600	0...600 psi Gauge pressure range	XX	Other - consult factory	
3	<b>Pressure Units</b>		9	<b>Window Material</b>	
	PX	PSI - Single scale		LPC	Polycarbonate
	PC	PSI outside / Kg/cm <sup>2</sup> inside in red	LPS	Polysulfone	
	PK	PSI outside / KPA inside in red	10	<b>Options - (see note 2)</b>	
	PB	PSI outside / BAR inside in red		FGL	Glycerine case fill - change model # to M933.3A
	SP	Special scale		XEP	Wetted parts electro-polished w/ certificate (see note 4)
4	<b>Connector Location</b>			XMT	Material Certificate 3.1 EN10204 (metal only) (see note 4)
	LM	Lower mount		WSS	Instrument TAG, stainless steel
5	<b>Diaphragm Seal Design</b>		RS6	Restrictor, SS 0.6 orifice	
	22	Tri-Clamp®	RS3	Restrictor, SS 0.3 orifice	
	57F	Cherry Burrell - I-Line Female	CE2	2" Cooling element - (see note 3) (Tmax +350°F)	
	57M	Cherry Burrell - I-Line Male	CE4	4" Cooling Element - (Tmax +500°F)	
	58	APC	XAC	Autoclave design, case with 2 weep holes (see note 5)	
	XX	Other - consult factory	XNI	NIST Certificate of Calibration per 3.1 EN10204	
			XXX	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	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



Part Number  
 Serial Number  
 Diaphragm Information

Marking sample on back side of the stainless steel case



**WIKAI Instrument, LP**  
 1000 Wiegand Boulevard  
 Lawrenceville, GA 30043-5868  
 Tel: 888-WIKA-USA • 770-513-8200  
 Fax: 770-338-5118  
 E-Mail: info@wika.com  
 www.wika.com