

## Product Information EM

## PHARMA

# Pressure Gauge EM

## Application

- Hygienic pressure measurement in pharmaceutical and biotech applications in the materials AISI 316L and HASTELLOY® C-22®

## Application examples

- Local pressure display without power supply
- For critical applications with CIP/SIP processes or autoclaves

## Hygienic design/Process connection

- Versions available to conform to 3-A Standard 74-
- Sensor materials and actuating fillings are FDA conform
- Direct connection for Tri-Clamp, CPM and Varivent
- IP 66, housing for optimized cleanability

## Features

- CIP-/SIP-cleanable up to 149 °C (300 °F) continuous
- Surface quality  $R_a \leq 0.2 \mu\text{m}$
- Designed and tested in accordance with ASME B40.100, CSA B51-03 and CRN number CSA0F9754.5C

## Options

- High temperature version up to 165 °C (330 °F) with steam stabilized diaphragm
- Case filling with glycerine for damping in case of vibration
- Hydromechanical damping for strong pressure surges
- Actuating fill with Neobee® M-20
- Adjustment of zero and span
- Autoclavable design available
- Recessed diaphragm
- UV stabilized lens

## EM



ASME BPE



## Table measurement range

PSI		BAR		Dual scale range	
029	30"Hg/0...30	055	-1...2	241	-0.1...0.2 MPa/bar
031	30"Hg/0...60	217	-1...3	242	-0.1...0.4 MPa/bar
032	30"Hg/0...100	056	-1...4	367	-0.1...0.7 MPa/bar
033	30"Hg/0...160	356	-1...5	243	0...0.25 MPa/bar
034	30"Hg/0...300	475	-1...6	244	0...0.4 MPa/bar
066	0...30	497	-1...9	245	0...0.6 MPa/bar
069	0...60	057	0...2	246	0...1.0 MPa/bar
071	0...100	058	0...2.5	857	0...2.0 MPa/bar
074	0...160	192	0...4	929	30"Hg/0...30 psi / -1...2 bar
077	0...300	060	0...6	931	30"Hg/0...60 psi / -1...4 bar
082	0...600	061	0...10	932	30"Hg/0...100 psi / -1...7 bar
		064	0...16	933	30"Hg/0...160 psi / -1...11 bar
		067	0...40	934	30"Hg/0...300 psi / -1...20 bar
				966	0...30 psi / 0...2 bar
				969	0...60 psi / 0...4 bar
				971	0...100 psi / 0...7 bar
				974	0...160 psi / 0...11 bar
				977	0...300 psi / 0...20 bar
				982	0...600 psi / 0...40 bar

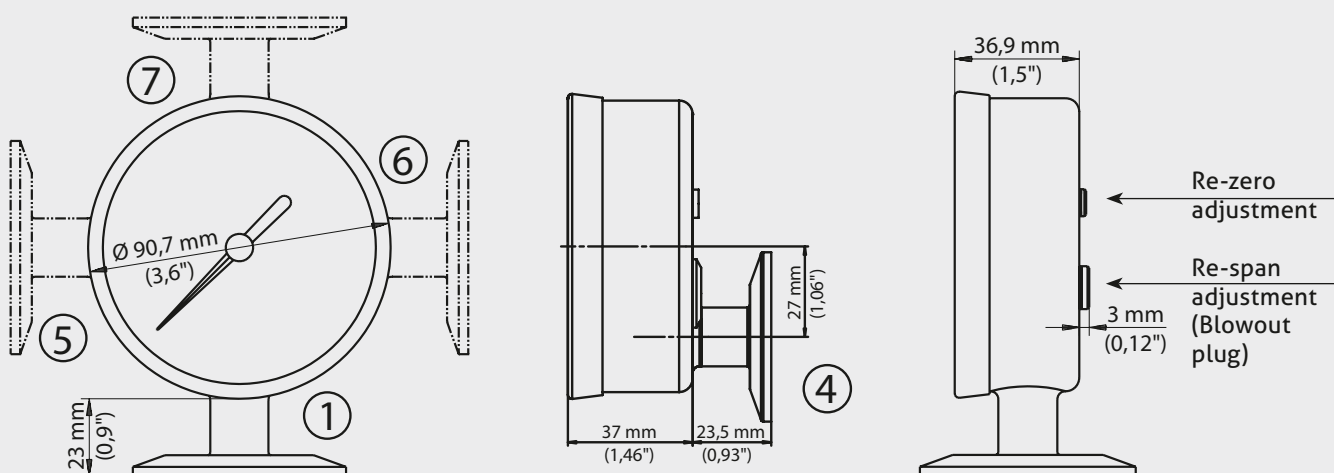
Specification		
<b>Material</b>	diaphragm, fitting bourdon tube movement mechanism case/stem lens	AISI 316L or HASTELLOY® C-22®, with 3.1 material certificate bronze brass 1.4301 / AISI 304, polished polysulfone (for temperatures up to 165 °C / 330 °F)
<b>Surface roughness</b>	diaphragm, fitting	electro polished, $R_a \leq 0.2 \mu\text{m} / 8 \mu\text{in}$
<b>Actuating fill</b>		mineral oil optional: Neobee® M-20
<b>Case fill</b>	optional	Glycerine (USP Food Grade)
<b>FDA approval number</b>	mineral oil Neobee® M-20	21 CFR 172.878, 21 CFR 178.3620, 21 CFR 573.680, 21 CFR 182.1320 21 CFR 172.856, 21 CFR 174.5
<b>Protection class</b>		IP 66 / NEMA 4X
<b>Damping (option)</b>	glycerine case filling hydromechanical	25...50 % of pressure variation 50...80 % of pressure variation
<b>Over-range capability</b>		at least 25 % of full scale
<b>Accuracy</b>	calibrated accuracy repeatability linearity hysteresis	$\pm 0.75$ % of full scale (from 10...90 % of range) $\pm 0.25$ % of full scale $\pm 0.25$ % of full scale $\pm 0.25$ % of full scale
<b>Stability</b>		Within specified accuracy of 6 months under normal operating conditions
<b>Temperature range</b>	process CIP/SIP autoclavability ambient storage	-29...149 °C / -20...300 °F optional: up to 165 °C / 330 °F 149 °C / 300 °F continuous 149 °C / 300 °F, 60 minutes max. (only for vented case) 4...49 °C / 40...120 °F slower reaction at deep temperatures unvented case: -30...91 °C / -22...95 °F vented case: -30...121 °C / -22...250 °F
<b>Temperature drift</b>	from 10...90 % of range (process and ambient)	$< \pm 0.01$ %/K of full scale
<b>Adjustment</b>	zero span (option)	$\pm 5$ % of measurement range (non active with span) $\pm 5$ % of measurement range (accessible from outside with separate tool)
<b>Weight</b>	glycerine case filling Tri-Clamp 1½" Tri-Clamp 2" Varivent V40/50	130 g (additional to sensor weight) 450 g 520 g 980 g

**Note on 3-A Sanitary Standard 74-**

Information on installation according to 3-A standard is available on our website:  
[www.anderson-negele.com/3A74.pdf](http://www.anderson-negele.com/3A74.pdf)

Click on the PDF icon to download the document.

## Mount options



## Overview of further process connections

Type	Figure	Dimensional drawing	Available connections	
Tri-Clamp			Tri-Clamp 1½"	d = 50.5 mm
			Tri-Clamp 2"	d = 64.0 mm
Tri-Clamp recessed			Tri-Clamp 1½"	d = 50.5 mm
			Tri-Clamp 2"	d = 64.0 mm
Varivent			DN 40/50	d = 68.0 mm
CPM			CPM	d = 38.1 mm

## Accessories

<b>4523800000</b>	Tool for Re-span adjustment
<b>TAG</b>	Metal plate with inscription according to customer requirements, material 1.4301 / AISI 304

## Pointer stop



## Recessed diaphragm



## Order Code

**EM** Diameter housing 90 mm / 3.6", incl. material certificate and calibration certificate

## Measurement range

**XXX** see table on page 1

**01** Fixed character

## Process connection (A: 3-A conform)

- 004** Tri-Clamp 1½" A
- 162** Tri-Clamp 1½", with recessed diaphragm
- 005** Tri-Clamp 2" A
- 177** Tri-Clamp 2", with recessed diaphragm
- 123** CPM fitting A
- 099** Varivent type N for DN40/50 A

## Mount/connection

- 1** bottom
- 4** back
- 5** left
- 6** right
- 7** top

## Damping

- 0** standard damping
- 1** glycerine filled case for damping
- 2** hydromechanical damping
- 3** vented case, autoclavable, standard damping
- 4** vented case, autoclavable, hydromechanical damping

## Calibration adjustment

- 1** Re-Zero
- 2** Re-Zero and Re-Span
- 3** Re-Zero, with pointer stop
- 4** Re-Zero and Re-Span, with pointer stop

## Actuating fill

- 1** mineral oil
- 5** Neobee® M-20

## Wetted materials

- A** AISI 316L diaphragm and process connection
- B** HASTELLOY® C-22® diaphragm (only for Tri-Clamp 1½" and 2")
- C** HASTELLOY® C-22® diaphragm and process connection (only for Tri-Clamp 1½" and 2")
- L** Standard with custom marking
- M** HASTELLOY® C-22® diaphragm, with custom marking (only for Tri-Clamp 1½" and 2")
- N** HASTELLOY® C-22® all wetted surfaces, with custom marking (only for Tri-Clamp 1½" and 2")

## Temperature

- 0** standard
- 1** high temperature up to 165 °C / 330 °F, with steam stabilized diaphragm (only for Tri-Clamp)

## Lens

- 0** standard
- 1** UV stabilized lens (not suitable for autoclave)

## Surface preparation

- 0** standard
- 1** clean for oxygen service

**0** Fixed character

**EM 055 01 004 1 1 4 1 A 0 0 0 0**