

Pressure Gauge MAN-90

Application

- Hygienic pressure measurement

Application examples

- Local display without power supply

Hygienic design / Process connection

- Direct connection for TriClamp, SMS, IDF, DIN 11851 and Varivent
- CIP- / SIP-cleanable up to 140 °C / maximum 60 minutes
- Sensor materials and actuating fill are FDA conform
- IP66, housing for optimized cleanability

Features

- Complete device is certified by 3-A-SSI
- Works up to 120 °C
- At option MAN-90P: Ra < 0,2 µm and autoclaveability is standard

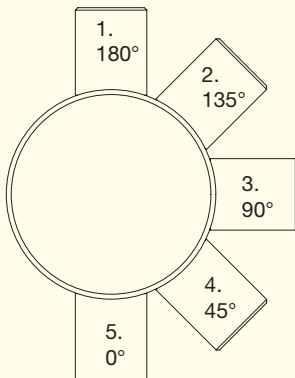
Options

- Case filling with glycerine for damping
- Hydromechanical damping for strong pressure surges
- Actuating fill with neobee M20
- Special version for pharmaceutical applications (MAN-90P)
- Adjustment of zero and span

Conditions for a measuring point according to 3-A-Standard 74-03



- The sensors MAN-90A / TC... and MAN-90P / TC... are approved according to the 3-A-Standard.
- Self draining has to be warranted by the build-in position (pos. 1, 2 or 3).



- The process connection needs a self-draining leakage hole.

Authorizations



MAN-90 / TC1,5" / ... / GZ



MAN-90 / GF40" / ... / GZ



MAN-90 / TC1,5" / ... / H

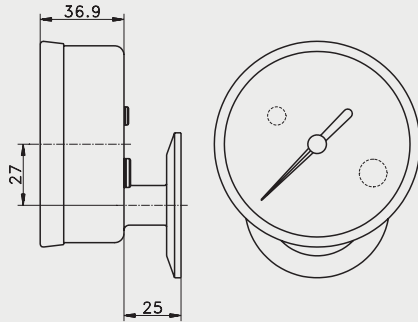


negele

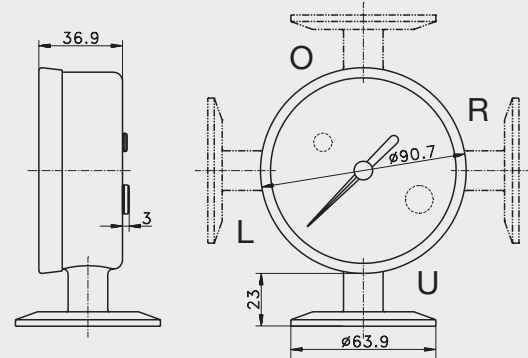
Specification		
Material	diaphragm fitting bourdon tube movement case inspection window	1.4404 1.4404 bronze brass 1.4301 polysulfone (for temperatures up to 163 °C)
Surface roughness	diaphragm	Ra < 0,8 µm
Protection Class		IP66
Actuating fill	(both FDA conform) option	paraffin oil neobee M20
Dampening (option)	case fill hydromechanical	glycerine
Zero adjustment		± 5 %
Over-range capability		minimum 25 % of full scale
Accuracy	repeatability linearity hysteresis	± 0,5 % of full scale ± 0,5 % of full scale ± 0,5 % of full scale
Temperature	process CIP SIP ambient	- 3 °C...120 °C 120 °C continuous 149 °C / 60 minutes - 10 °C...50 °C slower reaction at deep temperatures
Temperature effect	from 10...90 % of range (process or ambient)	< ± 0,01 % / K of full scale

MAN-90P (Pharma version)		
Surface roughness		Ra < 0,2 µm
Autoclaveable	yes (without case filling)	149 °C / 1 hour max.
Accuracy	repeatability, linearity and hysteresis	each < ± 0,25 % of full scale
Adjustment	zero span (option)	± 5 % ± 5 %

MAN-90 with connection H (back)



MAN-90 with connection U, L, R, O



Overview of further process connections

Type	Figure	Dimensioned Drawings	Available connections
TriClamp			1,5" TriClamp d = 50,5 mm 2" TriClamp d = 63,9 mm 2,5" TriClamp d = 77,5 mm 3" TriClamp d = 91,0 mm
DIN11851			DN40 (male) DN50 (male)
DIN11851			DN40 with nut (female) DN50 with nut (female)
SMS			SMS 38 mm (male) SMS 51 mm (male)
SMS			SMS 38 mm with nut (female) SMS 51 mm with nut (female)
Varivent			DN 40/50
IDF			IDF 38 mm IDF 51 mm

Order Code

MAN-90 (diameter housing 90 mm)
MAN-90A (like MAN-90, but with 3-A TPV verification according to standard 74-03 at process connection TC)
MAN-90P (diameter housing 90 mm, inclusive material certificate, calibration certificate and 3-A TPV verification according to standard 74-03 at process connection TC)

Process Connection (MAN-90, MAN-90P)

- TC1,5"** (TriClamp 1,5")
- TC2"** (TriClamp 2")
- TC2,5"** (TriClamp 2,5")
- TC3"** (TriClamp 3")

Following Process Connections only for MAN-90 and 90P (not with 3-A TPV Verification)

- V40/50** (Varivent DN40/50)
- SM38** (SMS male 38 mm)
- SF38** (SMS female 38 mm)
- SM51** (SMS male 51 mm)
- SF51** (SMS female 51 mm, with slotted round nut)
- GM40** (male DN40 according to DIN11851)
- GF40** (female DN40 according to DIN11851, with slotted round nut)
- GM50** (male DN50 according to DIN11851)
- GF50** (female DN50 according to DIN11851, with slotted round nut)
- IDF38** (IDF 38 mm)
- IDF51** (IDF 51 mm)

Measuring Range

- 1...+2** (-1,0...+2,0 bar)
- 1...+4** (-1,0...+4,0 bar)
- 0...2** (0...2,0 bar)
- 0...2,5** (0...2,5 bar, only for MAN-90P)
- 0...4** (0...4,0 bar, only for MAN-90 and MAN-90A)
- 0...6** (0...6,0 bar, only for MAN-90P)
- 0...7** (0...7,0 bar, only for MAN-90 and MAN-90A)
- 0...10** (0...10,0 bar, only for MAN-90P)
- 0...11** (0...11,0 bar, only for MAN-90 and MAN-90A)
- 0...16** (0...16,0 bar, only for MAN-90P)
- 0...20** (0...20,0 bar, only for MAN-90 and MAN-90A)
- 0...40** (0...40,0 bar)

Filling

- X** (paraffin oil)
- GC** (neobee M20)

Calibration Possibility

- X** (without)
- N** (zero)
- V** (zero and span only MAN-90P)

Damping

- X** (without)
- GZ** (glycerine filling)
- M** (hydro-mechanical damping)

Connection

- U** (down)
- L** (left)
- R** (right)
- O** (top, only MAN-90)
- H** (back, only MAN-90)

MAN-90 / TC1,5" / -1...+2 / X / X / U / U