

# Pressure Gauge MAN-90

## Application

- Hygienic pressure measurement

## Application examples

- Local display without power supply

## Hygienic design/Process connection

- Direct connection for Tri-Clamp, SMS, IDF, DIN 11851 and Varivent
- CIP-/ SIP-cleaning up to 140 °C / maximum 60 minutes
- Sensor materials and actuating fill are FDA conform
- IP 66, housing for optimized cleanability
- Conforming to 3-A Sanitary Standard 74-06 for sensors with Tri-Clamp process connection

## Features

- Complete device is certified by 3-A-SSI
- Works up to 120 °C

## Options

- Case filling with glycerine for damping
- Hydromechanical damping for strong pressure surges
- Actuating fill with neobee M20

## Authorizations



## MAN-90 / TC1 / ... / GZ



## MAN-90 / GF40 / ... / GZ



## MAN-90 / TC1 / ... / H



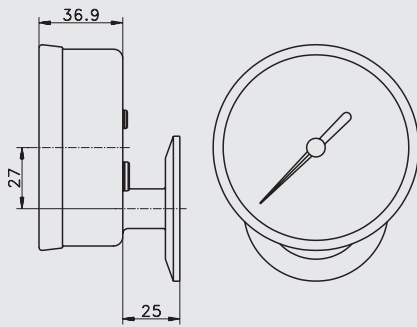
Specification		
<b>Measuring range [bar]</b>		-1...2 / 4 0...2 / 4 / 7 / 11 / 20 / 40
<b>Overpressure strength</b>		minimum 25 % of full scale
<b>Dampening (option)</b>	case fill hydromechanical	glycerine
<b>Measurement accuracy</b>	repeatability linearity hysteresis	±0.5 % of full scale ±0.5 % of full scale ±0.5 % of full scale
<b>Temperature effect</b>	from 10...90 % of range (process or ambient)	< ±0.01 % / K of full scale
<b>Temperature range</b>	process CIP SIP ambient	-3 °C...120 °C 120 °C continuous 140 °C / 60 minutes -10 °C...50 °C (slower reaction at deep temperatures)
<b>Zero adjustment</b>		±5 %
<b>Materials</b>	diaphragm fitting bourdon tube movement case inspection window	1.4404 (316L) 1.4404 (316L) bronze brass 1.4301 polysulfone (for temperatures up to 163 °C)
<b>Surface roughness</b>	diaphragm	R <sub>a</sub> ≤ 0.8 µm
<b>Actuating fill</b>	optional	paraffin oil Neobee M20
<b>FDA approval number</b>	paraffin oil  Neobee M20	21 CFR 172.878, 21 CFR 178.3620, 21 CFR 573.680, 21 CFR 182.1320 21CFR172.856, 21CFR174.5
<b>Protection Class</b>		IP 66
<b>Weight</b>	glycerine case filling	130 g (additional to sensor weight)
	Tri-Clamp TC1	450 g
	Tri-Clamp TC2	520 g
	Varivent V40/50	980 g
	SMS SM38	600 g
	SMS SM51	770 g
	Dairy flange GF40	990 g
	Dairy flange GF50	1080 g
	IDF IDF38	600 g
	IDF IDF51	770 g

#### Conditions for a measuring point according to 3-A Sanitary Standard 74-06

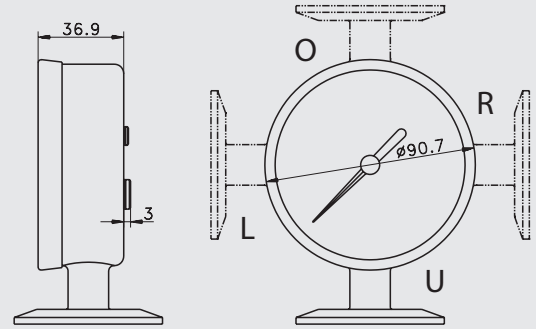


- The sensors MAN-90 / TC... conforming to the 3-A Sanitary Standard.
- The sensors are designed for CIP-/ SIP-cleaning. Maximum 140 °C / 60 minutes.
- Only with 3-A conforming Tri-Clamp process connection.
- Mounting position, self draining and the position of the leakage hole must be in accordance to current 3-A Sanitary Standard.

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
Tri-Clamp			Tri-Clamp 1.5" $d = 50.5 \text{ mm}$ Tri-Clamp 2" $d = 63.9 \text{ mm}$ Tri-Clamp 2.5" $d = 77.5 \text{ mm}$ Tri-Clamp 3" $d = 91.0 \text{ mm}$
Dairy flange 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)

**Process connections with 3-A TPV verification**

**TC1** (Tri-Clamp 1.5")  
**TC2** (Tri-Clamp 2")  
**TC2,5** (Tri-Clamp 2.5")  
**TC3** (Tri-Clamp 3")

**Process connections without 3-A TPV verification**

**V40/50** (Varivent DN40/50)  
**SM38** (SMS male 38 mm)  
**SF38** (SMS female 38 mm, with slotted round nut)  
**SM51** (SMS male 51 mm)  
**SF51** (SMS female 51 mm, with slotted round nut)  
**GF40** (female DN40 according to DIN11851, with slotted round nut)  
**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...4** (0...4.0 bar)  
**0...7** (0...7.0 bar)  
**0...11** (0...11.0 bar)  
**0...20** (0...20.0 bar)  
**0...40** (0...40.0 bar)

**Filling**

**X** (paraffin oil)  
**GC** (Neobee M20)

**Calibration possibility**

**X** (without)  
**N** (zero)

**Damping**

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

**Connection**

**U** (down)  
**L** (left)  
**R** (right)  
**O** (top)  
**H** (back)

MAN-90 / TC1 / -1...+2 / X / X / X / U