

safety pressure gauge

all stainless steel, "solid-front"

MGS20 - DS 63



These Solid-Front instruments are built in accordance with safety specifications of **EN 837-1 "S3"** and **ANSI B40.1**. The safety construction consists of a solid separating wall in stainless steel, placed between the scale and the elastic element and a blow out back which is released from the case whenever an internal pressure, due to leaks, is created or the elastic element is broken. A leak tight fit is ensured if the instrument is filled with a dampening fluid to prevent damage due to vibration. These instruments are designed for use in food, beverage, pharmaceutical, cryogenic, chemical and petrochemical processing industries, and in conventional and nuclear power plants. They are built to resist the most severe operating conditions created by the ambient environment and the process medium.

Functional and constructive characteristics.

1.20.1 Standard

Safety pattern code: S3 as per EN 837-1.
Accuracy class: 1,6 as per EN 837-1.
Ambient temperature: -25...+65 °C.
Process fluid temperature: max +100 °C .
Working pressure: max 75% of the full scale value .
Over pressure limit: (referred to the full scale value):
 25% for pressure ranges ≤ 100 bar;
 15% for pressure ranges > 100 bar.
Protection: IP 55 as per IEC 529.
Socket material: AISI 316 st.st.
Elastic element: AISI 316L st. st. seamless tube.
Welding: AISI 316 TIG.
Case: AISI 304 st.st.
Ring: AISI 304 st.st., bayonet lock.
Blow out disk: ABS (AISI 304 st.st on request for lower connection type).
Window: safety glass.
Movement: stainless steel.
Dial: ABS, white with black markings.
Special dials: ranges different from standard, or custom artwork, available on request.
Pointer: aluminium, micrometric adjustable.
Gasket: silicon rubber.

1.20.2 Fillable

Protection: IP 67 as per IEC 529.
Pointer: aluminium, black.
Note: suitable for glycerine filling; other filling fluids available on request (see OPTIONS table).
Other features: as type 1.20.1 (as type 1.20.3, when filled).

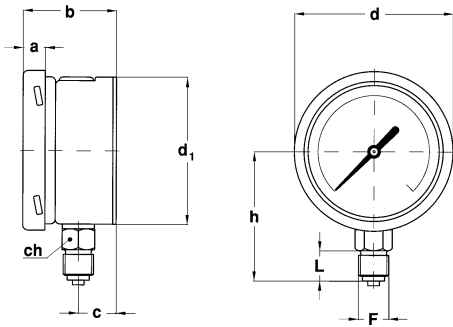
1.20.3 Liquid filled

Ambient temperature: max +65 °C, (see DAMPING LIQUIDS table for further information).
Process temperature: max +65 °C.
Protection: IP 67 as per IEC 529.
Pointer: aluminium, black.
Damping liquids: glycerine 98% (optional silicon oil, Fluorolube).
Other features: as type 1.20.1 Standard.

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TYPES, DIMENSIONS AND WEIGHTS

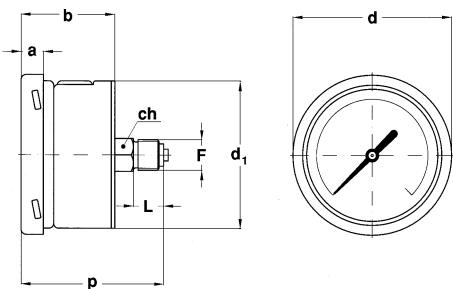


TYPE A

stem mounting;
 lower connection.

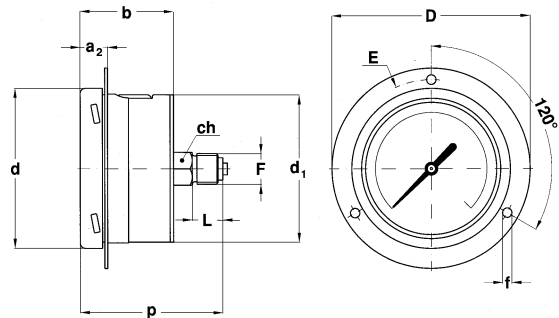
| Type | a | b | c | d | d ₁ | Weight (kg) |
|------|----|----|------|----|----------------|-------------|
| A | 10 | 40 | 16,7 | 68 | 62,6 | 0,2 |

(dimensions in mm.)



TYPE D

stem mounting;
 back connection.



TYPE E

flush mounting, front flange;
 back connection.

| Type | a | a ₂ | b | d | d ₁ | f | D | E | Weight (kg) |
|------|----|----------------|----|----|----------------|-----|----|----|-------------|
| D-E | 10 | 11,5 | 40 | 68 | 62,6 | 3,6 | 85 | 75 | 0,23 |

(dimensions in mm.)

PROCESS CONNECTION

| F | Code | L | ch | h | p |
|------------------|------|----|---------|----|----|
| 1/8" BSP | 11M | 10 | 14 x 10 | 63 | 63 |
| 1/8" NPT | 13M | 10 | 14 x 10 | 63 | 63 |
| 1/4" BSP | 21M | 13 | 14 x 9 | 63 | 63 |
| 1/4" NPT | 23M | 13 | 14 x 8 | 63 | 63 |
| 1/4" BSP tapered | 22M | 13 | 14 x 8 | 63 | 63 |

(dimensions in mm.)

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DAMPING LIQUIDS

| Damping liquids | Limit ambient temperature |
|-----------------|------------------------------|
| Glycerine 98% | +15...+65 °C (+60...+150 °F) |
| Silicon oil | -45...+65 °C (-50...+150 °F) |
| "Fluorolube" | -60...+65 °C (-76...+150 °F) |

Glycerine or silicone should not be used with highly oxidizing agents such as oxygen, chlorine, nitric acid or hydrogen peroxide, because of danger of spontaneous chemical reaction, inflammability or explosion. The use of fluorinated fluid is recommended in these cases.

RANGES

PRESSURE

TAB. 1

| RANGE | bar | kPa | MPa | bar ext. psi int. | bar ext. kPa int. | bar ext. MPa int. |
|----------|-----|-----|-----|----------------------|----------------------|----------------------|
| 0...1 | ♦ | | ♦ | ♦ | ♦ | |
| 0...1,6 | ♦ | | ♦ | ♦ | ♦ | |
| 0...2,5 | ♦ | | ♦ | ♦ | ♦ | |
| 0...4 | ♦ | | ♦ | ♦ | ♦ | |
| 0...6 | ♦ | | ♦ | ♦ | ♦ | |
| 0...10 | ♦ | | ♦ | ♦ | | ♦ |
| 0...16 | ♦ | | ♦ | ♦ | | ♦ |
| 0...25 | ♦ | | ♦ | ♦ | | ♦ |
| 0...40 | ♦ | | ♦ | ♦ | | ♦ |
| 0...60 | ♦ | | ♦ | ♦ | | ♦ |
| 0...100 | ♦ | ♦ | ♦ | ♦ | | ♦ |
| 0...160 | ♦ | ♦ | | ♦ | | ♦ |
| 0...250 | ♦ | ♦ | | ♦ | | ♦ |
| 0...300 | ♦ | | | ♦ | | |
| 0...400 | ♦ | ♦ | | ♦ | | ♦ |
| 0...600 | ♦ | ♦ | | ♦ | | ♦ |
| 0...1000 | ♦ | ♦ | | ♦ | | ♦ |
| 0...1600 | | ♦ | | | | |
| 0...2500 | | ♦ | | | | |

TAB. 2

| RANGE | psi | psi int. kPa ext. | psi ext. bar int. | psi ext. kg/cm ² int. |
|-----------|-----|----------------------|----------------------|-------------------------------------|
| 0...15 | ♦ | ♦ | ♦ | ♦ |
| 0...30 | ♦ | ♦ | ♦ | ♦ |
| 0...60 | ♦ | ♦ | ♦ | ♦ |
| 0...100 | ♦ | ♦ | ♦ | ♦ |
| 0...160 | ♦ | ♦ | ♦ | ♦ |
| 0...200 | ♦ | ♦ | ♦ | ♦ |
| 0...300 | ♦ | ♦ | ♦ | ♦ |
| 0...400 | ♦ | ♦ | ♦ | ♦ |
| 0...600 | ♦ | ♦ | ♦ | ♦ |
| 0...1000 | ♦ | ♦ | ♦ | ♦ |
| 0...1500 | ♦ | ♦ | ♦ | ♦ |
| 0...2000 | ♦ | ♦ | ♦ | ♦ |
| 0...3000 | ♦ | ♦ | ♦ | ♦ |
| 0...4000 | ♦ | ♦ | ♦ | ♦ |
| 0...5000 | ♦ | ♦ | ♦ | ♦ |
| 0...6000 | ♦ | ♦ | ♦ | ♦ |
| 0...10000 | ♦ | ♦ | ♦ | ♦ |
| 0...15000 | ♦ | ♦ | ♦ | ♦ |

VACUUM & COMPOUND

TAB. 3

| RANGE | bar | kPa | bar ext. psi int.* | bar ext. kPa int. |
|-------------|-----|-----|-----------------------|----------------------|
| -1...0 | ♦ | | ♦ | ♦ |
| -1...0,6 | ♦ | | ♦ | ♦ |
| -1...1,5 | ♦ | | ♦ | ♦ |
| -1...3 | ♦ | | ♦ | ♦ |
| -1...5 | ♦ | | ♦ | ♦ |
| -1...9 | ♦ | | ♦ | ♦ |
| -1...15 | ♦ | | ♦ | ♦ |
| -1...24 | ♦ | | ♦ | ♦ |
| -100...0 | | ♦ | | |
| -100...150 | | ♦ | | |
| -100...300 | | ♦ | | |
| -100...500 | | ♦ | | |
| -100...900 | | ♦ | | |
| -100...1500 | | ♦ | | |

* vacuum unit of measurement: "inHg"

TAB. 4

| RANGE | psi* | psi int.* kPa ext. | psi ext.* bar int. | psi ext.* kg/cm ² int. |
|-----------|------|-----------------------|-----------------------|--------------------------------------|
| -30...0 | ♦ | ♦ | ♦ | ♦ |
| -30...15 | ♦ | ♦ | ♦ | ♦ |
| -30...30 | ♦ | ♦ | ♦ | ♦ |
| -30...150 | ♦ | | ♦ | |

* vacuum unit of measurement: "inHg"

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REV. 03 E 10/00

OPTIONS

| Description | Code | 1.20.1 | 1.020.2 | 1.20.3 |
|---------------------------------------------------------|------|--------|---------|--------|
| "Fluorolube" filling (4) | F30 | | | ◆ |
| AISI 304 st.st. blow out disk for lower connection type | FIX | ◆ | ◆ | ◆ |
| DIN pointer (not adjustable) | L05 | ◆ | ◆ | ◆ |
| Suitable for filling with silicone and "Fluorolube" (4) | P01 | | ◆ | |
| Oxygen service | P02 | ◆ | ◆ (2) | ◆ (1) |
| Aluminium dial (3) | Q03 | ◆ | ◆ | ◆ |
| Black dial (3) | Q04 | ◆ | ◆ | ◆ |
| AISI 304 st.st. restrictor ø 0,7 mm. | S02 | ◆ | ◆ | ◆ |
| Silicone filling (4) | S10 | | | ◆ |

(1) to be ordered with "Fluorolube" filling only (option F30).

(2) to be ordered with option "P01".

(3) minimum quantity N. 100.

(4) window gasket and filling plug: VITON.

HOW TO ORDER

CODES & DESCRIPTION

| | |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 1 | 1 - bourdon tube pressure gauges |
| 20 | 20 - safety pressure gauges, "solid-front" MGS20 |
| 2 | 1 - standard version 2 - fillable version 3 - filled version |
| A | A - lower connection - stem mounting D - back connection - stem mounting E - back connection - flush mounting, front flange |
| C | C - DS 63 |
| 2 | 1 - up to 2,5 bar 2 - from 4 to 40 bar 3 - over 40 bar |
| 0/10 bar | see ranges table |
| 21M | 11M - 1/8" BSP 13M - 1/8" NPT 21M - 1/4" BSP 23M - 1/4" NPT 22M - 1/4" BSP tapered |
| P02 | see options table |

ACCESSORIES

Diaphragm seals: a complete range of diaphragm seals are available with a choice of materials of construction. Specifically for corrosive and difficult process fluids plus hygienic applications. For further details refer to relevant data sheets.

Adjustable over-load protector: this is useful for installations which may generate high overpressures; the pressure gauges is automatically excluded at the pre-set pressure and cut in again automatically when the operating pressure returns to normal. For further details refer to relevant data sheet.

Valves: for construction details and for use limits refer to relevant data sheet.

Pigtail and siphons: recommended with temperatures of 65° C (150° F) or over. For further details refer to relevant data sheet.

Pressure snubbers: for further details refer to relevant data sheet.

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