



GENERAL
CATALOGUE

NUOVA FIMA

MEASURING INSTRUMENTS - STRUMENTI PER MISURARE



BOURDON TUBE PRESSURE GAUGE

NUOVA FIMA

bourdon tube pressure gauges standard execution DS 1.5", 2" (40-50mm)



PED 2014/68/EU

They can be used with gaseous or liquid media which do not corrode copper alloy and which do not have high viscosity or do not cristalize.

1.01.1 - Standard Model, DS 1.5" (40mm)

Design: EN 837-1.

Ranges: from 0...30 to 0...600 *psi* (from 0...2,5 to 0...40 bar or equivalent units)

Accuracy class: 1,6 as per EN 837-1.

Ambient temperature: -13...+122°F (-25°C...+50°C).

Process fluid temperature : +149°F (+ 65 °C max).

Thermal drift: max ±0,4 %/10 K of range (starting from 68°F - 20°C).

Working pressure:

75% of FSV for static pressure;

66% of FSV for pulsating pressure.

Overpressure (max 15 min):

25% of FSV for ranges ≤ 1500 *psi* (100 bar);

15% of FSV for ranges over 1500 *psi* (100 bar).

Protection degree: IP 40 as per IEC 529.

Socket material: copper alloy.

Bourdon tube: copper alloy.

Welding: copper alloy.

Case: stainless steel

Window: plastic.

Movement: copper alloy.

Dial: aluminium, white with black markings

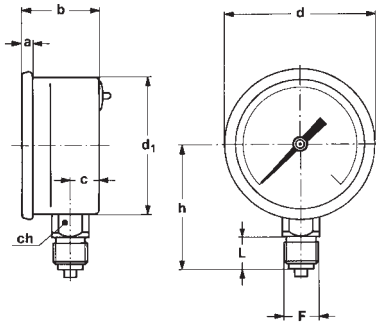
Pointer: non adjustable, aluminium, black.

1.01.1 - Standard Model, DS 2" (50mm)

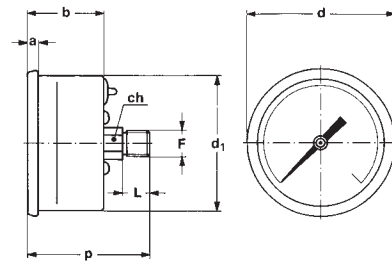
Ranges: from 0...30 to 0...6000 *psi* ; (from 0...2,5 to 0...400 bar or other equivalent units).

Ambient temperature: -13...+149°F (-25°C...+65°C).

Other features: as Standard Model, DS 1.5" (40mm).



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | DS | F | a | b | c | d | d ₁ | h | p | L | ch | Weight |
|----------|-----------------------|-------------------------|-------|--------|-------|-------|----------------|--------|-------|-------|-------|------------|
| Back | A 1.5" (40) | 11M - G 1/8 A | | 1.04" | 0.43" | 1.61" | | | 1.77" | 0.39" | 0.47" | 0.15 lbs |
| | | 13M - 1/8-27 NPT | | (26,5) | (11) | (41) | | | (45) | (10) | (12) | (0,07 kg) |
| Lower | B 2" (50) | 21M - G 1/4 A | 0.15" | 1.14" | 0.43" | 2.20" | 2.00" | | | 0.51" | 0.55" | 0.22 lbs |
| | | | (4) | (29) | (11) | (56) | (51) | | | (13) | (14) | (0,1 kg) |
| Lower | B 2" (50) | 23M - 1/4-18 NPT | 0.15" | 1.14" | | 2.20" | 2.00" | 1.88" | | 0.59" | 0.55" | 0.22 lbs |
| | | | (4) | (29) | | (56) | (51) | (47,9) | | (15) | (14) | (0,1 kg) |
| Back | B 2" (50) | 11M - G 1/8 A | 0.15" | 1.14" | | 2.20" | 2.00" | 1.88" | 1.81" | 0.39" | 0.47" | 0.18 lbs |
| | | 13M - 1/8-27 NPT | (4) | (29) | | (56) | (51) | (47,9) | (46) | (10) | (12) | (0,085 kg) |

dimensions : inches (mm)

"HOW TO ORDER" SEQUENCE

Section / Model /Case / Mounting / Diameter / Range / Process connection / Options

1 01 1 A A 11M
D B 13M
21M
23M



bourdon tube pressure gauges

DS 6" (150mm)



PED 2014/68/EU

They can be used with gaseous or liquid media which do not corrode copper alloy and which do not have high viscosity or do not cristalize.

1.01.1 - Standard Model

Design: EN837-1.

Safety designation: S1 as per EN 837-2.

Ranges: from 0...15 to 0...15000 *psi* (from 0...1 to 0...1000 bar or equivalent units).

Accuracy class: 1,6 as per EN 837-1.

Ambient temperature: -13...+149°F (-25...+65 °C).

Process fluid temperature:

13...+149°F (-25...+65 °C) for ranges ≤ 600 *psi* (40 bar);

-13...+ 248°F (-25...+120 °C) for ranges ≥ 1000 *psi* (60 bar).

Thermal drift: max ±0,4 %/10 K of range (starting from +68°F - 20°C).

Working pressure:

75% of FSV for static pressure;

66% of FSV for pulsating pressure.

Overpressure (max 15 min):

25% of FSV for ranges ≤ 1500 *psi* (100 bar);

15% of FSV for ranges more than 1500 *psi* (100 bar).

Protection degree: IP 44 as per IEC 529.

Socket material: copper alloy, internal restrictor Ø 0.03" (0,8 mm).

Bourdon tube: copper alloy for ranges ≤ 600 *psi* (40 bar); AISI 316L st.st. for ranges > 1000 *psi* (60 bar).

Case: stainless steel.

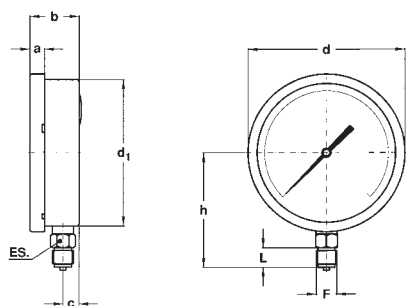
Ring: stainless steel, bayonet lock

Window: tempered glass.

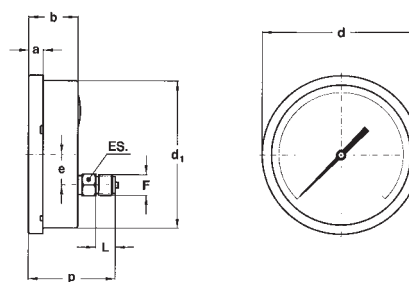
Movement: copper alloy.

Dial: aluminium, white with black markings

Pointer: non adjustable, aluminium, black



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b | c | d | d ₁ | e | h | p | L | ES | Weight |
|----------|------------------|-------|--------|--------|-------|----------------|-------|-------|-------|-------|-------|-----------|
| Lower | 41M - G 1/2 A | 0.59" | 1.98" | 0.16" | 6.33" | 5.88" | | 4.60" | | 0.78" | 0.86" | 2.44 lbs |
| | 43M - 1/2-14 NPT | (15) | (50,5) | (16,5) | (161) | (149,6) | | (117) | | (20) | (22) | (1,11 kg) |
| Back | 41M - G 1/2 A | 0.59" | 1.98" | | 6.33" | 5.88" | 1.22" | | 3.50" | 0.78" | 0.86" | 2.20 lbs |
| | 43M - 1/2-14 NPT | (15) | (50,5) | | (161) | (149,6) | (31) | | (89) | (20) | (22) | (1,0 kg) |

dimensions : inches (mm)

OPTIONS

| | |
|--------------|---|
| B - | "U"-clamp, for back connection pressure gauges |
| C - | Back flange, for lower connection pressure gauges |
| E - | Front flange, for back connection pressure gauges |
| K10 - | Accuracy class 1,0% |
| L21 - | Maximum pointer IP 44 on plexiglas window (1) |
| T32 - | Safety glass window |

(1) Accuracy refers to the area free from the maximum pointer action.

"HOW TO ORDER" SEQUENCE

Section / Model /Case / Mounting / Diameter / Range / Process connection / Options
1 01 1 A G 41M B, C, E
D 43M K10...T32



bourdon tube pressure gauges anti-vibration version DS 4" (100mm)



PED 2014/68/EU

Instruments designed for use on power units, pump, hydro-cleaning machines, presses, engine compressors, turbines, diesel engines, chemical, petrochemical and refrigerating plants and on machines and equipment where pulsating pressures or mechanical vibrations are apparent. They can be used with gaseous or liquid media which do not corrode copper alloy and which do not have high viscosity or do not cristalize.

1.04.2 - Fillable Model

Design: EN 837-1.

Safety designation: S1 as per EN 837-2.

Ranges: from 0...15 to 0...15000 PSI (from 0...1 to 0...1000 bar or other equivalent units).

Accuracy class: 1,6 as per EN 837-1.

Ambient temperature: -13...+149°F (-25...+65 °C).

Process fluid temperature: +212°F (max +100 °C).

Thermal drift: max ±0,4 %/10 °C of ranges (starting from 68°F- 20°C).

Working pressure:

75% of FSV for static pressure;

66% of FSV for pulsating pressure.

Overpressure (max 15 min): 25% of FSV

of ranges ≤ 1500 psi (100 bar);

15% of FSV for ranges over 1500 psi (100 bar).

Protection degree: IP 67 as per IEC 529.

Socket material: copper alloy, with internal restrictor ø 0.03" (0,8 mm)

Bourdon tube:

copper alloy for ranges ≤ 10000 psi (600 bar);

AISI 316L st.st. for ranges 15000 psi (1000 bar).

Case: stainless steel.

Ring: stainless steel, crimped.

Window: tempered glass.

Movement: copper and stainless steel.

Dial: aluminium, white with black markings

Pointer: not adjustable, aluminium,black

1.04.3 - Filled Model

Damping liquid: glycerine 98%, silicon oil.

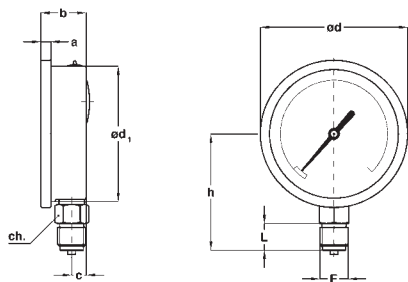
Ambient temperature:

+32...+149 °F (0...+65 °C) with glycerine filling;

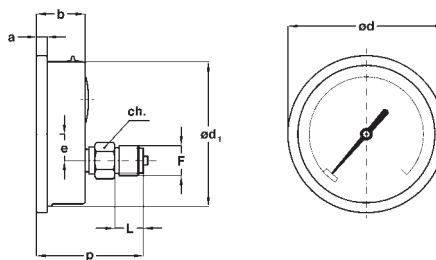
-40...+149 °F (-40...+65 °C) with silicon oil filling.

Process fluid temperature: max+149°F (+65°C) .

Other features: as Fillable Model.



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b | c | d | d ₁ | e (3) | h | p | ch | L | Weight |
|----------|-------------------------|-------|-------|-------|-------|----------------|--------|-------|-------|-------|-------|--------------|
| Lower | 41M - G 1/2 A | 0.29" | 1.33" | 0.43" | 4.33" | 3.97" | | 3.42" | | 0.86" | 0.78" | 0.88 lbs (1) |
| | 43M - 1/2-14 NPT | (7,5) | (34) | (11) | (110) | (101) | | (87) | | (22) | (20) | (0,4 kg) |
| Back | 41M - G 1/2 A | 0.29" | 1.33" | | 4.33" | 3.97" | 0.73" | | 2.95" | 0.86" | 0.78" | 0.79 lbs (2) |
| | 43M - 1/2-14 NPT | (7,5) | (34) | | (110) | (101) | (18,5) | | (75) | (22) | (20) | (0,36 kg) |

(1) Add 0.5 lbs (0,23 kg) when filled - (2) Add 0.53 lbs (0,24 kg) when filled

OPTIONS

| Model | fillable | filled |
|--|----------|--------|
| B - "U"-clamp, for back connection pressure gauges | ◆ | ◆ |
| C - Back flange, for lower connection pressure gauges | ◆ | ◆ |
| E - Front flange, for back connection pressure gauges | ◆ | ◆ |
| P01 - Suitable for filling with silicone | ◆ | |
| S06 - Restrictor plug ø 0.01" (0,4 mm) | ◆ | ◆ |
| S10 - Silicone filling | | ◆ |

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options
1 04 2 A E 41M B, C, E
3 D 43M P01...S10



bourdon tube pressure gauges anti-vibration version DS 2" (50mm)



PED 2014/68/EU

Instruments designed for use on power units, pumps, hydro-cleaning machines, presses, engine compressors, turbines, diesel engines, chemical, petrochemical and refrigerating plants and on machines and equipment where pulsating pressures or mechanical vibrations are apparent. They can be used with gaseous or liquid media which do not corrode copper alloy and which do not have high viscosity or do not cristalize.

1.10.2 - Fillable Model

Design: EN 837-1.

Ranges: from 0...30 to 0...6000 *psi* (from 0...2,5 to 0...400 bar)

Accuracy class: 1,6 as per EN 837-1.

Ambient temperature: -13...+149°F (-25...+65 °C).

Process fluid temperature: +248°F (max +120 °C).

Thermal drift: max ±0,4 %/10 °C of ranges (starting from +68°F - 20°C).

Working overpressure:

75% of FSV for static pressure;

66% of FSV for pulsating pressure;

Overpressure (max 15 min):

25% of FSV of ranges ≤ 1450 *psi* (100 bar);

15% of FSV for ranges over 1450 *psi* (100 bar).

Protection degree: IP 65 as per IEC 529.

Socket material: copper alloy.

Bourdon tube: copper alloy.

Case: stainless steel.

Window: plastic.

Movement: copper alloy.

Dial: aluminium,white with black markings.

Pointer: not adjustable, aluminium,black

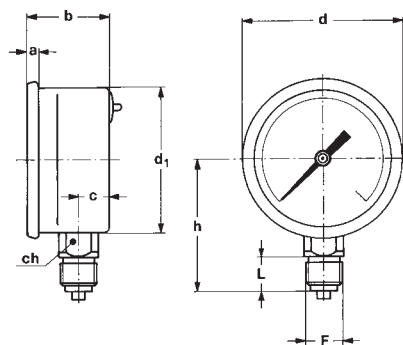
1.10.3 - Filled Model

Damping liquid: glycerine 98%.

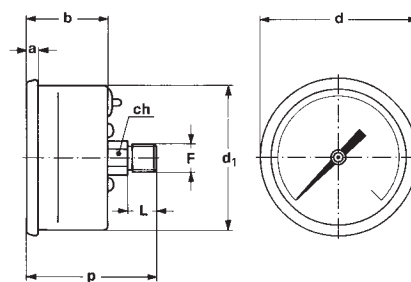
Ambient temperature: +32...+149°F (0...+65 °C).

Process fluid temperature: +149°F (max +65 °C).

Other features: as fillable model.



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b | c | d | d ₁ | h | p | L | ch | Weight (1) |
|----------|-------------------------|-------|-------|-------|-------|----------------|---------------|-------|---------------|-------|------------|
| Lower | 21M - G 1/4 A | 0.15" | 1.14" | 0.43" | 2.20" | 2.00" | 1.87" - 1.94" | | 0.51" - 0.59" | 0.55" | 0.22 lbs |
| | 23M - 1/4-18 NPT | (4) | (29) | (11) | (56) | (51) | (47,5 - 49,5) | | (13 - 15) | (14) | (0,1 kg) |
| Back | 11M - G 1/8 A | 0.15" | 1.14" | | 2.20" | 2.00" | | 1.81" | 0.39" | 0.47" | 0.18 lbs |
| | 13M - 1/8-27 NPT | (4) | (29) | | (56) | (51) | | (46) | (10) | (12) | (0,085 kg) |

dimensions : inches (mm)

(1) add 0.09 lbs (0,045 kg) when filled

OPTIONS

| Model | fillable | filled |
|---|----------|--------|
| B - Clamp and ring for back connection pressure gauges | ◆ | ◆ |

“HOW TO ORDER” SEQUENCE

Section / Model /Case / Mounting / Diameter / Range / Process connection / Options
1 10 2 A B 11M B
3 D 13M
21M
23M



bourdon tube pressure gauges

anti-vibration version

DS 2.5" (63mm)



PED 2014/68/EU

These instruments are built in conformity with the construction and safety S2 specifications of EN 837-1.

Instruments designed for use on power units, pump, hydro-cleaning machines, presses, engine compressors, turbines, diesel engines, refrigerating plants and on machines and equipment where pulsating pressures or mechanical vibrations are apparent. They can be used with gaseous or liquid media which do not corrode copper alloy and which do not have high viscosity or do not cristalize.

1.10.2 - Fillable Model

Design: EN837-1.

Safety designation: S2 as per EN 837-1.

Ranges: from 0...15 to 0...10000 psi (from 0...1 to 0...600 bar or other equivalent units).

Accuracy class: 1,6 as per EN 837-1.

Ambient temperature: -13...+149°F (-25...+65 °C).

Process fluid temperature: +212°F (max +100 °C).

Thermal drift: max ±0,4 %/10 °C of ranges (starting from + 68 °F - 20 °C).

Working pressure:

75% of PSV for static pressure;

66% of PSV for pulsating pressure.

Over pressure limit (15 min max):

25% of PSV for pressure ranges ≤ 1500 psi (100 bar);

15% of PSV for pressure ranges over 1500 psi (100 bar).

Protection degree: IP 67 as per EN 60529/IEC 529.

Socket material: copper alloy.

Bourdon tube: copper alloy.

Case: stainless steel.

Ring: stainless steel, polished, crimped

Window: polycarbonate.

Movement: copper and stainless steel.

Dial: plastic, white with black markings

Pointer: not adjustable, aluminium, black

1.10.3 - Filled Model

Damping liquid: glycerine 98% or silicon oil.

Ambient temperature:

+32...+149 °F (0...+65 °C) with glycerine filling;

-40...+149 °F (-40...+65 °C) with silicon oil filling.

Process fluid temperature: max +149°F (+65 °C).

Other features: as fillable model.

bourdon tube pressure gauges anti-vibration heavy duty version DS 4" (100mm)



PED 2014/68/EU

Instruments designed for use on power units, pumps, hydro-cleaning machines, presses, engine compressors, turbines, diesel engines, chemical, petrochemical and refrigerating plants and on machines and equipment where pulsating pressures or mechanical vibrations are apparent. They can be used with gaseous or liquid media which do not corrode copper alloy and which do not have high viscosity or do not cristalize.

1.10.1 - Standard Model

Design: EN 837-1.

Safety designation: S1 as per EN 837-2.

Ranges: from 0...15 to 0...15000 PSI (from 0...1 to 0...1000 bar or other equivalent units).

Accuracy class: 1,0 as per EN 837-1.

Ambient temperature: -40...+149 °F (-40...+65 °C)

Process fluid temperature:

-13...+212 °F (-25...+100 °C) for ranges ≤ 600 psi (40 bar);

-13...+248 °F (-25...+120 °C) per campi ≥ 600 psi (40 bar).

Thermal drift: ±0,4 %/10 °C of range (starting from 68°F - 20°C).

Working pressure:

100% of FSV for static pressure;

90% of FSV for pulsating pressure.

Overpressure limit: 30% of FSV (max 12 h).

Protection degree: IP 55 as per IEC 529.

Socket material:

copper alloy with internal restrictor Ø 0.03" (0,8 mm).

Bourdon tube:

copper alloy for ranges ≤ 600 psi (40 bar);

AISI 316L st.st.for ranges > 600 psi (40 bar).

Case: stainless steel.

Ring: stainless steel, bayonet lock

Window: tempered glass

Movement: copper.

Dial: aluminium, white with black markings

Pointer: not adjustable, aluminium ,black

1.10.2 - Fillable Model

Protection degree: IP 67 as per IEC 529.

Other features: as Standard Model.

1.10.3 - Filled Model

Damping liquid: glycerine 98% or silicon oil.

Ambient temperature:

+32...+149 °F (0...+65 °C) with glycerine filling;

-40...+149 °F (-40...+65 °C) with silicon oil filling.

Process fluid temperature: max +149°F (+65 °C).

Protection degree: IP 67 as per IEC 529.

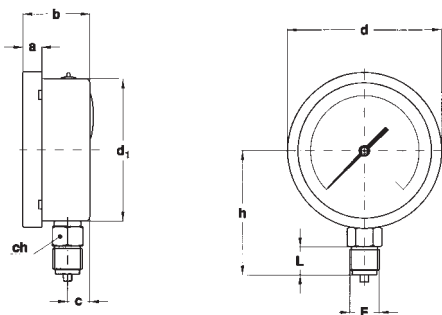
Other features: as Standard Model

bourdon tube pressure gauge anti-vibration heavy duty version, DS 4" (100mm)

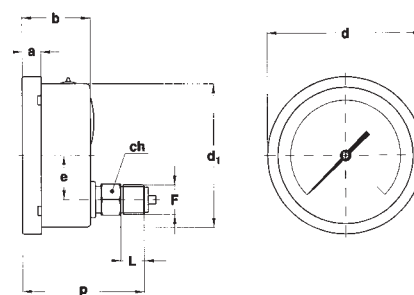
MGS10

RC6 - 03/14

IN ORDER TO IMPROVE THEIR PRODUCTION, MESSRS. NUOVA FIMA RESERVE THE RIGHT TO THEMSELVES TO MAKE ALL THE MODIFICATIONS THAT THEY DEEM INDISPENSABLE AT ANY TIME. UPDATED DATA-SHEETS ARE AVAILABLE ON SITE: www.nuovafima.com



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b | c | d | d ₁ | e | h | p | ch | L | Weight (1) |
|----------|-------------------------|-------|--------|--------|---------|----------------|-------|-------|--------|-------|-------|------------|
| Lower | 41M - G 1/2 A | 0.51" | 1.91" | 0.63" | 4.35" | 3.97" | | 3.38" | | 0.86" | 0.78" | 1.14 lbs |
| | 43M - 1/2-14 NPT | (13) | (48,6) | (16,1) | (110,6) | (101) | | (86) | | (22) | (20) | (0,52 kg) |
| Back | 41M - G 1/2 A | 0.51" | 1.91" | | 4.35" | 3.97" | 1.22" | | 3.41" | 0.86" | 0.78" | 1.25 lbs |
| | 43M - 1/2-14 NPT | (13) | (48,6) | | (110,6) | (101) | (31) | | (86,8) | (22) | (20) | (0,57 kg) |

dimensions : inches (mm)

(1) add 0.72 lbs (0,33 kg) when filled

OPTIONS

| Model | standard | fillable | filled |
|--|----------|----------|--------|
| B - "U"-clamp, for back connection pressure gauges | ◆ | ◆ | ◆ |
| C - Back flange, for lower connection pressure gauges | ◆ | ◆ | ◆ |
| E - Front flange, for back connection pressure gauges | ◆ | ◆ | ◆ |
| L22 - Maximum pointer IP 67 on polycarbonate window (1) | | ◆ | ◆ |
| P01 - Suitable for filling with silicone | | ◆ | |
| S10 - Silicone filling | | | ◆ |
| T32 - Safety glass window | ◆ | ◆ | ◆ |

(1) Accuracy refers to the area free from the maximum pointer action.

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options

1 10 1 A E 41M B, C, E
2 D 43M L22...T32
3

bourdon tube "solid-front" pressure gauges turret case DS 4.5" (125 mm)



These instruments are built in conformity with the construction and safety specifications of **ASME B40.1**.

In case of leaks or break of the elastic element the operator is protected by a stainless steel safety cell solid front and by the blow-out back. They are usually used in the chemical, petrochemical industries and in conventional power plants. The TIG welding between the safety cell and the process socket strengthens the instrument and assures a better tight in case of dampening fluid. The advantages of filling the case of the instrument with a dampening fluid are: reduced pointer fluctuation, reduced wear of rotating parts of the movement when pulsant vibrations and pulsations occur. Moreover condensation and corrosive atmospheres which could damage the internal parts.

1.30.2 - Fillable Model - Lower connection only

Design: ASME B40.1

Ranges: from 0...15 to 0...30000 psi; (from 0...0,6 to 0...1600 bar or other equivalent units).

Accuracy: 2A grade as per ASME B40.1 ($\pm 0,5\%$ of FSV).

Ambient temperature: -22...+149°F (-30...+65°C).

Process fluid temperature: -22...302°F (-30...+150°C max).

Working pressure:

100% del FSV for static pressure;

90% del FSV for pulsating pressure.

Overpresssure: 30% of FSV (max 12 h).

Protection degree: IP 67 as per IEC 529.

Socket material: AISI 316L st.st.

Bourdon tube: AISI 316L st.st. seamless tube.

Case and blow out disk: strengthened polyammides with fiber glass , UV rays stabilized.

Ring: strengthened polypropylene, fiber glass.

Safety cell: stainless steel.

Window: tempered glass.

Movement: stainless steel with internal limit stops for minimum and maximum pressure.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

1.30.3 - Filled Model - Lower connection only

Ranges: from 0...15 to 0...30000 psi; (from 0...1 to 0...1600 bar or other equivalent units).

Accuracy: 1A grade as per ASME B40.1 ($\pm 1,0\%$ of FSV).

Filling liquid: glycerine 98%, and silicon oil or Fluorinated fluid on request.

Ambient temperature:

+32...+149°F (0...+65 °C) with glycerine filling;

-22...+149°F (-30...+65 °C) with silicon oil filling;

-22...+149°F (-30...+65 °C) with fluorinated fluid filling.

Process fluid temperature: +149°F (+65 °C).

Compensating device: gum.

Other features: as Fillable Model.

1.30.1 - Standard Model - Back connection only

Protection degree: IP 55 as per IEC 529.

Case: phenolic resin.

Ring and blow out disk: strengthened polypropylene, fiber glass.

Safety cell: not available.

Separating wall: phenolic resin.

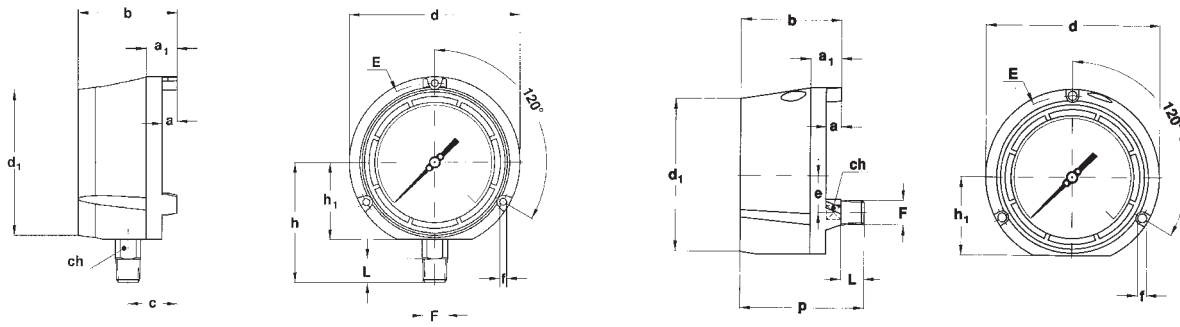
Other features: as Fillable Model.

OXYGEN INSTRUMENTS

Glycerine and silicon oil should not be used with highly oxydizing agents as oxygen, chlorine, nitric acid or hydrogrn peroxide because of danger of spontaneous chemical reaction, inflammability or explosion. The use of fluorinates fluid is recommended in these cases.

bourdon tube "solid-front" pressure gauges
turret case, DS 4.5" (125 mm)

MGS30



A - LOWER CONNECTION

D - BACK CONNECTION

| Mounting | F | a | a ₁ | b | c | d | d ₁ | e | E | f | h | h ₁ | ch | p | Weight (1) | |
|----------|--------------------------|---------------|----------------|---------------|---------------|----------------|----------------|---------------|----------------|----------------|------------------|-----------------|---------------|----------------|---------------|-----------------------|
| Lower | 41M G 1/2 A | 0.51" (13) | 1.06" (27) | 3.38" (86) | 1.65" (42) | 5.82" (148) | 4.96" (126) | | 5.39" (137) | 0.25" (6,5) | 4.07" (103,5) | 2.61" (66,5) | 0.86" (22) | | 0.78" (20) | 1.78 lbs (0,81 kg) |
| Back | 43M 1/2-14 NPT | 0.51" (13) | 1.06" (27) | 3.38" (86) | | 5.82" (148) | 5.07" (129) | 1.22" (31) | | 0.23" (6) | | 2.61" (66,5) | 0.66" (17) | 4.17" (106) | 0.78" (20) | 1.78 lbs (0,81 kg) |

dimensions : inches (mm)

(1) add 1.10 lbs (0,5 kg) when filled.

OPTIONS

| Model | standard | fillable | filled |
|---|----------|----------|--------|
| F11 - Panel mounting kit | ◆ | ◆ | ◆ |
| F30 - Fluorinated fluid filling | | | ◆ |
| P01 - Suitable for silicone filling | | ◆ | |
| P02 - Oxygen service (3) | ◆ | ◆(1) | ◆(2) |
| FDP - Blow out disk with compensating device | | ◆ | |
| F30 - Over pressure limit: 50% of FSV for pressure ranges < 6000 psi (400 bar) | ◆ | ◆ | ◆ |
| S10 - Silicone filling | | | ◆ |
| T01 - Tropicalization | ◆ | ◆ | ◆ |
| T32 - Safety glass window | ◆ | ◆ | ◆ |

(1) to be ordered with instruments suitable for fluorinated fluid filling

(3) For pressure ranges up to 15000 psi (1000 bar)

(2) to be ordered with fluorinated fluid filled instruments

“HOW TO ORDER” SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options
1 30 1 A F 41M K03...T32
2 D 43M
3



RC8 - 03/14 IN ORDER TO IMPROVE THEIR PRODUCTION, MESSRS. NUOVA FIMA RESERVE THE RIGHT TO THEMSELVES TO MAKE ALL THE MODIFICATIONS THAT THEY DEEM INDISPENSABLE AT ANY TIME. UPDATED DATA-SHEET'S ARE AVAILABLE ON SITE: www.nuovafima.com

pressure gauges “solid-front” turret case DS 4.5” (125mm)



These instruments are built in accordance with safety specifications ASME B40.1, UNI-EN 837-2.

The safety construction consists of a stainless steel “solid-front” safety cell placed behind the scale, which welding to socket gives to instrument an exceptional strength. Whenever, due to leaks, an internal pressure is created or the elastic element is broken the safety cell protects the front and sides, meanwhile the blow out back is released from the case. They are designed for use in chemical, petrochemical, conventional power plants. The dampened movement make them particularly suitable in presence of high vibrations and pulsating pressure.

1.30.X.A - Standard Model - Lower Connection

Design: ASME B40.1

Ranges: from 0...30 to 0...15000 psi; (from 0...2,5 to 0...1000 bar or other equivalent units).

Accuracy: Grade 2A as per ASME B40.1 ($\pm 0,5\%$ of span).

Ambient temperature: -13...+149°F (-25...+65°C).

Process fluid temperature: -22...302°F (-30...+150°C max).

Working pressure: max 75% of FSV.

Overpressure: (temporary): 30% of FSV.

Protection degree: IP 65 as per EN 60529/IEC 529.

Socket material: AISI 316 L.

Elastic element: AISI 316L seamless tube.

Case and blow out disk: polyamide, fiberglass reinforced, UV ray stabilized.

Ring: polypropylene, fiberglass reinforced.

Safety cell: AISI 304 st.st.

Window: tempered glass.

Movement: stainless steel, dampened.

Dial: aluminium, white with black markings.

Pointer: aluminium, micrometric adjustable.

1.30.X.D - Standard Model - Back Connection

Protection degree: IP 65 as per EN 60529/IEC 529.

Case: phenolic resin.

Ring and blow out disk: polypropylene, fiberglass reinforced.

Separating wall: AISI 304 st.st.

Safety cell: not available.

Other features: as lower connection.

bourdon tube "solid-front" pressure gauges for high pressures, turret case DS 4.5" (125 mm)



These instruments are built in conformity with the construction and safety specifications of **ASME B40.1**.

In case of leaks or break of the elastic element the operator is protected by a stainless steel safety cell solid front and by the blow-out back. They are mainly used on high pressure water jet technology like water cutting machines, hydro blasting pumps and turbines, hydrodemolition. The TIG welding between the safety cell and the process socket strengthens the instrument and assures a better tight in case of dampening fluid. The advantages of filling the case of the instrument with a dampening fluid are: reduced pointer fluctuation, reduced wear of rotating parts of the movement when pulsant vibrations and pulsations occur. Moreover condensation and corrosive atmospheres which could damage the internal parts.

1.32.2 - Fillable Model

Ranges: 0...2500, 0...3000 and 0...4000 bar;
0...30000, 0...40000 and 0...60000 psi/bar.

Accuracy: Grade 1A as per ASME B40.1 ($\pm 1,0\%$ of F.S.V.).

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: -22...+302 °F (-30...+150 °C).

Working pressure:

75% of FSV for static pressure;

66% of FSV for pulsating pressure.

Over pressure limit: 10% of FSV (temporary).

Protection degree: IP 67 as per IEC 529.

Socket material: AISI 316L st.st.

Bourdon tube: duplex st.st. seamless tube.

Case and blow out disk: strengthened polyammides with fiber glass ,
UV rays stabilized.

Ring: strengthened polypropylene, fiber glass.

Safety cell: stainless steel.

Window: safety glass.

Movement: stainless steel with internal limit stops for minimum and maximum pressure.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

1.32.3 - Filled Model

Damping liquid: glycerine 98%, silicon oil.

Ambient temperature:

+32...+149 °F (0...+65 °C) with glycerine filling;

-40...+149 °F (-40...+65 °C) with silicon oil filling.

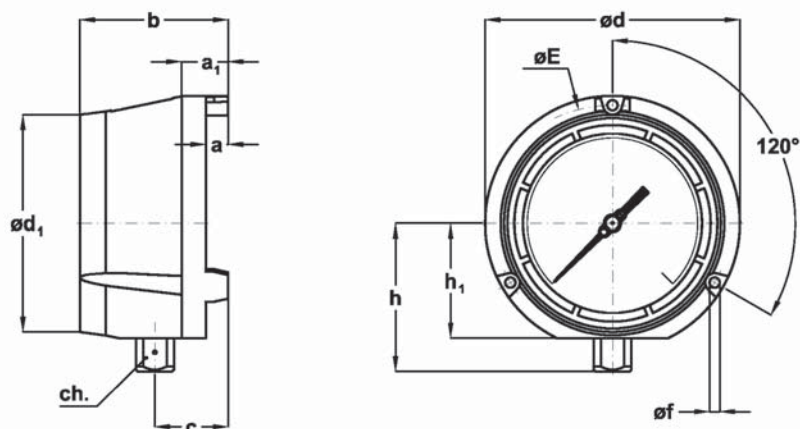
Process fluid temperature: max +149°F (+65 °C).

Other features: as Fillable Model.

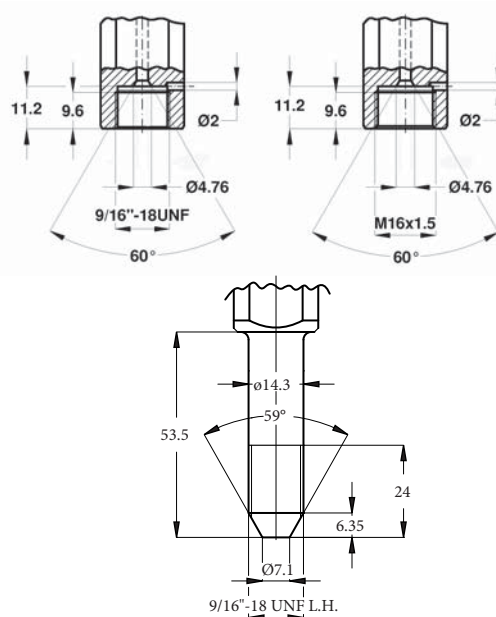
**bourdon tube "solid-front" pressure gauges, for high pressures
turret case DS 4.5" (125 mm)**

MGS32

RC3 - 01/12



A - LOWER CONNECTION



| Mounting | F | a | a ₁ | b | c | d | d ₁ | E | f | h | h ₁ | ch | Peso (1) |
|----------|-------------------------------------|----|----------------|----|----|-----|----------------|-----|-----|----|----------------|----|----------|
| Lower | IUF 9/16-18 UNF-2B (1) | 13 | 27 | 86 | 42 | 148 | 126 | 137 | 6,5 | 86 | 66,5 | 22 | 0,75 kg |
| | D7F M16 x 1,5 | | | | | | | | | | | | |
| | IUH 9/16-18 UNF-L.H. | | | | | | | | | | | | |

- (1) adasuitable for following fittings:
 1/4" F250C Autoclave
 1/4" HF4 - HiP
 1/4" Newport AMINCO HP
 1/4" HP Butech
 (2) add 1.10 lbs (0,5 kg) when filled.

dimensions : mm

OPTIONS

| Model | fillable | filled |
|---|----------|--------|
| F11 - Panel mounting kit | ◆ | ◆ |
| P01 - Suitable for filling with silicon and "Fluorolube" | ◆ | |
| S10 - Silicone filling | | ◆ |
| T01 - Tropicalization | ◆ | ◆ |

"HOW TO ORDER" SEQUENCE

Section / Model/Case /Mounting/ Diameter / Range / Process connection / Options

1 32 2 A F D7F F11...T01
3 IUH



bourdon tube pressure gauges aluminium case DS 10" (250 mm)



PED 2014/68/EU

These instruments are designed for use in chemical and petrochemical processing industries, and in conventional power plants, built to resist the most severe operating conditions, to measure gaseous or liquid media which do not have high viscosity or do not crystallize.

1.08.1 - Standard Model

Design: EN837-1.

Safety designation: S1 as per EN 837-2.

Ranges: from 0...1 to 0...1000 bar (or other equivalent units).

Accuracy class: 1 as per EN 837-1.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: -40...+302 °F (-40...+150 °C).

Thermal drift: ±0,4 %/10 K of range (starting from 68°F - 20°C).

Working pressure: 100% of

FSV for static pressure;

90% of FSV for pulsating pressure.

Over pressure limit: 30% of FSV (max 12 hours).

Protection degree: IP 55 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st.

Bourdon tube: AISI 316L st.st. seamless tube.

Case: black painted aluminium.

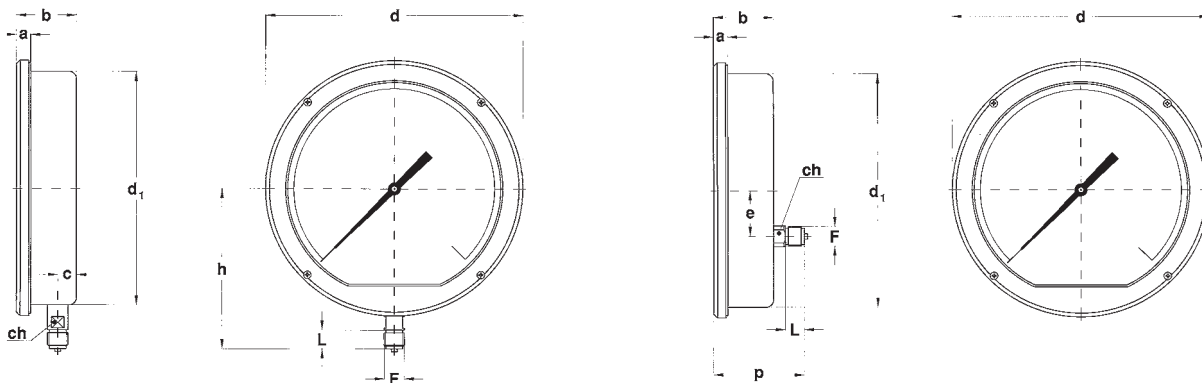
Ring: black painted aluminium.

Window: tempered glass.

Movement: stainless steel.

Dial: aluminium, white with black markings.

Pointer: not adjustable, aluminium, black.



A - LOWER CONNECTION

D - BACK CONNECTION

| Mounting | F | a | b | c | d | d ₁ | e | h | p | ch | L | Weight |
|----------|------------------|-------|-------|--------|--------|----------------|--------|-------|--------|-------|-------|-----------|
| Lower | 41M - G 1/2 A | 0.59" | 2.48" | 0.76" | 10.62" | 9.72" | | 6.69" | | 0.66" | 0.78" | 6.83 lbs |
| | 43M - 1/2-14 NPT | (15) | (63) | (19,5) | (270) | (247) | | (170) | | (17) | (20) | (3,1 kg) |
| Back | 41M - G 1/2 A | 0.59" | 2.48" | | 10.62" | 9.72" | 1.88" | | 3.37" | 0.86" | 0.78" | 7.16 lbs |
| | 43M - 1/2-14 NPT | (15) | (63) | | (270) | (247) | (47,8) | | (95,5) | (22) | (20) | (3,25 kg) |

OPTIONS

| |
|--|
| K06 - Accuracy class 0.6 as per EN 837-1(1) |
| P02 - Oxygen service |

(1) available only for ranges from 0...30 to 0...600 psi (from 0...2,5 to 0...400 bar)

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options
1 08 1 A I 41M K06...P02
D 43M

bourdon tube pressure gauges all stainless steel construction DS 1.5", 2" (40-50 mm)



PED 2014/68/EU

These instruments are designed for use in chemical and petrochemical processing industries, and in conventional power plants, to measure gaseous or liquid media which do not have high viscosity or do not cristalize. They are built to resist the most severe operating conditions created by the ambient environment and the process medium. For use on power units, pumps, hydro-cleaning machines, presses, engine compressors, turbines, diesel engines, chemical, petrochemical and refrigerating plants and on machines and equipment where pulsating pressures or mechanical vibrations are apparent, the liquid-filled version is recommended.

01.18.1 - Standard Model, DS 1.5" (40mm)

Design: EN 837-1.

Ranges: from 0...30 to 0...600 psi (from 0...2.5 to 0...40 bar or equivalent units).

Accuracy class: 1.6 as per EN 837-1.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: -22...+212 °F (-30...+100 °C).

Thermal drift: ±0,4 %/10 °C of range (starting from 68°F - 20°C).

Working pressure:

75% of FSV for static pressure;

66% of FSV for pulsating pressure.

Over pressure limit (15 min max):

25% of FSV.

Protection degree: IP 55 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st.

Bourdon tube: AISI 316L st.st.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: glass.

Movement: stainless steel.

Dial: aluminium, white with black markings.

Pointer: not adjustable, aluminium, black.

01.18.1 - Standard Model, DS 2" (50mm)

Ambient temperature: -13...+149 °F (-25...+65 °C).

Protecti on degree: IP 55 as per EN 60529/IEC 529.

Case: stainless steel, crimped.

Ring: stainless steel, crimped.

Window: plastic.

Other features: as Standard Model, DS 1.5" (40mm).

01.18.2 - Fillable Model, DS 2" (50mm)

Protecti on degree: IP 67 as per EN 60529/IEC 529.

Other features: as Standard Model, DS 2" (50mm).

01.18.3 - Filled Model, DS 2" (50mm)

Damping liquid: glycerine 98%.

Ambient temperature: +32...+149 °F (0...+65 °C).

Process fluid temperature: max +149°F (+65 °C).

Protecti on degree: IP 67 as per IEC 529.

Other features: as Standard Model, DS 2" (50mm).

bourdon tube pressure gauge all stainless steel construction DS 2.5" (63mm)



PED 2014/68/UE

These instruments are built in conformity with the construction and safety S2 specifications of EN 837-1.

These instruments are designed for use in chemical and petrochemical processing industries, and in conventional power plants, to measure gaseous or liquid media which do not have high viscosity or do not cristalize. They are built to resist the most severe operating conditions created by the ambient environment and the process medium. For use on power units, pumps, hydro-cleaning machines, presses, engine compressors, turbines, diesel engines, chemical, petrochemical and refrigerating plants and on machines and equipment where pulsating pressures or mechanical vibrations are apparent, the liquid-filled version is recommended.

1.18.1 - Standard Model

Design: EN 837-1.

Safety designation: S1 as per EN 837-1.

Ranges: from 0...15 to 0...15000 psi; (from 0...1 to 0...1000 bar), (or other equivalent units).

Accuracy class: 1.6 as per EN 837-1.

Ambient temperature: -40...+149 °F (-40...+65 °C).

Process fluid temperature: max +212°F (+100 °C).

Thermal drift: ±0,4 %/10 °C of range (starting from 68°F - 20°C).

Working pressure:

75% of FSV for static pressure;

66% of FSV for pulsating pressure.

Over pressure limit (15 min max):

25% of FSV for pressure ranges ≤ 1500 psi (100 bar);

15% of FSV for pressure ranges 1500...9000 psi (100...600 bar);

10% of FSV for pressure ranges over 9000 psi (600 bar).

Protection degree: IP 55 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st.

Bourdon tube: AISI 316L st.st.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: polycarbonate.

Movement: stainless steel.

Dial: plastic white with black markings.

Pointer: adjustable, aluminium, black.

1.18.2- Fillable Model

Safety designation: S2 as per EN 837-1.

Protection degree: IP 67 as per EN 60529/IEC 529.

Ring: stainless steel, crimped.

Pointer: not adjustable, aluminium, black.

Other features: as Standard Model.

1.18.3 - Filled Model

Safety designation: S2 as per EN 837-1.

Damping liquid: glycerine 98% or silicon oil.

Ambient temperature:

+32...+149 °F (0...+65 °C) with glycerine filling;

-4...+149 °F (-20...+65 °C) with glycerine filling mixture;

-40...+149 °F (-40...+65 °C) with silicon oil filling.

Process fluid temperature: max +149°F (+65 °C).

Protection degree: IP 67 as per EN 60529/IEC 529.

Ring: stainless steel, crimped.

Pointer: not adjustable, aluminium, black.

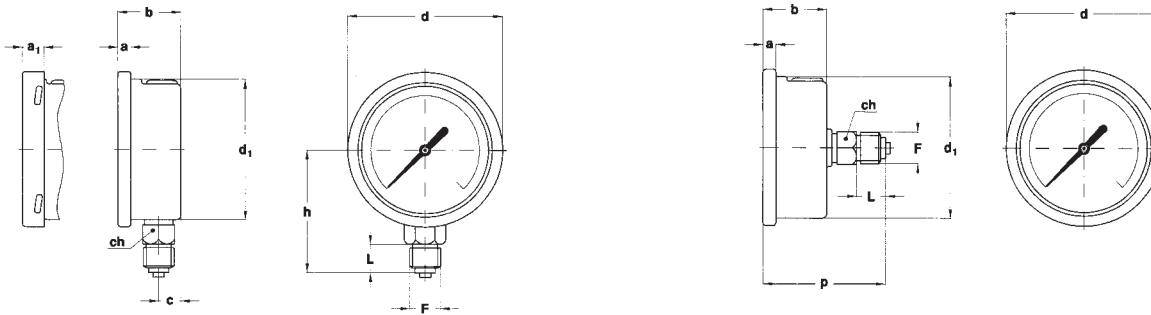
Other features: as Standard Model

bourdon tube pressure gauge
all stainless steel construction, DS 2.5" (63mm)

MGS18

RC8 - 00/13

IN ORDER TO IMPROVE THEIR PRODUCTION, MESSRS. NUOVA FIMA RESERVE THE RIGHT TO THEMSELVES TO MAKE ALL THE MODIFICATIONS THAT THEY DEEM INDISPENSABLE AT ANY TIME. UPDATED DATA SHEETS ARE AVAILABLE ON SITE: www.nuovafima.com



A - LOWER CONNECTION

D - BACK CONNECTION

| Mounting | F | a | a ₁ | b | c | d | d ₁ | h | p | L | ch | Weight (1) |
|----------|------------------|-------|----------------|-------|-------|-------|----------------|---------------|---------------|-------|-------|------------|
| Lower | 21M - G 1/4 A | 0.22" | 0.37" | 1.10" | 0.39" | 2.67" | 2.46" | 2.13" - 2.17" | | 0.51" | 0.55" | 0.28 lbs |
| | 23M - 1/4-18 NPT | (5,6) | (9,5) | (28) | (10) | (68) | (62,6) | (54,3 - 55,3) | | (13) | (14) | (0,13 kg) |
| Back | 21M - G 1/4 A | 0.22" | 0.37" | 1.10" | | 2.67" | 2.46" | | 2.11" - 2.15" | 0.51" | 0.55" | 0.30 lbs |
| | 23M - 1/4-18 NPT | (5,6) | (9,5) | (28) | | (68) | (62,6) | | (53,8 - 54,8) | (13) | (14) | (0,14 kg) |

dimensions : inches (mm)

(1) add 0.15 lbs (0,07 kg) when filled

OPTIONS

| Model | standard | fillable | filled |
|--|----------|----------|--------|
| B - "U"-clamp, for back connection pressure gauges | | ◆ | ◆ |
| C - Back flange, for lower connection pressure gauges | ◆ | ◆ | ◆ |
| E - Front flange, for back connection pressure gauges | | ◆ | ◆ |
| P01 - Suitable for filling with silicone | | ◆ | |
| S10 - Silicone filling | | | ◆ |
| G11 - Glycerine filling mixture | | | ◆ |
| T37 - Glass tempered window | (1) ◆ | ◆ | ◆ |
| T32 - Safety glass window | ◆ | | |

(1) Safety designation: S1 as per EN 837-1.

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options
1 18 1 A C 21M B, C, E
2 D 23M P01...T32
3



bourdon tube pressure gauges all stainless steel construction DS 4", 6" (100-150mm)



PED 2014/68/UE ATEX 2014/34/UE

These instruments are designed for chemical, petrochemical industries and for conventional power plants. They are built to resist to the most severe conditions created by the process medium and by the environment and for those fluids, which have high viscosity and do not crystallize. The quality of the materials used to build the sensible element allows their use with high frequency pulsating pressures.

The TIG welding between the case and the process socket, strengthens the instrument and assures better containment of dampening fluid. The advantages of filling the case of the instrument with a dampening fluid are: reduced pointer fluctuation, reduced wear of rotating parts of the movement when pulsant vibrations and pulsations occur. Moreover condensation and corrosive atmospheres which could damage the internal parts are prevented.

1.18.1 - Standard Model

Design: EN837-1.

Safety designation: S1 as per EN 837-2.

Ranges: from 0...15 to 0...30000 psi (from 0...0,6 to 0...1600 bar or equivalent units).

Accuracy class: 1 as per EN 837-1.

Ambient temperature:

-40...+149 °F (-40...+65 °C), IP55 housing (EN 60529/IEC 529);

-58...+149 °F (-50...+65 °C), vented IP67 housing (EN 60529/IEC 529).

Process fluid temperature: -40...+302 °F (-40...+150 °C).

Thermal drift: ±0,4 %/10 °C of range (starting from 68°F - 20°C).

Working pressure:

100% of FSV for static pressure;

90% of FSV for pulsating pressure.

Over pressure limit: 30% of FSV (max 12 hours).

Socket material: AISI 316L st.st.

Bourdon tube, seamless tube: AISI 316L st.st. for pressure ranges up to 20000 psi (0...1000 bar); Duplex st.st for range ≥ 20000 psi (0...1400 bar)

Case and ring: stainless steel.

Window: tempered glass.

Movement: stainless steel with internal limit stops for minimum and maximum pressure.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

1.18.2 - Fillable Model

Ambient temperature: -40...+149 °F (-40...+65 °C), IP 67 housing (EN 60529/IEC 529).

Pointer: not adjustable, aluminium, black.

Other features: as Standard Model.

1.18.3 - Filled Model

Ranges: from 0...15 to 0...30000 psi (from 0...1 to 0...1600 bar or equivalent units).

Damping liquid: glycerine 98% or silicon oil.

Ambient temperature:

+32...+149 °F (0...+65 °C) with glycerine filling;

-4...+149 °F (-20...+65 °C) with glycerine filling mixture;

-40...+149 °F (-40...+65 °C) with silicon oil fluid filling.

Process fluid temperature: max +149°F (+65 °C).

Protection degree: IP 67 as per EN 60529/IEC 529.

Pointer: not adjustable, aluminium, black.

Other features: as Standard Model.

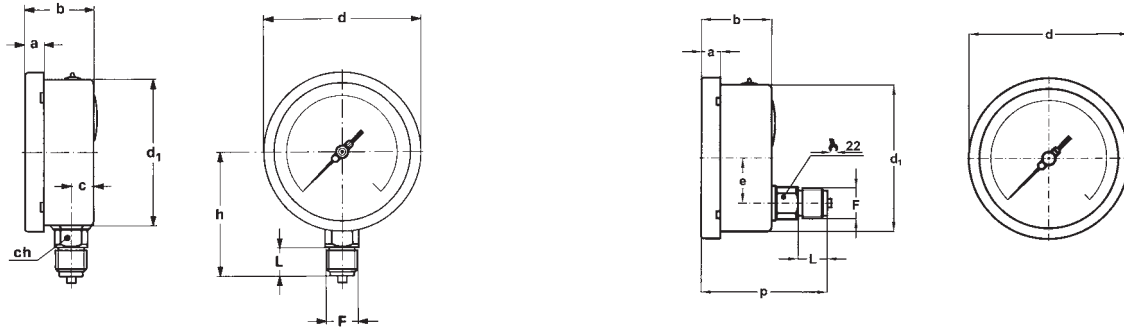
INSTRUMENTS FOR OXYGEN

To suit safety criteria of standard EN837-1/2, the pressure gauges for oxygen service must be solid-front type (with baffle wall and safety bursting back).

Pressure gauges suitable for this service are detailed on MGS20 DS 4", 6" (100-150 mm) sheet.

bourdon tube pressure gauges
all stainless steel construction, DS 4", 6" (100-150mm)

MGS18



A - LOWER CONNECTION

D - BACK CONNECTION

| Mounting | DS | F | a | b | c | d | d ₁ | e | h | p | L | Weight (1) |
|----------|----------------------|---|---------------|-----------------|-----------------|------------------|------------------|---------------|----------------|-----------------|---------------|-----------------------|
| Lower | E 4" (100) | 41M - G 1/2 A 43M - 1/2-14 NPT | 0.51" (13) | 1.90" (48,5) | 0.59" (15) | 4.35" (110,6) | 3.97" (101) | | 3.38" (86) | | 0.78" (20) | 1.16 lbs (0,53 kg) |
| | G 6" (150) | 41M - G 1/2 A 43M - 1/2-14 NPT | 0.59" (15) | 1.96" (50,5) | 0.61" (15,5) | 6.33" (161) | 5.88" (149,6) | | 4.60" (117) | | 0.78" (20) | 2.09 lbs (0,95 kg) |
| Back | E 4" (100) | 41M - G 1/2 A 43M - 1/2-14 NPT | 0.51" (13) | 1.90" (48,5) | | 4.35" (110,6) | 3.97" (101) | 1.22" (31) | | 3.42" (87) | 0.78" (20) | 1.17 lbs (0,53 kg) |
| | G 6" (150) | 41M - G 1/2 A 43M - 1/2-14 NPT | 0.59" (15) | 1.96" (50,5) | | 6.33" (161) | 5.88" (149,6) | 1.22" (31) | | 3.36" (85,5) | 0.78" (20) | 1.87 lbs (0,85 kg) |

dimensions : inches (mm)

(1) add 0.72 lbs (0,33 kg) for DS 4" (100) and 1.65 lbs (0,78 kg) for DS 6" (150), when filled

OPTIONS

| Model | standard | fillable | filled |
|---|---|----------|--------|
| B - "U"-clamp, for back connection pressure gauges | ◆ | ◆ | ◆ |
| C - Back flange, for lower connection pressure gauges | ◆ | ◆ | ◆ |
| E - Front flange, for back connection pressure gauges | ◆ | ◆ | ◆ |
| 2G1 - ATEX II 2G c version (separate data sheet) | See the ATEX pressure gauges data-sheet for technical details | | |
| 2D1 - ATEX II 2GD c version (separate data sheet) | | | |
| C40 - AISI 316J st. st. case and ring | ◆ | ◆ | ◆ |
| K06 - Accuracy class 0,6 (1) | ◆ | ◆ | |
| L21 - Maximum pointer IP 44 on plexiglas window DS 4" (100 mm) (2) | ◆ | | |
| L22 - Maximum pointer IP 65 on plexiglas window DS 4" (100 mm) (2) | ◆ | ◆ | ◆ |
| P01 - Suitable for filling with silicone | | ◆ | |
| S10 - Silicone filling | | | ◆ |
| G11 - Glycerine filling mixture, DS 4" (100 mm) | | | ◆ |
| ECV - Vented housing version, Ambient temperature -50...+65 °C (3) (4) | ◆ | | |
| E67 - Protection degree IP67 (5) | ◆ | | |
| T01 - Tropicalization | ◆ | ◆ | ◆ |
| T32 - Safety glass window | ◆ | ◆ | ◆ |

- (1) For pressure ranges up to 6000 psi (400 bar). Not available for receivers.
- (2) Accuracy refers to the area free from the maximum pointer action.
- (3) to be ordered with E67 option

- (4) not adjustable pointer
- (5) to be ordered with ECV option

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options
1 18 1 A E 41M B, C, E
2 D G 43M 2G1...T32
3



bourdon tube "solid-front" pressure gauges all stainless steel construction DS 2.5" (63mm)



PED 2014/68/EU

These Solid-Front instruments are built in accordance with safety specifications of EN 837-1 "S3" and ASME 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 chemical and petrochemical processing industries, and in conventional power plants. They are built to resist the most severe operating conditions created by the ambient environment and the process medium.

1.20.1 - Standard Model

Design: EN 837-1.

Safety designation: S3 as per EN 837-2.

Ranges: from 0...15 to 0...15000 psi; from 0...1 to 0...1000 bar (or other equivalent units)

Accuracy class: 1,6 as per EN 837-1.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: max +212°F (+100 °C).

Thermal drift: ±0,4 %/10 K of range (starting from 68°F - 20°C).

Working pressure:

75% of FSV for static pressure;

66% of FSV for pulsating pressure.

Over pressure limit (15 min max):

25% of FSV for pressure ranges ≤ 1500 psi (100 bar);

15% of FSV for pressure ranges over 1500 psi (100 bar).

Protection degree: IP 55 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st.

Bourdon tube: AISI 316L st.st.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Blow out disk: plastic.

Window: safety glass.

Movement: stainless steel.

Dial: plastic.

Pointer: adjustable, aluminium, black.

1.20.2 - Fillable Model

Protection degree: IP 67 as per EN 60529/IEC 529.

Pointer: not adjustable, aluminium, black.

Other features: as Standard Model.

1.20.3 - Filled Model

Dampening liquid: glycerine 98%, silicon oil or fluorinated fluid.

Ambient temperature:

+32...+149 °F (0...+65 °C) with glycerine filling;

-40...+149 °F (-40...+65 °C) with silicon oil filling;

-40...+149 °F (-40...+65 °C) with fluorinated fluid filling.

Process fluid temperature: max +149°F (+65 °C).

Protection degree: IP 67 as per EN 60529/IEC 529.

Pointer: not adjustable, aluminium, black.

Other features: as Standard Model.

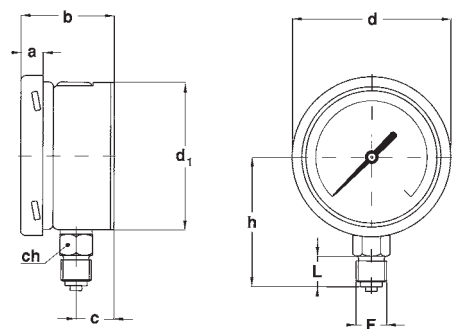
INSTRUMENTS FOR OXYGEN

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.

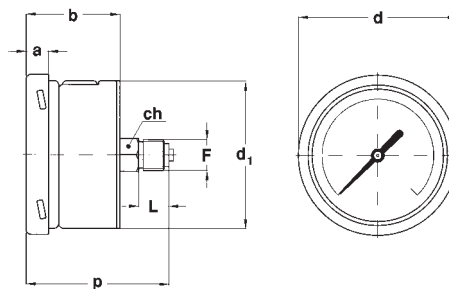
bourdon tube "solid-front" pressure gauges
all stainless steel construction, DS 2.5" (63mm)

MG520

RG-03/14



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b | c | d | d ₁ | h | p | L | ch | Weight (1) |
|----------|------------------|-------|-------|--------|-------|----------------|---------------|---------------|-------|-----------------------------|------------|
| Lower | 21M - G 1/4 A | 0.39" | 1.57" | 0.65" | 2.67" | 2.46" | 2.13" - 2.17" | | 0.51" | (0.55 x 0.31 - 0.55 x 0.35) | 0.44 lbs |
| | 23M - 1/4-18 NPT | (10) | (40) | (16,7) | (68) | (62,6) | (54,3 - 55,3) | | (13) | (14 x 8 - 14 x 9) | (0,2 kg) |
| Back | 21M - G 1/4 A | 0.39" | 1.57" | | 2.67" | 2.46" | | 2.32" - 2.36" | 0.51" | (0.55 x 0.31 - 0.55 x 0.35) | 0.50 lbs |
| | 23M - 1/4-18 NPT | (10) | (40) | | (68) | (62,6) | | (59,1 - 60,1) | (13) | (14 x 8 - 14 x 9) | (0,23 kg) |

dimensions : inches (mm)

(1) add 0.22 lbs (0,1 kg) when filled

OPTIONS

| Model | standard | fillable | filled |
|---|----------|----------|--------|
| E - Front flange, for back connection pressure gauges | ◆ | ◆ | ◆ |
| P01 - Suitable for filling with silicone/Fluorinated fluid | | ◆ | |
| P02 - Oxygen service | ◆ | ◆ (2) | ◆ (1) |
| S10 - Silicone filling | | | ◆ |
| F30 - Fluorinated fluid filling | | | ◆ |

(1) to be ordered only with instruments filled of fluorinated fluid

(2) to be ordered with instruments suitable for fluorinated fluid filling

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options

1 20 1 A C 21M E
 2 D 23M P01...F30
 3



safety pressure gauges "solid-front" all stainless steel construction DS 4", 6" (100-150mm)



PED 2014/68/UE ATEX 2014/34/UE

These instruments are built in conformity with the construction and safety specifications of EN 837-1/S3 e ASME B40.1.

In case of leaks or break of the elastic element, the operator is protected by a solid separating wall placed on the front of the instrument and by the blow out back. They are usually used in the food, process, pharmaceutical, petrochemical industries and in conventional and nuclear power plants. The TIG welding between the case and the process socket, strengthens the instrument and assures a better tight in case of dampening fluid. The advantages of filling the case of the instrument with a dampening fluid are: reduced pointer fluctuation, reduced wear of rotating parts of the movement when pulsant vibrations and pulsations occur. Moreover condensation and corrosive atmospheres which could damage the internal parts are prevented.

1.20.1 - Standard Model

Design: EN837-1.

Safety designation: S3 as per EN 837-2.

Ranges: from 0...15 to 0...30000 psi (from 0...0,6 to 0...1600 bar or equivalent units).

Accuracy class: 1 as per EN 837-1

Ambient temperature:

-40...+149 °F (-40...+65 °C), IP55 housing (IEC 529);

-58...+149 °F (-50...+65 °C), vented IP67 housing (IEC 529).

Process fluid temperature: -40...+302 °F (-40...+150 °C).

Thermal drift: ±0,4 %/10 °C of range (starting from 68°F - 20°C).

Working pressure:

100% of FSV for static pressure;

90% of FSV for pulsating pressure.

Over pressure limit: 30% of FSV (max 12 hours).

Socket material: AISI 316L st.st.

Bourdon tube, seamless tube: AISI 316L st.st. for pressure ranges up to 20000 psi (0...1000 bar); Duplex st.st for range ≥ 20000 psi (0...1400 bar)

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Blow out disk: stainless steel.

Window: safety glass (with external zero adjustment on request).

Movement: stainless steel with internal limit stops.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

1.20.2 - Fillable Model - Lower connection only

Ambient temperature: -40...+149 °F (-40...+65 °C), IP 67 housing (IEC 529).

Pointer: not adjustable, aluminium, black.

Other features: as Standard Model.

1.20.3 - Filled Model - Lower connection only

Ranges: from 0...15 to 0...30000 psi (from 0...1 to 0...1600 bar or equivalent units)

Damping liquid: glycerine 98%, silicon oil or fluorinated fluid.

Ambient temperature:

+32...+149 °F (0...+65 °C) with glycerine filling;

-40...+149 °F (-40...+65 °C) with silicon oil filling and fluorinated fluid filling.

Process fluid temperature: max +149°F (+65 °C).

Protection degree: IP 67 as per IEC 529.

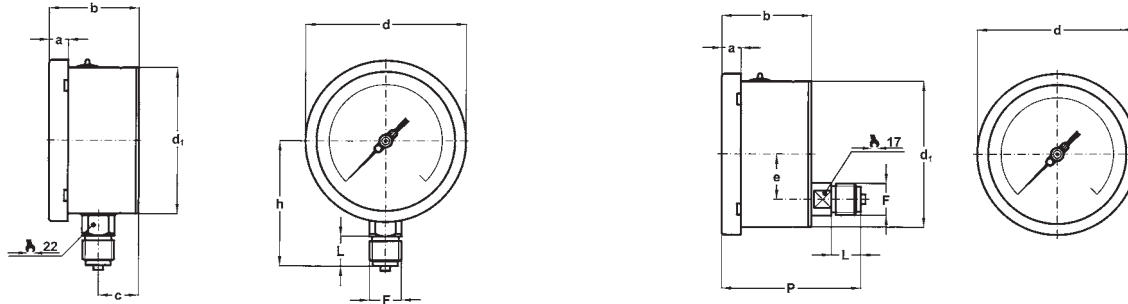
Pointer: not adjustable, aluminium, black.

Other features: as Standard Model.

INSTRUMENTS FOR OXYGEN - 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.

safety pressure gauges "solid-front"
all stainless steel construction, DS4", 6" (100-150mm)

MGS20



A - LOWER CONNECTION

D - BACK CONNECTION
 - Standard model only

| Mounting | DS | F | a | b | c | d | d ₁ | e | h | p | L | Weight (1) |
|----------|---------------|------------------|-------|--------|--------|---------|----------------|-------|-------|--------|-------|------------|
| Lower | E 4" (100) | 41M - G 1/2 A | 0.51" | 2.46" | 1.16" | 4.35" | 3.97" | | 3.38" | | 0.78" | 1.43 lbs |
| | | 43M - 1/2-14 NPT | (13) | (62,5) | (29,5) | (110,6) | (101) | | (86) | | (20) | (0,65 kg) |
| Lower | G 6" (150) | 41M - G 1/2 A | 0.59" | 2.51" | 1.18" | 6.33" | 5.92" | | 0.59" | | 0.78" | 2.64 lbs |
| | | 43M - 1/2-14 NPT | (15) | (64) | (30) | (161) | (150,5) | | (15) | | (20) | (1,2 kg) |
| Back | E 4" (100) | 41M - G 1/2 A | 0.51" | 2.46" | | 4.35" | 3.97" | 1.22" | | 3.75" | 0.78" | 1.54 lbs |
| | | 43M - 1/2-14 NPT | (13) | (62,5) | | (110,6) | (101) | (31) | | (95,5) | (20) | (0,70 kg) |
| Back | G 6" (150) | 41M - G 1/2 A | 0.59" | 2.51" | | 6.33" | 5.92" | 1.22" | | 3.77" | 0.78" | 2.53 lbs |
| | | 43M - 1/2-14 NPT | (15) | (64) | | (161) | (150,5) | (31) | | (96) | (20) | (1,15 kg) |

dimensions : inches (mm)

(1) add 0.95 lbs (0,43 kg) for DS 4" (100) and 1.76 lbs (0,8 kg) for DS 6" (150), when filled

OPTIONS

| Model | standard | fillable | filled |
|---|--|----------|--------|
| C - Back flange, for lower connection pressure gauges | ◆ | ◆ | ◆ |
| E - Front flange, for back connection pressure gauges | ◆ | | |
| 2G1 - ATEX version II 2G c | <i>Constructive characteristics and ordering guide please refer to the relevant ATEX version data sheet.</i> | | |
| 2D1 - ATEX version II 2GD c | | | |
| C40 - AISI 316L st. st. case, ring and blow out disk | ◆ | ◆ | ◆ |
| K06 - Accuracy class: 0,6 as per EN 837-1 (1) | ◆ | ◆ | |
| P01 - Suitable for filling with silicon and fluorinated fluid | | ◆ | |
| P02 - Oxygen service (4) | ◆ | ◆ (2) | ◆ (3) |
| P03 - Compensating device, for DS 4" (100 mm) only, lower mounting | ◆ | ◆ | ◆ |
| S10 - Silicone filling | | | ◆ |
| F30 - Fluorinated fluid filling | | | ◆ |
| ECV- Vented housing version, Ambient temperature -50...+65 °C (5) (6) | ◆ | | |
| E67- Protection degree IP67 (7) | ◆ | | |
| T01 - Tropicalization | ◆ | ◆ | ◆ |

(1) For pressure ranges up to 6000 psi (400 bar). Not available for receivers.

(2) to be ordered with instruments suitable for fluorinated fluid filling

(3) to be ordered with fluorinated fluid filled instruments

(4) For pressure ranges up to 15000 psi (1000 bar)

(5) to be ordered with E67 option

(6) lower mounting and not adjustable pointer

(7) to be ordered with ECV option

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options

1 20 1 A E 41M C, E
 2 D G 43M 2G1...T01
 3

RC6 - 05/14

IN ORDER TO IMPROVE THEIR PRODUCTION, MESSRS. NUOVA FIMA RESERVE THE RIGHT TO THEMSELVES TO MAKE ALL THE MODIFICATIONS THAT THEY DEEM INDISPENSABLE AT ANY TIME. UPDATED DATA SHEETS ARE AVAILABLE ON SITE: www.nuovafima.com



bourdon tube pressure gauges

HEAVY WORK

DS 4", 6" (100-150mm)



PED 2014/68/UE ATEX 2014/34/UE

These instruments are designed for use in chemical and petrochemical processing industries, and in conventional power plants.

They are built to resist the most severe operating conditions created by the ambient environment and the process medium. The high strength of the sensing element makes these instrument suitable to withstand high overpressure up to 4 times the full scale value and together with the case filling, they are suitable to high dynamic pulsating pressure. An Argonarc welded case/socket strengthens the whole construction.

1.19.1 - Standard Model

Design: EN837-1.

Safety designation: S1 as per EN 837-2.

Ranges: from 0...15 to 0...10000 psi (from 0...1 to 0...600 bar or equivalent units).

Accuracy class: 1 according to EN 837-1.

Ambient temperature:

-40...+149 °F (-40...+65 °C), IP55 housing (EN 60529/IEC 529);

-58...+149 °F (-50...+65 °C), vented IP67 housing (EN 60529/IEC 529).

Process fluid temperature: -40...+302°F (-40...+150 °C).

Thermal drift: ±0,4 %/10 °C of range (starting from 68°F- 20°C).

Working pressure :

100% of FSV for static pressures;

90% of FSV for pulsating pressures.

Overpressures: up to 400% of FSV (see tables at pag. 2)

Socket material: in AISI 316L.

Bourdon tube: in AISI 316L stainless tube.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: safety glass.

Movement: stainless steel with internal limit stops.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

1.19.2 - Fillable Model

Ambient temperature: -40...+149 °F (-40...+65 °C), IP 67 housing (EN 60529/IEC 529).

Other features: as Standard Model.

1.19.3 - Filled Model

Accuracy Class: 1,6 as per EN 837-1.

Damping liquid: glycerine 98% or silicon oil.

Ambient temperature:

+32...+149°F (0...+65 °C) with glycerine filling;

-40...+149°F (-40...+65 °C) with silicon oil filling or fluorinated fluid filling.

Process fluid temperature: +149°F (+65 °C).

Protection degree: IP 67 as per EN 60529/IEC 529.

Other features: as Standard Model.

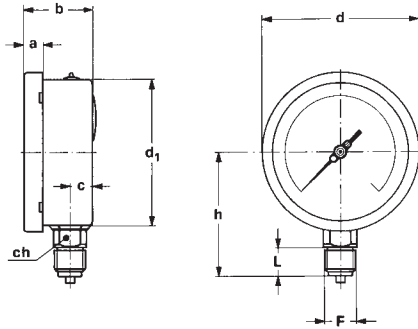
OXYGEN INSTRUMENTS

To suit criteria of standard EN837-1/2, the pressure gauges for oxygen service must be solid- front type (with baffle wall and safety bursting back).

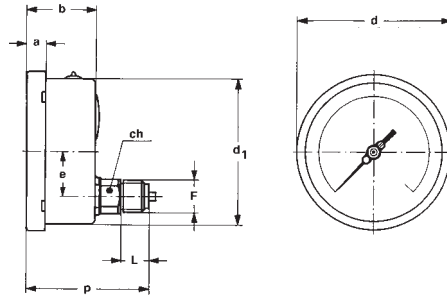
Pressure gauges suitable for this service are detailed on MGS21 sheet.

bourdon tube pressure gauges
HEAVY WORK, DS 4", 6" (100-150mm)

MGS19



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | DS | F | a | b | c | d | d ₁ | e | h | p | L | ch | Weight (1) |
|----------|---------------|------------------|-------|--------|--------|---------|----------------|-------|-------|--------|-------|-------|------------|
| Lower | E 4" (100) | 41M - G 1/2 A | 0.51" | 1.90" | 0.59" | 4.35" | 3.97" | | 3.38" | | 0.78" | 0.87" | 1.16 lbs |
| | | 43M - 1/2-14 NPT | (13) | (48,5) | (15) | (110,6) | (101) | | (86) | | (20) | (22) | (0,53 kg) |
| Lower | G 6" (150) | 41M - G 1/2 A | 0.59" | 1.98" | 0.61" | 6.33" | 5.88" | | 4.60" | | 0.78" | 0.87" | 2.24 lbs |
| | | 43M - 1/2-14 NPT | (15) | (50,5) | (15,5) | (161) | (149,6) | | (117) | | (20) | (22) | (1,02 kg) |
| Back | E 4" (100) | 41M - G 1/2 A | 0.51" | 1.90" | | 4.35" | 3.97" | 1.22" | | 3.42" | 0.78" | 0.87" | 1.14 lbs |
| | | 43M - 1/2-14 NPT | (13) | (48,5) | | (110,6) | (101) | (31) | | (87) | (20) | (22) | (0,52 kg) |
| Back | G 6" (150) | 41M - G 1/2 A | 0.59" | 1.98" | | 6.33" | 5.88" | 1.22" | | 3.36" | 0.78" | 0.87" | 2.09 lbs |
| | | 43M - 1/2-14 NPT | (15) | (50,5) | | (161) | (149,6) | (31) | | (85,5) | (20) | (22) | (0,95 kg) |

dimensions : inches (mm)

(1) add 0.72 lbs (0,33 kg) for DS 4" (100) and 1.65 lbs (0,78 kg) for DS 6" (150), when filled

RANGES

| bar (1) | Ranges | 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...400 | 0...600 |
|---------|--------------|-------|---------|---------|-------|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| | Overpressure | | 4 | 6 | 10 | 16 | 25 | 40 | 48 | 75 | 80 | 120 | 200 | 320 | 500 | 800 |

| psi | Ranges | 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...6000 | 0...10000 |
|-----|--------------|--------|--------|--------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|-----------|
| | Overpressure | | 60 | 120 | 240 | 400 | 480 | 600 | 900 | 1000 | 1200 | 2000 | 3000 | 4000 | 6000 | 8000 | 10000 |

| bar (1) | Ranges | -1...0 | -1...0,6 | -1...1,5 | -1...3 | -1...5 | -1...9 | -1...15 | -1...24 |
|---------|--------------|--------|----------|----------|--------|--------|--------|---------|---------|
| | Overpressure | | 3 | 5 | 9 | 15 | 23 | 39 | 47 |

| psi | Ranges (2) | -30...0 | -30...15 | -30...30 | -30...150 |
|-----|--------------|---------|----------|----------|-----------|
| | Overpressure | | 45 | 100 | 125 |

(1) Available measurement units kPa, MPa, kg/cm²

(2) Vacuum measurement unit: InHg

OPTIONS

| Model | standard | fillable | filled |
|--|---|----------|--------|
| B - "U"-clamp, for back connection pressure gauges | ◆ | ◆ | ◆ |
| C - Back flange, for lower connection pressure gauges | ◆ | ◆ | ◆ |
| E - Front flange, for back connection pressure gauges | ◆ | ◆ | ◆ |
| 2G1 - ATEX II 2G c version | See the ATEX pressure gauges data-sheet for technical details | | |
| 2D1 - ATEX II 2GD c version | | | |
| C40 - AISI 316L st. st. case, ring and blow out disk | ◆ | ◆ | ◆ |
| P01 - Suitable for filling with silicone | | ◆ | |
| S10 - Silicone filling | | | ◆ |
| ECV - Vented housing version, Ambient temperature -50...+65 °C (1) (2) | | | |
| E67 - Protection degree IP67 (3) | ◆ | | |
| T01 - Tropicalization | ◆ | ◆ | ◆ |

(1) to be ordered with E67 option

(3) to be ordered with ECV option

(2) not adjustable pointer

"HOW TO ORDER" SEQUENCE

Section / Model /Case / Mounting / Diameter / Range / Process connection / Options

1 19 1 A E 41M B, C, E
2 D G 43M 2G1...T01
3



bourdon tube "solid-front" pressure gauges

HEAVY WORK

DS 4", 6" (100-150mm)



PED 2014/68/UE ATEX 2014/34/UE

These instruments are designed for use in chemical and petrochemical processing industries, and in conventional power plants. They are built to resist the most severe operating conditions created by the ambient environment and the process medium. The high strength of the sensing element makes these instrument suitable to withstand high overpressure up to 4 times the full scale value and together with the case filling, they are suitable to high dynamic pulsating pressure. An Argonarc welded case/socket strengthens the whole construction. The **solid-front** version of these instruments is built in accordance with safety specifications of **EN 837-1** and **ASME B40.1**. The safety construction consists of a **solid separating wall** in stainless steel, placed between the dial 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.

1.21.1 - Standard Model

Design: EN 837-1.

Safety designation: S3 as per EN 837-2.

Campi scala: from 0...15 to 10000 psi; (from 0...1 to 0...600 bar or other equivalent units)

Accuracy class: 1 as per EN 837-1.

Ambient temperature:

-40...+149 °F (-40...+65 °C), IP55 housing (EN 60529/IEC 529);

-58...+149 °F (-50...+65 °C), vented IP67 housing

(EN 60529/IEC 529).

Process fluid temperature: -40...+302°F (-40...+150 °C).

Thermal drift: ±0,4 %/10 °C of range (starting from 68°F - 20°C).

Working pressure:

100% del FSV for static pressure;

90% del FSV for pulsating pressure.

Overpressure limit: 400% of FSV (see table at pag. 2)

Socket material: AISI 316L st.st.

Bourdon tube: AISI 316L st.st. steamless tube

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Blow out disc: stainless steel.

Window: safety glass.

Movement: stainless steel with internal limit stop.

Dial: aluminium, white with black markings

Pointer: adjustable, aluminium, black.

1.21.2 - Fillable Model - Lower connection only

Ambient temperature: -40...+149 °F (-40...+65 °C), IP 67 housing (EN 60529/IEC 529).

Other features: as Standard Model.

1.21.3 - Filled Model - Lower connection only

Accuracy class: 1,6 as per EN 837-1.

Damping liquid: glycerine 98%, silicon oil or fluorinated fluid.

Ambient temperature:

+32...+149°F (0...+65 °C) with glycerine filling;

-40...+149°F (-40...+65 °C) with silicon oil filling or fluorinated fluid filling.

Process fluid temperature: max +149°F (+65 °C).

Protection degree: IP 67 as per EN 60529/IEC 529.

Window: tempered glass.

Other features: as Standard Model.

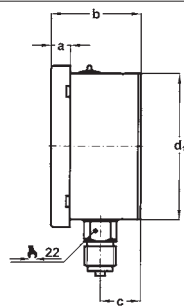
OXYGEN INSTRUMENTS

Glycerine and silicon oil should not be used with highly oxidizing agents 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.

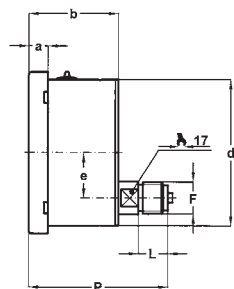
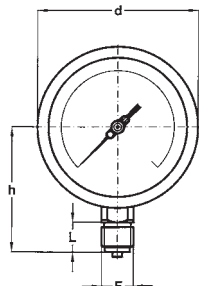
bourdon tube "solid-front" pressure gauges

HEAVY WORK, DS 4", 6" (100-150mm)

MGS21



A - LOWER CONNECTION



D - BACK CONNECTION



| Mounting | DS | F | a | b | c | d | d ₁ | e | h | p | L | Weight |
|----------|---------------|------------------|-------|--------|--------|---------|----------------|-------|--------|-----------|-----------|----------|
| Lower | E 4" (100) | 41M - G 1/2 A | 0.51" | 2.46" | 1.16" | 4.35" | 3.97" | | 3.38" | | 0.78" | 1.43 lbs |
| | | 43M - 1/2-14 NPT | (13) | (62,5) | (29,5) | (110,6) | (101) | (86) | (20) | (0,65 kg) | | |
| Lower | G 6" (150) | 41M - G 1/2 A | 0.59" | 2.51" | 1.18" | 6.33" | 5.92" | | 4.60" | | 0.78" | 2.64 lbs |
| | | 43M - 1/2-14 NPT | (15) | (64) | (30) | (161) | (150,5) | (117) | (20) | (1,2 kg) | | |
| Back | E 4" (100) | 41M - G 1/2 A | 0.51" | 2.46" | | 4.35" | 3.97" | 1.22" | | 3.75" | 0.78" | 1.54 lbs |
| | | 43M - 1/2-14 NPT | (13) | (62,5) | | (110,6) | (101) | (31) | (95,5) | (20) | (0,70 kg) | |
| Back | G 6" (150) | 41M - G 1/2 A | 0.59" | 2.51" | | 6.33" | 5.92" | 1.22" | | 3.77" | 0.78" | 2.53 lbs |
| | | 43M - 1/2-14 NPT | (15) | (64) | | (161) | (150,5) | (31) | (96) | (20) | (1,15 kg) | |

dimensions : inches (mm)

(1) add 0.95 lbs (0,43 kg) for DS 4" (100) and 1.76 lbs (0,8 kg) for DS 6" (150), when filled

| bar (1) | Ranges | 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...400 | 0...600 |
|---------|--------------|-------|---------|---------|-------|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| | Overpressure | | 4 | 6 | 10 | 16 | 25 | 40 | 48 | 75 | 80 | 120 | 200 | 320 | 500 | 800 |

| psi | Ranges | 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...6000 | 0...10000 |
|-----|--------------|--------|--------|--------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|-----------|
| | Overpressure | | 60 | 120 | 240 | 400 | 480 | 600 | 900 | 1000 | 1200 | 2000 | 3000 | 4000 | 6000 | 8000 | 10000 |

| bar (1) | Ranges | -1...0 | -1...0,6 | -1...1,5 | -1...3 | -1...5 | -1...9 | -1...15 | -1...24 |
|---------|--------------|--------|----------|----------|--------|--------|--------|---------|---------|
| | Overpressure | | 3 | 5 | 9 | 15 | 23 | 39 | 47 |

| psi | Ranges (2) | -30...0 | -30...15 | -30...30 | -30...150 |
|-----|--------------|---------|----------|----------|-----------|
| | Overpressure | | 45 | 100 | 125 |

(1) Available measurement units kPa, MPa, kg/cm²

(2) Vacuum measurement unit: InHg

| Model | standard | fillable | filled |
|---|---|----------|--------|
| C - Back flange, for lower connection pressure gauges | ◆ | | ◆ |
| E - Front flange, for back connection pressure gauges | ◆ | | |
| 2G1 - ATEX II 2G c version | See the ATEX pressure gauges data-sheet for technical details | | |
| 2D1 - ATEX II 2GD c version | | | |
| C40 - AISI 316L st. st. case, ring and blow out disc | ◆ | ◆ | ◆ |
| P01 - Suitable for filling with silicone/fluorinated fluid | | ◆ | |
| P02 - Oxygen service | ◆ | ◆ (1) | ◆ (2) |
| P03 - Compensating device, for DS 4" (100 mm) and lower mounting only | ◆ | ◆ | ◆ |
| S10 - Silicone filling | | | ◆ |
| F30 - Fluorinated fluid filling | | | ◆ |
| ECV - Vented housing version, Ambient temperature -50...+65 °C (3) (4) | ◆ | | |
| E67 - Protection degree IP67 (5) | ◆ | | |
| T01 - Tropicalization | ◆ | ◆ | ◆ |

(1) to be ordered with instruments suitable for fluorinated fluid filling

(2) to be ordered with fluorinated fluid filled instruments

(3) to be ordered with E67 option

(4) lower mounting and not adjustable pointer

(5) to be ordered with ECV option

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options

1 21 1 A E 41M C, E
2 D G 43M 2G1...T01
3

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safety pressure gauges "solid-front"
all stainless steel construction
for high pressures,
DS 4", 6" (100-150mm)



PED 2014/68/UE

These instruments are built in conformity with the construction and safety specifications of EN 837-1/S3 e ASME B40.1. In case of leaks or break of the elastic element, the operator is protected by a solid separating wall placed on the front of the instrument and by the blow out back. They are mainly used on high pressure water jet technology like water cutting machines, hydro blasting pumps and turbines, hydrodemolition. The TIG welding between the case and the process socket, strengthens the instrument and assures a better tight in case of dampening fluid. The advantages of filling the case of the instrument with a dampening fluid are: reduced pointer fluctuation, reduced wear of rotating parts of the movement when pulsant vibrations and pulsations occur. Moreover condensation and corrosive atmospheres which could damage the internal parts are prevented.

1.22.1 - Standard Model

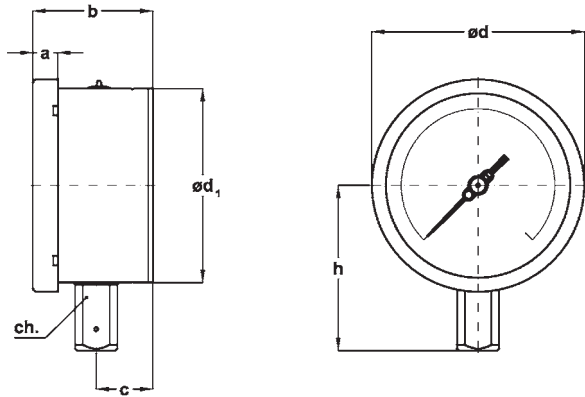
Design: S3 as per EN 837-2.
Ranges: 0...2500, 0...3000 and 0...4000 bar;
 0...30000, 0...40000 and 0...60000 psi/bar.
Accuracy class: $\pm 1\%$ of F.S.V.
Ambient temperature: $-40...+149\text{ }^{\circ}\text{F}$ ($-40...+65\text{ }^{\circ}\text{C}$).
Process fluid temperature: $-40...+302\text{ }^{\circ}\text{F}$ ($-40...+150\text{ }^{\circ}\text{C}$).
Thermal drift: $\pm 0,4\%$ / $10\text{ }^{\circ}\text{C}$ of range (starting from 68°F - 20°C).
Working pressure:
 75% of FSV for static pressure;
 66% of FSV for pulsating pressure.
Over pressure limit: 10% of FSV (temporary).
Protection degree: IP 55 as per IEC 529.
Socket material: AISI 316L st.st.
Bourdon tube: duplex st.st. seamless tube.
Case: stainless steel.
Ring: stainless steel, bayonet lock.
Blow out disk: stainless steel.
Window: safety glass.
Movement: stainless steel with internal limit stops.
Dial: aluminium, white with black markings.
Pointer: adjustable, aluminium, black.

1.22.2 - Fillable Model

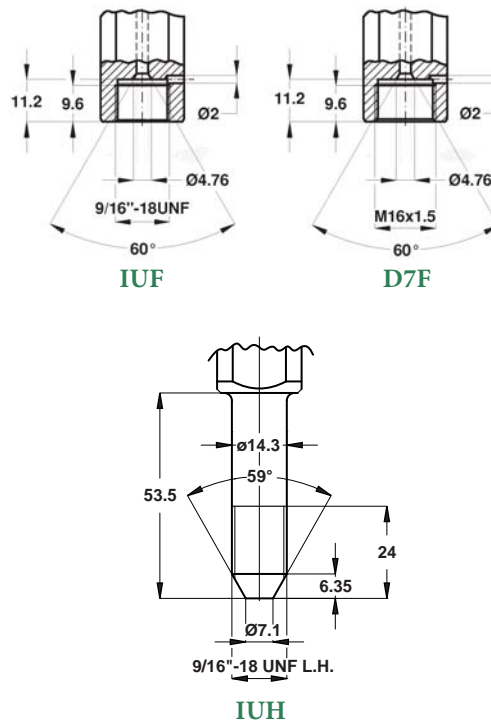
Protection degree: IP 67 as per IEC 529.
Pointer: not adjustable, aluminium, black.
Other features: as Standard Model.

1.22.3 - Filled Model

Damping liquid: glycerine 98%, silicon oil.
Ambient temperature:
 $+32...+149\text{ }^{\circ}\text{F}$ ($0...+65\text{ }^{\circ}\text{C}$) with glycerine filling;
 $-40...+149\text{ }^{\circ}\text{F}$ ($-40...+65\text{ }^{\circ}\text{C}$) with silicon oil filling.
Process fluid temperature: max $+149\text{ }^{\circ}\text{F}$ ($+65\text{ }^{\circ}\text{C}$).
Protection degree: IP 67 as per IEC 529.
Pointer: not adjustable, aluminium, black.
Other features: as Standard Model.



A - LOWER CONNECTION



| Mounting | DS | F | a | b | c | ø d | ø d ₁ | h | ch | Weight (2) |
|-------------------------------|----------------------|---------------------------------|----|----|------|-------|------------------|-----|----|------------|
| Lower | E 4" (100) | IUF - 9/16-18 UNF-2B (1) | 13 | 62 | 29,5 | 110,5 | 101 | 86 | 22 | 0,75 kg |
| | | D7F - M16 x 1,5 | | | | | | 120 | | |
| | | IUH - 9/16-18 UNF-L.H. | | | | | | | | |
| | G 6" (150) | IUF - 9/16-18 UNF-2B (1) | 15 | 64 | 30 | 161 | 150,5 | 110 | 22 | 1,2 kg |
| D7F - M16 x 1,5 | | 140 | | | | | | | | |
| IUH - 9/16-18 UNF-L.H. | | | | | | | | | | |

(1) suitable for following fittings:

- 1/4" F250C Autoclave
- 1/4" HF4 - HiP
- 1/4" Newport AMINCO HP
- 1/4" HP Butech

(2) add 0.95 lbs (0,43 kg) for DS 4" (100) and 1.76 lbs (0,8 kg) for DS 6" (150), when filled

dimensions : mm

OPTIONS

| Model | standard | fillable | filled |
|--|----------|----------|--------|
| C - Back flange, for lower connection pressure gauges | ◆ | ◆ | ◆ |
| C40 - AISI 316L st. st. case, blow out disk and ring | ◆ | ◆ | ◆ |
| P01 - Suitable for filling with silicon oil | | ◆ | |
| S10 - Silicone filling | | | ◆ |
| T01 - Tropicalization | ◆ | ◆ | ◆ |

"HOW TO ORDER" SEQUENCE

Section / Model/Case /Mounting/ Diameter / Range / Process connection / Options

1 22 1 A E D7F C
 2 G IUUF C40...T01
 3 IUH



bourdon tube pressure gauges stainless steel construction DS 4" (100mm)



PED 2014/68/EU



ATEX 2014/34/EU



They are designed for industrial use. They are suitable for tough working conditions and for aggressive fluids. An exclusive Laser calibration procedure features each instrument and allows a very precise accuracy. Filling the case with dampening liquid prevents any condensation and the entrance of corrosive atmosphere increasing its resistance to vibrations and to pulsating pressures.

1.44.2 - Fillable Model

Design: EN 837-1.

Safety designation: S1 as per EN 837-2.

Ranges: from 0...15 to 0...6000 psi (from 0...1 to 0...400 bar or equivalent units).

Accuracy class: 1,6 as per EN 837-1.

Ambient temperature: -13...+149°F (-25...+65 °C).

Process fluid temperature: -13...+212 °F (-25...+100 °C).

Thermal drift: max ±0,4 %/10 °C of scale range (starting from +68°F- 20°C).

Working pressure:

75% of FSV for static pressure.

66% of FSV for pulsating pressure.

Over pressure limit (15 min max):

25% of FSV for pressure ranges ≤ 1500 psi (100 bar);

15% of FSV for pressure ranges over 1500 psi (100 bar).

Protection degree: IP 67 as per IEC 529.

Socket material: AISI 316L st.st.

Elastic element: AISI 316L st.st.

Case: stainless steel

Ring: stainless stees, crimped

Window: tempered glass.

Movement: copper and stainless steel.

Dial: aluminium, white with black markings, or with double red and black markings.

Pointer: not adjustable, aluminium,black.

1.44.3 - Filled Model

Damping liquid: glycerine 98%, silicon oil.

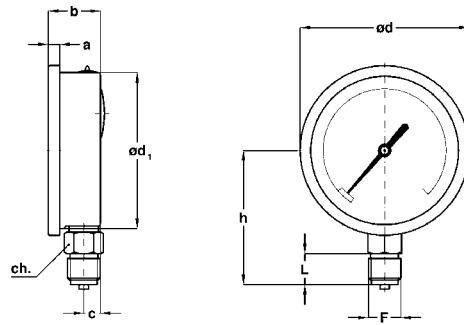
Ambient temperature:

+32...+149 °F (0...+65 °C) with glycerine filling;

-40...+149 °F (-40...+65 °C) with silicon oil filling.

Process fluid temperature: max +149°F (+65 °C).

Other features: as fillable model.



A - LOWER CONNECTION

| F | a | b | c | od | od ₁ | h | ch | L | Weight |
|------------------|----------------|---------------|---------------|----------------|-----------------|---------------|---------------|---------------|--------------------------|
| 41M - G 1/2 A | 0.29" (7,5) | 1.34" (34) | 0.43" (11) | 4.33" (110) | 3.97" (101) | 3.43" (87) | 0.87" (22) | 0.78" (20) | 0.88 lbs (1) (0,4 kg) |
| 43M - 1/2-14 NPT | | | | | | | | | |

dimensions : inches (mm)

(1) Add 0.5 lbs (0,23 kg) when filled

OPTIONS

| Model | fillable | filled |
|--|-------------|------------|
| C - Back flange | ◆ | ◆ |
| 2M1 - ATEX II 2G c IIA/B version (1) | ≤ 6 bar | |
| 2N1 - ATEX II 2GD c IIA/B version (1) | ≥ 10 bar | ◆ |
| ARM -Stainless steel bayonet lock ring | ◆ | ◆ |
| L02 - Adjustable pointer (2) | ◆ | ◆ |
| K10 - Accuracy class 1 as per EN 837-1. | 1...400 bar | 4...40 bar |
| M02 - Stainless steel movement | ◆ | ◆ |
| P01 - Suitable for filling with silicone | ◆ | |
| S10 - Silicone filling | | ◆ |
| TPC - Polycarbonate window | ◆ | ◆ |
| V11 - St.st. restrictor 0,7 mm | ◆ | ◆ |

(1) To be ordered with polycarbonate window only. Suitable for installation with IIA and IIB gas types only. See the ATEX pressure gauges data-sheet for technical details

(2) To be order with bayonet lock ring

“HOW TO ORDER” SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options

1 44 2 A E 41M C
 3 43M 2M1...V11

bourdon tube pressure gauges NACE MR0103/MR0175 - ISO 15156-3 version DS 4", 6" (100-150mm)



PED 2014/68/UE ATEX 2014/34/UE

These instruments are designed for petrochemical industry. They are built to resist to the most severe conditions created by H₂S, by the environment and for those fluids, which have high viscosity and do not crystallize. The quality of the materials used to build the sensible element allows their use with high frequency pulsating pressures. The TIG welding between the case and the process socket, strengthens the instrument and assures a better tight in case of dampening fluid. The advantages of filling the case of the instrument with a dampening fluid are: reduced pointer fluctuation, reduced wear of rotating parts of the movement when pulsant vibrations and pulsations occur. Moreover condensation and corrosive atmospheres which could damage the internal

1.36.1 - Standard Model

Design: EN 837-1, ISO 15156-3.

Safety designation: S1 as per EN 837-2.

Ranges: from 0...15 to 0...10000 psi (from 0...1 to 0...600 bar or equivalent units).

Accuracy class: 1 as per EN 837-1.

Ambient temperature:

-40...+149 °F (-40...+65 °C), IP55 housing (EN 60529/IEC 529);

-58...+149 °F (-50...+65 °C), vented IP67 housing

(EN 60529/IEC 529).

Process fluid temperature: -40...+302 °F (-40...+150 °C).

Thermal drift: ±0,4 %/10 °C of range (starting from 68°F - 20°C).

Working pressure:

100% of FSV for static pressure;

90% of FSV for pulsating pressure.

Over pressure limit: 30% of FSV (max 12 hours).

Socket material: AISI 316L st.st. or Monel 400.

Bourdon tube: Monel 400 seamless tube.

Leak test: Helium Test leak Search (max 1x10⁻⁶ mbar x l x s⁻¹)

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: tempered glass (with external zero adjustment on request).

Movement: stainless steel with internal limit stops.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

1.36.2 - Fillable Model

Ambient temperature: -40...+149 °F (-40...+65 °C), IP 67 housing (EN 60529/IEC 529).

Other features: as Standard Model.

1.36.3 - Filled Model

Damping liquid: glycerine 98% or silicon oil.

Ambient temperature:

+32...+149 °F (0...+65 °C) with glycerine filling;

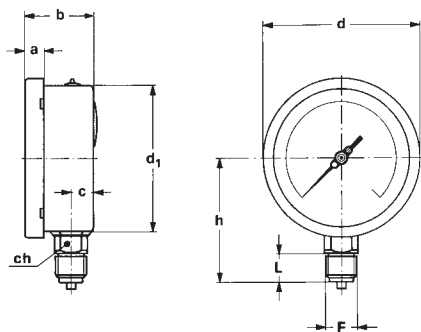
-4...+149 °F (-20...+65 °C) with glycerine filling mixture;

-40...+149 °F (-40...+65 °C) with silicon oil fluid filling.

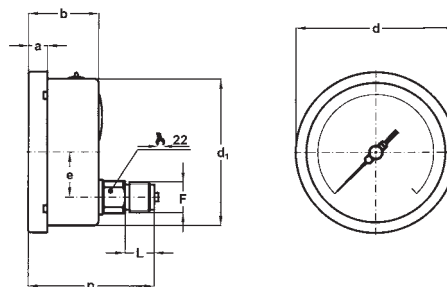
Process fluid temperature: max +149°F (+65 °C).

Protection degree: IP 67 as per EN 60529/IEC 529.

Other features: as Standard Model.



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | DS | F | a | b | c | d | d1 | e | h | p | L | Weight (1) |
|----------|---------------|------------------|-------|--------|--------|---------|---------|-------|-------|--------|-------|------------|
| Lower | E 4" (100) | 41M - G 1/2 A | 0.51" | 1.90" | 0.59" | 4.35" | 3.97" | | 3.38" | | 0.78" | 1.16 lbs |
| | | 43M - 1/2-14 NPT | (13) | (48,5) | (15) | (110,6) | (101) | | (86) | | (20) | (0,53 kg) |
| | G 6" (150) | 41M - G 1/2 A | 0.59" | 1.98" | 0.61" | 6.33" | 5.88" | | 4.60" | | 0.78" | 2.24 lbs |
| | | 43M - 1/2-14 NPT | (15) | (50,5) | (15,5) | (161) | (149,6) | | (117) | | (20) | (1,02 kg) |
| Back | E 4" (100) | 41M - G 1/2 A | 0.51" | 1.90" | | 4.35" | 3.97" | 1.22" | | 3.42" | 0.78" | 1.14 lbs |
| | | 43M - 1/2-14 NPT | (13) | (48,5) | | (110,6) | (101) | (31) | | (87) | (20) | (0,52 kg) |
| | G 6" (150) | 41M - G 1/2 A | 0.59" | 1.98" | | 6.33" | 5.88" | 1.22" | | 3.36" | 0.78" | 2.09 lbs |
| | | 43M - 1/2-14 NPT | (15) | (50,5) | | (161) | (149,6) | (31) | | (85,5) | (20) | (0,95 kg) |

dimensions : inches (mm)

(1) add 0.72 lbs (0,33 kg) for DS 4" (100) and 1.65 lbs (0,78 kg) for DS 6" (150), when filled

OPTIONS

| Model | standard | fillable | filled |
|--|---|----------|--------|
| B - "U"-clamp, for back connection pressure gauges | ◆ | ◆ | ◆ |
| C - Back flange, for lower connection pressure gauges | ◆ | ◆ | ◆ |
| E - Front flange, for back connection pressure gauges | ◆ | ◆ | ◆ |
| 2G1 - ATEX II 2G c version | See the ATEX pressure gauges data-sheet for technical details | | |
| 2D1 - ATEX II 2GD c version | See the ATEX pressure gauges data-sheet for technical details | | |
| C40 - AISI 316L st. st. case and ring | ◆ | ◆ | ◆ |
| E07 - Socket material MONEL 400 | ◆ | ◆ | ◆ |
| E30 - NACE MR0103/MR0175 -ISO15156-3 certificate | ◆ | ◆ | ◆ |
| P01 - Suitable for filling with silicone | | ◆ | |
| G11 - Glycerine filling mixture, DS 4" (100 mm) | | | ◆ |
| ECV - Vented housing version, Ambient temperature -50...+65 °C (1) (2) | ◆ | | |
| E67 - Protection degree IP67 (3) | ◆ | | |
| S10 - Silicone filling | | | ◆ |
| T01 - Tropicalization | ◆ | ◆ | ◆ |
| T32 - Safety glass window | ◆ | ◆ | ◆ |

(1) to be ordered with E67 option

(3) to be ordered with ECV option

(2) not adjustable pointer

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Special version /Range / Process connection / Options

1 36 1 A E --- 41M B...E
2 D G E07 43M 2G1...T32
3



bourdon tube "solid-front" pressure gauges NACE MR0103/MR0175 - ISO 15156-3 version DS 4", 6" (100-150mm)



PED 2014/68/UE ATEX 2014/34/UE

These instruments are built in conformity with the construction and safety specifications of EN 837-1/S3 e ASME B40.1. In case of leaks or break of the elastic element, the operator is protected by a solid separating wall placed on the front of the instrument and by the blow out back. They are usually used in the petrochemical and natural gas industry; they are built to resist to the most severe conditions created by H₂S, by the environment and for those fluids, which have high viscosity and do not crystallize. The TIG welding between the case and the process socket, strengthens the instrument and assures a better tight in case of dampening fluid. The advantages of filling the case of the instrument with a dampening fluid are: reduced pointer fluctuation, reduced wear of rotating parts of the movement when pulsant vibrations and pulsations occur. Moreover condensation and corrosive atmospheres which could damage the internal parts.

1.40.1 - Standard Model

Design: EN 837-1, ISO 15156-3.

Safety designation: S3 as per EN 837-2.

Ranges: from 0...15 to 0...10000 psi ; (from 0...1 to 0...600 bar or other equivalent units).

Accuracy class: 1 as per EN 837-1.

Ambient temperature:

-40...+149 °F (-40...+65 °C), IP55 housing (EN 60529/IEC 529);

-58...+149 °F (-50...+65 °C), vented IP67 housing

(EN 60529/IEC 529).

Process fluid temperature: -40...+302°F (-40...+150 °C).

Thermal drift: ±0,4 %/10 °C of range (starting from 68°F - 20°C).

Working pressure:

100% of FSV for static pressure;

90% of FSV for pulsating pressure.

Overpressure: 30% of FSV (max 12 h).

Socket material: AISI 316L or MONEL 400.

Bourdon tube: MONEL 400 seamless tube

Leak test: Helium Test leak search, (max 1x10⁻⁶ mbar x 1 x s⁻¹).

Case: stainless steel

Ring: stainless steel, bayonet lock.

Blow out disk: stainless steel.

Window: safety glass (with external zero adjustment on request).

Movement: stainless steel with internal limit stops.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

1.40.2 - Fillable Model - Lower connection only

Ambient temperature: -40...+149 °F (-40...+65 °C), IP 67 housing (EN 60529/IEC 529).

Other features: as Standard Model.

1.40.3 - Filled Model - Lower connection only

Filling liquid: glycerina 98%, silicon oil or Fluorinated fluid.

Ambient temperature:

+32...+149°F (0...+65 °C) with glycerine filling;

-40...+149°F (-40...+65 °C) with silicon oil filling or fluorinated fluid filling.

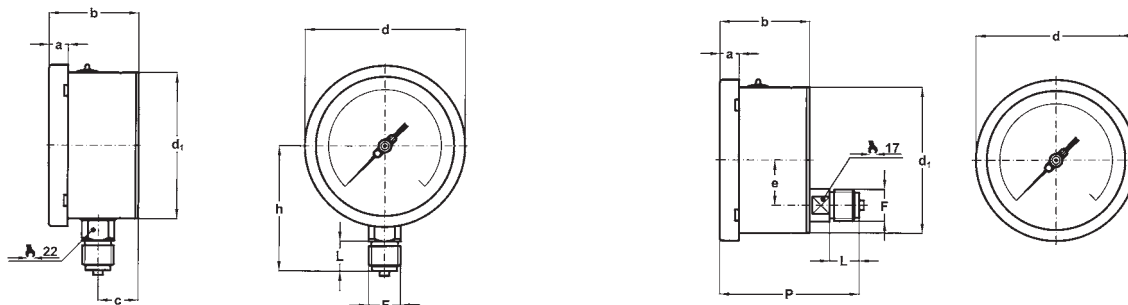
Process fluid temperature: +149°F (+65 °C).

Protection degree: IP 67 as per EN 60529/IEC 529.

Other features: as Standard Model

**bourdon tube "solid-front" pressure gauges,
NACE MR0103/MR0175 - ISO15156-3 version, DS 4", 6" (100-150mm)**

MGS40



A - LOWER CONNECTION

**D - BACK CONNECTION,
Standard model only**

| Mounting | DS | F | a | b | c | d | d ₁ | e | h | p | L | Weight (1) |
|----------|---------------|------------------|-------|--------|--------|---------|----------------|-------|-------|--------|-------|--------------|
| Lower | E 4" (100) | 41M - G 1/2 A | 0.51" | 2.46" | 1.16" | 4.35" | 3.97" | | 3.38" | | 0.78" | 1.43 lbs (1) |
| | | 43M - 1/2-14 NPT | (13) | (62,5) | (29,5) | (110,6) | (101) | | (86) | | (20) | (0,65 kg) |
| Lower | G 6" (150) | 41M - G 1/2 A | 0.59" | 2.51" | 1.18" | 6.33" | 5.92" | | 4.60" | | 0.78" | 2.64 lbs (1) |
| | | 43M - 1/2-14 NPT | (15) | (64) | (30) | (161) | (150,5) | | (117) | | (20) | (1,2 kg) |
| Back | E 4" (100) | 41M - G 1/2 A | 0.51" | 2.46" | | 4.35" | 3.97" | 1.22" | | 3.75" | 0.78" | 1.54 lbs |
| | | 43M - 1/2-14 NPT | (13) | (62,5) | | (110,6) | (101) | (31) | | (95,5) | (20) | (0,70 kg) |
| Back | G 6" (150) | 41M - G 1/2 A | 0.59" | 2.51" | | 6.33" | 5.92" | 1.22" | | 3.77" | 0.78" | 2.53 lbs |
| | | 43M - 1/2-14 NPT | (13) | (64) | | (161) | (150,5) | (31) | | (96) | (20) | (1,15 kg) |

dimensions : inches (mm)

(1) add 0.73 lbs (0,33 kg) for DS 4" (100) and 1.76 lbs (0,8 kg) for DS 6" (150), when filled

OPTIONS

| Model | standard | fillable | filled |
|--|---|----------|--------|
| C - Back flange, for lower connection pressure gauges | ◆ | ◆ | ◆ |
| E - Front flange, for back connection pressure gauges | ◆ | | |
| 2G1 - ATEX II 2G c version | See the ATEX pressure gauges data-sheet for technical details | | |
| 2D1 - ATEX II 2GD c version | | | |
| C40 - AISI 316L st. st. case, ring and blow out disk | ◆ | ◆ | ◆ |
| E07 - Socket material MONEL 400 | ◆ | ◆ | ◆ |
| E30 - NACE MR0103/MR0175 - ISO 15156-3 certificate | ◆ | ◆ | ◆ |
| F30 - Fluorinated fluid filling | | | ◆ |
| P01 - Suitable for filling with silicone/Fluorinated fluid | | ◆ | |
| P03 - Compensating device, for DS 4" (100 mm) and lower mounting only | ◆ | ◆ | ◆ |
| S10 - Silicone filling | | | ◆ |
| ECV - Vented housing version, Ambient temperature -50...+65 °C (1) (2) | ◆ | | |
| E67 - Protection degree IP67 (3) | ◆ | | |
| T01 - Tropicalization | ◆ | ◆ | ◆ |

(1) to be ordered with E67 option

(2) lower mounting and not adjustable pointer

(3) to be ordered with ECV option

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Special version /Range / Process connection / Options

1 40 1 A E -- 41M C...E
2 D G E07 43M 2G1...T01
3



bourdon tube "solid-front" pressure gauges NACE MR0103/MR0175 -ISO 15156-3 version turret case - DS 4.5" (125mm)



These instruments are built in conformity with the construction and safety specifications of **ASME B40.1**.

In case of leaks or break of the elastic element the operator is protected by a stainless steel safety cell solid front and by the blow-out back. They are usually used in the petrochemical industry. They are built to resist to the most severe conditions created by H₂S, by the environment and for those fluids which have high viscosity and do not crystallize. The TIG welding between the safety cell and the process socket strengthens the instrument and assures a better tight in case of dampening fluid. The advantages of filling the case of the instrument with a dampening fluid are: reduced pointer fluctuation, reduced wear of rotating parts of the movement when pulsant vibrations and pulsations occur. Moreover condensation and corrosive atmospheres which could damage the internal parts.

1.60.2 - Fillable Model - Lower connection only

Design: ASME B40.1, ISO 15156-3.

Ranges: from 0...15 to 0...10000 psi (from 0...1 to 0...600 bar or equivalent units).

Accuracy: 1A Grade as per ASME B40.1 (± 1 % of FSV).

Ambient temperature: -22...+149°F (-30...+65°C).

Process fluid temperature: -22...+302°F (-30...+150°C max).

Thermal drift: $\pm 0,4$ %/10 K of range (starting from 68°F - 20°C).

Working pressure:

100% of FSV for static pressure;

90% of FSV for pulsating pressure.

Overpressure limit: 30% of FSV (max 12 h).

Protection degree: IP 65 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st. or MONEL 400

Bourdon tube: MONEL 400 seamless tube.

Leak test: Helium Test leak search

(max 1×10^{-6} mbar x l x s⁻¹).

Case and blow out disk: strengthened polyammides, fiber glass, UV rays stabilized.

Ring: strengthened polypropylene fiber glass.

Safety cell: stainless steel.

Window: tempered glass.

Movement: stainless steel with internal limit stops for minimum and maximum pressure.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

1.60.3 - Filled Model - Lower connection only

Filling liquid: glycerine 98%, silicon oil or Fluorinated fluid.

Ambient temperature:

+32...149°F (0...+65 °C) with glycerine filling;

-22...+149°F (-30...+65 °C) with silicon oil filling;

-22...+149°F (-30...+65 °C) with fluorinated fluid filling.

Fluid process temperature: +149°F (+65 °C).

Protection degree: IP 67 as per EN 60529/IEC 529.

Compensating device: gum.

Other features: as fillable model.

1.60.1 - Standard Model - Back connection only

Protection degree: IP 55 as per EN 60529/IEC 529.

Case: phenolic resin.

Ring and blow out disk: strengthened polyammides, fiber glass.

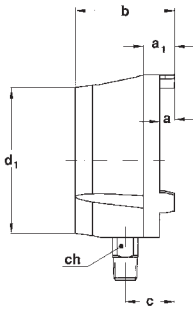
Safety cell: not available.

Separating wall: phenolic resin.

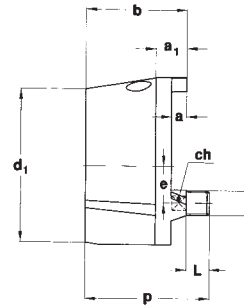
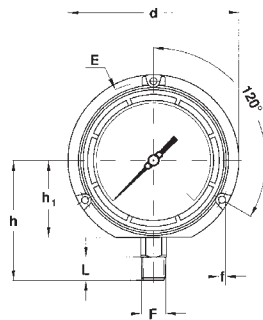
Other features: as fillable model.

bourdon tube "solid-front" pressure gauges
NACE MR0103/MR0175 - ISO 15156-3 version,
turret case DS 4.5" (125mm)

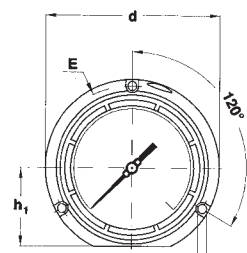
MGS60



A - LOWER CONNECTION



**D - BACK CONNECTION,
FOR STANDARD MODEL ONLY**



| Mounting | F | a | a ₁ | b | c | d | d ₁ | e | E | f | h | h ₁ | p | ch | L | Weight (1) |
|--------------|--------------------------|---------------|----------------|---------------|---------------|----------------|----------------|---------------|----------------|----------------|------------------|-----------------|----------------|---------------|---------------|-----------------------|
| Lower | 43M 1/2-14 NPT | 0.51" (13) | 1.06" (27) | 3.38" (86) | 1.65" (42) | 5.82" (148) | 4.96" (126) | | 5.39" (137) | 0.25" (6,5) | 4.07" (103,5) | 2.61" (66,5) | | 0.86" (22) | 0.78" (20) | 1.78 lbs (0,81 kg) |
| Back | 43M 1/2-14 NPT | 0.51" (13) | 1.06" (27) | 3.38" (86) | | 5.82" (148) | 5.07" (129) | 1.22" (31) | 5.39" (137) | 0.23" (6) | 4.07" (103,5) | 2.61" (66,5) | 4.17" (106) | 0.66" (17) | 0.78" (20) | 1.78 lbs (0,81 kg) |

dimensions : inches (mm)

(1) add 1.10 lbs (0,5 kg) when filled

OPTIONS

| Model | standard | fillable | filled |
|---|----------|----------|--------|
| E07 - Socket material MONEL 400 | ◆ | ◆ | ◆ |
| E30 - NACE MR0103/MR0175 - ISO 15156-3 certificate | ◆ | ◆ | ◆ |
| F11 - Panel mounting kit | ◆ | ◆ | ◆ |
| F30 - Fluorinated fluid filling | | | ◆ |
| P01 - Suitable for filling with silicone/fluid filling | | ◆ | |
| P03 - Blow out disk with compensating device | | ◆ | |
| S10 - Silicone filling | | | ◆ |
| T01 - Tropicalization | ◆ | ◆ | ◆ |
| T32 - Safety glass window | ◆ | ◆ | ◆ |

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Special version /Range / Process connection / Options

1 60 1 A F --- 41M E30...T32
2 D E07
3



bourdon tube pressure gauges NACE MR0175/ISO15156-3 version DS 4", 6" (100-150mm)



PED 2014/68/UE ATEX 2014/34/UE

These instruments are designed for petrochemical industry. They are built to resist to the most severe conditions created by H₂S and by the environment. The quality of the materials used to build the sensible element allows their use with high frequency pulsating pressures. The TIG welding between the case and the process socket, strengthens the instrument and assures a better tight in case of dampening fluid. The advantages of filling the case of the instrument with a dampening fluid are: reduced pointer fluctuation, reduced wear of rotating parts of the movement when pulsant vibrations and pulsations occur. Moreover condensation and corrosive atmospheres which could damage the internal

1.37.1 - Standard Model

Design: EN 837-1.

Safety designation: S1 as per EN 837-2.

Ranges: from -30...0 INHG to 0...6000 psi
(from -1...0 to 0...400 bar or equivalent units).

Accuracy class: 1 as per EN 837-1.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: -40...+212 °F (-40...+100 °C).

Working pressure:

100% of FSV for static pressure;

90% of FSV for pulsating pressure.

Over pressure limit:

30% of FSV, max 6500 psi - 450 bar (max 12 hours).

Special overpressure (upon request):

1000 psi (60 bar) for pressure > 15 psi (1 bar) ... ≤ 150 psi (10 bar);

3500 psi (250 bar) for pressure > 150 psi (10 bar) ... ≤ 1500 psi (100 bar);

6500 psi (450 bar) for pressure > 1500 psi (100 bar) ... ≤ 6000 psi (400 bar).

Protection degree: IP 55 as per EN 60529/IEC 529.

Bourdon tube: AISI 316L st.st.

Diaphragm seal filling fluid: silicone oil.

Wetted parts: Hastelloy C276.

Leak test: Helium Test leak Search (max 1x10⁻⁶ mbar x l x s⁻¹)

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: tempered glass.

Movement: stainless steel with internal limit stops for minimum and maximum pressure.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

1.37.2 - Fillable Model

Protection degree: IP 67 as per EN 60529/IEC 529.

Other features: as Standard Model.

1.37.3 - Filled Model

Pressure gauges damping liquid:

glycerine 98%, silicon oil or fluorinated fluid.

Ambient temperature:

+32...+149 °F (0...+65 °C) with glycerine filling;

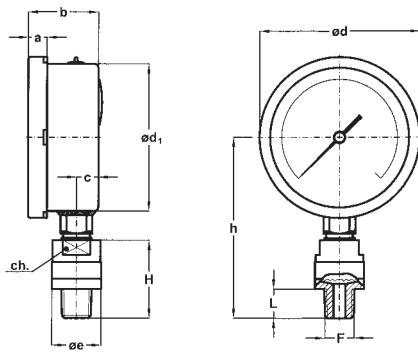
-40...+149 °F (-40...+65 °C) with silicon oil filling;

-40...+149 °F (-40...+65 °C) with fluorinated fluid filling.

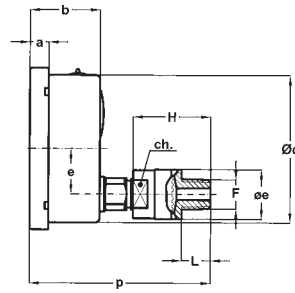
Process fluid temperature: max +212°F (+100 °C).

Protection degree: IP 67 as per EN 60529/IEC 529.

Other features: as Standard Model.



A - LOWER CONNECTION



D - BACK CONNECTION

| DS | Ranges | F | a | b | c | ø d | ø d ₁ | e | øe | h | H | L | p | ch | Weight (1) |
|-------------------------|-------------------------|--------------------------|---------------|-----------------|-----------------|------------------|------------------|---------------|---------------|------------------|---------------|---------------|------------------|---------------|-----------------------|
| E 4" (100) | ≤ 160 psi (≤ 10 bar) | 43M 1/2-14 NPT | 0.51" (13) | 1.91" (48,5) | 0.59" (15) | 4.35" (110,6) | 3.97" (101) | 1.22" (31) | 2.24" (57) | 4.86" (123,5) | 2.12" (54) | 0.78" (20) | 4.94" (125,5) | 1.06" (27) | 2.18 lbs (0,99 kg) |
| | > 160 psi (> 10 bar) | | | | | | | | 1.34" (34) | | | | | | |
| G 6" (150) | ≤ 160 psi (≤ 10 bar) | 43M 1/2-14 NPT | 0.59" (15) | 1.99" (50,5) | 0.61" (15,5) | 6.33" (161) | 5.88" (149,6) | 1.22" (31) | 2.24" (57) | 6.12" (155,5) | 2.12" (54) | 0.78" (20) | 4.88" (124) | 1.06" (27) | 3.26 lbs (1,48 kg) |
| | > 160 psi (> 10 bar) | | | | | | | | 1.34" (34) | | | | | | |

dimensions : mm

(1) add 0.72 lbs (0,33 kg) for DS 4" (100) and 1.65 lbs (0,75 kg) for DS 6" (150), when filled

OPTIONS

| Model | standard | fillable | filled |
|---|--|----------|--------|
| E - Front flange, for back connection pressure gauges | ◆ | ◆ | ◆ |
| 2G1 - ATEX II 2G c version | <i>See the ATEX pressure gauges data-sheet for technical details</i> | | |
| 2D1 - ATEX II 2GD c version | | | |
| C40 - AISI 316L case and ring | ◆ | ◆ | ◆ |
| E75 - NACE MR0175/ISO 15156-3 certificate | ◆ | ◆ | ◆ |
| P02 - Oxygen service | ◆ | ◆(1) | ◆(2) |
| P01 - Suitable for filling with silicone / fluorinated fluid | | ◆ | |
| S10 - Silicone filling | | | ◆ |
| F30 - Fluorinated fluid filling | | | ◆ |
| SPS - Special overpressure | ◆ | ◆ | ◆ |
| T01 - Tropicalization | ◆ | ◆ | ◆ |
| T32 - Safety glass window | ◆ | ◆ | ◆ |

(1) to be ordered with instruments suitable for fluorinated fluid filling

(2) to be ordered with fluorinated fluid filled instruments

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options

1 37 1 A E 43M E
2 D G 2G1...2D1
3 C40...T32



bourdon tube "solid-front" pressure gauges NACE MR0175/ISO 15156-3 version DS 4", 6" (100-150mm)



PED 2014/68/UE ATEX 2014/34/UE

These instruments are built in conformity with the construction and safety specifications of EN 837-1/S3 e ASME B40.1. In case of leaks or break of the elastic element, the operator is protected by a solid separating wall placed on the front of the instrument and by the blow out back. They are usually used in the petrochemical industry; they are built to resist to the most severe conditions created by H₂S and by the environment. The TIG welding between the case and the process socket, strengthens the instrument and assures a better tight in case of dampening fluid. The advantages of filling the case of the instrument with a dampening fluid are: reduced pointer fluctuation, reduced wear of rotating parts of the movement when pulsant vibrations and pulsations occur. Moreover condensation and corrosive atmospheres which could damage the internal parts.

1.41.1 - Standard Model

Design: EN 837-1.

Safety designation: S1 as per EN 837-2.

Ranges: from -30...0 INHG to 0...6000 psi (from -1...0 to 0...400 bar or equivalent units).

Accuracy class: 1 as per EN 837-1.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: -40...+212 °F (-40...+100 °C).

Working pressure:

100% of FSV for static pressure;

90% of FSV for pulsating pressure.

Over pressure limit:

30% of FSV, max 6500 psi - 450 bar (max 12 hours).

Special overpressure (upon request):

1000 psi (60 bar) for pressure > 15 psi (1 bar) ... ≤ 150 psi (10 bar);

3500 psi (250 bar) for pressure > 150 psi (10 bar) ... ≤ 1500 psi (100 bar);

6500 psi (450 bar) for pressure > 1500 psi (100 bar) ... ≤ 6000 psi (400 bar).

Protection degree: IP 55 as per EN 60529/IEC 529.

Bourdon tube: AISI 316L st.st.

Diaphragm seal filling fluid: silicone oil.

Wetted parts: Hastelloy C276.

Leak test: Helium Test leak Search (max 1x10⁻⁶ mbar x l x s⁻¹)

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Blow out disk: stainless steel.

Window: safety glass.

Movement: stainless steel with internal limit stops for minimum and maximum pressure.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

1.41.2 - Fillable Model

Protection degree: IP 67 as per EN 60529/IEC 529.

Other features: as Standard Model.

1.41.3 - Filled Model

Pressure gauges damping liquid:

glycerine 98%, silicon oil or fluorinated fluid.

Ambient temperature:

+32...+149 °F (0...+65 °C) with glycerine filling;

-40...+149 °F (-40...+65 °C) with silicon oil filling;

-40...+149 °F (-40...+65 °C) with fluorinated fluid filling.

Process fluid temperature: max +212°F (+100 °C).

Protection degree: IP 67 as per EN 60529/IEC 529.

Other features: as Standard Model.

bourdon tube "solid-front" pressure gauges NACE MR0175/ISO 15156-3 version turret case - DS 4.5" (125mm)



PED 2014/68/UE

In case of leaks or break of the elastic element the operator is protected by a stainless steel safety cell solid front and by the blow-out back. They are usually used in the petrochemical industry; they are built to resist to the most severe conditions created by H₂S and by the environment and for those fluids. The TIG welding between the safety cell and the process socket strengthens the instrument. The advantages of filling the case of the instrument with a dampening fluid are: reduced pointer fluctuation, reduced wear of rotating parts of the movement when pulsant vibrations and pulsations occur. Moreover condensation and corrosive atmospheres which could damage the internal parts.

1.61.2 - Fillable Model

Design: ASME B40.1

Ranges: from -30...0 INHG to 0...6000 psi (from -1...0 to 0...400 bar or equivalent units).

Accuracy: Grade 1A as per ASME B40.1 ($\pm 1,0\%$ of span).

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: -40...+212 °F (-40...+100 °C).

Working pressure:

100% of FSV for static pressure;

90% of FSV for pulsating pressure.

Over pressure limit:

30% of FSV, max 6500 psi - 450 bar (max 12 hours).

Special overpressure (upon request):

1000 psi (60 bar) for pressure > 15 psi (1 bar) ... ≤ 150 psi (10 bar);

3500 psi (250 bar) for pressure > 150 psi (10 bar) ... ≤ 1500 psi (100 bar);

6500 psi (450 bar) for pressure > 1500 psi (10 bar) ... ≤ 6000 psi (400 bar).

Protection degree: IP 65 as per EN 60529/IEC 529.

Bourdon tube: AISI 316L st.st.

Diaphragm seal filling fluid: silicone oil.

Wetted parts: Hastelloy C276.

Leak test: Helium Test leak Search (max 1×10^{-6} mbar x l x s⁻¹)

Case and blow out disk: strengthened polyammides with fiber glass , UV rays stabilized.

Ring: strengthened polypropylene, fiber glass.

Safety cell: stainless steel.

Window: tempered glass.

Movement: stainless steel with internal limit stops for minimum and maximum pressure.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

1.61.3 - Filled Model

Pressure gauges damping liquid:

glycerine 98%, silicon oil or fluorinated fluid.

Ambient temperature:

+32...+149 °F (0...+65 °C) with glycerine filling;

-40...+149 °F (-40...+65 °C) with silicon oil filling;

-40...+149 °F (-40...+65 °C) with fluorinated fluid filling.

Process fluid temperature: max +212°F (+100 °C).

Protection degree: IP 67 as per EN 60529/IEC 529.

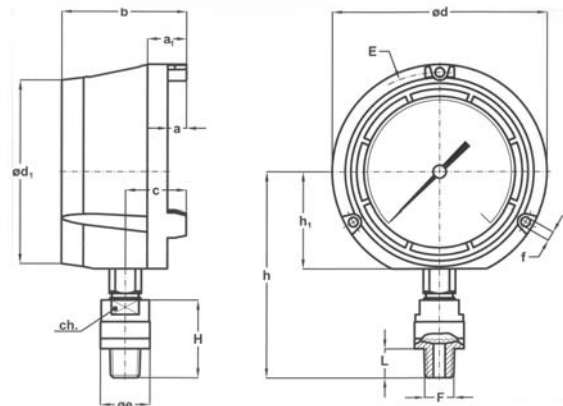
Compensating device: gum.

Other features: as Fillable Model.

bourdon tube "solid-front" pressure gauges
NACE MR0175/ISO 15156-3 version,
turret case DS 4.5" (125mm)

MGS61

RC5 - 05/14



A - LOWER CONNECTION

| Ranges | F | a | a ₁ | b | c | ø d | ø d ₁ | ø e | E | f | h | h ₁ | H | L | ch | Weight (1) |
|-----------------------|--------------------------|---------------|----------------|---------------|---------------|----------------|------------------|---------------|----------------|----------------|------------------|-----------------|---------------|---------------|---------------|-----------------------|
| ≤ 160 psi (10 bar) | 43M 1/2-14 NPT | 0.51" (13) | 1.06" (27) | 3.38" (86) | 1.65" (42) | 5.82" (148) | 4.96" (126) | 2.24" (57) | 5.39" (137) | 0.25" (6,5) | 5.57" (141,5) | 2.61" (66,5) | 2.12" (54) | 0.78" (20) | 1.06" (27) | 2.44 lbs (1,11 kg) |
| > 160 psi (10 bar) | | | | | | | | 1.33" (34) | | | | | | | | |

dimensions : inches (mm)

(1) add 1.10 lbs (0,5 kg), when filled

OPTIONS

| Model | fillable | filled |
|---|----------|--------|
| E75 - NACE MR0175/ISO 15156-3 certificate | ◆ | ◆ |
| P02 - Oxygen service | ◆ (1) | ◆ (2) |
| P01 - Suitable for filling with silicone / fluorinated fluid | ◆ | |
| S10 - Silicone filling | | ◆ |
| F30 - Fluorinated fluid filling | | ◆ |
| SPS - Special overpressure | ◆ | ◆ |
| T01 - Tropicalization | ◆ | ◆ |
| T32 - Safety glass window | ◆ | ◆ |

(1) to be ordered with instruments suitable for fluorinated fluid filling

(2) to be ordered with fluorinated fluid filled instruments

“HOW TO ORDER” SEQUENCE

Section / Model / Case / Mounting / Diameter /Range / Process connection / Options
1 61 2 A F 43M E75...T32
3

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homogenizer gauges DS 4" (100mm)



74-06
Autorization NO. 1599



PED 2014/68/EU

These instruments are designed for homogenizer machines and are built according to standard n. 74-06 of 3-A organization (Sanitary Standards Symbol Administrative Council). The absence of interstices and the mirror finishing of the components assure the best hygiene. The process connection is a special diaphragm seal integrally built with the pressure gauge. To reduce the effects of severe operating conditions like vibrations and pulsations, the instruments can be liquid filled. These types of sensors are intended for Manual (COP) Cleaning.

1.OM.2 - Fillable model

Design: 74-06 SSI; EN837-1.

Safety designation: S1 as per EN 837-2.

Ranges: from 0...2000 psi to 0...15000 psi; (from 0...160 bar to 0...1600 bar or equivalent units).

Accuracy: class 1,6 as per EN 837-1.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process temperature: -4...+248 °F (-20...+120 °C).

Max 302°F (150 °C) for 1 hour during sterilization (S.I.P)¹.

Working pressure (referred to the full scale value): max 75%.

Over pressure limit: not available.

Seal fill: oil for food service (FDA).

Protection degree: IP 67 as per EN 60529/IEC 529.

Process connection: AISI 316L st.st. with finishing Ra ≤0,8 μm (welded parts included).

Diaphragm: AISI 316L

Welding: AISI 316L TIG.

Flange and screw nut: AISI 316 st.st.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Elastic element: AISI 316L st.st. spiral form.

Window: tempered glass.

Movement: stainless steel.

Dial: aluminium, white with black markings.

Pointer: aluminium black anodized.

1.OM.3 - Filled model

Case filling liquid: glycerine 99,5% (USP, E.P. and F.U.) for food service.

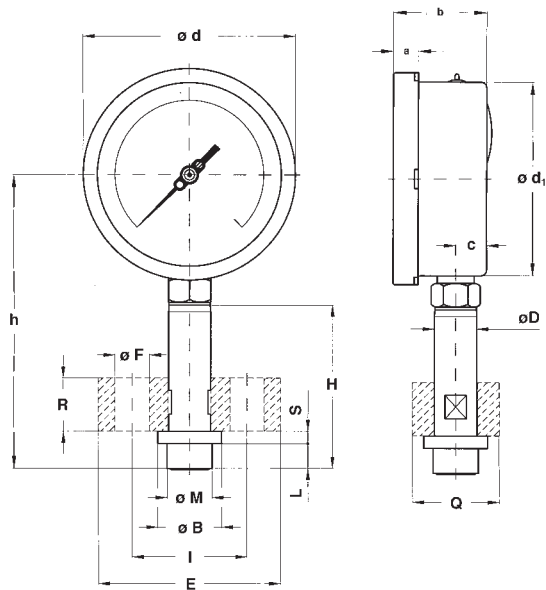
Ambient temperature: +59...+149 °F (+15...+65 °C).

Other features: as fillable model.

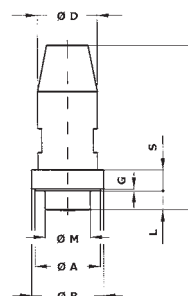
1) S.I.P. = Steamed In Place

| RANGES | bar | bar ext. psi int. |
|----------|-----|----------------------|
| 0...160 | ◆ | ◆ |
| 0...250 | ◆ | ◆ |
| 0...400 | ◆ | ◆ |
| 0...600 | ◆ | ◆ |
| 0...1000 | ◆ | ◆ |
| 0...1600 | ◆ | ◆ |

| RANGES | psi |
|-----------|-----|
| 0...2000 | ◆ |
| 0...3000 | ◆ |
| 0...4000 | ◆ |
| 0...5000 | ◆ |
| 0...6000 | ◆ |
| 0...10000 | ◆ |
| 0...15000 | ◆ |


A - LOWER CONNECTION
335 - SA 335
(with flange)

| | | | | | |
|----------|----------|----------|----------|----------------------|----------|
| a | b | c | d | d₁ | h |
| 0.51" | 1.90" | 0.62" | 4.35" | 3.97" | 6.08" |
| (13) | (48,5) | (16) | (110,6) | (101) | (154,5) |

167 - SA 167

 Customer drawing process
connection available on request

| Drawing | ϕD | ϕM | ϕA | ϕB | H | S | G | L | E | ϕF | I | R | Q | Weight |
|---------|---------------|-----------------|---------------|-----------------|---------------|----------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|-----------------------|
| SA 335 | 0.86" (22) | 0.95" (23,5) | | 1.30" (33,3) | 3.38" (86) | 0.25" (6,5) | | 0.51" (13) | 3.74" (95) | 0.70" (18) | 2.36" (60) | 1.10" (28) | 1.77" (45) | 4.01 lbs (1,82 kg) |
| SA 167 | 1.22" (31) | 0.95" (23,5) | 1.33" (34) | 1.47" (37,5) | 3.38" (86) | 0.43" (11) | 0.04" (1) | 0.39" (10) | | | | | | 2.84 lbs (1,29 kg) |

dimensions : inches (mm)

OPTIONS

| Model | Fillable | Filled |
|--|--|--------|
| S35 - Connection as per SA 335, without flange | ◆ | ◆ |
| 2D1 - ATEX II 2GD c version | <i>See the ATEX pressure gauges data-sheet for technical details</i> | |
| L22 - Maximum pointer IP 65 on plexiglas window (1) | ◆ | ◆ |
| T32 - Safety glass window | ◆ | ◆ |
| TPC - Polycarbonate window | ◆ | ◆ |

(1) Accuracy refers to the area free from the maximum pointer action.

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options

| | | | | | | |
|---|-----------|---|----------|----------|------------|------------------|
| 1 | OM | 2 | A | E | 167 | S35 |
| | | 3 | | | 335 | 2D1...TPC |

sanitary pressure gauges

DS 2.5", 4" (63-100mm)



74-06

Autorization NO. 1599



These instruments are designed for Sanitary, Food Process and Pharmaceutical Industries in compliance with standard n.74-06 of 3-A (Sanitary Standards Symbol Administrative Council). The absence of interstices and the mirror finishing of the components assure the best hygiene. The combination of pressure gauge and diaphragm seal allow to reduce the inner volumes and temperature error. To reduce the effects of severe working conditions like vibrations and pulsations, the instruments can be filled.

1.SP.2 - Liquid fillable

Design: 74-06 SSI; ASME B40.1

Ranges: from 0...15 psi to 0...600 psi; (from 0...1 bar to 0...40 bar or equivalent units).

Accuracy: grade A as per ASME B40.1 (2-1-2%) for DS 4" (100mm); grade B as per ASME B40.1 (3-2-3%) for DS 2.5" (63mm);

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process temperature: -4...+212 °F (-20...+100 °C).

Max 284°F (140 °C) for 30 minutes during cleaning stage (C.I.P.)¹ and sterilization (S.I.P.)².

Working pressure (referred to the full scale value): max 75%.

Over pressure limit: not available.

Seal fill: mineral oil (FDA approved) for food service.

Protection degree: IP 67 as per EN 60529/IEC 529.

Process connection: AISI 316L st.st. with finishing Ra ≤0,76 µm (welded parts included), as per ASME BPE SF3.

Diaphragm: AISI 316L st.st. .

Welding: AISI 316L TIG.

Case: electro polished AISI 304 st.st.

Ring: polished AISI 304 st.st., crimped.

Window: plastic on DS 2.5" (63mm); tempered glass on DS 4" (100 mm).

Dial: aluminium, white with black markings.

Pointer: aluminium black anodized.

1) C.I.P. = Cleaned In Place

2) S.I.P. = Steamed In Place - available for ranges > 1bar when steam pressure does not exceed the max admissible pressure on the connected instrument

1.SP.3 - Liquid filled

Case fill: glycerine 99,5% (USP, E.P. e F.U.) for food service.

Ambient temperature: +32...+149 °F (0...+65 °C).

Other features: as standard model.

1.SP.2.A.E.ATV - Autoclavable

This version can be autoclaved and sterilized at a max temperature of 304°F (150 °C) for 1 hour.

Window: Polysulfone.

Gasket: silicon rubber.

Blow out vent and filling plug: VITON.

Other features: as standard model.

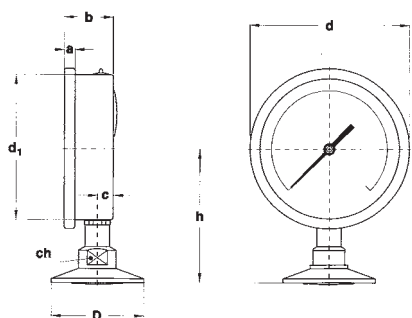
sanitary pressure gauges

DS 2.5", 4" (63-100mm)

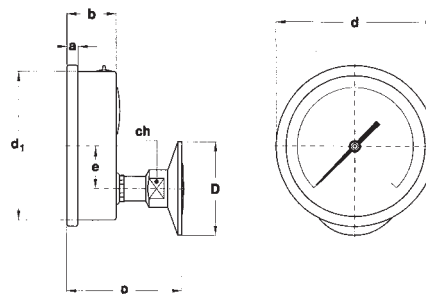
SP

RG-02/16

IN ORDER TO IMPROVE THEIR PRODUCTION, MESSRS. NUOVA FIMA RESERVE THE RIGHT TO THEMSELVES TO MAKE ALL THE MODIFICATIONS THAT THEY DEEM INDISPENSABLE AT ANY TIME. UPDATED DATA SHEETS ARE AVAILABLE ON SITE: www.nuovafima.com



A - LOWER CONNECTION



**D - BACK CONNECTION,
FOR DS 4" (100mm) ONLY**

| DS | AT- 1 1/2" | D BT- 2" | a | b | c | d | d ₁ | e | h | p | ch | Weight (1) |
|-----------------------|---------------|----------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|------------|
| C 2.5" (63 mm) | 1.98" | 2.51" | 0.21" | 1.10" | 0.39" | 2.67" | 2.46" | | 3.11" | | 0.86" | 0.61 lbs |
| E 4" (100 mm) | 1.98" | 2.51" | 0.29" | 1.33" | 0.43" | 4.33" | 0.39" | 0.73" | 3.50" | 2.99" | 0.86" | 0.92 lbs |

(dimensioni : inches)

(1) add 0.26 lbs (0,12 kg) for DS 2.5" (63 mm) and 0.66 lbs (0,30 kg) for DS 4" (100 mm), when filled

RANGES - "C" = DS 2.5" (63mm); "E" = DS 4" (100mm).

PRESSURE

TAB. 1

| RANGE | bar |
|-------------|-----|
| 0...1 (1) | E |
| 0...1,6 (1) | E |
| 0...2,5 | C-E |
| 0...4 | C-E |
| 0...6 | C-E |
| 0...10 | C-E |
| 0...16 | C-E |
| 0...25 | C-E |
| 0...40 | C-E |

TAB. 2

| RANGE | psi ext. |
|------------|----------|
| | bar int. |
| 0...15 (1) | E |
| 0...30 | C-E |
| 0...60 | C-E |
| 0...100 | C-E |
| 0...160 | C-E |
| 0...200 | C-E |
| 0...300 | C-E |
| 0...400 | C-E |
| 0...600 | C-E |

VACUUM & COMPOUND

TAB. 3

| RANGE | bar |
|--------------|-----|
| -1...0 (1) | E |
| -1...0,6 (1) | E |
| -1...1,5 | C-E |
| -1...3 | C-E |
| -1...5 | C-E |
| -1...9 | C-E |
| -1...15 | C-E |

TAB. 4

| RANGE (2) | psi ext. |
|--------------|----------|
| | bar int. |
| -30...0 (1) | E |
| -30...15 (1) | E |
| -30...30 | C-E |
| -30...60 | C-E |
| -30...100 | C-E |
| -30...150 | C-E |
| -30...300 | C-E |

(1) available only for 2" CLAMP connection

(1) available only for 2" CLAMP connection

(2) vacuum unit of measurement: "inHg"

FINISHING

| | |
|--|-----|
| 0 - Ra ≤ 0,76 μm, as per ASME BPE SF1 | (1) |
| A - Ra ≤ 0,51 μm, as per ASME BPE SF1 | (1) |
| B - Ra ≤ 0,38 μm, as per ASME BPE SF4 - electropolished | (1) |

(1) welded parts included

OPTIONS

| |
|-----------------------------------|
| K16 - Accuracy ± 1,6% |
| TPC - Polycarbonate window |

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Special Version / Range / Process connection / Finishing / Options

1 SP 2 A C ATV AT- 0 K16...TPC
3 D E BT- A B



bourdon tube test gauges
all stainless steel construction
class 0,6%
DS 6" (150mm)



PED 2014/68/UE

These instruments have been designed for laboratories, instrument testing or recalibration facilities and in other applications where accuracy and repeatability are of primary importance. They can be used with fluids or gasses that do not have high viscosity and do not crystallize. The wetted parts in AISI 316L permits to use them in worse working conditions determined by aggressive ambients or process fluids. Upon request we can supply the calibration certificate issued by an Internationally recognized laboratory of ACCREDIA (Ex S.I.T. - Italian Calibration Service).

1.15.1 - Standard Model

Design: EN837-1.

Safety designation: S1 as per EN 837-2.

Accuracy class: 0,6 as per EN 837-1.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: -40...+302°F (-40...+150 °C).

Calibration temperature: 68°F (+20 °C).

Thermal drift: ±0,4 %/10 K of range (starting from 68°F - 20°C).

Working pressure: max 75% of FSV.

Overpressure limit: 30% of FSV.

Protection degree: IP 55 as per IEC 529.

Socket material: AISI 316L st.st.

Bourdon tube: AISI 316L st.st. seamless tube.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: tempered glass.

Movement: stainless steel with internal limit stops fro minimum and maximum pressure.

Dial: aluminium, white with black markings and anti-parallax mirror band.

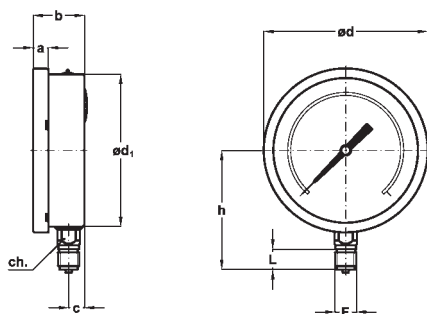
Pointer: adjustable, aluminium, black, knife-edge micrometer.

| RANGE | Minor graduation | Figure interval | bar | kPa | MPa | psi |
|----------|------------------|-----------------|-----|-----|-----|-----|
| -1...0 | 0,005 | 0,10 | ◆ | | | |
| 0...0,6 | 0,002 | 0,05 | ◆ | | ◆ | |
| 0...1 | 0,005 | 0,1 | ◆ | | ◆ | |
| 0...1,6 | 0,005 | 0,1 | ◆ | | ◆ | |
| 0...2,5 | 0,01 | 0,1 | ◆ | | ◆ | |
| 0...4 | 0,02 | 0,2 | ◆ | | ◆ | |
| 0...6 | 0,02 | 0,5 | ◆ | | ◆ | |
| 0...10 | 0,05 | 1 | ◆ | | ◆ | ◆ |
| 0...16 | 0,05 | 1 | ◆ | | ◆ | ◆ |
| 0...25 | 0,1 | 1 | ◆ | | ◆ | |
| 0...30 | 0,1 | 2 | ◆ | | ◆ | ◆ |
| 0...40 | 0,2 | 2 | ◆ | | ◆ | |
| 0...60 | 0,2 | 5 | ◆ | ◆ | ◆ | ◆ |
| 0...100 | 0,5 | 10 | ◆ | ◆ | | ◆ |
| 0...160 | 0,5 | 10 | ◆ | ◆ | | ◆ |
| 0...250 | 1 | 10 | ◆ | ◆ | | |
| 0...300 | 1 | 20 | ◆ | ◆ | | ◆ |
| 0...400 | 2 | 20 | ◆ | ◆ | | ◆ |
| 0...600 | 2 | 50 | ◆ | ◆ | | ◆ |
| 0...1000 | 5 | 100 | | | | ◆ |
| 0...2000 | 10 | 100 | | | | ◆ |
| 0...3000 | 10 | 200 | | | | ◆ |
| 0...4000 | 20 | 200 | | | | ◆ |
| 0...6000 | 20 | 500 | | | | ◆ |

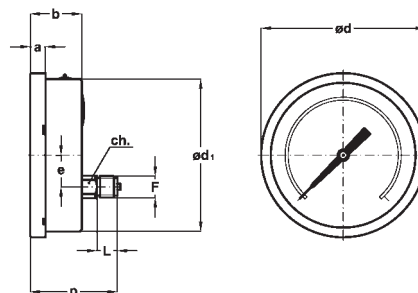
bourdon tube test gauges
all stainless steel construction, class 0,6%, DS 6" (150mm)

MN15

RC4-05/14



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b | c | ød | ød ₁ | e | h | p | ch | L | Weight |
|----------|-------------------------|-------|--------|--------|-------|-----------------|-------|-------|--------|-------|-------|-----------|
| Lower | 41M - G 1/2 A | 0.59" | 1.91" | 1.98" | 6.33" | 5.88" | | 4.60" | | 0.86" | 0.78" | 2.07 lbs |
| | 43M - 1/2-14 NPT | (15) | (50,5) | (15,5) | (161) | (149,6) | | (117) | | (22) | (20) | (0,94 kg) |
| Back | 41M - G 1/2 A | 0.59" | 1.91" | | 6.33" | 5.88" | 1.22" | | 3.36" | 0.86" | 0.78" | 2.07 lbs |
| | 43M - 1/2-14 NPT | (15) | (50,5) | | (161) | (149,6) | (31) | | (85,5) | (22) | (20) | (0,94 kg) |

dimensions : inches (mm)

PRESSURE GAUGE HOLDER CASE



Instruments with radial connection can be supplied of pressure gauge holder case, code **5VAL**.

OPTIONS

| | |
|--------------|---|
| B - | "U"-clamp, for back connection pressure gauges |
| C - | Back flange, for lower connection pressure gauges |
| E - | Front flange, for back connection pressure gauges |
| CE1 - | ACCREDIA certificate (pressure gauges) |
| CE3 - | ACCREDIA certificate (vacuum gauges) |
| T32 - | Safety glass window |

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options
1 15 1 A G 41M B...E
D 43M CE1...T32

bourdon tube test gauges
all stainless steel construction, "solid-front"
class 0,6%
DS 6" (150mm)



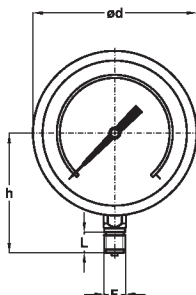
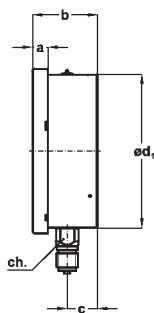
PED 2014/68/UE

These instruments have been designed for laboratories, instrument testing or recalibration facilities and in other applications where accuracy and repeatability are of primary importance. These instruments have a solid separating wall in stainless steel, placed between the dial and the elastic element and an integral blow out back that is released from the case whenever a pressure is created inside the case, due to leaks or accidental ruptures of the elastic element. They can be used with fluids or gasses that do not have high viscosity and do not crystallize. The wetted parts in AISI 316L permits to use them in worse working conditions determined by aggressive ambients or process fluids. Upon request we can supply the calibration certificate issued by an Internationally recognized laboratory of ACCREDIA (Ex S.I.T. - Italian Calibration Service).

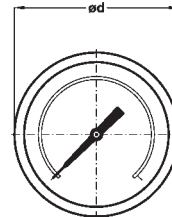
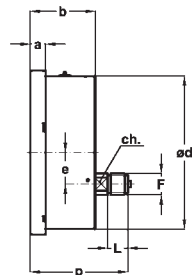
1.16.1 - Standard Model

- Design:** EN837-1.
- Safety designation:** S3 as per EN 837-2.
- Accuracy class:** 0,6 as per EN 837-1.
- Ambient temperature:** -13...+149 °F (-25...+65 °C).
- Process fluid temperature:** -40...+302°F (-40...+150 °C).
- Calibration temperature:** 68°F (+20 °C).
- Thermal drift:** ±0,4 %/10 K of range (starting from 68°F - 20°C).
- Working pressure:** max 75% of FSV.
- Overpressure limit:** 30% of FSV.
- Protection degree:** IP 55 as per IEC 529.
- Socket material:** AISI 316L st.st.
- Bourdon tube:** AISI 316L st.st. seamless tube.
- Case:** stainless steel.
- Ring:** stainless steel, bayonet lock.
- Blow out disk:** stainless steel
- Window:** safety glass.
- Movement:** stainless steel with internal limit stops of minimum and maximum pressure.
- Dial:** aluminium, white with black markings and anti-parallax mirror band
- Pointer:** adjustable, aluminium, black, knife-edge micrometer

| RANGE | Minor graduation | Figure interval | bar | kPa | MPa | psi |
|----------|------------------|-----------------|-----|-----|-----|-----|
| -1...0 | 0,005 | 0,10 | ◆ | | | |
| 0...0,6 | 0,002 | 0,05 | ◆ | | ◆ | |
| 0...1 | 0,005 | 0,1 | ◆ | | ◆ | |
| 0...1,6 | 0,005 | 0,1 | ◆ | | ◆ | |
| 0...2,5 | 0,01 | 0,1 | ◆ | | ◆ | |
| 0...4 | 0,02 | 0,2 | ◆ | | ◆ | |
| 0...6 | 0,02 | 0,5 | ◆ | | ◆ | |
| 0...10 | 0,05 | 1 | ◆ | | ◆ | ◆ |
| 0...16 | 0,05 | 1 | ◆ | | ◆ | ◆ |
| 0...25 | 0,1 | 1 | ◆ | | ◆ | |
| 0...30 | 0,1 | 2 | ◆ | | ◆ | ◆ |
| 0...40 | 0,2 | 2 | ◆ | | ◆ | |
| 0...60 | 0,2 | 5 | ◆ | ◆ | ◆ | ◆ |
| 0...100 | 0,5 | 10 | ◆ | ◆ | | ◆ |
| 0...160 | 0,5 | 10 | ◆ | ◆ | | ◆ |
| 0...250 | 1 | 10 | ◆ | ◆ | | |
| 0...300 | 1 | 20 | ◆ | ◆ | | ◆ |
| 0...400 | 2 | 20 | ◆ | ◆ | | ◆ |
| 0...600 | 2 | 50 | ◆ | ◆ | | ◆ |
| 0...1000 | 5 | 100 | | | | ◆ |
| 0...2000 | 10 | 100 | | | | ◆ |
| 0...3000 | 10 | 200 | | | | ◆ |
| 0...4000 | 20 | 200 | | | | ◆ |
| 0...6000 | 20 | 500 | | | | ◆ |



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b | c | ch | ød | ød ₁ | e | h | p | L | Weight |
|----------|------------------|-------|-------|-------|-------|-------|-----------------|-------|-------|--------|-------|-----------|
| Lower | 41M - G 1/2 A | 0.59" | 2.51" | 1.18" | 0.86" | 6.33" | 5.92" | | 4.60" | | 0.78" | 2.49 lbs |
| | 43M - 1/2-14 NPT | (15) | (64) | (30) | (22) | (161) | (150,5) | | (117) | | (20) | (1,13 kg) |
| Back | 41M - G 1/2 A | 0.59" | 2.51" | | 0.66" | 6.33" | 5.92" | 1.22" | | 3.79" | 0.78" | 2.27 lbs |
| | 43M - 1/2-14 NPT | (15) | (64) | | (17) | (161) | (150,5) | (31) | | (96,5) | (20) | (1,03 kg) |

dimensions : inches (mm)

PRESSURE GAUGE HOLDER CASE



Instruments with radial connection can be supplied of pressure gauge holder case, code **5VAL**.

OPTIONS

| |
|--|
| C - Back flange, for lower connection pressure gauges |
| E - Front flange, for back connection pressure gauges |
| CE1 - ACCREDIA certificate (pressure gauges) |
| CE3 - ACCREDIA certificate (vacuum gauges) |
| P02 - Oxygen service |

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options

1 16 1 A G 41M C...E
D 43M CE1...P02

bourdon tube test gauges "solid-front", class 0,25% DS 6" (150mm)



These instruments have been designed for laboratories, instrument testing or recalibration facilities and in other applications where accuracy and repeatability are of primary importance. These instruments have a solid separating wall in stainless steel, placed between the dial and the elastic element and an integral blow out back that is released from the case whenever a pressure is created inside the case, due to leaks or accidental ruptures of the elastic element. They can be used with fluids or gasses that do not have high viscosity and do not crystallize. The wetted parts in beryllium copper permits higher accuracy. Upon request we can supply the calibration certificate issued by an Internationally recognized laboratory of ACCREDIA (Ex S.I.T. - Italian Calibration Service).

1.17.1 - Standard Model

Design: EN837-1.

Safety designation: S3 as per EN 837-2.

Accuracy class: 0,25 as per EN 837-1.

Ambient temperature: +59...+149 °F (+15...+65 °C).

Process fluid temperature: +149°F (max +65 °C).

Calibration temperature: 68°F (+20 °C).

Thermal drift: ±0,1 %/10 K of range (starting from 68°F - 20°C).

Working pressure: max 75% of FSV.

Overpressure limit:

25% of FSV for ranges ≤ 1000 psi (60 bar).

15% of FSV for ranges ≥ 1500 psi (100 bar).

Protection degree: IP 55 as per IEC 529.

Socket material: AISI 316L st.st.

Bourdon tube: beryllium copper alloy.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Blow out disk: stainless steel.

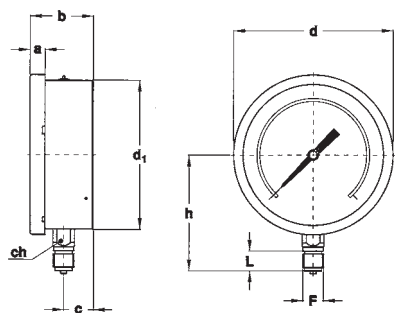
Window: safety glass.

Movement: high precision type, horology alloy.

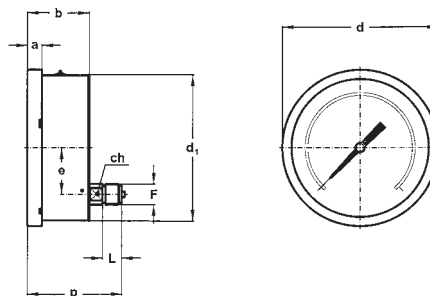
Dial: aluminium, green with black markings and anti-parallax mirror band.

Pointer: adjustable, aluminium, black, knife-edge.

| RANGE | Minor graduation | Figure interval | bar | kPa | MPa | psi |
|-----------|------------------|-----------------|-----|-----|-----|-----|
| -1... 0 | 0,005 | 0,10 | ◆ | | | |
| 0... 0,6 | 0,002 | 0,05 | ◆ | | ◆ | |
| 0...1 | 0,005 | 0,1 | ◆ | | ◆ | |
| 0...1,6 | 0,005 | 0,1 | ◆ | | ◆ | |
| 0...2,5 | 0,01 | 0,1 | ◆ | | ◆ | |
| 0...4 | 0,02 | 0,2 | ◆ | | ◆ | |
| 0...6 | 0,02 | 0,5 | ◆ | | ◆ | |
| 0...10 | 0,05 | 1 | ◆ | | ◆ | ◆ |
| 0...16 | 0,05 | 1 | ◆ | | ◆ | ◆ |
| 0...25 | 0,1 | 1 | ◆ | | ◆ | |
| 0...30 | 0,1 | 2 | | | ◆ | ◆ |
| 0...40 | 0,2 | 2 | ◆ | | ◆ | |
| 0...60 | 0,2 | 5 | ◆ | ◆ | ◆ | ◆ |
| 0...100 | 0,5 | 10 | ◆ | ◆ | ◆ | ◆ |
| 0...160 | 0,5 | 10 | ◆ | ◆ | | ◆ |
| 0...250 | 1 | 10 | ◆ | ◆ | | |
| 0...300 | 1 | 20 | ◆ | ◆ | | ◆ |
| 0...400 | 2 | 20 | ◆ | ◆ | | ◆ |
| 0...600 | 2 | 50 | ◆ | ◆ | | ◆ |
| 0...1000 | 5 | 100 | ◆ | | | ◆ |
| 0...2000 | 10 | 100 | | | | ◆ |
| 0...3000 | 10 | 200 | | | | ◆ |
| 0...4000 | 20 | 200 | | | | ◆ |
| 0...6000 | 20 | 500 | | | | ◆ |
| 0...10000 | 50 | 1000 | | | | ◆ |
| 0...15000 | 50 | 1000 | | | | ◆ |



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b | c | ch | d | d ₁ | e | h | p | L | Weight |
|----------|-------------------------|-------|-------|-------|-------|-------|----------------|--------|-------|--------|-------|-----------|
| Lower | 41M - G 1/2 A | 0.59" | 2.51" | 1.14" | 0.94" | 6.33" | 5.92" | | 4.64" | | 0.78" | 2.62 lbs |
| | 43M - 1/2-14 NPT | (15) | (64) | (29) | (24) | (161) | (150,5) | | (118) | | (20) | (1,19 kg) |
| Back | 41M - G 1/2 A | 0.59" | 2.51" | | 0.66" | 6.33" | 5.92" | 1.88" | | 3.83" | 0.78" | 2.42 lbs |
| | 43M - 1/2-14 NPT | (15) | (64) | | (17) | (161) | (150,5) | (47,8) | | (97,5) | (20) | (1,10 kg) |

dimensions : inches (mm)

OPTIONS

| | |
|--------------|---|
| C - | Back flange, for lower connection pressure gauges |
| E - | Front flange, for back connection pressure gauges |
| P02 - | Oxygen service |
| CE1 - | ACCREDIA certificate (pressure gauges) |
| CE3 - | ACCREDIA certificate (vacuum gauges) |

PRESSURE GAUGE HOLDER CASE



Instruments with radial connection can be supplied of pressure gauge holder case, code **5VAL**.

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options

1 17 1 A G 41M C...E
D 43M P02...CE3

bourdon tube test gauges
all stainless steel construction, "solid-front"
class 0,25%
DS 6" (150mm)



These instruments have been designed for laboratories, instrument testing or recalibration facilities and to be used in other applications where accuracy and repeatability are of primary importance. These instruments have a solid separating wall in stainless steel, placed between the dial and the elastic element and an integral blow out back that is released from the case whenever a pressure is created inside the case, due to leaks or accidental ruptures of the elastic element. The process fluids should be gases or liquids, they must not have high viscosity and must not cristalize. The wetted parts in AISI 316L allow to use them in the worst working conditions determined by aggressive medium and environment. Upon request we can supply the calibration certificate issued by an Internationally recognized laboratory of ACCREDIA (Ex S.I.T. - Italian Calibration Service).

1.25.1 - Standard Model

Design: EN 837-1.

Safety designation: S3 as per EN 837-2.

Accuracy class: 0,25 as per EN 837-1.

Ambient temperature: $-4...+149\text{ }^{\circ}\text{F}$ ($-20...+65\text{ }^{\circ}\text{C}$).

Process fluid temperature: $+149\text{ }^{\circ}\text{F}$ (max $+65\text{ }^{\circ}\text{C}$.)

Calibration temperature: $68\text{ }^{\circ}\text{F}$ ($+20\text{ }^{\circ}\text{C}$).

Thermal drift: $\pm 0,4\%$ /10 K of range (starting from $68\text{ }^{\circ}\text{F}$ - $20\text{ }^{\circ}\text{C}$).

Working pressure: max 75% of FSV

Overpressure limit:

25% of FSV for ranges up to 1450 psi (100 bar);

15% of FSV for ranges over 1450 psi (100 bar).

Protection degree: IP 55 as per IEC 529.

Socket material: AISI 316L st.st.

Bourdon tube: AISI 316L st.st. seamless tube.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Blow out disk: stainless steel.

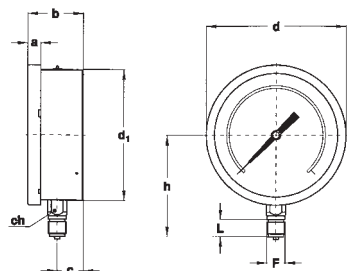
Window: safety glass.

Movement: high precision, horology alloy.

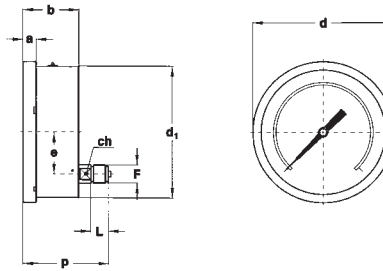
Dial: aluminium, white with black markings and anti-parallax mirror band.

Pointer: adjustable, aluminium, black, knife-edge micrometer.

| RANGE | Minor graduation | Figure interval | bar | kPa | MPa | psi |
|---------|------------------|-----------------|-----|-----|-----|-----|
| 0...1 | 0,005 | 0,1 | ◆ | | ◆ | |
| 0...1,6 | 0,005 | 0,1 | ◆ | | ◆ | |
| 0...2,5 | 0,01 | 0,1 | ◆ | | ◆ | |
| 0...4 | 0,02 | 0,2 | ◆ | | ◆ | |
| 0...6 | 0,02 | 0,5 | ◆ | | ◆ | |
| 0...10 | 0,05 | 1 | ◆ | | ◆ | |
| 0...16 | 0,05 | 1 | ◆ | | ◆ | |
| 0...25 | 0,1 | 1 | ◆ | | ◆ | |
| 0...30 | 0,1 | 2 | ◆ | | ◆ | ◆ |
| 0...40 | 0,2 | 2 | ◆ | | ◆ | |
| 0...60 | 0,2 | 5 | ◆ | | | ◆ |
| 0...100 | 0,5 | 10 | ◆ | ◆ | | ◆ |
| 0...160 | 0,5 | 10 | ◆ | ◆ | | ◆ |



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b | c | d | d ₁ | e | h | p | L | ch | Weight |
|----------|--------------------------|---------------|---------------|---------------|----------------|------------------|-----------------|----------------|-----------------|---------------|---------------|-----------------------|
| Lower | 41M G 1/2 A | 0.59" (15) | 2.51" (64) | 1.14" (29) | 6.33" (161) | 5.92" (150,5) | | 4.60" (117) | | 0.78" (20) | 0.86" (22) | 2.62 lbs (1,19 kg) |
| Back | 43M 1/2-14 NPT | 0.59" (15) | 2.51" (64) | | 6.33" (161) | 5.92" (150,5) | 1.88" (47,8) | | 3.83" (97,5) | 0.78" (20) | 0.66" (17) | 2.42 lbs (1,10 kg) |

dimensions : inches (mm)

PRESSURE GAUGE HOLDER CASE



Instruments with radial connection can be supplied of pressure gauge holder case, code **5VAL**.

OPTIONS

| |
|--|
| C - Back flange, for lower connection pressure gauges |
| CE1 - ACCREDIA certificate (pressure gauges) |
| P02 - Oxygen service |

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options
1 25 1 A G 41M C
D 43M CE1...P02

laboratory pressure gauges class 0,1% DS 10" (250mm)



These instruments have been designed for use as in laboratories, instrument testing or recalibration facilities or in applications where accuracy and repeatability are of prime importance. They can be used with gaseous or liquid media which do not corrode copper alloy and which do not have high viscosity nor crystalize. Each instrument is delivered with a Nuova Fima calibration report, who guarantee traceability to the national and international primary master of pressure measurements. Upon request we can supply the calibration certificate issued by an Internationally recognized laboratory of ACCREDIA (Ex S.I.T. - Italian Calibration Service).

1.27.1 - Standard Model

Design: EN837-1.

Safety designation: S1 as per EN 837-2.

Accuracy class:

0,1 as per EN837-1, for ranges ≤ 8700 psi (600 bar);

0,25 as per EN837-1, for ranges > 8700 psi (600 bar).

Ambient temperature: $+50...+140^{\circ}F$ ($+10...+60^{\circ}C$).

Process fluid temperature: $68^{\circ}F$ ($+20^{\circ}C$).

Calibration temperature: $68^{\circ}F$ ($+20^{\circ}C$).

Thermal drift: $\pm 0,04$ %/10 K of range (starting from $68^{\circ}F - 20^{\circ}C$).

Working pressure: max 75% of FSV

Overpressure limit: not suitable.

Protection degree: IP 44 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st.

Bourdon tube: beryllium copper alloy.

Case: aluminium black painted.

Ring: aluminium black painted.

Window: plastic.

Movement: high precision.

Dial: aluminium, green with black markings and anti-parallax mirror band.

Scale amplitude: 310° .

Zero calibration: external, manual.

Pointer: balanced, knife-edge micrometer.

PRESSURE GAUGES

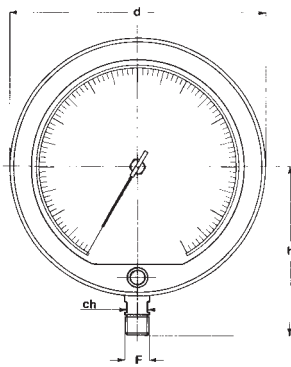
| RANGES | Minor graduation | Figure interval | bar | kPa | MPa | PSI | bar ext.* kg/cm ² psi int. |
|----------|------------------|-----------------|-----|-----|-----|-----|---|
| 0...1 | 0,002 | 0,05 | ◆ | | ◆ | | |
| 0...1,6 | 0,005 | 0,1 | ◆ | | ◆ | | |
| 0...2,5 | 0,005 | 0,1 | ◆ | | ◆ | | ◆ |
| 0...4 | 0,01 | 0,2 | ◆ | | ◆ | | ◆ |
| 0...6 | 0,02 | 0,5 | ◆ | | ◆ | | ◆ |
| 0...10 | 0,02 | 1 | ◆ | | ◆ | | ◆ |
| 0...16 | 0,05 | 1 | ◆ | | ◆ | ◆ | ◆ |
| 0...25 | 0,05 | 0,5 | ◆ | | ◆ | ◆ | ◆ |
| 0...40 | 0,1 | 2 | ◆ | | ◆ | ◆ | ◆ |
| 0...60 | 0,2 | 5 | ◆ | | ◆ | ◆ | ◆ |
| 0...100 | 0,2 | 5 | ◆ | ◆ | ◆ | ◆ | ◆ |
| 0...160 | 0,5 | 10 | ◆ | ◆ | ◆ | ◆ | ◆ |
| 0...250 | 0,5 | 10 | ◆ | ◆ | | ◆ | ◆ |
| 0...400 | 1 | 20 | ◆ | ◆ | | ◆ | ◆ |
| 0...600 | 2 | 50 | ◆ | ◆ | | ◆ | ◆ |
| 0...1000 | 2 | 50 | ◆ | ◆ | | ◆ | ◆ |
| 0...1600 | 5 | 100 | ◆ | ◆ | | ◆ | ◆ |

* accuracy refers to the outer scale.

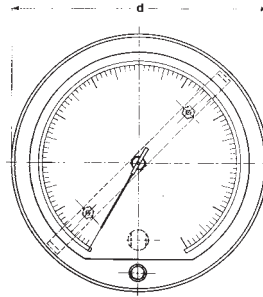
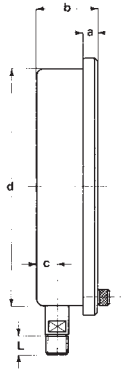
VACUUM

| RANGES | Figure interval | Minor graduation | bar ext.* mm Hg inch Hg int. |
|--------|-----------------|------------------|------------------------------------|
| -1÷0 | 0,002 | 0,02 | F |

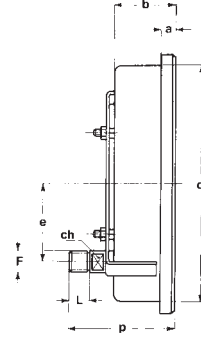
* accuracy refers to the outer scale.



A - LOWER CONNECTION



**B - U" CLAMP,
for back connection
flush mounting**



| Mounting | F | a | b | c | d | d ₁ | e | h | L | ch | p | Weight |
|----------|------------------|-------|-------|--------|--------|----------------|-------|-------|-------|-------|---------|-----------|
| Lower | 41M - G 1/2 A | 0.59" | 2.44" | 0.76" | 10.62" | 9.72" | | 6.69" | 0.78" | 0.66" | | 6.83 lbs |
| | 43M - 1/2-14 NPT | (15) | (63) | (19,5) | (270) | (247) | | (170) | (20) | (17) | | (3,1 kg) |
| Back | 41M - G 1/2 A | 0.59" | 2.44" | | 10.62" | 9.72" | 3.14" | | 0.78" | 0.66" | 3,72" | 1.47 lbs |
| | 43M - 1/2-14 NPT | (15) | (63) | | (270) | (247) | (80) | | (20) | (17) | (111,5) | (3,25 kg) |

dimensions : inches (mm)

OPTIONS

| |
|--|
| B - "U" Clamp (1) |
| CE1 - ACCREDIA certificate (pressure gauges) |
| CE3 - ACCREDIA certificate (vacuum gauges) |
| K02 - Accuracy class 0,25% as per EN837-1, for ranges ≤ 600 bar |

(1) to be ordered for mounting cod. "D"

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options

1 27 1 A I 41M B...K02
D 43M

bourdon tube pressure gauges with microswitch, DS 4" (100mm)



CE Compliance to requirements of
LVD 2014/35/EU - PED 2014/68/EU

These instruments are designed for applications in conventional power stations. They safety control the automatic regulation of hydraulic and pneumatic equipment.

1.72.1 - Standard Model

Design: EN837-1.

Safety designation: S1 as per EN 837-2.

Ranges: from 0...30 to 0...10000 psi (from 0...1,6 to 0...600 bar or equivalent units).

Accuracy: class 2,5 as per EN 837-1.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: 13...+149°F
(-25...+65 °C) for ranges ≤ 580 psi (40 bar); -13...+
248°F (-25...+120 °C) for ranges ≥ 870 psi (60 bar).

Working pressure: max 75% of the FSV.

Overpressure: not suitable.

Protection degree: IP 44 as per EN 60529/IEC 529.

Electrical specifications: N. 1 SPDT microswitch.

Contact setting: between 10% and 75% of FSV.

Differential: fixed, between 2% and 4% of FSV.

Socket material: copper alloy.

Bourdon tube: copper alloy for ranges ≤ 580 psi (40 bar); AISI 316L st.st. for ranges > 870 psi (60 bar).

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: plastic.

Movement: stainless steel.

Dial: aluminium, white with black markings.

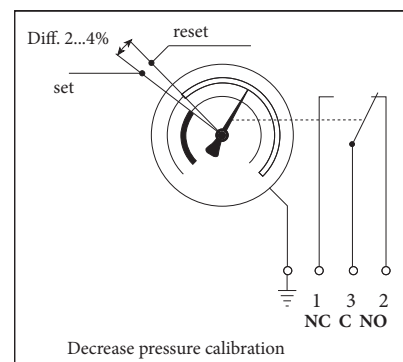
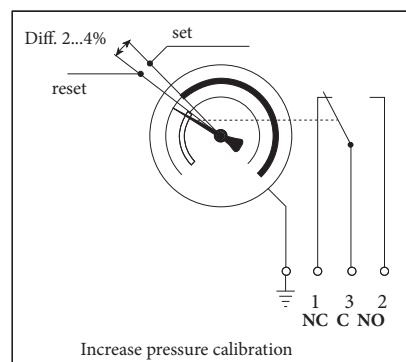
Pressure pointer: aluminium, black.

Set pointer: aluminium, red.

Adjusting key: plastic, removable.

Junction box: glass fibre reinforced poliammid with cable exit ø 0.23...0.35" (6...9 mm) as per EN 175301-803 (Ex DIN 43650).

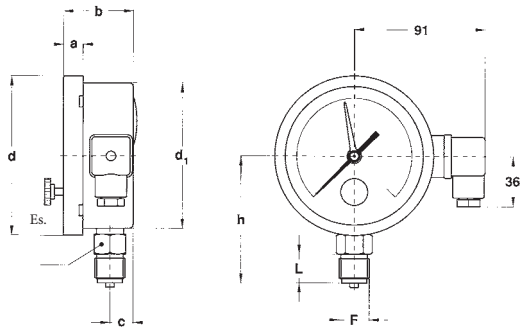
MICROSWITCH: SETTING



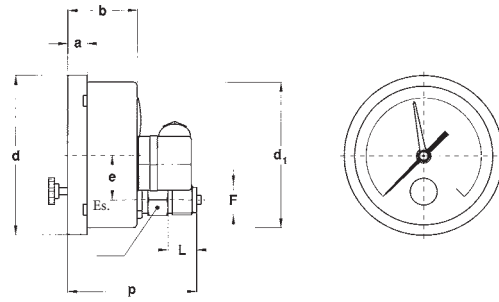
bourdon tube pressure gauges with microswitch, DS 4" (100mm)

MGS72

RC2 - 08/14



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b | c | d | d ₁ | e | h | p | L | Es. | Weight |
|----------|----------------------|---------------|-----------------|---------------|------------------|----------------|---------------|-----------------|---------------|---------------|---------------|----------------------|
| Lower | 41M - G 1/2 A | 0.51" (13) | 1.90" (48,5) | 0.62" (16) | 4.35" (110,6) | 3.97" (101) | 1.22" (31) | 3.48" (88,5) | 3.65" (90) | 0.78" (20) | 0.86" (22) | 1.32 lbs (0,6 kg) |
| Back | | | | | | | | | | | | |

dimensions : inches (mm)

RATING LOAD

| Volt | DC | AC | Inductive load |
|------|-------|-----|----------------|
| 220 | 0,3 A | 4 A | 4 A |
| 110 | 0,4 A | 4 A | 4 A |
| 48 | 4 A | 4 A | 4 A |
| 24 | 4 A | 4 A | 4 A |

WIRING

| Wiring | Junction box | Cable |
|--------|--------------|--------------|
| NC | Contact N.°1 | Brown |
| NO | Contact N.°2 | Black |
| C | Contact N.°3 | Blue |
| Ground | Ground | Yellow-Green |

OPTIONS

| |
|--|
| RSV - Under-glass adjusting (IP 55 protection degree) |
| D30 - Differential between 6% and 10% of FSV (for ranges ≥ 60 psi - 2,5 bar) |
| S06 - Brass restrictor $\varnothing 0.015"$ (0,4 mm) for ranges ≤ 600 psi (40 bar) |
| T40 - Calibration for pressure decrease |

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options
1 72 1 A E 41M RSV...T40
D



pressure gauges with electric contacts DS 4" (100mm)



Compliance to requirements of
LVD 2014/35/EU - PED 2014/68/EU



They are used to control the electrical operation of compressors, pumps, presses, hydraulic and pneumatics equipment, chemical and petrochemical plant. The contacts open or close the circuit depending on the position of the indicating pointer and they are adjustable over the whole range. For application on severe working conditions, such as rapid and frequent pressure change, vibration and pulsation, they are manufactured with the case liquid filled. The filling drastically reduces the effect of such factors as well as those caused by a corrosive atmosphere, giving longer life and better performances of the pressure gauge and their electric contacts. They are also available with inductive contacts intrinsically safe.

1.M1.1 - Standard Model

Ranges: from 0...30 to 0...15000 *psi* (from 0...1 to 0...1000 bar or equivalent units).

Mechanical contact: sliding contact, magnetic snap-action, electronic, inductive.

Accuracy: $\pm 1,0\%$ as per UNI 8293 - DIN 16085 (1).

Ambient temperature: $-13...+149\text{ }^{\circ}\text{F}$ ($-25...+65\text{ }^{\circ}\text{C}$).

Process fluid temperature: *max* $+212\text{ }^{\circ}\text{F}$ ($+100\text{ }^{\circ}\text{C}$).

Working pressure: max 75% of the full scale value.

Over pressure: not suitable.

Protection: IP 55 as per IEC 529.

Socket material: copper alloy .

Elastic element:

copper alloy for pressure ranges $\leq 580\text{ }psi$ (40 bar);

AISI 316 L st.st. for pressure ranges $\geq 870\text{ }psi$ (60 bar).

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: plastic.

Movement: stainless steel.

Dial: aluminium, white with black markings.

Pointer: not adjustable, aluminium, black.

1.M1.3 - Filled Model

Mechanical contact: magnetic snap-action, electronic, inductive.

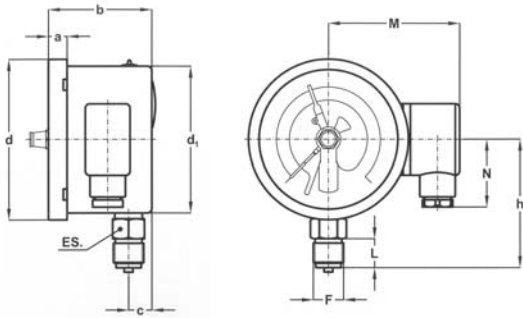
Accuracy: $\pm 1,6\%$ as per UNI 8293 - DIN 16085 (1).

Filling liquid: silicon oil.

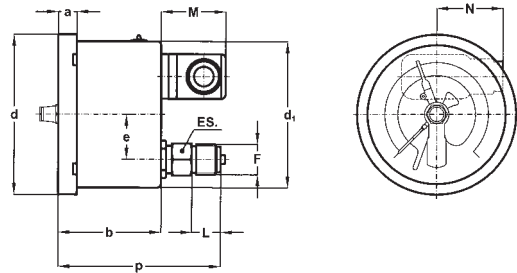
Protection: IP 65 as per IEC 529.

Other features: as Standard Model.

(1) The addition of mechanical electric contacts affects the accuracy of instruments such that 1% becomes 1,5%, 1,6% becomes 2,4% etc. (add the 50% of accuracy; if the contact is of the magnetically assisted type, this value can't be added within the $\pm 5\%$ of setting point).



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b (1) | c | d | d ₁ | e | h | p (1) | N | L | ch | Weight (2) |
|----------|--------------------------|-------|---------------|-----------------|---------|----------------|---------------|-----------------|----------------------------------|---------------|-------|-------|------------|
| Lower | 41M G 1/2 A | 0.51" | 2.81" - 3.24" | 0.63" (16.1) | 4.35" | 3.97" | | 3.48" (88,5) | | 1.81" (46) | 0.78" | 0.86" | 1.54 lbs |
| Back | 43M 1/2-14 NPT | (13) | (71,5 - 82,5) | | (110,6) | (101) | 1.22" (31) | | 4.44" - 4.87" (112,9 - 123,9) | | (20) | (22) | (0,7 kg) |

dimensions : inches (mm)

(1) dimensions for single/double contact;
(2) when filled, add 0.77 lbs (0,35 kg) for single contact and 0.88 lbs (0,4 kg) for double contact

CONTACT TYPE (1)

| MODEL | Standard | | | Filled | | |
|----------------------------|-----------------------------|---------------------|----------------------|--|----------------------|----------------------|
| Contact type | Sliding contact, electronic | | | Magnetic snap-action contact, electronic | | |
| Contact number | 1 | 2 | 2 independent | 1 | 2 | 2 independent |
| Junction box | 3 poles + GND | 3 poles + GND | 6 poles + GND | 6 poles + GND | 6 poles + GND | 6 poles + GND |
| ø exit cables: inches (mm) | 0,23...0,35 (6...9) | 0,23...0,35 (6...9) | 0,27...0,51 (7...13) | 0,27...0,51 (7...13) | 0,27...0,51 (7...13) | 0,27...0,51 (7...13) |
| Minimum range | 15 psi (1bar) | 23 psi (1,6 bar) | 23 psi (1,6 bar) | 23 psi (1,6 bar) | 36 psi (2,5 bar) | 36 psi (2,5 bar) |

(1) Functional characteristics, electric diagrams and contact types are available on data-sheets :
"ELECTRIC CONTACTS"; "ELECTRONIC CONTACTS"

OPTIONS

| |
|--|
| C - Back flange, for lower connection pressure gauges |
| E - Front flange, for back connection pressure gauges |
| E65 - Protection IP 65 as per IEC 529, for standard model |

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Electric contact / Options
1 **M1** **1** **A** **E** **41M** **01S...M9D** **C, E**
3 **D** **43M** **E65**

pressure gauges with electric contacts DS 4", 6" (100-150 mm)



CE Compliance to requirements of
LVD 2014/35/EU - PED 2014/68/EU

EAC

Alarm contacts are accessories with movable contacts in air, which open or close electric circuits depending of the position of the indicating pointer. They are used with Bourdon tube pressure gauges, bellows, diaphragm and thermometers of NUOVA FIMA production, in such way they become pressure and temperature switches: the optimal and sure solution to automatize any kind of equipment.

1.M7.1 - Standard Model

Ranges: from 0...30 to 0...15000 psi (from 0...1.6 to 0...1000 bar or equivalent units).

Mechanical contact: sliding contact, magnetic snap-action, electronic, inductive.

Accuracy: $\pm 1,0\%$ as per EN 837-1 - DIN 16085 (1).

Ambient temperature: $-13...+149\text{ }^{\circ}\text{F}$ ($-25...+65\text{ }^{\circ}\text{C}$).

Process fluid temperature: max $+149\text{ }^{\circ}\text{F}$ ($+65\text{ }^{\circ}\text{C}$).

Working pressure: max 75% of the full scale value.

Over pressure: not suitable.

Protection: IP 44 as per EN 60529/IEC 529.

Socket material: copper alloy .

Elastic element:

copper alloy for pressure ranges $\leq 580\text{ psi}$ (40 bar);

AISI 316 L st.st. for pressure ranges $\geq 870\text{ psi}$ (60 bar).

Case: stainless steel.

Ring: stainless steel, bayonet lock.

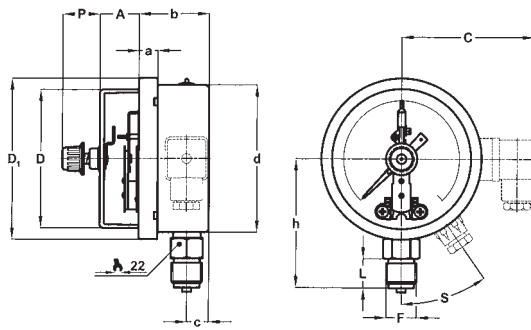
Window: plastic.

Movement: stainless steel.

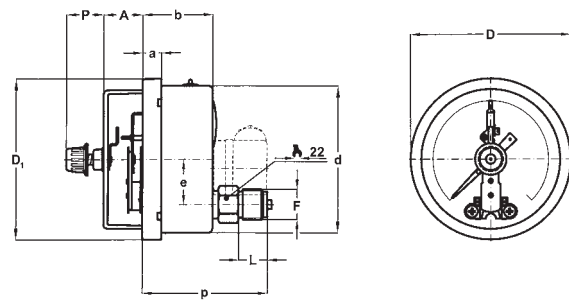
Dial: aluminium, white with black markings.

Pointer: not adjustable, aluminium, black

(1) The addition of mechanical electric contacts affects the accuracy of instruments such that 1% becomes 1,5%, 1,6% becomes 2,4% etc. (add the 50% of accuracy; if the contact is of the magnetically assisted type, this value can't be added within the $\pm 5\%$ of setting point).



A - LOWER CONNECTION



D - BACK CONNECTION

| DS | Mounting | F | A (1) | a | b | C | c | D | D ₁ | d | e | h | L | P | p | S |
|------------------|----------|-------------------|----------------------------|---------------|-----------------|---------------|-----------------|----------------|------------------|------------------|-----------------|----------------|---------------|-----------------|---------------|-----|
| E 4" (100) | Lower | 41M G 1/2 A | 1.06"...2.36" (27...60) | 0.51" (13) | 1.91" (48,5) | 2.72" (69) | 0.59" (15) | 3.74" (95) | 4.35" (110,6) | 3.98" (101) | | 3.39" (86) | 0.79" (20) | 0.77" (19,6) | | 35° |
| | Back | 43M 1/2-14 NPT | | | | | | | | | 1.22" (31) | | | | 3.54" (90) | |
| G 6" (150) | Lower | 41M G 1/2 A | 1.02"...2.32" (26...59) | 0.59" (15) | 1.99" (50,5) | 2.72" (69) | 0.61" (15,5) | 5.55" (141) | 6.34" (161) | 5.89" (149,6) | | 4.61" (117) | 0.79" (20) | 0.77" (19,6) | | 35° |
| | Back | 43M 1/2-14 NPT | | | | | | | | | 1.88" (47,8) | | | | 3.50" (89) | |

dimensions : inches (mm)

(1) dimensions for single/double contact;

CONTACT TYPE (1)

| MODEL | DS 4" (100 mm) | | | DS 6" (150 mm) | | |
|--|--|--------------------------------------|-------------------------|--|--------------------------------------|-------------------------|
| Contact type | Sliding and magnetic snap-action contact | | | Sliding and magnetic snap-action contact | | |
| Contact number | 1 | 2 | 2 independent | 1 | 2 | 2 independent |
| Junction box ø exit cables: inches (mm) | 3 poles + GND 0,23...0,35 (6...9) | 3 poles + GND 0,23...0,35 (6...9) | | 3 poles + GND 0,23...0,35 (6...9) | 3 poles + GND 0,23...0,35 (6...9) | |
| Cable exit ø cable: inches (mm) | 2 poles + GND (2) 0,19 (4,8) | 3 poles + GND (2) 0,23 (6) | 4 poles + 1 0,27 (7) | 2 poles + GND (2) 0,19 (4,8) | 3 poles + GND (2) 0,23 (6) | 4 poles + 1 0,27 (7) |
| Minimum range | 15 psi (1bar) | 23 psi (1,6 bar) | 23 psi (1,6 bar) | 15 psi (1bar) | 23 psi (1,6 bar) | 23 psi (1,6 bar) |

(1) Functional characteristics, electric diagrams and contact types are available on data-sheets :

"ELECTRIC CONTACTS".

(2) U-clamp back connection pressure gauges only.

OPTIONS

| Model |
|---|
| B - "U"-clamp, for back connection pressure gauges |
| C - Back flange, for lower connection pressure gauges |
| E - Front flange, for back connection pressure gauges |
| CHI - Removable key, protection IP 55 |

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Electric contact / Options

I M7 I A E 41M 01S...M9D B, C, E
D G 43M CHI

**bourdon tube pressure gauges
all stainless steel construction,
with microswitch,
DS 4" (100mm)**



CE Compliance to requirements of
LVD 2014/35/EU - PED 2014/68/EU

EAC

These instruments are designed for applications in the chemical, petrochemical industries, conventional power stations. They safety control the automatic regulation of hydraulic and pneumatic equipment.

1.74.1 - Standard Model

Design: EN837-1.

Safety designation: S1 as per EN 837-2.

Ranges: from 0...15 to 0...10000 psi (from 0...1 to 0...600 bar or equivalent units).

Accuracy: class 2,5 as per EN 837-1.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: -40...+302 °F (-40...+150 °C).

Working pressure: max 75% of the FSV.

Overpressure: not suitable.

Protection degree: IP 44 as per EN 60529/IEC 529.

Electrical specifications: N. 1 SPDT microswitch.

Contact setting: between 10% and 75% of FSV.

Differential: fixed, between 2% and 4% of FSV.

Socket material: AISI 316L st.st.

Elastic element: AISI 316L st.st.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: plastic.

Movement: stainless steel.

Dial: aluminium, white with black markings.

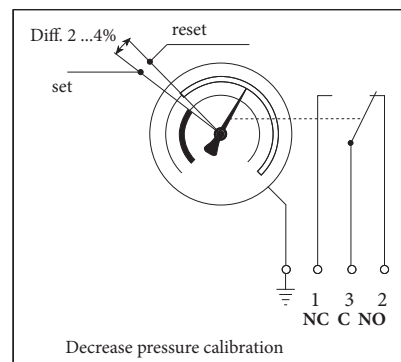
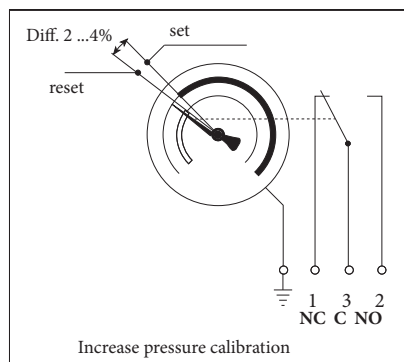
Pressure pointer: aluminium, black.

Set pointer: aluminium, red.

Adjusting key: plastic, removable.

Junction box: glass fibre reinforced poliammid with cable exit \varnothing 0.23...0.35" (6...9 mm) as per EN 175301-803 (Ex DIN 43650).

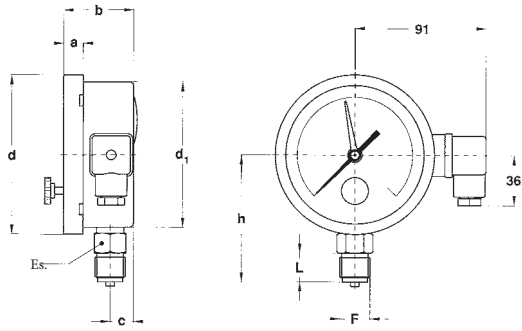
MICROSWITCH: SETTING



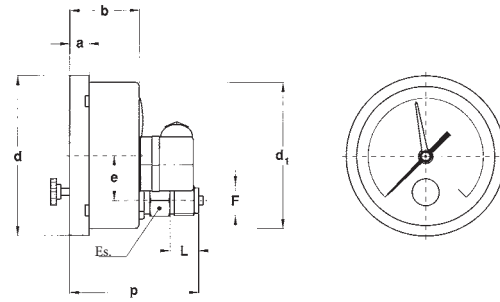
**bourdon tube pressure gauges, all stainless steel construction
with microswitch, DS 4" (100mm)**

MG574

RC3 - 05/14



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b | c | d | d ₁ | e | h | p | L | Es. | Weight |
|----------|---------------|---------------|-----------------|---------------|------------------|----------------|---------------|-----------------|---------------|---------------|---------------|----------------------|
| Lower | 41M - G 1/2 A | 0.51" (13) | 1.90" (48,5) | 0.62" (16) | 4.35" (110,6) | 3.97" (101) | 1.22" (31) | 3.48" (88,5) | 3.65" (90) | 0.78" (20) | 0.86" (22) | 1.32 lbs (0,6 kg) |
| Back | | | | | | | | | | | | |

dimensions : inches (mm)

RATING LOAD

| Volt | DC | AC | Inductive load |
|------|-------|-----|----------------|
| 220 | 0,3 A | 4 A | 4 A |
| 110 | 0,4 A | 4 A | 4 A |
| 48 | 4 A | 4 A | 4 A |
| 24 | 4 A | 4 A | 4 A |

WIRING

| Wiring | Junction box | Cable |
|--------|--------------|--------------|
| NC | Contact N.°1 | Brown |
| NO | Contact N.°2 | Black |
| C | Contact N.°3 | Blue |
| Ground | Ground | Yellow-Green |

OPTIONS

| |
|---|
| RSV - Under-glass adjusting (IP 55 protection degree) |
| D30 - Differential between 6% and 10% of FSV (for ranges ≥ 60 psi - 2,5 bar) |
| S06 - Brass restrictor ø 0.015" (0,4 mm) for ranges ≤ 600 psi (40 bar) |
| T40 - Calibration for pressure decrease |

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options
1 74 1 A E 41M RSV...T40
D



pressure gauges with electric contacts all stainless steel construction DS 4" (100mm)



CE Compliance to requirements of
LVD 2014/35/EU - PED 2014/68/EU

EAC

They are used to control the electrical operation of compressors, pumps, presses, hydraulic and pneumatics equipment, chemical and petrochemical plant. The contacts open or close the circuit depending on the position of the indicating pointer and they are adjustable over the whole range. For application on severe working conditions, such as rapid and frequent pressure change, vibration and pulsation, they are manufactured with the case liquid filled. The filling drastically reduces the effect of such factors as well as those caused by a corrosive atmosphere, giving longer life and better performances of the pressure gauge and their electric contacts. They are also available with inductive contacts intrinsically safe.

1.M2.1 - Standard Model

Ranges: from 0...15 to 0...20000 psi (from 0...1 to 0...1600 bar or equivalent units).

Mechanical contact: sliding contact, magnetic snap-action, electronic, inductive.

Accuracy: $\pm 1,0\%$ as per EN 837-1 - DIN 16085 (1).

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: max +212 °F (+100 °C).

Working pressure: max 75% of the full scale value.

Over pressure: not suitable.

Protection: IP 55 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st.

Elastic element: AISI 316L st.st.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: plastic.

Movement: stainless steel.

Dial: aluminium, white with black markings.

Pointer: not adjustable, aluminium, black.

1.M2.3 - Filled Model

Mechanical contact: magnetic snap-action, electronic, inductive.

Accuracy: $\pm 1,6\%$ as per EN 837-1 - DIN 16085 (1).

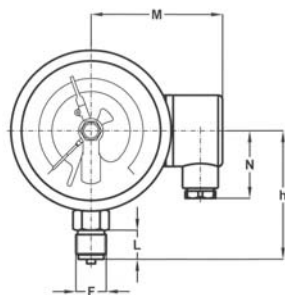
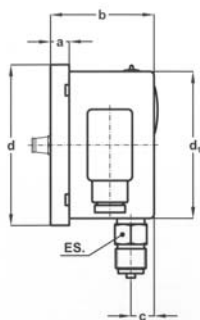
Process fluid temperature: max +149 °F (+65 °C).

Filling liquid: silicon oil.

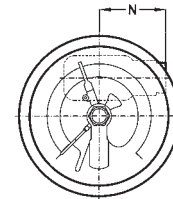
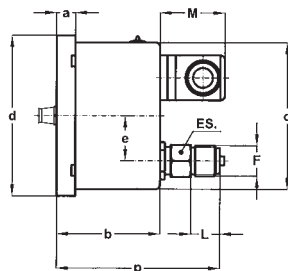
Protection: IP 65 as per EN 60529/IEC 529.

Other features: as Standard Model.

(1) The addition of mechanical electric contacts affects the accuracy of instruments such that 1% becomes 1,5%, 1,6% becomes 2,4% etc. (add the 50% of accuracy; if the contact is of the magnetically assisted type, this value can't be added within the $\pm 5\%$ of setting point).



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b (1) | c | d | d ₁ | e | h | p (1) | N | L | ch | Weight (2) |
|----------|--------------------------|-------|---------------|-----------------|------------------|----------------|---------------|-----------------|----------------------------------|---------------|-------|-------|----------------------|
| Lower | 41M G 1/2 A | 0.51" | 2.81" - 3.24" | 0.63" (16.1) | 4.35" (110,6) | 3.97" (101) | | 3.48" (88,5) | | 1.81" (46) | 0.78" | 0.86" | 1.54 lbs (0,7 kg) |
| Back | 43M 1/2-14 NPT | (13) | (71,5 - 82,5) | | | | 1.22" (31) | | 4.44" - 4.87" (112,9 - 123,9) | | (20) | (22) | |

dimensions : inches (mm)

(1) dimensions for single/double contact;
(2) when filled, add 0.77 lbs (0,35 kg) for single contact and 0.88 lbs (0,4 kg) for double contact

CONTACT TYPE (1)

| MODEL | Standard | | | Filled | | |
|----------------------------|-----------------------------|---------------------|----------------------|--|----------------------|----------------------|
| | Sliding contact, electronic | | | Magnetic snap-action contact, electronic | | |
| Contact type | | | | | | |
| Contact number | 1 | 2 | 2 indipendent | 1 | 2 | 2 indipendent |
| Junction box | 3 poles + GND | 3 poles + GND | 6 poles + GND | 6 poles + GND | 6 poles + GND | 6 poles + GND |
| ø exit cables: inches (mm) | 0,23...0,35 (6...9) | 0,23...0,35 (6...9) | 0,27...0,51 (7...13) | 0,27...0,51 (7...13) | 0,27...0,51 (7...13) | 0,27...0,51 (7...13) |
| Minimum range | 15 psi (1bar) | 23 psi (1,6 bar) | 23 psi (1,6 bar) | 23 psi (1,6 bar) | 36 psi (2,5 bar) | 36 psi (2,5 bar) |

(1) Functional characteristics, electric diagrams and contact types are available on data-sheets :
"ELECTRIC CONTACTS"; "ELECTRONIC CONTACTS"

OPTIONS

| |
|--|
| ATEX version, with intrinsic safety inductive contact (1) |
| C - Back flange, for lower connection pressure gauges |
| E - Front flange, for back connection pressure gauges |
| E65 - Protection IP 65 as per IEC 529, for standard model |

(1) See ATEX data-sheet for technical details

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Electric contact / Options

1 **M2** **1** **A** **E** **41M** **01S...M9D** **C, E**
3 **D** **43M** **E1...B22** **E65**

pressure gauges with electric contacts all stainless steel construction DS 6" (150mm)



CE Compliance to requirements of
LVD 2014/35/EU - PED 2014/68/EU

EAC

These instruments are manufactured in accordance with the safety norms prescribed by **UNI 8541, DIN 16006 e ANSI B40.1**. They are used to control the electrical operation of compressors, pumps, presses, hydraulic and pneumatic equipments, chemical and petrochemical plant. In the event of leakage or break of sensing element, the operator is protected by a **solid baffle wall** placed on the instrument front and by the rear **blow out wall**. The contacts open or close the circuit depending on the position of the indicating pointer and they are adjustable over the whole range. For application on severe working conditions, such as rapid and frequent pressure change, vibration and pulsation, they are manufactured with the case liquid filled. The filling drastically reduce the effects of such factors as well as those caused by the corrosive atmosphere, making longer life and better performances of the pressure gauge and their electric contacts. They are also available with inductive contacts intrinsically safe.

1.M3.1 - Standard Model

Ranges: from 0...15 to 0...20000 psi (from 0...1 to 0...1600 bar or equivalent units).

Mechanical contact: sliding contact, magnetic snap-action, electronic, inductive.

Accuracy: $\pm 1,0\%$ as per EN 837-1 - DIN 16085 (1).

Ambient temperature: $-13...+149\text{ }^{\circ}\text{F}$ ($-25...+65\text{ }^{\circ}\text{C}$).

Process fluid temperature: $\text{max } +212\text{ }^{\circ}\text{F}$ ($+100\text{ }^{\circ}\text{C}$).

Working pressure: max 75% of the full scale value.

Over pressure: not suitable.

Protection: IP 55 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st.

Elastic element: AISI 316L st.st.

Case: stainless steel.

Ring and blow out disk: stainless steel.

Window: plastic.

Movement: stainless steel.

Dial: aluminium, white with black markings.

Pointer: not adjustable, aluminium, black.

1.M3.3 - Filled Model, Lower connection only

Mechanical contact: magnetic snap-action.

Accuracy: $\pm 1,6\%$ as per EN 837-1 - DIN 16085 (1).

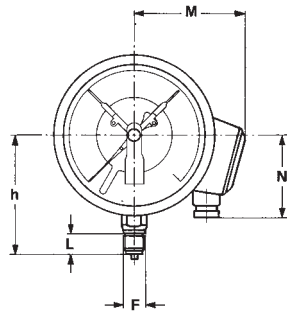
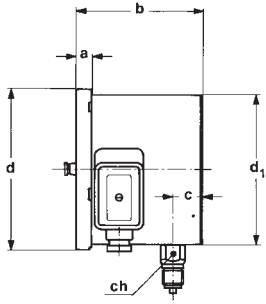
Process fluid temperature: $\text{max } +149\text{ }^{\circ}\text{F}$ ($+65\text{ }^{\circ}\text{C}$).

Protection: IP 65 as per EN 60529/IEC 529.

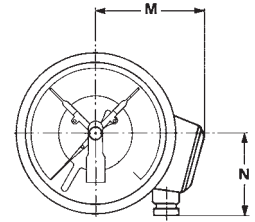
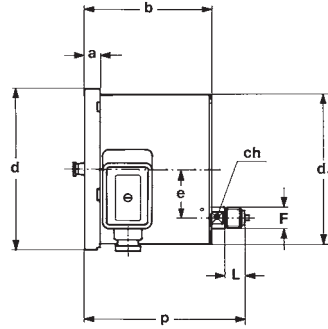
Filling liquids: silicone dielectric oil.

Other features: as Standard Model.

(1) The addition of mechanical electric contacts affects the accuracy of instruments such that 1% becomes 1,5%, 1,6% becomes 2,4% etc. (add the 50% of accuracy; if the contact is of the magnetically assisted type, this value can't be added within the $\pm 5\%$ of setting point).



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | F | a | b | c | d | d ₁ | e | h | p | M | N | L | ch | Weight (1) |
|----------|----------------|---------------|-------------|---------------|----------------|------------------|-----------------|----------------|---------------|----------------|---------------|---------------|----------------------|-----------------------|
| Lower | 41M G 1/2 A | 0.59" (15) | 5" (127) | 1.18" (30) | 6.34" (161) | 5.89" (149,5) | | 4.65" (118) | | 4.33" (110) | 3.27" (83) | 0.78" (20) | 0.94" (24) | 3.19 lbs (1,45 kg) |
| Back | | | | | | | 1.88" (47,8) | 6,30" (160) | 0.67" (17) | | | | 3.08 lbs (1,4 kg) | |

dimensions : inches (mm)

(1) when filled, add 3.63 lbs (1,65 kg)

CONTACT TYPE (1)

| MODEL | Standard | | Filled | |
|----------------------------|----------------------|----------------------|------------------------------|----------------------|
| Contact type | Sliding contact | | Magnetic snap-action contact | |
| Contact number | 1 | 2 | 1 | 2 |
| Junction box | 4 poles + GND | 4 poles + GND | 4 poles + GND | 4 poles + GND |
| ø exit cables: inches (mm) | 0,35...0,55 (9...14) | 0,35...0,55 (9...14) | 0,35...0,55 (9...14) | 0,35...0,55 (9...14) |
| Minimum range | 15 psi (1bar) | 23 psi (1,6 bar) | 23 psi (1,6 bar) | 36 psi (2,5 bar) |

(1) Functional characteristics, electric diagrams and contact types are available on data-sheets :

“ELECTRIC CONTACTS”.

OPTIONS

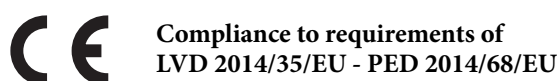
| |
|---|
| C - Back flange, for lower connection pressure gauges |
| P02 - Oxygen service |
| E65 - Protection IP 65 as per IEC 529, for standard model |

“HOW TO ORDER” SEQUENCE

Section / Model /Case / Mounting / Diameter / Range / Process connection / Electric contact / Options

1 M3 1 A G 41M 01S...M9D C
3 D P02, E65

Pressure gauges for SF₆ gas monitoring DS 4" (100 mm)



These instruments are manufactured to monitor the electrical operations on hermetically sealed systems containing Sulphur Hexafluoride gas (SF₆). The indication and the electrical operations are calibrated to the gas density (isochore) according to the relation pressure-temperature. The M5 model is suitable for indoor installation while the M6 model has been designed for the outdoor installation as well. The oil filled executions are particularly suitable for installation when vibrations are apparent.

Accuracy of indication (referred to the instruments range):

±1% at +20 °C of ambient temperature; ±2,5%
within the temperature range -20...+60°C related to the calibration
pressure of the reference isochore.

Accuracy of intervention:

- see accuracy of indication for set-point equal to pressure of calibration;
- when set-point is different from pressure of calibration, calculate it according to the instrument range.

Alarm contacts, non adjustable contacts, with antitampering sealing:

- on air with magnetic block (80%Ag-20%Ni);
- inductive with galvanic exit.

Ambient temperature: -20...+60 °C.

Storage temperature: -40...+60°C

Calibration pressure (PC): refer to order specifications.

Ranges: also vacuum & compound gauges from 1,6 to 25 bar.

Electrical connection: junction box with cable gland M20 x 1,5.

Nominal diameter: DN100.

Gas seal: leakage rate $\leq 1 \times 10^{-6}$ mbar x l/s⁻¹ (helium test with mass spectrometer).

Case: AISI 304.

Ring: bayonet lock, AISI 304 with antitampering sealing.

Window: glass.

Movement: stainless steel with bimetallic temperature compensator.

Dial: white aluminium with black markings and coloured sectors as per customer's specification.

Pointer: black anodised aluminium.

1.M5 - MCE10/SF6 : copper alloy wetted parts , suitable for indoor ambients

1 - Standard dry version

Process connection: OT58.

Sensing element: phosphor bronze.

Protection degree: IP 54 as per IEC 529, UNI 8896.

3 - Silicon oil filled version

Process connection: OT58.

Sensing element: phosphor bronze.

Protection degree: IP65 as per IEC 529, UNI 8896.

Window: safety glass.

1.M6 - MCE18/SF6 : AISI 316L wetted parts, suitable for outdoor ambients

1 - Standard dry version

Process connection and sensing element: AISI 316L.

Protection degree: IP 54 as per IEC 529, UNI 8896.

3 - Silicon oil filled version

Process connection and sensing element: AISI 316L.

Protection degree: IP 65 as per IEC 529, UNI 8896.

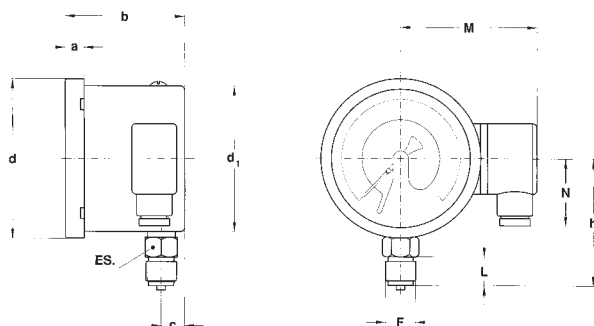
Window: safety glass.

9 - Nitrogen filled version

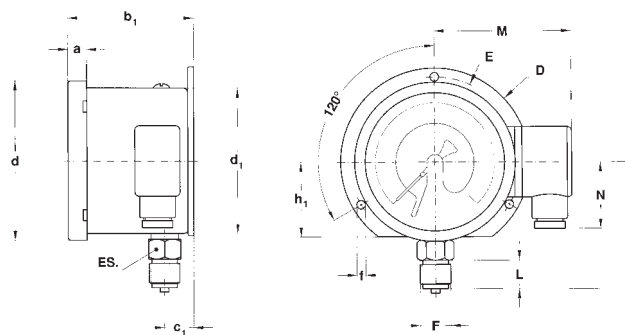
Process connection and sensing element: AISI 316L.

Protection degree: IP 65 as per IEC 529, UNI 8896.

Window: safety glass.



A
stem mounting;
lower connection.

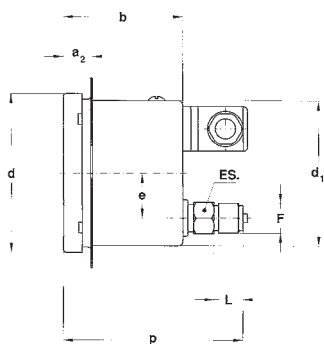


A + C
surface mounting, back flange;
lower connection.

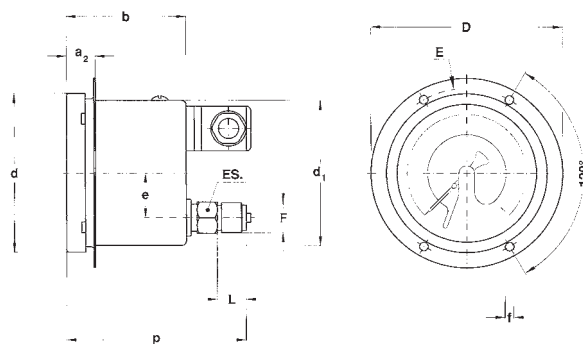
| Type | F | a | b (1) | c | d | d ₁ | f | h | h ₁ | D | E | M | N | L | ES | Weight (1)(2) |
|------------|--------------------------|---------------|-----------------------|---------------|----------------|----------------|--------------|---------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------------------------|
| A | 41M G 1/2 A | 0.51" (13) | 2.87/3.27" (73/83) | 0.63" (16) | 4.33" (110) | 3.98" (101) | | 3.50" (89) | | | | 3.70" (94) | 1.81" (46) | 0.79" (20) | 0.87" (22) | 1.45/1.65 lbs (0,66/0,75 kg) |
| A+C | 43M 1/2-14 NPT | 0.51" (13) | 3.03/3.43" (77/87) | 0.79" (20) | 4.33" (110) | 3.98" (101) | 0.24" (6) | 3.50" (89) | 2.05" (52) | 5.12" (130) | 4.65" (118) | 3.70" (94) | 1.81" (46) | 0.79" (20) | 0.87" (22) | 1.63/1.83 lbs (0,74/0,83 kg) |

dimensions : inches (mm)

(1) dimensions for single or double contacts; (2) add 0.88 lbs (0,4 kg), when glycerine filled



D + E
flush mounting, front flange 3 holes;
back connection.



D + Q
flush mounting, front flange 4 holes;
back connection.

| Type | F | a ₂ | b (1) | d | d ₁ | e | f | p (1) | D | E | L | ES | Weight (1)(2) |
|------------|--------------------------|----------------|-----------------------|----------------|----------------|---------------|--------------|-------------------------|----------------|----------------|---------------|---------------|---------------------------------|
| D+E | 41M G 1/2 A | 0.79" (20) | 2.87/3.27" (73/83) | 4.33" (110) | 3.98" (101) | 1.22" (31) | 0.24" (6) | 4.49/4.88" (114/124) | 5.20" (132) | 4.65" (118) | 0.79" (20) | 0.87" (22) | 1.41/1.61 lbs (0,64/0,73 kg) |
| D+Q | 43M 1/2-14 NPT | 0.79" (20) | 2.87/3.27" (73/83) | 4.33" (110) | 3.98" (101) | 1.22" (31) | 0.24" (6) | 4.49/4.88" (114/124) | 5.20" (132) | 4.65" (118) | 0.79" (20) | 0.87" (22) | 1.41/1.61 lbs (0,64/0,73 kg) |

dimensions : inches (mm)

(1) dimensions for single or double contacts; (2) add 0.88 lbs (0,4 kg), when glycerine filled

Pressure gauges for SF₆ gas monitoring

DS 4" (100 mm)

MCE10-18/SF6

Magnetic snap action contacts

Set-point hysteresis: 2...5% f.s.v.

Break rating: 30W/50VA (20W/20VA if filled).

Maximum rating: 250Vca/1A (ohmic load).

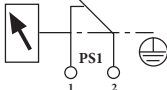
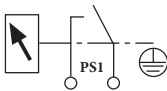
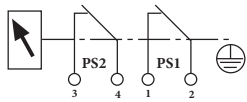

Minimum rating: 24 Vcc/20 mA (ohmic rating).

Contact material: Silver-Nickel 80/20%.

Electrical wiring: with junction box as per VDE, see table page 4.

LOAD RATINGS, as per DIN 16085.

| Volt | Dry versions or filled with azote | | | Silicon dielectric oil filled versions | | |
|------|-----------------------------------|--------|----------------|--|--------|----------------|
| | CC | CA | Inductive load | CC | CA | Inductive load |
| 220 | 100 mA | 120 mA | 65 mA | 65 mA | 90 mA | 40 mA |
| 110 | 200 mA | 240 mA | 130 mA | 130 mA | 180 mA | 85 mA |
| 48 | 300 mA | 450 mA | 200 mA | 190 mA | 330 mA | 130 mA |
| 24 | 400 mA | 600 mA | 250 mA | 250 mA | 450 mA | 150 mA |

| WIRING SCHEME (The numbers shown are the same as those are indicated on the junction box) | THE PRESSURE RAISING MEANS... | CONTACT CODE |
|---|---|--------------|
| ...FOR SINGLE CONTACTS | | |
|  | <u>Opening PS1</u> | 01S |
|  | <u>Closing PS1</u> | 02S |
| ... FOR DOUBLE CONTACTS | | |
|  | <u>Opening PS1</u> <u>Opening PS2</u> (each contact must not exceed the next one) | 06D |
|  | <u>Closing PS1</u> <u>Closing PS2</u> (each contact must not exceed the next one) | 09D |

RANGES

| | | | | | | | |
|------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|
| bar | -1...+0,6 | -1...+1,5 | -1...+3 | -1...+5 | -1...+9 | -1...+15 | -1...+24 |
| MPa | -0,1...+0,06 | -0,1...+0,15 | -0,1...+0,3 | -0,1...+0,5 | -0,1...+0,9 | -0,1...+1,5 | -0,1...+2,4 |

RECOMMENDATION

The measuring of the temperature necessary to the termic compensation it is detected inside the instrument. This means that these instruments should be installed so that their operating temperature corresponds to the one of the monitored SF₆ gas.

In order to avoid any compensating error due to the different isochores, the **PC** calibration must be as nearest as possible to the **PS** contacts setting pressure.

HOW TO ORDER

1° - DESCRIPTION & CODE

Model
1.M5 - MCE 10 SF6, for indoor ambients
1.M6 - MCE 18 SF6, for outdoor ambients

Version
1 - Standard, dry
3 - Filled with silicon dielectric oil version
9 - Filled with azote oil version

Mounting type
A - lower connection - stem mounting
D - back connection - front flange 3 holes

Technical specification code
 To be asked to the Technical & Commercial Service

Ranges : from 1,6 to 25 bar, also vacuum and compound

Process connection
41M - 1/2" BSP - G 1/2 A - PF 1/2
43M - 1/2" NPT

Electric schemes : **01S...09D** - see tabels on page 3

Mounting accessories
C - Back flange, for lower connection pressure gauge
E - 3 holes front flange, for back connection pressure gauge
Q - 4 holes front flange, for back connection pressure gauge

2° - CALIBRATION FEATURES

PF - nominal pressure of the circuit filling

PC - calibration pressure, which identifies the reference isochore

PS1 - setting pressure of the contact PS1, on the temperature of SF₆ gas of 20°C

...and if the contacts are two

PS2 - setting pressure of the contactPS2, on the temperature of SF₆ gas of 20°C

3° - DIAL LAYOUT

1° : red sector range

2° : orange sector range

3° : green sector range



pressure gauges with electric contacts all stainless steel execution DS 4", 6" (100-150 mm)



CE Compliance to requirements of
LVD 2014/35/EU - PED 2014/68/EU

EAC

Alarm contacts are accessories with movable contacts in air, which open or close electric circuits depending of the position of the indicating pointer. They are used with Bourdon tube pressure gauges, bellows, diaphragm and thermometers of NUOVA FIMA production, in such way they become pressure and temperature switches: the optimal and sure solution to automatize any kind of equipment.

1.M8.1 - Standard Model

Ranges: from 0...15 to 0...20000 psi (from 0...1 to 0...1600 bar or equivalent units).

Mechanical contact: sliding contact, magnetic snap-action, electronic, inductive.

Accuracy: $\pm 1,0\%$ as per EN 837-1 - DIN 16085 (1).

Ambient temperature: $-13...+149$ °F ($-25...+65$ °C).

Process fluid temperature: max $+212$ °F ($+100$ °C).

Working pressure: max 75% of the full scale value.

Over pressure: not suitable.

Protection: IP 44 as per EN 60529/IEC 529.

Socket material: AISI316L st.st.

Elastic element: AISI316L st.st.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

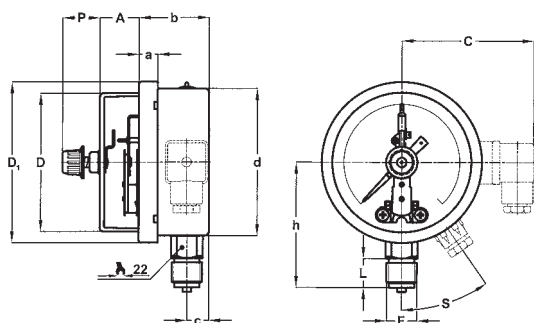
Window: plastic.

Movement: stainless steel.

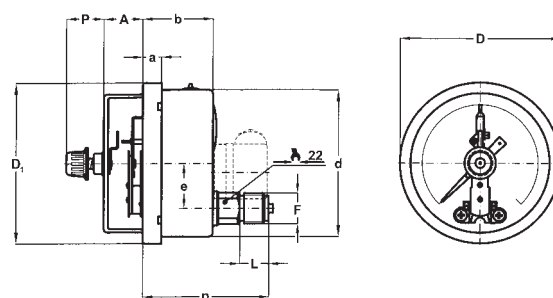
Dial: aluminium, white with black markings.

Pointer: not adjustable, aluminium, black

(1) The addition of mechanical electric contacts affects the accuracy of instruments such that 1% becomes 1,5%, 1,6% becomes 2,4% etc. (add the 50% of accuracy; if the contact is of the magnetically assisted type, this value can't be added within the $\pm 5\%$ of setting point).



A - LOWER CONNECTION



D - BACK CONNECTION

| DS | Mounting | F | A (1) | a | b | C | c | D | D ₁ | d | e | h | L | P | p | S |
|------------------|----------|-------------------|---------------|-------|--------|-------|-----------------|-------|----------------|---------|---------------|----------------|-------|--------|---------------|-----|
| E 4" (100) | Lower | 41M G 1/2 A | 1.06"...2.36" | 0.51" | 1.91" | 2.72" | 0.59" (15) | 3.74" | 4.35" | 3.98" | | 3.39" (86) | 0.79" | 0.77" | | 35° |
| | Back | 43M 1/2-14 NPT | (27...60) | (13) | (48,5) | (69) | | (95) | (110,6) | (101) | 1.22" (31) | | (20) | (19,6) | 3.54" (90) | |
| G 6" (150) | Lower | 41M G 1/2 A | 1.02"...2.32" | 0.59" | 1.99" | 2.72" | 0.61" (15,5) | 5.55" | 6.34" | 5,89 | | 4.61" (117) | 0.79" | 0.77" | | 35° |
| | Back | 43M 1/2-14 NPT | (26...59) | (15) | (50,5) | (69) | | (141) | (161) | (149,6) | 1.22" (31) | | (20) | (19,6) | 3.50" (89) | |

dimensions : inches (mm)

(1) dimensions for single/double contact;

CONTACT TYPE (1)

| MODEL | DS 4" (100 mm) | | | DS 6" (150 mm) | | |
|--|--|--------------------------------------|-------------------------|--------------------------------------|--------------------------------------|-------------------------|
| | Sliding and magnetic snap-action contact | | | | | |
| Contact type | Sliding and magnetic snap-action contact | | | | | |
| Contact number | 1 | 2 | 2 independent | 1 | 2 | 2 independent |
| Junction box ø exit cables: inches (mm) | 3 poles + GND 0,23...0,35 (6...9) | 3 poles + GND 0,23...0,35 (6...9) | | 3 poles + GND 0,23...0,35 (6...9) | 3 poles + GND 0,23...0,35 (6...9) | |
| Cable exit ø cable: inches (mm) | 2 poles + GND (2) 0,19 (4,8) | 3 poles + GND (2) 0,23 (6) | 4 poles + 1 0,27 (7) | 2 poles + GND (2) 0,19 (4,8) | 3 poles + GND (2) 0,23 (6) | 4 poles + 1 0,27 (7) |
| Minimum range | 15 psi (1bar) | 23 psi (1,6 bar) | 23 psi (1,6 bar) | 15 psi (1bar) | 23 psi (1,6 bar) | 23 psi (1,6 bar) |

(1) Functional characteristics, electric diagrams and contact types are available on data-sheets : "ELECTRIC CONTACTS".

(2) U-clamp back connection pressure gauges only.

OPTIONS

| |
|--|
| B - "U"-clamp, for back connection pressure gauges |
| C - Back flange, for lower connection pressure gauges |
| E - Front flange, for back connection pressure gauges |
| CH1 - Removable key, protection IP 55 |

"HOW TO ORDER" SEQUENCE

Section / Model /Case / Mounting / Diameter / Range / Process connection / Electric contact / Options

1 M8 1 A E 41M 01S...M9D B, C, E
D G 43M CH1

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standard version : DS 1.5", 2" (40-50mm)

MS1

| RANGES | bar | kPa | MPa |
|----------|-----|-----|-----|
| 0...1 | | | AB |
| 0...1,6 | | | AB |
| 0...2,5 | AB | | AB |
| 0...4 | AB | | AB |
| 0...6 | AB | | B |
| 0...10 | AB | | B |
| 0...16 | AB | | B |
| 0...25 | AB | | B |
| 0...40 | AB | | B |
| 0...60 | B | | |
| 0...100 | B | | |
| 0...160 | B | | |
| 0...250 | B | AB | |
| 0...400 | B | AB | |
| 0...600 | | AB | |
| 0...1000 | | AB | |
| 0...1600 | | AB | |
| 0...2500 | | AB | |

"A" = DS 1.5"(40mm); "B" = DS 2" (50mm).

standard version : DS 6" (150mm)

| RANGES | bar (1) | kPa | MPa | bar ext. |
|----------|---------|-----|-----|----------|
| | | | | psi 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...400 | ♦ | ♦ | | ♦ |
| 0...600 | ♦ | ♦ | | ♦ |
| 0...1000 | ♦ | ♦ | | ♦ |
| 0...1600 | | ♦ | | |
| 0...2500 | | ♦ | | |

(1) available also kg/cm²

| RANGES | psi | psi int. |
|-----------|-----|----------|
| | | kPa ext. |
| 0...15 | ♦ | ♦ |
| 0...30 | ♦ | ♦ |
| 0...60 | ♦ | ♦ |
| 0...100 | ♦ | ♦ |
| 0...160 | ♦ | ♦ |
| 0...200 | ♦ | ♦ |
| 0...300 | ♦ | ♦ |
| 0...400 | ♦ | ♦ |
| 0...600 | ♦ | ♦ |
| 0...800 | ♦ | ♦ |
| 0...1000 | ♦ | ♦ |
| 0...1500 | ♦ | ♦ |
| 0...2000 | ♦ | ♦ |
| 0...3000 | ♦ | ♦ |
| 0...4000 | ♦ | ♦ |
| 0...5000 | ♦ | ♦ |
| 0...6000 | ♦ | ♦ |
| 0...10000 | ♦ | ♦ |
| 0...15000 | ♦ | ♦ |

| RANGES | bar | kPa | bar ext. |
|-------------|-----|-----|-----------|
| | | | psi 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 measurement unit : "inHg"

| RANGES | psi* | psi int.* |
|-----------|------|-----------|
| | | kPa ext. |
| -30...0 | ♦ | ♦ |
| -30...15 | ♦ | ♦ |
| -30...30 | ♦ | ♦ |
| -30...150 | ♦ | |

* vacuum measurement unit : "inHg"

standard version : DS 1.5", 2", 2.5" (40-50-63mm)

MS2

| RANGES | bar |
|---------|-----|
| -1...0 | C |
| 0...1 | C |
| 0...1,6 | C |
| 0...2,5 | ABC |
| 0...4 | ABC |
| 0...6 | ABC |
| 0...10 | ABC |
| 0...16 | ABC |
| 0...25 | ABC |
| 0...40 | ABC |

| RANGES | psi |
|---------|-----|
| 0...15 | C |
| 0...30 | ABC |
| 0...60 | ABC |
| 0...100 | ABC |
| 0...160 | ABC |
| 0...200 | ABC |
| 0...300 | ABC |
| 0...400 | ABC |
| 0...500 | ABC |
| 0...600 | ABC |

"A" = DS 1.5"(40mm); "B" = DS 2" (50mm); "C" = DS 2.5"(63mm).



bourdon tube pressure gauges : available ranges

case painted stainless steel : DS 1.5", 2", 2.5" (40-50-63mm)

MS3-MS7

| RANGES | bar |
|---------|-----|
| -1...0 | C |
| 0...1 | C |
| 0...1,6 | C |
| 0...2,5 | ABC |
| 0...4 | ABC |
| 0...6 | ABC |
| 0...10 | ABC |
| 0...16 | ABC |
| 0...25 | ABC |
| 0...40 | ABC |
| 0...60 | ABC |
| 0...100 | ABC |
| 0...160 | ABC |
| 0...250 | ABC |

| RANGES | psi |
|----------|-----|
| 0...15 | C |
| 0...30 | ABC |
| 0...60 | ABC |
| 0...100 | ABC |
| 0...160 | ABC |
| 0...200 | ABC |
| 0...300 | ABC |
| 0...400 | ABC |
| 0...500 | ABC |
| 0...600 | ABC |
| 0...1000 | ABC |
| 0...1500 | ABC |
| 0...2000 | ABC |
| 0...3000 | ABC |

"A" = DS 1.5"(40mm); "B" = DS 2" (50mm); "C" = DS 2.5"(63mm).

anti-vibration version : DS 4" (100mm)

MS4

| RANGES | bar (1) | kPa | MPa | bar ext. | bar ext. | bar ext. |
|----------|---------|-----|-----|----------|----------|----------|
| | | | | psi int. | kPa int. | 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 | | ◆ | | | | |

(1) Available also kg/cm²

| RANGES | psi | psi ext. | psi ext. |
|-----------|-----|----------|-------------------------|
| | | bar int. | 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 | ◆ | ◆ | ◆ |

| RANGES | bar | kPa | bar ext. | bar ext. |
|-------------|-----|-----|-----------|----------|
| | | | psi int.* | 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 | | ◆ | | |
| -100...2400 | | ◆ | | |

* vacuum measurement unit : "inHg"

| RANGES | psi* | psi ext.* | psi ext.* |
|-----------|------|-----------|-------------------------|
| | | Bar int. | kg/cm ² int. |
| -30...0 | ◆ | ◆ | ◆ |
| -30...15 | ◆ | ◆ | ◆ |
| -30...30 | ◆ | ◆ | ◆ |
| -30...150 | ◆ | ◆ | ◆ |

* vacuum measurement unit : "inHg"

aluminium case : DS 10" (250mm)

MGS8

| RANGES | bar | kg/cm ² | kPa | MPa |
|----------|-----|--------------------|-----|-----|
| 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...400 | ◆ | ◆ | ◆ | ◆ |
| 0...600 | ◆ | ◆ | ◆ | ◆ |
| 0...1000 | ◆ | ◆ | ◆ | ◆ |
| 0...1600 | | | ◆ | |
| 0...2500 | | | ◆ | |

| RANGES | psi |
|----------|-----|
| 0...60 | ◆ |
| 0...100 | ◆ |
| 0...300 | ◆ |
| 0...400 | ◆ |
| 0...600 | ◆ |
| 0...1000 | ◆ |
| 0...1600 | ◆ |

stainless steel bourdon tube : DS 4" (100mm)

MGS44

| RANGES | bar | kPa | MPa | bar ext. |
|----------|-----|-----|-----|----------|
| | | | | psi 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 | | ♦ | | |

| RANGES | psi |
|----------|-----|
| 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...6000 | ♦ |

anti-vibrations version : DS 2" (50mm)

MGS10

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



bourdon tube pressure gauges : available ranges

anti-vibrations version : DS 2.5" (63mm)

MG10

| RANGES | 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 | | ♦ | | | | |

| RANGES | 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...500 | ♦ | ♦ | ♦ | ♦ |
| 0...600 | ♦ | ♦ | ♦ | ♦ |
| 0...1000 | ♦ | ♦ | ♦ | ♦ |
| 0...1500 | ♦ | ♦ | ♦ | ♦ |
| 0...2000 | ♦ | ♦ | ♦ | ♦ |
| 0...3000 | ♦ | ♦ | ♦ | ♦ |
| 0...4000 | ♦ | ♦ | ♦ | ♦ |
| 0...5000 | ♦ | ♦ | ♦ | ♦ |
| 0...6000 | ♦ | ♦ | ♦ | ♦ |
| 0...10000 | ♦ | ♦ | ♦ | ♦ |

| RANGES | 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 | | ♦ | | |

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

* vacuum measurement unit: "inHg"

* vacuum measurement unit: "inHg"

anti-vibrations version : DS 4" (100mm)

MG10

| RANGES | 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 | | ♦ | | | | |

| RANGES | 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...800 | ♦ | ♦ | ♦ | ♦ |
| 0...1000 | ♦ | ♦ | ♦ | ♦ |
| 0...1500 | ♦ | ♦ | ♦ | ♦ |
| 0...2000 | ♦ | ♦ | ♦ | ♦ |
| 0...3000 | ♦ | ♦ | ♦ | ♦ |
| 0...4000 | ♦ | ♦ | ♦ | ♦ |
| 0...5000 | ♦ | ♦ | ♦ | ♦ |
| 0...6000 | ♦ | ♦ | ♦ | ♦ |
| 0...10000 | ♦ | ♦ | ♦ | ♦ |
| 0...15000 | ♦ | ♦ | ♦ | ♦ |

| RANGES | 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 | | ♦ | | |
| -100...2400 | | ♦ | | |

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

* vacuum measurement unit: "inHg"

* vacuum measurement unit: "inHg"

all stainless steel construction : DS 1.5", 2" (40-50mm)

MG18

| RANGES | bar | kPa | MPa |
|----------|-----|-----|-----|
| 0...2,5 | ♦ | | ♦ |
| 0...4 | ♦ | | ♦ |
| 0...6 | ♦ | | |
| 0...10 | ♦ | | |
| 0...16 | ♦ | | |
| 0...25 | ♦ | | |
| 0...40 | ♦ | | |
| 0...250 | | ♦ | |
| 0...400 | | ♦ | |
| 0...600 | | ♦ | |
| 0...1000 | | ♦ | |
| 0...1600 | | ♦ | |
| 0...2500 | | ♦ | |

all stainless steel construction : DS 2.5" (63mm)

MGS18

| RANGES | bar | kPa | MPa | bar ext. | | bar ext. | |
|----------|-----|-----|-----|----------|----------|----------|---|
| | | | | psi int. | kPa int. | 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 | | ◆ | | | | | |

| RANGES | psi | psi BHyT. | psi ext. | | psi ext. |
|-----------|-----|-----------|----------|----------|----------|
| | | | kPa ext. | bar 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 | ◆ | ◆ | ◆ | ◆ | ◆ |

| RANGES | bar | kPa | bar ext. | |
|-------------|-----|-----|-----------|----------|
| | | | psi int.* | 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 | | ◆ | | |

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

* vacuum measurement unit : "inHg"

* vacuum measurement unit : "inHg"

all stainless steel construction : DS 4", 6" (100-150mm)

MGS18

"E" = DS 4" (100mm); "G" = DS 6" (150mm)

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

(1) not available for filled model

| RANGES | psi | psi int. | psi ext. | | psi ext. |
|---------------|-----|----------|----------|----------|----------|
| | | | kPa ext. | bar int. | |
| 0...15 | E G | E G | E G | E G | E G |
| 0...30 | E G | E G | E G | E G | E G |
| 0...60 | E G | E G | E G | E G | E G |
| 0...100 | E G | E G | E G | E G | E G |
| 0...160 | E G | E G | E G | E G | E G |
| 0...200 | E G | E G | E G | E G | E G |
| 0...300 | E G | E G | E G | E G | E G |
| 0...400 | E G | E G | E G | E G | E G |
| 0...600 | E G | E G | E G | E G | E G |
| 0...1000 | E G | E G | E G | E G | E G |
| 0...1500 | E G | E G | E G | E G | E G |
| 0...2000 | E G | E G | E G | E G | E G |
| 0...3000 | E G | E G | E G | E G | E G |
| 0...4000 | E G | E G | E G | E G | E G |
| 0...5000 | E G | E G | E G | E G | E G |
| 0...6000 | E G | E G | E G | E G | E G |
| 0...10000 | E G | E G | E G | E G | E G |
| 0...15000 | E G | E G | E G | E G | E G |
| 0...20000 | E G | E G | E G | E G | E G |
| 0...30000 (1) | E G | E G | E G | E G | E G |

(1) working pressure: max 75% of PSV
overpressure: 10% of PSV

| RANGES | bar | kPa | bar ext. | |
|-------------|-----|-----|-----------|----------|
| | | | psi int.* | kPa int. |
| -1...0 | E G | | E G | E G |
| -1...0,6 | E G | | E G | E G |
| -1...1,5 | E G | | E G | E G |
| -1...3 | E G | | E G | E G |
| -1...5 | E G | | E G | E G |
| -1...9 | E G | | E G | E G |
| -1...15 | E G | | E G | E G |
| -1...24 | E G | | E G | E G |
| -100...0 | | E G | | |
| -100...150 | | E G | | |
| -100...300 | | E G | | |
| -100...500 | | E G | | |
| -100...900 | | E G | | |
| -100...1500 | | E G | | |
| -100...2400 | | E G | | |

* vacuum measurement unit : "inHg"

| RANGES | psi* | psi int.* | | psi ext.* | |
|-----------|------|-----------|----------|-------------------------|-----|
| | | kPa ext. | bar int. | kg/cm ² int. | |
| -30...0 | E G | E G | E G | E G | E G |
| -30...15 | E G | E G | E G | E G | E G |
| -30...30 | E G | E G | E G | E G | E G |
| -30...150 | E G | / | E G | / | / |

* vacuum measurement unit : "inHg"

"solid-front" version, all stainless steel construction : DS 2.5" (63mm)

MGS20

| RANGES | bar | kPa | MPa |
|----------|-----|-----|-----|
| 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 | | ◆ | |

| RANGES | psi |
|-----------|-----|
| 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 | ◆ |

| RANGES | bar | kPa |
|-------------|-----|-----|
| -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 measurement unit : "inHg"

| RANGES | psi* |
|-----------|------|
| -30...0 | ◆ |
| -30...15 | ◆ |
| -30...30 | ◆ |
| -30...150 | ◆ |

* vacuum measurement unit : "inHg"



bourdon tube pressure gauges : available ranges

"solid-front" version, all stainless steel construction : DS4", 6" (100-150mm)

MGS20

"E" = DS 4" (100mm); "G" = DS 6" (150mm)

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

(1) not available for filled model

| RANGES | psi | psi bhyt. | psi ext. | psi ext. |
|---------------|-----|-----------|----------|-------------------------|
| | | kPa ext. | bar int. | kg/cm ² int. |
| 0...15 | E G | E G | E G | E G |
| 0...30 | E G | E G | E G | E G |
| 0...60 | E G | E G | E G | E G |
| 0...100 | E G | E G | E G | E G |
| 0...160 | E G | E G | E G | E G |
| 0...200 | E G | E G | E G | E G |
| 0...300 | E G | E G | E G | E G |
| 0...400 | E G | E G | E G | E G |
| 0...600 | E G | E G | E G | E G |
| 0...1000 | E G | E G | E G | E G |
| 0...1500 | E G | E G | E G | E G |
| 0...2000 | E G | E G | E G | E G |
| 0...3000 | E G | E G | E G | E G |
| 0...4000 | E G | E G | E G | E G |
| 0...5000 | E G | E G | E G | E G |
| 0...6000 | E G | E G | E G | E G |
| 0...10000 | E G | E G | E G | E G |
| 0...15000 | E G | E G | E G | E G |
| 0...20000 | E G | E G | E G | E G |
| 0...30000 (1) | E G | E G | E G | E G |

(1) working pressure: max 75% of FSV
overpressure: 10% of FSV

| RANGES | bar | kPa | bar ext. | bar ext. |
|-------------|-----|-----|-----------|----------|
| | | | psi int.* | kPa int. |
| -1...0 | E G | | E G | E G |
| -1...0,6 | E G | | E G | E G |
| -1...1,5 | E G | | E G | E G |
| -1...3 | E G | | E G | E G |
| -1...5 | E G | | E G | E G |
| -1...9 | E G | | E G | E G |
| -1...15 | E G | | E G | E G |
| -1...24 | E G | | E G | E G |
| -100...0 | | E G | | |
| -100...150 | | E G | | |
| -100...300 | | E G | | |
| -100...500 | | E G | | |
| -100...900 | | E G | | |
| -100...1500 | | E G | | |
| -100...2400 | | E | | |

* vacuum measurement unit : "inHg"

| RANGES | psi* | psi int.* | psi ext.* | psi ext.* |
|-----------|------|-----------|-----------|-------------------------|
| | | kPa ext. | bar int. | kg/cm ² int. |
| -30...0 | E G | E G | E G | E G |
| -30...15 | E G | E G | E G | E G |
| -30...30 | E G | E G | E G | E G |
| -30...150 | E G | / | E G | / |

* vacuum measurement unit : "inHg"

"solid-front" version, turret case : DS 4.5" (125mm)

MGS30

| RANGES | bar | kPa | MPa | bar ext. |
|----------|-------|-------|-------|----------|
| | | | | psi int. |
| 0...0,6 | ♦ (1) | | ♦ | ♦ (1) |
| 0...1 | ♦ | | ♦ | ♦ |
| 0...1,6 | ♦ | | ♦ | ♦ |
| 0...2,5 | ♦ | | ♦ | ♦ |
| 0...4 | ♦ | | ♦ | ♦ |
| 0...6 | ♦ | | ♦ | ♦ |
| 0...10 | ♦ | | ♦ | ♦ |
| 0...16 | ♦ | | ♦ | ♦ |
| 0...25 | ♦ | | ♦ | ♦ |
| 0...40 | ♦ | | ♦ | ♦ |
| 0...60 | ♦ | ♦ (1) | ♦ | ♦ |
| 0...100 | ♦ | ♦ | ♦ (3) | ♦ |
| 0...160 | ♦ | ♦ | ♦ (3) | ♦ |
| 0...250 | ♦ | ♦ | | ♦ |
| 0...300 | ♦ | | | ♦ |
| 0...400 | ♦ | ♦ | | ♦ |
| 0...600 | ♦ | ♦ | | ♦ |
| 0...1000 | ♦ (3) | ♦ | | ♦ (3) |
| 0...1600 | ♦ (3) | ♦ | | ♦ (3) |
| 0...2500 | | ♦ | | |

| RANGES | psi | psi int. | psi ext. |
|------------------|-----|----------|----------|
| | | kPa ext. | bar int. |
| 0...15 | ♦ | ♦ | ♦ |
| 0...30 | ♦ | ♦ | ♦ |
| 0...60 | ♦ | ♦ | ♦ |
| 0...100 | ♦ | ♦ | ♦ |
| 0...160 | ♦ | ♦ | ♦ |
| 0...200 | ♦ | ♦ | ♦ |
| 0...300 | ♦ | ♦ | ♦ |
| 0...400 | ♦ | ♦ | ♦ |
| 0...600 | ♦ | ♦ | ♦ |
| 0...800 | ♦ | ♦ | ♦ |
| 0...1000 | ♦ | ♦ | ♦ |
| 0...1500 | ♦ | ♦ | ♦ |
| 0...2000 | ♦ | ♦ | ♦ |
| 0...3000 | ♦ | ♦ | ♦ |
| 0...4000 | ♦ | ♦ | ♦ |
| 0...5000 | ♦ | ♦ | ♦ |
| 0...6000 | ♦ | ♦ | ♦ |
| 0...10000 | ♦ | ♦ | ♦ |
| 0...15000 (3) | ♦ | ♦ | ♦ |
| 0...20000 (3) | ♦ | ♦ | ♦ |
| 0...30000 (2)(3) | ♦ | ♦ | ♦ |

| RANGES | bar | kPa |
|-------------|-----|-----|
| -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 | | ♦ |
| -100...2400 | | ♦ |

| RANGES | psi* | psi int.* |
|-----------|------|-----------|
| | | kPa ext. |
| -30...0 | ♦ | ♦ |
| -30...15 | ♦ | ♦ |
| -30...30 | ♦ | ♦ |
| -30...60 | ♦ | ♦ |
| -30...100 | ♦ | ♦ |
| -30...150 | ♦ | ♦ |

* vacuum measurement unit : "inHg"

(1) not available for filled model
(2) working pressure: max 75% of FSV; overpressure: 10% of FSV
(3) with decreasing pressure, the accuracy is max 1,2% of FSV

"solid-front" version, turret case : DS 4.5" (125mm)

MGS30

EXTRA

| RANGES | bar | kPa | MPa |
|----------|-----|-----|-----|
| 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 | | ♦ | |

| RANGES | psi | psi int. |
|-----------|-----|----------|
| | | kPa ext. |
| 0...30 | F | ♦ |
| 0...60 | F | ♦ |
| 0...100 | F | ♦ |
| 0...160 | F | ♦ |
| 0...200 | F | ♦ |
| 0...300 | F | ♦ |
| 0...400 | F | ♦ |
| 0...600 | F | ♦ |
| 0...800 | F | ♦ |
| 0...1000 | F | ♦ |
| 0...1500 | F | ♦ |
| 0...2000 | F | ♦ |
| 0...3000 | F | ♦ |
| 0...4000 | F | ♦ |
| 0...5000 | F | ♦ |
| 0...6000 | F | ♦ |
| 0...10000 | F | ♦ |
| 0...15000 | F | ♦ |

| RANGES | bar |
|----------|-----|
| -1...1,5 | ♦ |
| -1...3 | ♦ |
| -1...5 | ♦ |
| -1...9 | ♦ |
| -1...15 | ♦ |
| -1...24 | ♦ |

| RANGES | psi* | psi int.* |
|-----------|------|-----------|
| | | kPa ext. |
| -30...15 | ♦ | ♦ |
| -30...30 | ♦ | ♦ |
| -30...60 | ♦ | ♦ |
| -30...100 | ♦ | ♦ |
| -30...150 | ♦ | ♦ |
| -30...200 | | ♦ |
| -30...300 | ♦ | ♦ |

* vacuum measurement unit : "inHg"



NACE MR 01.03 version : DS 4", 6" (100-150mm)

MGS36-37

"E" = DS 4" (100mm); "G" = DS 6" (150mm)

| RANGES | bar | kPa | MPa |
|---------|-----|-----|-----|
| 0...1 | EG | | EG |
| 0...1,6 | EG | | EG |
| 0...2,5 | EG | | EG |
| 0...4 | EG | | EG |
| 0...6 | EG | | EG |
| 0...10 | EG | | EG |
| 0...16 | EG | | EG |
| 0...25 | EG | | EG |
| 0...40 | EG | | EG |
| 0...60 | EG | | EG |
| 0...100 | EG | EG | |
| 0...160 | EG | EG | |
| 0...250 | EG | EG | |
| 0...300 | EG | | |
| 0...400 | EG | EG | |
| 0...600 | EG | EG | |

| RANGES | psi |
|----------|-----|
| 0...15 | EG |
| 0...30 | EG |
| 0...60 | EG |
| 0...100 | EG |
| 0...160 | EG |
| 0...200 | EG |
| 0...300 | EG |
| 0...400 | EG |
| 0...600 | EG |
| 0...1000 | EG |
| 0...1500 | EG |
| 0...2000 | EG |
| 0...3000 | EG |
| 0...4000 | EG |
| 0...5000 | EG |
| 0...6000 | EG |

| RANGES | bar | kPa |
|-------------|-----|-----|
| -1...0 | EG | |
| -1...0,6 | EG | |
| -1...1,5 | EG | |
| -1...3 | EG | |
| -1...5 | EG | |
| -1...9 | EG | |
| -1...15 | EG | |
| -1...24 | EG | |
| -100...0 | | EG |
| -100...150 | | EG |
| -100...300 | | EG |
| -100...500 | | EG |
| -100...900 | | EG |
| -100...1500 | | EG |
| -100...2400 | | E |

| RANGES | psi* |
|-----------|------|
| -30...0 | EG |
| -30...15 | EG |
| -30...30 | EG |
| -30...150 | EG |

* vacuum unit of measurement: "inHg"

* vacuum unit of measurement: "inHg"

"solid-front" NACE MR 01.03 version : DS 4", 6" (100-150mm)

MGS40-41

"E" = DS 4" (100mm); "G" = DS 6" (150mm)

| RANGES | bar | kPa | MPa |
|---------|-----|-----|-----|
| 0...1 | EG | | EG |
| 0...1,6 | EG | | EG |
| 0...2,5 | EG | | EG |
| 0...4 | EG | | EG |
| 0...6 | EG | | EG |
| 0...10 | EG | | EG |
| 0...16 | EG | | EG |
| 0...25 | EG | | EG |
| 0...40 | EG | | EG |
| 0...60 | EG | | EG |
| 0...100 | EG | EG | |
| 0...160 | EG | EG | |
| 0...250 | EG | EG | |
| 0...300 | EG | | |
| 0...400 | EG | EG | |
| 0...600 | EG | EG | |

| RANGES | psi |
|-----------|-----|
| 0...15 | EG |
| 0...30 | EG |
| 0...60 | EG |
| 0...100 | EG |
| 0...160 | EG |
| 0...200 | EG |
| 0...300 | EG |
| 0...400 | EG |
| 0...600 | EG |
| 0...1000 | EG |
| 0...1500 | EG |
| 0...2000 | EG |
| 0...3000 | EG |
| 0...4000 | EG |
| 0...6000 | EG |
| 0...10000 | EG |

| RANGES | bar | kPa |
|-------------|-----|-----|
| -1...0 | EG | |
| -1...0,6 | EG | |
| -1...1,5 | EG | |
| -1...3 | EG | |
| -1...5 | EG | |
| -1...9 | EG | |
| -1...15 | EG | |
| -1...24 | EG | |
| -100...0 | | EG |
| -100...150 | | EG |
| -100...300 | | EG |
| -100...500 | | EG |
| -100...900 | | EG |
| -100...1500 | | EG |
| -100...2400 | | E |

| RANGES | psi* |
|-----------|------|
| -30...0 | EG |
| -30...15 | EG |
| -30...30 | EG |
| -30...150 | EG |

* vacuum unit of measurement: "inHg"

* vacuum unit of measurement: "inHg"

"solid-front" NACE MR 01.03 version, turret case : DS 4.5" (125mm)

MGS60-61

| RANGES | bar | kPa | MPa |
|---------|-----|-----|-----|
| 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 | ◆ | ◆ | |

| RANGES | psi |
|-----------|-----|
| 0...15 | ◆ |
| 0...30 | ◆ |
| 0...60 | ◆ |
| 0...100 | ◆ |
| 0...160 | ◆ |
| 0...200 | ◆ |
| 0...300 | ◆ |
| 0...400 | ◆ |
| 0...600 | ◆ |
| 0...800 | ◆ |
| 0...1000 | ◆ |
| 0...1500 | ◆ |
| 0...2000 | ◆ |
| 0...3000 | ◆ |
| 0...4000 | ◆ |
| 0...6000 | ◆ |
| 0...10000 | ◆ |

| RANGES | bar | kPa |
|-------------|-----|-----|
| -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 | | ◆ |
| -100...2400 | | ◆ |

| RANGES | psi* |
|-----------|------|
| -30...0 | ◆ |
| -30...15 | ◆ |
| -30...30 | ◆ |
| -30...60 | ◆ |
| -30...100 | ◆ |
| -30...150 | ◆ |

* vacuum unit of measurement: "inHg"



bourdon tube pressure gauges : available ranges

with microswitch electric contact : DS 4" (100mm)

MGS72-74

| Ranges | bar | kPa | MPa |
|----------|-----|-----|-----|
| 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 | | ◆ | |

| Ranges | psi |
|-----------|-----|
| 0...15 | ◆ |
| 0...30 | ◆ |
| 0...60 | ◆ |
| 0...100 | ◆ |
| 0...160 | ◆ |
| 0...200 | ◆ |
| 0...300 | ◆ |
| 0...400 | ◆ |
| 0...600 | ◆ |
| 0...800 | ◆ |
| 0...1000 | ◆ |
| 0...1500 | ◆ |
| 0...2000 | ◆ |
| 0...3000 | ◆ |
| 0...4000 | ◆ |
| 0...5000 | ◆ |
| 0...6000 | ◆ |
| 0...10000 | ◆ |

| Ranges | bar | kPa |
|-------------|-----|-----|
| -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 | | ◆ |
| -100...2400 | | ◆ |

* vacuum unit of measurement: "inHg"

| Ranges | psi* |
|----------|------|
| -30...0 | ◆ |
| -30...15 | ◆ |

* vacuum unit of measurement: "inHg"

MCE10-18

with electric, inductive or electronic contact :
DS 4" (100 mm)

| Ranges | bar | kPa | MPa |
|--------------|-----|-----|-----|
| 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...400 | ◆ | ◆ | |
| 0...600 | ◆ | ◆ | |
| 0...1000 | | ◆ | |
| 0...1600 (1) | | ◆ | |

(1) Available only for MCE18

| Ranges | psi |
|---------------|-----|
| 0...15 (1) | F |
| 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 | ◆ |
| 0...20000 (1) | ◆ |

MCE20

with electric, inductive or electronic
contact : DS 6" (150 mm)

| Ranges | bar | kPa | MPa |
|----------|-----|-----|-----|
| 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...400 | ◆ | ◆ | |
| 0...600 | ◆ | ◆ | |
| 0...1000 | ◆ | ◆ | |
| 0...1600 | ◆ | ◆ | |

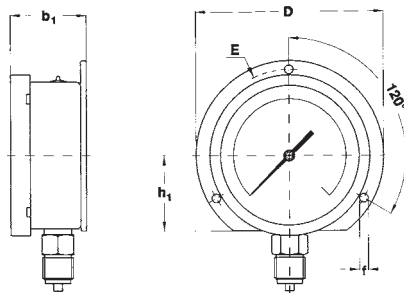
| Ranges | psi |
|-----------|-----|
| 0...15 | ◆ |
| 0...30 | ◆ |
| 0...60 | ◆ |
| 0...100 | ◆ |
| 0...160 | ◆ |
| 0...200 | ◆ |
| 0...300 | ◆ |
| 0...400 | ◆ |
| 0...500 | ◆ |
| 0...600 | ◆ |
| 0...1000 | ◆ |
| 0...1500 | ◆ |
| 0...2000 | ◆ |
| 0...3000 | ◆ |
| 0...4000 | ◆ |
| 0...5000 | ◆ |
| 0...6000 | ◆ |
| 0...10000 | ◆ |
| 0...15000 | ◆ |
| 0...20000 | ◆ |

bourdon tube pressure gauges : mounting back flange lower connection pressure gauges

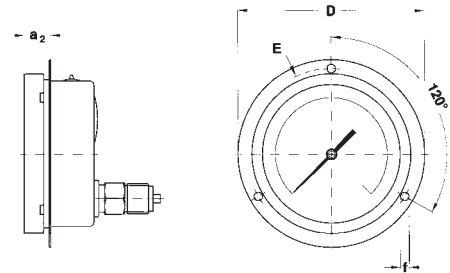
| Model | DS | b_1 | h_1 | E | D | f |
|----------------|----------|---------------------------|-------------|-------------------------|------------|------------|
| MGS10 | 2.5 (63) | 1.34 (34) | 1.36 (34,5) | 2.95 (75) | 3.35 (85) | 0.14 (3,6) |
| MGS18 | 2.5 (63) | 1.48 (37,5) (1) | 1.36 (34,5) | 2.95 (75) | 3.35 (85) | 0.14 (3,6) |
| MS4-MGS44 | 4 (100) | 1.49 (38) | 2.05 (52) | 4.57...4.72 (116...120) | 5.12 (130) | 0.24 (6) |
| MGS10-18-19-36 | 4 (100) | 2.07 (52,5) | 2.05 (52) | 4.57...4.72 (116...120) | 5.12 (130) | 0.24 (6) |
| MGS20-21-40 | 4 (100) | 2.85 (72,5) | - | 4.57...4.72 (116...120) | 5.20 (132) | 0.24 (6) |
| MN14/10-18 | 4 (100) | 2.07 (52,5) | 2.05 (52) | 4.57...4.72 (116...120) | 5.12 (130) | 0.24 (6) |
| MCE10-18 | 4 (100) | 3.01...3.41 (76,5...86,5) | 2.05 (52) | 4.57...4.72 (116...120) | 5.12 (130) | 0.24 (6) |
| MGS72-74 | 4 (100) | 2.07 (52,5) | 2.05 (52) | 4.57...4.72 (116...120) | 5.12 (130) | 0.24 (6) |
| MS1 | 6 (150) | 2.13 (54) | 3.35 (85) | 6.61...7.01 (168...178) | 7.48 (190) | 0.24 (6) |
| MGS18-19-36 | 6 (150) | 2.13 (54) | 3.35 (85) | 6.61...7.01 (168...178) | 7.48 (190) | 0.24 (6) |
| MGS20-21-40 | 6 (150) | 2.97 (75,5) | 3.35 (85) | 6.61...7.01 (168...178) | 7.48 (190) | 0.24 (6) |
| MN15 | 6 (150) | 2.13 (54) | 3.35 (85) | 6.61...7.01 (168...178) | 7.48 (190) | 0.24 (6) |
| MN16-17 | 6 (150) | 2.97 (75,5) | 3.35 (85) | 6.61...7.01 (168...178) | 7.48 (190) | 0.24 (6) |
| MN25 | 6 (150) | - | 3.35 (85) | 6.61...7.01 (168...178) | 7.48 (190) | 0.24 (6) |
| MN14/10-18 | 6 (150) | 2.13 (54) | 3.35 (85) | 6.61...7.01 (168...178) | 7.48 (190) | 0.24 (6) |
| MCE20 | 6 (150) | 5.49 (139,5) | 3.35 (85) | 6.61...7.01 (168...178) | 7.48 (190) | 0.24 (6) |

dimensions : inches (mm)

(1) 1.32 (33,5) with crimped ring
(2) 0.61 (15,5) with crimped ring



C - BACK FLANGE,
for lower connection



E - FRONT FLANGE,
for back connection

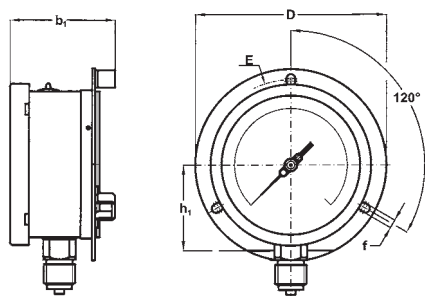
front flange back connection pressure gauges

| Model | DS | a_2 | E | D | f |
|-------------|----------|-------------|-------------------------|------------|------------|
| MGS10 | 2.5 (63) | 0.26 (6,6) | 2.95 (75) | 3.35 (85) | 0.14 (3,6) |
| MGS18 | 2.5 (63) | 0.26 (6,6) | 2.95 (75) | 3.35 (85) | 0.14 (3,6) |
| MGS20 | 2.5 (63) | 0.45 (11,5) | 2.95 (75) | 3.35 (85) | 0.14 (3,6) |
| MS4 - MGS44 | 4 (100) | 0.71 (18) | 4.57...4.72 (116...120) | 5.20 (132) | 0.24 (6) |
| MGS10 | 4 (100) | 0.79 (20) | 4.57...4.72 (116...120) | 5.20 (132) | 0.24 (6) |
| MGS18-19-36 | 4 (100) | 0.79 (20) | 4.57...4.72 (116...120) | 5.20 (132) | 0.24 (6) |
| MGS20-21-40 | 4 (100) | 0.79 (20) | 4.57...4.72 (116...120) | 5.20 (132) | 0.24 (6) |
| MN14/10-18 | 4 (100) | 0.79 (20) | 4.57...4.72 (116...120) | 5.20 (132) | 0.24 (6) |
| MCE10-18 | 4 (100) | 0.79 (20) | 4.57...4.72 (116...120) | 5.20 (132) | 0.24 (6) |
| MGS72-74 | 4 (100) | 0.79 (20) | 4.57...4.72 (116...120) | 5.20 (132) | 0.24 (6) |
| MGS18-19-36 | 6 (150) | 1 (25,5) | 6.61...7.01 (168...178) | 7.48 (190) | 0.24 (6) |
| MGS20-21-40 | 6 (150) | 1 (25,5) | 6.61...7.01 (168...178) | 7.48 (190) | 0.24 (6) |
| MN15 | 6 (150) | 1 (25,5) | 6.61...7.01 (168...178) | 7.48 (190) | 0.24 (6) |
| MN16-17 | 6 (150) | 1 (25,5) | 6.61...7.01 (168...178) | 7.48 (190) | 0.24 (6) |
| MN25 | 6 (150) | 1 (25,5) | 6.61...7.01 (168...178) | 7.48 (190) | 0.24 (6) |
| MN14/10-18 | 4 (100) | 0.79 (20) | 4.57...4.72 (116...120) | 5.20 (132) | 0.24 (6) |

dimensions : inches (mm)

bourdon tube pressure gauges : mounting

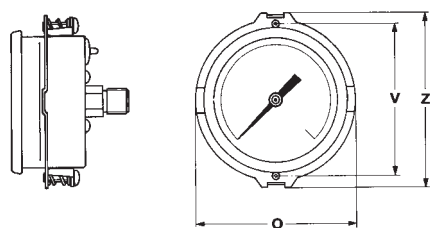
back flange lower connection for solid-front pressure gauges



C - BACK FLANGE,
for lower connection

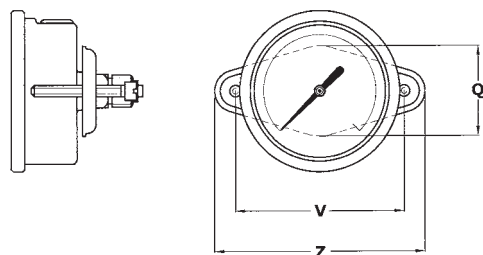
| Model | DS | b ₁ | h ₁ | f | D | E |
|-------------|---------|----------------|----------------|----------|------------|-------------------------|
| MGS20-21-40 | 4 (100) | 2.85 (72,5) | - | 0.24 (6) | 5.19 (132) | 4.56...4.72 (116...120) |
| MGS20-21-40 | 6 (150) | 2.85 (72,5) | 3.34 (85) | 0.24 (6) | 7.48 (190) | 6.61...7.00 (168...178) |

clamp back connection pressure gauges



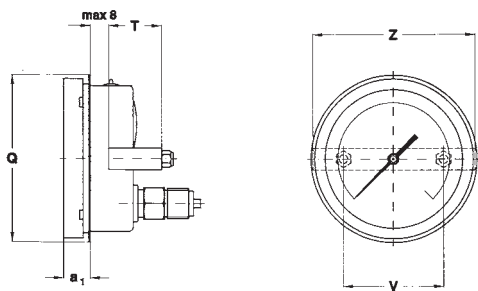
| Model | DS | Q | Z | V |
|---------------|--------|-------------|-------------|-------------|
| MS1, MGS10-18 | 2 (50) | 2.46 (62,6) | 2.66 (67,5) | 2.30 (58,5) |

dimensions : inches (mm)



| Model | DS | Q | Z | V |
|----------|----------|-----------|-----------|-----------|
| MGS10-18 | 2.5 (63) | 1.50 (38) | 3.54 (90) | 2.83 (72) |

dimensions : inches (mm)

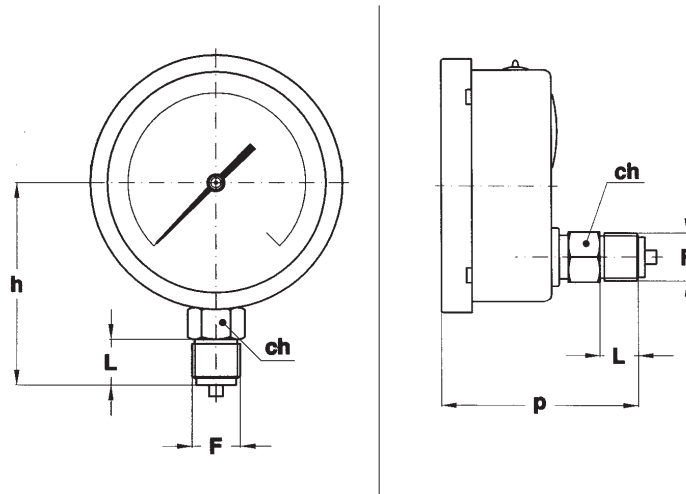


B - "U" CLAMP,
for back connection

| Model | DS | Q | a ₁ | T | Z | V |
|----------------|---------|------------|----------------|-------------|------------|------------|
| MS4 | 4 (100) | --- | --- | 1.2 (30,5) | 4.41 (112) | 2.76 (70) |
| MGS10-18-19-36 | 4 (100) | 4.41 (112) | 0.79 (20) | 1.63 (41,5) | 4.41 (112) | 2.76 (70) |
| MN14/10-18 | 4 (100) | 4.41 (112) | 0.79 (20) | 1.63 (41,5) | 4.41 (112) | 2.76 (70) |
| MGS72-74 | 4 (100) | 4.41 (112) | 0.79 (20) | 1.63 (41,5) | 4.41 (112) | 2.76 (70) |
| MS1 | 6 (150) | 6.46 (164) | 0.81 (20,5) | 1.63 (41,5) | 6.10 (155) | 4.17 (106) |
| MGS18-19-36 | 6 (150) | 6.46 (164) | 0.81 (20,5) | 1.63 (41,5) | 6.10 (155) | 4.17 (106) |
| MN15 | 6 (150) | 6.46 (164) | 0.81 (20,5) | 1.63 (41,5) | 6.10 (155) | 4.17 (106) |
| MN14/10-18 | 6 (150) | 6.46 (164) | 0.81 (20,5) | 1.63 (41,5) | 6.10 (155) | 4.17 (106) |

dimensions : inches (mm)

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standard version

MS1

| F | Cod. | DS 1.5" (40mm) | | | DS 2" (50mm) | | | | DS 12" (50mm) | | | |
|------------|------------|----------------|-----------|-----------|--------------|-------------|--------------------------|-----------|---------------|-----------|-----------|-----------|
| | | p | ch | L | h | p | ch | L | h | p | ch | L |
| G 1/8 B | 11M | 1.77 (45) | 0.47 (12) | 0.39 (10) | 1.75 (44,5) | 1.81 (46) | 0.55 (14) ⁽¹⁾ | 0.39 (10) | | | | |
| 1/8-18 NPT | 13M | 1.77 (45) | 0.47 (12) | 0.39 (10) | 1.75 (44,5) | 1.81 (46) | 0.55 (14) ⁽¹⁾ | 0.39 (10) | | | | |
| G 1/4 B | 21M | 1.88 (48) | 0.47 (12) | 0.51 (13) | 1.87 (47,5) | 1.94 (49,5) | 0.55 (14) ⁽¹⁾ | 0.51 (13) | | | | |
| 1/4-18 NPT | 23M | 2.04 (52) | 0.47 (12) | 0.59 (15) | 1.94 (49,5) | 2.10 (53,5) | 0.55 (14) ⁽¹⁾ | 0.59 (15) | 4.40 (112) | 3.30 (84) | 0.86 (22) | 0.59 (15) |
| G 1/2 B | 41M | | | | | | | | 4.60 (117) | 3.50 (89) | 0.86 (22) | 0.78 (20) |
| 1/2-14 NPT | 43M | | | | | | | | 4.60 (117) | 3.50 (89) | 0.86 (22) | 0.78 (20) |

(1) ch = 0.47 (12) if back connection

dimensions : inches (mm)

anti-vibrations version

MS4

| F | Cod. | DS 4" (100mm) | | | |
|---------------|------------|---------------|-----------|-----------|-----------|
| | | h | p | ch | L |
| G 1/4 B | 21M | 3.14 (80) | 2.63 (67) | 0.86 (22) | 0.51 (13) |
| R 1/4-ISO 7/1 | 22M | 3.22 (82) | 2.71 (69) | 0.86 (22) | 0.59 (15) |
| 1/4-18 NPT | 23M | 3.22 (82) | 2.71 (69) | 0.86 (22) | 0.59 (15) |
| 7/16-20UNF | 24M | 3.22 (82) | 2.71 (69) | 0.86 (22) | 0.59 (15) |
| G 3/8 B | 31M | 3.26 (83) | 2.75 (70) | 0.86 (22) | 0.62 (16) |
| G 1/2 B | 41M | 3.42 (87) | 2.92 (74) | 0.86 (22) | 0.78 (20) |
| R 1/2-ISO 7/1 | 42M | 3.42 (87) | 2.92 (74) | 0.86 (22) | 0.78 (20) |
| 1/2-14 NPT | 43M | 3.42 (87) | 2.92 (74) | 0.86 (22) | 0.78 (20) |
| M 20 x 1,5 | 97M | 3.42 (87) | 2.92 (74) | 0.86 (22) | 0.78 (20) |

dimensions : inches (mm)

stainless steel bourdon tube



| F | Cod. | DS 4" (100mm) | | |
|------------|------------|---------------|-----------|-----------|
| | | h | ch | L |
| 1/4-18 NPT | 23M | 3.22 (82) | 0.87 (22) | 0.59 (15) |
| 1/2-14 NPT | 43M | 3.42 (87) | 0.87 (22) | 0.79 (20) |

dimensions : inches (mm)

bourdon tube pressure gauges : threaded process connections

anti-vibrations version

MGS10

| F | Cod. | DS 2" (50mm) | | | | DS 2.5" (63mm) | | | | DS 4" (100mm) | | | |
|-------------|------|----------------|----------------|-----------------------------|--------------|----------------|--------------|--------------|--------------|---------------|--------------|--------------|--------------|
| | | h | p | ch | L | h | p | ch | L | h | p | ch | L |
| G 1/8 B | 11M | 1.75 (44,5) | 1.81 (46) | 0.55 (14) ⁽¹⁾ | 0.39 (10) | 2.08 (53) | 2.08 (53) | 0.55 (14) | 0.39 (10) | | | | |
| 1/8-18 NPT | 13M | 1.75 (44,5) | 1.81 (46) | 0.55 (14) ⁽¹⁾ | 0.39 (10) | 2.08 (53) | 2.08 (53) | 0.55 (14) | 0.39 (10) | | | | |
| G 1/4 B | 21M | 1.87 (47,5) | 1.94 (49,5) | 0.55 (14) ⁽¹⁾ | 0.51 (13) | 2.16 (55) | 2.16 (55) | 0.55 (14) | 0.51 (13) | 3.18 (81) | 3.26 (83) | 0.86 (22) | 0.51 (13) |
| 1/4-18 NPT | 23M | 1.94 (49,5) | 2.10 (53,5) | 0.55 (14) ⁽¹⁾ | 0.59 (15) | 2.12 (54) | 2.12 (54) | 0.55 (14) | 0.51 (13) | 3.26 (83) | 3.34 (85) | 0.86 (22) | 0.59 (15) |
| M10X1 | 86M | | | | | 2.08 (53) | 2.08 (53) | 0.55 (14) | 0.39 (10) | | | 0.86 (22) | |
| R1/4-ISO7/1 | 22M | | | | | 2.12 (54) | 2.12 (54) | 0.55 (14) | 0.51 (13) | 3.26 (83) | 3.34 (85) | 0.86 (22) | 0.59 (15) |
| 7/16-20UNF | 24M | | | | | 2.20 (56) | 2.20 (56) | 0.55 (14) | 0.55 (14) | 3.26 (83) | 3.34 (85) | 0.86 (22) | 0.59 (15) |
| G 3/8 B | 31M | | | | | | | | | 3.30 (84) | 3.38 (86) | 0.86 (22) | 0.62 (16) |
| G 1/2 B | 41M | | | | | | | | | 3.46 (88) | 3.54 (90) | 0.86 (22) | 0.78 (20) |
| 1/2-14 NPT | 43M | | | | | | | | | 3.46 (88) | 3.54 (90) | 0.86 (22) | 0.78 (20) |
| M20X1,5 | 97M | | | | | | | | | 3.46 (88) | 3.54 (90) | 0.86 (22) | 0.78 (20) |

(1) ch= 0.47 (12) if back connection

dimensions : inches (mm)

all stainless steel version

MGS18

| F | Cod. | DS 1.5" (40mm) | | | DS 2" (50mm) | | | | DS 2.5" (63mm) | | | | DS 4" (100mm) | | | | DS 6" (150mm) | | | |
|---------------|------|----------------|--------------|--------------|----------------|--------------|--|--------------|----------------|--------------|--------------|--------------|---------------|--------------|--------------|--------------|---------------|----------------|--------------|--------------|
| | | p | ch | L | h | p | ch | L | h | p | ch | L | h | p | ch | L | h | p | ch | L |
| G 1/8 B | 11M | 1.73 (44) | 0.47 (12) | 0.39 (10) | 1.75 (44,5) | 1.81 (46) | 0.55 ⁽¹⁾ (14) ⁽¹⁾ | 0.39 (10) | 2.08 (53) | 2.08 (53) | 0.55 (14) | 0.39 (10) | | | | | | | | |
| 1/8-18 NPT | 13M | 1.73 (44) | 0.47 (12) | 0.39 (10) | 1.75 (44,5) | 1.81 (46) | 0.55 ⁽¹⁾ (14) ⁽¹⁾ | 0.39 (10) | 2.08 (53) | 2.08 (53) | 0.55 (14) | 0.39 (10) | | | | | | | | |
| G 1/4 B | 21M | 1.92 (49) | 0.47 (12) | 0.51 (13) | 1.87 (47,5) | 2 (51) | 0.55 ⁽¹⁾ (14) ⁽¹⁾ | 0.51 (13) | 2.16 (55) | 2.16 (55) | 0.55 (14) | 0.51 (13) | 3.11 (79) | 3.34 (85) | 0.86 (22) | 0.51 (13) | 4.33 (110) | 3.28 (83,5) | 0.86 (22) | 0.51 (13) |
| 1/4-18 NPT | 23M | 2 (51) | 0.47 (12) | 0.59 (15) | 1.94 (49,5) | 2.08 (53) | 0.55 ⁽¹⁾ (14) ⁽¹⁾ | 0.59 (15) | 2.12 (54) | 2.12 (54) | 0.55 (14) | 0.51 (13) | 3.18 (81) | 3.42 (87) | 0.86 (22) | 0.59 (15) | 4.40 (112) | 3.36 (85,5) | 0.86 (22) | 0.59 (15) |
| R1/4-ISO7/1 | 22M | | | | | | | | 2.12 (54) | 2.12 (54) | 0.55 (14) | 0.51 (13) | | | | | | | | |
| G 3/8 B | 31M | | | | | | | | | | | | 3.38 (86) | 3.42 (87) | 0.86 (22) | 0.62 (16) | 4.44 (113) | 3.36 (85,5) | 0.86 (22) | 0.62 (16) |
| 3/8-18 NPT | 33M | | | | | | | | | | | | 3.38 (86) | 3.42 (87) | 0.86 (22) | 0.62 (16) | 4.44 (113) | 3.36 (85,5) | 0.86 (22) | 0.62 (16) |
| G 1/2 B | 41M | | | | | | | | | | | | 3.38 (86) | 3.42 (87) | 0.86 (22) | 0.78 (20) | 4.6 (117) | 3.36 (85,5) | 0.86 (22) | 0.78 (20) |
| R 1/2-ISO 7/1 | 42M | | | | | | | | | | | | 3.38 (86) | 3.42 (87) | 0.86 (22) | 0.78 (20) | 4.6 (117) | 3.36 (85,5) | 0.86 (22) | 0.78 (20) |
| 1/2-14 NPT | 43M | | | | | | | | | | | | 3.38 (86) | 3.42 (87) | 0.86 (22) | 0.78 (20) | 4.6 (117) | 3.36 (85,5) | 0.86 (22) | 0.78 (20) |
| M 20 x 1,5 | 97M | | | | | | | | | | | | 3.38 (86) | 3.42 (87) | 0.86 (22) | 0.78 (20) | 4.6 (117) | 3.36 (85,5) | 0.86 (22) | 0.78 (20) |

(1) ch= 0.47 (12) if back connection

dimensions : inches (mm)



all stainless steel version, heavy work

MG19

| F | Cod. | DS 4" (100mm) | | | | DS 6" (150mm) | | | |
|---------------|------------|---------------|-----------|-----------|-----------|---------------|-------------|-----------|-----------|
| | | h | p | ch | L | h | p | ch | L |
| G 1/4 B | 21M | 3.11 (79) | 3.35 (85) | 0.87 (22) | 0.51 (13) | 4.33 (110) | 3.29 (83,5) | 0.87 (22) | 0.51 (13) |
| 1/4-18 NPT | 23M | 3.19 (81) | 3.43 (87) | 0.87 (22) | 0.59 (15) | 4.41 (112) | 3.37 (85,5) | 0.87 (22) | 0.59 (15) |
| G 3/8 B | 31M | 3.39 (86) | 3.43 (87) | 0.87 (22) | 0.63 (16) | 4.45 (113) | 3.37 (85,5) | 0.87 (22) | 0.63 (16) |
| 3/8-18 NPT | 33M | 3.39 (86) | 3.43 (87) | 0.87 (22) | 0.63 (16) | 4.45 (113) | 3.37 (85,5) | 0.87 (22) | 0.63 (16) |
| G 1/2 B | 41M | 3.39 (86) | 3.43 (87) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.37 (85,5) | 0.87 (22) | 0.79 (20) |
| R 1/2-ISO 7/1 | 42M | 3.39 (86) | 3.43 (87) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.37 (85,5) | 0.87 (22) | 0.79 (20) |
| 1/2-14 NPT | 43M | 3.39 (86) | 3.43 (87) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.37 (85,5) | 0.87 (22) | 0.79 (20) |
| M 20 x 1,5 | 97M | 3.39 (86) | 3.43 (87) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.37 (85,5) | 0.87 (22) | 0.79 (20) |

dimensions : inches (mm)

MG20

| F | Cod. | DN 2.5" (63mm) | | | | DN 4" (100mm) | | | | DN 6" (150mm) | | | |
|---------------|------------|----------------|--------------|--------------|--------------|---------------|----------------|-------------------|--------------|---------------|--------------|-------------------|--------------|
| | | h | p | ch | L | h | p | ch ⁽¹⁾ | L | h | p | ch ⁽¹⁾ | L |
| G 1/8 B | 11M | 2.08 (53) | 2.28 (58) | 0.55 (14) | 0.39 (10) | | | | | | | | |
| 1/8-18 NPT | 13M | 2.08 (53) | 2.28 (58) | 0.55 (14) | 0.39 (10) | | | | | | | | |
| G 1/4 B | 21M | 2.16 (55) | 2.36 (60) | 0.55 (14) | 0.51 (13) | 3.11 (79) | 3.68 (93,5) | 0.87 (22) | 0.51 (13) | 4.33 (110) | 3.70 (94) | 0.87 (22) | 0.51 (13) |
| 1/4-18 NPT | 23M | 2.12 (54) | 2.32 (59) | 0.55 (14) | 0.51 (13) | 3.19 (81) | 3.76 (95,5) | 0.87 (22) | 0.59 (15) | 4.41 (112) | 3.78 (96) | 0.87 (22) | 0.59 (15) |
| G 3/8 B | 31M | | | | | 3.39 (86) | 3.76 (95,5) | 0.87 (22) | 0.63 (16) | 4.45 (113) | 3.78 (96) | 0.87 (22) | 0.63 (16) |
| 3/8-18 NPT | 33M | | | | | 3.39 (86) | 3.76 (95,5) | 0.87 (22) | 0.63 (16) | 4.45 (113) | 3.78 (96) | 0.87 (22) | 0.63 (16) |
| G 1/2 B | 41M | | | | | 3.39 (86) | 3.76 (95,5) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.78 (96) | 0.87 (22) | 0.79 (20) |
| R 1/2-ISO 7/1 | 42M | | | | | 3.39 (86) | 3.76 (95,5) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.78 (96) | 0.87 (22) | 0.79 (20) |
| 1/2-14 NPT | 23M | | | | | 3.39 (86) | 3.76 (95,5) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.78 (96) | 0.87 (22) | 0.79 (20) |
| M 20 x 1,5 | 97M | | | | | 3.39 (86) | 3.76 (95,5) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.78 (96) | 0.87 (22) | 0.79 (20) |

(1) ch= 0.67 (17) for back connection

dimensions : inches (mm)



bourdon tube pressure gauges : threaded process connection

all stainless steel version, "solid-front" heavy work

MG521

| F | Cod. | DS 4" (100mm) | | | | DS 6" (150mm) | | | |
|---------------|------------|---------------|-------------|-------------------|-----------|---------------|-----------|-------------------|-----------|
| | | h | p | ch ⁽¹⁾ | L | h | p | ch ⁽¹⁾ | L |
| G 1/4 B | 21M | 3.11 (79) | 3.68 (93,5) | 0.87 (22) | 0.51 (13) | 4.33 (110) | 3.70 (94) | 0.87 (22) | 0.51 (13) |
| 1/4-18 NPT | 23M | 3.19 (81) | 3.76 (95,5) | 0.87 (22) | 0.59 (15) | 4.41 (112) | 3.78 (96) | 0.87 (22) | 0.59 (15) |
| G 3/8 B | 31M | 3.39 (86) | 3.76 (95,5) | 0.87 (22) | 0.63 (16) | 4.45 (113) | 3.78 (96) | 0.87 (22) | 0.63 (16) |
| 3/8-18 NPT | 33M | 3.39 (86) | 3.76 (95,5) | 0.87 (22) | 0.63 (16) | 4.45 (113) | 3.78 (96) | 0.87 (22) | 0.63 (16) |
| G 1/2 B | 41M | 3.39 (86) | 3.76 (95,5) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.78 (96) | 0.87 (22) | 0.79 (20) |
| R 1/2-ISO 7/1 | 42M | 3.39 (86) | 3.76 (95,5) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.78 (96) | 0.87 (22) | 0.79 (20) |
| 1/2-14 NPT | 43M | 3.39 (86) | 3.76 (95,5) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.78 (96) | 0.87 (22) | 0.79 (20) |
| M 20 x 1,5 | 97M | 3.39 (86) | 3.76 (95,5) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.78 (96) | 0.87 (22) | 0.79 (20) |

(1) ch= 0.66 (17) if back connection

all stainless steel test gauge, accuracy 0,6%

MN15

| F | Cod. | DS 6" (150mm) | | | |
|------------|------------|---------------|-------------|-----------|-----------|
| | | h | p | ch | L |
| G 1/4 B | 21M | 4.33 (110) | 3.29 (83,5) | 0.87 (22) | 0.51 (13) |
| 1/4-18 NPT | 23M | 4.41 (112) | 3.37 (85,5) | 0.87 (22) | 0.59 (15) |
| G 1/2 B | 41M | 4.61 (117) | 3.37 (85,5) | 0.87 (22) | 0.79 (20) |
| 1/2-14 NPT | 43M | 4.61 (117) | 3.37 (85,5) | 0.87 (22) | 0.79 (20) |

dimensions : inches (mm)

all stainless steel test gauge, "solid-front" accuracy 0,6...0,25%

MN16-MN25

| F | Cod. | DS 6" (150mm) | | | |
|---------------------------|------------|---------------|-----------|--------------------------|-----------|
| | | h | p | ch | L |
| G 1/4 B ⁽¹⁾ | 21M | 4.33 (110) | 3.74 (95) | 0.87 (22) ⁽²⁾ | 0.51 (13) |
| 1/4-18 NPT ⁽¹⁾ | 23M | 4.41 (112) | 3.82 (97) | 0.87 (22) ⁽²⁾ | 0.59 (15) |
| G 1/2 B | 41M | 4.61 (117) | 3.82 (97) | 0.87 (22) ⁽²⁾ | 0.79 (20) |
| 1/2-14 NPT | 43M | 4.61 (117) | 3.82 (97) | 0.87 (22) ⁽²⁾ | 0.79 (20) |

(1) only for bottom connection on MN25

(2) ch= 0.67 (17) for back connection

dimensions : inches (mm)

test gauge, "solid-front", accuracy 0,25%

MN17

| F | Cod. | DS 6" (150mm) | | | |
|------------|------------|---------------|-------------|--------------------------|-----------|
| | | h | p | ch | L |
| G 1/4 B | 21M | 4.37 (111) | 3.76 (95,5) | 0.94 (24) ⁽¹⁾ | 0.51 (13) |
| 1/4-18 NPT | 23M | 4.45 (113) | 3.84 (97,5) | 0.94 (24) ⁽¹⁾ | 0.59 (15) |
| G 1/2 B | 41M | 4.65 (118) | 3.84 (97,5) | 0.94 (24) ⁽¹⁾ | 0.79 (20) |
| 1/2-14 NPT | 43M | 4.65 (118) | 3.84 (97,5) | 0.94 (24) ⁽¹⁾ | 0.79 (20) |

(1) ch= 0.67 (17) for back connection

dimensions : inches (mm)



NACE MR 01.03 version

MGS36

| F | Cod. | DS 4" (100mm) | | | | DS 6" (150mm) | | | |
|------------|------|---------------|-----------|-----------|-----------|---------------|-------------|-----------|-----------|
| | | h | p | ch | L | h | p | ch | L |
| G 1/2 B | 41M | 3.39 (86) | 3.43 (87) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.37 (85,5) | 0.87 (22) | 0.79 (20) |
| 1/2-14 NPT | 43M | 3.39 (86) | 3.43 (87) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 3.37 (85,5) | 0.87 (22) | 0.79 (20) |

dimensions : inches (mm)

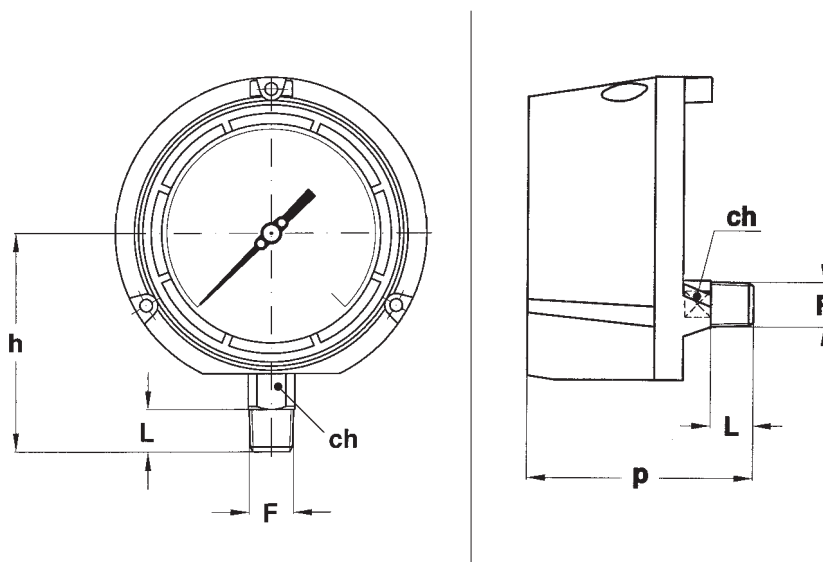
NACE MR 01.03 version, "solid-front"

MGS40

| F | Cod. | DS 4" (100mm) | | | | DS 6" (150mm) | | | |
|------------|------|---------------|-------------|--------------------------|-----------|---------------|-----------|--------------------------|-----------|
| | | h | p | ch | L | h | p | ch | L |
| G 1/2 B | 41M | 3.39 (86) | 3.76 (95,5) | 0.87 (22) ⁽¹⁾ | 0.79 (20) | 4.61 (117) | 3.78 (96) | 0.87 (22) ⁽¹⁾ | 0.79 (20) |
| 1/2-14 NPT | 43M | 3.39 (86) | 3.76 (95,5) | 0.87 (22) ⁽¹⁾ | 0.79 (20) | 4.61 (117) | 3.78 (96) | 0.87 (22) ⁽¹⁾ | 0.79 (20) |

(1) ch= 0.67 (17) for back connection

dimensions : inches (mm)



"solid-front" turret case

MGS30-MGS30X

| F | Cod. | DS 4.5" (125mm) | | | |
|------------|------|-----------------|------------|--------------------------|-----------|
| | | h | p | ch | L |
| 1/4-18 NPT | 23M | 3.88 (98,5) | 3.98 (101) | 0.87 (22) ⁽¹⁾ | 0.59 (15) |
| 1/2-14 NPT | 43M | 4.07 (103,5) | 4.17 (106) | 0.87 (22) ⁽¹⁾ | 0.79 (20) |

(1) ch= 0.67 (17) for back connection

dimensions : inches (mm)

NACE MR 01.03 version, "solid-front" turret case

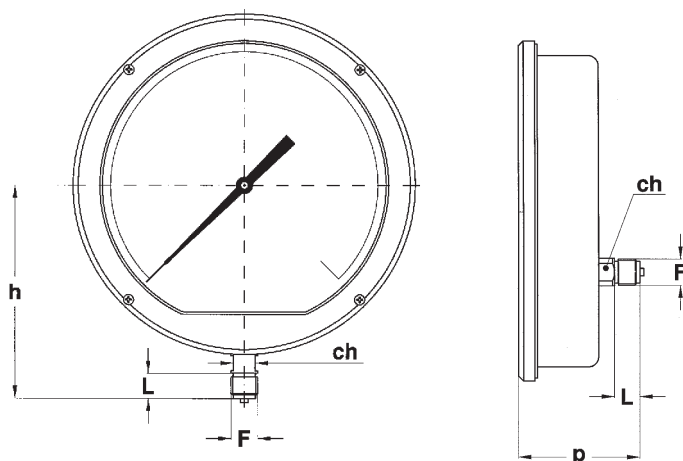
MGS60

| F | Cod. | DS 4.5" (125mm) | | | |
|------------|------|-----------------|------------|--------------------------|-----------|
| | | h | p | ch | L |
| 1/4-18 NPT | 23M | 3.88 (98,5) | 3.98 (101) | 0.87 (22) ⁽¹⁾ | 0.59 (15) |
| 1/2-14 NPT | 43M | 4.07 (103,5) | 4.17 (106) | 0.87 (22) ⁽¹⁾ | 0.79 (20) |

(1) ch= 0.67 (17) for back connection

dimensions : inches (mm)





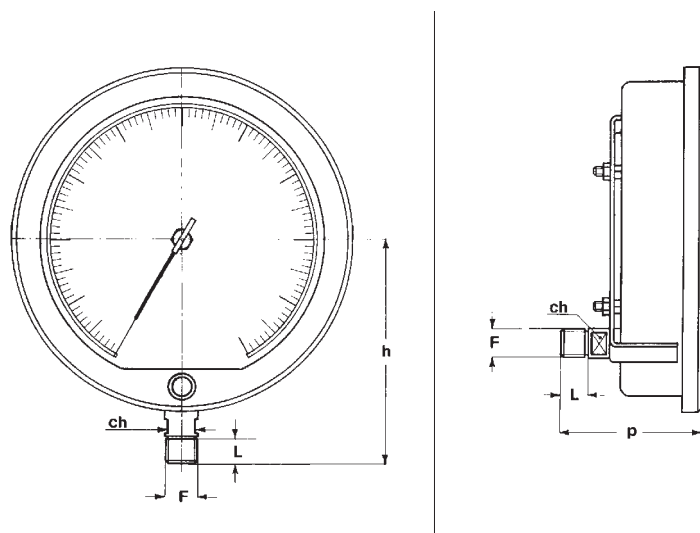
aluminium case

MGS8

| F | Cod. | DS 10" (250mm) | | | |
|------------|------------|----------------|-------------|--------------------------|-----------|
| | | h | p | ch | L |
| G 1/2 B | 41M | 6.69 (170) | 3.72 (94,5) | 0.66 (17) ⁽¹⁾ | 0.78 (20) |
| 1/2-14 NPT | 43M | 6.69 (170) | 3.72 (94,5) | 0.66 (17) ⁽¹⁾ | 0.78 (20) |

(1) ch= 0.87 (22) for back connection

dimensions : inches (mm)

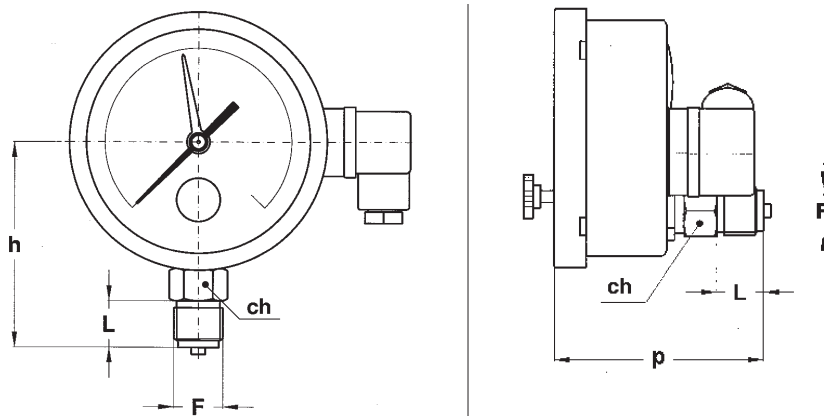


laboratory, accuracy 0,1%

MN17/L

| F | Cod. | DS 10" (250mm) | | | |
|------------|------------|----------------|--------------|-----------|-----------|
| | | h | p | ch | L |
| 1/4-18 NPT | 23M | 6.50 (165) | 4.39 (111,5) | 0.67 (17) | 0.59 (15) |
| G 1/2 B | 41M | 6.69 (170) | 4.39 (111,5) | 0.67 (17) | 0.79 (20) |
| 1/2-14 NPT | 43M | 6.69 (170) | 4.39 (111,5) | 0.67 (17) | 0.79 (20) |

dimensions : inches (mm)



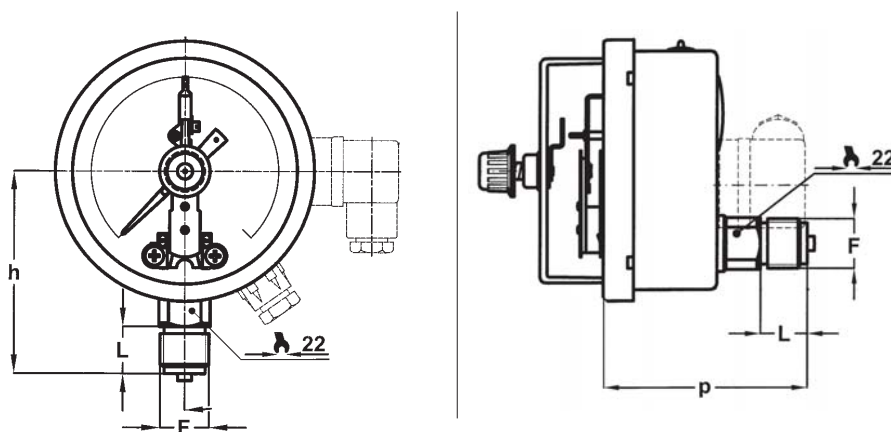
with microswitch

MG572-74

| F | Cod. | DS 4" (100mm) | | | |
|---------------------------|------|---------------|-----------|-----------|-----------|
| | | h | p | ch | L |
| G 1/4 B | 21M | 3.18 (81) | 3.27 (83) | 0.87 (22) | 0.51 (13) |
| 1/4-18 NPT | 23M | 3.26 (83) | 3.35 (85) | 0.87 (22) | 0.59 (15) |
| G 3/8 B | 31M | 3.30 (84) | 3.39 (86) | 0.87 (22) | 0.63 (16) |
| 3/8-18 NPT ⁽¹⁾ | 33M | 3.30 (84) | 3.39 (86) | 0.87 (22) | 0.63 (16) |
| G 1/2 B | 41M | 3.46 (88) | 3.54 (90) | 0.87 (22) | 0.79 (20) |
| 1/2-14 NPT | 43M | 3.46 (88) | 3.54 (90) | 0.87 (22) | 0.79 (20) |

(1) available for MGS72 only

dimensions : inches (mm)



with electric contacts

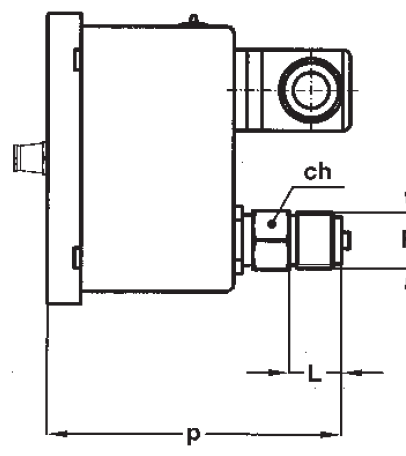
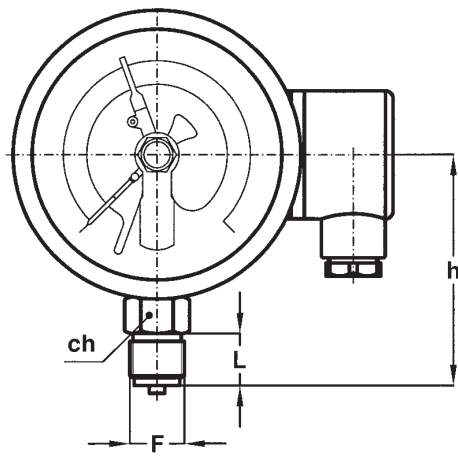
MN14/10-18

| F | Cod. | DS 4" (100mm) | | | | | | DS 6" (150mm) | | | | | |
|---------------|------|------------------|------------------|------------------|------------------|-----------|-----------|------------------|------------------|------------------|------------------|-----------|-----------|
| | | h ⁽¹⁾ | h ⁽²⁾ | p ⁽¹⁾ | p ⁽²⁾ | ch | L | h ⁽¹⁾ | h ⁽²⁾ | p ⁽¹⁾ | p ⁽²⁾ | ch | L |
| G 1/4 B | 21M | 3.19 (81) | 3.11 (79) | 3.26 (83) | 3.34 (85) | 0.87 (22) | 0.51 (13) | | 4.33 (110) | 3.22 (82) | 3.28 (83,5) | 0.87 (22) | 0.51 (13) |
| 1/4-18 NPT | 23M | 3.26 (83) | 3.19 (81) | 3.34 (85) | 3.42 (87) | 0.87 (22) | 0.59 (15) | 4.41 (112) | 4.41 (112) | 3.30 (84) | 3.36 (85,5) | 0.87 (22) | 0.59 (15) |
| G 1/2 B | 41M | 3.46 (88) | 3.39 (86) | 3.54 (90) | 3.42 (87) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 4.61 (117) | 3.50 (89) | 3.36 (85,5) | 0.87 (22) | 0.79 (20) |
| R 1/2-ISO 7/1 | 42M | 3.46 (88) | 3.39 (86) | 3.54 (90) | 3.42 (87) | 0.87 (22) | 0.79 (20) | | 4.61 (117) | 3.50 (89) | 3.36 (85,5) | 0.87 (22) | 0.79 (20) |
| 1/2-14 NPT | 43M | 3.46 (88) | 3.39 (86) | 3.54 (90) | 3.42 (87) | 0.87 (22) | 0.79 (20) | 4.61 (117) | 4.61 (117) | 3.50 (89) | 3.36 (85,5) | 0.87 (22) | 0.79 (20) |
| M 20 x 1,5 | 97M | 3.46 (88) | 3.39 (86) | 3.54 (90) | 3.42 (87) | 0.87 (22) | 0.79 (20) | | 4.61 (117) | 3.50 (89) | 3.36 (85,5) | 0.87 (22) | 0.79 (20) |

(1) MN14/10; (2) MN14/18

dimensions : inches (mm)



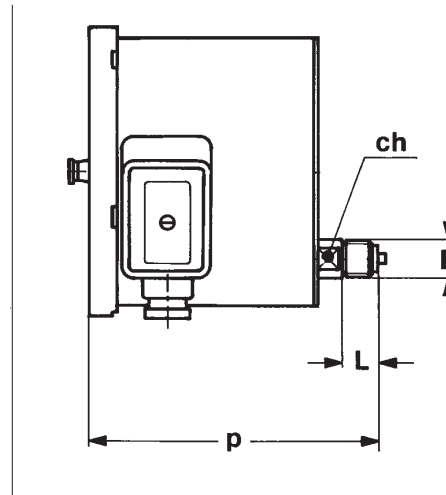
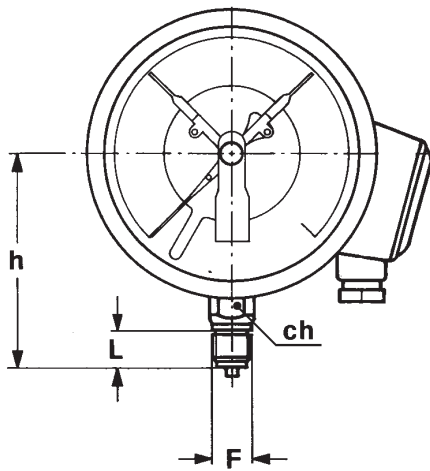


with electric contact

MCE10-18 MCE10-18/SF₆

| F | Cod. | DS 4" (100mm) | | | |
|------------|------|---------------|-------------------------|-----------|-----------|
| | | h | p | ch | L |
| G 1/4 B | 21M | 3.18 (81) | 4.21...4.61 (107...117) | 0.87 (22) | 0.51 (13) |
| 1/4-18 NPT | 23M | 3.26 (83) | 4.29...4.69 (109...119) | 0.87 (22) | 0.59 (15) |
| G 1/2 B | 41M | 3.46 (88) | 4.49...4.88 (114...124) | 0.87 (22) | 0.79 (20) |
| 1/2-14 NPT | 43M | 3.46 (88) | 4.49...4.88 (114...124) | 0.87 (22) | 0.79 (20) |

dimensions : inches (mm)



with electric contact

MCE20

| F | Cod. | DS 6" (150mm) | | | |
|---------------------------|------|---------------|------------|--------------------------|-----------|
| | | h | p | ch | L |
| G 1/4 B ⁽²⁾ | 21M | 4.33 (110) | 6.22 (158) | 0.87 (22) | 0.51 (13) |
| 1/4-18 NPT ⁽²⁾ | 23M | 4.41 (112) | 6.30 (160) | 0.87 (22) | 0.59 (15) |
| G 1/2 B | 41M | 4.61 (117) | 6.30 (160) | 0.87 (22) ⁽¹⁾ | 0.79 (20) |
| 1/2-14 NPT | 43M | 4.61 (117) | 6.30 (160) | 0.87 (22) ⁽¹⁾ | 0.79 (20) |

(1) ch= 0.67 (17) for back connection
 (2) for bottom connection only

dimensions : inches (mm)

for bourdon tube pressure gauges and temperature gauges

Sliding contacts

The electrical sliding contacts guarantee an accurate operation within a controlled hysteresis. However they are rather sensitive to vibration, moreover, very slow pressure changes may cause an electric arc which can reduce its working life.

Magnetic Snap-Action Contacts

This type of contact is universally used to guarantee the reliable operation of gauges under severe vibration. The magnetic action is guaranteed by a "click operation", which improves contact capacity, life and is less sensitive to vibration. The required power to overcome the magnetic resistance causes an hysteresis at set-point between 2% to 5% of full scale value (from 4% to 10% of full scale value for double contacts).

Functional and constructive characteristics

Set-point accuracy: 150% of instrument accuracy.

Set-point hysteresis: 0,3% of full scale value.

Break rating: 10W/18VA.

Maximum rating: 250Vac/0,7A (ohmic load).

Contact material: Silver-Nickel 80/20%, gold plated.

Contact setting: over an arc of 270°, by a fixed key fitted to the front lens or by a removable key.

Electrical wiring: junction box with cable exit, as per instrument data-sheet.

Functional and constructive characteristics

Set-point accuracy: 150% of instrument accuracy.

Set-point hysteresis: 2...5% of full scale value.

Break rating: 30W/50VA (20W/20VA for filled version).

Maximum rating: 250Vac/1A (ohmic load).

Contact material: Silver-Nickel 80/20%, gold plated.

Contact setting: from 10% to 90% of scale value by a fixed key fitted to the front lens or by a removable key.

Electrical wiring: junction box with cable exit, as per instrument data-sheet.

LOAD RATINGS (1)

| Volt | DC | AC | Inductive load |
|------|--------|--------|----------------|
| 220 | 40 mA | 45 mA | 25 mA |
| 110 | 80 mA | 90 mA | 45 mA |
| 48 | 120 mA | 170 mA | 70 mA |
| 24 | 200 mA | 350 mA | 100 mA |

Minimum values : 24V/20mA/0,4W/4VA.

LOAD RATINGS (1)

| Volt | DC | AC | Inductive load |
|------|--------|--------|----------------|
| 220 | 100 mA | 120 mA | 65 mA |
| 110 | 200 mA | 240 mA | 130 mA |
| 48 | 300 mA | 450 mA | 200 mA |
| 24 | 400 mA | 600 mA | 250 mA |

Minimum values : 24V/20mA/0,4W/4VA.

Dielectric silicone oil filled pressure gauges

| Volt | CC | CA | Inductive load |
|------|--------|--------|----------------|
| 220 | 65 mA | 90 mA | 40 mA |
| 110 | 130 mA | 180 mA | 85 mA |
| 48 | 190 mA | 330 mA | 130 mA |
| 24 | 250 mA | 450 mA | 150 mA |

Minimum values : 24V/20mA/0,4W/4VA.

(1) as per DIN 16085.

CONTROL RELAYS

We recommend the use of control relays as they increase the working life of all types of contacts. For intrinsically safe applications an appropriate barrier must be used.

| WIRING SCHEME (1) | ELECTRIC SCHEME (before set) | CLOCKWISE MOVEMENT OF THE POINTER CAUSES: | CONTACT CODE | |
|---------------------------------------|------------------------------|---|--------------|----------------------|
| | | | sliding | magnetic snap-action |
| SINGLE CONTACT | | | | |
| MINI | | <u>Opening</u> | 01S | M1S |
| MAXI | | <u>Closing</u> | 02S | M2S |
| DOUBLE CONTACT (2) | | | | |
| 1° MINI 2° MAXI | | <u>Opening 1</u> <u>Closing 2</u> | 01D | M1D |
| 1° MAXI 2° MAXI | | <u>Closing 1</u> <u>Closing 2</u> | 02D | M2D |
| 1° MAXI 2° MINI | | <u>Closing 1</u> <u>Opening 2</u> | 03D | M3D |
| 1° MINI 2° MINI | | <u>Opening 1</u> <u>Opening 2</u> | 04D | M4D |
| INDEPENDENT DOUBLE CONTACT (2) | | | | |
| 1° MINI 2° MAXI | | <u>Opening 1</u> <u>Closing 2</u> | 08D | M8D |
| 1° MAXI 2° MAXI | | <u>Closing 1</u> <u>Closing 2</u> | 09D | M9D |

(1) The above numbers are the same of those stamped on the junction box.

(2) Each contact must not exceed the next one.

Electronic contacts with PNP output

Switching accuracy: 1,5 times the instrument accuracy.

Switching hysteresis: 0,3...1% of full scale value.

Adjustment: over an arc of 270 °, through the knob placed on front lens or through removable key.

Supply: 10...30 Vdc.

Switching current: max 100 mA

Temperature range: -25...+65°C

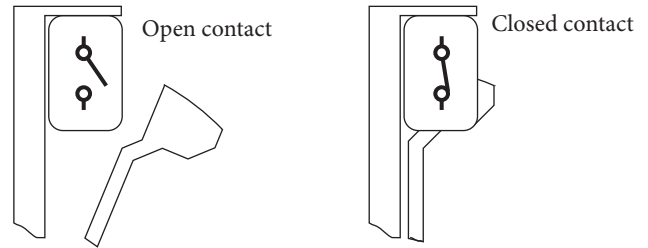
Electronic contacts are equipped with electrical distance sensors (proximity sensors). The output signal is governed by the presence or absence of a control vane moved by the actual value pointer in the magnetic field of the proximity sensor.

The switching behaviour of the PNP switches used in these contacts is normally defined as a “closer” (opposite to the inductive contacts).

Due to their proximity type of switching, respect to the traditional sliding contact they offer better switching accuracy and extended service life.

They are properly designed to switch small DC load and so particularly suitable for a **direct wiring to PLC / PC** direct input and to trigger optoelectronic coupler.

Also they are the best preference for oil filled instruments to be installed in the most severe operating conditions created by the ambient environments.



| WIRING SCHEME (1) | ELECTRIC SCHEME (before set) | CLOCKWISE MOVEMENT OF THE POINTER CAUSES: | CONTACT CODE |
|--------------------------------------|------------------------------|---|--------------|
| SINGLE CONTACT | | | |
| MAXI | | <u>Closing</u> | E1 |
| MINI | | <u>Opening</u> | E2 |
| DOUBLE CONTACT (2) | | | |
| 1° MAXI 2° MAXI | | <u>Closing 1</u> <u>Closing 2</u> | E11 |
| 1° MAXI 2° MINI | | <u>Closing 1</u> <u>Opening 2</u> | E12 |
| 1° MINI 2° MAXI | | <u>Opening 1</u> <u>Closing 2</u> | E21 |
| 1° MINI 2° MINI | | <u>Opening 1</u> <u>Opening 2</u> | E22 |

Inductive contacts are intrinsically safe and ATEX certified to EN 50014, EN 50020, EN 50284, IEC 61241-11 normes, with protection degree EEX ia IIC T6. They are incorporated in gauges and thermometers belonging to the group II with category 2GD and construction security protection "c". They are suitable to be installed in zones 1,2,22. To guarantee such protection degree the contacts must be supplied via a control relay which has the same type of certificate. When mounted on instruments with liquid filled case they are particularly suitable for application on chemical and petrochemical plants with vibrations and frequent operation.

RC2 - 07/15

Functional and constructive characteristics

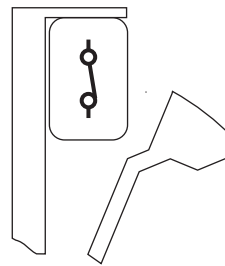
Set-point accuracy: 150% of instrument accuracy.

Set-point hysteresis: 0,3...1% of full scale value.

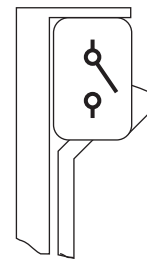
Contact setting: over an arc of 270 °, trough the knob placed on front lens or trough removable key.

Electric wiring: junction box as per VDE, see underdraw table.

Closed contact



Open contact



| WIRING SCHEME (1) | ELECTRIC SCHEME (before set) | CLOCKWISE MOVEMENT OF THE POINTER CAUSES: | EX-CONTACT CODE |
|--------------------------------------|------------------------------|---|-----------------|
| SINGLE CONTACT | | | |
| MINI | | Insertion of control flag into control head and Opening | B1 |
| MAXI | | Release of control flag from control head and Closing | B2 |
| DOUBLE CONTACT (2) (3) | | | |
| 1° MINI 2° MAXI | | Insertion of control flag into control head n. 1, release of control flag from control head n. 2 and Opening 1 Closing 2 | B12 |
| 1° MAXI 2° MAXI | | Insertion of control flags into control heads Closing 1-2 | B22 |

(1) The above numbers are the same of those stamped on the junction box.

(2) Each contact must not exceed the next one.

(3) Other electric contacts are available upon request.

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bourdon tube pressure gauges
all stainless steel construction
ATEX versions,
DS 4", 6" (100-150mm)



These instruments are designed for explosive atmospheres in food, processing, pharmaceutical, petrochemical industries and conventional and nuclear power plants. The MGS pressure gauges are in conformity with the essential Health and Safety Requirements laid down in European Directive 2014/34/UE for Group II, Category 2G or 2GD equipment in the T1...T6 temperature classes, as specified by EN 13463-1:2009 and EN 13463-5:2011 standards. They are NOT suitable for ZONES 0 and 20.

2G1 Version , Gas

4" and 6" (DS 100-150 mm) sizes are available, as **standard** version, or **fillable** version for pressure ranges ≤ 6 bar.

They keep the same functional and constructive features as MGS18-19-36 models. They differ from them as follows :

- Ambient temperature:** $-22...+140$ °F ($-30...+60$ °C).
- Max process fluid temperature:** see table (measured on the lowest point of socket).
- Protection degree:** IP 55 as per EN 60529/IEC 529.
- Windows:** high resistance safety glass.
- Socket:** with restrictor.
- Dial marking:** CE Ex II 2G c TX X, year of manufacture, model name and serial number.
- Special dial:** ranges different from standard, custom artworks and dials without Nuova Fima logo are not available.
- Options:** plexiglas or tempered glass windows are not available.
- Included documentation:** Installation manual.

2D1 Version , Gas and Dust

4" and 6" (DS 100-150 mm) are available, as **fillable** version for pressure ranges > 6 bar, or **filled** version.

They keep the same functional and constructive features as MGS18-19-36 models. They differ from them as follows :

- Damping liquids:** glycerine 98%, silicon oil.
- Ambient temperature:** $+32...+140$ °F ($+0...+60$ °C) for glycerine filling; $-22...+140$ °F ($-30...+60$ °C) for silicon oil filling.
- Max process fluid temperature:** see table (measured on the lowest point of socket).
- Protection degree:** IP 65 as per EN 60529/IEC 529.
- Windows:** high resistance safety glass.
- Socket:** with restrictor.
- Dial marking:** CE Ex II 2GD c TX X, year of manufacture, model name and serial number.
- Special dial:** ranges different from standard, custom artworks and dials without Nuova Fima logo are not available.
- Options:** plexiglas or tempered glass windows are not available.
- Included documentation:** Installation manual.

| Class | Instrument case | |
|--------------------|-----------------|--------------|
| | dry | filled |
| T6 : 185°F (85°C) | 158°F (70°C) | 149°F (65°C) |
| T5 : 212°F (100°C) | 185°F (85°C) | |
| T4 : 275°F (135°C) | 248°F (120°C) | |
| T3 : 392°F (200°C) | 302°F (150°C) | |
| T2 : 572°F (300°C) | | |
| T1 : 842°F (450°C) | | |

Technical File: TF1 - Rev. 3

ISO 9001 : 2008
 Cert. nr. 0433/6

safety pressure gauges "solid-front"
all stainless steel ,construction
ATEX versions,
DS 4", 6" (100-150mm)



These instruments are designed for explosive atmospheres in food, processing, pharmaceutical, petrochemical industries and conventional and nuclear power plants. The MGS pressure gauges are in conformity with: to the essential Health and Safety Requirements laid down in European Directive 2014/34/UE for Group II, Category 2G or 2GD equipment in the T1...T6 temperature classes, as specified by EN 13463-1:2009 and EN 13463-5:2011 standards; and to construction and safety specifications of **EN 837-1/S3 e ASME B40.1**. In case of leaks or break of the elastic element, the operator is protected by a solid separating wall placed on the front of the instrument and by the blow out back. They are NOT suitable for ZONES 0 and 20.

2G1 Version , Gas

4" and 6" (DS 100-150 mm) sizes are available, as **standard** version, or **fillable** version for pressure ranges ≤ 6 bar.

They keep the same functional and constructive features as MGS20-21-40 models. They differ from them as follows :

- Ambient temperature:** $-22...+140$ °F ($-30...+60$ °C).
- Max process fluid temperature:** see table (measured on the lowest point of socket).
- Protection degree:** IP 55 as per EN 60529/IEC 529.
- Windows:** high resistance safety glass.
- Socket:** with restrictor.
- Dial marking:** CE Ex II 2G c TX X, year of manufacture, model name and serial number.
- Special dial:** ranges different from standard, custom artworks and dials without Nuova Fima logo are not available.
- Options:** compensating devices, plexiglas or tempered glass windows are not available.
- Included documentation:** Installation manual.

| Class | Instrument case | |
|--------------------|-----------------|--------------|
| | dry | filled |
| T6 : 185°F (85°C) | 158°F (70°C) | 149°F (65°C) |
| T5 : 212°F (100°C) | 185°F (85°C) | |
| T4 : 275°F (135°C) | 248°F (120°C) | |
| T3 : 392°F (200°C) | 302°F (150°C) | |
| T2 : 572°F (300°C) | | |
| T1 : 842°F (450°C) | | |

2D1 Version , Gas and Dust

4" and 6" (DS 100-150 mm) are available, as **fillable** version for pressure ranges > 6 bar, or **filled** version, .

They keep the same functional and constructive features as MGS20-21-40 models. They differ from them as follows :

- Damping liquids:** glycerine 98%, silicon oil or fluorinated fluid.
- Ambient temperature:** $+32...+140$ °F ($+0...+60$ °C) for glycerine filling; $-22...+140$ °F ($-30...+60$ °C) for silicon oil or fluorinated fluid filling.
- Max process fluid temperature:** see table (measured on the lowest point of socket).
- Protection degree:** IP 65 as per EN 60529/IEC 529.
- Windows:** high resistance safety glass.
- Socket:** with restrictor.
- Dial marking:** CE Ex II 2GD c TX X, year of manufacture, model name and serial number.
- Special dial:** ranges different from standard, custom artworks and dials without Nuova Fima logo are not available.
- Options:** compensating devices, plexiglas or tempered glass windows are not available.
- Included documentation:** Installation manual.

Technical File: TF1 - Rev. 3

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MEASURING INSTRUMENTS - STRUMENTI PER MISURARE



SPECIAL PRESSURE GAUGE

NUOVA FIMA

capsule pressure gauges DS 2.5" (63mm)



PED 2014/68/UE

For measurement of low pressure and vacuum, for use on gas and dry air.

2.09.1 - MN9 DN63

Design: EN 837-3.

Ranges: from 0...24 to 0...600 INWC (from 0...60 mbar to 0...600 mbar), vacuum and combined vacuum/pressure (or equivalent units).

Accuracy class: 1.6 as per EN 837-3.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: +212 °F; (+100 °C).

Thermal drift: ±0,4 %/10 °C of range (starting from 68°F - 20°C).

Working pressure: max 75% of FSV.

Over pressure limit: 25% of FSV.

Protection degree: IP 55 as per EN60529/IEC 529.

Socket material: copper alloy, nickel plated.

Elastic element: copper alloy.

Case: stainless steel.

Ring: stainless steel polished, crimped.

Window: plastic.

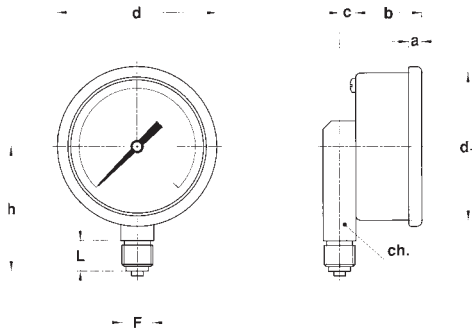
Movement: copper alloy.

Dial: aluminium, white with black markings.

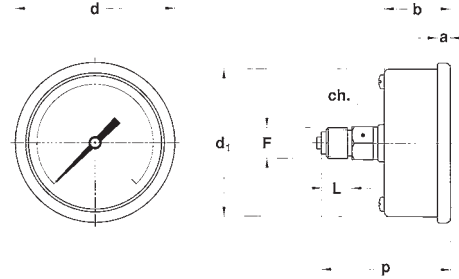
Pointer: aluminium.

Zero adjustment: external.

| | | |
|--------------|---------------|-----------------|
| 0...60 mbar | -60...0 mbar | -20...40 mbar |
| 0...100 mbar | -100...0 mbar | -40...20 mbar |
| 0...160 mbar | -160...0 mbar | -40...60 mbar |
| 0...250 mbar | -250...0 mbar | -60...40 mbar |
| 0...400 mbar | -400...0 mbar | -60...100 mbar |
| 0...600 mbar | -600...0 mbar | -100...60 mbar |
| | | -100...150 mbar |
| | | -150...100 mbar |
| | | -150...250 mbar |
| | | -250...150 mbar |
| | | -200...400 mbar |
| | | -400...200 mbar |



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | DN | F | a | b | c | d | d ₁ | h | p | L | ch | Weight : lbs (kg) |
|----------|-------------------|-------------------|-------|------|------|------|----------------|------|--------|------|------|-------------------|
| Lower | C 2.5" (63 mm) | 23M 1/4-18 NPT | 0.22 | 1.10 | 0.28 | 2.68 | 2.46 | 2.09 | | 0.51 | 0.55 | 0.46 |
| | | | (5,6) | (28) | (7) | (68) | (62,6) | (53) | | | (13) | (14) |
| Back | C 2.5" (63 mm) | | 0.22 | 1.10 | | 2.68 | 2.46 | | 2.12 | 0.51 | 0.55 | 0.39 |
| | | | (5,6) | (28) | | (68) | (62,6) | | (53,8) | (13) | (14) | (0,18) |

dimensions : inches (mm)

OPTIONS

| |
|---|
| B - "U"-clamp, for back connection pressure gauges |
| E - Front flange, for back connection pressure gauges |

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options

2 09 1 A C 21M B, E
D 23M

capsule pressure gauges DS 4", 6" (100-150mm)



PED 2014/68/UE

For measurement of low pressure and vacuum within the range -600...0 to 0...600 mbar, for use on gas and dry air.

2.09.1 - Standard Model MN9 DS 4" (100mm)

Design: EN 837-3.

Ranges: from 0...10 to 0...240 INWC (from 0...25 to 0...600 mbar), vacuum and combined vacuum/pressure (or equivalent units).

Accuracy class: 1.6 as per EN 837-3.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: +149°F (+65 °C).

Working pressure: max 75% of FSV.

Over pressure limit: 25% of FSV.

Protection degree: IP 55 as per EN 60529/IEC 529.

Socket material: stainless steel.

Elastic element: copper alloy capsule.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: tempered glass.

Movement: copper alloy.

Dial: aluminium, white with black markings.

Pointer: aluminium.

Zero adjustment: internal, on dial.

2.10.1 - "All stainless steel" Model MN9/18 DS 4", 6" (100-150mm)

Ranges: from 0...10 to 0...240 INWC (from 0...25 to 0...600 mbar), vacuum and combined vacuum/pressure, or equivalent units for DS 4" (100mm);

from 0...1 to 0...240 INWC (from 0...2,5 to 0...600 mbar), vacuum and combined vacuum/pressure, or equivalent units for DS 6" (150mm).

Process fluid temperature: +212 °F (+100 °C).

Socket material: AISI 316L st.st.

Elastic element: AISI 316 Ti (1.4571) st.st. capsule.

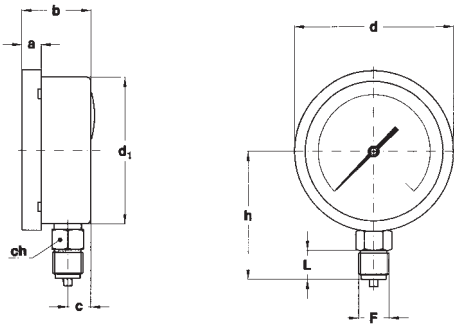
Other features: as MN9 DS 4" (100mm).

| |
|------------------|
| 0...2,5 mbar (1) |
| 0...4 mbar (1) |
| 0...6 mbar (1) |
| 0...10 mbar (1) |
| 0...16 mbar (1) |
| 0...25 mbar |
| 0...40 mbar |
| 0...60 mbar |
| 0...100 mbar |
| 0...160 mbar |
| 0...250 mbar |
| 0...400 mbar |
| 0...600 mbar |

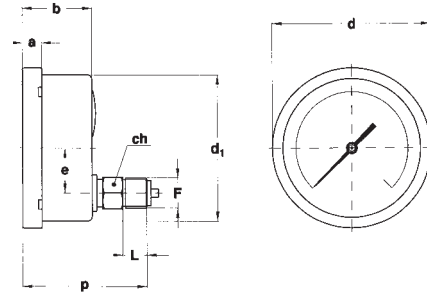
| |
|-------------------|
| -2,5...0 mbar (1) |
| -4...0 mbar (1) |
| -6...0 mbar (1) |
| -10...0 mbar (1) |
| -16...0 mbar (1) |
| -25...0 mbar |
| -40...0 mbar |
| -60...0 mbar |
| -100...0 mbar |
| -160...0 mbar |
| -250...0 mbar |
| -400...0 mbar |
| -600...0 mbar |

| |
|-------------------|
| -1...1,5 mbar (1) |
| -1,5...1 mbar (1) |
| -1...3 mbar (1) |
| -2...2 mbar (1) |
| -3...1 mbar (1) |
| -2...4 mbar (1) |
| -4...2 mbar (1) |
| -3...3 mbar (1) |
| -4...6 mbar (1) |
| -6...4 mbar (1) |
| -5...5 mbar (1) |
| -6...10 mbar (1) |
| -10...6 mbar (1) |
| -10...15 mbar |
| -15...10 mbar |
| -15...25 mbar |
| -25...15 mbar |
| -20...40 mbar |
| -40...20 mbar |
| -40...60 mbar |
| -60...40 mbar |
| -60...100 mbar |
| -100...60 mbar |
| -100...150 mbar |
| -150...100 mbar |
| -150...250 mbar |
| -250...150 mbar |
| -200...400 mbar |
| -400...200 mbar |

(1) for DS 6" (150mm)



A - LOWER CONNECTION



D - BACK CONNECTION

| Mounting | DN | F | a | b | c | d | d ₁ | e | h | p | L | ch | Weight : lbs (kg) |
|----------|------------------------|--------------------------|--------------|----------------|----------------|-----------------|-----------------|--------------|--------------|----------------|--------------|--------------|-------------------|
| Lower | E 4" (100mm) | 41M G 1/2 A | 0.51 (13) | 1.91 (48,6) | 0.63 (16,1) | 4.35 (110,6) | 3.97 (101) | | 3.39 (86) | | 0.78 (20) | 0.87 (22) | 1.14 (0,52) |
| Lower | G 6" (150mm) | | 0.59 (15) | 1.96 (50,5) | 0.65 (16,5) | 6.33 (161) | 5.88 (149,6) | | 3.39 (86) | | 0.78 (20) | 0.87 (22) | 2.20 (1) |
| Back | E 4" (100mm) | 43M 1/2-14 NPT | 0.51 (13) | 1.91 (48,6) | | 4.35 (110,6) | 3.97 (101) | 1.22 (31) | | 3.42 (86,8) | 0.78 (20) | 0.87 (22) | 1.25 (0,57) |
| Back | G 6" (150mm) | | 0.59 (15) | 1.96 (50,5) | | 6.33 (161) | 5.88 (149,6) | 1.22 (31) | | 3.42 (86,8) | 0.78 (20) | 0.87 (22) | 1.98 (0,9) |

dimensions : mm

OPTIONS

| MODEL | MN9 | MN9/18 |
|--|-----|--------|
| C40 - AISI 316L st. st. case and ring | | ◆ |
| K10 - Accuracy class 1 (only for ≥ 25 mbar range) | | ◆ |
| MIX - Stainless steel movement | | ◆ |
| B - "U"-clamp, for back connection pressure gauges | ◆ | ◆ |
| C - Back flange, for lower connection pressure gauges | ◆ | ◆ |
| E - Front flange, for back connection pressure gauges | ◆ | ◆ |
| T32 - Window glass | ◆ | ◆ |

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options

2 09 1 A E 41M B...E
10 D G 43M C40...T32

diaphragm pressure gauge DS 4", 6" (100-150mm) threaded connection



The sensing element is an elastic diaphragm, with concentric corrugations that drives the amplifying movement through a ball-joint. They are designed to measure pressure or vacuum of viscous, sedimentous, crystallisable or corrosive fluids. Compared to the bourdon tube system they are more robust and are better able to withstand overpressure or aggressive fluids.

2.42.1 - MN12/18

Design: EN 837-3.

Ranges: from 0...10 INWC to 0...360 psi, (from 0...25 mbar to 0...25 bar), vacuum and combined vacuum/pressure (or equivalent units).

Accuracy class: 1,6 as per EN 837-3 (1,0 as per EN 837-3 on request).

Ambient temperature: -22...+149°F (-40...+65 °C).

Process temperature: max. +212°F; +100 °C.

Working pressure: max 75% of the full scale value.

Overpressure limit: 25% of the full scale value.

Thermal drift: ±0,6% every ±10°C of ambient temperature.

Protection: IP 55 as per EN 60529/IEC 529.

Process connection: AISI 316L st.st.

Elastic element: AISI 316 Ti st.st. diaphragm.

Diaphragm gasket: PTFE.

Case: acciaio inox st.st.

Ring: acciaio inox st.st., bayonet lock.

Window: tempered glass (with external zero adjustment on request).

Movement: stainless steel.

Dial: aluminium, white with black markings.

Pointer: aluminium, micrometric adjustable.

Special version:

- **high overpressure** : 10 time the FSV but not over 30 psi (2 bar) for pressure ranges from 0...10 INWC to 0...6 psi (25...400 mbar); 5 time the FSV but not over 600 psi (40 bar), for pressure ranges 10...360 psi (0,6...25 bar).

2.45.1 - MN12/18/T

Process connection: AISI 316L, PTFE coated.

Elastic element: AISI 316 Ti st.st. diaphragm, PTFE coated.

Other features as MN12/18.

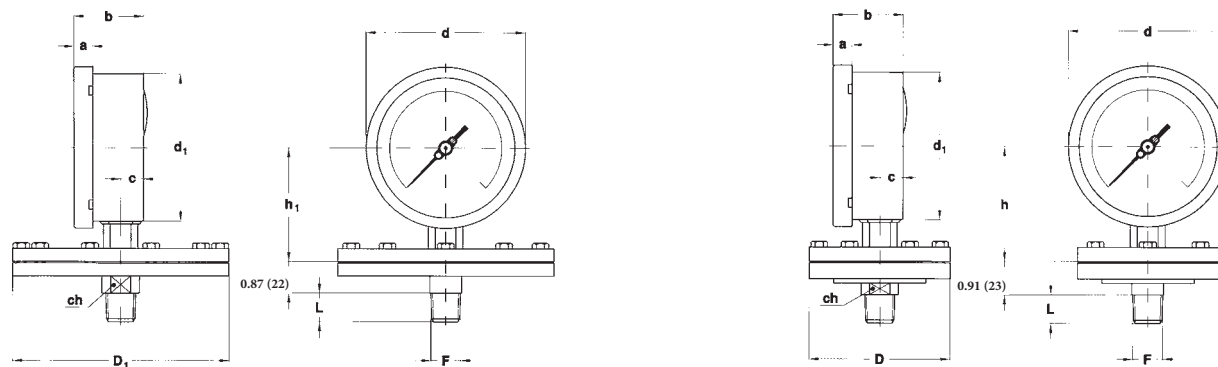
| |
|--------------|
| 0...1 bar |
| 0...1,6 bar |
| 0...2,5 bar |
| 0...4 bar |
| 0...6 bar |
| 0...10 bar |
| 0...16 bar |
| 0...25 bar |
| 0...25 mbar |
| 0...40 mbar |
| 0...60 mbar |
| 0...100 mbar |
| 0...160 mbar |
| 0...250 mbar |
| 0...400 mbar |
| 0...600 mbar |

| |
|---------------|
| -25...0 mbar |
| -40...0 mbar |
| -60...0 mbar |
| -100...0 mbar |
| -160...0 mbar |
| -250...0 mbar |
| -400...0 mbar |
| -600...0 mbar |
| -1...0 bar |

| |
|-----------------|
| -0,6...1 bar |
| -1...0,6 bar |
| -1...1,5 bar |
| -1...3 bar |
| -1...5 bar |
| -1...9 bar |
| -1...15 bar |
| -1...24 bar |
| -10...15 mbar |
| -15...10 mbar |
| -15...25 mbar |
| -25...15 mbar |
| -20...40 mbar |
| -40...20 mbar |
| -40...60 mbar |
| -60...40 mbar |
| -60...100 mbar |
| -100...60 mbar |
| -100...150 mbar |
| -150...100 mbar |
| -150...250 mbar |
| -250...150 mbar |
| -200...400 mbar |
| -400...200 mbar |
| -400...600 mbar |
| -600...400 mbar |

diaphragm pressure gauge
DS 4", 6" (100-150mm), threaded connection

MN12/18



0...10 INWC to 0...6 psi

A - LOWER CONNECTION

10...360 psi

| Range | DS | F | a | b | c | d | d ₁ | h | h ₁ | D | D ₁ | ch | L | Weight |
|---|-----------------------|--------------------------|--------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|--------------|----------------|--------------|--------------|---------------------|
| 0...10 INWC to 0...6 psi (25...400 mbar) | E 4"(100mm) | 41M G 1/2 B | 0.51 (13) | 1.90 (48,5) | 0.63 (16,1) | 4.35 (110,6) | 3.97 (101) | | 3.09 (78,5) | | 5.90 (150) | 0.86 (22) | 0.78 (20) | 5.73 lbs 2,6 kg |
| | G 6"(150mm) | | 0.59 (15) | 1.98 (50,5) | 0.64 (16,5) | 6.33 (161) | 5.88 (149,6) | | 4.36 (110,8) | | 5.90 (150) | 0.86 (22) | 0.78 (20) | 6.50 lbs 2,95 kg |
| 10...360 psi (0,6...25 bar) | E 4"(100mm) | 43M 1/2-14 NPT | 0.51 (13) | 1.90 (48,5) | 0.63 (16,1) | 4.35 (110,6) | 3.97 (101) | 3.12 (79,5) | | 3.85 (98) | | 0.86 (22) | 0.78 (20) | 3.85 lbs 1,75 kg |
| | G 6"(150mm) | | 0.59 (15) | 1.98 (50,5) | 0.64 (16,5) | 6.33 (161) | 5.88 (149,6) | 4.40 (111,8) | | 3.85 (98) | | 0.86 (22) | 0.78 (20) | 4.62 lbs 2,1 kg |

dimensions : inches (mm)

OPTIONS

| Model | MN12/18 | MN12/18/T |
|--|---------------|-----------|
| Electric contacts for pressure ranges ≥ 25 INWC (≥ 60 mbar) | (1) ◆ | ◆ |
| C40 - Case and ring AISI316L st.st. | ◆ | ◆ |
| E65 - Protection degree IP 65 as per EN 60529/IEC 529 | (4) ◆ | ◆ |
| L22 - Maximum pointer Wiebrock | (4) ◆ | ◆ |
| M23 - Monel 400 protection diaphragm | ◆ | ◆ |
| M22 - Hastelloy C protection diaphragm | ◆ | ◆ |
| M29 - Tantalum protection diaphragm | ◆ | ◆ |
| M26 - PTFE diaphragm protection | ◆ | ◆ |
| P02 - Degreasing for oxygen use | ◆ | ◆ |
| R10 - Glycerine filling +32...+149°F (0...+65 °C) | (2) (3) (4) ◆ | ◆ |
| R11 - Silicon oil filling -40...+149°F (-40...+65 °C) | (2) (3) (4) ◆ | ◆ |
| T01 - Tropicalization | ◆ | ◆ |
| T32 - Safety glass window | (4) ◆ | ◆ |

(1) Codes, description and wiring on data sheet MN14.

(3) Accuracy class 2,5 as per EN 837-3.

(2) For pressure ranges ≥ 10 psi (600 mbar) only.

(4) Not available with electric contacts

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options
2 42 1 A E 41M C40...T32
45 G 43M



diaphragm pressure gauge DS 4", 6" -150mm) flanged connection



The sensing element is an elastic diaphragm, with concentric corrugations that drives the amplifying movement through a ball- joint. They are designed to measure pressure or vacuum of viscous, sedimentous, crystallisable or corrosive fluids. Compared to the bourdon tube system they are most robust and are better able to withstand overpressure or aggressive fluids.

2.42.1 - MN12/18

Designation: EN 837-3.

Ranges: from 0...10 IN WC to 0...360 psi (from 0...25 mbar to 0...25 bar), vacuum and combined vacuum/pressure (or equivalent units).

Accuracy class: 1,6 as per EN 837-3.

Ambient temperature: -13...+149°F (-25...+65 °C.)

Process fluid temperature: +212°F (max. +100 °C).

Working pressure: max 75% of FSV.

Overpressure limit: 25% of FSV.

Thermal drift: ± 0,6% every ± 50°F (± 10° C) of ambient temperature

Protection degree: IP 55 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st.

Elastic element: AISI 316 Ti st.st. diaphragm.

Gasket: PTFE.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: tempered glass.

Movement: stainless steel.

Dial: aluminium, white with black markings

Pointer: aluminium, micrometric adjustable.

Special version:

high overpressure : 10 time the FSV but not over 30 psi (2 bar) for pressure ranges from 0...10 INWC to 0...6 psi (25...400 mbar); 5 time the FSV but not over 600 psi (40 bar), for pressure ranges 10...360 psi (0,6...25 bar).

2.45.1 - MN12/18/T

Socket material: AISI 316L st.st., PTFE coated.

Elastic element: AISI 316 Ti st.st. diaphragm, PTFE coated.

Other features as model MN12/18/F.

OPTIONS

| Model | | MN12/18 | MN12/18/T |
|--|-------------|---------|-----------|
| Electric contacts for pressure ranges ≥ 25 INWC (60 mbar) (1) | (1) | ◆ | ◆ |
| C40 - Case and ring AISI316L st.st. | | ◆ | ◆ |
| E65 - Protection degree IP 65 as per IEC 529 | (4) | ◆ | ◆ |
| L22 - Maximum pointer Wiebrock | (4) | ◆ | ◆ |
| M23 - Monel 400 protection diaphragm | | ◆ | ◆ |
| M22 - Hastelloy C protection diaphragm | | ◆ | ◆ |
| M29 - Tantalum protection diaphragm | | ◆ | ◆ |
| M26 - PTFE diaphragm protection | | ◆ | ◆ |
| P02 - Degreasing for oxygen use | | ◆ | ◆ |
| R10 - Glycerine filling +32...+149°F (0...+65 °C) | (2) (3) (4) | ◆ | ◆ |
| R11 - Silicon oil Silicon oil filling -40...+149°F (-40...+65 °C) | (2) (3) (4) | ◆ | ◆ |
| T01 - Tropicalization | | ◆ | ◆ |
| T32 - Safety glass window | (4) | ◆ | ◆ |

(1) Codes, description and wiring on data sheet MN14.

(2) For pressure ranges ≥ 10 psi (600 mbar) only.

(3) Accuracy class 2,5 as per EN 837-3.

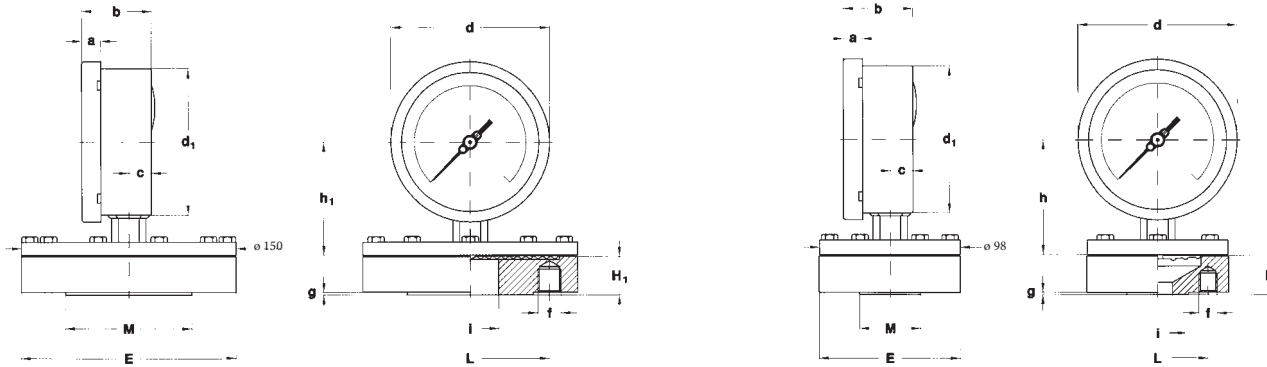
(4) Not available with electric contacts

diaphragm pressure gauge

DS 4", 6" (100-150mm), flanged connection

MN12/18

RC5 - 03/14



0...10 INWC to 0...6 psi

A - LOWER CONNECTION

10...360 psi

UNI - DIN STANDARDS

dimensions : mm

| DN (1) | PN | Code | H | H ₁ | E | M | I | g | L | f | N (2) |
|--------|---------|------|----|----------------|-----|----|----|---|----|-----|-------|
| 15 | 6 | OO0 | 34 | 27 | 80 | 40 | 15 | 2 | 55 | M10 | 4 |
| 15 | 10...16 | OQ0 | 27 | 27 | 95 | 45 | 15 | 2 | 65 | M12 | 4 |
| 15 | 25...40 | OS0 | 27 | 27 | 95 | 45 | 15 | 2 | 65 | M12 | 4 |
| 20 | 6 | PO0 | 34 | 27 | 90 | 50 | 20 | 2 | 65 | M10 | 4 |
| 20 | 10...16 | PQ0 | 27 | 27 | 105 | 58 | 20 | 2 | 75 | M12 | 4 |
| 20 | 25...40 | PS0 | 27 | 27 | 105 | 58 | 20 | 2 | 75 | M12 | 4 |
| 25 | 6 | QO0 | 27 | 27 | 100 | 60 | 25 | 2 | 75 | M10 | 4 |
| 25 | 10...16 | QQ0 | 27 | 27 | 115 | 68 | 25 | 2 | 85 | M12 | 4 |
| 25 | 25...40 | QS0 | 27 | 27 | 115 | 68 | 25 | 2 | 85 | M12 | 4 |

(1) DN 40, 50 also available

(2) N° threaded holes.

ANSI STANDARDS

dimensions : inches

| DN (1) | Classe | Code | H | H ₁ | E | M | I | g | L | f | N (2) |
|--------|--------|------|------|----------------|------|------|------|------|------|------------|-------|
| 1/2" | 150 | 4AA | 1.33 | 1.06 | 3.54 | 1.37 | 0.59 | 0.08 | 2.37 | 1/2" 13UNC | 4 |
| 1/2" | 300 | 4BA | 1.06 | 1.06 | 3.74 | 1.37 | 0.59 | 0.08 | 2.62 | 1/2" 13UNC | 4 |
| 1/2" | 600 | 4DA | 1.90 | 1.06 | 3.74 | 1.37 | 0.59 | 0.27 | 2.62 | 1/2" 13UNC | 4 |
| 3/4" | 150 | 5AA | 1.06 | 1.06 | 4.33 | 1.68 | 0.78 | 0.08 | 2.75 | 1/2" 13UNC | 4 |
| 3/4" | 300 | 5BA | 1.49 | 1.06 | 4.53 | 1.68 | 0.78 | 0.08 | 3.25 | 5/8" 11UNC | 4 |
| 3/4" | 600 | 5DA | 1.90 | 1.06 | 4.53 | 1.68 | 0.78 | 0.27 | 3.25 | 5/8" 11UNC | 4 |
| 1" | 150 | 6AA | 1.06 | 1.06 | 4.33 | 2 | 0.98 | 0.08 | 3.12 | 1/2" 13UNC | 4 |
| 1" | 300 | 6BA | 1.49 | 1.10 | 4.92 | 2 | 0.98 | 0.08 | 3.50 | 5/8" 11UNC | 4 |
| 1" | 600 | 6DA | 1.90 | 1.10 | 4.92 | 2 | 0.98 | 0.27 | 3.50 | 5/8" 11UNC | 4 |

(1) 1" 1/2, 2" also available

(2) N° threaded holes.

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options
2 42 I A E OO0...6DA C40...T32
45 G



diaphragm pressure gauge for absolute pressures DS 4", 6" (100-150mm)



The measurement element composed by a concentric waving diaphragm, separates an upper housing called "of reference" which is empty, from a lower housing where the fluid pressure gets in. The upper housing is isolated by a bellows from the atmospheric pressure and it allows to transmit the bending diaphragm movement, under the fluid pressure action, to the pointer through a joint and a linkage. In order to be a suitable support for the diaphragm and to ensure a high instrument resistance to overpressure, the upper part of the reference housing is as rippled as the diaphragm. The instrument case is exposed to the atmospheric pressure therefore it is possible to install optional accessories inside or outside it.

2.43.1 - Standard Model

Ranges: from 0...60 to 0...1600 mbar Abs, or equivalent units.

Accuracy: 1,6 as per EN 837-3, at 68 °F (20°C) or a value of specify temperature in order.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Process fluid temperature: +212 °F (+100 °C).

Working pressure: max 75% of the FSV.

Overpressure: max 3,5 bar abs for ranges ≤400 m bar abs; max 6 bar abs for ranges 0,6...1,6 bar abs.

Thermal drift: ± 0,6% every ± 50°F (± 10° C) of ambient temperature

Protection: IP 55 as per IEC 529.

Process connection: AISI 316L st.st.

Elastic element: AISI 316L st.st. diaphragm.

Seal bellows: AISI 321 st.st.

Case: AISI 304 st.st.

Ring: AISI 304 st.st. bayonet lock.

Window: glass, 4 mm thick.

Movement: stainless steel with sector stiffened.

Dial: aluminium, white with black markings.

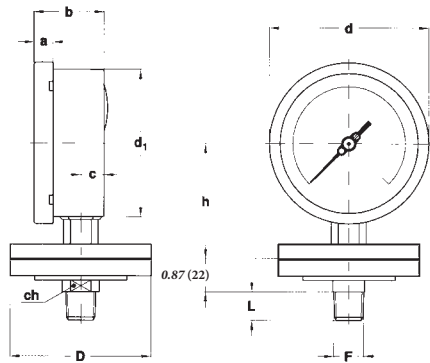
Pointer: adjustable, aluminium, black.

| RANGE |
|----------|
| mbar abs |
| 0...60 |
| 0...100 |
| 0...160 |
| 0...250 |
| 0...400 |
| 0...600 |
| 0...1000 |
| 0...1600 |

diaphragm pressure gauge
for absolute pressures - DS 4", 6" (100-150mm)

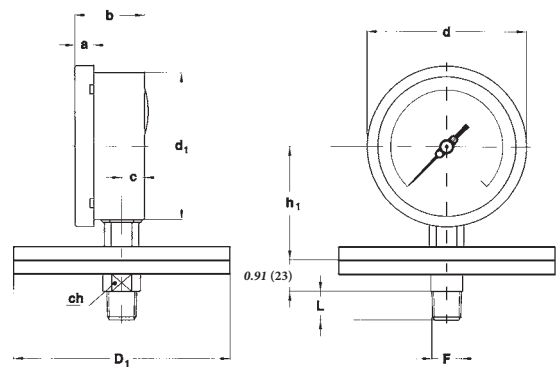
MN12/18 ABS

RC6 - 05/14



0,25..1,6 bar Abs

A - LOWER CONNECTION



60...160 mbar Abs

| RANGE | DS | F | a | b | c | d | d ₁ | h | h ₁ | D | D ₁ | ch | L | Weight |
|-----------------------|------------------------|--------------------------|--------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|--------------|----------------|--------------|--------------|---------------------|
| 60...400 mbar Abs | E 4" (100mm) | 41M G 1/2 B | 0.51 (13) | 1.91 (48,5) | 0.63 (16,1) | 4.35 (110,6) | 3.98 (101) | - - | 3.09 (78,5) | - - | 5.91 (150) | 0.87 (22) | 0.79 (20) | 5.73 lbs 2,6 kg |
| | G 6" (150mm) | | 0.59 (15) | 1.99 (50,5) | 0.65 (16,5) | 6.34 (161) | 5.89 (149,6) | - - | 4.36 (110,8) | - - | 5.91 (150) | 0.87 (22) | 0.79 (20) | 6.50 lbs 2,95 kg |
| 0,6 ...1,6 bar Abs | E 4" (100mm) | 43M 1/2-14 NPT | 0.51 (13) | 1.91 (48,5) | 0.63 (16,1) | 4.35 (110,6) | 3.98 (101) | 3.13 (79,5) | - - | 3.86 (98) | - - | 0.87 (22) | 0.79 (20) | 3.85 lbs 1,75 kg |
| | G 6" (150mm) | | 0.59 (15) | 1.99 (50,5) | 0.65 (16,5) | 6.34 (161) | 5.89 (149,6) | 4.40 (111,8) | - - | 3.86 (98) | - - | 0.87 (22) | 0.79 (20) | 4.62 lbs 2,1 kg |

dimensions : inches (mm)

OPTIONS

| |
|-------------------------------|
| Electric contacts (1) |
| E65 - Protection IP 65 |
| T01 - Tropicalization |
| T32 - Safety glass |

(1) Code and description see data sheet MN14/M

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options
2 43 1 A E 41M E65...T32
G 43M



IN ORDER TO IMPROVE THEIR PRODUCTION, MESSIS, NUOVA FIMA RESERVE THE RIGHT TO THEMSELVES TO MAKE ALL THE MODIFICATIONS THAT THEY DEEM INDISPENSABLE AT ANY TIME. UPDATED DATA SHEETS ARE AVAILABLE ON SITE www.nuovafima.com

differential pressure gauges PN 100 with single diaphragm DS 6" (150mm)



PED 2014/68/UE ATEX 2014/34/UE

These instruments are used to check differential pressures of liquids which do not have high viscosity and do not crystallize.

2.13.1 - Standard Model

Accuracy class: 2,5 as per EN 837.

Scale amplitude: 180°.

Static Pressure: max 1500 psi (100 bar).

Ambient temperature: -13...+149°F (-25...+65 °C).

Process fluid temperature: +302°F (+150 °C).

Thermal drift: ± 0,8 % every ±50°F (± 10° C) of ambient temperature

Protection degree: IP 55 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st.

Elastic element: Duratherm diaphragm.

Gasket: VITON and PTFE.

Case: AISI 304 st.st.

Ring: AISI 304 st.st., bayonet lock

Window: tempered glass.

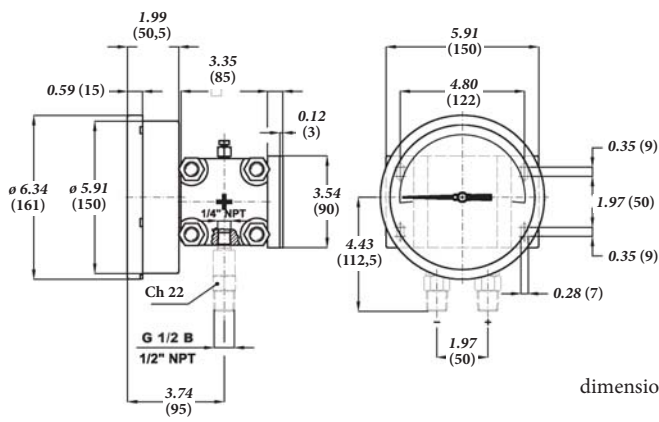
Movement: stainless steel.

Dial: aluminium, white with black markings

Pointer: adjustable, aluminium, black.

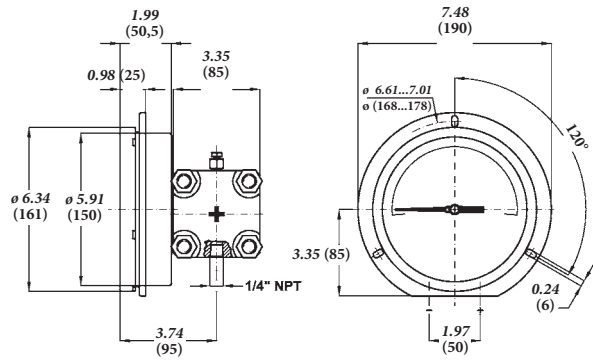
Weight: 12.12 lbs (5,5 kg).

| RANGE | mbar | mmH ₂ O | bar | kPa |
|-----------|------|--------------------|-----|-----|
| 0...0,6 | | | ◆ | |
| 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...400 | ◆ | | | ◆ |
| 0...600 | ◆ | | | ◆ |
| 0...1000 | ◆ | | | ◆ |
| 0...1600 | ◆ | | | |
| 0...2500 | ◆ | | | |
| 0...4000 | | ◆ | | |
| 0...6000 | | ◆ | | |
| 0...10000 | | ◆ | | |



dimensions : inches (mm)

Lower (Mounting code **A**) , with back flange (Option code **C**)



Lower (Mounting code **A**) , with front flange (Option code **E**)

OPTIONS

| | | | |
|---|---------|--|-----|
| C - Back flange | | R10 - Glycerine filled case. Ambient temp. +32...+149 °F (0...+65 °C). | (2) |
| E - Front flange | (1) (2) | R11 - Silicon oil filled case. Ambient temp. -40...+149°F (-40...+65 °C). | |
| C40 - Case and ring AISI 316L st.st. | | S31 - 2" pipe mounting bracket | |
| E65 - Protection degree IP65 | (2) | T01 - Tropicalization | (2) |
| L22 - Maximum pointer IP65 on Plexiglas window | (2) | T32 - Safety glass window | (3) |
| 2G9 - Execution: ATEX : II 2G c | (2) | | |
| 2D9 - Execution: ATEX : II 2GD c | | | |

(1) For constructive details see ATEX execution catalogue sheet
(3) Not available with electric contacts

(2) Codes, description and wiring on data-sheet MN14

“HOW TO ORDER” SEQUENCE

Section / Model / Case / Mounting / Diameter / Special version / Range / Process connection / Options
2 13 1 A G --- 41M - G 1/2 A M C, E
43M - 1/2" NPT M E65...T32
23F - 1/4" NPT F



**bourdon tube pressure gauges
anti-vibration heavy duty version
DS 4" (100mm)**



PED 2014/68/EU

Designed to indicate differential pressure of gas or not cristalising fluid within the range 0...10 mbar to 0...160 mbar.

2.14.1 - Standard Model

Accuracy class: $\pm 1,6\%$ of the full scale value.

Scale amplitude: 180°.

Ambient temperature: $-22...+149\text{ }^{\circ}\text{F}$ ($-40...+65\text{ }^{\circ}\text{C}$).

Process fluid temperature: $-13...+149\text{ }^{\circ}\text{F}$ ($-25...+65\text{ }^{\circ}\text{C}$).

Protection: IP 55 as per EN 60529/IEC 529.

Process connection: AISI 316L st.st.

Elastic element: AISI 316L st.st. bellows.

Gasket: PTFE.

Case: stainless steel.

Ring: stainless steel polished, bayonet lock.

Window: glass.

Movement: stainless steel.

Dial: aluminium, white with black markings.

Pointer: aluminium, micrometric adjustable.

| RANGES (1) | Static pressure one side | Static pressure both side |
|---------------|-----------------------------|------------------------------|
| 0...10 mbar | 100 mbar | 10 bar |
| 0...16 mbar | 160 mbar | 10 bar |
| 0...25 mbar | 250 mbar | 10 bar |
| 0...40 mbar | 400 mbar | 10 bar |
| 0...60 mbar | 600 mbar | 25 bar |
| 0...100 mbar | 1 bar | 25 bar |
| 0...160 mbar | 1,6 bar | 25 bar |

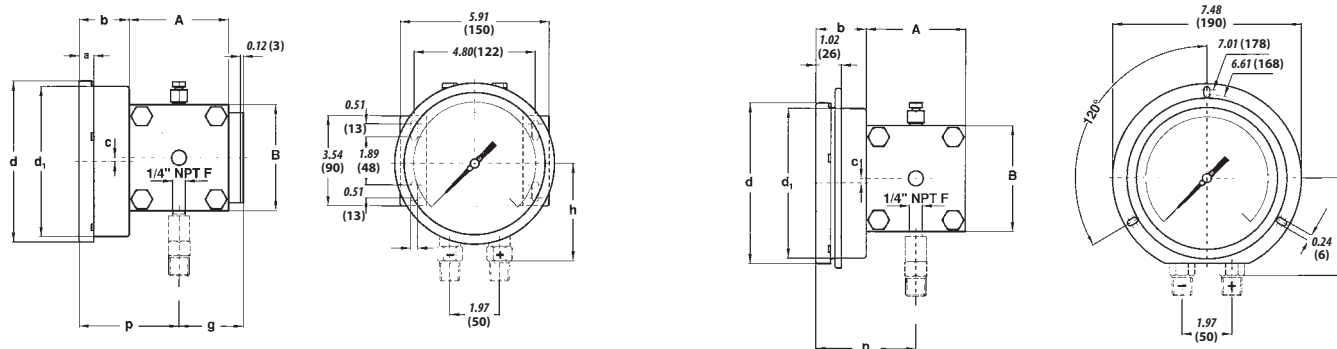
(1) Other unit of measurement upon request.

bellows differential pressure gauge

DS 4", 6" (100-150mm)

MD14

RC4 - 06/14



dimensions : inches (mm)

Lower (Mounting code A) , with back flange (Option code C): DS 4", 6" (100-150mm)

Lower (Mounting code A) , with front flange (Option code F): DS 4" (100mm)

| DS | Ranges | F | a | b | c | d | d ₁ | h | p | g | A | B | Weight lbs (kg) |
|------------|-----------|-------------------|------|--------|-------|---------|----------------|------|------|------|------|------|-------------------|
| 4" (100mm) | ≤ 40 mbar | 41M G 1/2 A | 0.51 | 1.91 | 0.16 | 4.35 | 3.98 | 3.94 | 3.96 | 2.56 | 3.94 | 4.33 | 4,79 kg (4,79) |
| | ≥ 60 mbar | | (13) | (48,5) | (4) | (110,5) | (101) | 3.35 | 3.46 | 2.20 | 3.11 | 3.15 | 3,33 kg (3,33) |
| 6" (150mm) | ≤ 40 mbar | 43M 1/2-14 NPT | 0.59 | 1.99 | 0.10 | 6.34 | 5.91 | 3.94 | 3.96 | 2.56 | 3.94 | 4.33 | 5,29 kg (5,29) |
| | ≥ 60 mbar | | (15) | (50,5) | (2,5) | (161) | (150) | 3.35 | 3.46 | 2.20 | 3.11 | 3.15 | 3,83 kg (3,83) |

dimensions : inches (mm)

OPTIONS

| | | |
|---|--|-------------|
| C - Back flange | Electric contacts | (1) |
| E - Front flange | R11 - Silicon oil filled case. Ambient temp. -40...+149°F (-40...+65 °C). | (1) (3) (4) |
| C40 - AISI 316L st.st. case and ring | S31 - 2" pipe mounting bracket | |
| L22 - Maximum pointer IP65 | (2) (4) T01 - Tropicalization | |
| Q01 - Special dial | T32 - Safety glass window | (4) |
| R10 - Case glycerine filling. Ambient temp. +32...+149°F (0...+65 °C). | | (4) |

(1) Codes, descriptions and wiring on data-sheet MN14: for pressure ranges ≥ 20 mbar

(2) To be ordered with Plexiglas window

(3) Window gasket and blow out vent: VITON

(4) Not available with electric contacts

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Special version /Range / Process connection / Options
2 14 1 A E --- 41M - G 1/2 A M C, E
G 43M - 1/2" NPT M C40...T32
23F - 1/4" NPT F

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-2-

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differential pressure gauges PN 200 with double diaphragm DS 4", 6" (100-150mm)



PED 2014/68/UE ATEX 2014/34/UE

These instruments are used to check differential pressures of gaseous liquids which do not have high viscosity and do not crystallize. In presence of high temperature, high viscosity and corrosive process fluid or which can crystallize these instruments can be fitted with remote mounting diaphragm seals.

2.15.1 - Standard Model

Ranges: from 0...40 IN H₂O to 0...300 psi (from 0...0,1 bar to 0...25 bar, or other equivalent unit).

Accuracy class: 1,6 as per EN 837.

Scale amplitude: 180°...270°C depending on the scale range.

Static pressure: 300...3000 psi (25...200 bar), depending on the scale range.

Ambient temperature: -40...+149°F (-40...+65 °C).

Process fluid temperature: +302°F (+150 °C).

Thermal drift: ±0,8% every ±50°F (±10 °C) of ambient temperature

Protection degree: IP 55 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st.

Elastic element: AISI 316L st.st. double diaphragm for pressure ranges < 250 mbar; AISI 316L st.st./Duratherm double diaphragm for pressure ranges ≥ 250 mbar

Gasket: VITON and PTFE.

Case: stainless steel.

Ring: stainless steel, polished, bayonet lock.

Window: tempered glass (with external zero adjustment on request).

Movement: stainless steel.

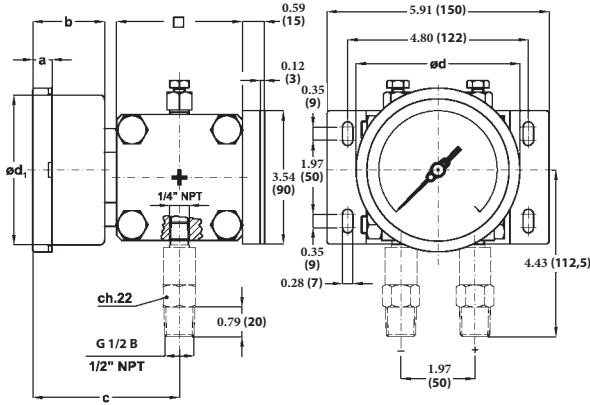
Dial: aluminium, white with black markings

Pointer: adjustable, aluminium, black

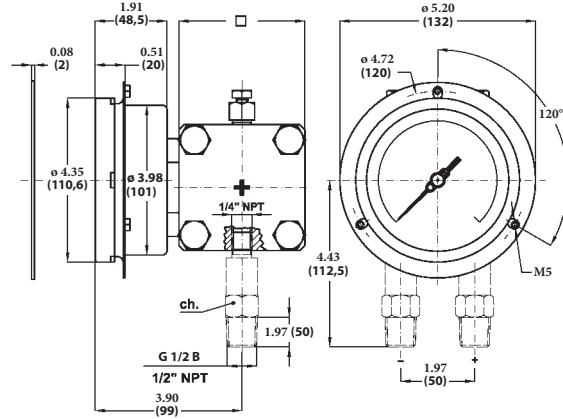
| RANGE | Static pressure, one side : psi (bar) | Static pressure, both side : psi (bar) | Scale amplitude DS 4" (100mm) | Scale amplitude DS 6" (150mm) |
|--------------------------|--|---|----------------------------------|----------------------------------|
| (0...0,1 bar) | 360 (25) | 1500 (100) | 180° | 180° |
| (0...0,16 bar) | 360 (25) | 1500 (100) | 180° | 180° |
| 0...4 psi (0...0,25 bar) | 1500 (100) | 3000 (200) | 270° | 180° |
| 0...6 psi (0...0,4 bar) | 1500 (100) | 3000 (200) | 270° | 180° |
| 0...10 psi (0...0,6 bar) | 1500 (100) | 3000 (200) | 270° | 270° |
| 0...15 psi (0...1 bar) | 1500 (100) | 3000 (200) | 270° | 270° |
| (0...1,6 bar) | 1500 (100) | 3000 (200) | 270° | 270° |
| 0...30 psi (0...2,5 bar) | 1500 (100) | 3000 (200) | 270° | 270° |
| 0...60 psi (0...4 bar) | 1500 (100) | 3000 (200) | 270° | 270° |
| 0...100 psi (0...6 bar) | 1500 (100) | 3000 (200) | 270° | 270° |
| 0...160 psi (0...10 bar) | 1500 (100) | 3000 (200) | 270° | 270° |
| 0...250 psi (0...16 bar) | 1500 (100) | 3000 (200) | 270° | 270° |
| 0...300 psi (0...25 bar) | 1500 (100) | 3000 (200) | 270° | 270° |

differential pressure gauges PN 200
with double diaphragm, DS 4", 6" (100-150mm)

MD15



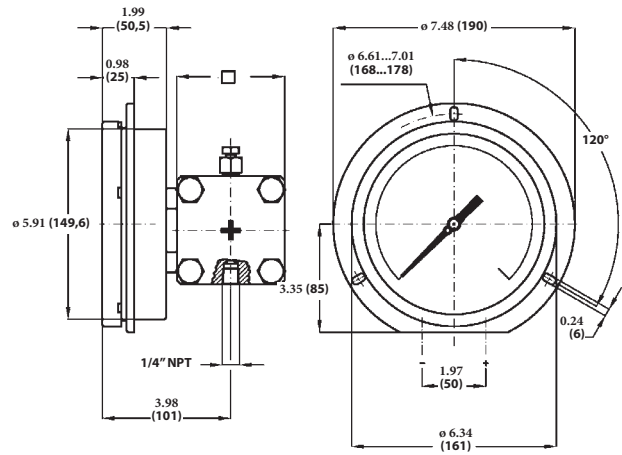
Lower (Mounting code A), with back flange (Option code C): DS 4", 6" (100-150mm)



Lower (Mounting code A), with front flange (Option code F): DS 4" (100mm)

| DS | a | b | d | d ₁ | □ | | Weight : lbs (kg) |
|----------------------|---------------|-----------------|------------------|------------------|----------------|---------------|----------------------|
| | | | | | ≤ 0,16 bar | > 0,16 bar | |
| E 4" (100) | 0.51" (13) | 1.90" (48,5) | 4.35" (110,6) | 3.97" (101) | 3.93" (100) | 3.34" (85) | 10.36" (4,7) |
| G 6" (150) | 0.59" (15) | 1.96" (50,5) | 6.33" (161) | 5.88" (149,6) | 3.93" (100) | 3.34" (85) | 11.24" (5,1) |

dimensions : inches (mm)



Lower (Mounting code A), with front flange (Option code E): DS 6" (150mm)

OPTIONS

| | |
|--|---|
| C - Back flange for DN100-150 instruments | D10 - Elastic element and connection MONEL 400 (2) |
| F - Front flange for DN100 instruments | E65 - Protection degree IP65 (8) |
| E - Front flange for DN150 instruments | M23 - Protection diaphragm Monel 400 (2) |
| Sliding contacts for DN 150 (amplitude 180°) | (1) R11 - Case filling with silicon oil. Ambient temp. -40...+149°F (-40...+65 °C) (5) (8) |
| E30 - NACE version MR0103/MR0175 (ISO15156) (3) | T01 - Tropicalization (8) |
| L22 - Maximum pointer IP 65 on plexiglas window (8) | T32 - Safety glass window (8) |
| R10 - Case glycerine filling. Ambient temp. +32...+149°F (0...+65 °C) (8) | C40 - Case and ring AISI 316L st.st. (7) (8) |
| S31 - 2" pipe mounting bracket (6) | 2G9 - ATEX versions : II 2G c (7) (8) |
| NR. 2 diaphragm seals mounting | 2D9 - ATEX versions : II 2GD c (7) (8) |

- (1) Code and description see data sheet MN14
- (2) Accuracy 2,5 as per EN837, for ranges < 160 IN H₂O (400 mbar)
- (3) To be ordered with Monel 400 or Hastelloy C diaphragms
- (5) Window gasket and blow out vent Viton

- (6) Contact technical department
- (7) For constructive details see ATEX execution data-sheet
- (8) Not available with electric contacts

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Special version / Range / Process connection / Options
2 15 1 A E --- 41M - G 1/2 A M C...E
G D10 43M - 1/2" NPT M E30...2D9
43F - G 1/2 F



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differential pressure gauges PN 100 with double diaphragm DS 4", 6" (100-150mm)



PED 2014/68/UE ATEX 2014/34/UE

These instruments are used to check filter obstructions, pressure drops, flow rate differences, level, measurements and generally the difference between two pressures of equal or different circuits. The measuring element is formed by two diaphragms, acting on the same movement. In this way the pointer senses only the difference between the two pressures corresponding respectively to upstream and downstream circuit pressure.

2.16.1 - Standard Model

Accuracy class: 2,5 as per EN 837.

Scale amplitude: 180°.

Static pressure: 1500 *psi max* (100 bar).

Ambient temperature: -40...+149°F (-40...+65 °C).

Process fluid temperature: +302°F (+150 °C).

Protection: IP 55 as per EN 60529/IEC 529.

Process connection: AISI 316L st.st.

Elastic element: AISI 316L/Duratherm st.st. double diaphragm.

Gasket: VITON and PTFE.

Case: stainless steel.

Ring: stainless steel polished, bayonet lock.

Window: glass.

Movement: stainless steel.

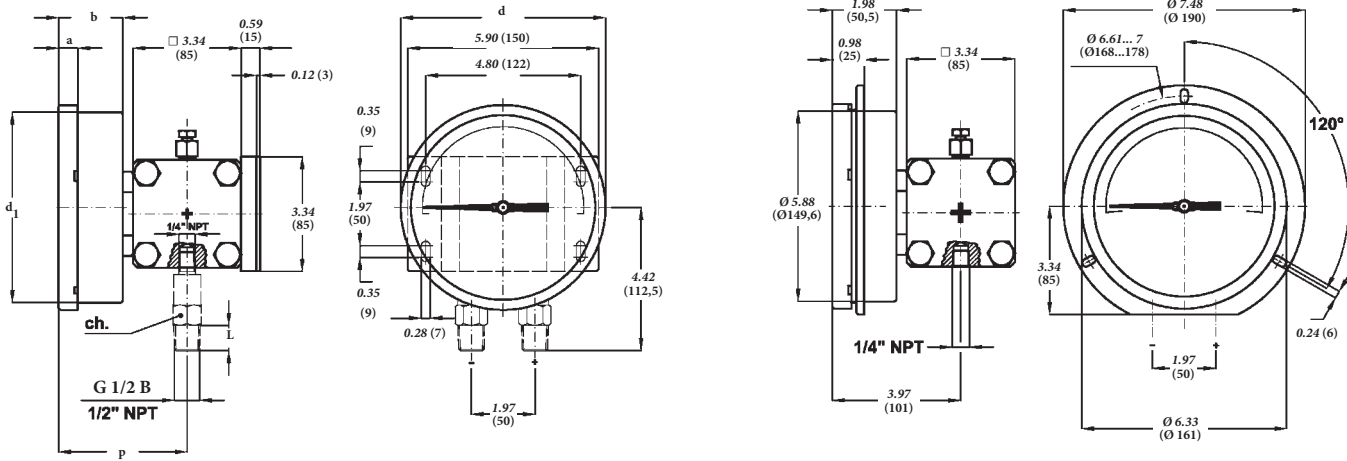
Dial: aluminium, white with black markings.

Pointer: aluminium, micrometric adjustable.

| RANGES | mbar | mmH2O | bar | kPa | psi |
|-----------|------|-------|-----|-----|-----|
| 0...0,4 | | | ♦ | | |
| 0...0,6 | | | ♦ | | |
| 0...1 | | | ♦ | | |
| 0...1,6 | | | ♦ | | |
| 0...2,5 | | | ♦ | | |
| 0...4 | | | ♦ | | ♦ |
| 0...6 | | | ♦ | | ♦ |
| 0...10 | | | ♦ | | ♦ |
| 0...15 | | | | | ♦ |
| 0...30 | | | | | ♦ |
| 0...40 | | | | ♦ | ♦ |
| 0...60 | | | | ♦ | ♦ |
| 0...100 | | | | ♦ | ♦ |
| 0...160 | | | | ♦ | ♦ |
| 0...200 | | | | | ♦ |
| 0...250 | | | | ♦ | ♦ |
| 0...300 | | | | | ♦ |
| 0...400 | ♦ | | | ♦ | |
| 0...600 | ♦ | | | ♦ | |
| 0...1000 | ♦ | | | ♦ | |
| 0...1600 | ♦ | | | | |
| 0...4000 | | ♦ | | | |
| 0...6000 | | ♦ | | | |
| 0...10000 | | ♦ | | | |

**differential pressure gauges PN 100 with double diaphragm,
DS 4", 6" (100-150mm)**

MD16



**Lower (Mounting code A), with back flange
(Option code C): DS 4", 6" (100-150mm)**

**Lower (Mounting code A), with front flange (Option code
F : DS 4" - 100mm; Option code E : DS 6" - 150mm)**

dimensions : inches (mm)

| Mounting | DS | F | a | b | d | d ₁ | p | L | ch | Weight lbs (kg) |
|----------|------------------------|-----------------------|--------------------------|----------------|-----------------|-----------------|-----------------|---------------|--------------|-----------------|
| Wall | E 4" (100mm) | 41M G 1/2 A | 0.51 (13) | 1.91 (48,5) | 4.35 (110,5) | 3.98 (101) | 3.88 (98,5) | 0.79 (20) | 0.87 (22) | 10.71 (4,86) |
| Wall | G 6" (150mm) | | 0.59 (15) | 1.99 (50,5) | 6.34 (161) | 5.89 (149,5) | 3.97 (101) | 0.79 (20) | 0.87 (22) | 11.79 (5,35) |
| Panel | G 6" (150mm) | | 43M 1/2-14 NPT | 1 (25,5) | 1.99 (50,5) | 6.34 (161) | 5.89 (149,5) | 3.97 (101) | 0.79 (20) | 0.87 (22) |

OPTIONS

| | |
|--|--|
| C - Back flange | P02 - Oxygen service (5) |
| F - Front flange for DN100 instruments | R10 - Glycerine filled case. Ambient temp. +32...+149°F (0...+65 °C). (8) |
| E - Front flange for DN150 instruments | R11 - Silicon oil filled case. Ambient temp. -40...+149°F (-40...+65 °C). (6) (8) |
| C40 - AISI 316L st.st. case and ring | S31 - 2" pipe mounting bracket |
| E30 - NACE MR0175 version (ISO 15156) (2) | T01 - Tropicalization (8) |
| E65 - Protection IP65 (3) (8) | T32 - Safety glass window (8) |
| L22 - Maximum pointer IP65 (4) | 2G9 - ATEX versions : II 2G c (8) (9) |
| M23 - MONEL 400 diaphragms | 2D9 - ATEX versions : II 2GD c (8) (9) |
| Mechanical electric contacts (1) | |

(1) Codes, descriptions and wiring on data-sheet MN14

(2) Available for ranges ≥ 1 bar. To be ordered with Monel 400 diaphragm.

(3) To be ordered with Plexiglas window

(4) Available only for ranges ≥ 1 bar

(5) Filling of internal chamber with Fluorolube

(6) Window gasket and blow out vent: VITON

(8) Not available with electric contacts

(9) For constructive details see ATEX execution data-sheet

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Special version /Range / Process connection / Options
2 16 1 A E --- 41M - G 1/2 A M C, E
G 43M - 1/2" NPT M C40...2D9
23F - 1/4" NPT F



differential pressure gauges PN 400 with double diaphragm DS 4", 6" (100-150mm)



PED 2014/68/UE ATEX 2014/34/UE

These instruments are used to check filter obstructions, pressure drops, flow rate differences, level, measurements and generally the difference between two pressures of equal of different circuits. The measuring element is formed by two diaphragms, acting on the same movement. In this way the pointer senses only the difference between the two pressures corresponding respectively to upstream and downstream circuit pressure.

2.17.1 - Standard Model

Accuracy class: 1,6 as per EN 837.

Scale amplitude: 270°.

Static Pressure: 6000 *psi max* (400 bar).

Ambient temperature: -40...+149°F (-40...+65 °C).

Process fluid temperature: +302°F (+150 °C).

Thermal drift: ± 0,8 % every ±50°F (± 10° C) of ambient temperature

Protection degree: IP 55 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st.

Elastic element: double diaphragm AISI 316L st.st./Duratherm.

Gasket: VITON and PTFE.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: tempered glass.

Movement: stainless steel.

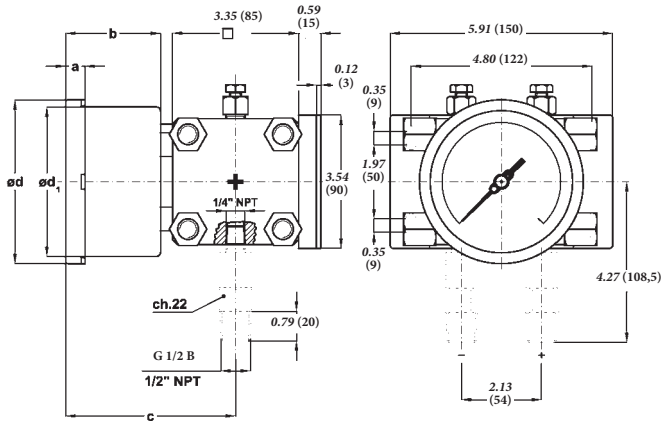
Dial: aluminium, white with black markings

| RANGE | Static pressure, one side : <i>psi (bar)</i> | Static pressure, both side : <i>psi (bar)</i> |
|---------------------------------|---|--|
| (0...0,4 bar) | 3500 (250) | 6000 (400) |
| 0...10 <i>psi</i> (0...0,6 bar) | 3500 (250) | 6000 (400) |
| 0...15 <i>psi</i> (0...1 bar) | 3500 (250) | 6000 (400) |
| (0...1,6 bar) | 3500 (250) | 6000 (400) |
| 0...30 <i>psi</i> (0...2,5 bar) | 3500 (250) | 6000 (400) |
| 0...60 <i>psi</i> (0...4 bar) | 3500 (250) | 6000 (400) |
| 0...100 <i>psi</i> (0...6 bar) | 3500 (250) | 6000 (400) |
| 0...160 <i>psi</i> (0...10 bar) | 3500 (250) | 6000 (400) |

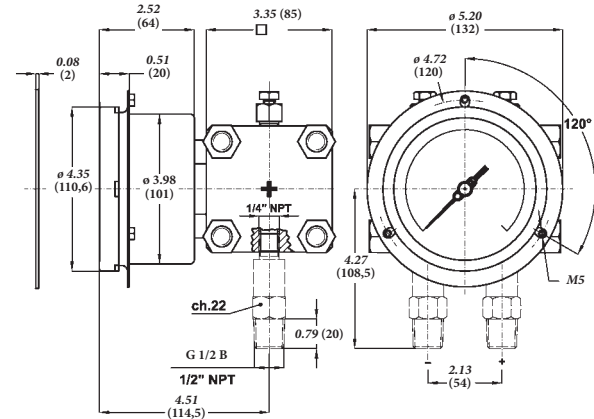
differential pressure gauges PN 400

double diaphragm, DS 4", 6" (100-150mm)

MD17



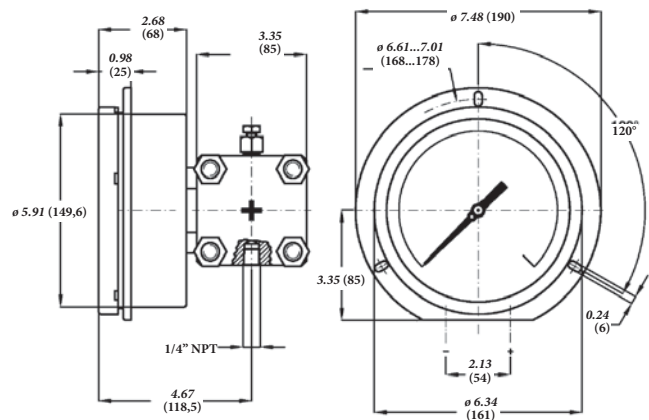
Lower (Mounting code **A**), with back flange
(Option code **C**): DS 4", 6" (100-150mm)



Lower (Mounting code **A**), with front flange (Option code **F**): DS 4" (100mm)

| DS | a | b | c | d | d ₁ | Weight : lbs (kg) |
|----------------------|---------------|---------------|------------------|------------------|------------------|----------------------|
| E 4" (100) | 0.51" (13) | 2.52" (64) | 4.51" (114,5) | 4.35" (110,6) | 3.97" (101) | 11.9" (5,4) |
| G 6" (150) | 0.59" (15) | 2.68" (68) | 4.67" (118,5) | 6.33" (161) | 5.88" (149,6) | 12.78" (5,8) |

dimensions : inches (mm)



Lower (Mounting code **A**), with front flange (Option code **E**): DS 6" (150mm)

OPTIONS

| | |
|---|--|
| C - Back flange for DN100-150 instruments | L22 - Maximum pointer IP 65 on plexiglas window (3) (6) |
| F - Front flange for DN100 instruments | M23 - Protection diaphragm MONEL 400 (4) |
| E - Front flange for DN150 instruments | R10 - Case glycerine filling. Ambient temp. +32...+149°F (0...+65 °C). (6) |
| Electric contacts (amplitude 180°) (1) | R11 - Case filling with silicon oil. Ambient temp. -40...+149°F (-40...+65 °C). (6) |
| C40 - Case and ring AISI 316L st.st. | S31 - 2" pipe mounting bracket |
| E30 - NACE version MR0103/MR0175 (ISO 15156) (2) | T32 - Safety glass window (6) |
| E65 - Protection degree IP 65 (6) | 2D9 - Execution: ATEX : II 2GD c |
| 2G9 - Execution: ATEX : II 2G c (5) (6) | |

(1) Codes, descriptions and wiring on data-sheet MN14

(2) To be ordered with Monel 400 or Hastelloy C diaphragms

(3) To be ordered with plexiglas window

(4) Accuracy 2,5 secondo EN 837

(5) For constructive details see ATEX execution data-sheet

(6) Not available with electric contacts

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Special version / Range / Process connection / Options
2 17 1 A E --- 41M - G 1/2 A M C...E
G 43M - 1/2" NPT M C40...2D9
43F - 1/2" NPT F

differential pressure gauges with double Bourdon tube, DS 4" (100mm)



PED 2014/68/UE

These instruments are used to check filter obstructions, pressure drops, flow rate differences, level, measurements and generally a difference between two pressures of one or different circuits. The measuring element is formed by two Bourdon tubes, acting on the same movement. In this way the pointer shows only the difference between the two pressures corresponding respectively to upstream and downstream pressure of the circuit.

2.18.1 - Standard Model

Accuracy class: 1,6 as per EN 837. (2,5 for range 0...0,4 bar)

Ambient temperature: -13...+149°F (-25...+65 °C.)

Process fluid temperature: max. +212°F (+100 °C);
max +149°F (+65 °C) when filled.

Protection: IP 55 as per EN 60529/IEC 529 (IP 65 when filled).

Thermal drift: ± 0,8% every ± 50°F (10 °C) of ambient temperature.

Process connection: AISI 316 st.st.

Elastic element: AISI 316 L. st.st. Bourdon tube, seamless.

Case: st.st.

Ring: st.st. polished, bayonet lock.

Window: tempered glass.

Movement: stainless steel.

Dial: aluminium, white with black markings.

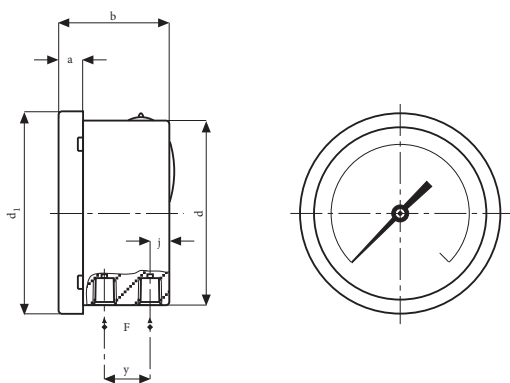
Special dial: ranges different from standard, custom artworks available on request.

Pointer: adjustable, aluminium, black.

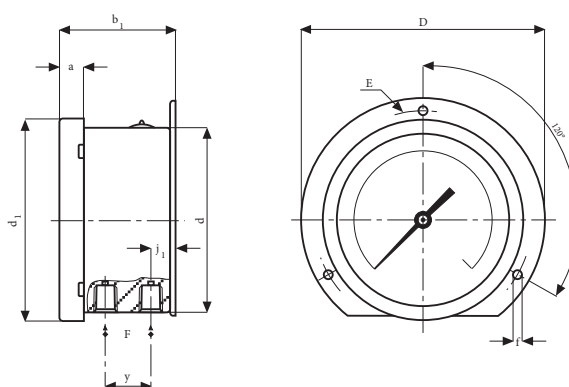
| Differential Δp (1) : <i>psi</i> (bar) | Static pressure, both sides or side "+": <i>psi</i> (bar) | Static pressure, side "-": <i>psi</i> (bar) |
|---|---|--|
| 0...6 (0...0,4) | 10.44 (0,72) | 8.70 (0,6) |
| 0...10 (0...0,6) | 23.21 (1,6) | 14.50 (1) |
| 0...16 (0...1) | 58 (4) | 23.21 (1,6) |
| 0...25 (0...1,6) | 116 (8) | 29 (2) |
| 0...40 (0...2,5) | 181.30 (12,5) | 43.51 (3) |
| 0...60 (0...4) | 232 (16) | 72.52 (5) |
| 0...100 (0...6) | 348 (24) | 145 (10) |
| 0...160 (0...10) | 580.15 (40) | 232 (16) |

| Damping liquids | Ambient temperature |
|-----------------|------------------------------|
| Glycerine 98% | +60...+150 °F (+15...+65 °C) |
| Silicone oil | -50...+150 °F (-45...+65 °C) |

(1) Other units of measurement upon request.



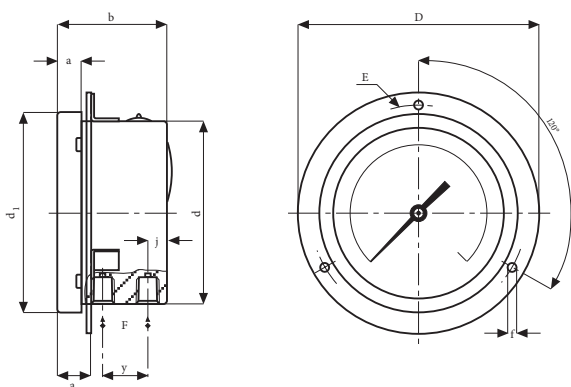
A - Lower connection



Lower (Mounting code A) , with back flange (Option code C)

| F | a | a ₁ | b | b ₁ | d | d ₁ | D | E | f | j | j ₁ | y | Weight : lbs (kg) |
|--------------------------|--------------|----------------|--------------|----------------|---------------|-----------------|---------------|-----------------|-------------|----------------|----------------|--------------|-------------------|
| 23F 1/4-18 NPT | 0.51 (13) | 0.67 (17) | 2.48 (63) | 2.64 (67) | 3.98 (101) | 4.35 (110,6) | 5.28 (134) | 4.74 (120,5) | 0.24 (6) | 0.54 (13,8) | 0.70 (17,8) | 0.91 (23) | 2.20 (1) |

dimensions : inches (mm)



Lower (Mounting code A) , with front flange (Option code F)

OPTIONS

| | |
|--------------|--|
| C - | Back flange for DN100-150 instruments |
| F - | Front flange for DN100 instruments |
| C40 - | AISI 316L st.st. case and ring |
| R10 - | Case glycerine filling. Ambient temp. +32...+149°F (0...+65 °C) |
| R11 - | Case filling with silicon oil. Ambient temp. -40...+149°F (-40...+65 °C) |
| T01 - | Tropicalization |
| T31 - | Plastic window |
| T32 - | Safety glass window |

“HOW TO ORDER” SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Options
2 18 1 A E 23F C, F C40...T32

electric contacts for diaphragm pressure gauges



PED 2014/68/EU

Are accessories with movable contacts in air, which open or close electric circuits depending of the position of the indicating pointer. They are used with Bourdon tube pressure gauges, bellows, diaphragm of NUOVA FIMA production, in such way they become pressure switches: the optimal and sure solution to automatize any kind of equipment.

Contacts: sliding, magnetic snap action. Functional and constructive characteristics, wiring and electric schemas are shown on the attached data-sheet: "ELECTRIC CONTACT".

Accuracy: when the indicating pointer is affected by the contact link add to the gauge accuracy the 50% of their accuracy (with the exclusion of the working area within the 5% if the contact is magnetic type).

Contact setting: over an arc of 270 °, trough the knob placed on front lens or trough removable key.

Electrical wiring: junction box PG9 as per DIN 43650 or cable 0,5 mt.

Ambient temperature: -25...+65 °C.

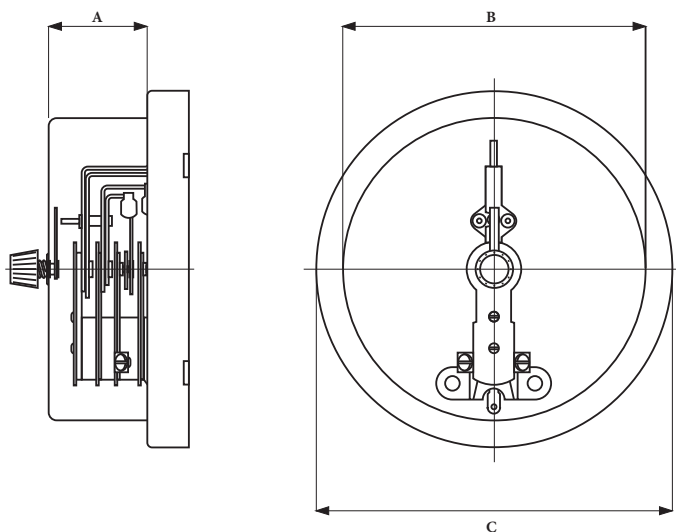
Protection: IP 44 as per IEC 529, (option IP 55).

Contact material: Silver-Nickel 80%-20% (options Gold-Silver and Platinum-Iridium).

Window: Makrolon.

Overpressure: non suitable.

DIMENSIONS (mm)



Single contact

| DS | A | B | C |
|-----|----|-----|-------|
| 100 | 29 | 95 | 110,6 |
| 150 | 29 | 141 | 161 |

Double contacts

| DS | A | B | C |
|-----|----|-----|-------|
| 100 | 36 | 95 | 110,6 |
| 150 | 36 | 141 | 161 |

| MODEL | MN12/18 DS 4" - 6" (100-150 mm) | | |
|--|--|--------------------------------------|-------------------------|
| Contact type | Sliding and magnetic snap-action contact | | |
| Contact number | 1 | 2 | 2 independent |
| Junction box ø exit cables: inches (mm) | 3 poles + GND 0,23...0,35 (6...9) | 3 poles + GND 0,23...0,35 (6...9) | |
| Back cable exit ø cable: inches (mm) | | | 4 poles + 1 0,27 (7) |

| MODEL | MD13 DS 6" (150 mm) | | |
|---|--|--------------------------------------|-------------------------|
| Contact type | Sliding and magnetic snap-action contact | | |
| Contact number | 1 | 2 | 2 independent |
| Radial junction box ø exit cables: inches (mm) | 3 poles + GND 0,23...0,35 (6...9) | 3 poles + GND 0,23...0,35 (6...9) | |
| Radial cable exit ø cable: inches (mm) | | | 4 poles + 1 0,27 (7) |
| Back cable exit ø cable: inches (mm) | 2 poles + GND (1) 0,19 (4,8) | 3 poles + GND (1) 0,23 (6) | 4 poles + 1 0,27 (7) |

(1) for front flange mounting (cod. **E**)

| MODEL | MD15-16-17 DS 4" (100 mm) | | | MD15-16-17 DS 6" (150 mm) | | |
|---|--|--------------------------------------|-----------------------------|--|--------------------------------------|-----------------------------|
| Contact type | Sliding and magnetic snap-action contact | | | Sliding and magnetic snap-action contact | | |
| Contact number | 1 | 2 | 2 independent | 1 | 2 | 2 independent |
| Radial junction box ø exit cables: inches (mm) | 3 poles + GND 0,23...0,35 (6...9) | 3 poles + GND 0,23...0,35 (6...9) | | 3 poles + GND 0,23...0,35 (6...9) | 3 poles + GND 0,23...0,35 (6...9) | |
| Radial cable exit ø cable: inches (mm) | | | 4 poles + 1 0,27 (7) | | | 4 poles + 1 0,27 (7) |
| Back cable exit ø cable: inches (mm) | 2 poles + GND (1) 0,19 (4,8) | 3 poles + GND (1) 0,23 (6) | 4 poles + 1 (1) 0,27 (7) | 2 poles + GND (2) 0,19 (4,8) | 3 poles + GND (2) 0,23 (6) | 4 poles + 1 (2) 0,27 (7) |

(1) for front flange mounting (cod. **F**)

(2) for front flange mounting (cod. **E**)

| MODEL | MD14 DS 4" (100 mm) | | | MD14 DS 6" (150 mm) | | |
|---|--|--------------------------------------|-----------------------------|--|--------------------------------------|-----------------------------|
| Contact type | Sliding and magnetic snap-action contact | | | Sliding and magnetic snap-action contact | | |
| Contact number | 1 | 2 | 2 independent | 1 | 2 | 2 independent |
| Radial junction box ø exit cables: inches (mm) | 3 poles + GND 0,23...0,35 (6...9) | 3 poles + GND 0,23...0,35 (6...9) | | 3 poles + GND 0,23...0,35 (6...9) | 3 poles + GND 0,23...0,35 (6...9) | |
| Radial cable exit ø cable: inches (mm) | | | 4 poles + 1 0,27 (7) | | | 4 poles + 1 0,27 (7) |
| Back cable exit ø cable: inches (mm) | 2 poles + GND (1) 0,19 (4,8) | 3 poles + GND (1) 0,23 (6) | 4 poles + 1 (1) 0,27 (7) | 2 poles + GND (2) 0,19 (4,8) | 3 poles + GND (2) 0,23 (6) | 4 poles + 1 (2) 0,27 (7) |

(1) for front flange mounting (cod. **F**)

(2) for front flange mounting (cod. **E**)

single diaphragm differential pressure gauges

ATEX version

DS 6" (150mm)



These instruments are used to check differential pressures of liquids which do not have high viscosity and do not crystallize. They resist to static pressure up to 100 bar. In presence of high temperature, high viscosity and corrosive process fluid these instruments can be fitted with remote mounting diaphragm seals. They are in conformity with the essential Health and Safety Requirements laid down in European Directive 2014/34/UE for Group II, Category 2G or 2GD equipment in the T1...T6 temperature classes. They are NOT suitable for ZONES 0 and 20.

2G9 Version , Gas

6" (DS 150 mm) size is available, as **standard** version.

They keep the same functional and constructive features as MD13 model. This differs from it as follows :

Ambient temperature: -22...+140 °F (-30...+60 °C).

Max process fluid temperature: see table (measured on the lowest point of socket).

Windows: high resistance safety glass.

Dial marking: CE Ex II 2G c T6X TF9, model name and serial/lot number.

Special dial: ranges different from standard, custom artworks and dials without Nuova Fima logo are not available.

Options: electric contacts, plexiglas or tempered glass windows and maximum pointers are not available.

Included documentation: Installation manual.

2D9 Version , Gas and Dust

6" (DS 150 mm) is available, as **IP65** or **filled** versions.

They keep the same functional and constructive features as MD13 model. This differs from it as follows :

Damping liquids: glycerine 98%, silicon oil.

Ambient temperature:

+59...+140 °F (+15...+60 °C) for glycerine filling;

-22...+140 °F (-30...+60 °C) for silicon oil filling.

Max process fluid temperature: see table (measured on the lowest point of socket).

Windows: high resistance safety glass.

Dial marking: CE Ex II 2GD c T6X TF9 IP65 T85°C, model name and serial/lot number.

Special dial: ranges different from standard, custom artworks and dials without Nuova Fima logo are not available.

Options: electric contacts, plexiglas or tempered glass windows and maximum pointers are not available.

Included documentation: Installation manual.

| Class | Process temperature |
|--------------------|---------------------|
| T6 : 185°F (85°C) | 158°F (70°C) |
| T5 : 212°F (100°C) | 185°F (85°C) |
| T4 : 275°F (135°C) | 248°F (120°C) |
| T3 : 392°F (200°C) | 302°F (150°C) |
| T2 : 572°F (300°C) | |
| T1 : 842°F (450°C) | |

**double diaphragm differential
pressure gauges,
ATEX version
DS 4", 6" (100-150mm)**



These instruments are used to check differential pressures of gases, or liquids wich do not have high viscosity and do not crystalzee. They resist to static pressure up to 100, 200, 400 bar depending on model type MD15, MD16 and MD17. In presence of high temperature, high viscosity and corrosive process fluid these instruments can be fitted with remote mounting diaphragm seals. They are in conformity with the essential Health and Safety Requirements laid down in European Directive 2014/34/UE for Group II, Category 2G or 2GD equipment in the T1...T6 temperature classes. They are NOT suitable for ZONES 0 and 20.

2G9 Version , Gas

4" and 6" (DS 100-150 mm) sizes are available, as **standard** version.

They keep the same functional and constructive features as MD15-16-17 models. They differ from them as follows :

Ambient temperature: -22...+140 °F (-30...+60 °C).

Max process fluid temperature: see table (measured on the lowest point of socket).

Windows: high resistance safety glass.

Dial marking: CE Ex II 2G c T6X TF9, model name and serial/lot number.

Special dial: ranges different from standard, custom artworks and dials without Nuova Fima logo are not available.

Options: electric contacts, plexiglas or tempered glass windows and maximum pointers are not available.

Included documentation: Installation manual.

| Class | Process temperature |
|--------------------|---------------------|
| T6 : 185°F (85°C) | 158°F (70°C) |
| T5 : 212°F (100°C) | 185°F (85°C) |
| T4 : 275°F (135°C) | 248°F (120°C) |
| T3 : 392°F (200°C) | 302°F (150°C) |
| T2 : 572°F (300°C) | |
| T1 : 842°F (450°C) | |

Technical File: TF9 - Rev. 1

2D9 Version , Gas and Dust

4" and 6" (DS 100-150 mm) are available, as **IP65** or **filled** versions.

They keep the same functional and constructive features as MD15-16-17 models. They differ from them as follows :

Damping liquids: glycerine 98%, silicon oil (or fluorinated fluid for MD15 model only).

Ambient temperature:

+59...+140 °F (+15...+60 °C) for glycerine filling;

-22...+140 °F (-30...+60 °C) for silicon oil or fluorinated fluid filling.

Max process fluid temperature: see table (measured on the lowest point of socket).

Protection degree: IP 65 as per IEC 529.

Windows: high resistance safety glass.

Dial marking: CE Ex II 2GD c T6X TF9 IP65 T85°C, model name and serial/lot number.

Special dial: ranges different from standard, custom artworks and dials without Nuova Fima logo are not available.

Options: electric contacts, plexiglas or tempered glass windows and maximum pointers are not available.

Included documentation: Installation manual.

NUOVA FIMA

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P.O. BOX 58 Via Cesare Battisti, 59

28045 Inverio (NO) Italy

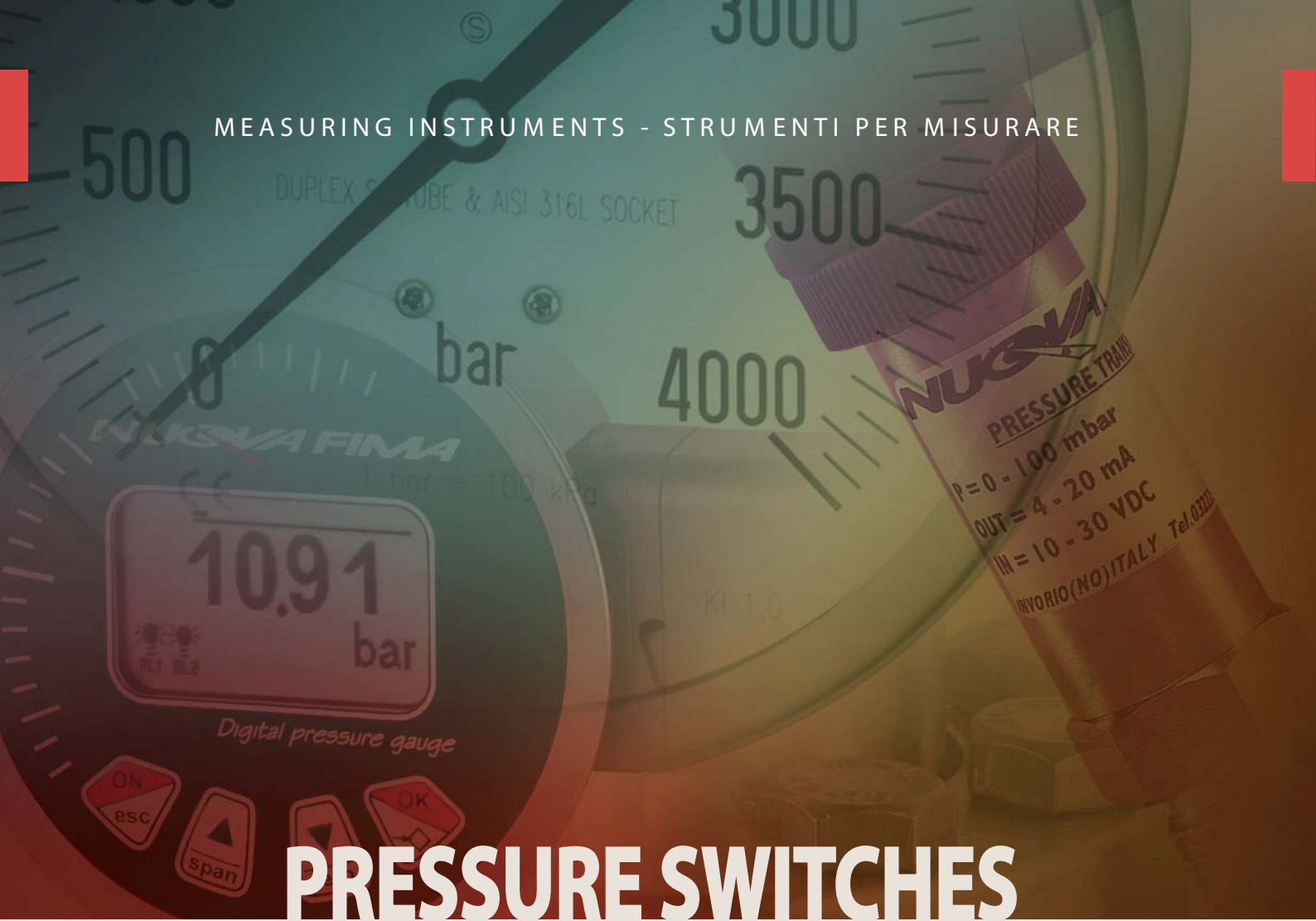
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MEASURING INSTRUMENTS - STRUMENTI PER MISURARE



PRESSURE SWITCHES

NUOVA FIMA

diaphragm pressure switch



PED 2014/68/EU

These diaphragm pressure switches are IP 55, and only suitable for applications in the chemical, petrochemical and conventional power plants. The sensing element is a metallic diaphragm and acts directly on the microswitch through a self-centering pivot. The simplicity of the design, without levers, cams or similar mechanism, gives the unit an exceptionally long working life.

3.10 - Standard Model

Ranges: 0...1 bar/0...25 bar; -1...0 bar.

Electrical specifications: N. 1 SPDT microswitches. (see microswitches table)

Differential: fixed.

Repeatability: ≤ 1% of the full setting value.

Set-point adjustment: internal, micrometric adjustable.

Protection: IP 55 as per EN 60529/IEC 529.

Cable exit: cable gland (cables \varnothing 0.24...0.43" - 6...11 mm).

Electrical wiring: terminal screw, directly on microswitch.

Earth contacts: N. 1 internal.

Process temperature: +212°F max (100°C).

Ambient temperature: -13...+149°F (-25...+65 °C).

Thermal drift: ≤ 0,027% / °F (≤ 0,05% / °C).

Process connection: anticorodal aluminium blue anodized, 1/4" NPT F.

Elastic element: AISI 316 st.st. diaphragm for pressure ranges ≤ 2,5 bar; carbon steel diaphragm covered with AISI 316 st.st. for pressure ranges 4...25 bar.

Gasket: PTFE.

Case: anticorodal aluminium blue anodized.

Cover: anticorodal aluminium yellow anodized.

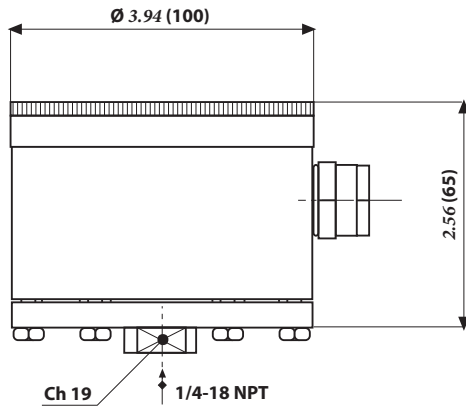
Tag: AISI 304 st.st. silk-screen painted.

Weight: 1.87 (0,85 kg).

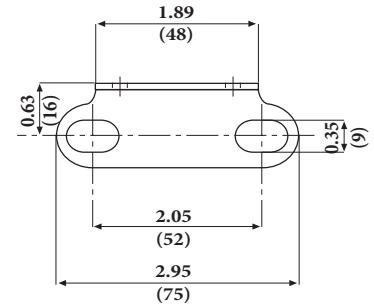
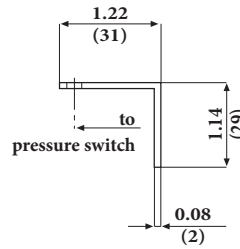
| Setting ranges | Test pressure | Differential 1 MICRO (2) |
|--------------------|---------------|--------------------------|
| 0,05...1 bar (1) | 1,3 bar | 40 mbar |
| 0,05...1,6 bar (1) | 2 bar | 40 mbar |
| 0,06...2,5 bar (1) | 3 bar | 50 mbar |
| 0,08...4 bar | 5 bar | 60 mbar |
| 0,12...6 bar | 8 bar | 100 mbar |
| 0,15...10 bar | 12 bar | 120 mbar |
| 0,25...16 bar | 20 bar | 200 mbar |
| 0,4...25 bar | 30 bar | 300 mbar |

(1) available also for vacuum & compound.

(2) differential and minimum set-point values for microswitches cod. I, N, S, U are 300% of those shown in table.

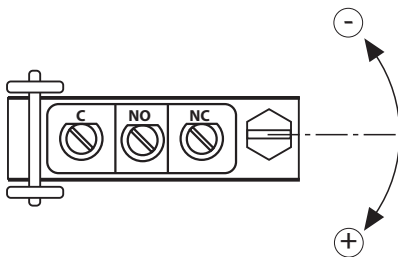


dimensions : inches (mm)



Walls mounting bracket (Cod. **S16**)

Set-point adjustment



MICROSWITCHES
ohmic load

| Single | Type | 250 | 125 | 24 |
|----------|---------------------------------|-----|-----|-----------|
| | | Vac | Vac | Vdc |
| C | std. | 15A | 15A | 0,1A |
| G | SPLASH | 15A | 15A | 0,1A |
| I | goldplated | | 1A | 0,1A |
| M | inert gas filled | 15A | 15A | 0,1A |
| N | goldplated and inert gas filled | | 1A | 0,1A |
| S | SPLASH VDC | 15A | 15A | 6A |
| U | inert gas filled VDC | 15A | 15A | 6A |

”HOW TO ORDER” SEQUENCE

Section / Model / Set-point Adjustment / Microswitch / Electrical connection / Process connection /Options
3 10 **C, G** --- **23F - 1/4 NPT F S16**
I, M
N
S, U



diaphragm pressure switch



These diaphragm pressure switches are IP 55, and suitable for a variety of applications such as: chemical, petrochemical and conventional power station. They withstand the most unfavourable working conditions, caused by either the process fluid aggressiveness or high ambient temperature.

3.20 - Standard Model

Ranges: 0...1 bar/0...25 bar.

Electrical specifications: N. 1 SPDT microswitch (see microswitches table).

Differential: fixed (adjustable 10%...50% of setting range (see microswitches table).

Repeatability: $\leq 1\%$ of the full setting value.

Set point adjustment: internal, micrometric adjustable.

Protection: IP 55 as per EN 60529/IEC 529.

Electrical wiring: terminal screw, directly on microswitch.

Earth contacts: N. 1 internal, N. 1 external.

Process temperature: +212°F max (100°C).

Ambient temperature: -13...+149°F (-25...+65 °C).

Thermal drift: $\leq 0,027\% / ^\circ F$ ($\leq 0,05\% / ^\circ C$).

Process connection: AISI 316L st.st.

Elastic element: AISI 316 Ti st.st. diaphragm, welded.

Case: aluminium, blue polyurethane painted.

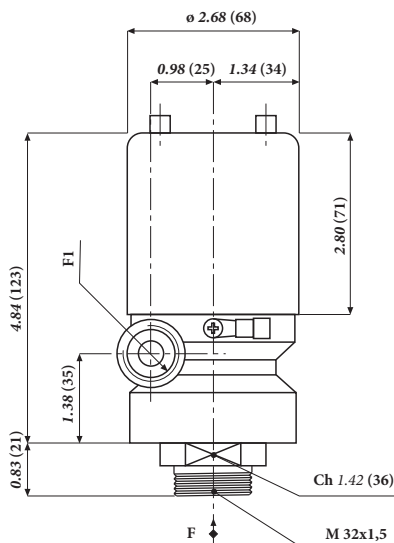
Cover: aluminium beige polyurethane painted.

Tag: AISI 304 st.st., silk-screen painted.

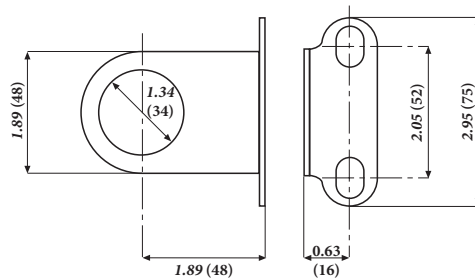
Weight: 4.73 lbs (1,15 kg).

| Setting range | Test pressure | Differential 1 micro (1) |
|---------------|---------------|-----------------------------|
| 0,06...1 bar | 1,5 ap | 40 мбар |
| 0,1...2,5 bar | 3 ap | 60 мбар |
| 0,1...4 bar | 5 ap | 70 мбар |
| 0,15...6 bar | 8 ap | 100 мбар |
| 0,2...10 bar | 13 ap | 120 мбар |
| 0,3...16 bar | 20 ap | 200 мбар |
| 0,4...25 bar | 30 ap | 350 мбар |

(1) differential and minimum set-point values for microswitches cod. I, N, S, U are 300% of those shown in table.

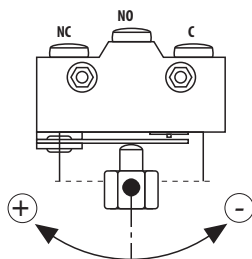


dimensions : inches (mm)



| F1 | | F | |
|------------|---------------|------------|----------------|
| 1 | R 1/2-ISO 7/1 | 41M | G 1/2 B |
| 3 | 1/2-14 NPT | 43M | 1/2-14 NPT |
| P11 | cable gland | 23F | R 1/4-18 NPT F |

Set-point adjustment



MICROSWITCHES
ohmic load

| Single | Type | 250 | 125 | 24 |
|----------|---------------------------------|-----|-----|------|
| | | Vac | Vac | Vdc |
| C | std. | 15A | 15A | 0,1A |
| G | SPLASH | 15A | 15A | 0,1A |
| I | goldplated | | 1A | 0,1A |
| M | inert gas filled | 15A | 15A | 0,1A |
| N | goldplated and inert gas filled | | 1A | 0,1A |
| E | adjustable dead band | 20A | 20A | 0,1A |
| S | SPLASH VDC | 15A | 15A | 6A |
| U | inert gas filled VDC | 15A | 15A | 6A |

OPTIONS

| |
|------------------------------------|
| P02 - Degreasing for oxygen |
| S16 - Mounting bracket |
| T01 - Tropicalisation |
| V20 - Epoxy painting |

”HOW TO ORDER” SEQUENCE

Section / Model / Set-point Adjustment / Microswitch / Electrical connection / Process connection / Options

| | | | | | |
|----------|-----------|-------------|------------|------------|------------------|
| 3 | 20 | C, G | 1 | 41M | P02...V20 |
| | | I, M | 3 | 43M | |
| | | N, E | P11 | 23F | |
| | | S, U | | | |



diaphragm pressure switch



PED 2014/68/EU

These diaphragm pressure switches are IP 55, and suitable for a variety of applications such as: chemical, petrochemical and conventional power station. They withstand the most unfavourable working conditions, caused by either the process fluid aggressiveness or high ambient temperature.

3.25 - Standard Model

Ranges: 0...40 mbar/0...600 mbar.

Electrical specifications: N. 1 SPDT microswitches. (see microswitches table)

Differential: fixed.

Ripeatability: ≤1% of the full setting value.

Set point adjustment: internal, micrometric adjustable.

Protection: IP 55 as per EN 60529/IEC 529

Electrical wiring: terminal screw, directly on microswitch.

Earth contacts: N. 1 internal, N. 1 external.

Process temperature: +212°F max (100°C).

Ambient temperature: -13...+149°F (-25...+65 °C).

Thermal drift: ≤ 0,027% / °F (≤ 0,05% / °C).

Process connection: AISI 316L st.st.

Elastic element: AISI 316 Ti st.st. diaphragm.

Gasket: PTFE

Case: aluminium, blue polyurethane painted.

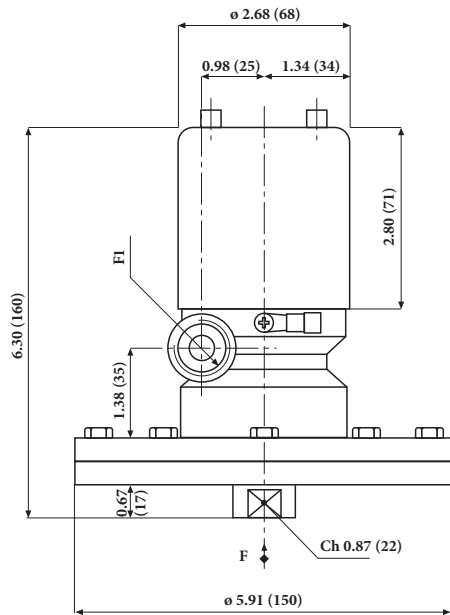
Cover: aluminium, beige polyurethane painted.

Tag: stainless steel, silk-screen painted.

Weight: 6.61 lbs (3 kg).

| Setting range | Test pressure | Differential 1 micro (1) |
|---------------|---------------|-----------------------------|
| 5...40 mbar | 0,5 bar | 4 mbar |
| 5...60 mbar | 0,5 bar | 4 mbar |
| 5...100 mbar | 0,5 bar | 4 mbar |
| 8...160 mbar | 0,5 bar | 6 mbar |
| 8...250 mbar | 1 bar | 6 mbar |
| 15...400 mbar | 1 bar | 10 mbar |
| 15...600 mbar | 1 bar | 10 mbar |

(1) differential and minimum set-point values for microswitches cod. I, N, S, U are 300% of those shown in table.

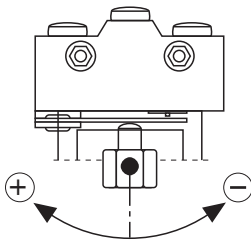


dimensions : inches (mm)

| F1 | |
|------------|-----------------|
| 1 | - R 1/2-ISO 7/1 |
| 3 | - 1/2-14 NPT |
| P11 | - cable gland |

| F | |
|------------|------------------|
| 43F | - R 1/2-18 NPT F |
| 43M | - 1/2-14 NPT |
| 41M | - G 1/2 B |

Set-point adjustment



MICROSWITCHES
ohmic load

| Single | Type | 250 | 125 | 24 |
|----------|---------------------------------|-----|-----|------|
| | | Vac | Vac | Vdc |
| C | std. | 15A | 15A | 0,1A |
| G | SPLASH | 15A | 15A | 0,1A |
| I | goldplated | | 1A | 0,1A |
| M | inert gas filled | 15A | 15A | 0,1A |
| N | goldplated and inert gas filled | | 1A | 0,1A |
| S | SPLASH VDC | 15A | 15A | 6A |
| U | inert gas filled VDC | 15A | 15A | 6A |

OPTIONS

| |
|------------------------------------|
| P02 - Degreasing for oxygen |
| S16 - Wall mounting bracket |
| T01 - Tropicalisation |
| V20 - Epoxy painting |

”HOW TO ORDER” SEQUENCE

Section / Model / Set-point Adjustment / Microswitch / Electrical connection / Process connection /Options

3 **25** **C, G** **1** **41M** **P02...V20**
I, M **3** **43M**
N, E **P11** **43F**
S, U



diaphragm pressure switch



PED 2014/68/EU

These diaphragm pressure switches are IP 65, and suitable for a variety of applications such as: chemical, petrochemical, conventional power station, and they withstand the most unfavourable working conditions, caused by either the process fluid aggressiveness or high ambient temperature. The sensing element is a metallic diaphragm and acts directly on the microswitch through a self-centering pivot. The simplicity of the design, without levers, cams or similar mechanism, gives the unit an exceptionally long working life.

3.27 - Standard Model

Electrical specifications: N. 1...2 SPDT microswitches (see microswitches table).

Differential: fixed (adjustable 10%...50% of setting range for pressure ranges ≥ 1 bar (see microswitches table).

Repeatability: $\leq 1\%$ of the full setting value.

Set-point adjustment: internal, micrometric adjustable.

Protection: IP 65 as per EN 60529/IEC 529.

Electrical wiring: terminal strip.

Earth contact: N. 1 internal.

Process temperature: $+212^{\circ}\text{F}$ max (100°C).

Ambient temperature: $-13...+149^{\circ}\text{F}$ ($-25...+65^{\circ}\text{C}$).

Thermal drift: $\leq 0,027\% / ^{\circ}\text{F}$ ($\leq 0,05\% / ^{\circ}\text{C}$).

Process connection: AISI 316 st.st.

Elastic element: AISI 316 st.st. diaphragm for pressure ranges $\leq 2,5$ bar; carbon steel diaphragm covered with AISI 316 st.st. for pressure ranges 4...100 bar.

Gasket: PTFE.

Case: AISI 304 st.st.

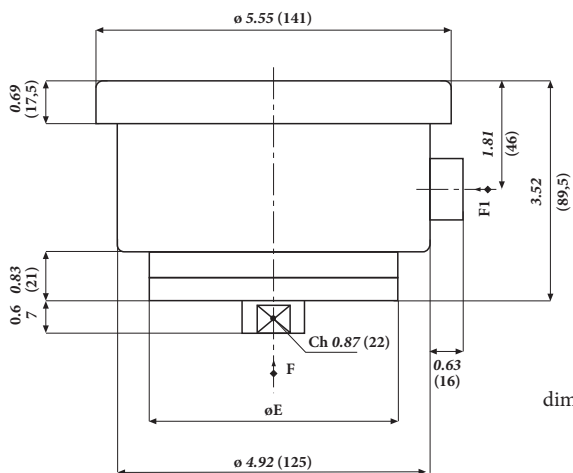
Cover: AISI 304 st.st., bayonet lock.

Tag: AISI 304 st.st., etched.

| Setting range | Test pressure | Special overrange (cod. F03) | Differential 1 micro (2) | Differential 2 micro (2) |
|--------------------|---------------|------------------------------|--------------------------|--------------------------|
| 0,7...6 mbar (1) | 10 mbar | | 0,5 mbar | |
| 1...16 mbar (1) | 20 mbar | | 0,8 mbar | |
| 2...25 mbar (1) | 30 mbar | | 1,2 mbar | |
| 5...40 mbar (1) | 0,5 bar | 400 mbar | 4 mbar | 5 mbar |
| 5...60 mbar (1) | 0,5 bar | 600 mbar | 4 mbar | 5 mbar |
| 6...100 mbar (1) | 0,5 bar | 1 bar | 4 mbar | 6 mbar |
| 9...160 mbar (1) | 0,5 bar | 1,6 bar | 6 mbar | 9 mbar |
| 9...250 mbar (1) | 1 bar | 2,5 bar | 6 mbar | 9 mbar |
| 15...400 mbar (1) | 1 bar | 4 bar | 10 mbar | 15 mbar |
| 18...600 mbar (1) | 1 bar | 6 bar | 12 mbar | 18 mbar |
| 0,06...1 bar (1) | 1,2 bar | 10 bar | 25 mbar | 60 mbar |
| 0,06...1,6 bar (1) | 2 bar | 16 bar | 30 mbar | 60 mbar |
| 0,06...2,5 bar (1) | 3 bar | 25 bar | 40 mbar | 60 mbar |
| 0,08...4 bar | 5 bar | 40 bar | 50 mbar | 80 mbar |
| 0,09...6 bar | 8 bar | 40 bar | 60 mbar | 90 mbar |
| 0,15...10 bar | 12 bar | 40 bar | 100 mbar | 150 mbar |
| 0,25...16 bar | 20 bar | 40 bar | 160 mbar | 250 mbar |
| 0,4...25 bar | 30 bar | 40 bar | 250 mbar | 400 mbar |
| 0,6...40 bar | 48 bar | 60 bar | 400 mbar | 600 mbar |
| 0,9...60 bar | 70 bar | 80 bar | 600 mbar | 900 mbar |
| 6...100 bar | 120 bar | | 4 bar | 6 bar |
| 8...160 bar | 185 bar | | 5 bar | 8 bar |

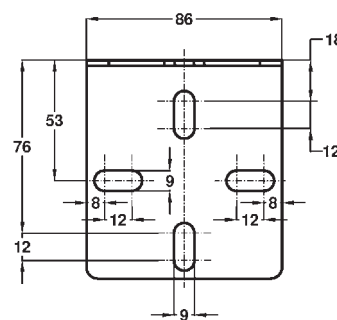
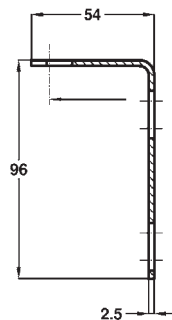
(1) also available for vacuum and compound

(2) differential and minimum set-point values for microswitches cod. I, L, N, R, S, T, U, V are 300% of those shown in table.



dimensions : inches (mm)

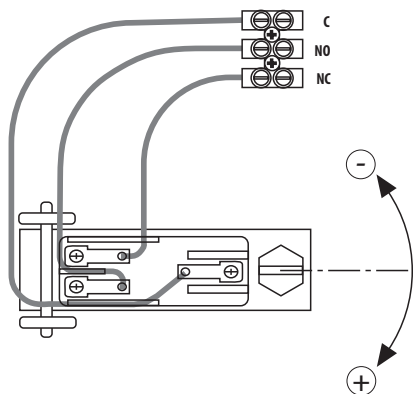
| Setting ranges | E | Weight : lbs (kg) |
|----------------|------------|-------------------|
| ≤ 600 mbar | 5.91 (150) | 7.27 (3,3) |
| ≥ 1 bar | 3.86 (98) | 5.05 (2,3) |



| F |
|---------------------------|
| 23F - 1/4-18 NPT F |
| 43M - 1/2-14 NPT |
| 43F - 1/2-14 NPT F |
| 41M - G 1/2 A |

| F1 |
|--------------------------|
| 1 - R 1/2-ISO 7/1 |
| 2 - R 3/4-ISO 7/1 |
| 3 - 1/2-14 NPT |
| 4 - 3/4-14 NPT |
| A - M20 x 1,5 |
| P11 - cable gland |

Set-point adjustment



MICROSWITCHES
ohmic load

| Single / Double | Type | 250 Vac | 125 Vac | 24 Vdc |
|-----------------|-------------------------------------|---------|---------|--------|
| C/D | std. | 15A | 15A | 0,1A |
| G/H | SPLASH (1) | 15A | 15A | 0,1A |
| I/L | goldplated (1) | | 1A | 0,1A |
| M/P | inert gas filled (1) | 15A | 15A | 0,1A |
| N/R | goldplated and inert gas filled (1) | | 1A | 0,1A |
| E | adjustable dead band (2) | 20A | 20A | 0,1A |
| S/T | SPLASH VDC (1) | 15A | 15A | 6A |
| U/V | inert gas filled VDC (1) | 15A | 15A | 6A |

(1) for pressure ranges ≥ 40 mbar
(2) for pressure ranges ≥ 1 bar

OPTIONS

| | |
|--|---|
| F03 - Special overpressure stop | E30 - Nace MR 01.03 version (1) |
| M26 - PTFE diaphragm | M23 - Monel diaphragm |
| S16 - Wall mounting bracket | M22 - Hastelloy C diaphragm |
| T01 - Tropicalization | M29 - Tantalum diaphragm |
| P02 - Oxygen service | S31 - 2"stake's mounting bracket |

(1) Monel or Hastelloy C diaphragm.

"HOW TO ORDER" SEQUENCE

| Section | Model | Set-point Adjustment | Microswitch | Electrical connection | Process connection / Options |
|---------|-------|----------------------|-------------|-----------------------|------------------------------|
| 3 | 27 | A, B, G, H | 1 | 23F | F03...S31 |
| | | I, L, M, P | 2 | 43M | |
| | | N, R, E | 3 | 43F | |
| | | S, T, U, V | 4 | 41M | |
| | | | A | | |
| | | | P11 | | |

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differential pressure switches



CE EAC
PED 2014/68/EU

These differential pressure switches are IP 65, and suitable for a variety of applications such as: chemical, petrochemical, conventional power station where it is required to control differential pressure, level, flow. The sensing element is a metallic diaphragm with 2 metallic bellows and acts directly on the microswitch through a self-centering pivot. The simplicity of the design, without levers, cams or similar mechanism, gives the unit an exceptionally long working life.

3.28 - Standard Model

Ranges: 0...1 bar/0...10 bar.

Electrical specifications: N. 1...2 SPDT microswitches (see microswitches table).

Differential: fixed (adjustable 10%...50% of setting range (see microswitches table).

Repeatability: $\leq 1\%$ of the full setting value.

Set-point adjustment: internal, micrometric adjustable.

Protection: IP 65 as per EN60529/IEC 529.

Electrical wiring: terminal strip.

Earth contacts: N. 1 internal.

Process temperature: $+212^{\circ}\text{F}$ max (100°C).

Ambient temperature: $-13...+149^{\circ}\text{F}$ ($-25...+65^{\circ}\text{C}$).

Thermal drift: $\leq 0,027\% / ^{\circ}\text{F}$ ($\leq 0,05\% / ^{\circ}\text{C}$).

Process connection: AISI 316 st. st.

Elastic element: AISI 316 st.st. diaphragm with N.2 AISI 321 st.st. bellows; PTFE gasket.

Case: AISI 304 st.st.

Cover: AISI 304 st.st. bayonet lock.

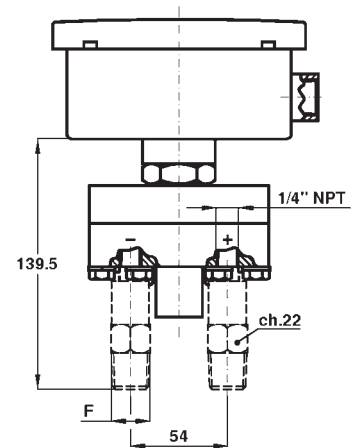
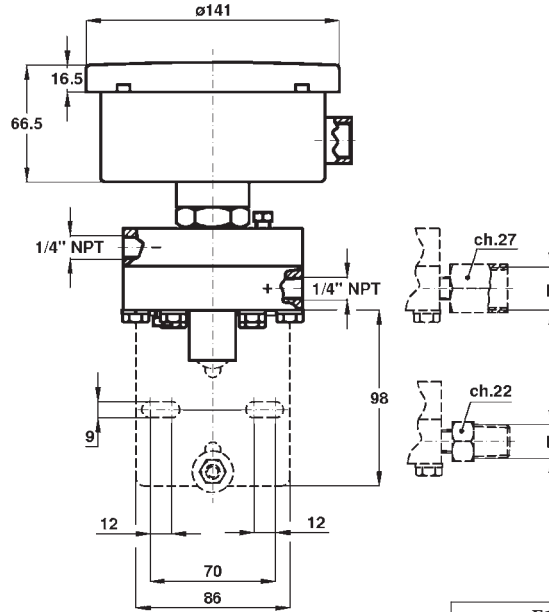
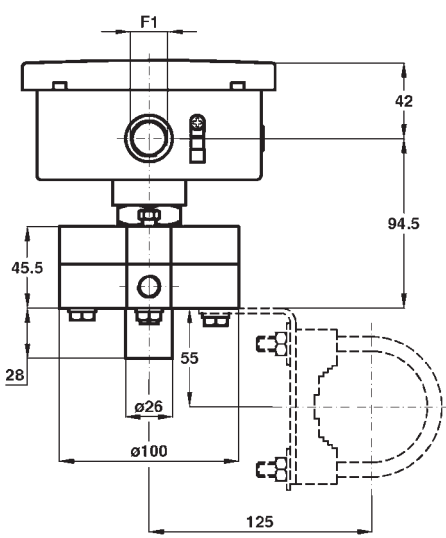
Flushing plugs: AISI 316 st.st.

Tag: AISI 304 st.st., etched.

Weight: 8.15 lbs (3,7 kg).

| Setting ranges | One side static pressure | Both side static pressure | Differential 1 micro (1) | Differential 2 micro (1) |
|----------------|--------------------------|---------------------------|--------------------------|--------------------------|
| 0,1...1 bar | 10 bar | 25 bar | 60 mbar | 80 mbar |
| 0,1...2,5 bar | 15 bar | 25 bar | 60 mbar | 80 mbar |
| 0,2...4 bar | 15 bar | 25 bar | 70 mbar | 100 mbar |
| 0,2...6 bar | 15 bar | 25 bar | 100 mbar | 150 mbar |
| 0,2...10 bar | 15 bar | 25 bar | 120 mbar | 170 mbar |

(1) differential and minimum set-point values for microswitches cod. I, L, N, R, S, T, U, V are 300% of those shown in table.

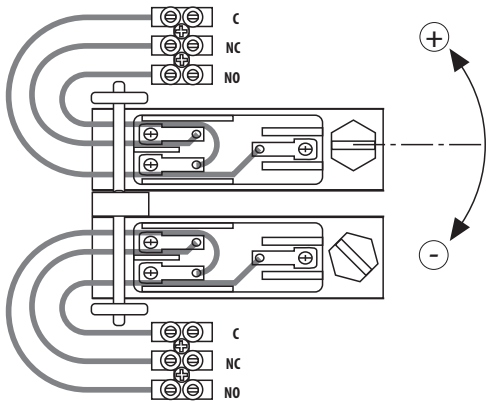


| F | |
|-----|--------------|
| 23F | 1/4-18 NPT F |
| 43M | 1/2-14 NPT |
| 43F | 1/2-14 NPT F |
| 41M | G 1/2 A |

dimensions : mm

| F1 | |
|-----|---------------|
| 1 | R 1/2-ISO 7/1 |
| 2 | R 3/4-ISO 7/1 |
| 3 | 1/2-14 NPT |
| 4 | 3/4-14 NPT |
| A | M20 x 1,5 |
| P11 | cable gland |

Set-point adjustment



MICROSWITCHES
ohmic load

| Single/ Double | Type | 250 | 125 | 24 |
|-------------------|---------------------------------|-----|-----|------|
| | | Vac | Vac | Vdc |
| C/D | std. | 15A | 15A | 0,1A |
| G/H | SPLASH | 15A | 15A | 0,1A |
| I/L | goldplated | | 1A | 0,1A |
| M/P | inert gas filled | 15A | 15A | 0,1A |
| N/R | goldplated and inert gas filled | | 1A | 0,1A |
| E/F | adjustable dead band | 20A | 20A | 0,1A |
| S/T | SPLASH VDC | 15A | 15A | 6A |
| U/V | inert gas filled VDC | 15A | 15A | 6A |

OPTIONS

| | |
|-----|-----------------------------|
| APV | Lower connection |
| P02 | Degreasing for oxygen |
| S31 | 2" stake's mounting bracket |
| T01 | Tropicalisation |

"HOW TO ORDER" SEQUENCE

Section / Model / Set-point Adjustment / Microswitch / Electrical connection / Process connection / Options

3 28 A, B, G, H I, L, M, P N, R, E, F S, T, U, V 1 2 3 4 A P11 APV P02...T01 23F 43M 43F 41M



differential pressure switches



PED 2014/68/EU

These differential pressure switches are IP 65, and suitable for a variety of applications such as: chemical, petrochemical, conventional power station where it is required to control differential pressure, level, flow. The sensing element is a metallic diaphragm with 2 metallic bellows and acts directly on the microswitch through a self-centering pivot. The simplicity of the design, without levers, cams or similar mechanism, gives the unit an exceptionally long working life.

3.29 - Standard Model

Ranges: 0...250 mbar/0...600 mbar.

Electrical specifications: N. 1...2 SPDT microswitches (see microswitches table).

Differential: fixed.

Repeatability: $\leq 1\%$ of the full setting value.

Set-point adjustment: internal, micrometric adjustable.

Protection: IP 65 as per EN 60529/IEC 529.

Electrical wiring: terminal strip.

Earth contacts: N. 1 internal.

Process temperature: $+212^{\circ}\text{F}$ max (100°C).

Ambient temperature: $-13...+149^{\circ}\text{F}$ ($-25...+65^{\circ}\text{C}$).

Thermal drift: $\leq 0,027\% / ^{\circ}\text{F}$ ($\leq 0,05\% / ^{\circ}\text{C}$).

Process connection: AISI 316 st. st.

Elastic element: AISI 316 st.st. diaphragm with N.2 AISI 321 st.st. bellows; PTFE gasket.

Case: AISI 304 st.st.

Cover: AISI 304 st.st. bayonet lock.

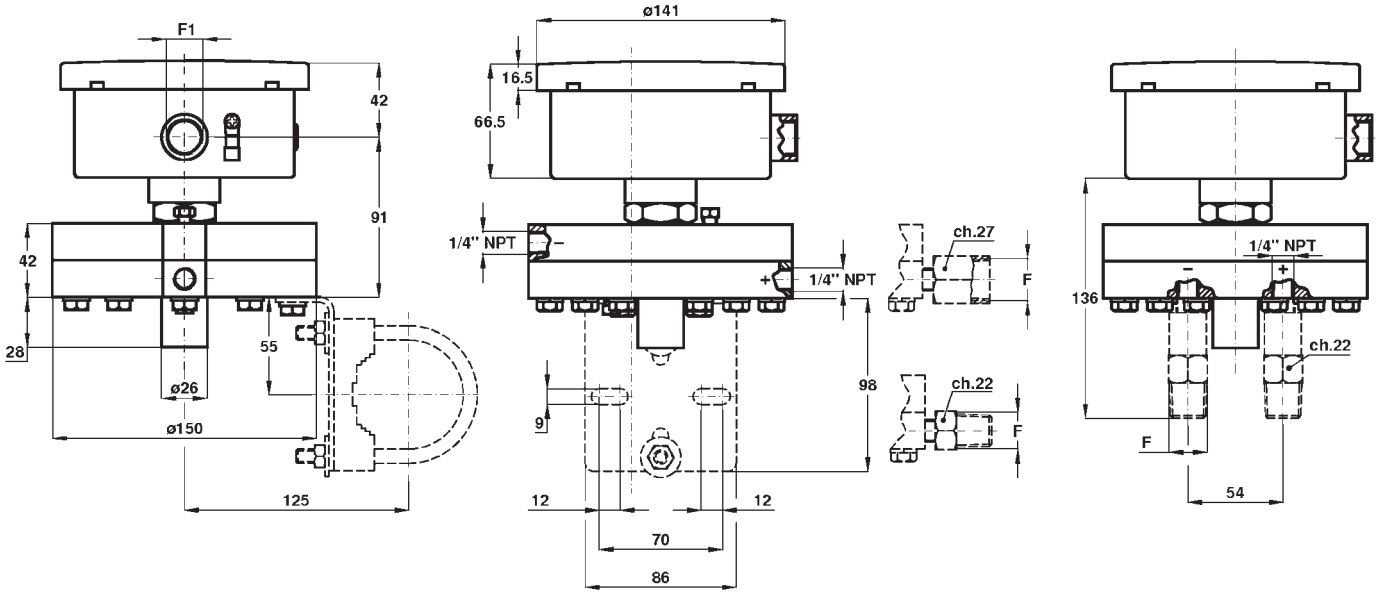
Flushing plugs: AISI 316 st.st.

Tag: AISI 304 st.st., etched.

Weight: 13.66 lbs (6,2 kg).

| Setting ranges | One side static pressure | Both side static pressure | Differential 1 micro (1) | Differential 2 micro (1) |
|----------------|--------------------------|---------------------------|--------------------------|--------------------------|
| 20...250 mbar | 2,5 bar | 4 bar | 10 mbar | 15 mbar |
| 25...400 mbar | 4 bar | 4 bar | 16 mbar | 20 mbar |
| 35...600 mbar | 4 bar | 4 bar | 20 mbar | 30 mbar |

(1) differential and minimum set-point values for microswitches cod. I, L, N, R, S, T, U, V are 300% of those shown in table.

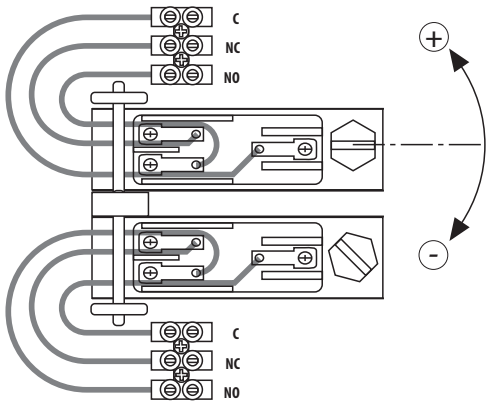


| F |
|---------------------------|
| 23F - 1/4-18 NPT F |
| 43M - 1/2-14 NPT |
| 43F - 1/2-14 NPT F |
| 41M - G 1/2 A |

dimensions : mm

| F1 |
|--------------------------|
| 1 - R 1/2-ISO 7/1 |
| 2 - R 3/4-ISO 7/1 |
| 3 - 1/2-14 NPT |
| 4 - 3/4-14 NPT |
| A - M20 x 1,5 |
| P11 - cable gland |

Set-point adjustment



MICROSWITCHES
ohmic load

| Single / Double | Type | 250 Vac | 125 Vac | 24 Vdc |
|-----------------|---------------------------------|---------|---------|--------|
| C/D | std. | 15A | 15A | 0,1A |
| G/H | SPLASH | 15A | 15A | 0,1A |
| I/L | goldplated | | 1A | 0,1A |
| M/P | inert gas filled | 15A | 15A | 0,1A |
| N/R | goldplated and inert gas filled | | 1A | 0,1A |
| S/T | SPLASH VDC | 15A | 15A | 6A |
| U/V | inert gas filled VDC | 15A | 15A | 6A |

OPTIONS

| |
|--|
| APV - Lower connection |
| P02 - Degreasing for oxygen |
| S31 - 2° stake's mounting bracket |
| T01 - Tropicalisation |

"HOW TO ORDER" SEQUENCE

Section / Model / Set-point Adjustment / Microswitch / Electrical connection / Process connection /Options
3 **29** **A, B, G, H** **1** **APV** **P02...T01**
 I, L, M, P **2** **23F**
 N, R **3** **43M**
 S, T, U, V **4** **43F**
 A **41M**
 P11

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bourdon tube pressure switch



PED 2014/68/EU

These bourdon tube pressure switches are IP 55, and suitable for a variety of applications such as: chemical, petrochemical, conventional power station where the operating pressure is middle-high. They withstand the most unfavourable working conditions, caused by either the process fluid aggressiveness or high ambient temperature.

3.30 - Standard Model

Ranges: 0...10/0...600 bar.

Electrical specifications: N. 1...2 SPDT microswitches (see microswitches table)

Differential: fixed, or adjustable 10%...50% of setting range (see microswitches tables).

Repeatability: $\leq 1\%$ of the full setting value.

Set-point adjustment: internal but also external accessible, micrometric adjustable.

Protection: IP 55 as per EN 60529/IEC 529.

Electrical wiring: terminal strip.

Earth contacts: N. 1 internal, N. 1 external.

Process temperature: *max* 302°F (150°C).

Ambient temperature: -13...+149°F (-25...+65 °C).

Thermal drift: $\leq 0,027\% / ^\circ\text{F}$ ($\leq 0,05\% / ^\circ\text{C}$).

Process connection: AISI 316L st. st.

Elastic element: AISI 316L st.st. seamless tube.

Case: aluminium, blue polyurethane painted.

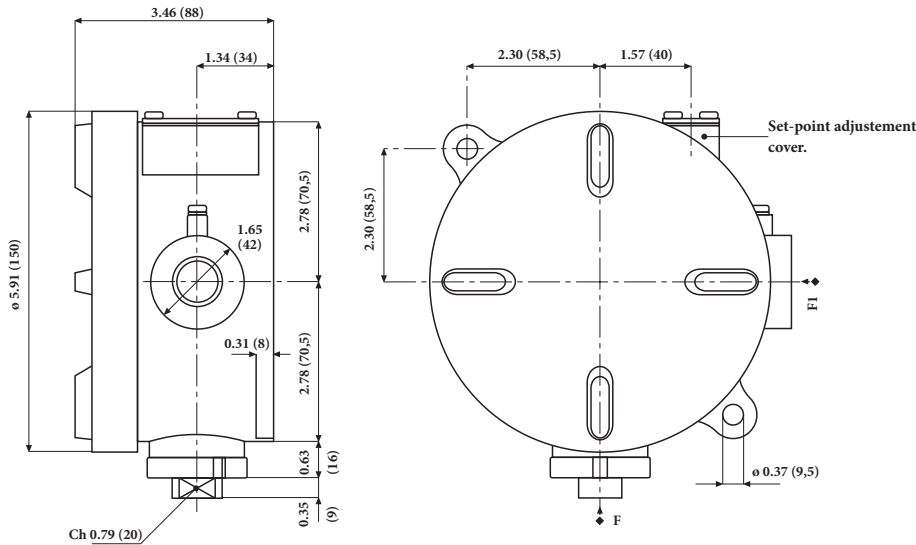
Cover: aluminium, beige polyurethane painted.

Tag: AISI 304 st.st. silk-screen printed.

Weight: 4.62 lbs (2,1 kg).

| Setting ranges | Test pressures | Differential 1 micro (1) | Differential 2 micros (1) |
|----------------|----------------|--------------------------|---------------------------|
| 0,4...10 bar | 15 bar | 0,2 bar | 0,3 bar |
| 0,7...16 bar | 25 bar | 0,25 bar | 0,5 bar |
| 0,7...25 bar | 35 bar | 0,3 bar | 0,5 bar |
| 1...40 bar | 60 bar | 0,5 bar | 0,7 bar |
| 1,5...60 bar | 80 bar | 1 bar | 1,3 bar |
| 2...100 bar | 135 bar | 1,4 bar | 1,8 bar |
| 4...160 bar | 210 bar | 2,2 bar | 2,9 bar |
| 6...250 bar | 350 bar | 3,5 bar | 4 bar |
| 8...400 bar | 500 bar | 5 bar | 6 bar |
| 10...600 bar | 800 bar | 7 bar | 8 bar |

(1) differential and minimum set-point values for microswitches cod. I, L, N, R, S, T, U, V are 300% of those shown in table.

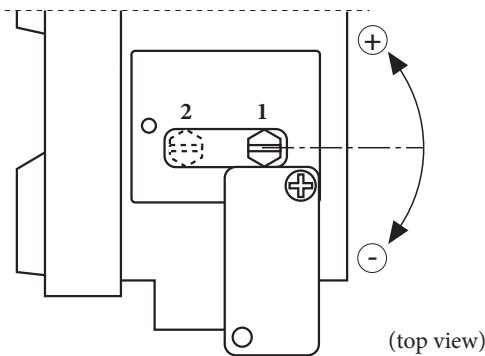


(dimensions : mm)

| F1 | |
|-----|---------------|
| 1 | R 1/2-ISO 7/1 |
| 2 | R 3/4-ISO 7/1 |
| 3 | 1/2-14 NPT |
| 4 | 3/4-14 NPT |
| P11 | cable gland |

| F | |
|-----|--------------|
| 41M | G 1/2 B |
| 43M | 1/2-14 NPT |
| 23F | 1/4-18 NPT F |
| 43F | 1/2-14 NPT F |

Set-point adjustment



(top view)

MICROSWITCHES
ohmic load

| Single / Double | Type | 250 | 125 | 24 |
|-----------------|---------------------------------|-----|-----|------|
| | | Vac | Vac | Vdc |
| C/D | std. | 15A | 15A | 0,1A |
| G/H | SPLASH | 15A | 15A | 0,1A |
| I/L | goldplated | | 1A | 0,1A |
| M/P | inert gas filled | 15A | 15A | 0,1A |
| N/R | goldplated and inert gas filled | | 1A | 0,1A |
| E | adjustable dead band | 20A | 20A | 0,1A |
| S/T | SPLASH VDC | 15A | 15A | 6A |
| U/V | inert gas filled VDC | 15A | 15A | 6A |

OPTIONS

| | |
|-----|----------------------------|
| P02 | Degreasing for oxygen |
| S31 | 2"stake's mounting bracket |
| V20 | Epoxy painting |
| T01 | Tropicalisation |

"HOW TO ORDER" SEQUENCE

Section / Model / Set-point Adjustment / Microswitch / Electrical connection / Process connection /Options

| | | | | | |
|---|----|------------|---|-----|-----------|
| 3 | 30 | C, D, G, H | 1 | 41M | P02...T01 |
| | | I, L, M, P | 2 | 43M | |
| | | N, R, E | 3 | 23F | |
| | | S, T, U, V | 4 | 43F | |
| | | | A | | |

diaphragm pressure switches ATEX flameproof enclosure



**Certificate :
0425 ATEX 2634**



II 2 GD Ex db IIC T6 Ex tb IIIC T85°C

These flameproof electrical apparatus comply with European Directive ATEX 2014/34/EU, for group II and category 2 GD. They are suitable for a variety of uses in hazardous zones 1, 2, 21 and 22 in which the use of flameproof instrument is required. The sensing element is a metallic diaphragm and acts directly on the microswitch through a self-centering pivot. The simplicity of the design, without levers, cams or similar mechanisms, gives the unit an exceptionally long working life.

3.40

Type of ignition protection as per EN 60079-0 and EN 60079-1:
Ex db IIC T6 Ex tb IIIC T85°C.

Protection: IP 65 as per EN 60529.

Ranges: 0...1 bar/0...160 bar; -1...0 bar.

Electrical specifications: N. 1...2 SPDT microswitches, or N.1 with adjustable differential (see microswitches table).

Differential: fixed, or adjustable 10%...50% of setting range (see microswitches table).

Repeatability: ≤ 1% of the full setting value.

Set-point adjustment: internal, micrometric adjustable.

Earth contacts: N. 1 internal, N. 1 external.

Process fluid temperature: -4...+140°F (-20...+60 °C).

Ambient temperature: -4...+149°F (-20...+65 °C).

Thermal drift: ≤ 0,027% / °F (≤ 0,05% / °C).

Process connection: AISI 316 L st.st.

Elastic element: AISI 316 st.st. diaphragm for pressure ranges ≤ 2,5 bar; carbon steel diaphragm covered with AISI 316 L st.st. for pressure ranges > 2,5 bar. Diaphragm PTFE gasket.

Case: aluminium, blue polyurethane painted.

Cover: aluminium, beige polyurethane painted.

Tag: AISI 304 st.st., etched.

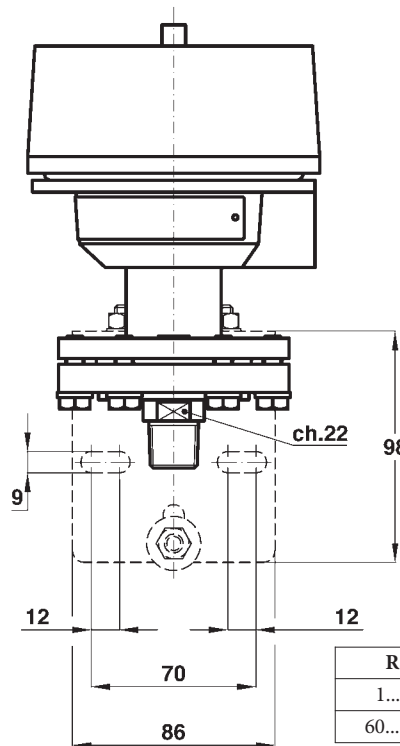
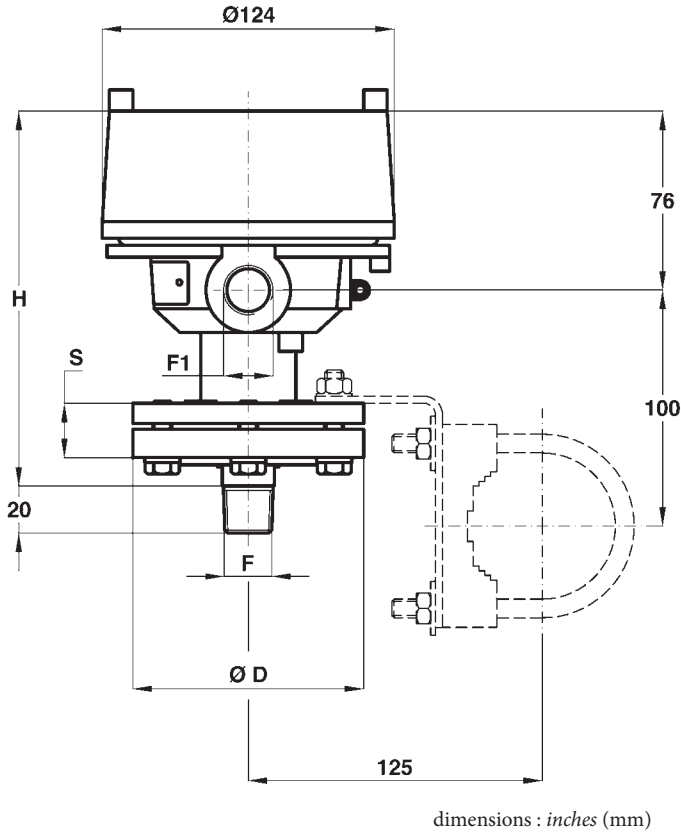
Tell-tale vents: polypropylene.

Weight: 6.39 lbs (2,9 kg).

| Setting ranges | Test pressure | Special overrange (cod. F03) | Differential 1 micro (2) | Differential 2 micro (2) |
|--------------------|---------------|------------------------------|--------------------------|--------------------------|
| 0,06...1 bar (1) | 1,2 bar | 10 bar | 25 mbar | 60 mbar |
| 0,06...1,6 bar (1) | 2 bar | 10 bar | 30 mbar | 60 mbar |
| 0,06...2,5 bar (1) | 3 bar | 10 bar | 40 mbar | 60 mbar |
| 0,08...4 bar | 5 bar | 15 bar | 50 mbar | 80 mbar |
| 0,09...6 bar | 8 bar | 15 bar | 60 mbar | 90 mbar |
| 0,15...10 bar | 12 bar | 20 bar | 100 mbar | 150 mbar |
| 0,25...16 bar | 20 bar | 30 bar | 160 mbar | 250 mbar |
| 0,4...25 bar | 30 bar | 35 bar | 250 mbar | 400 mbar |
| 0,6...40 bar | 48 bar | 60 bar | 400 mbar | 600 mbar |
| 0,9...60 bar | 70 bar | 80 bar | 600 mbar | 900 mbar |
| 6...100 bar | 120 bar | | 4 bar | 6 bar |
| 8...160 bar | 185 bar | | 5 bar | 8 bar |

(1) also available for vacuum and compound

(2) differential and minimum set-point values for microswitches cod. I, L, N, R, S, T, U, V are 300% of those shown in table.



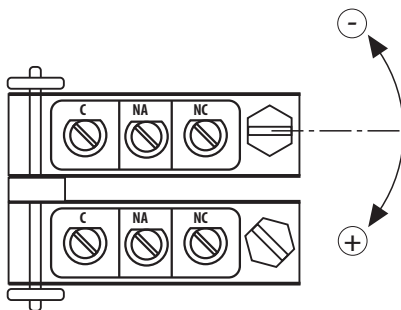
| F1 | |
|----|---------------|
| 1 | R 1/2-ISO 7/1 |
| 2 | R 3/4-ISO 7/1 |
| 3 | 1/2-14 NPT |
| 4 | 3/4-14 NPT |
| A | M20 x 1,5 |

| F | |
|-----|------------|
| 41M | G 1/2 B |
| 43M | 1/2-14 NPT |
| 53M | 3/4-14 NPT |
| 97M | M20 x 1,5 |

| Range | | | |
|--------------|-----|----|-----|
| 1...40 bar | 98 | 23 | 160 |
| 60...160 bar | 110 | 41 | 178 |

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Set- point adjustment



MICROSWITCHES
ohmic load

| Single / Double | Type | 250 | 125 | 24 |
|-----------------|---------------------------------|-----|-----|------|
| | | Vac | Vac | Vdc |
| C/D | std. | 15A | 15A | 0,1A |
| G/H | SPLASH | 15A | 15A | 0,1A |
| I/L | goldplated | | 1A | 0,1A |
| M/P | inert gas filled | 15A | 15A | 0,1A |
| N/R | goldplated and inert gas filled | | 1A | 0,1A |
| E | adjustable dead band | 20A | 20A | 0,1A |
| S/T | SPLASH VDC | 15A | 15A | 2A |
| U/V | inert gas filled VDC | 15A | 15A | 2A |

OPTIONS

| | |
|--|---|
| F03 - Special overpressure stop | E30 - Nace MR 01.03 version (1) |
| M26 - PTFE diaphragm | M23 - Monel diaphragm |
| S16 - Wall mounting bracket | M22 - Hastelloy C diaphragm |
| T01 - Tropicalization | M29 - Tantalum diaphragm |
| P02 - Oxygen service | S31 - 2"stake's mounting bracket |

(1) Monel or Hastelloy C diaphragm.

"HOW TO ORDER" SEQUENCE

| Section | Model | Set-point Adjustment | Microswitch | Electrical connection | Process connection | ATEX | Options |
|---------|-------|---|-----------------------|--------------------------|--------------------|-----------|---------|
| 3 | 40 | C, D, G, H I, L, M, P N, R, E S, T, U, V | 1 2 3 4 A | 41M 43M 53M 97M | 2D2 | F03...S31 | |



diaphragm pressure switches ATEX flameproof enclosure



**Certificate :
0425 ATEX 2634**

CE
PED 2014/68/EU



II 2 GD Ex db IIC T6 Ex tb IIIC T85°C

These flameproof electrical apparatus comply with European Directive ATEX 2014/34/EU, for group II and category 2 GD. They are suitable for a variety of uses in hazardous zones 1, 2, 21 and 22 in which the use of flameproof instrument is required. The sensing element is a metallic diaphragm and acts directly on the microswitch through a self-centering pivot. The simplicity of the design, without levers, cams or similar mechanisms, gives the unit an exceptionally long working life.

3.42 - Standard Model

Type of ignition protection as per EN 60079-0 and EN 60079-1:
Ex db IIC T6 Ex tb IIIC T85°C.

Protection: IP 65 as per EN 60529.

Ranges: 0...1 bar/0...160 bar; -1...0 bar.

Electrical specifications: N. 1...2 SPDT microswitches, or N.1 with adjustable differential (see microswitches table).

Differential: fixed, or adjustable 10%...50% of setting range (see microswitches table).

Repeatability: ≤ 1% of the full setting value.

Set-point adjustment: internal, micrometric adjustable.

Earth contacts: N. 1 internal, N. 1 external.

Process fluid temperature: -4...+140°F (-20...+60 °C).

Ambient temperature: -4...+149°F (-20...+65 °C).

Thermal drift: ≤ 0,027% / °F (≤ 0,05% / °C).

Process connection: AISI 316 st.st.

Elastic element: AISI 316 st.st. diaphragm for pressure ranges ≤ 2,5 bar; carbon steel diaphragm covered with AISI 316 st.st. for pressure ranges > 2,5 bar. Diaphragm PTFE gasket.

Case: aluminium, blue polyurethane painted.

Cover: aluminium, beige polyurethane painted.

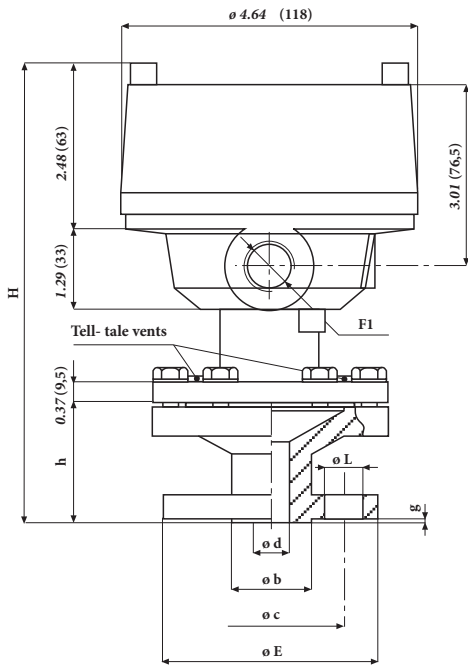
Tag: AISI 304 st.st., etched.

Tell-tale vents: polypropylene.

| Set-point ranges | Test pressure | Special overrange (cod. F03) | Differential 1 micro (2) | Differential 2 micro (2) |
|--------------------|---------------|------------------------------|--------------------------|--------------------------|
| 0,06...1 bar (1) | 1,2 bar | 10 bar | 25 mbar | 60 mbar |
| 0,06...1,6 bar (1) | 2 bar | 10 bar | 30 mbar | 60 mbar |
| 0,06...2,5 bar (1) | 3 bar | 10 bar | 40 mbar | 60 mbar |
| 0,08...4 bar | 5 bar | 15 bar | 50 mbar | 80 mbar |
| 0,09...6 bar | 8 bar | 15 bar | 60 mbar | 90 mbar |
| 0,15...10 bar | 12 bar | 20 bar | 100 mbar | 150 mbar |
| 0,25...16 bar | 20 bar | 30 bar | 160 mbar | 250 mbar |
| 0,4...25 bar | 30 bar | 35 bar | 250 mbar | 400 mbar |
| 0,6...40 bar | 48 bar | 60 bar | 400 mbar | 600 mbar |
| 0,9...60 bar | 70 bar | 80 bar | 600 mbar | 900 mbar |
| 6...100 bar | 120 bar | | 4 bar | 6 bar |
| 8...160 bar | 185 bar | | 5 bar | 8 bar |

(1) also available for vacuum and compound

(2) differential and minimum set-point values for microswitches cod. I, L, N, R, S, T, U, V are 300% of those shown in table.



dimensions : inches (mm)

UNI - DIN STANDARDS (1)

dimensions : mm

| Code | DN(2) | PN-bar | h | H | E | b | d | g | c | L(3) |
|------|-------|---------|----|-----|-----|----|----|---|----|------|
| OOO | 15 | 6 | 46 | 188 | 80 | 40 | 15 | 2 | 55 | 11,5 |
| OQO | 15 | 10...16 | 50 | 192 | 95 | 45 | 15 | 2 | 65 | 14 |
| OSO | 15 | 25...40 | 52 | 194 | 95 | 45 | 15 | 2 | 65 | 14 |
| QOO | 25 | 6 | 49 | 191 | 100 | 60 | 25 | 2 | 75 | 11,5 |
| QQO | 25 | 10...16 | 59 | 201 | 115 | 68 | 25 | 2 | 85 | 14 |
| QSO | 25 | 25...40 | 59 | 201 | 115 | 68 | 25 | 2 | 85 | 14 |

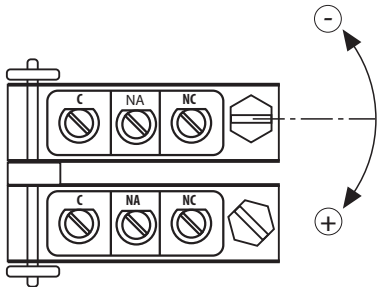
ASME STANDARDS (1)

dimensions : inches

| Code | DN(2) | Class | h | H | E | b | d | | | L(3) |
|------|-------|-------|------|------|------|------|------|------|------|------|
| 4AA | 1/2" | 150 | 1.89 | 7.48 | 3.50 | 1.38 | 0.59 | 0.06 | 2.38 | 0.63 |
| 4BA | 1/2" | 300 | 2.11 | 7.70 | 3.74 | 1.38 | 0.59 | 0.06 | 2.64 | 0.63 |
| 4DA | 1/2" | 600 | 2.36 | 7.95 | 3.74 | 1.38 | 0.59 | 0.25 | 2.64 | 0.63 |
| 6AA | 1" | 150 | 2.01 | 7.60 | 4.25 | 2 | 0.98 | 0.06 | 3.13 | 0.63 |
| 6BA | 1" | 300 | 2.36 | 7.95 | 4.88 | 2 | 0.98 | 0.06 | 3.50 | 0.75 |
| 6DA | 1" | 600 | 2.60 | 8.19 | 4.88 | 2 | 0.98 | 0.25 | 3.50 | 0.75 |

- 1) Finishing: UNI - Ra 12,5 µm max;
DIN - Rz 40...160 µm; ASME - AARH 125...250 µin
- 2) Available also DN 20,32,40,50 e 1" 1/2 , 2"
- 3) N°4 threaded or through holes.

Set- point adjustment



MICROSWITCHES
ohmic load

| Single / Double | Type | 250 | 125 | 24 |
|-----------------|---------------------------------|-----|-----|------|
| | | Vac | Vac | Vdc |
| C/D | std. | 15A | 15A | 0,1A |
| G/H | SPLASH | 15A | 15A | 0,1A |
| I/L | goldplated | | 1A | 0,1A |
| M/P | inert gas filled | 15A | 15A | 0,1A |
| N/R | goldplated and inert gas filled | | 1A | 0,1A |
| E | adjustable dead band | 20A | 20A | 0,1A |
| S/T | SPLASH VDC | 15A | 15A | 2A |
| U/V | inert gas filled VDC | 15A | 15A | 2A |

| F1 |
|-------------------|
| 1 - R 1/2-ISO 7/1 |
| 2 - R 3/4-ISO 7/1 |
| 3 - 1/2-14 NPT |
| 4 - 3/4-14 NPT |
| A - M20 x 1,5 |

OPTIONS

| | |
|--|--|
| F03 - Special overpressure stop | E30 - Nace MR 01.03 version (1) |
| M26 - PTFE diaphragm | M23 - Monel diaphragm |
| T01 - Tropicalization | M22 - Hastelloy C diaphragm |
| P02 - Oxygen service | M29 - Tantalum diaphragm |

(1) Monel or Hastelloy C diaphragm.

"HOW TO ORDER" SEQUENCE

Section / Model / Set-point Adjustment / Microswitch / Electrical connection / Process connection / ATEX / Options
3 42 C, D, G, H 1 OOO...QSO 2D2 F03...M29
I, L, M, P 2 4AA....6AA
N, R, E 3
S, T, U, V 4
A



diaphragm pressure switches ATEX flameproof enclosure



**Certificate :
0425 ATEX 2634**



II 2 GD Ex db IIC T6 Ex tb IIC T85°C

These flameproof electrical apparatus comply with European Directive ATEX 2014/34/EU, for group II and category 2 GD. They are suitable for a variety of uses in hazardous zones 1, 2, 21 and 22 in which the use of flameproof instrument is required. The sensing element is a metallic diaphragm and acts directly on the microswitch through a self-centering pivot. The simplicity of the design, without levers, cams or similar mechanisms, gives the unit an exceptionally long working life.

3.43 - Standard Model

Type of ignition protection as per EN 60079-0 and EN 60079-1:
Ex db IIC T6 Ex tb IIC T85°C.

Protection: IP 65 as per EN 60529.

Ranges: 0...1 bar/0...160 bar; -1...0 bar.

Electrical specifications: N. 1...2 SPDT microswitches, or N.1 with adjustable differential (see microswitches table).

Differential: fixed, or adjustable 10%...50% of setting range (see microswitches table).

Repeatability: ≤ 1% of the full setting value.

Set-point adjustment: internal, micrometric adjustable.

Earth contacts: N. 1 internal, N. 1 external.

Process fluid temperature: -4...+140°F (-20...+60 °C).

Ambient temperature: -4...+149°F (-20...+65 °C).

Thermal drift: ≤ 0,027% / °F (≤ 0,05% / °C).

Process connection: AISI 316 st.st.

Elastic element: AISI 316 st.st. diaphragm for pressure ranges ≤ 2,5 bar; carbon steel diaphragm covered with AISI 316 st.st. for pressure ranges > 2,5 bar. Diaphragm PTFE gasket.

Case: aluminium, blue polyurethane painted.

Cover: aluminium, beige polyurethane painted.

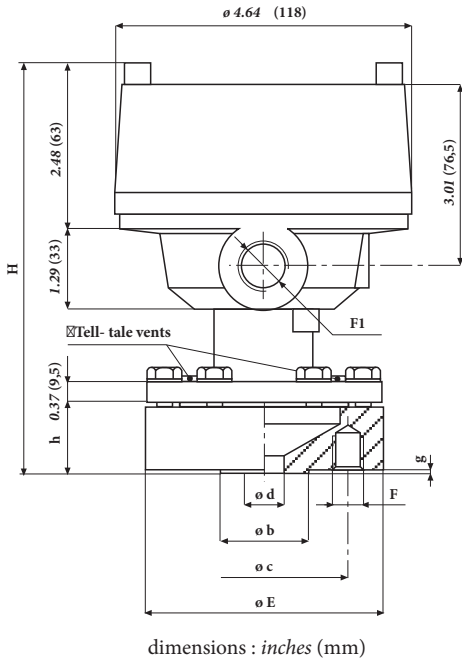
Tag: AISI 304 st.st., etched.

Tell-tale vents: polypropylene.

| Setting ranges | Test pressure | Special overrange (cod. F03) | Differential 1 micro (2) | Differential 2 micro (2) |
|--------------------|---------------|------------------------------|--------------------------|--------------------------|
| 0,06...1 bar (1) | 1,2 bar | 10 bar | 25 mbar | 60 mbar |
| 0,06...1,6 bar (1) | 2 bar | 10 bar | 30 mbar | 60 mbar |
| 0,06...2,5 bar (1) | 3 bar | 10 bar | 40 mbar | 60 mbar |
| 0,08...4 bar | 5 bar | 15 bar | 50 mbar | 80 mbar |
| 0,09...6 bar | 8 bar | 15 bar | 60 mbar | 90 mbar |
| 0,15...10 bar | 12 bar | 20 bar | 100 mbar | 150 mbar |
| 0,25...16 bar | 20 bar | 30 bar | 160 mbar | 250 mbar |
| 0,4...25 bar | 30 bar | 35 bar | 250 mbar | 400 mbar |
| 0,6...40 bar | 48 bar | 60 bar | 400 mbar | 600 mbar |
| 0,9...60 bar | 70 bar | 80 bar | 600 mbar | 900 mbar |
| 6...100 bar | 120 bar | | 4 bar | 6 bar |
| 8...160 bar | 185 bar | | 5 bar | 8 bar |

(1) also available for vacuum and compound

(2) differential and minimum set-point values for microswitches cod. I, L, N, R, S, T, U, V are 300% of those shown in table.



UNI - DIN STANDARDS (1)

dimensions : mm

| Code | DN(2) | PN-bar | h | H | E | b | d | g | c | F | N (3) |
|------|-------|---------|----|-----|-----|-----|----|---|-----|-----|-------|
| SO0 | 40 | 6 | 27 | 169 | 130 | 80 | 40 | 3 | 100 | M12 | 4 |
| SQ0 | 40 | 10...16 | 27 | 169 | 150 | 88 | 40 | 3 | 110 | M16 | 4 |
| SS0 | 40 | 25...40 | 27 | 169 | 150 | 88 | 40 | 3 | 110 | M16 | 4 |
| TO0 | 50 | 6 | 27 | 169 | 140 | 90 | 50 | 3 | 110 | M12 | 4 |
| TQ0 | 50 | 10...16 | 27 | 169 | 165 | 102 | 50 | 3 | 125 | M16 | 4 |
| TS0 | 50 | 25...40 | 27 | 169 | 165 | 102 | 50 | 3 | 125 | M16 | 4 |

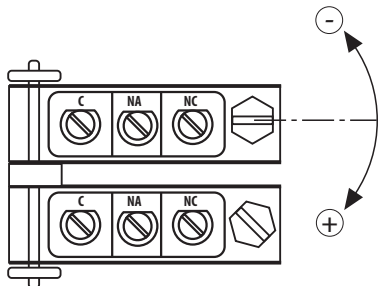
ASME STANDARDS (1)

dimensions : inches

| Code | DN(2) | Class | h | H | E | b | d | g | c | F | N(3) |
|------|--------|-------|------|------|------|------|------|------|------|------------|------|
| AAA | 1" 1/2 | 150 | 1.06 | 6.65 | 5 | 2.87 | 1.57 | 0.06 | 3.87 | 1/2" 13UNC | 4 |
| ABA | 1" 1/2 | 300 | 1.06 | 6.65 | 6.12 | 2.87 | 1.57 | 0.06 | 4.50 | 3/4" 10UNC | 4 |
| ADA | 1" 1/2 | 600 | 1.91 | 7.50 | 6.12 | 2.87 | 1.57 | 0.25 | 4.50 | 3/4" 10UNC | 4 |
| BAA | 2" | 150 | 1.06 | 6.65 | 6.12 | 3.63 | 1.97 | 0.06 | 4.75 | 5/8" 11UNC | 4 |
| BBA | 2" | 300 | 1.06 | 6.65 | 6.50 | 3.63 | 1.97 | 0.06 | 5 | 5/8" 11UNC | 8 |
| BDA | 2" | 600 | 1.91 | 7.50 | 6.50 | 3.63 | 1.97 | 0.25 | 5 | 5/8" 11UNC | 8 |

- 1) Finishing: UNI - Ra 12,5 µm max; DIN - Rz 40...160 µm; ASME - AARH 125...250 µm
- 2) Also available DN 15,20,25 e 1/2 1".
- 3) N° of threaded or through holes.

Set-point adjustment



MICROSWITCHES
ohmic load

| Single / Double | Type | 250 | 125 | 24 |
|-----------------|---------------------------------|-----|-----|------|
| | | Vac | Vac | Vdc |
| C/D | std. | 15A | 15A | 0,1A |
| G/H | SPLASH | 15A | 15A | 0,1A |
| I/L | goldplated | | 1A | 0,1A |
| M/P | inert gas filled | 15A | 15A | 0,1A |
| N/R | goldplated and inert gas filled | | 1A | 0,1A |
| E | adjustable dead band | 20A | 20A | 0,1A |
| S/T | SPLASH VDC | 15A | 15A | 2A |
| U/V | inert gas filled VDC | 15A | 15A | 2A |

| F1 |
|-------------------|
| 1 - R 1/2-ISO 7/1 |
| 2 - R 3/4-ISO 7/1 |
| 3 - 1/2-14 NPT |
| 4 - 3/4-14 NPT |
| A - M20 x 1,5 |

OPTIONS

| | |
|---------------------------------|---------------------------------|
| F03 - Special overpressure stop | E30 - Nace MR 01.03 version (1) |
| M26 - PTFE diaphragm | M23 - Monel diaphragm |
| T01 - Tropicalization | M22 - Hastelloy C diaphragm |
| P02 - Oxygen service | M29 - Tantalum diaphragm |

(1) Monel or Hastelloy C diaphragm.

"HOW TO ORDER" SEQUENCE

Section / Model / Set-point Adjustment / Microswitch / Electrical connection / Process connection / ATEX / Options

3 43 C, D, G, H 1 SQ0...TS0 2D2 F03...M29
I, L, M, P 2 AAA...BDA
N, R, E 3
S, T, U, V 4
A

diaphragm pressure switches ATEX flameproof enclosure



Certificate:
0425 ATEX 2634



PED 2014/68/EU



II 2 GD Ex db IIC T6 Ex tb IIIC T85°C

These flameproof electrical apparatus comply with European Directive ATEX 2014/34/EU, for group II and category 2 GD. They are suitable for a variety of uses in hazardous zones 1, 2, 21 and 22 in which the use of flameproof instrument is required. The sensing element is a metallic diaphragm and acts directly on the microswitch through a self-centering pivot. The simplicity of the design, without levers, cams or similar mechanisms, gives the unit an exceptionally long working life.

3.45 - Standard Model

Type of ignition protection as per EN 60079-0 and EN 60079-1:
Ex db IIC T6 Ex tb IIIC T85°C.

Protection: IP 65 as per EN 60529.

Ranges: 0...40 mbar/0...600mbar; -40...0 mbar/-600...0 mbar.

Electrical specifications: N. 1...2 SPDT microswitches (see microswitches table).

Differential: fixed.

Repeatability: ≤ 1% of the full setting value.

Set-point adjustment: internal, micrometric adjustable.

Earth contacts: N. 1 internal, N. 1 external.

Process fluid temperature: -4...+140°F (-20...+60 °C).

Ambient temperature: -4...+149°F (-20...+65 °C).

Thermal drift: ≤ 0,027% / °F (≤ 0,05% / °C).

Process connection: AISI 316L st.st.

Elastic element: AISI 316 Ti st.st. diaphragm. PTFE gasket.

Case: aluminium, blue polyurethane painted.

Cover: aluminium, beige polyurethane painted.

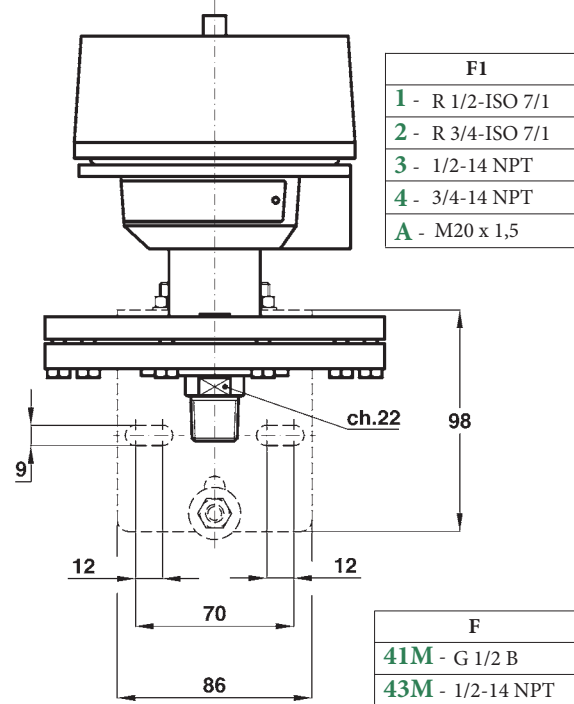
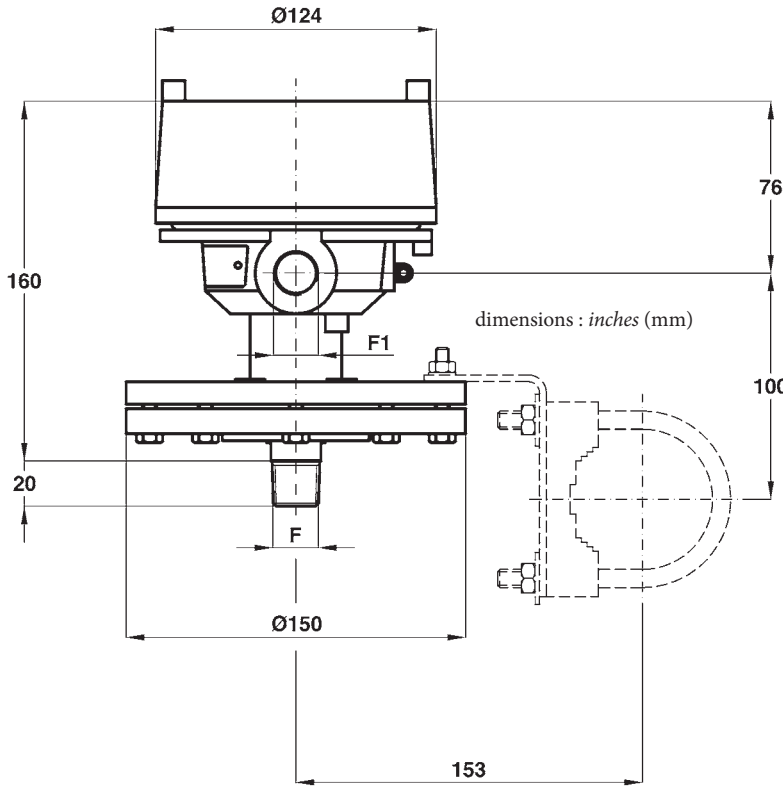
Tag: AISI 304 st.st., etched.

Tell-tale vents: polypropylene.

| Setting ranges (1) | Test pressure | Differential 1 micro (2) | Differential 2 micro (2) |
|--------------------|---------------|--------------------------|--------------------------|
| 5...40 mbar | 0,5 bar | 4 mbar | 5 mbar |
| 5...60 mbar | 0,5 bar | 4 mbar | 5 mbar |
| 6...100 mbar | 0,5 bar | 4 mbar | 6 mbar |
| 9...160 mbar | 0,5 bar | 6 mbar | 9 mbar |
| 9...250 mbar | 1 bar | 6 mbar | 9 mbar |
| 15...400 mbar | 1 bar | 10 mbar | 15 mbar |
| 18...600 mbar | 1 bar | 12 mbar | 18 mbar |

(1) also available for vacuum and compound

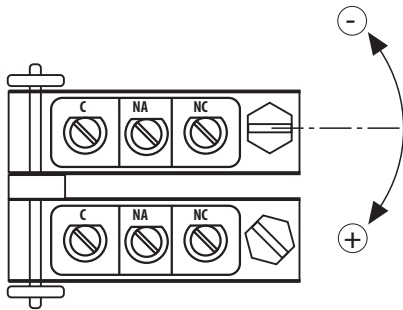
(2) differential and minimum set-point values for microswitches cod. I, L, N, R, S, T, U, V are 300% of those shown in table.



| F1 | |
|----|---------------|
| 1 | R 1/2-ISO 7/1 |
| 2 | R 3/4-ISO 7/1 |
| 3 | 1/2-14 NPT |
| 4 | 3/4-14 NPT |
| A | M20 x 1,5 |

| F | |
|-----|------------|
| 41M | G 1/2 B |
| 43M | 1/2-14 NPT |

Set- point adjustment



MICROSWITCHES
ohmic load

| Simple / Doble | Type | 250 | 125 | 24 |
|-------------------|---------------------------------|-----|-----|------|
| | | Vac | Vac | Vdc |
| C/D | std. | 15A | 15A | 0,1A |
| G/H | SPLASH | 15A | 15A | 0,1A |
| I/L | goldplated | | 1A | 0,1A |
| M/P | inert gas filled | 15A | 15A | 0,1A |
| N/R | goldplated and inert gas filled | | 1A | 0,1A |
| S/T | SPLASH VDC | 15A | 15A | 2A |
| U/V | inert gas filled VDC | 15A | 15A | 2A |

OPTIONS

| | |
|-----------------------------|-----------------------------------|
| M26 - PTFE diaphragm | M29 - Tantalum diaphragm |
| S16 - Wall mounting bracket | S31 - 2" stake's mounting bracket |
| T01 - Tropicalization | |

(1) Monel or Hastelloy C diaphragm.

"HOW TO ORDER" SEQUENCE

| Section / Model / Set-point Adjustment / Microswitch/ Electrical connection / Process connection / ATEX / Options |
|---|
| 3 45 C, D, G, H 1 41M 2D2 M26...S31 |
| I, L, M, P 2 43M |
| N, R, E 3 53M |
| S, T, U, V 4 97M |
| A |

differential pressure switches ATEX flameproof enclosure



Certificate:
V



II 2 GD Ex db IIC T6 Ex tb IIIC T85°C

These flameproof electrical apparatus comply with European Directive ATEX 2014/34/EU, for group II and category 2 GD. They are suitable for a variety of uses in hazardous zones 1, 2, 21 and 22 in which the use of flameproof instrument is required. The sensing element is a metallic diaphragm with 2 metallic bellows and acts directly on the microswitch through a self-centering pivot. The simplicity of the design, without levers, cams or similar mechanisms, gives the unit an exceptionally long working life.

3.48 - Standard Model

Type of ignition protection as per EN 60079-0 and EN 60079-1:
Ex db IIC T6 Ex tb IIIC T85°C.

Protection: IP 65 as per IEC 529.

Certificate: no. 04 ATEX 027, issued by CESI - Milano, notified body no. 0722.

Ranges: 0...1 bar/0...10 bar.

Electrical specifications: N. 1...2 SPDT microswitches, or N. 1 with adjustable differential (see microswitches table).

Differential: fixed, or adjustable 10%...50% of setting range (see microswitches table).

Repeatability: ≤ 1% of the full setting value.

Set-point adjustment: internal, micrometric adjustable.

Earth contacts: N. 1 internal, N. 1 external.

Process fluid temperature: -4...+140°F (-20...+60 °C).

Ambient temperature: -4...+149°F (-20...+65 °C).

Thermal drift: ≤ 0,027% / °F (≤ 0,05% / °C).

Process connection: AISI 316 st.st.

Elastic element: AISI 316 st.st. diaphragm with N. 2 AISI 321 st.st. bellows; PTFE gasket.

Case: aluminium, blue polyurethane painted.

Cover: aluminium, beige polyurethane painted.

Tag: AISI 304 st.st., silk-screen painted.

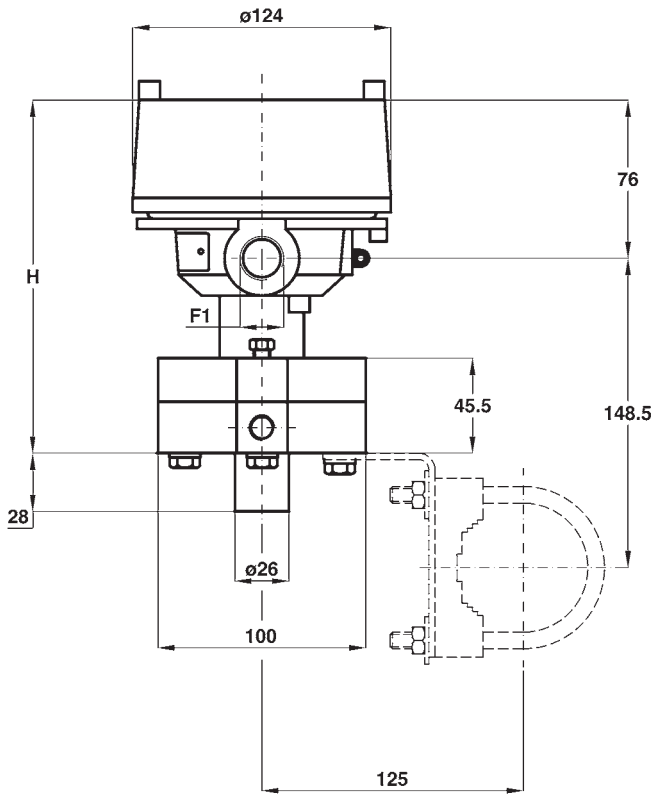
Tell-tale vents: polypropylene.

Flushing plugs: AISI 316 st.st.

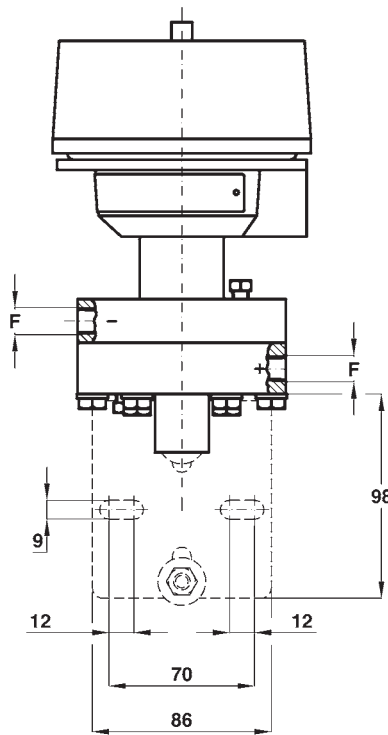
Weight: 9.25 lbs (4,2 kg).

| Setting ranges | One side | Both side | Differential | Differential |
|----------------|-----------------|-----------------|--------------|--------------|
| | static pressure | static pressure | 1 micro (1) | 2 micro (1) |
| 0,1...1 bar | 10 bar | 25 bar | 60 mbar | 80 mbar |
| 0,1...2,5 bar | 15 bar | 25 bar | 60 mbar | 80 mbar |
| 0,2...4 bar | 15 bar | 25 bar | 70 mbar | 100 mbar |
| 0,2...6 bar | 15 bar | 25 bar | 100 mbar | 150 mbar |
| 0,2...10 bar | 15 bar | 25 bar | 120 mbar | 170 mbar |

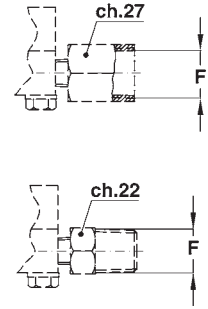
1) differential and minimum set-point values for microswitches cod. I, L, N, R, S, T, U, V are 300% of those shown in table.



dimensions : inches (mm)

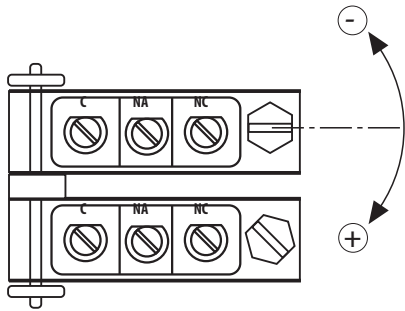


| F1 | |
|----|---------------|
| 1 | R 1/2-ISO 7/1 |
| 2 | R 3/4-ISO 7/1 |
| 3 | 1/2-14 NPT |
| 4 | 3/4-14 NPT |
| A | M20 x 1,5 |



| F | |
|-----|--------------|
| 21F | G 1/4 |
| 23F | 1/4-18 NPT |
| 43F | 1/2-14 NPT |
| 43M | 1/2-14 NPT M |

Set- point adjustment



MICROSWITCHES
ohmic load

| Single / Double | Type | 250 Vac | 125 Vac | 24 Vdc |
|-----------------|---------------------------------|---------|---------|--------|
| C/D | std. | 15A | 15A | 0,1A |
| G/H | SPLASH | 15A | 15A | 0,1A |
| I/L | goldplated | | 1A | 0,1A |
| M/P | inert gas filled | 15A | 15A | 0,1A |
| N/R | goldplated and inert gas filled | | 1A | 0,1A |
| E | adjustable dead band | 20A | 20A | 0,1A |
| S/T | SPLASH VDC | 15A | 15A | 2A |
| U/V | inert gas filled VDC | 15A | 15A | 2A |

"HOW TO ORDER" SEQUENCE

| | | | | | |
|--|------------|---|-----|-----|--|
| Section / Model / Set-point Adjustment / Microswitch / Electrical connection / Process connection / ATEX / Options | | | | | |
| 3 48 | C, D, G, H | 1 | 21F | 2D2 | |
| | I, L, M, P | 2 | 23F | | |
| | N, R, E | 3 | 43F | | |
| | S, T, U, V | 4 | 43M | | |
| | | A | | | |



differential pressure switches ATEX flameproof enclosure



**Certificate :
0425 ATEX 2634**



PED 2014/68/EU



II 2 GD Ex db IIC T6 Ex tb IIIC T85°C

These flameproof electrical apparatus comply with European Directive ATEX 2014/34/EU, for group II and category 2 GD. They are suitable for a variety of uses in hazardous zones 1, 2, 21 and 22 in which the use of flameproof instrument is required. The sensing element is a metallic diaphragm with 2 metallic bellows and acts directly on the microswitch through a self-centering pivot. The simplicity of the design, without levers, cams or similar mechanisms, gives the unit an exceptionally long working life.

3.49 - Standard Model

Type of ignition protection as per EN 60079-0 and EN 60079-1:
Ex db IIC T6 Ex tb IIIC T85°C.

Protection: IP 65 as per IEC 529.

Ranges: 0...250 mbar/0...600 mbar.

Electrical specifications: N. 1...2 SPDT microswitches, or N. 1 with adjustable differential. (see microswitches table)

Differential: fixed.

Repeatability: ≤ 1% of the full setting value.

Set-point adjustment: internal, micrometric adjustable.

Earth contacts: N. 1 internal, N. 1 external.

Process fluid temperature: -4...+140°F (-20...+60 °C).

Ambient temperature: -4...+149°F (-20...+65 °C).

Thermal drift: ≤ 0,027% / °F (≤ 0,05% / °C).

Process connection: AISI 316 st.st.

Elastic element: AISI 316 st.st. diaphragm with N. 2 AISI 321 st.st. bellows; PTFE gasket.

Case: aluminium, blue polyurethane painted.

Cover: aluminium, beige polyurethane painted.

Tag: AISI 304 st.st., silk-screen painted.

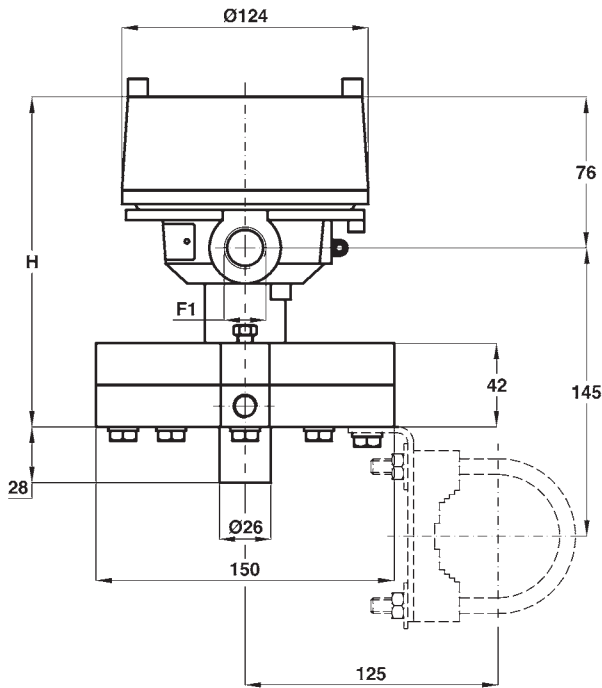
Tell-tale vents: polypropylene.

Flushing plugs: AISI 316 st.st.

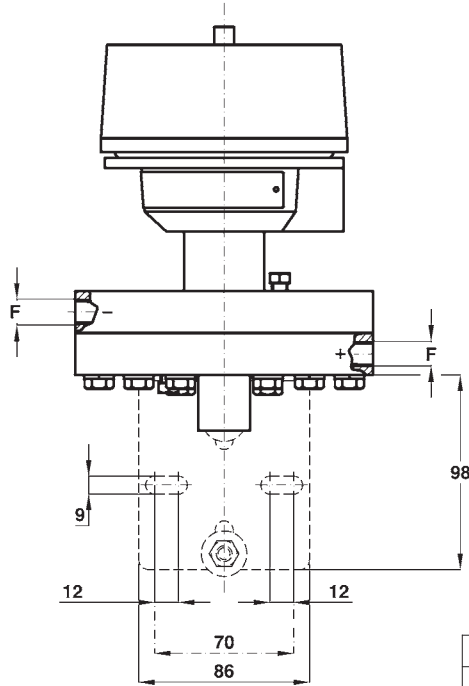
Weight: 14.77 lbs (6,7 kg).

| Setting ranges | One side static pressure | Both side static pressure | Differential 1 micro (1) | Differential 2 micro (1) |
|----------------|-----------------------------|------------------------------|-----------------------------|-----------------------------|
| 20...250 mbar | 2,5 bar | 4 bar | 10 mbar | 15 mbar |
| 25...400 mbar | 4 bar | 4 bar | 16 mbar | 20 mbar |
| 35...600 mbar | 4 bar | 4 bar | 20 mbar | 30 mbar |

(1) differential and minimum set-point values for microswitches cod. I, L, N, R, S, T, U, V are 300% of those shown in table.



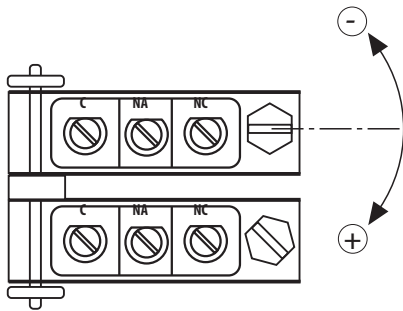
dimensions : inches (mm)



| F1 | |
|----|---------------|
| 1 | R 1/2-ISO 7/1 |
| 2 | R 3/4-ISO 7/1 |
| 3 | 1/2-14 NPT |
| 4 | 3/4-14 NPT |
| A | M20 x 1,5 |

| F | |
|-----|--------------|
| 21F | G 1/4 |
| 23F | 1/4-18 NPT |
| 43F | 1/2-14 NPT |
| 43M | 1/2-14 NPT M |

Set- point adjustment



MICROSWITCHES
ohmic load

| Single / Double | Type | 250 | 125 | 24 |
|-----------------|---------------------------------|-----|-----|------|
| | | Vac | Vac | Vdc |
| C/D | std. | 15A | 15A | 0,1A |
| G/H | SPLASH | 15A | 15A | 0,1A |
| I/L | goldplated | | 1A | 0,1A |
| M/P | inert gas filled | 15A | 15A | 0,1A |
| N/R | goldplated and inert gas filled | | 1A | 0,1A |
| S/T | SPLASH VDC | 15A | 15A | 2A |
| U/V | inert gas filled VDC | 15A | 15A | 2A |

”HOW TO ORDER” SEQUENCE

Section / Model / Set-point Adjustment / Microswitch / Electrical connection / Process connection / ATEX / Options

| | | | | | |
|---|----|------------|---|-----|-----|
| 3 | 49 | C, D, G, H | 1 | 21F | 2D2 |
| | | I, L, M, P | 2 | 23F | |
| | | N, R | 3 | 43F | |
| | | S, T, U, V | 4 | 43M | |
| | | | A | | |

NUOVA FIMA

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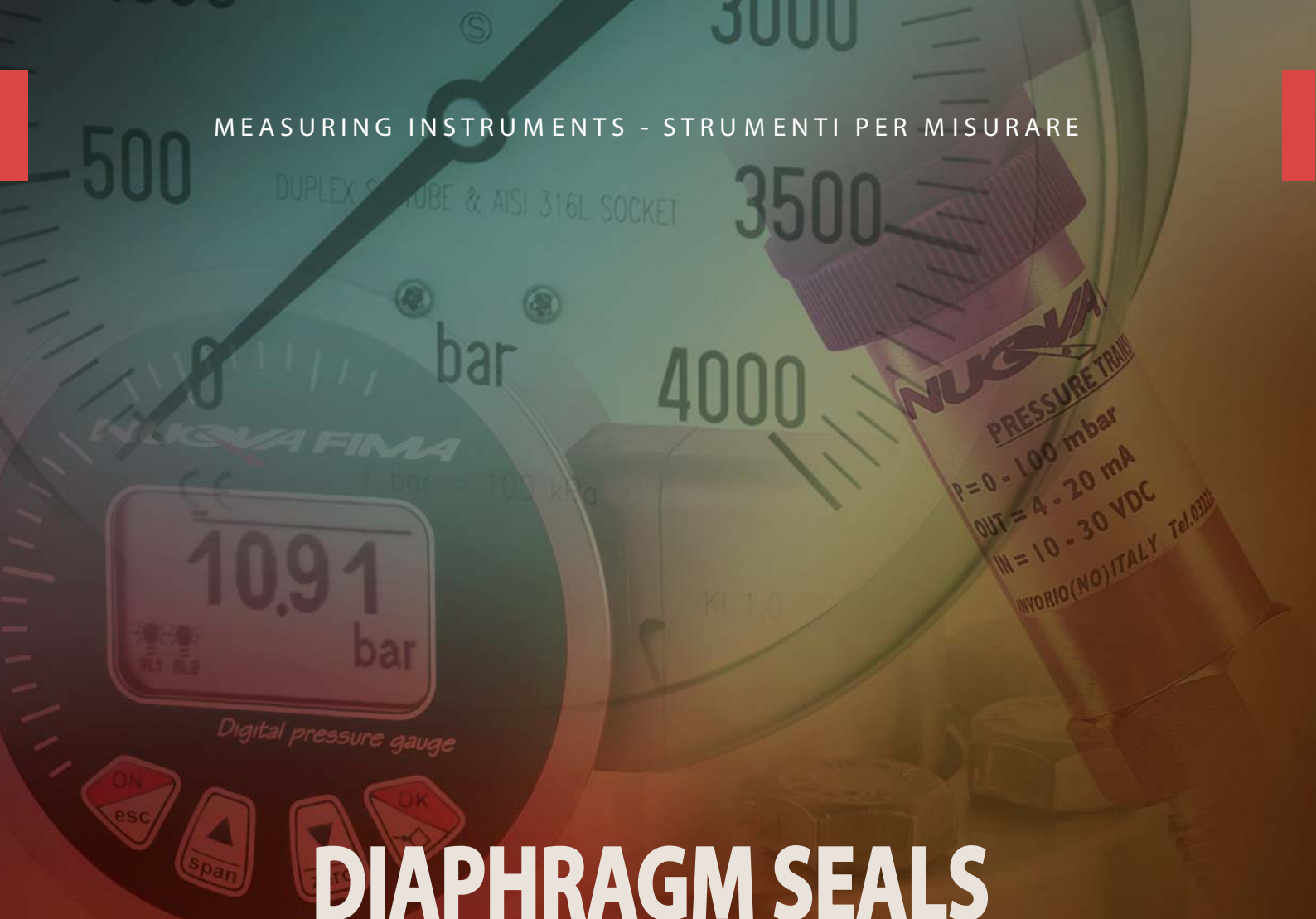
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MEASURING INSTRUMENTS - STRUMENTI PER MISURARE



DIAPHRAGM SEALS

NUOVA FIMA

introduction to diaphragm seals



The diaphragm seal is designed to measure the process fluid pressure when the process fluid temperature is non-compatible to the instrument sensing element; when the process fluid may corrode the inner parts of the measuring instrument in contact with the fluid; when the fluid is highly viscous or it contains solid suspensions; when it solidifies at temperature changes. It is also used for long-distance pressure fluid transmission and measurement allowing to isolate dangerous fluids from the operating areas. It can be directly connected to the indicating instrument or through a capillary.

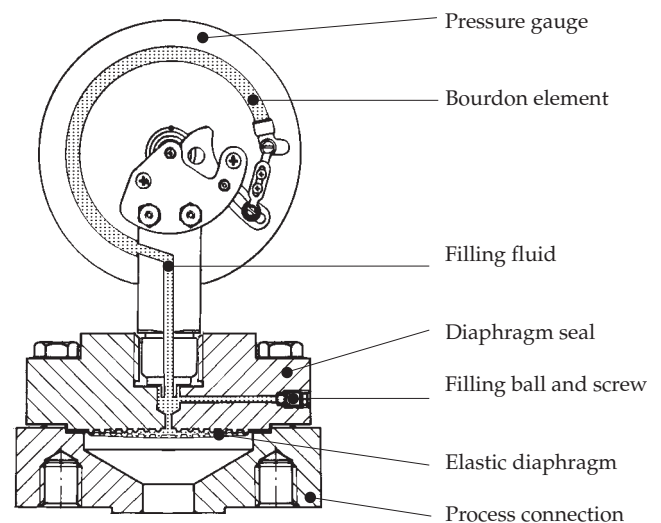
OPERATING PRINCIPLE

The diaphragm seal operating principle is based on the fluids non-compressibility (see drawing at right). The separation from the process fluid is obtained from an elastic diaphragm sealed to the diaphragm seal body. The inner chamber between the diaphragm and the Bourdon tube is at first evacuated than filled with properly degased fill-fluid. At this point the system is able to transmit the mechanical stress produced by the process fluid on the diaphragm to the Bourdon tube. Any air bubble in the circuit must be avoided as it could affect the right system operation.

RECOMMENDATIONS

The diaphragm and the body are in contact with the process fluid, therefore they must withstand the temperature and the possible fluid chemical aggression. A guide to the choice of the materials to use depending on the process medium is available under section "CORROSION/MATERIALS".

The filling fluid must be selected depending on the pressure fluid nature and temperature as well since any diaphragm fail may contaminate the process fluid and damage the whole process plant. A guide for a filling-fluid selection is available under section "FILLING FLUID".



FUNCTIONAL CHARACTERISTICS

Accuracy: at 20 C $\pm 0,5...1\%$, depending on the diaphragm seal type. This accuracy value must be added to the pressure gauge accuracy.

Process fluid temperature: minimum -45 C, maximum 340 C, depending on the filling fluid, on the diaphragm material and on the process connection. For temperature higher than the indicated limits please contact the Technical Service Department.

TEMPERATURE INFLUENCE

The complete seal system composed by the diaphragm seal (with or without capillary) and the measuring instrument, is filled with a fixed amount of liquid at a fixed room temperature (generally +20 C ±2 C), called temperature of reference. Any ambient or fluid process temperature change produces a proportional variation of the filling fluid volume causing an inner pressure change that makes a zero off at the indicating instrument. In order to minimize such an error it is necessary to compensate the volume modified by temperature variations.

Diaphragm of small diameter can compensate only little volume changes (see Fig.1). It is recommended to use, in line with process requirements, diaphragm seals with large size diameter. In order to prevent the effects of temperature conduction between the diaphragm seal and the instrument, when the process temperature exceeds 100 C, it is required to fit the instrument with:

- Cooling element
- Capillary mounting

COOLING TOWER

The purpose of the cooling element is to protect the instrument from high temperatures. It reduces the filling fluid temperature inside the instrument to approximately the room temperature. The cooling element is recommended for instruments direct mounting when the process temperature is exceeding +100 C but is not higher than +250 C.

When a diaphragm seal provided with cooling element is installed on an insulated pipe, it is fundamental that the insulating coat is not covering the element radiant surface in order to assure the system proper working.

REMOTE MOUNTING (with capillary)

The capillary allows the instrument reading when it is far from the process connection. The capillary avoids the fluid process temperature effect on the instrument accuracy.

A 500mm capillary is generally long enough to reduce the indicating instrument temperature to the ambient temperature.

The capillary length must be as short as possible and it should not exceed 6mt because any ambient temperature variation could affect the instrument accuracy and response time (see fig.2).

The remote mounting requires instruments for wall or panel mounting.

If the level difference is known, it must be indicated in order. If not a field adjustment of the micromatic pointer in order to compensate the effect of extreme temperature variation, will be necessary.

Tab. 1 - FILLING LIQUIDS

| Liquid type | Limits of process temperature |
|-----------------------|-------------------------------|
| Silicone oil type "A" | -45 ... +150 C |
| Silicone oil type "B" | -20 ... +250 C |
| Silicone oil type "C" | +20 ... +340 C |
| "Fluorolube" | -60 ... +150 C |
| Food oil | -20 ... + 200 C |

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

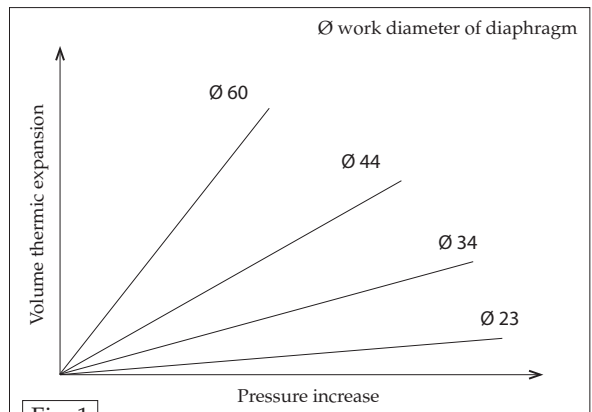


Fig. 1

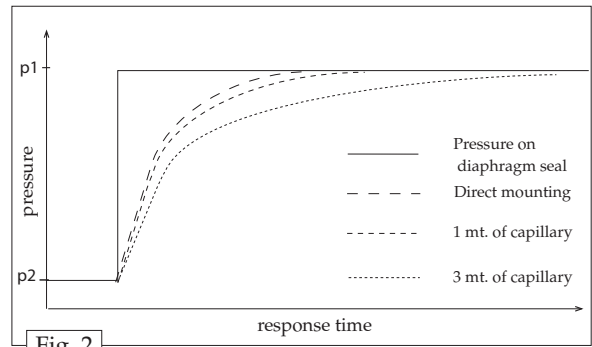


Fig. 2

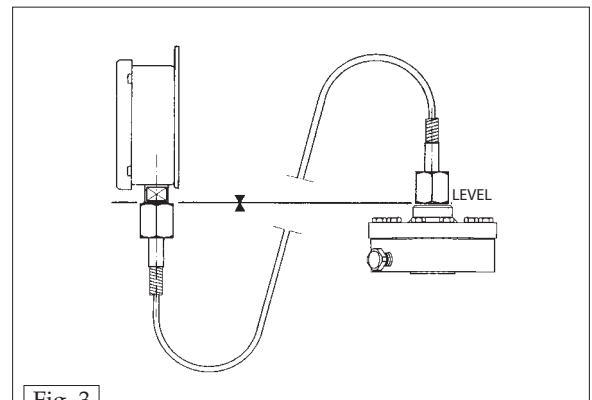


Fig. 3

Tab.2 - DIAPHRAGM SEAL CHOICE

An improper use of the instrument may be dangerous to the diaphragm seal, may cause failure and potential injury to the staff and plant.

Caution: all diaphragm seals must be chosen considering the process fluid and the working conditions in order to prevent inaccurate installations.

For material choice please see recommendations quoted on sheet 5...8.

For process fluids not listed in our guide (the material's life depends on temperature and process fluid concentration as well as for other working conditions) please contact our Technical Department.

In case of incomplete knowledge of the process fluid behaviour, it is suggested to install the diaphragm seal with a solid front pressure gauge.

In case of tube failure this instrument prevents that dangerous process fluid may hit the workers.

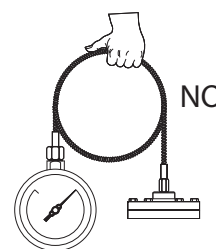
| Type MGS9 | ∅ diaphragm (inches - mm) | Facing diaphragm | Welded diaphragm | Thread connection | Flanged connection |
|-----------|---------------------------|------------------|------------------|-------------------|--------------------|
| 1B0 | 73,5 | | F | F | |
| 1BS | 44 | | | F | |
| 1A0-1AS | 44 | | | F | |
| 111 | 38 | | F | F | |
| 6W | 63 | | F | F | F |
| MINI/A | 34 | | F | F | |
| MINI/B | 57 | | F | F | |
| 2B | 63 | | F | F | |
| SA | 23,5 ... 44 | F | F | F | |
| AL | 34 ... 63 | F | F | | F |
| R | 38 | F | F | | F |
| 367 | 23,5 | F | F | F | |
| 3A | 44 | | | | F |
| 3B | 73,5 | | F | | F |
| 6 | 73,5 | | F | | F |
| 5 | 38...63 | F | F | | F |
| 4 | 34...57 | | F [1] | | F |
| WAF | 50...65 | F | F | | F |
| P | 34...57 | | | F | |

[1] Not welded when PTFE coated

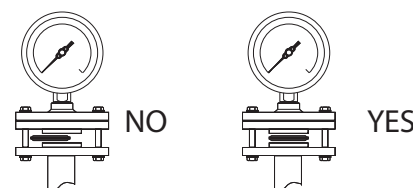
DIAPHRAGM SEAL INSTALLATION

The whole system (the pressure gauges with their diaphragm seal) must be kept packaged until installation time in order to protect all the components. Particular care must be taken to prevent damages to the diaphragm during installation of the system on the process. Scratches on the diaphragm surface are the starting point for chemical corrosion action while crush of concentric waves of the diaphragm surface may compromise the system operation.

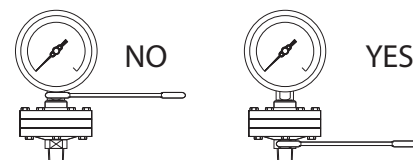
The capillary and its welded joints to the body must not be bended or twisted. Capillary must not be used as handle for transportation of the system. Bends or extreme bending radius of capillary may cause throttling of the inner hole, may increase the response time or cause capillary breaking compromising the regular instrument operation. The capillary may bend with a minimum of 150mm. bending radius.



Extreme care must be taken to the sealing gasket mounting between diaphragm seal and process side to cover the diaphragm preventing damages or process fluid leakage.



On models with threaded process connection, the mounting must be made through the key flat of the diaphragm seal body and not through the pressure range key flat: this may cause disassemble of the gauge/diaphragm system with eventually leakage of filling fluid.



DIAPHRAGM SEAL FASTENING

All diaphragm seals are coupled and fastened to the instruments (except 63mm.) through a label seal. The tampering of the label seal or of the diaphragm seal/instrument coupling compromises their operation and warranty.

DO NOT REMOVE

| | | |
|---|---|---|
| <p style="text-align: center; margin: 0;">DIAPHRAGM MATERIAL</p> <p><input type="checkbox"/> AISI 316 L</p> <p><input type="checkbox"/> HASTELLOY B</p> <p><input type="checkbox"/> HASTELLOY C</p> | <p style="text-align: center; margin: 0;">MONEL</p> <p><input type="checkbox"/> PTFE</p> <p><input type="checkbox"/> TANTALUM</p> | <p style="text-align: center; margin: 0;">FILLING</p> <p><input type="checkbox"/> SILICON OIL</p> <p><input type="checkbox"/> FOOD OIL</p> <p><input type="checkbox"/> FLUOROLUBE</p> |
| <p style="margin: 0;">A B C</p> <p style="margin: 0;"><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> | | |

USE OF THE DIAPHRAGM SEAL

The working temperature must not exceed the limit of the material in use.

Working pressure: the maximum working pressure must be 75 % of the range of the instrument coupled with the diaphragm seal. For flanged diaphragm seal the maximum working pressure must also be within the flange rating pressure. The maximum admitted pressure on the diaphragm seal decreases when the temperature increases. To this subject please see table 5 where the connection between pressure/temperature for flange made with different materials are listed.

Temperature: the working temperature must be that of the instrument calibration and must be compatible with the chosen materials. For temperature exceeding 100 C diaphragm seals with capillary or with cooling system are recommended.

Oxygen and other oxidizing agents: glycerine and silicone should not be used with highly oxidizing agents such as oxygen, chlorine, nitric acid or hydrogen peroxide because of danger of spontaneous chemical reactions, inflammability or explosion. In these cases the use of fluorinates is recommended.(see tab.1)

MAINTENANCE

Periodically it may be necessary to remove sediments from the diaphragm and to check the corrosion or wear conditions of the entire system. This operation must be carried out by specially trained staff. The diaphragm seal and its pressure gauge must be removed from process and inspected than the diaphragm must be cleaned without using any tool that could damage it but with a solvent properly chosen according to the sediment to be removed.

Tab.3 - Material available C=Connection M=Diaphragm seal

| Type MGS9 | C.st. | AISI 316 st.st. | C.st. + PTFE | AISI 316 st.st. + PTFE | AISI 316 L st.st. | Monel 400 | Hast. C276 | Hast. B2 | Titanium | Nickel | Tantalium | Incolloy 825 | Inconel 600 |
|-----------|-------|-----------------|--------------|------------------------|-------------------|-----------|------------|----------|----------|--------|-----------|--------------|-------------|
| 1B0 | | | | C | CM | CM | CM | | | | M | M | M |
| 1BS | C | | | CM | CM | | M (1) | | M | | M (1) | | |
| 1A0-1AS | | C | | | CM | M | M | | | | | | |
| 111 | | C | | | M | M | M | | | | | | |
| 6W | | C | | | CM | CM | CM | CM | | | M | | |
| MINI/A-B | | C | | | M | | | | | | | | |
| 2B | | | | | CM | CM | CM | | | | M | M | M |
| SA-AL-367 | | C | | | M | | | | | | | | |
| R | | C | | | CM | | M | | | | | | |
| 3A | | C | | | CM | M | M | M | M | | M | | |
| 6 | | C | | CM | CM | M | M | | M | | M | | |
| 3B | | C | | CM | CM | M | M | | M | | M | | |
| 5 | | C | | | CM | CM | CM | | | | CM | | |
| 4 | | C | | CM | CM | CM | CM | CM | CM | CM | CM | M | M |
| WAF | | C | | C | M | | CM | M | | | M | | |
| P | C | | M | | | | | | | | | | |

(1) PTFE coating

Tab.4 - Ranges available

| Type (1) | -1...0 | 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...400 | 0...600 |
|------------------|--------|-------|---------|---------|-------|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| 1B0-1BS | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F | F |
| 1A0 | | | | | | | | | | | F | F | F | F | F | |
| 1AS | | | | | | | | | | | | | | | F | F |
| 111 | | | | | | F | F | F | F | F | F | F | F | F | | |
| 6W | F | F | F | F | F | F | F | F | F | F | F | F | F | F | | |
| MINI/A | | | | | F (2) | F (2) | F (2) | F | F | F | F | F | F | F | F | |
| MINI/B | F | F | F | F | F | F | F | F | F | F | F | F | | | | |
| 2B | F | F | F | F | F | F | F | F | F | F | F | F | F | | | |
| SA DN25 | | | | | F | F | F | F | F | F | | | | | | |
| SA 1" 1/2 - DN40 | | | | | F | F | F | F | F | F | | | | | | |
| SA 2" - DN50 | | | F | F | F | F | F | F | F | F | | | | | | |
| AL 1" 1/2 | | | | | F | F | F | F | F | F | | | | | | |
| AL 2" | | | F | F | F | F | F | F | F | F | | | | | | |
| AL 2" 1/2 | | F | F | F | F | F | F | F | F | F | | | | | | |
| R | | | | | | F | F | F | F | F | F | F | F | F | F | |
| 367 | | | | | | | | | | F | F | F | F | F | F | |
| 3A | | | | | | | | | | | F | F | F | F | | |
| 3B | F | F | F | F | F | F | F | F | F | F | | | | | | |
| 6 | F | F | F | F | F | F | F | F | F | F | | | | | | |
| 5 | | F | F | F | F | F | F | F | F | F | F | F | F | F | F | |
| 4 | | F | F | F | F | F | F | F | F | F | | | | | | |
| WAF | F | F | F | F | F | F | F | F | F | F | F | F | F | F | | |
| P | | F | F | F | F | F | F | F | | | | | | | | |

(1) Ranges are indicated in bar and they are related to the DS of the instrument installed as well as the flange rating. For further information see the concerning catalogue sheet - (2) for DN63 only

PRESSURE/TEMPERATURE RATING
(in according to standard ANSI/ASME B16.5 - ISO 7005)

Tab. 5 - Class 150 (PN 290 psi - PN 20 bar)

| Temperature | | Pressure (psi) | | | | | | |
|-------------|--------|----------------|----------|----------|-----------|-------|---------|---------|
| °F | °C | C.st. | AISI 304 | AISI 316 | AISI 316L | Monel | Hast. B | Hast. C |
| -20 100 | -29÷38 | 285 | 275 | 275 | 230 | 230 | 290 | 290 |
| 200 | 93 | 260 | 230 | 235 | 195 | 200 | 260 | 260 |
| 300 | 149 | 230 | 205 | 215 | 175 | 190 | 230 | 230 |
| 400 | 204 | 200 | 190 | 195 | 160 | 185 | 200 | 200 |
| 500 | 260 | 170 | 170 | 170 | 145 | 170 | 170 | 170 |
| 600 | 316 | 140 | 140 | 140 | 140 | 140 | 140 | 140 |
| 650 | 343 | 125 | 125 | 125 | 125 | 125 | 125 | 125 |
| 700 | 371 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| 750 | 399 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| 800 | 427 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |

Tab. 6 - Class 300 (PN 750 psi - PN 50 bar)

| Temperature | | Pressure (psi) | | | | | | |
|-------------|--------|----------------|----------|----------|-----------|-------|---------|---------|
| °F | °C | C.st. | AISI 304 | AISI 316 | AISI 316L | Monel | Hast. B | Hast. C |
| -20 100 | -29÷38 | 740 | 720 | 720 | 600 | 600 | 750 | 750 |
| 200 | 93 | 675 | 600 | 620 | 505 | 530 | 750 | 750 |
| 300 | 149 | 655 | 540 | 560 | 455 | 495 | 730 | 730 |
| 400 | 204 | 635 | 495 | 515 | 415 | 480 | 705 | 705 |
| 500 | 260 | 600 | 465 | 480 | 380 | 475 | 665 | 665 |
| 600 | 316 | 550 | 435 | 450 | 360 | 475 | 605 | 605 |
| 650 | 343 | 535 | 430 | 445 | 350 | 475 | 590 | 590 |
| 700 | 371 | 535 | 425 | 430 | 345 | 475 | 570 | 570 |
| 750 | 399 | 505 | 415 | 425 | 335 | 470 | 530 | 530 |
| 800 | 427 | 410 | 405 | 420 | 330 | 460 | 510 | 510 |

Tab. 7 - Class 600 (PN 1500 psi - PN 110 bar)

| Temperature | | Pressure (psi) | | | | | | |
|-------------|--------|----------------|----------|----------|-----------|-------|---------|---------|
| °F | °C | C.st. | AISI 304 | AISI 316 | AISI 316L | Monel | Hast. B | Hast. C |
| -20 100 | -29÷38 | 1480 | 1440 | 1440 | 1200 | 1200 | 1500 | 1500 |
| 200 | 93 | 1350 | 1200 | 1240 | 1015 | 1055 | 1500 | 1500 |
| 300 | 149 | 1315 | 1080 | 1120 | 910 | 990 | 1455 | 1455 |
| 400 | 204 | 1270 | 995 | 1025 | 825 | 955 | 1410 | 1410 |
| 500 | 260 | 1200 | 930 | 955 | 765 | 950 | 1330 | 1330 |
| 600 | 316 | 1095 | 875 | 900 | 720 | 950 | 1210 | 1210 |
| 650 | 343 | 1075 | 860 | 890 | 700 | 950 | 1175 | 1175 |
| 700 | 371 | 1065 | 850 | 870 | 685 | 950 | 1135 | 1135 |
| 750 | 399 | 1010 | 830 | 855 | 670 | 935 | 1065 | 1065 |
| 800 | 427 | 825 | 805 | 845 | 660 | 915 | 1015 | 1015 |

Tab. 8 - Class 900 (PN 2250 psi - PN 150 bar)

| Temperature | | Pressure (psi) | | | | | | |
|-------------|--------|----------------|----------|----------|-----------|-------|---------|---------|
| °F | °C | C.st. | AISI 304 | AISI 316 | AISI 316L | Monel | Hast. B | Hast. C |
| -20 100 | -29÷38 | 2220 | 2160 | 2160 | 1800 | 1800 | 2250 | 2250 |
| 200 | 93 | 2025 | 1800 | 1860 | 1520 | 1585 | 2250 | 2250 |
| 300 | 149 | 1970 | 1620 | 1680 | 1360 | 1485 | 2185 | 2185 |
| 400 | 204 | 1900 | 1490 | 1540 | 1240 | 1435 | 2115 | 2115 |
| 500 | 260 | 1795 | 1395 | 1435 | 1145 | 1435 | 1995 | 1995 |
| 600 | 316 | 1640 | 1310 | 1355 | 1080 | 1435 | 1815 | 1815 |
| 650 | 343 | 1610 | 1290 | 1330 | 1050 | 1435 | 1765 | 1765 |
| 700 | 371 | 1600 | 1275 | 1305 | 1030 | 1435 | 1705 | 1705 |
| 750 | 399 | 1510 | 1245 | 1280 | 1010 | 1405 | 1595 | 1595 |
| 800 | 427 | 1235 | 1210 | 1265 | 985 | 1375 | 1520 | 1520 |

Tab. 9 - Class 1500 (PN 3750 psi - PN 260 bar)

| Temperature | | Pressure (psi) | | | | | | |
|-------------|--------|----------------|----------|----------|-----------|-------|---------|---------|
| °F | °C | C.st. | AISI 304 | AISI 316 | AISI 316L | Monel | Hast. B | Hast. C |
| -20 100 | -29÷38 | 3705 | 3600 | 3600 | 3000 | 3000 | 3750 | 3750 |
| 200 | 93 | 3375 | 3000 | 3095 | 2530 | 2640 | 3750 | 3750 |
| 300 | 149 | 3280 | 2700 | 2795 | 2270 | 2470 | 3640 | 3640 |
| 400 | 204 | 3170 | 2485 | 2570 | 2065 | 2390 | 3530 | 3530 |
| 500 | 260 | 2995 | 2330 | 2390 | 1910 | 2375 | 3325 | 3325 |
| 600 | 316 | 2735 | 2185 | 2255 | 1800 | 2375 | 3025 | 3025 |
| 650 | 343 | 2685 | 2150 | 2220 | 1750 | 2375 | 2940 | 2940 |
| 700 | 371 | 2665 | 2125 | 2170 | 1715 | 2375 | 2840 | 2840 |
| 750 | 399 | 2520 | 2075 | 2135 | 1680 | 2340 | 2660 | 2660 |
| 800 | 427 | 2060 | 2015 | 2110 | 1645 | 2290 | 2540 | 2540 |

Tab. 10 - Class 2500 (PN 6250 psi - PN 420 bar)

| Temperature | | Pressure (psi) | | | | | | |
|-------------|--------|----------------|----------|----------|-----------|-------|---------|---------|
| °F | °C | C.st. | AISI 304 | AISI 316 | AISI 316L | Monel | Hast. B | Hast. C |
| -20 100 | -29÷38 | 6170 | 6000 | 6000 | 5000 | 5000 | 6250 | 6250 |
| 200 | 93 | 5625 | 5000 | 5160 | 4220 | 4400 | 6250 | 6250 |
| 300 | 149 | 5470 | 4500 | 4660 | 3780 | 4120 | 6070 | 6070 |
| 400 | 204 | 5280 | 4140 | 4280 | 3440 | 3980 | 5880 | 5880 |
| 500 | 260 | 4990 | 3880 | 3980 | 3180 | 3960 | 5540 | 5540 |
| 600 | 316 | 4560 | 3640 | 3760 | 3000 | 3960 | 5040 | 5040 |
| 650 | 343 | 4475 | 3580 | 3700 | 2920 | 3960 | 4905 | 4905 |
| 700 | 371 | 4440 | 3540 | 3620 | 2860 | 3960 | 4730 | 4730 |
| 750 | 399 | 4200 | 3460 | 3560 | 2800 | 3900 | 4430 | 4430 |
| 800 | 427 | 3430 | 3360 | 3520 | 2740 | 3820 | 4230 | 4230 |

Tab. 11 - CORROSION vs. MATERIAL

| Corrosive Substance | Temp. °F | Temp. °C | Concentration | C.Steel | AlSI 304 st.st. | AlSI 316 st.st. | Bronze | Brass | Monel 400 | Nickel | Hastelloy B | Hastelloy C | Tantalum | PVC | Halar | Teflon | VITON | Fluorolube |
|---------------------------------|----------|----------|---------------|---------|-----------------|-----------------|--------|-------|-----------|--------|-------------|-------------|----------|-----|-------|--------|-------|------------|
| Acetic Acid | 200 | 93,3 | All | D | C | B | C | D | C | D | C | A | A | C | A | A | C | |
| Acetic Anhydride | 175 | 79,4 | All | D | D | B | D | D | C | C | B | A | A | D | A | A | C | |
| Acetone | 100 | 37,8 | All | B | B | B | A | A | A | A | A | A | A | D | A | A | C | |
| Acetylene, Dry | 400 | 204,4 | 100 | A | A | A | D | D | B | B | A | A | A | A | A | A | A | |
| Alcohols | 212 | 100 | All | B | B | A | A | A | A | A | A | A | A | A | A | A | A | |
| Alkali Cleaners | 212 | 100 | All | C | B | A | B | D | A | A | B | B | A | A | A | A | A | |
| Aluminium Chloride | 212 | 100 | All | D | D | D | D | D | D | D | A | B | A | A | A | A | A | |
| Aluminium Hydroxide | 212 | 100 | All | B | B | B | B | B | B | B | C | B | A | A | A | A | B | |
| Aluminium Sulphate | 212 | 100 | All | D | D | A | C | D | D | D | A | A | A | A | A | A | A | |
| Amil Acetate | 250 | 121,1 | All | B | B | A | A | A | A | A | A | A | A | D | C | A | C | |
| Ammonium Chloride | 212 | 100 | <40 | D | D | C | C | D | B | B | B | A | A | A | A | A | A | |
| Ammonium, Dry | 600 | 315,6 | 100 | A | A | A | D | D | A | A | A | A | C | A | A | A | C | |
| Ammonium Hydroxide | 212 | 100 | All | B | B | B | D | D | D | D | B | B | D | A | A | A | B | |
| Ammonium Nitrate | 212 | 100 | All | D | C | B | D | D | D | D | C | B | A | A | A | A | C | |
| Ammonium Sulphate | 212 | 100 | <50 | D | D | B | C | D | B | B | C | B | A | A | A | A | C | |
| Aniline | 250 | 121,1 | 100 | A | A | A | D | D | B | B | B | B | A | D | C | A | C | |
| Argon | 300 | 148,9 | 100 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | |
| Asphalt | 250 | 121,1 | | B | B | A | B | B | A | A | B | A | A | B | A | A | A | |
| Atmosphere, Ind. & Marine | | | | B | A | A | A | B | A | A | A | A | A | A | A | A | A | |
| Atmosphere, Rural | | | | B | A | A | A | A | A | A | A | A | A | A | A | A | A | |
| Bauxite & Water | 212 | 100 | All | B | B | A | B | B | B | B | B | B | A | A | A | A | A | |
| Benzene | 212 | 100 | All | B | B | B | A | B | A | A | B | B | A | C | C | A | B | |
| Benzidine | | | | B | B | B | B | B | B | B | B | B | A | C | A | A | B | |
| Benzoic Acid | | | | D | D | B | C | C | B | B | A | A | A | A | A | A | A | |
| Bier | 70 | 21,1 | | C | C | A | A | B | A | A | A | A | A | A | A | A | A | |
| Borax (sodium borate) | 212 | 100 | <50 | B | B | C | A | A | A | A | A | B | A | A | A | A | A | |
| Boric Acid | 212 | 100 | All | D | D | B | B | B | B | B | A | A | A | A | A | A | A | |
| Bromine, Dry | 125 | 51,7 | 100 | D | D | D | D | D | A | A | A | A | A | D | A | A | A | |
| Bromobenzene | 212 | 100 | 100 | C | B | B | B | B | B | B | B | B | A | C | B | A | B | |
| Butane | 212 | 100 | | A | A | A | A | A | A | A | A | A | A | B | A | A | A | |
| Butyl Alcohol | 212 | 100 | | B | A | A | A | A | A | A | A | A | A | B | A | A | A | |
| Butyric Acid | 212 | 100 | All | D | C | B | C | D | B | C | B | A | A | C | A | A | C | |
| Calcium Bisulphite | 212 | 100 | All | D | C | B | D | D | D | D | D | C | A | A | A | A | A | |
| Calcium Chloride | 212 | 100 | All | C | C | C | B | C | B | A | B | A | A | A | A | A | A | |
| Calcium Hydroxide | 212 | 100 | 10 | B | B | B | B | B | B | B | B | A | C | A | A | A | A | |
| Calcium Hypochlorite | 212 | 100 | All | D | D | D | C | C | D | D | C | B | A | A | A | A | B | |
| Carbon Dioxide, Dry | 100 | 37,8 | | A | A | A | A | A | A | A | A | A | A | A | A | A | A | |
| Carbon Sulphide | 125 | 51,7 | | B | B | A | B | A | B | B | A | A | A | D | A | A | A | |
| Carbon Tetrachloride, Dry | 212 | 100 | 100 | C | A | A | A | C | A | A | D | B | A | D | C | A | A | |
| Carbon Tetrachloride, Moist | 212 | 100 | | D | D | C | D | D | A | A | D | B | A | D | C | A | A | |
| Carbonated Water | 212 | 100 | All | D | A | B | B | D | C | C | A | A | A | A | A | A | A | |
| Carbonic Oxide | 300 | 148,9 | | A | A | A | A | B | A | A | A | A | A | A | A | A | A | |
| Caustic Potassium | 212 | 100 | <50 | D | B | B | D | D | A | A | B | C | D | A | A | A | C | |
| Caustic Soda | 212 | 100 | All | C | C | C | D | D | B | B | B | C | D | A | A | A | C | |
| Caustic Soda | 212 | 100 | <40 | C | B | A | B | D | A | A | A | B | D | A | A | A | C | |
| Cement Slurry | 212 | 100 | All | B | A | A | B | B | B | B | B | B | C | A | A | A | C | |
| Chloride | 500 | 260 | | B | A | A | D | D | B | C | B | A | A | A | A | A | C | |
| Chlorine Dioxide | 150 | 65,6 | | D | D | D | D | D | D | D | B | B | A | D | B | A | B | |
| Chlorine, Dry | 200 | 93,3 | 100 | B | B | C | B | C | B | B | C | A | A | C | A | A | A | |
| Chlorine, Moist | 200 | 93,3 | All | D | D | D | D | D | D | D | D | A | A | C | A | A | A | |
| Chloroacetic Acid | 212 | 100 | All | D | D | D | D | D | C | C | B | A | A | C | A | A | C | |
| Chlorobenzene | 150 | 65,6 | 100 | C | B | B | B | C | B | B | B | B | A | D | B | A | A | |
| Choroform, Dry | 150 | 65,6 | 100 | A | B | C | B | B | A | A | B | B | A | C | B | A | A | |
| Chromic Acid | 212 | 100 | All | C | D | D | D | D | D | D | D | D | A | C | A | A | A | |
| Chromium Plating Solution | 212 | 100 | All | C | D | D | D | D | D | D | D | D | A | C | A | A | A | |
| Citric Acid | 212 | 100 | All | D | C | A | C | D | C | C | A | A | A | A | A | A | A | |
| Coffee | 212 | 100 | All | D | B | A | A | C | B | B | B | A | A | A | A | A | A | |
| Copper Chloride | 212 | 100 | All | D | D | D | C | D | D | D | D | D | A | A | A | A | A | |
| Copper Nitrate | 212 | 100 | All | D | B | B | D | D | D | D | D | D | A | A | A | A | A | |
| Copper Plating Solutions (Acid) | 212 | 100 | All | D | C | B | D | D | B | B | C | C | A | A | A | A | A | |

A = Recommended Best service life Attack < 0,05 mm/year
 B = Suitable Good service life Attack 0,05...0,5 mm/year
 C = Not recommended Fair service life Attack 0,5...1,27 mm/year
 D = Unsuitable No service life Attack > 1,27 mm/year

This tab is a guide. The purchaser will directly choose the most suitable material for the process conditions. (The diaphragm thickness goes from 0,05 mm to 0,15mm according to the material and the diaphragm type chosen.) For further information please contact our Service Technical Department.

Tab. 11 - CORROSION/MATERIAL

| Corrosive substance | Temp. °F | Temp. °C | Concentration | C.Steel | AISI 304 st.st. | AISI 316 st.st | Bronze | Brass | Monel 400 | Nickel | Hastelloy B | Hastelloy C | Tantalium | PVC | Halar | Teflon | VITON | Fluorolube |
|------------------------------------|----------|----------|---------------|---------|-----------------|----------------|--------|-------|-----------|--------|-------------|-------------|-----------|-----|-------|--------|-------|------------|
| Copper Plating Solutions (cyanide) | 212 | 100 | All | B | A | A | D | D | B | B | B | A | A | A | A | A | A | A |
| Copper Sulphate | 212 | 100 | <40 | D | C | B | C | D | D | D | C | A | A | A | A | A | A | A |
| Corn Oil | 500 | 260 | All | D | B | A | A | C | B | B | A | A | A | A | A | A | A | A |
| Creosol | 212 | 100 | All | B | A | A | B | C | B | B | B | A | A | D | A | A | A | A |
| Creosote | 212 | 100 | | B | B | B | B | C | B | B | B | A | A | D | A | A | A | A |
| Crude Oil | 300 | 148,9 | All | B | B | B | B | C | A | B | B | C | A | B | A | A | A | A |
| Ethanol | 212 | 100 | All | B | A | A | A | A | A | A | B | A | A | A | A | A | A | A |
| Ethyl Acetate | 212 | 100 | 100 | D | B | B | B | B | B | C | C | B | A | D | C | A | C | C |
| Ethyl Chloride, Dry | 212 | 100 | | B | C | A | A | A | B | A | B | B | A | D | A | A | A | A |
| Ethylene Glycol | 212 | 100 | All | C | B | B | B | B | B | B | A | A | A | A | A | A | A | A |
| Ethylene Oxide | 75 | 23,9 | 100 | B | A | B | D | D | B | B | A | A | A | C | B | A | C | C |
| Fatty Acids | 500 | 260 | 100 | D | C | A | C | C | B | A | A | A | A | A | A | A | A | A |
| Ferric Chloride | 150 | 65,6 | <50 | D | D | D | D | D | D | D | D | B | A | A | A | A | A | A |
| Ferric Sulphate | 150 | 65,6 | 10 | D | B | A | D | D | D | D | B | A | A | A | A | A | A | A |
| Ferrous Chloride | 212 | 100 | <50 | D | D | D | C | D | D | D | B | B | A | A | A | A | A | A |
| Ferrous Sulphate | 212 | 100 | All | D | C | B | C | D | C | D | B | B | A | A | A | A | A | A |
| Fluorine, Gas | 300 | 148,9 | 100 | D | A | A | C | C | A | A | C | B | D | B | A | A | C | C |
| Fluorine, Liquid | 75 | 23,9 | 100 | D | A | A | B | C | A | A | C | B | C | B | B | A | C | C |
| Fluorosilicic Acid | 75 | 23,9 | 10 | D | B | B | C | C | A | B | B | A | C | A | A | A | A | B |
| Formaldehyde | 212 | 100 | <50 | D | B | A | B | B | B | B | B | A | A | B | B | A | B | B |
| Formic Acid | 212 | 100 | All | D | B | D | B | C | B | B | A | A | A | B | A | A | A | A |
| Gasoline | 200 | 93,3 | | A | A | A | A | A | C | A | A | A | A | B | A | A | A | A |
| Glucose | 300 | 148,9 | All | B | A | A | A | A | A | A | A | A | A | A | A | A | A | A |
| Glue | 300 | 148,9 | All | C | A | A | A | B | A | A | A | A | A | A | A | A | A | A |
| Glycerine | 212 | 100 | All | B | A | A | B | B | A | A | A | A | A | A | A | A | A | A |
| Hexane, Dry | 212 | 100 | | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A |
| Hydrobromic Acid | 212 | 100 | All | D | D | D | D | D | D | D | B | D | A | B | A | A | A | A |
| Hydrochloridric Acid | 212 | 100 | All | D | D | D | D | D | D | D | B | C | A | B | A | A | A | A |
| Hydrofluoric Acid | 212 | 100 | All | D | D | D | C | D | B | D | B | B | D | C | A | A | C | C |
| Hydrogen | 500 | 260 | | B | A | A | A | A | A | A | A | A | A | A | A | A | A | A |
| Hydrogen Chloride | 400 | 204,4 | | D | C | C | D | D | A | A | A | A | A | A | A | A | A | A |
| Hydrogen Fluoride, Dry | 200 | 93,3 | 100 | C | B | B | C | C | B | B | C | B | C | A | A | A | C | C |
| Hydrogen Peroxide | 212 | 100 | 30 | D | C | B | D | D | C | C | C | C | A | A | A | A | A | A |
| Hydrogen Peroxide | 212 | 100 | 100 | D | C | C | D | D | C | C | D | C | A | A | A | A | A | A |
| Kerosene | 300 | 148,9 | | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A |
| Lacquers & Thinners | 200 | 93,3 | All | B | A | A | A | B | A | A | A | A | A | D | C | A | C | C |
| Lactic Acid | 212 | 100 | All | D | C | B | D | D | D | D | B | B | A | A | C | A | A | A |
| Lime | 212 | 100 | All | B | B | B | B | B | B | B | B | A | A | A | A | A | A | A |
| Linseed Oil | 75 | 23,9 | | A | A | A | B | C | B | B | B | B | A | A | A | A | A | A |
| Magnesium Chloride | 212 | 100 | <40 | D | D | C | B | C | B | A | A | A | B | A | A | A | A | A |
| Magnesium Oxide | 212 | 100 | All | B | B | B | A | B | B | A | B | B | D | A | A | A | A | A |
| Magnesium Sulphate | 212 | 100 | <50 | B | A | A | A | B | A | A | C | A | A | A | A | A | A | A |
| Mercuric Chloride | 75 | 23,9 | 10 | D | D | D | D | D | D | C | C | B | A | A | A | A | A | A |
| Mercury | | | | A | A | A | D | D | C | B | B | B | A | A | A | A | A | A |
| Methyl Chloride, Dry | 212 | 100 | 100 | A | B | A | A | B | B | B | B | B | A | D | A | A | A | A |
| Methylene Chloride | 212 | 100 | 100 | C | C | C | C | B | B | C | A | A | A | D | C | A | B | B |
| Milk | | | | D | A | A | B | C | C | A | B | B | A | A | A | A | A | A |
| Naphta | 75 | 23,9 | 100 | B | A | A | A | A | A | A | B | A | A | B | A | A | A | A |
| Naphtaline | 212 | 100 | 100 | A | A | A | B | B | B | B | B | B | A | C | A | A | A | A |
| Nickel Chloride | 212 | 100 | <40 | D | D | C | D | D | B | C | A | B | A | A | A | A | A | A |
| Nickel Sulphate | 212 | 100 | | D | C | B | B | C | B | B | B | B | A | A | A | A | A | A |
| Nitric Acid | 75 | 23,9 | All | D | A | A | D | D | D | D | D | D | B | A | A | A | A | A |
| Nitric Acid | 212 | 100 | All | D | C | C | D | D | D | D | D | D | A | C | B | A | C | C |
| Oxalic Acid | 212 | 100 | All | D | D | D | B | C | B | C | B | B | A | A | A | A | A | A |
| Oxygen | 300 | 148,9 | All | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A |
| Perchloric Acid | 120 | 48,9 | All | D | D | D | D | D | D | D | C | D | A | D | A | A | A | A |
| Phenol | 175 | 79,4 | 100 | B | B | A | A | B | A | A | A | A | A | C | A | A | A | A |
| Phosphoric Acid | 212 | 100 | All | D | C | C | D | D | D | D | B | C | A | A | A | A | A | A |
| Phthalic Anhydride | 250 | 121,1 | 100 | B | A | A | C | C | A | A | B | A | A | C | B | A | B | B |
| Picric Acid | 212 | 100 | All | D | B | B | D | D | D | D | D | B | A | C | A | A | A | A |

A = Recommended Best service life Attack < 0,05 mm/year
 B = Suitable Good service life Attack 0,05...0,5 mm/year
 C = Not recommended Fair service life Attack 0,5...1,27 mm/year
 D = Unsuitable No service life Attack > 1,27 mm/year

This tab is a guide. The purchaser will directly choose the most suitable material for the process conditions. (The diaphragm thickness goes from 0,05 mm to 0,15mm according to the material and the diaphragm type chosen.) For further information please contact our Service Technical Department.

Tab. 11 - CORROSION/MATERIALS

| Corrosive substances | Temp. °F | Temp. °C | Concentrations | Carbon steel | AlSI 304 st.st. | AlSI 316 st.st. | Bronze | Brass | Monel 400 | Nickel | Hastelloy B | Hastelloy C | Tantalum | PVC | Halar | Teflon | VITON | Fluorolube |
|-----------------------------|----------|----------|----------------|--------------|-----------------|-----------------|--------|-------|-----------|--------|-------------|-------------|----------|-----|-------|--------|-------|------------|
| Propan | 300 | 148,9 | | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A |
| Quinine | 212 | 100 | 100 | D | B | B | B | B | B | B | B | B | A | A | A | A | A | A |
| Resin Solution | 150 | 65,6 | All | D | B | A | B | B | B | B | B | A | A | D | A | A | C | |
| Rochelle Salt | 212 | 100 | 100 | D | B | B | B | C | B | B | B | B | A | A | A | A | A | A |
| Rosin | 700 | 371,1 | 100 | D | B | B | B | B | A | A | B | A | A | A | A | A | A | A |
| Sea Water | 75 | 23,9 | | D | C | C | D | C | A | A | A | A | A | A | A | A | A | A |
| Silicate Solutions | 212 | 100 | All | B | A | A | B | B | A | A | A | A | A | A | A | A | A | A |
| Silicone Fluids | 212 | 100 | 100 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A |
| Silver Nitrate | 212 | 100 | <60 | D | B | B | D | D | D | D | B | C | A | A | A | A | A | A |
| Soap & Detergents | 212 | 100 | All | B | A | A | A | B | A | A | A | A | A | A | A | A | A | A |
| Sodium Bicarbonate | 212 | 100 | 20 | B | A | A | B | B | A | A | B | B | A | A | A | A | A | A |
| Sodium Bisulphate | 212 | 100 | <10 | D | B | B | B | D | B | B | B | B | A | A | A | A | A | A |
| Sodium Bisulphite | 212 | 100 | <40 | D | D | C | C | C | B | C | C | B | A | A | A | A | A | A |
| Sodium Carbonate | 212 | 100 | <40 | B | B | B | B | C | B | B | B | B | A | A | A | A | A | A |
| Sodium Chloride | 212 | 100 | <40 | C | C | C | B | B | B | B | B | B | A | A | A | A | A | A |
| Sodium Cyanide | 212 | 100 | 10 | B | A | A | D | D | D | D | B | C | A | A | A | A | A | A |
| Sodium Hydroxide | 180 | 82,2 | <60 | C | B | A | B | C | A | A | A | B | D | A | A | A | C | |
| Sodium Hypochlorite | 75 | 23,9 | 10 | D | D | D | D | D | D | D | C | A | A | A | A | A | A | A |
| Sodium Nitrate | 212 | 100 | <50 | B | A | A | C | C | B | B | C | B | A | A | A | A | B | |
| Sodium Nitrate | 212 | 100 | 60 | B | C | B | B | B | B | B | B | B | A | A | A | A | B | |
| Sodium Peroxide | 212 | 100 | 10 | B | B | B | C | D | B | B | B | B | A | A | A | A | A | A |
| Sodium Phosphate (Tribasic) | 212 | 100 | All | B | A | A | B | B | B | B | A | B | A | A | A | A | A | A |
| Sodium Silicate | 212 | 100 | All | B | A | A | B | B | B | B | B | B | A | A | A | A | A | A |
| Sodium Sulphate | 212 | 100 | <50 | B | B | B | B | B | B | B | B | B | A | A | A | A | A | A |
| Sodium Sulphate | 212 | 100 | 10 | D | A | A | C | D | B | B | C | B | A | A | A | A | A | A |
| Sodium Sulphide | 175 | 79,4 | 20 | D | A | A | D | D | B | B | B | B | D | A | A | A | A | A |
| Steam | 800 | 426,7 | | A | A | A | D | D | B | B | B | B | A | C | A | A | B | |
| Sulphur Chloride, Dry | 212 | 100 | 100 | D | B | C | C | C | C | B | C | B | A | A | A | A | A | A |
| Sulphur Dioxide, Dry | 500 | 260 | 100 | B | B | B | C | D | B | B | B | B | A | A | A | A | C | |
| Sulphur Trioxide, Dry | 300 | 148,9 | | B | B | B | C | C | B | B | A | B | D | A | A | A | A | A |
| Sulphuric Acid | 212 | 100 | 10 | D | D | D | D | D | D | D | C | B | A | A | A | A | A | A |
| Sulphuric Acid | 212 | 100 | <30 | D | D | D | D | D | D | D | B | C | A | B | A | A | A | A |
| Sulphuric Acid | 212 | 100 | 100 | D | D | D | D | D | D | D | B | B | A | C | A | A | A | A |
| Sulphuric Acid, Fuming | 175 | 79,4 | 100 | D | A | B | D | D | D | D | B | B | C | C | A | A | B | |
| Sulphurous Acid | 212 | 100 | All | D | C | C | C | C | C | C | B | B | A | A | A | A | A | A |
| Tannic Acid | 212 | 100 | All | C | B | B | B | C | B | B | B | B | A | A | A | A | A | A |
| Tartaric Acid | 212 | 100 | | D | A | A | B | C | B | B | B | B | A | A | A | A | A | A |
| Tin Chloride | 125 | 51,7 | All | D | D | D | D | D | D | D | B | B | A | A | A | A | A | A |
| Titanium Tetrachloride, Dry | 75 | 23,9 | 100 | A | B | B | D | D | B | B | B | B | A | A | A | A | A | A |
| Toluene | 212 | 100 | | A | A | A | A | A | A | A | A | A | A | D | A | A | B | |
| Trichloroacetic Acid | 212 | 100 | All | D | D | D | D | D | B | C | B | B | A | D | C | A | C | |
| Trichloroethane, Dry | 125 | 51,7 | | A | A | A | A | A | A | A | A | A | A | D | C | A | B | |
| Trichloroethylene, Dry | 300 | 148,9 | | B | B | B | B | B | A | A | B | A | A | D | D | A | A | A |
| Turpentine | 75 | 23,9 | 100 | B | A | A | A | B | A | B | A | A | A | C | A | A | A | A |
| Urea | 100 | 37,8 | 50 | C | A | A | B | B | B | B | B | B | A | A | A | A | A | A |
| Varnish | 250 | 121,1 | | A | A | A | B | B | A | A | A | A | A | D | A | A | A | A |
| Vynil Chloride | 150 | 65,6 | 100 | C | B | B | C | C | A | A | B | A | A | D | A | A | A | A |
| Water (demineralized) | 212 | 100 | | C | A | A | A | B | A | A | A | A | A | A | A | A | A | A |
| Whiskey (hot mash) | 212 | 100 | | C | A | A | B | B | A | B | A | A | A | B | A | A | A | A |
| Zinc Chloride | 212 | 100 | <40 | D | D | D | C | D | B | B | B | B | A | A | A | A | A | A |
| Zinc Sulphate | 212 | 100 | <30 | D | A | A | B | D | B | B | B | B | A | A | A | A | A | A |

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 B = Suitable Good service life Attack 0,05...0,5 mm/year
 C = Not recommended Fair service life Attack 0,5...1,27 mm/year
 D = Unsuitable No service life Attack > 1,27 mm/year

This tab is a guide. The purchaser will directly choose the most suitable material for the process conditions. (The diaphragm thickness goes from 0,05 mm to 0,15 mm according to the material and the diaphragm type chosen) For further information please contact our Service Technical Department.

(1) For this application Nuova Fima developed special diaphragm seals in special materials that have been subjected to a corrosion test.
 For further information please contact our Service Technical Department.



diaphragm seal with threaded connection



Diaphragm seals are designed to isolate the sensing element of pressure gauges, pressure switches and electronic pressure transmitter from process fluids which may be corrosive, viscous, sedimentous and/or with a high temperature. The diaphragm, welded for model 1B0 and mechanically clamped between the upper housing and intermediate ring for model 1BS, is leak proof tested to guarantee fill fluid separation from process fluid. This diaphragm seal can be cleaned by removing the lower housing. This construction feature and its compact design suits to many applications requiring frequent maintenance.

4.1B0 - MGS9/1B0 - without intermediate ring

Available ranges (see table below): *from 0...40 INWC to 0...580 psi* (from 0...0,1 to 0...40 bar).

Max working pressure: *0...870 psi* (60 bar) (3).

Process temperature: *-49...+302°F (-45°C...+150°C).*

Accuracy (1): (add to instrument accuracy) $\pm 0,5\%$ for direct mounting, $\pm 1\%$ for capillary mounting.

Instrument connection: AISI 304 st.st.

Diaphragm material:

4 - AISI 316L st.st.,

6 - Monel 400,

9 - Hastelloy C 276,

B - Tantalum,

J - Alloy 600,

I - Alloy 825;

U - 25.22.2.

Gaskets: PTFE up to *+482°F (+250°C)*; graphite over *+482°F (+250°C)*

Process connection:

5 - AISI 316L st.st.

N - AISI 316L st.st. PTFE coated (2),

6 - Monel 400

9 - Hastelloy C 276.

Clamp nuts and bolts: AISI 304 st.st.

Filling liquids: Silicon oil.

4.1BS - MGS9/1BS - with intermediate ring

Available ranges (see table below): *from -30...0 INHG to 0...580 psi* (from -1...0 to 0...40 bar).

Max working pressure: *0...870 psi* (60 bar) (3).

Process temperature: *-49...+302°F (-45°C...+150°C).*

Accuracy (1): (add to instrument accuracy) $\pm 0,5\%$ for direct mounting, $\pm 1\%$ for capillary mounting.

Instrument connection: AISI 304 st.st..

Diaphragm material:

4 - AISI 316L st.st.

8 - AISI 316L st.st. PTFE coated,(2)

E - Hastelloy C276 PTFE coated,(2)

C - Tantalum PTFE coated,(2)

2 - Titanium.

Gaskets: PTFE up to *+482°F (+250°C)*; graphite over *+482°F (+250°C)*

Process connection and intermediate ring:

5 - AISI 316L st.st.

N - AISI 316L st.st.,PTFE coated,(2)

F - Polipropylene,

V - PVC.

Clamp bolts: AISI 304 st.st.

Filling liquids: Silicon oil.

(1) at 68°F (20 °C) process temperature (or state temperature when ordering)

(2) Max temperature +302°F (+150°C), with PTFE coating - G 1/2 A only

(3) In case of order on demand of "continuous duty" model or in case of accidental overpressure, please see our catalogue MGS9/2B

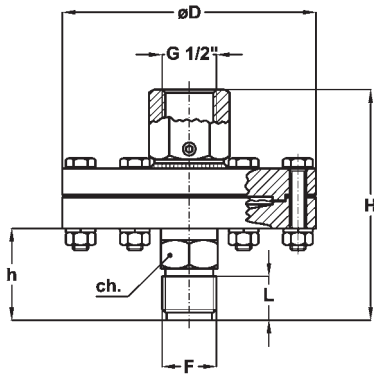
Ranges

| Instrument type | Minimum range | Maximum range | Notes |
|--|--|---------------------------------|-------------------------------------|
| Bourdon tube, DS 4", 6" (100...150 mm) | <i>0...10 psi</i> (0...0,6 bar) | <i>0...580 psi</i> (0...40 bar) | Vacuum and compound gauges included |
| Diaphragm differential pressure gauges | <i>0...100 InH₂O</i> (0...250 mbar) | <i>0...360 psi</i> (0...25 bar) | Max static pressure 60 bar |
| Diaphragm pressure switches | <i>0...15 psi</i> (0...15 bar) | <i>0...580 psi</i> (0...40 bar) | Vacuum and compound gauges included |
| Pressure transmitters | <i>0...40 InH₂O</i> (0...100 mbar) | <i>0...580 psi</i> (0...40 bar) | Max static pressure 60 bar |

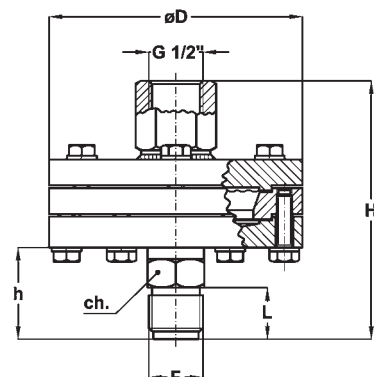
diaphragm seal with threaded connection

MGS9/1B

MGS9/1B0



MGS9/1BS



| F | ø D | ch | H | h | L | Weight |
|----------------------|-------|-------|-------|--------|-------|------------|
| 41M -G 1/2 B | 3.85" | 0.87" | 3.50" | 1.40" | 0.78" | 3.13 lbs |
| 43M -1/2 NPT* | (98) | (22) | (89) | (35,5) | (20) | (1,300 kg) |

dimensions : inches (mm)

| F | D | ch | H | h | L | Weight |
|----------------------|-------|-------|-------|--------|-------|------------|
| 41M -G 1/2 B | 3.85" | 0.87" | 3.94" | 1.40" | 0.78" | 3.90 lbs |
| 43M -1/2 NPT* | (98) | (22) | (100) | (35,5) | (20) | (1,770 kg) |

dimensions : inches (mm)

*Not available with PTFE coated process connections.

ASSEMBLING

All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label. For applications with capillary: should diaphragm seal and instrument not be at the same level, instrument adjustment is required). (For use and installation, see data sheet "4")

| | |
|--|---|
| D - Direct | 9 - Capillary AISI304 st.st., AISI304 st.st. armoured, 36.37" max (6 mt max) |
| I - Nude capillary AISI304, 36.37" max (6 mt max) | 6 - Capillary AISI316 st.st., AISI316 st.st. armoured, 36.37" max (6 mt max) |

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid "E" | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil "B" | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil "C" | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil "C" | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil "G" | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil "D" | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

OPTIONS

| Description | MGS9/1B0 | MGS9/1BS |
|---|----------|----------|
| C05 - Helium Test | ◆ | ◆ |
| E30 - Nace version MR0103/MR0175 (ISO 15156) (1) | ◆ | ◆ |
| TS5 - Washing plug - 1/4" NPT (4) | ◆ | ◆ |
| P04 - Dye penetrant test | ◆ | ◆ |
| P02 - Oxygen degreasing(2) | ◆ | ◆ |
| MPP - PTFE diaphragm protection, for temperature up to 302 °F (150 °C) (3) | ◆ | ◆ |
| Special process connections (4) : 1/4" NPTF; 1/2" NPTF; 3/4" NPTF; 3/4" NPTM | ◆ | ◆ |

- (1) Stainless steel process connection and Monel 400 or Hastelloy C276 diaphragm
- (2) To be ordered together with fluorinated liquid filling
- (3) Except for pressure gauges and vacuum gauges
- (4) Stainless steel process connection only

"HOW TO ORDER" SEQUENCE

Section/Model/Connection material/Diaphragm material/Process Connection/Instrument connection/Assembling / Options

4 1B0 5, N, 6 4, 6, 9 41M 41F - G 1/2 F D B...G
1BS 9, F, V B, J, I 43M 1, 9, 6 C05...MPP
U, 8, E 43F
C, 2

back side diaphragm seal for high pressure, with threaded connection



PED 2014/68/EU

Diaphragm seals are designed to isolate the sensing element of pressure gauges, pressure switches and electronic pressure transmitter from process fluids which may be corrosive, viscous, sedimentous and/or with a high temperature. The diaphragm is mechanically clamped between the upper housing and intermediate ring and is leak proof tested to guarantee fill fluid separation from process fluid. Model MGS9/1A0 is cleaned by removing the lower housing from the intermediate ring. Both models are without sealing gaskets. This construction feature and its compact design suits many application that require frequent maintenance, for model MGS9/1A0.

4.1AS - MGS9/1AS

Working pressure: from 0...6000 to 0...8000 psi; (from 0...400 bar to 0...600 bar).

Working temperature: -49...+302 °F (-45°C...+150°C).

Accuracy*: (add to instrument accuracy) ±0,5% for direct mounting; ±1% for capillary mounting.

Instrument connection: AISI 316 st. st.

Diaphragm: metallic seal,

4 - AISI 316L st.st.,

9 - Hastelloy C276,

6 - Monel 400.

Process connection:

4 - AISI 316 st.st.,

5 - AISI 316 L st.st.

Clamp bolts: high tensile carbon steel.

Filling liquid: silicon oil.

4.1A0 - MGS9/1A0

Working pressure: from 0...1000 to 0...6000 psi; (from 0...60 bar to 0...400 bar).

Working temperature: -49...+302 °F (-45°C...+150°C).

Accuracy*: (add to instrument accuracy) ±0,5% for direct mounting; ±1% for capillary mounting.

Instrument connection: AISI 316 st. st.

Diaphragm: metallic seal,

4 - AISI 316L st.st.,

9 - Hastelloy C276,

6 - Monel 400.

Intermediate ring: AISI 316 st.st.

Process connection:

4 - AISI 316 st.st.,

5 - AISI 316 L st.st.

Clamp bolts: stainless steel.

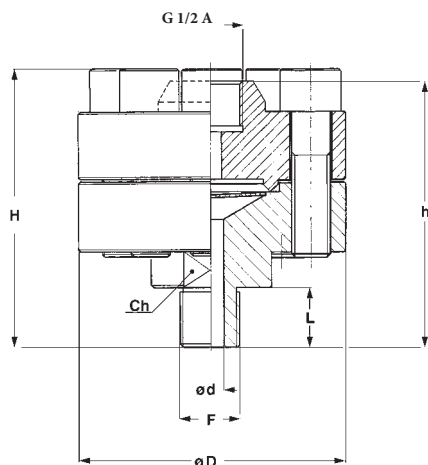
Filling liquid: silicon oil.

* at 68°F (20 °C) process temperature (or state temperature when ordering)

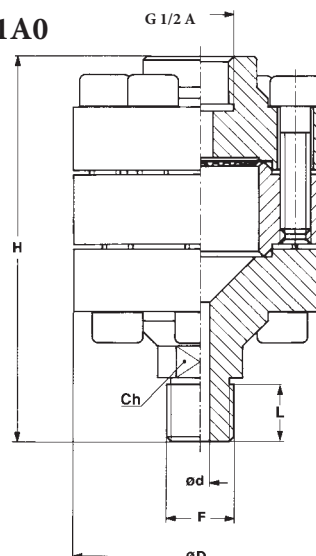
back side diaphragm seal for high pressure, with threaded connection

MGS9/1A

MGS9/1AS



MGS9/1A0



| F | d | H | h | L | D | Ch |
|----------------------|-------|-------|-------|-------|-------|-------|
| 41M - G 1/2 B | 0.27" | 3.66" | 3.50" | 0.78" | 3.50" | 1.41" |
| 43M - 1/2 NPT | (7) | (93) | (89) | (20) | (89) | (36) |

| F | d | H | L | D | Ch |
|----------------------|-------|---------|-------|-------|-------|
| 41M - G 1/2 B | 0.23" | 4.78" | 0.78" | 3.14" | 0.86" |
| 43M - 1/2 NPT | (6) | (121,5) | (20) | (80) | (22) |

dimensions : inches (mm)

ASSEMBLING

All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label. For applications with capillary: should diaphragm seal and instrument not be at the same level, instrument adjustment is required). (For use and installation, see data sheet "4")

| | |
|--|---|
| D - Direct | 9 - Capillary AISI304 st.st., AISI304 st.st. armoured, 36.37" max (6 mt max) |
| 1 - Nude capillary AISI304, 36.37" max (6 mt max) | 6 - Capillary AISI316 st.st., AISI316 st.st. armoured, 36.37" max (6 mt max) |

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid "E" | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil "B" | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil "C" | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil "C" | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil "G" | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil "D" | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

OPTIONS

| |
|---|
| R20 - Adaptor G 1/2 A M/F |
| R22 - Adaptor G 1/2 A M x 1/2 - 14 NPT F |
| R21 - Adaptor G 1/2 A M x 1/4 - 18 NPT F |
| T11 - Washing plug |
| C05 - Helium Test |
| E30 - Nace version MR0103 (1) - MR0175 (ISO 15156) (2) |

(1) Stainless steel process connection and Monel 400 or Hastelloy C276 diaphragm. (2) Wetted parts hastelloy C276

"HOW TO ORDER" SEQUENCE

Section/Model/Connection material/Diaphragm material/Process Connection/Instrument connection/Assembling/Options

4 1AS 4 4, 9, 6 41M 41F - G 1/2 F D B...G
1A0 5 43M 1, 9, 6 R20...E30

back side diaphragm seals, with threaded connection



Diaphragm seals are designed to isolate the sensing element of pressure gauges, pressure switches and electronic pressure transmitter from process fluids which may be corrosive, viscous, sedimentous and/or with a high temperature. The diaphragm is welded to the top housing and leak proof tested, to guarantee a separation between process fluid and fill transmission fluid. The upper part is detachable from the lower process side for cleaning. This construction feature and its compact design suits many application that require frequent maintenance.

4.111 - MGS9/111

Working pressure: *from 0...100 to 3000 psi (from 0...6 bar to 0...250 bar).*

Working temperature: *-49...+302°F (-45°C...+150°C.)*

Accuracy*: (add to instrument accuracy) $\pm 0,5\%$ for direct mounting;
 $\pm 1\%$ for capillary mounting.

Instrument connection: AISI 316 st.st.

Diaphragm: welded,

4 - AISI 316L st.st.,

9 - Hastelloy C276,

6 - Monel 400.

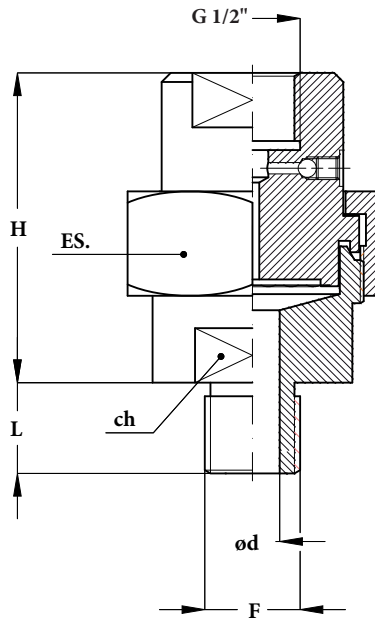
Hexagonal nut: AISI 304 st.st.

Process connection:

4 - AISI 316 st.st.

Filling liquid: silicon oil.

* at 68°F (20 °C) process temperature (or state temperature when ordering)



| F | d | H | L | ES. | Ch |
|----------------------------|---------------|---------------|---------------|---------------|---------------|
| 41M G 1/2 A | 0.47" (12) | 2.67" (68) | 0.78" (20) | 2.16" (55) | 1.41" (36) |
| 43M 1/2-14 NPT | 0.47" (12) | 2.67" (68) | 0.78" (20) | 2.16" (55) | 1.41" (36) |
| 43F 1/2-14 NPT F | | 2.67" (68) | | 2.16" (55) | 1.41" (36) |
| 53F 3/4-14 NPT F | | 2.67" (68) | | 2.16" (55) | 1.41" (36) |

dimensions : inches (mm)

ASSEMBLING

All diaphragm seals are mounted on the instruments ad fixed by an aluminium protection label. For applications with capillary: shoul diaphragm seal and instrument not be at the same level, instrument adjustment is required). (For use and installation, see data sheet "4")

| | |
|--|---|
| D - Direct | 9 - Capillary AISI304 st.st., AISI304 st.st. armoured, 36.37" max (6 mt max) |
| I - Nude capillary AISI304, 36.37" max (6 mt max) | 6 - Capillary AISI316 st.st., AISI316 st.st. armoured, 36.37" max (6 mt max) |

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid "E" | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil "B" | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil "C" | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil "C" | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil "G" | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil "D" | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

OPTIONS

| |
|--|
| C05 - Helium Test |
| E30 - Nace version MR 01.03 (1) |
| P02 - Oxygen degreasing (2) |
| P04 - Dye penetrant test |

- (1) Stainless steel process connection and Monel 400 or Hastelloy C276 diaphragm
- (2) To be ordered together with fluorinated liquid filling

"HOW TO ORDER" SEQUENCE

Section/Model/Connection material/Diaphragm material/Process Connection/Instrument connection/Assembling/Options

4 111 4 4, 6, 9 41M 41F - G 1/2 F D B...G
43M 1, 9, 6 C05...P04
43F
53F

“continuous duty” diaphragm seal, welded, with threaded connection



Diaphragm seals are designed to isolate the sensing element of pressure gauges, pressure switches and electronic pressure transmitter from process fluids which may be corrosive, viscous, sedimentous and/or with a high temperature. In case of accidental removal of the instrument or of liquid filling leak the diaphragm will place on the upper cup preventing any damage and any process liquid leak. Thanks to an exclusive calibration system the pressure gauge should stand an overpressure of 210bar without the help of any pressure control switch .

4.2B0 - MGS9/2B

Design: ASME B40.2

Working pressure: *from -30...0 INHG to 0...2320 psi (from -1...0 to 0...160 bar).*

“Continuous duty”: *3000 psi (210 bar) as per ASME B40.2.*

Process temperature: *-49...+302°F (-45°C...+150°C.)*

Accuracy (1): (add to instrument accuracy) $\pm 0,5\%$ for direct mounting, $\pm 1\%$ for capillary mounting.

Instrument connection: AISI 304 st.st.

Diaphragm material:

4 - AISI 316L st.st.,

6 - Monel 400,

9 - Hastelloy C 276,

B - Tantalum,

J - Alloy 600;

I - Alloy 825;

U - 25.22.2.

Gaskets: PTFE up to $+482^{\circ}\text{F}$ ($+250^{\circ}\text{C}$).

Process connection:

5 - AISI 316L st.st.

6 - Monel 400

9 - Hastelloy C 276.

Clamp nuts and bolts: high resistance steel.

Filling liquids: Silicon oil.

Special overpressure: *3000 psi for 1 hour (210 bar) (2) (3).*

(1) at 68°F (20°C) process temperature (or state temperature when ordering)

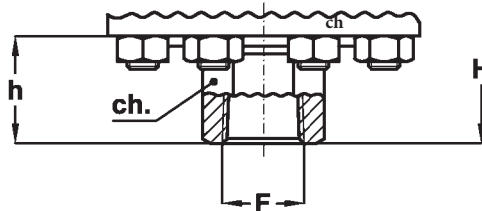
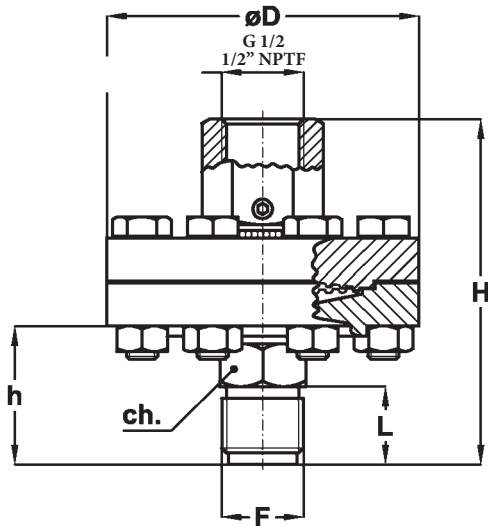
(2) on request only, pressure gauge/pressure switch assembling only

(3) Vacuum and compound gauges excluded

**"continuous duty" diaphragm seal
welded, with threaded connection**

MGS9/2B

RG-08/14



| F | D | ch | H | h | L | Weight |
|----------------------|-------|-------|-------|--------|-------|------------|
| 41M - G 1/2 B | 3.15" | 0.87" | 3.54" | 2.79" | 0.79" | 2.36 lbs |
| 43M - 1/2 NPT | (80) | (22) | (90) | (35,5) | (20) | (1,070 kg) |

dimensions : inches (mm)

| F | D | ch | H | h | Weight |
|-------------------------|-------|-------|-------|--------|------------|
| 43F 1/2 NPT F | 3.15" | 1.06" | 3.23" | 1.08" | 2.34 lbs |
| | (80) | (27) | (82) | (27,5) | (1,060 kg) |

dimensions : inches (mm)

ASSEMBLING

All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label. For applications with capillary: should diaphragm seal and instrument not be at the same level, instrument adjustment is required). (For use and installation, see data sheet "4")

| | |
|--|---|
| D - Direct | 9 - Capillary AISI304 st.st., AISI304 st.st. armoured, 36.37" max (6 mt max) |
| I - Nude capillary AISI304, 36.37" max (6 mt max) | 6 - Capillary AISI316 st.st., AISI316 st.st. armoured, 36.37" max (6 mt max) |

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid "E" | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil "B" | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil "C" | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil "C" | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil "G" | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil "D" | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

OPTIONS

| |
|---|
| C05 - Helium Test (1) |
| E30 - Nace version MR0103/MR0175 (ISO 15156) (2) |
| TS5 - AISI316L stainless steel washing plug, 1/4" NPT |
| P04 - Dye penetrant test |
| BAI - Stainless steel fixing bolts (5) |
| S40 - Max overpressure 3000 psi (210 bar) (3) (4) |
| MPP - PTFE diaphragm protection, for temperature up to 302 °F (150 °C) (3) |
| Special process connections (1) : 1/4" NPTF; 3/4" NPTF; 3/4 NPTM |

- (1) on models with AISI316L process connection only
- (2) Stainless steel process connection and Monel 400 or Hastelloy C276 diaphragm

- (3) Except for vacuum and compound gauges
- (4) for pressure gauge/pressure switch assembling only
- (5) max 100 bar

"HOW TO ORDER" SEQUENCE

Section/Model/Connection material/Diaphragm material/Process Connection/Instrument connection/Assembling/Options

4 2B0 5 4, 6, 9 41M 41F - G 1/2 F D B...G
6 B, J, I 43M 43F - 1/2NPT F 1, 9, 6 C05...MPP
9 U 43F

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compact diaphragm seals, welded



Diaphragm seals are designed to isolate the sensing element of pressure gauges and pressure switches from process fluids that may be corrosive, viscous, sedimentous and/or with a high temperature. The diaphragm is welded to the body, to ensure separation of the filling fluid from the process medium. The threaded connection make it easy to use on all applications where the reduced size of the system is important and also where gauges of 2.5" (63 mm) diameter are required.

4.MIA - MGS9/MINI/A

Working pressure: up to 0...6000 psi (up to 0...400 bar), as from RANGES table.

Working temperature: -49...302°F (-45...+150°C).

Accuracy(1): (add to instrument accuracy) ±1,0 % for direct mounting; ± 1% for capillary mounting.

Instrument connection: AISI 316 L st.st.

Diaphragm: welded,

4 - AISI 316 L st.st.

Process connection:

5 - AISI 316 L st.st.

Filling liquid: silicon oil.

4.MIB - MGS9/MINI/B

Working pressure: up to 0...1000 psi (up to 0...60 bar), as from RANGES table.

Other features: as model MGS9/MIA.

(1) at 68°F (20 °C) process temperature (or state temperature when ordering)

RANGES

| Gauge DS | MGS9/MIA | MGS9/MIB |
|---------------------------|--|---|
| 2.5" (63 mm) | 0...60/0...6000 psi (0...4/0...400 bar) | -30...0 InHG /0...1000 psi (-1...0/0...60 bar) |
| 4"...6" (100...150 mm) | 0...200/0...6000 psi (0...16/0...400 bar) | |

ASSEMBLING

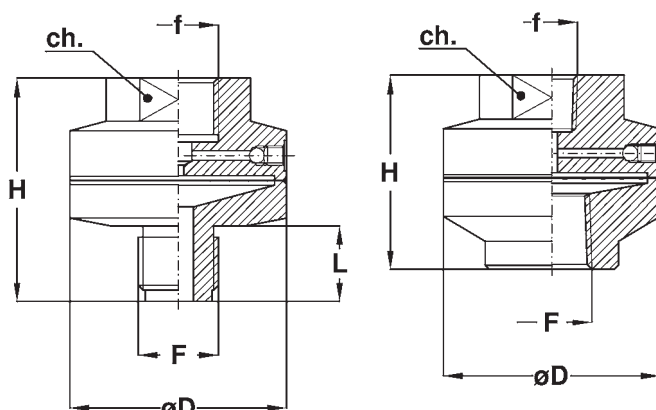
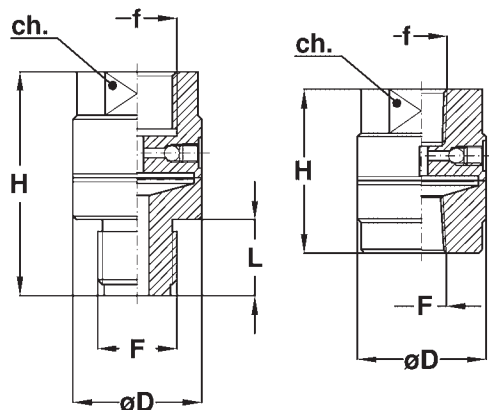
D - All diaphragm seals are mounted directly on the instruments.

All diaphragm seals are mounted on the instruments ad fixed by an aluminium protection label.

MGS9/MIA

MGS9/MIB

| |
|-------------------------|
| f |
| 41F - G 1/2 |
| 21F - G 1/4 |
| 23F - 1/4-18 NPT |



| F (1) | D | H | Ch | L |
|----------------------------|---------------|---------------|---------------|---------------|
| 23F 1/4-18 NPT F | 1.33" (34) | 1.69" (43) | 1.06" (27) | - |
| 43M 1/2-14 NPT M | 1.33" (34) | 2.32" (59) | 1.06" (27) | 0.78" (20) |
| 43F 1/2-14 NPT F | 1.33" (34) | 1.69" (43) | 1.06" (27) | - |
| 41M G 1/2 B | 1.33" (34) | 2.32" (59) | 1.06" (27) | 0.78" (20) |

(1)other threads available on request
dimensions : inches (mm)

| F (1) | D | H | Ch | L |
|----------------------------|---------------|---------------|---------------|---------------|
| 23F 1/4-18 NPT F | 2.24" (57) | 2" (51) | 1.25" (32) | - |
| 43M 1/2-14 NPT M | 2.24" (57) | 2.32" (59) | 1.25" (32) | 0.78" (20) |
| 43F 1/2-14 NPT F | 2.24" (57) | 2" (51) | 1.25" (32) | - |
| 41M G 1/2 B | 2.24" (57) | 2.32" (59) | 1.25" (32) | 0.78" (20) |

(1)other threads available on request
dimensions : inches (mm)

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid "E" | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil "B" | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil "C" | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil "C" | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil "G" | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil "D" | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

"HOW TO ORDER" SEQUENCE

Section/Model/Connection material/Diaphragm material/Process Connection/Instrument connection/Assembling/Options

4 MIA 5 4 41M 21F D B...G
MIB 43M 23F
23F 41F

sanitary diaphragm seal threaded process connection DIN, IDF/ISS



74-06

Autorization NO. 1599

Diaphragm seals are designed to isolate the sensing element of pressure gauges and pressure switches from process fluids which may be corrosive, viscous, sedimentous and/or with a high temperature. The diaphragm is welded to the upper body, to ensure separation of filling fluid from process medium. Designed in accordance with food and pharmaceutical standards to permit easy removal from the plant whilst maintains the hygienic feature during frequent cleaning.

4.SAN - MGS9/SA

Design: 74-06 SSI.

Working pressure: from 0...30 to 0...600 psi (from 0...1 to 0...40 bar).
Minimum working pressure as from MINIMUM RANGES table .

Process temperature: -4...+212°F (-20°C...+100°C);
Max 284°F (140 °C) for 30 minutes during cleaning stage (C.I.P.) ¹ and sterilization (S.I.P) ².

Accuracy ²: (add to instrument accuracy) ±0,5% for direct mounting.

Instrument connection: AISI 316 st.st..

Diaphragm: welded, 4 - AISI 316 L st.st.

Filling liquid: mineral oil (FDA approved) for food industry.

Process connection: AISI 316 (Cod. 4)st.st. as per:

-DIN 11851;

-IDF/ISS;

see "MINIMUM RANGES" table for dimensions, with finishing Ra ≤ 0,76 µm (welded parts included), as per ASME BPE SF3.

Union nut: AISI 304 st.st.

1) C.I.P. = Cleaned In Place

2) S.I.P. = Steamed In Place - available for ranges > 1bar when steam pressure does not exceed the max admissible pressure on the connected instrument

3) at +68°F (20 °C) process fluid temperature, or state temperature when ordering.

MINIMUM RANGES

| Process connection | DN | Female with union nut | | Male | |
|--------------------|--------|------------------------|--------------------------|-------------------------|--------------------------|
| | | DS 2.5" (63mm) | DS 4" (100mm) | DS 2.5" (63mm) | DS 4" (100mm) |
| DIN 11851 | 25 | 0...60 psi (0...4 bar) | 0...60 psi (0...4 bar) | 0...100 psi (0...6 bar) | |
| | 32 | | 0...60 psi (0...4 bar) | | 0...60 psi (0...4 bar) |
| | 40 | | 0...30 psi (0...1,6 bar) | | 0...60 psi (0...4 bar) |
| | 50 | | 0...15 psi (0...1 bar) | | 0...30 psi (0...1,6 bar) |
| IDF/ISS | 1" 1/2 | | 0...60 psi (0...4 bar) | | 0...60 psi (0...4 bar) |
| | 2" | | 0...30 psi (0...1,6 bar) | | 0...30 psi (0...1,6 bar) |

ASSEMBLING

D - All diaphragm seals are mounted directly on the instruments.

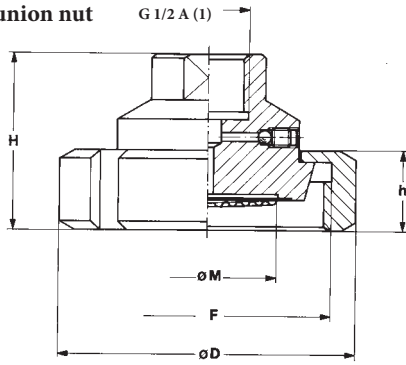
All diaphragm seals are mounted on the instruments ad fixed by an aluminium protection label.

sanitary diaphragm seal
threaded process connection DIN, IDF/ISS

MG9/SA

R7-02/6

Female with union nut

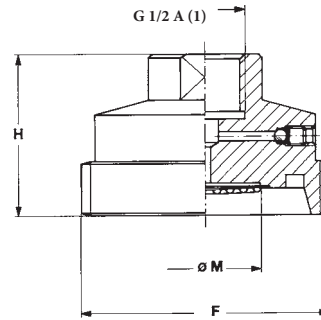


(1) DN 25 = G 1/2 A, G 1/4 A; 1" = G 1/4 A

| DN | Code | H | h | D | M | F (DIN 405) |
|----|------------|-----------------|---------------|---------------|---------------|-------------|
| 25 | QHF | *1.81" (*46) | 0.82" (21) | 2.48" (63) | 1.18" (30) | Rd 52 x 1/6 |
| 32 | RHF | 1.81" (46) | 0.82" (21) | 2.75" (70) | 1.18" (30) | Rd 58 x 1/6 |
| 40 | SHF | 1.81" (46) | 0.82" (21) | 3.07" (78) | 1.57" (40) | Rd 65 x 1/6 |
| 50 | THF | 1.85" (47) | 0.86" (22) | 3.62" (92) | 1.96" (50) | Rd 78 x 1/6 |

(*) G 1/4 A : 1.63" (41,5 mm)

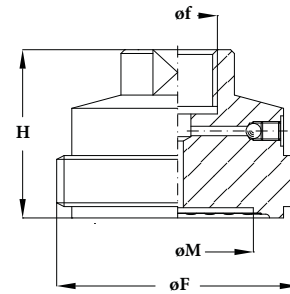
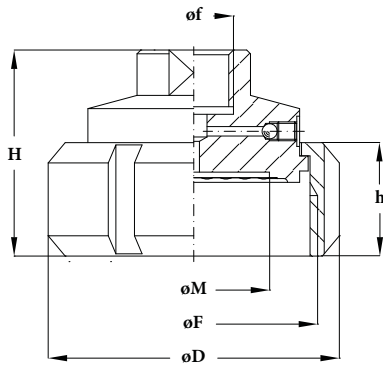
Male



(1) DN 25 and 1" = G 1/4 A

| DN | Code | H | M | F (DIN 405) |
|----|------------|---------------|---------------|-------------|
| 25 | QHM | 1.45" (37) | 0.78" (20) | Rd 52 x 1/6 |
| 32 | RHM | 1.65" (42) | 1.18" (30) | Rd 58 x 1/6 |
| 40 | SHM | 1.65" (42) | 1.18" (30) | Rd 65 x 1/6 |
| 50 | THM | 1.65" (42) | 1.57" (40) | Rd 78 x 1/6 |

dimensions : inches (mm)



IDF/ISS

| DN | Code | H | h | D | M | F (ACME) |
|--------|------------|-------|-------|-------|-------|-------------|
| 1" 1/2 | AMF | 2.14" | 1.18" | 2.51" | 1.18" | 2" 1/32 x 8 |
| 2" | BMF | 2.14" | 1.18" | 3.03" | 1.57" | 2" 9/16 x 8 |

IDF/ISS

| DN | Code | H | M | F (ACME) |
|--------|------------|-------|-------|-------------|
| 1" 1/2 | AMM | 1.75" | 1.18" | 2" 1/32 x 8 |
| 2" | BMM | 1.75" | 1.57" | 2" 9/16 x 8 |

dimensions : inches

OPTIONS

P04 - Dye penetrant test

C05 - Helium Test

"HOW TO ORDER" SEQUENCE

Section/Model/Connection material/Diaphragm material/Process Connection/Instrument connection/Assembling/Options
4 SAN 4 4 QHF...THM 41F - G 1/2 F D C05, P04
AMF...BMM



clamp connection diaphragm seal



74-06

Autorization NO. 1599



Diaphragm seals are designed to isolate the sensing element of pressure gauges and pressure switches from process fluids that may be corrosive, viscous, sedimentous and/or with a high temperature. The diaphragm is welded to the upper body, to ensure separation of the filling fluid from the process medium. Faced diaphragm position enables deep cleaning of the surface while the quick-connection Clamp enables frequent removal from the process during sterilization and cleaning operations, a common requirement in the food processing industry.

4.ALI.4.---- - MGS9/AL

Design: 74-06 SSI.

Working pressure: from 0...15 to 0...600 psi (from 0...1 to 0...40 bar), as from RANGE table .

Process temperature: -4...+212°F (-20°C...+100°C);
Max 284°F (140 °C) for 30 minutes during cleaning stage (C.I.P.) ¹ and sterilization (S.I.P) ².

Accuracy ³: (add to instrument accuracy) ±0,5% max for direct mounting.

Diaphragm: welded, 4 - AISI 316L st.st.

Process connection : 4 - AISI 316 st.st. with finishing Ra ≤0,76 μm (welded parts included), as per ASME BPE SF3.

Filling liquid: mineral oil (FDA approved)for food industry.

4.ALI.4.TA3- - MGS9/AL - 150°C

Process temperature: -4...+302°F (-20°C...+150°C)

Other features: as Standard Model.

1) C.I.P. = Cleaned In Place

2) S.I.P. = Steamed In Place - available for ranges > 1bar when steam pressure does not exceed the max admissible pressure on the connected instrument

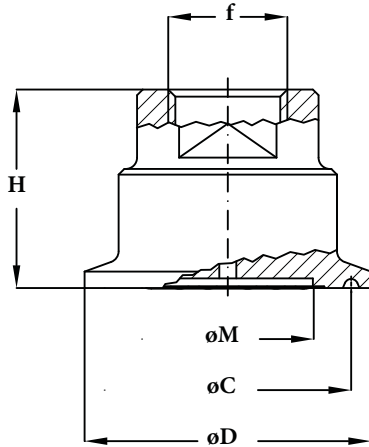
3) at +68°F (20 °C) process fluid temperature, or state temperature when ordering.

RANGES (1)

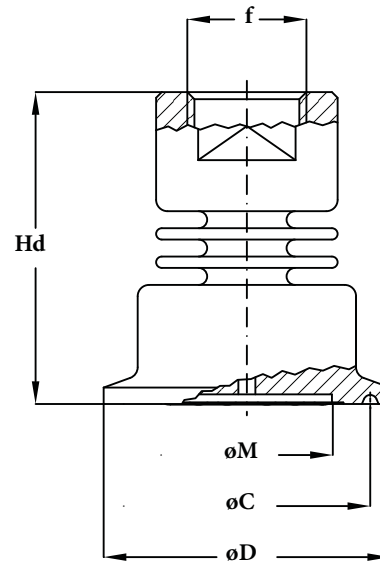
| Pressure gauges DS | 1" Clamp | 1" 1/2 Clamp | 2" Clamp | 2" 1/2 Clamp | 3" Clamp |
|--------------------|---|---|--|--|--|
| 2.5" (63mm) | 0...100/0...600 psi (0...6/0...40 bar) | 0...60/0...600 psi (0...4/0...40 bar) | | | |
| 4" (100mm) | | 0...60/0...600 psi (0...4/0...40 bar) | 0...30/0...600 psi (0...1,6/0...40 bar) | 0...15/0...600 psi (0...1/0...40 bar) | 0...15/0...400 psi (0...1/0...25 bar) |
| 6" (150mm) | | 0...100/0...600 psi (0...6/0...40 bar) | 0...30/0...600 psi (0...2,5/0...40 bar) | 0...30/0...600 psi (0...1,6/0...40 bar) | 0...30/0...400 psi (0...1,6/0...25 bar) |

(1) Vacuum and compound are available upon request

MGS9/AL - STD
cod. ----



MGS9/AL - 150°C
cod. TA3-



| DN Clamp | Code | C | H | Hd | D | f | M |
|----------|------------|-------|-------|-------|-------|--|-------|
| 1" | 6T- | 1,71" | 1,18" | 1,18" | 1,98" | 21F - G 1/4 A | 0,78" |
| 1" 1/2 | AT- | 1,71" | 1,37" | 1,37" | 1,98" | 21F - G 1/4 A 41F - G 1/2 A | 1,18" |
| 2" | BT- | 2,22" | 1,37" | 1,37" | 2,51" | 41F - G 1/2 A | 1,57" |
| 2" 1/2 | DT- | 2,77" | 1,37" | 1,37" | 3,05" | 41F - G 1/2 A | 1,96" |
| 3" | ET- | 3,29" | 1,37" | 1,37" | 3,58" | 41F - G 1/2 A | 2,56" |

dimensions : inches

ASSEMBLING

D - All diaphragm seals are mounted directly on the instruments.
All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label.

FINISHING

| | |
|--|-----|
| 0 - Ra ≤ 0,76 µm, as per ASME BPE SF1 | (1) |
| A - Ra ≤ 0,51 µm, as per ASME BPE SF1 | (1) |
| B - Ra ≤ 0,38 µm, as per ASME BPE SF4 - electropolished | (1) |

(1) welded parts included

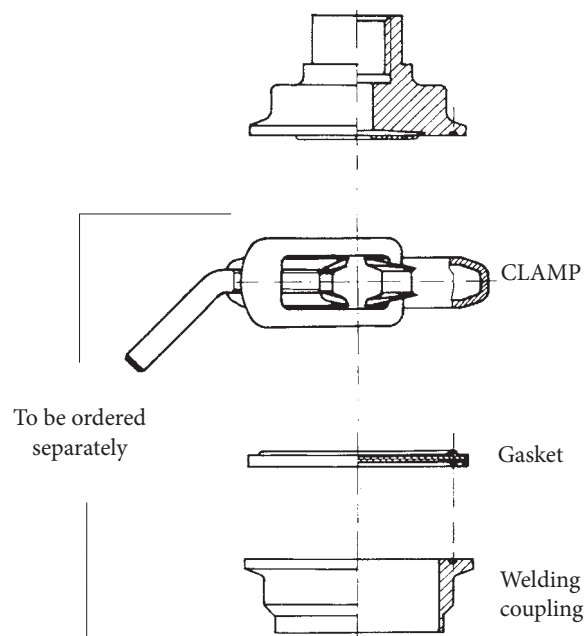
OPTIONS

| |
|---------------------------------|
| C05 - Helium Test |
| P04 - Dye penetrant test |

"HOW TO ORDER" SEQUENCE

Section/Model/Connection material/Version/Diaphragm material/Process Connection/Finishing/Instrument connection/Assembling/Options

4 ALI 4 ---- 4 6T-...ET- 0 21F - G 1/4 F D C05...P04
TA3- 41F - G 1/2 F
B



diaphragm seal for DS 2.5" (63mm) pressure gauges, with threaded connection



Diaphragm seals are designed to isolate the sensing element of pressure gauges DS 63 and electronic transmitter from process fluids which may be corrosive, viscous, sedimentous and/or with a high temperature. The diaphragm is welded to the top housing and leak proof tested, to guarantee a separation between process fluid and fill transmission fluid. This construction feature and its compact design suits many application that require frequent maintenance.

4.367 - MGS9/367

Working pressure : *from 0...600 to 0...6000 psi (from 0...40 to 0...400 bar).*

Process temperature: *-49...+302°F (-45°C...+150°C).*

Accuracy*: (add to instrument accuracy) $\pm 1\%$ for direct mounting only.

Diaphragm: welded,

4 - AISI 316 L st.st.

Process connection:

4 - AISI 316 st.st.

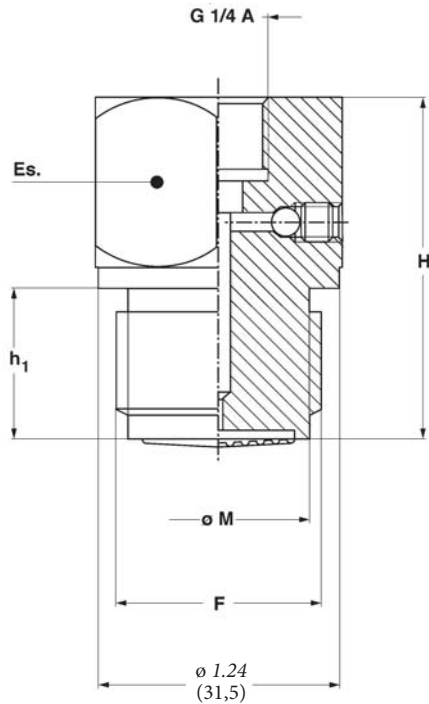
Filling liquid: silicone oil.

* at 68°F (20 °C) process temperature (or state temperature when ordering)

diaphragm seal for DS 2.5" (63mm) pressure gauges, with threaded connection

MGS9/367

MS-08/14



| F | M | h ₁ | H | Es. |
|----------------|--------|----------------|--------|-------|
| 51M | 0.92" | 0.62" | 1.43" | 1.25" |
| G 3/4 M | (23,5) | (16) | (36,5) | (32) |

dimensions : inches (mm)

IN ORDER TO IMPROVE THEIR PRODUCTION, MESSRS. NUOVA FIMA RESERVE THE RIGHT TO THEMSELVES TO MAKE ALL THE MODIFICATIONS THAT THEY DEEM INDISPENSABLE AT ANY TIME. UPDATED DATA SHEETS ARE AVAILABLE ON SITE: www.nuovafima.com

ASSEMBLING

D - All diaphragm seals are mounted directly on the instruments.

All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label.

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid "E" | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil "B" | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil "C" | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil "C" | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil "G" | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil "D" | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

OPTIONS

| |
|---------------------------------|
| C05 - Helium Test |
| P04 - Dye penetrant test |

"HOW TO ORDER" SEQUENCE

Section/Model/Connection material/Diaphragm material/Process Connection/Instrument connection/Assembling/Options

4 367 4 4 51M 21F - G 1/4 F D B...G C05, P04



back side diaphragm seals, with flanged connection



Diaphragm seals are designed to isolate the sensing element of pressure gauges and pressure switches from process fluids which may be corrosive, viscous, sedimentous and/or with a high temperature and pressure. An elastic diaphragm, mechanically clamped, fitted to a leak proof check, guarantees the separation of the process fluid from the transmission fill fluid. The mechanical sealing of the diaphragm guarantees the application of the system at high process fluid temperature avoiding the problems caused by gaskets.

4.3A0 - MGS9/3A

Working pressure: from 0...1000 to 3000 psi (from 0...60 bar to 0...250 bar).

Working temperature: -49...+302°F (-45°C...+150°C.)

Accuracy*: (add to instrument accuracy) ±0,5% for direct mounting; ± 1% for capillary mounting.

Instrument connection: AISI 316 st.st.

Diaphragm: welded, AISI 316L st.st. (cod. **4**), Monel 400 (cod. **6**), Hastelloy C276 (cod. **9**), Hastelloy B2 (cod. **1**), Tantalum (cod. **B**), Titanium (cod. **2**).

Threaded process connection: in AISI 316 st.st. (cod. **4**), AISI 316L st.st. (cod. **5**).

* at +68°F (20 °C) process temperature (or state when ordering)

Dimensions : DN 15...25 and PN 25...100 EN 1092 step seal; 1/2"...1" 1/2 class 600...2500 RF as per ASME B16.5.

EN 1092 flanges finishing: type B1 (PN 2,5...40) = Ra 3,2...12,5 µm (cod. **RF7**); type B2 (PN 63...100) = Ra 0,8...3,2 µm (cod. **RF8**).

ASME flanges finishing: type RF = Ra 125...250 AARH (cod. **RF3**).

Filling liquid: silicon oil.

Fixing bolts: AISI 304 st.st.

ASSEMBLING

All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label. For applications with capillary: should diaphragm seal and instrument not be at the same level, instrument adjustment is required). (For use and installation, see data sheet "4")

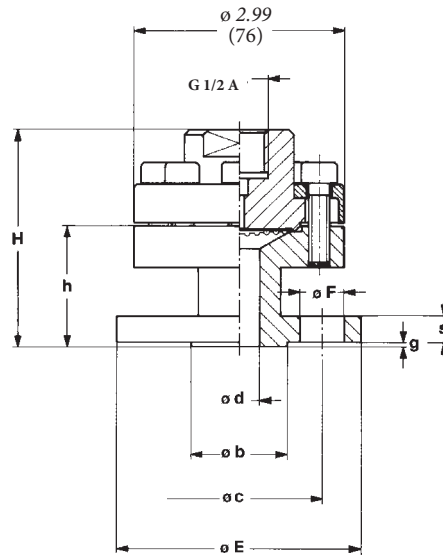
| | |
|--|---|
| D - Direct | 9 - Capillary AISI304 st.st., AISI304 st.st. armoured, 36.37" max (6 mt max) |
| 1 - Nude capillary AISI304, 36.37" max (6 mt max) | 6 - Capillary AISI316 st.st., AISI316 st.st. armoured, 36.37" max (6 mt max) |

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid "E" | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil "B" | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil "C" | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil "C" | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil "G" | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil "D" | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

OPTIONS

| | |
|--|--|
| R20 - Adaptor G 1/2 A M/F with filling screw | R21 - Adaptor G 1/2 A M x 1/4 - 18 NPT F with filling screw |
| E30 - Nace MR0103 version, with Monel 400 or Hastelloy C diaphragm. | |



EN 1092 STANDARD

dimensions : mm

| DN | PN-bar | Code | h | H | E | b | d | g | c | s | F | N (1) |
|----|----------|------------|----|------|-----|----|----|---|-----|----|----|-------|
| 15 | 25...40 | OSO | 47 | 82,5 | 95 | 45 | 15 | 2 | 65 | 14 | 14 | 4 |
| 15 | 63...100 | OUO | 51 | 86,5 | 105 | 45 | 15 | 2 | 75 | 18 | 14 | 4 |
| 20 | 25...40 | PSO | 49 | 84,5 | 105 | 58 | 20 | 2 | 75 | 16 | 14 | 4 |
| 20 | 63...100 | PUO | 57 | 92,5 | 130 | 58 | 20 | 2 | 90 | 20 | 18 | 4 |
| 25 | 25...40 | QSO | 49 | 84,5 | 115 | 68 | 25 | 2 | 85 | 16 | 14 | 4 |
| 25 | 63...100 | QUO | 59 | 94,5 | 140 | 68 | 25 | 2 | 100 | 22 | 18 | 4 |

1) N°holes.

ASME STANDARDS

dimensions : inches

| DN | Classe | Code | h | H | E | b | d | g | c | s | F | N (1) |
|--------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1/2" | 600 | 4DA | 2,11" | 3,51" | 3,74" | 1,37" | 0,59" | 0,24" | 2,62" | 0,57" | 0,62" | 4 |
| 1/2" | 900...1500 | 4FA | 2,70" | 4,10" | 4,74" | 1,37" | 0,59" | 0,24" | 3,24" | 0,88" | 0,86" | 4 |
| 3/4" | 600 | 5DA | 2,33" | 3,73" | 4,62" | 1,68" | 0,78" | 0,24" | 3,24" | 0,62" | 0,74" | 4 |
| 3/4" | 900...1500 | 5FA | 2,82" | 4,22" | 5,11" | 1,68" | 0,78" | 0,24" | 3,5" | 1,04" | 0,86" | 4 |
| 3/4" | 2500 | 5GA | 3,08" | 4,48" | 5,49" | 1,68" | 0,78" | 0,24" | 3,74" | 1,25" | 0,86" | 4 |
| 1" | 600 | 6DA | 2,39" | 3,79" | 4,88" | 2" | 0,98" | 0,24" | 3,5" | 0,68" | 0,74" | 4 |
| 1" | 900...1500 | 6FA | 3,10" | 4,5" | 5,86" | 2" | 0,98" | 0,24" | 4" | 1,12" | 1,02" | 4 |
| 1" | 2500 | 6GA | 3,35" | 4,75" | 6,24" | 2" | 0,98" | 0,24" | 4,24" | 1,37" | 1,02" | 4 |
| 1" 1/2 | 600 | ADA | 1,72" | 3,12" | 6,12" | 2,87" | 1,57" | 0,24" | 4,5" | 0,88" | 0,86" | 4 |
| 1" 1/2 | 900...1500 | AFa | 2,09" | 3,49" | 7" | 2,87" | 1,57" | 0,24" | 4,87" | 1,25" | 1,14" | 4 |
| 1" 1/2 | 2500 | AGA | 2,59" | 3,98" | 7,99" | 2,87" | 1,57" | 0,24" | 5,74" | 1,75" | 1,25" | 4 |

1) N°holes.

"HOW TO ORDER" SEQUENCE

| | | | | | | | | |
|---------|---------|--------------|--------------------|------------------------|-----------|---------------|--------------|--------------------|
| Section | / Model | / Connection | / Diaphragm | / Process | / Flange | / Instrument | / Assembling | / Options |
| 4 | 3A0 | 4, 5 | 4, 6, 9 2, B, 1 | OS0...QU0 4DA...AGA | RF3...RF8 | 41F - G 1/2 F | D 1, 9, 6 | B...G R20...E30 |



back side diaphragm seals, with flanged connection



Diaphragm seals are designed to isolate the sensing element of pressure gauges and pressure switches from process fluids which may be corrosive, viscous, sedimentous and/or with a high temperature and pressure. An elastic diaphragm, mechanically clamped, fitted to a leak proof check, guarantees the separation of the process fluid from the transmission fill fluid.

4.3B0 - MGS9/3B

| Instrument type | Minimum range | Maximum range | Notes |
|--|---|--------------------------|-------------------------------------|
| Bourdon tube, DS 4", 6" (100...150 mm) | 0...10 psi (0...0,6 bar) | 0...580 psi (0...40 bar) | Vacuum and compound gauges included |
| Diaphragm differential pressure gauges | 0...100 InH ₂ O (0...250 mbar) | 0...360 psi (0...25 bar) | Max static pressure 60 bar |
| Diaphragm pressure switches | 0...15 psi (0...15 bar) | 0...580 psi (0...40 bar) | Vacuum and compound gauges included |
| Pressure transmitters | 0...40 InH ₂ O (0...100 mbar) | 0...580 psi (0...40 bar) | Max static pressure 60 bar |

Working temperature: -49...+302°F (-45°C...+150°C.)

Accuracy*: (add to instrument accuracy) ±0,5% for direct mounting; ± 1% for capillary mounting.

Instrument connection: AISI 304 st.st.

Diaphragm: AISI 316L st.st. (cod. **4**), Monel 400 (cod. **6**), Hastelloy C276 (cod. **9**), Tantalum (cod. **B**), Titanium (cod. **2**) and AISI 316L st.st. PTFE coated (cod. **8**)**.

Gaskets: PTFE (max. 250°C).

Threaded process connection: in AISI 316 st.st. (cod. **4**), AISI 316L st.st. (cod. **5**), AISI 316L st.st. PTFE coated (cod. **N**)**.

Dimensions : DN 15...50 and PN 6...40 EN 1092 step seal; 1/2"...2" class 150...600 RF as per ASME B16.5.

* at +68°F (20 °C) process temperature (or state when ordering)

EN 1092 flanges finishing: type B1 (PN 2,5...40) = Ra 3,2...12,5 µm (cod. **RF7**); type B2 (PN 63...100) = Ra 0,8...3,2 µm (cod. **RF8**).

ASME flanges finishing: type RF = Ra 125...250 AARH (cod. **RF3**).
EN 1092 flanges finishing: type B1 (PN 2,5...40) = Ra 3,2...12,5 µm (cod. **RF7**); type B2 (PN 63...100) = Ra 0,8...3,2 µm (cod. **RF8**).

ASME flanges finishing: type RF = Ra 125...250 AARH (cod. **RF3**).

Filling liquid: silicon oil.

Fixing bolts: AISI 304 st.st.

** max temperature +328°F (+150°C), with PTFE coating

ASSEMBLING

All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label. For applications with capillary: should diaphragm seal and instrument not be at the same level, instrument adjustment is required). (For use and installation, see data sheet "4")

| | |
|--|---|
| D - Direct | 9 - Capillary AISI304 st.st., AISI304 st.st. armoured, 36.37" max (6 mt max) |
| I - Nude capillary AISI304, 36.37" max (6 mt max) | 6 - Capillary AISI316 st.st., AISI316 st.st. armoured, 36.37" max (6 mt max) |

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid "E" | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil "B" | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil "C" | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil "C" | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil "G" | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil "D" | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

OPTIONS

| | |
|--|-------------------------------|
| C05 - Helium Test (1) | TS4 - Washing plug (1) |
| E30 - Nace version bMR0103 (2) - MR0175 (ISO 15156) (3) | |

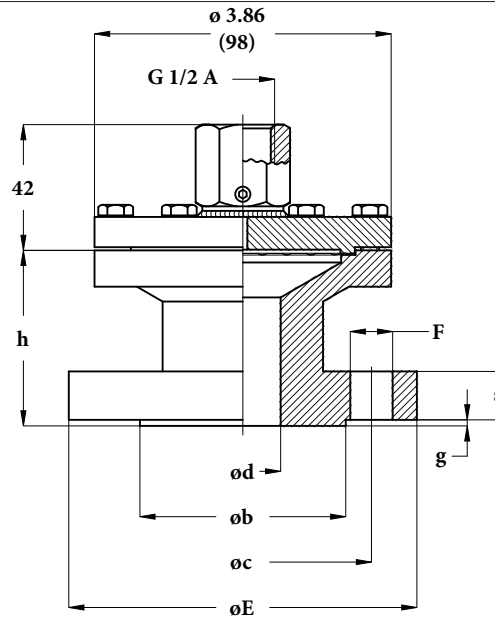
(1) available only on some executions: contact our Technical Department.

(2) Monel 400 or Hastelloy C diaphragm.

(3) Hastelloy C process connection and diaphragm.

back side diaphragm seals with flanged connection

MGS9/3B



EN 1092 STANDARD

dimensions : mm

| DN (1) | PN-bar | Code | h | E | b | d | g | c | s | F | N (2) |
|--------|--------|------|----|-----|-----|----|---|-----|----|----|-------|
| 15 | 6 | OO0 | 48 | 80 | 40 | 15 | 2 | 55 | 12 | 11 | 4 |
| 15 | 10÷16 | OQ0 | 52 | 95 | 45 | 15 | 2 | 65 | 14 | 14 | 4 |
| 15 | 25÷40 | OS0 | 52 | 95 | 45 | 15 | 2 | 65 | 14 | 14 | 4 |
| 25 | 6 | QO0 | 50 | 100 | 60 | 25 | 2 | 75 | 14 | 11 | 4 |
| 25 | 10÷16 | QQ0 | 54 | 115 | 68 | 25 | 2 | 85 | 16 | 14 | 4 |
| 25 | 25÷40 | QS0 | 54 | 115 | 68 | 25 | 2 | 85 | 16 | 14 | 4 |
| 50 | 6 | TO0 | 54 | 140 | 90 | 50 | 2 | 110 | 16 | 14 | 4 |
| 50 | 10÷16 | TQ0 | 61 | 165 | 102 | 50 | 2 | 125 | 19 | 18 | 4 |
| 50 | 25÷40 | TS0 | 62 | 165 | 102 | 50 | 2 | 125 | 20 | 18 | 4 |

1) DN 20, 40 and over are available

2) N°holes.

ASME STANDARDS

dimensions : inches

| DN (1) | Classe | Code | h | E | b | d | g | c | s | F | N (2) |
|--------|--------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1/2" | 150 | 4AA | 1.89" | 3.54" | 1.37" | 0.59" | 0.08" | 2.37" | 0.38" | 0.63" | 4 |
| 1/2" | 300 | 4BA | 2.11" | 3.74" | 1.37" | 0.59" | 0.08" | 2.62" | 0.50" | 0.63" | 4 |
| 1/2" | 600 | 4DA | 2.37" | 3.74" | 1.37" | 0.59" | 0.27" | 2.62" | 0.56" | 0.63" | 4 |
| 1" | 150 | 6AA | 2.01" | 4.33" | 2" | 0.98" | 0.08" | 3.12" | 0.50" | 0.63" | 4 |
| 1" | 300 | 6BA | 2.38" | 4.88" | 2" | 0.98" | 0.08" | 3.5" | 0.62" | 0.75" | 4 |
| 1" | 600 | 6DA | 2.64" | 4.88" | 2" | 0.98" | 0.27" | 3.5" | 0.69" | 0.75" | 4 |
| 2" | 150 | BAA | 2.20" | 6" | 3.62" | 1.96" | 0.08" | 4.75" | 0.69" | 0.75" | 4 |
| 2" | 300 | BBA | 2.37" | 6.49" | 3.62" | 1.96" | 0.08" | 5" | 0.81" | 0.75" | 8 |
| 2" | 600 | BDA | 2.75" | 6.49" | 3.62" | 1.96" | 0.27" | 5" | 1" | 0.75" | 8 |

1) 3/4", 1"1/2 and over are available

2) N°holes.

"HOW TO ORDER" SEQUENCE

| Section | Model / material | Connection / material | Diaphragm | Process / connection | Flange finishing | Instrument connection | Assembling | Options |
|---------|------------------|-----------------------|--------------------|------------------------|------------------|-----------------------|--------------|--------------------|
| 4 | 3B0 | 4, 5, N | 4, 6, 9 B, 2, 8 | OO0...TS0 4AA...BDA | RF3...RF8 | 41F - G 1/2 F | D 1, 9, 6 | B...G C05...E30 |

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back side diaphragm seals, with flanged connection

Diaphragm seals are designed to isolate the sensing element of pressure gauges, pressure switches and electronic pressure transmitter from process fluids which may be corrosive, viscous, sedimentous and/or with a high temperature. The diaphragm is leak proof tested to guarantee fill fluid separation from process fluid. Process side are ASME/EN 1092 flanged to suit application in chemical, petrochemical, water treatment and paper industries.



4.600 - MGS9/6

| Instrument type | Minimum range | Maximum range | Notes |
|--|---|--------------------------|-------------------------------------|
| Bourdon tube, DS 4", 6" (100...150 mm) | 0...10 psi (0...0,6 bar) | 0...580 psi (0...40 bar) | Vacuum and compound gauges included |
| Diaphragm differential pressure gauges | 0...100 InH ₂ O (0...250 mbar) | 0...360 psi (0...25 bar) | Max static pressure 60 bar |
| Diaphragm pressure switches | 0...15 psi (0...15 bar) | 0...580 psi (0...40 bar) | Vacuum and compound gauges included |
| Pressure transmitters | 0...40 InH ₂ O (0...100 mbar) | 0...580 psi (0...40 bar) | Max static pressure 60 bar |

Working temperature: -49...+302°F (-45°C...+150°C.)

Accuracy*: (add to instrument accuracy) ±0,5% for direct mounting; ± 1% for capillary mounting.

Instrument connection: AISI 316 st.st.

Diaphragm: AISI 316L st.st. (cod. **4**), Monel 400 (cod. **6**), Hastelloy C276 (cod. **9**), Tantalum (cod. **B**), Titanium (cod. **2**) and AISI 316L st.st. PTFE coated (cod. **8**)**.

Gaskets: PTFE (max. 250°C).

Flanged process connection: in AISI 316 st.st. (cod. **4**), AISI 316L st.st. (cod. **5**), AISI 316L st.st. PTFE coated (cod. **N**)**.

Dimensions: DN 15...50, PN 6...40 EN 1092 step seal; 1/2"...2" class 150...600 RF as per ASME B16.5.

* at +68°F (20 °C) process temperature (or state when ordering)

EN 1092 flanges finishing: type B1 (PN 2,5...40) = Ra 3,2...12,5 µm (cod. **RF7**); type B2 (PN 63...100) = Ra 0,8...3,2 µm (cod. **RF8**).

ASME flanges finishing: type RF = Ra 125...250 AARH (cod. **RF3**).

Filling liquid: silicon oil.

Studs, nuts: AISI 304 st.st.

** max. temperature 328°F (150 °C), with PTFE coating.

ASSEMBLING

All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label. For applications with capillary: should diaphragm seal and instrument not be at the same level, instrument adjustment is required). (For use and installation, see data sheet "4")

| | |
|--|---|
| D - Direct | 9 - Capillary AISI304 st.st., AISI304 st.st. armoured, 36.37" max (6 mt max) |
| 1 - Nude capillary AISI304, 36.37" max (6 mt max) | 6 - Capillary AISI316 st.st., AISI316 st.st. armoured, 36.37" max (6 mt max) |

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid "E" | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil "B" | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil "C" | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil "C" | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil "G" | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil "D" | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

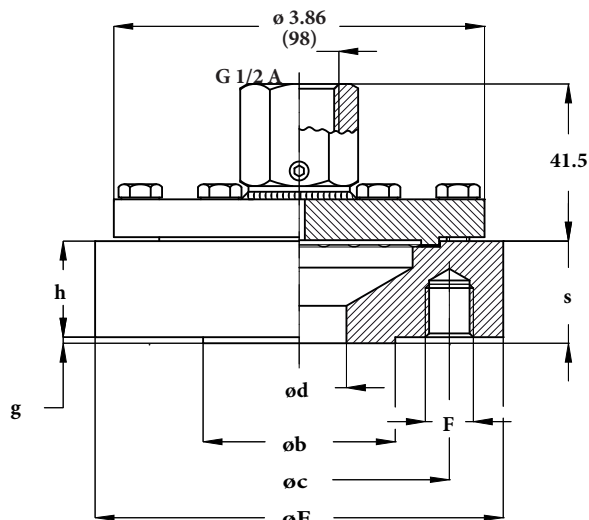
OPTIONS

| | |
|--|--------------------------------------|
| C05 - Helium Test (1) | P15 - Studs, nuts and washers |
| E30 - Nace version bMR0103 (2) - MR0175 (ISO 15156) (3) | TS4 - Washing plug (1) |

(1) available only on some executions: contact our Technical Department.

(2) Monel 400 or Hastelloy C diaphragm.

(3) Hastelloy C process connection and diaphragm.



EN 1092 STANDARD

dimensions : mm

| DN (1) | PN | Code | E | h | b | d | g | c | s | F | N (1) |
|--------|---------|------|-----|------|-----|----|---|-----|------|-----|-------|
| 15 | 10...16 | OQ0 | 95 | 24,5 | 45 | 15 | 2 | 65 | 26,5 | M12 | 4 |
| | 25...40 | OS0 | | | | | | | | | |
| 20 | 10...16 | PQ0 | 105 | 22,5 | 58 | 20 | 2 | 75 | 24,5 | M12 | 4 |
| | 25...40 | PS0 | | | | | | | | | |
| 25 | 10...16 | QQ0 | 115 | 20,5 | 68 | 25 | 2 | 85 | 22,5 | M12 | 4 |
| | 25...40 | QS0 | | | | | | | | | |
| 40 | 10...16 | SQ0 | 150 | 18 | 88 | 40 | 3 | 110 | 21 | M16 | 4 |
| | 25...40 | SS0 | | | | | | | | | |
| 50 | 10...16 | TQ0 | 165 | 18 | 102 | 50 | 3 | 125 | 21 | M16 | 4 |
| | 25...40 | TS0 | | | | | | | | | |

1) DN20 and over DN50 are available

2) N° holes

ASME STANDARDS

dimensions : inches

| DN (1) | Class | Code | h | E | b | d | g | c | s | N (1) | F |
|--------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
| 1/2" | 150 | 4AA | 1.06" | 3.54" | 1.37" | 0.59" | 0.08" | 2.37" | 1.14" | 4 | 1/2"-13UNC |
| 1/2" | 300 | 4BA | 1" | 3.74" | 1.37" | 0.59" | 0.08" | 2.63" | 1.08" | 4 | 1/2"-13UNC |
| 1/2" | 600 | 4DA | 1" | 3.74" | 1.37" | 0.59" | 0.27" | 2.63" | 1.28" | 4 | 1/2"-13UNC |
| 3/4" | 150 | 5AA | 0.98" | 3.94" | 1.69" | 0.79" | 0.08" | 2.75" | 1.14" | 4 | 1/2"-13UNC |
| 3/4" | 300 | 5BA | 1.34" | 4.53" | 1.69" | 0.79" | 0.08" | 2.63" | 1.06" | 4 | 5/8"-11UNC |
| 3/4" | 600 | 5DA | 1.34" | 4.53" | 1.69" | 0.79" | 0.27" | 3.25" | 1.61" | 4 | 5/8"-11UNC |
| 1" | 150 | 6AA | 0.9" | 4.33" | 2" | 0.98" | 0.08" | 3.25" | 0.98" | 4 | 1/2"-13UNC |
| 1" | 300 | 6BA | 1.34" | 4.92" | 2" | 0.98" | 0.08" | 3.5" | 1.42" | 4 | 5/8"-11UNC |
| 1" | 600 | 6DA | 1.34" | 4.92" | 2" | 0.98" | 0.27" | 3.5" | 1.61" | 4 | 5/8"-11UNC |
| 1 1/2" | 150 | AAA | 0.69" | 4.92" | 2.87" | 1.57" | 0.08" | 3.87" | 0.77" | 4 | 1/2"-13UNC |
| 1 1/2" | 300 | ABA | 0.83" | 6.1" | 2.87" | 1.57" | 0.08" | 4.5" | 0.9" | 4 | 3/4"-10UNC |
| 1 1/2" | 600 | ADA | 0.88" | 6.1" | 2.87" | 1.57" | 0.27" | 4.5" | 1.17" | 4 | 3/4"-10UNC |
| 2" | 150 | BAA | 0.69" | 5.9" | 3.63" | 1.97" | 0.08" | 4.75" | 0.77" | 4 | 5/8"-11UNC |
| 2" | 300 | BBA | 0.81" | 6.5" | 3.63" | 1.97" | 0.08" | 5" | 0.89" | 8 | 5/8"-11UNC |
| 2" | 600 | BDA | 1" | 6.5" | 3.63" | 1.97" | 0.27" | 5" | 1.28" | 8 | 5/8"-11UNC |

1) 3/4" is available

2) Nr. holes

"HOW TO ORDER" SEQUENCE

| | | | | | | | | |
|---|----------|----------|--------------------|------------------------|-----------|---------------|--------------|--------------------|
| Section / Model / Connection / Diaphragm / Process / Flange / Instrument / Assembling / Options | material | material | | connection | finishing | connection | | |
| 4 | 600 | 4, 5, N | 4, 6, 9 B, 2, 8 | OOO...TS0 4AA...BDA | RF3...RF8 | 41F - G 1/2 F | D 1, 9, 6 | B...G C05...TS4 |



“continuous duty” diaphragm seal, welded, with flanged connection



Diaphragm seals are designed to isolate the sensing element of pressure gauges, pressure switches and electronic pressure transmitter from process fluids which may be corrosive, viscous, sedimentous and/or with a high temperature. “Continuous duty” version as per ASME B40.2 : in case of accidental removal of the instrument or of liquid filling leak the diaphragm will place on the upper cup preventing any damage and any process liquid leak. Thanks to an exclusive calibration system the pressure gauge should stand an overpressure of 210 bar without the help of any pressure control switch. Process side are ASME/EN 1092 flanged to suit application in chemical, petrochemical, water treatment and paper industries.

4.700 - MGS9/7

Pressure gauge ranges: from -30...0 INHG to 0...2320 psi (from -1...0 to 0...160 bar) ⁽¹⁾.

Filling liquid: silicon oil (see “Options” table).

Process fluid max temperature: as per filling liquid (see “Options” table).

Accuracy: (add to instrument accuracy) ±0,5% for direct mounting; ± 1% for capillary mounting ⁽²⁾.

Instrument connection: AISI 304 st.st.

Membrana saldata in: AISI 316L st.st. (code **4**), Monel 400 (code **6**), Hastelloy C276 (code **9**), Tantalum (code **B**), Alloy 600 (code **J**), Alloy 825 (code **I**), 25.22.2 (code **U**).

Gasket: PTFE (max. +482°F; +250°C);

Flanged process connection: AISI 316L st.st (cod. **4**), AISI 316L st.st (cod. **5**), Monel 400 (cod. **6**), Hastelloy C276 (cod. **9**), Hastelloy B2 (cod. **1**); other materials available on request.

Dimensions ⁽³⁾: DN 15...50, PN 10...160 EN 1092-1 type B; 1/2”...2” class 150...1500 RF as per ASME B16.5.

Finishing: EN B1 type: Ra 3,2...12,5 ASME RF type: Ra 125...250 AARH (code **RF3**).

Bolts: AISI304 st.st., for flange PN ≤ 100 or class ≤ 600; high resistance steel for flange PN > 100 or class > 600.

(1) Working pressure must be less or equal to the flange rating

(2) at 68°F (20 °C) process temperature (or state temperature when ordering)

(3) other dimensions and finishing are available on request

ASSEMBLING

All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label. For applications with capillary: should diaphragm seal and instrument not be at the same level, instrument adjustment is required). (For use and installation, see data sheet “4”)

| | |
|--|---|
| D - Direct | 9 - Capillary AISI304 st.st., AISI304 st.st. armoured, 36.37” max (6 mt max) |
| 1 - Nude capillary AISI304, 36.37” max (6 mt max) | 6 - Capillary AISI316 st.st., AISI316 st.st. armoured, 36.37” max (6 mt max) |

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid “E” | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil “B” | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil “C” | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil “C” | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil “G” | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil “D” | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

OPTIONS

| | |
|---|--|
| C05 - Helium Test | S40 - Special calibration for pressure gauges overpressure ^{(3) (4) (5)} |
| E30 - Nace version MR0103/MR0175 (ISO 15156) ⁽²⁾ | MPP - PTFE diaphragm protection, for temperature up to 302 °F (150 °C) ⁽³⁾ |
| TSS - AISI316L stainless steel washing plug, 1/4” NPT ⁽¹⁾ | P15 - ASTM A193/B7 - A194/2H studs, nuts and washers |
| P04 - Dye penetrant test | |

(1) on models with AISI316L process connection only

(2) Stainless steel process connection and Monel 400 or Hastelloy C276 diaphragm

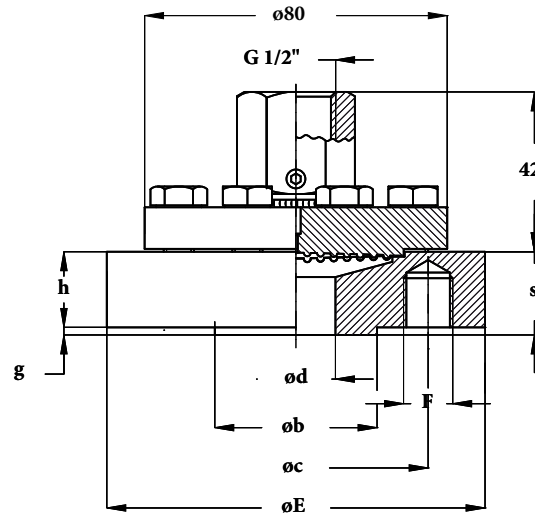
(3) Except for vacuum and compound gauges

(4) Overpressure equal to flange rating, max 3000 psi (210 bar)

(5) To be ordered with silicon oil “B” only

**"continuous duty" diaphragm seal
welded, with flanged connection**

MGS9/7



EN 1092-1:2007 STANDARD

dimensions : mm

| DN | PN-bar | Code | h | E | b | d | g | c | s | N (1) | F |
|----|-------------|------------|----|-----|-----|----|---|-----|----|-------|-----|
| 15 | 10-16-25-40 | OSO | 20 | 95 | 45 | 15 | 2 | 65 | 22 | 4 | M12 |
| 15 | 63...160 | OZO | 18 | 105 | 45 | 15 | 2 | 75 | 20 | 4 | M12 |
| 20 | 10-16-25-40 | PSO | 16 | 105 | 58 | 20 | 2 | 75 | 18 | 4 | M12 |
| 20 | 63...100 | PUO | 20 | 130 | 58 | 20 | 2 | 90 | 22 | 4 | M16 |
| 25 | 10-16-25-40 | QSO | 16 | 115 | 68 | 25 | 2 | 85 | 18 | 4 | M12 |
| 25 | 63...160 | QZO | 22 | 140 | 68 | 25 | 2 | 100 | 24 | 4 | M16 |
| 40 | 10-16-25-40 | SSO | 18 | 150 | 88 | 40 | 3 | 110 | 21 | 4 | M16 |
| 40 | 63...100 | SUO | 23 | 170 | 88 | 40 | 3 | 125 | 26 | 4 | ø22 |
| 40 | 160 | SZO | 25 | 170 | 88 | 40 | 3 | 125 | 28 | 4 | ø22 |
| 50 | 10-16-25-40 | TSO | 17 | 165 | 102 | 50 | 3 | 125 | 20 | 4 | ø18 |
| 50 | 63 | TTO | 23 | 180 | 102 | 50 | 3 | 135 | 26 | 4 | ø22 |
| 50 | 100 | TUO | 25 | 195 | 102 | 50 | 3 | 145 | 28 | 4 | ø26 |
| 50 | 160 | TZO | 27 | 195 | 102 | 50 | 3 | 145 | 30 | 4 | ø26 |

1) N° threaded or free holes

ASME B16-5:2003 STANDARD

dimensions : inches

| DN | Classe (2) | Code | h | E | b | d | g | c | s | N (1) | F |
|--------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
| 1/2" | 150 | 4AA | 0.87" | 3.54" | 1.37" | 0.59" | 0.08" | 2.37" | 0.94" | 4 | 1/2"-13UNC |
| 1/2" | 300 | 4BA | 0.81" | 3.74" | 1.37" | 0.59" | 0.08" | 2.63" | 0.89" | 4 | 1/2"-13UNC |
| 1/2" | 600 | 4DA | 0.81" | 3.74" | 1.37" | 0.59" | 0.28" | 2.63" | 1.08" | 4 | 1/2"-13UNC |
| 1/2" | 900...1500 | 4FA | 0.89" | 4.72" | 1.61" | 0.59" | 0.28" | 3.25" | 1.16" | 4 | 3/4"-10UNC |
| 3/4" | 150 | 5AA | 0.79" | 3.94" | 1.69" | 0.79" | 0.08" | 2.75" | 0.87" | 4 | 1/2"-13UNC |
| 3/4" | 300 | 5BA | 0.71" | 4.53" | 1.69" | 0.79" | 0.08" | 3.25" | 0.79" | 4 | 5/8"-11UNC |
| 3/4" | 600 | 5DA | 0.71" | 4.53" | 1.69" | 0.79" | 0.28" | 3.25" | 0.98" | 4 | 5/8"-11UNC |
| 3/4" | 900...1500 | 5FA | 1" | 5.12" | 1.69" | 0.79" | 0.28" | 3.5" | 1.30" | 4 | 3/4"-10UNC |
| 1" | 150 | 6AA | 0.63" | 4.33" | 2" | 0.98" | 0.08" | 3.13" | 0.71" | 4 | 1/2"-13UNC |
| 1" | 300 | 6BA | 0.71" | 4.92" | 2" | 0.98" | 0.08" | 3.5" | 0.79" | 4 | 5/8"-11UNC |
| 1" | 600 | 6DA | 0.71" | 4.92" | 2" | 0.98" | 0.28" | 3.5" | 0.98" | 4 | 5/8"-11UNC |
| 1" | 900...1500 | 6FA | 1.14" | 5.9" | 2" | 0.98" | 0.28" | 4" | 1.42" | 4 | 7/8"-9UNC |
| 1 1/2" | 150 | AAA | 0.63" | 4.92" | 2.87" | 1.57" | 0.08" | 3.87" | 0.71" | 4 | 1/2"-13UNC |
| 1 1/2" | 300 | ABA | 0.81" | 6.1" | 2.87" | 1.57" | 0.08" | 4.5" | 0.89" | 4 | 3/4"-10UNC |
| 1 1/2" | 600 | ADA | 0.89" | 6.1" | 2.87" | 1.57" | 0.28" | 4.5" | 1.16" | 4 | 3/4"-10UNC |
| 1 1/2" | 900...1500 | AFA | 1.26" | 7.09" | 2.87" | 1.57" | 0.28" | 4.87" | 1.56" | 4 | 1"-8UNC |
| 2" | 150 | BAA | 0.69" | 5.9" | 3.63" | 1.97" | 0.08" | 4.75" | 0.77" | 4 | ø 19 |
| 2" | 300 | BBA | 0.83" | 6.5" | 3.63" | 1.97" | 0.08" | 5" | 0.91" | 8 | ø 19 |
| 2" | 600 | BDA | 1" | 6.5" | 3.63" | 1.97" | 0.28" | 5" | 1.28" | 8 | ø 19 |
| 2" | 900...1500 | BFA | 1.52" | 8.46" | 3.63" | 1.97" | 0.28" | 6.51" | 1.79" | 8 | ø 26 |

1) N° threaded or free holes

2) class 150 : PN 20 bar; class 300 : PN 50 bar; class 600 : PN 100 bar; class 900...1500 : PN 150...250 bar

"HOW TO ORDER" SEQUENCE

| | | | | | | | | | |
|---|----------|-----------------|-------------------------|------------------------|--|-----------|------------|--------------|--------------------|
| Section / Model / Connection / Diaphragm / Process / Flange / Instrument / Assembling / Options | material | material | connection | connection | | finishing | connection | | |
| 4 | 700 | 4, 5, 6 9, 1 | 4, 6, 9 B, J, I U | OS0...TZ0 4AA...BFA | | RF3...RF7 | 41F | D 1, 9, 6 | B...G C05...P15 |

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"In line" diaphragm seal, with flanged connection



Diaphragm seals are designed to isolate the sensing element of pressure gauges, pressure switches and electronic pressure transmitters from process liquids which may be corrosive, viscous, sedimentous and/or with a high temperature. The diaphragm welded to the upper body and leak proof tested, ensure separation of filling fluid from process medium. Diaphragm position permit an accurate and deeper cleaning. Process sizes are ASME/UNI/DIN flanged to suit application in chemical, petrochemical, water treatment and paper industries.

4.400 - MGS9/4

Working pressure: from 0...15 to 0...600 psi (from 0...1 to 0...40 bar).

Working temperature: -49...+302°F (-45°C...+150°C.)

Accuracy*: (add to instrument accuracy) ±0,5% for direct mounting; ± 1% for capillary mounting.

Instrument connection: AISI 316 st.st.

Diaphragm: AISI 316L st.st (cod. **4**), Monel 400 (cod. **6**), Hastelloy C276 (cod. **9**), Hastelloy B2 (cod. **1**), Tantalum (cod. **B**), Titanium (cod. **2**), Nickel (cod. **7**), AISI 316 L st.st. PTFE coated** (cod. **8**), Incoloy 825 (cod. **I**), Inconel 600 (cod. **J**).

Flanged process connection: AISI 316 st.st. (cod. **4**), AISI316 L st.st. (cod. **5**), Monel 400 (cod. **6**), Hastelloy C276 (cod. **9**), Hastelloy B2 (cod. **1**), Tantalum (cod. **B**), Titanium (cod. **2**), Nickel (cod. **7**), AISI

* at +68°F (20 °C) process temperature (or state when ordering)

316 st.st. PTFE** coated (cod. **N**), ASTM A182 gr. F51 (cod. **S**).

Dimensions : DN 15...50 e PN 10...40 UNI-DIN step seal; 1/2"...2" class 150...600 RF as per ASME B16.5.

UNI-DIN flanges finishing: type B1 (PN 2,5...40) = Ra 3,2...12,5 µm (cod. **RF7**); type B2 (PN 63...100) = Ra 0,8...3,2 µm (cod. **RF8**).

ASME flanges finishing: type RF = Ra 125...250 AARH (cod. **RF3**).

Filling liquid: silicon oil.

** max. temperature 328°F (150 °C), with PTFE coating.

ASSEMBLING

All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label. For applications with capillary: should diaphragm seal and instrument not be at the same level, instrument adjustment is required). (For use and installation, see data sheet "4")

| | |
|--|---|
| D - Direct | 9 - Capillary AISI304 st.st., AISI304 st.st. armoured, 36.37" max (6 mt max) |
| I - Nude capillary AISI304, 36.37" max (6 mt max) | 6 - Capillary AISI316 st.st., AISI316 st.st. armoured, 36.37" max (6 mt max) |

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid "E" | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil "B" | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil "C" | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil "C" | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil "G" | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil "D" | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

OPTIONS

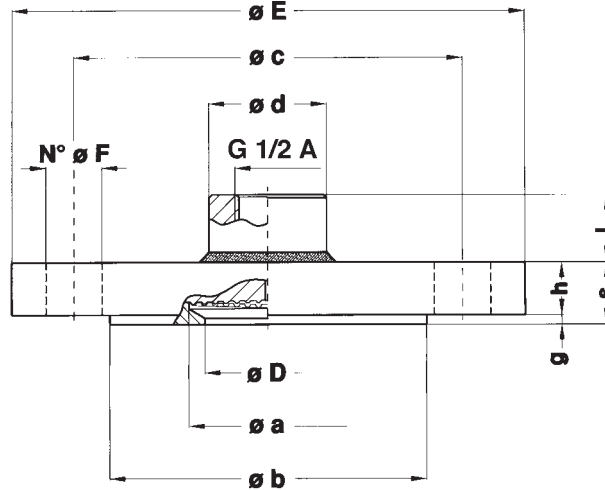
| | |
|---|-------------------------------------|
| C05 - Helium Test (1) | P04 - Dye penetrant test (1) |
| E30 - NACE MR0103/MR0175 (ISO 15156) (2) | |

(1) Available for some excutions pls. consult our technical dep. to check their feasibility.

(2) With Monel 400 or Hastelloy C diaphragm only.

"In line" diaphragm seal, with flanged connection

MGS9/4



UNI-DIN STANDARDS

dimensions : mm

| DN | PN-bar | Code | D | E | c | b | a | d | g | h | s | L | N (1) | F | Ranges (2) |
|----|---------|------------|----|-----|-----|-----|----|----|---|----|----|------|-------|----|------------|
| 15 | 10...40 | OK0 | 15 | 95 | 65 | 45 | 40 | 28 | 2 | 17 | 19 | 16,5 | 4 | 14 | 2,5...40 |
| 20 | 10...40 | PK0 | 20 | 105 | 75 | 58 | 40 | 28 | 2 | 17 | 19 | 16,5 | 4 | 14 | 2,5...40 |
| 25 | 10...40 | QK0 | 25 | 115 | 85 | 68 | 50 | 38 | 2 | 17 | 19 | 24,5 | 4 | 14 | 1...40 |
| 40 | 10...40 | SK0 | 40 | 150 | 110 | 88 | 50 | 38 | 3 | 16 | 19 | 24,5 | 4 | 18 | 1...40 |
| 50 | 10...40 | TK0 | 50 | 165 | 125 | 102 | 50 | 38 | 3 | 17 | 20 | 23,5 | 4 | 18 | 1...40 |

(1) N° holes .

(2) bar ranges, for instruments with dial size $\geq 4''$ (100mm).

ASME STANDARDS

dimensions : inches

| DN | Class | Code | D | E | c | b | a | d | g | h | s | L | N (1) | F | Ranges (3) |
|--------|-------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------------|
| 1/2" | 150 | 4AA | 0.59" | 3.5" | 2.37" | 1.37" | 1.18" | 1.02" | 0.06" | 0.66" | 0.72" | 0.64" | 4 | 0.62" | 100...290 (4) |
| 1/2" | 300 | 4BA | 0.59" | 3.74" | 2.62" | 1.37" | 1.18" | 1.02" | 0.06" | 0.66" | 0.72" | 0.64" | 4 | 0.62" | 100...580 |
| 1/2" | 600 | 4DA | 0.59" | 3.74" | 2.62" | 1.37" | 1.18" | 1.02" | 0.25" | 0.66" | 0.95" | 0.64" | 4 | 0.62" | 100...580 |
| 3/4" | 150 | 5AA | 0.78" | 3.87" | 2.74" | 1.68" | 1.57" | 1.10" | 0.06" | 0.66" | 0.72" | 0.64" | 4 | 0.62" | 60...290 |
| 3/4" | 300 | 5BA | 0.78" | 4.62" | 3.24" | 1.68" | 1.57" | 1.10" | 0.06" | 0.66" | 0.72" | 0.64" | 4 | 0.74" | 60...580 |
| 3/4" | 600 | 5DA | 0.78" | 4.62" | 3.24" | 1.68" | 1.57" | 1.10" | 0.25" | 0.66" | 0.95" | 0.64" | 4 | 0.74" | 60...580 |
| 1" | 150 | 6AA | 0.98" | 4.25" | 3.12" | 2" | 1.57" | 1.10" | 0.06" | 0.7" | 0.76" | 0.64" | 4 | 0.62" | 60...290 |
| 1" | 300 | 6BA | 0.98" | 4.88" | 3.5" | 2" | 1.96" | 1.49" | 0.06" | 0.7" | 0.76" | 0.96" | 4 | 0.74" | 15...580 |
| 1" | 600 | 6DA | 0.98" | 4.88" | 3.5" | 2" | 1.96" | 1.49" | 0.25" | 0.7" | 0.96" | 0.96" | 4 | 0.74" | 15...580 |
| 1 1/2" | 150 | AAA | 1.57" | 5" | 3.87" | 2.87" | 1.96" | 1.49" | 0.06" | 0.7" | 0.76" | 0.96" | 4 | 0.62" | 15...290 |
| 1 1/2" | 300 | ABA | 1.57" | 6.12" | 4.5" | 2.87" | 1.96" | 1.49" | 0.06" | 0.80" | 0.86" | 0.86" | 4 | 0.86" | 15...580 |
| 1 1/2" | 600 | ADA | 1.57" | 6.12" | 4.5" | 2.87" | 1.96" | 1.49" | 0.25" | 0.88" | 1.14" | 0.59" | 4 | 0.86" | 15...580 |
| 2" | 150 | BAA | 1.96" | 6" | 4.74" | 3.62" | 1.96" | 1.49" | 0.06" | 0.74" | 0.80" | 0.92" | 4 | 0.74" | 15...290 |
| 2" | 300 | BBA | 1.96" | 6.49" | 5" | 3.62" | 1.96" | 1.49" | 0.06" | 0.88" | 0.94" | 0.78" | 8 | 0.74" | 15...580 |
| 2" | 600 | BDA | 1.96" | 6.49" | 5" | 3.62" | 1.96" | 1.49" | 0.25" | 1.04" | 1.25" | 0.47" | 8 | 0.74" | 15...580 |

(1) N° holes .

(2) bar ranges, for instruments with dial size $\geq 4''$ (100mm).

(3) psi ranges, for instruments with dial size $\geq 4''$ (100mm).

(4) not available, when PTFE coated.

"HOW TO ORDER" SEQUENCE

| Section | Model | Connection material | Diaphragm connection | Process | Flange finishing | Instrument connection | Assembling | Options |
|---------|-------|----------------------------------|----------------------------------|-----------------------|------------------|-----------------------|--------------|--------------------|
| 4 | 400 | 4, 5, 6 9, 1, B 2, 7, N, S | 4, 6, 9 1, B, 2 7, 8, I, J | OK0..TK0 4AA...BDA | RF3...RF8 | 41F - G 1/2 F | D 1, 9, 6 | B...G C04...P04 |

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RCF-08/4
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diaphragm seals, welded



Diaphragm seals are designed to isolate the sensing element of pressure gauges and pressure switches from process fluids which may be corrosive, viscous, sedimentous and/or with a high temperature. The diaphragm is welded to the upper body, to ensure separation of filling fluid from process medium. Diaphragm faced position permit an accurate and deeper cleaning. Process sizes are ASME/EN 1092 flanged to suit application in chemical, petrochemical, water treatment, paper industries.

4.500 - MGS9/5

Nominal pressure: up to 0...6000 psi (up to 0...400 bar) depending on flange rating.

Measuring ranges: from -30...0 IN Hg to 0...6000 psi (from -1...0 to 0...400 bar); see also table at page 2.

Working temperature: -130...+752°F (-90°C...+400°C.); depending on filling fluid.

Accuracy*: (add to instrument accuracy) ±0,5% for direct mounting; ± 1% for capillary mounting.

Diaphragm, welded to process connection:

AISI 316 L st.st (cod. **4**); Monel 400 (cod. **6**); Hastelloy C 276 (cod. **9**).

Flanged process connection: AISI 316 st.s. (cod. **4**); AISI 316L st.s. (cod. **5**).

* at +68°F (20 °C) working temperature

Full-cover version: wetted parts covered with

Monel 400 (cod. **6FC**); Hastelloy C 276 (cod. **9FC**); Tantalum (cod. **BFC**).

Dimensions : DN 25...100 and PN 2,5...400 EN 1092-1; 1" ...4" class 150...2500 as per ASME B16.5.

Finishing: EN 1092-1 type B: Ra 3,2...12,5 µm (cod. **RF7**); ASME B16.5 type RF = Ra 125...250 AARH (cod. **RF3**); (all other finishing type are available).

ASSEMBLING

All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label. For applications with capillary: should diaphragm seal and instrument not be at the same level, instrument adjustment is required). (For use and installation, see data sheet "4")

| | |
|--|---|
| D - Direct | 9 - Capillary AISI304 st.st., AISI304 st.st. armoured, 36.37" max (6 mt max) |
| 1 - Nude capillary AISI304, 36.37" max (6 mt max) | 6 - Capillary AISI316 st.st., AISI316 st.st. armoured, 36.37" max (6 mt max) |

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid "E" | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil "B" | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil "F" | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil "C" | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil "G" | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil "D" | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

OPTIONS

| | |
|---|-------------------------------------|
| C05 - Helium Test (1) | P04 - Dye penetrant test (1) |
| E30 - NACE MR0103/MR0175 (ISO 15156) (2) | |

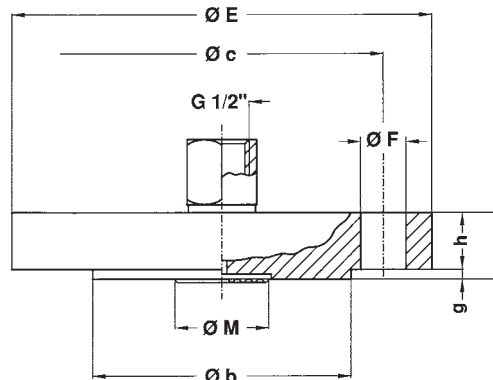
(1) Available for some excutions pls. consult our technical dep. to check their feasibility.

(2) With Monel 400 or Hastelloy C diaphragm only.

MINIMUM MEASURING RANGES (bar)

dimensions : mm

| φ M | 30 | 40 | 50 | 65 |
|-------------------|---------|-----------|-----------|-----------|
| pressure | 6 | 2,5 | 1 | 0,6 |
| vacuum | | | -1 | -1 |
| vacuum...pressure | -1...+5 | -1...+1,5 | -1...+0,6 | -1...+0,6 |



EN 1092 STANDARD, type B

dimensions : mm

| DN (1) | PN-bar (1) (3) | Code | E | c | b | g | h | s | N (2) | F | M |
|--------|-----------------|---------|-----|-----|-----|---|----|----|-------|----|----|
| 25 | 10...16/25...40 | QQ0/QS0 | 115 | 85 | 68 | 2 | 16 | 18 | 4 | 14 | 30 |
| 25 | 63/100 | QT0/QU0 | 140 | 100 | 68 | 2 | 22 | 24 | 4 | 18 | 30 |
| 40 | 10...16/25...40 | SQ0/SS0 | 150 | 110 | 88 | 3 | 15 | 18 | 4 | 18 | 40 |
| 40 | 63/100 | ST0/SU0 | 170 | 125 | 88 | 3 | 23 | 26 | 4 | 22 | 40 |
| 50 | 10...16 | TQ0 | 165 | 125 | 102 | 3 | 15 | 18 | 4 | 18 | 50 |
| 50 | 25...40 | TS0 | 165 | 125 | 102 | 3 | 17 | 20 | 4 | 18 | 50 |
| 50 | 63 | TT0 | 180 | 135 | 102 | 3 | 23 | 26 | 4 | 22 | 50 |
| 50 | 100 | TU0 | 195 | 145 | 102 | 3 | 25 | 28 | 4 | 26 | 50 |
| 80 | 10/16 | VP0/VQ0 | 200 | 160 | 138 | 3 | 17 | 20 | 8 | 18 | 65 |
| 80 | 25...40 | VS0 | 200 | 160 | 138 | 3 | 21 | 24 | 8 | 18 | 65 |
| 80 | 100 | VU0 | 230 | 180 | 138 | 3 | 29 | 32 | 8 | 26 | 65 |

(1) Flanges DN 25...100 and PN 2.5...400 are all available

(3) Maximum nominal pressure of connected instrument

(2) N° holes.

ASME B16.5 STANDARD, type RF

dimensions : inches

| DN (1) | Class (1) | bar (3) | Code | E | c | b | g | h | s | N (2) | F | M |
|--------|------------|-----------|------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1" | 150 | 20 | 6AA | 4,33" | 3,13" | 2" | 0,08" | 0,50" | 0,58" | 4 | 0,63" | 1,18" |
| 1" | 300 | 50 | 6BA | 4,92" | 3,5" | 2" | 0,08" | 0,63" | 0,7" | 4 | 0,75" | 1,18" |
| 1" | 600 | 110 | 6DA | 4,92" | 3,5" | 2" | 0,28" | 0,69" | 0,96" | 4 | 0,75" | 1,18" |
| 1" | 900...1500 | 150...260 | 6FA | 5,91" | 4" | 2" | 0,28" | 1,13" | 1,4" | 4 | 1" | 1,18" |
| 1" 1/2 | 150 | 20 | AAA | 4,92" | 3,87" | 2,87" | 0,08" | 0,63" | 0,7" | 4 | 0,63" | 1,57" |
| 1" 1/2 | 300 | 50 | ABA | 6,1" | 4,5" | 2,87" | 0,08" | 0,75" | 0,83" | 4 | 0,87" | 1,57" |
| 1" 1/2 | 600 | 110 | ADA | 6,1" | 4,5" | 2,87" | 0,28" | 0,88" | 1,15" | 4 | 0,87" | 1,57" |
| 1" 1/2 | 900...1500 | 150...260 | AFA | 7,09" | 4,87" | 2,87" | 0,28" | 1,25" | 1,53" | 4 | 1,12" | 1,57" |
| 1" 1/2 | 2500 | 420 | AGA | 8,07" | 5,75" | 2,87" | 0,28" | 1,75" | 2,03" | 4 | 1,26" | 1,57" |
| 2" | 150 | 20 | BAA | 5,91" | 4,75" | 3,63" | 0,08" | 0,69" | 0,77" | 4 | 0,75" | 1,97" |
| 2" | 300 | 50 | BBA | 6,5" | 5" | 3,63" | 0,08" | 0,81" | 0,89" | 8 | 0,75" | 1,97" |
| 2" | 600 | 110 | BDA | 6,5" | 5" | 3,63" | 0,28" | 1" | 1,28" | 8 | 0,75" | 1,97" |
| 2" | 900...1500 | 150...260 | BFA | 8,46" | 6,5" | 3,63" | 0,28" | 1,5" | 1,78" | 8 | 1" | 1,97" |
| 2" | 2500 | 420 | BGA | 9,25" | 6,75" | 3,63" | 0,28" | 2" | 2,28" | 8 | 1,12" | 1,97" |
| 3" | 150 | 20 | EAA | 7,48" | 6" | 5" | 0,08" | 0,88" | 0,96" | 4 | 0,75" | 2,56" |
| 3" | 300 | 50 | EBA | 8,27" | 6,63" | 5" | 0,08" | 1,06" | 1,14" | 8 | 0,87" | 2,56" |
| 3" | 600 | 110 | EDA | 8,27" | 6,63" | 5" | 0,28" | 1,25" | 1,53" | 8 | 0,87" | 2,56" |
| 3" | 900 | 150 | EFA | 9,45" | 7,5" | 5" | 0,28" | 1,5" | 1,78" | 8 | 1" | 2,56" |
| 3" | 1500 | 260 | EFA | 10,43" | 8" | 5" | 0,28" | 1,88" | 2,15" | 8 | 1,26" | 2,56" |

(1) Flanges 1"...4" and classes 150...2500 are all available.

(3) Maximum nominal pressure of connected instrument

(2) N° holes.

"HOW TO ORDER" SEQUENCE

| Section | Model | Connection material | Diaphragm material | Process connection | Flange finishing | Instrument connection | Assembling | Options |
|---------|-------|---------------------|----------------------|------------------------|------------------|-----------------------|--------------|--------------------|
| 4 | 500 | 4, 5 | 4, 5, 9 6FC...BFC | QQ0...VU0 6AA...EFA | RF3...RF7 | 41F - G 1/2 F | D, 1 9, 6 | B...G C05...P04 |

"wafer" diaphragm seal



Diaphragm seals are designed to isolate the sensing element of pressure gauges, pressure switches and electronic pressure transmitters from process liquids which may be corrosive, viscous, sedimentous and/or with a high temperature. The diaphragm welded to the upper body and leak proof tested, ensure separation of filling fluid from process medium. Diaphragm faced position permit an accurate and deeper cleaning. Process sizes are ASME - EN 1092 flanged to suit application in chemical, petrochemical, water treatment, paper.

4.WAF - MGS9/WAFER

Working pressure: *from 0...40 INWC to 0...2000 psi (da 0...100 mbar a 0...160 bar), depending on flange type.*

Process temperature: *-49...+302°F (-45°C...+150°C.)*

Instrument connection: AISI 304 st.st. capillary, to be welded on the transmitter.

Diaphragm: AISI 316L st.st. (cod. **4**), Hastelloy C276 (cod. **9**), Hastelloy B2 (cod. **1**), Tantalum (cod. **B**).

Process connection: AISI 316 st.st. (cod. **4**), AISI 316L st.st. (cod. **5**), Hastelloy C276 (cod. **9**).

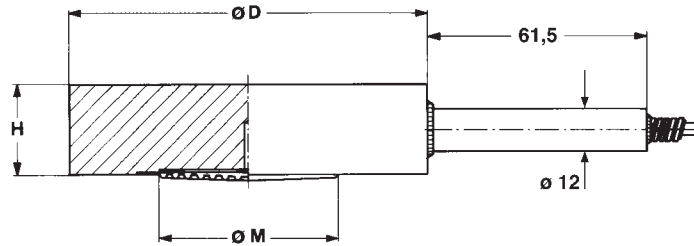
AISI 316 st.st flanged connection:

-ASME B16.5 standards: 2" - 3"; class 150...2500 form RF; -EN 1092 standard: DN 50 - 80 ; PN 16...160 step seal.

EN 1092 flanges finishing: type B1 (PN 2,5...40) = Ra 3,2...12,5 µm (cod. **RF7**); type B2 (PN 63...100) = Ra 0,8...3,2 µm (cod. **RF8**).

ASME flanges finishing: type RF = Ra 125...250 AARH (cod. **RF3**).

Filling liquid: silicon oil.



FLANGED CONNECTION AS PER EN 1092

| DN | PN-bar | Code | D | M | H |
|----|----------|------------|----------------|---------------|---------------|
| 50 | 16...160 | TX0 | 4.01" (102) | 1.96" (50) | 0.78" (20) |
| 80 | 16...160 | VX0 | 5.43" (138) | 2.55" (65) | |

dimensions : inches (mm)

FLANGED CONNECTION AS PER ASME B16.5

| DN | Class | Code | D | M | H |
|----|------------|------------|-------|-------|-------|
| 2" | 150...2500 | BJA | 3,62" | 1,96" | 0,78" |
| 3" | 150...2500 | EJA | 5" | 2,55" | 0,78" |

dimensions : inches

ASSEMBLING

Should diaphragm seal and instrument not be at a same level, instrument on installation is required.

| |
|---|
| 1 - Capillary AISI304 st.st. 236" max (6 mt max) |
| 9 - Capillary AISI304 st.st., AISI304 st.st. armoured, 236" max (6 mt max) |
| 6 - Capillary AISI316 st.st., AISI316 st.st. armoured, 236" max (6 mt max) |

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid "E" | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil "B" | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil "C" | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil "C" | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil "G" | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil "D" | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

"HOW TO ORDER" SEQUENCE

| Section | Model | Connection material | Diaphragm material | Process connection | Flange finishing | Instrument connection | Assembling | Options |
|----------|------------|---------------------|----------------------------|--------------------------------------|--|--|----------------|--------------|
| 4 | WAF | 4, 5, 9 | 4, 9 1, B | TX0...VX0 BJA...EJA | RF3 RF7 RF8 | 23M - 1/4 NPT M 41F - G 1/2 F | 1, 9, 6 | B...G |



"in line" diaphragm seal



Diaphragm seals are designed to isolate the sensing element of pressure gauges and pressure switches from process fluids which may be corrosive, viscous, sedimentous and/or with a high temperature. The diaphragm is welded to the upper body, to ensure separation of filling fluid from process medium. The "in-line" diaphragm position enables deep cleaning of their surfaces. Flange clamping with metallic sealing guarantees the system against leakage at high process fluid temperatures and pressures.

4.R00 - MGS9/R

Working pressure: *from 0...100 to 0...3000 psi (from 0...6 to 0...250 bar).*

Process temperature: *-49...+302°F (-45°C...+150°C.)*

Accuracy*: (add to instrument accuracy) $\pm 0,5\%$ for direct mounting; $\pm 1\%$ for capillary mounting.

Instrument connection: AISI 316 st.st.

Bolts and lock ring: AISI 304 st.st.

Diaphragm: welded to process connection,

4 - AISI 316 L st.st,

9 - Hastelloy C276.

Process connection:

4 - AISI 316 st.st.,

5 - AISI 316L st.st.

Process connection, welded type:

7RC - saddle, for pipe size DN 2" ...4";

7MS - "in line", for pipe size 1/2" ...1";

7MT - "in line", for pipe size 1" 1/2...4".

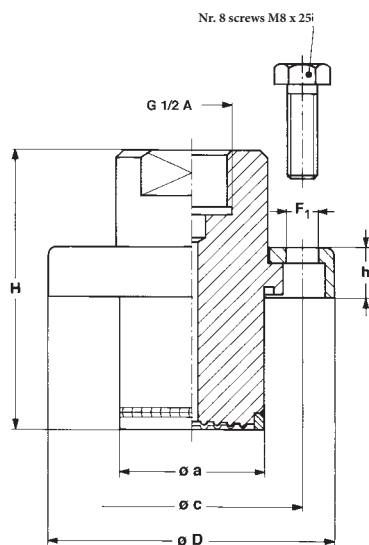
Process connection, flanged type: (Mod. 7FL)

- "in line", for flange size 1" 1/2 - 2" ; 150...900 RF;

- "in line", for flange size DN 40...50, PN 10...100 step seal. **Filling**

liquid: silicon oil.

* at 68°F (20 °C) process temperature (or state temperature when ordering)



| h | H | a | c | D | F ₁ |
|---------------|---------------|---------------|---------------|---------------|----------------|
| 0.51" (13) | 2.91" (74) | 1.49" (38) | 2.28" (58) | 2.95" (75) | 0.33" (8,5) |

dimensions : inches (mm)

ASSEMBLING

All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label. For applications with capillary: should diaphragm seal and instrument not be at the same level, instrument adjustment is required). (For use and installation, see data sheet "4")

| | |
|--|---|
| D - Direct | 9 - Capillary AISI304 st.st., AISI304 st.st. armoured, 36.37" max (6 mt max) |
| I - Nude capillary AISI304, 36.37" max (6 mt max) | 6 - Capillary AISI316 st.st., AISI316 st.st. armoured, 36.37" max (6 mt max) |

FILLING FLUIDS and process fluid temperature

| Fluid | Vacuum | Pressure | Fluid | Vacuum | Pressure |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------|------------------------------|
| Standard silicon oil | -40...+122°F (-40...+100°C) | -40...+302°F (-40...+150°C) | E - Fluorinated liquid "E" | -40...+212°F (-40...+100°C) | -40...+302°F (-40...+150°C) |
| B - Silicon oil "B" | -40...+302°F (-40...+150°C) | -40...+482°F (-40...+250°C) | F - Silicon oil "C" | -130...+176°F (-90...+80°C) | -130...+302°F (-90...+150°C) |
| C - Silicon oil "C" | -14...+392°F (-10...+200°C) | -14...+662°F (-10...+350°C) | G - Mineral food oil "G" | -14...+302°F (-10...+150°C) | -14...+392°F (-10...+200°C) |
| D - Silicon oil "D" | -14...+392°F (-10...+200°C) | -14...+752°F (-10...+400°C) | | | |

OPTIONS

| | |
|--------------------------|---------------------------------|
| C05 - Helium Test | P04 - Dye penetrant test |
|--------------------------|---------------------------------|

"HOW TO ORDER" SEQUENCE

Section/Model/Connection material/Diaphragm material/Process Connection/Instrument connection/Assembling/Options
4 R00 4,5 4,9 --- 41F - G 1/2 F D B...G 1, 9, 6 C05, P04

IN ORDER TO IMPROVE THEIR PRODUCTION, MESSRS. NUOVA FIMA RESERVE THE RIGHT TO THEMSELVES TO MAKE ALL THE MODIFICATIONS THAT THEY DEEM INDISPENSABLE AT ANY TIME. UPDATED DATA SHEETS ARE AVAILABLE ON SITE: www.nuovafima.com



plastic diaphragm seal, with threaded connection



Diaphragm seals are designed to isolate the sensing element of pressure gauges, pressure switches and electronic pressure transmitter from process fluids which may be corrosive, viscous, sedimentous. An elastic diaphragm, mechanically clamped, fitted to a leak proof check, guarantees the separation of the process fluid from the transmission fill fluid. The corrosion is prevented by the assembling without bolts and nuts. Typical applications are: galvanic and water treatments, irrigation, electronic boards production.

4.P10 - MGS9/P10 - for pressure gauges \geq DN 4" (100mm)

Working pressure and temperature: see table below.

Accuracy (1): (add to instrument accuracy) $\pm 1,0\%$ for direct mounting.

Instrument connection: G 1/2.

Process connection: G 1/2, 1/2" NPT F.

Body Material :

V - PVC.

Diaphragm material :

A - PTFE.

Filling liquid: silicon oil.

4.P63 - MGS9/P63 - for pressure gauges DN 2.5" (63mm)

Working pressure and temperature: see table below.

Accuracy (1): (add to instrument accuracy) $\pm 1,0\%$ for direct mounting.

Instrument connection: G 1/4.

Process connection: G 1/4, 1/4" NPT F.

Body Material :

V - PVC.

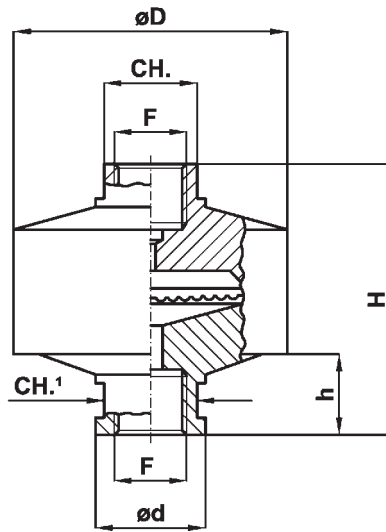
Diaphragm material :

A - PTFE.

Filling liquid: silicon oil.

| Process fluid temperature | | |
|---------------------------|-------------------|-------------------|
| 68 °F (20 °C) | 104 °F (40 °C) | 140 °F (60 °C) |
| 150 psi (10 bar) | 75 psi (5 bar) | 15 psi (1 bar) |

(1) at 68°F (20 °C) process temperature (or state temperature when ordering)



| Model | F | D | d | H | h | CH ₁ | CH |
|-------|--------------------|-------------|-----------|-------------|-------------|-----------------|-----------|
| P10 | 41F - G 1/2 | 3.13 (79,5) | 1.26 (32) | 3.09 (78,5) | 0.93 (23,5) | 1.06 (27) | 1.06 (27) |
| | 43F - 1/2-14 NPT F | | | | | | |
| P63 | 21F - G 1/4 | 2.34 (59,5) | 0.98 (25) | 2.54 (64,5) | 0.77 (19,5) | 0.87 (22) | 0.67 (17) |
| | 23F - 1/4-18 NPT F | | | | | | |

dimensions : inches (mm)

ASSEMBLING

D - Direct to instrument. All diaphragm seals are mounted on the instruments and fixed by an aluminium protection label.

OPTIONS

| Model | MGS9/P10 | MGS9/P63 |
|--|----------|----------|
| E - Fluorinated liquid "E" for process fluid temperature from -40°F to +302°F (from -40°C +150°C) | ◆ | ◆ |
| G - Food oil "G" for process fluid temperature from -4°F to +392°F (-20°C a + 200°C) | ◆ | ◆ |

"HOW TO ORDER" SEQUENCE

Section/Model/Connection material/Diaphragm material/Process Connection/Instrument connection/Assembling/Options

4 P10 V A 41F 41F - G 1/2 F D E, G
 P63 43F 21F - G 1/4 F
 21F
 23F

NUOVA FIMA

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MEASURING INSTRUMENTS - STRUMENTI PER MISURARE



COMPONENT AND ACCESSORIES

NUOVA FIMA

cocks and valves



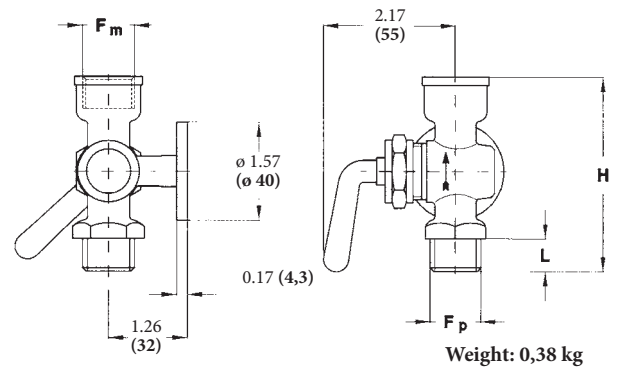
5.02F - MP3/2F - Three way cock, with a ϕ 1.57" (ϕ 40mm) flanged connection for test pressure gauge

Body: brass.

Cylindrical needle plug: brass.

Wheel: brass.

Seal: mechanical.



| Body | Cod. | Class (PN) | °F (°C) |
|-------|----------|------------------|-------------------------|
| brass | 0 | 232 psi (16 bar) | +50...+356 (+10...+180) |

| Cod. | Fp-Fm | L | H |
|------------------|-----------------------|-----------|-----------|
| 21M x 21F | G 1/4 B M x G 1/4 B F | 0.43 (11) | 2.64 (67) |
| 31M x 31F | G 3/8 B M x G 3/8 B F | 0.51 (13) | 2.91 (74) |
| 41M x 41F | G 1/2 B M x G 1/2 B F | 0.55 (14) | 3.15 (80) |

dimensions : inches (mm)

5.330 - MP3/33 - Two way needle valve; DN 1/4"

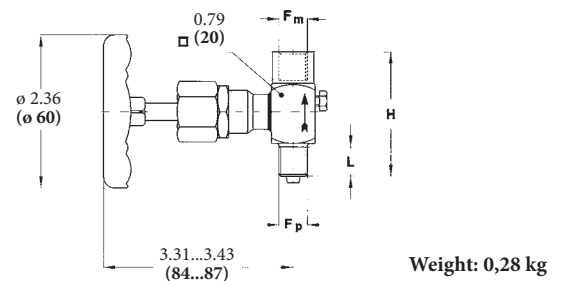
Body: AISI 316 st.st.

Needle plug: AISI 420 st. with carbon steel body;

AISI 316 st.st. stellite tipped with AISI 316 st.st. body.

Wheel: painted steel plate.

Packing seal: Grafoil.



| Body | Cod. | Class (PN) | °F (°C) |
|-----------------|----------|--------------------|-------------------------|
| AISI 316 st.st. | 4 | 2000 psi (150 bar) | +14...+356 (-10...+180) |

| Cod. | Fp-Fm | L | H |
|------------------|-------------------------|-----------|-----------|
| 21F x 21F | G 1/4 B F x G 1/4 B F | - | 2.36 (60) |
| 21M x 21F | G 1/4 B M x G 1/4 B F | 0.59 (15) | 2.24 (57) |
| 23F x 23F | 1/4" NPT F x 1/4" NPT F | - | 2.36 (60) |
| 23M x 23F | 1/4" NPT M x 1/4" NPT F | 0.59 (15) | 2.36 (60) |

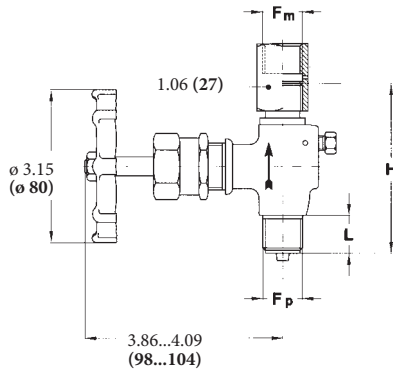
dimensions : inches (mm)

Constructive characteristics for 2, 3 ways valves

Body: ASTM A/105 carbon steel, AISI 316 st.st., drop-forged.
 Needle plug: AISI 420 st. with ASTM A/105 c. st. body; AISI 316 st.st. stelite tipped with AISI 316 st.st. body.
 Seat: AISI 316 st.st.; deposited AISI 316 st.st. for ASTM A/105 c.st. body.
 Wheel: ribbed galvanized steel plate.
 Gasket seal: Grafoil.

| Body | Cod. | Class (PN) | °F (°C) |
|------------------|------|--------------------|-------------------------|
| ASTM A/105 c.st. | 3 | 3600 psi (250 bar) | -4...+570 (-20...+300) |
| AISI 316 st.st. | 4 | 5800 psi (400 bar) | -22...+570 (-30...+300) |

5.340 - MP3/34 - Two ways valve with a bleeding screw, type UNI 4669, UNAV 8828.1, DIN 16270



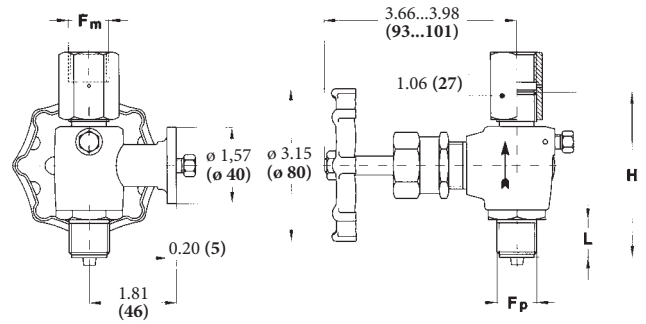
Weight: 0,73 kg

| Cod. | Fp-Fm | L | H |
|-----------|---------------------------|-----------|-----------|
| 21M x 41F | G 1/4 B M x G 1/2 B F (1) | 0.67 (17) | 3.50 (89) |
| 41M x 41F | G 1/2 B M x G 1/2 B F | 0.79 (20) | 3.50 (89) |

(1) c.st. only

dimensions : inches (mm)

5.34F - Mp3/34F - Three ways valve, with a ø 1.57" (ø 40mm) flanged connection for test pressure gauge and bleeding screw

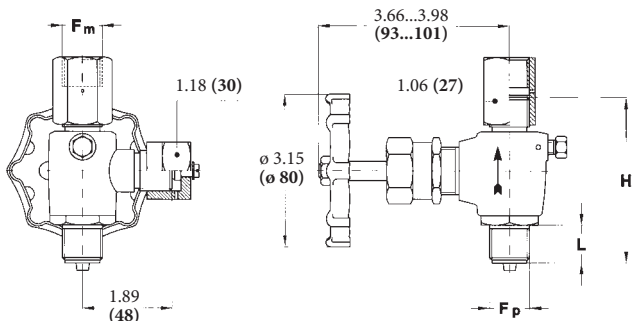


Weight: 1 kg

| Cod. | Fp-Fm | L | H |
|-----------|---------------------------|-----------|-----------|
| 21M x 41F | G 1/4 B M x G 1/2 B F (2) | 0.67 (17) | 3.46 (88) |
| 41M x 41F | G 1/2 B M x G 1/2 B F | 0.79 (20) | 3.46 (88) |

(2) AISI 316 st.st. only

5.350 - MP3/35 - Three ways valve with threaded connection for test pressure gauges, type UNI 4670, UNAV 8830.1, DIN 16271



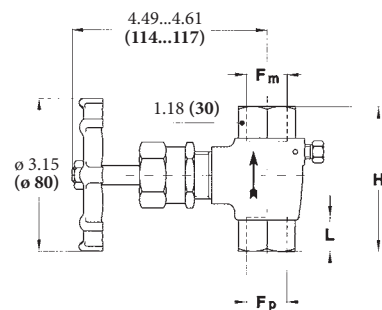
Weight: 1 kg

| Cod. | Fp-Fm | L | H |
|-----------|---------------------------|-----------|-----------|
| 21M x 41F | G 1/4 B M x G 1/2 B F (1) | 0.67 (17) | 3.46 (88) |
| 41M x 41F | G 1/2 B M x G 1/2 B F | 0.79 (20) | 3.46 (88) |

(1) c.st. only

dimensions : inches (mm)

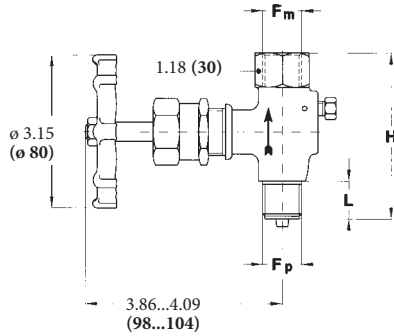
5.370 - MP3/37 - Two ways valve with bleeding screw



Weight: 0,74 kg

| Cod. | Fp-Fm (welding) | L | H |
|-----------|-----------------|-----------|-----------|
| 2A0 x 2A0 | 1/4" x 1/4" | 0.67 (17) | 3.03 (77) |
| 4A0 x 4A0 | 1/2" x 1/2" | 0.71 (18) | 3.03 (77) |

5.360 - MP3/36 - Two ways valve with bleeding screw

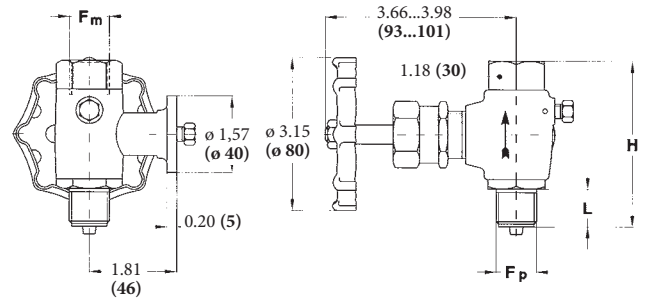


Weight: 0,65 kg

| Cod. | Fp-Fm | L | H |
|-----------|-------------------------|-----------|-----------|
| 21F x 41F | G 1/4 B F x G 1/2 B F | 0.67 (17) | 3.03 (77) |
| 21M x 41F | G 1/4 B M x G 1/2 B F | 0.67 (17) | 3.46 (88) |
| 41F x 41F | G 1/2 B F x G 1/2 B F | 0.79 (20) | 3.03 (77) |
| 41M x 41F | G 1/2 B M x G 1/2 B F | 0.79 (20) | 3.46 (88) |
| 23F x 43F | 1/4" NPT F x 1/2" NPT F | - | 3.03 (77) |
| 23M x 43F | 1/4" NPT M x 1/2" NPT F | 0.67 (17) | 3.46 (88) |
| 43F x 43F | 1/2" NPT F x 1/2" NPT F | - | 3.03 (77) |
| 43M x 43F | 1/2" NPT M x 1/2" NPT F | 0.79 (20) | 3.46 (88) |

dimensions : inches (mm)

5.36F - MP3/36F - Three ways valve, with a $\phi 1.57''$ ($\phi 40$ mm) flanged connection for test pressure gauge and bleeding screw



Weight: 0,92 kg

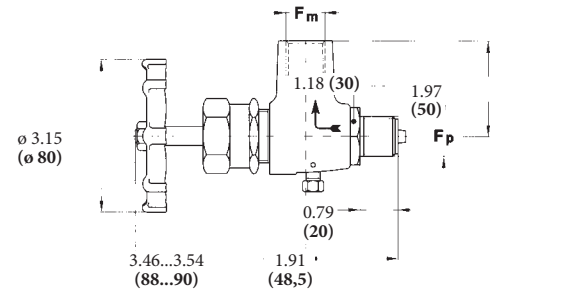
| Cod. | Fp-Fm | L | H |
|-----------|-------------------------|-----------|-----------|
| 21F x 41F | G 1/4 B F x G 1/2 B F | 0.67 (17) | 3.03 (77) |
| 21M x 41F | G 1/4 B M x G 1/2 B F | 0.67 (17) | 3.46 (88) |
| 41F x 41F | G 1/2 B F x G 1/2 B F | 0.79 (20) | 3.03 (77) |
| 41M x 41F | G 1/2 B M x G 1/2 B F | 0.79 (20) | 3.46 (88) |
| 23F x 43F | 1/4" NPT F x 1/2" NPT F | - | 3.03 (77) |
| 23M x 43F | 1/4" NPT M x 1/2" NPT F | 0.67 (17) | 3.46 (88) |
| 43F x 43F | 1/2" NPT F x 1/2" NPT F | - | 3.03 (77) |
| 43M x 43F | 1/2" NPT M x 1/2" NPT F | 0.79 (20) | 3.46 (88) |

dimensions : inches (mm)

5.380 - MP3/38 - Two ways angle (90°) valve with bleeding screw

| Body | Cod. | Class (PN) | °F (°C) |
|-----------------|------|--------------------|-------------------------|
| AISI 316 st.st. | 4 | 5800 psi (400 bar) | -22...+570 (-30...+300) |

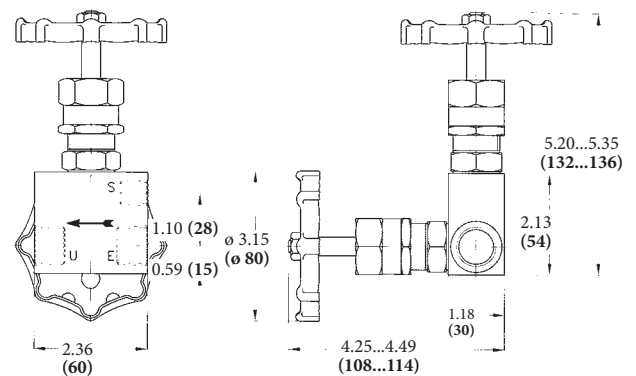
| Cod. | Fp-Fm |
|-----------|-------------------------|
| 41M x 41F | G 1/2 B M x G 1/2 B F |
| 43M x 43F | 1/2" NPT M x 1/2" NPT F |



dimensions : inches (mm) Weight: 0,83 kg

5.060 - MP3/6 - Duplex valve

Body: ASTM A/105 carbon steel, AISI 316 st.st., drop-forged.
 Needle plug: AISI 420 st. with ASTM A/105 c. st. body; AISI 316 st.st. stellite tipped with AISI 316 st.st. body.
 Seat: AISI 316 st.st.
 Wheel: ribbed galvanized steel plate.
 Gasket seal: Grafoil.
 Process connection: 1/2" NPT F.
 Drain connection: 1/4" NPT F.

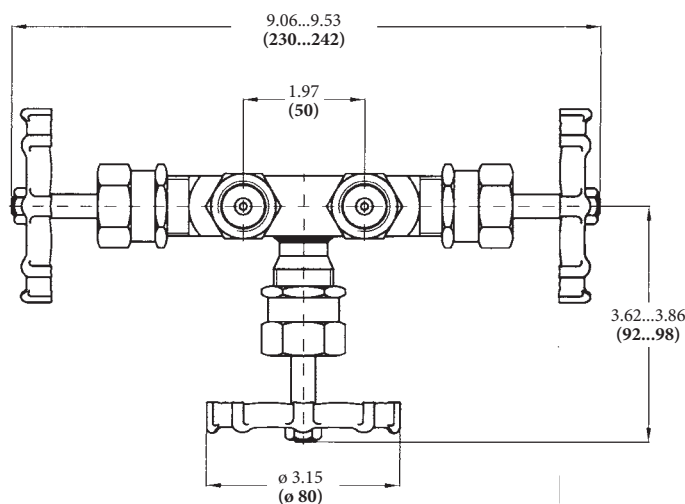
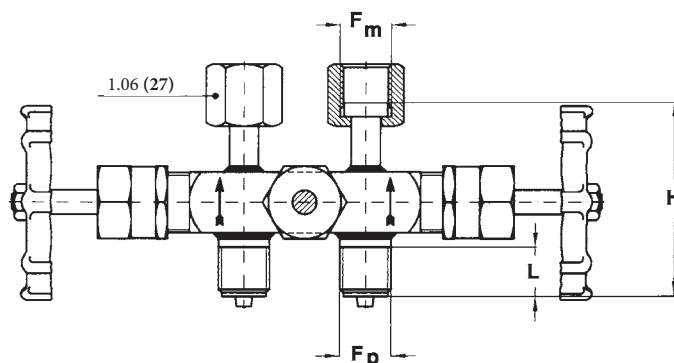


dimensions : inches (mm) Weight: 1,22 kg

| Body | Cod. | Class (PN) | °F (°C) |
|------------------|------|--------------------|-------------------------|
| ASTM A/105 c.st. | 3 | 2900 psi (200 bar) | -4...+570 (-20...+300) |
| AISI 316 st.st. | 4 | 2900 psi (200 bar) | -22...+570 (-30...+300) |

5.050 - MP3/5 - By-pass valve

Body: AISI 316 st.st., bar-stock.
 Needle plug: AISI 316 st.st. stelite tipped.
 Wheel: ribbed galvanized steel plate.
 Gasket seal: Grafoil.



Weight: 1,50 kg

| Body | Cod. | Class (PN) | °F (°C) |
|-----------------|------|--------------------|-----------------------|
| AISI 316 st.st. | 4 | 2900 psi (200 bar) | +4...+570 (-20...300) |

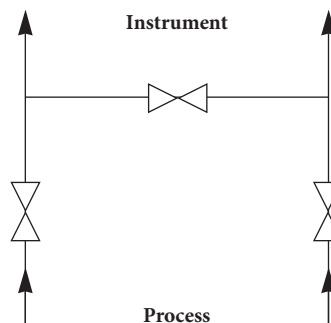
| Cod. | Fp-Fm | L | H |
|-----------|-------------------------|-----------|-----------|
| 21M x 21F | G 1/4 B M x G 1/4 B F | 0.67 (17) | 3.23 (82) |
| 41M x 41F | G 1/2 B M x G 1/2 B F | 0.79 (20) | 3.15 (80) |
| 23M x 23F | 1/4" NPT M x 1/4" NPT F | 0.67 (17) | 3.23 (82) |
| 43M x 43F | 1/2" NPT M x 1/2" NPT F | 0.79 (20) | 3.15 (80) |

dimensions : inches (mm)

OPTIONS

| |
|--|
| P07 - Oxygene service, "all stainless steel" version (1) |
| P04 - Tag punching |
| BTP - PTFE gasket seal for temperature ≤ 356°F - 180 °C) |
| TAI - "all stainless steel" version for AISI 316 st.st. valves (1) |

(1) Not available for 5.02F and 5.330 models.



"HOW TO ORDER" SEQUENCE

| Section / Model/ | Material / | Process connection / | Instrument connection / | Options |
|------------------|------------|----------------------|-------------------------|-------------------------|
| 5 | 02F | 0 | 21M, 31M, 41M | 21F, 31F, 41F P02...TAI |
| | 340 | 3 | 23M, 43M | 23F, 43F |
| | 34F | 4 | 21F, 41F | 2A0, 4A0 |
| | 350 | | 23F, 43F | |
| | 370 | | 2A0, 4A0 | |
| | 360 | | | |
| | 380 | | | |
| | 060 | | | |
| | 050 | | | |



bar stock needle valve, block and bleed

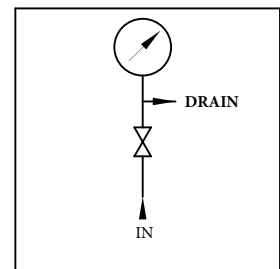
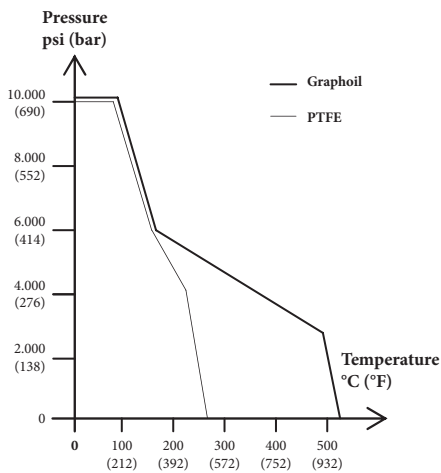


Technical features

- Rating:** 6000 psi; or 10000 psi (code **10K**).
- Tee-bar:** AISI 303 st.st.
- Stem:** AISI 316 L st.st.
- Non-rotating needle:** AISI 316 L st.st (code **5**), (or special materials).
- Bonnet:** AISI 316 L st.st (code **5**), (or special materials).
- Packing:** PTFE or Graphoil (see chart below).
- Nuts:** carbon steel.
- Line dust cup:** Hytrel, blu.
- Bonnet seal:** AISI 316L st.st. seal.
- Valve body and drain plug:** AISI 316 L st.st. (code **5**), (or special materials).



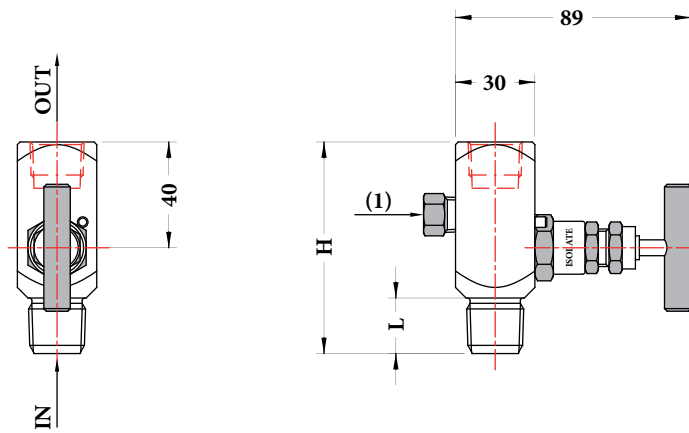
Fig. 1 - Sectioned bonnet



OPTIONS

| | |
|--|-----------------------------------|
| 10K - Rating bonnet : 10000 psi | LOK - T-Bar handle locking |
| ANT - Anti-tamper | P02 - Oxygen service |
| E30 - NACE version as per MR 0103/0175-ISO15156 | SMI - Tag |
| GRA - Graphoil packing | |

5.VVM - BSV/VVM - male process connection



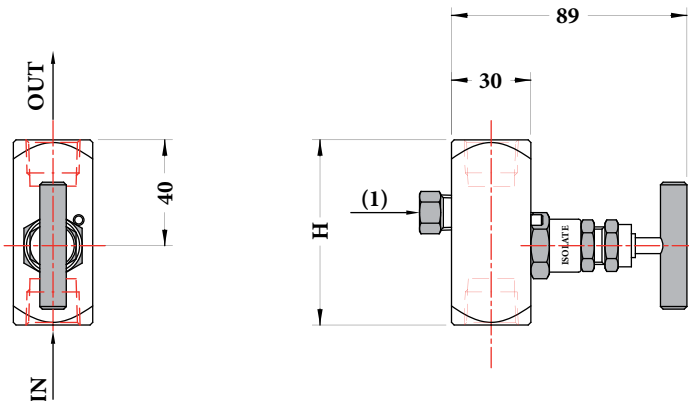
Weight : 0,53 kg

| Code | IN-OUT | H | L |
|------------------|-------------------------|----|----|
| 43M x 43F | 1/2" NPT M x 1/2" NPT F | 80 | 20 |

(1) Drain 1/4" NPT F with plug

dimensions : mm

5.VVF - BSV/VVF - female process connection



Weight : 0,48 kg

| Code | IN-OUT | H |
|------------------|-------------------------|----|
| 43F x 43F | 1/2" NPT F x 1/2" NPT F | 70 |

(1) Drain 1/4" NPT F with plug

dimensions : mm

“HOW TO ORDER” SEQUENCE

Section / Model / Material / Process connection / Instrument connection / Options

5 VVM 5 43M 43F 10K...SMI
VVF 43F

bar stock needle valve, block, multiport

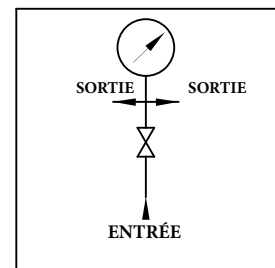
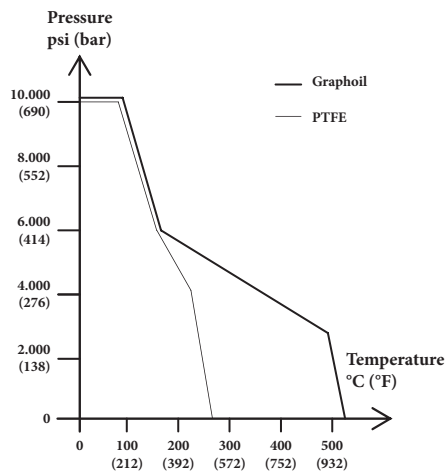


Technical features

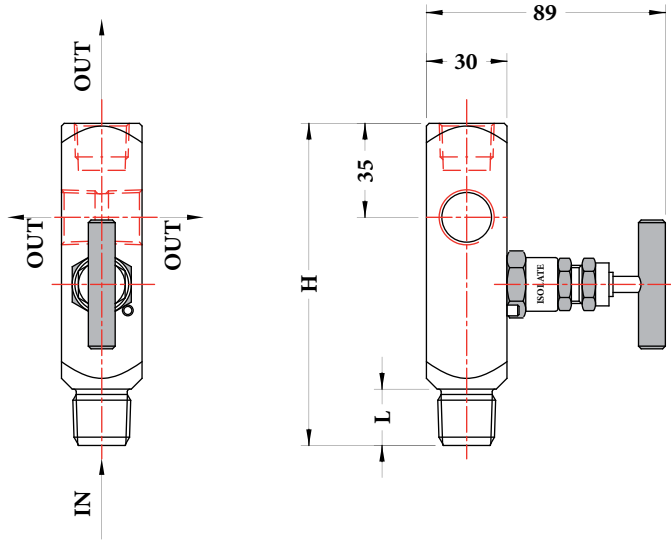
- Rating: 6000 psig; or 10000 psig (code **10K**).
- Tee-bar: AISI 303 st.st.
- Stem: AISI 316 L st.st.
- Non-rotating needle: AISI 316 L st.st (code **5**), (or special materials).
- Bonnet: AISI 316 L st.st (code **5**), (or special materials).
- Packing: PTFE or Graphoil (see chart below).
- Nuts: carbon steel.
- Line dust cup: Hytrel, blu.
- Bonnet seal: AISI 316L st.st. seal.
- Valve body and drain plug: AISI 316 L st.st. (code **5**), (or special materials).



Fig. 1 - Sectioned bonnet



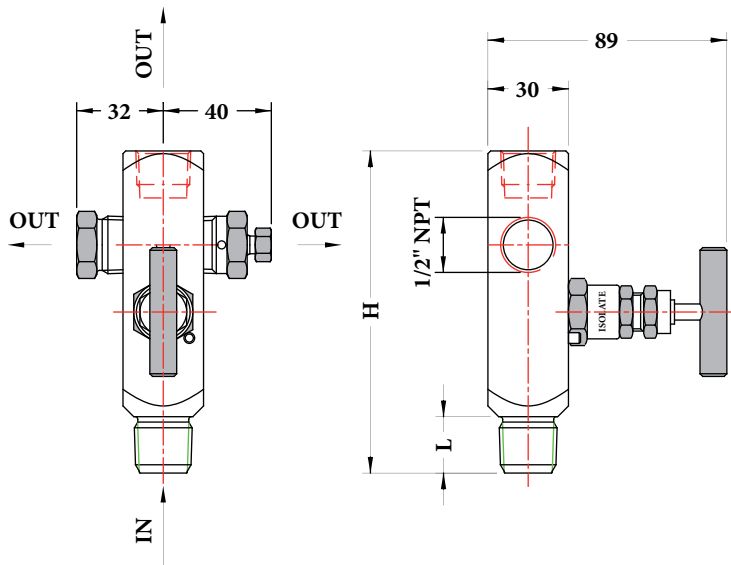
5.VMM - BSV/VMM - male process connection



Weight: 0,82 kg.

| Code | IN-OUT | H | L |
|-----------|-------------------------|-----|----|
| 43M x 43F | 1/2" NPT M x 1/2" NPT F | 120 | 20 |

dimensions : mm



VARIABILI

| | |
|--|-----------------------------------|
| 10K - Rating bonnet : 10000 psi | LOK - T-Bar handle locking |
| ANT - Anti-tamper | P02 - Oxygen service |
| E30 - NACE version as per MR 0103/0175-ISO15156 | SMI - Tag |
| GRA - Graphoil packing | |

“HOW TO ORDER” SEQUENCE

Section / Model / Material / Process connection / Instrument connection / Options
 5 VMM 5 43M 43F 10K...SMI

bar stock two-valve manifold, 'block and bleed

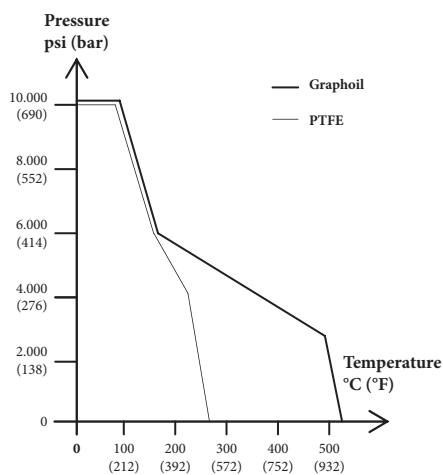


Technical features

- Rating:** 6000 psig; or 10000 psig (code **10K**).
- Tee-bar:** AISI 303 st.st.
- Stem:** AISI 316 L st.st.
- Non-rotating needle:** AISI 316 L st.st (code **5**), (or special materials).
- Bonnet:** AISI 316 L st.st (code **5**), (or special materials).
- Packing:** PTFE or Graphoil (see chart below).
- Nuts:** carbon steel.
- Line dust cup:** Hytrel, blu.
- Drain dust cup:** Hytrel, red.
- Bonnet seal:** AISI 316L st.st. seal.
- Manifold body and drain plug:** AISI 316 L st.st. (code **5**), (or special materials).



Fig. 1 - Sectioned bonnet

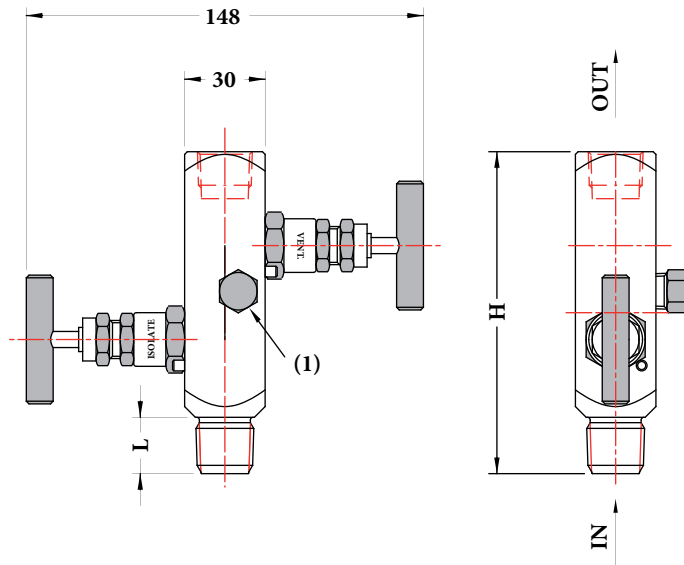
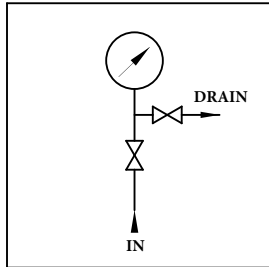


OPTIONS

| | |
|--|---|
| 10K - Rating bonnet : 10000 psi | LOK - T-Bar handle locking |
| ANT - Anti-tamper | P02 - Oxygen service |
| E30 - NACE version as per MR 0103/0175-ISO15156 | SMI - Tag |
| GRA - Graphoil packing | S31 - 2" stake's bracket for yoke mounting |

5.M2M - BSM/M2M - male process connection

RC2 - 05/15



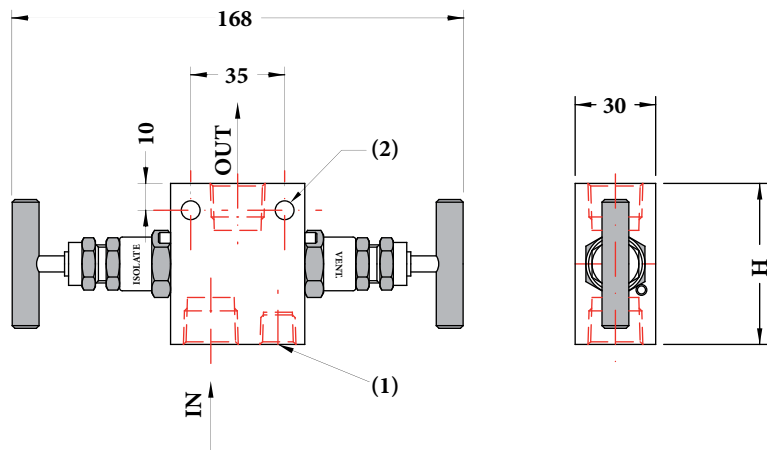
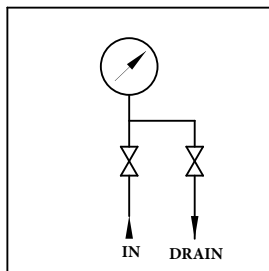
Weight: 0,88 kg

| Code | IN-OUT | H | L |
|------------------|-------------------------|-----|----|
| 43M x 43F | 1/2" NPT M x 1/2" NPT F | 120 | 20 |

(1) Drain 1/4" NPT F with plug

dimensions : mm

5.M2F - BSM/M2F - female process connection



Weight: 0,90 kg

| Code | IN-OUT | H |
|------------------|-------------------------|----|
| 43F x 43F | 1/2" NPT F x 1/2" NPT F | 60 |

(1) Drain 1/4" NPT F with plug

(2) No. 2 fixing holes ø 7 mm

dimensions : mm

“HOW TO ORDER” SEQUENCE

Section / Model / Material / Process connection / Instrument connection / Options
 5 M2M 5 43M 43F 10K...S31
 M2F 43F

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bar stock three-valve manifold, block and equalizer, direct mounting

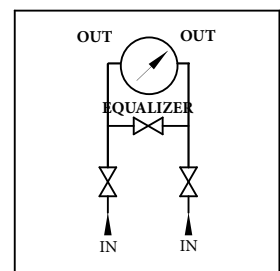
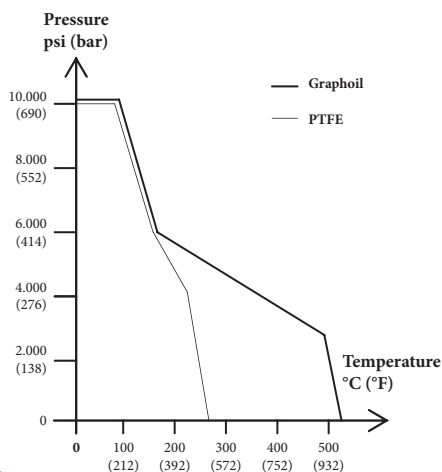


Technical features

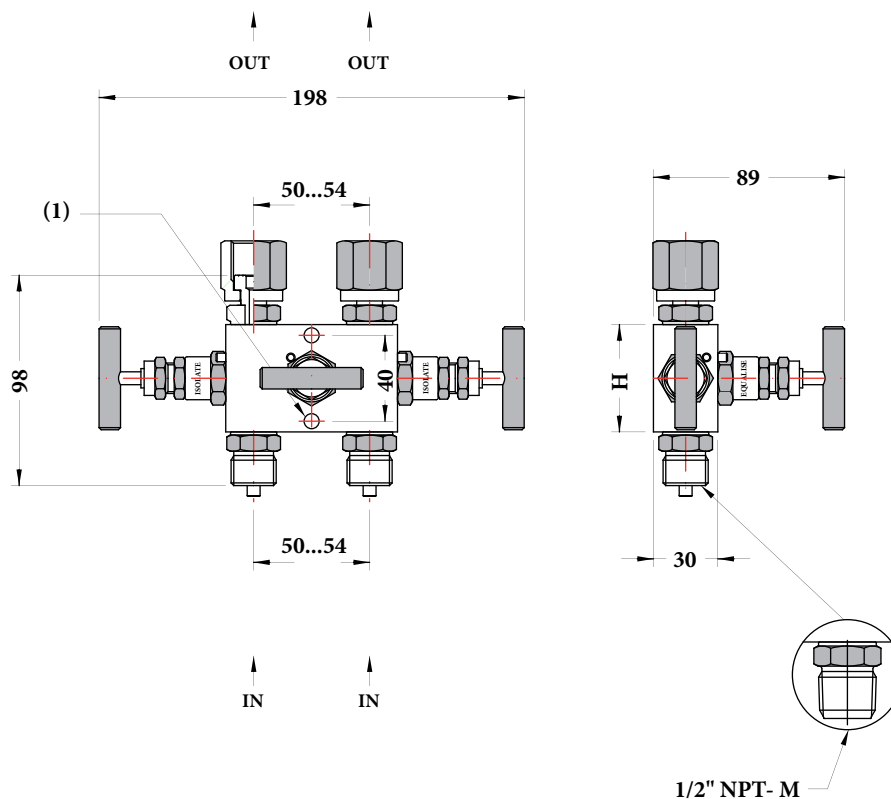
- Rating:** 6000 psig; or 10000 psig (code **10K**).
- Tee-bar:** AISI 303 st.st.
- Stem:** AISI 316 L st.st.
- Non-rotating needle:** AISI 316 L st.st (code **5**), (or special materials).
- Bonnet:** AISI 316 L st.st (code **5**), (or special materials).
- Packing:** PTFE or Graphoil (see chart below).
- Nuts:** carbon steel.
- Line dust cup:** Hytrel, blu.
- Equalizer dust cup:** Hytrel, green.
- Bonnet seal:** AISI 316L st.st. seal.
- Manifold body and drain plug:** AISI 316 L st.st. (code **5**), (or special materials).
- Weight:** 1,45 kg.



Fig. 1 - Sectioned bonnet



5.M3A - BSM/M3A - male process connection



| Code | IN-OUT | H | L |
|-----------|-------------------|----|----|
| 41M x 41F | G 1/2" A x G 1/2" | 50 | 20 |
| 43M x 41F | 1/2" NPT x G 1/2" | 50 | 20 |

(1) No. 2 fixing holes \varnothing 7 mm

dimensions : mm

OPTIONS

| | |
|--|--|
| 10K - Rating bonnet : 10000 psi | LOK - T-Bar handle locking |
| ANT - Anti-tamper | P02 - Oxygen service |
| E30 - NACE version as per MR 0103/0175-ISO15156 | S31 - 2" stake's mounting bracket |
| GRA - Graphoil packing | SMI - Tag |

"HOW TO ORDER" SEQUENCE

Section / Model / Material / Process connection / Instrument connection / Interaxis / Options
 5 M3A 5 41M 41F 050 10K...SMI
 43M 054

bar stock five-valve manifold, block, bleed and equalizer, remote mounting



Technical features

Rating: 6000 psig; or 10000 psig (code **10K**).

Tee-bar: AISI 303 st.st.

Stem: AISI 316 L st.st.

Non-rotating needle: AISI 316 L st.st. (code **5**), (or special materials).

Bonnet: AISI 316 L st.st. (code **5**), (or special materials).

Packing: PTFE or Graphoil (see chart below).

Nuts: carbon steel.

Line dust cup: Hytrel, blu..

Drain dust cup: Hytrel, red.

Equalizer dust cup: Hytrel, green.

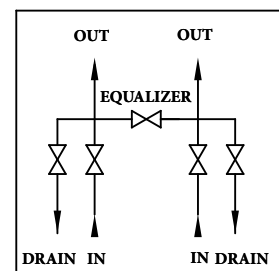
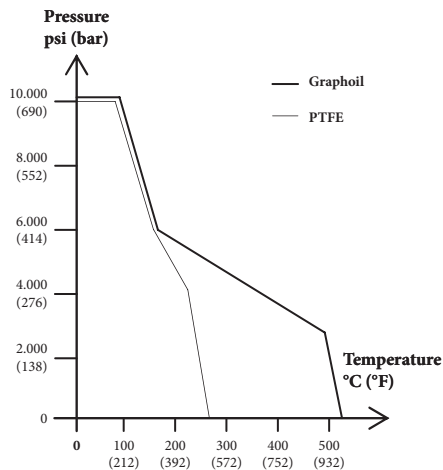
Bonnet seal: AISI 316 L st.st. seal.

Manifold body and drain plug: AISI 316 L st.st. (code **5**), (or special materials).

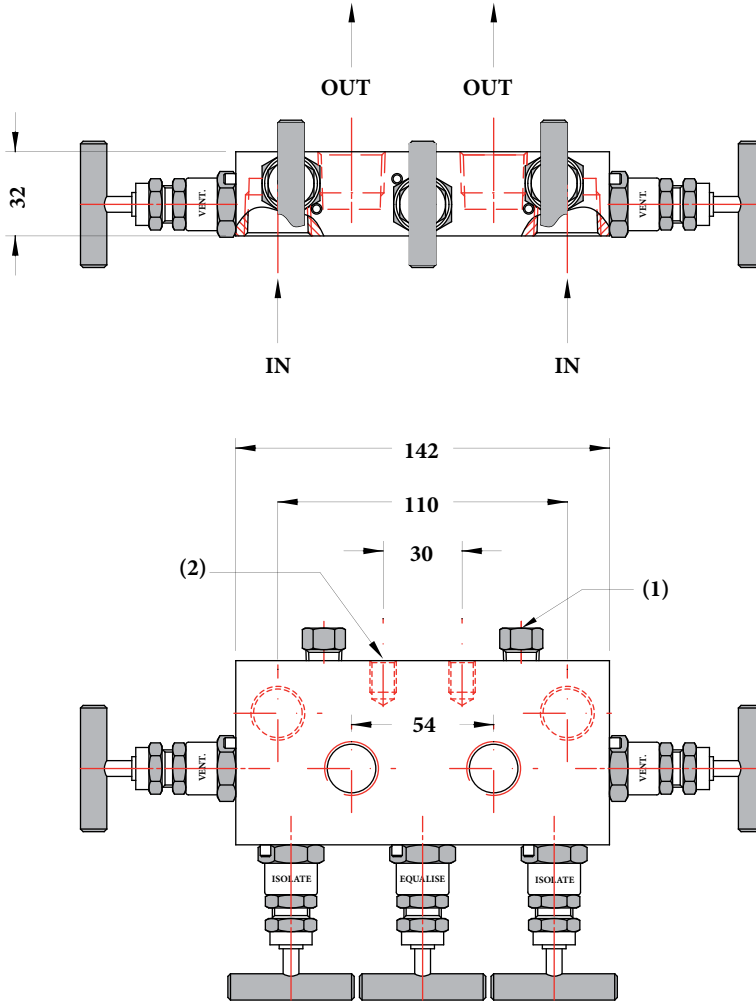
Weight: 2,7 kg.



Fig. 1 - Sectioned bonnet



5.M5F - BSM/M5F - female process connection



| Code | Вход-Выход |
|------------------|-------------------------|
| 43F x 43F | 1/2" NPT F x 1/2" NPT F |

(1) Drain 1/4" NPT F with plug dimensions : mm
 (2) No. 2 fixing holes M10

OPTIONS

| | |
|--|--|
| 10K - Rating bonnet : 10000 psi | LOK - T-Bar handle locking |
| ANT - Anti-tamper | P02 - Oxygen service |
| E30 - NACE version as per MR 0103/0175-ISO15156 | S31 - 2" stake's mounting bracket |
| GRA - Graphoil packing | SMI - Tag |

"HOW TO ORDER" SEQUENCE

Section / Model / Material / Process connection / Instrument connection / Interaxis / Options
 5 M5F 5 43F 43F 054 10K...SMI

bar stock five-valve manifold, block, bleed and equalizer, direct mounting

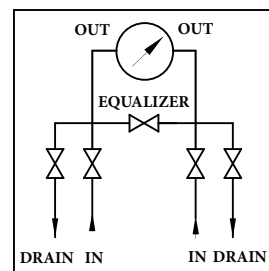
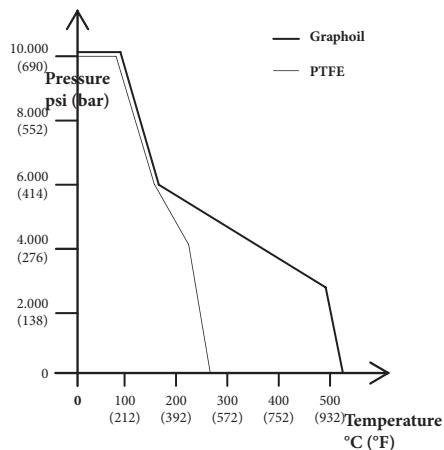


Technical features

- Rating:** 6000 psig; or 10000 psig (code **10K**).
- Tee-bar:** AISI 303 st.st.
- Stem:** AISI 316 L st.st.
- Non-rotating needle:** AISI 316 L st.st (code **5**), (or special materials).
- Bonnet:** AISI 316 L st.st (code **5**), (or special materials).
- Packing:** PTFE or Graphoil (see chart below).
- Nuts:** carbon steel.
- Line dust cup:** Hytrel, blu..
- Drain dust cup:** Hytrel, red.
- Equalizer dust cup:** Hytrel, green.
- Bonnet seal:** AISI 316L st.st. seal.
- Manifold body and drain plug:** AISI 316 L st.st. (code **5**), (or special materials).
- Weight:** 2,8 kg.



Fig. 1 - Sectioned bonnet



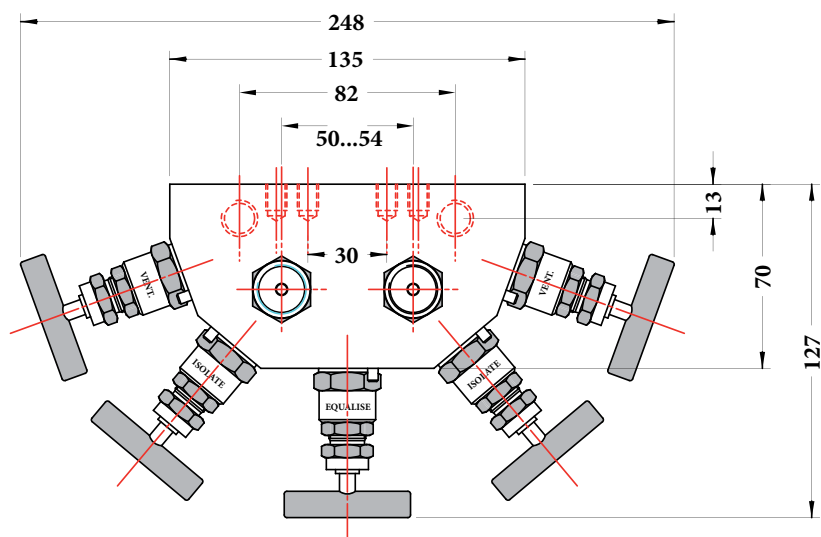
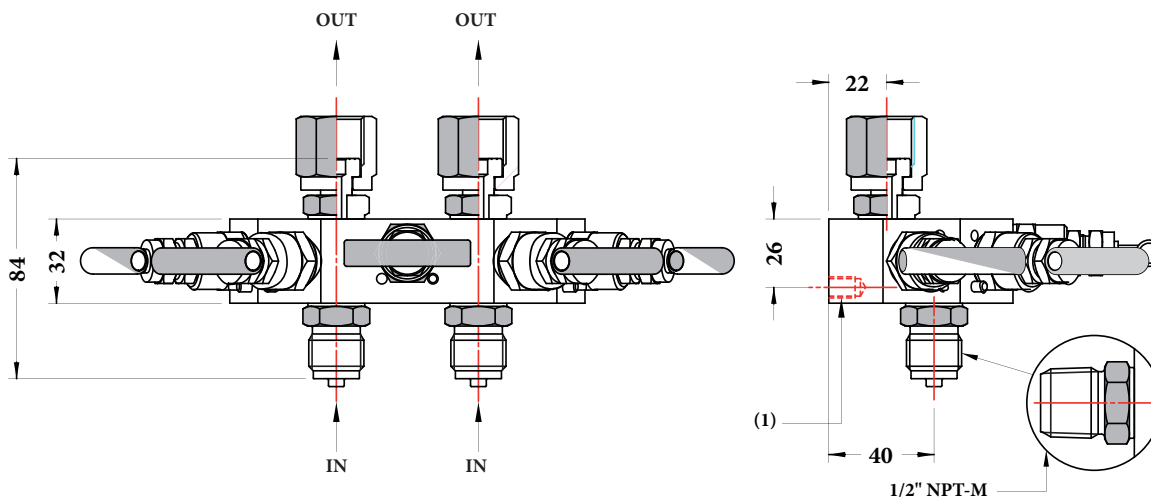
bar stock five-valve manifold, block, bleed and equalizer, direct mounting

BSM/M5B

5.M5B - BSM/M5B - male process connection

RC2 - 05/15

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| Code | Вход-Выход |
|-----------|---------------------------|
| 41M x 41F | G 1/2 A x G 1/2 swivel |
| 43M x 41F | 1/2" NPT M x G 1/2 swivel |

(1) No. 4 fixing holes M8

dimensions : mm

OPTIONS

| | |
|--|--|
| 10K - Rating bonnet : 10000 psi | LOK - T-Bar handle locking |
| ANT - Anti-tamper | P02 - Oxygen service |
| E30 - NACE version as per MR 0103/0175-ISO15156 | S31 - 2" stake's mounting bracket |
| GRA - Graphoil packing | SMI - Tag |

"HOW TO ORDER" SEQUENCE

Section / Model / Material / Process connection / Instrument connection / Interaxis / Options

5 M5B 5 41M 41F 050 10K...SMI
43M 054

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-2-

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dampeners



Designed to protect pressure measuring instruments from pulsating pressure applications. Sudden pressure changes are damped before they reach the sensing element, protecting it from high stress. This makes easier reading and helps to prolong the life of the instrument.

5.450 - MP4/5 - needle dampener

Nominal pressure: 6000 *psi* (400 bar).

Working temperature: -13...+392 °F (-25...+200°C).

Operation principle: variable section.

Adjustment screw: AISI 316 st.st.

Body and wetted parts: brass (Cod. **0**) or AISI 316 st.st. (Cod. **4**)

Gaskets: VITON.

Connections (process-instrument):

G 1/4 B M x G 1/4 B F;

1/4" NPT M x 1/4" NPT F;

G 1/2 B M x G 1/2 B F;

1/2" NPT M x 1/2" NPT F.

5.470 - MP4/7 - porous dampener

Nominal pressure: 15000 *psi* (1000 bar).

Working temperature: -58...+752 °F (-50...+400°C).

Operation principle: porous metal filter disc.

Porous disc: bronze (Cod. **PB8**) or AISI 316 st.st. (Cod. **PAG**)

Body and wetted parts: brass (Cod. **0**) or AISI 316 st.st. (Cod. **4**)

Connections (process-instrument):

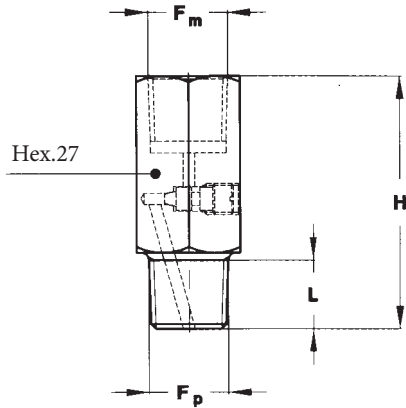
G 1/4 B M x G 1/4 B F;

1/4" NPT M x 1/4" NPT F;

G 1/2 B M x G 1/2 B F;

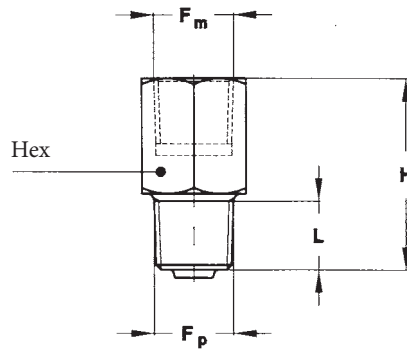
1/2" NPT M x 1/2" NPT F.

MP4/5



Weight : 0.5 lbs (0,23 kg)

MP4/7



Weight : 0.33 lbs (0,15 kg)

dimensions : inches (mm)

| Fp-Fm | L | H |
|---|-------------|-----------|
| 21M x 21F G 1/4 B M x G 1/4 B F | 0.61 (15,5) | 2.60 (66) |
| 23M x 23F 1/4" NPT M x 1/4" NPT F | 0.61 (15,5) | 2.60 (66) |
| 41M x 41F G 1/2 B M x G 1/2 B F | 0.79 (20) | 2.60 (66) |
| 43M x 43F 1/2" NPT M x 1/2" NPT F | 0.79 (20) | 2.60 (66) |

| Fp-Fm | L | H | Hex |
|---|-------------|-------------|-----------|
| 21M x 21F G 1/4 B M x G 1/4 B F | 0.69 (17,5) | 1.48 (37,5) | 0.67 (17) |
| 23M x 23F 1/4" NPT M x 1/4" NPT F | 0.69 (17,5) | 1.48 (37,5) | 0.67 (17) |
| 41M x 41F G 1/2 B M x G 1/2 B F | 0.79 (20) | 1.87 (47,5) | 1.06 (27) |
| 43M x 43F 1/2" NPT M x 1/2" NPT F | 0.79 (20) | 1.87 (47,5) | 1.06 (27) |

POROUS DISC

| Material | Use | MP4/7 - brass | MP4/7 - AISI316 |
|-----------------|-------|---------------|-----------------|
| Bronze | oil | ◆ | |
| Bronze | water | ◆ | |
| Bronze | air | ◆ | |
| AISI 316 st.st. | air | | ◆ |

“HOW TO ORDER” SEQUENCE

| |
|--|
| Section / Model/ Material / Process connection / Instrument connection / Porous disk |
| 5 450 0 21M, 41M 21F, 41F --- |
| 470 4 23M, 43M 23F, 43F PB8, PAG |



adjustable overload protection devices



These devices are used to protect pressure gauges and pressure switches from overpressure. If, due to occasional faults, the pressure exceeds the maximum allowed value, the device automatically by-passes the gauge until the pressure value is back to normal.

5.4LB...C - MP4/9L - vertical piston overload protection device

Setting range:

230...500 *psi* (16...35 bar) - Cod. **4LB**;

500...1450 *psi* (35...100 bar) - Cod. **4LC**.

Resetting value: -10% of setting value.

Working temperature: -13...+212 °F (-25...+100° C).

Maximum working pressure: 3626 *psi* (250 bar).

Operating principle: vertical piston.

Body, piston and wetted parts: AISI 316L st.st. (Cod. **5**); Monel 400 (Cod. **6**) ⁽¹⁾.

Gaskets: VITON.

Connections (process-instrument):

G 1/2 B M x G 1/2 B F;

1/2" NPT M x 1/2" NPT F.

(1) other materials upon request.

5.49A...D - MP4/9H - piston overload protection device

Setting range:

40...230 *psi* (3...16 bar) - Cod. **49A**;

230...500 *psi* (16...35 bar) - Cod. **49B**;

500...2300 *psi* (35...160 bar) - Cod. **49C**;

2300...5000 *psi* (160...350 bar) - Cod. **49D**.

Resetting value: -30% of setting value.

Working temperature: -13...+212 °F (-25...+100° C).

Maximum working pressure: 7000 *psi* (500 bar).

Operating principle: horizontal piston.

Body, piston and wetted parts: AISI 316L st.st. (Cod. **5**) ⁽¹⁾.

Gaskets: VITON.

Connections (process-instrument):

G 1/2 B M x G 1/2 B F;

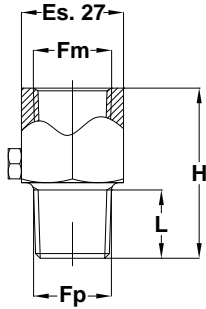
1/2" NPT M x 1/2" NPT F;

G 1/4 B M x G 1/4 B F;

1/4" NPT M x 1/4" NPT F.

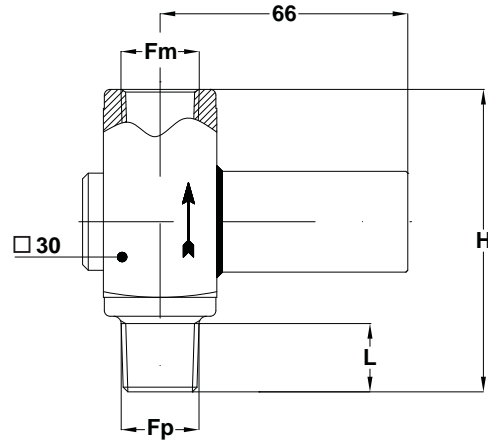
(1) other materials upon request.

MP4/9L



Weight : 0.33 lbs (0,15 kg)

MP4/9H



Weight : 1.10 lbs (0,50 kg)

dimensions : inches (mm)

| Cod. | Fp-Fm | L | H |
|------------------|-------------------------|-----------|-----------|
| 41M x 41F | G 1/2 B M x G 1/2 B F | 0.78 (20) | 1.77 (45) |
| 43M x 43F | 1/2" NPT M x 1/2" NPT F | 0.78 (20) | 1.77 (45) |

| Cod. | Fp-Fm | L | H |
|------------------|-------------------------|-----------|-----------|
| 41M x 41F | G 1/2 B M x G 1/2 B F | 0.78 (20) | 3.14 (80) |
| 43M x 43F | 1/2" NPT M x 1/2" NPT F | 0.78 (20) | 3.14 (80) |
| 21M x 21F | G 1/4 B M x G 1/4 B F | 0.59 (15) | 2.95 (75) |
| 23M x 23F | 1/4" NPT M x 1/4" NPT F | 0.59 (15) | 2.95 (75) |

“HOW TO ORDER” SEQUENCE

Section / Model/ Material / Process connection / Instrument connection / Options

| | | | | |
|---|------------|---|-----------------|-----------------|
| 5 | 4LB | 5 | 21M, 41M | 21F, 41F |
| | 4LC | 6 | 23M, 43M | 23F, 43F |
| | 49A | | | |
| | 49B | | | |
| | 49C | | | |
| | 49D | | | |

pig tails and siphons



PED 2014/68/EU

The pig tails and coil siphons are used for measurement of pressure with vapour and are mounted between the instrument (pressure gauge, pressure switch, pressure transmitter) and the process. A part of the pipe remain always filled of condensation and this avoid the direct contact between the high temperature vapour and the instrument. Another use of these accessories is the heating dispersion, this avoid also to the instrument to work at dangerous temperature.

Nominal pressure:

A106 gr. B carbon steel (Cod.E): 3000 psi @ 68 °F ... 2000 psi @ 800 °F
(200 bar @ 20 °C ... 150 bar @ 430 °C).

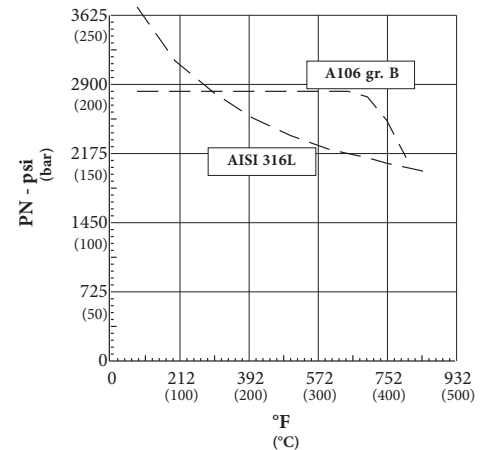
AISI 316 L stainless steel (Cod. 5): 4000 psi @ 68 °F ... 2000 psi @ 850 °F (260 bar @ 20 °C ... 135 bar @ 450 °C).

Pipe dimensions: 0.84 x 0.55", sch. 80 XS (21,34 x 13,88 mm).

Process connection - Instrument connection:

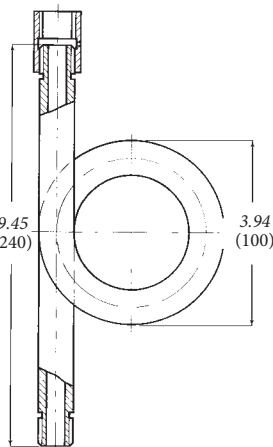
G 1/2 B M x G 1/2 B F (Cod. **41M** x **41F**);

1/2" NPT M x 1/2" NPT F (Cod. **43M** x **43F**).



5.520 - MP 5/2 - A106 gr. B

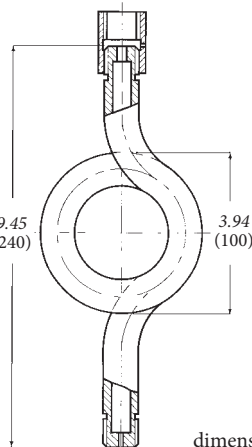
5.530 - MP 5/3 -
AISI 316L st. st.



Weight 1.87 lbs
(0,85 kg)

5.522 - MP 5/22 - A106 gr. B

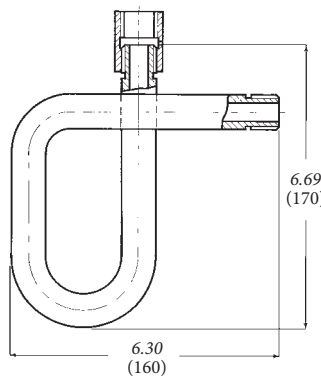
5.533 - MP 5/33 -
AISI 316L st. st.



Weight 2.09 lbs
(0,95 kg)

5.550 - MP 5/5 -
A106 gr. B

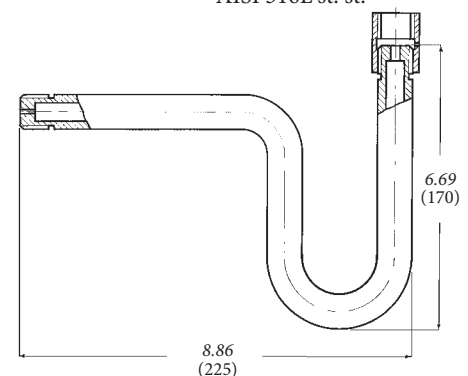
5.560 - MP 5/6 -
AISI 316L st. st.



Weight 1.73 lbs
(0,80 kg)

5.555 - MP 5/55 - A106 gr. B

5.566 - MP 5/66 -
AISI 316L st. st.



Weight 1.73 lbs
(0,80 kg)

dimensions : inches (mm)

Material: AISI 316L stainless steel (Cod. 5).

Nominal pressure:

1800 psi @ 68 °F ... 1000 psi @ 850 °F
(120 bar @ 20 °C ... 65 bar @ 450 °C)

for connections G 1/4 B M/F and 1/4" NPT M/F;

1300 psi @ 68 °F ... 700 psi @ 850 °F
(90 bar @ 20 °C ... 50 bar @ 450 °C)

for connections G 1/2 B M/F and 1/2" NPT M/F

Pipe dimensions:

ø 0.28 x 0.20" (ø 7 x 5 mm)

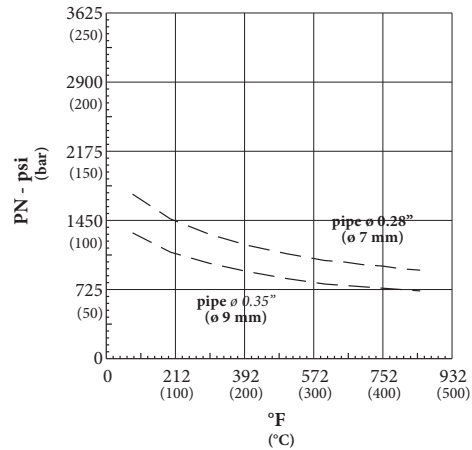
for connections G 1/4 B M/F e 1/4" NPT M/F

ø 0.35 x 0.28" (ø 9 x 7 mm)

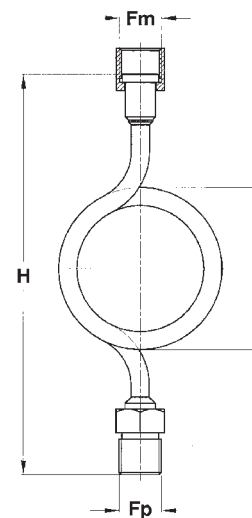
for connections G 1/2 B M/F e 1/2" NPT M/F

Instrument connection - process connection:

G 1/4 B M/F; 1/4" NPT M/F; G 1/2 B M/F; 1/2" NPT M/F.



5.510 - MP5/1



| Cod. | Fp-Fm | H | h | Weight : lbs (kg) |
|-----------|-------------------------|------------|-----------|-------------------|
| 21M x 21F | G 1/4 B M X G 1/4 B F | 5.91 (150) | 2.56 (65) | 0.22 (0,100) |
| 23M x 23F | 1/4" NPT M X 1/4" NPT F | 5.91 (150) | 2.56 (65) | 0.22 (0,100) |
| 41M x 41F | G 1/2 B M X G 1/2 B F | 7.87 (200) | 3.15 (80) | 0.5 (0,230) |
| 43M x 43F | 1/2" NPT M X 1/2" NPT F | 7.87 (200) | 3.15 (80) | 0.5 (0,230) |

dimensions : inches (mm)

“HOW TO ORDER” SEQUENCE

Section / Model/ Material / Process connection / Instrument connection / Options

| | | | | |
|---|-----|---|----------|----------|
| 5 | 510 | E | 21M, 41M | 21F, 41F |
| | 520 | 5 | 23M, 43M | 23F, 43F |
| | 522 | | | |
| | 530 | | | |
| | 533 | | | |
| | 550 | | | |
| | 555 | | | |
| | 560 | | | |
| | 566 | | | |

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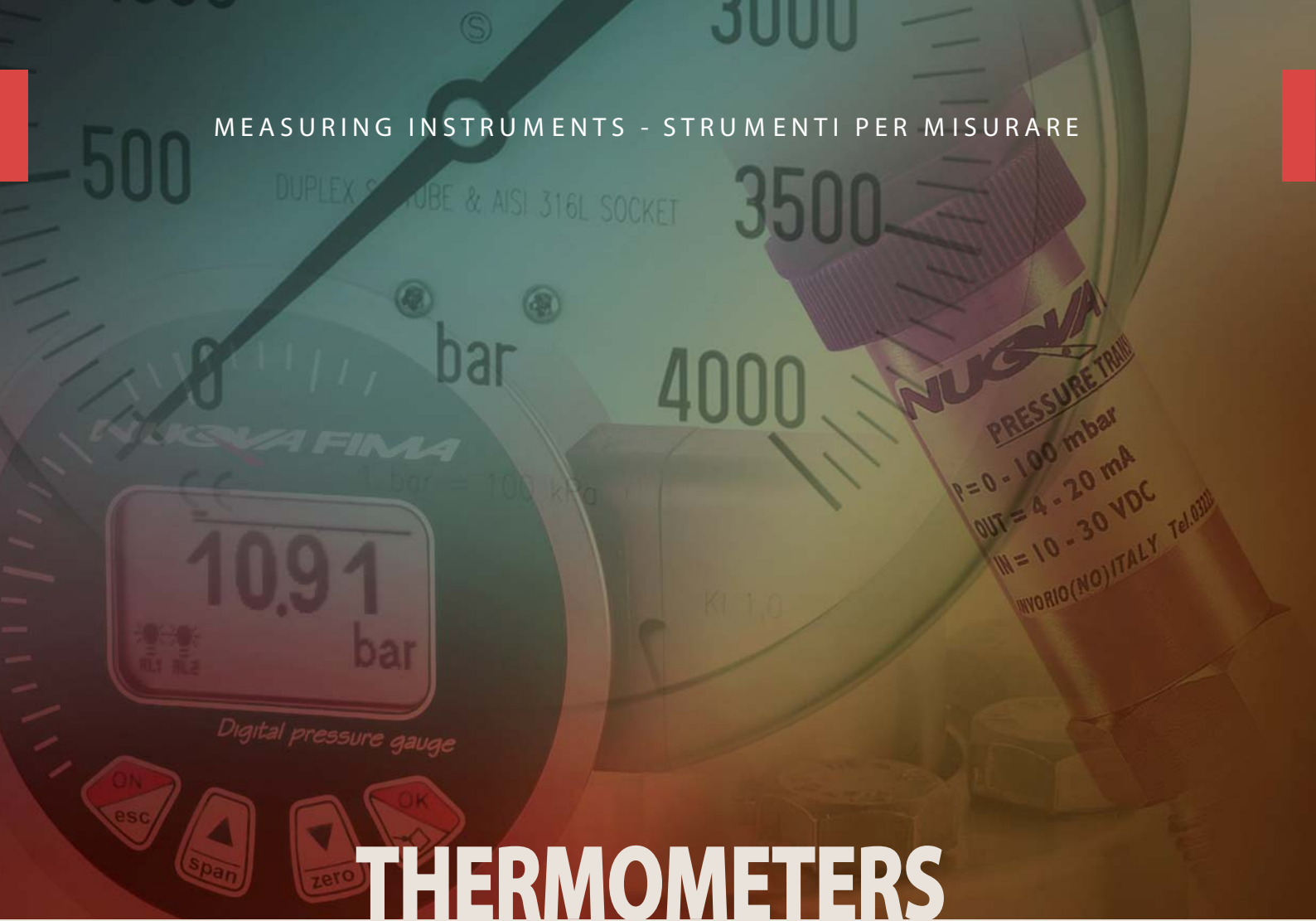
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MEASURING INSTRUMENTS - STRUMENTI PER MISURARE



THERMOMETERS

NUOVA FIMA

bi-metal thermometers

DS 2.5", 3", 4", 5"

(63-80-100-125 mm)



These instruments are designed for use in chemical, petrolchemical processing industries. They are built to resist the most severe operating conditions created by the environment and the process medium. An Argonarc welded case/bulb strengthens the whole construction.

6.TB7 - Standard Model

Designation: EN 13190.

Accuracy class: 2 as per EN 13190, measuring range.

Indication ranges: 0...+1000 °F (-20...+500 C).

Measuring ranges: +15...+840 °F (-10...+450 C).

Overtemperature limit: 10% of full scale range for temperature 750 °F (400 C); max 930 °F (500 C).

Ambient temperature: -13...+149 °F (-25...+65 C).

Max working pressure: 200 psi - 15 bar (without thermowell).

Protection degree: IP 55 as per EN 60529/IEC 529.

Process connection: stainless steel.

Bulb: \varnothing 0.24 (cod. 4), \varnothing 0.31" (cod. 5) (6-8 mm) AISI 316 st. st.

Bulb length: 3.94-5.91-7.87-9.84" (100 - 150 - 200 - 250 mm)

Measurement element: bi-metal spiral shaped.

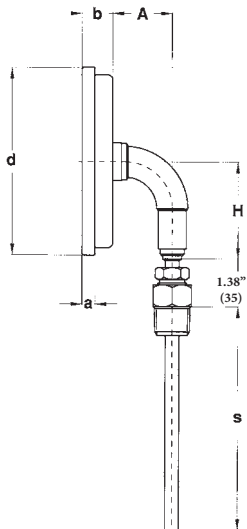
Case: stainless steel.

Ring: stainless steel, crimped.

Window: plexiglas.

Dial: aluminium, white with black markings.

Pointer: not adjustable, aluminium, black.



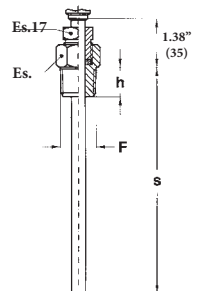
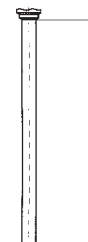
| | DS | a | b | d | A | H |
|----------|-------------|----------------|-----------------|------------------|-----------------|---------------|
| D | 3" (80) | 0.32" (8,2) | 0.67" (17) | 3.13" (79,5) | 1.36" (34,5) | 2.09" (53) |
| E | 4" (100) | 0.29" (7,4) | 0.71" (18) | 4.32" (109,8) | 1.36" (34,5) | 2.09" (53) |
| F | 5" (125) | 0.26" (6,5) | 0.65" (16,5) | 5.09" (129,2) | 1.36" (34,5) | 2.64" (67) |

dimensions : inches (mm)

DS 3-4-5" (80-100-125 mm)

1 - Lower connection

| F | Hex. | h |
|--------------------------|---------------|---------------|
| 41M G 1/2 A | 0.87" (22) | 0.55" (14) |
| 43M 1/2-14 NPT | 0.87" (22) | 0.67" (17) |



0 - Without threaded connection

9 - Sliding male and swivel nut

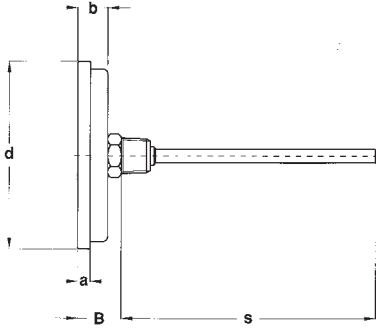
bi-metal thermometers

DS 2.5", 3", 4", 5" (63-80-100-125mm)

TB7

RR2 - 03/13

IN ORDER TO IMPROVE THEIR PRODUCTION, MESSRS. NUOVA FIMA RESERVE THE RIGHT TO THEMSELVES TO MAKE ALL THE MODIFICATIONS THAT THEY DEEM INDISPENSABLE AT ANY TIME. UPDATED DATA SHEETS ARE AVAILABLE ON SITE www.nuovafima.com

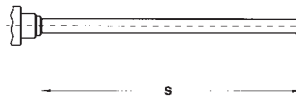


DS 2.5-3-4-5" (63-80-100-125 mm)

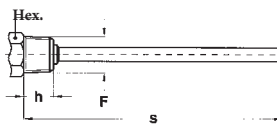
4 - Back connection

| DS | a | b | d | B |
|-----------------------|----------------|-----------------|------------------|-----------------|
| C 2.5" (63) | 0.23" (5,8) | 0.51" (13) | 2.67" (67,9) | 0.83" (21) |
| D 3" (80) | 0.32" (8,2) | 0.67" (17) | 3.13" (79,5) | 0.98" (25) |
| E 4" (100) | 0.29" (7,4) | 0.70" (17,7) | 4.32" (109,8) | 1.01" (25,7) |
| F 5" (125) | 0.26" (6,5) | 0.65" (16,5) | 5.09" (129,2) | 0.96" (24,5) |

0 - Without threaded connection



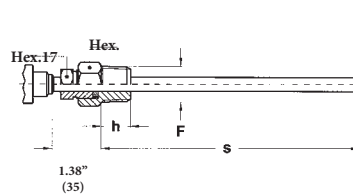
3 - Fixed male



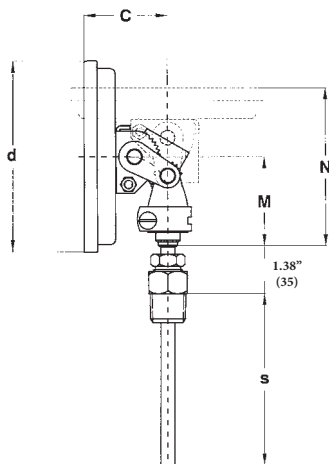
| F | Hex. | h |
|--------------------------|---------------|---------------|
| 41M G 1/2 A | 0.87" (22) | 0.55" (14) |
| 43M 1/2-14 NPT | 0.87" (22) | 0.67" (17) |
| 21M G 1/4 A | 0.67" (17) | 0.47" (12) |

dimensions : inches (mm)

9 - Sliding male and swivel nut



| F | Hex. | h |
|--------------------------|---------------|---------------|
| 41M G 1/2 A | 0.87" (22) | 0.55" (14) |
| 43M 1/2-14 NPT | 0.87" (22) | 0.67" (17) |



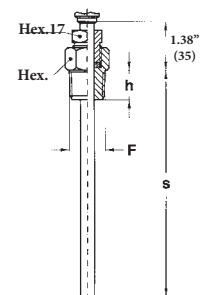
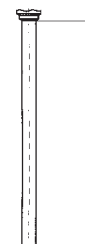
| DS | d | C | M | N |
|----------------------|------------------|-----------------|-----------------|-----------------|
| E 4" (100) | 4.32" (109,8) | 1.88" (47,7) | 2.03" (51,5) | 3.59" (91,2) |
| F 5" (125) | 5.09" (129,2) | 1.83" (46,5) | 2.03" (51,5) | 3.54" (90) |

| F | Hex. | h |
|--------------------------|---------------|---------------|
| 41M G 1/2 A | 0.87" (22) | 0.55" (14) |
| 43M 1/2-14 NPT | 0.87" (22) | 0.67" (17) |

dimensions : inches (mm)

DS 4-5" (100-125 mm)

9 - Every angle connection



0 - Without threaded connection

9 - Sliding male, swivel nut

"HOW TO ORDER" SEQUENCE

Section / Model / Mounting / Connection type / Diameter / Range / Process connection / Bulb type and length / Options

| | | | | | | |
|----------|------------|----------|----------|----------|------------|----------|
| 6 | TB7 | 1 | 0 | C | 41M | 4 |
| | | 4 | 1 | D | 43M | 5 |
| | | 9 | 3 | E | 21M | |
| | | | 9 | F | | |

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bi-metal thermometers all stainless steel construction DS 4", 5", 6" (100-125-150 mm)



ATEX 2014/34/UE



These instruments are designed for use in chemical, petrolchemical processing industries. They are built to resist the most severe operating conditions created by the ambient environment and the process medium. An TIG welded case/bulb strengthens the whole construction. A leak tight fit is ensured if the instrument is filled with a dampening fluid to prevent damage due to vibration.

6.TB8 - Standard Model

Designation: EN 13190.

Indication ranges: -80...+1000 °F (-50...+600 °C).

Measuring ranges: -60...+900 °F (-40...+500 °C); -60...<+840 °F (-40...+450 °C) continuous; +840...900 °F (+450...500 °C) intermittent only.

Accuracy class: 1 as per EN 13190, measuring range.

Overtemperature limit: 30% of full scale range for temperature ≤ 750 °F (400 °C); max 900 °F (500 °C).

Special overtemperature (option F02): 100% of full scale range for temperature ≤ 300 °F (150 °C); 50% of full scale range for temperature from +300...550 °F (+150...300 °C).

Ambient temperature: -22...+149 °F (-40...+65 °C).

Max working pressure: 200 psi - 15 bar (without thermowell).

Protection degree: IP 55 as per EN 60529/IEC 529.

Process connection: AISI 316 st.st.

Bulb: ø 0.24" (cod. 6), ø 0.25" (cod. 7), ø 0.31" (cod. 8), ø 0.38" (cod. 9) (ø 6-6,4-8-9,6 mm) AISI 316 st. st.

Immersion length:

from 5.91" to 27.55" (from 150 to 700 mm)

for bulbs ø 0.24-0.25" (6-6,4 mm);

from 3.94" to 35.43" (from 100 to 900 mm)

for bulbs ø 0.31-0.38" (8-9,6 mm) and ranges ≤ 600 °F (300 °C);

from 5.91" to 35.43" (from 150 to 900 mm)

for bulbs ø 0.31-0.38" (8-9,6 mm) and ranges > 600 °F (300 °C)

(other lengths available upon request)

Measuring element: bi-metal spiral shaped.

Case: stainless steel.

Ring: stainless steel bayonet lock.

Window: tempered glass.

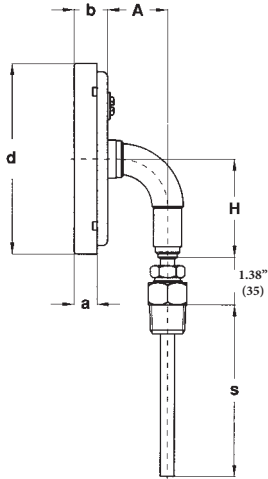
Dial: aluminium white with black markings.

Pointer: not adjustable, aluminium, black.

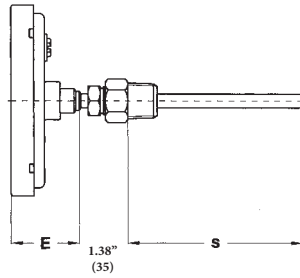
Zero-Adjustment: external zero-adjustment screw.

OPTIONS

| DESCRIPTION | DS 4" (100mm) | DS 5" (125mm) | DS 6" (150mm) |
|---|--|---------------|---------------|
| 2G3 - ATEX version II 2GD c | See the ATEX temperature gauges data-sheet for technical details | | |
| 2D3 - ATEX version II 2GD ck | | | |
| 3D3 - ATEX version II 3GD c | | | |
| C40 - Case and ring AISI 316 st.st. | ◆ | ◆ | ◆ |
| F02 - Special overtemperature | ◆ | ◆ | ◆ |
| R10 - Glycerine filling, max +320 °F (+160 °C) | ◆ | ◆ | ◆ |
| R11 - Silicone filling, max +482 °F (+250 °C) | ◆ | ◆ | ◆ |
| T01 - Tropicalization | ◆ | ◆ | ◆ |
| T32 - Safety double stratified glass | ◆ | ◆ | ◆ |

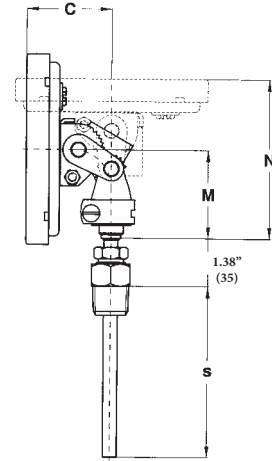


1 - LOWER CONNECTION



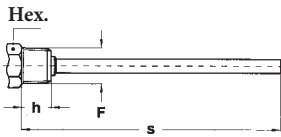
4 - BACK CONNECTION

dimensions : inches (mm)



9 - EVERY-ANGLE CONNECTION

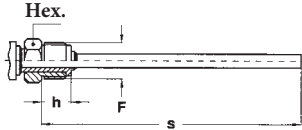
| DS | A | a | b | C | d | E | H | M | N |
|-------------------|--------------|--------------|--------------|--------------|---------------|--------------|------------|--------------|--------------|
| E 4" (100) | 1.36" (34,5) | 0.51" (13) | 0.75" (19) | 1.93" (49) | 4.35" (110,6) | 1.54" (39) | 2.24" (57) | 2.03" (51,5) | 3.64" (92,5) |
| F 5" (125) | 1.36" (34,5) | 0.57" (14,5) | 0.77" (19,5) | 1.95" (49,5) | 5.12" (130) | 1.56" (39,5) | 2.56" (65) | 2.03" (51,5) | 3.66" (93) |
| G 6" (150) | 1.36" (34,5) | 0.59" (15) | 0.79" (20) | 1.97" (50) | 6.34" (161) | 1.57" (40) | 3.23" (82) | 2.03" (51,5) | 3.68" (93,5) |



3 - Fixed male

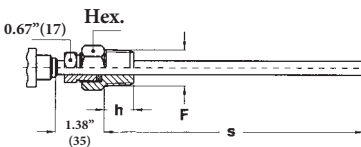
| F | Hex. | h |
|-------------------------|--------------|------------|
| 41M - G 1/2 A | 0.87" (22) * | 0.67" (17) |
| 43M - 1/2-14 NPT | 0.87" (22) * | 0.55" (14) |

* ø 24 for every-angle mounting



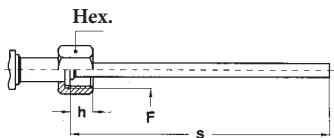
5 - Male swivel nut

| F | Hex. | h |
|----------------------|------------|------------|
| 41M - G 1/2 A | 0.87" (22) | 0.55" (14) |
| 51M - G 3/4 A | 0.87" (22) | 0.55" (14) |



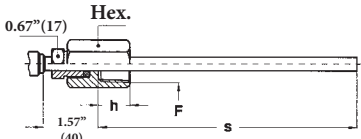
9 - Sliding male and swivel nut

| F | Hex. | h |
|-------------------------|------------|------------|
| 41M - G 1/2 A | 0.87" (22) | 0.55" (14) |
| 43M - 1/2-14 NPT | 0.87" (22) | 0.67" (17) |
| 51M - G 3/4 A | 1.06" (27) | 0.63" (16) |
| 53M - 3/4-14 NPT | 1.06" (27) | 0.67" (17) |



8 - Female swivel nut

| F | Hex. | h |
|----------------------|------------|------------|
| 41F - G 1/2 A | 0.94" (24) | 0.63" (16) |
| 51F - G 3/4 A | 1.18" (30) | 0.63" (16) |



7 - Sliding female and swivel nut

| F | Hex. | h |
|-------------------------|------------|------------|
| 43F - 1/2-14 NPT | 0.94" (24) | 0.71" (18) |
| 53F - 3/4-14 NPT | 1.26" (32) | 0.71" (18) |

"HOW TO ORDER" SEQUENCE

Section / Model / Mounting / Connection type / Diameter / Range / Process connection / Bulb type and length / Options

| | | | | | | | |
|----------|------------|----------|----------|----------|------------|----------|------------------|
| 6 | TB8 | 1 | 3 | E | 41M | 6 | 2G3...T32 |
| | | 4 | 5 | F | 43M | 7 | |
| | | 9 | 7 | G | 51M | 8 | |
| | | | 8 | | 53M | 9 | |
| | | | 9 | | 43F | | |
| | | | | | 53F | | |

bi-metal thermometers DS 3", 5" (80-125 mm)



PED 2014/68/EU

These instruments are designed for use in chemical, petrolchemical processing industries. They are built to resist the most severe operating conditions created by the environment and the process medium. A TIG welded case/bulb strengthens the whole construction. The hermetic seal minimize the risk of icing or fogging inside the case.

6.TB9 - Standard Model

Designation: ASME B40.3.

Accuracy class: 1% full-span (grade A).

Ranges: -80...+1000 °F/°C.

Overtemperature limit: 10% of full scale range; max 930 °F.

Ambient temperature: -20...+150 °F (-30...+65 °C).

Max working pressure: 200 psi - 15 bar (without thermowell).

Protection degree: IP 65 as per EN 60529/IEC 529.

Process connection: AISI 303 stainless steel.

Stem: ϕ 1/4" (6,35 mm), AISI 304 st. st.

Sensing element: coiled bi-metal.

Case: stainless steel, hermetically sealed as per ASME B40.3.

Ring: stainless steel, crimped.

Window: heavy duty tempered glass.

Dial: white aluminium, black and red marking.

Pointer: black aluminium.

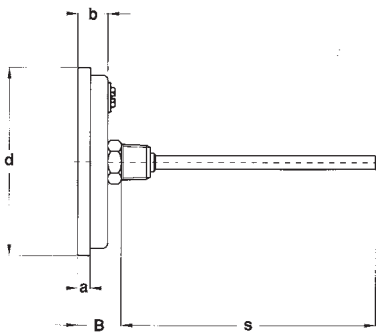
Zero-adjustment: external, at back of case.

| Ranges (°F/°C) |
|-----------------------------|
| -80...+120 |
| -20...+120 |
| +30...+130 |
| 0...+200 |
| 0...+250 |
| 0...+300 |
| +50...+300 |
| +50...+400 |
| +50...+550 |
| +200...+700 ⁽¹⁾ |
| +100...+800 ⁽¹⁾ |
| +200...+1000 ⁽¹⁾ |

(1) minimum stem length:
6" inches (150 mm)

STEM LENGTH

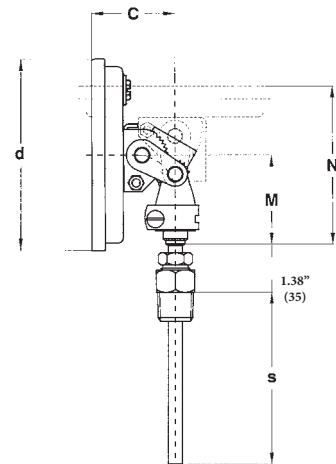
| cod. | 7C | 7D | 7E | 7F | 7G | 7H | 7I |
|-------|--------|---------|---------|---------|---------|-------|---------|
| inch. | 2" 1/2 | 4" | 6" | 9" | 12" | 15" | 18" |
| (mm) | (63,5) | (101,6) | (152,4) | (228,6) | (304,8) | (381) | (457,2) |



DS 3.5"-4.5" (80-125 mm)
4 - Back connection

| DS | a | b | d | B |
|---------------------|----------------|-----------------|------------------|-----------------|
| D 3" (80) | 0.32" (8,2) | 0.67" (17) | 3.13" (79,5) | 0.98" (25) |
| F 5"(125) | 0.26" (6,5) | 0.65" (16,5) | 5.09" (129,2) | 0.96" (24,5) |

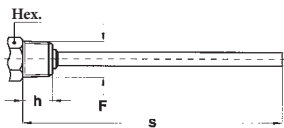
dimensions : inches (mm)



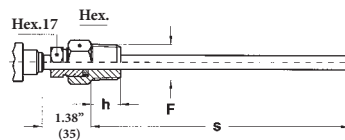
DS 4.5" (125 mm)
9 - Every-angle connection

| DS | d | C | M | N |
|---------------------|------------------|-----------------|-----------------|---------------|
| F 5"(125) | 5.09" (129,2) | 1.83" (46,5) | 2.03" (51,5) | 3.54" (90) |

dimensions : inches (mm)



3 - Fixed male



9 - Sliding male and swivel nut

| DS | F | Hex. | h |
|---------------------|--------------------------|---------------|---------------|
| D 3" (80) | 23M 1/4-18 NPT | 0.87" (22) | 0.67" (17) |
| F 5"(125) | 43M 1/2-14 NPT | 0.87" (22) | 0.67" (17) |

dimensions : inches (mm)

OPTIONS

| DESCRIPTION | |
|---|-----|
| P00 - Glycerine fillable | (1) |
| P01 - Silicone fillable | (1) |
| R10 - Glycerine filling, max +320 °F (+160 °C) | (1) |
| R11 - Silicone filling, max +482 °F (+250 °C) | (1) |

(1) Protection degree: IP 67 as per EN 60529/IEC 529.

“HOW TO ORDER” SEQUENCE

Section / Model / Mounting / Connection type / Diameter / Range / Process connection / Bulb type and length / Options
6 TB9 4 3 D 43M 7C...7I P00...R11
9 9 F 23M

inert gas filled thermometers, local mounting all stainless steel construction DS 4", 6" (100-150 mm)



ATEX 2014/34/UE



These instruments are designed for use in chemical and petrochemical processing industries, and in conventional power plants. They are built to resist the most severe operating conditions created by the ambient environment and the process medium. An TIG welded case/bulb and capillary strengthens the whole construction. A leak tight fit is ensured if the instrument is filled with a dampening fluid to prevent damage due to vibration.

6.TG8 - Standard Model

Designation: EN 13190.

Indication ranges: -320...+1200 °F (-200...+600 °C).

Measuring ranges: -280...+1100 °F (-170...+500 °C).

Accuracy class: 1 as per EN 13190, measuring range.

Overtemperature limit: 25% of full scale range for temperature ≤ 750 °F (400 °C); max 1100 °F (600 °C).

Ambient temperature: -22...+149 °F (-40...+65 °C).

Max working pressure: 360 psi - 25 bar (without thermowell).

Protection degree: IP 55 as per IEC 529.

Process connection: AISI 316 st.st.

AISI 316 st.st. bulb: with rigid extension $\varnothing 0.31''$ (8 mm): **S22** - $\varnothing 0.31''$ (8 mm) = 5.63"...393,7" (143...10000 mm);

S21 - $\varnothing 0.38''$ (9,6 mm) = 4.41"...393,7" (112...10000 mm);

S20 - $\varnothing 0.45''$ (11,5 mm) = 3.35"...393,7" (85...10000 mm);

with flexible extension $\varnothing 0.10''$ (2,5 mm):

S12 - $\varnothing 0.31''$ (8 mm) = 5.63"...393,7" (143...10000 mm);

S11 - $\varnothing 0.38''$ (9,6 mm) = 4.41"...393,7" (112...10000 mm);

S10 - $\varnothing 0.45''$ (11,5 mm) = 3.35"...393,7" (85...10000 mm);

Measuring element: inert gas filled expansion system.

Case: stainless steel.

Ring: stainless steel bayonet lock.

Window: tempered glass.

Movement: stainless steel.

Internal compensation device: by a bimetallic linkage.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

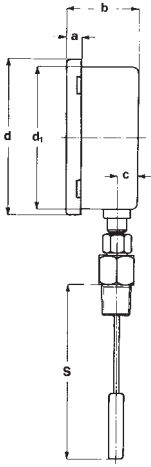
OPTIONS

| | | | |
|--|---------|---|-----|
| 2G3 - ATEX version II 2G c | (1) (2) | Electric contacts | (3) |
| 2D3 - ATEX version II 2GD c | (1) (2) | R10 - Glycerine filling, max +320 °F (+160 °C) | (2) |
| C40 - Case and ring AISI 316 st.st. | | R11 - Silicone filling, max +482 °F (+250 °C) | (2) |
| E65 - Protection degree IP65 | (2) | T01 - Tropicalization | |
| L22 - Maximum pointer IP 65 on plexiglas window | (2) | T32 - Safety glass window | (2) |

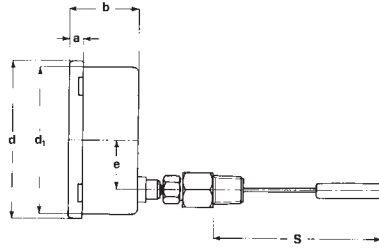
(1) See the ATEX temperature gauges data-sheet for technical details.

(2) Not available with electric contacts

(3) Codes, description and wiring on data sheet MN14.



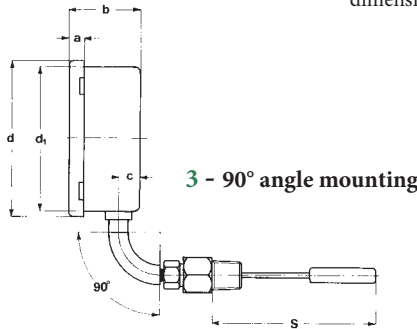
1 - Bottom mounting



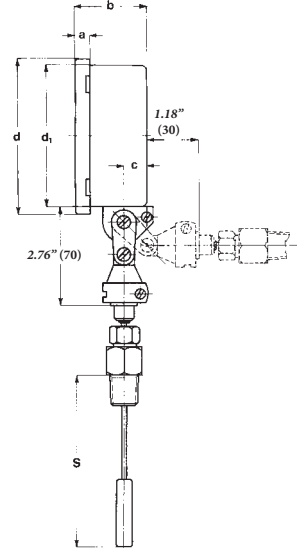
4 - Back mounting

| | DS | a | b | c | d | d ₁ |
|----------|----------|--------------|--------------|--------------|-------------|----------------|
| E | 4" (100) | 0.57" (14,5) | 1.99" (50,5) | 0.61" (15,5) | 4.41" (112) | 3.98" (101) |
| G | 6" (150) | 0.65" (16,5) | 2.11" (53,5) | 0.61" (15,5) | 6.54" (166) | 5.91" (150) |

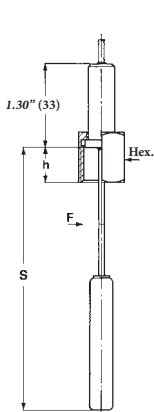
dimensions : inches (mm)



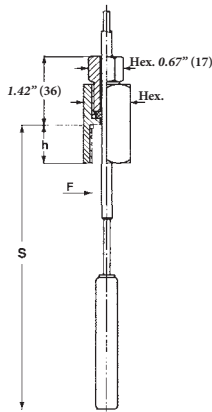
3 - 90° angle mounting



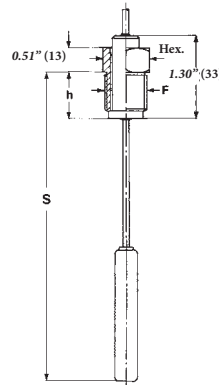
9 - Every angle mounting



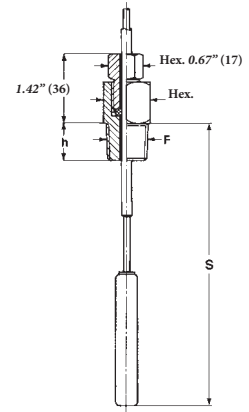
8 - Female swivel nut.



7 - Sliding female swivel nut.



5 - Male swivel nut.



9 - Sliding male swivel nut.

| F | Hex. | h |
|------------|-------|-------|
| 41F | 0.94" | 0.63" |
| G 1/2 A | (24) | (16) |
| 51F | 1.18" | 0.63" |
| G 3/4 A | (30) | (16) |

| F | Hex. | h |
|------------|-------|-------|
| 43F | 0.94" | 0.71" |
| 1/2-14 NPT | (24) | (18) |
| 53F | 1.18" | 0.71" |
| 3/4-14 NPT | (30) | (18) |

| F | Hex. | h |
|------------|-------|-------|
| 41M | 0.87" | 0.55" |
| G 1/2 A | (22) | (14) |
| 51M | 1.06" | 0.55" |
| G 3/4 A | (27) | (14) |

| F | Hex. | h |
|------------|-------|-------|
| 41M | 0.87" | 0.55" |
| G 1/2 A | (22) | (14) |
| 43M | 0.87" | 0.67" |
| 1/2-14 NPT | (22) | (17) |
| 51M | 1.06" | 0.63" |
| G 3/4 A | (27) | (16) |
| 53M | 1.06" | 0.67" |
| 3/4-14 NPT | (27) | (17) |

dimensions : inches (mm)

"HOW TO ORDER" SEQUENCE

Section / Model / Mounting / Connection type / Diameter / Range / Process connection / Bulb / Options
6 TG8 1,3 5,7 E 41M, 43M S20...22 2G3...T32
4,9 8,9 G 51M, 53M S10...12



inert gas filled thermometers for remote readings all stainless steel construction DS 4", 6" (100-150 mm)



These instruments are designed for use in chemical and petrochemical processing industries, and in conventional power plants. They are built to resist the most severe operating conditions created by the ambient environment and the process medium. An TIG welded case/bulb and capillary strengthens the whole construction. A leak tight fit is ensured if the instrument is filled with a dampening fluid to prevent damage due to vibration.

6.TG8 - Standard Model

Designation: EN 13190.
Indication ranges: -320...+1200 °F (-200...+600 °C).
Measuring ranges: -280...+1100 °F (-170...+500 °C).
Accuracy class: 1 as per EN 13190, measuring range.
Overtemperature limit: 25% of full scale range for temperature ≤ 750 °F (400 °C); max 1100 °F (600 °C).
Ambient temperature: +32...+149 °F (0...+65 °C).
Max working pressure: 360 psi - 25 bar (without thermowell).
Protection degree: IP 55 as per EN 60529/IEC 529.
Process connection: AISI 316 st.st.
Stainless steel capillary: 1 - uncovered, ø 0.10" (2,5 mm);

9 - covered with stainless steel flexible armour, ø 0.24" (6 mm);
6 - covered with st.st. PVC coated flexible armour, ø 0.24" (6 mm).
Measuring element: inert gas filled expansion system.
Case: stainless steel.
Ring: stainless steel bayonet lock.
Window: tempered glass.
Movement: stainless steel.
Internal compensation device: by a bimetallic linkage.
Dial: aluminium, white with black markings.
Pointer: adjustable, aluminium, black.

BULB

| ø bulb | Rigid extension code, ø 0.31" (8 mm) | Flexible extension code, ø 0.1" (2,5 mm) | sensible part length "b" (mm) | | bulb length "S" (mm) |
|-----------------|---|---|-------------------------------|----------------------|----------------------|
| | | | capillary ≤ 15 mt | capillary 16...30 mt | |
| 0.31" (8 mm) | S22 | S12 | 118 | 167 | ("b"+25)...1000 |
| 0.38" (9,6 mm) | S21 | S11 | 87 | 127 | ("b"+25)...1000 |
| 0.45" (11,5 mm) | S20 | S10 | 60 | 87 | ("b"+25)...1000 |

OPTIONS

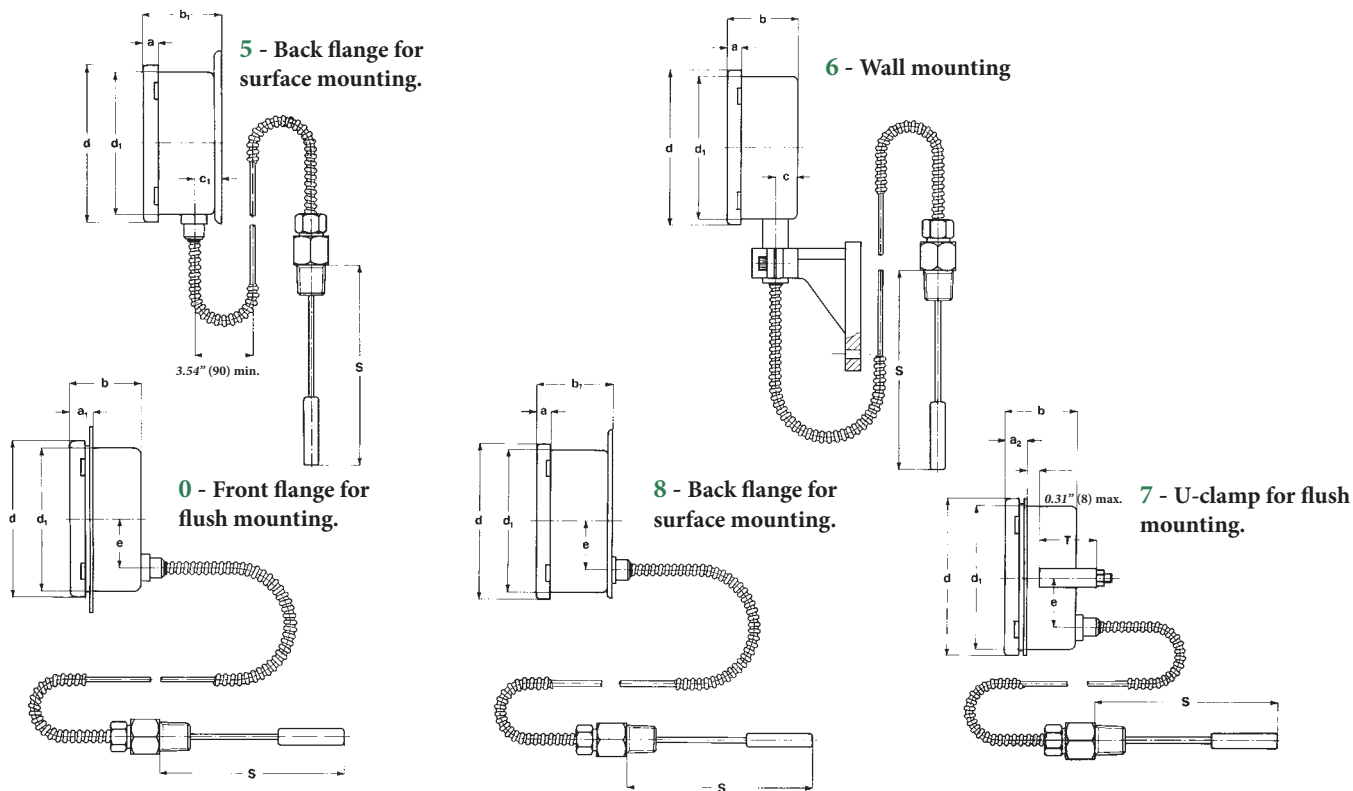
| | | | |
|--|---------|----------------------------------|-----|
| 2G3 - ATEX version II 2G c | (1) (2) | Electric contacts | (3) |
| 2D3 - ATEX version II 2GD c | (1) (2) | R10 - Glycerine filling | (2) |
| C40 - Case and ring AISI 316 st.st. | | R11 - Silicone filling | (2) |
| E65 - Protection degree IP65 | (2) | T01 - Tropicalization | |
| L22 - Maximum pointer IP 65 on plexiglas window | (2) | T32 - Safety glass window | (2) |

(1) See the ATEX temperature gauges data-sheet for technical details.
 (2) Not available with electric contacts

(3) Codes, description and wiring on data sheet MN14.

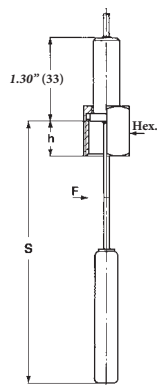
inert gas filled thermometers, for remote reading
all stainless steel construction DS 4", 6" (100-150 mm)

TG8

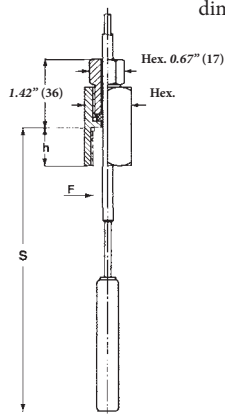


| DS | A | B | a | a ₁ | a ₂ | b | b ₁ | c | c ₁ | d | d ₁ | D | E | E ₁ | e | h | h ₁ | T | V | Z |
|-------------------------|---------------|---------------|-----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|----------------|----------------|-----------------|---------------|----------------|-----------------|----------------|----------------|
| E 4" (100) | 2.72" (69) | 2.36" (60) | 0.57" (14,5) | 0.83" (21) | 0.79" (20) | 1.99" (50,5) | 2.15" (54,5) | 0.61" (15,5) | 0.77" (19,5) | 4.41" (112) | 3.98" (101) | 5.12" (130) | 4.57" (116) | 4.65" (118) | 1.36" (34,5) | 2.05" (52) | | 1.63" (41,5) | 2.76" (70) | 4.41" (112) |
| G 6" (150) | 3.78" (96) | 2.36" (60) | 0.65" (16,5) | 0.83" (21) | 0.79" (20) | 2.11" (53,5) | 2.26" (57,5) | 0.61" (15,5) | 0.77" (19,5) | 6.54" (166) | 5.91" (150) | 7.48" (190) | 6.89" (175) | | 1.36" (34,5) | 3.35" (85) | 3.35" (85) | 1.77" (45) | 4.17" (106) | 6.10" (155) |

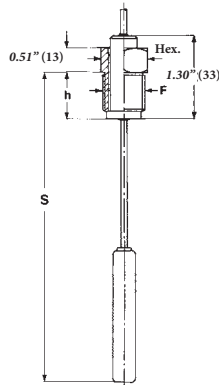
dimensions : inches (mm)



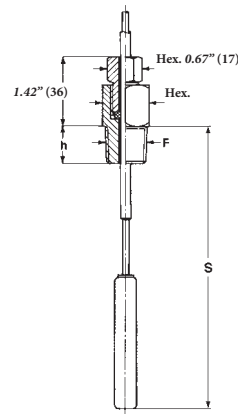
8 - Female swivel nut.



7 - Sliding female swivel nut.



5 - Male swivel nut.



9 - Sliding male swivel nut.

| F | Hex. | h |
|-----------------------|---------------|---------------|
| 41M G 1/2 A | 0.94" (24) | 0.63" (16) |
| 51M G 3/4 A | 1.18" (30) | 0.63" (16) |

| F | Hex. | h |
|--------------------------|---------------|---------------|
| 43M 1/2-14 NPT | 0.94" (24) | 0.71" (18) |
| 53M 3/4-14 NPT | 1.18" (30) | 0.71" (18) |

dimensions : inches (mm)

| F | Hex. | h |
|-----------------------|---------------|---------------|
| 41M G 1/2 A | 0.87" (22) | 0.55" (14) |
| 51M G 3/4 A | 1.06" (27) | 0.55" (14) |

| F | Hex. | h |
|-------------------------|---------------|---------------|
| 41M - G 1/2 A | 0.87" (22) | 0.55" (14) |
| 43M - 1/2-14 NPT | 0.87" (22) | 0.67" (17) |
| 51M - G 3/4 A | 1.06" (27) | 0.63" (16) |
| 53M - 3/4-14 NPT | 1.06" (27) | 0.67" (17) |

"HOW TO ORDER" SEQUENCE

Section / Model / Mounting / Connection type / Diameter / Range / Process connection / Bulb / Capillary / Options
6 TG8 0, 5, 6 5, 7 E 41M, 43M S20...22 1 2G3...T32
7, 8 8, 9 G 51M, 53M S10...12 6



inert gas filled thermometers, anti-vibration all stainless steel construction DS 4" (100 mm)



These instruments are designed to measure the waste gas of diesel engines. They are built to resist to the most severe operating conditions created by high temperature and by the diesel engines vibrations.

6.TA8 - Standard Model

Measuring range: 0...650 °C/°F (other ranges on request).

Accuracy class: 1 as per EN 13190, measuring range.

Overtemperature limit: not suitable.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Max working pressure: 360 psi - 25 bar (without thermowell).

Protection degree: IP 67 as per EN 60529/IEC 529.

Process connection: AISI 303 st.st.

Bulb: AISI 316 st.st.

S24 - ø 0.37" (9,5 mm), with rigid extension ø 0.5" (12,7 mm).

Immersion length: 5.51"...17.72" (140...450 mm);

Measuring element: inert gas filled expansion system.

Case: AISI304 st.st.

Ring: AISI304 st.st, bayonet lock.

Window: tempered glass.

Movement: stainless steel.

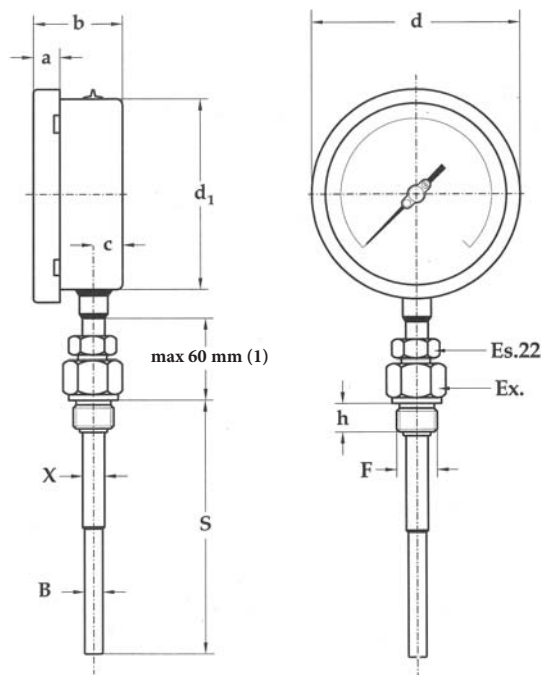
Dial: aluminium, white with black and red markings.

Pointer: adjustable, aluminium, black.

Filling liquid: high viscosity silicone oil.

Internal compensation device: by a bimetallic linkage.

Gasket: siliconic gum.



| F | Ex. | h |
|------------|-------|-------|
| 41M | 1.06" | 0.55" |
| G 1/2 A | (27) | (14) |
| 43M | 0.94" | 0.67" |
| 1/2-14 NPT | (24) | (17) |

I - LOWER CONNECTION

| a | b | c | d | d ₁ | ø X | ø B | S |
|-------|-------|--------|---------|----------------|--------|-------|---------------|
| 0.51" | 1.89" | 0.61" | 4.35" | 3.98" | 0.50" | 0.37" | 5.51...17.72" |
| (13) | (48) | (15,5) | (110,6) | (101) | (12,7) | (9,5) | (140...450) |

(1) For a longer instrument life do not settle the sliding connection at a higher level than the one indicated.

dimensions : inches (mm)

“HOW TO ORDER” SEQUENCE

Section / Model / Mounting / Connection type / Diameter / Range / Process connection / Bulb type and length / Options
6 TA8 1 9 E 41M 43M S24



industrial glass tube thermometer brass series



Instruments designed for use on: conventional power station, refrigeration plant, heating, ventilation and air-conditioning plant.

6.V6 - Standard Model

Accuracy: $\pm 1,0\%$ of full scale value.

Working pressure: 350 *psi max* (25 bar), without thermowell.

Overtemperature: not suitable.

Sensing element: colored liquid, mercury.

Graduation: engraved on internal wall of case.

Tube: glass, prismatic on mercury types.

Bulb: $\varnothing 0.43''$ (11 mm).

Case: aluminium, anodized brass.

Process connection and bulb protection:

brass for $T_e \leq 752\text{ }^\circ\text{F}$ (400 $^\circ\text{C}$).

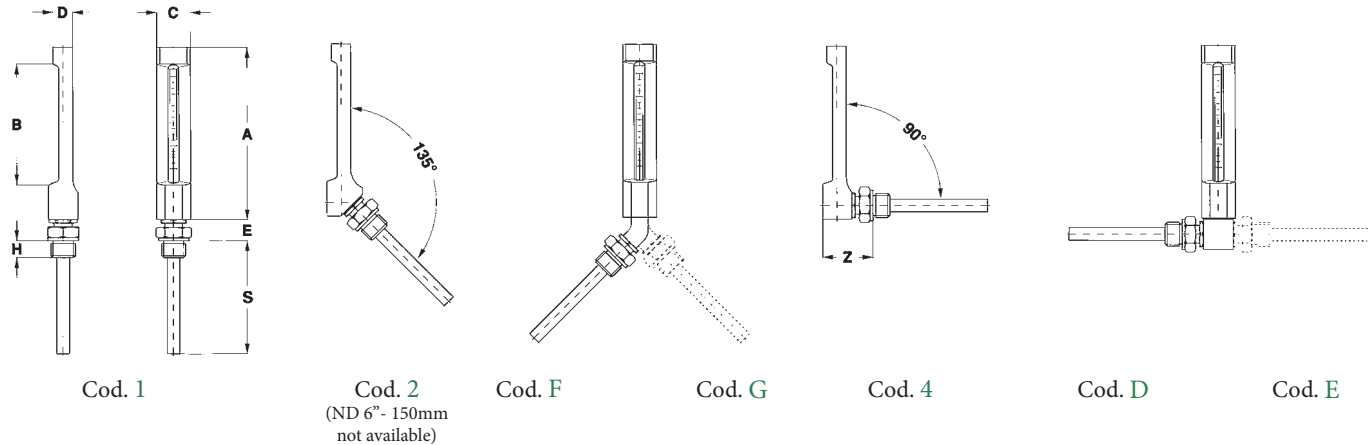
Standard bulb length: 1.57, 1.89, 2.48, 3.15, 3.93, 6.30, 7.87, 11.81"
(40, 48, 63, 80, 100, 160, 200, 300 mm).

| RANGES | Scale graduation ($^\circ\text{C}$) | | | |
|-----------|---------------------------------------|------------------|------------------|------------------|
| | $^\circ\text{C}$ | ND 4" (110mm) | ND 6" (150mm) | ND 8" (200mm) |
| -60...+40 | | | 2 | |
| -50...+50 | | | | 1 |
| -40...+40 | 1 | 1 | | |
| -30...+50 | | 1 | | 1 |
| -10...+50 | | | 1 | 1 |
| 0...+50 | 1 | | | |
| 0...+100 | 2 | 2 | | 1 |
| 0...+120 | 2 | 2 | | 1 |
| 0...+160 | 2 | 2 | | 2 |
| 0...+200 | 5 | 5 | | 2 |
| 0...+300 | | | 5 | 5 |
| 0...+400 | | | 5 | 5 |

NOTE

In case of breakage it is sufficient to change the tube, with engraved scale. This operation is possible thanks to the perfect interchangeability of tubes which permits a perfect alignment between engraved scale on tube and graduations on casing.

MOUNTING



| ND | F | A | B | C | D | E | Z | H | S | Weight lbs. (kg) |
|-------------------------|--|---------------|---------------|--------------|--------------|--------------|--------------|--------------|----------------------------|----------------------------|
| E 4" (110 mm) | 31M - G 3/8 A 41M - G 1/2 A 51M - G 3/4 A 43M - 1/2-14 NPT 53M - 3/4-14 NPT | 4.33 (110) | 2.79 (70) | 1.38 (35) | 0.79 (20) | 0.79 (20) | 1.77 (45) | 0.59 (15) | 1.57...11.81 (40...300) | 1.32...2.42 (0,6...1,1) |
| G 6" (150 mm) | | 5.91 (150) | 3.94 (100) | 1.38 (35) | 0.79 (20) | 0.79 (20) | 1.77 (45) | 0.59 (15) | 1.57...11.81 (40...300) | 1.54...2.64 (0,7...1,2) |
| H 8" (200 mm) | | 7.87 (200) | 5.91 (150) | 1.38 (35) | 0.79 (20) | 0.79 (20) | 1.77 (45) | 0.59 (15) | 1.57...11.81 (40...300) | 1.76...2.86 (0,8...1,3) |

dimensions : inches (mm)

FILLING LIQUIDS

| °C | Colored liquid | Mercury |
|-----------|----------------|---------|
| | A | B |
| -60...+40 | v | |
| -50...+50 | v | |
| -40...+40 | v | |
| -30...+50 | v | v |
| -10...+50 | v | v |
| 0...+50 | v | v |
| 0...+100 | v | v |
| 0...+120 | v | v |
| 0...+160 | v | v |
| 0...+200 | v | v |
| 0...+300 | | v |
| 0...+400 | | v |

“HOW TO ORDER” SEQUENCE

Section / Model / Mounting / Connection type / Diameter / Range / Process connection / Bulb type and length

| | | | | | | |
|---|----|---|---|---|-----|---|
| 6 | V6 | 1 | 3 | E | 31M | A |
| | | 2 | | G | 41M | B |
| | | F | | H | 51M | |
| | | G | | | 43M | |
| | | 4 | | | 53M | |
| | | D | | | | |
| | | E | | | | |

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industrial glass tube thermometer watertight enclosure



These instruments are designed for the chemical and petrochemical industry, air conditioning and conventional power plants.

6.V8 - Standard Model

Accuracy: $\pm 1,0\%$ of full scale value.

Working pressure: 600 psi max (40 bar), without thermowell.

Overtemperature: not suitable.

Protection degree: IP 55 as per EN 60529/IEC 529.

Tube: Jena 16 III glass, with blue reflex on temperatures.

Sensing element: colored liquid, mercury.

Process connection and bulb protection: carbon steel.

Standard bulb length: 3.94, 7.87, 11.81, 15.75, 19.69"
(100, 200, 300, 400, 500 mm).

Dial: aluminium, white with black markings.

Bulb: $\varnothing 0.43$ " (11 mm).

Case: aluminium-alloy, black painted.

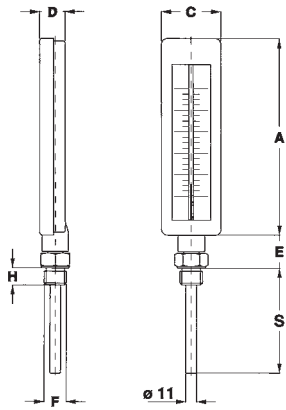
Cover: polishec stainless steel.

Window: glass, 0.08" (2 mm) thick.

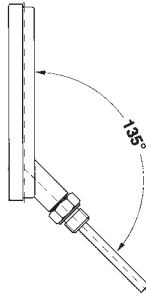
Gasket: neoprene.

| RANGES | Scale graduation ($^{\circ}\text{C}$) | |
|---------------|---|--------------------|
| | ND 7" (180 mm) | ND 10" (250 mm) |
| $-50\dots+30$ | 1 | 1 |
| $-50\dots+50$ | 1 | 1 |
| $-40\dots+40$ | 1 | 1 |
| $-30\dots+50$ | 1 | 1 |
| $-10\dots+50$ | 1 | 1 |
| $0\dots+80$ | 1 | 1 |
| $0\dots+100$ | 1 | 1 |
| $0\dots+120$ | 2 | 1 |
| $0\dots+160$ | 2 | 1 |
| $0\dots+200$ | 2 | 2 |
| $0\dots+240$ | | 2 |
| $0\dots+300$ | 5 | 5 |
| $0\dots+400$ | 5 | 5 |

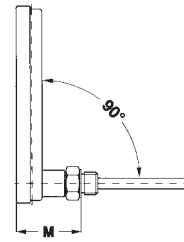
MOUNTING



Cod. 1



Cod. 2



Cod. 4

| ND | F | A | C | D | E | M | H | S | Weight lbs. (kg) |
|--------------------------|--|---------------|--------------|--------------|----------------|----------------|--------------|-----------------------------|----------------------------|
| H 7" (180 mm) | 41M - G 1/2 A 51M - G 3/4 A | 7.09 (180) | 2.17 (55) | 0.98 (25) | 1.24 (31,5) | 2.42 (61,5) | 0.63 (16) | 3.94...19.69 (100...500) | 1.32...2.42 (0,6...1,1) |
| I 10" (250 mm) | 43M - 1/2-14 NPT 53M - 3/4-14 NPT | 9.84 (250) | 2.17 (55) | 0.98 (25) | 1.24 (31,5) | 2.42 (61,5) | 0.63 (16) | 3.94...19.69 (100...500) | 1.54...2.64 (0,7...1,2) |

FILLING LIQUIDS

| °C | Colored liquid | Mercury |
|-----------|----------------|----------|
| | A | B |
| -50...+30 | v | |
| -50...+50 | v | |
| -40...+40 | v | |
| -30...+50 | v | v |
| -10...+50 | v | v |
| 0...+80 | v | v |
| 0...+100 | v | v |
| 0...+120 | v | v |
| 0...+160 | v | v |
| 0...+200 | v | v |
| 0...+240 | | v |
| 0...+300 | | v |
| 0...+400 | | v |

"HOW TO ORDER" SEQUENCE

Section / Model / Mounting / Connection type / Diameter / Range / Process connection / Bulb type and length

| | | | | | | | |
|----------|-----------|----------|----------|----------|--|------------|----------|
| 6 | V8 | 1 | 3 | H | | 41M | A |
| | | 2 | | I | | 51M | B |
| | | 4 | | | | 43M | |
| | | | | | | 53M | |

electric contacts for inert gas filled thermometers



PED 2014/68/EU

Are accessories with movable contacts in air, which open or close electric circuits depending of the position of the indicating pointer. They are used with inert gas filled thermometers of NUOVA FIMA production, in such way they become temperature switches: the optimal and sure solution to automatize any kind of equipment.

Contacts: sliding, magnetic snap action. Functional and constructive characteristics, wiring and electric schemas are shown on the attached data-sheet: "ELECTRIC CONTACT".

Accuracy: when the indicating pointer is affected by the contact link add to the gauge accuracy the 50% of their accuracy (with the exclusion of the working area within the 5% if the contact is magnetic type).

Contact setting: over an arc of 270°, through the knob placed on front lens or through removable key.

Electrical wiring: junction box PG9 as per DIN 43650 or cable 0,5 mt.

Ambient temperature: -25...+65 °C.

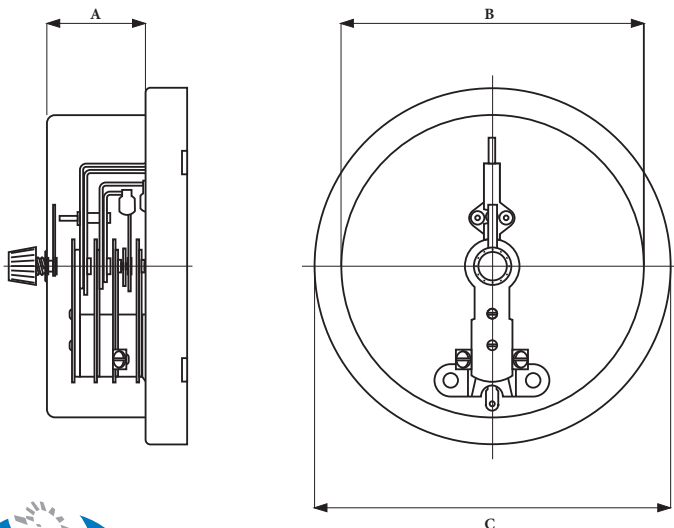
Protection: IP 44 as per IEC 529, (option IP 55).

Contact material: Silver-Nickel 80%-20% (options Gold-Silver and Platinum-Iridium).

Window: Makrolon.

Overtemperature: non suitable.

DIMENSIONS (mm)



Single contact

| DS | A | B | C |
|-----|----|-----|-------|
| 100 | 29 | 95 | 110,6 |
| 150 | 29 | 141 | 161 |

Double contacts

| DS | A | B | C |
|-----|----|-----|-------|
| 100 | 36 | 95 | 110,6 |
| 150 | 36 | 141 | 161 |

| | | | |
|------------------------------------|--|---------------------|-------------------------|
| MODEL | TG8 DS 100-150 | | |
| Mounting | Lower, back, with back flange also | | |
| Contact type | Sliding and magnetic snap-action contact | | |
| Contact number | | 2 | 2 independent |
| Junction box | 3 poles + GND | 3 poles + GND | |
| ø exit cables: inches (mm) | 0,23...0,35 (6...9) | 0,23...0,35 (6...9) | |
| Cable exit ø cable: inches (mm) | | | 4 poles + 1 0,27 (7) |

| | | | |
|------------------------------------|--|---------------------|-------------------------|
| MODEL | TG8 DS 100-150 | | |
| Mounting | Back, with front flange | | |
| Contact type | Sliding and magnetic snap-action contact | | |
| Contact number | 1 | 2 | 2 independent |
| Junction box | 3 poles + GND | 3 poles + GND | |
| ø exit cables: inches (mm) | 0,23...0,35 (6...9) | 0,23...0,35 (6...9) | |
| Cable exit ø cable: inches (mm) | | | 4 poles + 1 0,27 (7) |

| | | | |
|------------------------------------|--|-------------------------------|-------------------------|
| MODEL | TG8 DS 100-150 | | |
| Mounting | Back, with U-clamp | | |
| Contact type | Sliding and magnetic snap-action contact | | |
| Contact number | 1 | 2 | 2 independent |
| Junction box | 3 poles + GND | 3 poles + GND | |
| ø exit cables: inches (mm) | 0,23...0,35 (6...9) | 0,23...0,35 (6...9) | |
| Cable exit ø cable: inches (mm) | 2 poles + GND (1) 0,19 (4,8) | 3 poles + GND (1) 0,23 (6) | 4 poles + 1 0,27 (7) |

thermometers with electric contacts

all stainless steel construction

DS 4" (100 mm)



CE Compliance to requirements of
BT 2014/35/EU

They are used to control the electrical operation of compressors, pumps, presses, hydraulic and pneumatics equipment, chemical and petrochemical plant. The contacts open or close the circuit depending on the position of the indicating pointer and they are adjustable over the whole range. The filling drastically reduces the effect of such factors as well as those caused by a corrosive atmosphere, giving longer life and better performances of the pressure gauge and their electric contacts. They are also available with inductive contacts intrinsically safe.

6.TCE - Standard Model

Designation: EN 13190.

Indication ranges: -320...+1200 °F (-200...+600 °C).

Measuring ranges: -280...+1100 °F (-170...+500 °C).

Mechanical contact: sliding contact, magnetic snap-action, electronic, inductive.

Accuracy class: 1 as per EN 13190, measuring range.

Overtemperature: not suitable.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Max working pressure: 360 psi - 25 bar (without thermowell).

Protection degree: IP 55 as per EN 60529/IEC 529.

Process connection: AISI 316 st.st.

Bulb: AISI 316 st.st. \varnothing 0.31-0.37-0.45" (8-9,5-11,5 mm), with rigid extension \varnothing 0.31" (8 mm)

Immersion length of the bulb with rigid extension "S": **S22** - \varnothing 0.31" (8 mm) = 5.63"...36.37" (143...1000 mm);

S21 - \varnothing 0.38" (9,6 mm) = 4.41"...36.37" (112...1000 mm);

S20 - \varnothing 0.45" (11,5 mm) = 3.35"...36.37" (85...1000 mm).

Measuring element: inert gas filled expansion system.

Case: stainless steel.

Ring: stainless steel bayonet lock.

Window: plexiglas.

Movement: stainless steel.

Internal compensation device: by a bimetallic linkage.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

6.TCE...R13 - Filled Model

Indication ranges: -40...+500 °F (-40...+250 °C).

Measuring ranges: -20...+425 °F (-30...+220 °C).

Mechanical contact: magnetic snap-action, electronic, inductive.

Accuracy class: 2 as per EN 13190, measuring range.

Filling liquids: silicon oil.

Protection: IP 65 as per EN 60529/IEC 529.

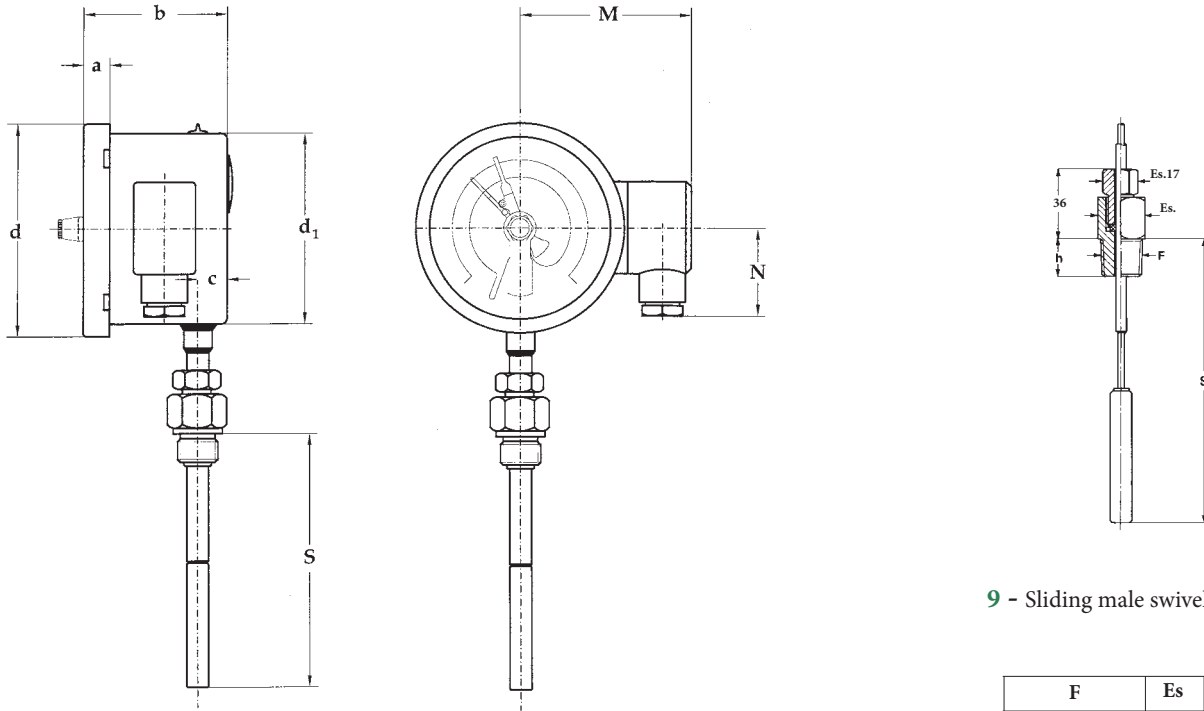
Other features: as Standard Model.

(1) The addition of mechanical electric contacts affects the accuracy of instruments such that 1% becomes 1,5%, 1,6% becomes 2,4% etc. (add the 50% of accuracy; if the contact is of the magnetically assisted type, this value can't be added within the $\pm 5\%$ of setting point).

thermometres with electric contacts
all stainless steel construction, DS 4" (100mm)

TCE

RB2 - 04/13



1 - Lower connection

9 - Sliding male swivel nut

| DS | a | b (1) | d | d ₁ | M | N |
|----------|------------|------------------------|-------------|----------------|------------|------------|
| 4" (100) | 0.51" (13) | 2.81/2.85" (71,5/82,5) | 4.41" (112) | 3.98" (101) | 3.54" (90) | 1.81" (46) |

dimensions : inches (mm)

| F | Es | h |
|--------------------------|------------|------------|
| 41M G 1/2 A | 0.87" (22) | 0.55" (14) |
| 43M 1/2-14 NPT | 0.87" (22) | 0.67" (17) |
| 51M G 3/4 A | 1.06" (27) | 0.63" (16) |
| 53M 3/4-14 NPT | 1.06" (27) | 0.67" (17) |

CONTACT TYPE (1)

| MODEL | Standard | | | Filled | | |
|----------------------------|-----------------------------|---------------------|----------------------|--|----------------------|----------------------|
| | Sliding contact, electronic | | | Magnetic snap-action contact, electronic | | |
| Contact type | Sliding contact, electronic | | | Magnetic snap-action contact, electronic | | |
| Contact number | 1 | 2 | 2 independent | 1 | 2 | 2 independent |
| Junction box | 3 poles + GND | 3 poles + GND | 6 poles + GND | 6 poles + GND | 6 poles + GND | 6 poles + GND |
| ø exit cables: inches (mm) | 0,23...0,35 (6...9) | 0,23...0,35 (6...9) | 0,27...0,51 (7...13) | 0,27...0,51 (7...13) | 0,27...0,51 (7...13) | 0,27...0,51 (7...13) |
| Minimum range | 140°F (60°C) | 140°F (60°C) | 140°F (60°C) | 140°F (60°C) | 140°F (60°C) | 140°F (60°C) |

(1) Functional characteristics, electric diagrams and contact types are available on data-sheets : "ELECTRIC CONTACTS", "ELECTRONIC CONTACTS"

OPTIONS

| |
|--|
| R13 - Filling liquid: silicon oil, for temperature range ≤ +500 °F (250 °C) |
| ATEX version, with intrinsic safety inductive contact (1) |

(1) See ATEX data-sheet for technical details

"HOW TO ORDER" SEQUENCE

Section / Model / Mounting / Connection type / Diameter / Range / Process connection / Bulb / Options
6 TCE 1 9 E 41M, 43M 51M, 53M S20...22 R13



bimetallic thermometers : ranges

standard version : DS 2.5", 3", 4", 5" (63-80-100-125 mm)

TB7

| Primary °C | |
|-------------------|------------------|
| Indication Ranges | Measuring Ranges |
| -20...+40 | -10...+30 |
| 0...+60 | +10...+50 |
| 0...+100 | +10...+90 |
| 0...+120 | +20...+100 |
| 0...+160 | +20...+140 |
| 0...+200 | +20...+180 |
| 0...+300 | +30...+270 |
| 0...+400 | +50...+350 |
| 0...+500 | +50...+450 |

| Primary °C (external) | | Secondary °F (internal) | |
|-----------------------|------------------|-------------------------|------------------|
| Indication Ranges | Measuring Ranges | Indication Ranges | Measuring Ranges |
| -20...+40 | -10...+30 | -4...+104 | +14...+86 |
| 0...+60 | +10...+50 | +30...+140 | +50...+122 |
| 0...+100 | +10...+90 | +32...+212 | +50...+194 |
| 0...+120 | +20...+100 | +32...+250 | +68...+212 |
| 0...+160 | +20...+140 | +32...+320 | +68...+284 |
| 0...+200 | +20...+180 | +35...+400 | +68...+356 |
| 0...+300 | +30...+270 | +35...+570 | +86...+518 |
| 0...+400 | +50...+350 | +40...+750 | +122...+662 |
| 0...+500 | +50...+450 | 0...+930 | +122...+842 |

"all stainless steel" version : DS 4", 5", 6" (100-125-150 mm)

TB8

| Primary °C | |
|-------------------|------------------|
| Indication Ranges | Measuring Ranges |
| -50...+50 | -40...+40 |
| -30...+50 | -20...+40 |
| -20...+120 | 0...+100 |
| -20...+80 | -10...+70 |
| -20...+40 | -10...+30 |
| 0...+60 | +10...+50 |
| 0...+80 | +10...+70 |
| 0...+100 | +10...+90 |
| 0...+120 | +20...+100 |
| 0...+160 | +20...+140 |
| 0...+200 | +20...+180 |
| 0...+250 | +30...+220 |
| 0...+300 | +30...+270 |
| 0...+400 | +50...+350 |
| 0...+500 | +50...+450 |
| 0...+600 | +100...+500 |
| +50...+450 | +100...+400 |
| +100...+500 | +150...+450 |

| Primary °F | |
|-------------------|------------------|
| Indication Ranges | Measuring Ranges |
| -80...+120 | -60...+100 |
| -20...+120 | 0...+100 |
| 0...+200 | +20...+180 |
| 0...+250 | +30...+220 |
| +50...+400 | +100...+350 |
| +50...+550 | +100...+500 |
| +200...+700 | +250...+650 |
| +100...+800 | +200...+700 |
| +200...+1000 | +300...+900 |

| Primary °C (external) | | Secondary °F (internal) | |
|-----------------------|------------------|-------------------------|------------------|
| Indication Ranges | Measuring Ranges | Indication Ranges | Measuring Ranges |
| -50...+50 | -40...+40 | -60...+122 | -40...+104 |
| -30...+50 | -20...+40 | -22...+122 | -4...+104 |
| -20...+120 | 0...+100 | -4...+250 | +32...+212 |
| 0...+60 | +10...+50 | +30...+140 | +50...+122 |
| 0...+100 | +10...+90 | +32...+212 | +50...+194 |
| 0...+120 | +20...+100 | +32...+250 | +68...+212 |
| 0...+160 | +20...+140 | +32...+320 | +68...+284 |
| 0...+200 | +20...+180 | +35...+400 | +68...+356 |
| 0...+300 | +30...+270 | +35...+570 | +86...+518 |
| 0...+400 | +50...+350 | +40...+750 | +122...+662 |
| 0...+500 | +50...+450 | 0...+930 | +122...+842 |
| 0...+600 | +100...+500 | 0...+1110 | +212...+932 |



ISO 9001 : 2008
Cert. nr. 0433/6

inert gas filled thermometers : ranges

“all stainless steel” version : DS 4”, 6” (100-150 mm)

TG8

| Primary °C | |
|-------------------|------------------|
| Indication Ranges | Measuring Ranges |
| -200...+100 | -170...+70 |
| -200...+50 | -170...+20 |
| -120...+40 | -100...+20 |
| -80...+40 | -60...+20 |
| -50...+50 | -40...+40 |
| -40...+80 | -30...+70 |
| -40...+60 | -30...+50 |
| -40...+40 | -30...+30 |
| -30...+50 | -20...+40 |
| -20...+120 | 0...+100 |
| -20...+80 | -10...+70 |
| -20...+60 | -10...+50 |
| -20...+40 | -10...+30 |
| 0...+60 | +10...+50 |
| 0...+80 | +10...+70 |
| 0...+100 | +10...+90 |
| 0...+120 | +20...+100 |
| 0...+160 | +20...+140 |
| 0...+200 | +20...+180 |
| 0...+250 | +30...+220 |
| 0...+300 | +30...+270 |
| 0...+400 | +50...+350 |
| 0...+500 | +50...+450 |
| 0...+600 | +100...+500 |
| +50...+450 | +100...+400 |
| +100...+500 | +150...+450 |

| Primary °F | |
|-------------------|------------------|
| Indication Ranges | Measuring Ranges |
| -350...+200 | -300...+150 |
| -350...+100 | -300...+50 |
| -200...+100 | -170...+70 |
| -100...+100 | -80...+80 |
| -40...+180 | -20...+160 |
| -20...+120 | 0...+100 |
| 0...200 | +20...+180 |
| 0...250 | +30...+220 |
| +50...+300 | +70...+270 |
| +50...+400 | +100...+350 |
| +50...+550 | +100...+500 |
| +100...+800 | +200...+700 |
| +200...+700 | +250...+650 |
| +200...+1000 | +300...+900 |
| +400...+1200 | +500...+1100 |

| Primary °C (external) | | Secondary °F (internal) | |
|-----------------------|------------------|-------------------------|------------------|
| Indication Ranges | Measuring Ranges | Indication Ranges | Measuring Ranges |
| -40...+100 | -20...+80 | -40...+220 | -4...+176 |
| -40...+60 | -30...+50 | -40...+140 | -22...+122 |
| 0...+60 | +10...+50 | +30...+140 | +50...+122 |
| 0...+100 | +10...+90 | +32...+212 | +50...+194 |
| 0...+120 | +20...+100 | +32...+250 | +68...+212 |
| 0...+160 | +20...+140 | +32...+320 | +68...+284 |
| 0...+200 | +20...+180 | +35...+400 | +68...+356 |
| 0...+300 | +30...+270 | +35...+570 | +86...+518 |
| 0...+400 | +50...+350 | +40...+750 | +122...+662 |
| 0...+500 | +50...+450 | 0...+930 | +122...+842 |
| +100...+500 | +150...+450 | +200...+930 | +302...+842 |
| 0...+600 | +100...+500 | 0...+1110 | +212...+932 |
| +200...+600 | +250...+550 | +400...+1110 | +482...+1022 |

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**inert gas filled thermometers, all stainless steel construction,
ATEX versions,
DS 100-150 mm**

TG8

RC2 - 05/16



These instruments are designed for explosive atmospheres in food, processing, pharmaceutical, petrochemical industries and conventional and nuclear power plants. They are in conformity with the essential Health and Safety Requirements laid down in European Directive 2014/34/UE for Group II, Category 2G or 2GD equipment in the T1...T6 temperature classes. They are NOT suitable for ZONES 0 and 20.

2G3 Version , Gas

They are available as dry version, DS 100-150 mm and keep the same functional and constructive features as TG8 model. They differ from it as follows :

- Ambient temperature: -40...+60 °C.
- Max process fluid temperature “Tp”: see table (measured on the lowest point of socket).
- Windows: high resistance safety glass.
- Dial marking: CE Ex II 2G c TX X, model name and serial number.
- Special dial: ranges different from standard, custom artworks and dials without Nuova Fima logo are not available.
- Options: plexiglas or tempered glass windows, electric contacts and accessories and overtemperature are not available.
- Included documentation: Installation manual and Declaration of Conformity.

2D3 Version , Gas and Dust

They are available as fillable or filled version, DS 100-150 mm and keep the same functional and constructive features as TG8 model. They differ from it as follows :

- Damping liquids: glycerine 98%, silicon oil.
- Ambient temperature:
 - 40...+60 °C for dry version;
 - 0...+60 °C for glycerine filling;
 - 40...+60 °C for silicon oil filling.
- Max process fluid temperature “Tp”: see table (measured on the lowest point of socket).
- Windows: high resistance safety glass.
- Dial marking: CE Ex II 2GD c TX X, model name and serial number.
- Special dial: ranges different from standard, custom artworks and dials without Nuova Fima logo are not available.
- Options: plexiglas or tempered glass windows and overtemperature are not available.
- Included documentation: Installation manual and Declaration of Conformity.

| Class | Tp |
|--------------------|---------------|
| T6 : 185°F (85°C) | 176°F (80°C) |
| T5 : 212°F (100°C) | 203°F (95°C) |
| T4 : 275°F (135°C) | 266°F (130°C) |
| T3 : 392°F (200°C) | 383°F (195°C) |
| T2 : 572°F (300°C) | 554°F (290°C) |
| T1 : 842°F (450°C) | 824°F (440°C) |

Technical File: TF3 - Rev. 1/2016.



NUOVA FIMA

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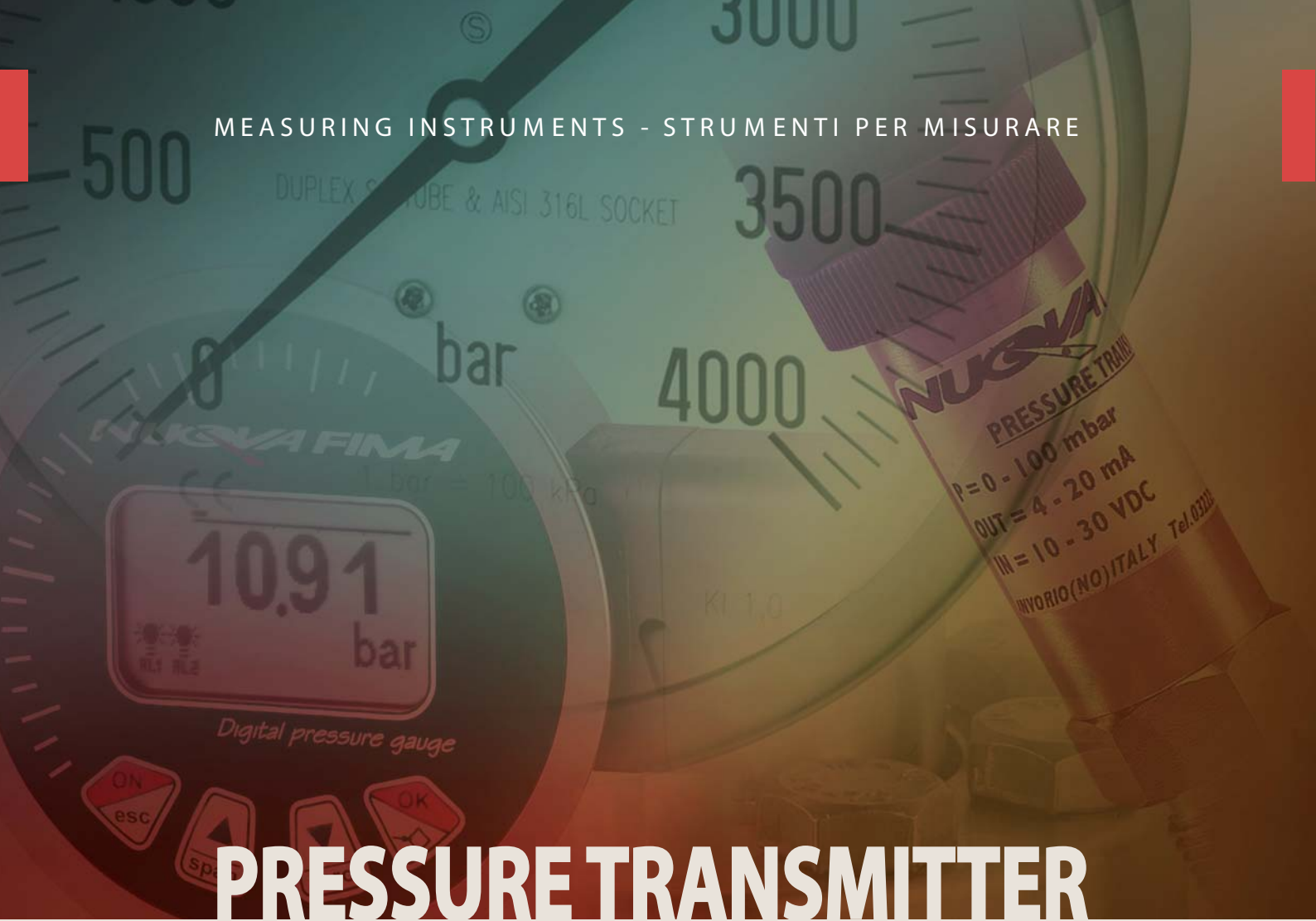
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info@nuovafima.com

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MEASURING INSTRUMENTS - STRUMENTI PER MISURARE



PRESSURE TRANSMITTER

NUOVA FIMA

pressure transmitter with local readout DS 4" (100mm)



CE Compliance to requirements of directives:
EMC 2014/30/EU - PED 2014/68/EU - RoHS 2011/65/EU



Ranges: from 0...15 to 0...20000 psi
(from 0...1 to 0...1600 bar or equivalent units).

Accuracy (% FSV):
local readout, $\leq 0,5$;
transmitter, $\leq 0,25$ typical; $\leq 0,5$ max.

Working pressure:
100% of FSV for static pressure;
90% of FSV for pulsating pressure.

Over pressure limit: 30% of FSV.

Process fluid temperature: -13...+212 °F (-25...+100 °C);
14...+149 °F (-10...+65°C) when filled.

Output signals: for pressure ranges ≤ 8700 psi (600 bar) :
4...20 mA, 0...5 Vdc, 0...10 Vdc;

for pressure ranges > 8700 psi (600 bar) : 4...20 mA.

Calibration: limit-point as per DIN 16086.

Zero calibration: ± 10 % span typical.

Span calibration: ± 10 % span typical.

Compensated temperature range: 14...+176 °F; (-10...+80 °C).

Thermal drift: $\leq 0,011$ % span / °F.

Annual drift: $\leq 0,2$ % of span.

Supply and max load: see on page 2.

Response time (10...90%): < 3 ms.

8.M28.1 - Standard Model

Safety designation: S1 as per EN 837-2.

Electric connection: junction box as per VDE with exit for cables
 $\varnothing 0,27''...0,51''$ ($\varnothing 7...13$ mm).

Protection degree: IP 55 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st.

Bourdon tube: AISI 316L st.st. seamless tube.

Case: stainless steel.

Ring: stainless steel, bayonet lock.

Window: tempered glass.

Movement: stainless steel with internal limit stops for minimum and maximum pressure.

Dial: aluminium, white with black markings.

Pointer: adjustable, aluminium, black.

Ambient temperature: -13...+149 °F (-25...+65 °C).

Special versions:

high overpressure: 200% of FSV for pressure ranges ≤ 3000 psi (250 bar), accuracy of local readout $\leq 1,0$ % of FSV.

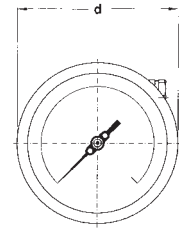
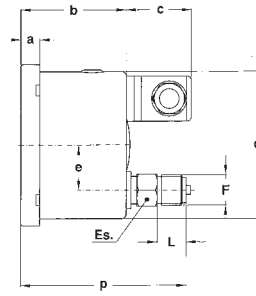
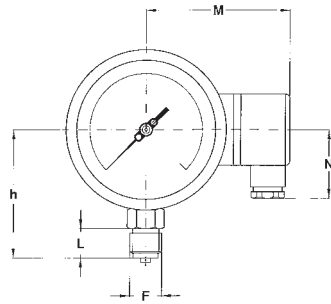
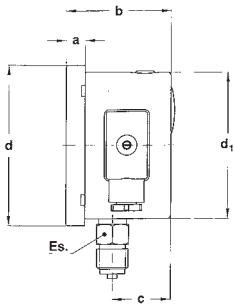
8.M28.3 - Filled Model

Filling liquid: dielectric oil.

Protection degree: IP 67 as per
EN 60529/IEC 529.

Ambient temperature: 14...+149 °F (-10...+65 °C).

Other features: as Standard Model.



A - LOWER CONNECTION

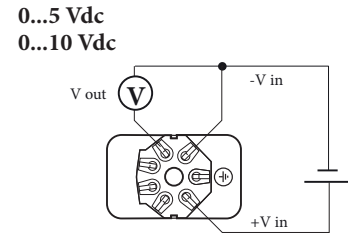
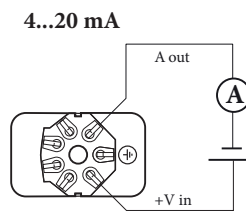
D - BACK CONNECTION

| Mounting | F | a | b | c | d | d ₁ | e | h | p | ES | L | N | M | Weight (1) |
|----------|------------------|-------|--------|--------|---------|----------------|-------|--------|---------|-------|-------|--------|--------|------------|
| Lower | 41M - G 1/2 A | 0.51" | 2.85" | 1.57" | 4.35" | 3.97" | | 3.48" | 4.47" | 0.86" | 0.78" | 1.35" | 3.55" | 1.67 lbs |
| | 43M - 1/2-14 NPT | (13) | (72,3) | (40,1) | (110,6) | (101) | | (88,5) | (113,7) | (22) | (20) | (34,5) | (90,4) | (0,76 kg) |
| Back | 41M - G 1/2 A | 0.51" | 2.85" | 1.33" | 4.35" | 3.97" | 1.22" | 3.28" | 4.20" | 0.86" | 0.51" | | | 1.69 lbs |
| | 43M - 1/2-14 NPT | (13) | (72,3) | (34) | (110,6) | (101) | (31) | (83,5) | (106,7) | (22) | (13) | | | (0,77 kg) |

dimensions : inches (mm)

(1) add 0.85 lbs (0,339 kg), when filled

| Output signal | 4...20 mA | 0...5 Vdc | 0...10 Vdc |
|---------------|-------------------------------------|------------------------------|-------------------------------|
| N. wires | 2 | 3 | 3 |
| Load (Ohm) | $R_L \leq (V_{in}-10)/0,02$ | $R_L \geq 5 \text{ K}\Omega$ | $R_L \geq 10 \text{ K}\Omega$ |
| Supply: +Vin | 10...30 | 8...30 | 14...30 |
| Ground | (pls. refer to Installation Manual) | | |



OPTIONS

| |
|--|
| CRP - CR gasket, for pressure ranges $\leq 1500 \text{ psi}$ (100 bar); process fluid temperature: $-40...+176 \text{ }^\circ\text{F}$ ($-40...+85^\circ\text{C}$) |
| EPD - EPDM gasket, for pressure ranges $\leq 1500 \text{ psi}$ (100 bar); process fluid temperature: $-40...+212 \text{ }^\circ\text{F}$ ($-40...+100^\circ\text{C}$) |
| NBR - NBR gasket; process fluid temperature: $-13...+176 \text{ }^\circ\text{F}$ ($-25...+85^\circ\text{C}$) |
| FPM - VITON gasket; for pressure ranges $\leq 8500 \text{ psi}$ (600 bar); process fluid temperature: $-4...+212 \text{ }^\circ\text{F}$ ($-20...+100^\circ\text{C}$) |
| C01 - Calibration certificate |
| L22 - Maximum pointer IP 65 on plexiglas window (2) |

(1) Zero calibration not available.

(2) Accuracy refers to the area free from the maximum pointer action.

"HOW TO ORDER" SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Output signal / Gasket / Options
8 M28 1 A E 41M 1 CRP C01, L22
3 D 43M 4 EPD
5 NBR

pressure transmitter with local readout, for homogenizer DS 4" (100mm)



EMC 2014/30/EU
PED 2014/68/EU



74-06

Authorization NO. 1599

Ranges: from 0...1500 to 0...20000 psi, relative
(from 0...100 to 0...1600 bar or equivalent units).
Accuracy (% VFS): local readout, ≤ 1.0 (≤ 1.6 for pressure ranges > 8700 psi - 600 bar); transmitter, ≤ 0.5 .
Working pressure: 75% max of FSV.
Over pressure: not suitable.
Ambient temperature: 14...+149 °F (-10...+65 °C).
Process temperature: 14...+248 °F (-10...+120 °C).
Max 302°F (150 °C) for 1 hour during sterilization (S.I.P)¹.
Output signals: for pressure ranges ≤ 8700 psi (600 bar) :
4...20 mA, 0...5 Vdc, 0...10 Vdc;
for pressure ranges > 8700 psi (600 bar) : 4...20 mA.
Sensor calibration : limit-point as per DIN 16086.
Zero calibration: ± 10 % span typical.
Span calibration: ± 10 % span typical.
Compensated temperature range: 14...+176 °F; (-10...+80 °C).
Thermal drift: ≤ 0.011 % span / °F ($\leq 0,02$ % span/ °C).
Annual drift: $\leq 0,2$ % of span.
Supply and max load: see on page 2.
These types of sensors are intended for Manual (COP) Cleaning.

1) S.I.P. = Steamed In Place

8.MOM.1 - Standard Model

Designation code: S1 as per EN 837-2.
Electric connection: junction box as per VDE with exit
for cables $\varnothing 0.27...0.51$ " (7...13mm).
Sensor: ceramic thick film or stainless steel thin film.
Protection degree: IP 55 as per EN 60529/IEC 529.
Diaphragm: AISI 316L st.st.
Diaphragm seal: AISI 316L st.st. with finishing $Ra \leq 0,8 \mu m$ (welded
parts included).
Bourdon tube: AISI 316L st.st. seamless tube.
Ring: stainless steel, bayonet lock.
Window: tempered glass.
Movement: stainless steel.
Dial: aluminium, white with black markings.
Pointer: adjustable, aluminium, black.

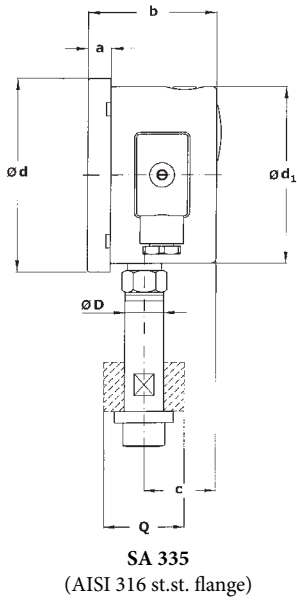
8.MOM.3 - Filled Model

Filling liquid: dielectric oil.
Protection degree: IP 67 as per EN 60529/IEC 529.
Other features: as standard model.

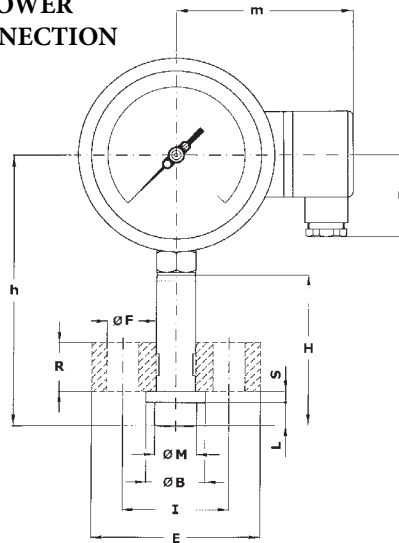
**pressure transmitter with local readout,
for homogenizer, DS 4" (100mm)**

MT OM

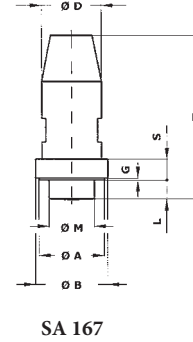
RC6-02/16



A - LOWER CONNECTION



| a | b | c | d | d ₁ | h | m | n |
|---------------|-----------------|-----------------|------------------|----------------|------------------|-----------------|---------------|
| 0.51" (13) | 2.84" (72,3) | 1.59" (40,6) | 4.35" (110,6) | 3.97" (101) | 6.08" (154,5) | 3.66" (93,1) | 1.85" (47) |

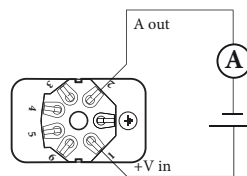


| Drawing | Ø D | Ø M | Ø A | Ø B | H | S | G | L | Es | E | Ø F | I | R | Q | T | Weight |
|----------------------|---------------|-----------------|---------------|-----------------|---------------|----------------|--------------|---------------|----|---------------|---------------|---------------|---------------|---------------|---|-----------------------|
| 335 SA 335 | 0.86" (22) | 0.95" (23,5) | | 1.30" (33,3) | 3.38" (86) | 0.33" (8,5) | | 0.51" (13) | | 3.74" (95) | 0.70" (18) | 2.36" (60) | 1.10" (28) | 1.77" (45) | | 4.01 lbs (1,82 kg) |
| 167 SA 167 | 1.22" (31) | 0.95" (23,5) | 1.33" (34) | 1.47" (37,5) | 3.38" (86) | 0.43" (11) | 0.04" (1) | 0.39" (10) | | | | | | | | 2.84 lbs (1,29 kg) |

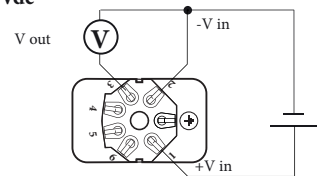
dimensions : inches (mm)

| Output signals | 4...20 mA | 0...5 Vdc | 0...10 Vdc |
|----------------|-------------------------------------|----------------------|-----------------------|
| | 1 | 4 | 5 |
| Nr. of wires | 2 | 3 | 3 |
| Load (Ohm) | $R_L \leq (V_{in}-10)/0,02$ | $R_L \geq 5 K\Omega$ | $R_L \geq 10 K\Omega$ |
| Supply: +Vin | 10...30 | 8...30 | 14...30 |
| Ground | (pls. refer to Installation Manual) | | |

4...20 mA



0...5 Vdc
0...10 Vdc



OPTIONS

| |
|---|
| C01 - Calibration report |
| S35 - Process connection dwg. SA 335, without flange |
| T31 - Plexiglas window |

“HOW TO ORDER” SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Output signal / Options

8 MOM 1 A E 335 1 C01
167 3 4 S35
5 T31

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pressure transmitter with ceramic sensor, accuracy 0,5%



CE Compliance to requirements of directives:
EMC 2014/30/EU - PED 2014/68/EU - RoHS 2011/65/EU



The ST1 model is a compact electronic transmitter with ceramic sensor for air, industrial and technical gases, water and oil.

8.ST1

Measuring ranges: 0...1/0...600 bar, relative; -1...0/-1...+24 bar, relative.

Output signals: 4...20 mA, 0...5 Vcc, 0...10 Vcc, 1...5 Vcc, 0,5...4,5 Ratiometric Vcc.

Non-linearity (BFSL): $\leq \pm 0,25$ % of the range, according to IEC 61298-2.

Non-repeatability: $\leq 0,1$ % of the range, according to IEC 61298-2.

Accuracy: $\leq \pm 0,5$ % of the range ⁽¹⁾.

Thermal drift: between 0 and 80°C, 1% of span; 2,5% of span, max ⁽²⁾.

Long term drift: $\leq 0,1$ % of span.

Process fluid temperature: -25...+100 °C.

Ambient temperature: -25...+85 °C.

Stocking temperature: -30...+85 °C.

Response time: <4 ms (measuring); <150 ms (switching on).

Emission and immunity: according to EN 61326,
(group 1 - class B; industrial applications).

Vibration resistance: 20g (10...2000 Hz, according to IEC 60068-2-6).

Shock resistance: 40g (6 ms, according to IEC 60068-2-27).

Sensor: ceramic in Al₂O₃.

Case: in AISI 316L, vented up to 16 bar.

Protection degree: IP 65 according to IEC 60529 ⁽³⁾.

Process connection: in AISI 316L, hole \varnothing 2,5 mm (with restrictor \varnothing 0,7 mm for measuring ranges \geq 60 bar).

Weight: 0,14 kg

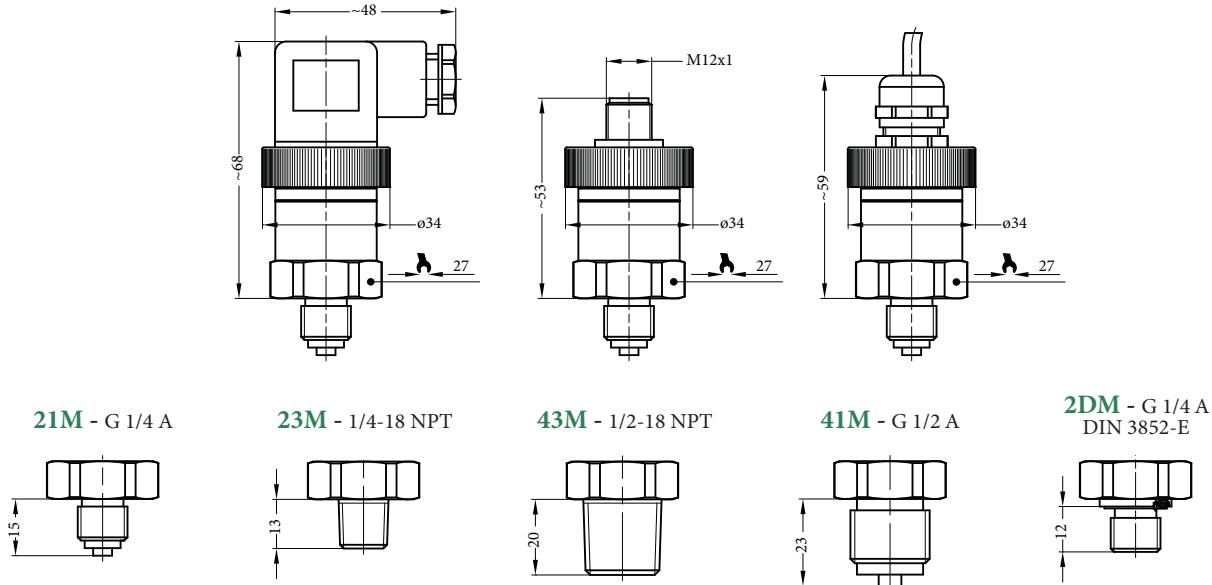
| Ranges bar, relative | Overpressure bar, relative |
|-------------------------|-------------------------------|
| 0...1 | 5 |
| 0...1,6 | 5 |
| 0...2,5 | 5 |
| 0...4 | 8 |
| 0...6 | 12 |
| 0...10 | 20 |
| 0...16 | 32 |
| 0...25 | 50 |
| 0...40 | 80 |
| 0...60 | 120 |
| 0...100 | 200 |
| 0...160 | 320 |
| 0...250 | 500 |
| 0...400 | 600 |
| 0...600 | 800 |

Other ranges available on demand. Units of measurement available in psi, MPa, kPa too.

(1) max measuring error according to IEC 61298-2, including non-linearity and hysteresis (limit-point calibration and reference conditions according to IEC 61298-1); accuracy $\leq \pm 0,75$ % of span for measuring ranges 0...1 bar and 0...600 bar.

(2) + 0,5% of span for measuring range 1 bar

(3) with properly assembled electric connection



Tightening torque 20...30 Nm

| Output signals | 4...20 mA 1 | 0...5 Vdc 4 | 0...10 Vdc 5 | 1...5 Vdc 8 | 0,5...4,5 Vdc ratiometric - R |
|-----------------------|---------------------------|------------------------------|-------------------------------|------------------------------|---|
| N. of wires | 2 | 3 | 3 | 3 | 3 |
| Load max (Ohm) | $R_L \leq (U_b - 8)/0,02$ | $R_L \geq 5 \text{ K}\Omega$ | $R_L \geq 10 \text{ K}\Omega$ | $R_L \geq 5 \text{ K}\Omega$ | $R_L \geq 4,5 \text{ K}\Omega$ |
| Supply: U_b (Vdc) | 8...30 | 8...30 | 14...30 | 8...30 | $5 \pm 10\%$ |
| Absorbed current (mA) | < 25 | < 10 | < 10 | < 10 | < 10 |

Other output signals available on request. All output signals are provided of protection against short circuit and polarity inversion. Insulation tension 500 Vdc.

WIRING

| Cod. | EN 175301-803 A | | M12 x 1 | | Cable exit | |
|--------------------------|-----------------|------------|------------|------------|------------|------------|
| | 12G | 123 | 132 | 134 | MBG | MBV |
| N. of wires | 2 | 3 | 2 | 3 | 2 | 3 |
| Supply connection: U_b | 1 | 1 | 1 | 1 | brown | brown |
| Negative connection: 0V | 2 | 2 | 3 | 3 | white | white |
| Signal: S + | - | 3 | - | 4 | - | green |
| Ground | GND | GND | 2 | 2 | grey | grey |

OPTIONS

| | |
|--|---|
| --- Electric connection EN 175301-803 A | EPD - EPDM gasket for sensor |
| M12 - Electric connection M12 x 1, 4 poles | NBR - NBR gasket for sensor ⁽¹⁾ |
| PVC - Electric connection with 1 mt PVC cable | C01 - Calibration certificate |
| FPM - FPM gasket for sensor ⁽¹⁾ | VS3 - Restrictor ø 0,3 mm |
| CRP - CR gasket for sensor | |

(1) Available for process connection DIN 3852-E.

“HOW TO ORDER” SEQUENCE

| | |
|--|--|
| Section / Model / Range / Process connection / Output signal / Electric connection / Wiring / Gasket / Options | |
| 8 ST1 | 21M 1 --- 12G...134 FPM C01...VS3 |
| | 2DM 4 M12 MBG, MBV CRP |
| | 23M 5 PVC EPD |
| | 41M 8 NBR |
| | 43M R |

pressure transmitter with piezoresistive sensor, accuracy 0,35%



Compliant to directives
EMC EMC 2014/30/EU - PED 2014/68/EU - RoHS 2002/95/EU

The ST2 model is a compact electronic transmitter with piezoresistive sensor with excellent linearity, for air, industrial and technical gases, water, oil and process media compatible with AISI 316.

8.ST2

Measuring ranges: 0...0,1/0...1000 bar, relative; -1...0/-1...+24 bar, relative; 0...1/0...25 bar, absolute.

Output signals: 4...20 mA, 0...5 Vcc, 0...10 Vcc, 1...5 Vcc, 0,5...4,5 Ratiometric Vcc.

Non-linearity (BFSL): $\leq \pm 0,175$ % of the range, according to IEC 61298-2.

Non-repeatability: $\leq 0,1$ % of the range, according to IEC 61298-2.

Accuracy: $\leq \pm 0,35$ % of the range ⁽¹⁾.

Thermal drift: between 0 and 80°C, 1% of span; 2,5% of span, max ⁽²⁾.

Long term drift: $\leq 0,1$ % of span.

Process fluid temperature: -25...+100 °C.

Ambient temperature: -25...+85 °C.

Stocking temperature: -30...+85 °C.

Response time: <4 ms (measuring); <150 ms (switching on).

Emission and immunity: according to EN 61326, (group 1 - class B; industrial applications).

Vibration resistance: 20g (10...2000 Hz, according to IEC 60068-2-6).

Shock resistance: 40g (6 ms, according to IEC 60068-2-27).

Sensor: piezoresistive, silicon oil.

Case: in AISI 316L, vented up to 16 bar.

Protection degree: IP 65 according to IEC 60529 ⁽³⁾.

Process connection: in AISI 316L, hole \varnothing 2,5 mm (with restrictor \varnothing 0,7 mm for measuring ranges \geq 60 bar).

Weight: 0,14 kg

(1) max measuring error according to IEC 61298-2, including non-linearity and hysteresis (limit-point calibration and reference conditions according to IEC 61298-1).

(2) + 0,5% of span for measuring range \leq 0,6 bar

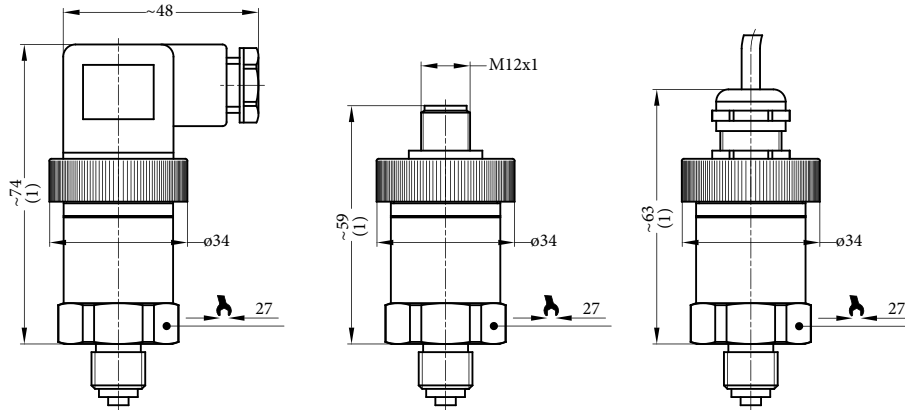
(3) with properly assembled electric connection

| Ranges bar, relative | Overpressure bar, relative |
|-------------------------|-------------------------------|
| 0...0,1 | 0,3 |
| 0...0,16 | 0,5 |
| 0...0,25 | 0,8 |
| 0...0,4 | 1,2 |
| 0...0,6 | 1,8 |
| 0...1 | 2 |
| 0...1,6 | 3,2 |
| 0...2,5 | 5 |
| 0...4 | 8 |
| 0...6 | 12 |
| 0...10 | 20 |
| 0...16 | 32 |
| 0...25 | 50 |
| 0...40 | 80 |
| 0...60 | 120 |
| 0...100 | 200 |
| 0...160 | 320 |
| 0...250 | 380 |
| 0...400 | 600 |
| 0...600 | 900 |
| 0...1000 | 1500 |

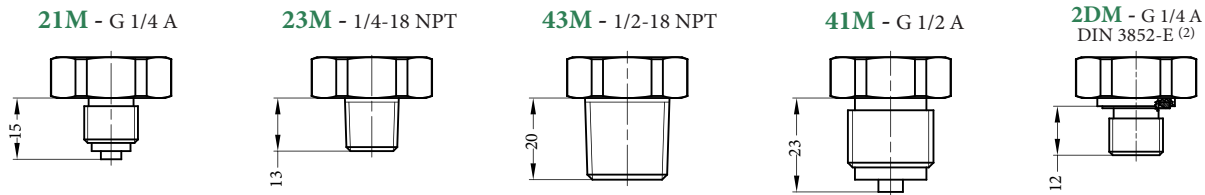
Other ranges available on demand. Units of measurement available in psi, MPa, kPa too.

**pressure transmitter with piezoresistive sensor,
accuracy 0,35%**

ST2



Dimensions: mm; (1) for pressures ≥ 160 bar add 5 mm



Torque 20...30 Nm; (2) process connection DIN 3852-E for pressures ≤ 600 bar

| Output signals | 4...20 mA | 0...5 Vdc | 0...10 Vdc | 1...5 Vdc | 0,5...4,5 Vdc ratiometric - R |
|-----------------------|---------------------------|------------------------------|-------------------------------|------------------------------|----------------------------------|
| N. of wires | 2 | 3 | 3 | 3 | 3 |
| Load max (Ohm) | $R_L \leq (U_b - 8)/0,02$ | $R_L \geq 5 \text{ K}\Omega$ | $R_L \geq 10 \text{ K}\Omega$ | $R_L \geq 5 \text{ K}\Omega$ | $R_L \geq 4,5 \text{ K}\Omega$ |
| Supply: +Ub (Vdc) | 8...30 | 8...30 | 14...30 | 8...30 | 5 ±10% |
| Absorbed current (mA) | < 25 | < 10 | < 10 | < 10 | < 10 |

Other output signals available on demand. All output signals are provided of protection against short circuit and polarity inversion. Insulation tension 500 Vdc.

WIRING

| Cod. | EN 175301-803 A | | M12 x 1 | | Cable exit | |
|-------------------------|-----------------|-----|---------|-----|------------|-------|
| | 12G | 123 | 132 | 134 | MBG | MBV |
| N. of wires | 2 | 3 | 2 | 3 | 2 | 3 |
| Supply connection: Ub | 1 | 1 | 1 | 1 | brown | brown |
| Negative connection: 0V | 2 | 2 | 3 | 3 | white | white |
| Signal: S + | - | 3 | - | 4 | - | green |
| Ground | GND | GND | 2 | 2 | grey | grey |

OPTIONS

| | |
|--|--|
| --- Electric connection EN 175301-803 A | EPD - EPDM gasket for sensor |
| M12 - Connector M12 x 1, 4 poles | NBR - NBR gasket for sensor ⁽¹⁾ |
| PVC - Cable exit, with 1 mt PVC cable | C01 - Calibration certificate |
| FPM - FPM gasket for sensor ⁽¹⁾ | A02 - Accuracy $\pm 0,25\%$ of the range ⁽²⁾ |
| CRP - CR gasket for sensor | VS3 - Restrictor $\phi 0,3 \text{ mm}$ for pressure range 60 bar |

(1) Available for process connection DIN 3852-E.

(2) Non-Linearity (BFSL) $\leq \pm 0,125\%$ of span; for measuring ranges $\leq 60 \text{ bar}$

“HOW TO ORDER” SEQUENCE

Section / Model / Range / Process connection / Output signal / Electric connection / Wiring / Gasket / Options
8 ST2 **21M** **1** --- **12G...134** **FPM** **C01...VS3**
 2DM **4** **M12** **MBG. MBV** **CRP**
 23M **5** **PVC** **EPD**
 41M **8** **NBR**
 43M **R**

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RCS - 01/15
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pressure transmitter with piezoresistive sensor, accuracy 0,35%



CE Compliance to requirements of directives:
EMC 2014/30/EU - PED 2014/68/EU - RoHS 2011/65/EU

The ST9 model is an electronic transmitter with piezoresistive sensor with excellent linearity, with adjustable zero and span, for air, industrial and technical gases, water, oil and process media compatible with AISI 316. When assembled to diaphragm seals, it measures the pressure of corrosive, highly viscous and hot fluids.

8.S09

Measuring ranges: 0...0,1/0...1000 bar, relative; -1...0/-1...+24 bar, relative; 0...1/0...25 bar, absolute.

Output signal: 4...20 mA.

Non-linearity (BFSL): $\leq \pm 0,175$ % of the range, according to IEC 61298-2.

Non-repeatability: $\leq 0,1$ % of the range, according to IEC 61298-2.

Accuracy: $\leq \pm 0,35$ % of the range ⁽¹⁾.

Zero and span adjustment: ± 10 % span typical.

Thermal drift: between 0 and 80°C, 1% of span; 2,5% of span, max ⁽²⁾.

Long term drift: $\leq 0,2$ % of span.

Process fluid temperature: -25...+100 °C.

Ambient temperature: -25...+85 °C.

Stocking temperature: -30...+85 °C.

Response time: <4 ms (measuring); <150 ms (switching on).

Emission and immunity: according to EN 61326, (group 1 - class B; industrial applications).

Vibration resistance: 20g (10...2000 Hz, according to IEC 60068-2-6).

Shock resistance: 40g (6 ms, according to IEC 60068-2-27).

Sensor: piezoresistive, silicon oil.

Case: in AISI 316L, vented up to 16 bar.

Protection degree: IP 65 according to IEC 60529 ⁽³⁾.

Process connection: in AISI 316L, hole \varnothing 2,5 mm (with restrictor \varnothing 0,7 mm for measuring ranges ≥ 60 bar).

Weight: 0,23kg

(1) max measuring error according to IEC 61298-2, including non-linearity and hysteresis (limit-point calibration and reference conditions according to IEC 61298-1).

(2) + 0,5% of span for measuring range $\leq 0,6$ bar

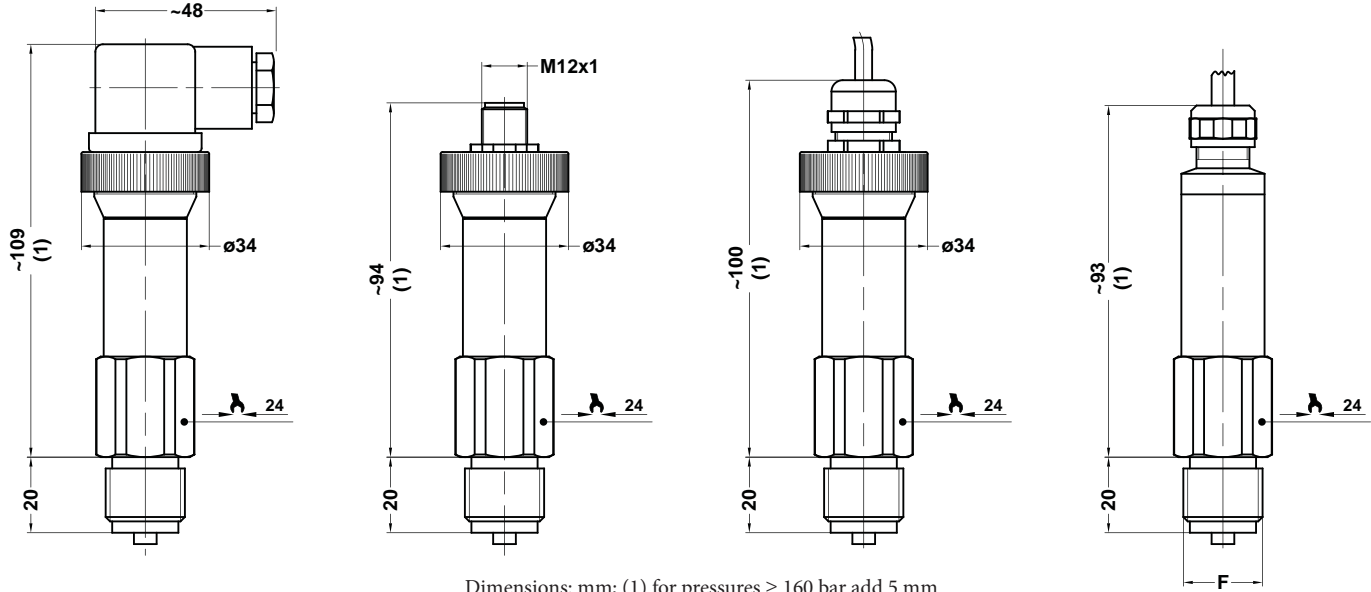
(3) with properly assembled electric connection

| Ranges bar, relative | Overpressure bar, relative |
|-------------------------|-------------------------------|
| 0...0,1 | 0,3 |
| 0...0,16 | 0,5 |
| 0...0,25 | 0,8 |
| 0...0,4 | 1,2 |
| 0...0,6 | 1,8 |
| 0...1 | 2 |
| 0...1,6 | 3,2 |
| 0...2,5 | 5 |
| 0...4 | 8 |
| 0...6 | 12 |
| 0...10 | 20 |
| 0...16 | 32 |
| 0...25 | 50 |
| 0...40 | 80 |
| 0...60 | 120 |
| 0...100 | 200 |
| 0...160 | 320 |
| 0...250 | 380 |
| 0...400 | 600 |
| 0...600 | 900 |
| 0...1000 | 1500 |

Other ranges available on demand. Units of measurement available in psi, MPa, kPa too.

| Output signal | 4...20 mA 1 |
|-------------------------|----------------------------|
| N. wires | 2 |
| Load (Ohm) | $R_L \leq (U_b - 10)/0,02$ |
| Supply: +U _b | 10...30 |

Other output signals available on demand. All output signals are provided of protection against short circuit and polarity inversion. Insulation tension 500 Vdc.



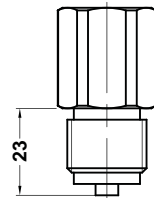
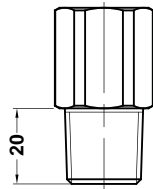
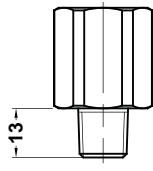
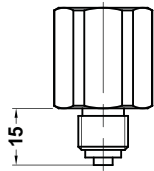
Dimensions: mm; (1) for pressures ≥ 160 bar add 5 mm

21M - G 1/4 A

23M - 1/4-18 NPT

43M - 1/2-18 NPT

41M - G 1/2 A



Torque 20...30 Nm

WIRING

| | DIN 175301-803 A | M12 x 1 | Cable exit |
|--------------------------|------------------|---------|------------|
| N. of wires | 2 | 2 | 2 |
| Supply connection: Ub+ | 1 | 1 | brown |
| Negative connection; 0V- | 2 | 3 | white |
| Output signal: S+ | - | - | - |
| Ground | GND | 2 | grey |

OPTIONS

| | |
|--|---|
| M12 - Connector M12 x 1, 4 poles | EPD - EPDM gasket for sensor |
| PVC - Cable exit, with 1 mt PVC cable | NBR - NBR gasket for sensor |
| U68 - Cable exit IP68, with 1 mt polyurethane cable | C01 - Calibration certificate |
| FPM - VITON gasket for sensor | A02 - Accuracy $\leq \pm 0,25\%$ of the range ⁽¹⁾ |
| CRP - CR gasket for sensor | VS3 - Restrictor $\varnothing 0,3$ mm |

(1) Non-Linearity (BFSL) $\leq \pm 0,125\%$ of span; for measuring ranges ≤ 60 bar

“HOW TO ORDER” SEQUENCE

Section / Model / Range / Process connection / Output signal / Electric connection / Gasket / Options
 8 S09 41M 1 --- FPM C01...VS3
 21M M12 CRP
 PVC EPD
 U 68 NBR



pressure transmitter with ceramic sensor, accuracy 0,5%



CE Compliance to requirements of directives:
EMC 2014/30/EU - PED 2014/68/EU - RoHS 2011/65/EU

The ST18 model is an electronic transmitter with ceramic sensor, with adjustable zero and span, for air, industrial and technical gases, water and oil. When assembled to diaphragm seals, it measures the pressure of corrosive, highly viscous and hot fluids.

8.ST18

Measuring ranges: 0...1/0...600 bar, relative; -1...0/-1...+24 bar, relative; 0...1/0...25 bar, absolute.

Output signals: 4...20 mA, 0...5 Vcc, 0...10 Vcc.

Non-linearity (BFSL): $\leq \pm 0,25$ % of the range, according to IEC 61298-2.

Non-repeatability: $\leq 0,1$ % of the range, according to IEC 61298-2.

Accuracy: $\leq \pm 0,5\%$ of the range ⁽¹⁾.

Thermal drift: between 0 and 80°C, 1% of span; 2,5% of span, max ⁽²⁾.

Long term drift: $\leq 0,1$ % of span.

Zero and span adjustment: ± 10 % span typical.

Process fluid temperature: -25...+100 °C.

Ambient temperature: -25...+85 °C.

Stocking temperature: -30...+85 °C.

Response time: <4 ms (measuring); <150 ms (switching on).

Emission and immunity: according to EN 61326, (group 1 - class B; industrial applications).

Vibration resistance: 20g (10...2000 Hz, according to IEC 60068-2-6).

Shock resistance: 40g (6 ms, according to IEC 60068-2-27).

Sensor: ceramic in Al₂O₃.

Case: in AISI 316L, vented up to 16 bar.

Protection degree: IP 65 according to IEC 60529 ⁽³⁾.

Process connection: in AISI 316L, hole \varnothing 2,5 mm (with restrictor \varnothing 0,7 mm for measuring ranges ≥ 60 bar).

Weight: 0,18 kg

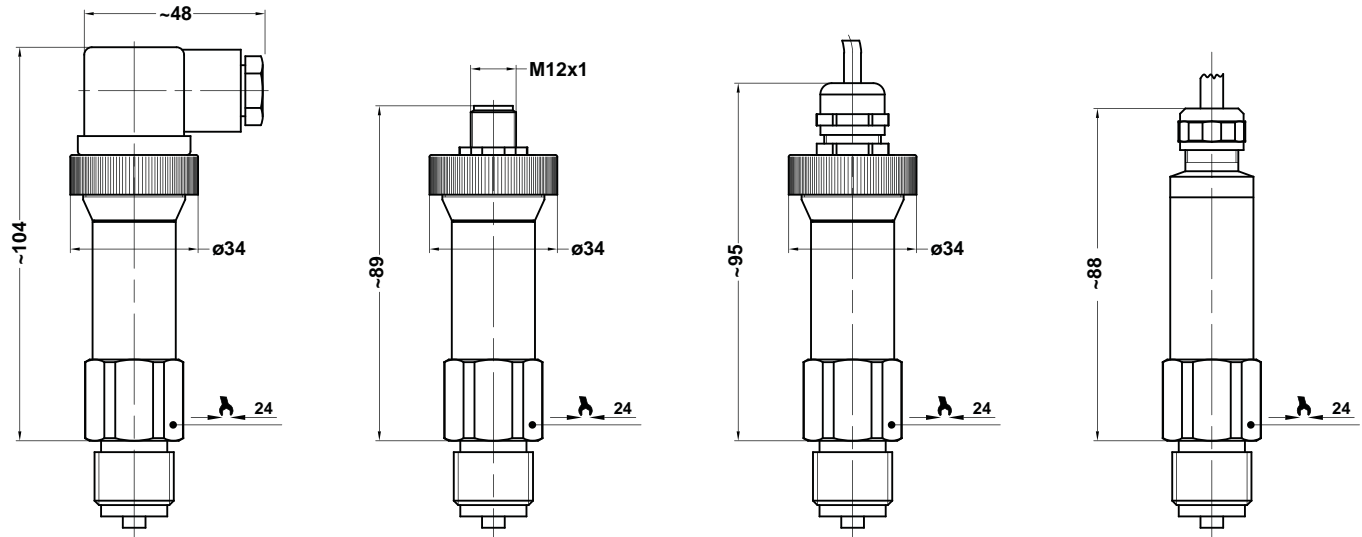
| Ranges bar, relative | Overpressure bar, relative |
|-------------------------|-------------------------------|
| 0...1 | 5 |
| 0...1,6 | 5 |
| 0...2,5 | 5 |
| 0...4 | 8 |
| 0...6 | 12 |
| 0...10 | 20 |
| 0...16 | 32 |
| 0...25 | 50 |
| 0...40 | 80 |
| 0...60 | 120 |
| 0...100 | 200 |
| 0...160 | 320 |
| 0...250 | 500 |
| 0...400 | 600 |
| 0...600 | 800 |

Other ranges available on demand. Units of measurement available in psi, MPa, kPa too.

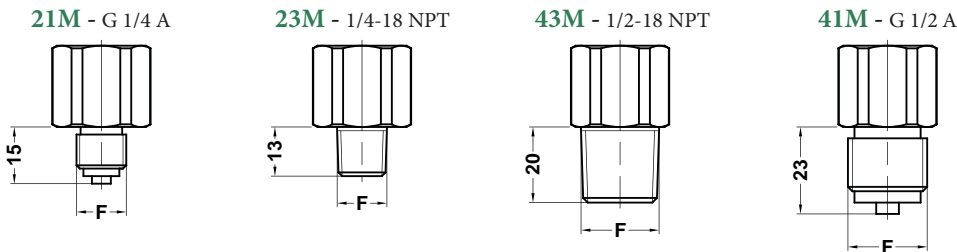
(1) max measuring error according to IEC 61298-2, including non-linearity and hysteresis (limit-point calibration and reference conditions according to IEC 61298-1); accuracy $\leq \pm 0,75\%$ of span for measuring ranges 0...1 bar and 0...600 bar.

(2) + 0,5% of span for measuring range 1 bar

(3) with properly assembled electric connection



Torque 20...30 Nm



| Output signals | 4...20 mA 1 | 0...5 Vdc 4 | 0...10 Vdc 5 |
|-----------------------|---------------------------|------------------------------|-------------------------------|
| N. of wires | 2 | 3 | 3 |
| Load max (Ohm) | $R_L \leq (U_b - 8)/0,02$ | $R_L \geq 5 \text{ K}\Omega$ | $R_L \geq 10 \text{ K}\Omega$ |
| Supply: +Ub (Vdc) | 8...30 | 8...30 | 14...30 |
| Absorbed current (mA) | < 25 | < 10 | < 10 |

All output signals are provided of protection against short circuit and polarity inversion. Insulation tension 500 Vdc.

WIRING

| N. of wires | DIN 175301-803 A | | M12 x 1 | | Cable exit | |
|------------------------|------------------|-----|---------|---|------------|-------|
| | 2 | 3 | 2 | 3 | 2 | 3 |
| Supply connector: Ub | 1 | 1 | 1 | 1 | brown | brown |
| Negative connector: 0V | 2 | 2 | 3 | 3 | white | white |
| Signal: S + | - | 3 | - | 4 | - | green |
| Ground | GND | GND | 2 | 2 | grey | grey |

OPTIONS

| | |
|--|--------------------------------------|
| M12 - Connector M12 x 1, 4 poles | EPD - EPDM gasket for sensor |
| PVC - Cable exit, with 1 mt PVC cable | NBR - NBR gasket for sensor |
| U68 - Cable exit IP68, with 1 mt polyurethane cable | C01 - Calibration certificate |
| FPM - FPM gasket for sensor | VS3 - Restrictor ø 0,3 mm |
| CRP - CR gasket for sensor | |

“HOW TO ORDER” SEQUENCE

Section / Model / Range / Process connection / Output signal / Gasket / Options
8 S18 **41M** **1** **FPM** **C01...VS3**
 43M **4** **CRP**
 21M **5** **EPD**
 23M **NBR**

ceramic pressure transmitter flush diaphragm 0,5% accuracy



CE Compliance to requirements of directives:
EMC 2014/30/EU - PED 2014/68/EU - RoHS 2011/65/EU



8.SMA/LC

Ranges: 0...0,1 / 0...600 bar, relative.
Output signals: 4...20 mA, 0...5 Vcc, 0...10 Vcc.
Non-linearity (BFSL): ≤ 0,25% of span as per IEC 61298-2.
Non-repeatability: ≤ 0,1% of span as per IEC 61298-2.
Accuracy : ≤ ± 0,5 of span ⁽¹⁾.
Annual drift: ≤ 0,2 % of span.
Zero calibration and span calibration: ± 5 % span typical.
Process fluid temperature: -22...+212 °F (-30...+100 °C); -22...+302°F (-30...+150 °C) for version with heat dissipator cod. **8.SMA...TA3**.
Ambient temperature: -13...+185 °F (-20...+85 °C).
Storage temperature : -40...+185 °F (-40...+100 °C).
Response time: < 10ms (adjustment); < 150ms (power on).
Emission and immunity standard: as per IEC61326, (group 1 - B class; industrial application).
Vibration resistence: 20g (10...2000 Hz, as per IEC m60068-2-6).
Shock resistence: 40g (6ms, as per IEC m60068-2-27).
Sensor: ceramic.
Case: stainless steel, vented for pressure ranges ≤ 230 psi (≤ 16 bar).
Protection degree: IP 65 as per EN 60529 ⁽²⁾.
Process connection: AISI 316L st.st. as per DIN 3852.
Diaphragm: AISI 316L st.st.
Sealing: see the available sealings at page 2.
Filling liquid: silicon oil.
Weight: G 1/2: 0,2 kg; G 1: 0,3 kg.

| Ranges bar, relative (1) | Thermal drift ≤ % span / °C (average) | | Overpressure bar, relative |
|-----------------------------|--|---------|-------------------------------|
| | G 3/4 B | G 1/2 B | |
| 0...1 | 0,10 | | 2,5 |
| 0...1,6 | 0,08 | | 5 |
| 0...2,5 | 0,06 | | 5 |
| 0...4 | 0,05 | | 8 |
| 0...6 | 0,04 | | 12 |
| 0...10 | | 0,04 | 20 |
| 0...16 | | 0,03 | 32 |
| 0...25 | | 0,02 | 50 |
| 0...40 | | 0,02 | 80 |
| 0...60 | | 0,02 | 120 |
| 0...100 | | 0,02 | 200 |
| 0...160 | | 0,02 | 320 |
| 0...250 | | 0,02 | 500 |
| 0...400 | | 0,02 | 600 |
| 0...600 | | 0,02 | 600 |

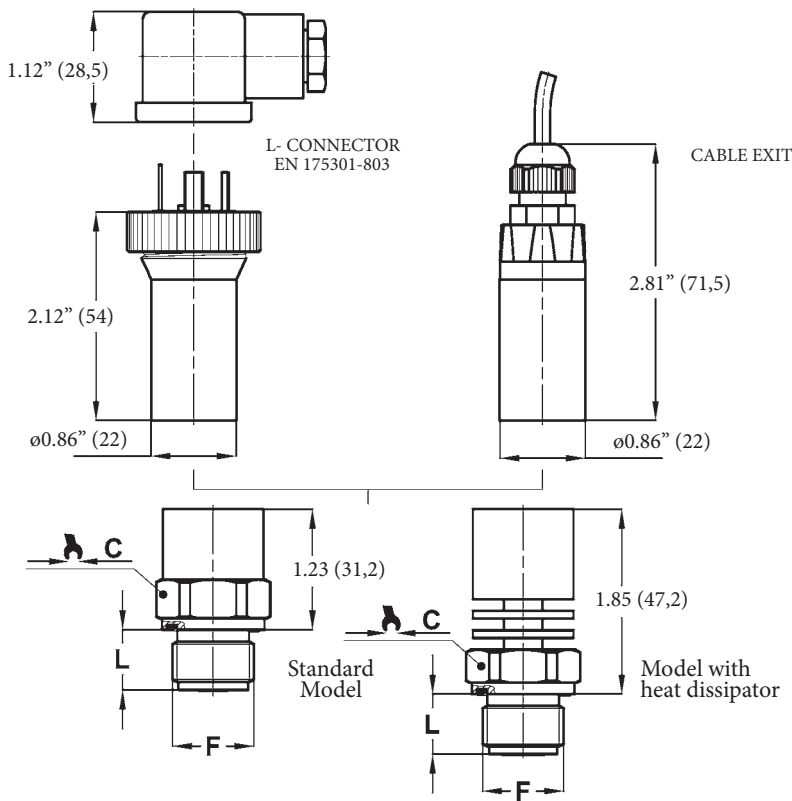
(1) Other unit of measurement and intermediate ranges are available, as requested by customer.

(1) Max error of measurement as per IEC61298-2, non-linearity and hysteresis included (extreme values calibration according to standard IEC 61298-1 when in vertical position)
(2) With properly assembled power connection.

ceramic pressure transmitter
flush diaphragm, 0,5% accuracy

ST MA/LC

RG-06/16



| F | L | C |
|-----------------------|-----------------|---------------|
| 41M G 1/2 A | 0.62" (16) | 1.06" (27) |
| 51M G 3/4 A | 0.64" (16,5) | 1.25" (32) |

dimensions : inches (mm)

| Output signals | 4...20 mA | 0...5 Vdc | 0...10 Vdc |
|-----------------------|---------------------------|------------------------------|-------------------------------|
| | 1 | 4 | 5 |
| N. of wires | 2 | 3 | 3 |
| Load max (Ohm) | $R_L \leq (U_b - 8)/0,02$ | $R_L \geq 5 \text{ K}\Omega$ | $R_L \geq 10 \text{ K}\Omega$ |
| Supply: +Ub (Vdc) | 8...30 | 8...30 | 14...30 |
| Absorbed current (mA) | < 25 | < 10 | < 10 |

All output signals are provided of protection against short circuit and polarity inversion. Insulation tension 500 Vdc.

WIRING

| | DIN 175301-803 A | | M12 x 1 | | Cable exit | |
|------------------------|------------------|-----|---------|---|------------|-------|
| | 2 | 3 | 2 | 3 | 2 | 3 |
| N. of wires | 2 | 3 | 2 | 3 | 2 | 3 |
| Supply connector: Ub | 1 | 1 | 1 | 1 | brown | brown |
| Negative connector: 0V | 2 | 2 | 3 | 3 | white | white |
| Signal: S + | - | 3 | - | 4 | - | green |
| Ground | GND | GND | 2 | 2 | grey | grey |

OPTIONS

| | |
|---|---|
| FPM - Sealing FPM (-20...+150 °C) | C01 - Calibration report |
| NBR - Sealing NBR (-30...+100 °C) | PVC - Electrical connection with cable gland with PVC cable |
| EPD - Sealing EPDM (-30...+150 °C) | U68 - Electrical connection with cable gland with PUR cable (3) |

(1) max 300 bar per T.p. > 100°C

(2) max 200 bar

(3) Zero adjustment not available

“HOW TO ORDER” SEQUENCE

Section / Model / Special versions / Range / Process connection / Output signal / Gasket / Options
8 SMA --- 41M 1 FPM C01...U68
TA3 51M 4
5



piezoresistive pressure transmitter flush diaphragm, double sealing, 0,5% accuracy



CE Compliance with requirements of directives:
EMC 2014/30/CE - PED 2014/68/UE - RoHS 2011/65/UE



8.SMA/DG

Ranges: 0...0,1 / 0...600 bar, relative; -0,4...0/-1...+24 bar, relative;
0...0,4/0...16 bar, absolute

Output signals: 4...20 mA.

Non-linearity (BFSL): $\leq 0,25\%$ of span as per IEC 61298-2.

Non-repeatability: $\leq 0,1\%$ of span as per IEC 61298-2.

Accuracy: $\leq \pm 0,5\%$ of span ⁽¹⁾.

Annual drift: $\leq 0,2\%$ of span.

Zero calibration and span calibration: $\pm 5\%$ span typical.

Process fluid temperature: -22...+212 °F (-30...+100 °C).

Ambient temperature: -13...+185 °F (-20...+85 °C).

Storage temperature: -40...+185 °F (-40...+100 °C).

Response time: < 10ms (adjustment); < 150ms (power on).

Emission and immunity standard: as per IEC61326, (group 1 - B class; industrial application).

Vibration resistance: 20g (10...2000 Hz, as per IEC m60068-2-6).

Shock resistance: 40g (6ms, as per IEC m60068-2-27).

Sensor: piezoresistive.

Case: stainless steel, vented for pressure ranges ≤ 230 psi (≤ 16 bar).

Protection degree: IP 65 as per EN 60529 ⁽²⁾.

Process connection and diaphragm: AISI 316L st.st.

Sealing: double, for a safer tight (see the available sealings at page 2)

Filling liquid: silicon oil.

Weight: G 1/2: 0,2 kg; G 1: 0,33 kg.

| Ranges bar, relative (1) | Thermal drift \leq % span / °C (average) | | Overpressure bar, relative |
|-----------------------------|---|---------|-------------------------------|
| | G 1 B | G 1/2 B | |
| 0...0,1 | 0,04 | | 0,3 |
| 0...0,16 | 0,04 | | 0,5 |
| 0...0,25 | 0,04 | | 0,8 |
| 0...0,4 | 0,03 | | 1,2 |
| 0...0,6 | 0,03 | | 1,8 |
| 0...1 | 0,03 | | 2 |
| 0...1,6 | 0,03 | | 3,2 |
| 0...2,5 | | 0,03 | 5 |
| 0...4 | | 0,03 | 8 |
| 0...6 | | 0,03 | 12 |
| 0...10 | | 0,02 | 20 |
| 0...16 | | 0,02 | 32 |
| 0...25 | | 0,02 | 50 |
| 0...40 | | 0,02 | 80 |
| 0...60 | | 0,02 | 120 |
| 0...100 | | 0,02 | 200 |
| 0...160 | | 0,02 | 320 |
| 0...250 | | 0,02 | 500 |
| 0...400 | | 0,02 | 600 |
| 0...600 | | 0,02 | 600 |

(1) Other ranges available on demand.

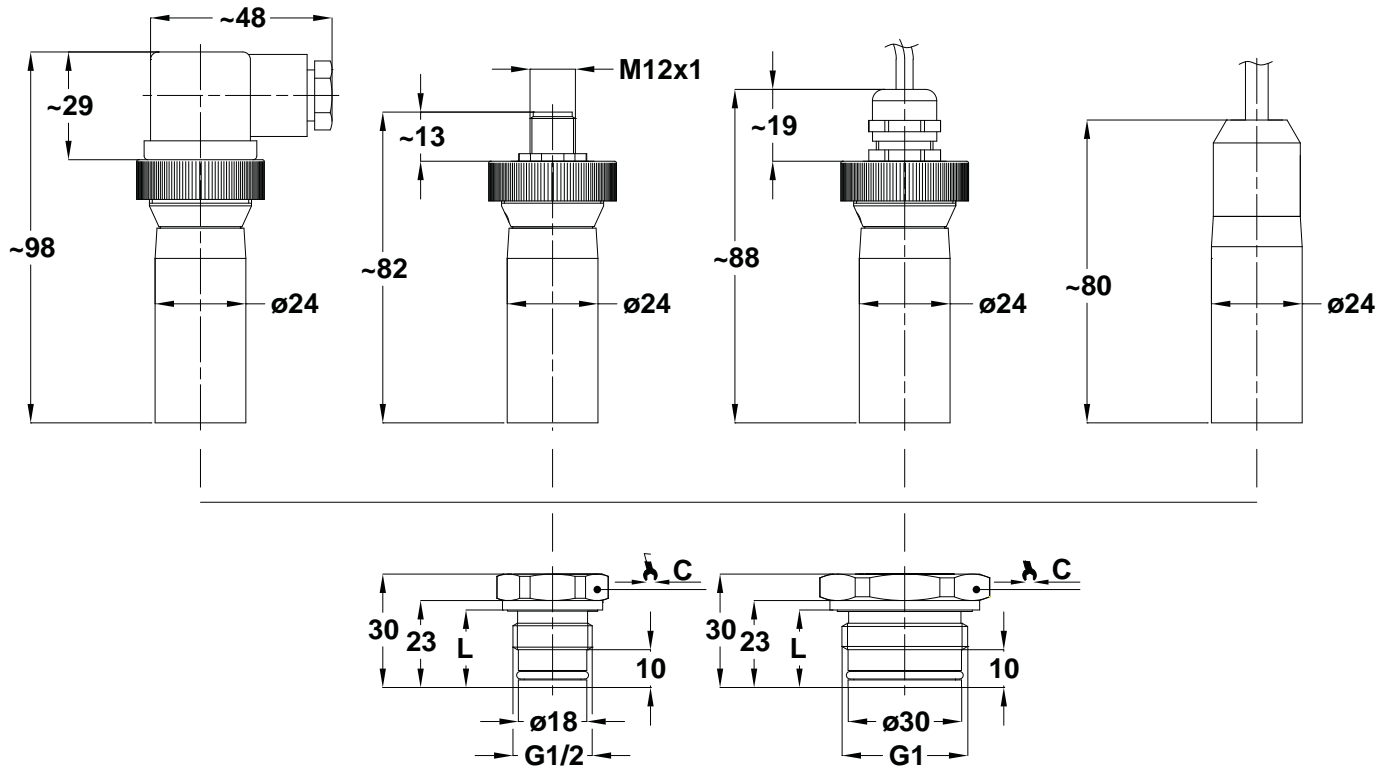
(1) Max error of measurement as per IEC61298-2, non-linearity and hysteresis included (extreme values calibration according to standard IEC 61298-1 when in vertical position)

(2) With properly assembled power connection.

piezoresistive pressure transmitter
flush diaphragm, double sealing, 0,5% accuracy

ST MA/DG

Rg-09/16



IN ORDER TO IMPROVE THEIR PRODUCTION, MESSRS. NUOVA FIMA RESERVE THE RIGHT TO THEMSELVES TO MAKE ALL THE MODIFICATIONS THAT THEY DEEM INDISPENSABLE AT ANY TIME. UPDATED DATA SHEETS ARE AVAILABLE ON SITE: www.nuovafima.com

| | |
|-----------------------|--------------------------------------|
| Output signals | 4...20 mA 4...20 mA |
| N. of wires | 2 |
| Load max (Ohm) | $R_L \leq (U_b - 8) / 0,02$ |
| Supply: +Ub (Vdc) | 10...30 |
| Absorbed current (mA) | < 25 |

| F | L | C |
|-----------------------|-----------------|---------------|
| 41M G 1/2 A | 0.62" (20,5) | 1.06" (27) |
| 61M G 1 A | 0.64" (20,5) | 1.25" (41) |

dimensions : inches (mm)

All output signals are provided of protection against short circuit and polarity inversion. Insulation tension 500 Vdc.

WIRING

| | DIN 175301-803 A | M12 x 1 | Cable exit |
|------------------------|------------------|---------|------------|
| N. of wires | 2 | 2 | 2 |
| Supply connector: Ub | 1 | 1 | brown |
| Negative connector: 0V | 2 | 3 | white |
| Signal: S + | - | - | - |
| Ground | GND | 2 | grey |

OPTIONS

| | | |
|---|-----|--|
| FPM - Sealing FPM (-20...+150 °C) | (1) | C01 - Calibration report |
| NBR - Sealing NBR (-30...+100 °C) | | PVC - Electrical connection with cable gland with PVC cable |
| EPD - Sealing EPDM (-30...+150 °C) | (2) | U68 - Electrical connection with cable gland with PUR cable (3) |

(1) max 300 bar per T.p. > 100°C

(2) max 200 bar

(3) Zero adjustment not available

“HOW TO ORDER” SEQUENCE

Section / Model / Special versions / Range / Process connection / Output signal / Gasket / Options

8 SMA --- 41M 1 FPM C01...U68
TA3 51M 4
5



pressure transmitter for food industry and sanitary applications



74-06

Authorization NO. 1599



PED 2014/68/EU
EMC 2014/30/EU

8.SSA

Ranges: 0...10/0...600 *psi*, relative (0...0,6/0...40 bar, relative);
-30"...0/-30"...350 *psi*, relative (-1...0/-1...+24 bar, relative);
0...10/0...200 *psi*, absolute (0...0,6/0...16 bar, absolute)

Output signals: 4...20 mA, 0...5 Vdc ⁽¹⁾, 0...10 Vdc ⁽¹⁾.

Non-linearity (BFSL): ≤ ± 0,25 % of the range, according to IEC 61298-2.

Non-repeatability: ≤ 0,1 % of the range, according to IEC 61298-2.

Accuracy: ≤ ± 0,5% of the range ⁽²⁾.

Long term drift: ≤ 0,2 % of span.

Zero and span adjustment: ± 10 % span typical.

Process fluid temperature: 14...+185 °F (-10...+85 °C); 14...+302 °F (-10...+150 °C) for high temperature model cod. **8.SSA...TA3**.

Ambient temperature: 14...+185 °F (-10...+85 °C).

Stocking temperature: 14...+185 °F (-10...+85 °C)

Response time: <4 ms (measuring); <150 ms (switching on).

Emission and immunity: according to EN 61326, (group 1 - class B; industrial applications).

Vibration resistance: 20g (10...2000 Hz, according to IEC 60068-2-6).

Shock resistance: 40g (6 ms, according to IEC 60068-2-27).

Sensor: piezoresistive for ranges ≤ 23 *psi* (1,6 bar); ceramic for ranges > 23 *psi* (1,6 bar).

Case: stainless steel, vented for pressure ranges ≤ 230 *psi* (≤ 16 bar).

Protection degree: IP 65 as per EN 60529/IEC 529 ⁽³⁾.

Process connection and diaphragm: AISI 316L st.st., with finishing Ra ≤ 0,8 μm (welded parts included).

Seal fill: oil for food service (FDA).

(1) Available with ceramic sensor only

(2) max measuring error according to IEC 61298-2, including non-linearity and hysteresis (limit-point calibration and reference conditions according to IEC 61298-1).

(3) with properly assembled electric connection

| Ranges psi, relative (1) | Overpressure psi, relative | Thermal drift % span / °F (2) |
|-----------------------------|-------------------------------|----------------------------------|
| 0...10 | 36 | 0.03 |
| 0...15 | 45 | 0.03 |
| 0...25 | 72 | 0.02 |
| 0...30 | 72 | 0.02 |
| 0...60 | 145 | 0.01 |
| 0...100/0...160 | 290 | 0.01 |
| 0...200 | 580 | 0.01 |
| 0...300 | 580 | 0.01 |
| 0...600 | 1450 | 0.01 |

(1) Other unit of measurement, intermediate ranges, vacuum and compound ranges are available, as requested by customer.

(2) Thermal drift on connection DIN 11851 DN40F.

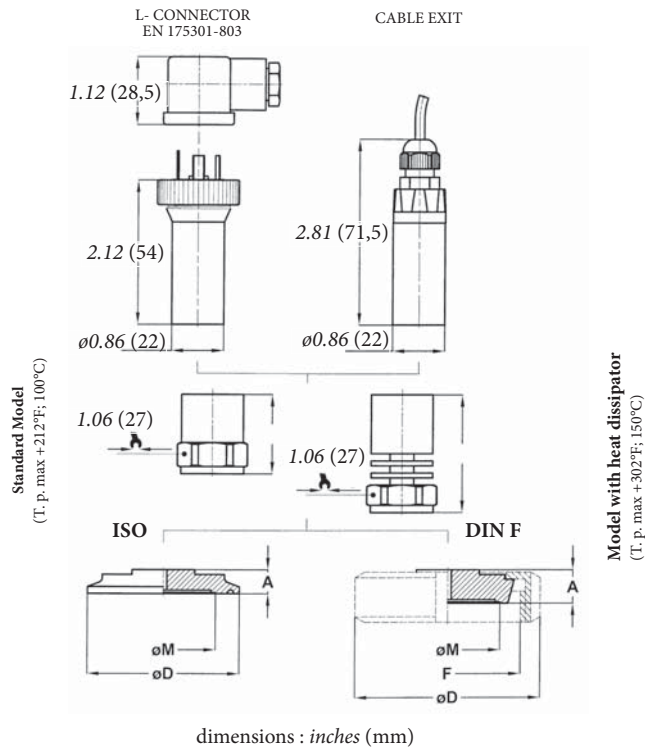
| Ranges bar, relative (1) | Overpressure bar, relative | Thermal drift % span / °C (2) |
|-----------------------------|-------------------------------|----------------------------------|
| 0...0,6 | 2,5 | 0,05 |
| 0...1 | 3 | 0,05 |
| 0...1,6 | 5 | 0,04 |
| 0...2,5 | 5 | 0,04 |
| 0...4 | 10 | 0,02 |
| 0...6/0...10 | 20 | 0,02 |
| 0...16 | 40 | 0,02 |
| 0...25/0...40 | 100 | 0,02 |

(1) Other unit of measurement, intermediate ranges, vacuum and compound ranges are available, as requested by customer.

(2) Thermal drift on connection DIN 11851 DN40F.

pressure transmitter, for food industry and sanitary applications

ST SA



| Pn (bar) | H | Hd |
|----------|-----------------|-----------------|
| ≤ 1,6 | 1.42" (36,2) | 2.05" (52,2) |
| > 1,6 | 1.23" (31,2) | 1.86" (47,2) |

| Output signal | 4...20 mA 1 | 0...5 Vdc 4 | 0...10 Vdc 5 |
|---------------|-------------------------------------|----------------------|-----------------------|
| N. of wires | 2 | 3 | 3 |
| Load (Ohm) | $R_L \leq (V_{in}-8)/0,02$ | $R_L \geq 5 K\Omega$ | $R_L \geq 10 K\Omega$ |
| Supply: +Vin | 10...30 | 8...30 | 14...30 |
| Ground | (pls. refer to Installation Manual) | | |

OPTIONS

| Model | Standard | With heat dissipator |
|---|----------|----------------------|
| C01 - Calibration report | ♦ | ♦ |
| PVC - Cable exit, with PVC cable (1) | ♦ | ♦ |

(1) Zero calibration not available

“HOW TO ORDER” SEQUENCE

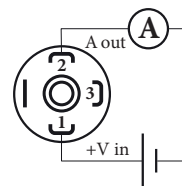
Section / Model / Special Version / Range / Process connection / Output signal / Options

8 SSA --- QHF...THF 1 C01
TA3 BIM 4 PVC
AT0...DT0 5

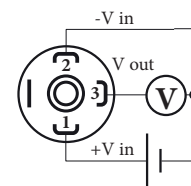
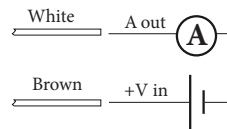
| Standards | DN | A | øD | øM | F |
|------------------------------------|--------|--------------|----------------|----------------|-------------|
| QHF DIN 11851 F (1) (3) | 25 | 0.62 (16) | 2.48 (63) | 0.95 (23,5) | Rd 52 x 1/6 |
| SHF DIN 11851 F (1) (3) | 40 | 0.62 (16) | 3.07 (78) | 1.73 (44) | Rd 65 x 1/6 |
| THF DIN 11851 F (1) (3) | 50 | 0.66 (17) | 3.62 (92) | 2.24 (57) | Rd 78 x 1/6 |
| AT0 ISO 2852 (clamp) (2) | 1" 1/2 | 0.39 (10) | 1.98 (50,5) | 1.33 (34) | |
| BT0 ISO 2852 (clamp) (2) | 2" | 0.39 (10) | 2.51 (64) | 1.73 (44) | |
| DT0 ISO 2852 (clamp) (2) | 2" 1/2 | 0.39 (10) | 3.05 (77,5) | 2.24 (57) | |

dimensions : inches (mm)

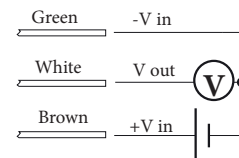
- (1) Execution without roller available on request: pls. contact our Technical Department.
- (2) Execution with clamp, gasket and connection to be welded available on request: pls. contact our Technical Department.
- (3) Gasket System from Siersema Componenten System (S.K.S.) B.V. or Kieslema ASEPTO-STAR k-flex gasket.



4...20 mA



0...5 Vdc
0...10 Vdc



level transmitter



CE Compliance to requirements of directives:
EMC 2014/30/EU - PED 2014/68/EU - RoHS 2011/65/EU

8.SLV

Measuring ranges: 0...0,1/0...25 bar, relative.

Output signals: 4...20 mA.

Non-linearity (BFSL): $\leq \pm 0,175$ % of the range, according to IEC 61298-2.

Non-repeatability: $\leq 0,1$ % of the range, according to IEC 61298-2.

Accuracy: $\leq \pm 0,35$ % of the range ⁽¹⁾.

Thermal drift: between 0 and 60°C, 1% of span; 2,5% of span, max ⁽²⁾.

Long term drift: $\leq 0,2$ % of span.

Process fluid temperature: -10...+60 °C.

Stocking temperature: -10...+60 °C.

Response time: <4 ms (measuring); <150 ms (switching on).

Emission and immunity: according to EN 61326,
(group 1 - class B; industrial applications).

Sensor: piezoresistive, silicon oil.

Case: in AISI 316L.

Gasket: VITON (cod. **FPM**).

Electric connection: poliurethane cable, compensated (cod. **I**).

Protection degree: submersible.

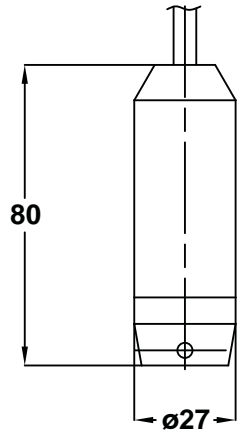
Weight: 0,30 kg

(1) max measuring error according to IEC 61298-2, including non-linearity and hysteresis (limit-point calibration and reference conditions according to IEC 61298-1).

(2) + 0,5% of span for measuring range $\leq 0,6$ bar

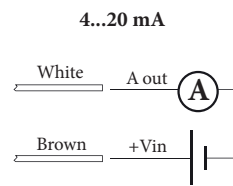
| Ranges bar, relative | Overpressure bar, relative |
|-------------------------|-------------------------------|
| 0...0,1 | 0,3 |
| 0...0,16 | 0,5 |
| 0...0,25 | 0,8 |
| 0...0,4 | 1,2 |
| 0...0,6 | 1,8 |
| 0...1 | 2 |
| 0...1,6 | 3,2 |
| 0...2,5 | 5 |
| 0...4 | 8 |
| 0...6 | 12 |
| 0...10 | 20 |
| 0...16 | 25 |
| 0...25 | 25 |

Other ranges available on demand. Units of measurement available in psi, MPa, kPa too.



dimensions : inches (mm)

| | |
|----------------------|-------------------------------------|
| Output signal | 4...20 mA |
| N. wires | 2 |
| Load (Ohm) | $R_L \leq (V_{in}-8)/0,02$ |
| Supply: +Vin | 10...30 |
| Massa | (pls. refer to Installation Manual) |



“HOW TO ORDER” SEQUENCE

Section / Model / Range / Output signal / Cable type / Cable length / Gasket
8 **SLV** **1** **I** **FPM**



intrinsically safe pressure transmitter, ATEX version, accuracy 0,35 %



II 1 GD Ex ia IIC Ex ia IIIC
II 1/2 GD Ex ia IIC Ex ia IIIC

Certificate :
0425 ATEX 2635

8.X09

Ignition protection Ex ia as per EN 60079-0, EN 60079-11, EN 60079-26, atmosphere type GD :

- category 1 ⁽¹⁾, marking II 1 GD Ex ia IIC Ex ia IIIC (cod. **1GD**);
- category 1/2, marking II 1/2 GD Ex ia IIC Ex ia IIIC (cod. **2GD**).

Temperature classes ⁽²⁾,

- T6 (T85°C)Ta ≤ 60 °C (cod. **T6B**);
- T5 (T100°C)Ta ≤ 80 °C (cod. **T5B**);
- T4 (T135°C)Ta ≤ 100 °C (cod. **T4B**).

Measuring ranges: 0...1/0...1000 bar, relative; -1...0/-1...+24 bar, relative; 0...1/0...25 bar, absolute.

Output signal: 4...20 mA (cod. **1**).

Non-linearity (BFSL): ≤ ± 0,175 % of the range, according to IEC 61298-2.

Non-repeatability: ≤ 0,1 % of the range, according to IEC 61298-2.

Accuracy: ≤ ± 0,35% of the range ⁽³⁾.

Thermal drift: between 0 and 80°C, 1% of span; 2,5% of span, max ⁽⁴⁾.

Long term drift: ≤ 0,1 % of span.

Zero and span adjustment: ± 10 % span typical.

Stocking temperature: -30...+85 °C.

Response time: <4 ms (measuring); <150 ms (switching on).

Emission and immunity: according to EN 61326, (group 1 - class B; industrial applications).

Vibration resistance: 20g (10...2000 Hz, according to IEC 60068-2-6).

Shock resistance: 40g (6 ms, according to IEC 60068-2-27).

Sensor: piezoresistive, with silicon oil.

Case: in AISI 316L, vented up to 16 bar.

Protection degree: IP 65 according to IEC 60529 ⁽⁵⁾.

Process connection: in AISI 316L, hole ø 2,5 mm (with restrictor ø 0,7 mm for measuring ranges ≥ 60 bar).

Weight: 0,25 kg

(1) available with IP 68 metallic cable gland only;

(2) "Tp" : fluid process temperature ≤ "Ta" : ambient temperature; "Tp" & "Ta" ≥ -20 °C.

(3) max measuring error according to IEC 61298-2, including non-linearity and hysteresis (limit-point calibration and reference conditions according to IEC 61298-1); accuracy ≤ ± 0,75% of span for measuring ranges 0...1 bar and 0...600 bar.

(4) + 0,5% of span for measuring range 0,6 bar

(5) with properly assembled electric connection

| Ranges bar, relative | Overpressure bar, relative |
|-------------------------|-------------------------------|
| 0...0,1 | 0,3 |
| 0...0,16 | 0,5 |
| 0...0,25 | 0,8 |
| 0...0,4 | 1,2 |
| 0...0,6 | 1,8 |
| 0...1 | 2 |
| 0...1,6 | 3,2 |
| 0...2,5 | 5 |
| 0...4 | 8 |
| 0...6 | 12 |
| 0...10 | 20 |
| 0...16 | 32 |
| 0...25 | 50 |
| 0...40 | 80 |
| 0...60 | 120 |
| 0...100 | 200 |
| 0...160 | 320 |
| 0...250 | 380 |
| 0...400 | 600 |
| 0...600 | 900 |
| 0...1000 | 1500 |

Other ranges available on demand. Units of measurement available in psi, MPa, kPa too.

intrinsically safe pressure transmitter, ATEX version, accuracy 0,35 %

SX 09

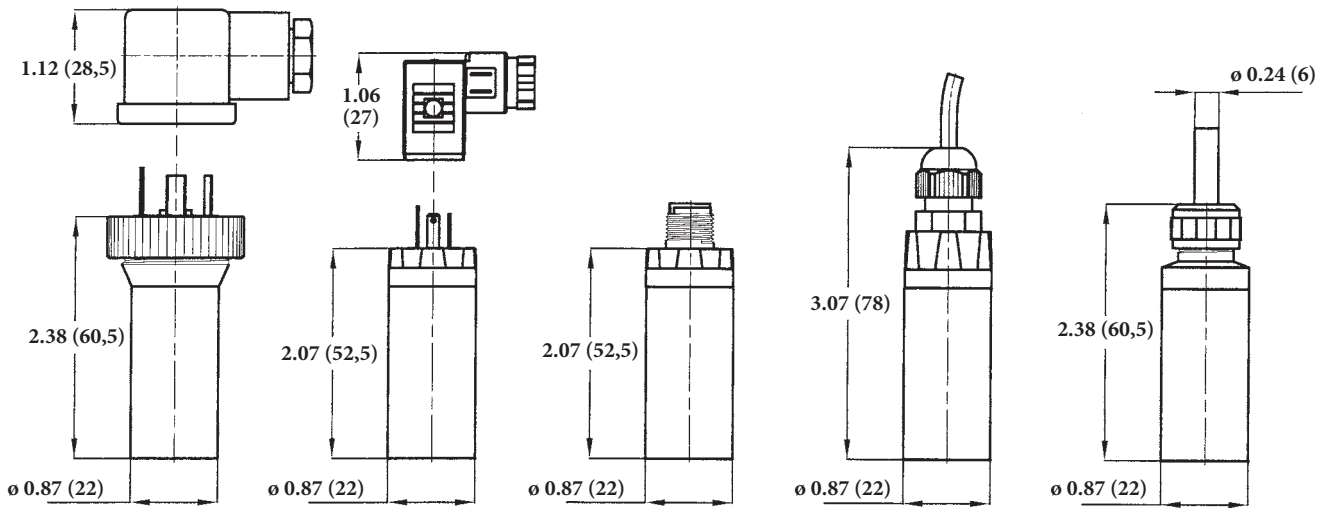
EN 175301-803 (Ex DIN 43650)
IP 65 (standard)

EN 175301-803 Form C
(Ex DIN 43650)
IP 65

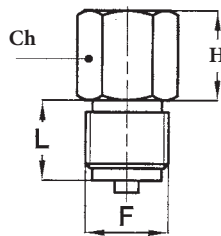
M 12 x 1
IP 65

Cable exit
IP 65

Cable exit
IP 68



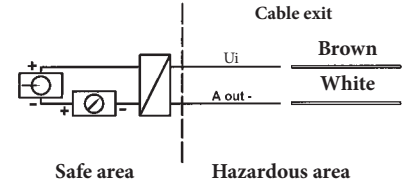
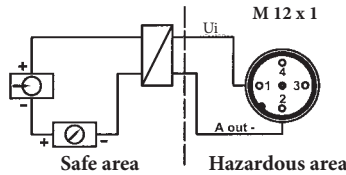
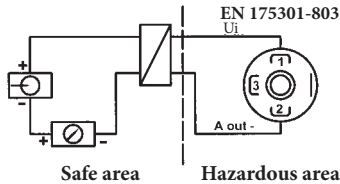
| Electrical features | |
|-------------------------------|--------------------------------|
| N. of wires | 2 |
| Load (Ohm) | $R_L \leq ((U_i - 10) / 0,02)$ |
| Supply (U _i) | 10...30 Vdc |
| Max current (I _i) | ≤ 100 mA |
| Max power (P _i) | 1,0 W |
| Capacitance (C _i) | 19 nF |
| Inductivity (L _i) | 0 mH |



| P _n (bar) | H | Ch |
|----------------------|-----------------|---------------|
| ≤ 100 | 1.08" (27,5) | 0.87" (22) |
| > 100 | 1.24" (31,5) | 0.94" (24) |

| F | L |
|-------------------------|-------|
| 41M - G 1/2 A | 0.78" |
| 43M - 1/2-14 NPT | (20) |
| 21M - G 1/4 A | 0.51" |
| 23M - 1/4-18 NPT | (13) |

dimensions : inches (mm)



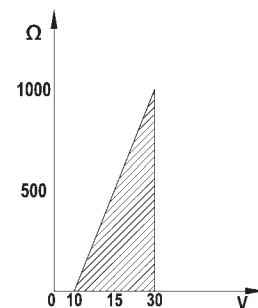
OPTIONS

| Classification | II 1GD | II 1/2GD |
|---|---------|-------------|
| --- - Junction box IP 65, as per EN 175301-803 Form A | | T6...T4 (2) |
| SCC - Junction box IP 65, as per EN 175301-803 Form C (1) | | T6...T4 (2) |
| M12 - Junction box IP 65, M12 x 1 (1) | | T6...T5 |
| PVC - Cable exit IP 65, with PVC cable (1) | | T6...T5 |
| U68 - Cable exit IP 68, with vented polyurethane cable (1) | T6 | T6 |
| CRP - CR gasket | T6...T5 | T6...T5 |
| EPD - EPDM gasket | T6...T4 | T6...T4 |
| NBR - NBR gasket | T6...T5 | T6...T5 |
| FPM - VITON gasket | T6...T4 | T6...T4 |

(1) Zero calibration not available

(2) silicon gasket when T4 temp. class is choose

LOAD RESISTANCE



“HOW TO ORDER” SEQUENCE

Section / Model / Range / Process connection / Output signal / Classification / Temperature / Gasket / Options
8 X09 41M 1 1GD T6B CRP --- ... U68
43M 2GD T5B EPD
T4B NBR
FPM

intrinsically safe pressure transmitter, ATEX version, accuracy 0,5 %



II 1 GD Ex ia IIC Ex ia IIIC
II 1/2 GD Ex ia IIC Ex ia IIIC

Certificate :
0425 ATEX 2635

8.X18

Ignition protection Ex ia as per EN 60079-0, EN 60079-11, EN 60079-26, atmosphere type GD :

- category 1 ⁽¹⁾, marking II 1 GD Ex ia IIC Ex ia IIIC (cod. **1GD**);
- category 1/2, marking II 1/2 GD Ex ia IIC Ex ia IIIC (cod. **2GD**).

Temperature classes ⁽²⁾,

- T6 (T85°C)Ta ≤ 60 °C (cod. **T6B**);
- T5 (T100°C)Ta ≤ 80 °C (cod. **T5B**);
- T4 (T135°C)Ta ≤ 100 °C (cod. **T4B**).

Measuring ranges: 0...1/0...600 bar, relative; -1...0/-1...+24 bar, relative; 0...1/0..25 bar, absolute.

Output signal: 4...20 mA (cod. **1**).

Non-linearity (BFSL): ≤ ± 0,25 % of the range, according to IEC 61298-2.

Non-repeatability: ≤ 0,1 % of the range, according to IEC 61298-2.

Accuracy: ≤ ± 0,5% of the range ⁽³⁾.

Thermal drift: between 0 and 80°C, 1% of span; 2,5% of span, max ⁽⁴⁾.

Long term drift: ≤ 0,1 % of span.

Zero and span adjustment: ± 10 % span typical.

Stocking temperature: -30...+85 °C.

Response time: <4 ms (measuring); <150 ms (switching on).

Emission and immunity: according to EN 61326, (group 1 - class B; industrial applications).

Vibration resistance: 20g (10...2000 Hz, according to IEC 60068-2-6).

Shock resistance: 40g (6 ms, according to IEC 60068-2-27).

Sensor: ceramic in Al₂O₃.

Case: in AISI 316L, vented up to 16 bar.

Protection degree: IP 65 according to IEC 60529 ⁽⁵⁾.

Process connection: in AISI 316L, hole ø 2,5 mm (with restrictor ø 0,7 mm for measuring ranges ≥ 60 bar).

Weight: 0,20 kg

(1) available with IP 68 metallic cable gland only;

(2) "Tp" : fluid process temperature ≤ "Ta" : ambient temperature; "Tp" & "Ta" ≥ -20 °C.

(3) max measuring error according to IEC 61298-2, including non-linearity and hysteresis (limit-point calibration and reference conditions according to IEC 61298-1); accuracy ≤ ± 0,75% of span for measuring ranges 0...1 bar and 0...600 bar.

(4) + 0,5% of span for measuring range 1 bar

(5) with properly assembled electric connection

| Ranges bar, relative | Overpressure bar, relative |
|-------------------------|-------------------------------|
| 0...1 | 5 |
| 0...1,6 | 5 |
| 0...2,5 | 5 |
| 0...4 | 8 |
| 0...6 | 12 |
| 0...10 | 20 |
| 0...16 | 32 |
| 0...25 | 50 |
| 0...40 | 80 |
| 0...60 | 120 |
| 0...100 | 200 |
| 0...160 | 320 |
| 0...250 | 500 |
| 0...400 | 600 |
| 0...600 | 800 |

Other ranges available on demand. Units of measurement available in psi, MPa, kPa too.

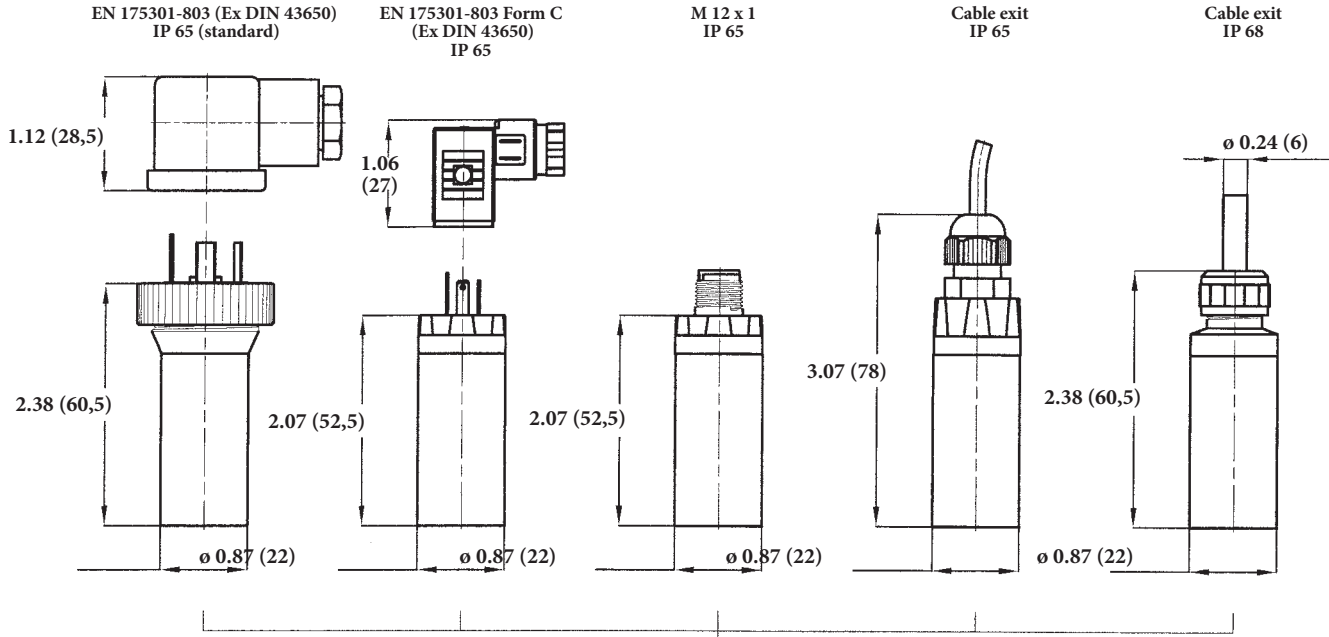
Compliance to requirements of directives: ATEX 94/9/EC - EMC 2004/108/EC - PED 97/23/EC - RoHS 2011/65/EC

intrinsically safe pressure transmitter, ATEX version, accuracy 0,5 %

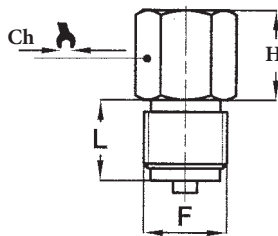
SX 18

RC7-10/15

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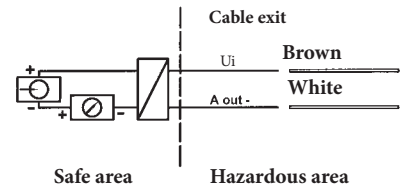
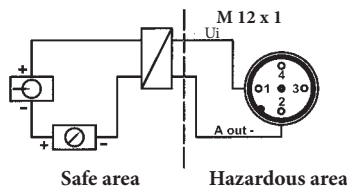
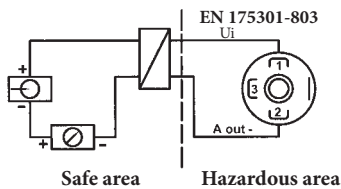
| Electrical features | |
|---------------------|-----------------------------|
| N. of wires | 2 |
| Load (Ohm) | $R_L \leq (V_{in}-10)/0,02$ |
| Supply: (Ui) | 10...30 Vdc |
| Max current (Ii) | ≤ 100 mA |
| Max power (Pi) | 1,0 W |
| Capacitance (Ci) | 19 nF |
| Inductivity (Li) | 0 mH |



| Pn (6ap) | H | Ch |
|----------|--------------|------------|
| 1...4 | 1.06" (27) | 0.87" (22) |
| 6...400 | 0.89" (22,5) | 0.87" (22) |
| > 400 | 0.89" (22,5) | 0.94" (24) |

| F | L |
|------------------|------------|
| 41M - G 1/2 A | 0.78" (20) |
| 43M - 1/2-14 NPT | (20) |
| 21M - G 1/4 A | 0.51" (13) |
| 23M - 1/4-18 NPT | (13) |

dimensions : inches (mm)



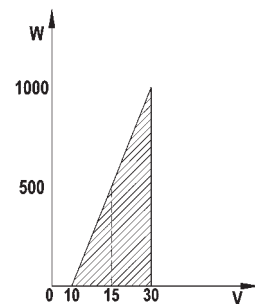
OPTIONS

| Classification | II 1GD | II 1/2GD |
|--|---------|-------------|
| --- - Junction box IP 65, as per EN 175301-803 Form A | | T6...T4 (2) |
| SCC - Junction box IP 65, as per EN 175301-803 Form C (1) | | T6...T4 (2) |
| M12 - Junction box IP 65, M12 x 1 (1) | | T6...T5 |
| PVC - Cable exit IP 65, with PVC cable (1) | | T6...T5 |
| U68 - Cable exit IP 68, with vented polyurethane cable (1) | T6 | T6 |
| CRP - CR gasket | T6...T5 | T6...T5 |
| EPD - EPDM gasket | T6...T4 | T6...T4 |
| NBR - NBR gasket | T6...T5 | T6...T5 |
| FPM - VITON gasket | T6...T4 | T6...T4 |

(1) Zero calibration not available

(2) silicone is the only available gasket for T4 class

LOAD RESISTANCE



"HOW TO ORDER" SEQUENCE

Section / Model / Range / Process connection / Output signal / Classification / Temperature / Gasket / Options

8 X18 41M 1 1GD T6B CRP --- ... U68
 43M
 21M
 23M T5B EPD
 T4B NBR
 FPM

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flush diaphragm pressure transmitter, intrinsically safe ATEX version, accuracy 0,5 %



II 1 GD Ex ia IIC Ex ia IIIC
II 1/2 GD Ex ia IIC Ex ia IIIC

Certificato :
0425 ATEX 2635

8.XMA

Ignition protection Ex ia as per EN 60079-0, EN 60079-11, EN 60079-26, atmosphere type GD :

- category 1 ⁽¹⁾, marking II 1 GD Ex ia IIC Ex ia IIIC (cod. **1GD**);
- category 1/2, marking II 1/2 GD Ex ia IIC Ex ia IIIC (cod. **2GD**).

Temperature classes ⁽²⁾,

- T6 (T85°C)Ta ≤ 60 °C (cod. **T6B**);
- T5 (T100°C)Ta ≤ 80 °C (cod. **T5B**);
- T4 (T135°C)Ta ≤ 100 °C (cod. **T4B**).

Measuring ranges: 0...1/0...600 bar, relative.

Output signal: 4...20 mA (cod. **1**).

Non-linearity (BFSL): ≤ ± 0,25 % of the range, according to IEC 61298-2.

Non-repeatability: ≤ 0,15 % of the range, according to IEC 61298-2.

Accuracy: ≤ ± 0,5% of the range ⁽³⁾.

Long term drift: ≤ 0,2 % of span.

Zero and span adjustment: ± 10 % span typical.

Stocking temperature: -30...+85 °C.

Response time: <4 ms (measuring); <150 ms (switching on).

Emission and immunity: according to EN 61326,
(group 1 - class B; industrial applications).

Vibration resistance: 20g (10...2000 Hz, according to IEC 60068-2-6).

Shock resistance: 40g (6 ms, according to IEC 60068-2-27).

Sensor: ceramic in Al₂O₃.

Case: in AISI 316L, vented up to 16 bar.

Protection degree: IP 65 according to IEC 60529 ⁽⁴⁾.

Diaphragm and process connection: in AISI 316L.

Weight: 0,28 kg

| Ranges bar, relative (1) | Thermal drift % span / °C (3) | Overpressure bar, relative |
|-----------------------------|----------------------------------|-------------------------------|
| 0...1 (2) | 0,08 | 2,5 |
| 0...1,6/0...2,5 (2) | 0,06 | 5 |
| 0...4 (2) | 0,04 | 10 |
| 0...6 (2) | 0,03 | 20 |
| 0...10 | 0,03 | 20 |
| 0...16 | 0,02 | 40 |
| 0...25/0...40 | 0,02 | 100 |
| 0...60/0...100 | 0,02 | 200 |
| 0...160/0...250 | 0,02 | 500 |
| 0...400 | 0,02 | 600 |
| 0...600 | 0,02 | 800 |

(1) Other unit of measurement and intermediate ranges are available, as requested by customer.

(2) Ranges available with G 3/4 A connection only.

(3) Thermal drift on connection G 3/4 A.

(1) available with IP 68 metallic cable gland only;

(2) "Tp" : fluid process temperature ≤ "Ta" : ambient temperature;
"Tp" & "Ta" ≥ -30 °C.

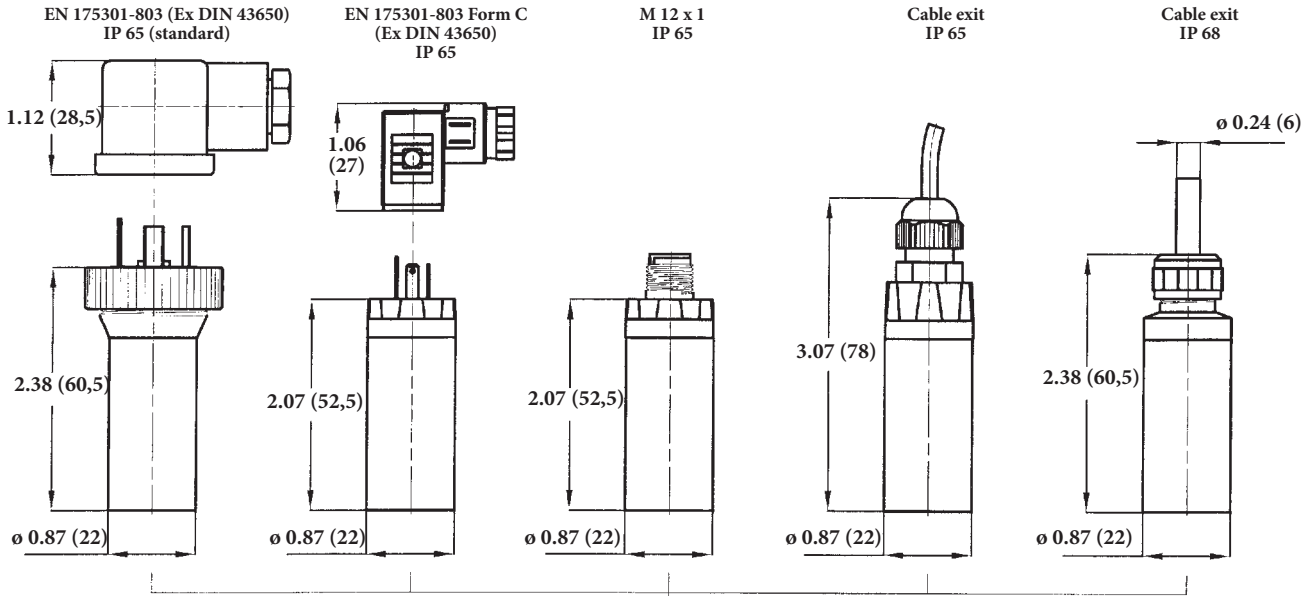
(3) max measuring error according to IEC 61298-2, including non-linearity and hysteresis (limit-point calibration and reference conditions according to IEC 61298-1); accuracy ≤ ± 0,75% of span for measuring ranges 0...1 bar and 0...600 bar.

(4) with properly assembled electric connection

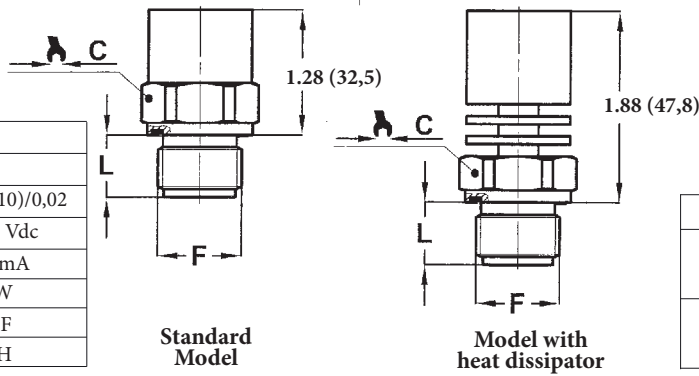
flush diaphragm pressure transmitter, intrinsically safe ATEX version, accuracy 0,5 %

SX MA

R4-1015

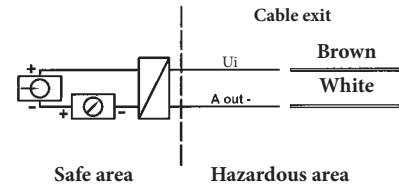
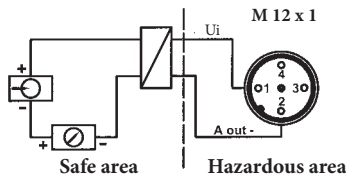
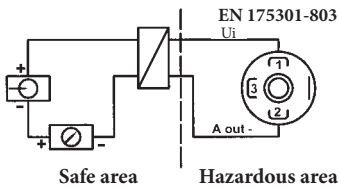


| Electrical features | |
|-----------------------|----------------------------|
| N. of wires | 2 |
| Load (Ohm) | $R_L \leq (U_i - 10)/0,02$ |
| Supply (U_i) | 10...30 Vdc |
| Max current (I_i) | ≤ 100 mA |
| Max power (P_i) | 1,0 W |
| Capacitance (C_i) | 19 nF |
| Inductivity (L_i) | 0 mH |



| F | L | C |
|-----------------------|----------------|--------------|
| 41M G 1/2 B | 0.62 (16) | 1.06 (27) |
| 51M G 3/4 B | 0.64 (16,5) | 1.25 (32) |

dimensions : inches (mm)



OPTIONS

| Classification | II 1GD | II 1/2GD |
|---|--------|-------------|
| --- - Junction box IP 65, as per EN 175301-803 Form A | | T6...T4 (2) |
| SCC - Junction box IP 65, as per EN 175301-803 Form C (1) | | T6...T4 (2) |
| M12 - Junction box IP 65, M12 x 1 (1) | | T6...T5 |
| PVC - Cable exit IP 65, with PVC cable (1) | | T6...T5 |
| U68 - Cable exit IP 68, with vented polyurethane cable (1) | T6 | T6 |

- (1) Zero calibration not available
(2) silicon gasket when T4 temp. class is choose

“HOW TO ORDER” SEQUENCE

Section / Model / Range / Process connection / Output signal / Classification / Temperature / Gasket / Options

8 **XMA** **41M** **1** **1GD** **T6B** **FPM** --- ... **U68**
51M **2GD** **T5B**
T4B

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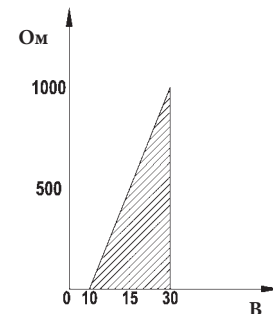
-2-

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LOAD RESISTANCE



**intrinsically safe pressure transmitter,
for food industry and sanitary applications,
ATEX version,
accuracy 0,5 %**



74-06
Authorization NO. 1599



II 1 GD Ex ia IIC Ex ia IIIC
II 1/2 GD Ex ia IIC Ex ia IIIC

Certificate :
CESI 06 ATEX 003 X

Compliance to requirements of directives: ATEX 94/9/EC - EMC 2004/108/EC - PED 97/23/EC - RoHS 2011/65/EC

8.XSA

Ignition protection Ex ia as per EN 60079-0, EN 60079-11, EN 60079-26, atmosphere type GD :

- category 1 ⁽¹⁾, marking **II 1 GD Ex ia IIC Ex ia IIIC (cod. 1GD)**;
- category 1/2, marking **II 1/2 GD Ex ia IIC Ex ia IIIC (cod. 2GD)**.

Temperature classes ⁽²⁾,

- T6 (T85°C)Ta ≤ 60 °C (cod. **T6B**);
- T5 (T100°C)Ta ≤ 80 °C (cod. **T5B**);
- T4 (T135°C)Ta ≤ 100 °C (cod. **T4B**).

Measuring ranges: 0...0,6/0...40 bar, relative; -1...0/-1...+24 bar, relative; 0...0,6/0...16 bar, absolute.

Output signal: 4...20 mA (cod. **1**).

Non-linearity (BFSL): ≤ ± 0,25 % of the range, according to IEC 61298-2.

Non-repeatability: ≤ 0,15 % of the range, according to IEC 61298-2.

Accuracy: ≤ ± 0,5% of the range ⁽³⁾.

Long term drift: ≤ 0,2 % of span.

Zero and span adjustment: ± 10 % span typical.

Stocking temperature: -10...+85 °C.

Response time: <4 ms (measuring); <150 ms (switching on).

Emission and immunity: according to EN 61326, (group 1 - class B; industrial applications).

Vibration resistance: 20g (10...2000 Hz, according to IEC 60068-2-6).

Shock resistance: 40g (6 ms, according to IEC 60068-2-27).

Sensor: ceramic in Al₂O₃ or piezoresistive.

Seal fill: oil for food service (FDA).

Case: in AISI 316L, vented up to 16 bar.

Protection degree: IP 65 according to IEC 60529 ⁽⁴⁾.

Diaphragm and process connection: in AISI 316L.

(1) available with IP 68 metallic cable gland only;

(2) "Tp" : fluid process temperature ≤ "Ta" : ambient temperature; "Tp" & "Ta" ≥ -20 °C.

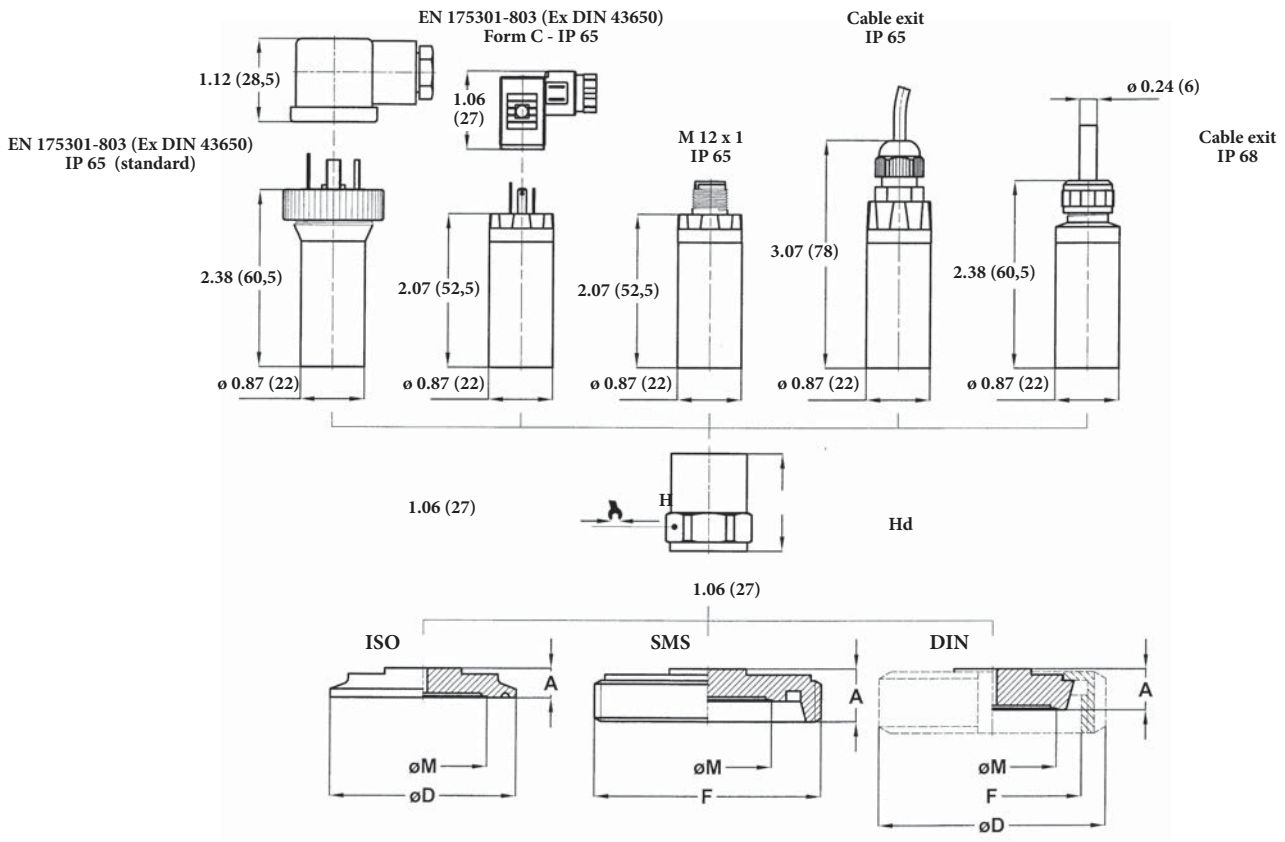
(3) max measuring error according to IEC 61298-2, including non-linearity and hysteresis (limit-point calibration and reference conditions according to IEC 61298-1); accuracy ≤ ± 0,75% of span for measuring range 0...1 bar

(4) with properly assembled electric connection

| Ranges bar, relative (1) | Overpressure bar, relative | Thermal drift % span / °C (2) |
|-----------------------------|-------------------------------|----------------------------------|
| 0...≥ 0,6/0...< 1 | 2,5 | 0,05/0,04 |
| 0...1/0...2,5 | 5 | 0,04/0,03 |
| 0...4 | 10 | 0,02 |
| 0...6/0...10 | 20 | 0,02 |
| 0...16 | 40 | 0,02 |
| 0...25/0...40 | 60 | 0,02 |

(1) Other unit of measurement, intermediate ranges, vacuum and compound ranges are available, as requested by customer.

(2) Thermal drift on connection DIN 11851 DN40F.



| P_n (bar) | H | Hd |
|-------------|-----------------|-----------------|
| $\leq 1,6$ | 1.42" (36,2) | 2.05" (52,2) |
| $> 1,6$ | 1.23" (31,2) | 1.86" (47,2) |

| Standards | DN | A | ϕD | ϕM | F |
|------------------------------------|--------|--------------|----------------|--------------|-------------|
| BIM SMS M (4) | 2" | 0.74 (19) | | 1.73 (44) | Rd 70 x 1/6 |
| ATO ISO 2852 (clamp) (2) | 1" 1/2 | 0.39 (10) | 1.98 (50,5) | 1.33 (34) | |
| BT0 ISO 2852 (clamp) (2) | 2" | 0.39 (10) | 2.51 (64) | 1.73 (44) | |
| DT0 ISO 2852 (clamp) (2) | 2" 1/2 | 0.39 (10) | 3.05 (77,5) | 2.24 (57) | |

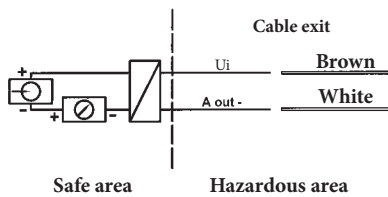
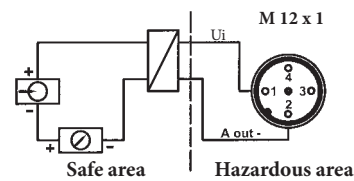
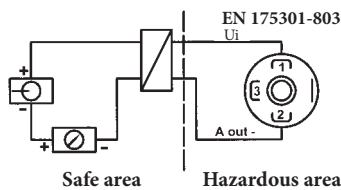
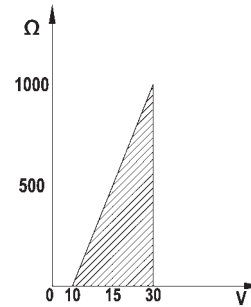
| Standards | DN | A | ϕD | ϕM | F |
|-----------------------------------|----|--------------|--------------|----------------|-------------|
| QHF DIN 11851 F (1) (3) | 25 | 0.62 (16) | 2.48 (63) | 0.95 (23,5) | Rd 52 x 1/6 |
| SHF DIN 11851 F (1) (3) | 40 | 0.62 (16) | 3.07 (78) | 1.73 (44) | Rd 65 x 1/6 |
| THF DIN 11851 F (1) (3) | 50 | 0.66 (17) | 3.62 (92) | 2.24 (57) | Rd 78 x 1/6 |

dimensions : inches (mm)

- (1) Execution without roller available on request: pls. contact our Technical Department.
- (2) Execution with clamp, gasket and connection to be welded available on request: pls. contact our Technical Department.
- (3) Gasket System from Siersema Componenten System (S.K.S.) B.V. or Kieslema ASEPTO-STAR k-flex gasket.
- (4) Not available with 3A marking

| Electrical features | |
|-------------------------------|------------------------------|
| N. of wires | 2 |
| Load (Ohm) | $R_L \leq (U_i - 10) / 0,02$ |
| Supply (U _i) | 10...30 |
| Max current (I _i) | ≤ 100 mA |
| Max power (P _i) | 1,0 W |
| Capacitance (C _i) | 19 nF |
| Inductivity (L _i) | 0 mH |

LOAD RESISTANCE



OPTIONS

| Classification | II 1GD | II 1/2GD |
|---|--------|-------------|
| --- - Junction box IP 65, as per EN 175301-803 Form A | | T6...T4 (2) |
| SCC - Junction box IP 65, as per EN 175301-803 Form C (1) | | T6...T4 (2) |
| M12 - Junction box IP 65, M12 x 1 (1) | | T6...T5 |
| PVC - Cable exit IP 65, with PVC cable (1) | | T6...T5 |
| U68 - Cable exit IP 68, with vented polyurethane cable (1) | T6 | T6 |

- (1) Zero calibration not available
- (2) silicon gasket when T4 temp. class is choose

“HOW TO ORDER” SEQUENCE

Section / Model / Range / Process connection / Output signal / Classification / Temperature / Options
8 XSA BIM...DT0 1 1GD T6B --- ... U68
QHF...THF 2GD T5B
T4B



intrinsically safe level transmitter, ATEX version, accuracy 0,5 %



II 1 G Ex ia IIC Ex ia IIIC

**Certificate :
0425 ATEX 2635**

8.XLV

Ignition protection Ex ia as per EN 60079-0, EN 60079-11, EN 60079-26, atmosphere type G :

- category 1, marking **II 1 GD Ex ia IIC Ex ia IIIC (cod. 1GD)**;

Temperature classes ⁽¹⁾,

-T6 (T85°C) Ta ≤ 60 °C (**cod. T6B**).

Measuring ranges: 0...1/0...25 bar, relative.

Output signal: 4...20 mA (**cod. 1**).

Non-linearity (BFSL): ≤ ± 0,25 % of the range, according to IEC 61298-2.

Non-repeatability: ≤ 0,15 % of the range, according to IEC 61298-2.

Accuracy: ≤ ± 0,5% of the range ⁽²⁾.

Thermal drift: between 0 and 80°C, 1% of span; 2,5% of span, max.

Long term drift: ≤ 0,2 % of span.

Stocking temperature: -10...+60 °C.

Response time: <4 ms (measuring); <150 ms (switching on).

Emission and immunity: according to EN 61326,

(group 1 - class B; industrial applications).

Vibration resistance: 20g (10...2000 Hz, according to IEC 60068-2-6).

Shock resistance: 40g (6 ms, according to IEC 60068-2-27).

Sensor: piezoresistive cell for pressure ranges < 1 bar;

ceramic cell for pressure ranges ≥ 1 bar.

Filling fluid of piezoresistive cell: silicone oil.

Case: in AISI 316L, vented up to 16 bar.

Sensor gasket: VITON (**Cod. FPM**).

Electric connection: poliurethane cable, compensated.

Protection: submersible.

Weight:

for pressure ranges 1 bar = 0,28 kg;

for pressure ranges ≥ 0,6 bar = 0,22 kg.

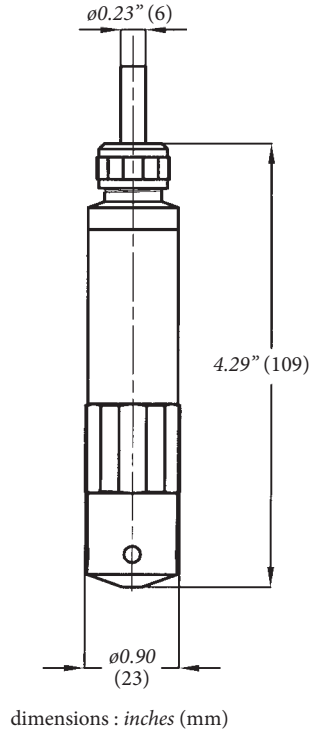
(1) "Tp" : fluid process temperature ≤ "Ta" : ambient temperature;
"Tp" & "Ta" ≥ -20 °C.

(2) max measuring error according to IEC 61298-2, including non-linearity and hysteresis
(limit-point calibration and reference conditions according to IEC 61298-1)

| Ranges relative (1) |
|------------------------|
| 0...0,1/0...≤ 0,6 |
| 0...> 0,6/0...< 1 |
| 0...1/0...2,5 |
| 0...4 |
| 0...6/0...10 |
| 0...16 |
| 0...25 |

(1) Other unit of measurement and intermediate ranges, are available, as requested by customer.

Compliance to requirements of directives: ATEX 94/9/EC - EMC 2004/108/EC - PED 97/23/EC - RoHS 2011/65/EC

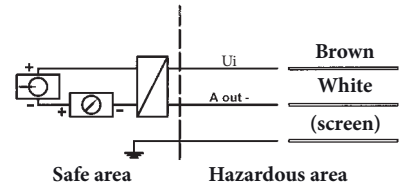
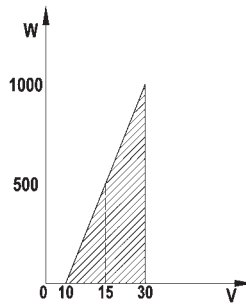


RC3 - 10/15

IN ORDER TO IMPROVE THEIR PRODUCTION, MESSRS. NUOVA FIMA RESERVE THE RIGHT TO THEMSELVES TO MAKE ALL THE MODIFICATIONS THAT THEY DEEM INDISPENSABLE AT ANY TIME. UPDATED DATA-SHEETS ARE AVAILABLE ON SITE: www.nuovafima.com

Load Resistance

| Electrical features | |
|-------------------------------|------------------------------|
| N. of wires | 2 |
| Load (Ohm) | $R_L \leq (U_i - 10) / 0,02$ |
| Supply (U _i) | 10...30 Vdc |
| Max current (I _i) | ≤ 100 mA |
| Max power (P _i) | 1,0 W |
| Capacitance (C _i) | 19 nF |
| Inductivity (L _i) | 0 mH |



“HOW TO ORDER” SEQUENCE

Section / Model / Range / Output signal / Classification / Temperature / Cable type / Gasket
8 XLV 1 IGD T6B I FPM



multifunction digital pressure instrument: gauge, transmitter, switch



CE Compliance to requirements of directives:
EMC 2014/30/EU - PED 2014/68/EU - RoHS 2011/65/EU



8.D18 - Standard Model

Display output: 5 digit x 0.47" (12 mm) height, with analog bar graph.

Display type: graphic with resolution 128 x 64 dots, backlighted.

Output signal: 4...20 mA (cod. **A**), with separated supply (3 wires).

Rangeability (on signal output):

1:5 for pressure ranges ≤ 6000 psi (400bar);

1:2 for pressure ranges > 6000 psi (400bar).

Accuracy (% FSV):

for rangeability 1:1 =

$\leq 0,1$ for pressure ranges ≤ 6000 psi (400bar);

$\leq 0,25$ for pressure ranges > 6000 psi (400bar);

for rangeability $\neq 1:1$,

standard accuracy x (nominal range/calibrated range).

Alarm contacts: nr.2, PNP or NPN.

Calibration: limit-point as per DIN 16086.

Process fluid temperature: $-4...+176$ °F ($-20...+80$ °C).

Compensated temperature range: $+32...+176$ °F; ($0...+80$ °C).

Ambient temperature: $-4...+158$ °F ($-20...+70$ °C).

Supply and max load: see on page 2.

Additional displayed informations: alarms state, minimum or maximum peak value, minimum or maximum ambient temperature, current value of signal output, system alarms.

Safety designation: S1 as per EN 837-2.

Keyboard: polyester.

Sensor: piezoresistive for pressure ranges ≤ 6000 psi (400bar);

st.st. thin film for pressure ranges > 6000 psi (400bar).

Electric connection: junction box as per VDE with exit for cables

$\varnothing 0.27...0.51$ " ($\varnothing 7...13$ mm).

Response time: 0,1 s.

Adsorbed current: ≤ 100 mA + alarms current.

Protection degree: IP 65 as per EN 60529/IEC 529.

Socket material: AISI 316L st.st.

Case: stainless steel, vented for pressure ranges ≤ 1450 psi (100bar).

Ring: stainless steel, crimped.

Weight: 0,52 kg.

| Nominal Ranges in Hg...psi, relative (bar, relative) | Minimum Range psi, relative (bar, relative) | Overpressure psi, relative (bar, relative) |
|--|---|--|
| -3...6 (-0,1...0,4) | 1.45 (0,1) | 11.6 (0,8) |
| -12...23 (-0,4...1,6) | 5.8 (0,4) | 46.4 (3,2) |
| -30...85 (-1...6) | 20.3 (1,4) | 174 (12) |
| -30...230 (-1...16) | 49.3 (3,4) | 464 (32) |
| -30...580 (-1...40) | 119 (8,2) | 1160 (80) |
| -30...1450 (-1...100) | 293 (20,2) | 2900 (200) |
| -30...3600 (-1...250) | 728 (50,2) | 5400 (375) |
| -30...5800 (-1...400) | 1163 (80,2) | 8700 (600) |
| 0...14500 (0...1000) | 7250 (500) | 15950 (1100) |
| 0...23000 (0...1600) | 11600 (800) | 24650 (1700) |

PROGRAMMABLE OPTIONS

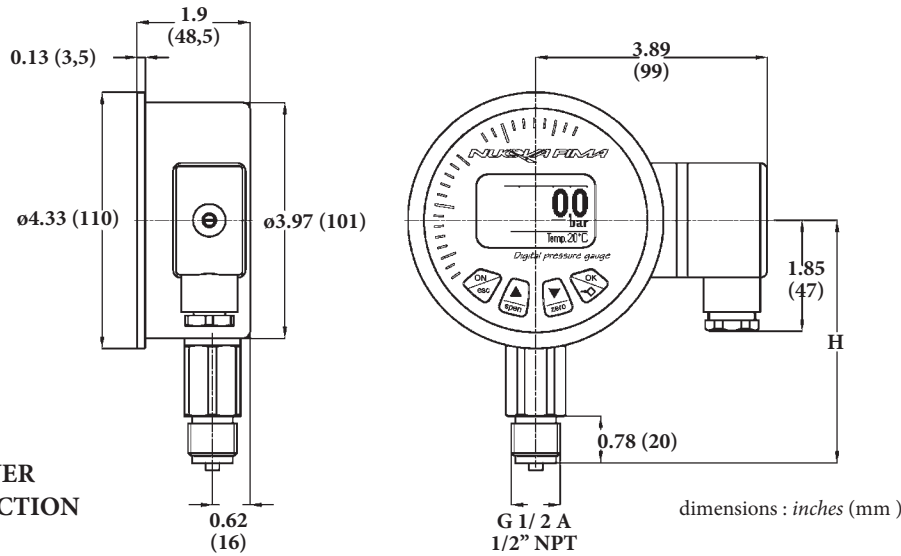
| |
|--|
| Password protection |
| Engineering units: 24 availables (1) |
| Rangeability, zero offset |
| Risoluzion and displayed value damping |
| Analogic output damping |
| Alarm contact type: NPN or PNP |
| Histeresys, window and delay of alarm contacts |
| Backlight time |

(1) bar; mbar; at; kPa; MPa; PSI; kg/cm2; mmHg; inHg; mH2O; cmH2O;

mmH2O; mm; m; feet; inch; l; kg; t; m3; gal; lb; %; mA

multifunction digital pressure instrument: gauge, transmitter, switch

SDM 18



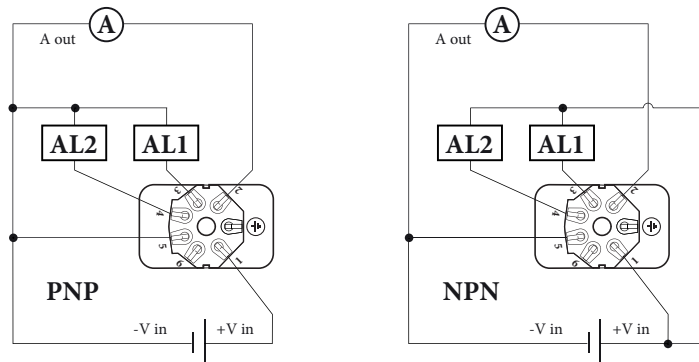
| Pn (bar) | H |
|----------|----------------|
| ≤ 100 | 4.13" (105) |
| > 100 | 4.29" (109) |

A - LOWER CONNECTION

| | |
|--------------------------|-------------------------------------|
| Output signal | 4...20 mA |
| N. wires | 3 |
| Load (Ohm) | $R_L \leq (V_{in} - 11) / 0,02$ |
| Supply: +V _{in} | 11...30 |
| Ground | (pls. refer to Installation Manual) |

| | |
|--|--------------------------------------|
| Alarms | 2 |
| Tipo, programmabile | PNP, NPN |
| Max output current: I _{out} (1) | 100 mA |
| Min. load (Ohm) | $R_{Lm} \geq (V_{in} - 1) / I_{out}$ |
| Supply: +V _{in} | 11...30 |

(1) max value current 0,6 A available on request, NPN or PNP type for both alarms



OPTIONS

| |
|--|
| CRP - CR gasket, for pressure ranges ≤ 1500 psi (100 bar); process fluid temperature: -40...+176 °F (-40...+85°C) |
| EPD - EPDM gasket, for pressure ranges ≤ 1500 psi (100 bar); process fluid temperature: +5...+212 °F (-40...+100°C) |
| FPM - VITON gasket, for pressure ranges ≤ 6000 psi (400 bar); process fluid temperature: -40...+212 °F (-15...+100°C) |
| NBR - NBR gasket; process fluid temperature: -13...+176 °F (-25...+85°C) |
| NP2 - Nr. 2 NPN alarms with 0,6A output current |
| PN2 - Nr. 2 PNP alarms with 0,6A output current |

“HOW TO ORDER” SEQUENCE

Section / Model / Case / Mounting / Diameter / Range / Process connection / Output signal / Gasket / Options

8 D18 1 A E - DN100 41M - G 1/2 A A CRP NP2
43M - 1/2" NPT EPD PN2
FPM
NBR

NUOVA FIMA

NUOVA FIMA S.r.l.

P.O. BOX 58 Via Cesare Battisti, 59

28045 Inverio (NO) Italy

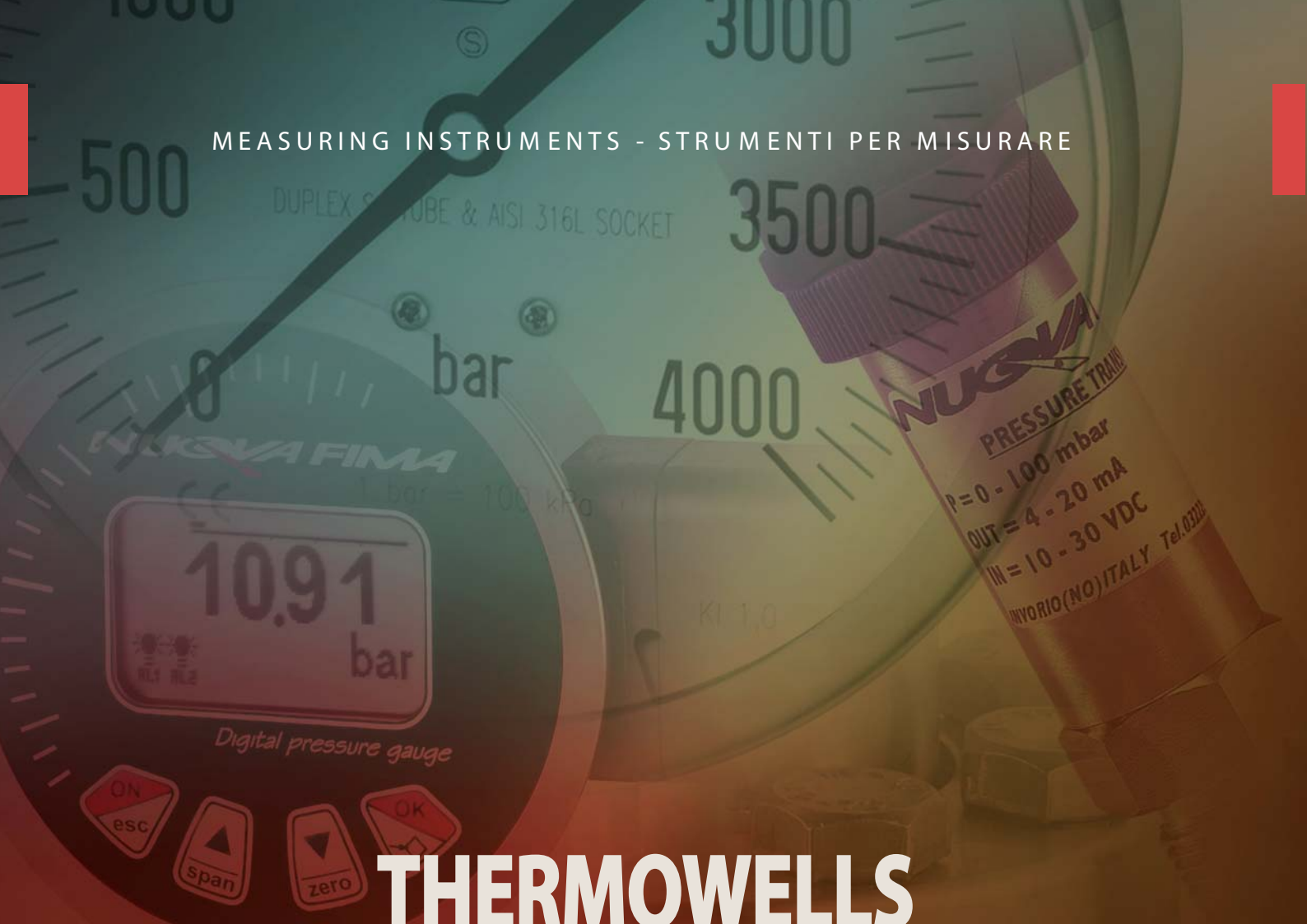
Tel. +39 0322.253200

Fax +39 0322.253232

info@nuovafima.com

www.nuovafima.com

MEASURING INSTRUMENTS - STRUMENTI PER MISURARE

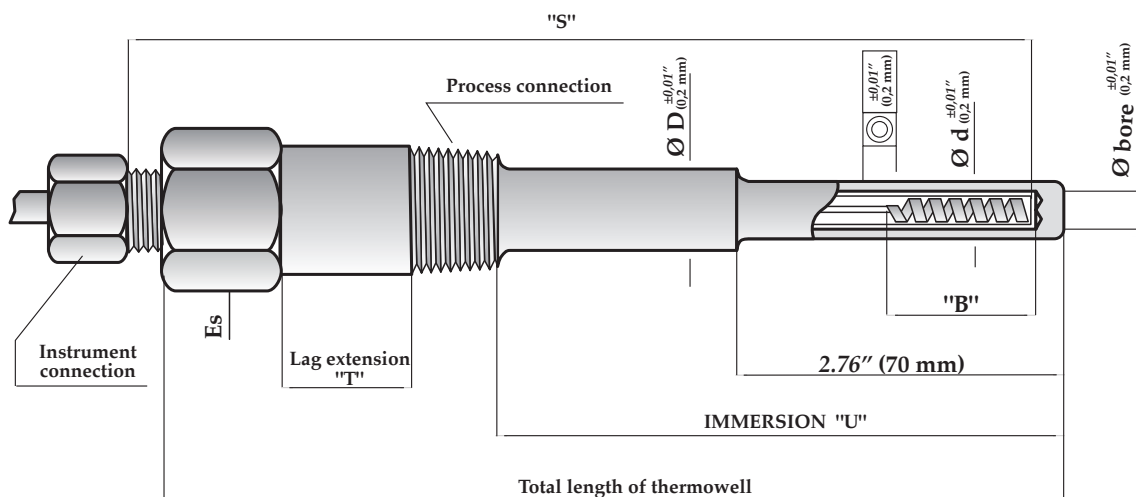


THERMOWELLS

NUOVA FIMA



Thermowells are used to protect bulbs from the effects of corrosion and process fluid flow, due to the high speed at which the process fluid flows, and to enable the thermometer to be interchanged, recalibrated, or replaced, without disturbing the process.



DEFINITION

Immersion "U"

This is the part of the thermowell extending from the underside of the process connection (threaded or flanged) to the tip of the shank that is inserted into the process fluid. The length varies from a minimum of 2.76" (70 mm) to a maximum of 196" (5000 mm) and is sized to suit the length of the sensitive part of thermometer bulbs and the section of the process pipe.

Lag extension "T"

This is the part of the well between the upper tip of the process connection (threaded or flanged) to the lower edge of the hexagon, and it is used to space the body of the temperature instrument, or the electrical connections in the case of thermocouples and thermal resistors, away from the process pipe.

Shank style

The shank is the portion of the thermowell that is inserted into the process, and its shape depends on the characteristics of the process fluid. A tapered shank style, for example, is the most suitable for applications with vapour at high temperature and speed, because it is particularly resistant to the effects of vibrations produced by the speed of the process fluid.

"S" dimension

This dimension related to the temperature sensors, rather than the thermowells. However, it is essential for obtaining a perfect coupling between the two. The "S" dimension can be calculated as follows: total length of the thermowell minus 10 mm.

Sensitive portion "B"

This is another dimension of the temperature sensors and not of the thermowells. When a temperature sensor is connected to a thermowell the sensitive part of the bulb must be located within the "U" immersion area.

GUIDE TO CHOOSING A THERMOWELL

MATERIALS

The choice of materials is generally based upon considerations of resistance to corrosion by the process fluid. Mirror polishing of the part that is immersed in the process confers maximal corrosion-resistance to the thermowell. In addition to the standard materials detailed on the following pages, rod-machined thermowells can also be constructed from MONEL 400, Hastelloy C276, Alloy 825, Alloy 625, Duplex SAF 2205, and Duplex SAF 2507. For special corrosion-resistance requirements, some thermowells may also be coated in PTFE.

PROCESS CONNECTIONS

The threads on thermowell connectors conform to the ASME B1.20.1 standards for NPT threads, and to DIN 3852 form A for Gas threads (UNI 338-BSP). Flanged thermowells have special threaded connectors which are welded to flanges that conform to the ANSI B16.5 or DIN-UNI standards. In these thermowells, the mechanical strength is assured by the threaded connection between the flange and thermowell, while the weld merely acts as a seal.

IMMERSION DEPTH "U"

For optimal measurement accuracy of the temperature sensing element (thermometer or thermistor), it is essential that the sensitive portion of the element be located entirely within the immersion depth.

Process fluid speed

When a thermowell is inserted into a process at a specific fluid speed it creates a turbulent wake (Von Karman Trail), which will have a particular frequency determined by the diameter of the thermowell and the speed of the process fluid. It is important for the thermowell dimensions to be chosen so that the frequency of the Karman wake is less than the resonant frequency of the thermowell. If these frequencies should coincide, the resulting vibrations will cause the destruction of the thermowell.

The maximum speeds and admissible lengths for the W50-60 range and W74-75-93 model thermowells at a temperature of 400 °C are shown alongside (the graph must be taken as a guide and does not replace checking, which must be carried out in depth).

Pressure temperature relation

The maximum permitted working pressure varies as a function of thermocouple wall thickness and temperature. In the pages that follow, graphs are provided that show the maximum operating pressures for thermowells made of AISI 304 or AISI 316, without taking the process fluid speed into consideration.

Checking conformity

The thermowells chosen can be checked by out Technical Department, in accordance with ASME PTC 19.3. This will

Therefore, when selecting a thermowell it is essential to know the exact length of the sensitive portion of the temperature instrument. On bimetallic thermometers and those filled with inert gases and liquid, the sensitive portions vary depending on the measuring range. Refer to catalogue data sheets TB and TG which list the respective dimensions.

THERMOWELL BORE

Different installations require a variety of different instruments for the measurement of temperature. The use of standard bore diameters facilitates interchangeability of the temperature sensors. The thermowells in this catalogue come in the following bore diameters:

Ø 0.28" (7 mm) bore

For bimetallic thermometers (BT) with Ø 0.24" (6 mm) or Ø 0.26" (6,5 mm) (1/4") bulb diameter. For thermocouples or thermistors.

Ø 0.39" (10 mm) bore

For bimetallic thermometers (BT) with Ø 0.31" (8 mm) or Ø 0.38" (9,6 mm) bulb diameter. For inert gas thermometers with Ø 0.31" (8 mm) and Ø 0.38" (9,6 mm) bulb diameter.

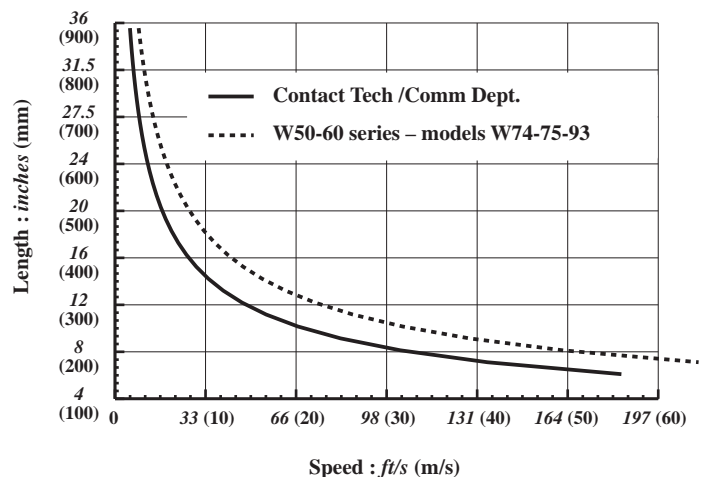
Ø 0.47" (12 mm) bore.

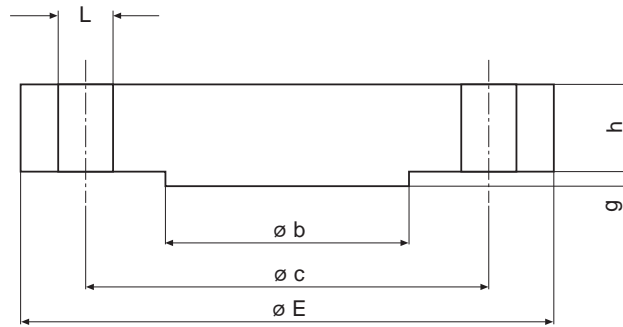
For inert gas thermometers with Ø 0.45" (11,5 mm) bulb diameter.

result in a certificate being issued that states that the thermowell has been checked for conformity in relation to the plant's operating conditions.

When this service is required, the following must be provided:

- Exact thermowell immersion dimensions (bore Ø, point and connections);
- thermowell material;
- pressure, temperature, speed and density of process fluid.





FLANGED CONNECTIONS TO ASME STANDARDS: DIMENSIONS

dimensions : inches

| DN | Class-psi (1) | Cod. | E | b | h | g | c | L | N (2) |
|--------|---------------|------|------|------|------|------|------|------|-------|
| 3/4" | 150 | 5AA | 3.88 | 1.69 | 0.96 | 0.06 | 2.75 | 0.63 | 0.16 |
| 3/4" | 300 | 5BA | 4.63 | 1.69 | 1.14 | 0.06 | 3.25 | 0.75 | 0.16 |
| 3/4" | 600 | 5DA | 4.63 | 1.69 | 1.14 | 0.25 | 3.25 | 0.75 | 0.16 |
| 3/4" | 900 | 5EA | 5.12 | 1.69 | 1.22 | 0.25 | 3.25 | 0.87 | 0.16 |
| 3/4" | 1500 | 5FA | 5.12 | 1.69 | 1.22 | 0.25 | 3.25 | 0.87 | 0.16 |
| 1" | 150 | 6AA | 4.25 | 2 | 0.96 | 0.06 | 3.13 | 0.63 | 0.16 |
| 1" | 300 | 6BA | 4.88 | 2 | 1.2 | 0.06 | 3.50 | 0.75 | 0.16 |
| 1" | 600 | 6DA | 4.88 | 2 | 1.2 | 0.25 | 3.50 | 0.75 | 0.16 |
| 1" | 900 | 6EA | 5.87 | 2 | 1.38 | 0.25 | 4 | 1.02 | 0.16 |
| 1" | 1500 | 6FA | 5.87 | 2 | 1.38 | 0.25 | 4 | 1.02 | 0.16 |
| 1 1/2" | 150 | AAA | 5 | 2.87 | 0.93 | 0.06 | 3.87 | 0.63 | 0.16 |
| 1 1/2" | 300 | ABA | 6.12 | 2.87 | 1.28 | 0.06 | 4.5 | 0.87 | 0.16 |
| 1 1/2" | 600 | ADA | 6.12 | 2.87 | 1.28 | 0.25 | 4.5 | 0.87 | 0.16 |
| 1 1/2" | 900 | AEA | 7.01 | 2.87 | 1.46 | 0.25 | 4.37 | 1.14 | 0.16 |
| 1 1/2" | 1500 | AFA | 7.01 | 2.87 | 1.46 | 0.25 | 4.37 | 1.14 | 0.16 |
| 2" | 150 | BAA | 6 | 3.63 | 0.96 | 0.06 | 4.75 | 0.75 | 0.16 |
| 2" | 300 | BBA | 6.5 | 3.63 | 1 | 0.06 | 5 | 0.75 | 0.32 |
| 2" | 600 | BDA | 6.5 | 3.63 | 1 | 0.25 | 5 | 0.75 | 0.32 |
| 2" | 900 | BEA | 8.5 | 3.63 | 1.5 | 0.25 | 6.5 | 1 | 0.32 |
| 2" | 1500 | BFA | 8.5 | 3.63 | 1.5 | 0.25 | 6.5 | 1 | 0.32 |

FLANGED CONNECTIONS TO UNI-DIN STANDARDS: DIMENSIONS

dimensions : mm

| DN | NP-bar (1) | Cod. | E | b | h | g | c | L | N (2) |
|----|------------|------|-----|-----|----|---|-----|----|-------|
| 20 | 6 | PO0 | 90 | 50 | 12 | 2 | 65 | 11 | 4 |
| 20 | 10...16 | PQ0 | 105 | 58 | 14 | 2 | 75 | 14 | 4 |
| 20 | 25...40 | PS0 | 105 | 58 | 16 | 2 | 75 | 14 | 4 |
| 20 | 100 | PU0 | 130 | 58 | 20 | 2 | 90 | 18 | 4 |
| 25 | 6 | QO0 | 100 | 60 | 12 | 2 | 75 | 11 | 4 |
| 25 | 10...16 | QO0 | 115 | 68 | 14 | 2 | 85 | 14 | 4 |
| 25 | 25...40 | QS0 | 115 | 68 | 16 | 2 | 85 | 14 | 4 |
| 25 | 100 | QU0 | 140 | 65 | 22 | 2 | 100 | 18 | 4 |
| 40 | 6 | SO0 | 130 | 80 | 11 | 3 | 100 | 14 | 4 |
| 40 | 10...16 | SQ0 | 150 | 88 | 13 | 3 | 110 | 18 | 4 |
| 40 | 25...40 | SS0 | 150 | 88 | 15 | 3 | 110 | 18 | 4 |
| 40 | 100 | SU0 | 170 | 85 | 23 | 3 | 125 | 22 | 4 |
| 50 | 6 | TO0 | 140 | 90 | 11 | 3 | 110 | 14 | 4 |
| 50 | 10...16 | TQ0 | 165 | 102 | 15 | 3 | 125 | 18 | 4 |
| 50 | 25...40 | TS0 | 165 | 102 | 17 | 3 | 125 | 18 | 4 |
| 50 | 100 | TU0 | 195 | 95 | 25 | 3 | 145 | 27 | 4 |

- 1) The pressure applied must not exceed 1,5 times the NP for a 20U30AC flange and 1 times the NP for a 340 AC flange.
- 2) NA boring right through.

TOLERANCE AND MACHINING CHARACTERISTICS

OUTSIDE DIAMETER:
±0,01" (0,2 mm)

BORE DIAMETER:
±0,01" (0,2 mm)

BORE CONCENTRICITY:
10% of the thermowell wall thickness.

BASE THICKNESS::
±0,04" (1 mm)

LENGTHS:
±0,04" (1 mm)

IMMERSION FINISH (for bar-stock thermowells):
Ra 3,2Hm; Rz 12,5 Hm; 125 AARH standard finish
Ra 0,8 Hm; Rz 3,2 Hm; 32 AARH for polished finish – to be indicated in order

WELDING

All welds carried out on stainless steel thermowells are done in inert gas atmospheres, with or without the addition of material. Flanged thermowells with full penetration welds are available upon request.

MARKING

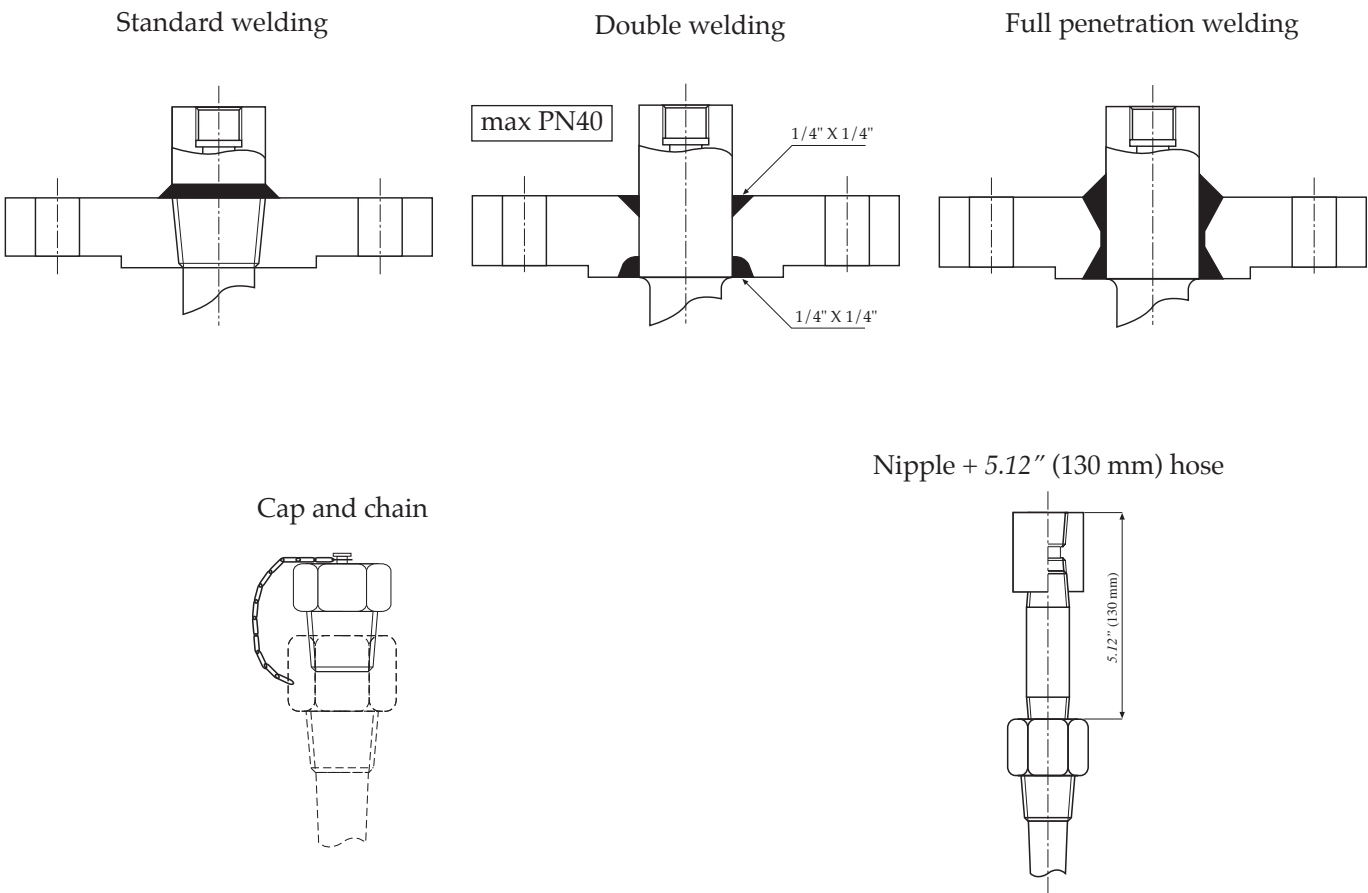
The threaded thermowells have the following markings on the hexagon or round bar:

Material – Immersion – Client's Logo
E.G. AISI 316 - U=125 - TW 1256

The flange of flanged thermowells have the following markings:

Flange rating – Material – Immersion – Client's Logo
E.G. 1" 150 RF 125AARH - ASTM A 105 - U=250 - TW1256

If the thermowell is made of material that differs from that of the flange, the material will also be marked on the thermowell.



**built-up thermowells, straight shank
with threaded connection,
NP25**

W10, W20 serie



Thermowells are used to protect the measuring instrument from corrosion, high pressure or high fluid velocity and to allow the measuring instrument removal for recalibration or replacement without affecting the process system. The w10-W20 serie includes thermowells with threaded process connection. These thermowells are suitable for low/medium work intensity.

9 - Thermowells

Nominal pressure: 360 psi @ 752°F (25 bar @ 400°C).

Process fluid temperature: -328...+752°F (-200...+400 °C), for std materials.

Total length: 196" max (5000 mm).

Insertion hole: **100** - $\varnothing 0,39$ " (10 mm); **120** - $\varnothing 0,47$ " (12 mm)

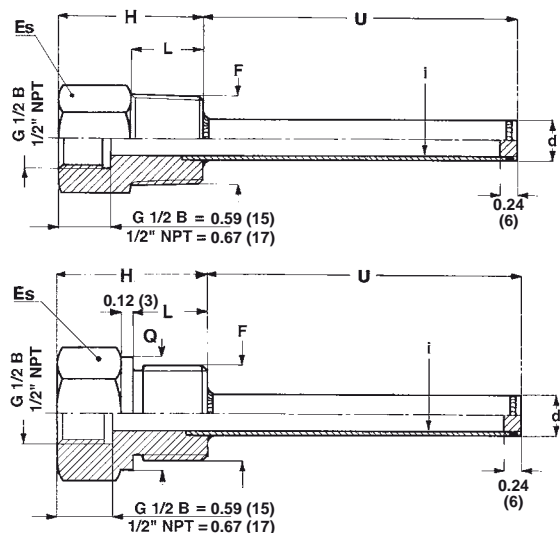
Materials :

insertion, AISI 316 (**Cod. 4**), AISI 316L (**Cod. 5**) st.st. seamless tube;
thread, AISI 316, AISI 316L st.st. bar-stock.

OPTIONS

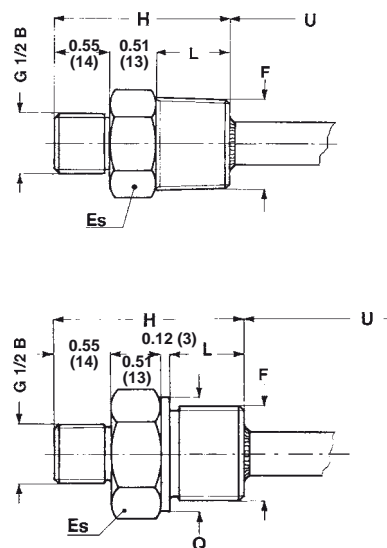
| |
|--|
| E30 - NACE MR0103/MR0175 - ISO15156-3 certificate |
| P02 - Oxygen service |
| TC1 - Plug and chain (1) |

(1) Drawings and details in the "Thermowells information" sheet.



| Mod. | Es. | F | i | d | H | L | Q |
|------|-----------|----------|-----------|-----------|-----------|-----------|-------------|
| W11 | 0.94 (24) | 43M | 0.39 (10) | 0.47 (12) | 1.65 (42) | 0.67 (17) | - |
| | | 1/2" NPT | 0.47 (12) | 0.55 (14) | | | |
| W12 | 1.06 (27) | 53M | 0.39 (10) | 0.47 (12) | 1.69 (43) | 0.71 (18) | - |
| | | 3/4" NPT | 0.47 (12) | 0.55 (14) | | | |
| | | 41M | 0.39 (10) | 0.47 (12) | 1.42 (36) | 0.55 (14) | 1.02 (26) |
| W13 | 1.42 (36) | 63M | 0.39 (10) | 0.47 (12) | 1.81 (46) | 0.83 (21) | - |
| | | 1" NPT | 0.47 (12) | 0.55 (14) | | | |
| W14 | 1.26 (32) | 51M | 0.39 (10) | 0.47 (12) | 1.50 (38) | 0.63 (16) | 1.25 (31,7) |
| | | G 3/4 B | 0.47 (12) | 0.55 (14) | | | |
| W14 | 1.61 (41) | 61M | 0.39 (10) | 0.47 (12) | 1.57 (40) | 0.71 (18) | 1.54 (39) |
| | | G 1 B | 0.47 (12) | 0.55 (14) | | | |

dimensions : inches (mm)



| Mod. | Es. | F | i | d | H | L | Q |
|------|-----------|----------|-----------|-----------|-----------|-----------|-------------|
| W21 | 0.87 (22) | 43M | 0.39 (10) | 0.47 (12) | 1.73 (44) | 0.67 (17) | - |
| | | 1/2" NPT | 0.47 (12) | 0.55 (14) | | | |
| W22 | 1.06 (27) | 53M | 0.39 (10) | 0.47 (12) | 1.77 (45) | 0.71 (18) | - |
| | | 3/4" NPT | 0.47 (12) | 0.55 (14) | | | |
| | | 41M | 0.39 (10) | 0.47 (12) | 1.61 (41) | 0.55 (14) | 1.02 (26) |
| W23 | 1.42 (36) | 63M | 0.39 (10) | 0.47 (12) | 1.89 (48) | 0.83 (21) | - |
| | | 1" NPT | 0.47 (12) | 0.55 (14) | | | |
| W24 | 1.26 (32) | 51M | 0.39 (10) | 0.47 (12) | 1.69 (43) | 0.63 (16) | 1.25 (31,7) |
| | | G 3/4 B | 0.47 (12) | 0.55 (14) | | | |
| W24 | 1.61 (41) | 61M | 0.39 (10) | 0.47 (12) | 1.77 (45) | 0.71 (18) | 1.54 (39) |
| | | G 1 B | 0.47 (12) | 0.55 (14) | | | |

dimensions : inches (mm)

"HOW TO ORDER" SEQUENCE

Section / Model / Material / Instrument connection / Process connection / Insertion hole / Insertion length / Extension length / Options

| | | | | | | |
|---|-----|---|---------------|-----|-----|-----------|
| 9 | W11 | 4 | 41F - G 1/2 | 41M | 100 | E30...TC1 |
| | W12 | 5 | 43F - 1/2 NPT | 51M | 120 | |
| | W13 | | 41M - G 1/2 B | 61M | | |
| | W14 | | | 43M | | |
| | W21 | | | 53M | | |
| | W22 | | | 63M | | |
| | W23 | | | | | |
| | W24 | | | | | |

built-up thermowells, straight shank, with flanged connection, NP 6...25

W82



Thermowells are used to protect the measuring instrument from corrosion, high pressure or high fluid velocity and to allow the measuring instrument removal for recalibration or replacement without affecting the process system. The W82 series includes bar-stock thermowells with flanged process connection. These thermowells are suitable for low / medium work intensity.

9.W82 - Standard Model

Nominal pressure: as flange rating, 360 psi @ 752°F max (25 bar @ 400°C).

Process fluid temperature: -328...+752°F (-200...+400°C), for std materials.

Total length: 196" max (5000 mm).

Insertion hole: 100 - $\varnothing 0,39$ " (10 mm); 120 - $\varnothing 0,47$ " (12 mm)

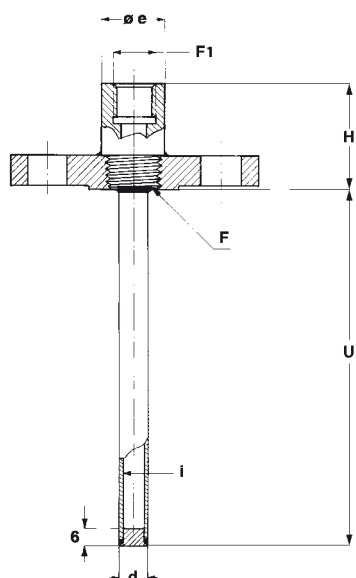
Process connection: plain flanges as per UNI-DIN or ASME B16.5; dimensions and finishing as defined in "Thermowell information" sheet.

Materials: AISI 316 (Cod. 4) or AISI 316L (Cod. 5) st.st tube and thread; ASTM A 105 (Cod. 3), AISI 316 (Cod. 4) st.st flange.

OPTIONS

| |
|--|
| P02 - Oxygen service |
| E30 - NACE MR0103/MR0175 - ISO15156-3 certificate |
| TC1 - Plug and chain (1) |
| NIP - Nipple with coupling (1) |
| P04 - Dye penetrant test (1) |

(1) Drawings and details in the "Thermowells information" sheet.



| F1 |
|------------------|
| 41F - G 1/2 |
| 43F - 1/2-14 NPT |
| 53F - 3/4-14 NPT |

dimensions : inches (mm)

| Standard (1) | DN | | F | e | H | i | d |
|--------------|--------|--------------------|----------|-----------|-----------|-----------|-----------|
| ASME B16.5 | 1/2" | Class 150...300 | 1/2" NPT | 1.18 (30) | 1.57 (40) | 0.39 (10) | 0.47 (12) |
| | 3/4" | | 1/2" NPT | | | | |
| | 1" | | 3/4" NPT | 1.38 (35) | | 0.47 (12) | 0.55 (14) |
| | 1" 1/2 | | 1" NPT | | | | |
| | 2" | | 1" NPT | | | | |
| DIN-UNI | 15 | NP 6...25 bar | 1/2" NPT | 1.18 (30) | 1.57 (40) | 0.39 (10) | 0.47 (12) |
| | 20 | | 1/2" NPT | | | | |
| | 25 | | 3/4" NPT | | | | |
| | 32 | | 1" NPT | 1.38 (35) | | 0.47 (12) | 0.55 (14) |
| | 40 | | 1" NPT | | | | |
| | 50 | | 1" NPT | | | | |

(1) flange dimensions are shown on introductory data-sheet "Introduction to thermowells"

"HOW TO ORDER" SEQUENCE

| Section | Model | Material | Flange / material | Instrument / connection | Process / connection | Insertion hole | Insertion / length | Extension / length | Options |
|---------|-------|----------|-------------------|-------------------------|----------------------|----------------|--------------------|--------------------|-----------|
| 9 | W82 | 4 | 3 | 41F | 6AA | 100 | | | P02...P04 |
| | | 5 | 4 | 43F | | 120 | | | |
| | | | | 53F | | | | | |

bar-stock thermowells, stepped shank, with threaded connection, NP100

W30, W40 serie



Thermowells are used to protect the measuring instrument from corrosion, high pressure or high fluid velocity and to allow the measuring instrument removal for recalibration or replacement without affecting the process system. The W30-W40 serie includes bar-stocked thermowells with a threaded process connection and they are suitable for heavy work conditions. These thermowells have a stepped-shank immersion length for a better process temperature measuring sensibility.

9 - Thermowells

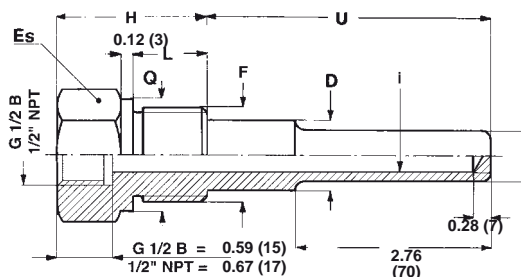
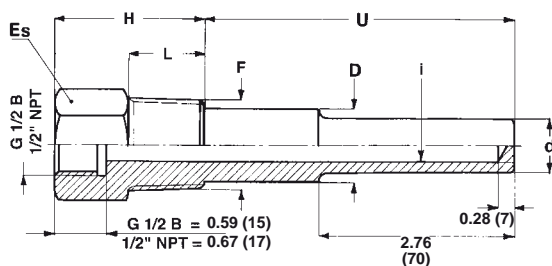
Nominal pressure: 1450 psi @ 752°F (100 bar @ 400°C).

Process fluid temperature: -328...+1112°F (-200...+600°C), for std materials.

Total length: 40" max (1000 mm).

Materials: AISI 316 (Cod. 4), AISI 316L (Cod. 5) st.st. bar-stock.

Special materials: Monel 400, Hastelloy C276, Alloy 825, Alloy 625, Duplex SAF 2205, Duplex SAF 2507 bar-stock.

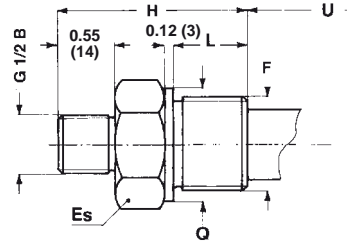
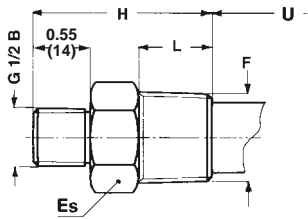


dimensions : inches (mm)

| Mod. | Es. | F | i | D | d | H | L | Q |
|------|--------------------------|-----------------|----------------------------|-----------|-----------|-----------|-----------|-------------|
| W31 | 0.94 (24) ⁽¹⁾ | 43M 1/2" NPT | 0.28-0.31-0.35 (7 - 8 - 9) | 0.71 (18) | 0.59 (15) | 1.81 (46) | 0.79 (20) | - |
| | | | 0.39-0.47 (10 - 12) | | 0.71 (18) | | | |
| W32 | 1.06 (27) ⁽¹⁾ | 53M 3/4" NPT | 0.28-0.31-0.35 (7 - 8 - 9) | 0.71 (18) | 0.59 (15) | 1.81 (46) | 0.79 (20) | - |
| | | | 0.39-0.47 (10 - 12) | 0.83 (21) | 0.71 (18) | | | |
| | | 41M G 1/2 B | 0.28-0.31-0.35 (7 - 8 - 9) | 0.71 (18) | 0.59 (15) | 1.81 (46) | 0.79 (20) | 1.02 (26) |
| | | | 0.39-0.47 (10 - 12) | 0.71 (18) | 0.71 (18) | | | |
| W33 | 1.42 (36) ⁽²⁾ | 63M 1" NPT | 0.28-0.31-0.35 (7 - 8 - 9) | 0.83 (21) | 0.59 (15) | 2.01 (51) | 0.98 (25) | - |
| | | | 0.39-0.47 (10 - 12) | 0.98 (25) | 0.71 (18) | | | |
| | | 51M G 3/4 B | 0.28-0.31-0.35 (7 - 8 - 9) | 0.71 (18) | 0.59 (15) | 1.81 (46) | 0.79 (20) | 1.25 (31,7) |
| | | | 0.39-0.47 (10 - 12) | 0.83 (21) | 0.71 (18) | | | |
| W34 | 1.61 (41) | 61M G 1 B | 0.28-0.31-0.35 (7 - 8 - 9) | 0.83 (21) | 0.59 (15) | 2.01 (51) | 0.79 (20) | 1.54 (39) |
| | | | 0.39-0.47 (10 - 12) | 0.98 (25) | 0.71 (18) | | | |

(1) For insertion length > 16" (400 mm) and/or special material : round bar stock \varnothing 1.18 (30mm) with 0.94" (24 mm) key.

(2) For insertion length > 28" (700 mm) and/or special material : round bar stock \varnothing 1.38 (35mm) with 1.06" (27 mm) key.



dimensions : inches (mm)

| Mod. | Es. | F | i | D | d | H | L | Q |
|------|--------------------------|-----------------|----------------------------|-----------|-----------|-----------|-----------|-------------|
| W41 | 0.94 (24) ⁽¹⁾ | 43M 1/2" NPT | 0.28-0.31-0.35 (7 - 8 - 9) | 0.71 (18) | 0.59 (15) | 2.24 (57) | 0.79 (20) | - |
| | | | 0.39-0.47 (10 - 12) | | 0.69 (18) | | | |
| W42 | 1.06 (27) ⁽¹⁾ | 53M 3/4" NPT | 0.28-0.31-0.35 (7 - 8 - 9) | 0.71 (18) | 0.59 (15) | 2.24 (57) | 0.79 (20) | - |
| | | | 0.39-0.47 (10 - 12) | 0.83 (21) | 0.71 (18) | | | |
| W43 | 1.42 (36) ⁽²⁾ | 41M G 1/2 B | 0.28-0.31-0.35 (7 - 8 - 9) | 0.71 (18) | 0.59 (15) | 2.24 (57) | 0.79 (20) | 1.02 (26) |
| | | | 0.39-0.47 (10 - 12) | | 0.71 (18) | | | |
| W43 | 1.42 (36) ⁽²⁾ | 63M 1" NPT | 0.28-0.31-0.35 (7 - 8 - 9) | 0.83 (21) | 0.59 (15) | 2.44 (62) | 0.98 (25) | - |
| | | | 0.39-0.47 (10 - 12) | 0.98 (25) | 0.71 (18) | | | |
| W44 | 1.61 (41) | 51M G 3/4 B | 0.28-0.31-0.35 (7 - 8 - 9) | 0.71 (18) | 0.59 (15) | 2.24 (57) | 0.79 (20) | 1.25 (31,7) |
| | | | 0.39-0.47 (10 - 12) | 0.83 (21) | 0.71 (18) | | | |
| W44 | 1.61 (41) | 61M G 1 B | 0.28-0.31-0.35 (7 - 8 - 9) | 0.83 (21) | 0.59 (15) | 2.44 (62) | 0.79 (20) | 1.54 (39) |
| | | | 0.39-0.47 (10 - 12) | 0.98 (25) | 0.71 (18) | | | |

(1) For insertion length > 16" (400 mm) and/or special material : round bar stock ø 1.18 (30mm) with 0.94" (24 mm) key.

(2) For insertion length > 28" (700 mm) and/or special material : round bar stock ø 1.38 (35mm) with 1.06" (27 mm) key.

OPTIONS

| |
|--|
| P02 - Oxygen service |
| E30 - NACE MR0103 - MR0175 (ISO15156) certificate |
| TC1 - Plug and chain (1) |
| NIP - Nipple with coupling (1) |

(1) Drawings and details in the "Thermowells information" sheet.

| i |
|--------------------------|
| 070 - ø 0.28 (7) |
| 080 - ø 0.31 (8) |
| 090 - ø 0.35 (9) |
| 100 - ø 0.39 (10) |
| 120 - ø 0.47 (12) |

"HOW TO ORDER" SEQUENCE

| Section | Model | Material | Instrument connection | Process connection | Insertion hole | Insertion length | Extension length | Options |
|---------|-------|----------|-----------------------|--------------------|----------------|------------------|------------------|-----------|
| 9 | W31 | 4 | 41F - G 1/2 | 41M | 070 | | | P02...NIP |
| | W32 | 5 | 43M - 1/2 NPT | 51M | 080 | | | |
| | W33 | | 41M - G 1/2 B | 61M | 090 | | | |
| | W34 | | | 43M | 100 | | | |
| | W41 | | | 53M | 120 | | | |
| | W42 | | | 63M | | | | |
| | W43 | | | | | | | |
| | W44 | | | | | | | |

bar-stock thermowells, stepped shank, with flanged connection, NP 6...100

W92



Thermowells are used to protect the measuring instrument from corrosion, high pressure or high fluid velocity and to allow the measuring instrument removal for recalibration or replacement without affecting the process system. The W92 serie includes bar-stock thermowells with flanged process connection and they are suitable for heavy work conditions. These thermowells have a stepped-shank immersion length for a better process temperature measuring sensibility.

9.W92 - Standard Model

Nominal pressure: as flange rating, 1450 psi @ 752°F max (100 bar @ 400°C).

Process fluid temperature: -328...+1112°F (-200...+600°C), for std materials.

Total length: max 40" (1000 mm).

Process connection: plain flanges as per UNI-DIN or ASME B16.5; dimensions and finishing as defined in "Thermowell information" sheet.

Materials:

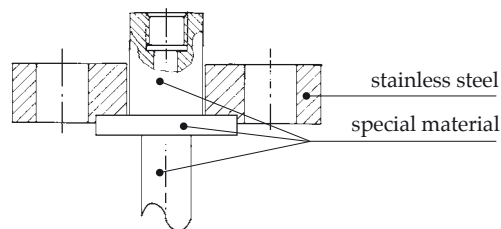
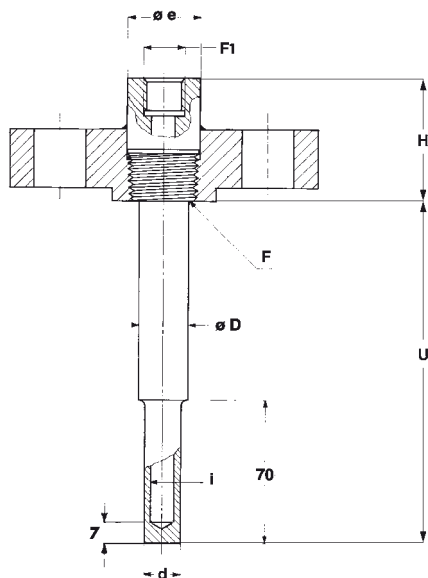
AISI 316 (Cod. 4) or AISI 316L (Cod. 5) st.st. bar-stock;
ASTM A 105 (Cod. 3), AISI 316 (Cod. 4) st.st. flange.

Special materials : Monel 400, Hastelloy C276, Alloy 825, Alloy 625, Duplex SAF 2205, Duplex SAF 2507 flange and bar-stock (the flange is also available made by stainless steel, with wetted parts made by special material)

OPTIONS

| |
|---|
| P02 - Oxygen service |
| E30 - NACE MR0103/MR0175 - ISO 15156-3 certificate |
| TC1 - Plug and chain (1) |
| NIP - Nipple with coupling (1) |
| Double welding (1) |
| FUL - "full penetration" welding (1) |
| P04 - Dye penetrant test (1) |
| CVK - ASME PTC 19.3 TW calculation (1) |

(1) Drawings and details in the "Thermowells information" sheet.



Version with stainless steel flange, but wetted parts made by special material

| F1 |
|------------------|
| 41F - G 1/2 |
| 43F - 1/2-14 NPT |
| 53F - 3/4-14 NPT |

| i |
|-------------------------------|
| 070 - \varnothing 0.28 (7) |
| 080 - \varnothing 0.31 (8) |
| 090 - \varnothing 0.35 (9) |
| 100 - \varnothing 0.39 (10) |
| 120 - \varnothing 0.47 (12) |

dimensions : inches (mm)

| Standard | DN | | F | e | H | i | D | d |
|------------|-------------|---------------------|----------|-----------|-----------|----------------------------|-------------|-----------|
| ASME B16.5 | 3/4" | Class 150...1500 | 1/2" NPT | 1.18 (30) | 2.36 (60) | 0.28-0.31-0.35 (7 - 8 - 9) | 0.69 (17,5) | 0.59 (15) |
| | | | | | | 0.39-0.47 (10 - 12) | 0.71 (18) | 0.71 (18) |
| | 1" | | 3/4" NPT | 1.18 (30) | 2.36 (60) | 0.28-0.31-0.35 (7 - 8 - 9) | 0.71 (18) | 0.59 (15) |
| | | | | | | 0.39-0.47 (10 - 12) | 0.83 (21) | 0.71 (18) |
| | 1"1/2 2" | | 1" NPT | 1.38 (35) | 2.36 (60) | 0.28-0.31-0.35 (7 - 8 - 9) | 0.83 (21) | 0.59 (15) |
| | | | | | | 0.39-0.47 (10 - 12) | 0.98 (25) | 0.71 (18) |
| EN 1092 | 20 | NP 6...100 | 1/2" NPT | 1.18 (30) | 2.36 (60) | 0.28-0.31-0.35 (7 - 8 - 9) | 0.69 (17,5) | 0.59 (15) |
| | | | | | | 0.39-0.47 (10 - 12) | 0.71 (18) | 0.71 (18) |
| | 25 | | 3/4" NPT | 1.18 (30) | 2.36 (60) | 0.28-0.31-0.35 (7 - 8 - 9) | 0.71 (18) | 0.59 (15) |
| | | | | | | 0.39-0.47 (10 - 12) | 0.83 (21) | 0.71 (18) |
| | 32, 40, 50 | | 1" NPT | 1.38 (35) | 2.36 (60) | 0.28-0.31-0.35 (7 - 8 - 9) | 0.83 (21) | 0.59 (15) |
| | | | | | | 0.39-0.47 (10 - 12) | 0.98 (25) | 0.71 (18) |

"HOW TO ORDER" SEQUENCE

| Section | Model | Material | Flange / material | Instrument / connection | Process / connection | Insertion hole / Insertion length | Extension / length | Options |
|---------|-------|----------|-------------------|-------------------------|----------------------|-----------------------------------|--------------------|-----------|
| 9 | W92 | 4 | 3 | 41F | 6AA | 070 | | P02...P04 |
| | | 5 | 4 | 43F | | 080 | | |
| | | | | 53F | | 090 | | |
| | | | | | | 100 | | |
| | | | | | | 120 | | |

bar-stock thermowells, weld-in connection, NP 100...250

W70 serie



Thermowells are used to protect the measuring instrument from corrosion, high pressure or high fluid velocity and to allow the measuring instrument removal for recalibration or replacement without affecting the process system. The W72-W73 serie includes bar stock thermowells with weld-in socket process connection and they are suitable for heavy work conditions. These thermowells are suitable for low / medium work intensity. These thermowells have a stepped-shank immersion length for a better process temperature measuring sensibility. The W75-W75 serie includes bar stock thermowells with weld-in socket process connection and they are suitable for heavy work conditions. These thermowells have a conic immersion length.

9 - Thermowells

Nominal pressure:

stepped shank : 11450 psi @ 752°F (100 bar @ 400°C);

tapered shank : 3600 psi @ 752°F (250 bar @ 400°C).

Process fluid temperature: -328...+1112°F (-200...+600°C), for std materials.

Total length: max 40" (1000 mm).

Materials : AISI 316 (Cod. 4), AISI 316L (Cod. 5) st.st. bar-stock.

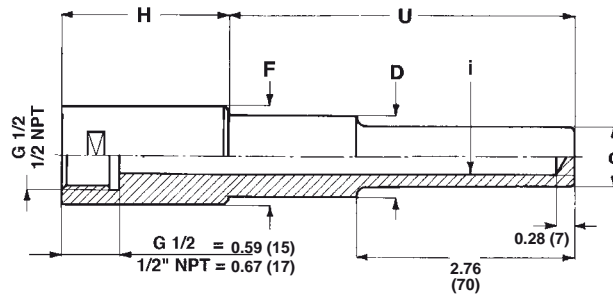
Special materials : Monel 400, Hastelloy C276, Alloy 825, Alloy 625, Duplex SAF 2205, Duplex SAF 2507 bar-stock.

OPTIONS

| |
|--|
| P02 - Oxygen service |
| E30 - NACE MR0103 - MR0175 (ISO15156) certificate |
| TC1 - Plug and chain (1) |
| NIP - Nipple with coupling (1) |
| CVK - Von Karman Trail calculation (1) (2) |

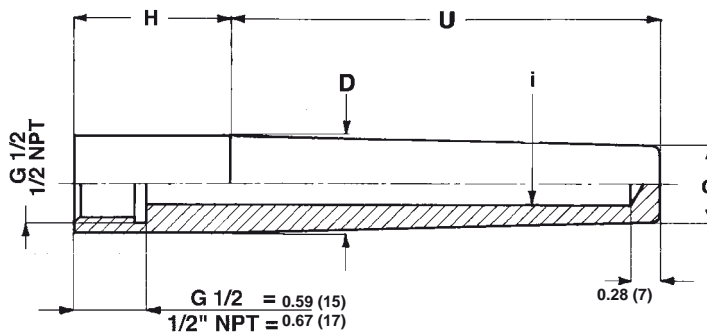
(1) Drawings and details in the "Thermowells information" sheet.

(2) Available for tapered shank only .



| Mod. | DN | F | i | D | d | H |
|------|------|-------------|---------------------------|-----------|-----------|-----------|
| W72 | 3/4" | 1.06 (26,9) | 0.28-0.31-0.35 (7 - 8 -9) | 0.75 (19) | 0.59 (15) | 1.81 (46) |
| | | | 0.39-0.47 (10 - 12) | 0.75 (19) | 0.71 (18) | |
| W73 | 1" | 1.31 (33,4) | 0.28-0.31-0.35 (7 - 8 -9) | 0.87 (22) | 0.59 (15) | 2.01 (51) |
| | | | 0.39-0.47 (10 - 12) | 0.87 (22) | 0.71 (18) | |

dimensions : inches (mm)



| Mod. | DN | i | D | d | H |
|------|-------|---------------------------|--------------|-----------|-----------|
| W74 | 1" | 0.28-0.31-0.35 (7 - 8 -9) | 1.31 (33,4) | 0.71 (18) | 2.01 (51) |
| | | 0.39-0.47 (10 - 12) | | 0.83 (21) | |
| W75 | 1"1/4 | 0.28-0.31-0.35 (7 - 8 -9) | 1.66 (42,16) | 0.71 (18) | 2.01 (51) |
| | | 0.39-0.47 (10 - 12) | | 0.83 (21) | |

dimensions : inches (mm)

| i |
|-------------------|
| 070 - ø 0.28 (7) |
| 080 - ø 0.31 (8) |
| 090 - ø 0.35 (9) |
| 100 - ø 0.39 (10) |
| 120 - ø 0.47 (12) |

"HOW TO ORDER" SEQUENCE

Section / Model / Material / Instrument connection / Process connection / Insertion hole / Insertion / Extension / Options
length length length

| | | | | | | |
|---|-----|---|---------------|-----|-----|-----------|
| 9 | W72 | 4 | 41F - G 1/2 | 700 | 070 | P02...CVK |
| | W73 | 5 | 43M - 1/2 NPT | | 080 | |
| | W74 | | | | 090 | |
| | W75 | | | | 100 | |
| | | | | | 120 | |

bar-stock thermowells, tapered shank, with threaded connection, NP250

W50, W60 serie



Thermowells are used to protect the measuring instrument from corrosion, high pressure or high fluid velocity and to allow the measuring instrument removal for recalibration or replacement without affecting the process system. The W50-W60 serie includes bar-stocked thermowells with a threaded process connection and they are suitable for heavy work conditions. These thermowells have a conic immersion length.

9 - Thermowells

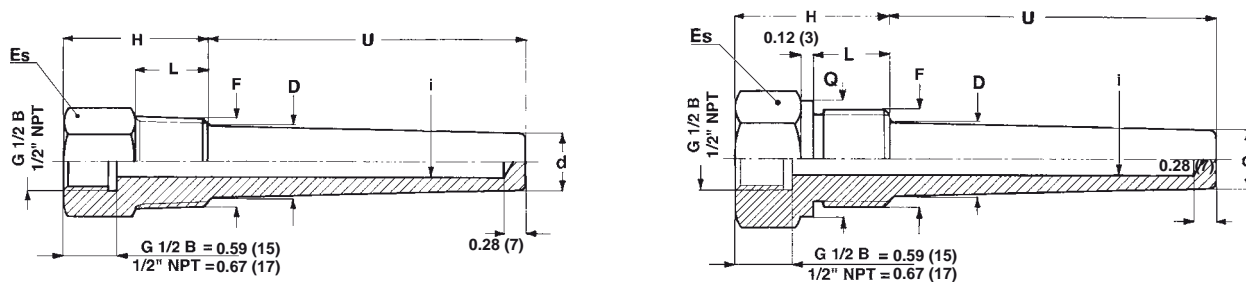
Nominal pressure: 3600 psi @ 752°F (250 bar @ 400°C).

Process fluid temperature: -328...+1112°F (-200...+600°C), for std materials.

Total length: 40" max (1000 mm).

Materials : AISI 316 (Cod. 4), AISI 316L (Cod. 5) st.st. bar-stock.

Special materials : Monel 400, Hastelloy C276, Alloy 825, Alloy 625, Duplex SAF 2205, Duplex SAF 2507 bar-stock.

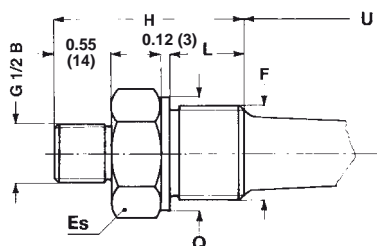
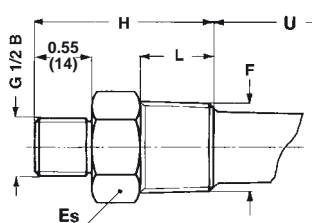


dimensions : inches (mm)

| Mod. | Es. | F | i | D | d | H | L | Q |
|------|--------------------------|-----------------|----------------------------|-----------|-----------|-----------|-----------|-------------|
| W52 | 1.06 (27) ⁽¹⁾ | 53M 3/4" NPT | 0.28-0.31-0.35 (7 - 8 - 9) | 0.91 (23) | 0.71 (18) | 1.81 (46) | 0.79 (20) | - |
| | | | 0.39-0.47 (10 - 12) | | 0.83 (21) | | | |
| W53 | 1.42 (36) ⁽²⁾ | 63M 1" NPT | 0.28-0.31-0.35 (7 - 8 - 9) | 1.14 (29) | 0.71 (18) | 2.01 (51) | 0.98 (25) | - |
| | | | 0.39-0.47 (10 - 12) | | 0.83 (21) | | | |
| W54 | 1.61 (41) | 51M G 3/4 B | 0.28-0.31-0.35 (7 - 8 - 9) | 0.91 (23) | 0.71 (18) | 1.81 (46) | 0.79 (20) | 1.25 (31,7) |
| | | | 0.39-0.47 (10 - 12) | | 0.83 (21) | | | |
| W54 | 1.61 (41) | 61M G 1 B | 0.28-0.31-0.35 (7 - 8 - 9) | 1.14 (29) | 0.71 (18) | 2.01 (51) | 0.98 (25) | 1.54 (39) |
| | | | 0.39-0.47 (10 - 12) | | 0.83 (21) | | | |

(1) For insertion length > 16" (400 mm) and/or special material : round bar stock ø 1.18 (30mm) with 0.94" (24 mm) key.

(2) For insertion length > 28" (700 mm) and/or special material : round bar stock ø 1.38 (35mm) with 1.06" (27 mm) key.



dimensions : inches (mm)

| Mod. | Es. | F | i | D | d | H | L | Q |
|------|--------------------------|-----------------|---------------------------|-----------|-----------|-----------|-----------|-------------|
| W62 | 1.06 (27) ⁽¹⁾ | 53M 3/4" NPT | 0.28-0.31-0.35 (7 - 8 -9) | 0.91 (23) | 0.71 (18) | 2.24 (57) | 0.79 (20) | - |
| | | | 0.39-0.47 (10 - 12) | | 0.83 (21) | | | |
| W63 | 1.42 (36) ⁽²⁾ | 63M 1" NPT | 0.28-0.31-0.35 (7 - 8 -9) | 1.14 (29) | 0.71 (18) | 2.44 (62) | 0.98 (25) | - |
| | | | 0.39-0.47 (10 - 12) | | 0.83 (21) | | | |
| W64 | 1.61 (41) | 51M G 3/4 B | 0.28-0.31-0.35 (7 - 8 -9) | 0.91 (23) | 0.71 (18) | 2.24 (57) | 0.79 (20) | 1.25 (31,7) |
| | | | 0.39-0.47 (10 - 12) | | 0.83 (21) | | | |
| W64 | 1.61 (41) | 61M G 1 B | 0.28-0.31-0.35 (7 - 8 -9) | 1.14 (29) | 0.71 (18) | 2.44 (62) | 0.98 (25) | 1.54 (39) |
| | | | 0.39-0.47 (10 - 12) | | 0.83 (21) | | | |

(1) For insertion length > 16" (400 mm) and/or special material : round bar stock $\varnothing 1.18$ (30mm) with 0.94" (24 mm) key.

(2) For insertion length > 28" (700 mm) and/or special material : round bar stock $\varnothing 1.38$ (35mm) with 1.06" (27 mm) key.

OPTIONS

| |
|--|
| P02 - Oxygen service |
| E30 - NACE MR0103 - MR0175 (ISO15156) certificate |
| TC1 - Plug and chain (1) |
| NIP - Nipple with coupling (1) |
| CVK - ASME PTC 19.3 TW calculation |

| i |
|--------------------------------------|
| 070 - $\varnothing 0.28$ (7) |
| 080 - $\varnothing 0.31$ (8) |
| 090 - $\varnothing 0.35$ (9) |
| 100 - $\varnothing 0.39$ (10) |
| 120 - $\varnothing 0.47$ (12) |

(1) Drawings and details in the "Thermowells information" sheet.

"HOW TO ORDER" SEQUENCE

| Section | Model | Material | Instrument connection | Process connection | Insertion hole | Insertion length | Extension length | Options |
|---------|-------|----------|-----------------------|--------------------|----------------|------------------|------------------|-----------|
| 9 | W52 | 4 | 41F - G 1/2 | 51M | 070 | | | P02...CVK |
| | W53 | 5 | 43M - 1/2 NPT | 61M | 080 | | | |
| | W54 | | 41M - G 1/2 B | 53M | 090 | | | |
| | W62 | | | 63M | 100 | | | |
| | W63 | | | | 120 | | | |
| | W64 | | | | | | | |
| | W64 | | | | | | | |

bar-stock thermowells, tapered shank with flanged connection, NP 6...250

W93



Thermowells are used to protect the measuring instrument from corrosion, high pressure or high fluid velocity and to allow the measuring instrument removal for recalibration or replacement without affecting the process system. The W93 serie includes bar-stock thermowells with flanged process connection and they are suitable for heavy work conditions. These thermowells have a conic immersion length.

9.W93 - Standard Model

Nominal pressure: as flange rating, 2900 psi @ 752°F max (250 bar @ 400°C).

Process fluid temperature: -328...+1112°F (-200...+600°C), for std materials.

Total length: max 40" (1000 mm).

Process connection: plain flanges as per DIN-UNI or ASME B16.5; dimensions and finishing as defined in "Thermowell information" sheet.

Materials:

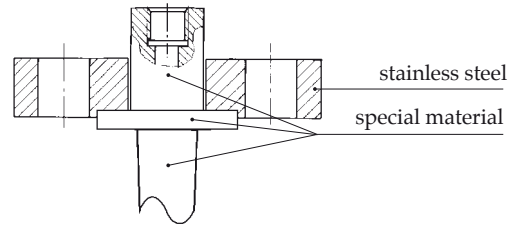
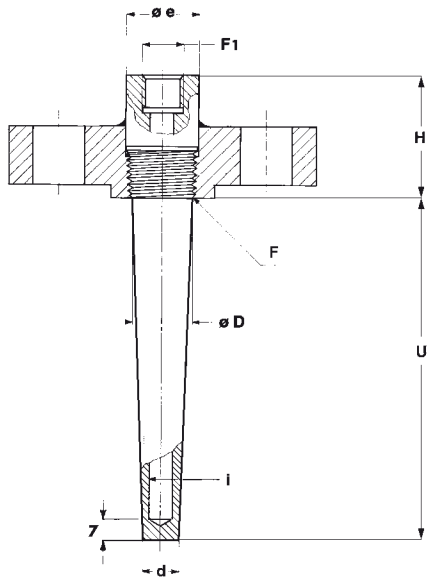
AISI 316 (Cod. 4) or AISI 316L (Cod. 5) st.st. bar-stock;
ASTM A 105 (Cod. 3), AISI 316 (Cod. 4) st.st flange.

Special materials : Monel 400, Hastelloy C276, Alloy 825, Alloy 625, Duplex SAF 2205, Duplex SAF 2507 flange and bar-stock (the flange is also available made by stainless steel, with wetted parts made by special material)

OPTIONS

| |
|---|
| P02 - Oxygen service |
| E30 - NACE MR0103/MR0175 - ISO 15156-3 certificate |
| TC1 - Plug and chain (1) |
| NIP - Nipple with coupling (1) |
| Double welding (1) |
| FUL - "full penetration" welding (1) |
| P04 - Dye penetrant test (1) |
| CVK - ASME PTC 19.3 TW calculation (1) |

(1) Drawings and details in the "Thermowells information" sheet.



Version with stainless steel flange,
but wetted parts made by special
material

| F1 |
|------------------|
| 41F - G 1/2 |
| 43F - 1/2-14 NPT |
| 53F - 3/4-14 NPT |

| i |
|-------------------------------|
| 070 - \varnothing 0.28 (7) |
| 080 - \varnothing 0.31 (8) |
| 090 - \varnothing 0.35 (9) |
| 100 - \varnothing 0.39 (10) |
| 120 - \varnothing 0.47 (12) |

dimensions : inches (mm)

| Standard (1) | DN | | F | e | H | i | D | d |
|--------------|--------------|---------------------|----------|-----------|-----------|----------------------------|-----------|-----------|
| ASME B16.5 | 1" | Class 150...1500 | 3/4" NPT | 1.18 (30) | 2.36 (60) | 0.28-0.31-0.35 (7 - 8 - 9) | 0.91 (23) | 0.71 (18) |
| | | | | | | 0.39-0.47 (10 - 12) | 0.91 (23) | 0.83 (21) |
| | 1" 1/2 2" | | 1" NPT | 1.38 (35) | 2.36 (60) | 0.28-0.31-0.35 (7 - 8 - 9) | 1.14 (29) | 0.71 (18) |
| | | | | | | 0.39-0.47 (10 - 12) | 1.14 (29) | 0.83 (21) |
| DIN-UNI | 25 | NP 6...100 | 3/4" NPT | 1.18 (30) | 2.36 (60) | 0.28-0.31-0.35 (7 - 8 - 9) | 0.91 (23) | 0.71 (18) |
| | | | | | | 0.39-0.47 (10 - 12) | 0.91 (23) | 0.83 (21) |
| | 32, 40, 50 | | 1" NPT | 1.38 (35) | 2.36 (60) | 0.28-0.31-0.35 (7 - 8 - 9) | 1.14 (29) | 0.71 (18) |
| | | | | | | 0.39-0.47 (10 - 12) | 1.14 (29) | 0.83 (21) |

(1) flange dimensions are shown on introductory data-sheet "Introduction to thermowells"

"HOW TO ORDER" SEQUENCE

| Section | Model | Material | Flange material | Instrument connection | Process connection | Insertion hole | Insertion length | Extension length | Options |
|---------|-------|----------|-----------------|-----------------------|--------------------|----------------|------------------|------------------|-----------|
| 9 | W93 | 4 | 3 | 41F | 6AA | 070 | | | P02...CVK |
| | | 5 | 4 | 43F | | 080 | | | |
| | | | | 53F | | 090 | | | |
| | | | | | | 100 | | | |
| | | | | | | 120 | | | |



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 Chinese Pattern Approval (China)

 Compliance to FDA Standards (USA)

 Compliance to CAN/CSA (Canada) and to UL (USA) standards

 UDT pattern approval (Poland)

 Compliance to directives of Economic European Community

 Compliance to 74-03 standard of 3A association (Sanitary Standards Symbol Administrative Council-USA)

 Certification for the quality management system in compliance with ISO 9001 : 2008

 Compliance to GOST standards (Russia)

 Compliance to ATEX 94/9/CE directive (ECC)