

MEASURING INSTRUMENTS - STRUMENTI PER MISURARE



SPECIAL PRESSURE GAUGE

NUOVA FIMA

capsule pressure gauges DS 2.5" (63mm)

MN9



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.

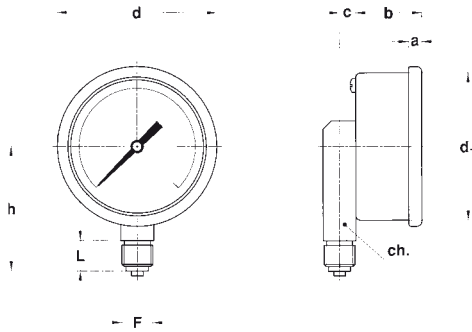
Movement: copper alloy.

Dial: aluminium, white with black markings.

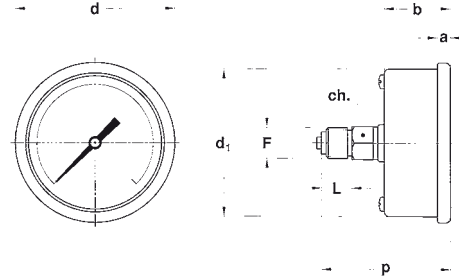
Pointer: aluminium.

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)	21M	0.22	1.10	0.28	2.68	2.46	2.09		0.51	0.55	0.46
		23M	(5,6)	(28)	(7)	(68)	(62,6)	(53)		(13)	(14)	(0,21)
Back	C 2.5" (63 mm)	1/4-18 NPT	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)

MN9



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.

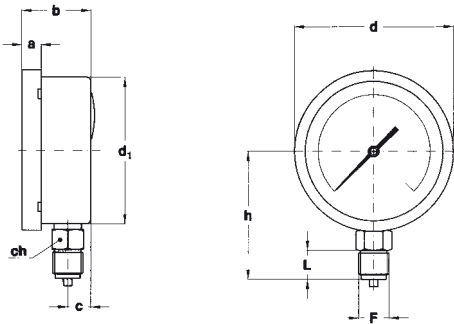
Other features: as MN9 DS 4" (100mm).

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

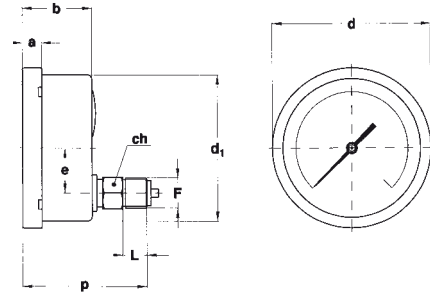
-2,5...0 mbar (1)
-4...0 mbar (1)
-6...0 mbar (1)
-10...0 mbar (1)
-16...0 mbar (1)
-25...0 mbar
-40...0 mbar
-60...0 mbar
-100...0 mbar
-160...0 mbar
-250...0 mbar
-400...0 mbar
-600...0 mbar

-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

MN12/18



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.

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

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.

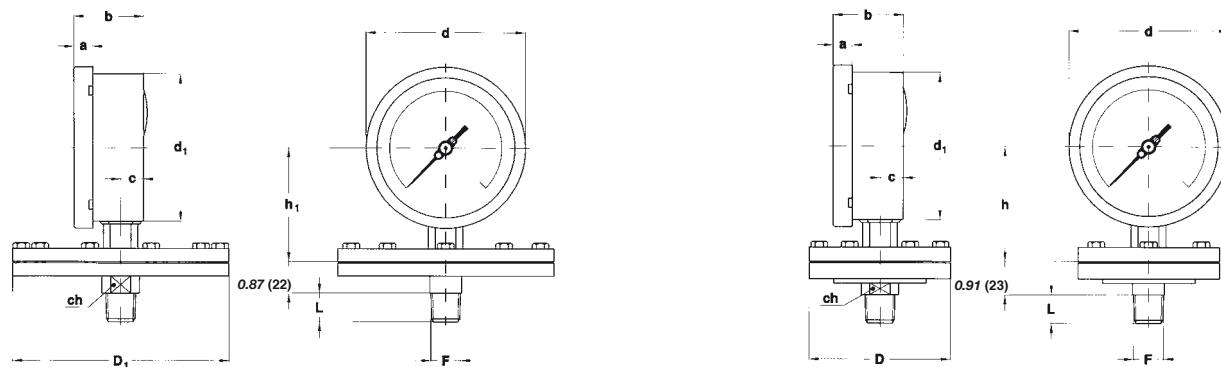
0...1 bar
0...1,6 bar
0...2,5 bar
0...4 bar
0...6 bar
0...10 bar
0...16 bar
0...25 bar
0...25 mbar
0...40 mbar
0...60 mbar
0...100 mbar
0...160 mbar
0...250 mbar
0...400 mbar
0...600 mbar

-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

MN12/18



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 - Tantalium 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.

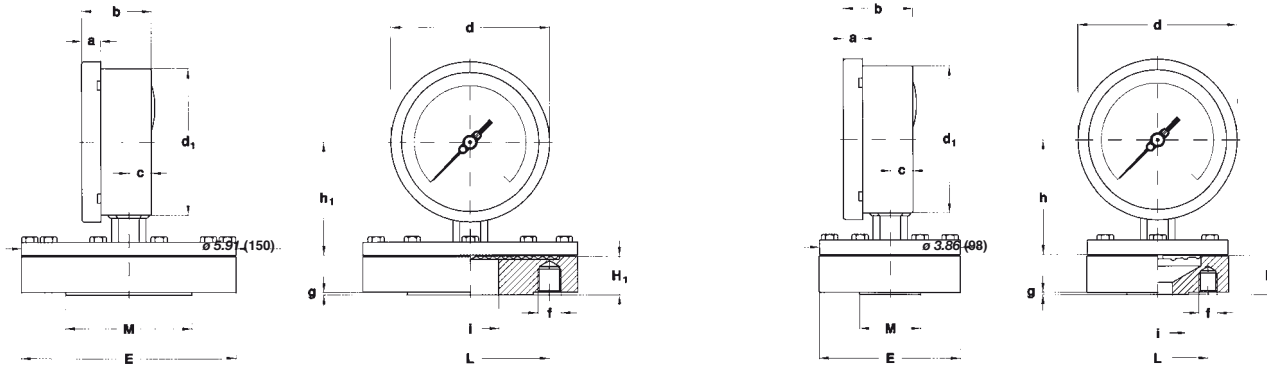
(3) Accuracy class 2,5 as per EN 837-3.

(4) Not available with electric contacts

diaphragm pressure gauge
DS 4", 6" (100-150mm), flanged connection

MN12/18

RB2 - 11/07



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 1 A E OO0...6DA C40...T32
 45 / G

diaphragm pressure gauge for absolute pressures DS 4", 6" (100-150mm)

MN12/18 ABS



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 EN 60529/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

**differential pressure gauges PN 100
with single diaphragm
DS 6" (150mm)**

MD13



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		♦		

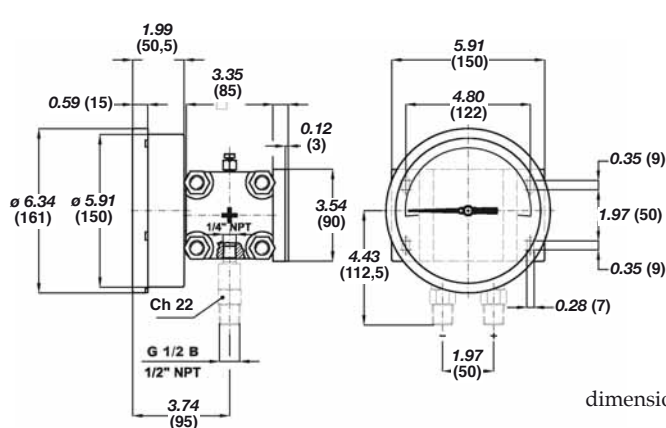


For use in potentially explosive atmospheres, instruments must be designed in conformity to ATEX 94/9/CE.
This version is shown on separate data sheet available on request.

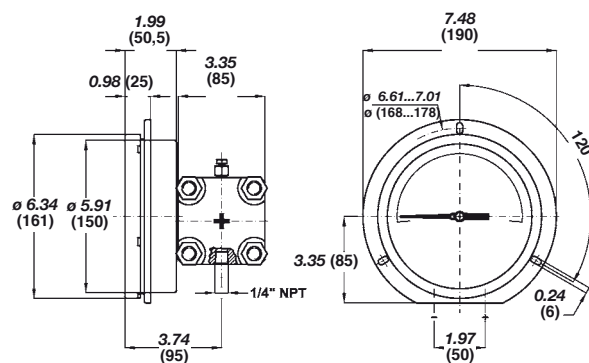
differential pressure gauges PN 100
with single diaphragm, DS 6" (150mm)

MD13

RR4-03/13



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	R11 - Silicon oil filled case. Ambient temp. -40...+149°F (-40...+65 °C).	(1) (2)
C40 - Case and ring AISI 316L st.st.	S31 - 2" pipe mounting bracket	
E65 - Protection degree IP65	T01 - Tropicalization	(2)
L22 - Maximum pointer IP65 on Plexiglas window	T32 - Safety glass window	(2) (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

bellows differential pressure gauges DS 4", 6" (100-150mm)

MD14



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: -13...+149 °F (-25...+65 °C).

Process fluid temperature: -13...+149 °F (-25...+65 °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.

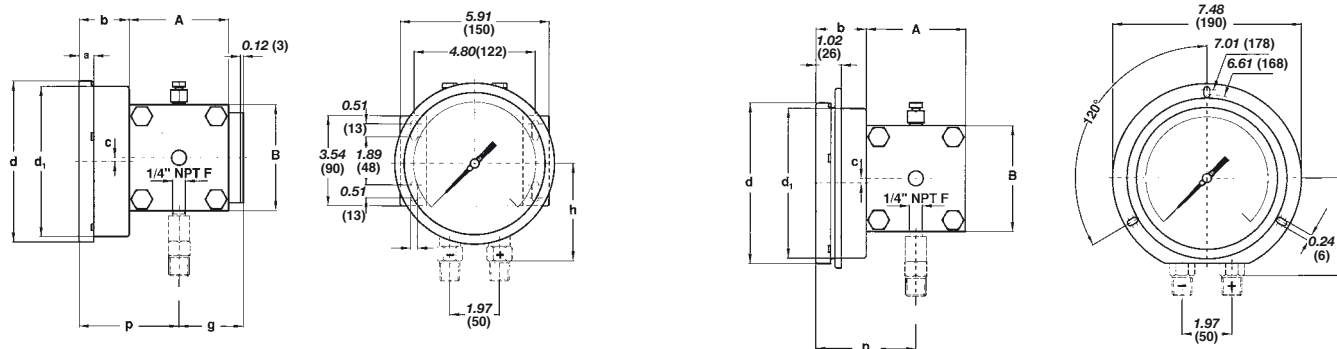
Movement: stainless steel.

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.



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

differential pressure gauges PN 200 with double diaphragm DS 4", 6" (100-150mm)

MD15



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°X 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.

Movement: stainless steel.

Dial: aluminium, white with black markings

Pointer: adjustable, aluminium, black

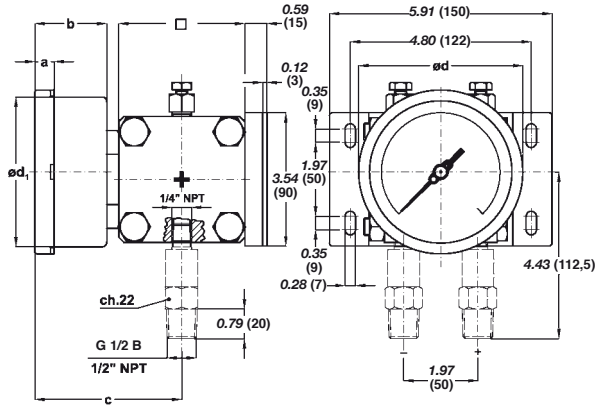
RANGE	Static pressure, one side : psi (bar)	Static pressure, both side : psi (bar)	Scale amplitude DS 4" (100mm)	Scale amplitude DS 6" (150mm)
(0...0,1 bar)	360 (25)	1500 (100)	180°	180°
(0...0,16 bar)	360 (25)	1500 (100)	180°	180°
0...4 psi (0...0,25 bar)	1500 (100)	3000 (200)	270°	180°
0...6 psi (0...0,4 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°



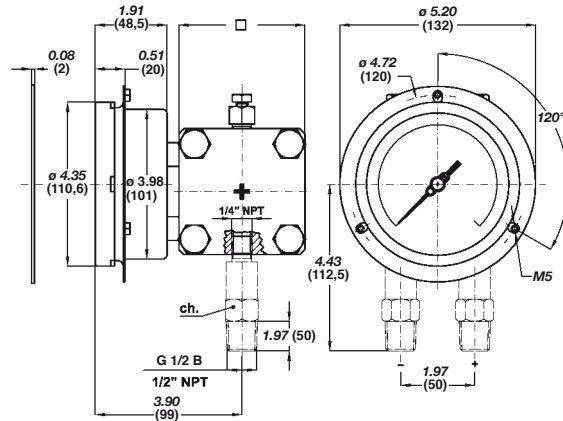
For use in potentially explosive atmospheres, instruments must be designed in conformity to ATEX 94/9/CE. This version is shown on separate data sheet available on request.

differential pressure gauges PN 200 with double diaphragm, DS 4", 6" (100-150mm)

MD15



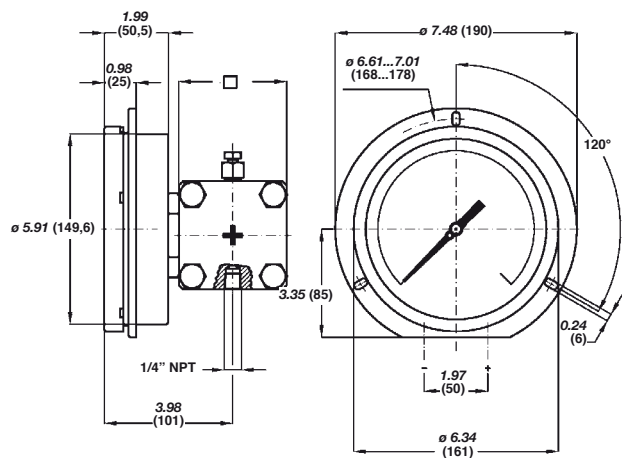
Lower (Mounting code **A**), with back flange
(Option code **C**): DS 4", 6" (100-150mm)



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.
S31 - 2" pipe mounting bracket	2G9 - ATEX versions : II 2G c (7) (8)
NR. 2 diaphragm seals mounting (6)	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

differential pressure gauges PN 100 with double diaphragm DS 4", 6" (100-150mm)

MD16



CE PED 97/23/CE
ATEX 94/9/CE

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.

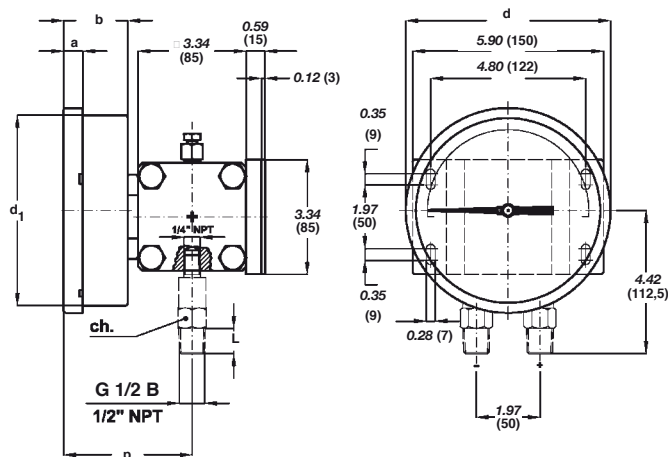
RANGES	mbar	mmH2O	bar	kPa	psi
0...0,4			♦		
0...0,6			♦		
0...1			♦		
0...1,6			♦		
0...2,5			♦		
0...4			♦		♦
0...6			♦		♦
0...10			♦		♦
0...15					♦
0...30					♦
0...40				♦	♦
0...60				♦	♦
0...100				♦	♦
0...160				♦	♦
0...200					♦
0...250				♦	♦
0...300					♦
0...400	♦			♦	
0...600	♦			♦	
0...1000	♦			♦	
0...1600	♦				
0...4000		♦			
0...6000		♦			
0...10000		♦			



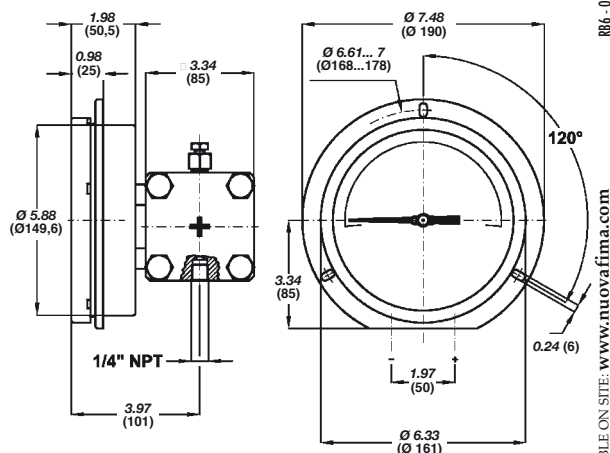
For use in potentially explosive atmospheres, instruments must be designed in conformity to ATEX 94/9/CE. This version is shown on separate data sheet available on request.

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)		43M	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)		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)	11.35 (5,15)

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)

MD17



CE PED 97/23/CE
ATEX 94/9/CE

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.

2.17.1 - 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

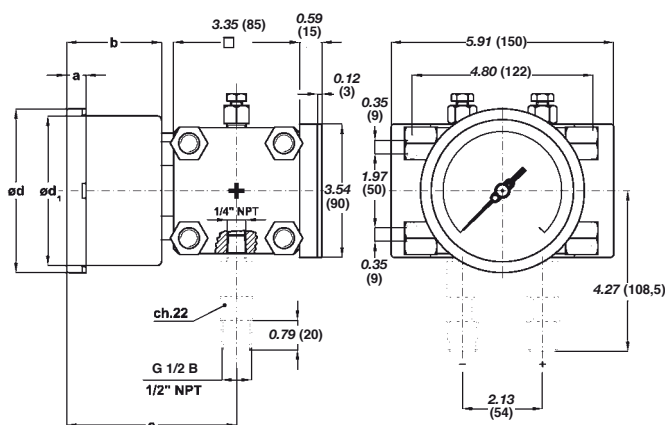
RANGE	Static pressure, one side : psi (bar)	Static pressure, both side : psi (bar)
(0...0,4 bar)	3500 (250)	6000 (400)
0...10 psi (0...0,6 bar)	3500 (250)	6000 (400)
0...15 psi (0...1 bar)	3500 (250)	6000 (400)
(0...1,6 bar)	3500 (250)	6000 (400)
0...30 psi (0...2,5 bar)	3500 (250)	6000 (400)
0...60 psi (0...4 bar)	3500 (250)	6000 (400)
0...100 psi (0...6 bar)	3500 (250)	6000 (400)
0...160 psi (0...10 bar)	3500 (250)	6000 (400)



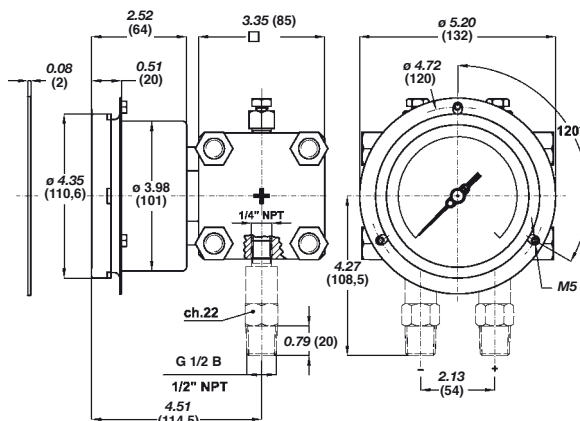
For use in potentially explosive atmospheres, instruments must be designed in conformity to ATEX 94/9/CE.
This version is shown on separate data sheet available on request.

differential pressure gauges PN 400 double diaphragm, DS 4", 6" (100-150mm)

MD17



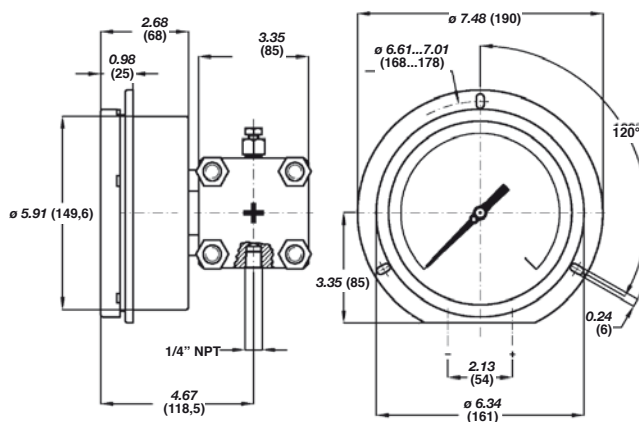
Lower (Mounting code **A**), with back flange
(Option code **C**): DS 4", 6" (100-150mm)



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 G --- 41M - G 1/2 A M C...E
43M - 1/2" NPT M C40...2D9
43F - 1/2" NPT F

differential pressure gauges with double Bourdon tube, DS 4" (100mm)

MD18



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.

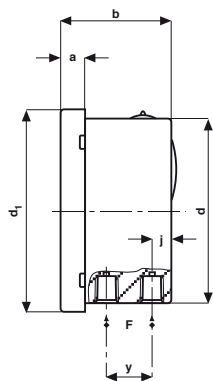
Special dial: ranges different from standard, custom artworks available on request.

Pointer: adjustable, aluminium, black.

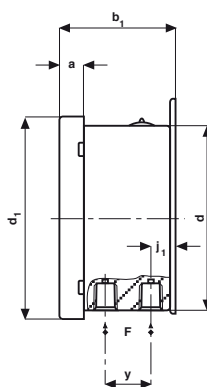
Differential Δp (1) : psi (bar)	Static pressure, both sides or side "+": psi (bar)	Static pressure, side "-": psi (bar)
0...6 (0...0,4)	10.44 (0,72)	8.70 (0,6)
0...10 (0...0,6)	23.21 (1,6)	14.50 (1)
0...16 (0...1)	58 (4)	23.21 (1,6)
0...25 (0...1,6)	116 (8)	29 (2)
0...40 (0...2,5)	181.30 (12,5)	43.51 (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)

(1) Other units of measurement upon request.

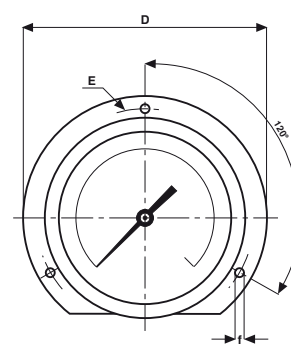
Damping liquids	Ambient temperature
Glycerine 98%	+60...+150 °F (+15...+65 °C)
Silicone oil	-50...+150 °F (-45...+65 °C)



A - Lower connection

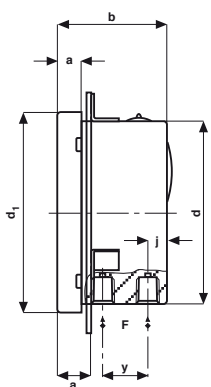


Lower (Mounting code **A**), with back flange
(Option code **C**)

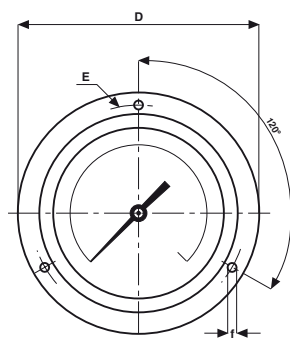


F	a	a ₁	b	b ₁	d	d ₁	D	E	f	j	j ₁	y	Weight : lbs (kg)
23F 1/4-18 NPT	0.51 (13)	0.67 (17)	2.48 (63)	2.64 (67)	3.98 (101)	4.35 (110,6)	5.28 (134)	4.74 (120,5)	0.24 (6)	0.54 (13,8)	0.70 (17,8)	0.91 (23)	2.20 (1)

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



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