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

# **MGS18**



**C E** PED 97/23/CE ATEX 94/9/CE



ME 48 Gost R Pattern Approval



Chinese Pattern Approval

These instruments are designed for food, processing, pharmaceutical, petrochemical industries and for conventional and nuclear 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:** -13...+149 °F (-25...+65 °C). **Process fluid temperature:** -40...+302 °F (-40...+150 °C). **Thermal drift:**  $\pm 0.4 \% / 10$  K of range (starting from  $68^{\circ}F - 20^{\circ}$ 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 IEC 529. Socket material: AISI 316L st.st. Bourdon tube: AISI 316L st.st. seamless tube. 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

**Protection degree:** IP 67 as per 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%, silicon oil or fluorinated fluid.

Ambient temperature: +59...+149 °F (+15...+65 °C) with glycerine filling; -49...+149 °F (-45...+65 °C) with silicon oil filling; -76...+149 °F (-60...+65 °C) with 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

To suit safety criteria of standard EN837-1/2, the pressure gauges for oxigen 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.



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





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



### **A - LOWER CONNECTION**



### **D** - **BACK** CONNECTION

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

### **OPTIONS**

$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	E         41M - G 1/2 A $0.51''$ $1.90''$ $0.59''$ $4.35''$ $3.38''$ $0.78''$ $1.16$ lbs           Lower $\frac{4''(100)}{G}$ 41M - G 1/2 A $0.59''$ $1.96'''$ $0.61'''$ $6.33''$ $5.88''$ $4.60''$ $0.78'''$ $1.16$ lbs           Back         E         41M - G 1/2 A $0.59'''$ $1.96'''$ $0.61''''$ $6.33'''$ $5.88'''$ $4.60''''''''''''''''''''''''''''''''''''$			WER CONNECTION					D	- BA(	CK CO	NNECI	ION	
$ \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Lower $\frac{4'' (100)}{G}$ $43M - 1/2 \cdot 14 NPT$ (13)       (48,5)       (15)       (110,6)       (101)       (86)       (20)       (0.53 kg)         G $41M - G 1/2 A$ $0.59''$ $1.96''$ $0.61''$ $6.33''$ $5.88''$ $4.60$ $0.78''$ $2.09$ lbs         Back       E $41M - G 1/2 A$ $0.51''$ $1.90''$ $4.35''$ $3.97''$ $1.22''$ $3.42''$ $0.78''$ $1.17$ lbs         Back       E $41M - G 1/2 A$ $0.51''$ $1.90''$ $4.35''$ $3.97''$ $1.22''$ $3.42''$ $0.78''$ $1.17$ lbs         Back       E $41M - G 1/2 A$ $0.51''$ $1.90''$ $4.33''$ $3.97''$ $1.22''$ $3.42'''$ $0.78''$ $1.17$ lbs $6''' (150)$ $43M - 1/2.14$ NPT $(13)$ $(48,5)$ $(110,6)$ $(101)$ $(31)$ $(87)$ $(20)$ $(0.53 kg)$ mensions : inches (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 fill         V''-clamp, for back connection pressure gauges $\bullet$ $\bullet$ $\bullet$ $\bullet$ $\bullet$ $\bullet$ $\bullet$ <	Mounting	DS	F	a	b	с	d	d <sub>1</sub>	e	h	р	L	Weight (1)
Lower       Image: Constraint of the constr	Lower       Image: Figure 1       Gene			,							3.38″		1 1	
$ \frac{6^{\prime\prime} (150)}{43M - 1/2 \cdot 14 NPT} (15) (50,5) (15,5) (161) (149,6) (117) (20) (0,95 \\ (117) (20) (0,95 \\ (117) (10) (117) (20) (0,95 \\ (117) (117) (20) (0,95 \\ (117) (117) (20) (0,95 \\ (117) (1$	6" (150)       43M - 1/2-14 NPT       (15)       (50,5)       (15,5)       (161)       (149,6)       (117)       (20)       (0,95 kg)         Back <b>E 4</b> '' (100) <b>43M - 1/2-14 NPT</b> (13)         (48,5)         (110,6)         (101)         (31)         (87)         (20)         (0,53 kg)           (10,6)         (101)         (31)         (87)         (20)         (0,53 kg)         (0,53 kg)         (0,53 kg)          Back <b>G 41M - G</b> 1/2 A         (15)         (15)         (15)         (15)         (15)         (15)         (15)         (15)         (15)         (15)         (161)         (149,6)         (31)         (87)         (20)         (0,53 kg)         (0,53 kg)          mensions : incles (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 fill <b>fillable filled</b> - "U"-clamp, for back connection pressure gauges         (1) add 0.72 lbs (0.33 kg) for DS 4" (100) and 1.65 lbs (0.75 kg) for DS 6" (150), when fill             - "U"-clamp, for back connection pressure gauges         (1) add 0.72 lbs (0.33 kg) for DS 4" (100) and 1.65 lbs (0.75 kg) for DS 6" (150), when fill             - Tornt flange, for back connection pressure gauges         -         -         -	Lower							. ,		. ,			
$Back = \begin{bmatrix} E \\ 41M - G 1/2 A \\ 43M - 1/2 - 14 NPT \\ 13 \\ 43M - 1/2 - 14 NPT \\ 13 \\ 48,5 \\ \hline \\ (110,6) \\ (101) \\ (101) \\ (101) \\ (101) \\ (11) \\$	E       41M - G1/2 A       0.51"       1.90"       4.35"       3.97"       1.22"       3.42"       0.78"       1.17 lbs         Back $\frac{4"(100)}{43M - 1/2:14 NPT}$ (13)       (48,5)       (110,6)       (101)       (31)       (87)       (20)       (0.53 kg)         G       41M - G1/2 A       0.59"       1.96"       6.33"       5.88"       1.22"       3.36"       0.78"       1.17 lbs         G''       (150)       43M - 1/2:14 NPT       (15)       (50,5)       (161)       (10,6)       (31)       (87)       (20)       (0.53 kg)         mensions : inches (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 fill         PTIONS       standard       fillable       filled         e       + </td <td></td> <td>1 1</td> <td></td>												1 1	
Back       4" (100)       43M - 1/2-14 NPT       (13)       (48,5)       (110,6)       (101)       (31)       (87)       (20)       (0,53)         G       41M - G 1/2 A       0.59"       1.96"       6.33"       5.88"       1.22"       3.36"       0.78"       1.87         imposite for (150)       43M - 1/2-14 NPT       (15)       (50,5)       (161)       (149,6)       (31)       (85,5)       (20)       (0,85         imposite for (150)       43M - 1/2-14 NPT       (15)       (50,5)       (161)       (149,6)       (31)       (85,5)       (20)       (0,85         imposite for (150)       43M - 1/2-14 NPT       (15)       (50,5)       (161)       (149,6)       (31)       (85,5)       (20)       (0,85         imposite for (150)       43M - 1/2-14 NPT       (15)       (50,5)       (161)       (149,6)       (31)       (85,5)       (20)       (0,85         imposite for (10)       for back connection pressure gauges       4	Back $\frac{4"(100)}{G}$ $43M - 1/2 \cdot 14 NPT$ $(13)$ $(48,5)$ $(110,6)$ $(101)$ $(31)$ $(87)$ $(20)$ $(0,53 kg)$ $G$ $41M - G 1/2 A$ $0.59"$ $1.96"$ $6.33"$ $5.88"$ $1.22"$ $3.36"$ $0.78"$ $1.87 lbs$ mensions : inches (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 fill         PTIONS         todel       standard       fillable       filled         - "U"-clamp, for back connection pressure gauges       +       +         - Front flange, for lower connection pressure gauges       See the ATEX pressure gauges data-sheet for technical details         D1 - ATEX II 2G c version       See the ATEX pressure gauges data-sheet for technical details         Q6 - Accuracy class 0,6 (1)       +       +         -       +       +         -       Colspan="3">Colspan="3">Colspan="3">Colspan="3">Colspan="3">Colspan="3">Colspan="3">Colspan="3">Colspan="3">Colspan="3">Colspan="3">Colspan="3"Colspan="3">Colspan="3"Colspan="3">Colspan="3"Colspan="3"Colspan="3"Colspan="3"Colspan="3"Colspan="3"Colspan="3"Colspan="3"Colspan="3"Colspan="3"Colspan="3"Colsp				. ,		(15,5)			1 22//	(117)	2.42//		
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6" (150)       43M - 1/2-14 NPT       (15)       (50,5)       (161)       (149,6)       (31)       (85,5)       (20)       (0,85         imensions : inches (mm)       (1) add 0.72 lbs (0,33 kg) for DS 4" (100) and 1.65 lbs (0,75 kg) for DS 6" (150), whe         OPTIONS         Model       standard       fillable       filled         B - "U"-clamp, for back connection pressure gauges <ul> <li></li></ul>	6" (150)       43M - 1/2-14 NPT       (15)       (50,5)       (161)       (149,6)       (31)       (85,5)       (20)       (0,85 kg)         mensions : inches (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 fill         PTIONS         fodel       standard fillable filled         6" (1"-clamp, for back connection pressure gauges         6" (1"-clamp, for back connection pressure gauges       +       +	Back						. , ,		. ,				0
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D1 - ATEX II 2GD c versiondata-sheet for technical detailsC06 - Accuracy class 0,6 (1)++.21 - Maximum pointer IP 44 on plexiglas window (2)++.22 - Maximum pointer IP 65 on plexiglas window (2)++.22 - Maximum pointer IP 65 on plexiglas window (2)++.21 - Suitable for filling with silicone++.21 - Silicone filling++	D1 - ATEX II 2GD c version       datasheet for technical details         C06 - Accuracy class 0,6 (1)       •         c21 - Maximum pointer IP 44 on plexiglas window (2)       •         c22 - Maximum pointer IP 65 on plexiglas window (2)       •         c01 - Suitable for filling with silicone       •         c10 - Silicone filling       •         c30 - Fluorinated fluid filling       •         c10 - Tropicalization       •         c32 - Safety glass window       •         c32 - Safety glass window       •         c32 - Safety glass window       •	E - Front	flange, for	r back connection pressure §										
ModelstandardfillablefilledB - "U"-clamp, for back connection pressure gauges <ul><li><li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li></li></li></ul> <li></li>	Indelstandardfillablefilled6"U"-clamp, for back connection pressure gauges•••2Back flange, for lower connection pressure gauges•••4•••••5Front flange, for back connection pressure gauges••••61 - ATEX II 2G c versionSee the ATEX pressure gauges data-sheet for technical details•••01 - ATEX II 2GD c versionSee the ATEX pressure gauges data-sheet for technical details•••21 - Maximum pointer IP 44 on plexiglas window (2)•••••22 - Maximum pointer IP 65 on plexiglas window (2)•••••21 - Suitable for filling with silicone•••••••30 - Fluorinated fluid filling••• <td></td>													
E - Front flange, for back connection pressure gauges <ul> <li>ATEX II 2G c version</li> <li>See the ATEX pressure gauges datasheet for technical details</li> </ul> 2D1 - ATEX II 2GD c version       See the ATEX pressure gauges datasheet for technical details         X06 - Accuracy class 0,6 (1) <ul> <li> <li>X21 - Maximum pointer IP 44 on plexiglas window (2)</li> <li> <li>X22 - Maximum pointer IP 65 on plexiglas window (2)</li> <li> <li>X01 - Suitable for filling with silicone</li> <li> <li> <li>X01 - Silicone filling</li> </li></li></li></li></li></ul>	<ul> <li>Front flange, for back connection pressure gauges</li> <li>ATEX II 2G c version</li> <li>See the ATEX pressure gauges data-sheet for technical details</li> <li>AC6 - Accuracy class 0,6 (1)</li> <li>Aximum pointer IP 44 on plexiglas window (2)</li> <li>Maximum pointer IP 65 on plexiglas window (2)</li> <li>Suitable for filling with silicone</li> <li>Silicone filling</li> <li>Fluorinated fluid filling</li> <li>Tropicalization</li> <li>Tropicalization</li> <li>Safety glass window</li> <li>Not available for</li> </ul>	<b>B -</b> "U"-(						sta				2		
2G1 - ATEX II 2G c versionSee the ATEX pressure gauges datasheet for technical details2D1 - ATEX II 2GD c version*K06 - Accuracy class 0,6 (1)*L21 - Maximum pointer IP 44 on plexiglas window (2)*L22 - Maximum pointer IP 65 on plexiglas window (2)*L21 - Suitable for filling with silicone*S10 - Silicone filling*	G1 - ATEX II 2G c version       See the ATEX pressure gauges datasheet for technical details         D1 - ATEX II 2GD c version       *       *         C06 - Accuracy class 0,6 (1)       *       *         21 - Maximum pointer IP 44 on plexiglas window (2)       *       *         22 - Maximum pointer IP 65 on plexiglas window (2)       *       *         C01 - Suitable for filling with silicone       *       *         C10 - Silicone filling       *       *         C10 - Fluorinated fluid filling       *       *         C10 - Tropicalization       *       *         C32 - Safety glass window       *       *         For pressure ranges up to 6000 psi (400 bar). Not available for       *       *		-											
K06 - Accuracy class 0,6 (1)     +     +       L21 - Maximum pointer IP 44 on plexiglas window (2)     +     +       L22 - Maximum pointer IP 65 on plexiglas window (2)     +     +       P01 - Suitable for filling with silicone     +     +       S10 - Silicone filling     +     +	21       Interface of element         C06 - Accuracy class 0,6 (1) <ul> <li>(21 - Maximum pointer IP 44 on plexiglas window (2)</li> <li>(22 - Maximum pointer IP 65 on plexiglas window (2)</li> <li>(22 - Maximum pointer IP 65 on plexiglas window (2)</li> <li>(22 - Maximum pointer IP 65 on plexiglas window (2)</li> <li>(23 - Suitable for filling</li> <li>(21 - Silicone filling</li> <li>(21 - Silicone filling</li> <li>(21 - Silicone filling</li> <li>(21 - Silicone filling</li> <li>(30 - Fluorinated fluid filling</li> <li>(30 - Fluorinated fluid filling</li> <li>(31 - Tropicalization</li> <li>(400 bar). Not available for</li> </ul>				,					See the	ATEX nr	essure gai	uges	•
L21 - Maximum pointer IP 44 on plexiglas window (2)     ▲     ▲       L22 - Maximum pointer IP 65 on plexiglas window (2)     ▲     ▲       PO1 - Suitable for filling with silicone     ▲     ▲       F01 - Silicone filling     ▲     ▲	21 - Maximum pointer IP 44 on plexiglas window (2)       +       +         22 - Maximum pointer IP 65 on plexiglas window (2)       +       +         201 - Suitable for filling with silicone       +       +         201 - Suitable for filling with silicone       +       +         201 - Silicone filling       +       +         20 - Fluorinated fluid filling       +       +         20 - Fluorinated fluid filling       +       +         20 - Tropicalization       +       +         32 - Safety glass window       +       +         4       +       +         500 - pressure ranges up to 6000 psi (400 bar). Not available for       +									datash		chnical de	tails	
L22 - Maximum pointer IP 65 on plexiglas window (2) <ul> <li>P01 - Suitable for filling with silicone</li> <li>S10 - Silicone filling</li> <li>S10 - Silicone filling</li> </ul> <ul> <li>Image: S10 - Silicone filling</li> </ul>	22 - Maximum pointer IP 65 on plexiglas window (2) <ul> <li>Maximum pointer IP 65 on plexiglas window (2)</li> <li>Suitable for filling with silicone</li> <li>Silicone filling</li> <li>Silicone f</li></ul>		5		(2)						+			
P01 - Suitable for filling with silicone     +       S10 - Silicone filling     +	01 - Suitable for filling with silicone     +       10 - Silicone filling     +       30 - Fluorinated fluid filling     +       101 - Tropicalization     +       32 - Safety glass window     +       600 psi (400 bar). Not available for										•			•
	30 - Fluorinated fluid filling     +       701 - Tropicalization     +     +       732 - Safety glass window     +     +       For pressure ranges up to 6000 psi (400 bar). Not available for			1 0	( )				•		+			•
F30 - Elucrimeted fluid filling	701 - Tropicalization     +     +       '32 - Safety glass window     +     +       > For pressure ranges up to 6000 psi (400 bar). Not available for	S10 - Silico	ne filling											+
	32 - Safety glass window <ul> <li>For pressure ranges up to 6000 psi (400 bar). Not available for</li> <li>For pressure ranges up to 6000 psi (400 bar). Not available for</li> </ul>			d filling										+
	) For pressure ranges up to 6000 psi (400 bar). Not available for	1		1					+		+			+
) For pressure ranges up to 6000 psi (400 bar). Not available for	ceivers. (2) Accuracy refers to the area free from the maximum pointer action				available	e for			*		•			<b>+</b>
HOW TO ORDER" SEQUENCE				• / Mounting / Diameter	/ Rang	ge / Pro	cess con	nection /	Options					
HOW TO ORDER" SEQUENCE ection / Model / Case / Mounting / Diameter / Range / Process connection / Options	tion / Model / Case / Mounting / Diameter / Range / Process connection / Options	ection / Mc	odel / Case					r	DCE					
	1 18 1 A E 41M B, C, E		.8 1	A E										

### "HOW TO ORDER" SEQUENCE

Section /	Model	/Case /	Mounting /	/ Diameter /	Range / Process connection	/ Options
1	18	1	Α	Ε	41M	<b>B</b> , <b>C</b> , <b>E</b>
		2	D	G	43 <b>M</b>	2G1T32
		3				

