all stainless steel construction HEAVY WORK
MGS18/HW - DS 100-150
MGS20/HW - DS 100-150

1.19
1.21

These instruments are designed for use in food, beverage, pharmaceutical, cryogenics, chemical and petrochemical processing industries, and in conventional and nuclear power plants.They are built to resist the most severe operating conditions created by the ambient environment and the process medium. 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 **ANSI 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.

Functional and constructive characteristics.

1.19.1 Standard
1.21.1 Standard, **Solid-Front**

Accuracy class: 1 as per EN 837-1.
Ambient temperature: -25...+65 °C.
Process fluid temperature: -40...+150 °C.
Working pressure (referred to the scale value) **:** max 90% for pulsating pressure, 100% for static pressure.
Overpressure: see table on page 3.
Protection: IP 55 as per IEC 529.
Socket material: AISI 316L.
Elastic element: AISI 316L st.st. seamless tube.
Welding: AISI 316 TIG.
Case: AISI 304 st.st.
Ring: AISI 304 st.st. bayonet lock.
Blow out disk: AISI 304 st.st. (solid-front only).
Window: safety glass.
Movement: stainless steel with internal limit stops for minimum and maximum pressure (reinforced on DS 150) .
Dial: aluminium, white with black markings "▼" and symbol at the edges of the full scale value.
Pointer: aluminium, micrometic adjustable.
Window gasket, blow out vent and filling plug: EPDM.
Blow out disk gasket: EPDM (solid-front only).

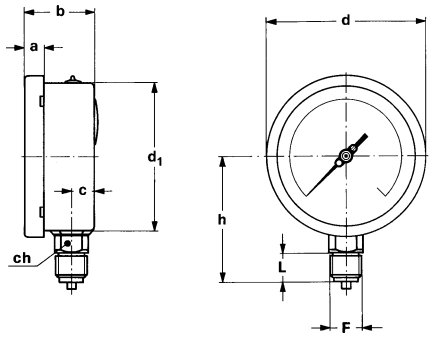
1.19.2 Fillable
1.21.2 Fillable, **Solid-Front** (Vertical type only)

Protection: IP 67 as per IEC 529.
Window: safety glass.
Note: suitable for glycerine filling; other filling fluids available on request (see OPTIONS table on pag. 4) .
Other features: as standard types.

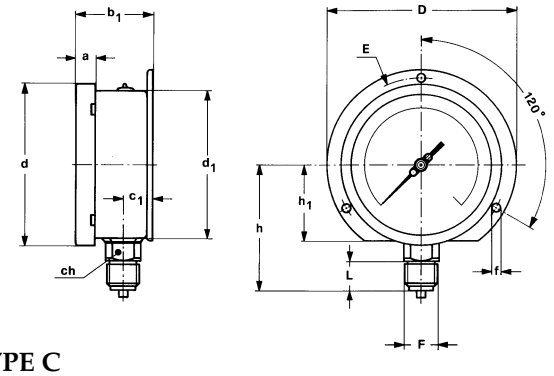
1.19.3 Liquid filled
1.21.3 Liquid filled, **Solid-Front** (Vertical type only)

Accuracy class: 1,6 as per EN 837-1.
Ambient temperature: max +65 °C, (see DAMPING LIQUIDS table on page 4 for further information).
Process fluid temperature: +65 °C.
Protection: IP 67 as per IEC 529.
Window: safety glass.
Damping liquids: glycerine 98%, (see DAMPING LIQUIDS table on page 4 for others filling fluids).
Other features: as standard types.

1.19: TYPE, DIMENSION AND WEIGHTS



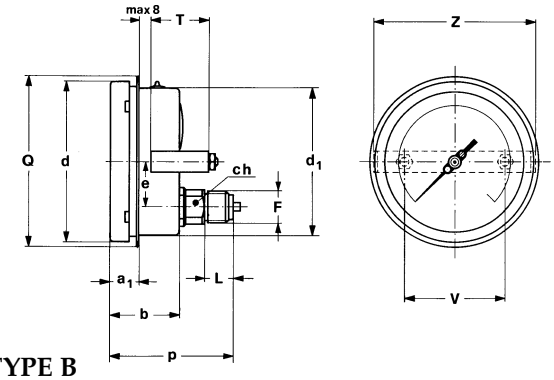
TYPE A
stem mounting;
lower connection.



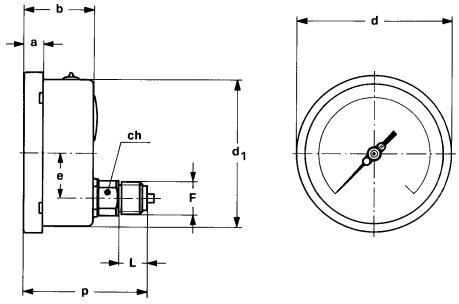
TYPE C
surface mounting, back flange,
lower connection.

DS	Type	a	b	b_1	c	c_1	d	d_1	f	h_1	D	E	ch	Weight 19.1-2	Weight 19.3
100	A-C	13	48,5	52,5	15	19	110,5	101	6	52	130	118	22	0,53 Kg.	0,86 Kg.
150	A-C	15	50,5	54	15,5	19	161	149,5	6	85	190	175	22	1,02 Kg.	1,72 Kg.

(dimensions : mm.)



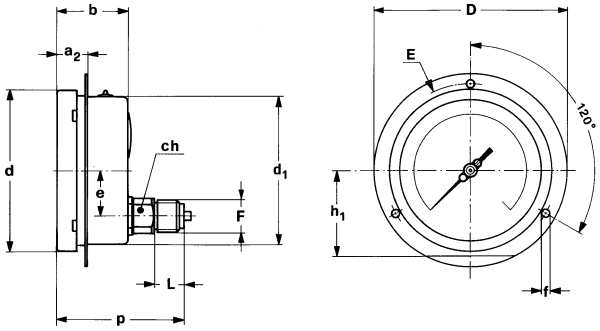
TYPE B
flush mounting, "U"-Clamp;
back connection.



TYPE D
stem mounting;
back connection.

DS	Type	a	a_1	a_2	b	d	d_1	e	f	h_1	D	E	Q	T	V	Z	ch	Weight 19.1-2	Weight 19.3
100	B-D-E	13	20	20	48,5	110,5	101	31	6	/	132	118	112	41,5	70	112	22	0,52 Kg.	0,85 Kg.
150	B-D-E	15	20,5	25,5	50,5	161	149,5	48	6	85	190	175	164	41,5	106	155	22	0,95 Kg.	1,65 Kg.

(dimensions : mm.)



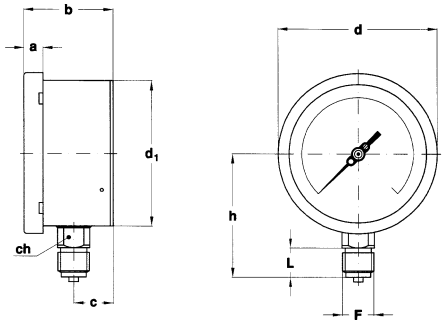
TYPE E
flush mounting, front flange;
back connection.

PROCESS CONNECTIONS

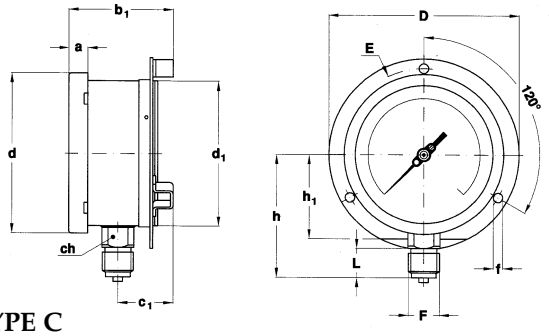
F	CODE	DS 100			DS 150		
		L	h	p	L	h	p
1/4" BSP M	**21M**	13	79	85 (93,5)	13	110	83,5 (94)
1/4" NPT M	**23M**	15	81	87 (95,5)	15	112	85,5 (96)
3/8" BSP M	**31M**	16	86	87 (95,5)	16	117	85,5 (96)
3/8" NPT M	**33M**	16	86	87 (95,5)	16	117	85,5 (96)
1/2" BSP M	**41M**	20	86	87 (95,5)	20	117	85,5 (96)
1/2" BSP M tapered	**42M**	20	86	87 (95,5)	20	117	85,5 (96)
1/2" NPT M	**43M**	20	86	87 (95,5)	20	117	85,5 (96)
M20 x 1,5 M	**97M**	20	86	87 (95,5)	20	117	85,5 (96)

(the dimentions between brackets are referring to type 1.21)

1.21: TYPE, DIMENSIONS AND WEIGHTS



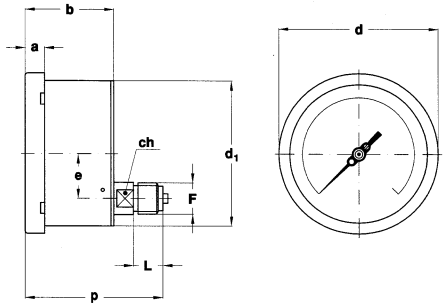
TYPE A
stem mounting;
lower connection.



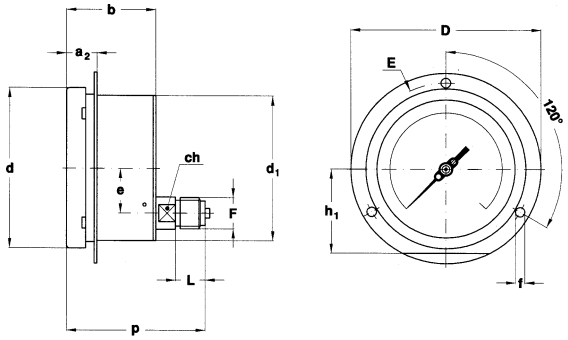
TYPE C
surface mounting, back flange;
lower connection.

DS	TYPE	a	b	b_1	c	c_1	d	d_1	h_1	f	D	E	ch	Weight 21.1-2	Weight 21.3
100	A-C	13	62,5	74	29,5	41	110,6	101	-	6	132	118	22	0,65 Kg.	0,98 Kg.
150	A-C	15	64	75,5	30	41,5	161	149,6	85	6	190	175	22	1,2 Kg.	2 Kg.

(dimensions : mm.)



TYPE D
stem mounting;
back connection.



TYPE E
flush mounting, front flange;
back connection.

DS	TYPE	a	a_2	b	d	d_1	e	f	h_1	D	E	ch	Weight 21.1
100	D-E	13	20	61	110,6	101	31	6	-	132	118	17	0,7 Kg.
150	D-E	15	25,5	64	161	149,6	47,8	6	85	190	175	17	1,15 Kg.

(dimensions : mm.)

RANGES

PRESSURE

Ranges (bar)	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
Overpressure (bar)	4	6	10	16	25	40	48	75	80	120	200	320	500	800	1200	1600

M.U. available: bar; kPa; MPa; bar/psi; bar/Kpa; bar/Mpa

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	0...10000	0...15000
Overpressure (psi)	60	120	240	400	480	600	900	1000	1200	2000	3000	4000	6000	8000	10000	15000	20000

M.U. available: psi; psi/Kpa; psi/bar; psi/Kg/cm2

VACUUM & COMPOUND

Ranges (bar)	-1...0	-1...0,6	-1...1,5	-1...3	-1...5	-1...9	-1...15	-1...24
Overpressure (bar)	3	5	9	15	23	39	47	75

M.U. available: bar; kPa; MPa; bar/psi; bar/Kpa; bar/Mpa

Ranges (psi) (1)	-30...0	-30...15	-30...30	-30...150
Overpressure (psi)	45	100	125	450

M.U. available: psi; psi/Kpa; psi/bar; psi/Kg/cm2
(1) vacuum M.U.: InHg

all stainless steel construction HEAVY DUTY
MGS18/HW - MGS20/HW - DS 100-150

1.19/1.21

1.19 : OPTIONS - "E" = DS100; "G" = DS150.

DESCRIPTION	CODE	1.19.1	1.19.2	1.19.3
AISI 316 st.st. case and ring	**C40**	E G	E G	E G
Non adjustable pointer	**L01**	E G	E G	E G
Suitable for silicone oil filling (4)	**P01**		E G	
Silicone oil filling (4)	**S10**			E G
Tropicalization	**T01**	E G	E G	E G
AISI 316 st.st. label	**T25**	E G	E G	E G
Rescritor screw 0,7 mm.	**V11**	E G (3)	STD	STD

1.21 : OPTIONS - "E" = DS100; "G" = DS150 (differences to 1.19 options).

DESCRIPTION	CODE	1.21.1	1.21.2	1.21.3
AISI 316 st.st. case and ring	**C40**	E	E	E
"Fluorolube" filling (4)	**F30**			E G
Oxygen service	**P02**	E G	E G (2)	E G (1)

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

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

(3) std for pressure ranges ≥ 60 bar.

(4) window gasket: silicone rubber; blow out vent & filling plug: VITON.

HOW TO ORDER

1	1- bourdon tube pressure gauges
19	19 - MGS18/HW 21 - MGS20/HW
2	1 - standard 2 - fillable version 3 - filled version
C	A - lower connection - stem mounting B - back connection - flush mounting, "U" -clamp C - lower connection - surface mounting, back flange D - back connection - stem mounting E - back connection - flush mounting, front flange
E	E - DS100 G - DS150
2	1 - up to 2,5 bar 2 - from 4 to 40 bar 3 - over 40 bar
0/10 bar	see ranges table
41M	21M - 1/4" BSP M 23M - 1/4" NPT M 31M - 3/8" BSP M 33M - 3/8" NPT M 41M - 1/2" BSP M 42M - 1/2" BSP M TAPERED 43M - 1/2" NPT M 97M - M20 x 1,5
L01	see options table

INSTRUMENTS FOR OXYGEN SERVICE

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 1.21 DS 100-150, detailed on page 3.

DAMPING LIQUIDS

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

Glicerine or silicone should not be used with highly oxidizing agents such as oxigen, chlorine, nitric acid or hydrogen peroxide, because of danger of spontaneous chemical reaction, inflammability or exposition. The use of fluorinates fluid and solid-front instruments type 1.21 are recommended in these cases.

ACCESSORIES

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

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

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

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

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