excel INSTRUMENTS

Ensuring accuracy and performance

DS1

All SS Pressure Gauge
With Threaded Diaphragm Seals

CE

Special Features

- External zero adjustment (optional)
- Stainless steel case & measuring system
- Socket directly welded to case
- Dry and liquid filled version
- Standard followed EN 837-1 (for NS 100, 150)
- CE marking (as per PED 97/23/EC) (for NS 100 mm & 150 mm)
- The diaphragm is welded to the body to ensure separation of the filling fluid from the process medium

Application

- Diaphragm seals are designed to isolate the sensing element of pressure gauges and pressure switches from process fluids that they may be corrosive, viscous, sedimentous and / or with a high temperature.
- Chemical & Petrochemical industries
- For aggressive, hot, corrosive, environmentally hazardous or toxic media
- Food & beverage
- Pharmaceutical
- Process industry

Gauge Specifications

Standard Version : 100 mm, 125 mm & 150 mm

Accuracy	:	±1.0% of F. S.
Ambient temperature	:	-25°C to +65°C
Process temperature	:	-40°C to 200°C or as per fill fluid
Operating pressure range	:	75% of Scale Value
Over pressure limit	:	< 100 bar : 125% of Max. Scale Value
	:	> 100 to < 250 bar : 115% of Max. Scale Value

Case & Bezel	:	AISI 304 SS (Bayonet Type)
Bourdon	:	AISI 316 SS or AISI 316L SS if NACE Option Select
Socket	:	AISI 316 SS (Directly Welded to Case) or AISI 316L SS if NACE Option Select
Movement	:	AISI 304 SS
Joints	:	Tig Argon Arc Welding

Protection	:	IP 68
Dial	:	Aluminium, black graduation on white background
Pointer	:	Aluminium, black coloured Micrometer zero adjustable
Window	:	Toughened Glass
Blow off Disc	:	Neoprene
Gasket & Filling Plug	:	Neoprene

Sealed Unit Specifications

Seal type & Range	:	D85 = -1 to 0 kg/cm² & 0 to 70 kg/cm² (Standard)
	:	D65 = 100 kg/cm² to 250 kg/cm²
Instrument connection	:	3/8" BSP (F)
Process connection	:	½" BSP (M)
Fill fluid	:	Silicon Oil - DC 200
Mounting	:	Direct (without capillary) or Remote Mounting With Capillary Optioanl

Diaphragm	:	AISI 316L SS
Top chamber	:	AISI 304 SS
Bottom chamber	:	AISI 316 SS
Nuts / bolts	:	AISI 304 SS
Sealing gasket	:	PTFE

Dry But Fillable Version (Option DFG)

Fillable Dampening Liquid	:	Glycerine 99.7% (Option - DFG)
Ambient Temperature	:	Maximum 65°C
Process Temperature	:	Maximum 65°C
Window	:	Plexi Glass
Other Features	:	Refer Specification of Standard Version

Glycerine Filled Version (Option LFG)

Accuracy	:	±1.0% of F.S.
Ambient Temperature	:	Maximum 65°C
Process Temperature	:	Maximum 65°C
Window	:	Plexi Glass
Dampening Liquids	:	Glycerine 99.7% (others available as option)
Other Features	:	Refer Specification of Standard Version

Temperature effect:
The variation of indication caused by effects of temperature is to be calculated by below formula; which is to be added in the specified accuracy while measurement :- Formula : ±0.04 x (t2 - t1) % of F. S. where t1 = reference temperature (+20°C) and t2 = ambient temperature in °C.

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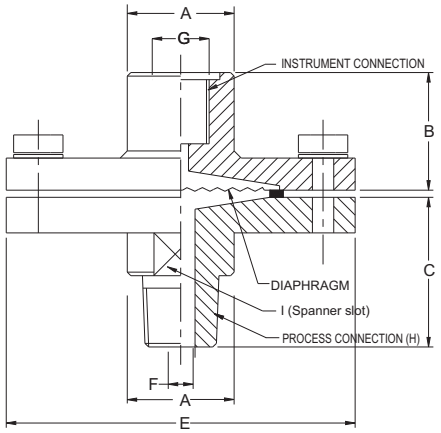
Dimensions - Sealed Unit

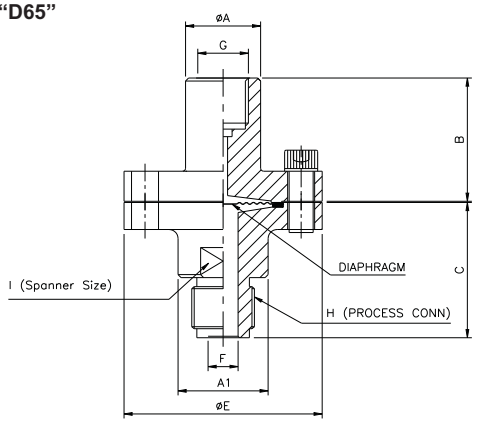
TYPE "D85" (STANDARD VERSION)



A	~ B	~ C	E	F	G	H	I	Approx. Wt. #
30	31	44	85	Ø10	3/8" BSP(F)	½"BSP (M)	26	1300.0

(# Weight in grams with box for Standard Model.)

TYPE "D65"



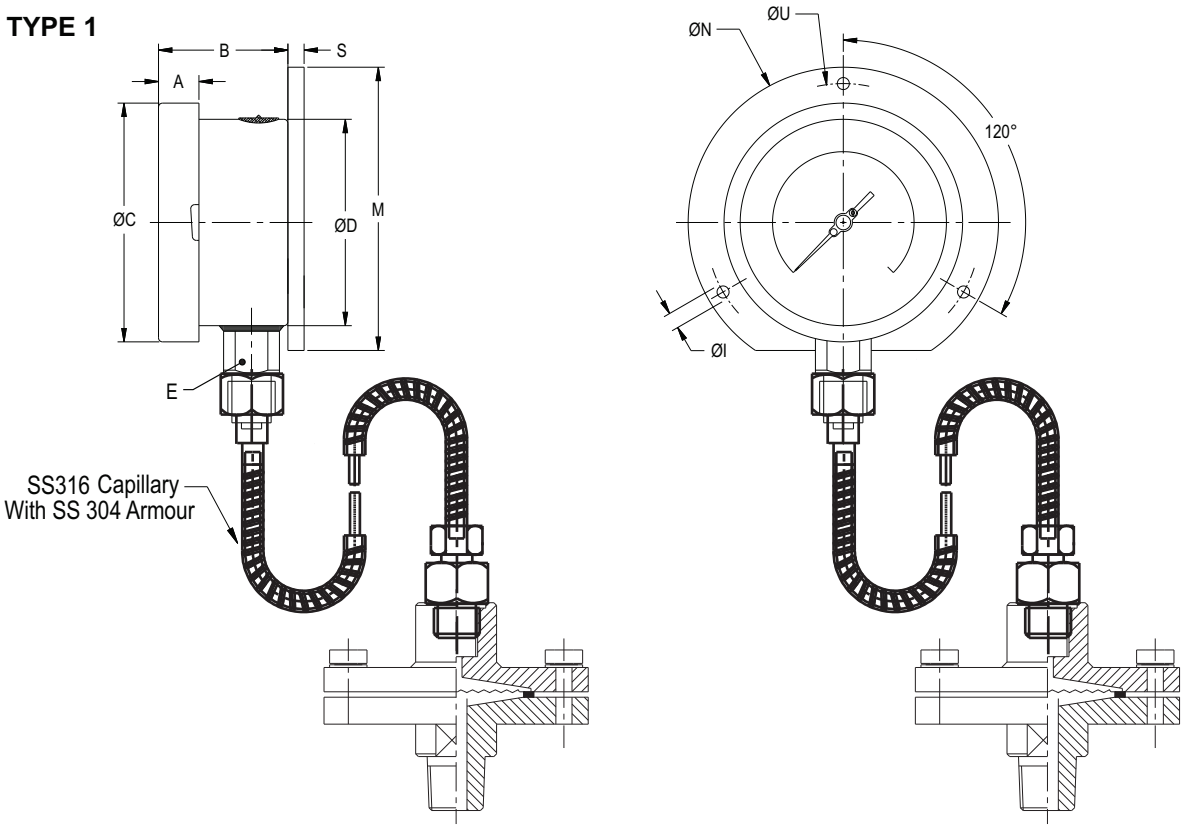
A	A1	~ B	~ C	E	F	G	H	I	Approx. Wt. #
25	30	41	45	66	Ø10	3/8" BSP(F)	½"BSP (M)	25	900.0

(# Weight in grams with box for Standard Model.)

Notes : • Drawings are not to scale. • All Dimensions are in mm.

Dimensions - Standard Version

TYPE 1



NS	A	B	ØC	ØD	E	M	S	ØI	ØN	ØU	Weight in gram (With Box)	Weight in gram (With Glycerin & Box)
100	12.5	45	111	100	22	128	5	6	134	118	2400.0	2750.0
125	15	46	129	119	22	143	5	6	150	137	2500.0	3450.0
150	15	47	161	149	22	174.5	5	6	186	168	2800.0	3950.0
200	18	49	216	200	22	229	1.5	7	245	230	3500.0	4450.0
250	18	55	262	247	22	286.5	1.5	7	290	276	3950.0	4950.0

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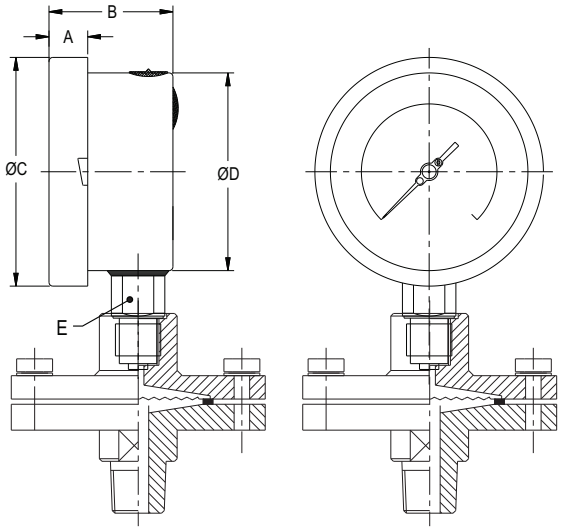
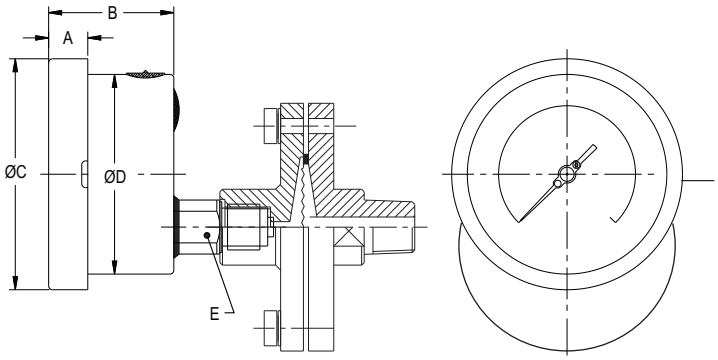
Dimensions - standard version

TYPE 2



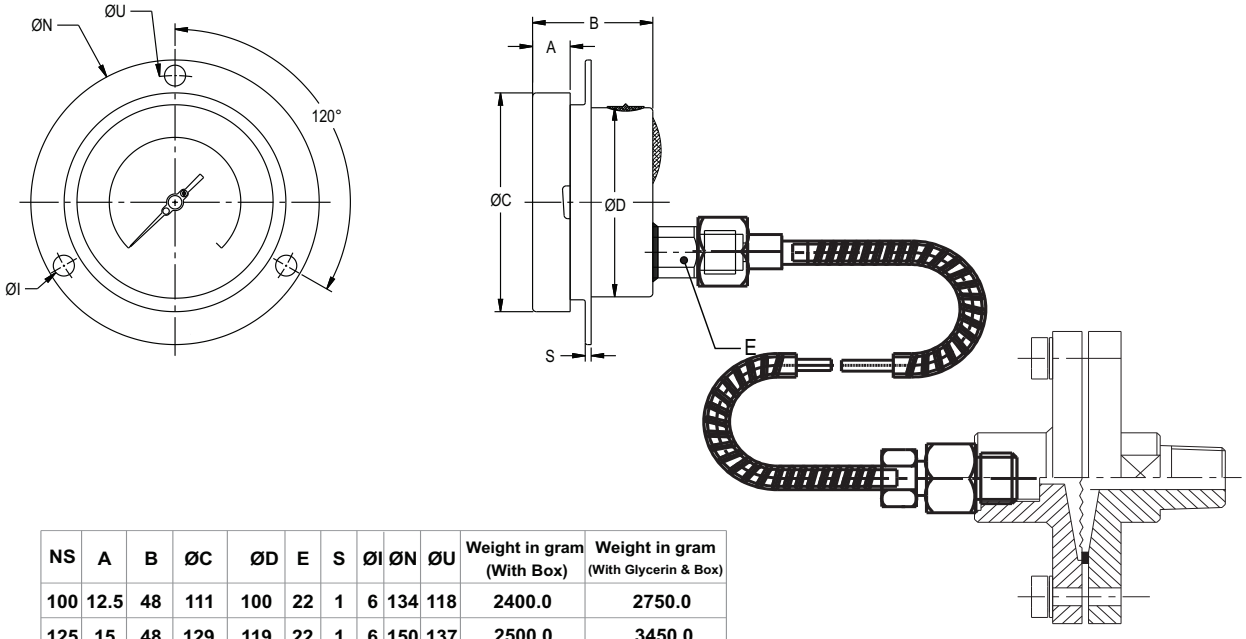
NS	A	B	ØC	ØD	E	Weight in gram (With Box)	Weight in gram (With Glycerin & Box)
100	12.5	48	111	100	22	1950.0	2300.0
125	15	48	129	119	22	2050.0	3000.0
150	15	49	161	149	22	2350.0	3500.0
200	18	49	216	200	22	3050.0	4000.0
250	18	55	263	248	22	3500.0	4500.0

TYPE 3



NS	A	B	ØC	ØD	E	Weight in gram (With Box)	Weight in gram (With Glycerin & Box)
100	12.5	48	111	100	22	1950.0	2300.0
125	15	48	129	119	22	2050.0	3000.0
150	15	49	161	149	22	2350.0	3500.0
200	18	49	216	200	22	3050.0	4000.0
250	18	55	263	248	22	3500.0	4500.0

TYPE 5



NS	A	B	ØC	ØD	E	S	ØI	ØN	ØU	Weight in gram (With Box)	Weight in gram (With Glycerin & Box)
100	12.5	48	111	100	22	1	6	134	118	2400.0	2750.0
125	15	48	129	119	22	1	6	150	137	2500.0	3450.0
150	15	49	161	149	22	1	6	186	168	2800.0	3950.0
200	18	49	216	200	22	1.5	7	245	230	3500.0	4450.0
250	18	52	263	248	22	1.5	7	290	276	3950.0	4950.0

Notes : • Drawings are not to scale. • All Dimensions are in mm . • NS = Nominal size
• Weights mentioned are approximate and for standard product. Weight can be different after selection of options.

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Range Table

Note : We offer National / International Scales like kPa, MPa, bar, psi, kg/cm^2 & Dual Scale like kPa with psi, kPa with bar, bar with psi or Equivalent scales as per the requirement can be provided on request. Following are the example tables for kg/cm^2& psi scales.

Pressure

Single Scale (kg/cm² or bar)

0/0.6	0/4	0/25	0/160
0/1	0/6	0/40	0/250
0/1.6	0/10	0/60	
0/2.5	0/16	0/100	

Dual Scale (psi with kg/cm²)

psi	kg/cm²	psi	kg/cm²	psi	kg/cm²
0/15	0/1	0/400	0/28	0/3500	0/250
0/30	0/2	0/500	0/35		
0/60	0/4	0/600	0/40		
0/100	0/7	0/1000	0/70		
0/150	0/10	0/1500	0/100		
0/230	0/16	0/2300	0/160		
0/300	0/20	0/3000	0/200		

Vacuum & Compound

Dual Scale (inHg with psi & mmHg with kg/cm²)

inHg with psi	mmHg with kg/cm²	inHg with psi	mmHg with kg/cm²	inHg with psi	mmHg with kg/cm²
- 30/0	- 760/0	- 30/60	- 760/4	- 30/200	- 760/14
- 30/15	- 760/1	- 30/100	- 760/7	- 30/300	- 760/21
- 30/30	- 760/2	- 30/150	- 760/10	- 30/350	- 760/25

Single Scale (kg/cm²)

- 1/0	- 1/1.5	- 1/5	- 1/15
- 1/0.6	- 1/3	- 1/9	- 1/24

Accessories (refer datasheet for complete specifications)

CT	Cooling tower	**GS**	Over load protector (gauge saver)**	**SN**	In-Built Snubber
*	Needle valve	**SP**	Siphon		

* Refer catalogue for Valves & Manifolds. ** For Pressure Ranges.

Note : For Any Non Standard or Special Scale Marking Consult Factory

HOW TO ORDER — Example

				Example
Basic Model				DS1
Code				
Nominal Size	**40**	**45**	**60**	XX
	100 mm	125 mm	150 mm	
Type of Mounting				
1 Wall / surface / projection mounting with bottom entry **2** Direct bottom entry **3** Direct lower back entry **5** Lower back entry with front flange				X
Range				0/10 kg/cm^2
Refer range table				
Top Chamber				
S4 AISI 304 SS (Standard) **SL** AISI 316L SS **S6** AISI 316 SS **TI** Titanium				XX
Diaphragm (* Range up to 21 kg/cm²)				
SL AISI 316L SS (Standard) **HC** Hastelloy 'C' **TI** Titanium **IN** Inconel 600 **MO** MONEL **SL** Silver* **TN** Tantalum				XX

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How To Order — Example

Sealing Gasket

TF PTFE (Standard) **MT** Metal — XX

Bottom Chamber (* Refer Pressure v/s Temperature table below.)

S4 AISI 304 SS
S6 AISI 316 SS (Standard)
SL AISI 316L SS
TI TITANIUM
MO MONEL
HC Hastelloy 'C'
TN Tantalum
PV PVC*
PD PVDF*
PP Polypropelene*

MOC OF BOTTOM CHAMBER	PRESSURE V/S TEMPERATURE					
	20 °C	40 °C	60 °C	80 °C	100 °C	120 °C
PVDF	10 kg/cm²	10 kg/cm²	10 kg/cm²	7 kg/cm²	4 kg/cm²	2 kg/cm²
PP	10 kg/cm²	10 kg/cm²	6 kg/cm²	4 kg/cm²	1 kg/cm²	NA
PVC	10 kg/cm²	10 kg/cm²	4 kg/cm²	1 kg/cm²	NA	NA

XX

Process Connection

2BF ¼" BSP (F) **2NF** ¼" NPT (F) **2NM** ¼" NPT (M) **2BM** ¼" BSP (M) **M20** M20 x 1.5 (M)
3BF 3/8" BSP (F) **4NF** ½" NPT (F) **4NM** ½" NPT (M) **3BM** 3/8" BSP (M) **M33** M33 x 1.5 (M)
4BF ½" BSP (F) **5NF** ¾" NPT (F) **5NM** ¾" NPT (M) **4BM** ½" BSP (M) (Standard)
5BF ¾" BSP (F) **5BM** ¾" BSP (M)

XXX

Protection On Wetted Parts (*With bore diameter 10 mm minimum & for connection size ½"& above only)

PL PTFE Lining On Bottom Chamber - 2 mm THICK (Max. Up to 150°C) (Diaphragm PTFE Coated is Standard)
PT PTFE Protection For Only Diaphragm (Max. Up to 150°C) (Suitable for Pressure Ranges only)
PC PTFE Coating On Diaphragm (Max. Up to 315°C)
BC PTFE Coating On Bottom Chamber & Diaphragm (Max. Up to 315°C)

XX

Filling Fluids (* Consult factory for specifications, price and delivery.)

S1 Silicon DC 200 [-40 to 205°C] (Standard)
FG Food Grade OIL [-20 to 140°C]
S2 Silicon DC 704 [10 to 337°C]
S3 Silicon DC 710 [7 to 371°C]
SY Syltherm 800 [-40 to 315°C]

XX

Remote Mounting (With capillary of Max. Up to 6 Mtrs.) Please Consult Factory if Required Length Above 6 Meter)

Specify In Meters (e.g. 1.5 = 1.5 METERS 2.0 = 2 METERS) — 3Mtr.

Capillary

S4 AISI 304 SS **S6** AISI 316 SS — XX

Capillary Covered With Armour (Applicable with Capillary is Selected) — XX

S4 AISI 304 SS **S6** AISI 316 SS **PC** PVC (Ambient Temp. Max. 60°C)

Optional Extras

AC5 Accuracy ±0.5% of F. S. (for dry version)
MBS Monel bourdon & socket (Monel version)**
LGF Dampening liquid glycerine filled
LSI Dampening liquid silicon oil filled*
EP8 Enclosure protection IP 68
PLG Plexi glass
STG Shatterproof/safety glass
MDJ Movement with dampening jelly
KEP Knife edge pointer
MTC Material test certificates***
VPO ON - OFF type vent plug
APM Anti parallax mirror band dial ##
EZA External zero adjustment
STP SS tag plate
TND Tag No. marking on Dial
HLT Helium leak test
CNS Conformity as per NACE Standard
PED CE marking (as per PED 97/23/EC)♦
OXS Oxygen service (for dry version)
CDD Custom designed dial
IOS Internal over pressure stop
IVS Internal vacuum stop
CBS AISI 316 SS case & bezel
MOS AISI 316 SS movement
DFG Dry But Fillable Version (Glycerin)
DFS Dry But Fillable Version (Silicon)

XXX

* Gasket & Filling plug of for Viton. **Integral dampening screw will be in monel if ordered. Refer option DSM.

***Material test certificates will be provided for wetted parts only with chemical composition testing. For others, please consult factory.

Scale shall be marked in kg/cm² or bar single Scale Only Consult factory for any Other scale requirement.

For NS 150 mm & Above. ♦ For NS 100 mm to 150 mm.

Ordering Example: DS1 - XX - X - 0/10 kg/cm² - XX - XX - XX - XX - XXX - XX - XXX - XX - XX - XXX

For other optional items, please contact factory for delivery and minimum order quantity.

Note : Specifications and dimensions given in this product catalogue represents the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.