

# 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 837-3 (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 316L SS
Socket	: AISI 316 SS (Directly Welded to Case)
Movement	: AISI 304 SS
Joints	: Tig Argon Arc Welding
Protection	: IP 68 as per IS/IEC 60529:2001
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 Standard Version

Seal type & Range	: D85 = -1 to 0 kg/cm <sup>2</sup> & 0 to 70 kg/cm <sup>2</sup> (Standard) D65 = 100 kg/cm <sup>2</sup> to 250 kg/cm <sup>2</sup>
Instrument connection	: 3/8" BSP (F)
Process connection	: 1/2" BSP (M) Standard or As Required as per Model Coding List.
Fill fluid	: Silicon Oil - DC 200
Mounting	: Direct (without capillary) or Remote Mounting With Capillary Option
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 150°C
Window	: Toughened Glass
Other Features	: Refer Specification of Standard Version

#### Glycerine Filled Version (Option LFG)

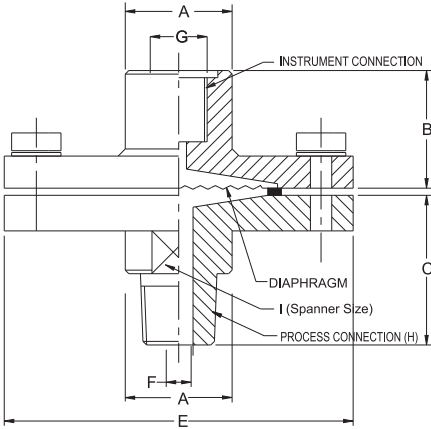
Accuracy	: ±1.0% of F.S.
Ambient Temperature	: Maximum 65°C
Process Temperature	: Maximum 150°C
Window	: Toughened Glass
Dampening Liquids	: Glycerine 99.7% (others available as option)
Other Features	: Refer Specification of Standard Version

#### 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 :  $\pm 0.04 \times (t_2 - t_1) \% \text{ of F. S.}$  where  $t_1$  = reference temperature (+20°C) and  $t_2$  = ambient temperature in °C.

## Dimensions - Sealed Unit

TYPE "D85" (STANDARD VERSION)



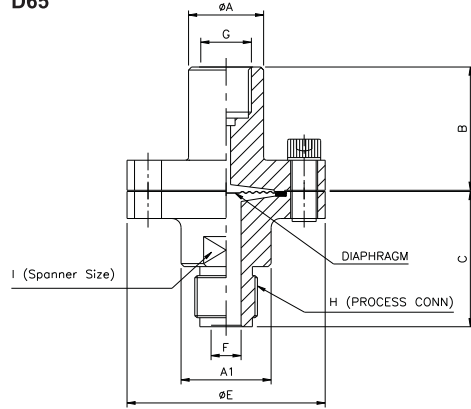
Suitable for Ranges : -1 to 0 kg/cm<sup>2</sup> & 0 to 70 kg/cm<sup>2</sup>

A	~B	~C	E	F	G	H	I	Approx. Wt. #
30	31	44	85	Ø10	3/8" BSP(F)	1/2" BSP (M)	26	1300.0

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

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

TYPE "D65"



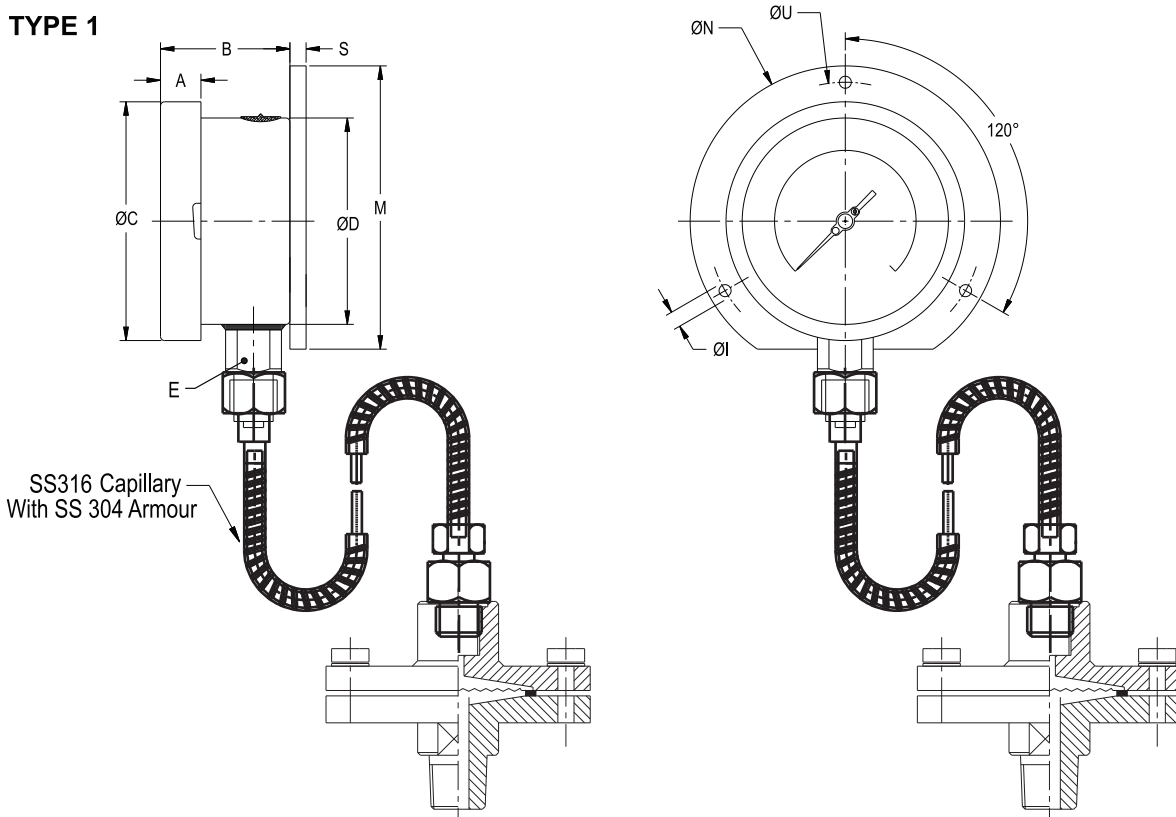
Suitable for Ranges : 100 kg/cm<sup>2</sup> to 250 kg/cm<sup>2</sup>

A	A1	~B	~C	E	F	G	H	I	Approx. Wt. #
25	30	41	45	66	Ø10	3/8" BSP(F)	1/2" BSP (M)	25	900.0

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

## Dimensions - Standard Version

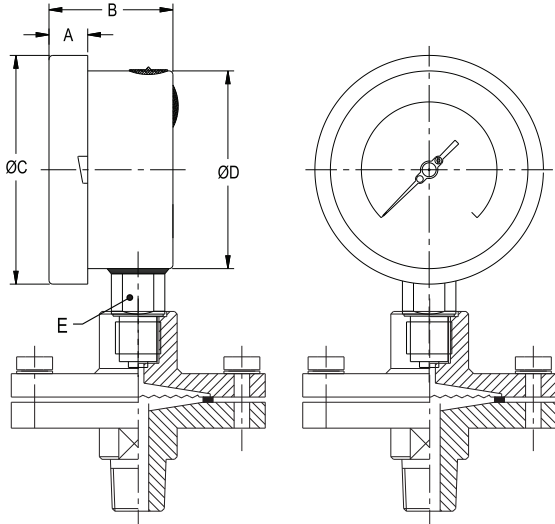
TYPE 1



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

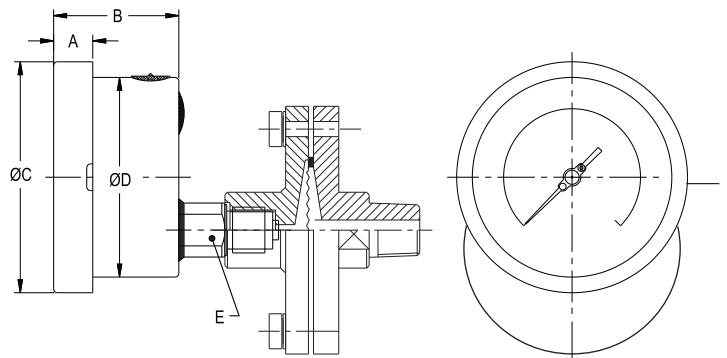
**Dimensions - standard version**

**TYPE 2**



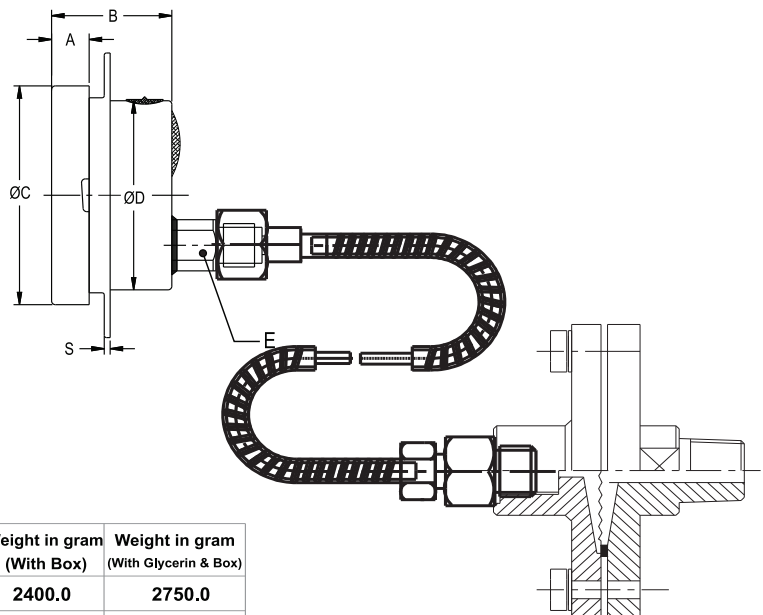
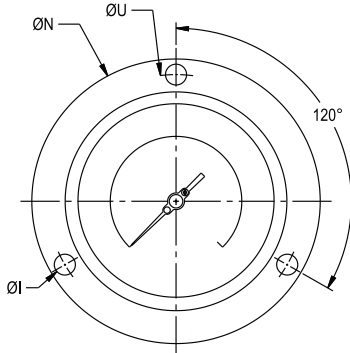
NS	A	B	ØC	ØD	E	Weight in gram (With Box)	Weight in gram (With Glycerin & Box)
100	12.5	48	111	100	22	1950.0	2300.0
125	15	48	129	119	22	2050.0	3000.0
150	15	49	161	149	22	2350.0	3500.0
200	18	49	216	200	22	3050.0	4000.0
250	18	55	263	248	22	3500.0	4500.0

**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.

## Range Table

Note : We offer National / International Scales like kPa, MPa, bar, psi, kg/cm<sup>2</sup> & 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<sup>2</sup> & psi scales.

### Pressure

#### Single Scale (kg/cm<sup>2</sup> 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/cm<sup>2</sup>)

psi	kg/cm <sup>2</sup>	psi	kg/cm <sup>2</sup>	psi	kg/cm <sup>2</sup>
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/cm<sup>2</sup>)

inHg with psi	mmHg with kg/cm <sup>2</sup>	inHg with psi	mmHg with kg/cm <sup>2</sup>	inHg with psi	mmHg with kg/cm <sup>2</sup>
- 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/cm<sup>2</sup>)

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

### Accessories (refer datasheet for complete specifications)

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

\* Refer catalogue for Valves & Manifolds.

\*\* For Pressure Ranges.

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

HOW TO ORDER				Example
<b>Basic Model</b>				DS1
<b>Code</b>				
<b>Nominal Size</b>		<b>40</b>	<b>45</b>	<b>60</b>
		100 mm	125 mm	150 mm
<b>Type of Mounting</b>				
<b>1</b>	Wall / surface / projection mounting with bottom entry	<b>3</b>	Direct lower back entry	X
<b>2</b>	Direct bottom entry	<b>5</b>	Lower back entry with front flange	
<b>Process Connection</b>				
<b>2BF</b> ¼" BSP (F)	<b>2NF</b> ¼" NPT (F)	<b>2NM</b> ¼" NPT (M)	<b>2BM</b> ¼" BSP (M)	XXX
<b>3BF</b> 3/8" BSP (F)	<b>4NF</b> ½" NPT (F)	<b>4NM</b> ½" NPT (M)	<b>3BM</b> 3/8" BSP (M)	
<b>4BF</b> ½" BSP (F)	<b>5NF</b> ¾" NPT (F)	<b>5NM</b> ¾" NPT (M)	<b>4BM</b> ½" BSP (M) (Standard)	
<b>5BM</b> ¾" BSP (M)				
<b>Standard Option for Sealed Unit</b>				
<b>IF Any Other MOC Required Use Options given on Next Page &amp; DO NOT USE THIS OPTION "STD" In Model Coding</b>				STD
Top Chamber : SS 304, Diaphragm : SS 316L, Bottom Chamber : SS 316, Gasket : PTFE				
<b>Range</b> : Refer range table				0/10 kg/cm <sup>2</sup>

How To Order		OPTIONAL ONLY IF REQUIRED						Example
<b>Top Chamber</b>								
<b>SL</b> AISI 316L SS	<b>S6</b> AISI 316 SS	<b>TI</b> Titanium						XX
<b>Diaphragm</b>								
<b>HC</b> Hastelloy 'C'	<b>TN</b> Tantalum	<b>TI</b> Titanium						XX
<b>MO</b> MONEL	<b>IN</b> Inconel 600	<b>SL</b> Silver (Range up to 21 kg/cm <sup>2</sup> )						
<b>Sealing Gasket</b>								
<b>MT</b> Metal							XX	
<b>Bottom Chamber</b> (* Refer Pressure v/s Temperature table below.)								
<b>SL</b> AISI 316L SS	<b>PV</b> PVC*	MOC OF BOTTOM CHAMBER	PRESSURE V/S TEMPERATURE					XX
<b>TI</b> TITANIUM	<b>PD</b> PVDF*		20 °C	40 °C	60 °C	80 °C	100 °C	
<b>MO</b> MONEL	<b>PP</b> Polypropelene*	PVDF	10 kg/cm <sup>2</sup>	10 kg/cm <sup>2</sup>	10 kg/cm <sup>2</sup>	7 kg/cm <sup>2</sup>	4 kg/cm <sup>2</sup>	2 kg/cm <sup>2</sup>
<b>HC</b> Hastelloy 'C'		PP	10 kg/cm <sup>2</sup>	10 kg/cm <sup>2</sup>	6 kg/cm <sup>2</sup>	4 kg/cm <sup>2</sup>	1 kg/cm <sup>2</sup>	NA
<b>TN</b> Tantalum		PVC	10 kg/cm <sup>2</sup>	10 kg/cm <sup>2</sup>	4 kg/cm <sup>2</sup>	1 kg/cm <sup>2</sup>	NA	NA
Protection On Wetted Parts (*With bore diameter 10 mm minimum & for connection size 1/2" & above only)								
<b>PL</b> PTFE Lining On Bottom Chamber - 2 mm THICK (Max. Up to 150°C) (Diaphragm PTFE Coated is Standard)							XX	
<b>PT</b> PTFE Protection For Only Diaphragm (Max. Up to 150°C) (Suitable for Pressure Ranges only)								
<b>PC</b> PTFE Coating On Diaphragm (Max. Up to 315°C)								
<b>BC</b> PTFE Coating On Bottom Chamber & Diaphragm (Max. Up to 315°C)								
<b>Filling Fluids</b> (* Consult factory for specifications, price and delivery.)								
<b>FG</b> Food Grade OIL [-20 to 140°C]	<b>S3</b> Silicon DC 710 [7 to 371°C]							XX
<b>S2</b> Silicon DC 704 [10 to 337°C]	<b>SY</b> Syltherm 800 [-40 to 315°C]							
<b>Remote Mounting (With capillary of Max. Up to 6 Mtrs.) Please Consult Factory if Required Length Above 6 Meter)</b>								
Specify In Meters (e.g. 1.5 = 1.5 METERS 2.0 = 2 METERS)							3Mtr.	
<b>Capillary</b>								
<b>S4</b> AISI 304 SS	<b>S6</b> AISI 316 SS							XX
Capillary Covered With Armour (Applicable with Capillary is Selected)								
<b>S4</b> AISI 304 SS	<b>S6</b> AISI 316 SS	<b>PC</b> PVC (Ambient Temp. Max. 60°C)						XX
<b>Optional Extras</b>								
<b>AC5</b> Accuracy ±0.5% of F. S. (for dry version)	<b>MTC</b> Material test certificates***	<b>OXS</b> Oxygen service (for dry version)						XXX
<b>MBS</b> Monel bourdon & socket (Monel version)**	<b>VPO</b> ON - OFF type vent plug	<b>CDD</b> Custom designed dial						
<b>LGF</b> Dampening liquid glycerine filled	<b>APM</b> Anti parallax mirror band dial ##	<b>IOS</b> Internal over pressure stop						
<b>LSI</b> Dampening liquid silicon oil filled*	<b>EZA</b> External zero adjustment	<b>IVS</b> Internal vacuum stop						
<b>PLG</b> Plexi glass	<b>STP</b> SS tag plate	<b>CBS</b> AISI 316 SS case & bezel						
<b>STG</b> Shatterproof/safety glass	<b>TND</b> Tag No. marking on Dial	<b>MOS</b> AISI 316 SS movement						
<b>MDJ</b> Movement with dampening jelly	<b>HLT</b> Helium leak test	<b>DFG</b> Dry But Fillable Version (Glycerin)						
<b>KEP</b> Knife edge pointer	<b>CNS</b> Conformity as per NACE Standard	<b>DFS</b> Dry But Fillable Version (Silicon)						
	<b>PED</b> CE marking (as per PED 97/23/EC)◆							

\* Gasket & Filling plug of Viton.

\*\*Integral dampening screw will be in monel if ordered. Refer option MBS.

\*\*\*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/cm<sup>2</sup> 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 - XXX - STD- 0/10 kg/cm<sup>2</sup> + Options if any Required.**

**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.