

### SPECIAL FEATURES

- STAINLESS STEEL CASE & MEASURING SYSTEM
- SOCKET DIRECTLY WELDED TO CASE
- PROTECTION IP 65 / IP 66
- DRY OR FILLABLE VERSION
- ACCURACY UPTO 0.5% F. S. (OPTIONAL)
- STANDARD FOLLOWED IN GENERAL EN 837-1

### APPLICATIONS

FOOD & BEVERAGE, PHARMACEUTICAL, CRYOGENICS, CHEMICAL & PETROCHEMICAL INDUSTRIES, CONVENTIONAL & NUCLEAR POWER PLANTS, PUMPS, HYDRO-CLEANING MACHINES, PRESSES, ENGINE COMPRESSORS, TURBINES, DIESEL ENGINES & REFRIGERATING PLANTS. SUITABLE FOR CORROSIVE ENVIRONMENTS & GASEOUS OR LIQUID MEDIA THAT WILL NOT OBSTRUCT THE PRESSURE SYSTEM.

### SPECIFICATIONS

#### STANDARD VERSION : 63 mm, 100 mm & 150mm

<b>Accuracy</b>	: ±1.0% of F. S. for NS 100 mm & 150 mm
	: ±1.6% of F. S. for NS 63 mm
<b>Ambient temperature</b>	: - 25°C to + 65°C
<b>Process temperature</b>	: Max 300°C
<b>Operating pressure</b>	: 75% of Scale Value
<b>Over pressure limit</b>	: ≤ 100 bar : 125% of Max. Scale Value
	: > 100 to ≤ 600 bar : 115% of Max. Scale Value
	: > 600 to ≤ 1600 bar : 110% of Max. Scale Value

<b>Case &amp; Bezel</b>	: AISI 304 SS (Bayonet Type)
<b>Bourdon</b>	: AISI 316L SS
<b>Socket</b>	: AISI 316L SS (Directly Welded to Case)
<b>Movement</b>	: AISI 304 SS
<b>Joints</b>	: Tig Argon Arc Welding

<b>Protection</b>	: IP 65
<b>Dial</b>	: Aluminum, black graduation on white background
<b>Pointer</b>	: Aluminum, black coloured Fixed
<b>Window</b>	: Sheet Glass
<b>Blow off Disc</b>	: Neoprene
<b>Gasket &amp; Filling Plug</b>	: Neoprene

#### DRY BUT FILLABLE VERSION (OPTION FG)

<b>Fillable Dampening Liquid</b>	: Glycerin 99.7% (Option - FG)
<b>Ambient Temperature</b>	: Maximum 65°C
<b>Process Temperature</b>	: Maximum 65°C
<b>Window</b>	: Plexi Glass
<b>Other Features</b>	: Refer Specification of Standard Version

#### GLYCERINE FILLED VERSION (OPTION PY)

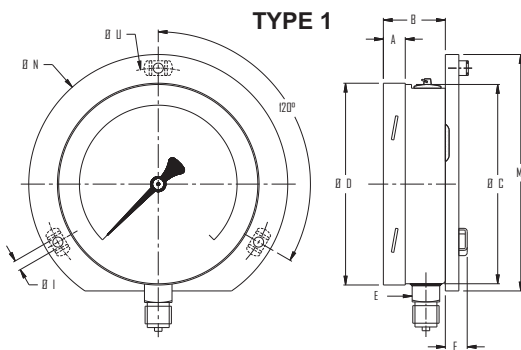
<b>Accuracy</b>	: ±1.0% of F.S.
<b>Ambient Temperature</b>	: Maximum 65°C
<b>Process Temperature</b>	: Maximum 65°C
<b>Window</b>	: Plexi Glass
<b>Dampening Liquids</b>	: Glycerin 99.7% (others available as option)
<b>Other Features</b>	: Refer Specification of Standard Version

#### 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.

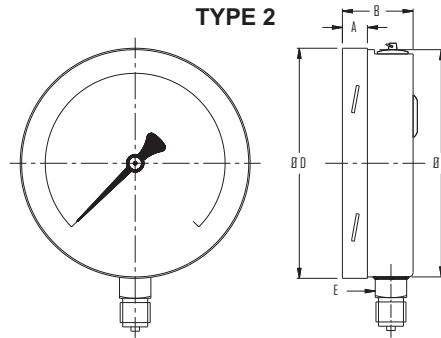


## DIMENSIONS - STANDARD VERSION



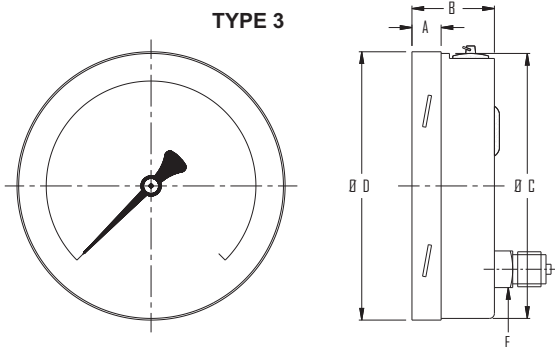
NS	A	B	ØC	ØD	E	F	ØI	ØN	ØU	M	Weight in gram (With Box)	Weight in gram (With Glycerin & Box)
63	12	32	61.7	64	14	10	3.6	86	75	80	260.0	370.0
100	17.5	49	99	101	22	15	4.8	132	116	126	645.0	885.0
150	17.5	51.5	159	162	22	15	5.8	196	178	188	1280.0	1920.0

TYPE 2



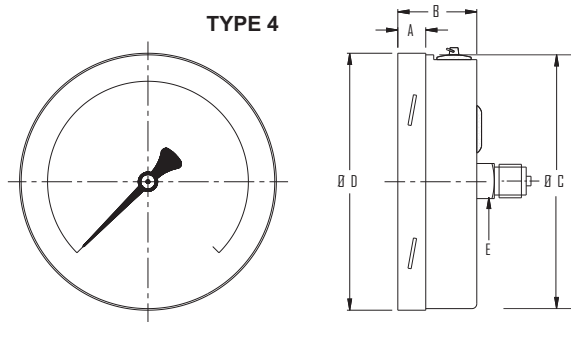
NS	A	B	ØC	ØD	E	Weight in gram (With Box)	Weight in gram (With Glycerin & Box)
63	12	32	61.7	64	14	200.0	310.0
100	17.5	49	99	101	22	560.0	800.0
150	17.5	51.5	159	162	22	1100.0	1740.0

TYPE 3



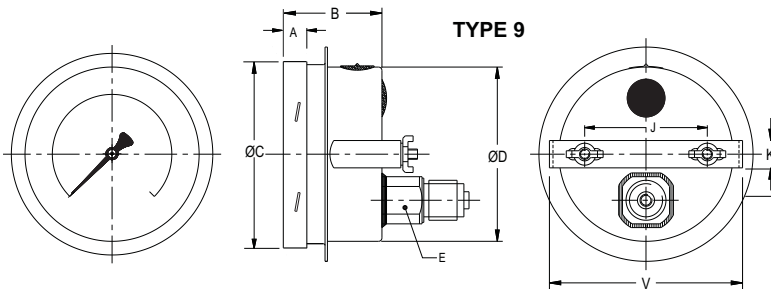
NS	A	B	ØC	ØD	E	Weight in gram (With Box)	Weight in gram (With Glycerin & Box)
63	12	32	61.7	64	14	200.0	310.0
100	17.5	49	99	101	22	550.0	790.0
150	17.5	51.5	159	162	22	1060.0	1700.0

TYPE 4



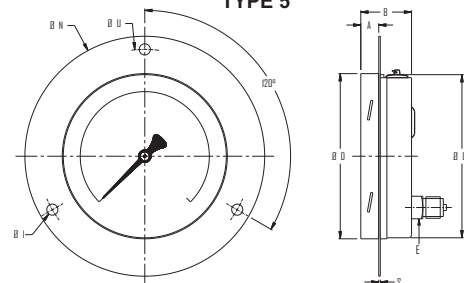
NS	A	B	ØC	ØD	E	Weight in gram (With Box)	Weight in gram (With Glycerin & Box)
63	12	32	61.7	64	14	200.0	310.0
100	17.5	49	99	101	22	550.0	790.0
150	17.5	51.5	159	162	22	1060.0	1170.0

TYPE 9



NS	A	B	ØC	ØD	E	J	K	V	Weight in gram (With Box)	Weight in gram (With Glycerin & Box)
63	12	32	61.7	64	14	46.5	15	74	280.0	390.0
100	12.5	49	101	99	22	72	16	108	750.0	990.0
150	17.5	51.5	162	159	22	106.5	16	166	1220.0	1860.0

TYPE 5



NS	A	B	ØC	ØD	E	ØI	ØN	ØU	S	Weight in gram (With Box)	Weight in gram (With Glycerin & Box)
63	12	32	61.7	64	14	3.6	86	75	1	250.0	360.0
100	17.5	49	99	101	22	4.8	132	116	1	630.0	870.0
150	17.5	51.5	159	162	22	5.8	196	178	1	1180.0	1820.0

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 :** Waaree offers 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	0/1000	
0/1	0/6	0/40	0/250	0/1600	
0/1.6	0/10	0/60	0/400	0/2100	
0/2.5	0/16	0/100	0/600		

DUAL SCALE ( psi with kg/cm <sup>2</sup> ) or psi with bar					
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	0/4000	0/280
0/30	0/2	0/500	0/35	0/5000	0/350
0/60	0/4	0/600	0/40	0/6000	0/400
0/100	0/7	0/1000	0/70	0/10000	0/700
0/150	0/10	0/1500	0/100	0/15000	0/1000
0/220	0/16	0/2200	0/160	0/22000	0/1600*
0/300	0/20	0/3000	0/200	0/30000	0/2000*

(\* For NS 100 mm & 150 mm)

## VACUUM &amp; COMPOUND

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

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	- 760/3	- 30/200	- 760/15
- 30/15	- 760/1	- 30/100	- 760/6	- 30/300	- 760/20
- 30/30	- 760/2	- 30/150	- 760/9	- 30/350	- 760/24

## RECEIVER

LINEAR SCALE	SQUARE ROOT SCALE
(0 - 100% Internal Scale) External Scale 0.2 - 1 kg/cm <sup>2</sup> or 3 - 15 psi (0-100% linear scale)	( 0 - 10 Sq - Root Internal Scale ) External Scale 0.2 - 1 kg/cm <sup>2</sup> or 3 - 15 psi (0.2 - 1 kg/cm <sup>2</sup> )

## FREON (WITH TEMPERATURE SCALE)

## AMMONIA (WITH TEMPERATURE SCALE)

**Note :** For temperature scales, please provide refrigerant name.

RANGE ( psi )				
-30 inHg - 150	0-300		-1 to 12.5	-30 inHg - 150
-30 inHg - 300	0-500		-1 to 16	-30 inHg - 300
			-1 to 25	0 - 300

## ACCESSORIES (Refer Datasheet for complete specifications)

<b>EB</b> COOLING TOWER	<b>ED</b> OVERLOAD PROTECTOR (GAUGE SAVER)**	<b>EG</b> SNUBBER
<b>EC</b> GAUGE COCK	* NEEDLE VALVE	<b>EH</b> SIPHON

\* Refer catalogue for Valves & Manifolds

\*\* For Pressure Ranges.

## HOW TO ORDER

## BASIC MODEL

## CODE

## NOMINAL SIZE

D	F	H
63 mm	100 mm	150 mm

## TYPE OF MOUNTING

- 1 WALL / SURFACE / PROJECTION MOUNTING WITH BOTTOM ENTRY
- 2 DIRECT BOTTOM ENTRY
- 3 DIRECT LOWER BACK ENTRY
- 4 DIRECT CENTER BACK ENTRY
- 5 LOWER BACK ENTRY WITH FRONT FLANGE
- 9 BACK ENTRY WITH MOUNTING BRACKET

## GAUGE CONNECTION (# Applicable for NS 63 mm)

<b>2BM</b> 1/4" BSP (M) STANDARD#	<b>2NM</b> 1/4 " NPT (M) STANDARD#	<b>4TM</b> 1/2 " BSPT (M)*
<b>3BM</b> 3/8" BSP (M) STANDARD*	<b>4NM</b> 1/2" NPT (M) STANDARD*	<b>4MM</b> M 20 x 1.5 (M)*
<b>4BM</b> 1/2" BSP (M) STANDARD*		

\* These connections will be provided through adaptors for NS 63 mm. Consult factory for minimum order quantity, price & delivery.

Note : Connections like Metric/ PT/ PF/ Flaired/ UNF/ G/ R etc can be provided on request.

## RANGE

REFER RANGE TABLE

## OPTIONAL EXTRAS

<b>OA</b> ACCURACY $\pm 0.5\%$ OF F. S. (FOR DRY VERSION)	<b>SX</b> SS TAG PLATE
<b>TI</b> MONEL BOURDON & SOCKET (MONEL VERSION)**#	<b>SW</b> DIAL TAG MARKING#
<b>FL</b> INTEGRAL DAMPENING SCREW (MONEL)**	<b>TB</b> HELIUM LEAK TEST
<b>FS</b> FILLABLE LIQUID SILICON OIL*	<b>TF</b> CONFORMITY AS PER NACE MR 0175
<b>FG</b> FILLABLE LIQUID GLYCERINE	<b>PW</b> FIVE POINT FACTORY CALIBRATION CERTIFICATE
<b>PZ</b> DAMPENING LIQUID MINERAL LIQUID FILLED	<b>SG</b> OXYGEN SERVICE (DRY VERSION)
<b>PX</b> DAMPENING LIQUID FLOUROLUBE FILLED	<b>RH</b> CUSTOM DESIGNED DIAL
<b>PY</b> DAMPENING LIQUID GLYCERINE FILLED	<b>QB</b> INTEGRAL DAMPENING SCREW (AISI 316 SS)
<b>QA</b> DAMPENING LIQUID SILICON OIL FILLED*	<b>SA</b> INTERNAL OVERPRESSURE STOP
<b>RR</b> ENCLOSURE PROTECTION IP 66	<b>SB</b> INTERNAL VACUUM STOP
<b>RE</b> ENCLOSURE PROTECTION IP 67	<b>ZB</b> RECEIVER RANGE
<b>RW</b> PLEXI GLASS	<b>ZC</b> FREON RANGE (WITH TEMPERATURE SCALE)
<b>RX</b> SHATTERPROOF/SAFETY GLASS	<b>ZD</b> AMMONIA RANGE (WITH TEMPERATURE SCALE)
<b>RZ</b> TOUGHENED GLASS	<b>CK</b> EPOXY PAINTED CASE & BEZEL
<b>SF</b> MOVEMENT WITH DAMPENING JELLY	<b>ZM</b> ELECTRO POLISHED CASE & BEZEL
<b>SJ</b> MAXIMUM READING POINTER WITH PLEXI GLASS (FOR DRY VERSION)	<b>KA</b> ON - OFF TYPE VENT PLUG
<b>ZL</b> OVER RANGE PROTECTION 150% OF F. S.	<b>GH</b> MATERIAL TEST CERTIFICATES***
<b>SL</b> POINTER SLOTTED ZERO ADJUSTABLE	<b>PU</b> CALIBRATION CERTIFICATE TRACEABLE TO NATIONAL/ INTERNATIONAL STANDARDS

#For NS 100 mm & 150 mm

\* Gasket, BOD & Filling plug of NBR. Refer Price List for Viton.

\*\*INTEGRAL DAMPENING SCREW WILL BE IN MONEL IF ORDERED. REFER OPTION FL.

\*\*\* MATERIAL TEST CERTIFICATES WILL BE PROVIDED FOR WETTED PARTS ONLY WITH CHEMICAL COMPOSITION TESTING. FOR OTHERS, PLEASE CONSULT FACTORY.

**Ordering Example: BE - X - X - XXX - 0/10 kg/cm<sup>2</sup> - XX**

FOR OTHER OPTIONAL ITEMS, PLEASE CONTACT FACTORY FOR DELIVERY AND MINIMUM QUANTITY OF ORDER.