

- Bimetal Thermometers
- Gas/Liquid Expansion Thermometers
- Electric Contact Thermometer
- Bourden Tube Pressure Gauges
- Sealed Diaphragm Pressure Gauges
- Compact Sealed Diaphragm Pressure Gauges
- Schaffer Diaphragm Pressure Gauges
- Capsule Diaphragm Pressure Gauges
- Master Gauge
- Homogenizer Gauge
- Mud Pressure Gauge
- Electric Contact Pressure Gauges

# Temperature & Pressure Gauges



**TEMPSENS**  
INSTRUMENTS

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## BMT - (BIMETALLIC THERMOMETER)



### Technical Specifications

<b>Dial Size</b>	: 63 / 100 / 150 mm
<b>Range</b>	: -40°C...400°C
<b>Reference Standard</b>	: EN13190 / IS13211 / ASME B40.3
<b>Sensing Elements</b>	: Bi-Metal Helix
<b>Stem Length</b>	: As per customer requirement (Refer Table-2 for minimum stem length)
<b>Stem Diameter</b>	: 6, 8, 10, 12 mm
<b>Connection</b>	: 1/4", 3/8", 1/2" BSP/NPT (M) adjustable throughout stem length
<b>Mounting</b>	: Lower(Bottom), Back, Every angle
<b>Case &amp; Bezel</b>	: SS304 with bayonet bezel
<b>Stem</b>	: SS316
<b>Window</b>	: Shatterproof / Safety Glass, Toughened glass,
<b>Pointer</b>	: Aluminum
<b>Dial</b>	: Aluminum, Black graduation on white background
<b>Protection class</b>	: IP55/IP65

The temperature is measured with a bimetal system inside the thermometer stem. The bimetal system consists of two metal strips bonded together that have different thermal expansion coefficients. Therefore, one strip will expand faster than the other causing the bimetal strip to curl in proportion to its temperature.

The bimetal system is helically wound and heat treated for long term stability. Temperature variations cause the bimetal strip to unwind or wind tighter, which in turn rotates the pointer.

### Features

- Fast response, High repeatability, Low hysteresis
- Rugged stainless steel construction
- With or without thermowell
- Accuracy : Class 1 as per EN13190

### Optional Extras

- External zero adjustment
- Scale °F, K, Dual Scale °C/°F
- Over range protection 130% FSD

### Applications

- Water & Steam industries, Boiler, Gas & wood fire equipments
- Wine Industries

## GET/LET - (GAS/LIQUID EXPANSION THERMOMETER)



### Technical Specifications

<b>Dial Size</b>	: 100 / 150 mm
<b>Range</b>	: -40°C...600°C
<b>Reference Standard</b>	: EN13190/IS13211
<b>Sensing Elements</b>	: Gas/Mercury-in-Steel
<b>Stem Length</b>	: As per customer requirement (Refer Table-2 for minimum stem length)
<b>Stem Diameter</b>	: 6, 8, 10, 12 mm
<b>Connection</b>	: 1/4", 3/8", 1/2" BSP/NPT (M) adjustable throughout stem length
<b>Mounting</b>	: Lower(Bottom), Back, Back Panel, Bottom Surface Mount, Back Bracket
<b>Case &amp; Bezel</b>	: SS304, With bayonet bezel
<b>Movement</b>	: SS304
<b>Stem</b>	: SS316
<b>Capillary</b>	: SS316
<b>Capillary Length</b>	: As per customer requirement
<b>Capillary Diameter</b>	: Min. 6 mm
<b>Window</b>	: Shatterproof / Safety Glass, Toughened glass, Acrylic
<b>Pointer</b>	: Aluminum
<b>Dial</b>	: Aluminum, Black graduation on White background
<b>Protection Class</b>	: IP55/IP65

A gas expansion thermometer is made of a cylindrical bulb filled with inert gas & uses the volume expansion of gases at temperature changes. Gas pressure changes inside the bulb due to temperature changes, are sensed by a special helicoil bourdon tube, which, connected to an amplifying device will give the pointer, movement proportional to the temperature.

The physical properties used will enable linear readings on the dial from the origin to full scale. When the reading is remote from the sensing point, a capillary is then used for transmission between the bulb and the thermometer head. Capillary armoring is common practice in industrial environments.

### Features

- Use of inert gas
- Rigid stem or capillary type
- Rugged stainless steel construction
- Dry or liquid (Glycerin/Silicon Oil) filled
- With or without thermowell
- Suitable for sanitary application
- Accuracy: Class 1 as per EN13190

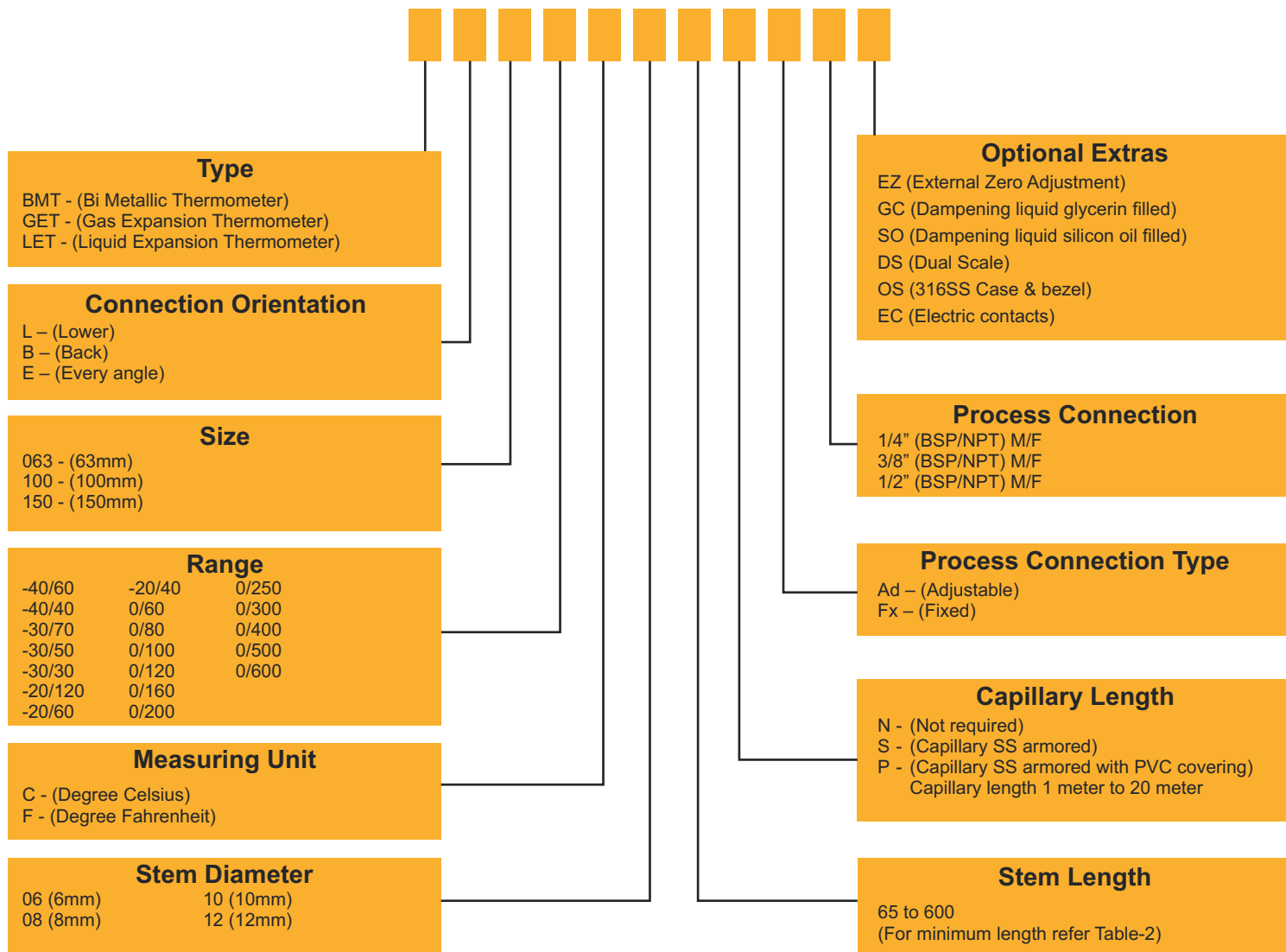
### Optional Extras

- External zero adjustment
- Scale °F, K, Dual Scale °C/°F
- Capillary SS Armored
- Capillary SS Armored with PVC Coverage
- Over range protection 130% FSD

### Applications

- Process and Petrochemical Industries
- Machine & apparatus construction
- Food & Beverage Industries

# TEMPERATURE GAUGE ORDERING CODE



## Example

BMT-B-100-0/200-C-08-150-N-Fx-1/2" NPT M-SO

GET-L-100-0/500-C-08-500-S4-Ad1/2" NPT M-SO/EC

Table - 1

Nominal Range, Measuring Ranges & Limits of Error as per EN 13190

Nominal Range (°C)	Scale Spacing (°C)	Measuring Range (°C)	Limits of Error (°C)
-40 to +60	1°C	-30 to +50	1
-40 to +40	1°C	-30 to +30	1
-30 to +70	1°C	-20 to +60	1
-30 to +50	1°C	-20 to +40	1
-30 to +30	1°C	-20 to +20	1
-20 to +120	2°C	-10 to +110	2
-20 to +60	1°C	-10 to +50	1
-20 to +40	1°C	-10 to +30	1
0 to 60	1°C	10 to 50	1
0 to 80	1°C	10 to 70	1
0 to 100	1°C	10 to 90	1
0 to 120	2°C	10 to 110	2
0 to 160	2°C	20 to 140	2
0 to 200	2°C	20 to 180	2
0 to 250	5°C	30 to 220	2.5
0 to 300	5°C	30 to 270	5
0 to 400	5°C	50 to 350	5
0 to 500	5°C	50 to 450	5
0 to 600	10°C	100 to 500	10

Table - 2

Range, Stem Outer Dia & Stem Length Selection Table

This table indicates the minimum and maximum stem lengths per stem diameter per range. Lower values indicated the minimum immersion length selection. (Required stem length out of this table-Consult with us)

Nominal Range (°C)	Stem Length for $\phi S = 6mm$		Stem Length for $\phi S = 8,10mm$		Stem Length for $\phi S = 12mm$	
	Min.	Max.	Min.	Max.	Min.	Max.
-40 to +60	90	600	80	600	80	600
-40 to +40	100	600	80	600	80	600
-30 to +70	90	600	65	600	65	600
-30 to +50	100	600	80	600	80	600
-30 to +30	120	600	100	600	100	600
-20 to +120	65	600	65	600	65	600
-20 to +60	100	600	80	600	80	600
-20 to +40	120	600	100	600	100	600
0 to 60	120	600	100	600	100	600
0 to 80	100	600	80	600	80	600
0 to 100	65	600	65	600	65	600
0 to 120	65	600	65	600	65	600
0 to 160	65	600	65	600	65	600
0 to 200	65	600	65	600	65	600
0 to 250	65	600	65	600	65	600
0 to 300	65	600	65	600	65	600
0 to 400	65	600	65	600	65	600
0 to 600	65	600	65	600	65	600

## PB1 - (UTILITY PRESSURE GAUGE)

### BOURDEN GAUGES



#### Technical Specifications

<b>Dial Size</b>	: 40 / 50 / 63 / 80 / 100 / 150 / 250 mm
<b>Range</b>	: Vacuum, Compound, 0....1Kg/cm <sup>2</sup> to 0....1000 Kg/cm <sup>2</sup>
<b>Ambient Temperature</b>	: -40 to 80 °C
<b>Standard</b>	: IS:3624, EN 837
<b>Configuration</b>	: Bourdon Tube
<b>Shape of Bourdon</b>	: 'C' Type / Helix Type
<b>Connection</b>	: 1/8", 1/4", 3/8". 1/2" BSP/NPT (M/F)
<b>Mounting</b>	: Bottom / Back direct, Bottom Surface, Back Panel, Back Bracket Mounting
<b>Joint</b>	: Soldering
<b>Case &amp; Bezel</b>	: Drawn Steel Black Coated
<b>Movement</b>	: Brass
<b>Bourdon</b>	: Brass
<b>Socket</b>	: Brass
<b>Window</b>	: Shatterproof / Safety Glass, Toughened glass, Acrylic
<b>Pointer</b>	: Aluminum
<b>Dial</b>	: Aluminum, Black Graduation on White background

#### Features

- Accuracy : ±1.6% FSD
- Over-range Protection : 130% FSD
- Ingress Protection : IP55, IP65 (filled)

#### Optional Extras

- Ranges in other Units like Kpa, Mpa, PSI, MWC
- Dampening Liquid Glycerin/Silicon Oil filled
- Special dial design
- NACE & IBR Certifications

#### Applications

- Machine & apparatus construction
- Water, air & gas, OEM low cost

## PB2 - (INDUSTRIAL HEAVY DUTY PRESSURE GAUGE )



#### Technical Specifications

<b>Dial Size</b>	: 40 / 50 / 63 / 80 / 100 / 150 / 250 mm
<b>Range</b>	: Vacuum, Compound, 0....1 Kg/cm <sup>2</sup> to 0....1500 Kg/cm <sup>2</sup>
<b>Ambient Temperature</b>	: -40 to 300 °C
<b>Standard</b>	: IS3624, EN 837
<b>Configuration</b>	: Bourdon Tube
<b>Shape of Bourdon</b>	: 'C' Type / Helix Type
<b>Connection</b>	: 1/8", 1/4", 3/8". 1/2" BSP/NPT (M/F)
<b>Mounting</b>	: Bottom / Back direct, Bottom Surface, Back Panel, Back Bracket Mounting
<b>Dampening Liquid</b>	: Glycerin/ Silicon Oil
<b>Joint</b>	: Argon Arc Welded/tig welded
<b>Case &amp; Bezel</b>	: AISI SS304, Self Color Finish
<b>Movement</b>	: AISI SS304
<b>Bourdon</b>	: AISI SS316
<b>Socket</b>	: AISI SS316
<b>Window</b>	: Shatterproof / Safety Glass, Toughened glass, Acrylic
<b>Pointer</b>	: Aluminum Black Colored Micrometer zero adjustable
<b>Dial</b>	: Aluminum, Black Graduation on White background
<b>Blow off Disc</b>	: Neoprene

#### Features

- Accuracy : ±1.6% FSD
- Over-range Protection : 130% FSD
- Ingress Protection : IP55, IP65 (filled)

#### Optional Extras

- Ranges in other Units like Kpa, Mpa, PSI, MWC
- Dampening Liquid Glycerin/Silicon Oil filled
- Special dial design
- NACE & IBR Certifications
- PTFE Coating

#### Applications

- Machine & apparatus construction
- Chemical & petrochemical industries
- Food stuff & beverage industries
- Plastics & paper industries

## PD SERIES - (DIAPHRAGM TYPE PRESSURE GAUGES)



### Technical Specifications

<b>Dial Size</b>	: 100/150 mm
<b>Range</b>	: Vacuum, Compound, 0....1 Kg/cm <sup>2</sup> to 0....14 Kg/cm <sup>2</sup> , 0....500mmWC to 0....10000mmWC
<b>Standard</b>	: IS3624, EN837
<b>Configuration</b>	: Sealed Diaphragm, Compact Sealed Diaphragm, Schaffer Diaphragm, Cap-sule Diaphragm
<b>Optional</b>	: PTFE/Teflon coating / lining
<b>Connection</b>	: 1/4", 3/8", 1/2" BSP/NPT (M/F), Flanged
<b>Mounting</b>	: Bottom/Back Direct/Flanged, Triclover clamp
<b>Joint</b>	: Argon Arc Welded
<b>Case &amp; Bezel</b>	: AISI SS304, Self Color Finish
<b>Movement</b>	: AISI SS304
<b>Diaphragm</b>	: AISI SS316
<b>Socket</b>	: AISI SS316
<b>Window</b>	: Shatterproof / Safety Glass, Toughened glass, Acrylic
<b>Pointer</b>	: Aluminum Black Colored Micrometer zero adjustable
<b>Dial</b>	: Aluminum, Black graduation on White background
<b>Blow off Disc</b>	: Neoprene

### Features

- Ambient Temperature : -40 to 300°C
- Over-range Protection : upto 130% FSD
- Ingress Protection : IP55, IP65 (filled)
- Accuracy  $\pm 1.6\%$  FSD or  $\pm 1\%$  FSD

### Optional Extras

- Ranges in other Units like Kpa, Mpa, PSI, MWC
- Dampening Liquid Glycerin/Silicon Oil filled
- Special dial design
- NACE & IBR Certification

### Variants

- PD1 (Sealed Diaphragm Pressure Gauge)
- PD2 (Compact Sealed Diaphragm Pressure Gauge)
- PD3 (Schaffer Diaphragm Pressure Gauge)
- PD4 (Triclover Pressure Gauge)
- PD5 (Flanged Diaphragm Pressure Gauge)
- PD6 (Capsule Diaphragm Pressure Gauge)

### Applications

- Chemical & Petrochemical Industries
- Food Stuff & Beverage Industries
- Plastic & Paper Industries
- Machine & Apparatus Industries

## MA - (MASTER GAUGE)

## HO - (HOMOGENIZER GAUGE)

## MU - (MUD PRESSURE GAUGE)



### Technical Specifications

<b>Dial Size</b>	: 150/250 mm
<b>Range</b>	: Vacuum to 1500 Kg/cm <sup>2</sup>
<b>Accuracy</b>	: $\pm 0.25\%$ , $\pm 0.50\%$ FSD
<b>Ambient Temp.</b>	: -40 to 300 °C
<b>Standard</b>	: IS:3624, EN 837
<b>Enclosure Protection</b>	: IP55, IP65 (filled)
<b>Configuration</b>	: Bourdon Tube
<b>Connection</b>	: 1/4", 3/8", 1/2" BSP /NPT (M/F)
<b>Mounting</b>	: Bottom/Back Direct

### Technical Specifications

<b>Dial Size</b>	: 100/150 mm Range: 0...1000 Kg/cm <sup>2</sup>
<b>Configuration</b>	: Diaphragm
<b>Diaphragm</b>	: SS316L Tig Welded Bright Finish
<b>Pointer</b>	: Leaded brass, black coated
<b>Gasket</b>	: Nitril (Food Grade) Seal flange: SS316
<b>Mounting</b>	: Direct, Square Clamp type, Tung type direct/Capillary SMS mounting

### Technical Specifications

<b>Nominal Dia</b>	: 100/150 mm
<b>Range</b>	: 0... 1000 Kg/cm <sup>2</sup>
<b>Accuracy</b>	: 1% FSD (1.6% in case of filled)
<b>Construction</b>	: Heavy duty steel construction
<b>Connection</b>	: 1", 3/2" and 2" BSP, API and NPT connections
<b>Mounting</b>	: Bottom connection direct mounting
<b>Element</b>	: Bourdon Tube SS 316
<b>Wetted parts</b>	: SS316
<b>Case</b>	: SS304
<b>Bezel</b>	: SS304

## ELECTRIC CONTACT GAUGES



### Technical Specifications

- Electric Contacts are available in both kind of Gauges:
  - Electric Contact Pressure Gauge
  - Electric Contact Temperature Gauge
- **Electric Contacts Available** : 1 NO, 1 NC, 1NO + 1NC, 2 NO, 2 NC, 1NO + 2NC, 2NO + 1NC
- **(NO** : Normally Open; **NC** : Normally Closed)
- **Contacts Rating** : 220 VAC/DC, 1 Amp Max **Color Codes of wire** : Green, Red and Yellow
- All the specifications same as heavy duty pressure gauge & mercury filled temperature gauge for electric contact pressure & temperature gauge respectively.

## MRP GAUGE



### Technical Specifications

- MRP GAUGE (Maximum Reading Pointer Pressure Gauge) is designed to show highest Pressure Value of measurement throughout its operation.
- All the specifications as per Heavy duty pressure gauge

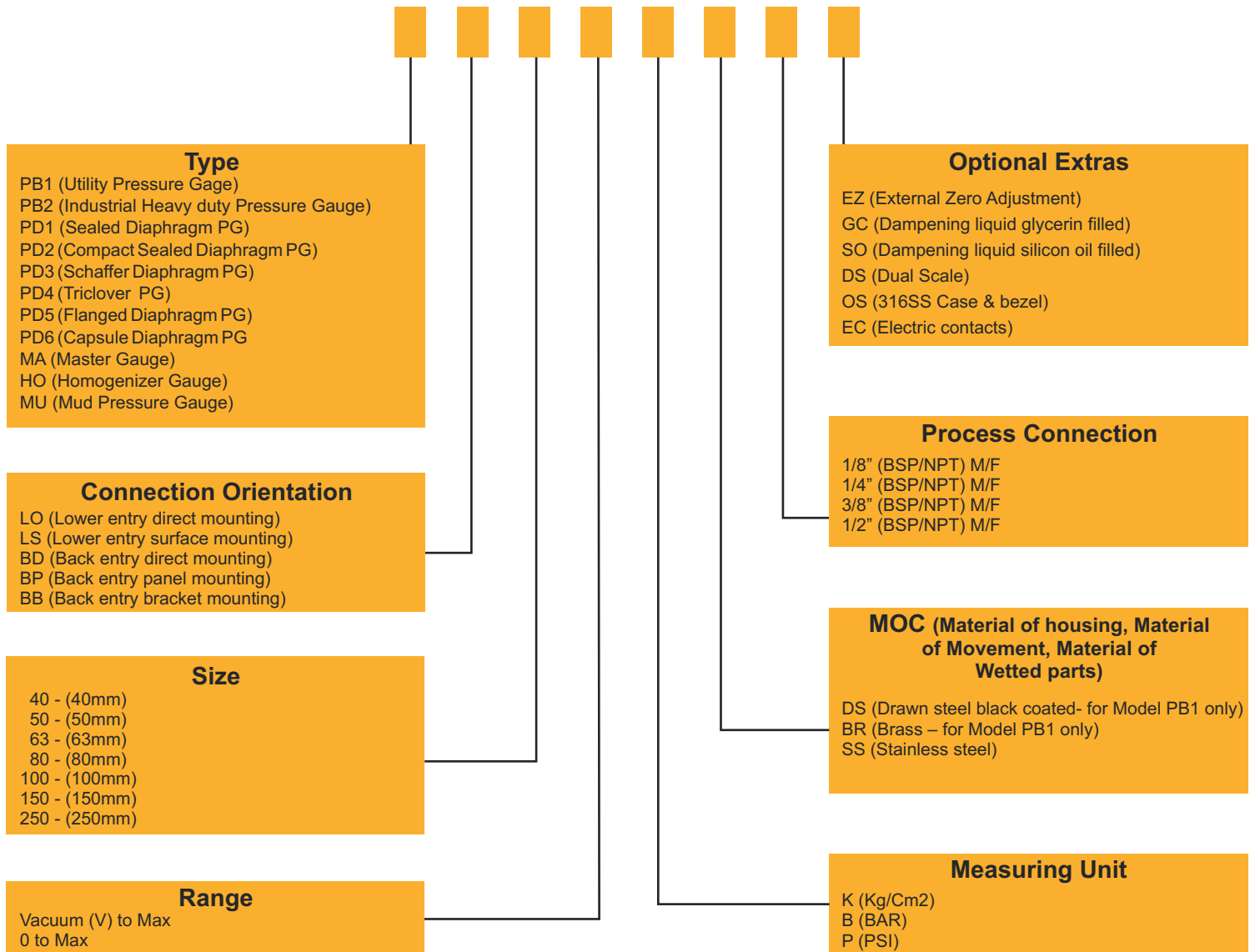
## COMPARISON TEST PUMP



### Technical Specifications

- Stainless Steel Construction
- An Ideal Tester to calibrate Pressure Gauges for up to 2000 Kg/cm<sup>2</sup>
- An Ideal Tester to calibrate Vacuum Pressure Gauges
- Can be used for Pneumatic and Hydraulic mediums
- Heavy Duty material construction, Low Weight and Compact Design makes it Portable Tester

## PRESSURE GAUGE ORDERING CODE



Example PB1-LO-100-0/21-K-DS-1/2" NPT M-GC

## NEEDLE VALUE



### Technical details

**Connection :** Provided threads as per stranded thread and also can be provided female to female or male to male and specified thread requirement

**Material :** SS316, SS304 Brass (Can be provided specific requirement)

**Ordering Information :** Material, thread connection and type

**Pressure :** 0 to 25-400kg/cm<sup>2</sup> (Can be provided specific requirement)

**Temperature :** up to 300°C

## GAUGE COCK

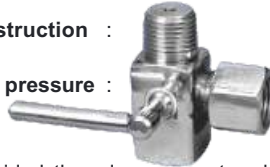
### Technical details

**Material of construction :** SS316/304 Brass

**Nominal working pressure :** 210 bar

**Seal :** Teflon

**Connection :** Provided threads as per strander thread and also can be provided female to female, male to male specified requirement



### Features

Both round and square models available, Teflon seals (PTFE), available in 2-way vent hole type and 3-way cock

## SYPHONE TUBE

### Technical details

**Shape :** Q or U

**Material :** Carbon steel, SS304/316 (In 1/2" and 3/8" NB with Schedule NB & 80)



**Temperature :** 500°C (Subject to pressure and schedule of the pipe)

**Connection :** 1/2" BSP, 1/2" NPT, 3/8" BSP, M-20 x 1.5. (Can be provided specified requirement)

**Pressure :** up to 600 kg/cm<sup>2</sup>

## SNUBBER

### Technical details



**Nominal pressure :** 0 to 10---1000 kg/cm<sup>2</sup>

**Models :** SN-01, SN-02, SN-03

**Model :** SN-01 for 1/4" BSP, M-10 Up to M-14 mm size (Can be provided specified thread requirement)

**Model :** SN-02 for 3/8" BSP, 1/2"NPT, 16 up to 200 mm size(Can be provided specified thread requirement)

**Model :** SN-03 cnd be provided specified requirement up to 1000 kg/cm<sup>2</sup> on specified requirement

**Material :** SS304/316 Brass (Can be provided specified requirement)

## GAUGE SAVER

### Technical details



**Connection :** Normally 1/2"NPT or BSP process connection male and 1/2" NPT or BSP instrument connection female (can be provided according to the specified requirement), Reliable over pressure protection, Simple use

**Material :** Stainless steel 316 and 304, Viton seals at special request

## THERMOWELL

### Technical details



**Connection :** Standard thread and flange

**Material :** As per requirement

**Ordering Information :** SS316, SS304 and other, bar stock drilled and welded material, connection and flange

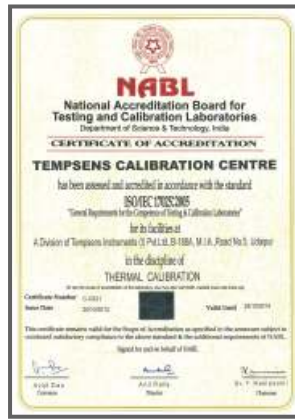
## DIAPHRAGM ASSEMBLY



## PRESSURE UNIT CROSS REFERENCE CHART

PSI	atms	in H <sub>2</sub> O	mm H <sub>2</sub> O	cm H <sub>2</sub> O	oz/in <sup>2</sup>	kg/cm <sup>2</sup>	in Hg	mm Hg	cm Hg	mbar	bar	Pa	kPa	mPa
1	0.06805	27.68	703.1	70.31	16.00	0.0731	2.036	51.72	5.172	68.95	0.06895	6895	6.895	0.006895
14.70	1	406.8	10332	1033	23.1	1.033	29.92	760.0	76.00	1013	1.013	101325	101.3	0.1013
0.03613	0.002458	1	25.40	2.540	0.5780	0.002540	0.07356	1.868	0.1868	2.491	0.002491	249.1	0.2491	0.00025
0.001422	9.678E-05	0.03937	1	0.1000	0.02276	1.00E-04	0.002896	0.07355	0.007355	0.09806	9.806E-05	9.806	0.009806	0.000010
0.01422	0.000968	0.3937	10.00	1	0.2276	0.0010	0.02896	0.7356	0.07356	0.9807	0.0009807	98.07	0.09807	0.00010
0.0625	0.004253	1.730	43.94	4.394	1	0.004394	0.1273	3.232	0.3232	4.309	0.004309	430.9	0.4309	0.0004309
14.22	0.9678	393.7	10000	1000	227.6	1	28.96	735.6	73.56	980.7	0.9807	980.66	98.07	0.098066
0.49115	0.03342	13.59	345.3	34.53	7.858	0.03453	1	25.40	2.540	33.86	0.03386	3386	3.386	0.003386
0.01934	0.001316	0.5352	13.60	1.360	0.3094	0.001360	0.03937	1	0.1000	1.33	0.001333	133.3	0.1333	0.0001333
0.1934	0.01316	5.352	136.0	13.60	3.094	0.01360	0.3937	10	1	13.33	0.01333	1333	1.333	0.001333
0.0145	0.0009869	0.4015	10.20	1.020	0.2321	0.001020	0.02953	0.7501	0.07501	1	0.001000	100.0	0.10000	0.0001
14.50	0.9869	401.5	10197	1020	232.1	1.020	29.53	750.1	75.01	1000	1	100000	100.0	0.1000
0.000145	9.867E-06	0.004014	0.1019	0.01019	0.002320	1.019E-05	0.0002952	0.007499	0.000750	0.01000	9.9974E-06	1	0.0009997	0.000001
0.1450	0.009869	4.015	102.0	10.20	2.321	0.01020	0.2953	7.501	0.7501	10.00	0.01000	1000	1	0.001
145.0	9.869	4014	101968	10197	2321	10.20	295.3	7500	750.0	10000	10.00	1000000	1000	1

# CERTIFICATES



# THERMAL ENGINEERING SOLUTIONS



[www.tempens.com](http://www.tempens.com)

[www.thermowellworld.com](http://www.thermowellworld.com) | [www.temperaturecalibration.in](http://www.temperaturecalibration.in) | [www.glassthermocouples.com](http://www.glassthermocouples.com) | [www.compensatingcables.net](http://www.compensatingcables.net) | [www.marathonheater.in](http://www.marathonheater.in)

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