

www.zoominstruments.com



PRECISE & RELIABLE



TEMPERATURE

PRESSURE

FLOW

LEVEL



ZOOM INSTRUMENTS MFG CO.

About us...

ZOOM INSTRUMENTS MFG CO., MANUFACTURES A VAST RANGE OF PRODUCT WITH "**ZOOM BRAND**". THERE IS MORE TO THIS STATEMENT THEN MEETS THE EYE. TRUE, WE HAVE EVOLVED AS A MANUFACTURER OF REPUTE OVER THE YEARS AND HAVE CONSTANTLY ADDED NEW PRODUCTS TO OUR RANGE, WHICH HAS RESULTED IN A VAST RANGE. BUT OUR BASIC INTENTION WAS NEVER TO BE A "**JACK OF ALL AND MASTER OF NONE**" WE HAVE ALWAYS KEPT OUR DESIGN AND DEVELOPMENT DEPARTMENT ON THEIR TOES, EVEN WHEN A PRODUCT HAS BEEN POSITIVELY ACCEPTED IN THE MARKET, WE HAVE MADE CHANGES OF THE BETTER INSTEAD OF RESTING ON OUR LAURELS.

ZOOM WAS INCORPORATED IN **2003** IN A SHORT SPAN OF FIVE YEARS IN OUR RESPECTIVE FIELDS **ZOOM INSTRUMENTS** HAVE PENETRATED THEIR PRODUCTS INTO THE MARKET THROUGH THEIR STRONG DEALER NETWORK AND GRASPED A REMARKABLE MARKET SHARE AND VERY WELL DEVELOPED CUSTOMER BASE. OUR COMPREHENSIVE RANGE OF PRODUCT AND MARKET PENETRATION SPEAK OF OUR QUALITY AND SINCERE MARKET PRESENCE. THE **MOOL MANTRA** OF THIS SUCCESS STORY HAS ALWAYS REMAIN THE SAME, THE NOTION OF PASSING FIXED PROPORTION OF ADDITIONAL PROFIT AND GAINS TO THE CUSTOMER BY CONTINUOUS VALUE ADDITION TO PRODUCT AND SERVICES.

WE MANUFACTURES THE GAUGES USED FOR CHEMICAL PROCESS / PHARMACEUTICALS / PETROCHEMICAL / POWER GENERATION / OIL AND GAS / FERTILIZER / REFINERIES / FOOD AND CEMENT INDUSTRIES.

Product Range

- BOURDON TYPE PRESSURE GAUGES (GENERAL PURPOSE / WEATHER PROOF)
- BOURDON TYPE GLYCERINE FILLED PRESSURE GAUGES
- DIAPHRAGM PRESSURE GAUGES (SCHAFER / CHEMICAL SEALED)
- LOW PRESSURE GAUGES (COMPACT CAPSULE / DIAPHRAGM TYPE)
- DIFFERENTIAL PRESSURE GAUGE
- DRAUGHT GAUGE
- MERCURY FILLED DIAL THERMOMETER
- BI-METALLIC DIAL THERMOMETER

Quality Program

SINCE ITS INCEPTION, **ZOOM INSTRUMENT** HAS CREATED ITS OWN QUALITY STANDARDS EMPLOYING STRICT SPECIFICATIONS AT EACH STAGE OF PRODUCT DEVELOPMENT, MANUFACTURING & PROCUREMENT ENSURING THAT EVERY INSTRUMENT IS PRECISE AND RELIABLE. CONFIRMING IN ITS ENTIRELY TO QUALITY STANDARD, THIS QUALITY PROGRAM IS NOW IMPLEMENTED THROUGHOUT OUR OPERATION INCLUDING R & D , PRODUCTION , SALES AND SERVICE SUPPORT.

Service & Customer Support

THE PHILOSOPHY OF **ZOOM INSTRUMENT** IS ITS COMMITMENT TO SUPPORT THE CUSTOMERS. THIS COMMITMENT GOES BEYOND THE MERE DELIVERY OF HIGHLY RELIABLE PRODUCTS. IT EXTENDS TO EDUCATION IN ORDER TO MAXIMISE UNDERSTANDING AND THE CAPABILITY OF THE EQUIPMENT TO ACHIEVE THE BEST POSSIBLE RESULTS. THE ALL INDIA NETWORK OF DEALERS & STOCKISTS PROVIDES LOCAL SERVICE AND TECHNICAL SUPPORT.

As your Partner

WE ARE COMMITTED TO TRADITIONAL BUSINESS ETHICS TO ENSURE THE TRUST AND LOYALTY OF CLIENTS. FIRM BUSINESS RELATIONSHIP HAVE BEEN BUILT ON **ZOOM INSTRUMENT MFG CO** REPUTATION AS A RELIABLE BUSINESS AND SUITABLE ASSOCIATES. WE DEAL WITH OUR EXTERNAL PARTNERS IN AN HONEST AND ETHICAL WAY. WE SHALL MUTUAL TRUST AND RESPECT AMONG ALL OUR PARTNERS.

STANDARD PRESSURE RANGES IN PSI AND KG/CM ² (DUAL SCALE) ACCURACY ± 1% F.S.D. AND ABOVE				STANDARD RANGES KG/CM ² (SINGLE SCALE) ACCURACY ± 1% F.S.D. AND ABOVE	
STANDARD RANGES psi	LEAST COUNT in PSI	STANDARD RANGES KG/CM ²	LEAST COUNT in KG/CM ²	STANDARD RANGES KG/CM ²	LEAST COUNT in KG/CM ²
0 - 10	0.2	0 - 0.7	0.2	0 - 0.6	0.02
0 - 15	0.5	0 - 1.06	0.02	0 - 1	0.02
0 - 30	1	0 - 2.1	0.05	0 - 1.6	0.025
0 - 50	1	0 - 3.5	0.1	—	—
0 - 60	2	0 - 4.2	0.1	0 - 2.5	0.05
0 - 100	2	0 - 7	0.2	0 - 4	0.1
0 - 150	5	0 - 10.6	0.2	0 - 6	0.1
—	—	—	—	0 - 10	0.2
0 - 200	5	0 - 14	0.2	0 - 16	0.25
0 - 250	10	0 - 17.5	0.5	0 - 20	0.5
0 - 300	10	0 - 21	0.5	0 - 25	0.5
0 - 400	10	0 - 28	1	0 - 40	1
0 - 500	10	0 - 35	1	0 - 60	1
0 - 600	20	0 - 42	1	0 - 100	2
0 - 800	20	0 - 56	2	0 - 160	2.5
0 - 1000	20	0 - 70	2	0 - 200	5
0 - 1500	20	0 - 106	2	0 - 250	5
0 - 2000	50	0 - 140	2	0 - 300	5
0 - 3000	100	0 - 210	5	0 - 400	10
0 - 4000	100	0 - 280	10	0 - 500	10
0 - 5000	100	0 - 350	10	0 - 600	10
0 - 6000	200	0 - 420	10	0 - 800	20
0 - 8000	200	0 - 560	10	0 - 1000	20
0 - 10000	200	0 - 700	20	0 - 1600	20
0 - 15000	500	0 - 1050	20	-1 to 0	0.05
0 - 20000	500	0 - 1400	20	-1 to 0.6	0.02
-30" of Hg - 0	0.5	-760 mmHg - 0	10	-1 to 1.5	0.05
-30" of Hg - 15	0.5	-760 mmHg - 1.06	0.02	-1 to 3	0.1
-30" of Hg - 30	1	-760 mmHg - 2.1	0.05	-1 to 5	0.1
-30" of Hg - 60	2	-760 mmHg - 4.2	0.1	-1 to 9	0.2
-30" of Hg - 100	2	-760 mmHg - 7	0.2	-1 to 15	0.2
-30" of Hg - 150	5	-760 mmHg - 10.6	0.2	—	—
-30" of Hg - 200	5	-760 mmHg - 14	0.2	—	—
-30" of Hg - 300	10	-760 mmHg - 21	0.5	-1 to 24	0.5
Freon gauges with R12 / R22 temperature scale					
-30 + 150	—	—	—	-1 + 12.5	—
—	—	—	—	-1 + 16	—
-30 + 300	—	—	—	-1 + 25	—
-30 + 400	—	—	—	—	—
Ammonia gauges with temperature scale					
-30 + 150	—	—	—	-1 + 12.5	—
—	—	—	—	-1 + 16	—
-30 + 300	—	—	—	-1 + 25	—

To avoid damage or injury and to ensure long life of the gauge observe the following precautions and guide lines.

- Clearly specify Oxygen, Acetylene, Ammonia and Freon applications while ordering.
- The Gauges in the scope of this catalogue should not be used on corrosive applications.
- Do not install the gauge by turning the case, use square flats provided on socket.
- Never mount the gauge without isolation valve.
- Set the gauge on a rigid support to protect it from vibrations.
- Use a dampener for pulsating pressure applications.
- Do not subject the gauge to more than 75% of maximum range for steady pressure and for fluctuating pressures not more than 60%.
- Protect the gauge from excessive direct temperatures.
- For steam application use gauges with syphon.



ZOOM INSTRUMENTS MFG. CO. (SSI UNIT)

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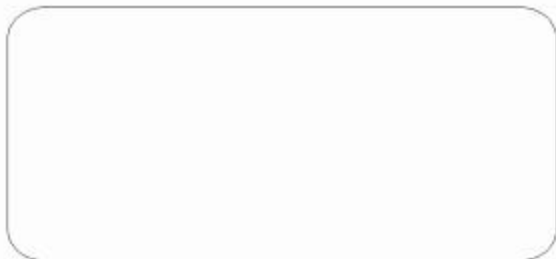
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INFORMATION TO BE FURNISHED WITH THE ENQUIRY

Mounting : Direct, Surface, Flush Panel with Clamp. ● **Connection** : Bottom or Back. ●
Type of Measuring Element : Bourdon, tube, Diaphragm, Diaphragm sealed and capsule.
● **Range** : (Range should be selected i.e. it is twice operating pressure. ● **Nature of Pressure** : Pulsating / Steady / Fluttering. ● **Equipment Vibration** : YES / NO ●
Accessories : Such as syphons, pulsation dampers, gauge, savers, gauge cocks & needle valves. ● **Measuring Medium** ● **Process temperature** ● **Dial Size** ● **Thread Size**.



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UTILITY BOURDON TYPE PRESSURE GAUGE

SPECIAL FEATURES

- LOW COST VERSION
- DRY OR LIQUID FILLED
- ACCURACY AVAILABLE (1.6% / 2.5%)
- SCALES (On Demand)

PSI / Feet of Water / Meter of Water / Bar / Mpa / Kg/Cm²

ECONOMIC



REGULAR



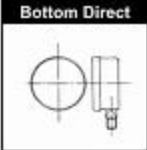
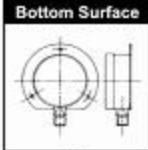
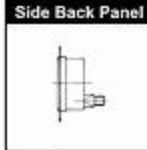
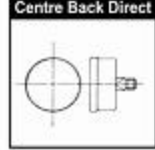
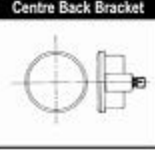
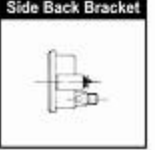
SIZES AVAILABLE ACCURACY (OF FULL SCALE) AMBIENT TEMPERATURE (DEG C) PROCESS TEMPERATURE (DEG C) OPERATING PRESSURE (% of the Scale Value) OVER PRESSURE LIMIT CASE RING JOINT SOCKET BOURDON MOVEMENT DIAL (Black Graduation on White Ground) POINTER (Micro Meter Zero Adjustable) WINDOW	40 / 50 / 63 / 80 / 100 / 150 / 250 MM 1.6% (100 / 150 / 250 MM) 2.5% (40 / 50 / 63 / 80 MM) -20 TO 60 DEG C (MAX) 120 DEG C (MAX) 25 % TO 75% (FS) NOT APPLICABLE STEEL BLACK POWDER COATED STEEL BLACK POWDER COATED ALLOY BRAZING / SOLDERING COPPER ALLOY COPPER ALLOY UPTO 70 KG 316 SS (ABOVE 70 KG UPTO 400 KG) COPPER ALLOY ALUMINIUM ALUMINIUM / BLACK SHEET GLASS	40 / 50 / 63 / 100 / 150 MM 1.6% (100 / 150 / 250 MM) 2.5% (40 / 50 / 63 / 80 MM) -20 TO 60 DEG C (MAX) 120 DEG C (MAX) 25 % TO 75% (FS) NOT APPLICABLE SS 304 SS 304 SILVER BRAZING COPPER ALLOY COPPER ALLOY UPTO 70 KG 316 SS (ABOVE 70 KG UPTO 400 KG) COPPER ALLOY ALUMINIUM ALUMINIUM / BLACK PLEXI GLASS
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OPTION

GLYCERINE FILLED VERSION (Available only in Regular Series)

ACCURACY AMBIENT TEMPERATURE PROCESS TEMPERATURE DAMPENING LIQUID	REFER THE SPECIFICATION OF REGULAR SERIES REFER THE SPECIFICATION OF REGULAR SERIES MAX 65 DEG C GLYCERINE 98%
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MOUNTINGS

Bottom Direct 	Bottom Surface 	Centre Back Panel 	Side Back Panel 
Centre Back Direct 	Centre Back Bracket 	Side Back Bracket 	

APPLICATION

MAINLY FOR WATER / AIR / FOOD AND BEVERAGES / PHARMACEUTICALS / PETROCHEMICALS INDUSTRIES / PUMPS / HYDRO CLEANING MACHINES , PRESSES , ENGINE COMPRESSORS REFRIGERATION / H V A C



COMPLETE SS BOURDON TYPE PRESSURE GAUGE

SPECIAL FEATURES

- STAINLESS CASE AND MEASURING SYSTEM
- WELDED SOCKET AVAILABLE IN PREMIUM SERIES
- PROTECTION IP 65 / IP 66
- DRY OR LIQUID FILLED
- ACCURACY AVAILABLE (0.5% / 1% / 1.6%)
- HIGHER DIAL SIZES i.e ABOVE 150 MM (ARE AVAILABLE IN ALUMINIUM CASING) 200/250/300 MM
- STANDARD FOLLOWED IN GENERAL EN 837 1
- SCALES (On Demand)

PS / Feet of Water / Meter of Water / Bar / Mpa / Kg/Cm²

PREMIUM



ECONOMIC



REGULAR



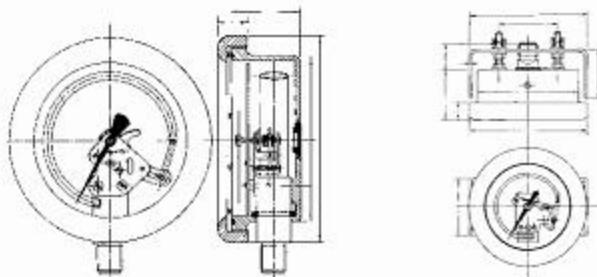
SIZES AVAILABLE	100 MM / 150 MM	100 MM / 150 MM	40 / 50 / 63 MM
ACCURACY (OF FULL SCALE)	0.5% / 1%	1.6%	1.6%
AMBIENT TEMPERATURE (DEG C)	-25 + 65 DEG C	-25 + 65 DEG C	-25 + 65 DEG C
PROCESS TEMPERATURE (DEG C)	300 DEG C	300 DEG C	270 DEG C
OPERATING PRESSURE (% of the Scale Value)	75%	75%	75%
OVER PRESSURE LIMIT (UPTO 600 KG/CM ²)	30%	30%	30%
OVER PRESSURE LIMIT (ABOVE 600 KG /CM ²)	15%	15%	15%
CASE	SS 304	SS 304	SS 304
RING	SS 304	SS 304	SS 304
JOINTS	ARGON ARC	ARGON ARC	ARGON ARC
SOCKET	SS 316	SS 304	SS 304
BOURDON	SS 316	SS 316	SS 316
MOVEMENT	SS 304	SS 304	SS 304
DIAL (Black Graduation on White Ground)	ALUMINIUM	ALUMINIUM	ALUMINIUM
POINTER (Micro Meter Zero Adjustable)	BLACK	BLACK	BLACK
PROTECTION	IP 65	IP 65	-----
BLOW OF DISC	NEOPRENE	NEOPRENE	-----
GASKET	NEOPRENE	NEOPRENE	SILICON
FILLING PLUG	NEOPRENE	NEOPRENE	NEOPRENE
WINDOW	SHEET GLASS	SHEET GLASS	PLEXI GLASS

OPTION

GLYCERINE FILLED VERSION

ACCURACY	1%	1.6%	1.6%
AMBIENT TEMPERATURE	MAX 65 DEG C	MAX 65 DEG C	MAX 65 DEG C
PROCESS TEMPERATURE	MAX 65 DEG C	MAX 65 DEG C	MAX 65 DEG C
DAMPENING LIQUID	GLYCERINE 98%	GLYCERINE 98%	GLYCERINE 98%

OVERVIEW



APPLICATION

FOOD AND BEVERAGES , PHARMACEUTICALS , CRYOGENICS , CHEMICAL & PETROCHEMICALS INDUSTRIES , CONVENTIONAL AND NUCLEAR POWER PLANTS , PUMPS , HYDRO CLEANING MACHINES , PRESSES , ENGINE COMPRESSORS , TURBINES , DIESEL ENGINES AND REFRIGERATION PLANTS.



SPECIAL APPLICATION GAUGES

- CUSTOMISED GAUGES**

- SCALES (On Demand)**

PSi / Feet of Water / Meter of Water / Bar / Mpa / Kg/Cm²

HOMOGENIZER



SANITARY



SOLID FRONT



SIZES AVAILABLE	100 MM / 150 MM	63MM	100 MM / 150 MM
ACCURACY (OF FULL SCALE)	1.6 %	1.6 %	1 %
AMBIENT TEMPERATURE (DEG C)	-25 + 65 DEG C	-25 + 65 DEG C	-25 + 65 DEG C
PROCESS TEMPERATURE (DEG C)	120 DEG C	65 DEG C	300 DEG C
OPERATING PRESSURE (% of the Scale Value)	75%	75%	75%
OVER PRESSURE LIMIT	130% (FS)	130% (FS)	130% (FS)
CASE	SS 304	SS 304	SS 304
RING	SS 304	SS 304	SS 304
BOURDON	SS 316 L	SS 316 L	SS 316
SOCKET	SS 316	SS 316	SS 316
JOINTS	TIG ARGON ARC	TIG ARGON ARC	TIG ARGON ARC
PROTECTION	IP 65	IP 65	IP 65
CHAMBER	-----	SS 316	-----
DIAPHRAGM	SS 316	SS 316	SS 316
MOVEMENT	SS 304	SS 304	SS 304
DIAL (Black Graduation on White Ground)	ALUMINIUM	ALUMINIUM	ALUMINIUM
POINTER (MicroMeter Zero Adjustable)	ALUMINIUM / BLACK	ALUMINIUM / BLACK	ALUMINIUM / BLACK
BLOW OUT DISC	-----	-----	NEOPRENE
GASKET	NEOPRENE	NEOPRENE	NEOPRENE
FILLING FLUID	FOOD GRADE OIL	FOOD GRADE OIL	-----
WINDOW	SHEET GLASS	PLEXI GLASS	SAFETY GLASS

OPTION

GLYCERINE FILLED VERSION

PROCESS TEMPERATURE	65 DEG C MAX	65 DEG C MAX	65 DEG C MAX
AMBIENT TEMPERATURE	65 DEG C MAX	65 DEG C MAX	65 DEG C MAX
DAMPENING LIQUID	GLYCERINE 98%	GLYCERINE 98%	GLYCERINE 98%



TEMPERATURE / PRESSURE RECORDER

- USED FOR RECORDING TEMPERATURE, PRESSURE & VACCUM.
- AVAILABLE IN 10" CIRCULAR CHART SIZE.
- CHART DRIVE-24 HOURS STANDARD - ELECTRICAL OR MECHANICAL.
- TWO PEN MODELS AVAILABLE.
- SS, MS & CU CAPILLARY TYPE.
- 1% ACCURACY.
- RANGE VARYING FROM -20°C TO 600°C FOR TEMPERATURE RECORDER AND 0-760MM HG TO 160 KG/CM² FOR PRESSURE RECORDER.





SPECIAL APPLICATION GAUGES

- CUSTOMISED GAUGES
- SCALES (On Demand)
Ps i / Feet of Water / Meter of Water
/ Bar / Mpa / Kg/Cm²

ELECTRIC CONTACT PRESSURE GAUGE



DIFFERENTIAL PRESSURE GAUGE



DRAUGHT GAUGE



SIZE AVAILABLE	100 MM / 150 MM	100 M / 150 MM	150x76 & 200x104 MM
ACCURACY (OF FULL SCALE)	1%	1.6 %	2.5%
AMBIENT TEMPERATURE (DEG C)	-25 + 65 DEG C	-25 + 65 DEG C	-25 + 65 DEG C
PROCESS TEMPERATURE (DEG C)	100 DEG C	100 DEG C	-20 + 60 DEG C
OP. PRESSURE (% of the Scale Value)	75%	-----	75%
OVER PRESSURE LIMIT	NOT SUITABLE	-----	NOT SUITABLE
CASE	SS 304	SS 304	MS BLACK
RING	SS 304	SS 304	MS BLACK
BOURDON	SS 316 L	-----	-----
SOCKET	SS 316	-----	CU ALLOY
JOINTS	TIG ARGON ARC	-----	-----
PROTECTION	IP 65	IP 65	-----
MOVEMENT	SS 304	SS 304	CU ALLOY
DIAL (Black Graduation on White Ground)	ALUMINIUM	ALUMINIUM	ALUMINIUM
POINTER (MicroMeter Zero Adjustable)	ALUMINIUM / BLACK	ALUMINIUM / BLACK	ALUMINIUM
BLOW OUT DISC	-----	-----	NEOPRENE
GASKET	NEOPRENE	NEOPRENE	NEOPRENE
WINDOW	PLEXI GLASS	PLEXI GLASS	PLEXI GLASS
ELECTRICAL WIRING THRU	JUNCTION BOX	-----	-----
CONTACT SETTING	OVER AN ARC OF 270°	-----	-----
(Thru a knob placed on front lense)	-----	-----	-----
CONTACT	MAGNETIC SNAP ACTION	-----	-----
CHAMBER	-----	SS 304	-----
NUT & BOLTS	-----	SS 304	-----
DIAPHRAGM	-----	SS 316 L	CU ALLOY/ SS316
S/P ABOVE RANGES 6000 MMWC	-----	60 KG/CM2	-----
S/P UPTO 6000 MMWC	-----	40 KG/CM2	-----
SCALE AMPLITUDE	-----	180 TO 270 DEG	-----

OPTION

ELEMENT CHAMBER FILLING	-----	SILICON OIL	-----
DIAPHRAGM SEALING GASKET	-----	VITONE	-----
EXTERNAL ZERO ADJUSTMENT	-----	YES	YES

Also Available

OXYGEN GAUGE :

All sizes are available for oxygen service with **OXYGEN** marked in **Red** and **USE NO OIL** marked in **Black**. These gauges are degreased with suitable degreasing agent.

ACETYLENE GAUGES :

All sizes are available for acetylene with **ACETYLENE** marked on the dial in **Red**.

AMMONIA GAUGES :

These gauges are available in 63 mm / 100 mm size with concentric temperature scale. For ammonia gauges the bourdon, movement & socket are made of stainless steel. The standard thread connections are 1/4" N.P.T or 3/8" B.S.P.

FREON GAUGES :

These gauges are available in 63mm & 100mm size with concentric temperature scale for R12 or R22 service marked in **Red**.



HIGH PRESSURE DIAPHRAGM GAUGE(SCHAFFER'S TYPE)

SPECIAL FEATURES

- LOW COST VERSION
- TEFLON PROTECTED
- RANGES FROM 1 TO 25 KGCM²
- ACCURACY AVAILABLE (2.5% OF FULL SCALE)
- CUSTOMISED PROCESS CONNECTION
- SUITABLE FOR GASEOUS AND LIQUID MEDIA & AREAS OF LESS CHEMICAL EXPOSURE
- STANDARD FOLLOWED IN GENERAL EN 837 3

ECONOMIC



REGULAR



PREMIUM



SIZES AVAILABLE	100 MM / 150 MM	100 MM / 150 MM	100 MM / 150 MM
ACCURACY (OF FULL SCALE)	2.5 %	2.5%	2.5%
AMBIENT TEMPERATURE (DEG C)	-25 + 65 DEG C	-25 + 65 DEG C	-25 + 65 DEG C
PROCESS TEMPERATURE (DEG C)	120 DEG C	120 DEG C	120 DEG C
OPERATING PRESSURE (% of the Scale Value)	75%	75%	75%
OVER PRESSURE LIMIT (Full Scale Value)	130%	130%	130%
CASE	STEEL (PAINTED)	ALUMINIUM	SS 304
RING	STEEL (PAINTED)	ABS	SS 304
TOP CHAMBER	STEEL (PAINTED)	SS 304	SS 304
BOTTOM CHAMBER	SS 304	SS 304	SS 304
DIAPHRAGM	SPRING STEEL / SS 316	SPRING STEEL / SS 316	SPRING STEEL / SS 316
MOVEMENT	BRASS	BRASS	SS 304
DIAL (Black Graduation on White Ground)	ALUMINIUM	ALUMINIUM	ALUMINIUM
POINTER (Micro Meter Zero Adjustable)	ALUMINIUM / BLACK	ALUMINIUM / BLACK	ALUMINIUM / BLACK
BLOW OUT DISC			NEOPRENE
GASKET	NEOPRENE	NEOPRENE	NEOPRENE
WINDOW	SHEET GLASS	SHEET GLASS	SHEET GLASS

APPLICATION

FOOD AND BEVERAGES , PHARMACEUTICALS , CRYOGENICS , CHEMICAL & PETROCHEMICALS INDUSTRIES , CONVENTIONAL AND NUCLEAR POWER PLANTS , CEMENT , REFRIGERATING PLANT.





CHEMICAL SEALED DIAPHRAGM PRESSURE GAUGE

SPECIAL FEATURES

- RANGES FROM VACUUM TO 250 KG/CM²
- DIAPHRAGM DIRECTLY WELDED TO TOP CHAMBER
- EASY TO CLEAN
- EASY TO CHANGE PROCESS CONNECTION / BOTTOM CHAMBER
- SUITABLE FOR GENERAL PURPOSE APPLICATION
- FLANGES OR SCREWED CONNECTION
- ACCURACY AVAILABLE (± 1 % OF FULL SCALE)
- STANDARD FOLLOWED IN GENERAL EN 837 3
- SCALES (On Demand)

PS / Feet of Water / Meter of Water / Bar / Mpa / Kg/CM²

PREMIUM



ECONOMIC



REGULAR



GAUGE PART

SIZE AVAILABLE	100 MM / 150 MM	100 MM / 150 MM	63 MM
ACCURACY (OF FULL SCALE)	0.5% / 1%	1.6%	1.6%
AMBIENT TEMPERATURE (DEG C)	-25 + 65 DEG C	-25 + 65 DEG C	-25 + 65 DEG C
PROCESS TEMPERATURE (DEG C)	-40 TO 200 DEG C	-40 TO 200 DEG C	-40 TO 200 DEG C
OPERATING PRESSURE (% of the Scale Value)	75%	75%	75%
OVER PRESSURE LIMIT (UPTO 250 KG/CM ²)	30%	30%	30%
CASE	SS 304	SS 304	SS 304
RING	SS 304	SS 304	SS 304
JOINTS	TIG ARGON ARC	TIG ARGON ARC	TIG ARGON ARC
SOCKET	SS 316 (Welded to Case)	SS 316 (TWO PART)	SS 316 (TWO PART)
BOURDON	SS 316	SS 316	SS 316
MOVEMENT	SS 304	SS 304	SS 304
DIAL (Black Graduation on White Ground)	ALUMINIUM	ALUMINIUM	ALUMINIUM
POINTER (Micro Meter Zero Adjustable)	ALUMINIUM / BLACK	ALUMINIUM / BLACK	ALUMINIUM / BLACK
PROTECTION	IP 65	IP 65	-----
BLOW OF DISC	NEOPRENE	NEOPRENE	SILICON RUBBER
GASKET	NEOPRENE	NEOPRENE	NEOPRENE
FILLING PLUG	NEOPRENE	NEOPRENE	NEOPRENE
WINDOW	SHEET GLASS	SHEET GLASS	PLEXI GLASS

SEALED PART

FILLING FLUID	SILICON OIL	SILICON OIL	SILICON OIL
DIAPHRAGM	AISI 316L	AISI 316L	AISI 316L
TOP CHAMBER	304 SS	304 SS	304 SS
BOTTOM CHAMBER	316 SS	316 SS	316 SS
NUT / BOLTS	SS 304	SS 304	SS 304
SLIP RING (TENSION FLANGE)	MS Black Powder Coated	MS Black Powder Coated	MS Black Powder Coated
GASKET	P T F E	P T F E	P T F E

OPTION

GLYCERINE FILLED VERSION

ACCURACY	1%	1.6%	1.6%
AMBIENT TEMPERATURE	MAX 65 DEG C	MAX 65 DEG C	MAX 65 DEG C
PROCESS TEMPERATURE	MAX 65 DEG C	MAX 65 DEG C	MAX 65 DEG C
DAMPENING LIQUID	GLYCERINE 98%	GLYCERINE 98%	GLYCERINE 98%

NOTE : STANDARD DIAPHRAGM SEALS ARE OF SLIP RING COUPLED TYPE AS MENTIONED ABOVE.

OTHER SEALS ARE ALSO AVAILABLE ON REQUEST :

- DIRECT COUPLED TYPE (SOLID DRAWN)
- HEAVY DUTY WELDED TYPE (SINGLE PIECE DESIGN SCREWED END)
- DIRECT COUPLED TYPE SUITABLE FOR 63 MM DIAL PRESSURE GAUGES (LOW COST SOLUTION)
- SMS / FLOATING TYPE MAINLY FOR FOOD / BEVERAGES / DAIRY & PHARMACEUTICAL INDUSTRY, (EASY TO CONNECT & DISCONNECT)
- 3/4" BSP SCREWED FLUSH TYPE SUITABLE FOR 63 MM PRESSURE GAUGE (ONE PIECE CONSTRUCTION / NO BOLTS & GASKET FLUSH DIAPHRAGM)
- SANITARY SEAL 1/2" SANITARY SEAL (TRICLOVER WITH & WITHOUT CLAMP)
- "T" SECTION TYPE PROCESS CONNECTION FLANGE AS PER DIN / BS / ANSI / JIS ("I" SECTION EXTENSION TO FACILITATE SMALL FLANGE CONNECTION)
- DIRECT FLANGE FLUSH TYPE FLANGES ARE AVAILABLE AS PER DIN / BS / ANSI / JIS STANDARDS, (FLUSH DIAPHRAGM PROVIDED AND EASY TO FLUSH AND ARE MORE SUITABLE FOR SLURRY AND CORROSIVE SERVICES)
- DIRECT FLANGE INSET TYPE MOST SUITABLE FOR SLURRY AND CORROSIVE APPLICATIONS. FLANGE AS PER DIN / BS / ANSI / JIS (NOT RECOMMENDED FOR FLANGES SIZE 1" & BELOW)
- CUSTOMISED SEALS AS PER APPLICATION



LOW PRESSURE / DIAPHRAGM GAUGE

SPECIAL FEATURES

- RANGES FROM 10 mbar to 1000 mbar eq. to mm/wc
 - FLANGES OR SCREWED CONNECTION
 - ACCURACY AVAILABLE (2.5% OF FULL SCALE)
 - CUSTOMISED CONNECTION
 - SUITABLE FOR GASEOUS AND AIR APPLICATION
 - STANDARD FOLLOWED IN GENERAL **EN 837_3**
 - ALSO VACUUM & COMPOUND RANGES
 - SCALES (On Demand)
- Inch of H₂O / Inch of mercury / centimeter of mercury / Kpa

ECONOMIC



REGULAR



PREMIUM



SIZES AVAILABLE	100 MM / 150 MM	100 MM / 150 MM	100 MM / 150 MM
ACCURACY (OF FULL SCALE)	2.5 %	2.5%	2.5%
AMBIENT TEMPERATURE (DEG C)	-25 + 65 DEG C	-25 + 65 DEG C	-25 + 65 DEG C
PROCESS TEMPERATURE (DEG C)	120 DEG C	120 DEG C	120 DEG C
OPERATING PRESSURE (% of the Scale value)	75%	75%	75%
OVER PRESSURE LIMIT (Full Scale Value)	110%	110%	110%
CASE	STEEL (PAINTED)	ALUMINIUM	SS 304
RING	STEEL (PAINTED)	ABS	SS 304
TOP CHAMBER	STEEL (PAINTED)	SS 304	SS 304
BOTTOM CHAMBER	SS 304	SS 304	SS 304
DIAPHRAGM	SS 316	SS 316	SS 316
MOVEMENT	BRASS	BRASS	SS 304
DIAL (Black Graduation on White Ground)	ALUMINIUM	ALUMINIUM	ALUMINIUM
POINTER (Micro Meter Zero Adjustable)	ALUMINIUM / BLACK	ALUMINIUM / BLACK	ALUMINIUM / BLACK
BLOW OUT DISC	NEOPRENE	NEOPRENE	NEOPRENE
GASKET	SHEET GLASS	SHEET GLASS	NEOPRENE
WINDOW			SHEET GLASS

APPLICATION

FOOD AND BEVERAGES , PHARMACEUTICALS , CHEMICAL & PETROCHEMICALS INDUSTRIES , CONVENTIONAL AND NUCLEAR POWER PLANTS , CEMENT , PULP & PAPER & ALLIED PROCESS INDUSTRIES



LOW PRESSURE GAUGE (COMPACT SERIES)

SPECIAL FEATURES

- COMPACT DESIGN
- RANGES FROM 25 mbar TO 1000 mbar
- ALSO VACUUM & COMPOUND RANGES
- SCREWED CONNECTION
- ACCURACY AVAILABLE (1.6% OF FULL SCALE)
- BOTTOM & BACK MOUNTING
- SUITABLE FOR GASEOUS AND AIR APPLICATION
- STANDARD FOLLOWED IN GENERAL **EN 837_3**

PREMIUM



ECONOMIC



REGULAR



SIZES AVAILABLE	63 MM	63 MM / 100 MM / 150 MM	100 MM / 150 MM
ACCURACY (OF FULL SCALE)	2.5 %	1.6 %	1.6 %
AMBIENT TEMPERATURE (DEG C)	-25 + 65 DEG C	-25 + 65 DEG C	-25 + 65 DEG C
PROCESS TEMPERATURE (DEG C)	100 DEG C	100 DEG C	100 DEG C
OPERATING PRESSURE (% of the Scale Value)	75%	75%	75%
OVER PRESSURE LIMIT	NOT SUITABLE	NOT SUITABLE	NOT SUITABLE
CASE	MS POWDER COATED	ALUMINIUM	SS 304
RING	BRASS	ABS	SS 304
CAPSULE	BRASS	BRASS	SS 316
MOVEMENT	BRASS	BRASS	BRASS
DIAL (Black Graduation on White Ground)	ALUMINIUM	ALUMINIUM	ALUMINIUM
POINTER (Micro Meter Zero Adjustable)	ALUMINIUM / BLACK	ALUMINIUM / BLACK	ALUMINIUM / BLACK
GASKET	NEOPRENE	NEOPRENE	NEOPRENE
WINDOW	PLEXI GLASS (Lock in Type)	SHEET GLASS	SHEET GLASS

APPLICATION

AIR / GASES / WHICH ARE NON CORROSIVE AND SUITABLE FOR BRASS APPLICATION.



DIAL THERMOMETERS

STANDARD FEATURES

- SCALE
Degree Centigrade
- CONNECTION
3/8" / 1/2" / 3/4" / 1" BSP/NPT (Male)
- STANDARD LENGTH
STEM TYPE - 300 mm
CAPILLARY TYPE - 3 Mtrs.

CUSTOMISED PROCESS CONNECTION / STEM LENGTH /
CAPILLARY LENGTH / SCALES IS ALSO AVAILABLE.

MERCURY IN STEEL



BIMETALLIC



SIZES AVAILABLE
ACCURACY (OF FULL SCALE)
AMBIENT TEMPERATURE (DEG C)
PROCESS TEMPERATURE (DEG C)
OVER PRESSURE LIMIT

OPERATING PRESSURE
STEM DIAMETER
CASE
RING
STEM
CONNECTION
MOVEMENT
PROTECTION
BOURDON
SENSING ELEMENT
DIAL (Black Graduation on White Ground)
POINTER (MicroMeter Zero Adjustable)
WINDOW

100 MM / 150 MM / 200 MM / 250 MM
1%
-25 + 65 DEG C
any break-up in-between -38 TO 600 DEG C
30% OF FS OR 650 DEG C
(which ever is minimum)
25 KG/CM2 WITHOUT THERMOWELL
6 MM / 8 MM / 9.5 MM / 10 MM / 12 MM
SS 304
SS 304
SS 304
SS 304
SS 304
IP 65
SS 316 L
BOURDON
ALUMINIUM
ALUMINIUM / BLACK
PLAIN GLASS

63 MM / 100 MM / 150 MM
1.6%
-25 + 65 DEG C
-38 TO 300 DEG C
15% OF FS OR 300 DEG C
(which ever is minimum)
25 KG/CM2 WITHOUT THERMOWELL
6 MM / 8 MM / 9.5 MM / 10 MM / 12 MM
SS 304
SS 304
SS 304
SS 304

BIMETAL STRIP COILED
ALUMINIUM
ALUMINIUM EXT. ZERO
PLAIN GLASS

DISTANCE TYPE MODELS ARE AVAILABLE IN MERCURY FILLED DIAL THERMOMETER ONLY - SOLID DRAWN CAPILLARY OF SS 304 ARE PROVIDED OF 3 MTR AS STANDARD TO SUCH MODELS.
(THESE INSTRUMENTS ARE AVAILABLE IN MERCURY FILLED VERSION ONLY)

OPTION

- TOUGHENED GLASS / PLEXIGLASS / SHATTERPROOF GLASS
- MAXIMUM READING POINTER
- KNIFE EDGE POINTER
- ANTIVIBRATION SPRING
- DIAL SIZES ABOVE 150MM AVAILABLE IN CAST ALUMINIUM CASING (SIZES : 200/250/300MM)
- GLYCERINE FILLING
- SS 316 CAPILLARY SOLID DRAWN/ARMoured/PVC ON SS CAPILLARY
- SS 316 STEM/BLUB/CONNECTION
- CONNECTION ON CAPILLARY (SLIDE OVER CONNECTION)
- CUSTOM BUILT DIAL & OTHER SPECIFICATION
- SNAP ACTION ELECTRIC CONTACT - 1 NO. 2 NO. 1 NO. = 1 NC
1 NC 2 NC MICROSWITCH

APPLICATION

FOOD AND BEVERAGES , PHARMACEUTICALS , CRYOGENICS , CHEMICAL & PETROCHEMICALS INDUSTRIES ,
CONVENTIONAL AND NUCLEAR POWER PLANTS , CEMENT , REFRIGERATING PLANT.



THERMOCOUPLES

Thermocouples are temperature sensors, which work on principles for flow of electron in closed circuit as described below.

Whenever two dissimilar material are joined at ends and the two ends are subjected to temperature differential, electrons flow in such closed circuit and there is potential difference between cold and hot junction. This potential difference is proportional to the temperature differential and is dependent on the metals joined.

Any two dissimilar metals can be used for this purpose, however there are many standard combinations on metals, which are internationally used and designated for use as thermocouple elements.

Most commonly used thermocouple elements are broadly divided in two categories:

A) Base metal thermocouples (J, K, T, and E type) and B) Precious metal thermocouples (R, S and B type).

Type	CONDUCTOR		COMBINATIONS	Approx. EMF Change/Deg.C with Reference Junction at 0 Deg. C (mV/Deg. C)			Approx. working Temp. Range (Considering Max. Possible wire DIA is employed)		Output Tolerance as per IEC 584.2, 1982 & BS EN 60584.2 1993		
				@100°C	@500°C	@1000°C	CONTINUOUS	SHORT TERM	CLASS 1	CLASS 2	CLASS 3
J	Fe (+) Magnetic	Cu-Ni (-) (Constantan)	BS EN 60584.1, Pt-1996 ANSI/MC96.1, part 3 (J)	54	56	—	+20 ~ +700	-100 ~ +750	±0.004X T @ >375	±0.0075X T @ >333	—
K	Ni-Cr (+) (Chromel)	Ni-Ni (-) (Alumel)	BS EN 60584.1, Pt-1996 ANSI/MC96.1, part 4 (K)	42	43	39	0 ~ +1100	-50 ~ +1250	±0.004X T @ >300	±0.0075X T @ >333	±0.015X T @ >200
T	Cu (+) (Copper)	Cu-Ni (-) (Constantan)	BS EN 60584.1, Pt-1996 ANSI/MC96.1, part 5 (T)	46	—	—	-150 ~ +300	-200 ~ +400	±0.004X T @ >300	±0.0075X T @ >333	±0.015X T @ >200
E	Ni-Cr (+) (Chromel)	Cu-Ni (-) (Constantan)	BS EN 60584.1, Pt-1996 ANSI/MC96.1, part 2 (E)	68	81	—	0 ~ +750	-40 ~ +850	±0.004X T @ >375	±0.0075X T @ >333	±0.015X T @ >200
R	Pt-Rh (13%) (+)	Pt (-)	BS EN 60584.1, Pt-1996 ANSI/MC96.1, part 6 (R)	8	10	13	0 ~ +1550	0 ~ +1700	±(1+0.003X T @ >1100) @ >1000	±0.025X T @ >800	—
S	Pt-Rh (10%) (+)	Pt (-)	BS EN 60584.1, Pt-1996 ANSI/MC96.1, part 7 (S)	8	9	11	0 ~ +1500	+ ~ +1750	±(1+0.003X T @ >1100) @ >1000	±0.025X T @ >800	±0.05X T @ >800
B	Pt-Rh (30%) (+)	Pt-Rh (6%) (-)	BS EN 60584.1, Pt-1996 ANSI/MC96.1, part 7 (B)	1	5	9	+100 ~ +1550	+100 ~ +1620	—	±0.025X T @ >800	±0.05X T @ >800

THERMOCOUPLE TYPES:

Given below is general description of commonly used thermocouples.

IEC 584-1, PART1: S:

This thermocouples can be used in oxidising or inert atmosphere at temperatures described above. Recrystallised Alumina beads and protective sheaths are generally used. However, for lower temperatures upto 1100 Deg C metal sheaths with porcelain beads can be used. Please note that continuous use at elevated temperature may cause fusing of Rhodium in pure Platinum causing reduction in output emf.

IEC 584-1, PART2: R:

This thermocouples can be used in applications similar to S type thermocouples. The advantage being slightly higher output at same temperature and better stability. This type is preferred over S type thermocouples.

IEC 584-1, PART3: J:

This thermocouples are commonly known as iron/constantan thermocouples and can be used in reducing or inert atmosphere at temperatures described above. Restrict use in oxidizing atmosphere to temperatures up to 400 deg C, otherwise degradation will be rapid. Avoid using for application where condensation temp is often reached otherwise Fe (-leg) will rust rapidly.

IEC 584-1, PART4: K:

This is most commonly used thermocouple and is are commonly known as chromel/Alumel thermocouple. These are designed primarily for use in Oxidising atmosphere at temperatures described above. Great care should be taken when using for any other atmosphere. These thermocouple will get oxidised when used continuously at temp above 1000 Deg C and cause drift. For temp range from 250 to 600 Deg C stability is suspect. Other base metal thermocouples are better bet at this temp range. Cyclic temperature changes can cause error of several degrees at these temperatures.

IEC 584-1, PART5: T:

This is commonly used in laboratory applications where sub zero temperatures are often maintained. Repeatability at -200 + 200 Deg C is excellent. However at temp above this Copper arm rapidly oxidizes causing drift. Note that the negative arm of T and J type are not same and are not interchangeable.

IEC 584-1, PART6: E and IEC 584-1, Part7 : B

These thermocouples are not in much use presently. E type is more stable in -250 + 200 Deg Range than K type and can be preferred over K in this range. Type B thermocouple can be used at temperature upto 1600 Deg C. Interesting point is that in this type cold junction compensation is not normally required as emf change from 0 to 50 is negligible.

Type	COMMONLY USED WIRE GAUGES (SWG)	STANDARD SHEATH MATERIALS	STANDARD SHEATH DIAMETERS	STANDARD PROCESS CONNECTIONS	STANDARD TERMINAL ENDS
J	22, 20, 18, 16, 14, 12 & 10 (0.7, 0.9, 1.2, 1.6, 2.0, 2.6 AND 3.3 mm)	TYPE SPECIFICATION 304 : SS 304 316 : SS 316 310 : SS 310 446 : SS 446 600 : INCONEL 600 800 : INCOLOY 800	6, 8, 10, 12, 16, 19, 22, HIGHER DIAMETERS SUCH AS 32, 38, 42 mm CAN BE PROVIDED WITH SS 446 BARSTOCK SHEATH FOR MOLTEN METAL BATH APPLICATION	TYPE SPECIFICATIONS 11 1/2" BSP(M) ADJ. 12 1/2" BSP(M) Fix. 21 3/4" BSP(M) ADJ. 22 3/4" BSP(M) Fix. 31 1" BSP(M) ADJ. 32 1" BSP(M) Fix. 41 50 MM OD ADJ FLANGE 42 50 MM OD Fix. FLANGE 51 25 NB BS 10 T "D" FLANGE 61 25 NB ASA #150 FLANGE	TYPE SPECIFICATIONS 11 MINIATURE IP-65 HEAD. 12 STANDARD IP-65 SCREWED HEAD. 13 SPHERICAL HINGED LID IP-65 HEAD. 14 LARGE VOL. IP-67 SIMPLEX HEAD. 15 LARGE VOL. IP-67 DUPLEX HEAD. 16 FLAME PROOF HEAD
K					
T					
E					
R	30, 29, 27, 26 & 25	TYPE SPECIFICATION 310 : SS 310 510 : PORCELAIN 610 : CERAMIC 710 : RECRYSTALLISED ALUMINA	6, 8, 10, 12, 15, 20, 24 mm.		21 FLYING LEADS 22 QUICK DISCONNECT PLUG SOCKET 23 BNC CONNECTOR
S	30, 32, 0.34, 0.4, 0.45 AND 0.5 mm				
B					



STYLE OF THERMOCOUPLES ASSEMBLIES

- FIG-1** Basic element in all common types with welded junction in various wire gauges and lengths.
- FIG-2** Basic element with ceramic twin bore insulators suitable for replacement for industrial / high temp thermocouples.
- FIG-3** Suitable for general application up to 400 Deg C. J, K, T, E type element in Seamless SS316 sheath with extension lead wire. Grounded/ungrounded junction as required.
- FIG-4** Suitable for extruder nozzle, motor and pipe temperature measurement. Available in J and K type element embedded in any standard bolt size with extension lead wire. Suitable for Temp up to 225 Deg C.
- FIG-5** Washer type Suitable for surface temperature measurement. Available in J and K type element embedded in any standard washer size with extension lead wire. Suitable for Temp up to 325 Deg C.
- FIG-6** Bayonate type suitable for plastic machinery, bearing chokes etc. Available in J and K type element with SS 316 sheath and extension lead wire. Suitable for Temp up to 650 Deg C.
- FIG-7** Self adhesive patch thermocouples are suitable for flat or curved surfaces. Available in J and K type element with Teflon insulation. Suitable for Temp up to 200 Deg C.
- FIG-8** Adjustable ring thermocouples are suitable for large pipe surface temp measurement. Available in J and K type MI element with SS armour over Fibreglass cable. Suitable for Temp up to 500 Deg C.
- FIG-9** Hand held thermocouples are suitable for liquid, semi solid, leaf type for surface. Available in J and K type MI element with SS Sheath and Ebonite handle with PVC extension cable Suitable for Temp up to 1100 Deg C.
- FIG-10** Suitable for moving surfaces such as calender rolls or motor shafts upto 225 Deg C and 200 MPM speeds. Available with spring loaded detection head extension leads and mounting brackets. Available in J and K type element.
- FIG-11** Heavy duty metal sheathed industrial thermocouples are suitable for most arduous industrial environment such as furnaces, kilns, ovens Zinc Baths etc. Available in J, K, R & S type element with variety of sheaths such as SS 316, Inconell 600, and SS 310.
- FIG-12** High temperature ceramic sheathed thermocouples are suitable for temperatures upto 1600 Deg C Available in K, R & S type element with variety of sheaths such as SS SS 310, Porcelain, Ceramic and Recrystallised Alumina.
- FIG-13** Mineral insulated metal sheathed thermocouples are suitable for spaces which are difficult to reach. Available in J and K type element with variety of sheaths such as SS 316, Inconell 600, and SS 310.
- FIG-14** L shape thermocouples are suitable for molten metal baths. Hot are is manufactured from solid barstock for better life. Available in K type element with variety of sheaths such as Inconell 600, and SS 446.

TYPES OF THERMOCOUPLE HEADS



FLAME PROOF



BIG, IP-67
DUPLEX



BIG, IP-67
SIMPLEX



SPHERICAL
IP-65



STANDARD
IP-65



MINIATURE
IP-55



THERMOCOUPLES

METAL SHEATHED INDUSTRIAL (FIG-11)



Heavy duty industrial metal sheathed thermocouple assemblies are available with thick walled protective sheath in SS 304, SS 316, SS 310, Inconel 600 and SS 446.

These assemblies are suitable for temperatures upto 1150 Deg C.

Typical area of application are Furnace, Kilns, Ovens, Boilers, Stack temp, Flue Gas Application.

Depending upon selection of sheath these assemblies are suitable for Oxidising, reducing or neutral atmosphere.

SPECIFICATION :

Type	: K, J, E, T, simplex or duplex
Junction	: Grounded/ Ungrounded Exposed
Tolerance	: ANSI/ MC 96.1 Cl 2
Error Limit	: 0.0075[t] @ > 350 Deg C
Sheath	: SS 304, SS 316, SS 310, Inconel 600, SS 446
Sheath Dia.	: 12, 16, 19, 22 and 25 mm
Insulation	: Ceramic/ Alumina Beads Optionally secondary protection sheath of Ceramic can be provided when additional protection is desired.
Head	: Weatherproof IP67 Flame proof suitable for Gas group I, IIA & IIB
Mounting	: Screwed connection or flanged connection
Conn. Size	: 1/2" & 3/4" BSP/NPT
Element	: 1.6, 1.8, 2, 2.5 and 3 mm

Sheath	Max Op. Temp
SS 304/SS 316	800 Deg C
SS 310	1000 Deg C
Inconel 600	1100 Deg C
SS 446	1150 Deg C

FOR DETAILED SPECS OF OTHER ASSEMBLY TYPES SUCH AS FIG1 TO FIG10 PLEASE CONTACT.

CERAMIC SHEATHED HIGH TEMP (FIG-12)



These ceramic sheathed assemblies are used for temperature measurement from 1200 to 1750 Deg C and above in Glass industries, Furnaces, Kilns Etc.

Ceramic sheathed thermocouple assemblies are available with protective sheath in Alumina Porcelain (Gr 510), Mullite (Gr610) and Recrystallised Alumina (Gr 710). All these sheaths are impervious.

Ceramic sheathed thermocouple uses upto 10 (3.2 mm) SWG basemetal element or upto 25 SWG (0.5mm) Precious metal element.

Assemblies can be supplied with secondary ceramic sheath for added safety of precious metal element.

Wide range of process connection are available. Heavy walled metallic holding tube is standard feature.

SPECIFICATION :

Type	: K, R, S, B simplex or duplex
Junction	: Grounded
Tolerance	: ANSI/ MC 96.1 Cl 2
Error Limit	: 0.0075[t] @ > 350 Deg C {K} 0.0025[t] @ > 350 Deg C {R,S,B}
Sheath	: Porcelain, Ceramic, Recrystallised Alumina
Sheath Dia.	: 10, 15, 18, 20 and 24 mm
Insulation	: Ceramic/ Alumina Beads
Head	: Weatherproof IP67 Flame proof suitable for Gas group I, IIA & IIB
Mounting	: Screwed connection and flanged connection
Conn. Size	: 1/2", 3/4" & 1" BSP/NPT
Element	: 2.5 and 3 mm (K) 0.33, 0.4, 0.45, 0.5 mm {R,S,E}

Sheath	Max Op. Temp
Gr 510	1300 Deg C
Gr 610	1500 Deg C
Gr 710	1750 Deg C

MINERAL INSULATED METAL SHEATHED FLEXIBLE (FIG-13)



Mineral insulated assemblies are used where fast response, high integrity and mechanical flexibility is desired.

Available in J and K element from 1.6 to upto 8 mm OD.

The conductors are insulated from each other and sheath by tightly compacted MgO powder offering insulation resistance upward of 50 m-Ohms.

Flexible metal sheathed thermocouple assemblies are available with protective sheath in SS 304, SS 316, SS 310 and Inconel 600.

These assemblies are suitable for temperatures upto 1050 Deg C. Depending upon selection of sheath these assemblies are suitable for Oxidising, reducing or neutral atmosphere.

SPECIFICATION :

Type	: K, J, simplex or duplex
Junction	: Grounded
Tolerance	: ANSI/ MC 96.1 Cl 2
Error Limit	: 0.0075[t] @ > 350 Deg C
Sheath	: SS 304, SS 316, SS 310, Inconel 600, SS 446
Sheath Dia.	: 1.6, 3, 6 and 8 mm
Insulation	: Compacted MgO.
Head	: Weatherproof IP67 Flame proof suitable for Gas group IIA & IIB
Mounting	: Screwed connection or flanged connection
Conn. Size	: 1/2" & 3/4" BSP/NPT
Element	: 0.4, 0.8 1.0 and 1.2 mm

Sheath Dia	Response time	Note
1.6 mm	0.6 Sec	Response time is time taken for thermocouple to achieve 65% of the instantaneous step when plunged from air at 30 Deg C to boiling water.
3 mm	1.2 Sec	
6 mm	3.5 Sec	
8 mm	8 Sec	

Response time for un Grounded tip, response for grounded tip is 30% faster.



PULSATION DAMPENER

Dampener should be used when pressure gauge (pressure instrument) rapid pressure fluctuations which make the needle of the instrument vibrate and difficult to read. It is a unique combination of "Ball check cut off" and a "Fine thread choke valve".

After installation of the dampener the fine thread choke valve should be adjusted to reduce pulsation in the line and needle vibration. Dampener can also be used as a shut off valve by adjusting the thread choke valve, maximum to achieve absolute isolation of the gauge from the line. For cleaning the dampener, remove the ball check valve screw from the dampener, and fine thread choke valve screw and lock nut. Clean the dampener with commercial solvent till the medium particles and granular contaminations are removed from the inside of the dampener.

ZPD-01



	Model No. ZPD-01	Model No. ZPD-02	Model No. ZPD-03
Nominal Pressure	0-300 kg/cm ²	0/300 kg/cm ²	0/1000 kg/cm ²
Nominal Size	1/8", 1/4" BSP/NPT/Customised thread	1/2" BSP/NPT/Customised thread	1/2" BSP/NPT/Customised thread
Material of Construction	SS-304/SS-316/ Brass	SS-304/SS-316/ Brass	SS-304/SS-316/ Brass



ANTI VIBRATION SPRING ALL STAINLESS STEEL



MATERIAL OF CONSTRUCTION : SS 304 & SS 316

FEATURES

IT REDUCE THE EFFECTS OF VIBRATION / PULSE AND ARE SUITABLE FOR PRESSURE AS WELL AS TEMPERATURE APPLICATION.



SYPHON

MATERIAL OF CONSTRUCTION : SS 304 / SS 316 & CARBON STEEL
PIPE SIZE : 1/2" SCHEDULE 40
OPER. PRESSURE : CARBON STEEL - 150 KG/CM² AT 430 DEG C MAX
 STAINLESS STEEL - 135 KG/CM² AT 450 DEG C MAX

FEATURES

SYPHONS ARE USED MAINLY TO PROTECT PRESSURE INSTRUMENT GAUGES / SWITCHES / TRANSMITTERS DIRECTLY COMING IN CONTACT WITH HIGH TEMPERATURE PROCESS FLUIDS OR VAPOURS. FILLED WITH CONDENSATION FLUID, THESE ARE MOUNTED BETWEEN PROCESS AND PRESSURE INSTRUMENT, ACT AS HEAT DISPENSER AND GENERATE COOLING EFFECT TO SAVE INSTRUMENT.



MANIFOLD VALVES

THESE VALVES ARE AVAILABLE IN THREE DIFFERENT MODELS viz 2 WAY / 3 WAY & 5 WAY



WAY	2 WAY	3 WAY	5 WAY
M O C	SS304	SS304	SS304
PROCESS SIDE	1/4" NPT (F)	1/4" NPT (F)	1/4" NPT (F)
INSTRUMENT SIDE	1/4" NPT (F)	1/4" NPT (F)	1/4" NPT (F)
VENT	1/4" NPT (F)	1/4" NPT (F)	1/4" NPT (F)
EQUALIZING VALVE	-----	YES	YES

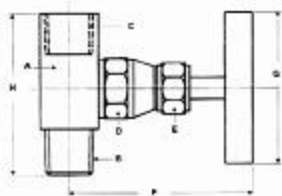


THERMOWELLS

THERMOWELLS ARE USED AS AN ACCESSORIES WITH TEMPERATURE INSTRUMENTS. SENSOR PROTECT IT'S BASIC SENSING ELEMENT FROM CORROSIVE AND MECHANICAL DAMAGES TO PROCESS PARAMETER. THESE ARE AVAILABLE IN BAR STOCK AND FABRICATED PATTERN. BAR STOCK THERMOWELL ARE MANUFACTURED AS PER THE STANDARD MENTIONED IN 19.3, AVAILABLE MODELS ARE FLANGED END STRAIGHT TYPE, FLANGE END TAPPER TYPE, SCREWED STRAIGHT, SCREWED TAPPER.



OVERVIEW



- A. Body
- B. male Connection
- C. Female Connection
- D. Bonnet
- E. Gland Nut
- F. Close 90 mm Open 95 mm
- G. 60 for Model 01 and 65 for model 02
- H. 60 mm for Model 01 and 65 mm for Model 02

ZIV - 01



	Model No. ZIV-01	Model No. ZIV-02	Model No. ZIV-03
Nominal Pressure	0-70 kg/cm ²	0-210 kg/cm ²	0-400 kg/cm ²
Nominal Size	1/8", 1/4" BSP/NPT Can also be provided specified thread on specific requirement	1/2" BSP/NPT Can also be provided specified thread on specific requirement	1/2" BSP/NPT Can also be provided specified thread on specific requirement
Material of Construction	SS-304/SS-316/ Brass	SS-304/SS-316/ Brass	SS-304/SS-316/ Brass

Model	Type	Process Connection	Instrument Connection	Bleeding Hole Provided	Body Size
ZIV-01	ZIV-01/1	Male Thread	Female Thread	No	22 mm Square
	ZIV-01/2	Female Thread	Female Thread	No	22 mm Square
	ZIV-01/3	Male Thread	Female Thread	Yes	22 mm Square
	ZIV-01/4	Female Thread	Female Thread	Yes	22 mm Square
	ZIV-01/5	Male Thread	Female Thread	No	25 mm Square
	ZIV-01/6	Female Thread	Female Thread	No	25 mm Square
	ZIV-01/7	Male Thread	Female Thread	Yes	25 mm Square
	ZIV-01/8	Female Thread	Female Thread	Yes	25 mm Square
ZIV-02 & ZIV-03	ZIV-02/1	Male Thread	Female Thread	No	25 mm Square
	ZIV-02/2	Female Thread	Female Thread	No	25 mm Square
	ZIV-02/3	Male Thread	Female Thread	Yes	25 mm Square
	ZIV-02/4	Female Thread	Female Thread	Yes	25 mm Square
	ZIV-02/5	Male Thread	Female Thread	No	28 mm Square
	ZIV-02/6	Female Thread	Female Thread	No	28 mm Square
	ZIV-02/7	Male Thread	Female Thread	Yes	28 mm Square
	NV-02/8	Female Thread	Female Thread	Yes	28 mm Square



GAUGE COCK

**GAUGE COCK 2 WAY
ROUND TYPE**



**GAUGE COCK 2 WAY
SQUARE TYPE**



**GAUGE COCK 3 WAY
SQUARE TYPE**



Model ZIMC-01 1/8" BSP, 1/8" NPT, 1/8" BSPT.	Type	Process	Instrument Connection	Bleeding Hole Connection	Body Size Provided
1/4" BSP, 1/4" NPT, 1/4" BSPT.	ZIV-01/1	Male Thread	Female Thread	No	22 mm Square
M-9, M-10, M-12	ZIV-01/2	Female Thread	Female Thread	No	22 mm Square
M-14, M-15	ZIV-01/3	Male Thread	Female Thread	Yes	22 mm Square
Can be provided specified threads requirement upto	ZIV-01/4	Female Thread	Female Thread	Yes	22 mm Square
Ø15 mm thread size	ZIV-01/5	Male Thread	Female Thread	No	25 mm Round
	ZIV-01/6	Female Thread	Female Thread	No	25 mm Round
	ZIV-01/7	Male Thread	Female Thread	Yes	25 mm Round
	ZIV-01/8	Female Thread	Female Thread	Yes	25 mm Round

Model ZIMC-02 3/8" BSP, 3/8" NPT, 3/8" BSPT.	Type	Process	Instrument Connection	Bleeding Hole Connection	Body Size Provided
1/2" BSP, 1/2" NPT, 1/2" BSPT.	ZIV-01/1	Male Thread	Female Thread	No	25 mm Square
M-16, M-18, M-20	ZIV-01/2	Female Thread	Female Thread	No	25 mm Square
Can be provided specified threads requirement upto	ZIV-01/3	Male Thread	Female Thread	Yes	25 mm Square
Ø22 mm thread size	ZIV-01/4	Female Thread	Female Thread	Yes	25 mm Square
	ZIV-01/5	Male Thread	Female Thread	No	28 mm Round
	ZIV-01/6	Female Thread	Female Thread	No	28 mm Round
	ZIV-01/7	Male Thread	Female Thread	Yes	28 mm Round
	ZIV-01/8	Female Thread	Female Thread	Yes	28 mm Round

Model ZIMC-03 1/8" BSP, 1/8" NPT, 1/8" BSPT.	Type	Process	Instrument Connection	WAY	Body Size Provided
1/4" BSP, 1/4" NPT, 1/4" BSPT.	ZIV-01/1	Male Thread	Female Thread	3 Way	22 mm Square
M-9, M-10, M-12	ZIV-01/2	Female Thread	Female Thread	3 Way	22 mm Square
M-14, M-15	ZIV-01/3	Male Thread	Female Thread	3 Way	22 mm Square
Can be provided specified threads requirement upto	ZIV-01/4	Female Thread	Female Thread	3 Way	22 mm Square
Ø15 mm thread size	ZIV-01/5	Male Thread	Female Thread	3 Way	25 mm Round
	ZIV-01/6	Female Thread	Female Thread	3 Way	25 mm Round
	ZIV-01/7	Male Thread	Female Thread	3 Way	25 mm Round
	ZIV-01/8	Female Thread	Female Thread	3 Way	25 mm Round

Model ZIMC-04 3/8" BSP, 3/8" NPT, 3/8" BSPT.	Type	Process	Instrument Connection	WAY	Body Size Provided
1/2" BSP, 1/2" NPT, 1/2" BSPT.	ZIV-01/1	Male Thread	Female Thread	3 Way	25 mm Square
M-16, M-18, M-20	ZIV-01/2	Female Thread	Female Thread	3 Way	25 mm Square
Can be provided specified threads requirement upto	ZIV-01/3	Male Thread	Female Thread	3 Way	25 mm Square
Ø22 mm thread size	ZIV-01/4	Female Thread	Female Thread	3 Way	25 mm Square
	ZIV-01/5	Male Thread	Female Thread	3 Way	28 mm Round
	ZIV-01/6	Female Thread	Female Thread	3 Way	28 mm Round
	ZIV-01/7	Male Thread	Female Thread	3 Way	28 mm Round
	ZIV-01/8	Female Thread	Female Thread	3 Way	28 mm Round

Material : Normally SS 316 / SS 304 (Brass Can be provided according to the specific requirement)

Ordering information : Material, Thread Connection and type

Pressure Range : 0 to 60 kg/cm² and can be provided specified pressure requirement upto 100 kg/cm²



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