

SMART SOLUTIONS  
FOR PROCESS MEASURING  
AND CONTROLLING



PRESSURE | TEMPERATURE | LEVEL

# Kains Bourdon Pressure Gauges



**F**or industrial pressure measurement 'Bourdon Tube Pressure Gauges' are most commonly used. Bourdon tubes are designed in 'C' / 'spiral' / 'helical' based on pressure range.

- A bourdon tube is the pressure sensing element in a bourdon pressure gauge.
- A bourdon tube is attached to a process connection and assembled with a sector mechanism and protected with cover and clear window.
- When the pressure is applied through the pressure port, pressure medium enters to the bourdon tube and displaces.
- The displacement of the tube is converted to read the pressure range by a gear mechanism and indicating pointer in 270-degree angle.
- A marked scale is provided to monitor the reading accurately. There are different type of pressure gauges to suit different application.

# Utility Pressure Gauges

Utility Pressure Gauges are the lowest priced pressure measuring instruments because of its construction. It is used widely for general industrial and non-corrosive enjoyment.



## General Specification

Reference Standards	EN – 837/ IS 3624-1987/ ASME
<b>Model</b>	<b>KUG</b>
Application	Utility Pressure Measurement
Type	Non- Weather proof
Nominal Diameter	50 mm (2") 2 1/2" (63 mm) 4" (100 mm) 6" (150 mm)
Case Material	MS rust protected/ St. St. 304/Engineering Plastic
Bezel Material	MS rust protected/ N A
Bezel fitting	Pressed
Stem/ Socket Material	Brass
Sensing Element	Brass/ St. St. 304 Bourdon tube
Joint	Soldering/ Argon Welding
Movement	Brass
Pointer	Black Aluminium/ engineering plastic
Dial	White coated Aluminium
Marking	Black marking
Scale	Single/ Dual
Standard Unit	kg/cm <sup>2</sup> / kg/cm <sup>2</sup> with psi (All other standard engineering units are available on request)
Mounting	Available in all the standard mountings
Thread	1/4"/ 3/8"/ 1/2" NPT/ BSPP/ BSPT; M 20 X 1.5
Window	Polycarbonate/ glass
Available in	Pressure/ Compound/ Vacuum
Minimum Range	0 to 0.6 kg/cm <sup>2</sup> / bar
Maximum range	0 to 1000 kg/cm <sup>2</sup> / bar (higher ranges on request)
Over Pressure	130% FS Short time
Case filling liquid	N A
Accuracy	+/- 2% 'or' 3% of FSD
Additional Fitment	Optional*
Calibration Certificate	Factory calibration certificate shall be provided

# Industrial Process Pressure Gauges

**Industrial** Process Pressure Gauges are known to its rigidity and are capable to fight with corrosive/ dusty, moisture-based environment because of its construction. It is used widely for general industrial process pressure measurement.



## General Specification

Reference Standard	EN – 837/ IS 3624-1987/ ASME
<b>Model</b>	<b>KPG</b>
Application	Industrial Process Pressure Measurement
Type	Weather proof/ Glycerine filled
Nominal Diameter	2 1/2" (63 mm) 4" (100 mm) 6" (150 mm)
Case Material	St. St. 304/ St. St.316/ St St.316L
Bezel Material	St. St. 304/ St. St.316/ St St.316L
Bezel fitting	Bayonet Bezel (openable)
Stem/ Socket Material	St. St. 304/ St. St. 316/ St. St. 316 L
Sensing Element	St. St. 304/ St. St. 316/ St. St. 316 L
Joint	Tig – welding
Movement	St. St. 304
Pointer	Black Aluminium/ engineering plastic
Dial	White coated Aluminium
Marking	Black 'or' Black and red combination for dual scale
Scale	Single/ Dual
Standard Unit	kg/cm <sup>2</sup> / kg/cm <sup>2</sup> with psi (All other standard engineering units are available on request)
Mounting	Available in all the standard mountings
Thread	1/4" / 3/8" / 1/2" NPT/ BSPP/ BSPT; M 20 X 1.5
Window	Polycarbonate/ Acrylic/ Toughened glass
Available in	Pressure/ Compound/ Vacuum
Minimum Range	0 to 0.6 kg/cm <sup>2</sup> / bar
Maximum range	0 to 2500 kg/cm <sup>2</sup> / bar (higher ranges on request)
Over Pressure	130% FS Short time
Case filling liquid	N A
Accuracy	+/- 1% 'or' 1.6% of FSD
Additional Fitment	Optional*
Calibration Certificate	Factory calibration certificate shall be provided

# Hydraulic Pressure Gauges

**Hydraulic** Process Pressure Gauges are known to its rigidity and are capable to fight with corrosive/ moisture-based environment because of its construction. It is used widely for general Engineering machine building and Hydraulics systems building industries.



## General Specification

Reference Standard	EN - 837/ IS 3624-1987/ ASME
<b>Model</b>	<b>KHG</b>
Application	Hydraulic Pressure Measurement
Type	Weather proof/ Glycerine filled
Nominal Diameter	50 mm (2") 2 1/2" (63 mm) 4" (100 mm) 6" (150 mm)
Case Material	St. St. 304
Bezel Material	St. St. 304
Bezel fitting	Crimped/ (non -openable)
Stem/ Socket Material	St. St. 304
Sensing Element	304 St. St/ 316L St. St Bourdon tube
Joint	Argon arc welded
Movement	St. St. 304/ Brass
Pointer	Black Aluminium -
Dial	White coated Aluminium
Marking	Black 'or' Black and red combination for dual scale
Scale	Single/ Dual
Standard Unit	kg/cm <sup>2</sup> with psi (All other standard engineering units are available on request)
Mounting	Please refer the mounting chart
Thread	1/4" / 3/8" / 1/2" NPT/ BSPP/ BSPT; M 20 X 1.5
Window	Polycarbonate/ Acrylic/ Toughened glass
Available in	Pressure/ Compound/ Vacuum
Minimum Range	0 to 0.6 kg/cm <sup>2</sup> / bar
Maximum range	0 to 2500 kg/cm <sup>2</sup> / bar (higher ranges on request)
Over Pressure	130% FS Short time
Case filling liquid	Glycerine/ non-conductive fluid for Electric contact
Accuracy	+/- 1% 'or' 1.6% of FSD
Additional Fitment	Optional*
Calibration Certificate	Factory calibration certificate shall be provided
Material TC	Shall be provided on request

# Gaseous Pressure Gauges

**Gaseous** Process Pressure Gauges are known to its rigidity and are capable to fight with corrosive/ moisture-based environment because of its construction. These instruments are de-greased and are suitable for all type of general air products.



## General Specification

Reference Standard	EN - 837/ IS 3624-1987/ ASME
Available Model	<b>KUG/ KPG/ KHG - Weather proof</b>
Application	Oxygen/ Nitrogen/ CO2/ Helium/ LPG/ Acetylene ect.
Type	Non- Weather proof/ Weather proof

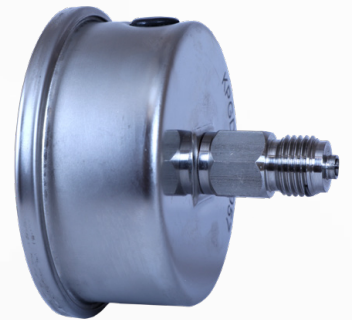
## Pressure Gauge Mounting



Bottom Mounting



Bottom Surface Mounting



Back Direct Mounted Gauge



Back Bracket Mounting



Panel Mounted Gauge

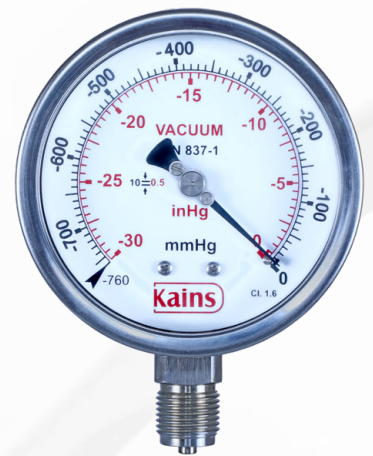
# Bourdon Pressure Gauges



Pressure Gauge



Compound Gauge



Vacuum Gauge



Glycerine Filled Pressure Gauge



Electric Contact



Customized Dial Gauge



Ammonia Gauge



Load Pressure Gauge



Pressure Gauge with Follower Pointer (MRP)

# Kains Diaphragm Seals



**K**ains diaphragm seals or chemical seals are to isolate and protect/clogging the measuring element of pressure instruments like pressure gauge, pressure transmitter, pressure switch etc. from any corrosive,

viscous or thick process fluids.

- Based on the application a transmission fluid is selected and filled by evacuating the diaphragm sealed unit to an instrument and hermetically sealed.

- The pressure applied on the seal by the media fluid will be fully transmitted due to fluid is non-compressive.

## Kains Diaphragm Seals Construction

Diaphragm seals are manufactured in different material to suit the installation environment. Commonly used materials is St. St. 316 L/ St. St. 316 but we also offer diaphragm seals in materials like Hastelloy/ Monel/ Tantalum ect. Diaphragm/ sealed units can be protected with PTFE coating or lining to combat with certain industrial applications.





## Kains Diaphragm Sealed Pressure Gauges for various industrial application

Kains designs and manufacture various Diaphragm Seals like: **Tri Clover, Chemical Sealed, Compact Sealed, Miniature Diaphragm Sealed, High Purity Diaphragm Seals, Union Nut Diaphragm Seals, Mud Diaphragm, Homogenizer Diaphragm Seals, Pulp Diaphragm Seals, Flanged Diaphragm Seals, Diaphragm Seals with I section, Flush Mounting Diaphragm Seals** etc. These Diaphragm

Seals can be attached with flexible capillary for remote mounting purpose. Diaphragm Seals are used for various industrial applications such as: Food processing, Chemical/ Petrochemical manufacturing, Pharmaceutical manufacturing, Water treatment plants, Milk processing plants, High pressure high viscose fluid pump manufacturing, Power generation units ect.

### Caution

It is not permitted to dismount the sealed unit from the instrument. If the instrument is dismounted, the transmitting liquid may leak and cause damages on diaphragm and become out of operation.

### Accuracy influence due to Diaphragm attachment

Due to many influencing parameters, the accuracy of the instrument may be affected after assembling the diaphragm seal.  $\pm 0,5\%$  of its value will be added on the accuracy of the instrument when directly mounted on diaphragm seal, and  $\pm 1,0\%$  of its value when mounted with capillary extension.

### Factors to consider

Many variables should be observed to choose the suitable diaphragm seal:

- **Service pressure** and maximum work pressure, to choose the seal type, gaskets and sealing rings, surface of the diaphragm, etc.
- **Environment and service:** MOC for the diaphragm and flanges should be selected to combat with the environment.
- **Error due to temperature variation:** In general, the transmitting fluid get expanded due to temperature variation.

All temperature variation of environment or media fluid may cause variations in the reading.

Therefore, before ordering it is very important sate the process/ ambient temperature to choose the right filling fluid.

It is also advised to install a cooling tower or capillary tube if necessary (recommended for temperature service above  $90^{\circ}\text{C}$ ).

- **Process connection:** Threaded (BSPP/ BSPT/ NPT/ metric), Flanged: DIN/ ANSI/ JIS.

## General Specification

Reference Standard	EN – 837/ IS 3624-1987/ ASME
<b>Model</b>	<b>KPG</b>
Application	Industrial Process Pressure Measurement
Type	Non- Weather proof
Nominal Diameter	2 1/2" (63 mm) 4" (100 mm) 6" (150 mm)
Case Material	St. St. 304/ St. St.316/ St. St.316L
Bezel Material	St. St. 304/ 316
Bezel fitting	Bayonet Bezel (openable)
Stem/ Socket Material	St. St. 304/ St. St. 316/ St. St. 316 L
Sensing Element	St. St. 304/ St. St. 316/ St. St. 316 L
Joint	Tig – welding
Movement	St. St. 304
Pointer	Black Aluminium/ engineering plastic
Dial	White coated Aluminium
Marking	Black 'or' Black and red combination for dual scale
Scale	Single/ Dual
Standard Unit	kg/cm <sup>2</sup> / kg/cm <sup>2</sup> with psi (All other standard engineering units are available on request)
Mounting	Available in all the standard mountings
Thread	1/4"/ 3/8"/ 1/2" NPT/ BSPP/ BSPT; M 20 X 1.5
Window	Polycarbonate/ Acrylic/ Toughened glass
Available in	Pressure/ Compound/ Vacuum
Minimum Range	0 to 0.6 kg/cm <sup>2</sup> / bar
Maximum range	0 to 2500 kg/cm <sup>2</sup> / bar (higher ranges on request)
Over Pressure	130% FS Short time
Case filling liquid	N A
Accuracy	+/- 1% 'or' 1.6% of FSD
Additional Fitment	Optional*
Calibration Certificate	Factory calibration certificate shall be provided
Material TC	Shall be provided on request

## Compact Diaphragm

Title	Compact Diaphragm
Model	
Available nominal sizes	63 mm (2 1/2"), 100mm (4") and 150 mm (6")
Thread	1/4"/ 3/8"/ 1/2" : BSPP/ BSPT/ NPT/ Metric
Diaphragm material	AISI St. St. 316L
Sealed unit material	AISI St. St. 316L
Sealed assembly	Hermetically Sealed
Available in	Vacuum/ Pressure/ compound
Vacuum	Up to -760 mmHg/ 30"Hg
Minimum pressure range	0 to 1 bar/ kg/cm <sup>2</sup>
Maximum pressure range	0 to 28 bar/ kg/cm <sup>2</sup>
Diaphragm extension	By means of flexible St. St capillary with plain/ armoured/ Teflon shielded



## Tri Clover Diaphragm

Title	Tri Clover Diaphragm
Model	
Available nominal sizes	63 mm (2 1/2"), 100mm (4") and 150 mm (6")
Tri clover	3/4"/ 1"/ 1 1/2"/ 2"
Diaphragm material	AISI St. St. 316L
Sealed unit material	AISI St. St. 316L
Sealed assembly	Hermetically Sealed
Available in	Vacuum/ Pressure/ compound
Vacuum	Up to -760 mmHg/ 30"Hg
Minimum pressure range	0 to 1 bar/ kg/cm <sup>2</sup>
Maximum pressure range	0 to 28 bar/ kg/cm <sup>2</sup>
Note	Consult factory for size vs range selection
Diaphragm extension	By means of flexible St. St capillary with plain/ armoured/ Teflon shielded



## Union Nut Diaphragm

Title	Union Nut Diaphragm
Model	
Available nominal sizes	63 mm (2 1/2"), 100mm (4") and 150 mm (6")
Union nut	3/4"/ 1"/ 1 1/2"/ 2"
Diaphragm material	AISI St. St. 316L
Sealed unit material	AISI St. St. 316L
Sealed assembly	Hermetically Sealed
Available in	Vacuum/ Pressure/ compound
Vacuum	Up to -760 mmHg/ 30"Hg
Minimum pressure range	0 to 1 bar/ kg/cm <sup>2</sup>
Maximum pressure range	0 to 28 bar/ kg/cm <sup>2</sup>
Note	Consult factory for size vs range selection
Diaphragm extension	By means of flexible St. St. capillary with plain/ armoured/ Teflon shielded



## Chemical Sealed

Title	Chemical Sealed
Model	
Available nominal sizes	100mm (4") and 150 mm (6")
Thread	1/4"/ 3/8"/ 1/2" : BSPP/ BSPT/ NPT/ Metric
Diaphragm material	AISI St. St. 316L
Bottom chamber	AISI St. St. 316L
Upper chamber	AISI St. St. 316L
Sealed assembly	Hermetically Sealed
Corrosive protection	PTFE coating/ Lining
Available in	Vacuum/ Pressure/ compound
Vacuum	Up to -760 mmHg/ 30"Hg
Minimum pressure range	0 to 1 bar/ kg/cm <sup>2</sup>
Maximum pressure range	0 to 60 bar/ kg/cm <sup>2</sup>
Diaphragm extension	By means of flexible St. St. capillary with plain/ armoured/ Teflon shielded



## Flanged Diaphragm

Title	Flanged Diaphragm
Model	
Available nominal sizes	100mm (4") and 150 mm (6")
Flange sizes	1 to 3"
Flange Standard	ANSI/ DIN/ JIS
Diaphragm material	AISI St. St. 316L
Bottom chamber	AISI St. St. 316L
Upper chamber	AISI St. St. 316L
Sealed assembly	Hermetically Sealed
Corrosive protection	PTFE coating/ Lining
Available	Vacuum/ Pressure/ compound
Vacuum	Up to -760 mmHg/ 30"Hg
Minimum pressure range	0 to 1 bar/ kg/cm <sup>2</sup>
Maximum pressure range	0 to 60 bar/ kg/cm <sup>2</sup>
Diaphragm extension	By means of flexible St. St. capillary with plain/ armoured/ Teflon shielded



## Threaded Diaphragm

Title	Threaded Diaphragm
Model	
Available nominal sizes	63 mm (2 1/2"), 100mm (4")
Thread sizes	1/2"/ 3/4"/ 1" BSP
Available	Only in pressure
Minimum pressure range	0 - 6 bar/ kg/cm <sup>2</sup>
Maximum pressure range	0 to 200 bar/ kg/cm <sup>2</sup>
Diaphragm material	AISI St. St. 316L
Bottom chamber	AISI St. St. 316L
Upper chamber	AISI St. St. 316L
Sealed assembly	Hermetically Sealed



## I Section Flange Diaphragm

Title	I section Flange Diaphragm
Model	
Available nominal sizes	100mm (4") and 150 mm (6")
Flange sizes	1 to 3"
Flange Standard	ANSI/ DIN/ JIS
Diaphragm material	AISI St. St. 316L
Bottom chamber	AISI St. St. 316L
Upper chamber	AISI St. St. 316L
Sealed assembly	Hermetically Sealed
Corrosive protection	PTFE coating/ Lining
Available	Vacuum/ Pressure/ compound
Vacuum	Up to -760 mmHg/ 30"Hg
Minimum pressure range	0 to 1 bar/ kg/cm <sup>2</sup>
Maximum pressure range	0 to 60 bar/ kg/cm <sup>2</sup>
Diaphragm extension	By means of flexible St. St. capillary with plain/ armoured/ Teflon shielded



## High Pressure Diaphragm

Title	High Pressure Diaphragm
Model	
Available nominal sizes	63 mm (2 ½"), 100mm (4")
Thread sizes	¼"/ 3/8"/ 1/2" BSPP/ BSPT/ NPT
Available	Only in pressure
Minimum pressure range	0 – 60 bar/ kg/cm <sup>2</sup>
Maximum pressure range	0 to 2000 bar/ kg/cm <sup>2</sup>
Diaphragm material	AISI St. St. 316L
Bottom chamber	AISI St. St. 316L
Upper chamber	AISI St. St. 316L
Sealed assembly	Hermetically Sealed
Diaphragm extension	By means of flexible St. St. capillary with plain/ armoured/ Teflon shielded



## Homogenizer Diaphragm

Title	Homogenizer Diaphragm
Model	
Available nominal sizes	63 mm (2 ½"), 100mm (4") 150 mm (6")
Sealed size*	Kains general standard/ customized for OEMs
(consult factory for details)	Only in pressure
Available	Only in pressure
Minimum pressure range	0 – 100 bar/ kg/cm <sup>2</sup>
Maximum pressure range	0 to 2000 bar/ kg/cm <sup>2</sup>
Diaphragm material	AISI St.St.316L
Stem	AISI St.St.316L
Clamp	Standard or customized mounting clamps are available
Sealed assembly	Hermetically Sealed
Diaphragm extension	By means of flexible St. St. capillary with plain/ armoured/ Teflon shielded



# Pan Cake Diaphragm

Title	Pan Cake Diaphragm
Application	PT - DPT
Available nominal sizes	63 mm (2 ½"), 100mm (4") 150 mm (6")
Sealed size* (consult factory for details)	Kains general standard/ customized for OEMs
Available	Only in pressure
Minimum pressure range	0 – 1000 mmWc bar/ kg/cm2
Maximum pressure range	0 to 100 bar/ kg/cm2
Diaphragm material	AISI St. St. 316L
Bottom chamber	AISI St. St. 316L
Sealed assembly	Hermetically Sealed
Diaphragm extension	By means of flexible St. St. capillary with plain/ armoured/ Teflon shielded



## General Specification

Diaphragm material	St. St. 316L/ Hastelloy/ Monel/ Tantalum
Flange material	<b>St. St. 316L/ Hastelloy/ Monel/ Tantalum</b>
Flange Ref. std	ANSI/ DIN/JIS

## Kains Diaphragm Seals



Flush Diaphragm



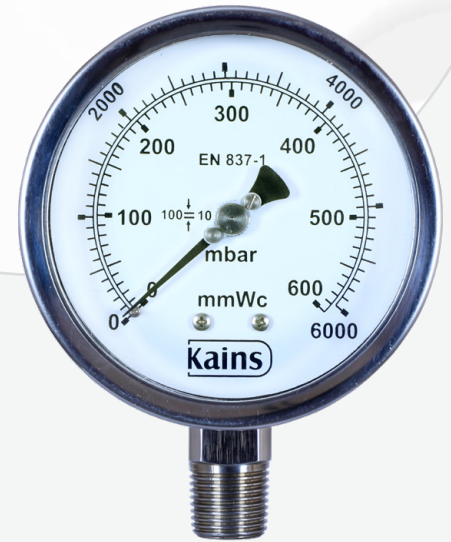
Homogenizer Regular



PTFE Coated Diaphragm

# In-Built Capsule Diaphragm

## General Specification



Reference Standard	EN – 837/ IS 3624-1987/ ASME
<b>Model</b>	<b>KLD</b>
Application	Industrial Low-Pressure Measurement
Type	Weather proof (KPG13)
Nominal Diameter	2 1/2" * (63 mm) 4" (100 mm) 6" (150 mm)
Case Material	St. St. 304/ St. St. 316/ St. 316L
Bezel Material	St. St. 304/ St. St. 316/ St. 316L
Bezel fitting	Bayonet Bezel
Stem/ Socket Material	St. St. 304
Sensing Element	316 St. St./ 316L/ brass Diaphragm
Joint	Argon arc welded/ soldering
Movement	Brass/ St. St. 304
Pointer	Black Aluminium -
Dial	White coated Aluminium
Marking	Black marking
Scale	Single/ Dual
Standard Unit	mmWc/ mmWc with mbar (All other standard engineering units are available on request)
Mounting	Available in all the standard mountings
Thread	1/4" / 3/8" / 1/2" NPT/ BSPP/ BSPT; M 20 X 1.5
Window	Polycarbonate/ Acrylic/ Toughened glass
Available in	Pressure/ Compound/ Vacuum
Over Pressure	130% FS Short time
Accuracy	+/- 2% of FSD
Available in	Vacuum/ Pressure/ compound
Vacuum	Up to -10000mmWc/ -1000 mbar
Minimum pressure range	0 - 200mmWc/ -20 mbar
Maximum pressure range	0 -10000mmWc/ -1000 mbar
Corrosive protection	PTFE coating
Calibration Certificate	Factory calibration certificate shall be provided
Material TC	Shall be provided on request

*\*Consult factory before placing order*

# Schaffer Diaphragm Gauge

## General Specification



Reference Standard	EN - 837/ IS 3624-1987/ ASME
<b>Model</b>	<b>KSD</b>
Application	Industrial Low-Pressure Measurement
Type	Weather proof (KPG13)
Nominal Diameter	4" (100 mm) 6" (150 mm)
Case Material	St. St. 304/ St. St. 316/ St. 316L
Bezel Material	St. St. 304/ St. St. 316/ St. 316L
Bezel fitting	Bayonet Bezel
Stem/ Socket Material	304 St. St.
Sensing Element	316 St. St./ 316L/ 304/brass Diaphragm
Joint	Argon arc welded/ soldering
Movement	Brass/ St. St. 304
Top chamber	AISI St. St. 304/ St. St. 316/ St. St. 316L
Bottom chamber	AISI St. St. 304/ St. St. 316/ St. St. 316L
Pointer	Black Aluminium -
Dial	White coated Aluminium
Marking	Black marking
Scale	Single/ Dual
Standard Unit	mmWc/ mmWc with mbar (All other standard engineering units are available on request)
Mounting	Available in all the standard mountings
Thread	1/4" / 3/8" / 1/2" NPT/ BSPP/ BSPT; M 20 X 1.5
Window	Polycarbonate/ Acrylic/ Toughened glass
Available in	Pressure/ Compound/ Vacuum
Over Pressure	130% FS Short time
Accuracy	+/- 2 - 3% of FSD
Available in	Vacuum/ Pressure/ compound
Vacuum	Up to -10000mmWc/ -1000 mbar
Minimum pressure range	0 - 200mmWc/ -20 mbar
Maximum pressure range	0 -10000mmWc/ -1000 mbar
Optional Corrosive protection	PTFE coating/ Suitable material selection
Calibration Certificate	Factory calibration certificate shall be provided
Material TC	Shall be provided on request



# Filled System

## General Specification



Model	KTG
<b>Application</b>	<b>Industrial Process Temperature Measurement</b>
Type	Utility / Weather proof
Nominal Diameter	2½" * (63 mm) 4" (100 mm) 6" (150 mm)
Case Material	St. St. 304
Bezel Material	St. St. 304
Bezel fitting	Bayonet Bezel
Stem material	St. St. 304 / St. St. 316L
Sensing Element	Bi metallic / Gas filled
Joint	Argon arc welded
Movement	St. St. 304
Pointer	Black Aluminium
Dial	White coated Aluminium
Marking	Black 'or' Black and red combination for dual scale
Scale	Single / Dual
Standard Unit	Degree Celsius. (other engineering units on request)
Mounting	Available in all the standard mountings
Thread	¼" / ⅜" / ½" / ¾" / 1" NPT / BSPP / BSPT; M20x 1.5 (Fixed or adjustable)
Window	Polycarbonate / Acrylic / Toughened glass
Available in	Negative temperature up to - 50°C
Minimum Range	0 to 60°C
Maximum range	0 to 600°C
Stem diameter	6 / 8 / 10 / 12 mm or ¼" / ⅜" / ½" ODT
Minimum Insertion length	100 mm / 4" (Less than 100 mm is on request)
Maximum Insertion length	1000 mm / 40" / 3 feet
Maximum capillary length	10 meters (more than 10 meters is on request)
Accuracy	+/-1% 'or' 1.6% of FSD
Additional Fitment	Optional*
Calibration Certificate	Factory calibration certificate shall be provided

- Certain ranges and stem length may not be available. Please consult factory before placing the order.\*
- Capillary is available only on filled system temperature gauge. Consult factory for detailed information.\*



Remote Mounting Temperature Gauge



Bi Metal Temperature Gauge

Additional Fitment	Optional for filled system
Electric contact	Snap action magnetic 1 NO / 1 NC / 2 NO / 2NC 1NO-1NC / 1NC-1 NO /
Rating	380 V / 30W -50VA / 1 A (up to 10 A with rely)

*Use Kains Thermowell in all the pressure lines before installing thermometer/ temperature gauge*

## Instrument Accessories

### Snubber/ Dampner

This device is to protect the pressure gauges and other pressure sensing instruments from dampening pressure. Dampening pressure effect the readability of an instrument. Snubber/ Dampner is an ideal external device for anti-pulsation.

This device is generally available with standard BSPP/ NPT/ BSPP threads. Dampners are made from materials like St. St. 304/ St. St. 316 / St. St. 316L depend on process fluid. Snubber/ Dampner is an ideal external device for anti-pulsation. These devices can withstand a pressure up to 10000 psi.





| 2 Way Gauge Cock



| 3 Way Gauge Cock

## Gauge Cock

Gauge cocks are used as a shut off valve for pressure instruments. By installing a gauge cock, one can remove the pressure instruments for general maintenance and calibration without affecting the process.

Gauge cocks are available with 2 way and 3 way for standard BSPP / NPT / BSPP threads. Gauge cocks are made from materials like St.St.304 / St. St. 316 / St. St. 316L depend on process medium. This can be used in steam line up to the temperature of 230°C. These devices can withstand a pressure up to 1000 psi.

## Siphon

Siphon tubes are used in steam line to protect the pressure instruments from high temperature. It is advised to install Kains siphon tubes for instrument installations above 100°C.

Siphon tubes are available in 'Q' / 'U' Opened / 'U' Closed / 'U' angled / and 'D' Shaped for standard BSPP / NPT / BSPP threads. Siphon cocks are made from materials like St.St.304 / St.St. 316 / St. St. 316L. Siphons can withstand a pressure up to 350 kg/cm<sup>2</sup> / bar in ambient temperature.

| U Type Siphon



| U Bend Siphon

| Q Type Siphon



## Instrument Cooling Tower

Instrument cooling towers are used to protect the pressure instruments from high temperature. It is advised to install Kains cooling towers for instrument installations above 60°C.

Cooling towers are available in 'circular shaped fins' for standard BSPP / NPT / BSPP threads. Siphon cocks are made from materials like St.St.304 / St. St. 316 / St. St. 316L. Cooling towers can withstand a pressure up to 350 kg/cm<sup>2</sup> / bar.

## Gauge Saver/ Over Pressure Protector

Kains gauge savers / over protectors are to protect the pressure instruments from pressure spike. It is advised to use Kains over pressure protector with all the pressure instruments where there is a chance of pressure spike / or pressure line clogging / unexpected pump pressure increase.

With Kains gauge saver, one can set a pressure value and install the pressure instrument in the line. The device is loaded with a spring / diaphragm as an actuator. Once there is a sudden increase in the pressure above set value, the spring / diaphragm provided in the device get actuated and the piston move forward and block the pressure port.

Thus, further increase in the pressure to the instrument is blocked. Once the pressure is down by 25% (approximately) to the set value, the piston moves backward and allow process medium to enter to the instrument. St. St. 304/ St. 316/ St. St 316L/ Monel/ Hastelloy are available to choose depending on the process medium. The device is designed with standard BSPP / NPT / BSPP connections and can withstand up to 600kg/cm<sup>2</sup> / bar.



| Gauge Saver HP



| Gauge Saver LP



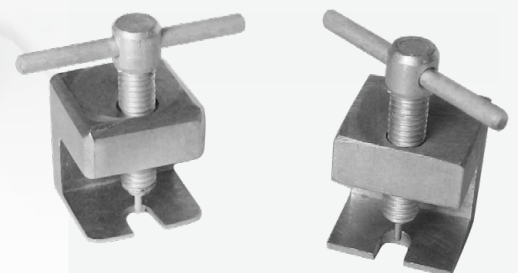
## Thermowell

Kains Thermowells are designed to protect the temperature sensing elements of Temperature gauges RTDs / thermocouples from pressure line. Kains designs and manufacture various types of thermowell for industrial needs.

Thermowell is manufactured with either threaded or flanged connections. St. St. 304/ St. 316/ St. St 316L/ Monel/ Hastelloy / Inconel are available to choose depending on the process medium.

## Pointer Puller/ Remover

This is an ideal tool for removing pressure gauge pointer while doing calibration. The device is rugged in design with hardened tip. Puller body is made from brass and nickel plated.



# Needle Valve

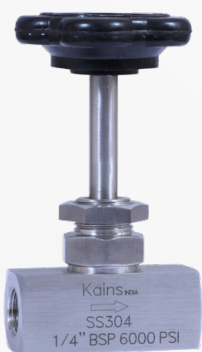
'Kains' design and manufactures Needle valves for general instrumentation needs. Various models of instrument valves are available against various applications in 2 port or multi-port design.

## General Specification

Part	Material Options*
<b>Body</b>	<b>St. St. 316L / St. St. 316 / St. St. 304</b>
Bonnet	St. St. 316L / St. St. 316 / St. St. 304
Stem	St. St. 316L
Stem Seal / packing	Teflon / Nitrile / EPDM / Viton / PEEK / Graphite
Seal backup ring	St. St. 316L
Bonnet seal	Brass / Teflon / PTFE coated Metal disc
Handle	St. St. 316L / St. St. 316 / St. St. 304
Handle screw	St. St. 304
Bonnet lock pin	St. St. 304
Bleed plug	St. St. 316L / St. St. 316 / St. St. 304
Mounting	In -line / panel / Bracket
Connection	Threaded / Flanged / socket-welded / butt-Welded / Tri clover / ODT
Standard Threads	1/4" / 3/8" / 1/2" / 3/4" / 1" in BSPP/ NPT / BSPT / Metric
Combination	Male X Male / Male x Female / Female X Female



Other special metals on request.



Panel Mounted Needle Valve



Needle Valve



Socket Weld Needle Valve



T C End Needle Valve

# Instrument Manifold



'Kains' design and manufactures manifold valves for general instrumentation needs. Various models of instrument manifolds are available to choose from 2 way/ 3 way/ 5-way design. These valves are used in instrument line to shut off / in line calibration of pressure/ differential pressure instruments.

## General Specification

Part	Material Options*
<b>Body</b>	<b>St. St. 316L / St. St. 316 / St.st. 304</b>
Bonnet	St. St. 316L / St. St. 316 / St.st. 304
Stem	St. St. 316L
Stem Seal / packing	Teflon / PEEK / Graphite
Seal backup ring	St. St. 316L
Bonnet seal	Brass / Teflon / PTFE coated Metal disc
Handle	St. St. 316L / St. St. 316 / St. St. 304
Handle screw	St. St. 304
Bonnet lock pin	St. St. 304
Bleed plug	St. St. 316L / St. St. 316 / St. St. 304
Mounting	In -line
Connection	Threaded / Flanged
Standard Threads	½" in BSPP/ NPT / BSPT / Metric; M 20 X1.5
Combination	Pipe to pipe Pipe to flange Flange to Flange

*Other special metals on request.*

# Pressure Calibrators

Manually operated Hydraulic Screwed Pumps are designed to generate the required pressure for 'reference calibration'. The scope of reference calibration is to reduce the 'time required' for calibrating an instrument. In reference calibration, pressure instruments are calibrated against a calibrated master instrument. Kains Offers various Pressure Generators / Comparators to meet the industry requirement.

## Portable Pressure Calibrators



Kains Pressure Calibrators are designed to generate pressure up to 1000 bar. The screwed Pump is integrated with a high precision high-pressure piston assembly, two instrument mounting ports and priming pump for pre-filling.

It is an ideal equipment to calibrate pressure instruments up to 1000 bar. This pump also can be used for pressure testing of small batch quantity engineering component and other devices.

Since the pump is manufactured entirely of stainless steel wetted parts, the calibration medium can be clean water, Ideal for gaseous instrument calibration other than regular instruments.

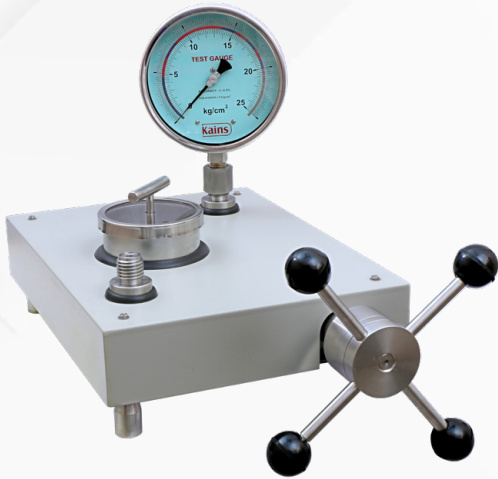
## Site Calibrators

Kains Portable Pressure Calibrators are ultra-light in weight and are designed to generate pressure up to 400 bar. The screwed Pump is integrated with a high precision piston assembly, two instrument mounting ports and priming pump for pre-filling. It is an ideal equipment to calibrate pressure instruments up to 400 bar.

This pump also can be used for pressure testing of small batch/ low volume quantity engineering component and other devices. Since the pump is manufactured entirely of stainless steel wetted parts, the calibration medium can be clean water. Ideal for gaseous instrument calibration other than regular instruments.



## Low Pressure Calibrators/ Table Top



Kains Low Pressure Calibrators are designed to generate pressure up to 400 bar. The screwed Pump is integrated with a high precision piston assembly, two instrument mounting ports and priming pump for pre-filling. It is an ideal equipment to calibrate pressure instruments up to 400 bar.

This pump also can be used for pressure testing of small batch / low volume quantity engineering component and other devices. Since the pump is manufactured entirely of stainless steel wetted parts, the calibration medium can be clean water. Ideal for gaseous instrument calibration other than regular instruments.

## Pressure Calibrators/ Table Top

Kains Pressure Calibrators are designed to generate pressure up to 1500 bar. The screwed Pump is integrated with a high precision high-pressure piston assembly, two instrument mounting ports and priming pump for pre-filling. It is an ideal equipment to calibrate pressure instruments up to 1500 bar.

This pump also can be used for pressure testing of small batch quantity engineering component and other devices. Since the pump is manufactured entirely of stainless steel wetted parts, the calibration medium can be clean water, Ideal for gaseous instrument calibration other than regular instruments.



## High Pressure Calibrators



Kains High Pressure Calibrators are designed to generate pressure up to 3500 bar. The screwed Pump is integrated with a high precision high-pressure piston assembly, two instrument mounting ports and priming pump for pre-filling. It is an ideal equipment to calibrate high pressure instruments.

This pump can also be used for pressure testing of small batch quantity engineering component and other devices. The medium used for calibration is industrial / hydraulic low viscosity oil. One can use any digital or analogue reference gauge as master instrument.



# Vacuum Calibration Systems

Kains Vacuum Calibration systems are a calibration unit integrated with an oil lubricated vacuum pump, a controlling unit, drain tank and necessary tubing.

This can be used for the calibration of electronics and other mechanical vacuum instruments. Pumps can generate the full vacuum of -760 mmHg MSL.



## Reference Master Gauges

Master gauges are used as a master instrument in reference calibration. Kains manufacturers Master gauges in 6" / 8" and 10" nominal sizes with accuracy of  $\pm 0.5\%$  of FSD.

*\* The Digital Gauges shown in the brochure are not manufactured by Kains Instruments India Private Limited and used for informative representation. Buyers can select the product from any standard manufacturers.*

## Other Products



Dead Weight Tester NEW



High Pressure Swivel Nut



Pressure Relief Valve (PRV)

## Major Industries We Serve



Pharmaceutical



Gas Plant



Dairy



HVAC



Bio Tech



Boiler  
Manufacturing



Power  
Generation



Water  
Treatment



Food  
Processing



Chemical  
Industry

## Other Products Offered

- Pressure Regulators
- Gas Manifolds
- Instrument Manifolds
- Customized Assemblies
- Level Measuring Instruments
- Pressure Switches
- Pressure Transmitters
- RTD/ PT100/ Thermocouple
- Temperature Indicators and Controllers
- Temperature Transmitters
- Pressure Recorders
- Manometers
- Rotameters
- Flow Instruments

# Our Network

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### SUDARSHAN FLUIDTECH

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## ▶ Kerala

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## ▶ Pune

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Phone: +91 20 66206656/ 66206655

## ▶ Bhubaneswar

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Email ID: prasadtelematics@yahoo.co.uk  
Phone: +91 9437044078



**Kains**

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**Registered Office and Works**

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