

# UTILITY PRESSURE GAUGE

## BOURDON TYPE



### SPECIAL FEATURES

- ECONOMICAL VERSION
- GENERAL PURPOSE APPLICATION

### APPLICATIONS

HVAC, F. R. L. UNITS, WATER, AIR, HYDRAULIC, PNEUMATICS, VALVE POSITIONER, SUGAR MILLS & ALLIED PROCESS INDUSTRIES.

### SPECIFICATIONS

#### STANDARD VERSION : 1.5", 2", 2.5", 3", 4", 6" & 10"

|                          |   |                                                |
|--------------------------|---|------------------------------------------------|
| Accuracy                 | : | ±1.6% of F. S. (For NS 2.5", 3", 4", 6" & 10") |
|                          | : | ±2.5% of F. S. (For NS 1.5" & 2")              |
| Ambient temperature      | : | - 20° C to + 65° C                             |
| Process temperature      | : | Max. 150° C                                    |
| Operating Pressure Range | : | 75% of Scale Value                             |
| Over pressure limit      | : | ≤100 bar : 125% of Max. Scale Value            |
|                          | : | > 100 to ≤ 600 bar : 115% of Max. Scale Value  |
|                          | : | > 600 to ≤ 1600 bar : 110% of Max. Scale Value |
| Case & Bezel             | : | Steel, powder coated / painted (Push Fit Type) |
| Bourdon                  | : | Copper Alloy                                   |
| Process Socket           | : | Copper Alloy                                   |
| Movement                 | : | Copper Alloy                                   |
| Joints                   | : | Alloy Brazing / Soldering                      |
| Dial                     | : | Aluminum, black graduation on white background |
| Pointer                  | : | Black coloured, Fixed                          |
| Window                   | : | Sheet Glass                                    |



### Temperature Effect:

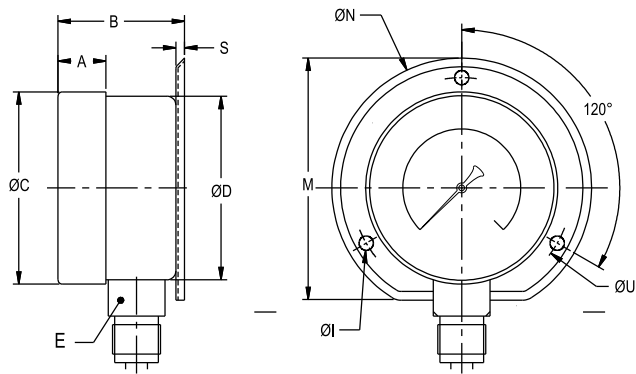
The variation of indication caused by effects of temperature is to be calculated by below formula; which is to be added in the specified accuracy while measurement:-

Formula:  $\pm 0.04 \times (t_2 - t_1) \% \text{ of F.S.}$

where  $t_1$  = reference temperature (+20° C) and  $t_2$  = ambient temperature in °C

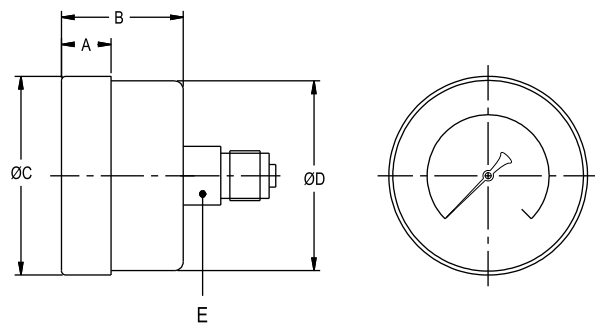
## DIMENSIONS - STANDARD VERSION

## TYPE 1



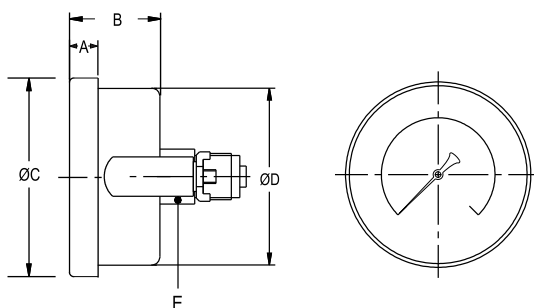
| NS   | A    | B    | OC  | OD  | E  | M   | S   | ON    | OU  | OI | Weight in gram<br>(With Box) |
|------|------|------|-----|-----|----|-----|-----|-------|-----|----|------------------------------|
| 2.5" | 12   | 30   | 63  | 62  | 14 | 80  | 5   | 88    | 76  | 5  | 160.0                        |
| 3"   | 12   | 40   | 78  | 76  | 14 | 100 | 5   | 115   | 98  | 5  | 250.0                        |
| 4"   | 13   | 36   | 99  | 97  | 17 | 117 | 1.2 | 132   | 118 | 6  | 405.5                        |
| 6"   | 16   | 47.5 | 155 | 154 | 17 | 181 | 7   | 195.5 | -   | -  | 729.5                        |
| 10"  | 37.5 | 55   | 252 | 249 | 22 | 280 | 8   | 288.5 | -   | -  | 2300                         |

## TYPE 4

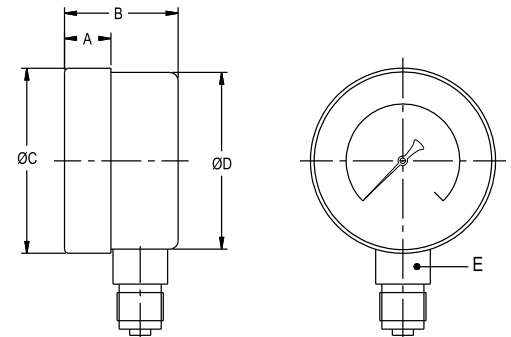


| NS   | A  | B    | ØC  | ØD   | E  | Weight in gram<br>(With Box) |
|------|----|------|-----|------|----|------------------------------|
| 1.5" | 7  | 24   | 42  | 41   | 11 | 69.0                         |
| 2"   | 11 | 29   | 54  | 52   | 14 | 148.0                        |
| 2.5" | 12 | 29.5 | 67  | 65.5 | 14 | 174.0                        |
| 3"   | 12 | 35   | 78  | 76   | 14 | 190.0                        |
| 4"   | 13 | 36   | 99  | 97   | 17 | 343.0                        |
| 6"   | 16 | 43   | 155 | 154  | 17 | 662.5                        |

TYPE - 13

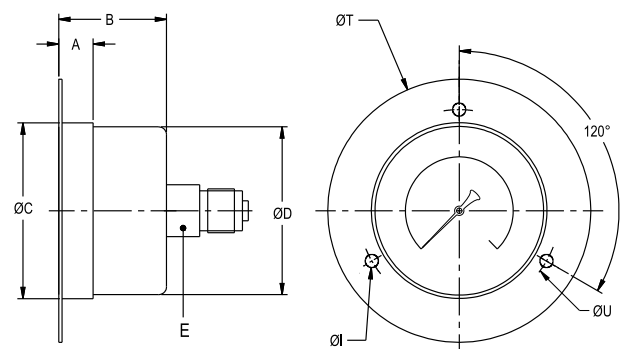


## TYPE 2



| NS   | A    | B    | ØC  | ØD  | E  | Weight in gram<br>(With Box) |
|------|------|------|-----|-----|----|------------------------------|
| 1.5" | 10   | 26.5 | 44  | 42  | 12 | 81.5                         |
| 2"   | 10   | 29   | 53  | 52  | 14 | 101.0                        |
| 2.5" | 12   | 29   | 63  | 62  | 14 | 120.0                        |
| 3"   | 12   | 35   | 78  | 76  | 14 | 195.0                        |
| 4"   | 13   | 35   | 99  | 97  | 17 | 343.0                        |
| 6"   | 16   | 43   | 155 | 154 | 17 | 695.0                        |
| 10"  | 37.5 | 51   | 252 | 249 | 22 | 1580.0                       |

TYPE - 12



| NS   | A  | B  | OC  | OD  | E  | OT  | OU  | OI | Weight in gram<br>(With Box) |
|------|----|----|-----|-----|----|-----|-----|----|------------------------------|
| 2"   | 11 | 29 | 54  | 52  | 14 | 90  | 71  | 4  | 175.0                        |
| 2.5" | 12 | 31 | 63  | 62  | 14 | 90  | 76  | 4  | 210.0                        |
| 4"   | 14 | 33 | 99  | 97  | 17 | 132 | 117 | 4  | 444.5                        |
| 6"   | 16 | 37 | 155 | 154 | 17 | 184 | 170 | 5  | 581.0                        |

| NS   | A  | B    | OC  | OD   | E  | Weight in gram<br>(With Box) |
|------|----|------|-----|------|----|------------------------------|
| 1.5" | 7  | 24   | 42  | 41   | 11 | 120.0                        |
| 2"   | 11 | 29   | 54  | 52   | 14 | 210.0                        |
| 2.5" | 12 | 29.5 | 67  | 65.5 | 14 | 240.0                        |
| 4"   | 13 | 36   | 99  | 97   | 17 | 390.0                        |
| 6"   | 16 | 43   | 155 | 154  | 17 | 700.0                        |

Notes: • Drawings are not to scale. • All Dimensions are in mm. • NS = Nominal Size.

## BOURDON TYPE



### RANGE TABLE

Note : Kleev offers National / International Scales like kPa, MPa, bar, psi, bar & Dual Scale like kPa with psi, kPa with bar, bar with psi or Equivalent scales as per the requirement can be provided on request.

Following are the example tables for bar & psi scales

### RANGE WITH NOMINAL SIZES

| Nominal Sizes<br>Range (psi with bar)<br>psi | Range<br>bar  | 1.5" | 2" | 2.5" | 3" | 4" | 6" | 10" |
|----------------------------------------------|---------------|------|----|------|----|----|----|-----|
| VACUUM                                       |               |      |    |      |    |    |    |     |
| -30 inHg / 0                                 | -760 mmHg / 0 | ✓    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| PRESSURE                                     |               |      |    |      |    |    |    |     |
| 0/15 psi                                     | 0/1 bar       | ✓    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/30 psi                                     | 0/2 bar       | ✓    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/60 psi                                     | 0/4 bar       | ✓    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/100 psi                                    | 0/7 bar       | ✓    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/150 psi                                    | 0/10 bar      | ✓    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/220 psi                                    | 0/16 bar      | ✓    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/300 psi                                    | 0/21 bar      | ✓    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/400 psi                                    | 0/28 bar      | ✓    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/500 psi                                    | 0/35 bar      | ✓    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/600 psi                                    | 0/42 bar      | ✓    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/1000 psi                                   | 0/70 bar      | ✓    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/1500 psi                                   | 0/100 bar     | X    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/2200 psi                                   | 0/160 bar     | X    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/3000 psi                                   | 0/210 bar     | X    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/4000 psi                                   | 0/280 bar     | X    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/5000 psi                                   | 0/350 bar     | X    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/6000 psi                                   | 0/400 bar     | X    | ✓  | ✓    | ✓  | ✓  | ✓  | ✓   |
| 0/10000 psi                                  | 0/700 bar     | X    | X  | X    | X  | ✓  | ✓  | ✓   |
| COMPOUND                                     |               |      |    |      |    |    |    |     |
| - 30 inHg/15                                 | - 1/1 bar     | X    | X  | X    | X  | ✓  | ✓  | ✓   |
| - 30 inHg /30                                | - 1/2 bar     | X    | X  | X    | X  | ✓  | ✓  | ✓   |
| - 30 inHg /60                                | - 1/4 bar     | X    | X  | X    | X  | ✓  | ✓  | ✓   |
| - 30 inHg /100                               | - 1/7 bar     | X    | X  | X    | X  | ✓  | ✓  | ✓   |
| - 30 inHg /150                               | - 1/10 bar    | X    | X  | X    | X  | ✓  | ✓  | ✓   |
| - 30 inHg /200                               | - 1/14 bar    | X    | X  | X    | X  | ✓  | ✓  | ✓   |
| - 30 inHg /300                               | - 1/21 bar    | X    | X  | X    | X  | ✓  | ✓  | ✓   |

### FREON WITH TEMPERATURE SCALE

Note: For temperature scales, please provide refrigerant name.

|                    |  |   |   |   |   |   |   |   |
|--------------------|--|---|---|---|---|---|---|---|
| - 30" Hg / 150 psi |  | X | X | ✓ | X | ✓ | X | X |
| - 30" Hg / 300 psi |  | X | X | ✓ | X | ✓ | X | X |
| 0/300 psi          |  | X | X | ✓ | X | ✓ | X | X |
| 0/500 psi          |  | X | X | ✓ | X | ✓ | X | X |

### ACCESSORIES (Refer Datasheet for complete specifications)

KEC Gauge Cock

KEG Snubber

KEH Siphon

# UTILITY PRESSURE GAUGE

## BOURDON TYPE



KAA

### HOW TO ORDER

Example

| BASIC MODEL                                                                                                                                           |                                         |      |                                      |      |    |    |    |     | KAA           |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|------|--------------------------------------|------|----|----|----|-----|---------------|--|
| CODE                                                                                                                                                  |                                         | 15   | 20                                   | 25   | 30 | 40 | 60 | 100 |               |  |
| NOMINAL SIZE                                                                                                                                          |                                         | 1.5" | 2"                                   | 2.5" | 3" | 4" | 6" | 10" | XX            |  |
|                                                                                                                                                       |                                         |      |                                      |      |    |    |    |     |               |  |
| TYPE OF MOUNTING                                                                                                                                      |                                         | 15   | 20                                   | 25   | 30 | 40 | 60 | 100 | X<br>OR<br>XX |  |
| 1                                                                                                                                                     | WALL/ SURFACE/ PROJECTION MOUNTING      | X    | X                                    | ✓    | ✓  | ✓  | ✓  | ✓   |               |  |
| WITH BOTTOM ENTRY                                                                                                                                     |                                         |      |                                      |      |    |    |    |     |               |  |
| 2                                                                                                                                                     | DIRECT BOTTOM ENTRY                     | ✓**  | ✓                                    | ✓    | ✓  | ✓  | ✓  | ✓   |               |  |
| 4                                                                                                                                                     | DIRECT CENTER BACK ENTRY                | ✓    | ✓                                    | ✓    | ✓  | ✓  | ✓  | X   |               |  |
| 12                                                                                                                                                    | CENTER BACK ENTRY WITH FRONT FLANGE     | X    | ✓                                    | ✓    | X  | ✓  | ✓  | X   |               |  |
| 13                                                                                                                                                    | CENTER BACK ENTRY WITH MOUNTING BRACKET | ✓*   | ✓*                                   | ✓*   | X  | ✓  | ✓  | X   |               |  |
| Note: *These gauges will have crimped bezel / ring.                                                                                                   |                                         |      |                                      |      |    |    |    |     | XXX           |  |
| **Minimum preferred quantity shall be 100 nos.                                                                                                        |                                         |      |                                      |      |    |    |    |     |               |  |
| GAUGE CONNECTION                                                                                                                                      |                                         | 15   | 20                                   | 25   | 30 | 40 | 60 | 100 |               |  |
| 1BM                                                                                                                                                   | 1/8" BSP(M)                             | ✓    | ✓                                    | X    | X  | X  | X  | X   |               |  |
| 1NM                                                                                                                                                   | 1/8" NPT(M)                             | ✓    | ✓                                    | ✓#   | X  | X  | X  | X   |               |  |
| 1TM                                                                                                                                                   | 1/8" BSPT(M)                            | ✓    | ✓                                    | X    | X  | X  | X  | X   |               |  |
| 2BM                                                                                                                                                   | 1/4" BSP(M)                             | X    | ✓*                                   | ✓    | ✓  | X  | X  | X   |               |  |
| 2NM                                                                                                                                                   | 1/4" NPT(M)                             | X    | ✓*                                   | ✓    | ✓  | X  | X  | X   |               |  |
| 2TM                                                                                                                                                   | 1/4" BSPT(M)                            | X    | ✓*                                   | ✓    | ✓  | X  | X  | X   |               |  |
| 3BM                                                                                                                                                   | 3/8" BSP(M)                             | X    | X                                    | X    | ✓  | ✓  | ✓  | X   |               |  |
| 3NM                                                                                                                                                   | 3/8" NPT(M)                             | X    | X                                    | X    | X  | ✓  | ✓  | X   |               |  |
| 3TM                                                                                                                                                   | 3/8" BSPT(M)                            | X    | X                                    | X    | X  | ✓  | ✓  | X   |               |  |
| 4BM                                                                                                                                                   | ½" BSP(M)                               | X    | X                                    | X    | X  | ✓* | ✓* | ✓   |               |  |
| 4NM                                                                                                                                                   | ½" NPT(M)                               | X    | X                                    | X    | X  | ✓* | ✓* | ✓   |               |  |
| 4TM                                                                                                                                                   | ½" BSPT(M)                              | X    | X                                    | X    | X  | ✓* | ✓* | ✓   |               |  |
| 4 MM                                                                                                                                                  | M20 x 1.5(M)                            | X    | X                                    | X    | X  | ✓* | ✓* | ✓   |               |  |
| *These connections will be provided through adaptors or else f or direct threads (without adaptor) minimum order quantity shall be 100 nos per range. |                                         |      |                                      |      |    |    |    |     |               |  |
| #Applicable for Freon ranges                                                                                                                          |                                         |      |                                      |      |    |    |    |     |               |  |
| Note: Connections like Metric/ PT/ PF/ Flaired/ UNF/ G/ R etc. can be provided on request through adaptors.                                           |                                         |      |                                      |      |    |    |    |     |               |  |
| RANGE                                                                                                                                                 |                                         |      |                                      |      |    |    |    |     | 0/10<br>bar   |  |
| REFER RANGE TABLE                                                                                                                                     |                                         |      |                                      |      |    |    |    |     |               |  |
| OPTIONAL EXTRAS (*For NS 4" & above)                                                                                                                  |                                         |      |                                      |      |    |    |    |     | XX            |  |
| Note: Minimum preferred quantity for non standard items shall be 300 nos.                                                                             |                                         |      |                                      |      |    |    |    |     |               |  |
| CD                                                                                                                                                    | Custom Designed Dial                    | ZC   | Freon Range (With Temperature Scale) |      |    |    |    |     |               |  |
| OS                                                                                                                                                    | Oxygen Service (For Dry Version)        | TM   | Dial Tag Marking*                    |      |    |    |    |     |               |  |
| C5                                                                                                                                                    | Five Point Calibration Certificate      | LT   | Helium Leak Test                     |      |    |    |    |     |               |  |
| DS                                                                                                                                                    | Internal Dampening Screw (Brass)        | ST   | SS Tag Plate                         |      |    |    |    |     |               |  |

Ordering Example : KAA - XX - X OR XX - XXX - 0/10 bar - XX

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

Note: Specifications and dimensions given in this product catalogue represents the state of engineering at the time of printing.

Modifications may take place and materials specified may be replaced by others without prior notice.

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