



HAWK

Since 1971

Precision Test Gauge Aluminum Case

www.hawkgauge.com.tw

P-1C



**31L, 31B
Series**

- **±0.25% Accuracy**
- **Polished Mirror Band and knife-Edge Pointer to reduce parallax error**

- **Temperature Compensated Element to reduce temperature error**
- **Zero Adjustable Pointer**

HAWK type 31L and 31B are designed for the industrial applications where a higher degree of accuracy is required and operator errors must be minimized. Improved dial and pointer results in excellent viewing. Polished mirror band and knife-edge pointer with red painted tip let users read scale without parallax error. White dial background with large numbers and graduations results in excellent readability. External adjustable pointer facilitates compensation for calibration adjustment.

Typical Application

- Industrial test laboratories
- Monitoring of the testing device

- Measuring workshop systems
- Control workshop systems

- All equipments require high accuracy performance

Specification

Operating

Steady: 100%*full scale value
Pulsation: 90%*full scale value
Sudden: 130%*full scale value

The appropriate operating range falls in the middle half of the gauge (25% to 75% of full scale). If you choose the unsuitable range, the fatigue of bourdon tube may be resulted. HAWK Supplies a wide selection of range from vacuum to 20000 PSI including compound range.

Temperature limit

Ambient: -40 to 70°C
Media: max 70°C-Brass Wetted Parts
100°C-SS316 Wetted Parts

Temperature effect

Accuracy of measurement will be effected by the temperature change. This inaccuracy may as high as ±0.2% for 10°C temperature change.

Dial Size

4 1/2"(115mm) or 6"(150mm)

Case&Ring

Aluminum case and ring with black enamel

Socket

Brass, 316 Stainless Steel or Monel K400

Movement

Stainless steel movement

Bourdon Tube

Brass, 316L-Stainless Steel or Monel K500

Window

Tempered safety glass-standard
Polycarbonate or Laminated safety glass-optional

Pointer

Zero adjustable pointer

Accuracy

±0.25% of span
(Grade 2A to ASME B40.1)

Scale

PSI, kPa, Mpa, bar, kg/cm2, inHg, cmHg, torr, mmHg (single or dual scale), others on request

Connection

1/2", 1/4" NPT standard,
JIS, DIN, M20*1.5 available

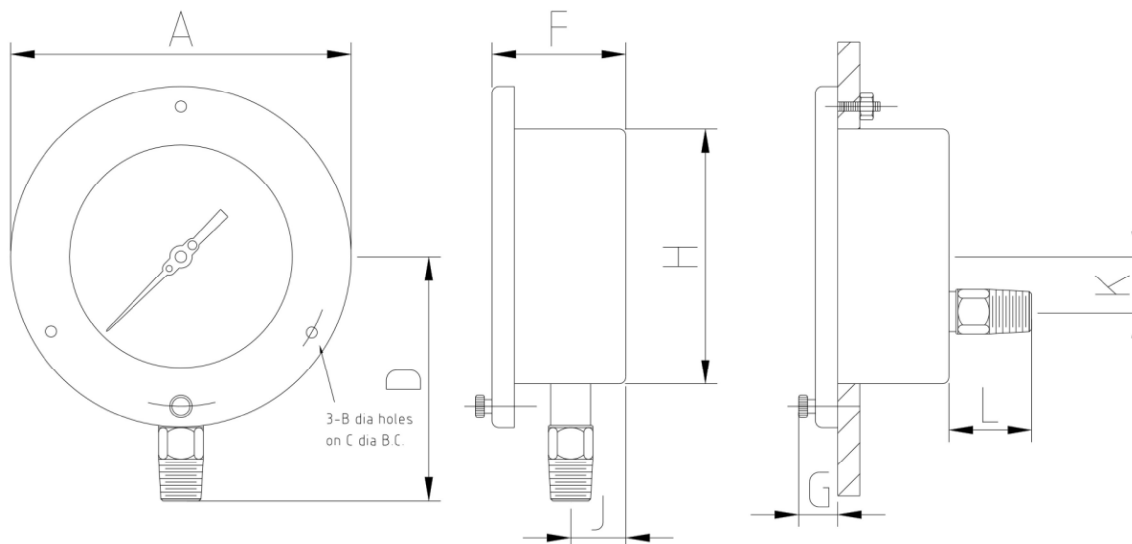
Mounting

Local or Panel Mounting

Weatherproof

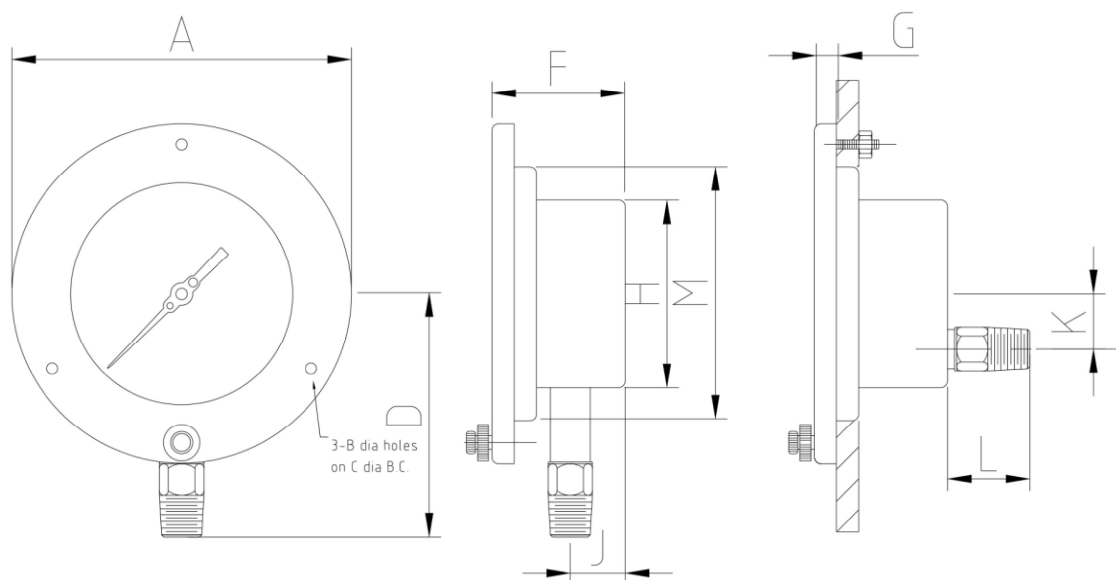
NEMA 3/3X (IP54) enclosure

Dimensions



Dimensions in mm.

| Type No | Dial Size | A | B | C | D | F | G | H | J | K | L | Weight |
|---------|-----------|----------------|--------------|----------------|----------------|---------------|---------------|----------------|---------------|---------------|---------------|--------------|
| 31L | 4.5" | 6.18" (157) | 0.24" (6) | 5.36" (136) | 4.49" (114) | 2.28" (58) | 0.51" (13) | 4.77" (121) | 0.99" (25) | | | 0.83-0.99 Kg |
| 31B | 4.5" | 6.18" (157) | 0.24" (6) | 5.36" (136) | | 2.28" (58) | 0.51" (13) | 4.77" (121) | | 1.18" (30) | 1.62" (41) | 0.83-0.99 Kg |



Dimensions in mm.

| Type No | Dial Size | A | B | C | D | F | G | H | J | K | L | M | Weight |
|---------|-----------|----------------|----------------|----------------|----------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|--------------|
| 31L | 6" | 7.56" (192) | 1/4"- 20UNC | 7.01" (178) | 5.20" (132) | 2.76" (70) | 0.67" (17) | 4.76" (121) | 1.10" (28) | | | 6.38" (162) | 1.35-1.48 Kg |
| 31B | 6" | 6.23" (160) | 1/4"- 20UNC | 7.01" (178) | | 2.76" (70) | 0.67" (17) | 4.76" (121) | | 1.34" (34) | 1.47" (38) | 6.38" (162) | 1.35-1.48 Kg |

Pressure Range

- The other scales and ranges (DIN) are available in request.
- Not all listed ranges and scales are in stock, consult your distributors for available.

Pressure Ranges

| SINGLE SCALE | | | | DUAL SCALE | | | | | | | | | |
|--------------|--------|------|-------|------------|--------|--------|-------|-----------|--------------|-----------|----------------|--------------|-----------------|
| PSI | | Bar | | KPa | | Kg/cm2 | | Bar & PSI | | Kpa & PSI | | Kg/cm2 & PSI | |
| Code | Range | Code | Range | Code | Range | Code | Range | Code | Range | Code | Range | Code | Range |
| P29 | 6 | R1 | 0.4 | K29 | 40 | G1 | 0.4 | X9 | 0.4 Bar/PSI | Y16 | 40 kPa/PSI | W9 | 0.4 Kg/cm2/PSI |
| P30 | 8 | R2 | 0.6 | K31 | 60 | G2 | 0.6 | X11 | 0.6 Bar/PSI | Y18 | 60 kPa/PSI | W11 | 0.6 Kg/cm2/PSI |
| P32 | 15 | R3 | 1 | K33 | 100 | G3 | 1 | X12 | 1 Bar/PSI | Y22 | 100 kPa/PSI | W12 | 1 Kg/cm2/PSI |
| P33 | 20 | R4 | 1.6 | K34 | 160 | G4 | 1.6 | X13 | 1.6 Bar/PSI | Y25 | 160 kPa/PSI | W13 | 1.6 Kg/cm2/PSI |
| P35 | 30 | R5 | 2 | K35 | 200 | G5 | 2 | X14 | 2 Bar/PSI | Y26 | 200 kPa/PSI | W14 | 2 Kg/cm2/PSI |
| P37 | 40 | R6 | 2.5 | K36 | 250 | G6 | 2.5 | X15 | 2.5 Bar/PSI | Y27 | 250 kPa/PSI | W15 | 2.5 Kg/cm2/PSI |
| P38 | 50 | R7 | 3 | K37 | 300 | G7 | 3 | X16 | 3 Bar/PSI | Y28 | 280 kPa/PSI | W16 | 3 Kg/cm2/PSI |
| P39 | 60 | R8 | 4 | K38 | 400 | G9 | 4 | X18 | 4 Bar/PSI | Y31 | 400 kPa/PSI | W18 | 4 Kg/cm2/PSI |
| P40 | 80 | R9 | 5 | K39 | 500 | G10 | 5 | X19 | 5 Bar/PSI | Y32 | 500 kPa/PSI | W19 | 5 Kg/cm2/PSI |
| P40A | 85 | R11 | 6 | K40 | 600 | G11 | 6 | X20 | 6 Bar/PSI | Y33 | 600 kPa/PSI | W20 | 6 Kg/cm2/PSI |
| P41 | 100 | R12 | 7 | K41 | 700 | G12 | 7 | X21 | 7 Bar/PSI | Y34 | 700 kPa/PSI | W21 | 7 Kg/cm2/PSI |
| P42 | 150 | R13 | 10 | K42 | 1000 | G13 | 10 | X22 | 10 Bar/PSI | Y36 | 1000 kPa/PSI | W22 | 10 Kg/cm2/PSI |
| P43 | 160 | R13A | 11 | K42A | 1100 | G13A | 11 | X23 | 11 Bar/PSI | Y36A | 1100 kPa/PSI | W23 | 11 Kg/cm2/PSI |
| P43A | 180 | R13B | 14 | K42B | 1400 | G13C | 14 | X24 | 14 Bar/PSI | Y37 | 1400 kPa/PSI | W24 | 14 Kg/cm2/PSI |
| P44 | 200 | R13C | 15 | K42C | 1500 | G13B | 15 | X25 | 15 Bar/PSI | Y38 | 1500 kPa/PSI | W25 | 15 Kg/cm2/PSI |
| P45 | 250 | R14 | 16 | K43 | 1600 | G14 | 16 | X26 | 16 Bar/PSI | Y39 | 1600 kPa/PSI | W26 | 16 Kg/cm2/PSI |
| P46 | 300 | R15 | 20 | K44 | 2000 | G15 | 20 | X28 | 20 Bar/PSI | Y40 | 2000 kPa/PSI | W28 | 20 Kg/cm2/PSI |
| P47 | 350 | R16 | 25 | K45 | 2500 | G16 | 25 | X29 | 25 Bar/PSI | Y41 | 2500 kPa/PSI | W29 | 25 Kg/cm2/PSI |
| P48 | 400 | R16B | 28 | K55A | 2800 | G16A | 28 | X30 | 28 Bar/PSI | Y42 | 2800 kPa/PSI | W30 | 28 Kg/cm2/PSI |
| P48A | 450 | R17 | 30 | K46 | 3000 | G17 | 30 | X31 | 30 Bar/PSI | Y43 | 3000 kPa/PSI | W31 | 30 Kg/cm2/PSI |
| P49 | 500 | R18 | 35 | K47 | 3500 | G18 | 35 | X32 | 35 Bar/PSI | Y44 | 3500 kPa/PSI | W32 | 35 Kg/cm2/PSI |
| P50 | 600 | R19 | 40 | K48 | 4000 | G19 | 40 | X33 | 40 Bar/PSI | Y45 | 4000 kPa/PSI | W33 | 40 Kg/cm2/PSI |
| P51 | 800 | R20 | 50 | K49 | 5000 | G20 | 50 | X34 | 50 Bar/PSI | Y46 | 5000 kPa/PSI | W34 | 50 Kg/cm2/PSI |
| P51A | 850 | R21 | 60 | K50 | 6000 | G21 | 60 | X35 | 60 Bar/PSI | Y47 | 6000 kPa/PSI | W35 | 60 Kg/cm2/PSI |
| P52 | 1,000 | R22 | 70 | K51 | 7000 | G22 | 70 | X36 | 70 Bar/PSI | Y48 | 7000 kPa/PSI | W36 | 70 Kg/cm2/PSI |
| P53 | 1,500 | R23 | 100 | K52 | 10000 | G23 | 100 | X39 | 100 Bar/PSI | Y50 | 10000 kPa/PSI | W39 | 100 Kg/cm2/PSI |
| P53A | 1,600 | R23A | 140 | K52B | 14000 | G23A | 140 | X40 | 140 Bar/PSI | Y51 | 14000 kPa/PSI | W40 | 140 Kg/cm2/PSI |
| P54 | 2,000 | R24 | 160 | K53 | 16000 | G24 | 160 | X42 | 160 Bar/PSI | Y53 | 16000 kPa/PSI | W42 | 160 Kg/cm2/PSI |
| P56 | 3,000 | R25 | 200 | K54 | 20000 | G25 | 200 | X43 | 200 Bar/PSI | Y54 | 20000 kPa/PSI | W43 | 200 Kg/cm2/PSI |
| P57 | 3,500 | R26 | 250 | K55 | 25000 | G26 | 250 | X44 | 250 Bar/PSI | Y55 | 25000 kPa/PSI | W44 | 250 Kg/cm2/PSI |
| P58 | 4,000 | R26A | 280 | K55A | 28000 | G26A | 280 | X44A | 280 Bar/PSI | Y56 | 28000 kPa/PSI | W44A | 280 Kg/cm2/PSI |
| P58A | 4,250 | R27 | 300 | K56 | 30000 | G27 | 300 | X45 | 300 Bar/PSI | Y57 | 30000 kPa/PSI | W45 | 300 Kg/cm2/PSI |
| P59 | 5,000 | R28 | 350 | K56A | 35000 | G28 | 350 | X46 | 350 Bar/PSI | Y58 | 35000 kPa/PSI | W46 | 350 Kg/cm2/PSI |
| P60 | 6,000 | R29 | 400 | K57 | 40000 | G29 | 400 | X47 | 400 Bar/PSI | Y59 | 40000 kPa/PSI | W47 | 400 Kg/cm2/PSI |
| P60B | 7,000 | R30 | 500 | K58 | 50000 | G30 | 500 | X48 | 500 Bar/PSI | Y60 | 50000 kPa/PSI | W48 | 500 Kg/cm2/PSI |
| P61 | 8,000 | R31 | 600 | K59 | 60000 | G31 | 600 | X49 | 600 Bar/PSI | Y61 | 60000 kPa/PSI | W49 | 600 Kg/cm2/PSI |
| P62 | 10,000 | R33 | 700 | K60 | 70000 | G32 | 700 | X50 | 700 Bar/PSI | Y62 | 70000 kPa/PSI | W50 | 700 Kg/cm2/PSI |
| P63 | 15,000 | R33 | 1000 | K61 | 100000 | G33 | 1000 | X52 | 1000 Bar/PSI | Y64 | 100000 kPa/PSI | W52 | 1000 Kg/cm2/PSI |
| P64 | 20,000 | R33A | 1400 | K61A | 140000 | G33A | 1400 | X53 | 1400 Bar/PSI | Y65 | 140000 kPa/PSI | W53 | 1400 Kg/cm2/PSI |
| P65 | 25,000 | R34 | 1600 | K62 | 160000 | G344 | 1600 | X55 | 1600 Bar/PSI | Y67 | 160000 kPa/PSI | W55 | 1600 Kg/cm2/PSI |

Vacuum Ranges

| SINGLE SCALE | | | | DUAL SCALE | | |
|--------------|--------------|--------------|--------------|------------------|--------------------|---------------------|
| InHg | Bar | KPa | Kg/cm2 | Bar & PSI | Kpa & PSI | Kg/cm2 & PSI |
| Code Range | Code Range | Code Range | Code Range | Code Range | Code Range | Code Range |
| PV1 -30/0 | RV1 -1/0 | KV1 -0.04 | GV1 -1/0 | XV1 -1 Bar/PSI | YV1 -100 kPa/PSI | WV1 -76 cmHg/inHg |

Compound Ranges

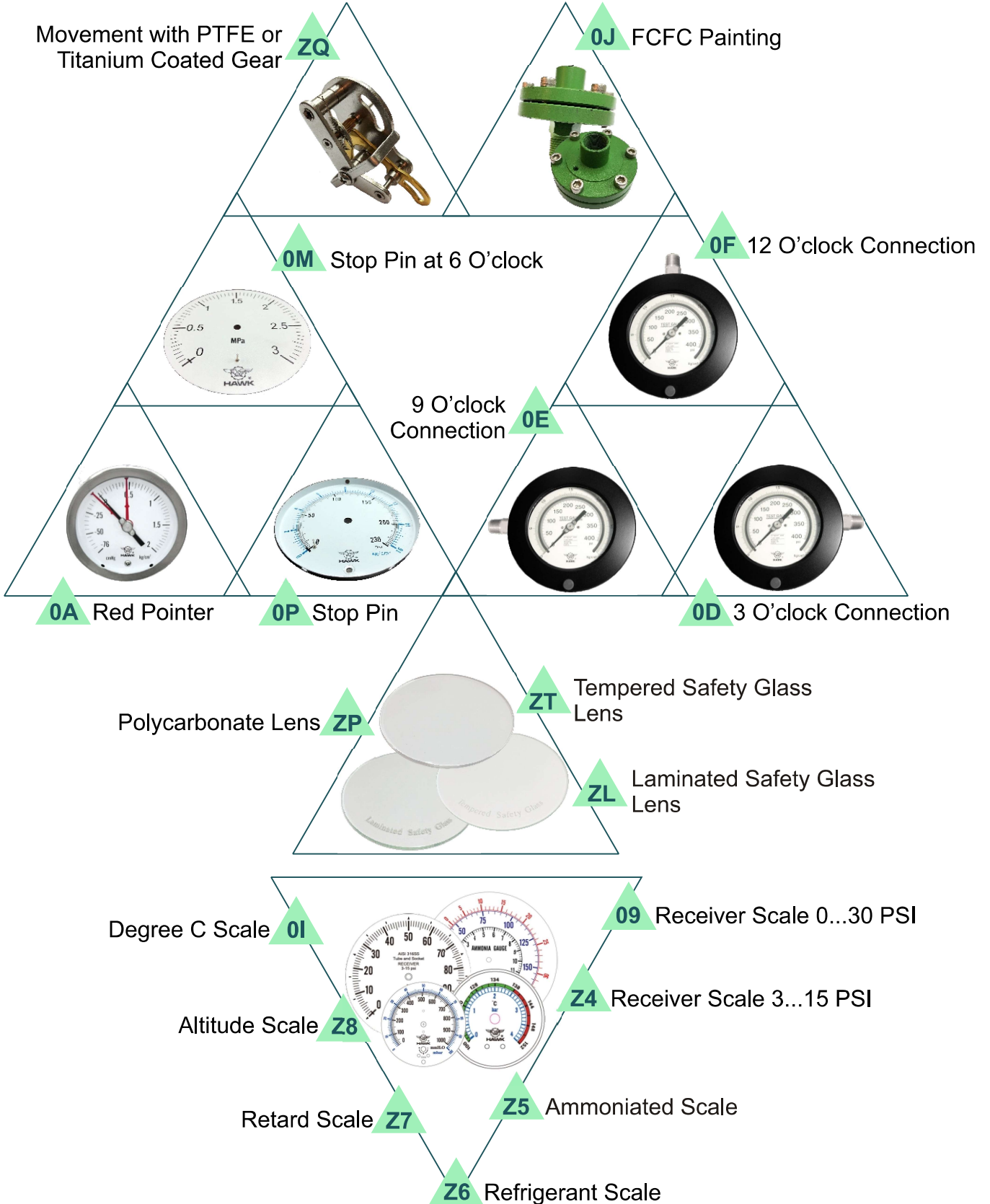
| SINGLE SCALE | | | | DUAL SCALE | | | |
|----------------|--------------|-------------------|--------------|----------------------|--------------------------|--------------------------|--|
| PSI | Bar | KPa | Kg/cm2 | Bar & PSI | Kpa & PSI | Kg/cm2 & PSI | |
| Code Range | Code Range | Code Range | Code Range | Code Range | Code Range | Code Range | |
| PCA1 VAC/8.5 | RCA -1/0.6 | KOQ -100/60 | GCA -1/0.6 | XCA -1/0.6 Bar/PSI | YCA -100/60 kPa/PSI | WCA -76cmHg/0.6 Kg/cm2 | |
| PCA VAC/15 | RCB -1/1 | KOR -100/100 | GCB -1/1 | XCB -1/1 Bar/PSI | YCB -100/100 kPa/PSI | WCB -76cmHg/1 Kg/cm2 | |
| PCB VAC/30 | RCC -1/1.5 | KOS -100/150 | GCC -1/1.5 | XCC -1/1.5 Bar/PSI | YCC -100/150 kPa/PSI | WCC -76cmHg/1.5 Kg/cm2 | |
| | RCD -1/2 | KOS1 -100/200 | GCD -1/2 | XCD -1/2 Bar/PSI | YCD -100/200 kPa/PSI | WCD -76cmHg/2 Kg/cm2 | |
| PCC VAC/60 | RCE -1/2.5 | KOS2 -100/250 | GCE -1/2.5 | XCE -1/2.5 Bar/PSI | YCE -100/250 kPa/PSI | WCE -76cmHg/2.5 Kg/cm2 | |
| | RCF -1/3 | KOT -100/300 | GCF -1/3 | XCF -1/3 Bar/PSI | YCF -100/300 kPa/PSI | WCF -76cmHg/3 Kg/cm2 | |
| PCD VAC/100 | RCG -1/4 | KOT2 -100/400 | GCG -1/4 | XCG -1/4 Bar/PSI | YCG -100/400 kPa/PSI | WCG -76cmHg/4 Kg/cm2 | |
| | RCH -1/5 | KOU -100/500 | GCH -1/5 | XCH -1/5 Bar/PSI | YCH -100/500 kPa/PSI | WCH -76cmHg/5 Kg/cm2 | |
| PCE VAC/150 | RCJ -1/7 | KOU2 -100/700 | GCJ -1/7 | XCJ -1/7 Bar/PSI | YCJ -100/700 kPa/PSI | WCJ -76cmHg/7 Kg/cm2 | |
| | RCK -1/9 | KOV -100/900 | GCK -1/9 | XCK -1/9 Bar/PSI | YCK -100/900 kPa/PSI | WCK -76cmHg/9 Kg/cm2 | |
| PCF VAC/160 | RCL -1/10 | KOV1 -100/1000 | GCL -1/10 | XCL -1/10 Bar/PSI | YCL -100/1000 kPa/PSI | WCL -76cmHg/10 Kg/cm2 | |
| PCG VAC/200 | RCM -1/11 | KOV2 -100/1100 | GCM -1/11 | XCM -1/11 Bar/PSI | YCM -100/1100 kPa/PSI | WCM -76cmHg/11 Kg/cm2 | |
| | RCO -1/14 | KOV4 -100/1400 | GCO -1/14 | XCO -1/14 Bar/PSI | YCO -100/1400 kPa/PSI | WCO -76cmHg/14 Kg/cm2 | |
| PCH VAC/300 | RCP -1/15 | KOW -100/1500 | GCP -1/15 | XCP -1/15 Bar/PSI | YCP -100/1500 kPa/PSI | WCP -76cmHg/15 Kg/cm2 | |
| | RCR -1/19 | KOW2 -100/1900 | GCR -1/19 | XCR -1/19 Bar/PSI | YCR -100/1900 kPa/PSI | WCR -76cmHg/19 Kg/cm2 | |
| PCI VAC/400 | RCS -1/20 | KOW3 -100/2000 | GCS -1/20 | XCS -1/20 Bar/PSI | YCS -100/2000 kPa/PSI | WCS -76cmHg/20 Kg/cm2 | |
| | RCT -1/24 | KOX -100/2400 | GCT -1/24 | XCT -1/24 Bar/PSI | YCT -100/2400 kPa/PSI | WCT -76cmHg/24 Kg/cm2 | |
| PCJ VAC/500 | RCU -1/25 | KOX1 -100/2500 | GCU -1/25 | XCU -1/25 Bar/PSI | YCU -100/2500 kPa/PSI | WCU -76cmHg/25 Kg/cm2 | |
| | RCV -1/27 | KOX2 -100/2700 | GCV -1/27 | XCV -1/27 Bar/PSI | YCV -100/2700 kPa/PSI | WCV -76cmHg/27 Kg/cm2 | |
| PCK VAC/600 | RCW -1/30 | KOY -100/3000 | GCW -1/30 | XCW -1/30 Bar/PSI | YCW -100/3000 kPa/PSI | WCW -76cmHg/30 Kg/cm2 | |
| | RCW1 -1/35 | KOZ -100/3500 | GCW1 -1/35 | XCX -1/35 Bar/PSI | YCX -100/3500 kPa/PSI | WCX -76cmHg/35 Kg/cm2 | |
| PCY -1/40 | RCX -1/40 | KOZ1 -100/4000 | GCX -1/40 | XCY -1/40 Bar/PSI | YCY -100/4000 kPa/PSI | WCY -76cmHg/40 Kg/cm2 | |
| | RCY -1/50 | KOZ2 -100/5000 | GCY -1/50 | XCZ -1/50 Bar/PSI | YCZ -100/5000 kPa/PSI | WCZ -76cmHg/50 Kg/cm2 | |
| PCZ -1/60 | RCZ -1/60 | KOZ3 -100/6000 | GCZ -1/60 | XC1 -1/60 Bar/PSI | YC1 -100/6000 kPa/PSI | WC1 -76cmHg/60 Kg/cm2 | |
| | RC0 -1/100 | KOZ7 -100/10000 | GC0 -1/100 | XC2 -1/100 Bar/PSI | YC2 -100/10000 kPa/PSI | WC2 -76cmHg/100 Kg/cm2 | |

Order Information

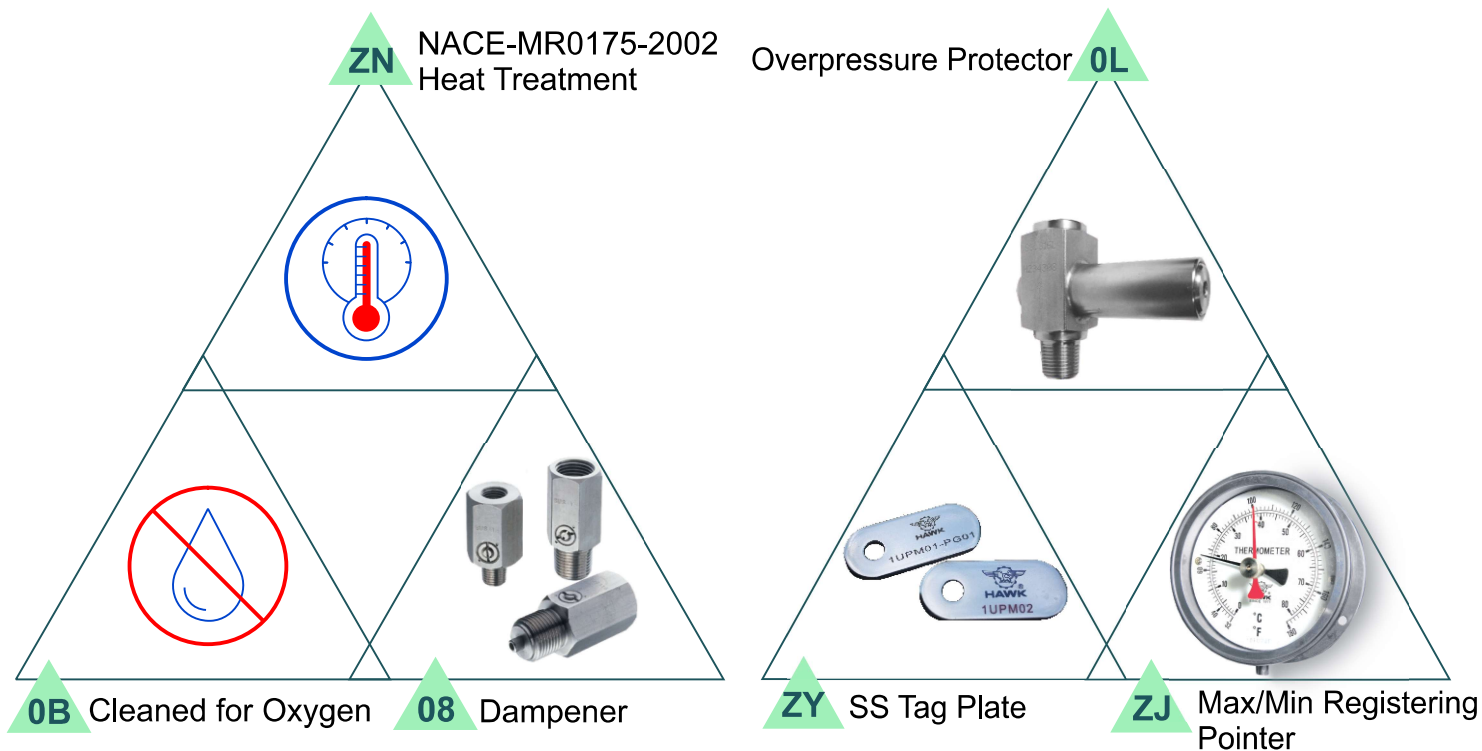
Example:

| | | | | | | |
|---------------|--|----------------------------------|-------------------------------|---|---|--|
| Series | Model | Dial | Wetted Parts | Process Connection | Pressure Range | Option |
| P - 1C - 31 | L | 06 | S | M 2 | P 4 1 | H- Z L |
| | L- Lower (Bottom) Connection B- Lower Back Connection | 45-4.5" (115mm) 06-6" (150mm) | S-316SS B-Brass M-Monel | M-Male F-Female D-G1/2 H-G3/8 E-G1/4 A-R1/2 G-R3/8 B-R1/4 0L-Others | Please refer to the range table and write down the code you need. Vacuum Compound Pressure | ZL-Laminated Safety Glass Lens Other options please check the next page |

Option

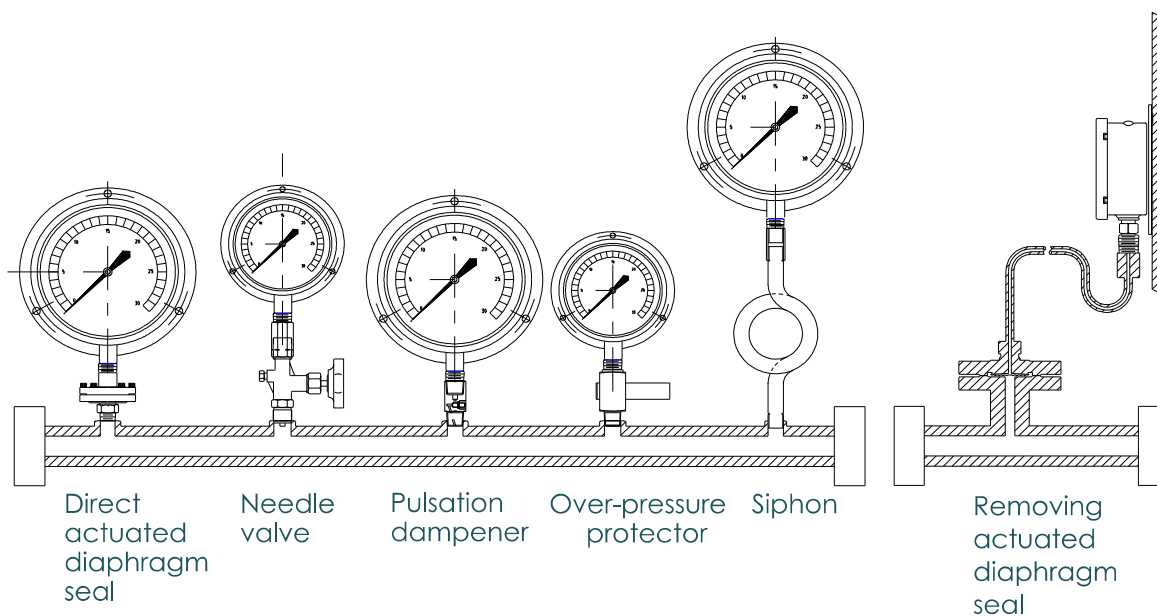


Option



Accessories

Please refer to HAWK diaphragm seal and accessories data sheets for detailed information.



Limited Warranty and Liability

HAWK GAUGE CO.,LTD warrants all its mechanical instruments to be free from defects in materials and workmanship. HAWK agrees to repair or replace any pressure gauges if returned to our factory, transportation charges prepaid, and after which examination reveals is to be defective due to faculty workmanship or material. This warrant should not apply to subject to the following terms and conditions.

- A. The product has not been subjected to misuse, neglect, abuse , accident, incorrect mounting, improper use or misapplication such as negligence, accident, vandalism, shock or vibration.
- B. The performance of any system of which HAWK's products are a component part.
- C. The product has not been exposed to any other service, range or environment of greater severity than that for which the products were designed.
- D. The product has not been altered or repaired by anyone except HAWK GAUGE or its authorized service agencies.
- E. The serial number or date code has not been removed, defaced or changed.
- F. The actual pressure&temperature occurring exceed the values specified for HAWK Process gauge.

Unless otherwise specified in a manual or warranty card, or agree to in a writing signed by HAWK GAUGE office, HAWK Process gauge products shall be warranted for two years from the date of sale.

This warranty is in lieu of all other warranties expressed or implied, and of all obligations or liabilities on its part for damages including but not limited to consequential damages, following the use of misuse of instruments sold by it. No agent is authorized to assume for it any liability except as set forth above.

Note

HAWK GAUGE CO.,LTD reserves the right to make product improvements and change its specifications at any time stated throughout this brochure without notification. Please contact the factory on all critical dimensions and specifications for verification.

HAWK GAUGE is not expert in the customer's technical field and therefore doesn't warrant suitability of it's product for the application selected by customer.



Data Sheet No: MKDP1C31A2-E