



81L Series



- Solid Front / Blow - Out Back
- Threaded or Flanged Process Connection
- Better Performance in Low Pressure and Vacuum System
- Lower Temperature Effect than Liquid Filled Actuated System
- Heavy Duty Bourdon Tube / Rotary Geared Movement

HAWK Diaphragm Pressure Gauge use a diaphragm as its sensing element which can be welded or bonded or clamped to the upper and lower housing. The diaphragm deflects upward or downward when subjecting or releasing to pressure. This variation is converted into the rotary motion of the pointer by a movement and a connecting rod. It is a alternative to a liquid filled actuated system(pressure gauge and diaphragm seal assembly). HAWK type 81L diaphragm process gauges with phenolic case are widely used for petrochemical and chemical processing industries. There is a solid wall between pressure sensing element and the window. This design provides better safety for monitoring the gauges in the event of the gauge failure.

Typical Application

- Petrochemical and chemical processing
- Offshore oil platforms & gas industries
- Industrial OEM equipments
- Power generating stations
- Food processing plants
- Energy and water treatment plants

Specifications

Dial Size

4½"(115mm)

Case&Ring

Phenol, bezel ring threaded with a gasket

Socket

316 Stainless Steel

Movement

Stainless steel movement with overload and underload stops-standard, silicon dampened movement on request

Sensing Element

Diaphragm

Window

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

Bolts

Stainless Steel

Upper Housing Material

Stainless steel 316, 304 Stainless Steel, Carbon Steel with Nickel Plated, Titanium, PTFE Coating, PFA Coating, ETFE Coating, FEP Coating, PVDF Coating, Halar Coating

Diaphragm Material

316L Stainless Steel, 304SS, Monel, Hastelloy B, Hastelloy C, Inconel, Nickel, Titanium, Tantalum, Platinum, Zirconium, PTFE Coating, PFA Coating, ETFE Coating, FEP Coating, PVDF Coating, Halar Coating, PTFE Lining

Lower Housing Material

316L Stainless Steel, 304SS, Monel, Hastelloy B, Hastelloy C, Inconel, Nickel, Titanium, Tantalum, Platinum, Zirconium, PTFE Coating, PFA Coating, ETFE Coating, FEP Coating, PVDF Coating, Halar Coating, PTFE Lining

Gasket

Telfon (Standard), Viton, Buna N

Pointer

Anodized aluminum with black finish

Accuracy

1.5% of span...Standard
1.0% of span...Option

Zero-Adjustment

Micro-adjustable pointer

Scale

PSI, Kpa, Mpa, Bar, kg/cm², inHg, cmHg, torr, mmHg, mmH₂O, mbar, inH₂O, oz./in², torr (single or dual scale)

Connection

Thread or Flange

Mounting

Stem, surface, flush mounting

Weatherproof

NEMA 3/3X(IP54)...Standard
NEMA 4/4X(IP65)...Option

Pressure Limit

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 25 bar including compound range.

Special design for high overpressure(5 times), but max 25 bar is available on request.

Features

Solid front with pressure relief back to ASME B40.1 standard that will reduce the possibility of window failure and projection of parts outward through the front of the gauge.

The stainless steel rotary geared movement reduces friction and corrosion which assures a smooth-moving pointer. Max and Min stop pin can be offered to protect against damage caused by sudden vacuum and over-pressure.

Type 81L is equipped with a pressure compensating diaphragm installed in the casing back and connected to the outer atmosphere by compensated hole.

Temperature limit

Ambient: -40 to 80°C(Dry)
-10 to 65°C(Liquid Filled)
Media: max 125°C -SS(Standard),
300°C (Optional)

Temperature effect

Accuracy of measurement will be effected by the temperature change. This inaccuracy may as high as 0.8% for 10°C temperature change.

Liquid Filled

Liquid filling of the diaphragm gauge is available. Please note that the influence of the fluid column is significant, especially for low pressure.

Option

T-Tempered safety glass lens

Q-Movement with PTFE coated gear

X-Cleaned for oxygen service

W-Electrical alarm contact

1-Improved Accuracy 1.0%(Grade 1A-ASME B40.1)

L-Laminated safety glass lens

Z-Movement with Titanium coated gear

G-Glycerine Filled

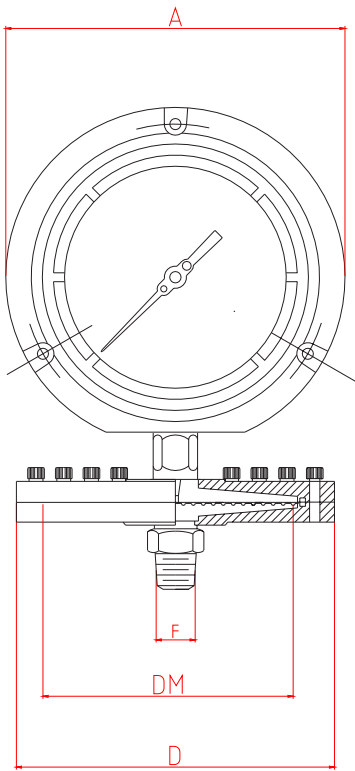
J-Maximum pointer

P-Polycarbonate lens Customer dial

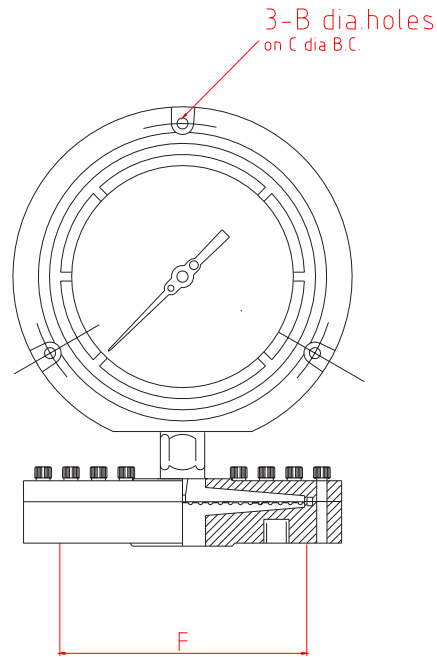
M-Dampened movement

C-Certification of calibration

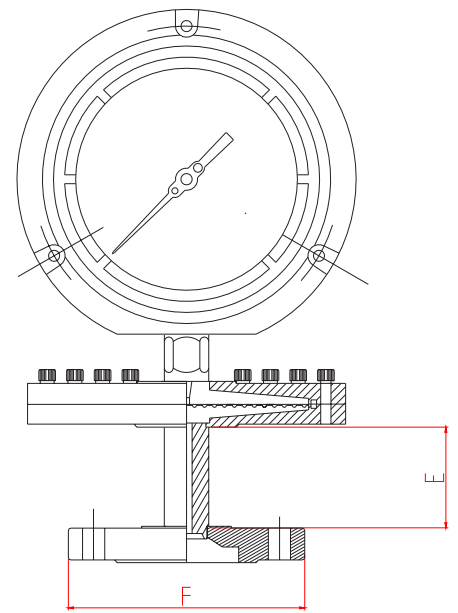
Dimensions



THREAD



FLANGE



DOUBLE FLANGE

Dimensions, in.(mm)

Type No	Dial Size	Range	DM	A	B	C	D	E	F
81L	4.5"	16...400 mbar	5.11" (130)	5.81" (148)	0.24" (6)	5.36" (137)	3.94" (100)	2.36" (60)	Thread, Flange, Double Flange
81L	4.5"	0.6...25 bar	2.95" (75)	5.81" (148)	0.24" (6)	5.36" (137)	6.30" (160)	2.36" (60)	

Thread
1/4"NPT, 3/8"NPT, 1/2"NPT, 3/4"NPT, 1"NPT, G1/2",G3/8", G1/4", R1/4", M20*1.5, M14*1.0 Male or Female

Flange
ANS1-1/2".....5", Rating-150, 300, 400, 600
DIN-DN15.....100, Rating-PN2.5-6, 10-40
JIS-10A.....100A, Rating-JIS10K, 16K, 20k, 30K, 40K

Pressure Range

- The other scales and ranges 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		Kpa		inH2O		mmH2O & mbar		oz./in2. & inH2O			
Code	Range	Code	Range	Code	Range	Code	Range	Code	Range		
P25	3	K16	2.5	J12	6	Q33	250 mbar/mmH2O	F27	6 oz./in2./inH2O		
P28	5	K19	4	J14	10	Q35	400 mbar/mmH2O	F271	9 oz./in2./inH2O		
P31	10	K21	6	J15	15	Q37	600 mbar/mmH2O	F28	12 oz./in2./inH2O		
P32	15	K23	10	J16	20	Q39	1000 mbar/mmH2O	F29	20 oz./in2./inH2O		
P33	20	K24	16	J17	25	Q40	1600 mbar/mmH2O	F30	30 oz./in2./inH2O		
P35	30	K26	25	J19	30	Q41	2000 mbar/mmH2O	F301	35 oz./in2./inH2O		
P37	40	K29	40	J20	40	Q42	2500 mbar/mmH2O	F31	60 oz./in2./inH2O		
P38	50	K31	60	J21	50	Q43	4000 mbar/mmH2O	F32	100 oz./in2./inH2O		
P39	60	K32	70	J22	60	Q44	6000 mbar/mmH2O	F33	160 oz./in2./inH2O		
P40	80	K33	100	J24	100	Q45	10000 mbar/mmH2O	F34	250 oz./in2./inH2O		

Vacuum Ranges

SINGLE SCALE				DUAL SCALE			
Kpa		inH2O		mmH2O & mbar		oz./in2. & inH2O	
Code	Range	Code	Range	Code	Range	Code	Range
KVL	-6	JVE	-10	QVM	-50 mbar/mmH2O	FVR	-6 oz./in2./inH2O
KVN	-10	JVF	-15	QVN	-60 mbar/mmH2O	FVR1	-9 oz./in2./inH2O
KVO	-16	JVG	-20	QVO	-100 mbar/mmH2O	FVS	-12 oz./in2./inH2O
KVP	-20	JVJ	-30	QVP	-150 mbar/mmH2O	FVT	-20 oz./in2./inH2O
KVQ	-25	JVM	-60	QVQ	-160 mbar/mmH2O	FVU	-30 oz./in2./inH2O
KVR	-30	JVN	-80	QVR	-200 mbar/mmH2O	FVU1	-35 oz./in2./inH2O
KVT	-40	JVO	-100	QVS	-250 mbar/mmH2O	FVV	-60 oz./in2./inH2O
KVU	-50	JVP	-150	QVU	-400 mbar/mmH2O	FVW	-100 oz./in2./inH2O
KVV	-60	JVQ	-200	QVW	-600 mbar/mmH2O	FVX	-160 oz./in2./inH2O
KVX	-100	JVR	-250	QVX	-1000 mbar/mmH2O	FVY	-250 oz./in2./inH2O

Compound Ranges

SINGLE SCALE				DUAL SCALE	
Kpa		inH2O		mmH2O & mbar	
Code	Range	Code	Range	Code	Range
KCQ	-1.25/1.25	JCL	-5/5	QCP	-5/5 mbar/mmH2O
KCR	-1.5/1.5	JCM	-10/10	QCS	-10/10 mbar/mmH2O
KCU	-2.0/2.0	JCN	-15/15	QCU	-12.5/12.5 mbar/mmH2O
KOB	-5.0/5.0	JCO	-20/20	QCW	-20/20 mbar/mmH2O
KOE	-10/10	JCP	-30/30	QOD	-50/50 mbar/mmH2O
KOK	-20/20	JCQ	-50/50	QOG	-100/100 mbar/mmH2O
KOL	-25/25	JCR	-100/100	QOK	-200/200 mbar/mmH2O
KOM	-25/40	JCS	-150/150	QON	-300/300 mbar/mmH2O
KON	-30/30	JCT	-200/200	QOO	-400/400 mbar/mmH2O
KOP	-50/50	JCU	-250/250	QOQ	-500/500 mbar/mmH2O

Order Information

Example: **P - 1E - 81L**

**D1RFDN15
A1RF150LB
J1RF10K
M2**

45

S

S

S

A

A2

Dial Sizes	Upper Housing Material	Diaphragm Material	Lower Housing Material	Mounting	Range	Connection
45-4.5" (115mm)	S -SS316 A -SS304 T -Titanium C -Carbon Steel with Nickel Plated T -Titanium Coating X1 -PTFE Coating X2 -PFA Coating X3 -ETFE Coating X4 -FEP Coating X5 -PVDF Coating X6 -Halar (ECTFE) Coating X -Material such as Tantalum/PTFE Coating= T1 316LSS/PTFE Coating= S1	E -Hastelloy B H -Hastelloy C O -Inconel M -Monel S -SS316L A -SS304 N -Nickel T -Titanium U -Tantalum Q -Platinum R -Zirconium Coating&Lining X1 -PTFE Coating X2 -PFA Coating X3 -ETFE Coating X4 -FEP Coating X5 -PVDF Coating X6 -Halar (ECTFE) Coating X7 -PTFE Lining X -Material such as Tantalum/PTFE Coating= T1 316SS/PTFE Lining= S7 316LSS/PTFE Coating= S1	E -Hastelloy B H -Hastelloy C O -Inconel M -Monel S -SS316L A -SS304 N -Nickel T -Titanium U -Tantalum Q -Platinum R -Zirconium Coating X1 -PTFE Coating X2 -PFA Coating X3 -ETFE Coating X4 -FEP Coating X5 -PVDF Coating X6 -Halar (ECTFE) Coating X7 -PTFE Lining X -Material such as Tantalum/PTFE Coating= T1 316SS/PTFE Lining= S7 316LSS/PTFE Coating= S1	A -Thread M -ANSI Single Flange H -JIS Single Flange E -DIN Single Flange L -ANSI Double Flange K -JIS Double Flange G -DIN Double Flange	A2 -0-30PSI A3 -0-60PSI A4 -0-100PSI : : : : :	Flange A1 -1/2"Pipe A2 -3/4"Pipe A3 -1"Pipe A4 -1 1/4"Pipe A5 -1 1/2"Pipe A6 -2"Pipe A7 -2 1/2"Pipe A8 -3"Pipe A9 -4"Pipe A0 -5"Pipe D1 -DN15 Pipe D2 -DN20 Pipe D3 -DN25 Pipe D4 -DN32 Pipe D5 -DN40 Pipe D6 -DN50 Pipe D7 -DIN65 Pipe D8 -DIN85 Pipe D9 -DIN100 Pipe D0 -DIN125 Pipe JJ -JIS 10A Pipe J1 -JIS 15A Pipe J2 -JIS 20A Pipe J3 -JIS 25A Pipe J4 -JIS 32A Pipe J5 -JIS 40A Pipe J6 -JIS 50A Pipe J7 -JIS 65A Pipe J8 -JIS 80A Pipe J9 -JIS 100A Pipe J0 -JIS 125A Pipe Facing RF -Raised Face FF -Flat Face RJ -Ring Joint XX -Other faces Available Rating ANSI -150,300, 400,600, 900,1500, 2500LB DIN -PN2.5-6, PN10-40, PN64-160, PN250-320, PN400

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 one 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.

