

- 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 83L** diaphragm process gauges with SS304 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.

83L Series



Typical Applications

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

Specifications

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.

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 $\pm 0.8\%$ 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.

Dial Size

4 1/2"(115mm).

Case&Ring

Stainless Steel 304 (SS316 - Option), polished bayonet ring.

Socket

316 Stainless Steel.

Movement

Stainless steel movement with overload and underload stops - Standard, Dampened movement on request.

Sensing Element

Diaphragm.

Window

Tempered safety glass - Standard, Polycarbonate or Laminated safety glass - Option.

Bolts

Stainless Steel.

Upper Housing Material

SS316, SS304, SS316L, SS316 with PTFE Coating, SS316 with Titanium Coating.

Diaphragm Material

SS316L, SS316L with Hastelloy C Foil, SS316L with Monel Foil, SS316L with Tantalum Foil, SS316L with PTFE Coating, SS316L with PTFE Coating/Tantalum Foil, SS316L with Titanium Coating, SS316L with PTFE Lining (Foil), SS316L with Titanium Coating and PTFE Foil, Steel, Steel with Nickel Plated.

Lower Housing Material

SS316, SS316L, SS304, Inconel, Monel, Titanium, Tantalum, SS316 with PTFE Coating, SS316 with Titanium Coating, SS316 with PTFE Lining, Hastelloy C/PTFE(ETFE) Coating.

Gasket

Telfon - Standard, Viton, Buna N.

Pointer

Anodized aluminum with black finish.

Accuracy

$\pm 1.5\%$ of span - Standard,
 $\pm 1.0\%$ of span - Option.

Zero-Adjustment

Micro-adjustable pointer.

Scale

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

Connection

Thread or Flange/Double Flange.

Mounting

Stem and surface mounting.

Weatherproof

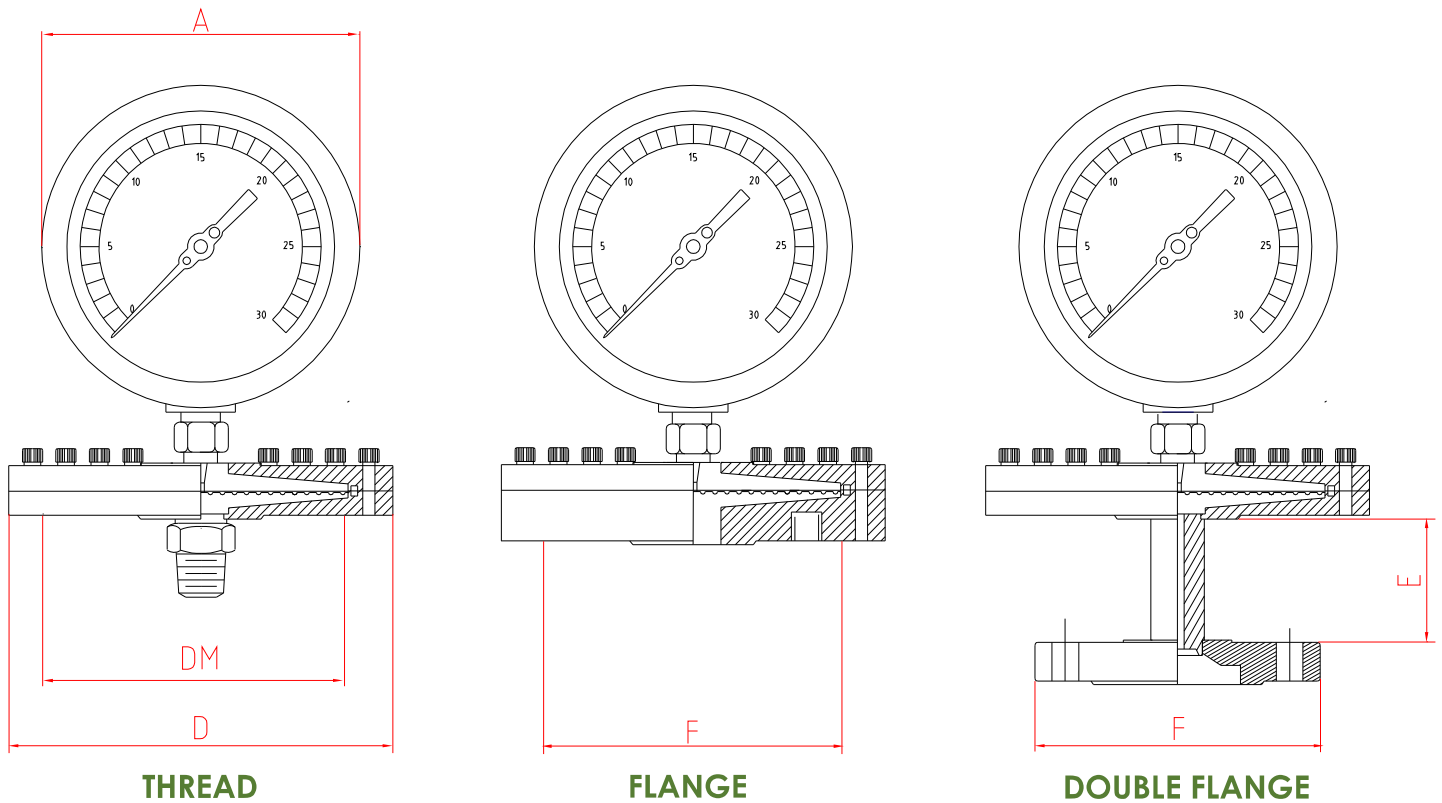
NEMA 3/3X(IP54) - Standard,
NEMA 4/4X(IP65) - Option.

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.

Dimensions



Dimensions, in.(mm)

Type No	Dial Size	Range	DM	A	B	C	D	E	F
83L	4.5"	16...400 mbar	5.11" (130)	5.81" (148)			3.94" (100)	2.36" (60)	Thread, Flange, Double Flange
83L	4.5"	0.6...25 bar	2.95" (75)	5.81" (148)			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 (DIN) are available in request.

Not all listed ranges and scales are in stock, consult your distributors for available.

Code Range

Single Scale

PRESSURE RANGES

Psi					mbar						
P21	1	P35	30	P43A	180	B12	1.6	B22	16	B31	160
P23	2	P37	40	P44	200	B13	2.0	B23	20	B32	200
P25	3	P38	50	P45	250	B14	2.5	B24	25	B33	250
P28	5	P39	60	P46	300	B15	3.0	B25	30	B34	300
P29	6	P40	80	P47	350	B16	4.0	B26	40	B35	400
P30	8	P40A	85	P48	400	B17	5.0	B27	50	B36	500
P31	10	P41	100	P48A	450	B18	6.0	B28	60	B37	600
P32	15	P42	150	P49	500	B20	10	B30	100	B39	1000
P33	20	P43	160	P50	600						

kPa					Pa				
K13	1.0	K24	16	K35	200	K42B	1400	A12A	125
K14	1.6	K25	20	K36	250	K43	1600	A14	160
K15	2.0	K26	25	K37	300	K44	2000	A15	200
K16	2.5	K27	30	K38	400	K44A	2100	A16	250
K17	3.0	K29	40	K39	500	K45	2500	A19	400
K19	4.0	K30	50	K40	600	K45A	2800	A20	500
K20	5.0	K31	60	K41	700	K46	3000	A21	600
K21	6.0	K33	100	K42	1000	K47	3500	A22	800
K23	10	K34	160	K42A	1100	K48	4000		

mmH2O					inH2O				
H3	16	H14	160	H25	1600	J3	0.5	J15	15
H4	20	H15	200	H26	2000	J5	1.0	J16	20
H5	25	H16	250	H27	2500	J7	2.0	J19	30
H6	30	H17	300	H28	3000	J9	3.0	J20	40
H8	40	H19	400	H30	4000	J10	4.0	J21	50
H9	50	H20	500	H31	5000	J11	5.0	J22	60
H10	60	H21	600	H32	6000	J12	6.0	J24	100
H12	100	H23	1000	H34	10000	J13	8.0	J25A	160
						J14	10	J26	200



VACUUM RANGES

mbar					Pa					kPa					
BV8	-1.6	BVH	-16	BVQ	-160	A12A	125	AVF	-200	KV1	-0.04	KVK	-5	KVT	-40
BV9	-2.0	BVI	-20	BVR	-200	A15	200	AVG	-250	KVD	-1.0	KVL	-6	KVU	-50
BVA	-2.5	BVJ	-25	BVS	-250	A19	400	AVJ	-400	KVE	-1.6	KVN	-10	KVV	-60
BVB	-3.0	BVK	-30	BVT	-300	A20	500	AVK	-500	KVF	-2	KVO	-16	KVW1	-80
BVC	-4.0	BVL	-40	BVU	-400	A21	600	AVM	-600	KVG	-2.5	KVP	-20	KVX	-100
BVD	-5.0	BVM	-50	BVV	-500	AVD	-150	AVN	-800	KVH	-3	KVQ	-25		
BVE	-6.0	BVN	-60	BVW	-600	AVE	-160			KVJ	-4	KVR	-30		
BVF	-10	BVO	-100	BVX	-1000										

inH2O					mmH2O										
JV3	-0.5	JVC	-6.0	JVM	-60	HV3	-16	HV9	-50	HVG	-250	HVO	-1000	HVV	-4000
JV5	-1.0	JVD	-8.0	JVN	-80	HV4	-20	HVA	-60	HVH	-300	HVQ	-1600	HVV	-5000
JV7	-2.0	JVE	-10	JVO	-100	HV5	-25	HVC	-100	HVJ	-400	HVR	-2000	HVX	-6000
JV9	-3.0	JVF	-15	JVP	-150	HV6	-30	HVE	-160	HVK	-500	HVS	-2500	HVY	-8000
JVA	-4.0	JVG	-20	JVQ	-200	HV8	-40	HVF	-200	HVM	-600	HVT	-3000	HVZ	-10000
JVB	-5.0	JVJ	-30	JVR	-250										

Pressure Range

Single Scale

COMPOUND RANGES	mbar			Pa			Kpa																																						
	BCH -1/+1	BCO -4/+6	BOC -50/+50	ACR -125/+125	KCL1 -0.6/+1	KCV -2.5/+2.5	KOL -25/+25	BCI -1/+1.6	BCP -5/+5	BOE -80/+80	ACT -200/+200	KCM -0.5/+0.5	KOB -5/+5	KOM -25/+40	BCJ -1.25/+1.25	BCQ -6/+10	BOF -100/+100	ACU -250/+250	KCO -1/+1	KOD -8/+8	KON -30/+30	BCK -1.6/+2.5	BCS -10/+10	BOJ -200/+200	ACW -300/+300	KCQ -1.25/+1.25	KOE -10/+10	KOP -50/+50	BCL -2/+2	BCW -20/+20	BOK -250/+250	KCR -1.5/+1.5	KOI -16/+25		BCM -2.5/+4	BCX -25/+25	BOM -300/+300	KCU -2/+2	KOK -20/+20		BCN -3/+3	BOA -30/+30	BOP -500/+500		

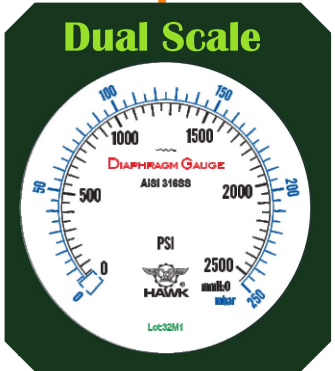
COMPOUND RANGES	mmH2O			inH2O																																															
	HCB -6/+10	HCK -30/+30	HCT -200/+200	HOB -1000/+1000	JCE -0.5/+0.5	JCK -4/+4	JCQ -50/+50	HCC -8/+8	HCL -40/+60	HCU -250/+250	HOF -2000/+2000	JCF -1/+1	JCL -5/+5	JCR -100/+100	HCD -10/+10	HCM -50/+50	HCV -250/+400	HOI -3000/+3000	JCG -1.5/+1.5	JCM -10/+10	JCS -150/+150	HCE -10/+16	HCN -60/+100	HCW -200/+200	HOJ -5000/+5000	HCH -20/+20	HCP -100/+100	HCX -250/+250		JCH -2/+2	JCN -15/+15	JCT -200/+200	HCG -16/+25	HCP -100/+100	HCX -250/+250		JCI -2.5/+2.5	JCO -20/+20	JCU -250/+250	HCH -20/+20	HCQ -60/+100	HCY -500/+500		JCJ -3/+3	JCP -30/+30		HCH -20/+20	HCS -100/+100	HOA -800/+800		

Dual Scale

PRESSURE RANGES	mbar/mmH2O		oz./in2./inH2O	
	Q22 16	Q35 400	F27 6	
Q23 20	Q37 600	F271 9		
Q24 25	Q39 1000	F28 12		
Q26 40	Q40 1600	F29 20		
Q28 60	Q41 2000	F30 30		
Q30 100	Q42 2500	F301 35		
Q31A 160	Q43 4000	F31 60		
Q32 200	Q44 6000	F32 100		
Q33 250	Q45 10000	F33 160		
		F34 250		

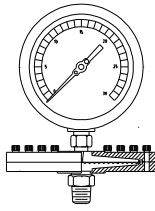
COMPOUND RANGES	mbar/mmH2O	
	QCP -5/+5	
QCQ -6/+10		
QCS -10/+10		
QCU -12.5/+12.5		
QCW -20/+20		
QCY -25/+20		
QOD -50/+50		
QOG -100/+100		
QOK -200/+200		
QOL -250/+250		
QON -300/+300		
QOO -400/+400		
QOQ -500/+500		

VACUUM RANGES	mbar/mmH2O		oz./in2./inH2O	
	QVH -16	QVQ -160	FVR -6	
QVI -20	QVR -200	FVR1 -9		
QVJ -25	QVS -250	FVS -12		
QVB -30	QVT -300	FVT -20		
QVL -40	QVU -400	FVU -30		
QVM -50	QVV -500	FVU1 -35		
QVN -60	QVW -600	FVV -60		
QVO -100	QVX -1000	FVW -100		
		FVX -160		
		FVY -250		



Order Information

Example: For Thread



Dial Size		Diaphragm Material	Upper Housing Material	Lower Housing Material	Connection Mounting	Process Connection	Range	Option	
P - 1E - 83L		45	W	S	S	A	M 2	P41	H- ZT
45-4 1/2"(115mm)									
W-SS316L H-SS316L with Hastelloy C Foil M-SS316L with Monel Foil U-SS316L with Tantalum Foil C-Steel N-Steel with Nickel Plated		1-SS316L with PTFE Coating 3-SS316L with PTFE Coating/Tantalum Foil 6-SS316L with Titanium Coating 7-SS316L with PTFE Lining (Foil) 8-SS316L with Titanium Coating and PTFE Foil							
S-SS316 1-SS316 with PTFE Coating		A-SS304 6-SS316 with Titanium Coating		W-SS316L					
S-SS316 A-SS304 O-Inconel M-Monel		W-SS316L T-Titanium U-Tantalum		1-SS316 with PTFE Coating 2-Hastelloy C/PTFE(ETFE) Coating 6-SS316 with Titanium Coating 7-SS316 with PTFE Lining					
A-Thread									
F-Female				M-Male					
2-1/2"NPT	4-1/4"NPT	D-G 1/2"	E-G 1/4"	J-M20*1.5	K-M14*1.5				
P41-0-100PSI	P44-0-200PSI	P46-0-300PSI	Please refer to the range table and write down the code you need.						
			Vacuum	Compound	Pressure				
ZT-Tempered Safety Glass Lens		ZG-Glycerine Filled	Z3-316SS Case	Other options please check the next page					

Catch All You Need



Catch All You Need



Catch All You Need

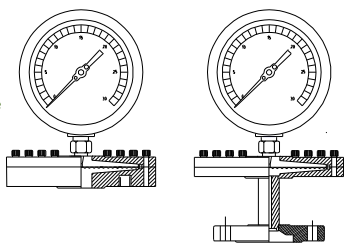


Catch All You Need



Order Information

Example: For **Flange** and **Double Flange**



P - 1E - 83L

Dial Size

45

Diaphragm Material

W

Upper Housing Material

S

Lower Housing Material

S

Mounting

F

Connection

Rate

Size

Face

Process Flange

Range

Option

A

3

R

P41

H-

ZT

45-4.5"(115mm)

W-SS316L 1-SS316L with PTFE Coating
H-SS316L with Hastelloy C Foil 3-SS316L with PTFE Coating/Tantalum Foil
M-SS316L with Monel Foil 6-SS316L with Titanium Coating
U-SS316L with Tantalum Foil 7-SS316L with PTFE Lining (Foil)
C-Steel 8-SS316L with Titanium Coating and PTFE Foil
N-Steel with Nickel Plated

S-SS316 A-SS304 W-SS316L
1-SS316 with PTFE Coating 6-SS316 with Titanium Coating

S-SS316 W-SS316L 1-SS316 with PTFE Coating
A-SS304 T-Titanium 2-Hastelloy C/PTFE(ETFE) Coating
O-Inconel U-Tantalum 6-SS316 with Titanium Coating
M-Monel 7-SS316 with PTFE Lining

F-Flange D-Double Flange

ANSI	A-150LB	B-300LB	C-400LB	D-600LB	E-900LB	F-1500LB	G-2500LB
DIN	H-PN2.5 O-PN64	I-PN4.0 P-PN100	K-PN10 Q-PN160	L-PN16 R-PN250	M-PN25 S-PN320	N-PN40 T-PN400	
JIS	U-PN 5K	V-PN 10K	W-PN 20K	X-PN 40K	Y-PN 63K		
HG20615-97	1-150LB(PN2.0)	2-300LB(PN5.0)	3-600LB(PN11)	4-900LB(PN15)	5-1500LB(PN26)	6-2500LB(PN42)	
HG20592-97	1-PN0.25, PN0.4	2-PN0.6	3-PN1.0, 1.6	4-PN2.5, 4.0	5-PN6.3		

ANSI, DIN, HG20615, JIS	2-3/4"(DN20) 7-2 1/2"(DN65)	3-1"(DN25) 8-3"(DN80)	4-1 1/4"(DN32) 9-4"(DN100)	5-1 1/2"(DN40) 0-5"(DN125)	6-2"(DN50)
HG20592, PN0.25, 0.6, 1.02.5, 6.3, 10, 16	B-DN20 G-DN65	C-DN25 H-DN80	D-DN32 I-DN100	E-DN40 J-DN125	F-DN50
PN0.4, 1.6, 4.0	L-DN20 Q-DN65	M-DN25 R-DN80	N-DN32 S-DN100	O-DN40 T-DN125	P-DN50

R-RF(Raise Face) O-SMF(Small Male Face) G-LGF(Large Groove Face) F-FF(Flat Face)
M-LMF(Large Male Face) P-SFF(Small Female Face) A-STF(Small Tongue Face) J-RJ(Ring Joint Face)
N-LFF(Large Female Face) L-LTF(Large Tongue Face) B-SGF(Small Groove Face)

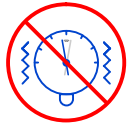
P41-0-100PSI P44-0-200PSI P46-0-300PSI Please refer to the range table and write down the code you need. Vacuum Compound Pressure

ZT-Tempered Safety Glass Lens ZG-Glycerine Filled Z3-316SS Case Other options please check the next page

Option



- ZC** Certificate of Accuracy (Factory)
- Z1** Improved Accuracy 1% (Grade A-ASME B40.1)
- ZI** Certificate of Accuracy (NIST)
- ZE** Certificate of Accuracy (TAF)



- ZG** Glycerine Filled
- ZH** Halocarbon Filled
- ZS** Silicone Filled
- ZO** Fluorolube Filled
- ZM** Dampened Movement



- ZX** Cleaned for Oxygen Service (Use No Oil)

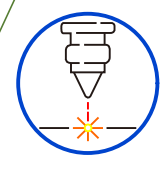


- ZN** Complied to NACE

Stainless Steel Tag Plate



ZY



0Q

Customized Laser Mark

Green Set Hand (Window)

07



06

Red Set Hand (Window)

ZQ

Movement with PTFE or Titanium Coated Gear



Green Set Hand (Dial)

04



0A

Red Set Hand (Dial)

FCFC Painting

0J



1

PTFE Coating



Electrical Alarm Contract

ZW



ZJ

Maximum Pointer



Stop Pin at 6 O'clock

0M



0P

Stop Pin



Polycarbonate Lens

ZP



ZT

Tempered Safety Glass Lens

ZL

Laminated Safety Glass Lens

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.



Data Sheet No: MKDP1E83A2-E