



PM-2000

Magnehelic® - Differential Pressure Gauge for Gases

Description:

The PM-2000 differential pressure gauge used in thousands operates according to the Magnehelic principle. In this, the rear side of a membrane is loaded with the positive while the front side of the membrane is loaded with the negative connection to a differential pressure which causes a mechanical deflection. The membrane is equipped with a U-shaped permanent magnet where its mechanical movement is transferred without touch to a similarly magnetic helix at the end of which directly the indicator of PM-2000 is located. The membrane deflection is, therefore, directly proportional to the indicator movement and the operating range only depends on the membrane's material properties. During such transfer of movement there are no losses due to friction; with the result even the smallest differences in pressure can be captured. The movement and the scale are located in an extremely robust aluminium housing that is suitable for mounting on a switch panel. The indicator made of aluminium has a red, clearly visible tip and is sapphire-mounted to withstand shocks. The housings are fitted with an overpressure plug made of silicon rubber for protection against overpressure in models capable up to 100 kPa. The indicator stoppers are made of rubber which prevent damage to the indicator in case of wide deflections. In every PM-2000, the user can readjust the zero point for the device by means of a setting screw that is mounted directly in the plastic cover.

Application:

The PM-2000 differential pressure gauges are used in large numbers for monitoring air filters and air speeds. Their unique construction allows measurement of even the smallest variations in pressures in fans and blowers, blood or respiratory pressures, overpressure in rows of chimneys, pressure drop in pressure plates and in many other situations. The extraordinarily robust construction with high degree of accuracy and variety of operating ranges and units are combined in an affordable product. Optionally, customer-specific scale types, adjustable marking indicators, limiting value display by means of LEDs and a wide choice of accessories are available. The delivery includes tube bushings for connecting to NPT-female of the housing and a complete set of accessories for mounting on a switch panel.



Features

- / Proven and renowned technology
- / Resistant to shocks and vibrations
- / Accuracy class 2%
- / All common operating ranges and units
- / Ideally suited for filter monitoring
- / Panel mounting

Operating Range Tables /

Model number	Range inch water column	Smallest setting
2000...00N ^{1,2}	0.05...0...0.2	0.005
2000...00 ^{1,2}	0...0.25	0.005
2000...0 ^{1,3}	0...0.5	0.010
2001	0...1.0	0.020
2002	0...2.0	0.050
2003	0...3.0	0.100
2004	0...4.0	0.100
2005	0...5.0	0.100
2006	0...6.0	0.200
2008	0...8.0	0.200
2010	0...10	0.200
2012	0...12	
2015	0...15	0.500
2020	0...20	0.500
2025	0...25	0.500
2030	0...30	1.000
2040	0...40	1.000
2050	0...50	1.000
2060	0...60	2.000
2080	0...80	2.000
2100	0...100	2.000
2120	0...120	
2150	0...150	5.000
2160	0...160	
2180*	0...180	
2250*	0...250	

Model number	Range mm water column	Smallest setting
2000...6MM ^{1,2}	0...6	0.200
2000...10MM ^{1,3}	0...10	0.200
2000...15MM	0...15	
2000...25MM	0...25	0.500
2000...30MM	0...30	
2000...50MM	0...50	1.000
2000...80MM	0...80	2.000
2000...100MM	0...100	2.000
2000...125MM	0...125	
2000...150MM	0...150	
2000...200MM	0...200	
2000...250MM	0...250	
2000...300MM	0...300	

Model number	Range PSI	Smallest setting
2201	0...1	0.020
2202	0...2	0.050
2203	0...3	0.100
2204	0...4	0.100
2205	0...5	0.100
2210*	0...10	0.200
2215*	0...15	0.500
2220*	0...20	0.500
2230**	0...30	1.000

Model number	Range inch water column	Range Pa	Range kPa
2000...00D ^{1,2}	0...25	0...62 Pa	
2000...0D ^{1,3}	0...0.5	0...125 Pa	
2001D	0...1.0	0...250 Pa	
2002D	0...2.0	0...500 Pa	
2003D	0...3.0	0...750 Pa	
2004D	0...4.0		0...1.0 kPa
2005D	0...5.0		0...1.25 kPa
2006D	0...6.0		0...1.5 kPa
2008D	0...8.0		0...2.0 kPa
2010D	0...10		0...2.5 kPa
2015D	0...15		0...3.7 kPa
2020D	0...20		0...5 kPa
2025D	0...25		0...6.2 kPa
2050D	0...50		0...12.4 kPa
2060D	0...60		0...15 kPa

Units with double scale for air speeds /

Model number	Range inch water column	Range air velocity F.P.M.
2000...00AV ^{1,2}	0...0.25	300...2000
2000...0AV ^{1,3}	0...0.50	500...2800
2001AV	0...1.0	500...4000
2002AV	0...2.0	1000...5600
2005AV	0...5.0	2000...8800
2010AV	0...10	2000...12500

Zero Center Ranges /

Model number	Range zero center mm water column	Smallest setting
2300...6MM ^{1,2}	3...0...3	
2300...10MM ^{1,3}	5...0...5	
2300...20MM ^{1,3}	10...0...10	

Model number	Range zero center inch water column	Smallest setting
2300...00 ^{1,2}	0.125...0...0.125	
2300...0 ^{1,3}	0.25...0...0.25	0.010
2301	0.5...0...0.5	0.020
2302	1...0...1	0.050
2304	2...0...2	0.100
2310	5...0...5	0.200
2320	10...0...10	0.500
2330	15...0...15	1.000



Model number	Range cm water column	Smallest setting
2000..15CM	0..15	0.500
2000..20CM	0..20	0.500
2000..25CM	0..25	0.500
2000..50CM	0..50	1.000
2000..80CM	0..80	2.000
2000..100CM	0..100	2.000
2000..150CM	0..150	5.000
2000..200CM	0..200	5.000
2000..250CM	0..250	5.000
2000..300CM	0..300	10.000

Zero Center Ranges /

2300..4CM	2..0..2	0.100
2300..10CM	5..0..5	0.200
2300..30CM	15..0..15	1.000

Model number	Range kPascal	Smallest setting
2000..0.5KPA	0..0.5	
2000..1KPA	0..1	0.020
2000..1.5KPA	0..1.5	0.050
2000..2KPA	0..2	0.050
2000..2.5KPA	0..2.5	
2000..3KPA	0..3	0.100
2000..4KPA	0..4	0.100
2000..5KPA	0..5	0.100
2000..8KPA	0..8	0.200
2000..10KPA	0..10	0.200
2000..15KPA	0..15	0.500
2000..20KPA	0..20	0.500
2000..25KPA	0..25	0.500
2000..30KPA	0..30	1.000

Zero Center Ranges /

2300..1KPA	0.5..0..0.5	0.020
2300..2KPA	1..0..1	
2300..2.5KPA	1.25..0..1.25	
2300..3KPA	1.5..0..1.5	0.100

Model number	Range Pascal	Smallest setting
2000..60NPA ^{1,2}	10..0..50	
2000..60PA ^{1,2}	0..60	1.000
2000..100PA ^{1,3}	0..100	2.000
2000..125PA ^{1,3}	0..125	5.000
2000..250PA	0..250	5.000
2000..300PA	0..300	10.000
2000..500PA	0..500	10.000
2000..750PA	0..750	25.000
2000..1000PA	0..1000	

Zero Center Ranges /

2300..60PA ^{1,2}	30..0..30	1.000
2300..100PA ^{1,2}	50..0..50	2.000
2300..120PA	60..0..60	2.000
2300..200PA	100..0..100	
2300..250PA	125..0..125	5.000
2300..300PA	150..0..150	
2300..500PA	250..0..250	10.000
2300..1000PA	500..0..500	

- 1 Calibrated for vertical mounting
- 2 Accuracy ± 4%
- 3 Accuracy ± 3%
- * Option MP
- ** Option HP



Versions:

Operating range /

A large number of operating ranges and physical units are available. All standard variants are listed in the table "Operating ranges". Please enquire for special type operating ranges.

Options /

CB Chrome bezel option: A chrome plated aluminum bezel for an aesthetically pleasing finish when mounting on metal surfaces such as control panels

SB Stainless steel bezel option: 304 stainless steel electro polished Ra 16 finished bezel

SS Corrosion resistant brushed 304 stainless steel bezel

G Green Transparent Overlay
(to highlight and emphasize critical pressures)

R Red Transparent Overlay
(to highlight and emphasize critical pressures)

Y Yellow Transparent Overlay
(to highlight and emphasize critical pressures)

ASF Additional features for the indicator with an adjustable marking signal flag

HP Overpressure safety up to 80 psi (5.52 bar) ensured by a thicker housing. A 4 13/16" – board cutout is necessary for assembly as against the standard cutout (4 9/16").

LT Media temperatures up to -28°C possible as against the standard up to -6.67°C.

MP Overpressure safety up to 35 psi (2.41 bar) ensured by a thicker housing. A 4 13/16" – board cutout is necessary for assembly as against the standard cutout (4 9/16").

SP An LED on the scale alerts if the limiting value that can be set from the front exceeds. The unit requires a power supply of 12 to 24 VDC and an MP- or HP housing.

SSK A large number of special type scales are available on request.

HA High Accuracy Magnehelic® Gage. Accuracy within 1% and weatherproof. Also includes mirrored scale overlay and a six point calibration certificate.

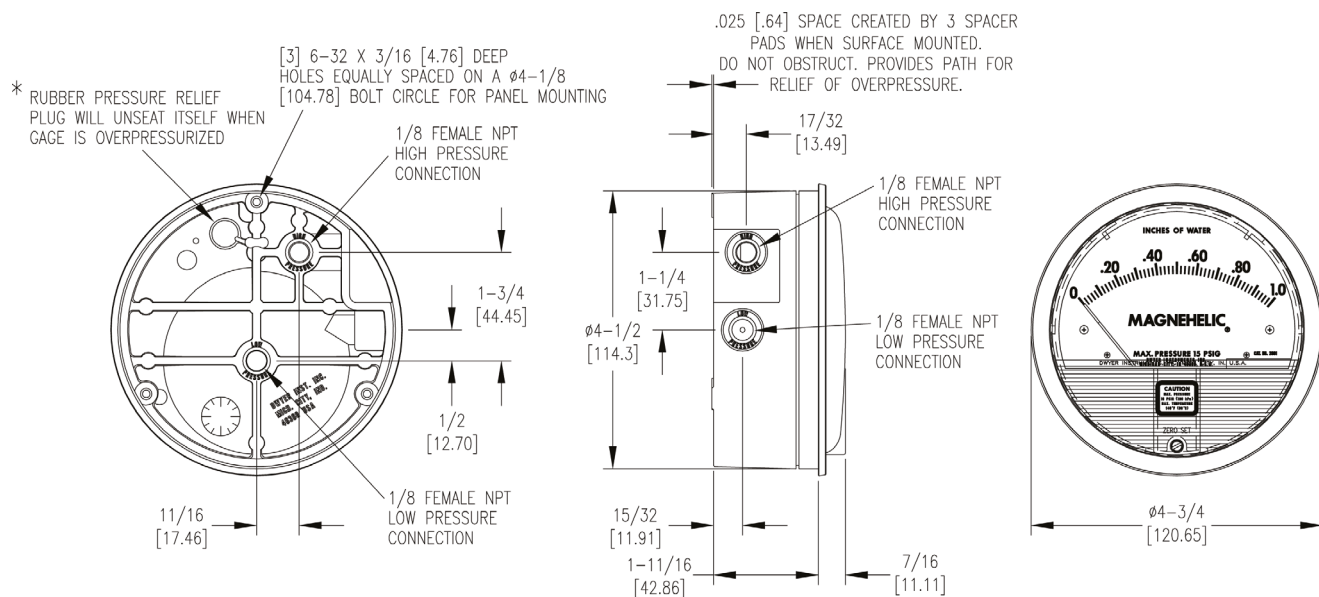
AHU1 Furnished with attached surface mounting plate.

AHU2 Furnished with attached surface mounting plate and including A-481 installer kit (2 plastic static pressure tips and 7' of PVC tubing).

M A mirrored scale overlay is also available to assist in reducing parallax error.

FC Factory calibration certificate.

NIST NIST traceable calibration certificate.





Technical Specifications:

Media /	air and non-hostile and non-inflammable gases (optionally version for natural gases on request)
Housing /	aluminium casting, iridite-immersed external machining burnt-in dark gray forging
Accuracy /	± 2% F.S. in the entire range at 21°C (restrictions see operating range table)
Weight /	510 g (HP- and MP-models 963 g)
Pressure /	-0.677 bar to 1.034 bar maximum static pressure (2.41 bar in the MP option, 5.52 bar in the HP option)
Overpressure /	blow out plug opens at approx. 1.72 bar (only in standard devices)
Temperature /	-6.67...+60°C (-28°C for option LT)
Mounting position /	vertical, scale towards the front
Process connection /	2 x 1/8"-NPT-female, one pair of connections on the side, one additionally at the back (closure plugs for one pair supplied)
Zero point /	can be set with the correction screw from the front

Ordering Codes:

Order number **PM-2000. 2300-250PA. ASF**

PM-2000 Magnehelic®

Operating range, refer to model number in the table for operating ranges:

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Options /

- CB = Aluminium bezel, coated with chrome
- SB = st. steel bezel 304, electropolished
- SS = st. steel bezel 304, corrosion resistant, brushed
- G = green sight glass
- R = red sight glass
- Y = yellow sight glass
- ASF = marking indicator can be set
- HP = highly safe on overpressure
- LT = for lower temperatures down to -28°C
- MP = medium safe on overpressure
- SP = LED for setpoint display (no output)
- SSK = special type scale with coloured marking (ret, green, mirror) on request
- HA = high accuracy, weatherproof, mirrored scale 6 point calib. certificate
- AHU1 = furnished with attached surface mounting plate
- AHU2 = like AHU1, but additional 2 plastic static pressure tips and 7" of PVC tubing
- M = mirrored scale overlay
- FC = factory calibration certificate
- NIST = NIST traceable calibration certificate

