

Dwyer

SERIES 2000

MAGNEHELIC® DIFFERENTIAL PRESSURE GAGES

Indicate Positive, Negative or Differential, Accurate within 1%

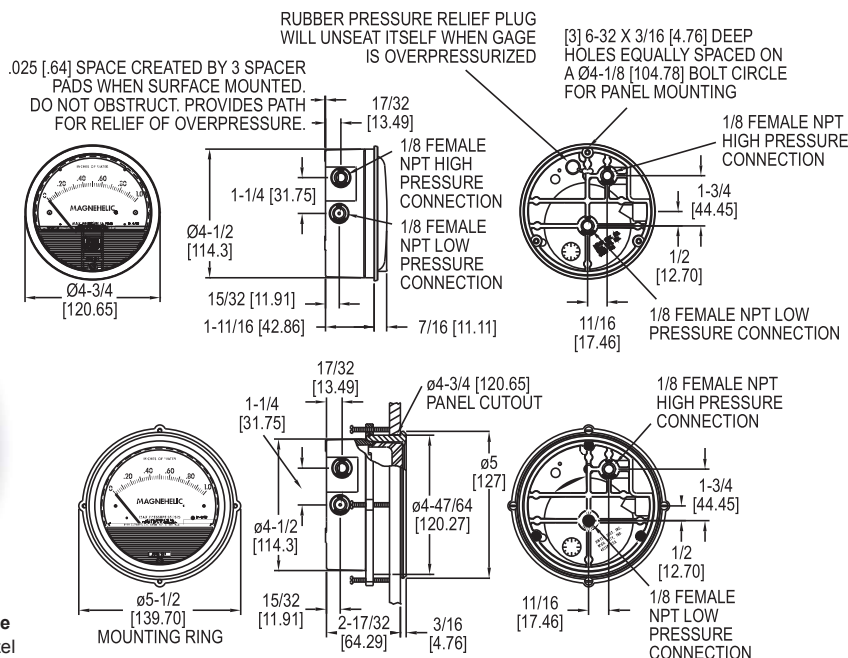


Standard Magnehelic® Gage



High Accuracy Magnehelic® Gage

Note: Shown with optional -SS bezel



Select the **SERIES 2000** Magnehelic® Gage for a versatile low differential pressure gage with a wide choice of 81 models and 27 options to choose from. Using Dwyer's simple, frictionless Magnehelic® gage movement, it quickly indicates air or non-corrosive gas pressures—either positive, negative (vacuum) or differential. The design resists shock, vibration, over-pressures and is weatherproof to IP67.

Select the -HA High Accuracy Magnehelic® gage option for an accuracy within 1% of full scale. Also included with the -HA option at no extra cost are a mirrored scale overlay and a 6 point calibration certificate.

FEATURES/BENEFITS

- Easy to read gage through undistorted plastic face permits viewing from far away
- Patented design provides quick response to pressure changes means no delay in assessing critical situations
- Durable and rugged housing and high-quality components combine to provide long-service life and minimized down-time
- High accuracy option is twice as accurate as the standard Magnehelic® gage

APPLICATIONS

- Filter monitoring
- Air velocity with Dwyer pitot tube
- Blower vacuum monitoring
- Fan pressure indication
- Duct, room or building pressures
- Clean room positive pressure indication

ACCESSORIES

Model	Description
A-432	Portable kit; combine carrying case with any Magnehelic® gage of standard range, except high pressure connection. Includes 9 ft (2.7 m) of 3/16" ID rubber tubing, standhang bracket and terminal tube with holder
A-605	Air filter gage accessory kit; adapts any standard Magnehelic® gage for use as an air filter gage. Includes aluminum surface mounting bracket with screws, two 5 ft (1.5 m) lengths of 1/4" aluminum tubing, two static pressure tips and two molded plastic vent valves, integral compression fittings on both tips and valves
A-605B	Air filter gage accessory kit; air filter kit with two plastic open/close valves, two 4" steel static tips, plastic tubing and mounting flange
A-605C	Air filter gage accessory kit; air filter kit with two plastic open/close valves, two plastic static tips, plastic tubing and mounting flange

SPECIFICATIONS

Service: Air and non-combustible, compatible gases (natural gas option available). **Note:** May be used with hydrogen. Order a Buna-N diaphragm. Pressures must be less than 35 psi.

Wetted Materials: Consult factory.

Housing: Die cast aluminum case and bezel, with acrylic cover. Exterior finish is coated gray to withstand 168 hour salt spray corrosion test.

Accuracy: $\pm 2\%$ (-HA model $\pm 1\%$) of FS ($\pm 3\%$ (-HA $\pm 1.5\%$) on -0, -100PA, -125PA, -10MM and $\pm 4\%$ (-HA $\pm 2\%$) on -00, -60PA, -6MM ranges), throughout range at 70°F (21.1°C).

Pressure Limits: -20 in Hg to 15 psig (-0.677 to 1.034 bar); MP option: 35 psig (2.41 bar); HP option: 80 psig (5.52 bar).

Enclosure Rating: IP67.

Overpressure: Relief plug opens at approximately 25 psig (1.72 bar), standard gages only. **ⓘ**

Temperature Limits: 20 to 140°F* (-6.67 to 60°C). -20°F (-28°C) with low temperature option.

Size: 4" (101.6 mm) diameter dial face.

Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.

Process Connections: 1/8" female NPT duplicate high and low pressure taps - one pair side and one pair back.

Weight: 1 lb 2 oz (510 g), MP & HP 2 lb 2 oz (963 g).

Standard Accessories: Two 1/8" NPT plugs for duplicate pressure taps, two 1/8" pipe thread to rubber tubing adapter, and three flush mounting adapters with screws. (Mounting and snap ring retainer substituted for three adapters in MP & HP gage accessories.)

Agency Approvals: Meets the technical requirements of EU Directive 2011/65/EU (RoHS II). **Note:** -SP models not RoHS approved.

Note: For applications with high cycle rate within gage total pressure rating, next higher rating is recommended. See Medium and High pressure options.

*Low temperature models available as special options.



A-432



A-605

ⓘ Over Protection Note: See page 21 (Series 2000)

MAGNEHELIC® DIFFERENTIAL PRESSURE GAGES

Indicate Positive, Negative or Differential, Accurate within 1%

Bezel provides flange for flush mounting in panel.

Clear plastic face is highly resistant to breakage. Provides undistorted viewing of pointer and scale.

Precision litho-printed scale is accurate and easy to read.

Calibrated range spring is flat spring steel. Small amplitude of motion assures consistency and long life. It reacts to pressure on diaphragm. Live length adjustable for calibration.

Red tipped pointer of heat treated aluminum tubing is easy to see. It is rigidly mounted on the helix shaft.

Pointer stops of molded rubber prevent pointer over-travel without damage.

"Wishbone" assembly provides mounting for helix, helix bearings and pointer shaft.

Jeweled bearings are shock-resistant mounted; provide virtually friction-free motion for helix. Motion damped with high viscosity silicone fluid.

Helix is precision made from an alloy of high magnetic permeability. Mounted in jeweled bearings, it turns freely, following the magnetic field to move the pointer across the scale.

Zero adjustment screw is conveniently located in the plastic cover, and is accessible without removing cover. O-ring seal provides pressure tightness.

O-ring seal for cover assures pressure integrity of case.

OVERPRESSURE PROTECTION

Blowout plug is comprised of a rubber plug on the rear which functions as a relief valve by unseating and venting the gage interior when over pressure reaches approximately 25 psig (1.7 bar). To provide a free path for pressure relief, there are four spacer pads which maintain 0.023" clearance when gage is surface mounted. Do not obstruct the gap created by these pads.

The blowout plug is not used on models above 180" of water pressure, medium or high pressure models, or on gages which require an elastomer other than silicone for the diaphragm.

The blowout plug should not be used as a system overpressure control. High supply pressures may still cause the gage to fail due to over pressurization, resulting in property damage or serious injury. Good engineering practices should be utilized to prevent your system from exceeding the ratings of any component.

Die cast aluminum case is precision made and iridite-dipped to withstand 168 hour salt spray corrosion test. Exterior finished in baked dark gray hammerloid. One case size is used for all standard pressure options, and for both surface and flush mounting.

Silicone rubber diaphragm with integrally molded O-ring is supported by front and rear plates. It is locked and sealed in position with a sealing plate and retaining ring. Diaphragm motion is restricted to prevent damage due to overpressures.

Samarium Cobalt magnet mounted at one end of range spring rotates helix without mechanical linkages.

MODEL CHART

Model	Range, Inches of Water	Model	Range, PSI	Model	Range, MM of Water	Model	Range, kPa	Dual Scale Air Velocity Units For use with pitot tube	
2000-00N†	0.05-0.2	2201	0-1	2000-6MM†	0-6	2000-0.5KPA	0-0.5	Model	Range, in w.c./ Velocity F.P.M.
2000-00†	0-25	2202	0-2	2000-10MM†	0-10	2000-1KPA	0-1		
2000-0†	0-50	2203	0-3	2000-15MM	0-15	2000-1.5KPA	0-1.5	2000-00AV†	0-25/ 300-2000
2001	0-1.0	2204	0-4	2000-25MM	0-25	2000-2KPA	0-2		
2002	0-2.0	2205	0-5	2000-30MM	0-30	2000-2.5KPA	0-2.5	2000-0AV†	0-50/ 500-2800
2003	0-3.0	2210*	0-10	2000-50MM	0-50	2000-3KPA	0-3		
2004	0-4.0	2215*	0-15	2000-80MM	0-80	2000-4KPA	0-4	2001AV	0-1.0/ 500-4000
2005	0-5.0	2220*	0-20	2000-100MM	0-100	2000-5KPA	0-5		
2006	0-6.0	2230**	0-30	2000-125MM	0-125	2000-8KPA	0-8	2002AV	0-2.0/ 1000-5600
2008	0-8.0			2000-150MM	0-150	2000-10KPA	0-10		
2010	0-10			2000-200MM	0-200	2000-15KPA	0-15	2005AV	0-5.0/ 2000-8800
2012	0-12			2000-250MM	0-250	2000-20KPA	0-20		
2015	0-15			2000-300MM	0-300	2000-25KPA	0-25	2010AV	0-10/ 2000-12500
2020	0-20					2000-30KPA	0-30		
2025	0-25								
2030	0-30								
2040	0-40								
2050	0-50								
2060	0-60								
2080	0-80								
2100	0-100								
2120	0-120								
2150	0-150								
2160	0-160								
2180*	0-180								
2250*	0-250								
Zero Center Ranges		Zero Center Ranges		Zero Center Ranges		Zero Center Ranges		Zero Center Ranges	
2300-00†	0.125-0.125	2300-0†	0.25-0.25	2300-0†	0.125-0.125	2300-0†	0.25-0.25	2300-0†	0.125-0.125
2301	5-0-5	2302	1-0-1	2303	2-0-2	2304	5-0-5	2305	10-0-10
2306	15-0-15	2307	15-0-15	2308	15-0-15	2309	15-0-15	2310	15-0-15
2311	15-0-15	2312	15-0-15	2313	15-0-15	2314	15-0-15	2315	15-0-15
2316	15-0-15	2317	15-0-15	2318	15-0-15	2319	15-0-15	2320	15-0-15
2321	15-0-15	2322	15-0-15	2323	15-0-15	2324	15-0-15	2325	15-0-15
2326	15-0-15	2327	15-0-15	2328	15-0-15	2329	15-0-15	2330	15-0-15
2331	15-0-15	2332	15-0-15	2333	15-0-15	2334	15-0-15	2335	15-0-15
2336	15-0-15	2337	15-0-15	2338	15-0-15	2339	15-0-15	2340	15-0-15
2341	15-0-15	2342	15-0-15	2343	15-0-15	2344	15-0-15	2345	15-0-15
2346	15-0-15	2347	15-0-15	2348	15-0-15	2349	15-0-15	2350	15-0-15
2351	15-0-15	2352	15-0-15	2353	15-0-15	2354	15-0-15	2355	15-0-15
2356	15-0-15	2357	15-0-15	2358	15-0-15	2359	15-0-15	2360	15-0-15
2361	15-0-15	2362	15-0-15	2363	15-0-15	2364	15-0-15	2365	15-0-15
2366	15-0-15	2367	15-0-15	2368	15-0-15	2369	15-0-15	2370	15-0-15
2371	15-0-15	2372	15-0-15	2373	15-0-15	2374	15-0-15	2375	15-0-15
2376	15-0-15	2377	15-0-15	2378	15-0-15	2379	15-0-15	2380	15-0-15
2381	15-0-15	2382	15-0-15	2383	15-0-15	2384	15-0-15	2385	15-0-15
2386	15-0-15	2387	15-0-15	2388	15-0-15	2389	15-0-15	2390	15-0-15
2391	15-0-15	2392	15-0-15	2393	15-0-15	2394	15-0-15	2395	15-0-15
2396	15-0-15	2397	15-0-15	2398	15-0-15	2399	15-0-15	2400	15-0-15
2401	15-0-15	2402	15-0-15	2403	15-0-15	2404	15-0-15	2405	15-0-15
2406	15-0-15	2407	15-0-15	2408	15-0-15	2409	15-0-15	2410	15-0-15
2411	15-0-15	2412	15-0-15	2413	15-0-15	2414	15-0-15	2415	15-0-15
2416	15-0-15	2417	15-0-15	2418	15-0-15	2419	15-0-15	2420	15-0-15
2421	15-0-15	2422	15-0-15	2423	15-0-15	2424	15-0-15	2425	15-0-15
2426	15-0-15	2427	15-0-15	2428	15-0-15	2429	15-0-15	2430	15-0-15
2431	15-0-15	2432	15-0-15	2433	15-0-15	2434	15-0-15	2435	15-0-15
2436	15-0-15	2437	15-0-15	2438	15-0-15	2439	15-0-15	2440	15-0-15
2441	15-0-15	2442	15-0-15	2443	15-0-15	2444	15-0-15	2445	15-0-15
2446	15-0-15	2447	15-0-15	2448	15-0-15	2449	15-0-15	2450	15-0-15
2451	15-0-15	2452	15-0-15	2453	15-0-15	2454	15-0-15	2455	15-0-15
2456	15-0-15	2457	15-0-15	2458	15-0-15	2459	15-0-15	2460	15-0-15
2461	15-0-15	2462	15-0-15	2463	15-0-15	2464	15-0-15	2465	15-0-15
2466	15-0-15	2467	15-0-15	2468	15-0-15	2469	15-0-15	2470	15-0-15
2471	15-0-15	2472	15-0-15	2473	15-0-15	2474	15-0-15	2475	15-0-15
2476	15-0-15	2477	15-0-15	2478	15-0-15	2479	15-0-15	2480	15-0-15
2481	15-0-15	2482	15-0-15	2483	15-0-15	2484	15-0-15	2485	15-0-15
2486	15-0-15	2487	15-0-15	2488	15-0-15	2489	15-0-15	2490	15-0-15
2491	15-0-15	2492	15-0-15	2493	15-0-15	2494	15-0-15	2495	15-0-15
2496	15-0-15	2497	15-0-15	2498	15-0-15	2499	15-0-15	2500	15-0-15

†These ranges calibrated for vertical scale position • Accuracy ±3% ** Accuracy ±4% *MP option standard **HP option standard

VELOCITY AND VOLUMETRIC FLOW UNITS

Scales are available on the Magnehelic® gage that read in velocity units (FPM, m/s) or volumetric flow units (SCFM, m³/s, m³/h). Stocked velocity units with dual range scales in inches w.c. and feet per minute are shown above. For other ranges contact the factory. When ordering volumetric flow scales please specify the maximum flow rate and its corresponding pressure. Example: 0.5 in w.c. = 16,000 CFM.

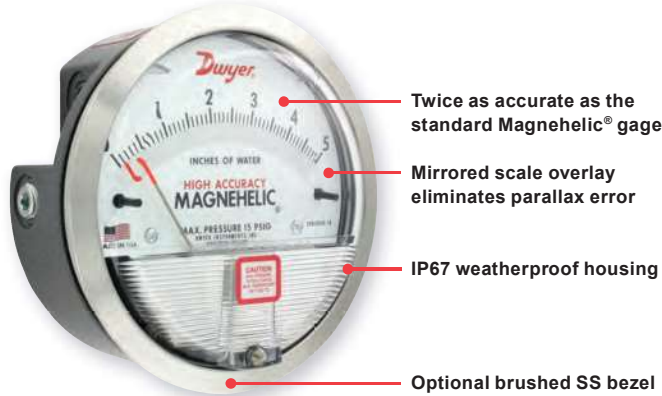
ACCESSORIES

Model	Description
A-321	Safety relief valve
A-448	3-piece magnet kit for mounting Magnehelic® gage directly to magnetic surface
A-135	Rubber gasket for panel mounting
A-401	Plastic carry case
A-310A	3-way vent valves. In applications where pressure is continuous and the Magnehelic® gage is connected by metal or plastic tubing which cannot be easily removed, we suggest using Dwyer A-310A vent valves to connect gage. Pressure can then be removed to check or re-zero the gage.



A-310A

HIGH ACCURACY MAGNEHELIC® DIFFERENTIAL PRESSURE GAGE



6-Point Calibration
Certificate Included

OPTIONS - HIGH ACCURACY MAGNEHELIC® GAGE	
To order add suffix:	Description
-HA	High Accuracy Magnehelic® Gage. Accuracy within 1% and weatherproof. Also includes mirrored scale overlay and a six point calibration certificate
-SS	Corrosion resistant brushed 304 stainless steel bezel

Accuracy Specifications: See page 20 (Series 2000)

ADDITIONAL GAGE OPTIONS



OPTIONS - OTHER OPTIONAL BEZELS	
To order add suffix:	Description
-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



LED Setpoint Indicator

Adjustable Signal Flag



Transparent Overlay

Mirrored Scale Overlay



Integrated Mounting Plate

OPTIONS - LED SETPOINT INDICATOR	
To order add suffix:	Description
-SP	Bright red LED on right scale shows when setpoint is reached. Field adjustable from gage face, unit operates on 12-24 VDC. Setpoint indicator option comes with medium pressure (MP) bezel.

Note: 4-13/16" hole for flush mounting.

OPTIONS - ADJUSTABLE SIGNAL FLAG	
To order add suffix:	Description
-ASF	Integral with plastic gage cover. Available for most models except those with medium or high pressure construction. Can be ordered with gage or separate.

OPTIONS - TRANSPARENT OVERLAYS	
To order add suffix:	Description
-G	Green (to highlight and emphasize critical pressures)
-R	Red (to highlight and emphasize critical pressures)
-Y	Yellow (to highlight and emphasize critical pressures)

OPTIONS - MIRRORED SCALE OVERLAY	
To order add suffix:	Description
-M	A mirrored scale overlay is also available to assist in reducing parallax error.

OPTIONS - INTEGRATED MOUNTING PLATE	
To order add suffix:	Description
-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)



OPTIONS - FOR HIGH STATE PRESSURE APPLICATIONS	
To order add suffix:	Description
-HP	High pressure option: for pressures to 80 psig
-MP	Medium pressure option: for pressures to 35 psig

OPTIONS	
To order add suffix:	Description
-FC	Factory calibration certificate
-LT	Low temperatures to -20°F (-28°C)
-NIST	NIST traceable calibration certificate

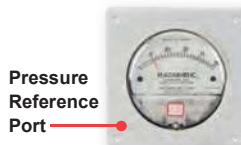
MAGNEHELIC® GAGE MOUNTING ACCESSORIES



A-610



A-369



Pressure
Reference
Port

A-464



A-299



A-286



A-300



A-368



A-371

A single case size is used for most models of Magnehelic® gages. They can be flush or surface mounted with standard hardware supplied. Complete mounting and connection fittings plus instructions are furnished with each instrument. A 4-9/16" hole is required for flush panel mounting.

Flush mounting is easily accomplished with the new A-300 Flush Mounting bracket. This bracket provides a solution to quickly and conveniently flush mount the Magnehelic® gage. The A-300 is ideal for mounting the Magnehelic® gage on control panel doors.

The A-368 is a simple bracket for quickly surface mounting the Magnehelic® gage. After securing the Magnehelic® gage to the A-368 bracket, mount the bracket on any flat surface.

The A-369 allows the Magnehelic® gage to be easily carried to locations where pressure readings need to be taken. The A-369 can stand on its own or hang on a nail or hook.

ACCESSORIES	
Model	Description
A-610	Pipe mounting kit for installing on 1-1/4" to 2" horizontal or vertical pipe
A-286	Magnehelic® gage panel mounting flange
A-369	Stand-hang bracket, aluminum, for Magnehelic® gage
A-300	Flush mounting bracket
A-464	Flush mount kit for Magnehelic® gage
A-368	Surface mounting plate, aluminum, for Magnehelic® gage
A-299	Mounting bracket, flush mount for Magnehelic® gage, bracket is then surface mounted, steel with gray hammerloid epoxy finish
A-371	Surface mounting bracket, use with medium pressure (-MP) or high pressure (-HP) models only

SERIES A-320

INSTRUMENT ENCLOSURE

Protects Various Instruments



A-320-A



A-320-A With Gage Installed



A-320-B



A-320-B With Gage Installed

SERIES A-320 Instrument Enclosure protects instruments in all applications. The A-320-A fits standard Magnehelic® size instruments (4-9/16" diameter) and the A-320-B fits standard 3000MR Photohelic® switch/gage size instruments (4-13/16" diameter). Both models include silicone tubing, gage barbs and mounting hardware.

MODEL CHART	
Model	Compatible Instruments
A-320-A	2000 Magnehelic® Gage, DM-1000 Digital Differential Pressure Gage, DM-2000 Differential Pressure Transmitter
A-320-B	3000MR Photohelic® Switch/Gage, Series 605 Magnehelic® Differential Pressure Transmitter, DH3 Digihelic® Pressure Controller, 2000 Magnehelic® Gage with medium and high pressure options

SPECIFICATIONS	
Housing: ABS.	
Process Connections: Anodized aluminum.	
Enclosure Rating: NEMA 1 (IP10). Note: Check instruments rating.	
Weight: Model A-320-A: 11.29 oz (320 g); A-320-B: 16.23 oz (420 g).	
Gage Size Opening: A-320-A: 4-9/16 in (115.89 mm); A-320-B: 4-13/16 in (122.24 mm).	