

DA12 || Differential Pressure Gauge

Application

The instruments of this type are suitable for measurement of pressure, differential pressure and partial vacuum in field of industrial and sanitary techniques.

Typical applications are measurements of differential pressure between forward- and return flow in heating systems and monitoring of filters, compressors and blowers.

Measuring system and pressure chamber are available in different materials to meet various requirements.

Main Features

- long service life
- multiple applications
- high overpressure protection

Principles of Operation

This differential pressure instrument is based on a rugged and uncomplicated diaphragm movement, suitable for overpressure-, partial vacuum- and differential pressure measurements. Operating principle of system is identical for all applications of this type.

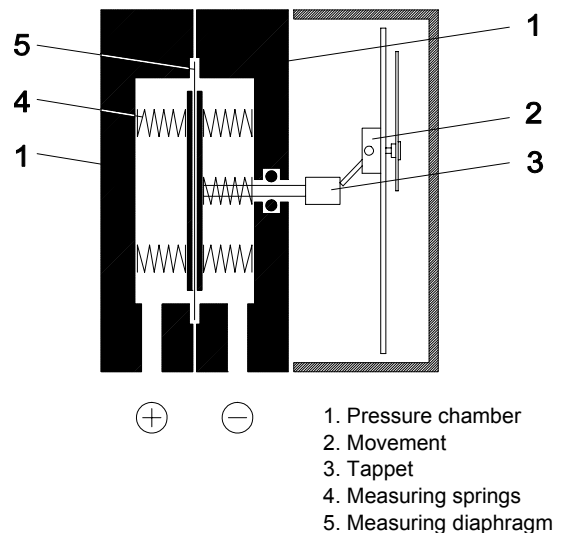
In a state of equilibrium, forces of springs on both sides of diaphragm are balanced. Pressure or differential pressure to be measured creates an unbalanced force of springs for measuring range until a new equilibrium is reached.

When subjected to excessive pressure, diaphragm rests on metal supporting plates.

A centre-mounted tappet transfers motion of the diaphragm system to indicator movement.



Schematic Diagram



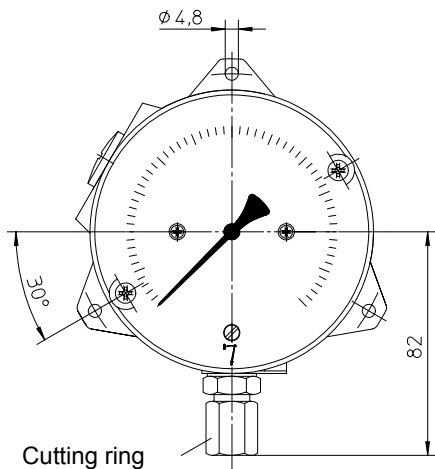
Specifications

General	
Measuring ranges	0...400 mbar to 0..25 bar (see Ordering Code)
Nominal pressure	25 bar
Max. static operating pressure	acc. to measuring range (see Ordering Code)
Max. pressure load	one-sided overpressure protected up to nominal pressure on (+)- and (-)-side of diaphragm, partial vacuum protected
Perm. ambient temperature	-10...+70°C (max. 55°C in case of SEV-approval)
Perm. medium temperature	70°C
Protection class	IP54 acc. to DIN EN 60529
Linearity	± 2.5 % FS
Zero point adjustment	located in the dial
Pressure connection	female thread G $\frac{1}{4}$, cutting ring connection for 6 / 8 / 10 mm tube of brass / zincd steel / chrome-nickel-steel male connection shank G $\frac{1}{4}$ B DIN EN 837
Measuring system	
Range ≤ 10 bar	diaphragm measuring system, diaphragms of reinforced elastomere
Range ≥ 16 bar	diaphragm measuring system, diaphragm of DURATHERM [®]
Materials	
Pressure chamber	aluminium Gk Al Si 10 Mg, varnished black aluminium Gk Al Si 10 Mg surface protected with HART-COAT [®] chrome-nickel-steel 1.4305
Measuring diaphragm	diaphragm measuring system and gaskets of NBR or Viton [®] , diaphragm of DURATHERM [®] Ni Cr Co-alloy
Materials, media	stainless steel 1.4310, 1.4305
Materials, housing	macrolon
Weight	pressure chamber Al = 1.2 kg, pressure chamber 1.4305 = 3.5 kg
Mounting	
Pipe mounting	pressure connections ≅ "+", "-" symbols <ul style="list-style-type: none"> • by screwed in cutting ring or clamping ring connection • by screwed in connection shank acc. to DIN EN 837 for nipple fitting acc. to DIN 16284
Wall mounting	3 fastening elements
Panel mounting	with front ring, Ø 132 mm

Accessories

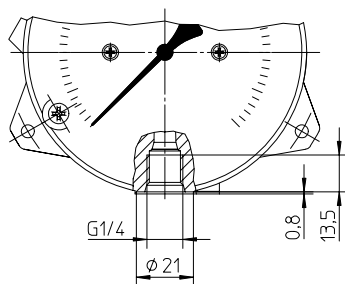
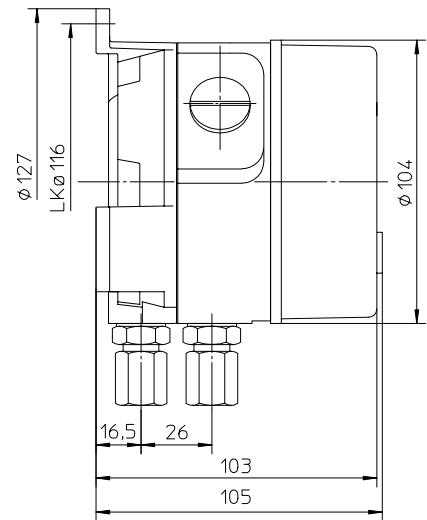
- DZ11 Panel mounting kit ø 132 mm consisting of front ring, spacer and fastening screws.
- DZ13/14 Three- and four-spindle shut-off and equalizing valves DZ13/14 are especially suited for mounting differential pressure instruments. For example they are used for:
- Depressurizing or shutting down of plant.
 - Cutting differential pressure instruments off a plant to enable controlling or repairing.
 - Shut-off valves may be used for operational checks on site.
- DZ14 - additional to DZ13 - is provided with a venting valve to ventilate the connected pipe system. Nominal pressure of these shut-off and equalizing valves is PN40. Case is available in aluminium, brass or stainless steel 1.4301. Several process connections acc. to Ordering Code are available.

Dimensions (all units in mm unless otherwise stated)

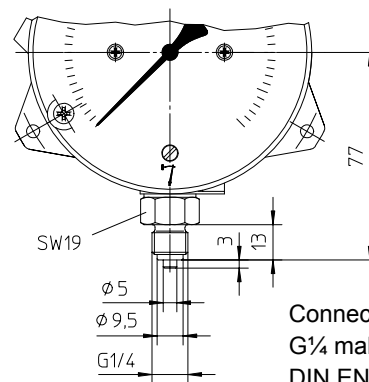


Cutting ring connection

DA 12 Wall mounting (Standard version)

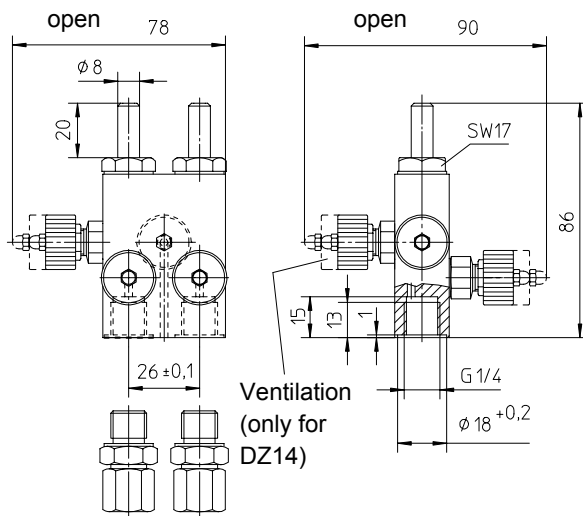


Connection G $\frac{1}{4}$ female



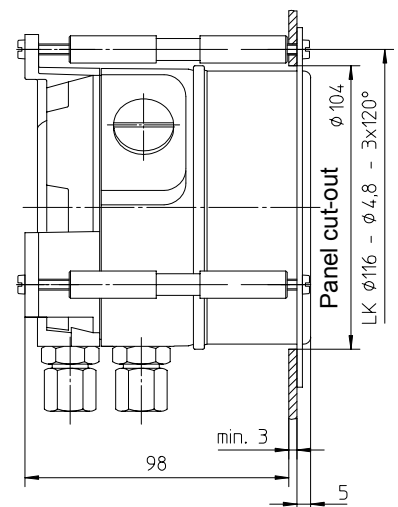
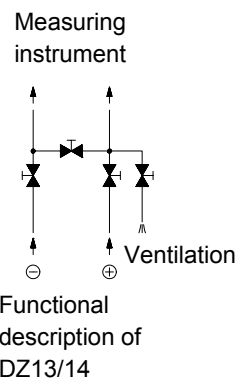
Connection shank G $\frac{1}{4}$ male acc. to DIN EN 837

Variants of process connection



Cutting ring connection

DZ13/14 Four-spindle shut-off and equalizing valve



DZ11 Panel mounting

Ordering Code

Differential Pressure Gauge DA12

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Measuring Range	Max. Stat. Operating Pressure	↑	↑	↑	↑
0 ... 400 mbar	6 bar	>	8	3	
0 ... 0.6 bar	10 bar	>	0	1	
0 ... 1 bar	16 bar	>	0	2	
0 ... 1.6 bar	25 bar	>	0	3	
0 ... 2.5 bar	25 bar	>	0	4	
0 ... 4 bar	25 bar	>	0	5	
0 ... 6 bar	25 bar	>	0	6	
0 ... 10 bar	25 bar	>	0	7	
0 ... 16 bar	25 bar	>	0	8	
0 ... 25 bar	25 bar	>	0	9	
-0.6 ... 0 bar	10 bar	>	3	0	
-1 ... 0 bar	16 bar	>	3	1	
-1 ... 0.6 bar	25 bar	>	3	2	
-1 ... 1.5 bar	25 bar	>	3	3	
-1 ... 3 bar	25 bar	>	3	4	
-1 ... 5 bar	25 bar	>	3	5	
Measuring Diaphragm / Gaskets					
NBR	NBR	>	N		
Viton®	Viton®	>	V		
DURATHERM®	NBR (Range 0-25 bar)	>	D		
DURATHERM®	Viton® (Range 0-25 bar)	>	E		
Pressure Chamber					
Aluminium		>	A		
Aluminium HART-COAT®		>	D		
Chrome-nickel-steel 1.4305		>	W		
Pressure Connections					
Female thread G1/4		>	0	1	
Connection shank G1/4 B male of brass		>	0	6	
Connection shank G1/4 B male of stainless steel 1.4305		>	1	1	
Cutting ring connection for 6 mm tube of steel		>	2	0	
Cutting ring connection for 8 mm tube of steel		>	2	1	
Cutting ring connection for 10 mm tube of steel		>	2	2	
Cutting ring connection for 6 mm tube of stainless steel 1.4571		>	2	4	
Cutting ring connection for 8 mm tube of stainless steel 1.4571		>	2	5	
Cutting ring connection for 10 mm tube of stainless steel 1.4571		>	2	6	
Cutting ring connection for 6 mm tube of brass		>	2	8	
Cutting ring connection for 8 mm tube of brass		>	2	9	
Cutting ring connection for 10 mm tube of brass		>	3	0	