developing solutions





Data sheet

Differential pressure - Measuring device

DA12

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1 Product and functional description

1.1 Performance features

Areas of application

- Heating, air conditioning and ventilation engineering
- Water/waste water industry
- Mechanical and plant engineering

Main features

- Durable aluminium casing
- Optionally in a stainless steel design
- Long life span
- Overload-proof

1.2 Intended use

The DA12 is a display unit for differential pressure, over-pressure and underpressure for gas-like and fluid media. This series is ideally suited for various measuring tasks in rough environments.

Typical applications are measuring differential pressure between the supply and return in heating systems and monitoring filters and pumps.

Please contact the manufacturer before using this device with dirty or aggressive media because the device needs to be adapted in terms of the parts that come into contact with the media.

The device is to be exclusively used for the applications agreed between the manufacturer and the user.



1.3 Function diagram

1.4 Design and mode of operation

A sturdy non-sensitive diaphragm measuring unit that is suitable for measuring differential pressure, and over and under-pressure is used as a measuring system. The unit uses the same measuring principle for all three measuring applications.

In the rest position, the spring forces on both sides of the membrane are balanced out. Due to the pressure or under-pressure to be measured, a singlesided force is created on the membrane which shifts the membrane system against the measurement range springs up to compensation of the spring forces. In case of overload, the membrane supports against the metallic support surfaces.

A centrally positioned tappet transfers the movement of the membrane system on the motion train.

2 Technical data

2.1 General Information

Reference conditions (acc. to IEC 61298-1)			
Temperature	+15 +25 °C		
Relative humidity	45 75 %		
Air pressure	86 … 106 kPa	860 1060 mbar	
Installation position	vertical		

2.2 Input variables

Measuring ranges	Measuring accur- acy	Allowed static op- erating pressure	Overpres- sure	Under- pressure
0 250 mbar	± 6.25 mbar	16 bar	25 bar	- 1 bar
0 400 mbar	± 10 mbar	16 bar		
0 … 0.6 bar	± 0.015 bar	16 bar		
0 1 bar	± 0.025 bar	16 bar		
0 … 1.6 bar	± 0.04 bar	25 bar		
0 2.5 bar	± 0.625 bar	25 bar		
0 4 bar	± 0.1 bar	25 bar		
0 6 bar	± 0.15 bar	25 bar		
0 … 10 bar	± 0.25 bar	25 bar		
0 16 bar	± 0.4 bar	25 bar		
0 25 bar	± 0.625 bar	25 bar		
-0.6 … 0 bar	± 0.015 bar	16 bar		
-1 … 0 bar	± 0.025 bar	16 bar		
-1 +0.6 bar	± 0.04 bar	25 bar		
-1 … +1.5 bar	± 0.0625 bar	25 bar		
-1 … +3 bar	± 0.1 bar	25 bar		
-1 … +5 bar	± 0.15 bar	25 bar		
0 … 30 psi	± 0.75 psi	25 bar		

Rated pressure of the measuring
system25 barTest pressure1.5 times the rated pressureZero-point settingArranged in the front panel of the scale

2.3 Operating conditions

Measuring accuracy

Increase ambient temperature	-10 to +70 °C
Media temperature	-10 to +70 °C
Storage temperature	-15 to +75 °C
Enclosure protection class	IP55 as per EN 60529

± 2.5% of the upper range value

2.4 Construction design

Process connection	Inner thread G 1/4		
Brass, CrNi steel	Connection shank G¼ B DIN EN 837		
Brass, CrNi steel, galvanised steel	Cutting ring connection in brass for 6 mm pipe		
	Cutting ring connection in brass for 8 mm pipe		
	Cutting ring connection in brass for 10 mm pipe		
Installation position	vertical		
Dimensions	See dimensional drawings		
Weight	Pressure chamber in aluminium 1.2 kg		
	Pressure chamber in stainless 3.5 kg steel		

2.4.1 Materials

Parts in contact with the me- dium	
Pressure chamber	Aluminium GKAISi10(Mg), painted black
	Aluminium GKAISi10(Mg); HART-COAT [©] surface protection
	Chromium nickel steel 1.4305
Measuring diaphragm	NBR
	VITON®
	Inconel 718
Seals	NBR
	VITON®
Other inner parts	Rustproof steel 1.4310, 1.4305
Process connection Connection shanks	Brass
	Chromium nickel steel
Process connection	Brass
Cutting ring screw connection	Galvanised steel
	Chromium nickel steel
Parts with no contact with the medium	
Cover hood	Makrolon
Dial face and needle	Aluminium

2.4.2 Dimensional drawings

All dimensions in mm unless otherwise stated

The following are the dimensional diagrams for the pressure chambers in aluminium. The dimensional diagrams for the pressure chambers in stainless steel are similar. For this reason, there is no illustration.



Fig. 2: Dimensional drawing, pressure chamber in aluminium

Process connection variants



Connecting shanks	d1	d2	11	12	13	14	A/F	
	5	9.5	13	15	3	2	19	
Cutting ring screw connection		1		D	A/F			
				19	6	8, 10	19	

3 Order Codes



		Measuring of	diaphragm
[1.2]	Measuring range	NBR / VITON	Inconel 718
82	0 to 250 mbar	х	
83	0 to 400 mbar	х	
01	0 to 0.6 bar	х	
02	0 to 1 bar	х	
03	0 to 1.6 bar	х	
04	0 to 2.5 bar	х	
05	0 to 4 bar	х	
06	0 to 6 bar	х	
07	0 to 10 bar	х	
08	0 to 16 bar	х	
09	0 to 25 bar		х
30	-0.6 to 0 bar	х	
31	-1 to 0 bar	х	
32	-1 to +0.6 bar	Х	
33	-1 to +1.5 bar	х	
34	-1 to +3 bar	Х	
35	-1 to +5 bar	х	

[3]	Measuring dia- phragm	Sealant	Comment
Ν	NBR	NBR	
V	VITON [®]	VITON®	
D	Inconel 718	NBR	Only measuring ranges 0 … 25 bar
Е	Inconel 718	VITON®	Only measuring ranges 0 … 25 bar
[4]	Pressure chamb	er	Comment
Α	Aluminium		Only measuring range ≤ 0 16 bar
D	Aluminium HART	COAT®	
W	Stainless steel 1.4	4305	

[5.6]	Process connection	Material
01	Inner thread G 1/4	

[5.6]	Process connection	Material
06	Connection shanks with external thread G¼ B	Brass
11	Connection shanks with external thread G¼ B	CrNi steel
20	Cutting ring connection in brass for 6 mm pipe	Galvanised steel
21	Cutting ring connection in brass for 8 mm pipe	Galvanised steel
22	Cutting ring connection in brass for 10 mm pipe	Galvanised steel
24	Cutting ring connection in brass for 6 mm pipe	CrNi steel 1.4571
25	Cutting ring connection in brass for 8 mm pipe	CrNi steel 1.4571
26	Cutting ring connection in brass for 10 mm pipe	CrNi steel 1.4571
28	Cutting ring connection in brass for 6 mm pipe	Brass
29	Cutting ring connection in brass for 8 mm pipe	Brass
30	Cutting ring connection in brass for 10 mm pipe	Brass

Accessories

Please go to our website fischermesstechnik.de for the data sheets of the measuring device accessories.

DZ11	Installation set for retrofitting from wall mounting to switch panel in- stallation. Please state the precise device type of the DA12 because there are different switch panel installtion sets depending on the model.
DZ23/24	The shut-off valve DZ23 with three spindles and DZ24 with four spindles can be of a decisive benefit when mounting the differential pressure measuring device DA12.
	The following can be used for example:
	 is a system is to be depressurized or taken out of operation
	 for repairs or tests to disconnect differential pressure devices within the affected systems from the mains supply
	The shutoff devices can therefore also be used for function tests on site. In contrast to DZ23, the DZ24 also has a venting valve to vent the connected pipe system. The shut-off and venting valves are designed for the rated pressure level PN40. The housing can be selected in aluminium, brass or chrome-nickel-steel 1.4301. There are various pressure connections available for process-side screw connections or connection threads.
MZ	Measuring device accessory (throttles, siphons, etc.)





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