The selection is detailed on page 8

A71
Double Needle Pressure Gauge

Working principle

The high-pressure side enters the diaphragm and the low-pressure side enters the subject area (the periphery of the diaphragm). The pressure difference between the high-pressure and low-pressure sides acts on the inside and outside of the elastic diaphragm to produce a measuring displacement. The measuring displacement acts on the transmission movement and is displayed.

Product description

The A71 differential pressure gauge is made of high-quality corrosion-resistant stainless steel and features an all-metal construction and a tight-knit pressure measuring diaphragm for high overpressure safety.

Thanks to its high-grade stainless steel construction and robust design, the differential pressure gauge is ideal for chemical and process engineering applications.

This type of pressure gauge can be used not only in gaseous or liquid media, but also in aggressive environments. We offer a wide range of special materials such as Monel or Hastelloy.

The measuring range of the instrument is 0... 6KPa to 0... 4.0MPa to meet a wide range of application requirements.

Product application

Differential pressure control for gaseous, dry, suspended, grease-free measuring media

Filter monitoring in ventilation and heating systems

Overpressure and filter monitoring in clean rooms

Differential pressure control for fan and blower pressure monitoring

Functional characteristics

With adjustable differential pressure dial

Optional double scale design

Liquid-filled housing provides cushioning in applications with high dynamic pressure pulses or vibrations and avoids condensation

Meets the double, three or four scale application requirements of all common refrigerants

Technical parameter

Design	Meets the EN837-3 standard
Standard size (mm)	100
Precision class	1.0
	1.6
Range	NS 100:0... 0.06 to 0... 4.0 MPa
Pressure limit	
▪ Static pressure	Static pressure: full scale value
▪ Dynamic pressure	Dynamic pressure: 0.9x full scale
▪ Instantaneous pressure	Instantaneous pressure: 1.3x full scale
Allowable temperature	
▪ environment	- 40... +60℃, the case is not filled with liquid
	- 20... At +60℃, the case is filled with glycerin
▪ medium	+200℃, the case is not filled with liquid
	At +100℃, the case is filled with liquid
Temperature effect	When the temperature of the measuring system fluctuates around the reference temperature (+20 ° C), the maximum change is ± 0.4% /10K of the range
Class of protection	IP65, in accordance with EN 60529/IEC 60529
Connection material	Stainless steel
Installation mode	Radial or axial
Process connection	NS 100, G1/2B, SW 22
Pressure element	Copper alloy bourdon tube
	60 bar "C" shaped tube
	> 60 bar spiral tube
Drive movement	Copper alloy
Dial plate	Aluminum, white background, black print
	Adjustable reference pointer
pointer	Aluminum, black
外壳	Stainless steel 304 metal
	The upper 12 points of the housing are provided with pressure relief holes
Watch glass	Multilayer safety glass
Filling solution	Glycerin 99.7%
Optional parameter	Front side or back side mounting
	Precision class
	Other process connection
	Ambient temperature -40 ° C Use silicone oil to fill the liquid

Corrosion resistance of rubber to refrigerant

Refrigerant	NBR	FKM	EPDM	FFKM	CR	PTFE
R 11	++	+	–	+	–	++
R 12	+	+	+	+	++	++
R 12 B1	–	–	–	–	+	++
R 13	++	+	++	+	++	++
R 13 B1	++	+	++	+	++	++
R 14	++	+	++	+	++	++
R 21	–	–	–	–	+	++
R 22	–	–	++	–	++	++
R 31	–	–	++	–	++	++
R 32	++	–	++	–	++	++
R 112	+	+	–	+	+	++
R 113	++	+	–	+	++	++
R 114	++	+	++	+	++	++
R 114 B2	+	+	–	+	+	++
R 115	++	+	++	+	++	++
R 124	–	–	+	–	+	++
R 134 a	+	–	+	–	+	++
R 142 b	++	–	+	–	++	++
R 152 a	++	–	++	–	++	++
R 218	++	++	++	++	++	++
R 290	+	+	k.A.	+	k.A.	k.A.
R 401 a	k.A.	k.A.	k.A.	k.A.	+	k.A.
R 401 b	k.A.	k.A.	k.A.	k.A.	+	k.A.
R 402 a	k.A.	k.A.	k.A.	k.A.	+	k.A.
R 403 b	k.A.	k.A.	k.A.	k.A.	+	k.A.
R 404 a	+	–	+	–	+	++
R 407 a	+	k.A.	k.A.	k.A.	+	k.A.
R 407 b	k.A.	k.A.	k.A.	k.A.	+	k.A.
R 407 c	k.A.	–	+	–	+	++
R 408 a	k.A.	k.A.	k.A.	k.A.	+	k.A.
R 409 a	k.A.	k.A.	k.A.	k.A.	+	k.A.
R 410 a	+	k.A.	k.A.	k.A.	++	k.A.
R 413 a	+	k.A.	k.A.	K.A.	k.A.	k.A.
R 502	+	+	++	+	++	++
R 507	+	k.A.	k.A.	k.A.	+	k.A.
R 600 a	+	+	k.A.	k.A.	+	k.A.
R717 (Liquid state)	+	–	++	–	++	++
R717 (gaseity)	++	–	++	–	++	++
R717 (Hot gas)	–	–	+	–	+	++

++ = High corrosion resistance
+ = Average corrosion resistance
– = intolerability
k.A. = unspecified

The data in the table is for reference only. These recommendations may not be effective, for example, when flotation oils or additives are used. In addition, for each type of rubber, the composition specified by the manufacturer may cause a change in the corrosion resistance of the rubber within the maximum operating range. Even unknown parameters and states in actual use can lead to changes in rubber corrosion resistance. Therefore, we are not responsible for whether these recommendations are correct in specific applications.

Conversion factor of pressure unit

SI Units - Engineering Units (Metric)												
		SI unit					Engineering unit					
	Original / Target unit	bar	mbar	pa	kPa	MPa	mmHg	mmWS	mWS	kp/mm²	kp/cm²	atm
SI unit	bar	1	10^{3}	10^{5}	100	0.1	750.064	10.1972 $\cdot 10^{3}$	10.1972	10.1972 $\cdot 10^{3}$	1.01972	0.986923
	1 mbar	10^{-3}	1	100	0.1	0.1 $\cdot 10^{-3}$	750.064 $\cdot 10^{-3}$	10.1972	10.1972 $\cdot 10^{-3}$	10.1972 $\cdot 10^{-6}$	1.01972 $\cdot 10^{-3}$	0.986923 $\cdot 10^{-3}$
	1 µbar	10^{-6}	10^{-3}	0.1	0.1 $\cdot 10^{-3}$	0.1 $\cdot 10^{-6}$	750.064 $\cdot 10^{-6}$	10.1972	10.1972 $\cdot 10^{-6}$	10.1972 $\cdot 10^{-9}$	1.01972 $\cdot 10^{-6}$	0.986923 $\cdot 10^{-6}$
	1 Pa	10^{-5}	0.01	1	10^{-3}	10^{-6}	7.50064 $\cdot 10^{-3}$	101.972	101.972 $\cdot 10^{-6}$	101.972 $\cdot 10^{-9}$	10.1972 $\cdot 10^{-6}$	9.86923 $\cdot 10^{-6}$
	1 kPa	0.01	10	10^{3}	1	10^{-3}	7.50064	101.972	101.972 $\cdot 10^{-3}$	10.1972 $\cdot 10^{-6}$	10.1972 $\cdot 10^{-3}$	9.86923 $\cdot 10^{-3}$
	1 MPa	10	10 $\cdot 10^{-3}$	10^{6}	10^{3}	1	7.50064 $\cdot 10^{3}$	101.972 $\cdot 10^{3}$	101.972	101.972 $\cdot 10^{-3}$	10.1972	9.86923
Engineering unit	1 mmHg	1.33322 $\cdot 10^{-3}$	1.33322	133.322	133.322 $\cdot 10^{-3}$	133.322 $\cdot 10^{-6}$	1	13.5951	13.5951	13.5951 $\cdot 10^{-6}$	1.35951 $\cdot 10^{-3}$	1.31579 $\cdot 10^{-3}$
	1 mmWS	98.0665 $\cdot 10^{-6}$	98.0665 $\cdot 10^{-3}$	9.80665	9.80665	9.80665 $\cdot 10^{-6}$	73.5561 $\cdot 10^{-3}$	1	10^{-3}	10^{-6}	0.1 $\cdot 10^{-3}$	96.7841 $\cdot 10^{-6}$
	1 mWS	98.0665 $\cdot 10^{-3}$	98.0665	9.80665	9.80665	9.80665 $\cdot 10^{-3}$	73.5561	10^{3}	1	10^{-3}	0.1	96.7841 $\cdot 10^{-3}$
	1 kp/mm²	98.0665	98.0665 $\cdot 10^{3}$	9.80665 $\cdot 10^{6}$	9.80665 $\cdot 10^{3}$	9.80665	73.5561 $\cdot 10^{3}$	10^{6}	10^{3}	1	100	96.7841
	1 kp/cm²	0.980665	0.980665 $\cdot 10^{3}$	98.0665 $\cdot 10^{3}$	98.0665	98.0665 $\cdot 10^{-3}$	735.561	10 $\cdot 10^{3}$	10	0.01	1	0.967841
	1 atm	1.01325	1.01325 $\cdot 10^{3}$	101.325 $\cdot 10^{3}$	101.325	101.325 $\cdot 10^{-3}$	760	10.3323 $\cdot 10^{3}$	10.3323	10.3323 $\cdot 10^{-3}$	1.03323	1

Corresponding pressure Unit:

1 Pa=1 N/m2
1 hPa=1 mbar
1 mmHg=1 Torr
1 kp/cm2=1 at (atü)

Instructions:

According to the Unit of Measurement regulations implemented on 13 December 1985, only the following units of pressure are allowed: ▪ PASCAL (Pa) ▪ bar ▪ Millimetre of mercury (mmHg),

This pressure unit is only suitable for the measurement of blood pressure and other body fluid pressure in the medical industry.

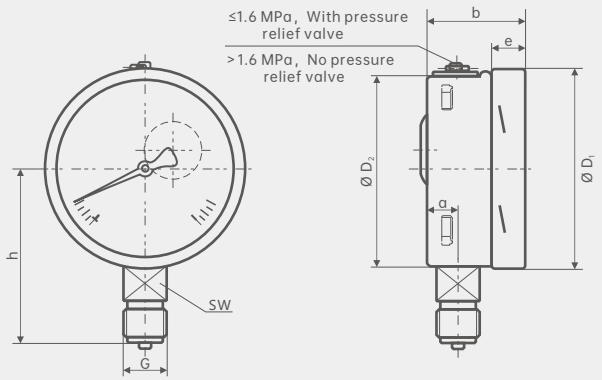
The unit definitions and conversion factors of DIN 1301 also apply to these units as specified in the EinhV standard. Part 1 of this standard states: ▪ Pascal is made of

A unit derived from the SI unit that has a specific name and a specific unit symbol ▪ bar is a common unit of pressure other than the SI unit ▪ Millimeter of mercury is a common unit other than the SI unit for a specific field.

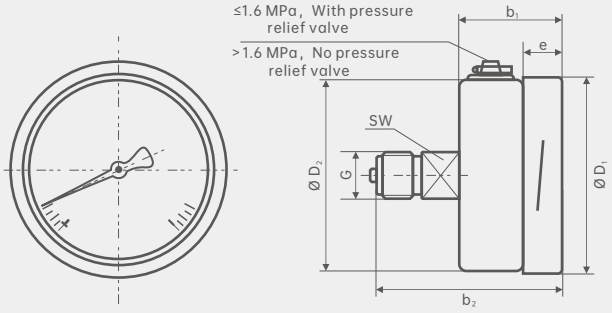
In addition, Part 3 of the standard specifies the following unit conversion factors: ▪ Conventional millimetre of mercury pressure (mmHg) ▪ Conventional water pressure (mWS) ▪ Torr ▪ Technical Atmospheric Pressure (at) ▪ Standard Atmospheric pressure (atm).

Size mm

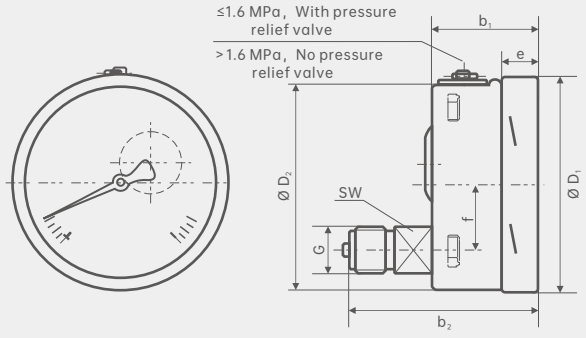
Radial connection



Axial center mounting

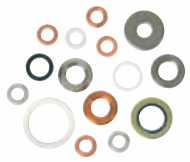
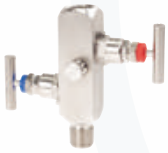


Axial eccentric installation



NS	Size mm											weight kg
	a	b	b1	b2	D1	D2	e	f	G	h±1	SW	
100	15.5	49.5	49.5	83	101	99	17.5	30	G1/2B	87	22	0.60

Attachment

Diagrammatic presentation	Explain
	gasket Used for sealing process connections such as pipe threads Available in various materials and sizes For process connections with/without centering tubes
	Condenser pipe The condensing tube protects the pressure measuring instrument from dielectric pressure pulses and overheating Cooling elements for liquids, gases and vapors in pressure measuring instruments Mount directly to the pressure interface of the pressure measuring instrument or to the stop valve (stop plug or valve) below it
	Overvoltage protector An adjustable overpressure protector protects the gauge when the pressure exceeds the pressure rating Can be used in corrosive media and corrosive environment Machine building and equipment construction, chemical and petrochemical industries, power plants, mining, onshore and offshore applications, and environmental technologies
	Needle valves and multi-way valves Turn off and disconnect pressure measuring instruments and discharge waste from them For gas and non-highly viscous or crystalline liquid aggressive media, also suitable for corrosive environments Oil and gas, petrochemicals, chemicals, power generation, water and wastewater treatment
	Block and discharge valves Turn off and disconnect the pressure measuring instrument For use in non-highly viscous or crystalline gas and liquid aggressive media, also suitable for aggressive environments Oil and gas, petrochemicals, chemicals, power generation, water and wastewater treatment
	Flange valves, process and measuring instrument types Pressure off and discharge of pressure measuring instruments Gauges with threaded fittings can be connected to flange fittings of pipelines or containers For corrosive liquids, gases and vapors, also suitable for corrosive environments
	Ball valve, process and measuring instrument type First stop valve for pressure hole and in place instrumentation installation, media distribution, emptying or exhaust lines Connect the pressure measuring instrument directly to the pipe or tank For corrosive or high viscosity gas and liquid media, also suitable for corrosive environments
	Globe valve with flange connection Connect the pressure measuring instrument directly to a flanged pipe or to a container without a valve connection A stop valve with a drainage or exhaust function acts as a point of contact for the instrument Use with a level indicator or differential pressure gauge when measuring level

Range table

Negative pressure	code	MPa	code	Bar	code	kPa	code	kg/cm²	code	Psi/-inHg
	MV001	-0.1/0	BV001	-1/0	KV001	-100/0	GV001	-1/0	RV030	-30"/0 Hg
Positive and negative pressure	code	MPa	code	Bar	code	kPa	code	kg/cm²	code	Psi/-inHg
	MC006	-0.1/0.06	BC006	-1/0.6	KC006	-100/60	GC006	-1/0.6	PC015	-30"/0/15
	MC015	-0.1/0.15	BC015	-1/1.5	KC015	-100/150	GC015	-1/1.5	PC030	-30"/0/30
	MC030	-0.1/0.3	BC030	-1/3	KC030	-100/300	GC030	-1/3	PC060	-30"/0/60
	MC050	-0.1/0.5	BC050	-1/5	KC050	-100/500	GC050	-1/5	PC100	-30"/0/100
	MC090	-0.1/0.9	BC090	-1/9	KC090	-100/900	GC090	-1/9	PC160	-30"/0/160
	MC150	-0.1/1.5	BC150	-1/15	KC150	-100/1500	GC150	-1/15	PC200	-30"/0/200
	MC240	-0.1/2.4	BC240	-1/24	KC240	-100/2400	GC240	-1/24	PC300	-30"/0/300
Positive pressure	code	MPa	code	Bar	code	kPa	code	kg/cm²	code	Psi
	MP001	0/0.1	BP001	0/1	KP001	0/100	GP001	0/1	PP1E5	0/15
	MP1E6	0/0.16	BP1E6	0/1.6	KP1E6	0/160	GP1E6	0/1.6	PP003	0/30
	MP2E5	0/0.25	BP2E5	0/2.5	KP2E5	0/250	GP2E5	0/2.5	PP006	0/60
	MP004	0/0.4	BP004	0/4	KP004	0/400	GP004	0/4	PP010	0/100

A71-Selection composition

Selection example A71	A	B	E	MP001	N	Q	R	B	S
	1	2	3	4	5	6	7	8	9

1.Dial diameter mm	A	100	
2.Precision class	B	1.0	
	C	1.5	
3.liquid-filled	D	Glycerin	
	E	Silicone oil	
	N	There is no	
4.Measuring range	-	See range table (page 7)	
5.Second range unit	G	MPa	
	H	Bar	
	I	KPa	
	J	Kg/cm²	
	K	Psi	
	N	Without	
6.Process connection	N	1/2NPT	
	O	1/4NPT	
	P	M14*1.5	
	Q	M20*1.5	
	R	M27*2	
	S	G1/2B	
	Z	G1/4B	
	T( )	Other connections	
7.Installation mode	R	Radial direction	
	S	Axial direction	
	V	Shaft forward edging (three-hole mounting)	
	U	The shaft is mounted on the rear bracket	
8.Watch glass	A	PC plastic	
	B	Safety glass	
9.Material	S	304SS	
	L	316L	
	T( )	Other materials	
10.Special requirements	D	Degrease	
	E	Oxygen application≤160bar	
	F	There is no	
11.Certificate	M	2.1Measurement report	
	L	3.7Inspection certificate	
	N	There is no	
12.Additional description	Z	There are	
	N	There is no	

Instructions:

It indicates that the dial diameter of A71 pressure gauge is 100mm, the accuracy level is 1.0%, the shock-proof silicone oil is filled, the measuring range is 0~0.1MPa, no second measuring range unit, the process connection M20*1.5, the radial installation, the safety glass, the body material is 304SS. Items 10/11/12 in the above table are not required

Product Certification

Compliance and approval; Rodeweig pressure gauges meet key standards and certifications for process measurement technology; Thus guaranteeing the highest reliability in such Settings;

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