The selection is detailed on page 8

A25

Standard Industrial Pressure Gauge

Working principle

Bourdon tube pressure gauges are the most commonly used mechanical pressure measuring instruments. Its pressure element is often referred to as Bourdon tube:
In the mid-19th century, French engineer Eugene Bourdon applied this functional principle. It is based on an elastic spring, a C-shaped, curved tube with an elliptical cross section.
When the inner space of the Bourdon tube is compressed, the cross section changes towards the circle. The circumferential stress generated during this process increases the radius of the C-shaped tube. As a result, the end of the tube moves about two to three millimeters. This deflection is a measure of pressure. The pressure is converted into displacement, which turns the linear deflection into a rotational displacement and makes it visible on the scale through the pointer

Product description

This high quality Bourdon tube pressure gauge is specifically designed to improve safety in the process industry.
Featuring high-quality stainless steel materials and a robust design, the meter is suitable for use in the chemical and process industries. Not only suitable for liquid and gas media, but also suitable for corrosive environments.
LUDWIG manufactures and certifies pressure gauges according to the requirements of the EN 737-1 European standard "S3" safety edition. The safe pressure gauge consists of a non-crushing window, a safe flameproof layer between the measuring system and the dial, and a safe pressure relief back cover. In the event of a failure, the operator is protected on the front side and the media or components can only be ejected through the back of the housing.
For harsh operating conditions, such as vibration, all gauges can also be optionally filled with liquid.

Product application

Measure the pressure of various gas and liquid media

It is suitable for measuring a variety of highly corrosive gas and liquid media in the process with high requirements such as shock resistance

Suitable for places where the surrounding environment is very corrosive

Oil and gas industry, chemical and petrochemical industry, power engineering, water and wastewater technology

Functional characteristics

It is suitable for places where the corrosion is strong and the surrounding environment is also strong

Designed according to EN 837-1

Strong resistance to load change and shock resistance

Integral stainless steel

Range: up to 0... 100MPa

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... 100MPa
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
shell	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 · 10^{3}	10.1972	10.1972 · 10^{-3}	1.01972	0.986923
	1 mbar	10^{-3}	1	100	0.1	0.1 · 10^{-3}	750.064 · 10^{-3}	10.1972	10.1972 · 10^{-3}	10.1972 · 10^{-6}	1.01972 · 10^{-3}	0.986923 · 10^{-3}
	1 μbar	10^{-6}	10^{-3}	0.1	0.1 · 10^{-3}	0.1 · 10^{-6}	750.064 · 10^{-6}	10.1972	10.1972 · 10^{-6}	10.1972 · 10^{-9}	1.01972 · 10^{-6}	0.986923 · 10^{-6}
	1 Pa	10^{-5}	0.01	1	10^{-3}	10^{-6}	7.50064 · 10^{-3}	101.972	101.972 · 10^{-6}	101.972 · 10^{-9}	10.1972 · 10^{-6}	9.86923 · 10^{-6}
	1 kPa	0.01	10	10^{3}	1	10^{-3}	7.50064	101.972	101.972 · 10^{-3}	10.1972 · 10^{-6}	10.1972 · 10^{-3}	9.86923 · 10^{-3}
	1 MPa	10	10 · 10^{-3}	10^{6}	10^{3}	1	7.50064 · 10^{3}	101.972 · 10^{3}	101.972	101.972 · 10^{-3}	10.1972	9.86923
Engineering unit	1 mmHg	1.33322 · 10^{-3}	1.33322	133.322	133.322 · 10^{-3}	133.322 · 10^{-6}	1	13.5951	13.5951	13.5951 · 10^{-6}	1.35951 · 10^{-3}	1.31579 · 10^{-3}
	1 mmWS	98.0665 · 10^{-6}	98.0665 · 10^{-3}	9.80665	9.80665	9.80665 · 10^{-6}	73.5561 · 10^{-3}	1	10^{-3}	10^{-6}	0.1 · 10^{-3}	96.7841 · 10^{-6}
	1 mWS	98.0665 · 10^{-3}	98.0665	9.80665	9.80665	9.80665 · 10^{-3}	73.5561	10^{3}	1	10^{-3}	0.1	96.7841 · 10^{-3}
	1 kp/mm²	98.0665	98.0665 · 10^{3}	9.80665 · 10^{6}	9.80665 · 10^{3}	9.80665	73.5561 · 10^{3}	10^{6}	10^{3}	1	100	96.7841
	1 kp/cm²	0.980665	0.980665 · 10^{3}	98.0665 · 10^{3}	98.0665	98.0665 · 10^{-3}	735.561	10 · 10^{3}	10	0.01	1	0.967841
	1 atm	1.01325	1.01325 · 10^{3}	101.325 · 10^{3}	101.325	101.325 · 10^{-3}	760	10.3323 · 10^{3}	10.3323	10.3323 · 10^{-3}	1.03323	1

Corresponding pressureUnit:

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.

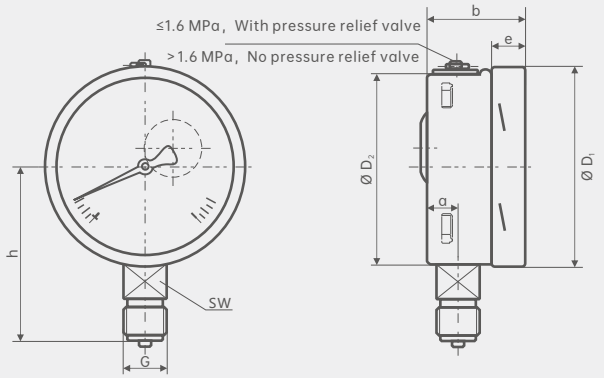
The unit definitions and conversion factors of DIN 1301 also apply to these units as specified in the EinhV standard. Part 1 of this standard states: ▪ Pascal is made of

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.

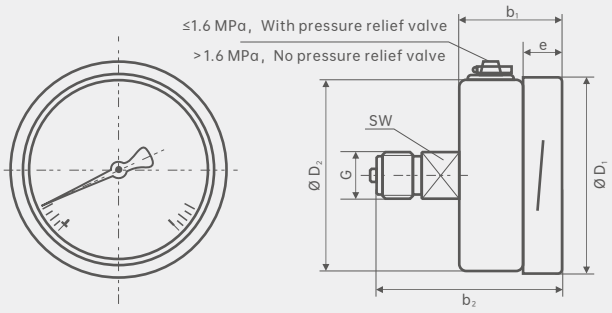
In addition, Part 3 of the standard specifies the following unit conversion factors: ▪ Conventional millimetre of mercury pressure (mmHg) ▪ Conventional water pressure (mWS) ▪ Torr ▪ Technical Atmospheric Pressure (at) ▪ Standard Atmospheric pressure (atm).

Size mm

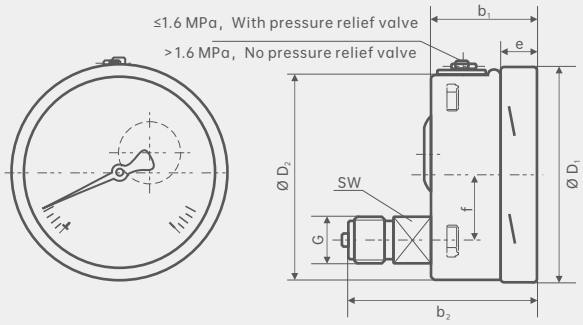
Radial connection



Axial center mounting

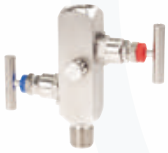


Axial eccentric installation



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

Attachments

Graphical representation	Instructions
	**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
	MP006	0/0.6	BP006	0/6	KP006	0/600	GP006	0/6	PP016	0/160
	MP010	0/1	BP010	0/10	KP010	0/1000	GP010	0/10	PP020	0/200
	MP016	0/1.6	BP016	0/16	KP016	0/1600	GP016	0/16	PP030	0/300
	MP025	0/2.5	BP025	0/25	KP025	0/2500	GP025	0/25	PP040	0/400
	MP040	0/4	BP040	0/40	KP040	0/4000	GP040	0/40	PP060	0/600
	MP060	0/6	BP060	0/60	KP060	0/6000	GP060	0/60	PP100	0/1000
	MP100	0/10	BP100	0/100	KP100	0/10000	GP100	0/100	PP150	0/1500
	MP160	0/16	BP160	0/160	KP160	0/16000	GP160	0/160	PP200	0/2000
	MP250	0/25	BP250	0/250	KP250	0/25000	GP250	0/250	PP300	0/3000
	MP400	0/40	BP400	0/400	KP400	0/40000	GP400	0/400	PP400	0/4000
	MP600	0/60	BP600	0/600	KP600	0/60000	GP600	0/600	PP600	0/6000
	MP1000	0/100	BP1000	0/1000	KP1000	0/100000	GP1000	0/1000	PP1000	0/10000

A25-Selection composition

Selection example **A25**	A	B	E	MP001	N	Q	U	B	S
	1	2	3	4	5	6	7	8	9

1.Dial diametermm	A	100	
2.Precision class	B	1.0	
	C	1.6	
3.liquid-filled	D	Glycerin	
	E	Silicone oil	
	N	Not have	
4.Measuring range	-	See range table (page 4)	
5.Second range unit	G	MPa	
	H	Bar	
	I	KPa	
	J	Kg/cm²	
	K	Psi	
	N	Not have	
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	U	Radial direction	
	V	Axial direction	
	W	Shaft forward edging (three-hole mounting)	
	X	Radial front edge (three-hole mounting)	
	Y	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	Not have	
11Certificate	M	2.1 Measurement report	
	L	3.7 Inspection certificate	
	N	Not have	
12.Additional description	Z	There are	
	N	Not have	

Instructions:

It indicates that the dial diameter of A25 pressure gauge is 100mm, the accuracy level is 1.0%, the shock-proof silicone oil is filled, the measuring range is 0~0.1MPa, there is 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;