

Mechanical Pressure Gauges

SIKA pressure gauges are quality measuring instruments for use in industrial applications. They are fitted with stainless steel cases as standard and comply with the EN 837 European standard.

SIKA offers various models based on three different measuring elements: bourdon tubes, diaphragms and capsule elements. All three types operate on the same principle: elastic deformation of the measuring element under the influence of pressure. This motion is coupled to a pointer mechanism. The appropriate type (bourdon tube, diaphragm or capsule element) for a particular application depends on the application area, necessary display range and installation location.

General information

The provisions of Part 2 of the EN 837 standard should generally be observed when selecting pressure gauges. We offer a variety of standard and special versions of pressure gauges, as well as matching accessories. On request, we can fit our gauges with electrical limit switches, which are described in a separate section limit switches. Please don't hesitate to contact us if you have any questions.

Bourdon tube pressure gauges

Bourdon tube pressure gauges are the most common type in many areas and are used to measure medium to high pressures. They cover measuring spans from 600 mbar to 4,000 bar. The measuring element is a curved tube with a circular, spiral or coiled shape, commonly called a bourdon tube. This tube moves outward when the pressure inside the tube is higher than the external pressure, and inward when the internal pressure is lower. This motion is proportional to the pressure to be measured, and it is coupled to the pointer mechanism.



Diaphragm pressure gauges

Diaphragm pressure gauges are used to measure gases and liquids. They cover measuring spans from 10 mbar to 40 bar. The measuring element consists of one circular diaphragm clamped between a pair of flanges. The positive or negative pressure acting on these diaphragms causes deformation of the measuring element. The magnitude of the deformation is proportional to the pressure to be measured, and it is coupled to the pointer mechanism.

Capsule element pressure gauge

Capsule element pressure gauges are used to measure air and dry gases at low pressures. They cover measuring spans from 2.5 mbar to 600 mbar. The measuring element consists of two metal diaphragms soldered together to form a cylindrical bellows chamber. This capsule element expands when the pressure inside the element is higher than the external pressure, and it contracts when the internal pressure is lower. This motion is proportional to the pressure to be measured, and it is coupled to the pointer mechanism.



Bourdon tube pressure gauges, industrial version

Type MRE and MRE-g, nominal size 63 mm

SIKA quality industrial-grade pressure gauges with 63 mm stainless steel cases are suitable for measuring the pressure of gaseous or liquid media, but not for highly viscous or crystallizing media.

- Pressure gauges compliant with EN 837-1
- Stainless steel case with bayonet ring or crimped-on ring
- Brass or stainless steel threaded connection
- Connection at bottom or rear, G $\frac{1}{4}$ B
- EN 837-1 accuracy class 1.6, class 2.5 (for display ranges 0...600 bar and 0...1000 bar)
- Protection class IP54 / EN 60529 (unfilled case)
- GL type approval certificate available

Degree of protection according to EN 60529

IP54 (IP65 for filled case with closed pressure equalisation insert). Types other than IP65 available on request.

Dial

Aluminium, white with black scale markings.

Window

Instrument glass for types with brass connection thread, laminated safety glass for type MRE with stainless steel connection, polycarbonate for type MRE-g with stainless steel connection.

Pointer movement

Brass & German silver; stainless steel for gauges with stainless steel connection.

Connection threads and materials

Standard pressure gauges have a brass connection thread and bronze Bourdon tube. Version with connection thread and Bourdon tube made from 1.4571 or 316L stainless steel is optionally available.

Maximum pressure load	
Static load	75 % of full-scale value
Dynamic load	65 % of full-scale value
Overload	Full scale-value

Temperature range

- **Storage temperature**
-40...70 °C (-20...70 °C with filled case)
- **Ambient operating temperature**
-40...60 °C (-20...60 °C with filled case)
- **Media temperature**
Gauges with brass connection 60 °C max.
Gauges with stainless steel connection 200 °C max.
(100 °C max. with filled case)



Ambient temperature sensitivity

The pressure gauges are calibrated at a reference temperature of 20 °C. At other operating temperatures the maximum indication error is ± 0.4 % of full scale value per 10 °C difference in accordance with EN 837-1.

Case type

The stainless steel case is available in two versions: with a bayonet ring (type MRE) or with a crimped-on ring (type MRE-g). Case ventilation is provided by a pressure equalisation insert.

Display ranges

DIN display ranges from -1...0 bar to 0...1000 bar are available (max. 600 bar with brass connection or 1000 bar with stainless steel connection). Gauges with special ranges can be provided on request.

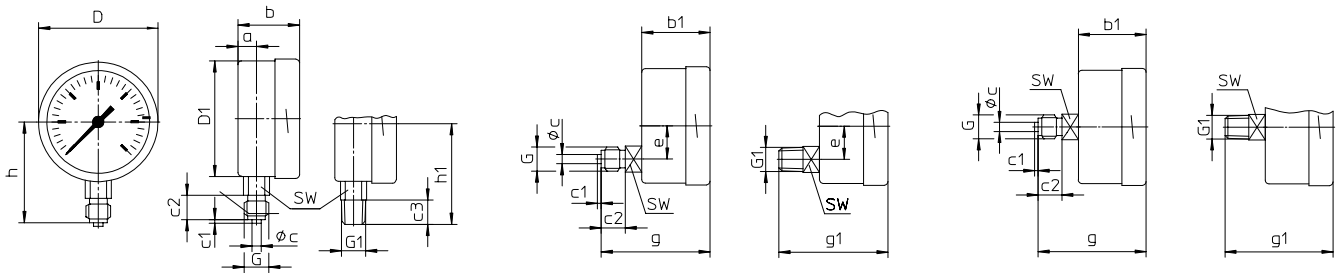
Options

- Laminated safety glass windows for gauges with brass or stainless steel connection
- Safety version with baffle compliant with EN 873-1 S3 (only with bayonet ring case)
- Throttle screw in input channel
- Versions for higher media temperatures
- With glycerine filled case
- Red mark or markings, adjustable red marker pointer (only with unfilled bayonet ring case)
- Customer-specific special scales available with large order quantities

Types and dimensions - bayonet ring case

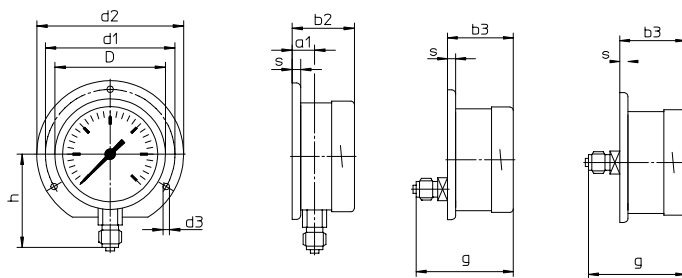
Without mounting flange

Bottom connection, lower back connection or central back connection



With rear flange

Bottom connection, lower back connection* or central back connection*

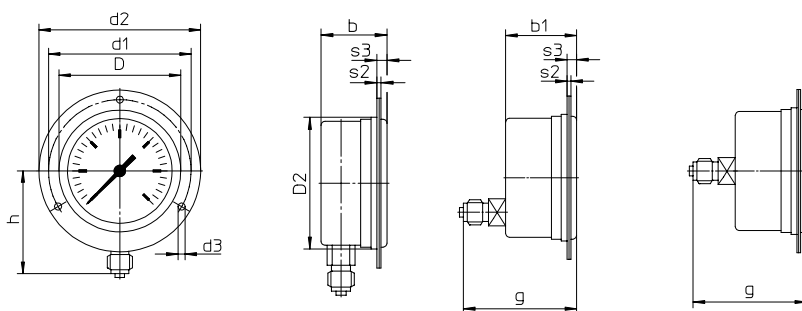


* Versions available on request, but not recommended by EN 837-1.

** Front flange with oval holes and separate trim ring, recommended panel cut out $\varnothing 67 \pm 0.3$ mm

With front flange**

Bottom connection*, lower back connection or central back connection



Dimensions [mm]

NS	D	D1	D2	a	a1	b	b1	b2	b3	c	c1	c2	c3	d1	d2
63	64	62	66	10	13	33	37	36	40	5	2	13	13	75	85

Dimensions [mm]

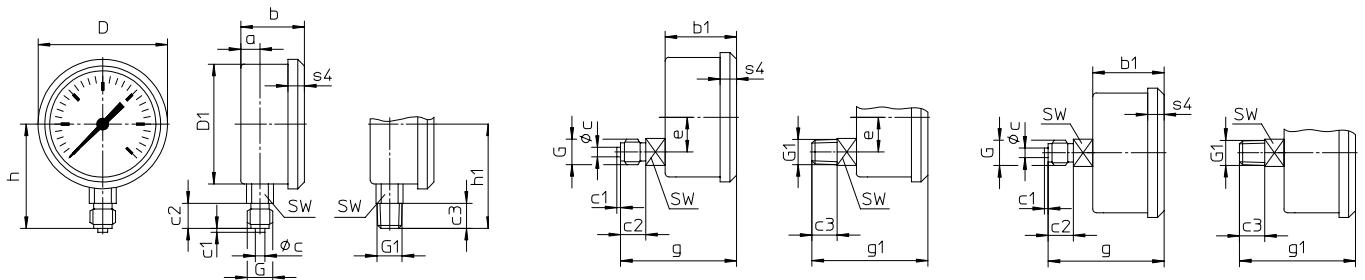
NS	d3	e	G	G1	g	g1	h	h1	s	s2	s3	SW	Weight [kg*] (approx.)	
													unfilled	filled
63	3.6	18	G $\frac{1}{4}$ B M12 x 1.5	$\frac{1}{4}$ NPT	59	59	54	54	5	2	5.5	14	0.18	0.25

* Data applies to versions without mounting flange

Types and dimensions – crimped-on ring case

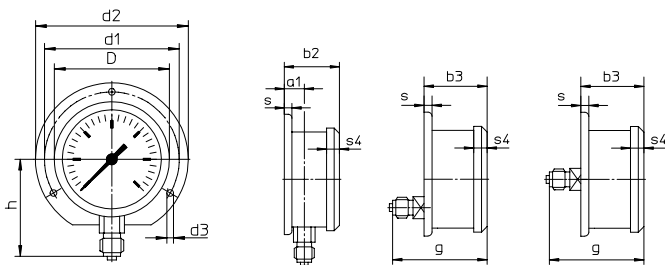
Without mounting flange

Bottom connection, lower back connection or central back connection



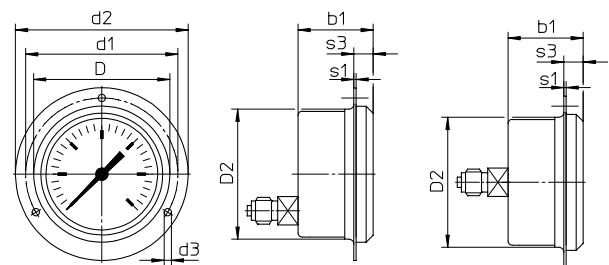
With rear flange

Bottom connection, lower back connection* or central back* connection



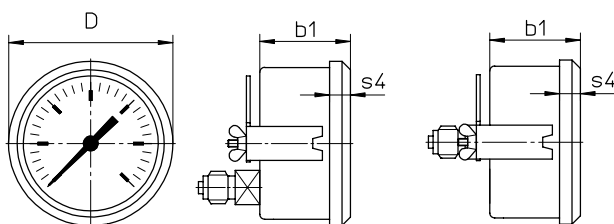
With front flange**

Lower back connection or central back connection



With u-clamp***

Lower back connection or central back connection



- * Versions available on request, but not recommended by EN 837-1
- ** Recommended panel cut out $\varnothing 67 \pm 0.3$ mm
- *** Recommended panel cut out $\varnothing 64 \pm 0.3$ mm

Dimensions [mm]

NS	D	D1	D2	a	a1	b	b1	b2	b3	c	c1	c2	c3	d1	d2
63	67	62	64	10	13	33	37	36	40	5	2	13	13	75	85

Dimensions [mm]

NS	d3	e	G	G1	g	g1	h ^{±1}	h1 ^{±1}	s	s1	s3	s4	SW	Weight [kg*] [approx.]	
														unfilled	filled
63	3.6	18	G $\frac{1}{4}$ B M12 x 1.5	$\frac{1}{4}$ NPT	60	60	54	54	5	1	9.5	8.5	14	0.18	0.25

* Data applies to versions without mounting flange

Order code

Order example	MRE	1	1	1	315	0	0	0
SIKA bourdon tube pressure gauges, industrial version								
Bayonet ring case	MRE							
Crimped-on ring case	MREG							
Nominal size								
63 mm		1						
Connection thread								
G¼ B bottom			1					
G¼ B lower back connection			2					
G¼ B lower back connection			5					
¼ NPT bottom			M					
¼ NPT lower back connection			N					
¼ NPT lower back connection			S					
M12 x 1.5 bottom			3					
M12 x 1.5 lower back connection			4					
M12 x 1.5 lower back connection			6					
Connection material								
Brass				1				
Stainless steel				3				
Display ranges								
-1...0 bar					315			
-1...0.6 bar					505			
-1...1.5 bar					515			
-1...3 bar					525			
-1...5 bar					535			
-1...9 bar					545			
-1...15 bar					555			
0...0.6 bar					015			
0...1 bar					025			
0...1.6 bar					035			
0...2.5 bar					045			
0...4 bar					055			
0...6 bar					065			
0...10 bar					075			
0...16 bar					085			
0...25 bar					095			
0...40 bar					105			
0...60 bar					115			
0...100 bar					125			
0...160 bar					135			
0...250 bar					145			
0...400 bar					155			
0...600 bar					165			
0...1000 bar					175			
								only with crimped-on ring case
Mounting flange								
None								0
Rear flange								1
Front flange								2
U-clamp								3
								only with crimped-on ring case
Option								
None								0
Filled case								
Unfilled case								0
Filled case (glycerine)								G

Type MRE-g, nominal size 80 mm

SIKA quality industrial-grade pressure gauges with 80 mm stainless steel cases are suitable for measuring the pressure of gaseous or liquid media, but not for highly viscous or crystallizing media.

- Pressure gauges compliant with EN 837-1
- Stainless steel case with crimped-on ring
- Brass or stainless steel threaded connection
- Connection at bottom or centre rear, G½ B
- EN 837-1 accuracy class 1.0, class 1.6 (for display range 0...600 or 0...1000 bar)
- GL type approval certificate available

Ambient temperature sensitivity

The pressure gauges are calibrated at a reference temperature of 20 °C. At other operating temperatures the maximum indication error is ± 0.4 % of full scale value per 10 °C difference in accordance with EN 837-1.

Case type

Available only with type MRE-g crimped-on ring case. Case ventilation is provided by a pressure equalisation insert.

Display ranges

DIN display ranges from -1...0 bar to 0...1000 bar available (max. 600 bar with brass connection block; max. 1000 bar with stainless steel connection block). Gauges with special ranges can be provided on request.

Degree of protection according to EN 60529

IP65 with closed pressure equalisation insert.

Dial

Aluminium, white with black scale markings.

Window

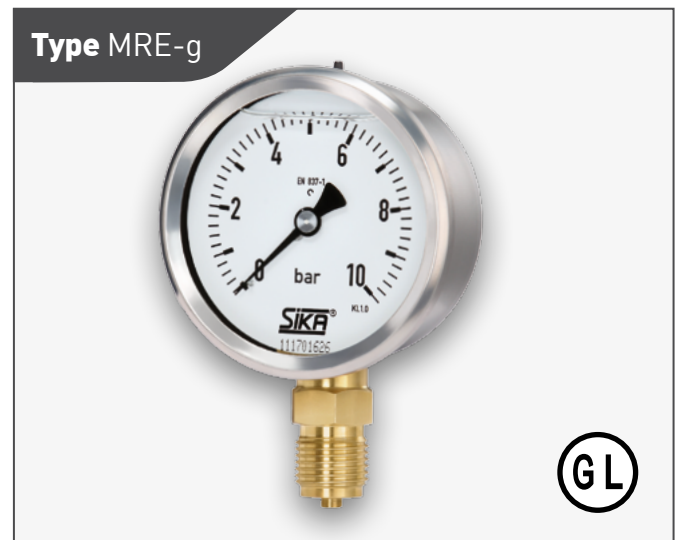
Instrument glass; gauges with stainless steel connection have laminated safety glass.

Pointer movement

Brass & German silver; stainless steel for gauges with stainless steel connection.

Connection threads and materials

Standard pressure gauges have brass connection threads and bronze Bourdon tubes. A version with connection thread and Bourdon tube made from 1.4571 or 316L stainless steel is optionally available.



Maximum pressure load

Static load	75 % of full scale value
Dynamic load	65 % of full scale value
Overload	Full scale value

Temperature range

- **Storage temperature**
-40 to 70 °C [-20 to 70 °C with filled case]
- **Ambient operating temperature**
-40 to 60 °C [-20 to 60 °C with filled case]
- **Media temperature**
Gauges with brass connection 60 °C max.
Gauges with stainless steel connection 200 °C max.
(100 °C max. with filled case)

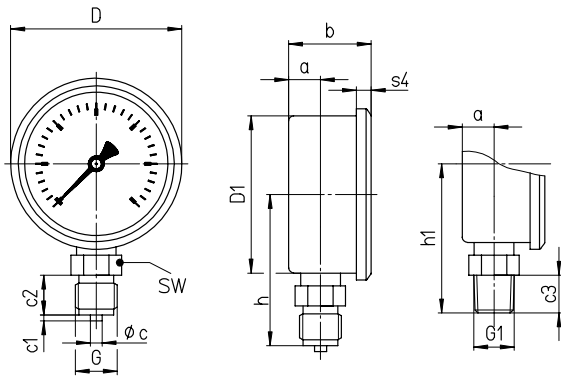
Options

- Other connection threads, display ranges and / or special scales
- Front or rear mounting flange or u-clamp
- Gauges with brass connection blocks have laminated safety glass windows
- Throttle screw in input channel
- Versions for higher media temperatures
- With glycerine filled case
- Red mark / coloured markings on dial or plastic clip
- Customer-specific special scales available with large order quantities

Types and dimensions

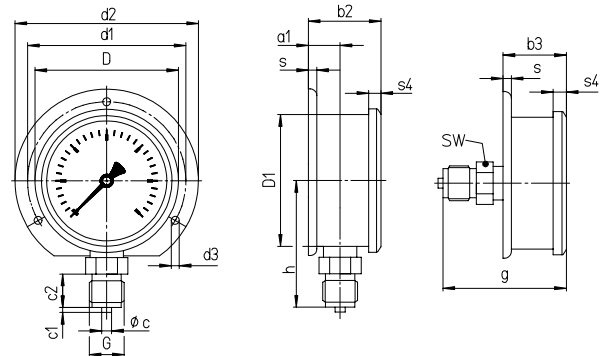
Bottom connection

Without mounting flange



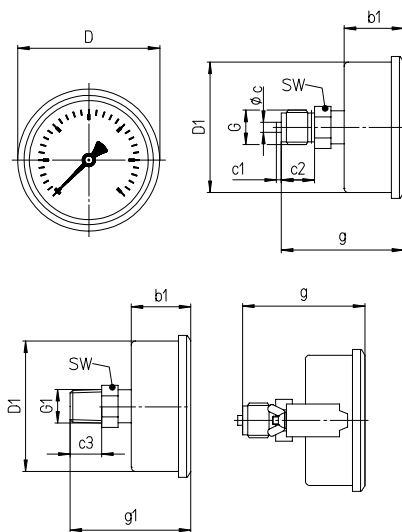
Bottom connection or central back connection*

With rear flange



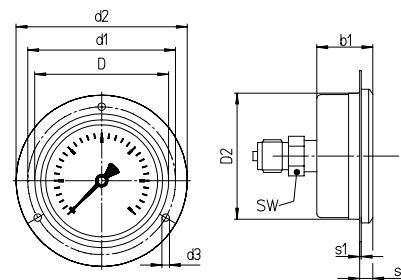
Central back connection

Without mounting flange (available with u-clamp)**



Central back connection

With front flange***



* Version available on request, but not recommended by EN 837-1.

** Recommended panel cut out $\varnothing 81 \pm 0.5$ mm

*** Recommended panel cut out $\varnothing 84 \pm 0.5$ mm

Dimensions [mm]

NS	D	D1	D2	a	a1	b	b1	b2	b3	c	c1	c2	c3	d1	d2
80	86	79	81	16	19	41.5	36	44	38.5	6	3	20	19	95	110

Dimensions [mm]

NS	d3	G	G1	g	g1	h	h1	s	s1	s3	s4	SW	Weight [kg*] (approx.)	
													unfilled	filled
80	4.8	G½ B M20 x 1.5	½ NPT	74	73	76	75	5	1	9	8	22	0.34	0.50

* Data applies to versions without mounting flange

Order code

Order example	MREG	2	1	1	315	0	0	0
SIKA bourdon tube pressure gauges, industrial version								
Crimped-on ring case	MREG							
Nominal size								
80 mm		2						
Connection thread								
G½ B bottom				1				
G½ B central back connection				2				
M20 x 1.5 bottom				3				
M20 x 1.5 central back connection				4				
½ NPT bottom				B				
½ NPT central back connection				C				
Connection material								
Brass				1				
Stainless steel				3				
Display ranges								
-1...0 bar					315			
-1...0.6 bar					505			
-1...1.5 bar					515			
-1...3 bar					525			
-1...5 bar					535			
-1...9 bar					545			
-1...15 bar					555			
0...0.6 bar					015			
0...1 bar					025			
0...1.6 bar					035			
0...2.5 bar					045			
0...4 bar					055			
0...6 bar					065			
0...10 bar					075			
0...16 bar					085			
0...25 bar					095			
0...40 bar					105			
0...60 bar					115			
0...100 bar					125			
0...160 bar					135			
0...250 bar					145			
0...400 bar					155			
0...600 bar					165			
0...1000 bar					175			
Mounting flange								
None							0	
Rear flange							1	
Front flange							2	
U-clamp							3	
Option								
None								0
Filled case								
None								0
With [glycerine]								G

Type MRE and MRE-g, nominal sizes 100, 160 and 250 mm

SIKA quality industrial-grade pressure gauges with 100, 160 or 250 mm stainless steel cases are suitable for measuring the pressure of gaseous or liquid media, but not for highly viscous or crystallizing media.

- Pressure gauges compliant with EN 837-1
- Stainless steel case with bayonet ring or crimped-on ring
- Brass or stainless steel threaded connection
- G½ B connection at bottom or lower back
- EN 837-1 accuracy class 1.0
- GL type approval certificate available (only for nominal size 100 mm)

Case type

The stainless steel case is available in two versions: with a bayonet ring (type MRE) or with a crimped-on ring (type MRE-g). Gauges with nominal size 250 mm are usually supplied with bayonet ring cases. Case ventilation is provided by a pressure equalisation insert.

Display ranges

DIN display ranges from -1...0 bar to 0...1600 bar are available (max. 1000 bar with brass connection or 1600 bar with stainless steel connection). Gauges with special ranges can be provided on request.

Degree of protection according to EN 60529

IP54 (IP65 for filled gauges with closed pressure equalisation insert). Types other than IP65 available on request.

Dial

Aluminium, white with black scale markings.

Window

Instrument glass (laminated safety glass for gauges with stainless steel connection)

Pointer movement

Brass & German silver; stainless steel for gauges with stainless steel connection

Components in contact with media

Standard pressure gauges have a brass connection thread and bronze Bourdon tube. Version with connection thread and Bourdon tube made from 1.4571 or 316L stainless steel is optionally available.

Maximum pressure load	
Static load	100 % of full scale value
Dynamic load	90 % of full scale value
Overload	130 % of full scale value

Types MRE and MRE-g



Temperature range

- **Storage temperature**
-40 to 70 °C (-20 to 70 °C with filled case)
- **Ambient operating temperature**
-40 to 60 °C (-20 to 60 °C with filled case)
- **Media temperature**
Gauges with brass connection 60 °C max.
Gauges with stainless steel connection 200 °C max.
(100 °C max. with filled case)

Ambient temperature sensitivity

The pressure gauges are calibrated at a reference temperature of 20 °C. At other operating temperatures the maximum indication error is ±0.4% of full scale value per 10 °C difference in accordance with EN 837-1.

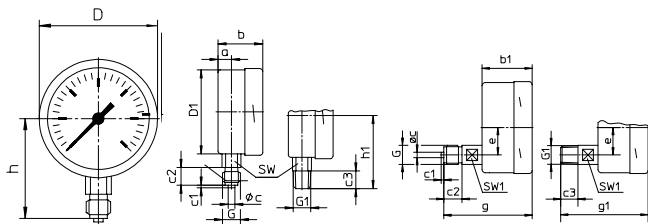
Options

- Other connection threads, other display ranges and / or special scales, front or rear mounting flange or u-clamp
- Laminated safety glass window for gauges with brass connection
- Throttle screw in input channel
- Versions for elevated media temperature (only for nominal size 100 or 160 mm with unfilled case)
- With glycerine filled case (only for nominal size 100 or 160 mm)
- Red mark on dial; red or green plastic clip on outer edge of bayonet ring or crimped-on ring (not with nominal size 250 mm), moveable red marker pointer on dial (only with unfilled bayonet ring case)
- Customer-specific special scales available with large order quantities

Types and dimensions – bayonet ring case

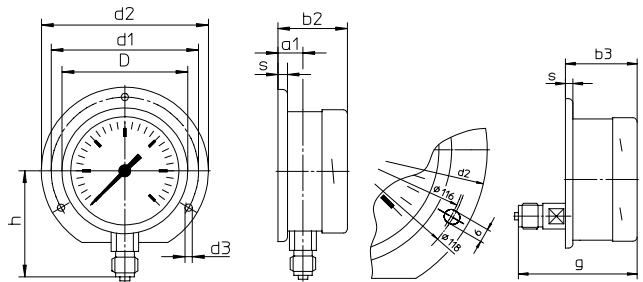
Without mounting flange

Bottom connection or lower back connection



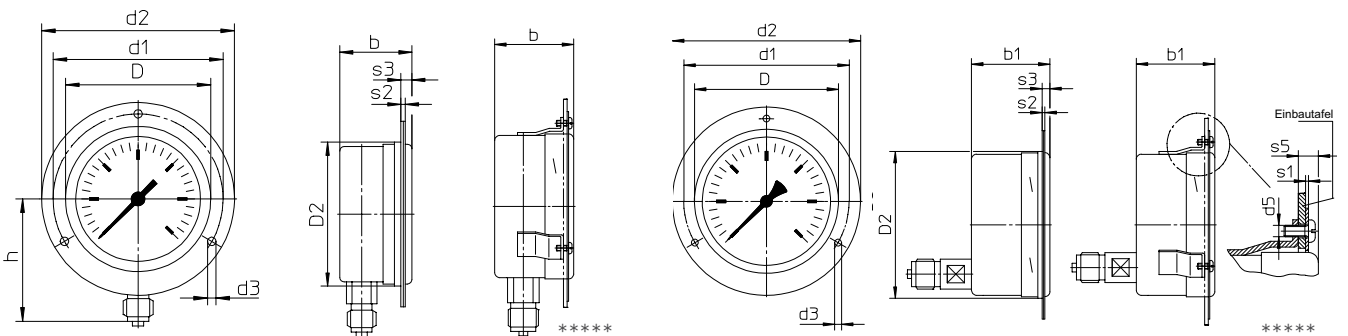
With rear flange***

Bottom connection** or lower back connection*



With front flange

Bottom connection* or lower back connection****



* Version available on request, but not recommended by EN 837-1.

** Nominal size 100 rear flange optionally available with oval holes compliant with EN 837-1.

*** With three lugs for nominal size 250.

**** Recommended panel cut out $\varnothing 104 \pm 0.5$ mm for NS 100; $\varnothing 164 \pm 0.5$ mm for NS 160; $\varnothing 254 \pm 0.5$ mm for NS 250.

***** Welded lugs and separate fixing flange at front.

Dimensions [mm]

NS	D	D1	D2	a	a1	b	b1	b2	b3	c	c1	c2	c3	d1	d2
100	101	99	103	20	23.5	55	55	58.5	58.5	6	3	20	19	116	132
160	161	159	163	15	18	50	55	53	58	6	3	20	19	178	196
250	251	249		15.5	17.5	58	58	60	60	6	3	20	19	270	285

Dimensions [mm]

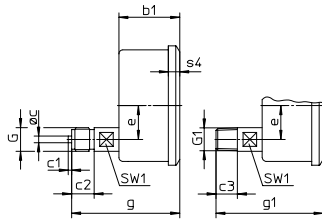
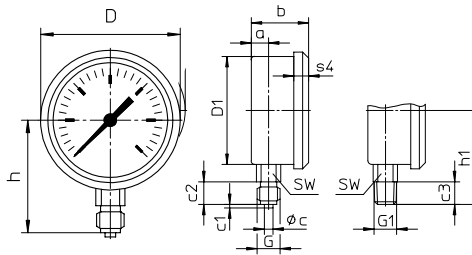
NS	d3	d5	G	G1	e	g	g1	h ^{±1}	h1 ^{±1}	s	s1	s2	s3	s5	SW	SW1	Weight [kg*] (approx.)	
																	unfilled	filled
100	4.8	M4	G½ B M20 x 1.5	½ NPT	30	97	96	87	84	6	1	2	5.5	7	22	17	0.60	0.95
160	5.8	M5	G½ B M20 x 1.5	½ NPT	30	92.5	91.5	115	114	6	1.5	2.5	6	8	22	17	1.10	1.95
250	5.8		G½ B M20 x 1.5	½ NPT	52	97	96	165	164	6	-	2	8.5	-	22	17	2.10	

* Data applies to versions without fixing device

Types and dimensions – crimped-on ring case

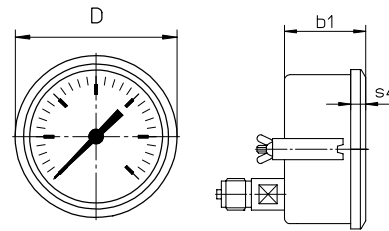
Without mounting flange

Bottom connection or lower back connection



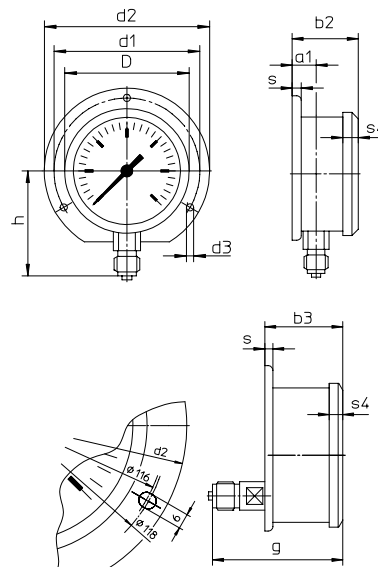
With u-clamp fixing****

Lower back connection*



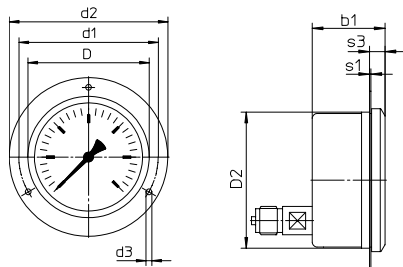
With rear flange

Bottom connection** or lower back connection*



With front flange

Lower back connection***



- * Version available on request, but not recommended by EN 837-1.
- ** NS 100 rear flange optionally available with oval holes compliant with EN 837-1.
- *** Recommended panel cut out $\varnothing 102 \pm 0.5$ mm for NS 100; NS 160 on request.
- **** Recommended panel cut out $\varnothing 102 \pm 0.5$ mm for NS 100; $\varnothing 162 \pm 0.5$ mm for NS 160.

Dimensions [mm]

NS	D	D1	D2	a	a1	b	b1	b2	b3	c	c1	c2	c3	d1	d2
100	106	99	101	20	23.5	54	54	57.5	57.5	6	3	20	19	116	132
160	167	159	161	15	18	50	55	53	58	6	3	20	19	178	196

Dimensions [mm]

NS	d3	G	G1	e	g	g1	h ^{±1}	h1 ^{±1}	s	s1	s3	s4	SW	SW1	Weight [kg*] (approx.)	
															unfilled	filled
100	4.8	G½ B M20 x 1.5	½ NPT	30	96	95	87	84	6	1	11.5	10	22	17	0.60	0.90
160	5.8	G½ B M20 x 1.5	½ NPT	30	97	96	115	114	6	-	-	11	22	17	1.10	1.70

* Data applies to versions without mounting flange

Order code

Order example	MRE	3	1	1	315	0	0	0
SIKA bourdon tube pressure gauges, industrial version								
Bayonet ring case	MRE							
Crimped-on ring case	MREG							
Nominal size								
100 mm		3						
160 mm		4						
250 mm	available only as type MRE with bayonet ring case	5						
Connection thread								
G½ B bottom			1					
G½ B lower back connection			2					
M20 x 1.5 bottom			3					
M20 x 1.5 lower back connection			4					
½ NPT bottom			B					
½ NPT lower back connection			C					
Connection material								
Brass				1				
Stainless steel				3				
Display ranges								
-1...0 bar					315			
-1...0.6 bar					505			
-1...1.5 bar					515			
-1...3 bar					525			
-1...5 bar					535			
-1...9 bar					545			
-1...15 bar					555			
0...0.6 bar					015			
0...1 bar					025			
0...1.6 bar					035			
0...2.5 bar					045			
0...4 bar					055			
0...6 bar					065			
0...10 bar					075			
0...16 bar					085			
0...25 bar					095			
0...40 bar					105			
0...60 bar					115			
0...100 bar					125			
0...160 bar					135			
0...250 bar					145			
0...400 bar					155			
0...600 bar					165			
0...1000 bar					175			
0...1600 bar					185			
Mounting flange								
None							0	
Rear flange							1	
Front flange							2	
U-clamp	only with crimped-on ring case (nominal size 100 or 160 mm)						3	
Option								
None								0
Filled case								
Unfilled case								0
Filled case (glycerine)	only with nominal size 100 or 160 mm							G

Bourdon tube pressure gauges, safety version

Type MRE-S, nominal sizes 100 and 160 mm

SIKA quality industrial grade pressure gauges with 100 or 160 mm stainless steel cases are suitable for measuring the pressure of gaseous or liquid media, but not for highly viscous or crystal-forming media. The gauges conform to safety class S3 requirements as specified in EN 837-1.

- Safety pressure gauges compliant with EN 837-1
- Stainless steel case with bayonet ring
- Brass or stainless steel connection
- Connection at bottom or back
- EN 837-1 accuracy Class 1.0

Ambient temperature sensitivity

The pressure gauges are calibrated at a reference temperature of 20 °C. At other operating temperatures the maximum indication error is $\pm 0.4\%$ of full scale per 10 °C difference in accordance with EN 837-1.

Case type

The stainless steel case has a bayonet ring and is designed to conform to safety requirements similar to EN 837-1 S3. The gauges have a sturdy baffle between the dial plate and the Bourdon tube and connection block. The entire back cover is designed to blow out.

Display ranges

Available with DIN display ranges from -1...0 bar to 0...1600 bar or 0...1000 bar (only with brass connection). Special ranges can be provided on request.

Degree of protection according to EN 60529

IP54 (IP65 with filled case)

Dial

Aluminium, white; black scale markings

Window

Laminated safety glass

Pointer movement

Brass & German silver; stainless steel for gauges with stainless steel connection.

Connection threads and materials

Standard pressure gauges have a brass connection block and bronze Bourdon tube. A version with the connection block and Bourdon tube made from 1.4571 or 316L stainless steel is optionally available.



Maximum pressure load	
Static load	100 % of full scale value
Dynamic load	65 % of full scale value
Overload	Full scale value

Temperature range

- **Storage temperature**
-40 to 70 °C [-20 to 70 °C with filled case]
- **Ambient operating temperature**
-40 to 60 °C [-20 to 60 °C with filled case]
- **Media temperature**
Gauges with brass connection 60 °C max.
Gauges with stainless steel connection 200 °C max.
(100 °C max. with filled case)

Options

- Other connection threads
- Other display ranges and / or special scales
- Mounting flange at front or rear
- Throttle screw in inlet channel
- With glycerine filled case
- Aluminium adjustable pointer; adjustable red marker pointer on dial (only with unfilled case)
- Customer-specific special scales are available with large order quantities