Bimetal thermometer
Model 55, stainless steel version

for further approvals
see page 6

Applications

- General process instrumentation in the chemical and petrochemical industries, oil and gas industries, energy and water/wastewater industries
- Temperature measurement in harsh and aggressive environments

Special features

- Application ranges from -70 ... +600 °C
- For extreme ambient temperatures
- Maintenance-friendly bayonet case
- All stainless steel construction
- Individual stem length from 63 ... 1,000 mm

Fig. left: Bimetal thermometer, model R5502
Fig. right: Bimetal thermometer, adjustable stem and dial, model S5550

Description

The model 55 bimetal thermometer has been developed and is manufactured in accordance with the EN 13190 standard. The high-quality thermometer has been designed especially for the requirements of the process industry. Especially in the chemical and petrochemical, oil and gas, and power engineering industries, the temperature measuring instrument completely manufactured from stainless steel is used successfully.

The model 55 satisfies the high requirements for resistance against aggressive media. As an option, the case, the stem and the process connection can be made from 316Ti (1.4571) to fulfil the highest requirements.

To allow optimum fitting to the process, individual insertion lengths and different process connections can be selected.

When it comes to harsh climatic conditions at the place of use, the model 55 is the right choice, as it can be used at temperatures ranging from -50 °C to +60 °C.

Standard version

Measuring element
Bimetal coil

Nominal size in mm
63, 100, 160

Connection designs
S Standard (male threaded connection)
1 Plain stem (without thread)
2 Male nut
3 Union nut
4 Compression fitting (sliding on stem)
5 Union nut and loose threaded connection

Model overview

Model	NS	Version
A5525	63	Back mount (axial)
A5500	100	
A5501	160	
R5526	63	Lower mount (radial)
R5502	100	
R5503	160	
S5550	100	Back mount, adjustable stem and dial
S5551	160	

Accuracy class
Class 1 per EN 13190

Working range
Normal (1 year): Measuring range (EN 13190)
Short time (24 h max.): Scale range (EN 13190)

Case, bayonet ring
Stainless steel 1.4301 (304)

Stem, process connection
Stainless steel 1.4571 (316Ti)

Dial
Aluminium white, black lettering

Window
Instrument glass
NS 63: window from polycarbonate

Pointer
Aluminium, black, micro adjustable pointer

Zero adjustment
on case back side, external only for adjustable stem and dial (option)

Insertion length L_1
63 ... 1,000 mm
minimum/maximum length is dependent on the measuring range and diameter

Temperature limits for storage and transport
-50 ... +70 °C (unfilled)
-20 ... +70 °C (filled)

Permissible ambient temperature at case
-50 ... +70 °C

Permissible operating pressure at the stem
max. 25 bar, static

Ingress protection
IP 65 per EN 60529

Options

- Scale range °F, °C/°F (dual scale)
- Liquid damping up to max. 250 °C (at the sensor)
- Laminated safety glass, clear non-splintering plastic
- Stem diameter 6, 10, 12 mm
- Ingress protection IP 66
- Thermometer with switch contacts (data sheet TV 25.01)
- Special measuring ranges or dial printing to customer specifications (on request)
- Version per ATEX Ex II 2 GD c TX

Scale ranges, measuring ranges [1], error limits (EN 13190)
Scale graduation per WIKA standard

Scale range in °C	Measuring range [1] in °C	Scale spacing in °C	Error limit ±°C
-70 ... +30	-60 ... +20	1	1.0
-50 ... +50	-40 ... +40	1	1.0
-30 ... +50	-20 ... +40	1	1.0
-20 ... +60	-10 ... +50	1	1.0
0 ... 60	10 ... 50	1	1.0
0 ... 80	10 ... 70	1	1.0
0 ... 100	10 ... 90	1	1.0
0 ... 120	10 ... 110	2	2.0
0 ... 160	20 ... 140	2	2.0
0 ... 200	20 ... 180	2	2.0
0 ... 250	30 ... 220	5	2.5
0 ... 300	30 ... 270	5	5.0
0 ... 400	50 ... 350	5	5.0
0 ... 500	50 ... 450	5	5.0
0 ... 600	100 ... 500	10	10.0

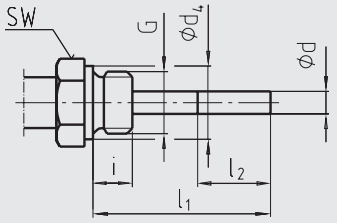
1) The measuring range is indicated on the dial by two triangular marks. Only within this range is the stated error limit valid per EN 13190.

Connection designs

Standard design (male thread connection)

Connection, male: G ½ B, G ¾ B, ½ NPT, ¾ NPT
Insertion length l_1 = 63, 100, 160, 200, 250 mm

Nominal size	Process connection		Dimensions in mm		
NS	G	i	SW	d_4	Ø d
63, 100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8



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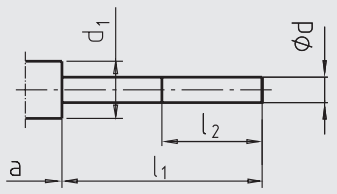
Legend:

G	Male thread	SW	Spanner width
i	Thread length	Ø d	Stem diameter
Ø d_4	Diameter of the sealing collar	l_2	active length

Design 1, plain stem (without thread)

Insertion length l_1 = 140, 200, 240, 290 mm

Nominal size	Dimensions in mm			
NS	d_1	Ød	a for axial	a for adjustable stem and dial
63	14	8	15	25
100, 160	18	8	15	25



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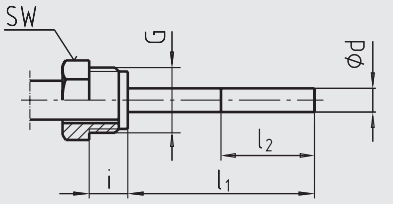
Legend:

a	Distance to the case/ articulated joint	Ø d	Stem diameter
		l_2	active length
Ø d_1	Plain diameter		

Design 2, male nut

Insertion length l_1 = 80, 140, 180, 230 mm

Nominal size	Process connection		Dimensions in mm	
NS	G	i	SW	Ød
63, 100, 160	G ½ B	20	27	8



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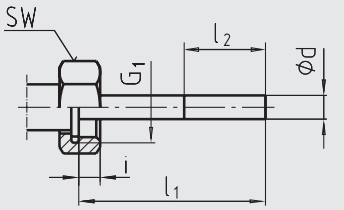
Legend:

G	Male thread	Ø d	Stem diameter
i	Thread length incl. collar	l_2	Active length
SW	Spanner width		

Design 3, union nut

Insertion length l_1 = 89, 126, 186, 226, 276 mm

Nominal size	Process connection		Dimensions in mm	
NS	G_1	i	SW	Ød
63, 100, 160	G ½	8.5	27	8
	G ¾	10.5	32	8
	M24 x 1.5	13.5	32	8



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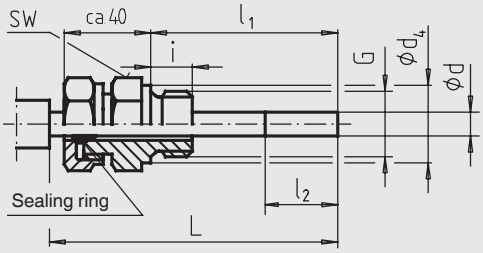
Legend:

G_1	Female thread	Ø d	Stem diameter
i	Thread length	l_2	Active length
SW	Spanner width		

Design 4, compression fitting (sliding on stem)

Standard insertion length l_1 = 63, 100, 160, 200, 250 mm
Length L = l_1 + 40 mm

Nominal size	Process connection		Dimensions in mm		
NS	G	i	SW	d_4	Ød
63, 100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	M18 x 1.5	12	24	23	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8



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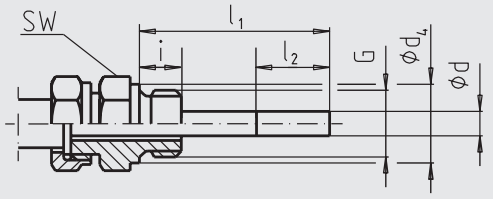
Legend:

G	Male thread	SW	Spanner width
i	Thread length	Ø d	Stem diameter
Ø d_4	Diameter of the sealing collar	l_2	Active length

Design 5, union nut and loose threaded connection
G ½ B, G ¾ B, M18 x 1.5 and ½ NPT, ¾ NPT
Minimum immersion depth l_{min} approx. 60 mm
Insertion length l_1 = variable
Length L = l_1 + 40 mm
Stainless steel 1.4571

Nominal size	Process connection		Dimensions in mm		
NS	G	i	SW	d_4	Ød
63, 100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	M18 x 1.5	12	24	23	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8



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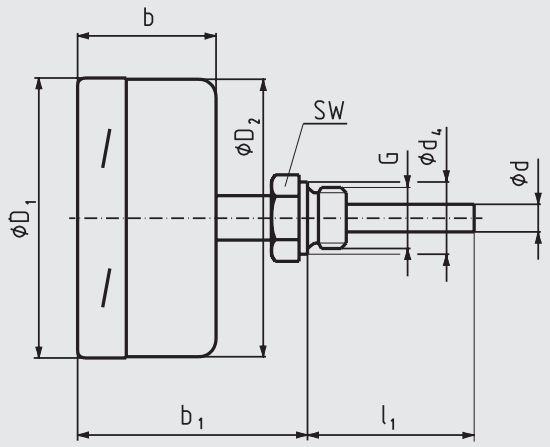
Legend:
G Male thread
i Thread length
Ø d_4 Diameter of the sealing collar
SW Spanner width
Ø d Stem diameter
l_2 Active length

Dimensions in mm

Back mount (BM)



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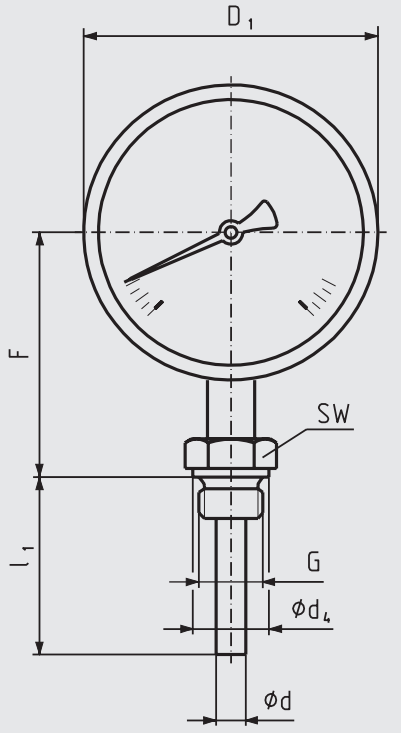
Lower mount (LM)



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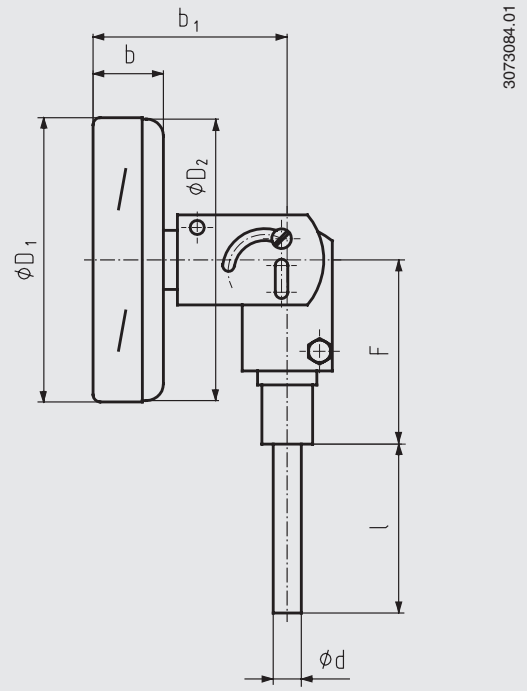
NS	Dimensions in mm									Weight in kg	
	b	b_1 1)	d 2)	d_4	Ø D_1	Ø D_2	F 1)	G	SW	Model A55xx	Model R55xx
63	35	60	8	26	64	62	57	G ½ B	27	0.25	0.25
100	50	83	8	26	101	99	83	G ½ B	27	0.8	0.8
160	50	83	8	26	161	159	113	G ½ B	27	1.1	1.1

1) With scale ranges ≥ 0 ... 300 °C the dimensions increase by 40 mm
2) Option: stem Ø 6, 10, 12 mm

Adjustable stem and dial version



NS	Dimensions in mm						Weight in kg
	b	b_1	d [1]	Ø D_1	Ø D_2	F	Model S55xx
100	25	68	8	101	99	68	0.5
160	25	68	8	161	159	68	0.7

1) Option: stem Ø 6, 10, 12 mm

Thermowell

In principle, the operation of a mechanical thermometer without a thermowell with low process-side loading (low pressure, low viscosity and low flow velocities) is possible.

However, in order to enable exchanging the thermometer during operation (e.g. instrument replacement or calibration) and to ensure a better protection of the instrument and also the plant and the environment, it is advisable to use a thermowell from the extensive WIKA thermowell portfolio.

For further information on the calculation of the thermowell, see Technical information IN 00.15.

CE conformity

ATEX directive
94/9/EC, II 2 GD c TX

Approvals (options)

- **NEPSI**, ignition protection type “ia” - intrinsic safety, China
- **GOST-R**, import certificate, Russia
- **GOST**, metrology/measurement technology, Russia
- **CRN**, safety (e.g. electr. safety, overpressure, ...), Canada

Certificates (options)

- 2.2 test report
- 3.1 inspection certificate
- DKD/DAkkS calibration certificate

Approvals and certificates, see website

Ordering information
Model / Nominal size / Scale range / Connection size / Connection location / Options

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