

Bimetal thermometer

For the process industry per EN 13190, premium version

Model 55

WIKA data sheet TM 55.01



for further approvals
see page 7

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

- Scale 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

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.



Fig. left: Bimetal thermometer, model R5502

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

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 -40 °C to +70 °C (optional also up to -50 °C or -70 °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 304SS

Stem, process connection

Stainless steel 316SS

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 L₁

63 ... 1,000 mm

minimum/maximum length is dependent on the measuring range and diameter

Temperature limits for storage and transport

-50 ... +70 °C

Permissible ambient temperature

-40 ... +70 °C (with/without filling liquid)

Permissible operating pressure at the stem

max. 25 bar, static

Ingress protection

IP65 per IEC/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
- Permissible ambient temperature -50 ... +70 °C or -70 ... +60 °C
- Ingress protection IP66, IP67
- Thermometer with switch contacts (data sheet TV 25.01)
- Special measuring ranges or dial printing to customer specifications (on request)
- Version per ATEX

Scale ranges and measuring ranges ¹⁾ (EN 13190)
Scale graduation per WIKA standard

Scale range in °C	Measuring range ¹⁾ in °C	Scale spacing in °C
-70 ... +70	-50 ... +50	2
-70 ... +30	-60 ... +20	1
-50 ... +50	-40 ... +40	1
-50 ... +100	-30 ... +80	2
-50 ... +300	0 ... 250	5
-50 ... +500	0 ... 450	5
-40 ... +60	-30 ... +50	1
-40 ... +80	-20 ... +60	2
-40 ... +160	-20 ... +140	2
-30 ... +50	-20 ... +40	1
-30 ... +70	-20 ... +60	1
-20 ... +60	-10 ... +50	1
-20 ... +80	-10 ... +70	1
-20 ... +100	0 ... 80	2
-20 ... +120	0 ... 100	2
-20 ... +140	0 ... 120	2
-10 ... +50	0 ... 40	1
0 ... 60	10 ... 50	1
0 ... 80	10 ... 70	1
0 ... 100	10 ... 90	1
0 ... 120	10 ... 110	2
0 ... 150	20 ... 130	2
0 ... 160	20 ... 140	2
0 ... 200	20 ... 180	2
0 ... 250	30 ... 220	2
0 ... 300	30 ... 270	5
0 ... 400	50 ... 350	5
0 ... 500	50 ... 450	5
0 ... 600	100 ... 500	5

Scale range in °F	Measuring range ¹⁾ in °F	Scale spacing in °F
-80 ... +120	-40 ... +100	2
-80 ... +240	-50 ... +210	2
-20 ... +120	0 ... 100	2
0 ... 200	20 ... 180	2
0 ... 250	30 ... 220	2
30 ... 300	60 ... 270	5
30 ... 400	80 ... 350	5
50 ... 300	80 ... 270	5
50 ... 400	100 ... 350	5
100 ... 800	200 ... 700	5
200 ... 700	250 ... 650	5
200 ... 1.000	300 ... 900	5

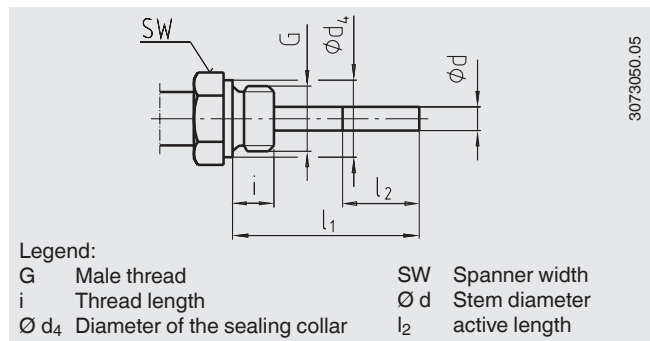
¹⁾ The measuring range is indicated on the dial by two triangular marks.
 Only within this range is the stated error limit valid per EN 13190.

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 NS	Process connection		Dimensions in mm		
	G	i	SW	Ø 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

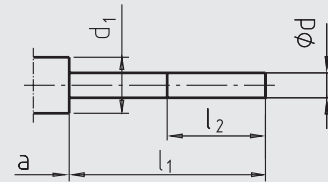


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Design 1, plain stem (without thread)

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

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



Legend:

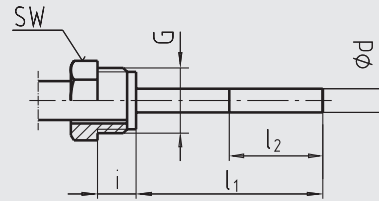
a Distance to the case/articulated joint
 $\varnothing d$ Stem diameter
 $\varnothing d_1$ Plain diameter
 l_2 active length

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Design 2, male nut

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

Nominal size	Process connection		Dimensions in mm	
NS	G	i	SW	$\varnothing d$
63, 100, 160	G 1/2 B	20	27	8



Legend:

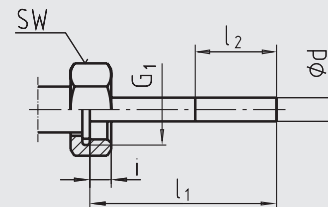
G Male thread
i Thread length incl. collar
SW Spanner width
 $\varnothing d$ Stem diameter
 l_2 active length

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Design 3, union nut

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

Nominal size	Process connection		Dimensions in mm	
NS	G	i	SW	$\varnothing d$
63, 100, 160	G 1/2 B	8,5	27	8
	G 3/4 B	10,5	32	8
	M24 x 1.5	13,5	32	8



Legend:

G₁ Female thread
i Thread length
SW Spanner width
 $\varnothing d$ Stem diameter
 l_2 active length

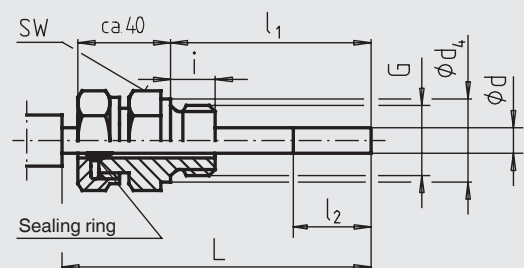
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Design 4, compression fitting (sliding on stem)

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	$\varnothing d_4$	$\varnothing d$
63, 100, 160	G 1/2 B	14	27	26	8
	G 3/4 B	16	32	32	8
	M18 x 1.5	12	24	23	8
	1/2 NPT	19	22	-	8
	3/4 NPT	20	30	-	8



Legend:

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

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Design 5, union nut and loose threaded connection

G ½ B, G ¾ B, M18 x 1.5 and ½ NPT, ¾ NPT

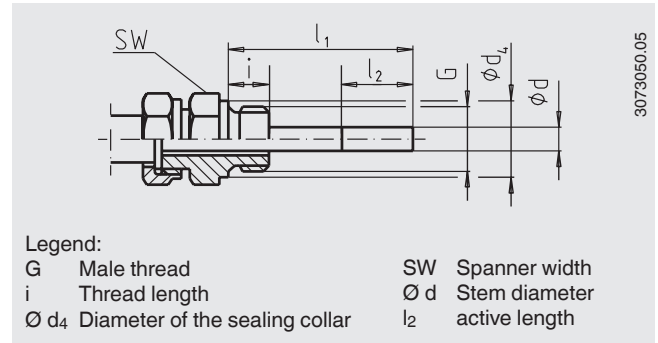
Minimum immersion depth l_{min} approx. 60 mm

Insertion length l_1 = variable

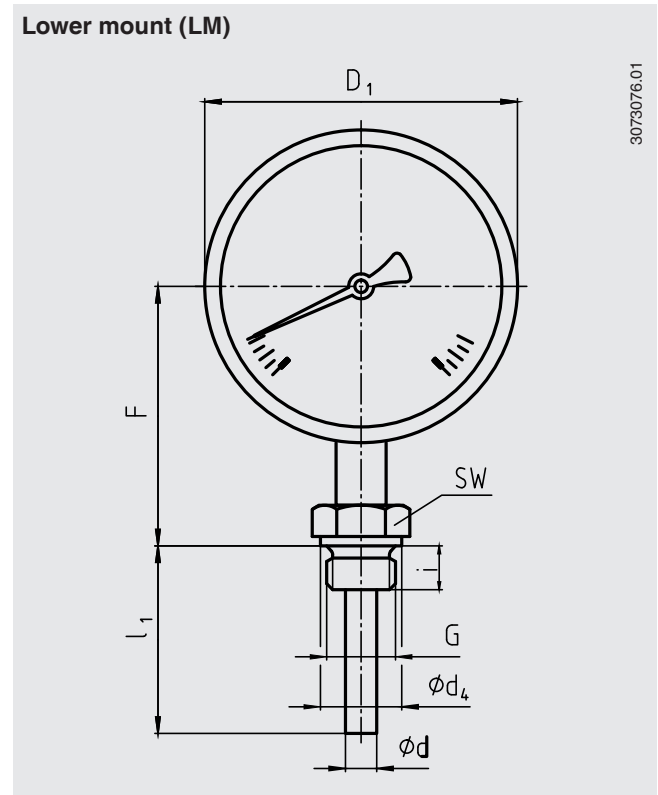
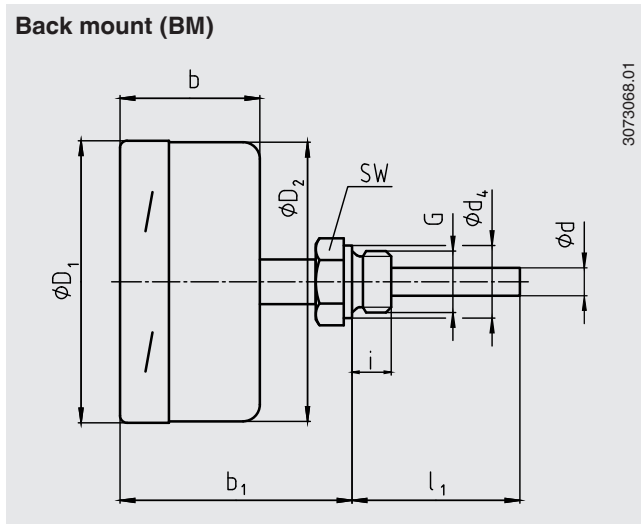
Length $L = l_1 + 40$ mm

Stainless steel 1.4571

Nominal size	Process connection		Dimensions in mm		
NS	G	i	SW	$\varnothing d_4$	$\varnothing d$
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



Dimensions in mm

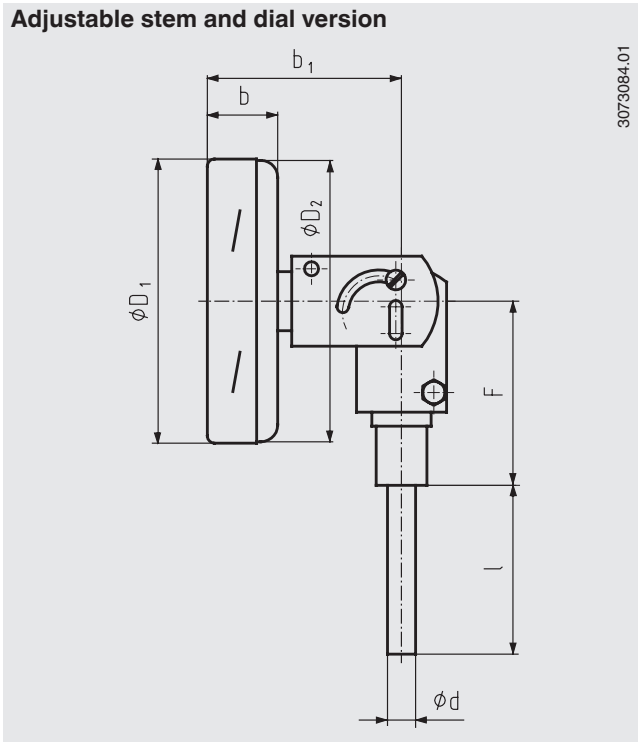


NS	Dimensions in mm							Weight in kg			
	b	b_1 ¹⁾	d ²⁾	d_4	$\varnothing D_1$	$\varnothing D_2$	F ¹⁾	G	SW	Model A55xx	Model R55xx
63	35	60	8	26	64	62	57	G ½ B	27	0.25	0.25
100	50	83	8	26	101	99	83	G ½ B	27	0.8	0.8
160	50	83	8	26	161	159	113	G ½ B	27	1.1	1.1

1) With scale ranges $\geq 0 \dots 300$ °C the dimensions increase by 40 mm

2) Option: stem $\varnothing 6, 10, 12$ 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.

Approvals

Logo	Description	Country
	EU declaration of conformity ATEX directive (option) Hazardous areas	European Union
	EAC (option) ■ Electromagnetic compatibility ■ Low voltage directive ■ Hazardous areas	Eurasian Economic Community
	GOST (option) Metrology, measurement technology	Russia
	KazInMetr (option) Metrology, measurement technology	Kazakhstan
-	MTSCHS (option) Permission for commissioning	Kazakhstan
	BelGIM (option) Metrology, measurement technology	Belarus
	UkrSEPRO (Option) Metrology, measurement technology	Ukraine
	Uzstandard (option) Metrology, measurement technology	Uzbekistan
-	CRN (option) 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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