

Bimetal thermometer Model 55, stainless steel version

WIKA data sheet TM 55.01



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

- 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.



Fig. left: Bimetal thermometer, model R5502

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

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 -40 °C to +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 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 L₁

63 ... 1,000 mm

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

Permissible temperatures

-50 ... +70 °C (without case filling liquid)

-40 ... +70 °C (with case filling liquid)

for storage, transport and ambient at case

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

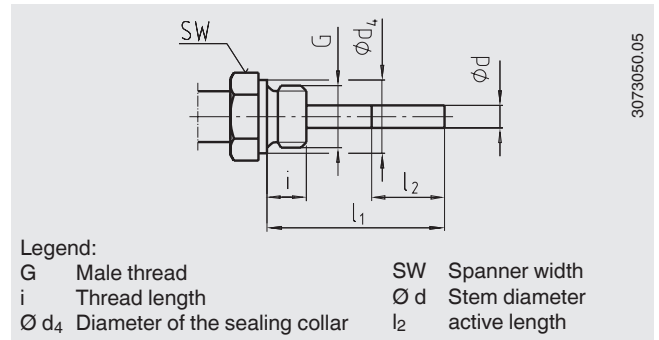
¹⁾ The measuring range is indicated on the dial by two triangular marks. Only within this range is the stated error limit valid per EN 13190.

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

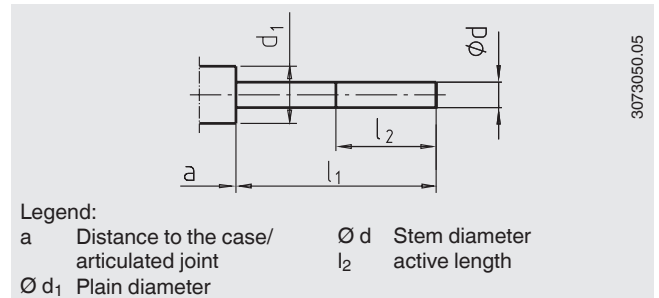
Nominal size NS	Process connection		Dimensions in mm		
	G	i	SW	d_4	$\varnothing d$
63, 100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8



Design 1, plain stem (without thread)

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

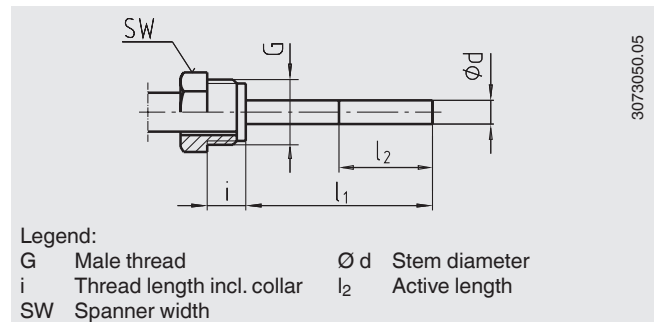
Nominal size NS	Dimensions in mm			
	d_1	$\varnothing d$	a for axial	a for adjustable stem and dial
63	14	8	15	25
100, 160	18	8	15	25



Design 2, male nut

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

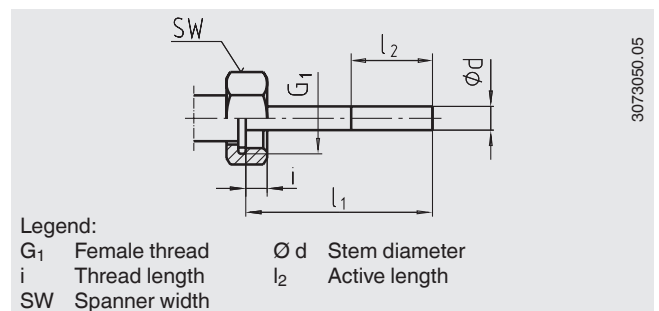
Nominal size NS	Process connection		Dimensions in mm	
	G	i	SW	$\varnothing d$
63, 100, 160	G ½ B	20	27	8



Design 3, union nut

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

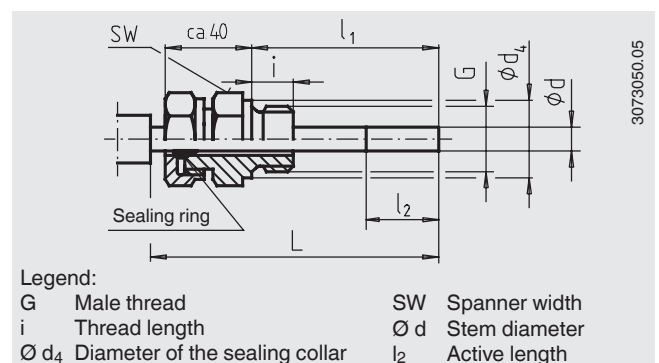
Nominal size NS	Process connection		Dimensions in mm	
	G_1	i	SW	$\varnothing d$
63, 100, 160	G ½	8.5	27	8
	G ¾	10.5	32	8
	M24 x 1.5	13.5	32	8



Design 4, compression fitting (sliding on stem)

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

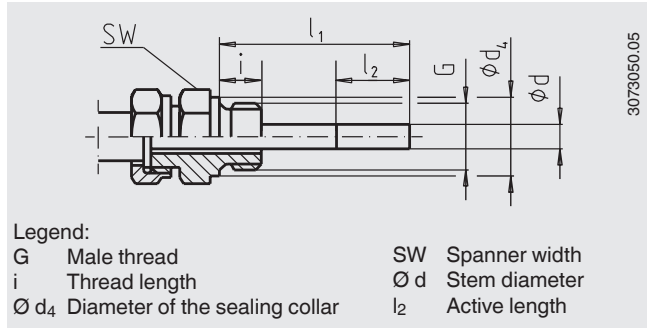
Nominal size NS	Process connection		Dimensions in mm		
	G	i	SW	d_4	$\varnothing d$
63, 100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	M18 x 1.5	12	24	23	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8



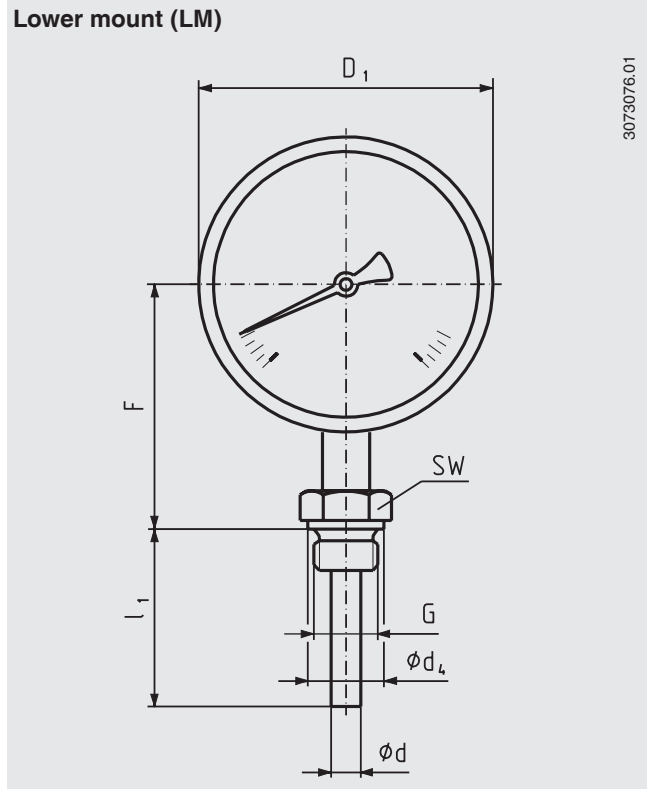
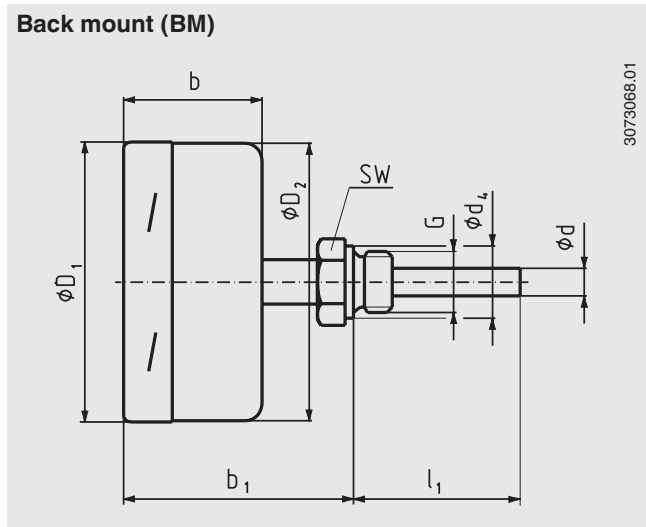
Design 5, union nut and loose threaded connection

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 NS	Process connection		Dimensions in mm		
	G	i	SW	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



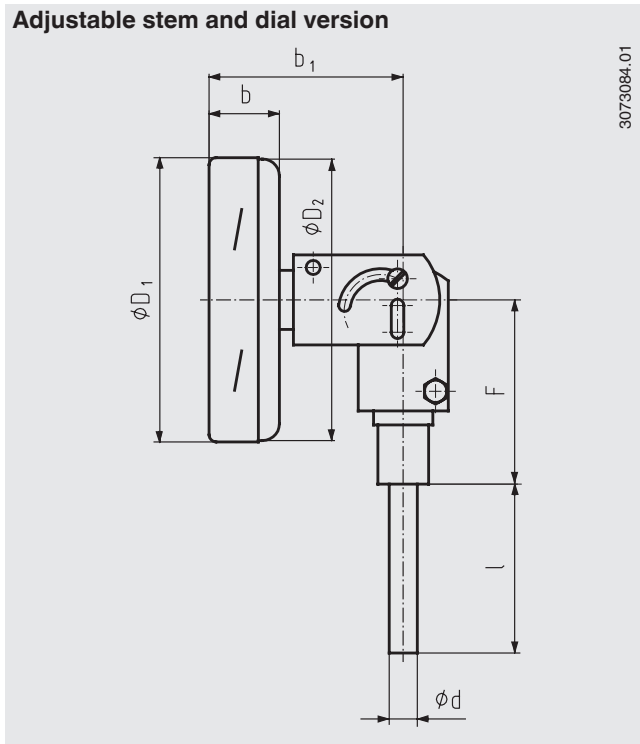
Dimensions in mm



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



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NS	Dimensions in mm						Weight in kg Model S55xx
	b	b ₁	d ¹⁾	Ø D ₁	Ø D ₂	F	
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 (option)

94/9/EC, II 2 GD c TX

Approvals (options)

- **NEPSI**, ignition protection type "ia" - intrinsic safety, China
- **EAC**, import certificate, ignition protection type "c" - constructional safety , customs union Russia/Belarus/ Kazakhstan
- **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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