

Mechanical  
temperature measurement

## Bimetal thermometer Model 52, industrial series

WIKA data sheet TM 52.01



for further approvals  
see page 6

### Applications

- A wide range of applications in machine building, vessel, piping and apparatus construction
- Heating technology

### Special features

- Scale ranges from -30 ... +500 °C
- Large choice of nominal sizes from 25 ... 160 mm
- Case and stem from stainless steel
- 5 different connection designs



Fig. left: model A52.100, back mount

Fig. right: model R52.100, lower mount

### Description

The model 52 bimetal thermometer is the entry-level model among process thermometers. The target markets of this thermometer are air-conditioning and machine building.

Model 52 is manufactured in accordance with EN 13190 and already offers a stainless steel case and accuracy class 1 for nominal sizes > 60 mm.

Especially noteworthy is the large number of stem lengths and nominal sizes. This enables the individual adaptation to the target applications.

## Standard version

### Measuring element

Bimetal coil

### Nominal size in mm

25, 33, 40, 50, 63, 80, 100, 160

### Connection designs

S Standard (male threaded connection)

1 Plain stem (without thread)

2 Male nut <sup>1)</sup>

3 Union nut <sup>1)</sup>

4 Compression fitting (sliding on stem) <sup>1)</sup>

<sup>1)</sup> Not for NS 25, 33, 40, 50

### Model overview

Model	NS	Design
A52.025	25	Back mount (axial)
A52.033	33	
A52.040	40	
A52.050	50	
A52.063	63	
A52.080	80	
A52.100	100	
A52.160	160	
R52.063	63	Lower mount (radial)
R52.080	80	
R52.100	100	
R52.160	160	

### Accuracy class

NS 25, 33: ±5 % of scale range

NS 40, 50: 2 per EN 13190

NS 63, 80, 100, 160: 1 per EN 13190

### Working range

Continuous loading: Measuring range per EN 13190

Short time (24 h max.): Scale range per EN 13190

### Case, bezel ring, stem, process connection and spacer

Stainless steel

### Elbow behind the case

Aluminium, only with lower mount version

### Dial

Aluminium, white, black lettering

### Window

Instrument glass

NS 33: polycarbonate

### Pointer

NS 25, 33, 40: Aluminium, black

NS 50, 63, 80, 100, 160: Aluminium, black, adjustable pointer

### Permissible operating pressure at the stem

NS 25, 33, 40, 50: max. 6 bar, static

NS 63, 80, 100, 160: max. 25 bar, static

### Ingress protection

NS 25, 33, 40: IP54 per EN 60529 / IEC 529

NS 50, 63, 80, 100, 160: IP43 per EN 60529 / IEC 529

## Options

- Scale range °F, °C/°F (dual scale)
- Other scale ranges
- Other connection types

Scale ranges, measuring ranges <sup>2)</sup>, error limit (EN 13190)  
 Scale graduation per WIKA standard

Scale range in °C	Measuring range in °C	Scale spacing in °C		Error limit ±°C	
		up to NS 63	from NS 80	up to NS 50	from NS 63
-30 ... +50	-20 ... +40	1	1	2	1
-20 ... +60	-10 ... +50	1	1	2	1
0 ... 60	10 ... 50	1	1	2	1
0 ... 80	10 ... 70	1	1	2	1
0 ... 100	10 ... 90	2	1	2	1
0 ... 120	10 ... 110	2	1	4	2
0 ... 160	20 ... 140	2	2	4	2
0 ... 200 <sup>3)</sup>	20 ... 180	5	2	4	2
0 ... 250 <sup>3)</sup>	30 ... 220	5	2	5	2.5
0 ... 300 <sup>4)</sup>	30 ... 270	5	2	-	5
0 ... 400 <sup>4)</sup>	50 ... 350	5	5	-	5
0 ... 500 <sup>4)</sup>	50 ... 450	5	5	-	5

<sup>2)</sup> The limits of the measuring range are indicated on the dial by two triangular marks.

Only within this range is the stated error limit valid per EN 13190.

<sup>3)</sup> Not for NS 33

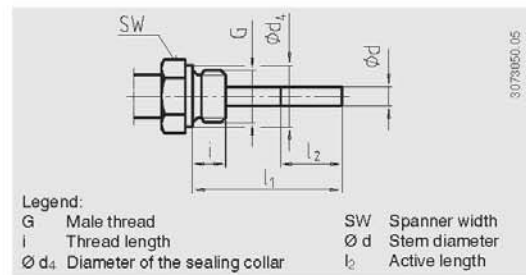
<sup>4)</sup> Not for NS 25 to NS 50

### Connection designs

#### Standard design (male thread connection)

Standard insertion length  $l_1 = 63, 100, 160, 200, 250$  mm

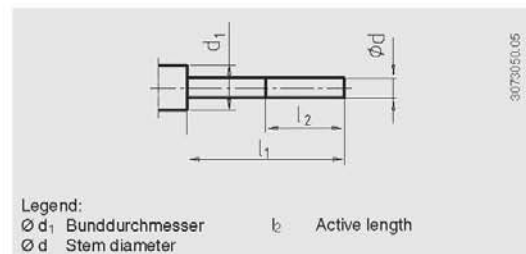
Nominal size	Process connection		Dimensions in mm		
	NS	G	i	SW	$\varnothing d_4$
25, 33	M8 x 1.25	8	12	-	4
	G 1/8 B	8	12	-	4
	G 1/4 B	8	17	-	4
40, 50	M8 x 1.25	8	12	-	4
	G 1/8 B	8	17	-	4
	G 1/4 B	8	17	-	4
	G 1/2 B	12	22	-	4
63, 80, 100, 160	G 1/4 B	12	19	18	6 or 8
	G 1/2 B	14	27	26	6 or 8
	M18 x 1.5	12	24	23	6 or 8
	1/2 NPT	19	22	-	6 or 8



#### Bauform 1, Anschluss glatt (ohne Gewinde)

Standard-Einbaulänge  $l_1 = 45, 63, 100, 140, 160, 200, 240, 290$  mm

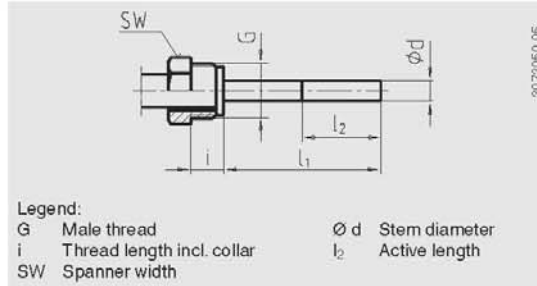
Nominal size	Dimensions in mm	
	NS	$d_1$
25, 33	8	4
40, 50	12	4
63, 80, 100, 160	18	6 or 8



**Design 2, male nut**

Standard insertion length  $l_1 = 80, 140, 180, 230$  mm

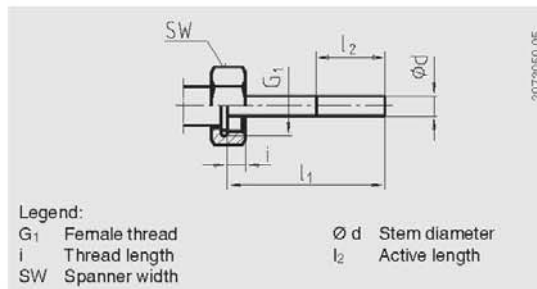
Nominal size	Process connection		Dimensions in mm		
	G	i	SW	$\varnothing d$	
63, 80, 100, 160	G 1/2 B	20	27	6 or 8	
	M18 x 1.5	17	22	6 or 8	



**Design 3, union nut**

Standard insertion length  $l_1 = 89, 126, 186, 226, 276$  mm

Nominal size	Process connection		Dimensions in mm		
	G	i	SW	$\varnothing d$	
63, 80, 100, 160	G 1/2	8.5	27	6 or 8	
	G 3/4	9.5	32	6 or 8	

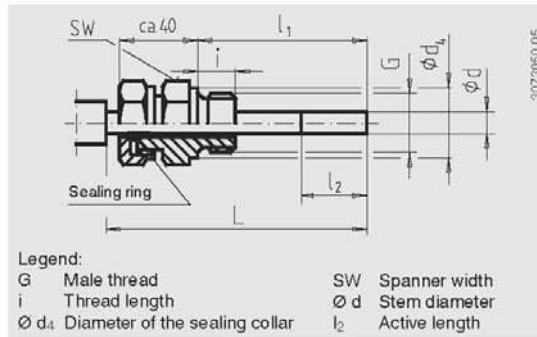


**Design 4, compression fitting (sliding on stem)**

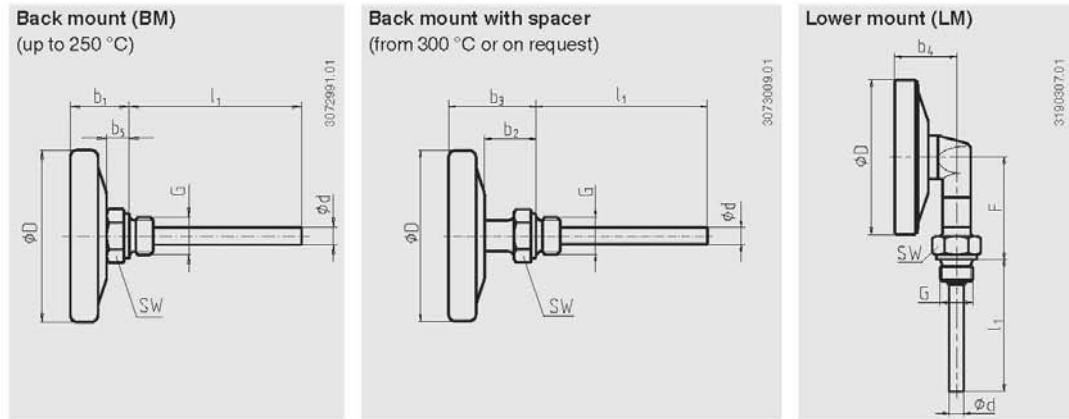
Insertion length  $l_1 =$  variable

Length  $L = l_1 + 40$  mm

Nominal size	Process connection		Dimensions in mm			
	G	i	SW	$\varnothing d_4$	$\varnothing d$	
63, 80, 100, 160	G 1/4 B	8	22	18	6 or 8	
	G 1/2 B	14	27	26	6 or 8	
	M18 x 1.5	12	24	23	6 or 8	
	1/2 NPT	19	22	-	6 or 8	
	G 3/4 B	16	32	32	6 or 8	
	3/4 NPT	20	30	-	6 or 8	



### Dimensions in mm



NS	Dimensions in mm							Weight in kg		
	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	b <sub>4</sub>	b <sub>5</sub>	Ø D	F	R	RD	U
25	16	-	-	-	6	25	-	0.035	-	-
33	16	-	-	-	6	33	-	0.040	-	-
40	21	-	-	-	8	40	-	0.050	-	-
50	21	-	-	-	8	50	-	0.060	-	-
63	29	30 <sup>1)</sup>	46	34	13	63	47	0.160	0.200	0.220
80	30	30 <sup>1)</sup>	47	36	13	80	56	0.200	0.240	0.270
100	35	30 <sup>1)</sup>	52	40	13	100	66	0.250	0.290	0.330
160	39	30 <sup>1)</sup>	57	42,5	13	160	96	0.450	0.490	0.560

<sup>1)</sup> from 300 °C or on request  
 R Back mount (BM)  
 RD Back mount with spacer  
 U Lower mount (LM)


### 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
	<b>GOST (option)</b> Metrology, measurement technology	Russia
-	<b>CRN (option)</b> Safety (e.g. electr. safety, overpressure, ...)	Canada

**Certificates (option)**

2.2 test report

Approvals and certificates, see website

**Ordering information**

Model / Connection design / Scale range / Process connection / Stem diameter, material / Insertion length / Options

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