

# Bimetal Thermometers Model 54, Heavy Duty Series

WIKA Data Sheet TM 54.01



## Applications

- Universally suitable for plant, machinery, tank and apparatus construction
- Facility management
- With liquid damping also suitable for applications with extreme vibrations
- Twin-Temp combined bimetal thermometer with local readout and electrical output signal

## Special Features

- Universal application
- Case and stem material stainless steel
- Bimetal with zero-point adjustment on the rear of the case
- Twin-Temp: Two independent measuring systems in one instrument (bimetal and Pt100)
- Approval Germanischer Lloyd (with feature liquid damping, version axial or radial)

## Description

This series of thermometers is designed for installation in pipes, tanks, plants and machinery. The Twin-Temp combined bimetal thermometer is also suitable for heating systems.

The stem and the case of the instrument are made from stainless steel. Various insertion lengths and process connections are available to optimally match the requirements of each process. Due to their high ingress protection (IP 65) and liquid damping these thermometers can be used in applications with extreme vibrations.

The Twin-Temp combined bimetal thermometer offers two measuring systems in one instrument. A bimetal thermometer displays the measured values on site, while the integrated Pt100 resistance sensor provides an electrical signal for further processing.



Fig. above: Bimetal Thermometer Model A5402  
Fig. centre: Adjustable Stem and Dial Model S5412  
Fig. below: Twin-Temp Combined Bimetal Thermometer Model R5462

## Standard features

### Temperature element

Coiled bimetal (and Pt100 with Twin-Temp)

### Nominal size

63, 80, 100

### Design of connection

- S Standard (male thread connection)
- 1 Plain stem
  - 2 Male nut
  - 3 Union nut
  - 4 Compression fitting (sliding on stem)
  - 5 Union nut with fitting

### Location of stem

- A54XX centre back (axial)  
 R54XX bottom (radial)  
 S54XX centre back, adjustable stem and dial  
 (not with Twin-Temp)

### Accuracy class

Mechanical: 1 per DIN EN 13 190  
 Electrical (with Twin-Temp): B per DIN IEC 751, 3-wire

### Working range

Normal: measuring range per DIN EN 13 190  
 Short time (24 h max.): scale range per DIN EN 13 190

### Scale, measuring ranges<sup>1)</sup>, limits of error per EN 13 190

#### Scale graduation according to WIKA standard

Scale range in °C	Measuring range in °C	Scale spacing in °C	Limit of error ± °C
-30 ... +50	-20 ... +40	0.5	1
-20 ... +60	-10 ... +50	0.5	1
0 ... 60	+10 ... +50	0.5	1
0 ... 80	+10 ... +70	0.5	1
0 ... 100	+10 ... +90	1	1
0 ... 120	+10 ... +110	1	2
0 ... 160	+20 ... +140	1	2
0 ... 200	+20 ... +180	2	2
0 ... 250	+30 ... +220	2	2.5
0 ... 300 <sup>2)</sup>	+30 ... +270	2	5
0 ... 400 <sup>2)</sup>	+50 ... +350	5	5
0 ... 500 <sup>2)</sup>	+50 ... +450	5	5

1) The measuring range is indicated on the dial by two triangular marks.  
 Only within this range the stated limit of error is valid according to DIN EN 13 190.

2) not with Twin-Temp

## Models

Version		Nominal size			Design					
		63	80	100	S	1	2	3	4	5
Model 54	axial	A5400	A5401	A5402	x	x	x	x	x	x
	radial	R5440	R5441	R5442	x	x	x	x	x	x
Model 54, adjustable stem/dial		S5410	S5411	S5412	-	x	x	x	x	x
Model 54, Twin-Temp	axial	A5450	A5451	A5452	x	x	-	-	x	-
	radial	R5460	R5461	R5462	x	x	-	-	x	-

x ... available design

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

Stainless steel

### Elbow behind the case

Aluminium, only with radial entry version

### Dial

Satin finish aluminium with black lettering

### Window

Instrument glass

### Pointer

Black aluminium, adjustable pointer

### Pressure rating of stem

25 bar max., static

### Ambient temperature limit at the case

+60 °C max. (others on request)

### Ingress protection

IP 65 (EN 60 529 / IEC 529)

## Optional extras

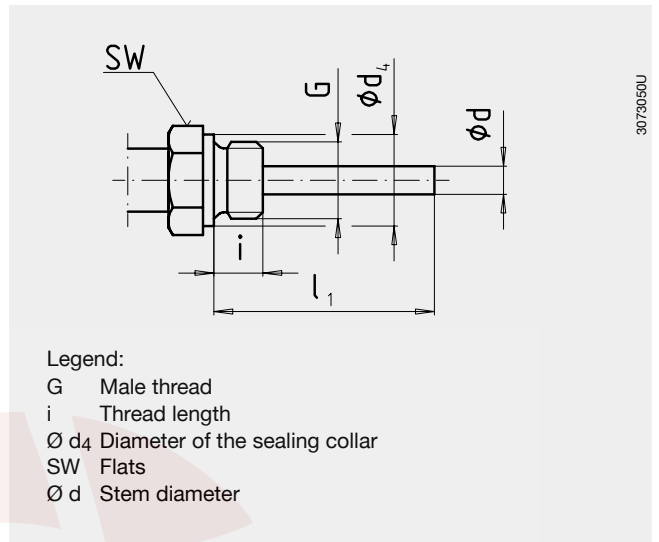
- Scale range °F, °C/°F (dual scale)
- At stem with liquid damping (250 °C max.)
- GL approval with feature liquid damping, not with adjustable stem and dial and Twin-Temp (vibratory stress conditions 25 ... 200 Hz, 5 g)
- Window of laminated safety glass or acrylic plastic
- Stem diameter 6, 8, 10 mm

## Dimensions in mm

### Design S, standard (male thread connection)

Standard stem lengths  $l_1$ : 100, 160, 200, 250 mm

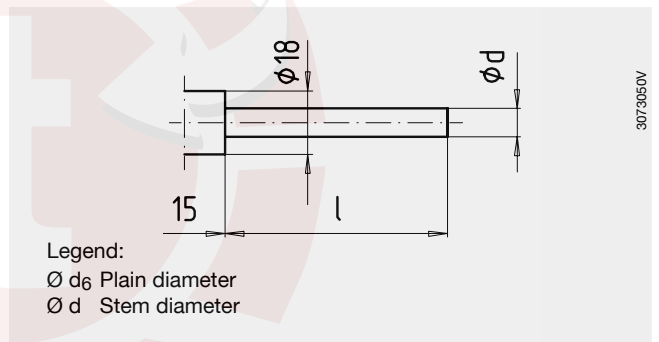
Nominal size NS	Process connection		Dimensions in mm		
	G	i	SW	$d_4$	$\varnothing d$
63, 80, 100	G 1/2 B	14	27	26	6; 8; 10
	G 3/4 B	16	32	32	6; 8; 10
	1/2 NPT	19	22	-	6; 8; 10
	3/4 NPT	20	30	-	6; 8; 10



### Design 1, plain stem

Standard stem lengths  $l$ : 100, 140, 160, 200, 240, 290 mm

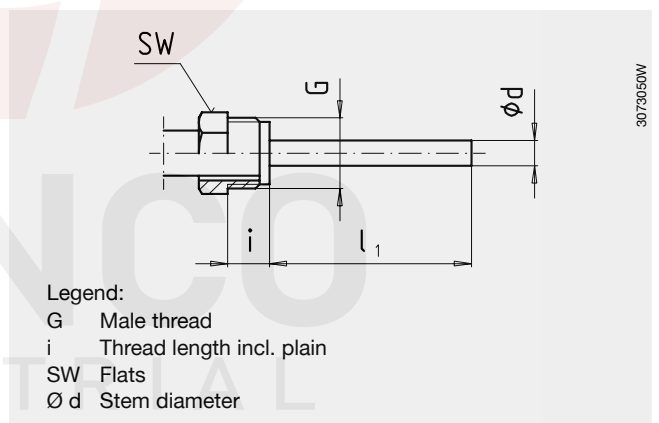
Nominal size NS	Dimensions in mm	
	$d_6$	$\varnothing d$
63, 80, 100	18	6; 8; 10



### Design 2, male nut

Standard stem lengths  $l_1$ : 140, 180, 230 mm

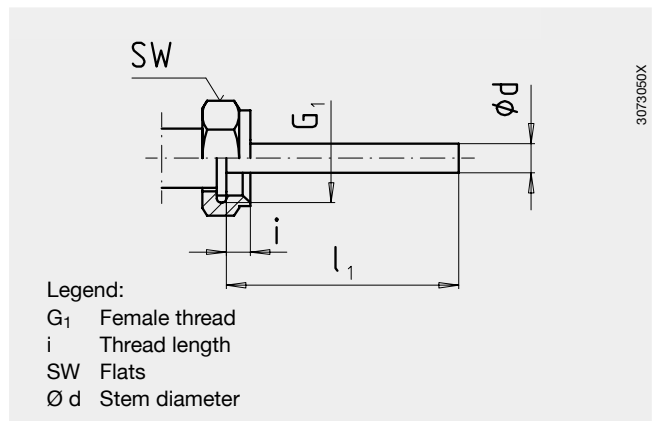
Nominal size NS	Process connection		Dimensions in mm	
	G	i	SW	$\varnothing d$
63, 80, 100	G 1/2 B	20	27	6; 8; 10
	M18 x 1.5	12	24	6; 8; 10



### Design 3, union nut

Standard stem lengths  $l_1$ : 126, 186, 226, 276 mm

Nominal size NS	Process connection		Dimensions in mm	
	G	i	SW	$\varnothing d$
63, 80, 100	G 1/2	8.5	27	6; 8; 10
	G 3/4	10.5	32	6; 8; 10
	M20 x 1.5	13.5	32	6; 8; 10

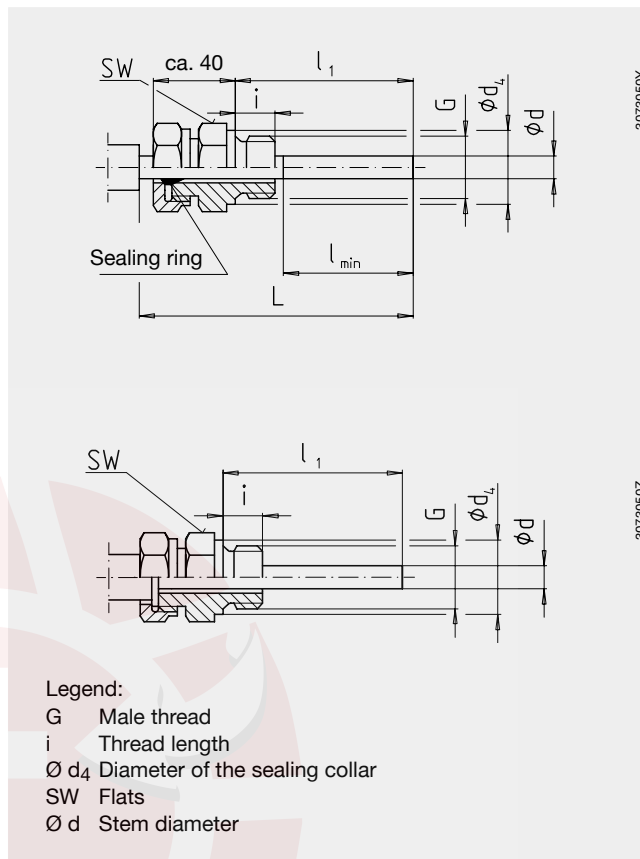


### Design 4, Compression fitting (sliding on stem)

Length of stem  $l_1$  = variable

Length  $L = l_1 + 40$  mm

Nominal size NS	Process connection		Dimensions in mm		
	G	i	SW	$d_4$	$\varnothing d$
63, 80, 100	G 1/2 B	14	27	26	6; 8; 10
	G 3/4 B	16	32	32	6; 8; 10
	1/2 NPT	19	22	-	6; 8; 10
	3/4 NPT	20	30	-	6; 8; 10

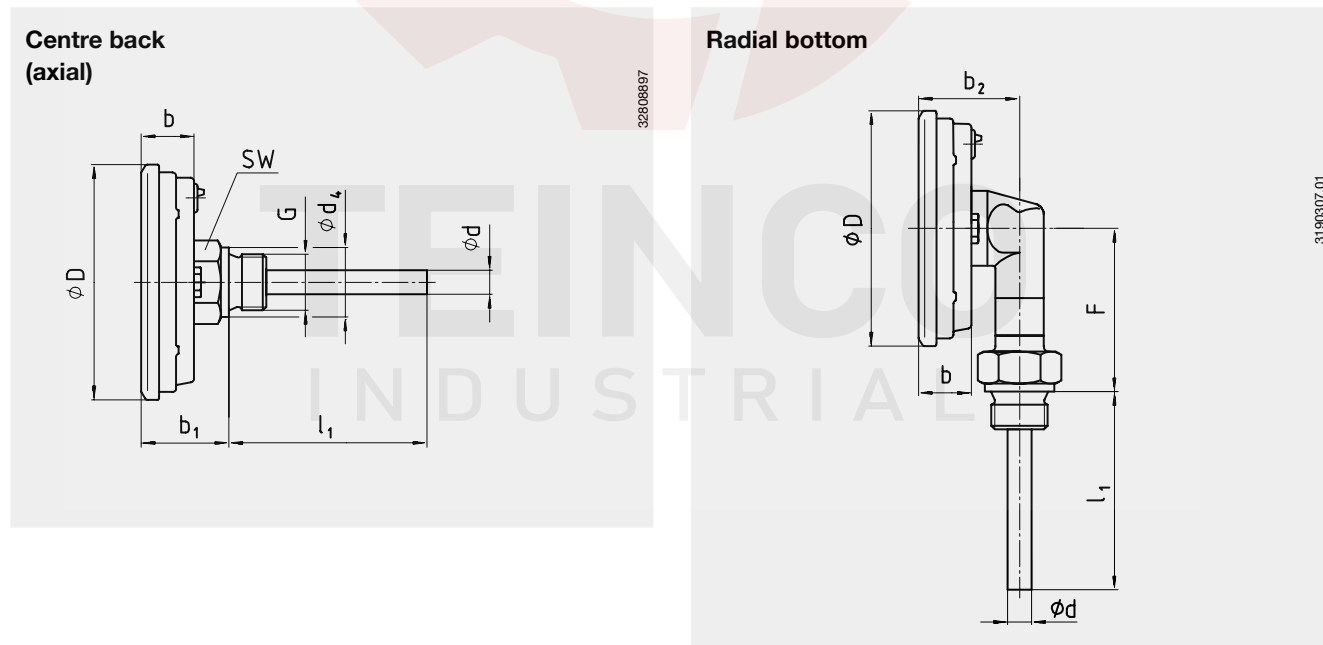


### Design 5, Union nut G 1/2 with fitting

Standard stem lengths  $l_1$ : 100, 160, 200, 250 mm

Nominal size NS	Process connection		Dimensions in mm		
	G	i	SW	$d_4$	$\varnothing d$
63, 80, 100	G 1/2 B	14	27	26	6; 8; 10
	G 3/4 B	16	32	32	6; 8; 10
	1/2 NPT	19	22	-	6; 8; 10
	3/4 NPT	20	30	-	6; 8; 10

### Dimensions and location of stem

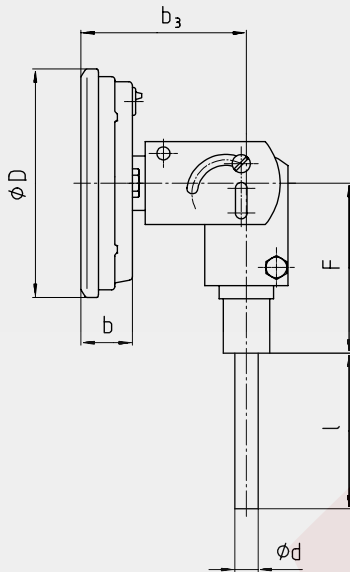


NS	Dimensions in mm						Weight in kg		
	b	$b_1$	$b_2$	$\varnothing D$	$\varnothing d$	$\varnothing d_4$	F	R	U
63	20	35	38	68	8 <sup>1)</sup>	26	47	0.200	0.300
80	20	35	38	77	8 <sup>1)</sup>	26	56	0.250	0.350
100	22	37	40	107	8 <sup>1)</sup>	26	66	0.350	0.450

1) optional: stem diameter 6, 10 mm

R Location of stem centre back  
U Location of stem radial bottom

### Adjustable stem and dial

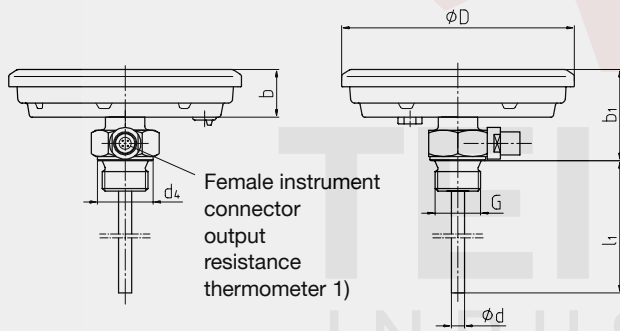


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NG	Dimensions in mm					Weight in kg
	b	b <sub>3</sub>	Ø D	Ø d	F	
63	20	126	68	8 <sup>1)</sup>	47	0.350
80	20	126	77	8 <sup>1)</sup>	56	0.400
100	22	128	107	8 <sup>1)</sup>	66	0.500

1) optional: stem diameter 6, 10 mm

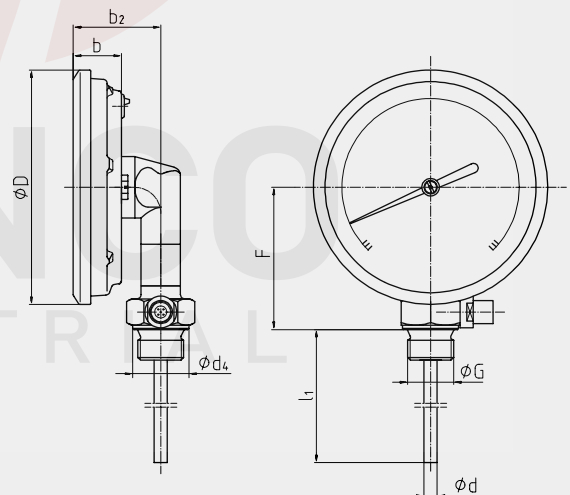
### Twin-Temp combined bimetal thermometer Centre back (axial)



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1) suitable male connectors are available

### Twin-Temp combined bimetal thermometer Radial bottom



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NS	Dimensions in mm								Weight in kg	
	b	b <sub>1</sub>	b <sub>2</sub>	Ø D	Ø d	Ø d <sub>4</sub>	F	R	U	
63	20	35	38	68	8 <sup>1)</sup>	26	47	0.250	0.350	
80	20	35	38	77	8 <sup>1)</sup>	26	56	0.300	0.400	
100	22	37	40	107	8 <sup>1)</sup>	26	66	0.400	0.500	

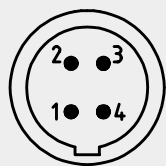
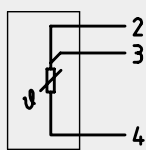
1) optional: stem diameter 6, 10 mm

R Location of stem centre back  
U Location of stem radial bottom

## Electrical connection with Twin-Temp

### Female instrument connector with pins

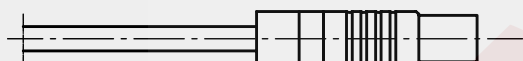
1 x Pt100  
3-wire



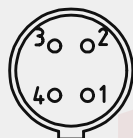
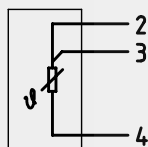
Front view  
of female  
instrument  
connector

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### Male connector with insert (option)



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Front view  
of male  
connector

Suitable male connector for cable diameter 3.0 to 3.5 mm,  
order number: 11015217 (cable not included in delivery)

TEINCO  
INDUSTRIAL

### Ordering information

Model / Nominal size / Scale range / Design and size of connection / Length of stem l, l<sub>1</sub> / Optional extras required

Modifications may take place and materials specified may be replaced by others without prior notice.  
Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing.

