

Bimetal thermometer Model 54, industrial series

WIKA data sheet TM 54.01



Applications

- Machine building, plant, vessel and apparatus construction
- Facility management
- With liquid damping also suitable for applications with high vibrations

Special features

- Universal application
- Case and stem from stainless steel
- Bimetal with zero point adjustment at the back of the case
- Approval Germanischer Lloyd and DNV (option)



Fig. left: bimetal thermometer model A5402
Fig. right: bimetal thermometer, adjustable stem and dial version model S5412

Description

This series of thermometers is designed for installation in pipes, vessels, plant and machinery.

Sheath and case are made of stainless steel. To allow fitting to the process, different installation lengths and process connections are available. Through the high protection class of the thermometer (IP 65) and its liquid damping, operation under high vibration conditions is possible.

Standard version

Measuring element

Bimetal coil

Nominal size in mm

63, 80, 100, 160

Connection design

S Standard (male thread connection) ¹⁾

- 1 Plain stem (without thread)
- 2 Male nut
- 3 Union nut (female)
- 4 Compression fitting (sliding on stem)
- 5 Union nut with fitting

1) Not for version "adjustable stem and dial"

Models

Model	NS	Version
A5400	63	Back mount (axial)
A5401	80	
A5402	100	
A5403	160	
R5440	63	Lower mount (radial)
R5441	80	
R5442	100	
R5443	160	
S5410	63	Back mount, adjustable stem and dial
S5411	80	
S5412	100	
S5413	160	

Accuracy class

Class 1 per EN 13190

Working pressure

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

Case and ring

Stainless steel 1.4301

Stem and process connection

Stainless steel 1.4571

Elbow behind the case

Aluminium, only with version "lower mount"

Dial

Aluminium, white, black lettering

Window

Instrument glass

Pointer

Aluminium, black, adjustable pointer

Permissible pressure rating of stem

max. 25 bar, static

Permissible ambient temperature at case

-20 ... +60 °C (others on request)

Temperature limits for storage and transport

-20 ... +60 °C (EN 13190)

Ingress protection

IP 65 per EN 60529 / IEC 529

Options

- Scale range °F, °C/°F (dual scale)
- Liquid damping up to max. 250 °C (at the sensor)
- GL approval with feature liquid damping, not for adjustable stem and dial version or NS 160, vibratory stress conditions 25 ... 200 Hz, 5 g (for further information see certificate No. 40156-01 HH)
- DNV-Zulassung (for further information see certificate No. A-11504)
- Laminated safety glass, polycarbonate
- Stem diameter 6, 10 mm
- Ingress protection IP 66
- Thermometer with electrical output signal (data sheet TV 15.01)
- Special measuring ranges or dial printing to customer specifications (on request)
- Version per ATEX Ex II 2 GD c TX, see marking on the instrument

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
-30 ... +50	-20 ... +40	1	1
-20 ... +60	-10 ... +50	1	1
0 ... 60	10 ... 50	1	1
0 ... 80	10 ... 70	1	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	30 ... 270	2	5
0 ... 400	50 ... 350	5	5
0 ... 500	50 ... 450	5	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.

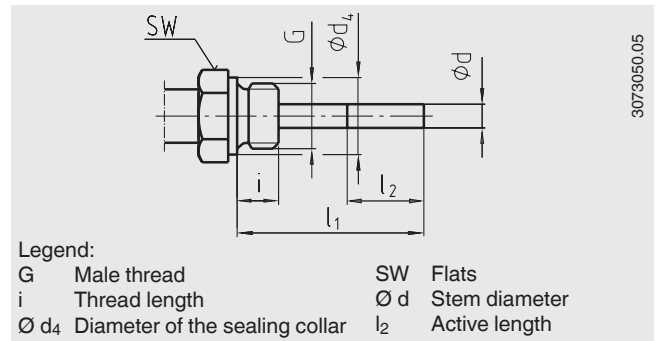
Connection design

Design standard (male thread connection) ¹⁾

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

Nominal size NS	Process connection		Dimensions in mm		
	G	i	SW	d_4	$\varnothing d$
63, 80, 100, 160	G 1/2 B	14	27	26	8
	G 3/4 B	16	32	32	8
	1/2 NPT	19	22	-	8
	3/4 NPT	20	30	-	8

1) Not for version "adjustable stem and dial"



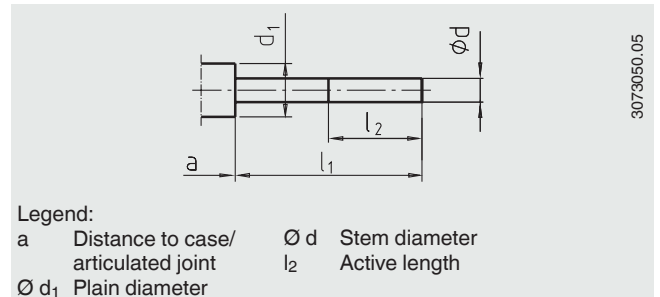
Legend:
 G Male thread
 i Thread length
 $\varnothing d_4$ Diameter of the sealing collar
 SW Flats
 $\varnothing d$ Stem diameter
 l_2 Active length

Design 1, plain stem (without thread)

Standard insertion length $l_1 = 100, 140, 160, 200, 240, 290$ mm

Basis for design 4, compression fitting

Nominal size NS	Dimensions in mm			
	d_1	$\varnothing d$	a for axial	a for adjustable stem and dial
63, 80, 100, 160	18	8	15	25

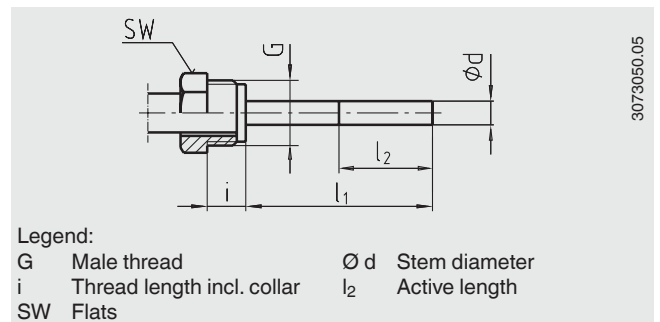


Legend:
 a Distance to case/articulated joint
 $\varnothing d$ Stem diameter
 $\varnothing d_1$ Plain diameter
 l_2 Active length

Design 2, male nut

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

Nominal size NS	Process connection		Dimensions in mm	
	G	i	SW	$\varnothing d$
63, 80, 100, 160	G 1/2 B	20	27	8
	M18 x 1.5	12	24	8

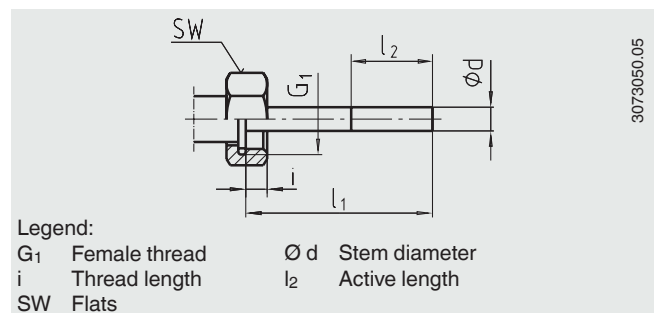


Legend:
 G Male thread
 i Thread length incl. collar
 SW Flats
 $\varnothing d$ Stem diameter
 l_2 Active length

Design 3, union nut

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

Nominal size NS	Process connection		Dimensions in mm	
	G_1	i	SW	$\varnothing d$
63, 80, 100, 160	G 1/2	8.5	27	8
	G 3/4	10.5	32	8
	M20 x 1.5	13.5	32	8



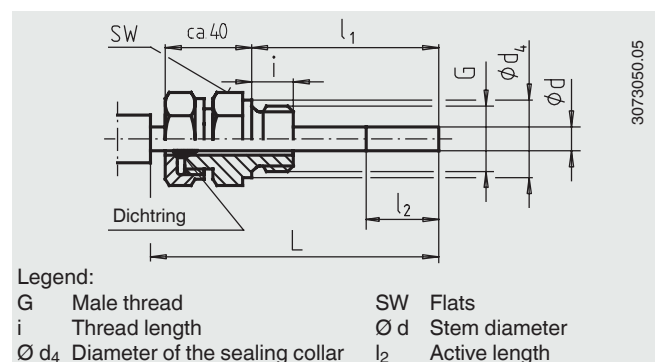
Legend:
 G_1 Female thread
 i Thread length
 SW Flats
 $\varnothing d$ Stem diameter
 l_2 Active length

Design 4, compression fitting (sliding on stem)

Insertion length $l_1 =$ 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, 160	G 1/2 B	14	27	26	8
	G 3/4 B	16	32	32	8
	1/2 NPT	19	22	-	8
	3/4 NPT	20	30	-	8

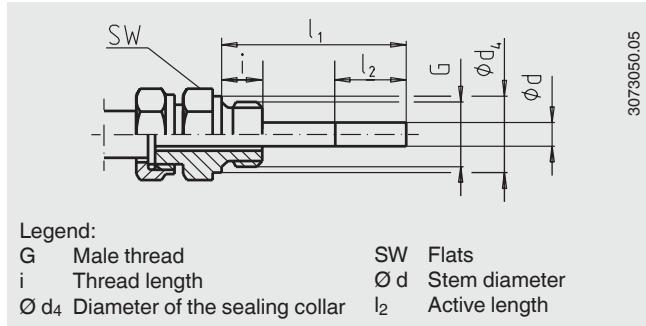


Legend:
 G Male thread
 i Thread length
 $\varnothing d_4$ Diameter of the sealing collar
 SW Flats
 $\varnothing d$ Stem diameter
 l_2 Active length

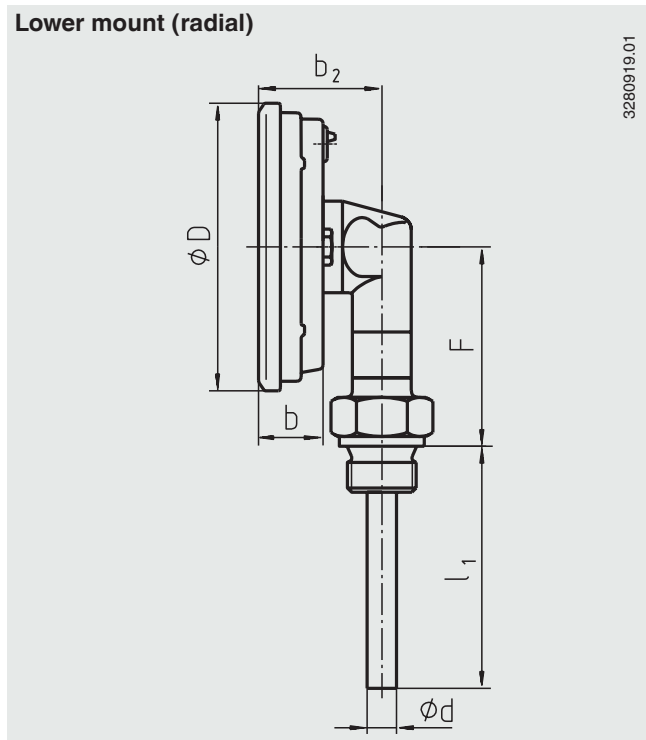
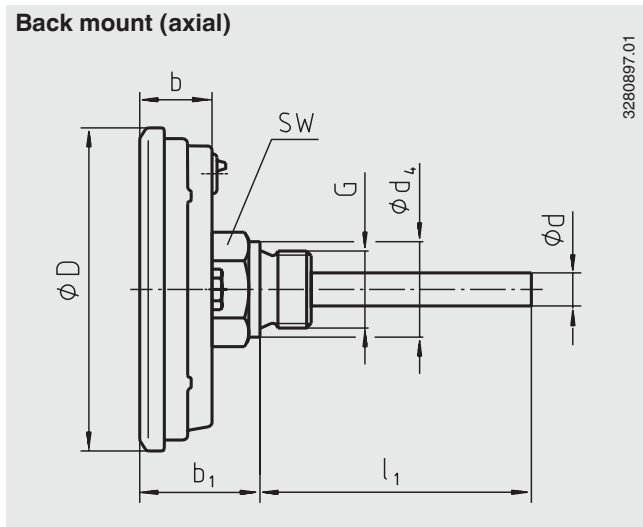
Design 5, union nut with loose fitting

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

Nominal size NS	Process connection		Dimensions in mm		
	G	i	SW	d_4	$\varnothing d$
63, 80, 100, 160	G 1/2 B	14	27	26	8
	G 3/4 B	16	32	32	8
	1/2 NPT	19	22	-	8
	3/4 NPT	20	30	-	8



Dimensions in mm

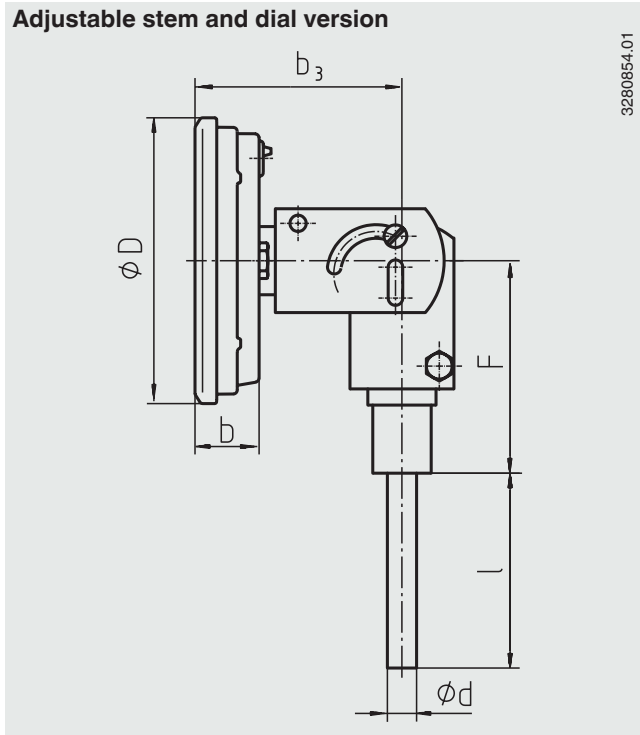


NS	Dimensions in mm				Weight in kg				
	b	b_1 1)	b_2	$\varnothing D$	$\varnothing d$	$\varnothing d_4$	F 1)	R	U
63	20	35	38	68	8 2)	26	47	0.20	0.30
80	20	35	38	77	8 2)	26	56	0.25	0.35
100	22	37	40	107	8 2)	26	66	0.35	0.45
160	25	40	43	161	8 2)	26	96	0.50	0.60

1) With scale ranges $\geq 0 \dots 300$ °C the dimensions increase by 40 mm
 2) Option: Stem $\varnothing 6, 10$ mm

R Back mount (BM)
 U Lower mount (LM)

Adjustable stem and dial version



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NS	Dimensions in mm					Weight in kg
	b	b ₃	Ø D	Ø d	F	
63	20	63	68	8 ¹⁾	66	0.35
80	20	63	77	8 ¹⁾	66	0.40
100	22	65	107	8 ¹⁾	66	0.50
160	25	68	161	8 ¹⁾	66	0.65

1) Option: Stem Ø 6, 10 mm

Ordering information

Model / Nominal size / Scale range / Connection design/ Connection size / Insertion length l₁ / Options

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