Bimetal Thermometers
Model 54, Heavy Duty Series

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)

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

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.

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

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

Scale, measuring ranges[1], 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 [2]	+30 ... +270	2	5
0 ... 400 [2]	+50 ... +350	5	5
0 ... 500 [2]	+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	-

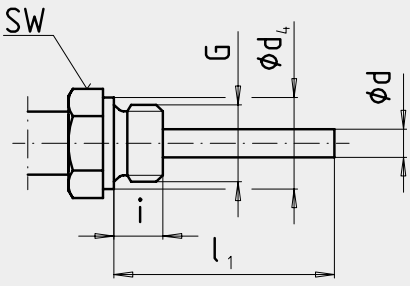
x ... available design

Dimensions in mm

Design S, standard (male thread connection)

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

Nominal size NS	Process connection G	i	Dimensions in mm SW	d_4	Ød
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



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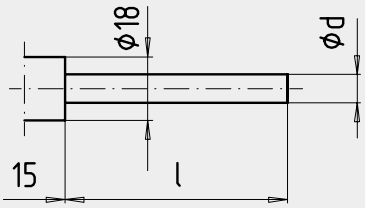
Legend:
G Male thread
i Thread length
Ø d_4 Diameter of the sealing collar
SW Flats
Ø d Stem diameter

Design 1, plain stem

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

Nominal size NS	Dimensions in mm d_6	Ød
63, 80, 100	18	6; 8; 10



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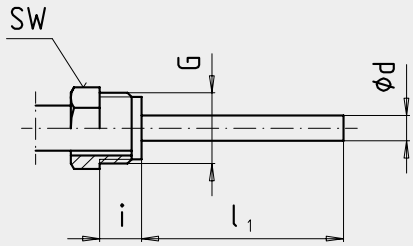
Legend:
Ø d_6 Plain diameter
Ø d Stem diameter

Design 2, male nut

Standard stem lengths l_1: 140, 180, 230 mm

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



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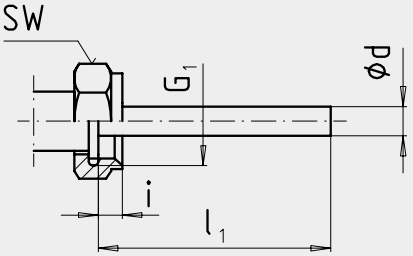
Legend:
G Male thread
i Thread length incl. plain
SW Flats
Ø d Stem diameter

Design 3, union nut

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

Nominal size NS	Process connection G	i	Dimensions in mm SW	Ød
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



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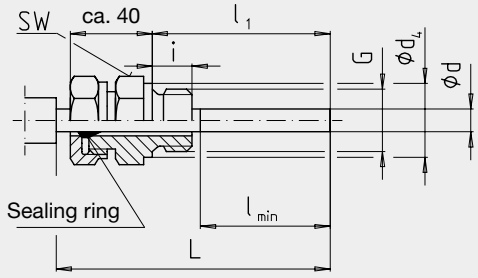
Legend:
G_1 Female thread
i Thread length
SW Flats
Ø d Stem diameter

Design 4, Compression fitting (sliding on stem)
Length of stem l_1 = variable
Length L = l_1 + 40 mm

Nominal size	Process connection		Dimensions in mm		
NS	G	i	SW	d_4	Ød
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	Process connection		Dimensions in mm		
NS	G	i	SW	d_4	Ød
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



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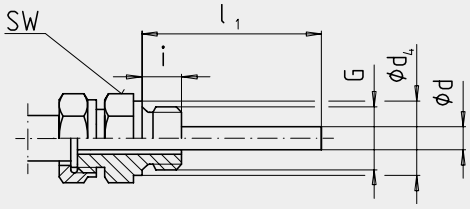

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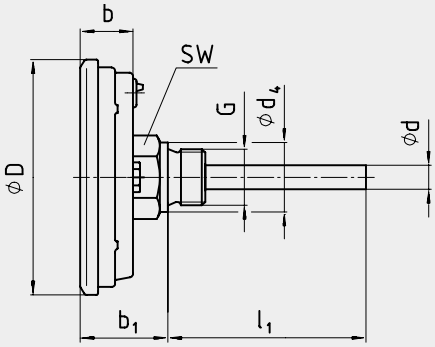
Legend:
G Male thread
i Thread length
Ø d_4 Diameter of the sealing collar
SW Flats
Ø d Stem diameter

Dimensions and location of stem

Centre back (axial)



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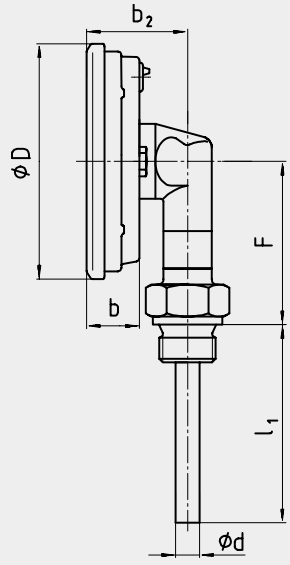
Radial bottom



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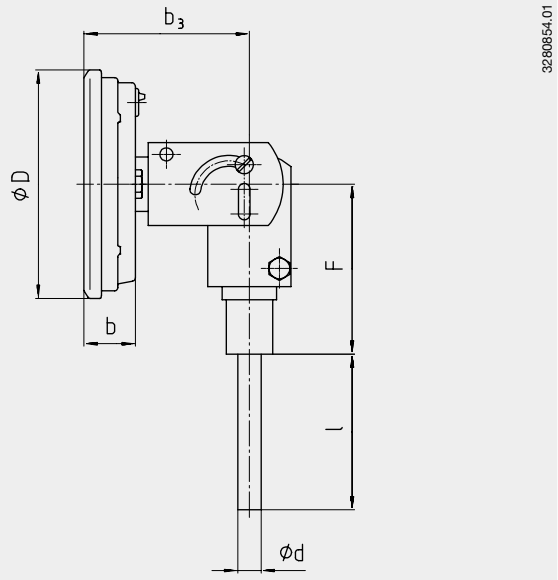
NS	Dimensions in mm								Weight in kg
	b	b_1	b_2	Ø D	Ø d	Ø d_4	F	R	U
63	20	35	38	68	8 1)	26	47	0.200	0.300
80	20	35	38	77	8 1)	26	56	0.250	0.350
100	22	37	40	107	8 1)	26	66	0.350	0.450

1) optional: stem diameter 6, 10 mm

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

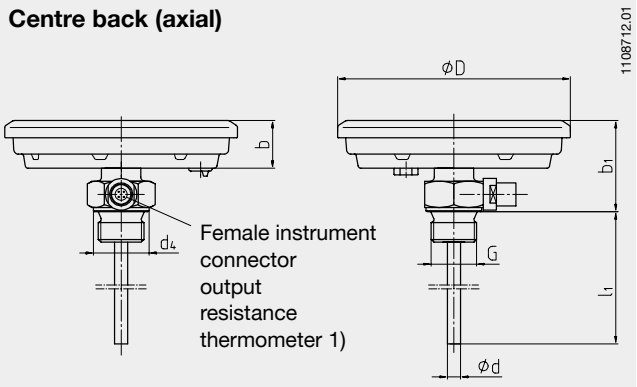
Adjustable stem and dial



NG	Dimensions in mm					Weight
	b	b_3	Ø D	Ø d	F	in kg
63	20	126	68	8 1)	47	0.350
80	20	126	77	8 1)	56	0.400
100	22	128	107	8 1)	66	0.500

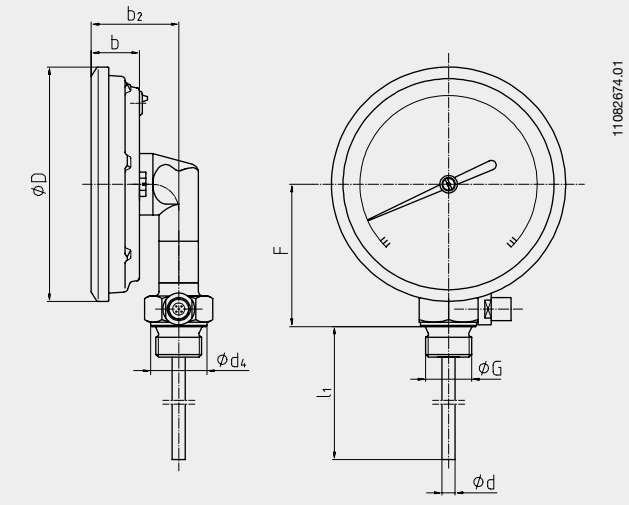
1) optional: stem diameter 6, 10 mm

Twin-Temp combined bimetal thermometer
Centre back (axial)



1) suitable male connectors are available

Twin-Temp combined bimetal thermometer
Radial bottom



NS	Dimensions in mm								Weight in kg
	b	b_1	b_2	Ø D	Ø d	Ø d_4	F	R	U
63	20	35	38	68	8 1)	26	47	0.250	0.350
80	20	35	38	77	8 1)	26	56	0.300	0.400
100	22	37	40	107	8 1)	26	66	0.400	0.500

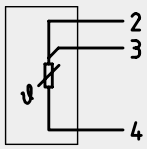
1) optional: stem diameter 6, 10 mm

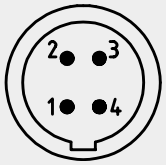
R Location of stem centre back
U Location of stem radial bottom

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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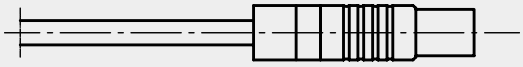
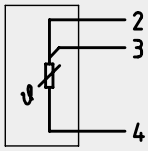
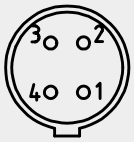
Male connector with insert (option)







Front view of male connector

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

Ordering information

Model / Nominal size / Scale range / Design and size of connection / Length of stem l, l_1 / Optional extras required

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