

# Bimetal Thermometer, Rigid Mount

TBiSch

Bayonet ring case stainless steel

## Standard Versions

This data sheet contains detailed information on our standard versions and available options. In overview 8000 you will find additional information on selection, metrological features, permissible ambient and storage temperatures as well as error limits, etc. Information on the metrologically optimal design of thermometers can be found in our technical information sheet T08-000-031.

### Measuring Unit

Bimetal coil

### Accuracy (DIN EN 13 190)

Class 1

### Case

With bayonet ring, stainless steel 1.4301 (304)

### Degree of Protection (DIN EN 60 529/IEC 529)

IP 65

### Nominal Case Sizes

63, 100, 160 mm (2½, 4, 6")

### Case Configuration

Connection temperature sensor (stem):

- rigid mount with neck tube

Stem position:

- vertical bottom position
- centre back position (**rm**):  
for stem B1 and B4.1 without neck tube

Mounting device:

- without
- for centre back connection:  
back flange for surface mounting (**rmRh**)

### Temperature Ranges (DIN EN 13 190)

Temperature differences from 60 K up to 600 K

### Temperature Sensor (Stem)

Made of stainless steel 1.4571 (316Ti)

Max. static operating pressure: 25 bar

Stem models: B1, B3, B4, B4.1, B5 or B6

Stem Ø dF: 6 or 8 mm

Stem length L: from Lmin or L1min up to 400 mm

Please regard the minimum stem length depending on active length (La) and stem model, see page 3

### Window

Instrument glass

### Dial

Aluminum white, scale black

### Pointer

Adjustable pointer aluminum black

### Indication Adjustment (±4 %)

Bottom stem position: via adjustable pointer

Centre back stem position: externally via screw



## Ordering Information, Standard Ranges, Options

See page 4

## Special Versions and Further Options

- Other connection threads and materials upon request
- Other temperature ranges and/or special scales, e.g. dual scale °C/°F, coloured fields or ranges, dial inscriptions
- Case parts stainless steel 1.4404 (316L) upon request
- For ambient temperatures to -60 °C upon request  
For ambient temperatures below -20 °C we recommend: thermometer with crimped-on ring case models TBiSchG or TBiSchgG
- Position of connection radial at 3 o'clock, 9 o'clock, 12 o'clock, others upon request or other than vertical installation (90°)
- GOST version for Russia, Ukraine, Kazakhstan

## Thermowells

See data sheets 8.8110 ff.



Instruments To  
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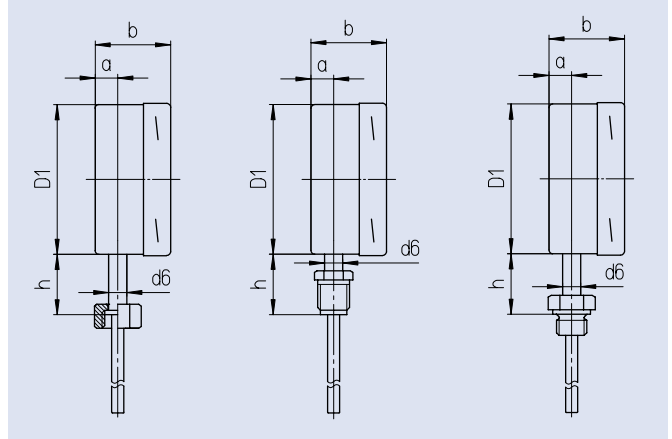
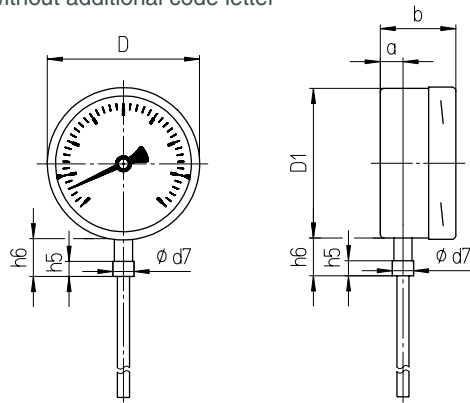
# Stem Position, Code Letters, Dimensional Data and Weights

## Vertical Bottom Stem Position

Stem model B1 (also B5)

Stem model B3 (also B6) Stem model B4 Stem model B4.1

without additional code letter



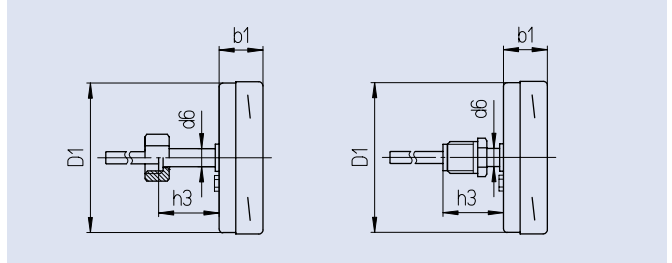
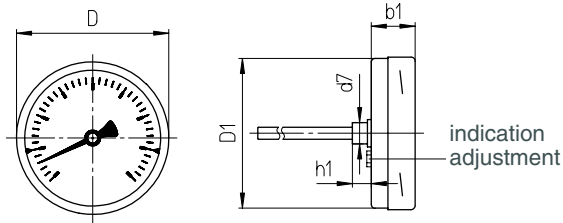
## Centre Back Stem Position

Stem model B1 (also B5)

Stem model B3 (also B6)

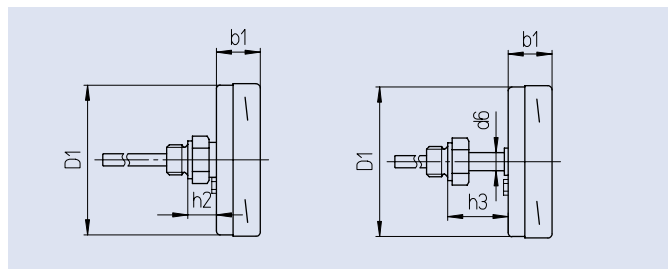
Stem model B4

code letters **rm**

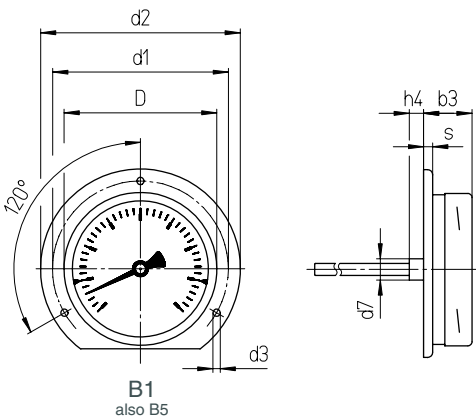


Stem model B4.1  
without neck tube (standard)

Stem model B4.1  
with neck tube (option)



with back flange for surface mounting,  
code letters **rmRh**



## Dimensional Data (mm) and Weights (kg)

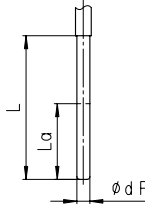
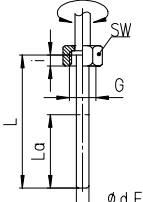
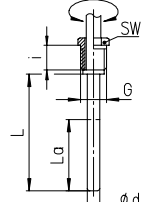
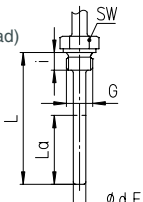
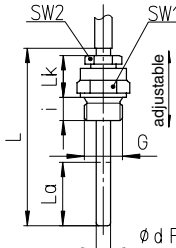
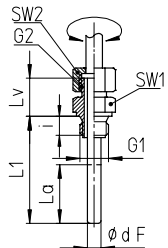
NCS	a	b	b1	b3	D	D1	d1	d2	d3	d6	d7	h <sup>1)3)</sup>	h <sup>1)3)</sup>	h <sup>2)3)</sup>	h <sup>3)1)3)</sup>	h <sup>4)3)</sup>	h5	h6 <sup>3)</sup>	approx. weight <sup>2)</sup> TBiSch
63	12	47.5	26	29	64	62	75	85	3.6	12	14	40	12.5	19	40	9.5	10.5	25	0.18
100	15	55	28	31.5	101	99	116	132	4.8	12	14	40	12.5	19	40	9	10.5	25	0.35
160	15	55	27	30	161	159	178	196	5.8	12	14	40	12.5	19	40	9.5	10.5	25	0.65

<sup>1)</sup> Stem model B4 with G $\frac{3}{4}$ B: 50 mm

<sup>2)</sup> The data are examples and relate to the version with stem B1,  $\varnothing$  8 mm, length 100 mm.

<sup>3)</sup> Temperature ranges  $\geq$  400 °C: extended neck tube for small stem lengths, see T08-000-031

# Stem Models

Stem Models		Without screw fitting, plain stem									
<b>Process connection:</b>	<b>Without screw fitting, plain stem</b>										
<b>Stem model:</b>	<b>B1</b>										
<b>Form acc. to DIN EN 13 190:</b>	Form 1										
<b>Stem material:</b>	1.4571										
<b>Stem Ø dF:</b>	6 or 8 mm										
<b>Order length:</b>	L										
<b>Suitable thermowell models:</b> (data sheet)	SK1 (8.8140), SK2 (8.8141) SK3.B (8.8150), SK4.B (8.8151)										
											
<b>Process connection:</b>	<b>Union nut</b>	<b>Male thread, turnable</b>			<b>Male thread, rigid</b>						
<b>Stem model:</b>	<b>B3</b>	<b>B4</b>	<b>B4.1</b>								
<b>Form acc. to DIN EN 13 190:</b>	Form 5	Form 4	Form 6 (cylindrical thread) Form 7 (conical thread)								
<b>Stem material:</b>	1.4571	1.4571	1.4571		1.4571						
<b>Stem Ø dF:</b>	6 or 8 mm	6 or 8 mm	6 or 8 mm		6 or 8 mm						
<b>Screw fitting material:</b>	1.4571	1.4571	1.4571		1.4571						
<b>Order length:</b>	L	L	L		L						
<b>Suitable thermowell models:</b> (data sheet)	SF4.1 (8.8111), SF4.1F (8.8113) SF8 (8.8130), SF9 (8.8131)	SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)	SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)		SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)						
											
<b>Thread (dimensional data in mm):</b>	<b>G</b>	<b>SW</b>	<b>i</b>	<b>G</b>	<b>SW</b>	<b>i</b>	<b>G</b>	<b>SW</b>	<b>i</b>		
	G 1/2	27	10	G 1/2 B	22	20	G 1/2 B	27	14		
	G 3/4	32	12	G 3/4 B	27	23	G 3/4 B	32	16		
	M20x1.5	27	10	M18x1.5	22	14	1/2" NPT	27	19		
	M24x1.5	32	12	M20x1.5	22	20	3/4" NPT	27	19		
	M27x2	32	12	<b>Thermowell required!</b>			M18x1.5	24	14		
							M20x1.5	27	14		
<b>Process connection:</b>	<b>Male thread/compression fitting</b>			<b>Male thread, turnable/double male adapter</b>							
<b>Stem model:</b>	<b>B5</b>			<b>B6</b>							
	(B1 with compression fitting)			(B3 with double male adapter)							
<b>Form acc. to DIN EN 13 190:</b>	Form 2 (cylindrical thread) Form 3 (conical thread)			—							
<b>Stem material:</b>	1.4571			1.4571							
<b>Stem Ø dF:</b>	6 or 8 mm			6 or 8 mm							
<b>Screw fitting material:</b>	1.4571			1.4571							
<b>Order length:</b>	L			L1							
<b>Suitable thermowell models:</b> (data sheet)	SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)			SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)							
											
<b>Thread (dimensional data in mm):</b>	<b>G</b>	<b>SW1</b>	<b>SW2</b>	<b>i</b>	<b>Lk</b>	<b>G1</b>	<b>G2</b>	<b>SW1</b>	<b>SW2</b>	<b>i</b>	<b>Lv</b>
	G 1/2 B	27	22	14	42	G 1/2 B	G 1/2 B	27	27	14	28
	G 3/4 B	32	22	16	42	G 3/4 B	G 1/2 B	32	27	16	28
	1/2" NPT	27	22	19	42	1/2" NPT	G 1/2 B	27	27	19	28
	3/4" NPT	27	22	19	42	3/4" NPT	G 1/2 B	27	27	19	28
	M20x1.5	27	22	14	42	M20x1.5	M20x1.5	27	27	14	28
						M24x1.5	M20x1.5	32	27	14	28
						M27x2	M20x1.5	32	27	16	28
<b>Minimum Stem Length and Active Length (mm)</b>											
			<b>Stem Ø dF:</b>								
			<b>6</b>		<b>8</b>						
			<b>Span ΔT<sup>1)</sup></b>								
<b>Stem model:</b>	<b>Length:</b>	<b>Thread:</b>	<b>≥ 100K</b>	<b>= 80 K</b>	<b>= 60 K</b>	<b>≥ 80 K</b>	<b>= 60 K</b>				
<b>all models</b>	L <sub>a</sub>	all standard threads	40	60	70	40	60				
<b>B1 / B4</b>	L <sub>min</sub>	all standard threads	45	65	75	45	65				
<b>B3</b>	L <sub>min</sub>	all standard threads	52	72	82	52	72				
<b>B4.1</b>	L <sub>min</sub>	all standard threads	60	80	90	60	80				
<b>B5</b>	L <sub>min</sub>	all standard threads	95	115	125	95	115				
<b>B6</b>	L <sub>1min</sub>	all standard threads	60	80	90	60	80				
<b>others</b>			upon request			upon request					
								<b>The minimum length L<sub>min</sub>/L<sub>1min</sub> is the smallest feasible stem length. Important: Please note the technical information sheet T08-000-031 on the metrologically optimal stem length.</b>			
								<b>The active length L<sub>a</sub> is the temperature-sensitive part of the stem.</b>			

<sup>1)</sup> The temperature difference (span) ΔT = 60 K corresponds e.g. to the temperature range 0–60 °C, but also to –20/+40 °C, see table page 4.

## Ordering Information with Temperature and Measuring Ranges, Options

Basic Model: Bimetal Thermometer Rigid Mount to the Stem		TBiSch
<b>Case filling:</b>	without	without code letters
<b>Nominal case size:</b>	case Ø 63, 100, 160 mm (2½, 4, 6")	<b>63, 100, 160</b>
<b>Stem position/ case configuration:</b>	vertical bottom position	without code letters
	centre back position	<b>rm</b>
	centre back position, with back flange for surface mounting	<b>rmRh</b>
<b>Temperature ranges:</b>	scale: $\Delta T$ (K):	
	0 – 60 °C 60	
	0 – 80 °C 80	
	0 – 100 °C 100	e.g. <b>0–100 °C</b>
	0 – 120 °C 120	
	0 – 160 °C 160	
	0 – 200 °C 200	
	0 – 250 °C 250	
	0 – 300 °C 300	
	0 – 400 °C 400	
	0 – 500 °C 500	
	0 – 600 °C 600	
	–50 / +50 °C 100	
	–40 / +40 °C 80	
	–40 / +60 °C 100	
	–30 / +50 °C 80	e.g. <b>–30/+50 °C</b>
	–30 / +70 °C 100	
	–20 / +40 °C 60	
	–20 / +60 °C 80	
	–20 / +80 °C 100	
	50 – 300 °C 250	
<b>Stem:</b>	without screw fitting, plain stem	<b>B1</b>
	union nut	<b>B3</b>
	male thread, turnable	<b>B4</b>
	male thread, rigid	<b>B4.1</b>
	male thread/compression fitting	<b>B5</b>
	male thread, turnable/double male adapter	<b>B6</b>
<b>Stem Ø dF:</b>	6 or 8 mm	<b>dF 6, 8</b>
<b>Stem length:</b>	L or L1 in mm	e.g. <b>L = 100 mm</b>
<b>Process connection:</b>	see page 3	e.g. <b>G ½B</b>
<b>Options:</b>	red mark on the dial plastic clip red or green, external at the bayonet ring for NCS 100, 160 window laminated safety glass acrylic glass (PMMA) polycarbonate (PC) case polished bayonet ring polished neck tube for stem B4.1 and centre back connection stem Ø dF 10 mm stem length >400 mm, max. 800 mm measuring point stainless steel plate 12 x 55 mm (0.47 x 2.17") with wire mounting marking or sticker upon the case	<i>(order at the moment still as cleartext)</i>

**Example:**

TBiSch 160rm, 0–100 °C, B3, dF 6, L = 100 mm, G ½

**Special Versions:** Please describe your requirements in cleartext!