

# Bimetal Thermometers, Rigid Mount

TBiSch

Bayonet ring case stainless steel

## Standard Versions

Information on general and metrological features (e.g. temperature resistance) and temperature ranges / error limits / smallest subdivision can be found in model overview 8000.

### Measuring Unit

Helical bimetallic element

### Accuracy (EN 13 190)

Class 1

### Case

With bayonet ring, 1.4301 (304 stainless steel)

### Case Protection Type (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,  
optional: centre back position (rm):  
for stem B1 and B4.1  
without neck tube, see page 2

Mounting device:

without,  
optional: for centre back connection (rm),  
back flange for surface mounting (Rh),  
see page 2

### Temperature Ranges (EN 13 190)

Spans from 60 K to 600 K

### Temperature Sensor (Stem)

1.4571 (316 stainless steel),

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: Lmin resp. L1min up to 400 mm

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

### Window

Instrument glass

### Dial

Aluminum, black figures, white background

### Pointer

Adjustable pointer aluminum, black

### Indication Adjustment (± 4%)

Bottom stem position: by adjustable pointer

Centre back stem position: externally by a screw



## Ordering Information, Standard Temperature Ranges, Options

See page 4

## Special Versions and further Options among others

- Other connection threads and materials upon request
- Other temperature ranges and/or special scales e.g. dual scale °C/°F, coloured fields or areas, dial inscriptions, etc.
- Case parts 1.4404 (316 stainless steel) upon request
- For ambient temperatures up to -60°C upon request. For ambient temperatures below -20 °C we recommend: Thermometers with crimped-on ring case model TBiSchg resp. TBiSchgG
- Position of the 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 DS 8.8110 ff



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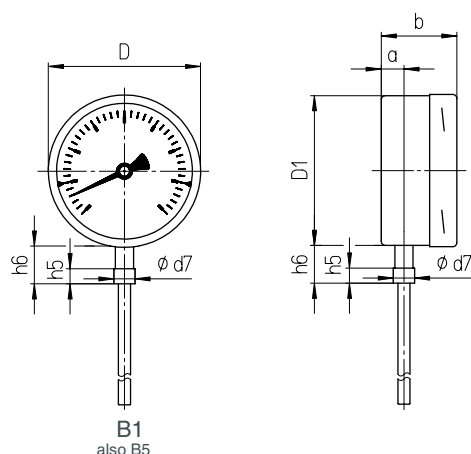
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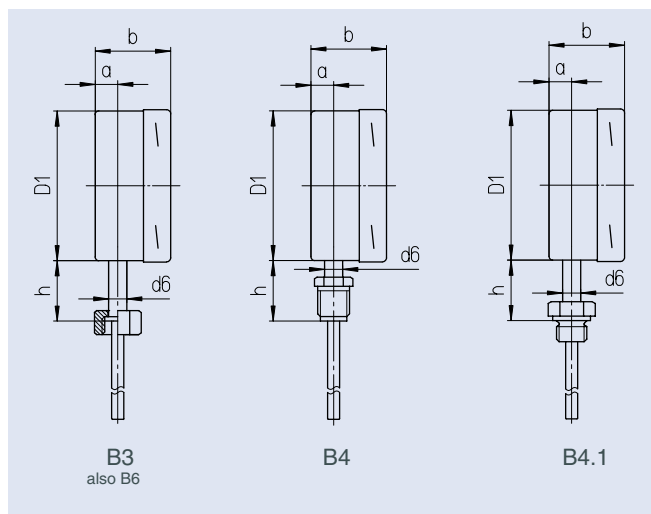
# Stem Position / Case Configurations, Code Letters, Dimensional Data and Weights

## Vertical Bottom Stem Position

without additional code letter

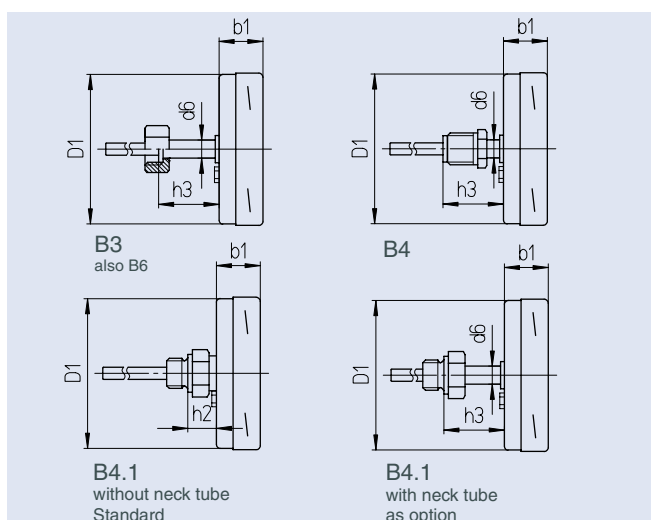
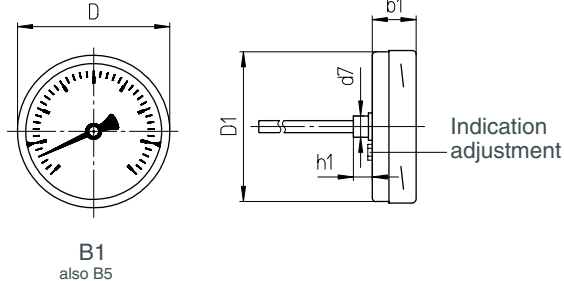


## Further Stem Models



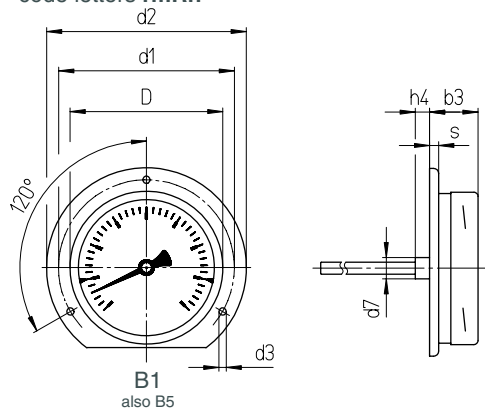
## Centre Back Stem Position

code letters **rm**



## Back flange for surface mounting (back flange)

code letters **rmRh**



## Dimensional Data (mm / inches) and Weights (kg / lb)

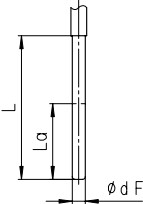
NCS	a	b	b1	b3	D	D1	d1	d2	d3	d6	d7	h <sup>1)</sup>	h1	h2	h3 <sup>1)</sup>	h4	h5	h6	approx. weight <sup>2)</sup> TBiSch
63 2½"	.47	1.87	1.02	1.14	2.52	2.44	2.95	3.35	.14	.47	.55	1.57	.49	.75	1.57	.37	.41	.98	0.18 0.39
100 4"	.59	2.17	1.10	1.24	3.98	3.9	4.57	5.2	.18	.47	.55	1.57	.49	.75	1.57	.35	.41	.98	0.35 0.77
160 6"	.59	2.17	1.06	1.18	6.34	6.26	7.01	7.72	.22	.47	.55	1.57	.49	.75	1.57	.37	.41	.98	0.65 1.43

<sup>1)</sup> Stem model B4 with G ¾ B : 50 mm (1.97")

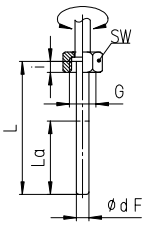
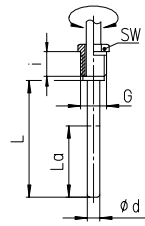
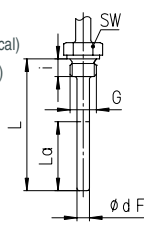
<sup>2)</sup> The information is an example and relates on version with stem B1, Ø 8 mm (0.3"), length 100 mm (4").

# Stem Models

Stem Models	
<b>Process connection:</b>	<b>without screw fitting, plain stem</b>
<b>Stem model:</b>	<b>B1</b>
<b>Form according to DIN 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>Data sheet</b> (suitable thermowell model):	8.8140 (SK1), 8.8141 (SK2) 8.8150 (SK3.B), 8.8151 (SK4.B)



Process connection:	Union nut	Male thread, turnable	Male thread, rigid
<b>Stem model:</b>	<b>B3</b>	<b>B4</b>	<b>B4.1</b>
<b>Form according to DIN 13 190:</b>	Form 5	Form 4	Form 6 (thread cylindrical) Form 7 (thread conical)
<b>Stem material:</b>	1.4571	1.4571	1.4571
<b>Stem-Ø dF:</b>	6 or 8 mm	6 or 8 mm	6 or 8 mm
<b>Screw fitting material:</b>	1.4571	1.4571	1.4571
<b>Order length:</b>	L	L	L
<b>Data sheet</b> (suitable thermowell model):	8.8111 (SF4.1), 8.8113 (SF4.1F) 8.8130 (SF8), 8.8131 (SF9)	8.8110 (SF4), 8.8112 (SF4F) 8.8120 (SF5), 8.8121(SF6+SF7)	8.8110 (SF4), 8.8112 (SF4F) 8.8120 (SF5), 8.8121(SF6+SF7)

### Thread (dimension in mm):

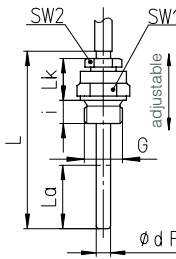
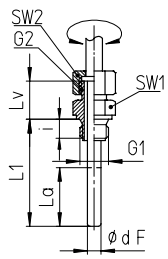
G	SW	i
G 1/2	27	10
G 3/4	32	12
M 20 x 1.5	27	10
M 24 x 1.5	32	12
M 27 x 2	32	12

### Thermowell required!

G	SW	i
G 1/2 B	22	20
G 3/4 B	27	23
M 18 x 1.5	22	14
M 20 x 1.5	22	20

G	SW	i
G 1/2 B	27	14
G 3/4 B	32	16
1/2" NPT	27	19
3/4" NPT	27	19
M 18 x 1.5	24	14
M 20 x 1.5	27	14

Process connection:	Male thread / compression fitting	Male thread, turnable / double male adapter
<b>Stem model:</b>	<b>B5</b> (stem B1 with clamping ring fitting)	<b>B6</b> (stem B3 with double male adapter)
<b>Form according to DIN 13 190:</b>	Form 2 (thread cylindrical) Form 3 (thread conical)	—
<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>Data sheet</b> (suitable thermowell models):	8.8110 (SF4), 8.8112 (SF4F) 8.8120 (SF5), 8.8121(SF6+SF7)	8.8110 (SF4), 8.8112 (SF4F) 8.8120 (SF5), 8.8121(SF6+SF7)

### Thread (dimension in mm):

G	SW1	SW2	i	Lk
G 1/2 B	27	22	14	42
G 3/4 B	32	22	16	42
1/2" NPT	27	22	19	42
3/4" NPT	27	22	19	42
M 20 x 1.5	27	22	14	42

G1	G2	SW1	SW2	i	Lv
G 1/2 B	G 1/2 B	27	27	14	28
G 3/4 B	G 1/2 B	32	27	16	28
1/2" NPT	G 1/2 B	27	27	19	28
3/4" NPT	G 1/2 B	27	27	19	28
M 20 x 1.5	M 20 x 1.5	27	27	14	28
M 24 x 1.5	M 20 x 1.5	32	27	14	28
M 27 x 2	M 20 x 1.5	32	27	16	28

### Minimum Stem Length and Active Length

			Stem-Ø dF (mm):					The minimum length Lmin / L1min of the stem is the smallest possible stem length depending on the active length La (sensitive portion) and the stem model.
			6		8			
			Span (temperature difference) ΔT <sup>1)</sup>					
Stem model:	Length:	Thread:	≥ 100 K	= 80 K	= 60 K	≥ 80 K	= 60 K	The active length La of the stem has to immerse completely into the medium, to grant a measuring result, which corresponds to the accuracy class.
all models	La	all standard threads	40	60	70	40	60	
B1 B4	Lmin	all standard threads	45	65	75	45	65	
B3	Lmin	all standard threads	52	72	82	52	72	
B4.1	Lmin	all standard threads	60	80	90	60	80	
B5	Lmin	all standard threads	95	115	125	95	115	
B6	L1min	all standard threads	60	80	90	60	80	
others			upon request		upon request			

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

## Ordering Information with Indication- and Temperature Ranges, Options

Basic Model: Bimetal thermometers with rigid mount to stem		TBiSch		
Case filling:	without	without code letters		
Nominal case size:	case-Ø 63, 100, 160 (mm) (2½", 4", 6")	<b>63, 100, 160</b>		
Stem position / case configuration:	vertical bottom position	without code letters		
	centre back position	<b>rm</b>		
	centre back position, back flange for surface mounting	<b>rmRh</b>		
Temperature ranges:	$\Delta T$ (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		
	Stem:	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>		
Stem-Ø dF:	6 or 8 mm	<b>dF 6, 8</b>		
Stem length:	L resp. L1 in mm	e. g. <b>L = 100 mm</b>		
Process connection:	see page 3	e. g. <b>G ½ B</b>		
Options:	red mark	on the dial	(order at the moment still as cleartext)	
	plastic clip	red or green external at bayonet ring for NCS 100 and 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 marking	stainless steel-plate 12 mm x 55 mm (0.47" x 2.17"), wire mounting or sticker on case coverage		

Example:

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

Special Versions: Please describe your requirements clearly