Bimetal Thermometers, Rigid Mount

Crimped-on ring case stainless steel

TBiSChg
TBiSChgG

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
Bimetal coil

Accuracy (EN 13 190)
Class 1

Case
With polished crimped-on ring, 1.4301 (304 stainless steel)

Case Protection Type (EN 60 529 / IEC 529)
IP 65

Case Filling
For model TBiSChg**G**
temperature ranges - 20 °C up to +100 °C:
glycerine
temperature ranges - 40 °C and +100 °C and above up to 250 °C:
silicone oil

Nominal Case Sizes
63, 80, 100, 125, 160 (mm) (2½", 3", 4", 5", 6")

Case Configuration
Connection temperature sensor (stem): rigid mount with neck tube

Stem position: vertical bottom position (not for NCS 160)
optional: centre back position **(rm)**:
for stem B1 and B4.1
without neck tube, see page 2

Mounting device: without

Temperature Ranges (EN 13 190)
Temperature differences 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 max. 400 mm
Please regard the minimum stem length against the active length (La) and stem model, see page 3.

Window
Instrument glass

Dial
Aluminum, black figures, white background

Pointer
Aluminum, black

Zero Adjustment (± 4%)
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. double scale °C/°F, coloured fields or areas, dial inscriptions, etc.
- Case parts 1.4404 (316 stainless steel) upon request
- Model TBiSChg for ambient temperatures up to -60 °C;
  Model TBiSChgG for ambient temperatures up to -40 °C;
  up to -60 °C NCS 100, 125 and 160
- 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

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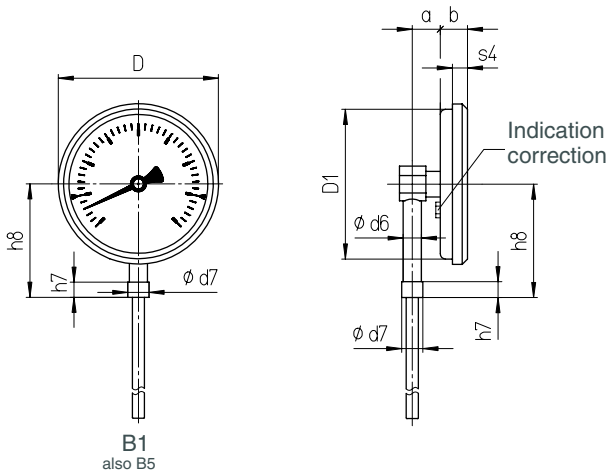
Stem Position / Case Configurations, Code Letters, Dimensional Data and Weights

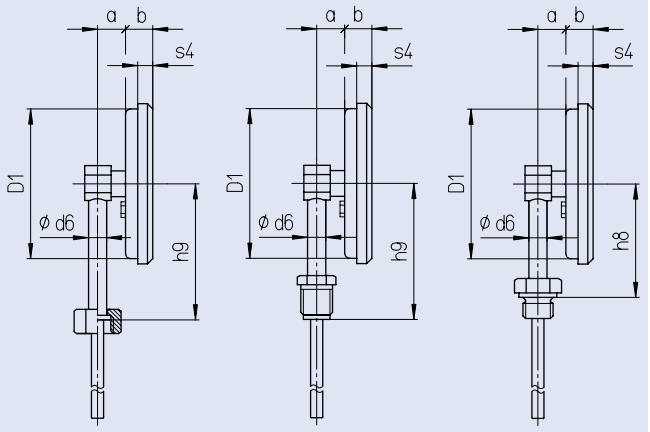
Vertical Bottom Stem Position

without additional code letter



B1
also B5

Further Stem Models



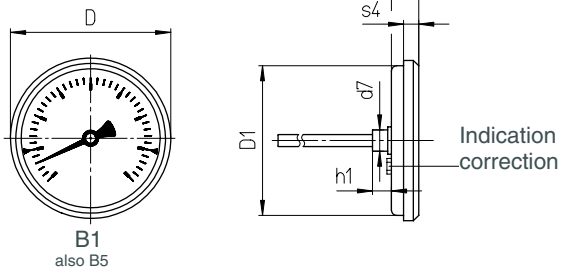
B3
also B6

B4

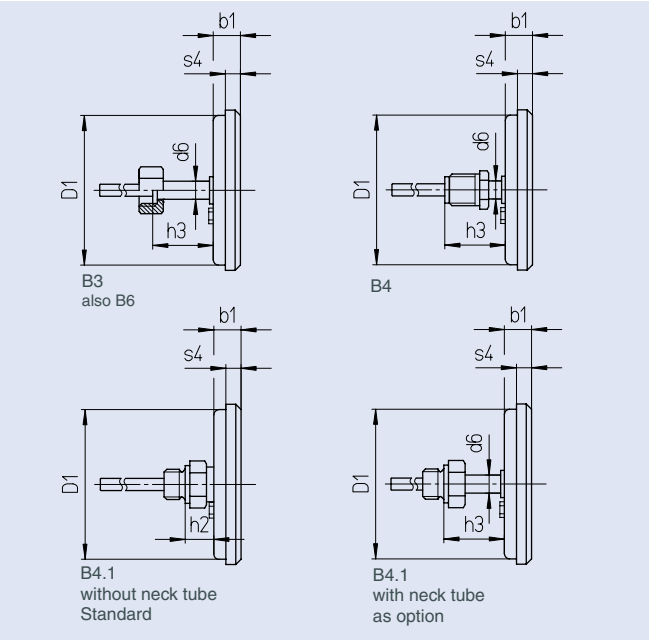
B4.1

Centre Back Stem Position

Code letters **rm**



B1
also B5



B3
also B6

B4

B4.1
without neck tube
Standard

B4.1
with neck tube
as option

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

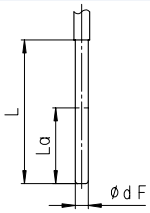
NCS	a	b	b1	D	D1	d6	d7	h1	h2	h3[1]	h7	h8	h9	s4	approx. weight [2]	
															TBiSChg	TBiSChgG
63	18.5	17	17	67	62	12	14	12.5	19	40	10.5	55	70	8	0.18	0.20
2½"	**.73**	**.67**	**.67**	**2.63**	**2.44**	**.47**	**.55**	**.5**	**.75**	**1.57**	**.41**	**2.17**	**2.76**	**.31**	**0.39**	**0.44**
80	18.5	18	18	86	79	12	14	12.5	19	40	10.5	65	80	8	0.22	0.27
3"	**.73**	**.71**	**.71**	**3.39**	**3.11**	**.47**	**.55**	**.5**	**.75**	**1.57**	**.41**	**2.56**	**3.15**	**.31**	**0.48**	**0.59**
100	18.5	18	18	106	98	12	14	12.5	19	40	10.5	75	90	10	0.29	0.37
4"	**.73**	**.71**	**.71**	**4.17**	**3.86**	**.47**	**.55**	**.5**	**.75**	**1.57**	**.41**	**2.95**	**3.54**	**.4**	**0.63**	**0.81**
125	18.5	20	20	136	125	12	14	12.5	19	40	10.5	85	102	11	0.36[3]	0.47[3]
5"	**.73**	**.79**	**.79**	**5.35**	**4.92**	**.47**	**.55**	**.5**	**.75**	**1.57**	**.41**	**3.35**	**4.02**	**.43**	**0.79**	**1.04**
160	–	–	21	167	159	12	14	12.5	19	40	–	–	–	11	0.46[3]	0.66[3]
6"			**.83**	**6.57**	**6.26**	**.47**	**.55**	**.5**	**.75**	**1.57**				**.43**	**1.01**	**1.45**

[1] Stem model B4 with G ¾ B: 50 mm (1.97")
[2] The information is an example and relates on version with stem B1, Ø 8 mm (0.3"), length 100 mm (4").
[3] Valid for model ...rm

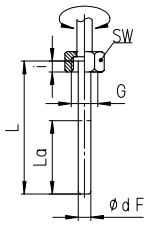
Stem Models

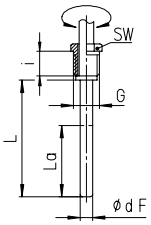
Stem Models

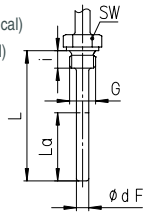
Process connection:	without screw fitting, plain stem
Stem model:	**B1**
Form according to DIN 13 190:	Form 1
Stem material:	1.4571
Stem-Ø dF:	6 or 8
Order length:	L
Accessories:	
Data sheet (suitable thermowell models):	8.8140 (SK1), 8.8141 (SK2) 8.8150 (SK3.B), 8.8151 (SK4.B)



Process connection:	Union nut	Male thread, turnable	Male thread, rigid
Stem model:	**B3**	**B4**	**B4.1**
Form according to DIN 13 190:	Form 5	Form 4	Form 6 (thread cylindrical) Form 7 (thread conical)
Stem material:	1.4571	1.4571	1.4571
Stem-Ø dF:	6 or 8	6 or 8	6 or 8
Screw fitting material:	1.4571	1.4571	1.4571
Order length:	L	L	L
Accessories:			
Data sheet (suitable thermowell models):	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):

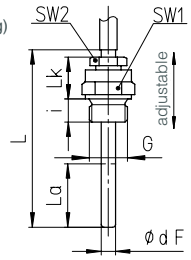
G	SW	i
G ½	27	10
G ¾	32	12
M 20 x 1.5	27	10
M 24 x 1.5	32	12
M 27 x 2	32	12

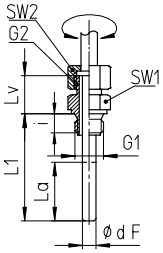
G	SW	i
G ½ B	27	20
G ¾ B	32	23
M 18 x 1.5	22	14
M 20 x 1.5	27	20

Thermowell required!

G	SW	i
G ½ B	27	14
G ¾ B	32	16
½" NPT	27	19
¾" 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
Stem model:	**B5** (= basic stem B1 with compression fitting)	**B6** (= basic stem B3 with double male adapter)
Form according to DIN 13 190:	Form 2 (thread cylindrical) Form 3 (thread conical)	—
Stem material:	1.4571	1.4571
Stem-Ø dF:	6, 8	6, 8
Screw fitting material:	1.4571	1.4571
Order length:	L	L1
Accessories:		
Data sheet (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 (dimensions in mm):

G	SW1	SW2	i	Lk
G ½ B	27	22	14	42
G ¾ B	32	22	16	42
½" NPT	27	22	19	42
¾" NPT	27	22	19	42
M 20 x 1.5	27	22	14	42

G1	G2	SW1	SW2	i	Lv
G ½ B	G ½ B	27	27	14	28
G ¾ B	G ½ B	32	27	16	28
½" NPT	G ½ B	27	27	19	28
¾" NPT	G ½ 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, Active Length and maximum realisable Stem Length

			Stem-Ø dF:				
			6			8	
			Temperature difference ΔT[1]				
Stem model:	**Length:**	**Thread:**	**≥ 100 K**	**= 80 K**	**= 60 K**	**≥ 80 K**	**= 60 K**
all models	La	all standard threads	40	60	70	40	60
B1 B4	Lmin	all standard threads	40	60	70	40	60
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	

The minimum length Lmin / L1min of the stem is the smallest possible stem length against the active length La (vessel) and the stem model.

The active length La of the stem (vessel) has to immerse completely into the medium, to grant a measuring result, which corresponds to the accuracy class.

[1] The temperature difference ΔT = 60 K corresponds to the 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			TBiSChg
Case filling:	according to version glycerine or silicone oil			**G**
Nominal case size:	case-Ø 63, 80, 100, 125, 160 (mm) (2½", 3", 4", 5", 6")			**63, 80, 100, 125, 160**
Stem position / case configuration:	vertical bottom position			without code letters
	centre back position			**rm**
Temperature ranges:		ΔT (K):		
	0 — 60 °C	60		
	0 — 80 °C	80		
	0 — 100 °C	100	e. g.	**0-100 °C**
	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.	**-30/+50 °C**
	–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			**B1**
	union nut			**B3**
	male thread, turnable			**B4**
	male thread, rigid			**B4.1**
	male thread / compression fitting			**B5**
	male thread, turnable / double male adapter			**B6**
Stem-Ø dF:	6 or 8 mm			**dF 6, 8**
Stem length:	L resp. L1 in mm		e. g.	**L = 100 mm**
Process connection:	see page 3		e. g.	**G ½ B**
Options:	red mark	on the dial		
	plastic clip	red or green external at bayonet ring for NCS 80, 100,125 and 160		
	window	tempered safety glass for NCS 80, 100,125 and 160		
		acrylic glass (PMMA) for NCS 80 and 100		
		polycarbonate (PC) NCS 63, 80 and 100		
	case polished			
	neck tube for stem B4.1 and centre back connection			*(order at the moment still as cleartext)*
	stem- Ø dF 10 mm			
	case filling indication ranges from - 20 °C up to +100 °C: silicone oil			
	stem length > 400 mm, max. 800 mm			
	measuring point marking	stainless steel-plate12 mm x 55 mm (0.47" x 2.17"), wire mounting or sticker on case coverage		
Example:				**TBiSChg 80rm, 0-100 °C, B3, dF 6, L = 100 mm, G ½**

Special Versions: Please describe your requirements clearly

Technical changes, replacement of materials and errors excepted.