Bimetal Thermometers, Rigid Mount

Crimped-on ring case stainless steel

TBiSChg
TBiSChgG

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

Degree of Protection (DIN EN 60 529/IEC 529)
IP65

Case Filling
For model TBiSChg**G**
Temperature ranges:
from –20 °C (–4 °F) up to +100 °C (+212 °F): glycerin
from –40 °C (–40 °F) and above +100 °C (+212 °F) up to +250 °C (+482 °F): 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)
- centre back position (**rm**): for stem B1 and B4.1 without neck tube

Mounting device:
- without

Temperature Ranges (DIN EN 13 190)
Temperature differences from 60 K up to 600 K

Temperature Sensor (Stem)
Made of stainless steel 316Ti (1.4571)

Max. static operating pressure:	25 bar
Stem models:	B1, B3, B4, B4.1, B5 or B6
Stem Ø dF:	6 or 8 mm (0.24 or 0.31")
Stem length L:	from Lmin or L1min up to 400 mm (15.75")

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
Aluminum black

Indication Adjustment (±4 %)
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 316L (1.4404) upon request
- Model TBiSChg for ambient temperatures to –60 °C (–76 °F);
  Model TBiSChgG for ambient temperatures to –40 °C (–40 °F); to –60 °C (–76 °F) NCS 100, 125 and 160
- 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, Kazakhstan

Thermowells

See data sheets 8.8110ff.

ARMANO
ARMANO Messtechnik GmbH

Location Beierfeld
Am Gewerbepark 9 • 08344 Grünhain-Beierfeld
Tel.: +49 3774 58 – 0 • Fax: +49 3774 58 – 545
mail@armano-beierfeld.com

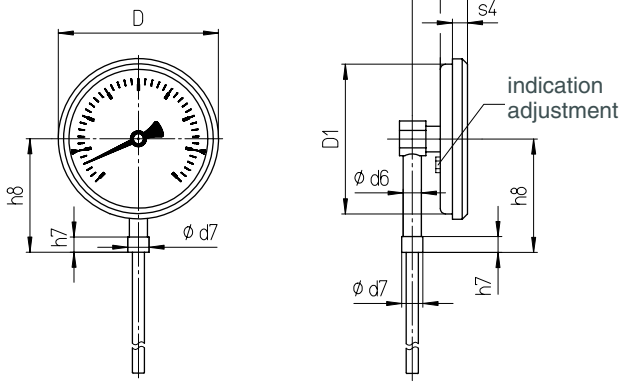
Location Wesel
Manometerstraße 5 • 46487 Wesel-Ginderich
Tel.: +49 2803 9130 – 0 • Fax: +49 2803 1035
mail@armano-wesel.com

Stem Position, Code Letters, Dimensional Data and Weights

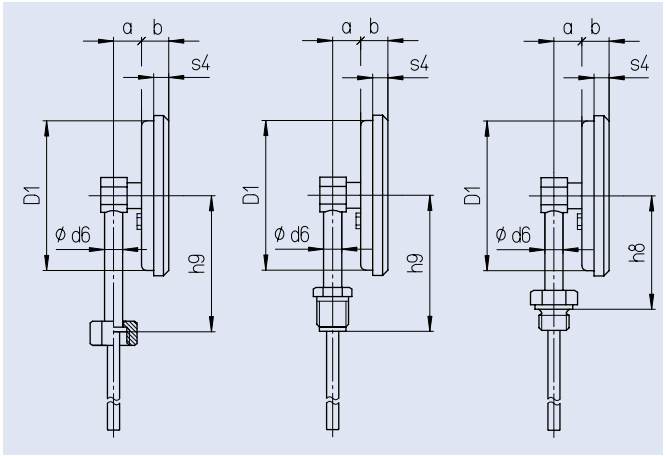
Vertical Bottom Stem Position

Stem model B1 (also B5)

without additional code letter



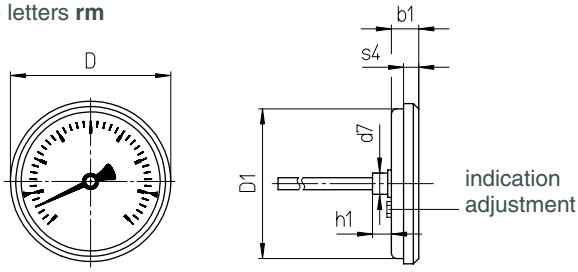
Stem model B3 (also B6) Stem model B4 Stem model B4.1



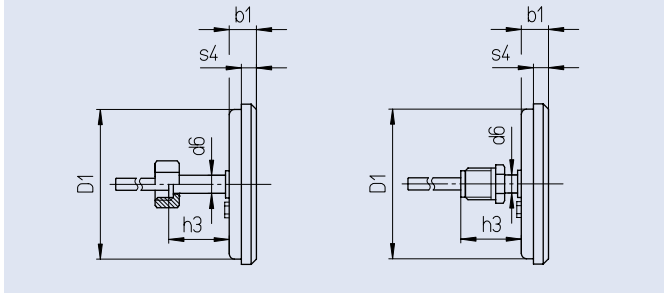
Centre Back Stem Position

Stem model B1 (also B5)

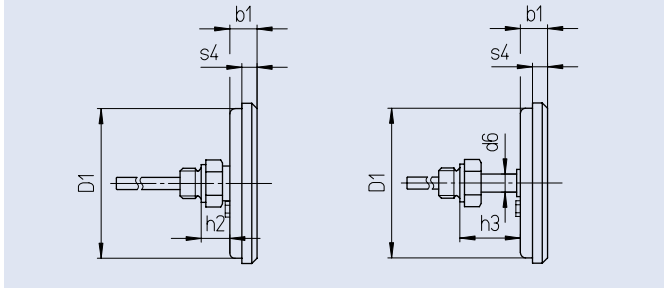
code letters **rm**



Stem model B3 (also B6) Stem model B4



Stem model B4.1 without neck tube (standard) Stem model B4.1 with neck tube (option)



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

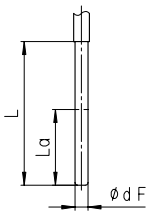
NCS	a	b	b1	D	D1	d6	d7	h1[4]	h2[4]	h3[1][4]	h7	h8[4]	h9[4]	s4	approx. weight[2] TBiSChg	approx. weight[2] TBiSChgG
63 **2½"**	18.5 **0.73**	17 **0.67**	17 **0.67**	67 **2.64**	62 **2.44**	12 **0.47**	14 **0.55**	12.5 **0.49**	19 **0.75**	40 **1.57**	10.5 **0.41**	55 **2.17**	70 **2.76**	8 **0.31**	0.18 **0.4**	0.20 **0.44**
80 **3"**	18.5 **0.73**	18 **0.71**	18 **0.71**	86 **3.39**	79 **3.11**	12 **0.47**	14 **0.55**	12.5 **0.49**	19 **0.75**	40 **1.57**	10.5 **0.41**	65 **2.56**	80 **3.15**	8 **0.31**	0.22 **0.49**	0.27 **0.6**
100 **4"**	18.5 **0.73**	18 **0.71**	18 **0.71**	106 **4.17**	98 **3.86**	12 **0.47**	14 **0.55**	12.5 **0.49**	19 **0.75**	40 **1.57**	10.5 **0.41**	75 **2.95**	90 **3.54**	10 **0.39**	0.29 **0.64**	0.37 **0.82**
125 **5"**	18.5 **0.73**	20 **0.79**	20 **0.79**	136 **5.35**	125 **4.92**	12 **0.47**	14 **0.55**	12.5 **0.49**	19 **0.75**	40 **1.57**	10.5 **0.41**	85 **3.35**	102 **4.02**	11 **0.43**	[3] 0.36 **0.79**	[3] 0.47 **1.04**
160 **6"**	–	–	21 **0.83**	167 **6.57**	159 **6.26**	12 **0.47**	14 **0.55**	12.5 **0.49**	19 **0.75**	40 **1.57**	–	–	–	11 **0.43**	[3] 0.46 **1.01**	[3] 0.66 **1.46**

[1] Stem model B4 with G¾ B: 50 mm (1.97")
[2] The data are examples and relate to the version with stem B1, Ø 8 mm (0.31"), length 100 mm (3.94").
[3] Valid for model …rm
[4] Temperature ranges ≥ 400 °C (≥752 °F): extended neck tube for small stem lengths, see T08-000-031

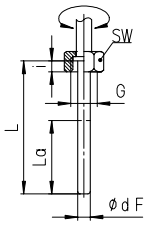
Stem Models

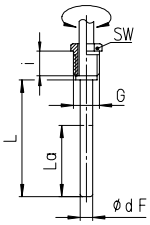
Stem Models

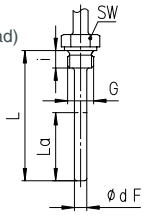
Process connection:	Without screw fitting, plain stem
Stem model:	**B1**
Form acc. to DIN EN 13 190:	Form 1
Stem material:	1.4571
Stem Ø dF:	6 or 8 mm
Order length:	L
Suitable thermowell models: (data sheet)	SK1 (8.8140), SK2 (8.8141) SK3.B (8.8150), SK4.B (8.8151)



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







Thread (dimensional data in mm/inch):

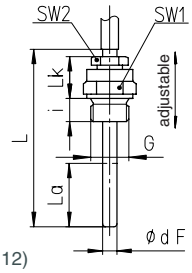
G	SW	i
G ½	27/**1.06**	10/**0.39**
G ¾	32/**1.26**	12/**0.47**
M20x1.5	27/**1.06**	10/**0.39**
M24x1.5	32/**1.26**	12/**0.47**
M27x2	32/**1.26**	12/**0.47**

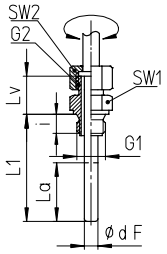
G	SW	i
G ½B	22/**0.87**	20/**0.79**
G ¾B	27/**1.06**	23/**0.91**
M18x1.5	22/**0.87**	14/**0.55**
M20x1.5	22/**0.87**	20/**0.79**

Thermowell required!

G	SW	i
G ½B	27/**1.06**	14/**0.55**
G ¾B	32/**1.26**	16/**0.63**
½" NPT	27/**1.06**	19/**0.75**
¾" NPT	27/**1.06**	19/**0.75**
M18x1.5	24/**0.94**	14/**0.55**
M20x1.5	27/**1.06**	14/**0.55**

Process connection:	Male thread/compression fitting	Male thread, turnable/double male adapter
Stem model:	**B5** (B1 with compression fitting)	**B6** (B3 with double male adapter)
Form acc. to DIN EN 13 190:	Form 2 (cylindrical thread) Form 3 (conical thread)	—
Stem material:	1.4571	1.4571
Stem Ø dF:	6 or 8 mm	6 or 8 mm
Screw fitting material:	1.4571	1.4571
Order length:	L	L1
Suitable thermowell models: (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)





Thread (dimensional data in mm/inch):

G	SW1	SW2	i	Lk
G ½B	27/**1.06**	22/**0.87**	14/**0.55**	42/**1.65**
G ¾B	32/**1.26**	22/**0.87**	16/**0.63**	42/**1.65**
½" NPT	27/**1.06**	22/**0.87**	19/**0.75**	42/**1.65**
¾" NPT	27/**1.06**	22/**0.87**	19/**0.75**	42/**1.65**
M20x1.5	27/**1.06**	22/**0.87**	14/**0.55**	42/**1.65**

G1	G2	SW1	SW2	i	Lv
G ½B	G ½B	27/**1.06**	27/**1.06**	14/**0.55**	28/**1.1**
G ¾B	G ½B	32/**1.26**	27/**1.06**	16/**0.63**	28/**1.1**
½" NPT	G ½B	27/**1.06**	27/**1.06**	19/**0.75**	28/**1.1**
¾" NPT	G ½B	27/**1.06**	27/**1.06**	19/**0.75**	28/**1.1**
M20x1.5	M20x1.5	27/**1.06**	27/**1.06**	14/**0.55**	28/**1.1**
M24x1.5	M20x1.5	32/**1.26**	27/**1.06**	14/**0.55**	28/**1.1**
M27x2	M20x1.5	32/**1.26**	27/**1.06**	16/**0.63**	28/**1.1**

Minimum Stem Length and Active Length (mm/inch)

			Stem Ø dF: 6 (0.24")			Stem Ø dF: 8 (0.31")	
			Span ΔT[1]				
Stem model:	**Length:**	**Thread:**	**≥100 K**	**=80 K**	**=60 K**	**≥80 K**	**=60 K**
all models	La	all standard threads	40 **1.57**	60 **2.36**	70 **2.76**	40 **1.57**	60 **2.36**
B1 / B4	Lmin	all standard threads	45 **1.77**	65 **2.56**	75 **2.95**	45 **1.77**	65 **2.56**
B3	Lmin	all standard threads	52 **2.05**	72 **2.83**	82 **3.23**	52 **2.05**	72 **2.83**
B4.1	Lmin	all standard threads	60 **2.36**	80 **3.15**	90 **3.54**	60 **2.36**	80 **3.15**
B5	Lmin	all standard threads	95 **3.74**	115 **4.53**	125 **4.92**	95 **3.74**	115 **4.53**
B6	L1min	all standard threads	60 **2.36**	80 **3.15**	90 **3.54**	60 **2.36**	80 **3.15**
others			upon request			upon request	

The minimum length Lmin/L1min is the smallest feasible stem length.
Important: Please note the technical information sheet T08-000-031 on the metrologically optimal stem length.

The active length La is the temperature-sensitive part of the stem.

[1] 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

Basic Model:	Bimetal Thermometer Rigid Mount to the Stem			TBiSChg
Case filling:	without			without code letters
	depending on version: glycerin 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:	scale °C:	ΔT (K):	scale °F:	ΔT (°F):		
	0 – 60 °C	60	0 – 150 °F	150		
	0 – 80 °C	80	0 – 200 °F	200		
	0 – 100 °C	100	0 – 250 °F	250	e.g.	**0–100 °C**
	0 – 120 °C	120	0 – 300 °F	300		
	0 – 160 °C	160	–50 / +130 °F	180		
	0 – 200 °C	200	–40 / +160 °F	200		
	0 – 250 °C	250	–30 / +120 °F	150		
	0 – 300 °C	300	–10 / +100 °F	110		
	0 – 400 °C	400	20 – 240 °F	220		
	0 – 500 °C	500	30 – 140 °F	110		
	0 – 600 °C	600	40 – 400 °F	360		
	–50 / +50 °C	100	50 – 300 °F	250		
	–40 / +40 °C	80	50 – 500 °F	450		
	–40 / +60 °C	100	80 – 800 °F	720		
	–30 / +50 °C	80	150 – 700 °F	550	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 (0.24 or 0.31")			**dF 6, 8**
Stem length:	L or L1 in mm		e.g.	**L = 100 mm**
Process connection:	see page 3		e.g.	**G½B**

Options:		
	red mark	on the dial
	plastic clip	red or green, external at crimped-on ring for NCS 80, 100, 125, 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	
	stem Ø dF 10 mm (0.39")	
	case filling temperature ranges from –20 °C up to +100 °C (–4/+212 °F): silicone oil	
	stem length >400 mm (15.75"), max. 800 mm (31.5")	
	instrument tag	stainless steel plate 12 x 55 mm (0.47 x 2.17") with wire mounting
		or sticker upon the case

Example:	**TBiSChg 80rm, 0–100 °C, B3, dF 6, L = 100 mm, G½**

Special Versions: Please describe your requirements in cleartext!