

Gas-actuated Thermometers, Rigid Mount

Bayonet ring case stainless steel

TSCh
TSChG

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

With nitrogen filling (inert gas, physiologically safe)

Accuracy (DIN EN 13 190)

Class 1

Case

With bayonet ring, stainless steel 304 (1.4301)

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

IP65

Case Filling

Model TSChG: silicone oil

Nominal Case Sizes

TSCh: 63, 100, 160, 250 mm (2½, 4, 6, 10")

TSChG: 63, 100, 160 mm (2½, 4, 6")

Case Configuration

Connection temperature sensor (stem):

- rigid mount with neck tube

Stem position:

- vertical bottom position
- with angle (**w**, **wst**, **wl**, **wr**)
- centre back position (**rm**)

Mounting device:

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

Temperature Ranges (DIN EN 13 190)

Temperature differences (spans) from 80 K up to 600 K

Temperature Sensor (Stem)

Made of stainless steel 316Ti (1.4571)

Max. static operating pressure: 25 bar

Stem models: A1, A3, A4, A4.1, A5 or A6

Stem Ø dF: 8, 10 or 12 mm (0.31, 0.39 or 0.47")

Stem length L or L1: from Lmin or L1min up to 2.50 m (8.2')

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

Window

Instrument glass

Movement

Brass/German silver

Dial

Aluminum white, scale black

Pointer

Aluminum black

Indication Adjustment (±6 %)

Externally via screw



Ordering Information, Standard Ranges, Options

See page 4

Further Options

- Other stem models, e.g.
 - without bent tube, see data sheet 8299.1
 - with connection for food/bio/pharmaceutical industries, see data sheet 8299.3
 - contact stem for temperature measurement at the outside of tanks and pipe barrels up to 300 °C (572 °F), see data sheet 8299.4
- Model TSChG for ambient temperatures down to -40 °C (-40 °F) For ambient temperatures below -20 °C (-4 °F) we recommend: thermometer with crimped-on ring case models TSChg or TSChG see data sheet 8222
- Position of connection radial at 3 o'clock, 9 o'clock, 12 o'clock or other than vertical installation (90°)
- GOST version for Russia and Kazakhstan

Special Versions Upon Request

- Other stem Ø, connection threads and materials
- Other temperature ranges and/or special scales, e.g. dual scale °C/°F, coloured fields or ranges, dial inscriptions
- Stationary pointer or drag indicator with window made of polycarbonate (not for NCS 250)
- Case parts stainless steel 316L (1.4404)
- Model TSCh for ambient temperatures down to -60 °C (-76 °F)
- Other position of connection

Accessories

Mechanical: thermowells, see data sheets 8.8110ff.

Electronic: limit switch contact assemblies, see catalogue heading 9.1

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ARMANO

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8201

01/22

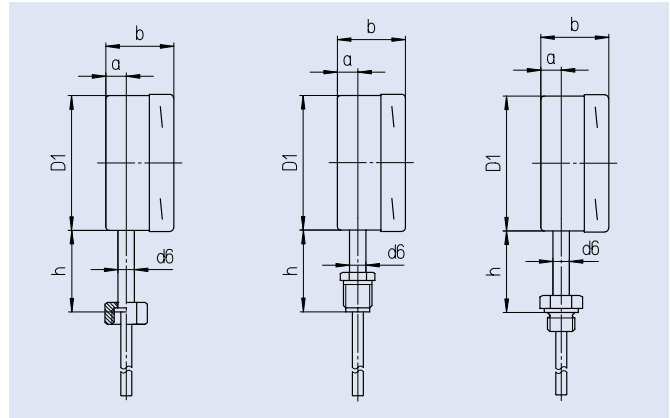
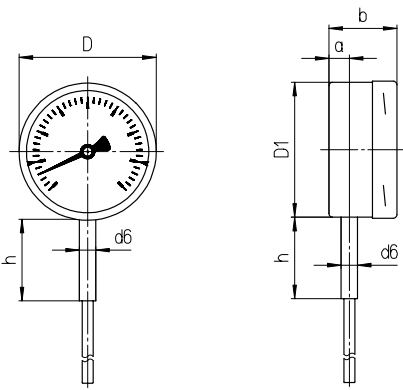
Stem Position, Code Letters, Dimensional Data and Weight

Vertical Bottom Stem Position

Stem model A1 (also A5)

Stem model A3 (also A6) Stem model A4 Stem model A4.1

without code letter



Angular Bottom Stem Position

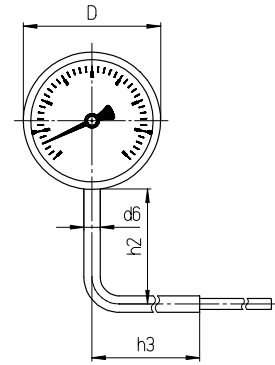
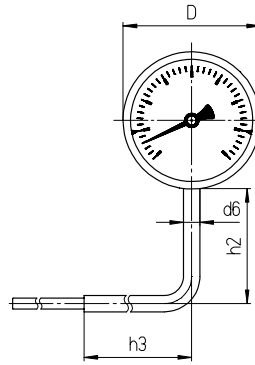
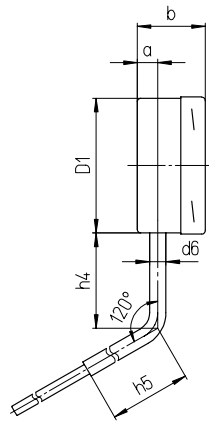
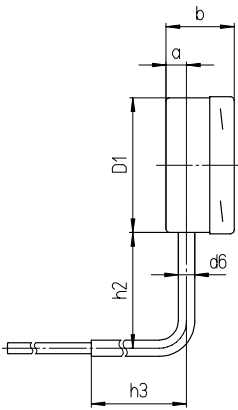
with angle:

right-angled to the back,
code letter **w**

obtuse-angled to the back,
code letters **wst**

lateral to the left,
code letters **wl**

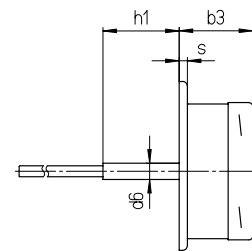
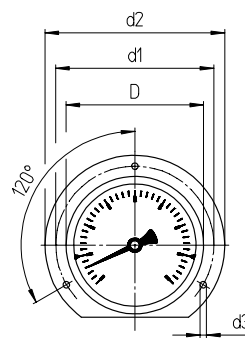
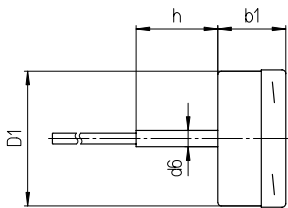
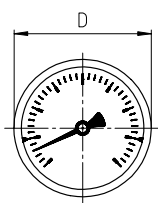
lateral to the right,
code letters **wr**



Centre Back Stem Position

code letters **rm**

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



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

NCS	a	b	b1	b3	D	D1	d1	d2	d3	d6	h ¹⁾	h1 ¹⁾	h2	h3	h4	h5	s	approx. weight ²⁾ TSch TSChG	
63 2½"	12 0.47	39 1.54	39 1.54	42 1.65	64 2.52	62 2.44	75 2.95	85 3.35	3.6 0.14	12 0.47	60 2.36	57 2.24	85 3.35	120 4.72	70 2.76	120 4.72	5 0.2	0.24 0.53	0.32 0.71
100 4"	15 0.59	50 1.97	50 1.97	53.5 2.11	101 3.98	99 3.9	116 4.57	132 5.2	4.8 0.19	12 0.47	60 2.36	56.5 2.22	85 3.35	120 4.72	70 2.76	120 4.72	6 0.24	0.46 1.01	0.72 1.59
160 6"	15 0.59	50 1.97	50 1.97	53 2.09	161 6.34	159 6.26	178 7.01	196 7.72	5.8 0.23	12 0.47	60 2.36	57 2.24	³⁾ 85 3.35	120 4.72	³⁾ 70 2.76	120 4.72	6 0.24	0.78 1.72	1.50 3.31
250 10"	15 0.59	57 2.24	57 2.24	—	251 9.88	249 9.8	270 10.63	285 11.22	5.8 0.23	12 0.47	60 2.36	—	109 4.29	120 4.72	70 2.76	120 4.72	—	1.83 4.03	—

¹⁾ Temperature ranges ≥ 400 °C (≥ 752 °F): extended neck tube for smaller stem lengths, see T08-000-031
Temperature ranges > 500 °C (> 932 °F): +20 mm (0.79") – standard for all stem lengths

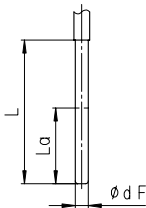
²⁾ The data are examples and relate to the version with stem A1, \varnothing 10 mm (0.39"), length 200 mm (7.87")

³⁾ For TSChG: h2 = 109 mm (4.29"), h4 = 94 mm (3.7")

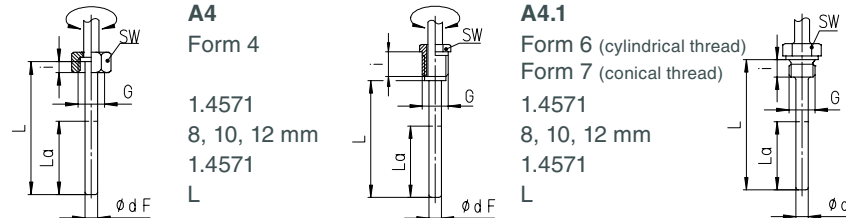
Stem Models

Stem Models

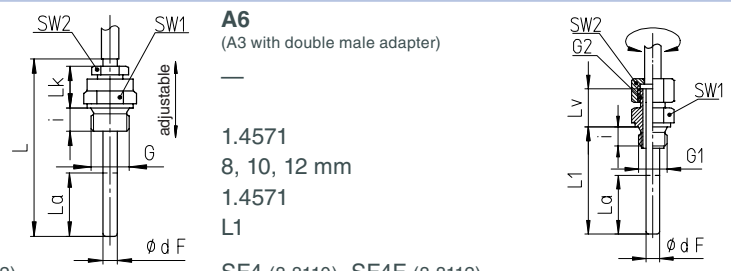
Process connection:	Without screw fitting, plain stem	
Stem model:	A1	
Form acc. to DIN EN 13 190:	Form 1	
Stem material:	1.4571	
Stem Ø dF:	8, 10, 12 mm	
Order length:	L	
Suitable thermowell models: (data sheet)	SK1 (8.8140), SK2 (8.8141)	



Process connection:	Union nut	Male thread, turnable	Male thread, rigid																																																						
Stem model:	A3	A4	A4.1																																																						
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:	8, 10, 12 mm	8, 10, 12 mm	8, 10, 12 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)																																																						
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Process connection:	Male thread/compression fitting	Male thread, turnable/double male adapter																																																																														
Stem model:	A5 (A1 with compression fitting)	A6 (A3 with double male adapter)																																																																														
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Minimum Stem Length, Active Length and Maximum Feasible Stem Length (mm/inch)

Stem model:	Length:	Thread:	up to max. 500 °C (932 °F) 500 °C (932 °F) and above					
			Stem Ø dF:			Stem Ø dF:		
			12 (0.47")	10 (0.39")	8 (0.31")	12 (0.47")	10 (0.39")	8 (0.31")
all models	La	all standard threads	35	45	75	75	105	165
			1.38	1.77	2.95	2.95	4.13	6.5
A1/A3/A4	Lmin	all standard threads	55	65	95	95	125	185
			2.17	2.56	3.74	3.74	4.92	7.28
A4.1	Lmin	G½B, M18x1.5, M20x1.5	49	59	89	89	119	179
			1.93	2.32	3.5	3.5	4.69	7.05
		G¾B	51	61	91	91	121	181
			2	2.4	3.58	3.58	4.76	7.13
½" NPT, ¾" NPT	54	64	94	94	124	184		
	2.13	2.52	3.7	3.7	4.88	7.24		
A5	Lmin	all standard threads	90	100	130	130	160	220
			3.54	3.94	5.12	5.12	6.3	8.66
A6	L1min	G½B, M20x1.5	49	59	89	89	119	179
			1.93	2.32	3.5	3.5	4.69	7.05
		G¾B, M24x1.5, M27x2	51	61	91	91	121	181
			2	2.4	3.58	3.58	4.76	7.13
½" NPT, ¾" NPT	54	64	94	94	124	184		
	2.13	2.52	3.7	3.7	4.88	7.24		
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.

The maximum feasible stem length is 2.50 m (8.2'). With a capillary line, greater lengths are possible, e.g. with special stems A3.2, A4.2 and A4.3 (data sheet 8299.1) or basic models TFCh with capillary line to stem, data sheet 8221.

