

Gas-actuated Thermometers, Rigid Mount

Crimped-on ring case stainless steel

TSChg
TSChgG

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

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

IP65

Case Filling

For model TSChgG: silicone oil

Nominal Case Sizes

63, 80, 100, 160 mm (2½, 3, 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 1.4571 (316Ti)

Max. static operating pressure: 25 bar

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

Stem Ø dF: 8, 10 or 12 mm

Stem length L or L1: from Lmin or L1min up to 2.50 m

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

Special Versions and 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, see data sheet 8299.4
- Other stem Ø, 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
- Model TSChg for ambient temperatures to -60 °C;
Model TSChgG for ambient temperatures to -40 °C;
to -60 °C NCS 100 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, Ukraine, Kazakhstan, Belarus

Thermowells

See data sheets 8.8110ff.

www.armano-messtechnik.com

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

8202

09/19

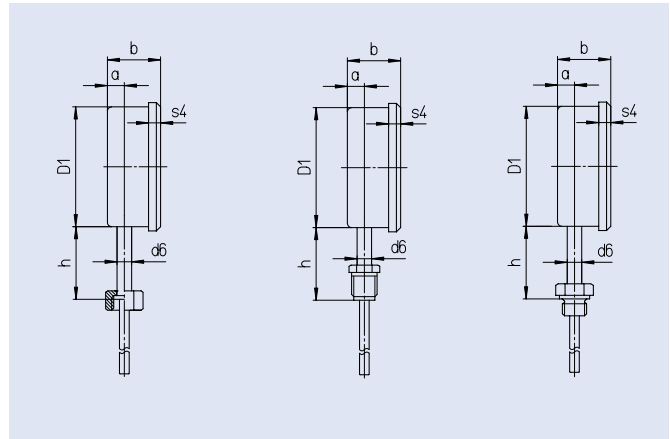
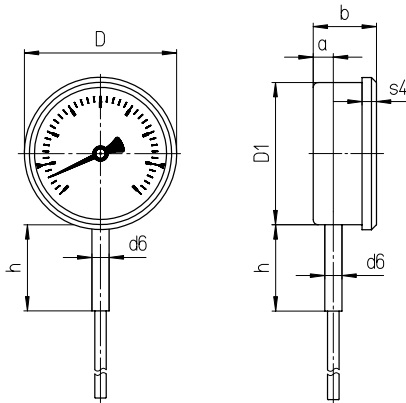
Stem Position, Code Letters, Dimensional Data and Weights

Vertical Bottom Stem Position

Stem model A1 (also A5)

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

without additional code letter



Angular Bottom Stem Position

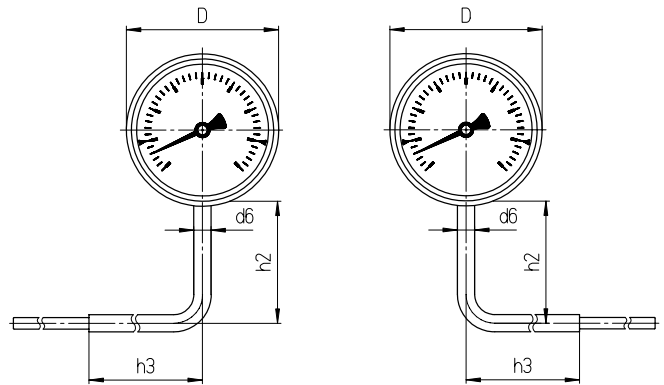
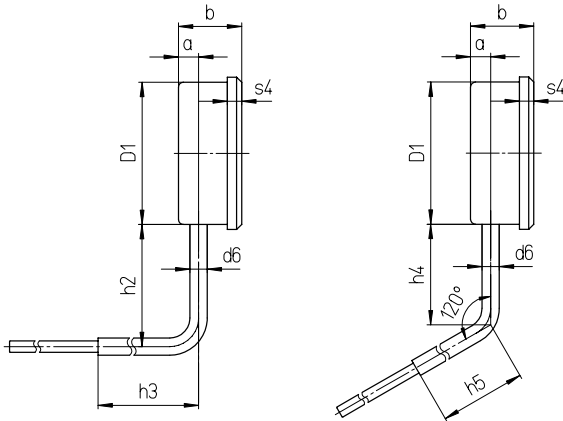
with angle:

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

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

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

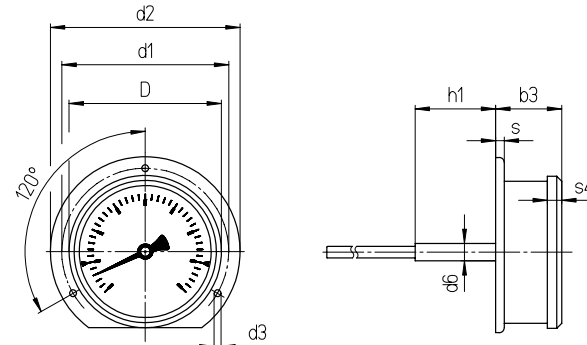
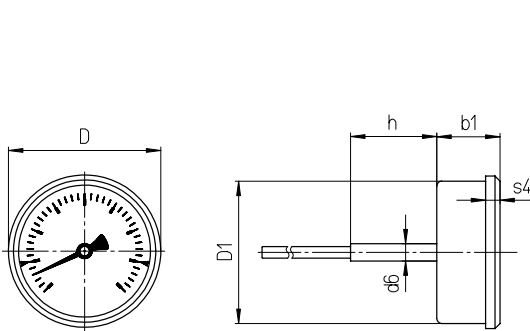
lateral to the right,
code letters **wr**



Centre Back Stem Position

code letters **rm**

with back flange for surface mounting, except NCS 80
code letters **rmRh**



Dimensional Data (mm) and Weights (kg)

NCS	a	b	b1	b3	D	D1	d1	d2	d3	d6	h ¹⁾	h1 ¹⁾	h2	h3	h4	h5	s	s4	approx. weight ²⁾ TSCGg	TSCGg
63	12	39	39	42	67	62	75	85	3.6	12	60	57	85	120	70	120	5	8	0.23	0.30
80	15	42	42	—	86	79	95	110	4.8	12	60	—	85	120	70	120	—	8	0.32	0.46
100	15	43	43	46.5	106	99	116	132	4.8	12	60	57	85 ³⁾	120	70 ³⁾	120	6	10	0.43	0.63
160	15	51	51	54	167	159	178	196	5.8	12	60	—	109	120	70	120	—	11	0.75	1.46

¹⁾ Temperature ranges ≥ 400 °C: extended neck tube for smaller stem lengths, see T08-000-031

Temperature ranges > 500 °C: +20 mm – standard for all stem lengths

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

³⁾ For TSCGg: h2 = 109 mm, h4 = 94 mm

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										
Form acc. to DIN EN 13 190:	Form 5										
Stem material:	1.4571										
Stem Ø dF:	8, 10, 12 mm										
Screw fitting material:	1.4571										
Order length:	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):	G	SW	i	G	SW	i	G	SW	i		
	G ½	27	10	G ½ B	22	20	G ½ B	27	14		
	G ¾	32	12	G ¾ B	27	23	G ¾ B	32	16		
	M20x1.5	27	10	M18x1.5	22	14	½" NPT	27	19		
	M24x1.5	32	12	M20x1.5	22	20	¾" NPT	27	19		
	M27x2	32	12				M18x1.5	24	14		
							M20x1.5	27	14		
				Thermowell required!							
Process connection:		Male thread/compression fitting				Male thread, turnable/double male adapter					
Stem model:	A5										
	(A1 with compression fitting)										
Form acc. to DIN EN 13 190:	Form 2 (cylindrical thread) Form 3 (conical thread)										
Stem material:	1.4571										
Stem Ø dF:	8, 10, 12 mm										
Screw fitting material:	1.4571										
Order length:	L										
Suitable thermowell models: (data sheet)	SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)										
Thread (dimensional data in mm):	G	SW1	SW2	i	Lk	G1	G2	SW1	SW2	i	Lv
	G ½ B	27	22	14	42	G ½ B	G ½ B	27	27	14	28
	G ¾ B	32	22	16	42	G ¾ B	G ½ B	32	27	16	28
	½" NPT	27	22	19	42	½" NPT	G ½ B	27	27	19	28
	¾" NPT	27	22	19	42	¾" NPT	G ½ 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
Minimum Stem Length, Active Length and Maximum Feasible Stem Length (mm)											
			up to max. 500 °C			500 °C and above					
Stem model:	Length:	Thread:	Stem Ø dF:			Stem Ø dF:					
			12	10	8	12	10	8			
all models	La	all standard threads	35	45	75	75	105	165			
A1/A3/A4	Lmin	all standard threads	55	65	95	95	125	185			
A4.1	Lmin	G ½ B, M18x1.5, M20x1.5	49	59	89	89	119	179			
		G ¾ B	51	61	91	91	121	181			
		½" NPT, ¾" NPT	54	64	94	94	124	184			
A5	Lmin	all standard threads	90	100	130	130	160	220			
A6	L1min	G ½ B, M20x1.5	49	59	89	89	119	179			
		G ¾ B, M24x1.5, M27x2	51	61	91	91	121	181			
		½" NPT, ¾" NPT	54	64	94	94	124	184			
others			upon request			upon request					

Ordering Information

Basic Model: Gas-actuated Thermometer Rigid Mount to the Stem		TSchg
Case filling:	without silicone oil	without code letters G
Nominal case size:	case Ø 63, 80, 100, 160 mm (2½, 3, 4, 6")	63, 80, 100, 160
Stem position / case configuration:	vertical bottom position	without code letters
	right-angled to the back	w
	obtuse-angled to the back	wst
	lateral angled to the left	wl
	lateral angled to the right	wr
	centre back position	rm
	centre back position, with back flange for surface mounting	rmRh
Temperature ranges:	scale: Δ T (K):	
	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	
	–100 / +100 °C 200	
	–50 / +50 °C 100	
	–40 / +40 °C 80	
	–40 / +60 °C 100	
	–30 / +50 °C 80	e.g. –30/+50 °C
	–20 / +60 °C 80	
	–20 / +80 °C 100	
	50 – 300 °C 250	
	50 – 400 °C 350	
	100 – 500 °C 400	
Stem:	without screw fitting, plain stem	A1
	union nut	A3
	male thread, turnable	A4
	male thread, rigid	A4.1
	male thread/compression fitting	A5
	male thread, turnable/double male adapter	A6
Stem Ø dF:	8, 10 or 12 mm	dF 8, 10, 12
Stem length:	L or 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 crimped-on ring for NCS 80, 100, 160	
	window tempered safety glass for NCS 80, 100 and 160	
		acrylic glass (PMMA) for NCS 80 and 100
		polycarbonate (PC) NCS 63, 80 and 100
	movement stainless steel	
	case ventilation no. 22 for outdoor installation	
	case polished	
	versions: DNV GL dial marking with symbol	
	and Russian Sea Register copy of the certificate upon request	
	TSchg 100	
	TSchgG 63, 80, 100	
	instrument tag stainless steel plate 12 x 55 mm (0.47 x 2.17") with wire mounting or sticker upon the case	

Example:

TSchg 80 w, 0–100 °C, A5, dF 10, L = 100 mm, G ½ B

Special Versions: Please describe your requirements in cleartext!