

Gas-Actuated Thermometers, with Capillary Line

Crimped-on ring case stainless steel

TFChg
TFChgG

Standard Versions

Information on selection and metrological features (temperature-resistance, among others) and temperature ranges / smallest subdivision / error limits can be found in model overview 8000.

Measuring Unit

With nitrogen filling
(inert gas, physiologically safe)

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 TFChgG: silicone oil

Nominal Case Sizes

63, 80, 100, 160 mm (2½", 3", 4", 6")

Case Configuration

Connection temperature

sensor (stem): capillary line

Capillary line position: vertical bottom position,
optional: centre back position (rm),
see page 2

Mounting device:

for bottom capillary line position:
back flange for surface mounting (Rh) or
mounting device for gauge holder
bracket (Mgh)

for centre back capillary
line position (rm): back flange for surface mounting (Rh)
/ front flange (Fr), or u-clamp for panel
mounting (BFR)

Capillary Line (standard) 1 m stainless steel Ø 2 mm, with buckle
protection spirals at both ends,
capillary line length L_{FL} selectable from
1 m to 15 m (> 15 m upon request)

Temperature Ranges (EN 13 190)

Spans from 80 K to 600 K

Temperature Sensor (Stem)

Made of stainless steel 1.4571 (316 L),
max. static operating pressure: 25 bar

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

Stem-Ø dF: 8, 10 or 12 mm

Stem length L resp. L1: Lmin resp. L1min up to max. 2.50 m

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

Window

Instrument glass

Movement

Brass/German silver



Dial

Aluminium white, scaling black

Pointer

Aluminium black

Indication Adjustment ($\pm 6\%$)

From the outside via a screw

Ordering Information, Standard Temperature Ranges, Options

See page 4

Special Versions and further Options among others

- Other stem models, e.g.
 - without bent tube, with compression fitting, adjustable at capillary line, see data sheet 8299.2
 - with connection for food / biotechnical / pharmaceutical industry, see data sheet 8299.3
 - contact stem for temperature measurement on the outside of cases and pipe barrels up to 300 °C, see data sheet 8299.4
- Other stem-Ø, connection threads and materials upon request
- Capillary line $F_{FL} > 15$ m upon request
- Other temperature ranges and/or special scales, e.g. dual scale °C/°F, coloured fields or ranges, dial inscriptions, etc.
- Case parts stainless steel 316 L (1.4404) upon request
- Model TFChg for ambient temperatures to -60 °C;
Model TFChgG for ambient temperatures to -40 °C,
to -60 °C NCS 100 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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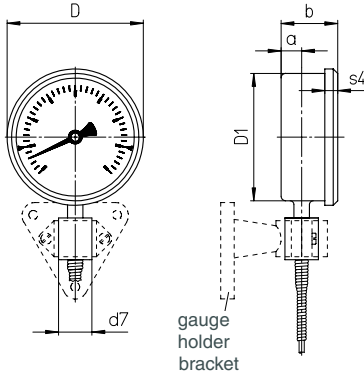
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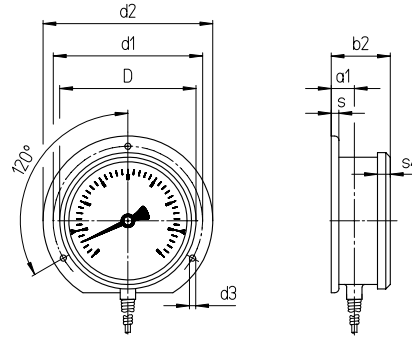
Capillary Line Position / Case Configurations, Code Letters, Dimensional Data and Weights

Vertical Bottom Capillary Line Position

Mounting device for gauge holder bracket¹⁾
code letters **Mgh**

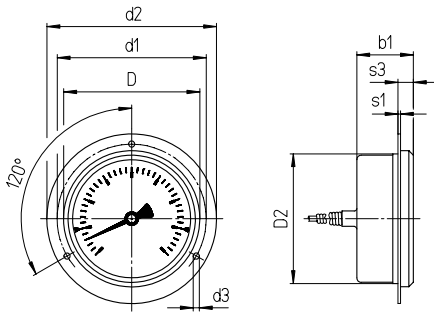


Back flange for surface mounting
code letters **Rh**

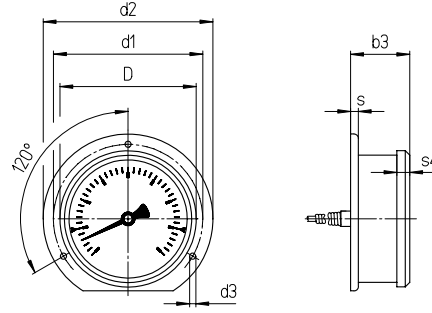


Centre Back Capillary Line Position

Front flange
code letters **rmFr**

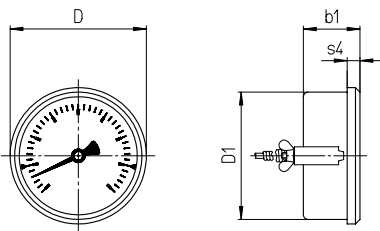


Back flange for surface mounting (except NCS 80)
code letters **rmRh**



Centre Back Capillary Line Position

U-clamp for panel mounting
code letters **rmBFr**



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

NCS	a	a1	b	b1	b2	b3	D	D1	D2	d1	d2	d3	d7	s	s1	s3	s4	approx. Weight ²⁾	
																		TFChg	TFChgG
63	12	15	39	39	42	42	67	62	64	75	85	3.6	26	5	1	9	8	0.36	0.44
2½"	.47	.59	1.54	1.54	1.65	1.65	2.63	2.44	2.52	2.95	3.35	.14	1.02	.20	.04	.35	.31	0.80	0.97
80	15	18	42	42	45	—	86	79	81	95	110	4.8	26	5	1	9	8	0.45	0.59
3"	.59	.71	1.65	1.65	1.77	—	3.39	3.11	3.18	3.74	4.33	.19	1.02	.20	.04	.35	.31	0.99	1.30
100	15	18.5	43	43	46.5	46.5	106	99	101	116	132	4.8	26	6	1	11.5	10	0.57	0.76
4"	.59	.73	1.70	1.70	1.83	1.83	4.17	3.90	3.98	4.57	5.20	.19	1.02	.24	.04	.45	.40	1.26	1.68
160	15	18	51	51	54	54	167	159	—	178	196	5.8	26	6	—	—	11	0.88	1.59
6"	.59	.71	2.01	2.01	2.13	2.13	6.57	6.26	—	7.01	7.72	.23	1.02	.24	—	—	.43	1.94	3.50

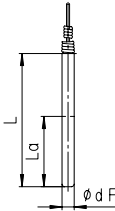
¹⁾ Details on gauge holder brackets can be found in the data sheets on accessories of our catalogue-heading 8.

²⁾ The indications serve as example and relate to versions with mounting devices for Mgh and stem A1, Ø 10 mm (0.4"), length 200 mm (8") and 1 m capillary line.

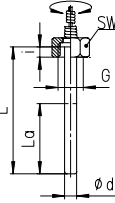
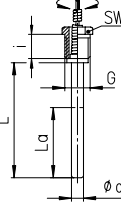
Stem Models

Stem Models

Process connection:	without screw fitting, plain stem		
Stem model:	A1		
Form according to DIN 13 190:	Form 1		
Stem material:	1.4571		
Stem-Ø dF:	8, 10, 12		
Order length:	L		
Data sheet (suitable thermowell models):	8.8140 (SK1), 8.8141 (SK2)		

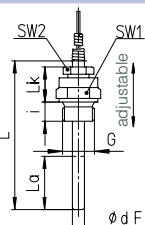
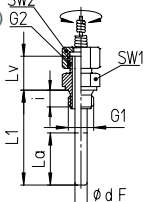


Process connection:	Union nut	Male thread, turnable
Stem model:	A3	A4
Form according to DIN 13 190:	Form 5	Form 4
Stem material:	1.4571	1.4571
Stem-Ø dF:	8, 10, 12	8, 10, 12
Screw fitting material:	1.4571	1.4571
Order length:	L	L
Data sheet (suitable thermowell models):	8.8111 (SF4.1), 8.8113 (SF4.1F) 8.8130 (SF8), 8.8131 (SF9)	8.8110 (SF4), 8.8112 (SF4F) 8.8120 (SF5), 8.8121 (SF6+SF7)

Thread (dimensions in mm):	G	SW	i	G	SW	i
	G 1/2	27	10	G 1/2 B	22	20
G 3/4	32	12	G 3/4 B	27	23	
M 20x1.5	27	10	M 18x1.5	22	14	
M 24x1.5	32	12	M 20x1.5	22	20	
M 27x2	32	12	Thermowell required!			

Process connection:	Male thread / Compression fitting	Male thread, turnable / Double male adapter
Stem model:	A5 (= basic stem A1 with compression fitting)	A6 (= basic stem A3 with double male adapter)
Form according to DIN 13 190:	Form 2 (thread cylindrical) Form 3 (thread tapered)	—
Stem material:	1.4571	1.4571
Stem-Ø dF:	8, 10, 12	8, 10, 12
Screw fitting material:	1.4571	1.4571
Order length:	L	L1
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	G1	G2	SW1	SW2	i	Lv
	G 1/2 B	27	22	14	42	G 1/2 B	G 1/2 B	27	27	14	28
G 3/4 B	32	22	16	42	G 3/4 B	G 1/2 B	32	27	16	28	
1/2" NPT	27	22	19	42	1/2" NPT	G 1/2 B	27	27	19	28	
3/4" NPT	27	22	19	42	3/4" NPT	G 1/2 B	27	27	19	28	
M 20x1.5	27	22	14	42	M 20x1.5	M 20x1.5	27	27	14	28	
					M 24x1.5	M 20x1.5	32	27	14	28	
					M 27x2	M 20x1.5	32	27	16	28	

Minimum Stem Length, Active Length and Maximum realisable Capillary Line Length incl. Stem

The **minimum length Lmin / L1min** of the stem is the smallest possible stem length depending on the active length La (temperature-sensitive part) and the stem model.

The **active length La** of the stem (temperature-sensitive part) has to immerse completely into the medium, in order to obtain a measuring result that corresponds to the accuracy class.

The **maximum realisable stem length** is 2.50 m. Greater lengths can be obtained with a capillary line, e.g. with special stems A2, A7 and A7.1 (data sheet 8299.2).

Stem model:	Length:	Thread:	Capillary line incl. stem up to 5 m						Capillary line incl. stem > 5 m to 15 m					
			up to max. 500 °C			500 °C and above			up to max 500 °C			500 °C and above		
			Stem-Ø dF:			Stem-Ø dF:			Stem-Ø dF:			Stem-Ø dF:		
			12	10	8	12	10	8	12	10	8	12	10	8
all models	La	all standard threads	35	45	75	75	105	165	53	80	115	150	200	320
A1 A3 A4	Lmin	all standard threads	55	65	95	95	125	185	73	100	135	170	220	340
A5	Lmin	all standard threads	90	100	130	130	160	220	67	94	129	164	214	334
A6	L1min	G 1/2 B, M 20x1.5	49	59	89	89	119	179	69	96	131	166	216	336
		G 3/4 B, M24x1.5, M27x2	51	61	91	91	121	181	72	99	134	169	219	339
		1/2" NPT, 3/4" NPT	54	64	94	94	124	184	108	135	170	205	255	375
others			upon request			upon request			upon request			upon request		

Ordering Information with Indication and Temperature Ranges, Options

Basic Model: Gas-actuated Thermometers with Capillary Line		TFChg
Case filling:	without silicone oil	no code letters G
Nominal case size:	case-Ø 63, 80, 100, 160 mm (2½", 3", 4", 6")	63, 80, 100, 160
Capillary line position / Case configuration:	vertical bottom position, mounting device for gauge holder bracket vertical bottom position, back flange for surface mounting centre back position, front flange centre back position, back flange for surface mounting centre back position, u-clamp	Mgh Rh rmFr rmRh rmBFr
Temperature ranges:	scale: ΔT (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 union nut male thread, turnable male thread / compression fitting male thread, turnable / double male adapter	A1 A3 A4 A5 A6
Stem-Ø dF:	8, 10 or 12 mm	dF 8, 10, 12
Stem length:	L resp. L1 in mm	e.g. L = 100 mm
Capillary line length:	$L_{FL} \geq 1$ to 15 m	L_{FL} = 3 m
Process connection:	see page 3	e.g. G ½ B
Options:	red mark on the dial plastic clip red or green, external on crimped-on ring for NCS 80, 100 and 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 protective hose for capillary line flexible armour made of stainless steel flexible armour made of stainless steel with PE-cover shrinkdown plastic tubing polyolefine, max. 10 m Version: German Lloyd or Russian Sea Register TFChg 100 TFChgG 63, 80, 100 dial marking with respective symbol copy of the certificate upon request measuring point marking stainless steel plate 12 mm x 55 mm (0.47" x 2.17") with wire mounting or sticker on case coverage	<i>(order at present still in cleartext)</i>
Example:	TFChg 80 rmBFr, 0 – 100 °C, A3, dF 10, L = 100 mm, L_{FL} = 3 m G ½	
Special Versions: Please describe your requirements in cleartext		