

Gas-Actuated Thermometers, with Capillary Line

TFCh
TFChG

Bayonet ring case stainless steel

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 bayonet ring, 1.4301 (304 stainless steel)

Case Protection Type (EN 60 529 / IEC 529)

IP 65

Case Filling

For model TFChG: silicone oil

Nominal Case Sizes

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

TFChG: 63, 100, 160 mm (2½", 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**), see page 2

for centre back

capillary line position (**rm**): back flange for surface mounting (**Rh**) /
front flange (**Fr**)

Capillary Line (standard) 1m stainless steel Ø 2mm, with buckle
protection spirals at both ends
capillary line length L_{FL} selectable from
1m up 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 (L_a) 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 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 the 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.
- Stationary red pointer, min. or max. drag indicator upon request
- Case parts stainless steel 316 L (1.4404) upon request
- Model TFCh for ambient temperatures to -60 °C upon request; Model TFChG for ambient temperatures to -40 °C. For ambient temperatures below -20°C we recommend: thermometers with crimped-on ring case models TFChg resp. TFChgG
- Position of the connection 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

Accessories

Mechanical: thermowells, see DS 8.8110 ff.

Electrical: limit switch contact assemblies,
see catalogue-heading 9.1



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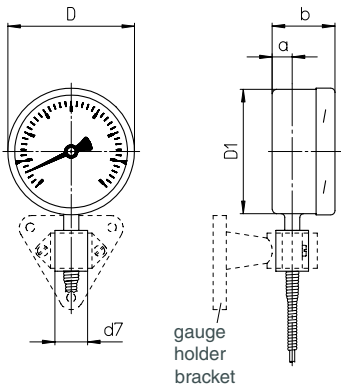
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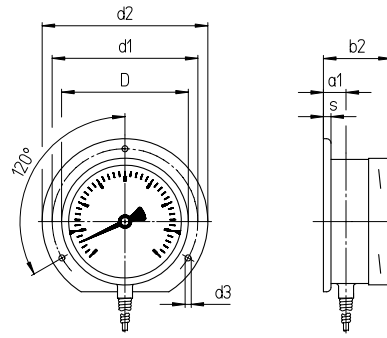
Capillary Line Position / Case Configurations, Code Letters, Dimensional Data and Weights

Vertical Bottom Capillary Line Position

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

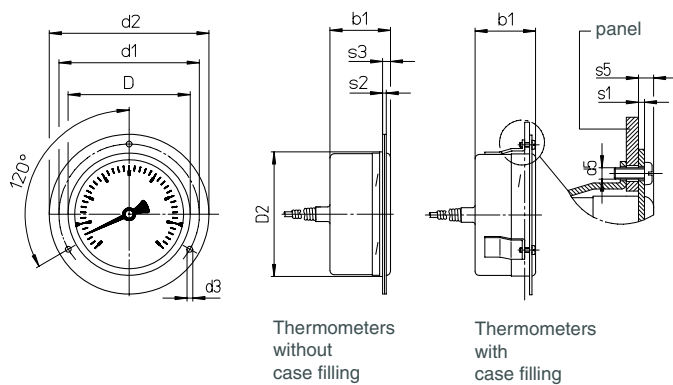


Back flange for surface mounting
code letters: **Rh**

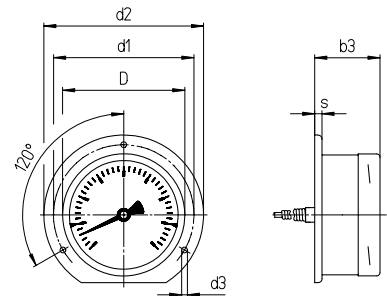


Centre Back Capillary Line Position

Front flange
code letters: **rmFr**



Back flange for surface mounting
code letters: **rmRh**



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

NCS	a	a1	b	b1	b2	b3	D	D1	D2	d1	d2	d3	d5	d7	s	s1	s2	s3	s5	approx. weight ²⁾	
																				TFCh	TFChG
63	12	15	39	39	42	42	64	62	66	75	85	3.6	M3	26	5	1	2	5.5	7	0.38	0.45
2½"	.47	.59	1.54	1.54	1.65	1.65	2.52	2.44	2.60	2.95	3.35	.14		1.02	.20	.04	.08	.22	.28	0.84	0.99
100	15	18.5	50	50	53.5	53.5	101	99	103	116	132	4.8	M4	26	6	1	2	5.5	7	0.6	0.85
4"	.59	.73	1.97	1.97	2.10	2.10	3.98	3.90	4.06	4.57	5.2	.19		1.02	.24	.04	.08	.22	.28	1.32	1.87
160	15	18	50	50	53	53	161	159	163	178	196	5.8	M5	26	6	1.5	2.5	6	8	0.92	1.6
6"	.59	.71	1.97	1.97	2.09	2.09	6.34	6.26	6.42	7.01	7.72	.23		1.02	.24	.06	.10	.24	.31	2.03	3.53
250	15	-	57	57	-	-	251	249	-	270	285	5.8	-	26	2	-	2	8.5	-	2.00	-
10"	.59	-	2.24	2.24	-	-	9.88	9.80	-	10.6	11.2	.23		1.02	.08	-	.08	.33	-	4.40	-

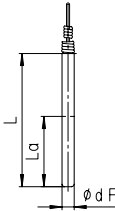
¹⁾ Available variants can be found on our website under the product range, category accessory.

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

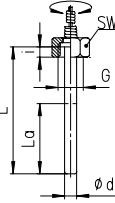
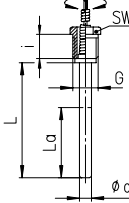
Stem Models

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)		



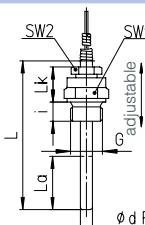
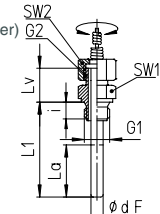
Process connection:	Union nut	Male thread, turnable
Stem model:	A3	A4
Form according to DIN 13 190:	Form 5	Form 4
Stem material:	1.4571	1.4571
Stem-Ø dF:	8, 10, 12	8, 10, 12
Screw fitting material:	1.4571	1.4571
Order length:	L	L
Data sheet (suitable thermowell models):	8.8111 (SF4.1), 8.8113 (SF4.1F)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

Thread (dimensions in mm):			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 conical)	—
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):			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** L_{min} / L_{1min} of the stem is the smallest possible stem length depending on the active length L_a (temperature-sensitive part) and the stem model.

The **active length** L_a 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 8299.1).

Stem model:	Length:	Thread:	Capillary line including stem up to 5 m						Capillary line including 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	L _a	all standard threads	35	45	75	75	105	165	53	80	115	150	200	320
A1 A3 A4	L _{min}	all standard threads	55	65	95	95	125	185	73	100	135	170	220	340
A5	L _{min}	all standard threads	90	100	130	130	160	220	67	94	129	164	214	334
A6	L _{1min}	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		

