

## Stainless steel spring thermometer with distributor Rear positioning and front fastening rim

Display range -200°C to 0 ... 800°C  
Nominal size NG 63 - 250

type: 3531, 3561, 3571, 3581, 3591



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### Description

Spring thermometers are used by the industry whenever temperatures have to be exactly displayed, monitored and controlled. The measurement system (principle of expansion with inert gas) is power independent.

Due to the distributor (capillary distributor) a spacial separation between the measuring point and the display is possible to the desired length. The large selection of connection options and dipping shank lengths enable an ideal adjustment of the spring thermometer to any location, even if it is difficult to access. Installation in an aggressive or high-pressured medium is possible by using according protective pipes. The remote sensor is suitable for measuring points where the use of a dipping shank is not possible.

### Characteristics

- o high accuracy class 1 and 0.6
- o quick response time
- o display range -200 ... +800 °C
- o stainless steel design
- o large range of standard versions
- o custom designs
- o threshold contacts upon request

### Application areas

process engineering  
environmental engineering  
apparatus engineering, container construction  
food industry  
heating, ventilation, air conditioning technology  
chemistry, petrochemistry

## Technical specifications

Type	3531	3561	3571	3581	3591
Nominal size	63	80	100	160	250
Accuracy class	1.0 acc. to DIN 16203				
Casing	stainless steel 1.4301				
Ring	stainless steel 1.4301 bayonet ring				
Fastening	rim of front fastening				
(inner) meter movement	brass				
Temperature compensation	compensation of ambient temperature (up to 60°) inside casing				
Viewing glass	Mineral glass 4 mm				
Indicator	Black aluminum				
Scale	White aluminum with black digits				
Measurement range	see p. 3				
Dipping shank	Stainless steel 1.4541; 100 mm (standard) or according to specifications				
Dipping shank diameter	6 mm, 6.35 mm, 7 mm, 8 mm, 9 mm, <b>10 mm (standard)</b> , 11 mm, 12 mm, 13 mm, 14 mm, 15 mm, 16 mm, 17 mm, 18 mm, 20 mm				
Connection positioning	rear				
Connection	polished, for others see p. 6 - 10				
Distributor	1 m (standard) or according to specifications see p.5				
Protection	IP 65				

## Options

Option	Restrictions
stainless steel dipping shank 1.4401	only for diameters 6, 8, 9, 10, 12, 13, 14, 15, 16, 18 mm
as above, with PTFE-coating (max. 250°C)	sensor maximum 1000 mm

Type	3531	3561	3571	3581	3591
Nominal value	63	80	100	160	250
Accuracy class 0.6	–	–	√	√	√
Silicon filling	√	√	√	√	√
Stainless steel casing + ring 1.4401	√	–	√	√	–
Special scale	√	√	√	√	√
Double scale °C/°F	√	√	√	√	√
Customer logo	√	√	√	√	√
Plexiglass viewing glass	√	√	√	√	√
Safety glass viewing glass	√	√	√	√	√
Drag indicator	√	√	√	√	√
Micro-adjustable indicator					
Indicator oilproof IP 67 + separate key	√	√	√	√	√
Stainless steel meter movement 1.4301	√	√	√	√	√
Threshold contact	–	–	√	√	–
Calibration certificate	√	√	√	√	√

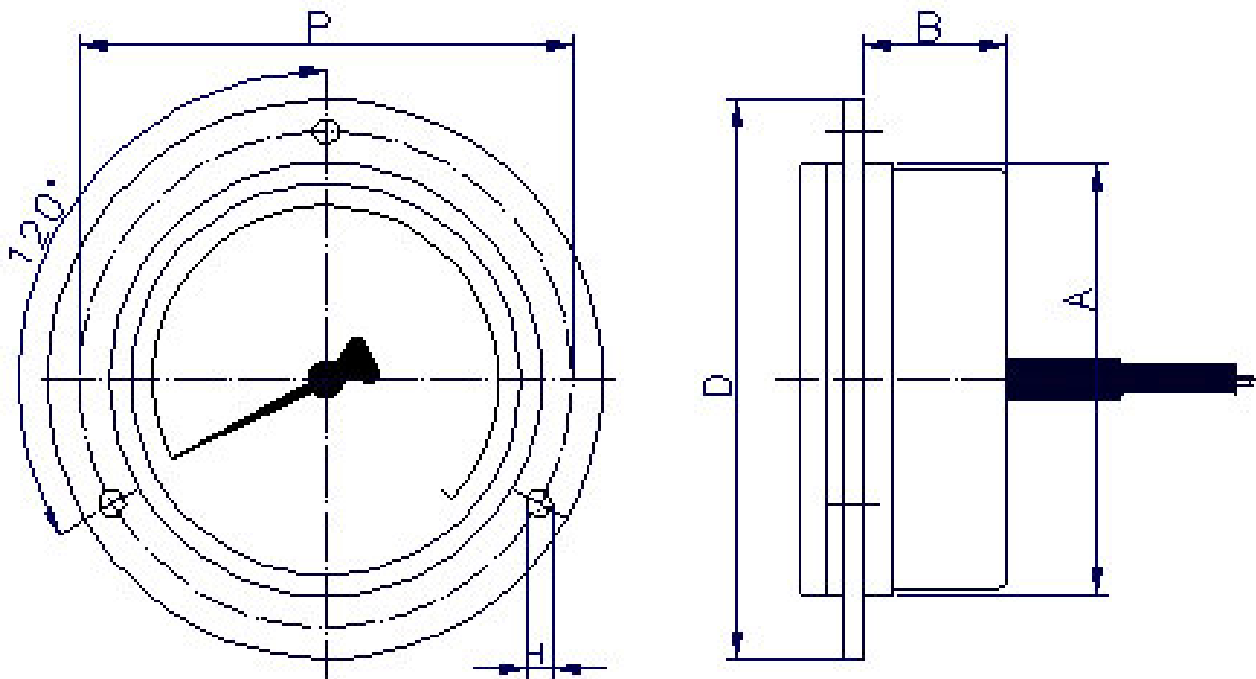
√ = option available  
– = option not available

## Display range

Display range in °C	Measurement range in °C	Error limit $\pm$ °C for class 1 standard	Error limit $\pm$ °C for class 0.6 option
-200... +50	-170...+20	5	2
-120... +40	-100...+20	2	1
-110... +50	-90...+30	5	1
-100...+100	-80...+80	5	1
-100... +50	-80...+30	5	1
-80... +40	-60...+20	2	1
-60... +40	-50...+30	2	0.5
-60... +60	-40...+40	2	1
-50... +50	-40...+40	2	0.5
-50...+100	-30...+80	5	1
-40... +20	-30...+100	1	0.5
-40... +40 standard	-30...+30	1	0.5
-40... +60	-30...+50	2	0.5
-40... +80	-20...+60	2	1
-40...+110	-20...+90	5	1
-40...+120	-20...+100	2	0.5
-40...+160	-20...+140	5	1
-30... +30 standard	-20...+20	1	0.5
-30... +50	-20...+40	1	0.5
-30... +70	-20...+60	2	0.5
-30...+170	-10...+150	5	1
-20... +40	-10...+30	1	0.5
-20... +60	-10...+50	1	0.5
-20... +80	-10...+70	2	0.5
-20...+100	0...+80	2	1
-20...+120	0...+100	2	1
-20...+180	0...+160	5	1
-15... +45	-5...+35	1	0.5
-10... +50	0...+40	1	0.5
-10...+110	0...+100	2	1
-10...+150	+10...+130	5	1
0... +60 standard	+10...+50	1	0.5
0... +80	+10...+70	1	0.5
0...+100 standard	+10...+90	2	0.5
0...+120 standard	+20...+100	2	1
0...+160 standard	+20...+140	5	1
0...+200	+20...+180	5	1
0...+250	+30...+220	5	2
0...+300	+30...+270	5	2
0...+400	+50...+350	10	2
0...+500	+50...+450	10	5
0...+600	+100...+500	10	5
0...+700	+100...+600	10	5
0...+800	+100...+700	10	5

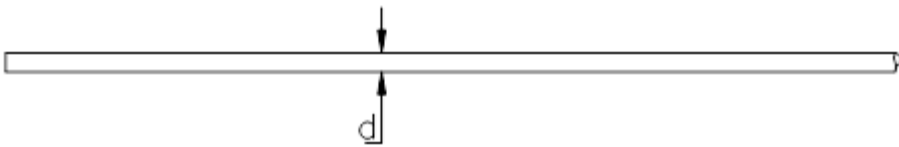

special measurement ranges are available upon request. °C/°F see options

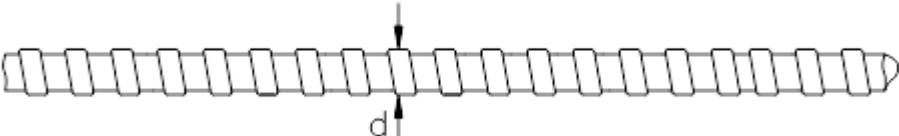

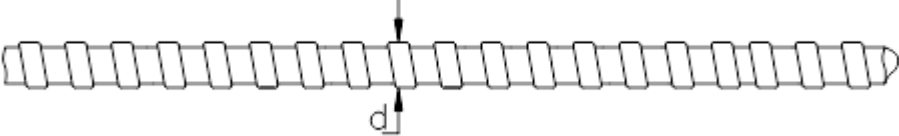

## Dimensions



	Casing diameter mm				
	63	80	100	160	250
A	65	83	101	161	252
B	33	29	31	32	45
D	86	110	132	196	285
H	3.5	4	5.5	6	6
P	75	95	116	178	270

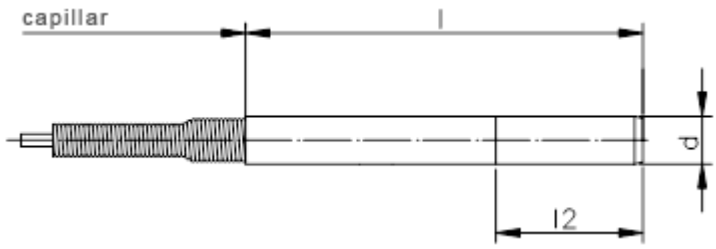
## Distributer

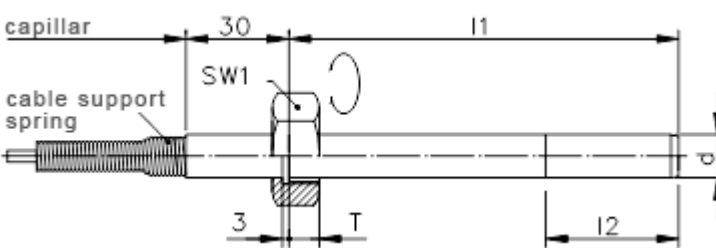
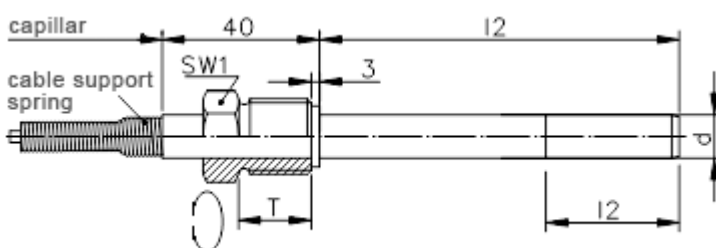
Distributer scale 1:1	Ø d mm	Tmin * °C	Tmax * °C
stainless steel 1.4541 (standard) 	2.5	-200	+800
stainless steel 1.4541 with PVC coating 	4	-60	+120

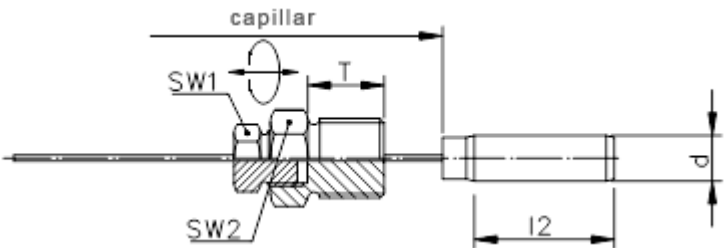
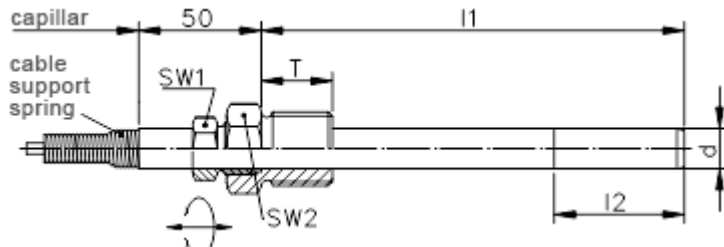
Distributer-coating scale 1:1	Ø d mm	Tmin * °C	Tmax * °C
flexible stainless steel 1.4301 	6	-200	+800
flexible stainless steel 1.4301 with PVC 	7.5	-60	+120
flexible stainless steel 1.4401 	6	-200	+800
flexible stainless steel 1.4401 with PVC 	7.5	-60	+120

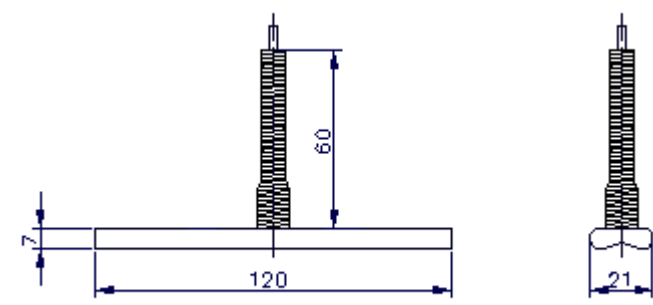
\* of display range

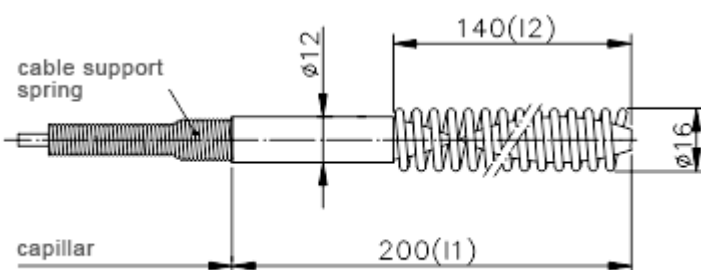
## Connections

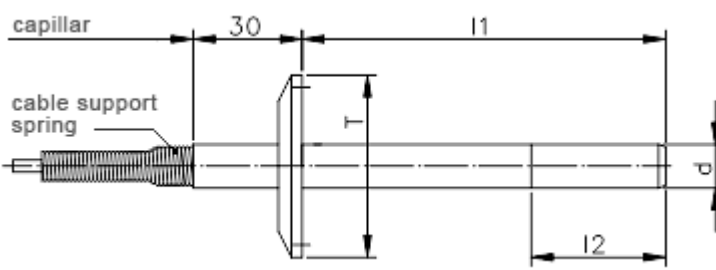
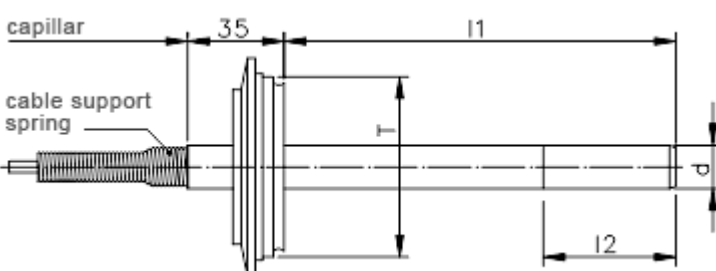
Connection	Diameter mm
polished	6, 6.35, 7, 8, 9, <b>10 (standard)</b> , 11, 12, 12.5, 13, 14, 15, 16, 17, 18, 20
	

Connection	connection size	Max. sensorØ	AF-1	T
cap nut	G ¼	8 mm	22	7
	G ¾	11 mm	27	9
	G ½	15 mm	27	9
	G ¾	20 mm	32	9
	G 1	20 mm	41	13
	M 18 x 1.5	12 mm	27	8
	M 20 x 1.5	14 mm	27	9
rotary thread	G ¼	8 mm	17	12
	G ¾	11 mm	22	12
	G ½	15 mm	22	14
	G ¾	20 mm	30	16
	G 1	20 mm	36	18
	M 18 x 1.5	12 mm	22	12
	M 20 x 1.5	14 mm	22	14
M 24 x 1.5	18 mm	27	14	
				
				

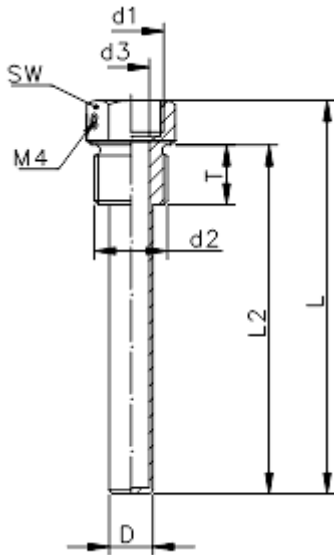
Connection	Connection size	Max. sensorØ	AF-1	AF-2	T
compression fitting, sliding on distributor 	G 1/4	11mm	22	27	12
	G 3/8	14 mm	22	27	12
	G 1/2	18 mm	22	27	14
	G 3/4	23 mm	22	32	16
	G 1	30 mm	22	36	18
	1/4 NPT	13 mm	22	27	14
	1/2 NPT	20 mm	22	27	20
	3/4 NPT	25 mm	22	27	20
	1 NPT	32 mm	22	36	25
	M 18 x 1.5	16 mm	22	27	12
	M 20 x 1.5	18 mm	22	27	14
	M 24 x 1.5	22 mm	22	27	14
	compression fitting, sliding on sensor 	G 1/4	8 mm	22	27
G 3/8		11 mm	22	27	12
G 1/2		15 mm	22	27	14
G 3/4		20 mm	22	32	16
G 1		20 mm	22	36	18
1/4 NPT		8 mm	22	27	14
1/2 NPT		15 mm	22	27	20
3/4 NPT		20 mm	22	27	20
1 NPT		20 mm	22	36	25
M 18 x 1.5		12 mm	22	27	12
M 20 x 1.5	14 mm	22	27	14	
M 24 x 1.5	18 mm	22	27	14	

Connection	L	D-1	D-2
Remote sensor	-	-	-
			

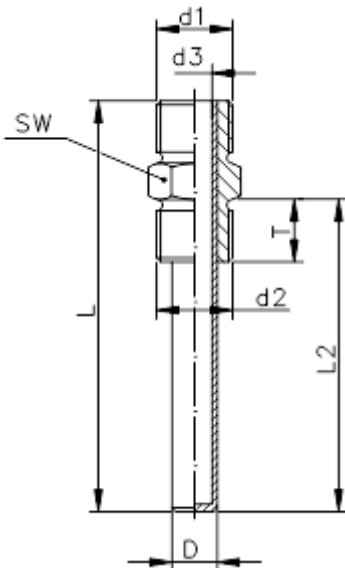
Connection	L	D-1	D-2
Air sensor, length 200 mm	-	-	-
			

Connection	Connection size	T
Tri Clamp acc. to ISO 2852	nominal width 25 – 1"	Ø 50.5
	nominal width 40 – 1 1/2"	Ø 50.5
	nominal width 50 – 2"	Ø 64
Varivent®	nominal width 25-32	Ø 50
	nominal width 40-50	Ø 68
		
		

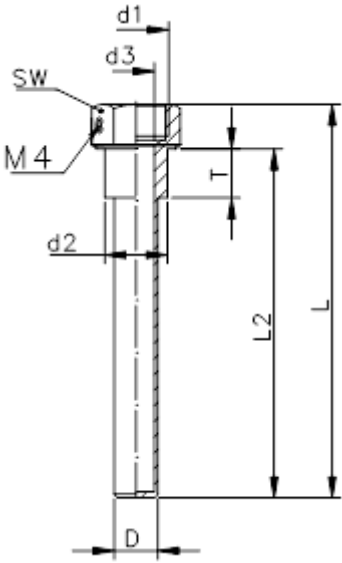
connection	Ø	EL	d1Ø	d2	d3	T	D	AF
separate screwable protective cover for dipping shank, polished	10	100	15	G ½	10.5	14	12.5	27
	10	100	15	G ¾	10.5	16	12.5	32
	10	100	15	G 1	10.5	18	12.5	36
	10	100	15	½ NPT	10.5	20	12.5	27
	10	100	15	¾ NPT	10.5	20	12.5	27
	10	100	15	1 NPT	10.5	25	12.5	36
	10	100	15	M20x1.5	10.5	14	12.5	27
	10	100	15	M24x1.5	10.5	14	12.5	27
	12.5	63	15	G ½	13	14	15	27
	12.5	63	15	G ¾	13	16	15	32
	12.5	63	15	G 1	13	18	15	36
	12.5	63	15	½ NPT	13	20	15	27
	12.5	63	15	¾ NPT	13	20	15	27
	12.5	63	15	1 NPT	13	25	15	36
	12.5	63	15	M24x1.5	13	14	15	27
	L = L2 + 10 mm							



Connection	Ø	L2	d1	d2	d3	T	D	AF
separate screwable protective cover for cap nut	10	100	½	G ½	10.5	14	12.5	22
	10	100	½"	G ¾	10.5	16	12.5	27
	10	100	½"	G 1	10.5	18	12.5	36
	10	100	½"	½ NPT	10.5	20	12.5	22
	10	100	½"	¾ NPT	10.5	20	12.5	27
	10	100	½"	1 NPT	10.5	25	12.5	36
	10	100	½"	M20x1.5	10.5	14	12.5	22
	10	100	½"	M24x1.5	10.5	14	12.5	27
	12.5	63	½"	G ½	13	14	15	22
	12.5	63	½"	G ¾	13	16	15	27
	12.5	63	½"	G 1	13	18	15	36
	12.5	63	½"	½ NPT	13	20	15	22
	12.5	63	½"	¾ NPT	13	20	15	27
	12.5	63	½"	1 NPT	13	25	15	36
	12.5	63	½"	M24x1.5	13	14	15	27
	L = L2 + 20 mm							

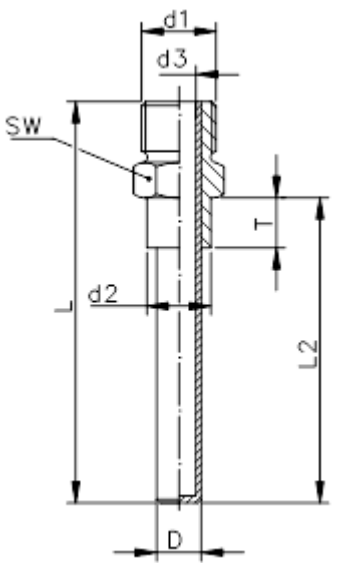


Connection	Ø	L2	d1Ø	d2	d3	T	D	AF
weldable separate protective cover for dipping shank, polished	10	100	15	18	10.5	14	12.5	27
	10	100	15	23	10.5	16	12.5	32
	10	100	15	28	10.5	18	12.5	36
	12.5	63	15	18	13	14	15	27
	12.5	63	15	23	13	16	15	27
	12.5	63	15	28	13	18	15	36

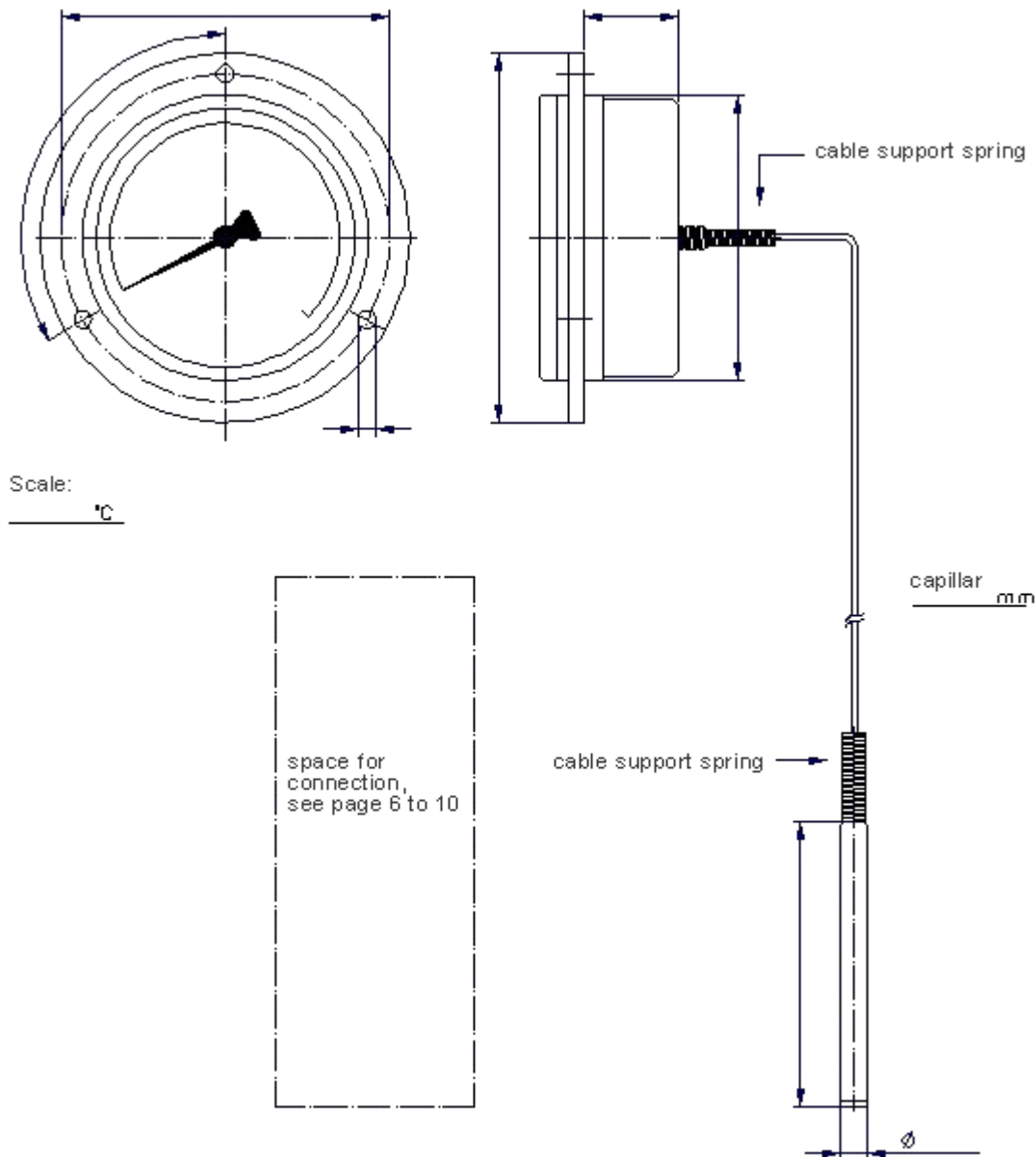
$L = L2 + 10 \text{ mm}$

Connection	Ø	L2	d1	d2	d3	T	D	AF
weldable separate protective cover for cap nut	10	100	G½	18	10.5	14	12.5	22
	10	100	G¾	23	10.5	16	12.5	27
	10	100	G1	28	10.5	18	12.5	36
	12.5	63	G½	18	13	14	15	22
	12.5	63	G¾	23	13	16	15	27
	12.5	63	G1	28	13	18	15	36

$L = L2 + 20 \text{ mm}$

## Entire unit



## Ordering designations:

type / casing

page 11 of data sheet spring-thermometer-distributer-rim-front.pdf

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