

# Gas-actuated thermometer

## Stainless steel version

### Model 73

WIKA data sheet TM 73.01



for further approvals  
see page 8

#### Applications

- General process instrumentation in the chemical and petrochemical industries, oil and gas industries, energy and water/wastewater industries
- Universally suitable for machine building, plant, tank, equipment manufacturing and food industry
- Temperature measurement without medium contact
- Mounting in instrument boards, control cabinets, control panels

#### Special features

- Scale ranges from -200 ... +700 °C [-328 ... 1.292 °F]
- Fast response behaviour
- Case and stem from stainless steel
- Various connection and case mounting designs

#### Description

The model 73 gas-actuated thermometer has been developed and is manufactured in accordance with the EN 13190 standard. This high-quality thermometer has been designed especially for the requirements of the process industry. The thermometer, completely manufactured from stainless steel, is used particularly successfully in the chemical and petrochemical, oil and gas, and power engineering industries.

To allow optimum fitting to the process, individual insertion lengths and process connections are available. The thermometers have a high ingress protection of IP65 and can be used in outdoor applications even at negative temperatures. With liquid dampening operation under high vibration conditions is possible. Due to the wide variety of possible designs, the model 73 gas-actuated thermometers can be perfectly adapted to any process connection or location.



**Fig. left: Lower mount (radial), model R73.100**

**Fig. centre: with capillary and instrument mounting bracket, model F73.100**

**Fig. right: adjustable stem and dial version, model S73.100**

With the contact bulb version, temperature measurements are possible without any contact with the medium, even when the pipe diameter is extremely small. The contact bulb is intended for external mounting on pipes and tanks.

When it comes to harsh climatic conditions at the place of use, the model 73 is the right choice, as it can be used at temperatures ranging from -40 °C [-40 °F] to +60 °C [140 °F] (optionally also up to -50 °C [-58 °F] or -70 °C [-94 °F] in the POLARgauge® version).

# Specifications

Basic information	
Standard	EN 13190
Nominal size	<ul style="list-style-type: none"> <li>■ 100</li> <li>■ 160</li> </ul>
Window	Laminated safety glass
<b>Connection location</b>	
A73.1x0	Back mount (axial)
R73.1x0	Lower mount (radial)
S73.1x0	Back mount, adjustable stem and dial
F73.1x0	Version with capillary
<b>Connection designs</b>	→ For drawings, see page 9
S	Standard (threaded connection) <sup>1)</sup>
1	Plain stem (without thread)
2	Male nut
3	Union nut
4	Compression fitting (sliding on stem)
5	Union nut and loose threaded connection
6	Compression fitting (can be adjusted on either capillary or spiral protective sleeve)
7	Compression fitting on the case <sup>1)</sup>
<b>“Adjustable stem and dial” case version</b>	90° swivelling and 360° rotatable
<b>Dampening (option)</b>	<ul style="list-style-type: none"> <li>■ With liquid dampening (silicone oil)</li> <li>■ With food-compatible liquid dampening</li> </ul>
<b>Materials (non-wetted)</b>	
Case, ring	Stainless steel 1.4301
Pointer	Aluminium, black, micro adjustment
Articulated joint (“adjustable stem and dial”)	Stainless steel
Dial	Aluminium (white)

1) Not applicable to version with capillary

Measuring element		
<b>Type of measuring element</b>	Gas-pressure inert gas filling, physiologically safe	
<b>Working range</b>		
Continuous load (1 year)	Measuring range (EN 13190)	
Short time (max. 24 h)	Scale range (EN 13190)	
<b>Materials of the movement (wetted)</b>	<ul style="list-style-type: none"> <li>■ Combination of brass and stainless steel</li> <li>■ Completely from stainless steel</li> </ul>	
<b>Capillary</b>		
Diameter	2 mm	
Length	Capillary without spiral protective sleeve	Max. 60 m
	Capillary with spiral protective sleeve	Max. 40 m
	Capillary with spiral protective sleeve and PVC coating	Max. 20 m
Minimum bending radius	Capillary without spiral protective sleeve	6 mm
	Capillary with spiral protective sleeve	20 mm
	Capillary with spiral protective sleeve and PVC coating	30 mm
Spiral protective sleeve	7 mm	
Material (non-wetted)	Stainless steel 1.4571	

Measuring element	
Mounting types for instruments with capillary	<ul style="list-style-type: none"> <li>■ Surface mounting flange, stainless steel</li> <li>■ Instrument mounting bracket, aluminium die-casting</li> <li>■ Panel mounting flange, stainless steel</li> <li>■ Triangular bezel with clamp, stainless steel</li> </ul>
Contact bulb	
Dimensions	120 x 22 x 12 mm
Mounting types	<ul style="list-style-type: none"> <li>■ Mounting on pipes</li> <li>■ Mounting on tanks</li> </ul> → For further information, see page 18
Material	Stainless steel 1.4571

Accuracy specifications	
Accuracy class	Class 1 per EN 13190 at 23 °C ±10 °C ambient temperature

Scale range in °C	Measuring range in °C <sup>1)</sup>	Scale spacing in °C	Error limit in accordance with EN 13190 ±°C
-200 ... +50	-170 ... +20	5	5
-200 ... +100	-170 ... +70	5	5
-80 ... +60	-60 ... +40	2	2
-60 ... +40	-50 ... +30	1	1
-40 ... +60	-30 ... +50	1	1
-30 ... +50	-20 ... +40	1	1
-20 ... +60	-10 ... +50	1	1
-20 ... +80	-10 ... +70	1	1
0 ... 60	10 ... 50	1	1
0 ... 80	10 ... 70	1	1
0 ... 100	10 ... 90	1	1
0 ... 120	10 ... 110	2	2
0 ... 160	20 ... 140	2	2
0 ... 200	20 ... 180	2	2
0 ... 250	30 ... 220	5	2.5
0 ... 300	30 ... 270	5	5
0 ... 400	50 ... 350	5	5
0 ... 500	50 ... 450	5	5
0 ... 600	100 ... 500	10	10
0 ... 700	100 ... 600	10	10

1) The measuring range is indicated on the dial by two triangular marks. Only within this range is the stated error limit valid per EN 13190.

Further information on: Scale ranges		
Unit	<ul style="list-style-type: none"> <li>■ °C</li> <li>■ °F</li> <li>■ °C/°F (dual scale)</li> </ul>	
Dial		
Scale graduation	<ul style="list-style-type: none"> <li>■ Single scale</li> <li>■ Dual scale</li> </ul>	
Scale colour	Single scale	Black
	Dual scale	Red
		Others on request

Process connections	
<b>Thread size</b>	<ul style="list-style-type: none"> <li>■ Plain, without thread</li> <li>■ G ½ B</li> <li>■ ½ NPT</li> <li>■ G ½ female</li> <li>■ ½ NPT female</li> <li>■ M20 x 1.5</li> <li>■ M24 x 1.5 female</li> </ul>
	Others on request
<b>Materials (wetted)</b>	Stainless steel 316SS
<b>Stem</b>	
Diameter	<ul style="list-style-type: none"> <li>■ 6 mm</li> <li>■ 8 mm</li> <li>■ 10 mm</li> <li>■ 12 mm</li> </ul>
Material (wetted)	Stainless steel 316SS
<b>Thermowell</b>	<p>Basically, it is possible to operate a mechanical thermometer without a thermowell at low process loads (low pressure, low viscosity and low flow rates).</p> <p>However, in order to enable exchanging the thermometer during operation (e.g. instrument replacement or calibration) and to ensure a better protection of the measuring instrument and also the plant and the environment, it is advisable to use a thermowell from the extensive WIKA thermowell portfolio.</p> <p>→ For further information on the wake frequency calculation, see Technical information IN 00.15.</p>

Operating conditions	
<b>Ambient temperature (on case)</b>	<ul style="list-style-type: none"> <li>■ -40 ... +60 °C [-40 ... +140 °F]</li> <li>■ -50 ... +60 °C [-58 ... +140 °F] (extended range)</li> <li>■ -70 ... +60 °C [-94 ... +140 °F] ( <b>POLAR gauge</b>® version)</li> </ul>
<b>Storage temperature</b>	
Without liquid dampening	-50 ... +70 °C [-58 ... +158 °F]
With liquid dampening	-40 ... +70 °C [-40 ... +158 °F]
<b>Max. operating pressure at the stem</b>	Max. 25 bar, static
<b>Ingress protection per IEC/EN 60529</b>	<ul style="list-style-type: none"> <li>■ IP65</li> <li>■ IP66</li> </ul>

Minimum insertion length in mm												
Design	1			2 and 3			4 and 5			S		
Stem diameter in mm	6	8	≥ 10	6	8	≥ 10	6	8	≥ 10	6	8	≥ 10
Scale range in °C												
<b>Models A73 (back mount) and R73 (lower mount)</b>												
-200 ... +50	80	80	80	70	70	70	60	60	60	75	75	75
-200 ... +100	80	80	80	70	70	70	60	60	60	75	75	75
-80 ... +60	95	60	60	95	60	60	90	60	60	110	75	75
-60 ... +40	105	70	60	105	70	60	100	65	60	120	85	75
-40 ... +60	105	70	60	105	70	60	100	65	60	120	85	75
-30 ... +50	125	75	60	125	75	60	120	70	60	140	90	75
-20 ... +60	125	85	60	125	85	60	120	80	60	140	100	75
-20 ... +80	105	70	60	105	70	60	100	65	60	120	85	75
0 ... 60	155	95	75	155	95	75	150	90	70	170	110	90
0 ... 80	125	85	60	125	85	60	120	80	60	140	100	75
0 ... 100	115	75	60	115	75	60	110	70	60	130	90	75
0 ... 120	95	70	60	95	70	60	90	65	60	110	85	75
0 ... 160	95	60	60	95	60	60	90	60	60	110	75	75
0 ... 200	95	60	60	95	60	60	90	60	60	110	75	75
0 ... 250	75	60	60	75	60	60	70	60	60	90	75	75
0 ... 300	105	90	90	95	80	80	70	60	60	90	75	75
0 ... 400	105	90	90	95	80	80	70	60	60	90	75	75
0 ... 500	165	130	130	155	120	120	125	90	90	150	115	115
0 ... 600	145	130	130	135	120	120	105	90	90	130	115	115
0 ... 700	165	145	130	155	135	120	125	105	90	150	130	115
<b>Model S73 (back mount, adjustable stem and dial)</b>												
-200 ... +50	60	60	60	60	60	60	60	60	60	65	65	65
-200 ... +100	60	60	60	60	60	60	60	60	60	65	65	65
-80 ... +60	80	60	60	80	60	60	90	60	60	100	65	65
-60 ... +40	90	60	60	90	60	60	100	65	60	110	75	65
-40 ... +60	90	60	60	90	60	60	100	65	60	110	75	65
-30 ... +50	110	60	60	110	60	60	120	70	60	130	80	65
-20 ... +60	110	70	60	110	70	60	120	80	60	130	90	65
-20 ... +80	90	60	60	90	60	60	100	65	60	110	75	65
0 ... 60	140	80	60	140	80	60	150	90	70	160	100	80
0 ... 80	110	70	60	110	70	60	120	80	60	130	90	65
0 ... 100	100	60	60	100	60	60	110	70	60	120	80	65
0 ... 120	80	60	60	80	60	60	90	65	60	100	75	65
0 ... 160	80	60	60	80	60	60	90	60	60	100	65	65
0 ... 200	80	60	60	80	60	60	90	60	60	100	65	65
0 ... 250	60	60	60	60	60	60	70	60	60	80	65	65
0 ... 300	60	60	60	60	60	60	70	60	60	80	65	65
0 ... 400	60	60	60	60	60	60	70	60	60	80	65	65
0 ... 500	120	85	85	120	85	85	90	60	60	135	100	100
0 ... 600	100	85	85	100	85	85	70	60	60	115	100	100
0 ... 700	120	100	85	120	100	85	90	70	60	135	115	100

Minimum insertion length in mm												
Design	1			2 and 3			4 and 5			S		
Stem diameter in mm	6	8	≥ 10	6	8	≥ 10	6	8	≥ 10	6	8	≥ 10
Scale range in °C												
<b>Model F73 (capillary ≤ 5 m)</b>												
-200 ... +50	95	70	70	90	65	65	80	60	60	-	-	-
-200 ... +100	95	70	70	90	65	65	80	60	60	-	-	-
-80 ... +60	115	80	70	110	75	65	100	65	60	-	-	-
-60 ... +40	135	95	70	130	90	65	120	80	60	-	-	-
-40 ... +60	135	95	70	130	90	65	120	80	60	-	-	-
-30 ... +50	145	105	75	140	100	70	130	90	60	-	-	-
-20 ... +60	145	105	75	140	100	70	130	90	60	-	-	-
-20 ... +80	135	95	70	130	90	65	120	80	60	-	-	-
0 ... 60	165	115	85	160	110	80	150	100	70	-	-	-
0 ... 80	155	105	75	150	100	70	140	90	60	-	-	-
0 ... 100	135	95	70	130	90	65	120	80	60	-	-	-
0 ... 120	125	85	70	120	80	65	110	70	60	-	-	-
0 ... 160	115	80	70	110	75	65	100	65	60	-	-	-
0 ... 200	105	80	70	100	75	65	90	65	60	-	-	-
0 ... 250	105	70	70	100	65	65	90	60	60	-	-	-
0 ... 300	95	70	70	90	65	65	80	60	60	-	-	-
0 ... 400	95	70	70	90	65	65	80	60	60	-	-	-
0 ... 500	115	70	70	110	65	65	100	60	60	-	-	-
0 ... 600	95	70	70	90	65	65	80	60	60	-	-	-
0 ... 700	115	80	70	110	75	65	100	65	60	-	-	-
<b>Model F73 (capillary &gt; 5 ... 10 m)</b>												
-200 ... +50	115	80	70	110	75	65	100	65	60	-	-	-
-200 ... +100	115	80	70	110	75	65	100	65	60	-	-	-
-80 ... +60	135	95	70	130	90	65	120	80	60	-	-	-
-60 ... +40	155	105	75	150	100	70	140	90	60	-	-	-
-40 ... +60	155	105	75	150	100	70	140	90	60	-	-	-
-30 ... +50	165	115	85	160	110	80	150	100	70	-	-	-
-20 ... +60	175	115	85	170	110	80	160	100	70	-	-	-
-20 ... +80	155	105	75	150	100	70	140	90	60	-	-	-
0 ... 60	185	125	95	180	120	90	170	110	80	-	-	-
0 ... 80	175	115	85	170	110	80	160	100	70	-	-	-
0 ... 100	155	105	85	150	100	80	140	90	70	-	-	-
0 ... 120	145	105	75	140	100	70	130	90	60	-	-	-
0 ... 160	135	95	70	130	90	65	120	80	60	-	-	-
0 ... 200	125	85	70	120	80	65	110	70	60	-	-	-
0 ... 250	125	85	70	120	80	65	110	70	60	-	-	-
0 ... 300	115	80	70	110	75	65	100	65	60	-	-	-
0 ... 400	115	80	70	110	75	65	100	65	60	-	-	-
0 ... 500	135	95	70	130	90	65	120	80	60	-	-	-
0 ... 600	115	80	70	110	75	65	100	65	60	-	-	-
0 ... 700	145	95	70	140	90	65	130	80	60	-	-	-

Minimum insertion length in mm												
Design	1			2 and 3			4 and 5			S		
Stem diameter in mm	6	8	≥ 10	6	8	≥ 10	6	8	≥ 10	6	8	≥ 10
Scale range in °C												
<b>Model F73 (capillary &gt; 5 ... 10 m)</b>												
-200 ... +50	135	95	70	130	90	65	120	80	60	-	-	-
-200 ... +100	135	95	70	130	90	65	120	80	60	-	-	-
-80 ... +60	155	105	85	150	100	80	140	90	70	-	-	-
-60 ... +40	175	115	85	170	110	80	160	100	70	-	-	-
-40 ... +60	175	115	85	170	110	80	160	100	70	-	-	-
-30 ... +50	185	125	95	180	120	90	170	110	80	-	-	-
-20 ... +60	185	125	95	180	120	90	170	110	80	-	-	-
-20 ... +80	175	115	85	170	110	80	160	100	70	-	-	-
0 ... 60	205	135	95	200	130	90	190	120	80	-	-	-
0 ... 80	195	125	95	190	120	90	180	110	80	-	-	-
0 ... 100	175	115	85	170	110	80	160	100	70	-	-	-
0 ... 120	165	115	85	160	110	80	150	100	70	-	-	-
0 ... 160	155	105	85	150	100	80	140	90	70	-	-	-
0 ... 200	145	105	75	140	100	70	130	90	60	-	-	-
0 ... 250	145	95	75	140	90	70	130	80	60	-	-	-
0 ... 300	135	95	70	130	90	65	120	80	60	-	-	-
0 ... 400	135	95	70	130	90	65	120	80	60	-	-	-
0 ... 500	135	95	70	130	90	65	120	80	60	-	-	-
0 ... 600	135	95	70	130	90	65	120	80	60	-	-	-
0 ... 700	175	105	75	170	100	70	160	90	60	-	-	-







The technical feasibility of minimum insertion lengths in conjunction with capillary > 15 m should be tested beforehand.

## Approvals

### Approvals included in the scope of delivery

Logo	Description	Country
	<b>UkrSEPRO</b> Metrology, measurement technology	Ukraine

### Optional approvals

Logo	Description	Country
	<b>EU declaration of conformity</b> ATEX directive Hazardous areas Zone 1 gas            II 2G Ex h IIC T6 ... T1 Gb X Zone 21 dust        II 2D Ex h IIIC T85 ... T450 °C Db X	European Union
	<b>EAC</b> Import certificate EMC directive Hazardous areas Zone 1 gas            II Gb c T* X Zone 21 dust        III Db c T* X IP66	Eurasian Economic Community
	<b>GOST</b> Metrology, measurement technology	Russia
	<b>KazInMetr</b> Metrology, measurement technology	Kazakhstan
-	<b>MTSCHS</b> Permission for commissioning	Kazakhstan
	<b>BelGIM</b> Metrology, measurement technology	Belarus
	<b>Uzstandard</b> Metrology, measurement technology	Uzbekistan
-	<b>CRN</b> Safety (e.g. electr. safety, overpressure, ...)	Canada

## Certificates (option)

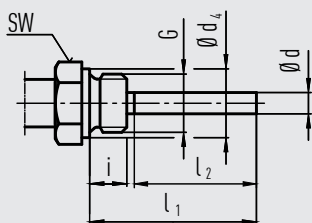
Certificates	
<b>Certificates</b>	<ul style="list-style-type: none"> <li>■ 2.2 test report</li> <li>■ 3.1 inspection certificate</li> </ul>
<b>Calibration</b>	DKD/DAkkS calibration certificate

Approvals and certificates, see website



# Connection designs

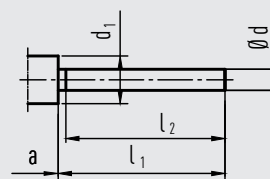
## Standard design (male threaded connection) <sup>1)</sup>



Standard insertion length  $l_1 = 63, 100, 160, 200, 250$  mm

Nominal size	Process connection		Dimensions in mm		
	G	i	SW	d <sub>4</sub>	Ø d
100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8

## Design 1, plain stem (without thread)

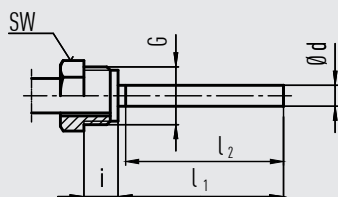


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Standard insertion length  $l_1 = 100, 140, 200, 240, 290$  mm  
Basis for design 4, compression fitting

Nominal size	Dimensions in mm			
	d <sub>1</sub> <sup>1)</sup>	Ø d	a for axial	a for adjustable stem and dial
100, 160	18	8	15	25

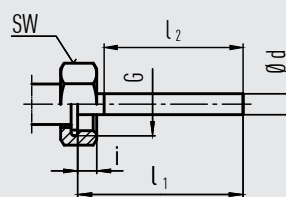
## Design 2, male nut



Standard insertion length  $l_1 = 80, 140, 180, 230$  mm

Nominal size	Process connection		Dimensions in mm	
	G	i	SW	Ø d
100, 160	G ½ B	20	27	8
	M20 x 1.5	15	22	8

## Design 3, union nut

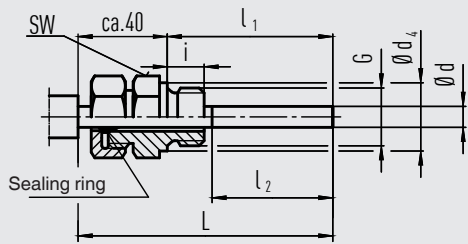


Standard insertion length  $l_1 = 89, 126, 186, 226, 276$  mm

Nominal size	Process connection		Dimensions in mm	
	G	i	SW	Ø d
100, 160	G ½ B	8.5	27	8
	G ¾ B	10.5	32	8
	M24 x 1.5	13.5	32	8

1) Not applicable to version with capillary

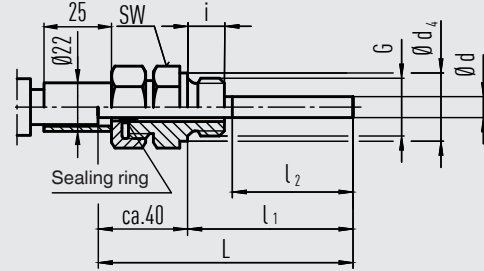
### Design 4, compression fitting (sliding on stem)



Insertion length  $l_1$  = variable  
 Length  $L = l_1 + 40$  mm

Nominal size	Process connection		Dimensions in mm		
	G	i	SW	$d_4$	$\varnothing d$
100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	M18 x 1.5	12	24	23	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8

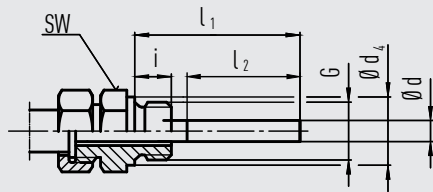
### Design 4.1, compression fitting with support tube sliding on stem



Standard insertion length  $l_1 = 63, 100, 160, 200, 250$  mm  
 Length  $L = l_1 + 40$  mm

Nominal size	Process connection		Dimensions in mm		
	G	i	SW	$d_4$	$\varnothing d$
63, 100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	M18 x 1.5	12	24	23	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8

### Design 5, union nut and loose threaded connection



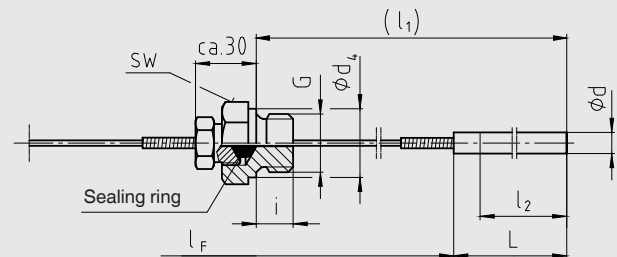
Standard insertion length  $l_1 = 63, 100, 160, 200, 250$  mm

Nominal size	Process connection		Dimensions in mm		
	G	i	SW	$d_4$	$\varnothing d$
100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	M18 x 1.5	12	24	23	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8

**Option:** Connection with union nut M24 x 1.5  
 and loose threaded connection M18 x 1.5

Nominal size	Process connection		Dimensions in mm		
	G	i	SW	$d_4$	$\varnothing d$
100, 160	M18 x 1.5	12	32	23	8

### Design 6.1, compression fitting sliding on capillary (compression fitting is leak-proof)

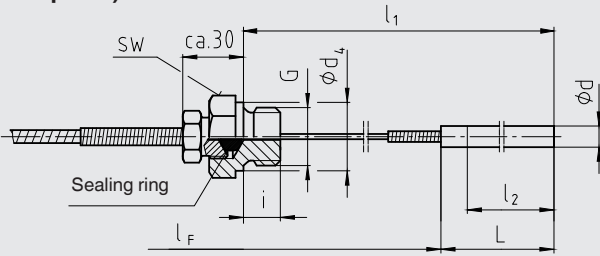


Insertion length  $l_1$  = variable  
 Probe length L: Standard 200 mm with  $\varnothing d = 6$  mm  
 Standard 170 mm with  $\varnothing d = 8$  mm  
 Standard 100 mm with  $\varnothing d \geq 10$  mm

Nominal size	Process connection		Dimensions in mm		
	G	i	SW	$d_4$	$\varnothing d$
100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8

For stem diameter 6 mm no bend protection spring will be fitted at the probe.

**Design 6.2, compression fitting sliding on capillary with spiral protective sleeve (compression fitting is leak-proof)**

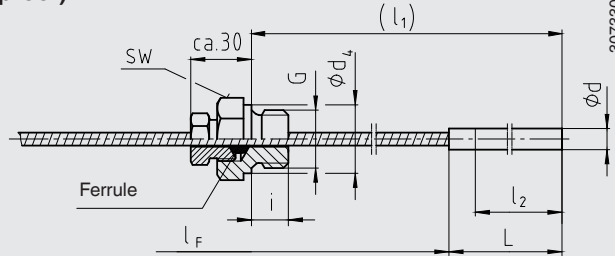


Insertion length  $l_1$ :  $\geq 300$  mm with  $\varnothing d = 6$  or  $8$  mm  
 $\geq 200$  mm with  $\varnothing d = \geq 10$  mm  
 Probe length L: Standard 200 mm with  $\varnothing d = 6$  mm  
 Standard 170 mm with  $\varnothing d = 8$  mm  
 Standard 100 mm with  $\varnothing d \geq 10$  mm

Nominal size	Process connection		Dimensions in mm		
	G	i	SW	d <sub>4</sub>	Ø d
100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8

For stem diameter 6 mm no bend protection spring will be fitted at the probe.

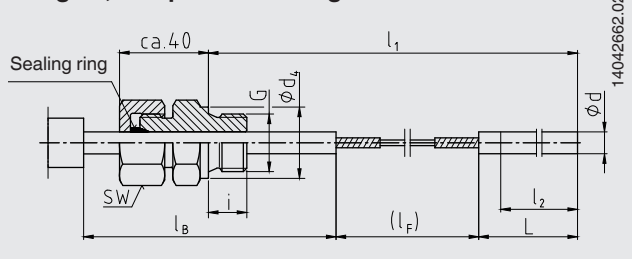
**Design 6.3, compression fitting sliding on spiral protective sleeve (compression fitting is not leak-proof)**



Insertion length  $l_1$  = variable  
 Probe length L: Standard 200 mm with  $\varnothing d = 6$  mm  
 Standard 170 mm with  $\varnothing d = 8$  mm  
 Standard 100 mm with  $\varnothing d \geq 10$  mm

Nominal size	Process connection		Dimensions in mm		
	G	i	SW	d <sub>4</sub>	Ø d
100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8

**Design 7, compression fitting at the case**



Insertion length  $l_1$ :  $\geq 400$  mm  
 Probe length L: Standard 200 mm with  $\varnothing d = 6$  mm  
 Standard 170 mm with  $\varnothing d = 8$  mm  
 Standard 100 mm with  $\varnothing d \geq 10$  mm  
 $l_B$  = standard 100 mm (others on request)

Nominal size	Process connection		Dimensions in mm		
	G	i	SW	d <sub>4</sub>	Ø d
100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8

For stem diameter 6 mm no bend protection spring will be fitted at the probe.

Legend:

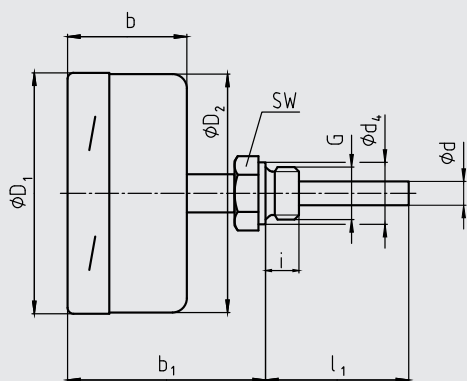
- G Male thread
- G<sub>1</sub> Female thread
- i Thread length (incl. collar)
- a Distance to the case/articulated joint
- Ø d<sub>4</sub> Diameter of the sealing collar
- SW Spanner width
- Ø d Stem diameter
- l<sub>1</sub> Insertion length
- l<sub>2</sub> Active length

**Note for designs 6.1, 6.2, 6.3 and 7:**

With some combinations, the active length  $l_2$  can correspond to the probe length L.  
 If an additional compression fitting is desired, the probe length L increases by at least 60 mm.

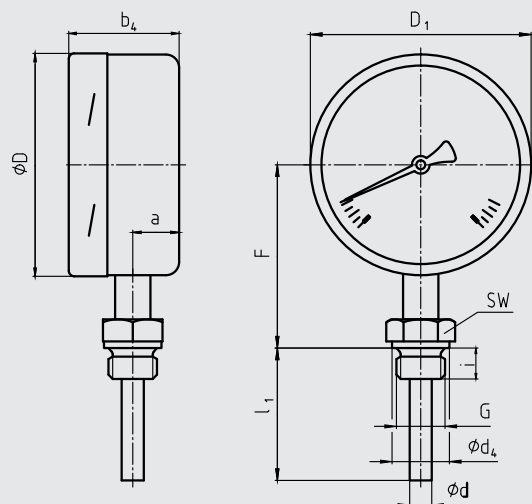
## Dimensions in mm

Model A73, back mount



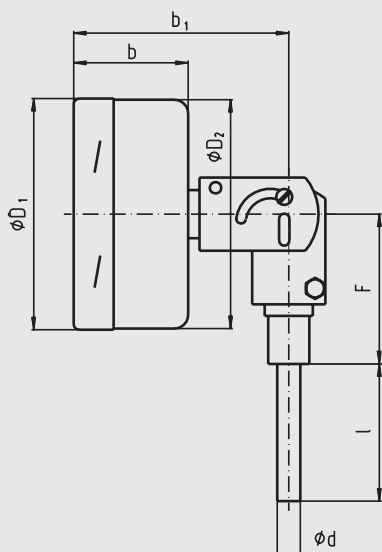
3073068.01

Model R73, lower mount



3073076.01

Model S73, back mount, adjustable stem and dial



3073254.01

Table of dimensions for models A73 and R73

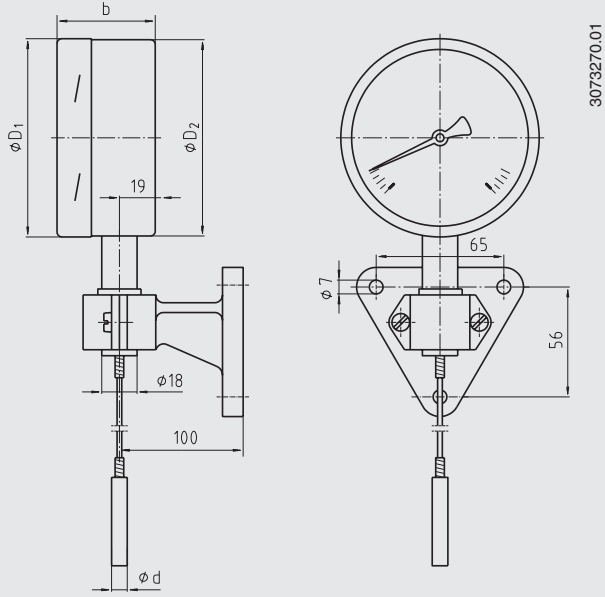
Nominal size	Dimensions in mm										Weight in kg
	NS	b	b <sub>1</sub> <sup>1)</sup>	d	d <sub>4</sub>	D <sub>1</sub>	D <sub>2</sub>	F <sup>1)</sup>	i	G	
100	50	83	8 <sup>2)</sup>	26	101	99	83	14	G ½ B	27	1.1
160	50	83	8 <sup>2)</sup>	26	161	159	113	14	G ½ B	27	1.4

Table of dimensions for model S73

Nominal size	Dimensions in mm						Weight in kg
	NS	b	b <sub>1</sub>	d	D <sub>1</sub>	D <sub>2</sub>	
100	50	93	8 <sup>2)</sup>	101	99	68	1.3
160	50	93	8 <sup>2)</sup>	161	159	68	1.6

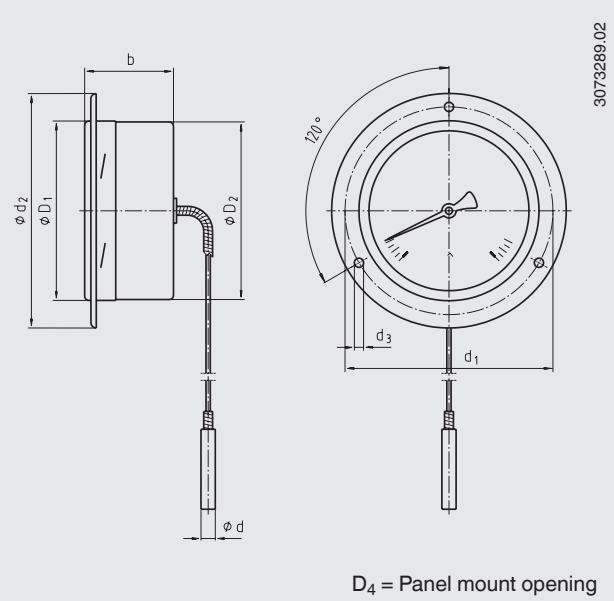
1) With scale ranges  $\geq 0 \dots 300 \text{ }^\circ\text{C}$ ,  $-200 \dots +50 \text{ }^\circ\text{C}$  or  $-200 \dots +100 \text{ }^\circ\text{C}$ , the dimensions increase by 40 mm  
 2) Option: Stem diameter 6, 10, 12 mm

**Model F73, with capillary and instrument mounting bracket**



3073270.01

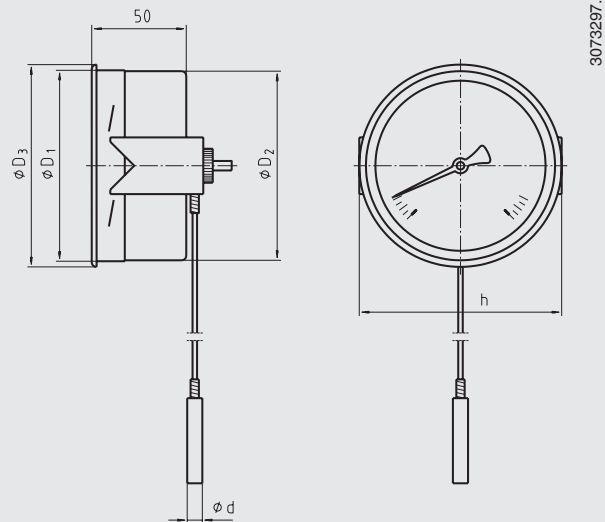
**Model F73, with capillary and panel mounting flange**



3073289.02

$D_4$  = Panel mount opening

**Model F73, with capillary and triangular bezel with clamp**

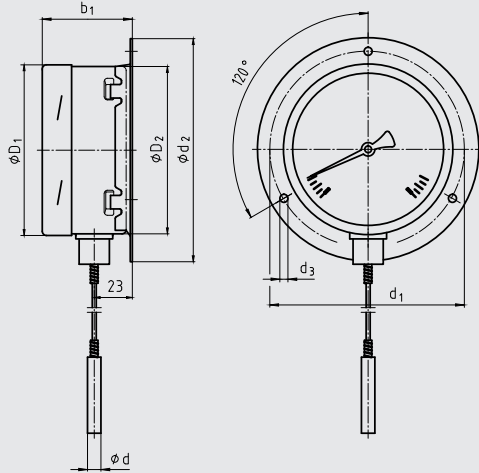


3073297.02

Nominal size	Dimensions in mm										Weight in kg
	NS	b	d	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	
100	50	8 <sup>2)</sup>	116	132	4.8	101	99	107	104	110	1.4
160	50	8 <sup>2)</sup>	178	196	4.8	161	159	166	164	173	1.8

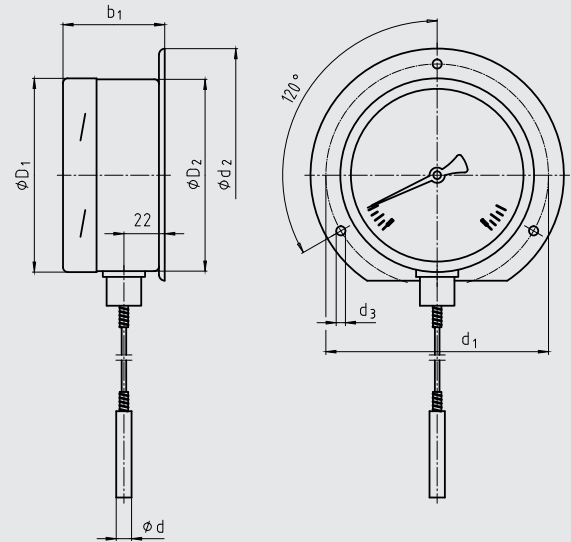
2) Option: Stem diameter 6, 10, 12 mm

**Model F73.100, with capillary and surface mounting flange**



14126562.01

**Model F73.160, with capillary and surface mounting flange**

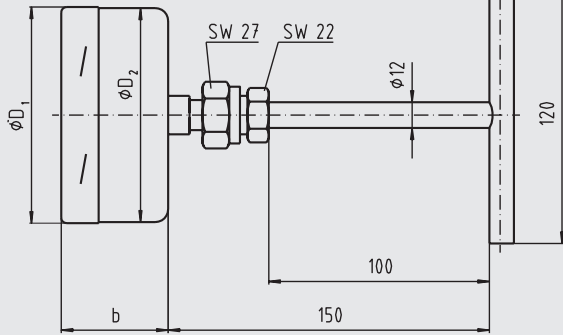


3073165.03

Nominal size	Dimensions in mm							Weight in kg	
	NS	$b_1$	$d$	$d_1$	$d_2$	$d_3$	$D_1$		$D_2$
100		54	8	117	132	4.8	101	99	1.4
160		53	8 <sup>1)</sup>	178	196	4.8	161	159	1.8

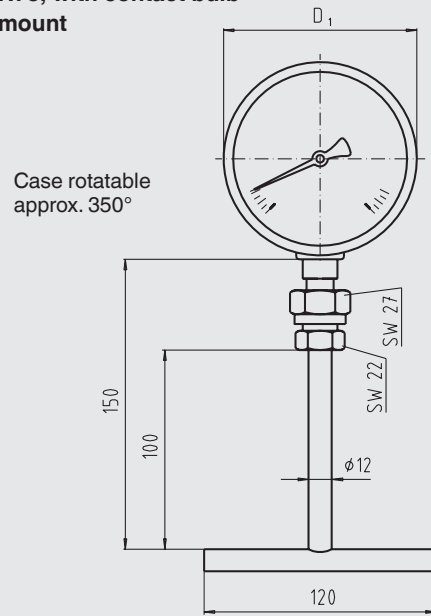
1) Option: Stem diameter 6, 10, 12 mm

**Model A73, with contact bulb**  
**Back mount**



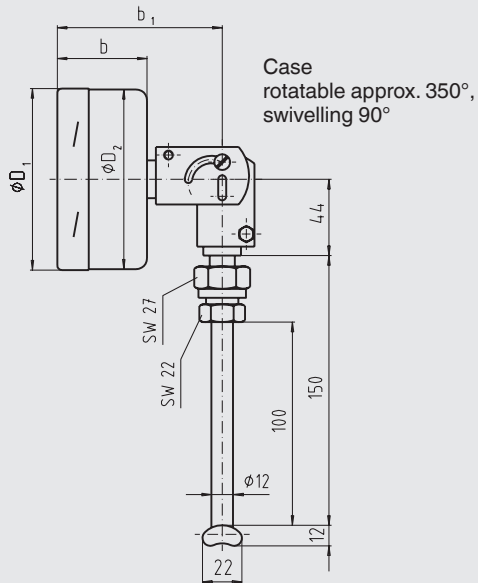
3107884.01

**Model R73, with contact bulb**  
**Lower mount**



3107892.01

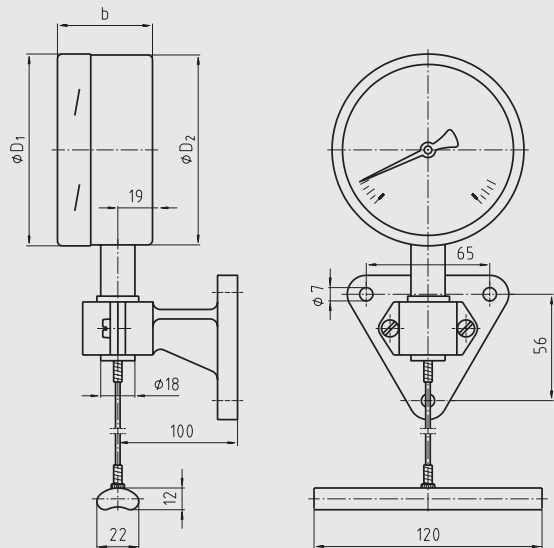
**Model S73, with contact bulb**  
**Back mount, adjustable stem and dial**



3107906.01

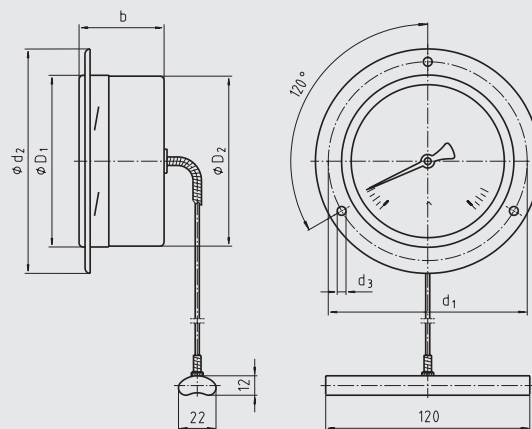
Model	Nominal size	Dimensions in mm				Weight in kg
	NS	b	b <sub>1</sub>	D <sub>1</sub>	D <sub>2</sub>	
A73.100	100	50	-	101	99	0.8
A73.160	160	50	-	161	159	0.9
R73.100	100	50	-	101	99	0.8
R73.160	160	50	-	161	159	0.9
S73.100	100	50	93	101	99	0.9
S73.160	160	50	93	161	159	1.0

**Model F73, with contact bulb**  
**Capillary and instrument mounting bracket**



3107957.01

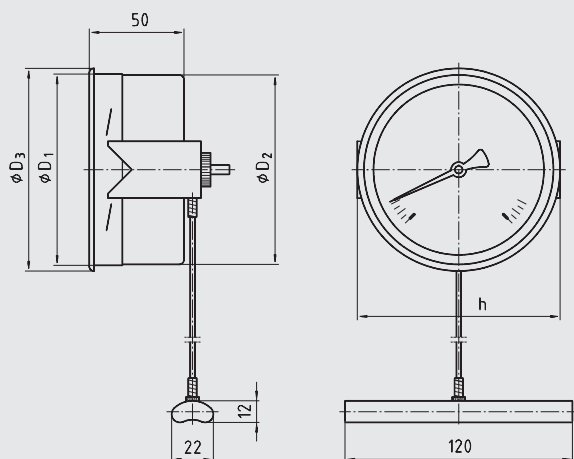
**Model F73, with contact bulb**  
**Capillary and panel mounting flange**



3107965.01

$D_4$  = Panel mount opening

**Model F73, with contact bulb**  
**Capillary and triangular bezel with clamp**

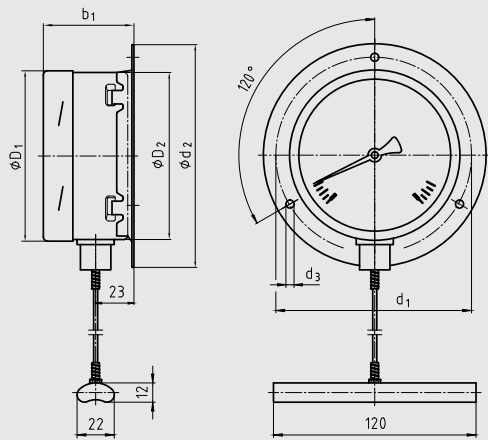


3107973.01

Nominal size	Dimensions in mm										Weight in kg
	NS	b	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	h	
100	50	116	132	4.8	101	99	107	104	110	1.4	
160	50	178	196	5.8	161	159	166	164	173	1.8	

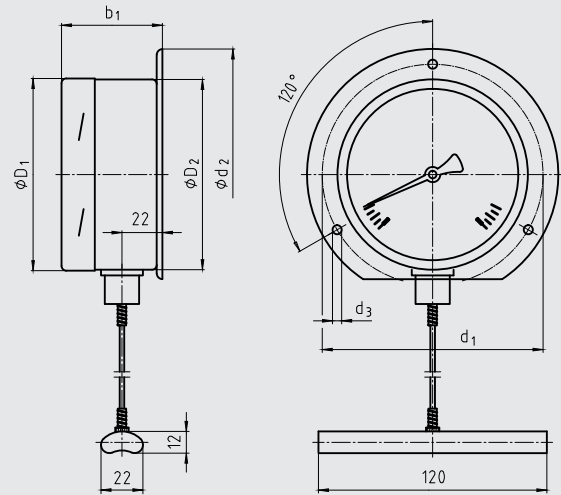


**Model F73.100, with contact bulb**  
**Capillary and surface mounting flange**



14126563.01

**Model F73.160, with contact bulb**  
**Capillary and surface mounting flange**



3107949.02

Nominal size	Dimensions in mm						Weight in kg
	NS	$b_1$	$d_1$	$d_2$	$d_3$	$D_1$	
100	54	117	132	4.8	101	99	1.4
160	53	178	196	5.8	161	159	1.8

## Mounting instructions for contact bulb

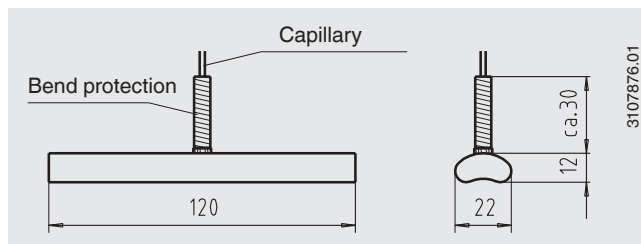
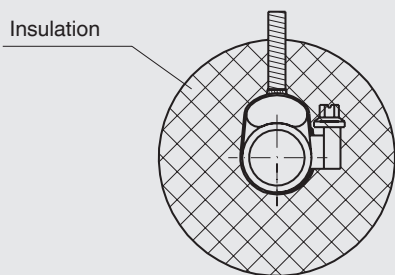
### General information

The contact bulb has been designed for mounting on pipes or tanks. When mounting this thermometer version, it must be ensured that the contact bulb is in contact with the measuring point over its complete length. The basic requirements to ensure a perfect measuring result is to retain good thermal contact between the contact bulb and the outside wall of the pipe or tank with minimal heat loss to the environment from the contact bulb and measuring point.

#### ■ Mounting on pipes

The geometry of the contact bulb has been designed for pipes with external diameters between 20 and 160 mm. For fixing the contact bulb to the pipe, pipe clamps are sufficient. The contact bulb should have direct metallic contact with the measuring point and have firm contact with the surface of the pipe. Where temperatures under 200 °C are expected, a thermal compound can be used to optimise the heat transfer between contact bulb and pipe. Insulation must be applied at the mounting point to avoid error due to heat loss. This insulation must have sufficient temperature resistance and is not included in the scope of delivery.

#### Pipe clamp mounting

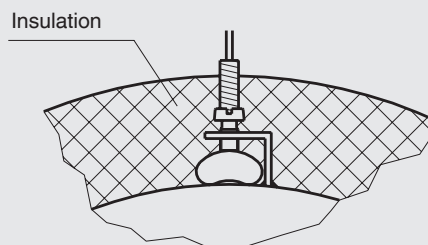


#### ■ Mounting on tanks

The geometry of the contact bulb has been designed for tanks with an external radius up to 80 mm. If the mounting point of the contact bulb on the tank has an external radius greater than 80 mm, we recommend the use of an intermediate piece designed for the respective tank diameter, made of a material with good thermal conductivity. The contact bulb can be fastened to the tank by means of an angle bracket with clamping screws, or any similar method. The contact bulb should have direct metallic contact with the measuring point and have firm contact with the surface of the tank.

A thermal compound can be used to optimise the heat transfer between contact bulb and tank, if temperatures under 200 °C are expected. Insulation must be applied at the mounting point to avoid error due to heat loss. This insulation must have sufficient temperature resistance and is not included in the scope of delivery.

#### Angle bracket mounting



### Ordering information

Model / Nominal size / Scale range / Connection design / Process connection / Length  $l_1$  / Capillary length  $l_f$  / Options

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