Bimetal thermometer

Chemical version
With or without damping

Nominal size 3“, 5“

Accuracy class 1

Description

The measuring element of the bimetal thermometer is a quick reacting bimetal coil. It is manufactured from two cold-welded metal strips with different thermal expansion coefficients and rotates in proportion to temperature. The rotary movement is conveyed to the pointer with low friction.

A version with liquid damping is available as an option for service at measuring points subject to strong vibration. The filling damps the measuring system when mechanical vibrations occur, thus producing a steady indication. At the same time, good lubrication of the moving parts is achieved.

A version with rotateabla (360°) and turnable case (90°) allow the thermometer to be aligned as desired under all installation conditions.

In conjunction with a corresponding thermowell, these thermometers can also be used with aggressive media.

A comprehensive range of standard versions enables a wide range of applications and uses. The case sizes are available in 3inch and 5inch. Special versions are also manufactured to customer specifications.

Features

- Short response time
- Nominal sizes 3“ and 5“
- Large selection of standard versions
- Customized versions available
- For aggressive media
- Filled versions for measuring points with high vibrations
- Models with turnable and rotateable connection

Measuring ranges

-70 ... 30 °C up to 0 ... 500°C

Applications

Chemical and petrochemical industry

Process engineering

Food industry

Models: TM304, TM305, TM307, TM308

Technical data

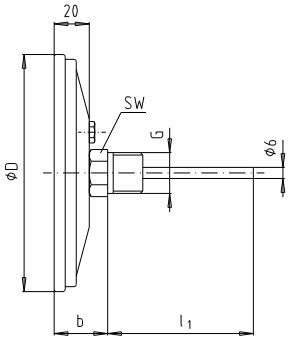
Model	TM304	TM307	TM305	TM308	Optionen
					
Nopminal size	3" (76mm)	5" (127mm)	3" (76mm)	5" (127mm)	
Accuracy	Class1 acc. to EN 13190				
Scale range Limits of error	-70 ... 30 °C -50 ... 50 °C	1 °C			Other ranges Scale °F Double Scale °C/°F **2)**
	-30 ... 50 °C -20 ... 60 °C 0 ... 60 °C 0 ... 80 °C	0.5 °C			
	0 ... 100 °C 0 ... 120 °C	1 °C			
	0 ... 160 °C 0 ... 200 °C 0 ... 250 °C	2 °C			
	0 ... 300 °C 0 ... 400 °C 0 ... 500 °C	5 °C			
Scale angle	appr. 270 °				
Range of use	Constant load (1 year): Measuring range (DIN EN 13190) Short time (≤ 24h): Scale range (DIN EN 13190)				
Max. pressure at stem	Max. 25 bar statical				
Measuring element	Bimetal coil				
Zero adjustment	Back of case, externally				
Material case/stem	Stainless steel				
Process connection	Back mount		Turnable/rotateable		
Window	Instrument glass				Safety glass
Dial	Aluminium, white - marking and scale, black				
Pointer	Aluminium, black				
Ingress protection	IP 65 (EN 60529/ IEC 529)				
Weight (kg)	0.3	0.4	0.4	0.5	

1) T_{max} = 250°C for thermometers with damping

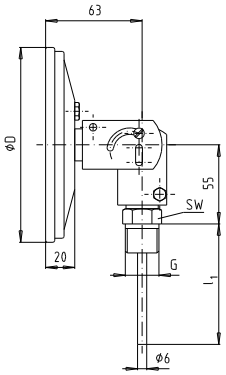
2) Design of connection according to DIN, see table on page 3; Thermowells per DIN, see data sheet DE 1060

Dimensions (mm)

Model TM304, TM307



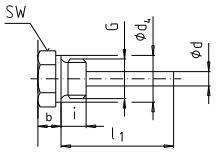
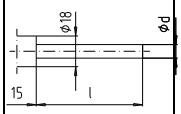
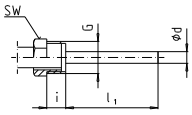
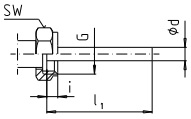
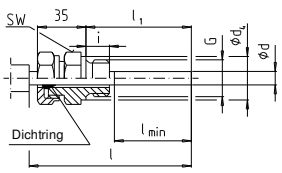
Model TM305, TM308



Model	Dimensions (mm)				
		b			
	D (NG)	G½A	G¼A	½NPT	¼NPT
TM304, TM305	3" (76mm)	35	32	35	28
TM307, TM308	5" (127mm)	35	32	35	28

Design of connection

<table>
<tr><th></th><th>Male thread</th><th>Plain stem</th><th>Male nut</th><th>Union nut</th><th>Compression fitting, sliding on stem</th></tr>
<tr><td>Stem-length l_1</td><td>63 mm 2.5"
100 mm 4"
150 mm 6"
225 mm 9"
305 mm 12"
380 mm 15"
455 mm 18"
610 mm 24"</td><td>140 mm
200 mm
240 mm
290 mm</td><td>80 mm
140 mm
180 mm
230 mm</td><td>89 mm
126 mm
186 mm
226 mm
276 mm</td><td>variable
minimum insertion length
l_{min} = 60 mm

Length
$l \geq l_1 + 35$ mm</td></tr>
<tr><td>Dimensions</td><td>  </td><td>  </td><td>  </td><td>  </td><td>  </td></tr>
<tr><td>Stem diameter Ød</td><td colspan="5">Standard: 6 mm
Option: 8, 10mm</td></tr>
<tr><td>Thread and dimensions [mm]</td><td>
<table>
<tr><th></th><th>SW</th><th>d4</th><th>i</th></tr>
<tr><td>G ½</td><td>27</td><td>26</td><td>14</td></tr>
<tr><td>G ¼</td><td>22</td><td>18</td><td>12</td></tr>
<tr><td>½ NPT</td><td>22</td><td>-</td><td>19</td></tr>
<tr><td>¼ NPT</td><td>17</td><td>-</td><td>15</td></tr>
</table>
</td><td></td><td>
<table>
<tr><th></th><th>SW</th><th>i</th></tr>
<tr><td>G ½</td><td>27</td><td>20</td></tr>
</table>
</td><td>
<table>
<tr><th></th><th>SW</th><th>i</th></tr>
<tr><td>G ½</td><td>27</td><td>8,5</td></tr>
<tr><td>G ¾</td><td>32</td><td>10.5</td></tr>
<tr><td>M24x1.5</td><td>32</td><td>13.5</td></tr>
</table>
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<table>
<tr><th></th><th>SW</th><th>d4</th><th>i</th></tr>
<tr><td>G ½</td><td>27</td><td>26</td><td>14</td></tr>
<tr><td>G ¾</td><td>32</td><td>32</td><td>16</td></tr>
<tr><td>M18x1.5</td><td>24</td><td>23</td><td>12</td></tr>
<tr><td>½ NPT</td><td>22</td><td>-</td><td>19</td></tr>
<tr><td>¾ NPT</td><td>30</td><td>-</td><td>20</td></tr>
</table>
</td></tr>
<tr><td></td><td>Not possible with connection turnable / rotateable</td><td></td><td></td><td></td><td></td></tr>
</table>

Order details

1. Model
2. Range
3. Design of connection
4. Stem length l_1
5. Thread
6. Options