



# GÜNTHER<sup>GmbH</sup>

Temperaturmesstechnik



**Product category 18-TKL  
Micro- and Laboratory  
Thermocouple Assemblies**

# 18-TKL

## Micro- and Laboratory Thermocouple Assemblies



### Application Examples for Micro- and Laboratory Thermocouple Assemblies:

-  Plant and Machine Construction
-  Steel and Iron Industry
-  Automobile Industry
-  Heat Treatment
-  Chemical Industry
-  Laboratories
-  Industrial Furnace Construction

### 18-TKL Micro- and Laboratory Thermocouple Assemblies

Micro- and laboratory thermocouple assemblies (18-TKL) are preferentially used for technical temperature measurements in liquid and gaseous media within a temperature range between 200°C and 1800°C.

Micro- and laboratory thermocouple assemblies differ from conventional thermocouple assemblies in their very small dimensions, light weight and variable mounting options. They also warrant exact temperature measurements within a constrained installation space. In consequence of design, these sensors also have very short reaction times.

There is a notable danger of “poisoning” noble metal thermocouples in micro- and laboratory thermocouple assemblies by substances diffusing through the protective fitting, such as those to be found in flue gas, for example. In order to avoid these types of influences, we recommend using a version employing gas-tight ceramic.

### Operation Temperature for Platinum-Rhodium / Platinum Thermocouples:

Type	Diameter	Maximum Temperature
S	0,35 mm	1350°C
S	0,50 mm	1600°C
R	0,35 mm	1350°C
R	0,50 mm	1600°C
B	0,35 mm	1600°C
B	0,50 mm	1800°C

The thermal materials used by GÜNTHER GmbH for micro- and laboratory thermocouple assemblies are pursuant to DIN EN 60584.

Further technical information for this product line, e.g. an overview of individual properties of most common ceramics, is available on our website:

<http://www.guenther.eu/en/products/thermocouples/18-tkl/smallest-and-laboratory-thermocouples>



Visit us online at: [www.guenther.eu](http://www.guenther.eu)



**1 Connection Types**

Head B

Head DL

Head L

Connection Socket Type S

**The following listed connection types are fitted with welded holding tubes and connection socket type S.**

Head L with Tube 1.4571

Head L with Tube 1.4571

Connection Clip 55x20 mm

Flanged Plate 60x60 mm

Connection Socket Type S

**2 Holding Tube (Materials)**

St. 35.8 Mat. No. 1.0305

Brass

Stainless Steel Mat. No. 1.4571

Inconel Mat. No. 2.4816

**3 Process Connector (Detachable)**

Flange

Threaded Socket

Flange / Counter Flange

**4 Protective Tube (Materials)**

C610

C799

**5 Thermocouple (Single, Double or Triple)**

Type R PtRh13-Pt

Type S PtRh10-Pt

Type B PtRh30-PtRh6

Type K NiCr-Ni

Type J Fe-CuNi

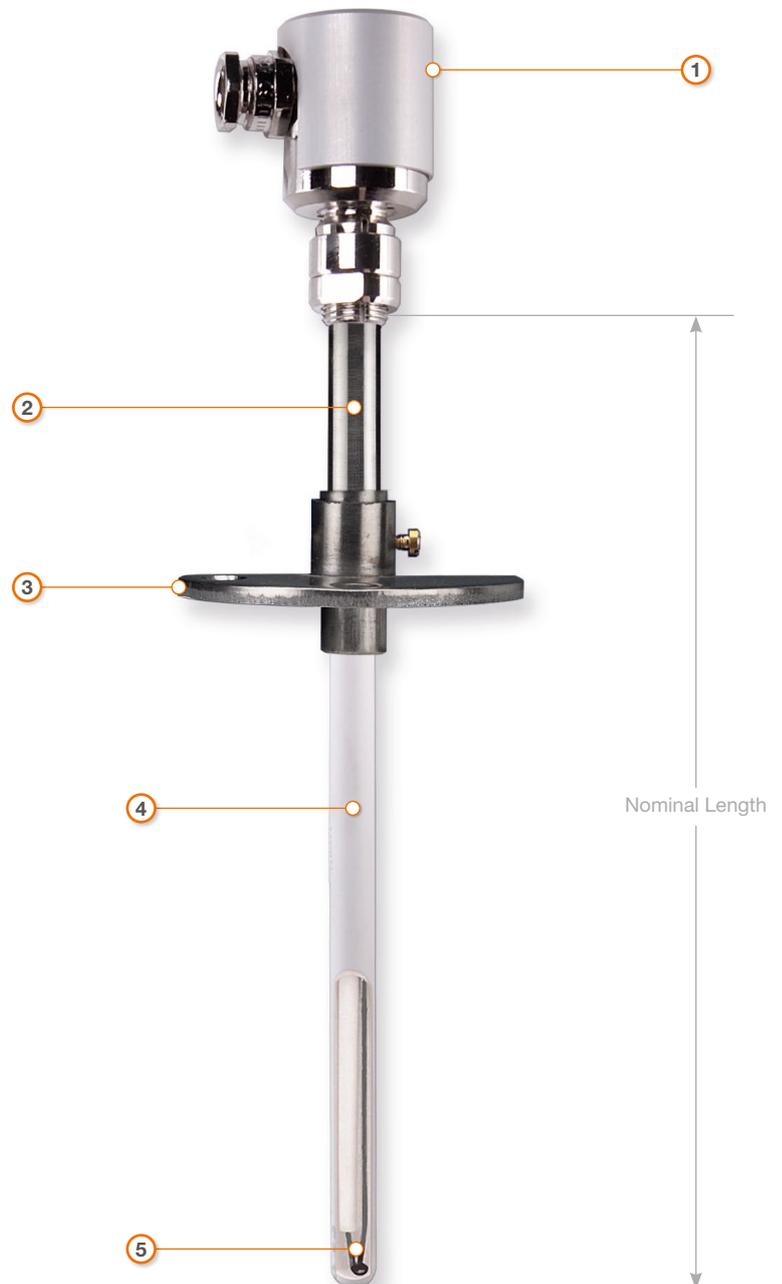
Type L Fe-CuNi

Type C WRe5-WRe26

Type N Nicrosil-Nisil

Type D WRe3-WRe25

Example of a common implementation in this product line



Individual Solutions such as, for example materials, process connectors, accessories, etc. not listed here, are often viable.

Please contact us for further information!

**18 - TKL // Micro-thermocouples and laboratory thermocouples**

Ceramic protection tube + thermocouple 

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<b>Protection tube (dimensions / material)</b>	6 x 4	mm	C610	<b>1</b>
	6 x 4	mm	C799	<b>2</b>
	7 x 4	mm	C799	<b>3</b>
	7 x 4.5	mm	C610	<b>4</b>
	7.5 x 5.5	mm	C610	<b>5</b>
	8 x 5	mm	C610	<b>6</b>
	10 x 7	mm	C610	<b>7</b>
	10 x 6	mm	C799	<b>8</b>
	8 x 5	mm	C799	<b>9</b>

Nominal length / mm

**Contact terminations**

Head Type B 12.2 mm	<b>11</b>
Head Type DL with an M10 x 1 thread	<b>12</b>
Head Type L with a bracket clamp 7 mm	<b>13</b>
Head Type L with a bracket clamp 8 mm	<b>14</b>
Connection socket Type S with a bracket clamp 7 mm	<b>15</b>
Connection socket Type S with a bracket clamp 8 mm	<b>16</b>

**The following contact terminations are fitted with holding tubes which have been permanently welded on:**

Head Type L with tube 1.4571, 10 x 1 x 20 mm and a Type S connection socket	<b>31</b>
Head Type L with tube 1.4571, 9 x 1 x 20 mm and a Type S connection socket	<b>32</b>
Type S connection socket with a tube 1.4571, 10 x 0.5 x 24 mm	<b>33</b>
Type S connection socket with a tube 1.4571	<b>34</b>
Connection clip, 55 x 20mm, with a tube 1.4571, 8 x 0.5 x 30 mm and a Type S connection socket	<b>35</b>
Connection clip, 55 x 20mm, with a tube 1.4571, 10 x 0.5 x 24 mm and a Type S connection socket	<b>36</b>
Flanged plate, 60 x 60 mm with a holding tube 1.4571, 12 x 2 x 25 mm and a Type S connection socket	<b>37</b>

**Holding tubes**

	St. 35.8	Brass	1.4571	Alloy 600	
6 x 0.5	<b>10</b>	<b>20</b>	<b>30</b>	<b>40</b>	None
7 x 1.0	<b>11</b>	<b>21</b>	<b>31</b>	<b>41</b>	
8 x 0.5	<b>12</b>	<b>22</b>	<b>32</b>	<b>42</b>	<b>99</b>
8 x 1.0	<b>13</b>	<b>23</b>	<b>33</b>	<b>43</b>	
9 x 0.5	<b>14</b>	<b>24</b>	<b>34</b>	<b>44</b>	
9 x 1.0	<b>15</b>	<b>25</b>	<b>35</b>	<b>45</b>	
10 x 0.5	<b>16</b>	<b>26</b>	<b>36</b>	<b>46</b>	Other
10 x 1.0	<b>17</b>	<b>27</b>	<b>37</b>	<b>47</b>	
11 x 1.0	<b>18</b>	<b>28</b>	<b>38</b>	<b>48</b>	<b>00</b>
12 x 0.75	<b>19</b>	<b>29</b>	<b>39</b>	<b>49</b>	
12 x 1.0	<b>50</b>	<b>60</b>	<b>70</b>	<b>80</b>	

**Thermocouple**

Type R	PtRh13-Pt	<b>1</b>
Type S	PtRh10-Pt	<b>2</b>
Type B	PtRh30-PtRh6	<b>3</b>
Type K	NiCr-Ni	<b>4</b>
Type J	Fe-CuNi	<b>5</b>
Type L	Fe-CuNi	<b>6</b>
Type C	WRe5-WRe26	<b>7</b>
Type N	Nicrosil-Nisil	<b>8</b>
Type D	WRe3-WRe25	<b>9</b>

**Thermocouple**

Standard	<b>1</b>
Double	<b>3</b>
Triple	<b>5</b>

**Fastening**

None	<b>0</b>
Stop flange	<b>1</b>
Mounting thread	<b>2</b>
Flange/counter flange	<b>3</b>

Custom designs: 

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9	9	1	8	x	x	x	x
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Consecutive no. Nominal length / mm



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