



# GÜNTHER<sup>GmbH</sup>

Temperaturmesstechnik



**Product category 15-TKM**  
**Thermocouple Assemblies with Ceramic**  
**Protection Tube and Mineral-Insulated Gauge Slide**

## 15-TKM

# Thermocouple Assemblies with Ceramic Protection Tube and Mineral-Insulated Gauge Slide



### Application Examples for Thermocouple Assemblies with Ceramic Protection Tube and Mineral-Insulated Gauge Slide:



Waste Recycling / Incineration



Plant and Machine Construction



Automobile Industry



Industrial Furnace Construction



Cement and Building Material Industry



Energy Production

### 15-TKM

#### Thermocouple Assemblies with Ceramic Protection Tube and Mineral-Insulated Gauge Slide

Straight line thermocouple assemblies with ceramic protection tube and mineral-insulated gauge slides (15-TKM) are used for common temperature measurement up to 1200°C, mainly in gaseous media.

For sensors of this product line, mainly base metal thermocouples are employed, combining the advantages of mineral-insulated gauge slides on one hand, and the advantages of technical ceramics on the other hand.

Additionally and in contrast to thermocouples, mineral-insulated gauge slides are easily exchangeable, they are resilient to temperature changes, vibration and impact resistant. In consequence of the compact and slender configuration of the mineral-insulated gauge slides, enough space usually remains to allow for the insertion of an additional mineral insulated thermocouple for measurement verification if necessary.

During measurement and control processes, often high operational wear occurs due to corrosion and abrasion, which even high grade metal protective tubes are not able to withstand. In these scenarios, thermal sensors with protective tubes made of heat-resistant, technical ceramics allow for increased holding time in many instances.

Thermoelectric voltages and tolerances of our mineral-insulated gauge slides are pursuant to DIN EN 60584, Class 1.

**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/15-tkm/thermocouples-with-ceramic-protection-tube-and-sheath-measurement-insert>**



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



**1 Connection Head**

A	B
AUS	BUS
AUZ	BUZ
AUZH	BUZH
AUSH	BBK

**2 Holding Tube (Materials)**

Available in various lengths

St. 35.8	Mat. No. 1.0305
Stainless Steel	Mat. No. 1.4571
X10Cr Al 24	Mat. No. 1.4762
X15CrNi Si 25 20	Mat. No. 1.4841
Inconel	Mat. No. 2.4816
Kanthal	

**3 Process Connector (Detachable)**

Flange
Threaded Socket
Flange / Counter Flange

**4 Protective Tube (Materials)**

C610	Quartz Glass
C799	Sapphire Glass
C530	SiN
SiC	

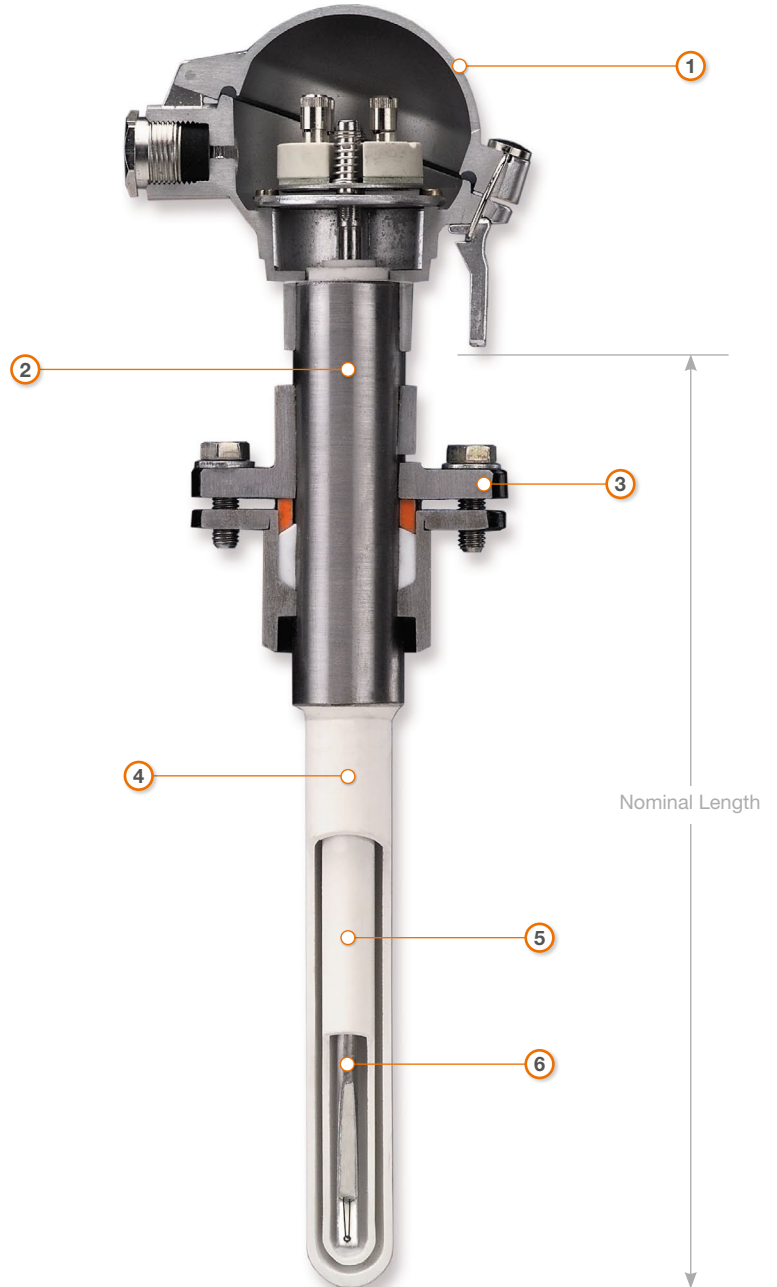
**5 Inner Tube**

C530	Porous Ceramic
C610	TEP
C799	Aluminium Oxide

**6 Mineral Insulation Mantle / Thermocouple**

Thermocouple / Mantle Material:	
Fe-CuNi / L	1.4541
Fe-CuNi / J	1.4541
Nicrosil-Nisil / K	Inconel 2.4816
Nicrosil-Nisil / N	Inconel 2.4816
Mantle-Diameter:	1,5 - 8 mm
Single or Double Testable	

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!

**15 -TKM // Thermocouples with a ceramic protection tube and a built-in sheath measurement insert**

Ceramic protection tube + sheath 

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<b>Protection tube (dimensions / material)</b>	10 x 7	mm	C610	<b>1</b>
	10 x 6	mm	C799	<b>2</b>
	15 x 11	mm	C610	<b>3</b>
	15 x 10	mm	C799	<b>4</b>
	16 x 12	mm	C610	<b>5</b>
	24 x 19	mm	C610	<b>6</b>
	24 x 18	mm	C799	<b>7</b>
	26 x 18	mm	C530	<b>8</b>
	16 x 12	mm	C799	<b>9</b>

Nominal length / mm

<b>Inner tube</b>	None		<b>0</b>
	C530	Porous ceramic material	<b>1</b>
	C610	Gastight ceramic	<b>2</b>
	C799	Aluminium oxide	<b>3</b>

<b>Holding tube (visible length)</b>		<b>1.0305</b>	<b>1.4571</b>	<b>1.4762</b>	<b>1.4841</b>
15x 2	50 mm	<b>05</b>	<b>75</b>	-	-
15 x 2	60 mm	<b>06</b>	<b>76</b>	<b>26</b>	<b>36</b>
15 x 2	80 mm	<b>07</b>	<b>77</b>	<b>27</b>	<b>37</b>
15 x 2	100 mm	<b>08</b>	<b>78</b>	<b>28</b>	<b>38</b>
15 x 2	150 mm	<b>09</b>	<b>79</b>	<b>29</b>	<b>39</b>
15 x 2	200 mm	<b>10</b>	<b>80</b>	<b>30</b>	<b>40</b>
22 x 2	100 mm	<b>11</b>	<b>81</b>	<b>31</b>	<b>41</b>
22 x 2	150 mm	<b>12</b>	<b>82</b>	<b>32</b>	<b>42</b>
22 x 2	200 mm	<b>13</b>	<b>83</b>	<b>33</b>	<b>43</b>
22 x 2	250 mm	<b>14</b>	<b>84</b>	<b>34</b>	<b>44</b>
22 x 2	300 mm	<b>15</b>	<b>85</b>	<b>35</b>	<b>45</b>
28.3 x 1.5	80 mm	<b>16</b>	-	-	-
28.3 x 1.5	180 mm	<b>17</b>	-	-	-
32 x 2	50 mm	<b>18</b>	<b>88</b>	-	<b>48</b>
32 x 2	100 mm	<b>19</b>	<b>89</b>	-	<b>49</b>
32 x 2	150 mm	<b>20</b>	<b>90</b>	-	<b>70</b>
32 x 2	200 mm	<b>21</b>	<b>91</b>	-	<b>71</b>
32 x 2	250 mm	<b>22</b>	<b>92</b>	-	<b>72</b>
<b>Alloy 600 (mat. no. 2.4816)</b>			<b>Kanthal</b>		
22 x 2	200 mm	<b>61</b>	15 x 1,3	100 mm	<b>51</b>
22 x 2	300 mm	<b>62</b>	15 x 1,3	150 mm	<b>52</b>
22 x 2	400 mm	<b>63</b>	15 x 1,3	200 mm	<b>53</b>
22 x 2	500 mm	<b>64</b>			
30 x 2,5	230 mm	<b>65</b>	Individual		<b>00</b>
30 x 2,5	400 mm	<b>66</b>	No holding tube		<b>99</b>

<b>Connection head</b>	A	<b>1</b>	B	<b>6</b>
	AUS	<b>2</b>	BUS	<b>7</b>
	AUZ	<b>3</b>	BUZ	<b>8</b>
	AUZH	<b>4</b>	BUZH	<b>9</b>
	AUSH	<b>5</b>	BBK	<b>0</b>

**Sheath element (type/number of thermocouples/sheath material/diameter/verifiability)**

ø / mm	NiCr-Ni /K Alloy 600 2.4816					Fe-CuNi/L 1.4541				Fe-CuNi/J 1.4541				Nicrosil-Nisil/N 2.4816			
	Standard testable	Double testable	Standard	Double	Triple	Standard testable	Double testable	Standard	Double	Standard testable	Double testable	Standard	Double	Standard testable	Double testable	Standard	Double
1.5	25	26	27	28	-	29	30	31	32	33	34	35	36	10	11	12	13
2	37	38	39	40	-	41	42	43	44	45	46	47	48	14	15	16	17
3	49	50	51	52	90	53	54	55	56	57	58	59	60	18	19	20	21
4.5	61	62	63	64	91	65	66	67	68	69	70	71	72	22	23	24	94
6	73	74	75	76	92	77	78	79	80	81	82	83	84	95	96	97	98
8	85	86	87	88	93	-	-	-	-	-	-	-	-	-	-	-	-

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

Custom designs: 

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9	9	1	5	x	x	x	x
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Consecutive no. Nominal length / mm



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