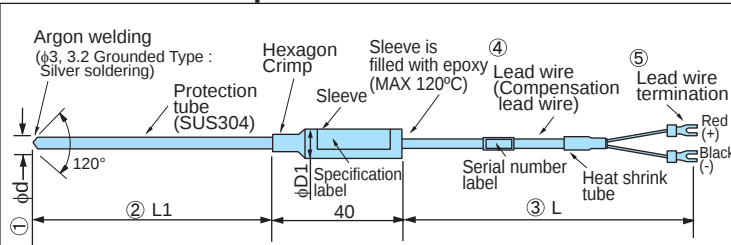


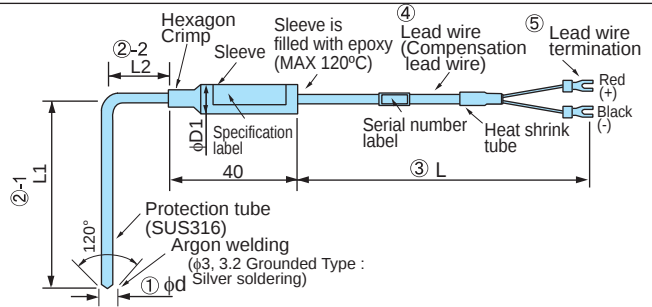
Thermocouples : T-101/T-111



T - 101 - ① - ② - ③ - ④ - ⑤ - ⑥ - ⑦ - ⑧

- ① Diameter of protection tube
- ② Length of protection tube
- ③ Lead wire length
- ④ Lead protection
- ⑤ Lead wire termination
- ⑥ Thermocouple type
- ⑦ Sensing junction
- ⑧ Mounting bracket

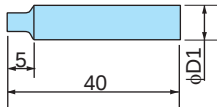
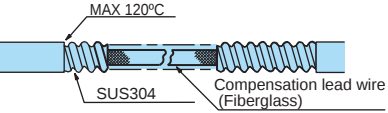
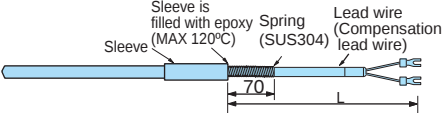
Example : T-101-5-100-2000-EXA-Y-K-G-N



T - 111 - ① - ②-1 - ②-2 - ③ - ④ - ⑤ - ⑥ - ⑦ - ⑧

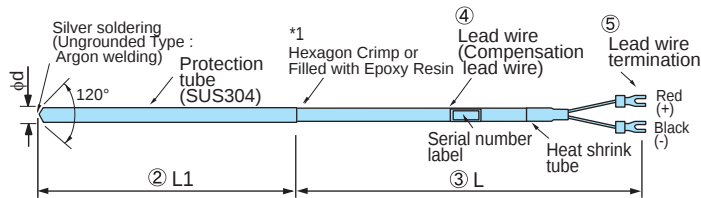
- ① Diameter of protection tube
- ②-1, 2 Length of protection tube
- ③ Lead wire length
- ④ Lead protection
- ⑤ Lead wire termination
- ⑥ Thermocouple type
- ⑦ Sensing junction
- ⑧ Mounting bracket

Example : T-111-5-100-30-2000-EXA-Y-K-G-N

①	Diameter of protection tube	φ3.0, φ3.2, φ4.8, φ5.0, φ6.0, φ6.4, φ8.0																																																																																								
②	Length of protection tube	Specify length by "mm" (100mm to 1,000mm) • Please contact distributors regarding other length.		②- 1 Specify length by "mm" (100mm or more, L1+L2=1,000mm or less) ②- 2 Specify length by "mm" (25mm or more, L1+L2=1,000mm or less) • Length is 25mm if not specified. • Please contact distributors regarding other length.																																																																																						
③	Lead wire length	Specify length by "mm" (100mm or more)																																																																																								
④	Lead protection	<table><tr><th>Code</th><th>Details</th><th>Operating temperature</th></tr><tr><td>EXA</td><td>Fiberglass with stainless steel</td><td>0 to 150°C</td></tr><tr><td>EXB</td><td>Fiberglass</td><td>0 to 150°C</td></tr><tr><td>EXC</td><td>PVC (polyvinyl chloride) with copper wire braided</td><td>-20 to +90°C</td></tr></table>	Code	Details	Operating temperature	EXA	Fiberglass with stainless steel	0 to 150°C	EXB	Fiberglass	0 to 150°C	EXC	PVC (polyvinyl chloride) with copper wire braided	-20 to +90°C	<table><tr><th>Code</th><th>Details</th><th>Operating temperature</th></tr><tr><td>EXD</td><td>PVC (polyvinyl chloride)</td><td>-20 to +90°C</td></tr><tr><td>EXE</td><td>Silicone rubber</td><td>-55 to +180°C</td></tr><tr><td>EXF</td><td>Fluorocarbon polymers (FEP)</td><td>0 to 200°C</td></tr></table>	Code	Details	Operating temperature	EXD	PVC (polyvinyl chloride)	-20 to +90°C	EXE	Silicone rubber	-55 to +180°C	EXF	Fluorocarbon polymers (FEP)	0 to 200°C																																																															
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Specifications	Class : class 2 * Class 1 is available (Please specify when you order) Element : Single element * Double element is available. (Diameter of protection tube : φ4.8 or more) (Please specify when you order) Maximum temperature for use <table><tr><th rowspan="2">Thermocouple type</th><th rowspan="2">Diameter of protection tube</th><th colspan="2">T-101</th><th colspan="2">T-111</th></tr><tr><th>Operating temperature for regular use</th><th>Maximum temperature</th><th>Operating temperature for regular use</th><th>Maximum temperature</th></tr><tr><td rowspan="3">K</td><td>φ3.0 to φ3.2</td><td>300°C</td><td>400°C</td><td>300°C</td><td>400°C</td></tr><tr><td>φ4.8 to φ6.4</td><td>650°C</td><td>850°C</td><td>300°C</td><td>400°C</td></tr><tr><td>φ8.0</td><td>750°C</td><td>950°C</td><td>300°C</td><td>400°C</td></tr><tr><td rowspan="3">J</td><td>φ3.0 to φ3.2</td><td>200°C</td><td>300°C</td><td>200°C</td><td>300°C</td></tr><tr><td>φ4.8 to φ6.4</td><td>400°C</td><td>500°C</td><td>300°C</td><td>400°C</td></tr><tr><td>φ8.0</td><td>450°C</td><td>550°C</td><td>350°C</td><td>400°C</td></tr><tr><td rowspan="3">T</td><td>φ4.8 to φ6.4</td><td>200°C</td><td>250°C</td><td>200°C</td><td>250°C</td></tr><tr><td>φ8.0</td><td>250°C</td><td>300°C</td><td>250°C</td><td>300°C</td></tr><tr><td>φ3.0 to φ3.2</td><td>200°C</td><td>300°C</td><td>200°C</td><td>300°C</td></tr><tr><td rowspan="3">E</td><td>φ4.8 to φ6.4</td><td>450°C</td><td>500°C</td><td>300°C</td><td>400°C</td></tr><tr><td>φ8.0</td><td>500°C</td><td>550°C</td><td>300°C</td><td>400°C</td></tr></table> Sleeve Dimension (φD1) <table><tr><th>Lead wire type</th><th>Diameter of protection tube</th><th>φ3.0 to φ5.0</th><th>φ6.0 to φ8.0</th></tr><tr><td>EXA,EXB,EXC</td><td></td><td>φ8×40</td><td>φ10×40</td></tr><tr><td>EXD,EXF</td><td></td><td></td><td></td></tr><tr><td>EXE</td><td></td><td colspan="2">φ10×40</td></tr></table>					Thermocouple type	Diameter of protection tube	T-101		T-111		Operating temperature for regular use	Maximum temperature	Operating temperature for regular use	Maximum temperature	K	φ3.0 to φ3.2	300°C	400°C	300°C	400°C	φ4.8 to φ6.4	650°C	850°C	300°C	400°C	φ8.0	750°C	950°C	300°C	400°C	J	φ3.0 to φ3.2	200°C	300°C	200°C	300°C	φ4.8 to φ6.4	400°C	500°C	300°C	400°C	φ8.0	450°C	550°C	350°C	400°C	T	φ4.8 to φ6.4	200°C	250°C	200°C	250°C	φ8.0	250°C	300°C	250°C	300°C	φ3.0 to φ3.2	200°C	300°C	200°C	300°C	E	φ4.8 to φ6.4	450°C	500°C	300°C	400°C	φ8.0	500°C	550°C	300°C	400°C	Lead wire type	Diameter of protection tube	φ3.0 to φ5.0	φ6.0 to φ8.0	EXA,EXB,EXC		φ8×40	φ10×40	EXD,EXF				EXE		φ10×40	
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Reference	• Stainless flexible lead wire is available Model Code : T-101F/T-111F  For flexible lead wire, the dimension of the sleeve is φ10 x 40mm. (Lead protection EXB type is same to standard specification.) • No waterproof • Spring loaded type is available (Please specify when you order)  Dimensions for the spring loaded sleeve is as follows. • Protection tube φ8 with extension lead wire EXA, EXB, EXD : φ10 x 40mm • Protection tube φ3.0 to φ8.0 with extension lead wire EXC : φ10 x 40mm • Except from the above : φ8 x 40mm • Material of protection tube SUS316 is available. (Please specify when you order)																																																																																									

Thermocouples : T-102

Diameter of protection tube (ϕd) : 3.0, 3.2



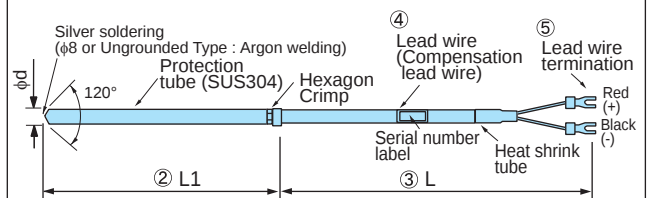
*1: Fiber glass lead protection (EXB) : Hexagon Crimp
Fluorocarbon polymers lead protection (EXF) : Filled with Epoxy Resin

T - 102 - ϕd - L1 - L - $\square\square\square$ - $\square$ - $\square$ - $\square$ - $\square$
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Diameter of protection tube
- ② Length of protection tube
- ③ Lead wire length
- ④ Lead protection
- ⑤ Lead wire termination
- ⑥ Thermocouple type
- ⑦ Sensing junction
- ⑧ Mounting bracket

Example : T-102-3.2-300-2000-EXA-Y-K-G-N

Diameter of protection tube (ϕd) : 4.0 or more



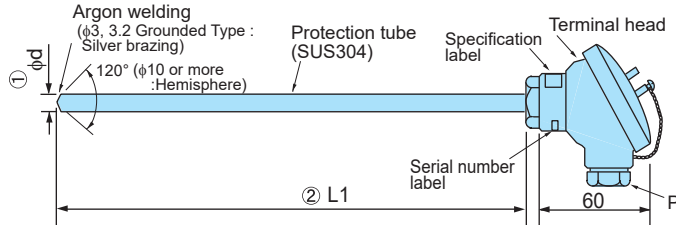
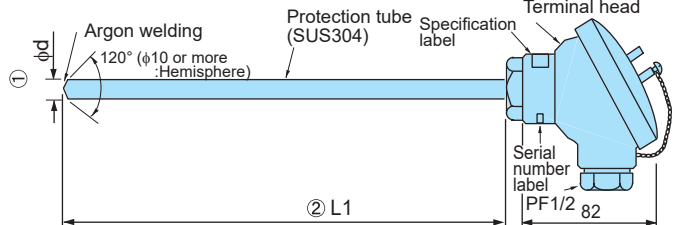
T - 102 - ϕd - L1 - L - $\square\square\square$ - $\square$ - $\square$ - $\square$ - $\square$
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- ① Diameter of protection tube
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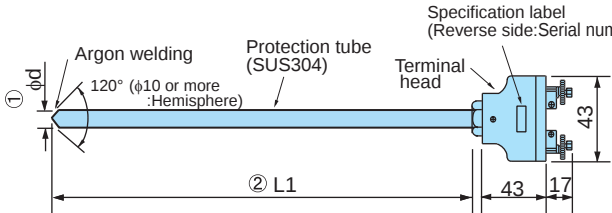
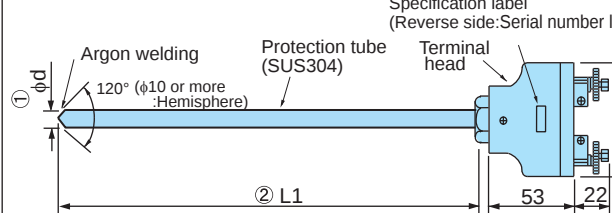
Example : T-102-5.0-300-2000-EXA-Y-K-G-N

①	Diameter of protection tube	φ3.0, φ3.2				φ4.0, φ4.8, φ5.0, φ6.0, φ8.0																								
②	Length of protection tube	Specify length by “mm” (30mm to 500mm)				• Please contact distributors regarding other length.																								
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Specifications		Class : class 2 * Class 1 is available (Please specify when you order) Element : Single element * Double element is available. (Diameter of protection tube : φ4.8 or more) 																												

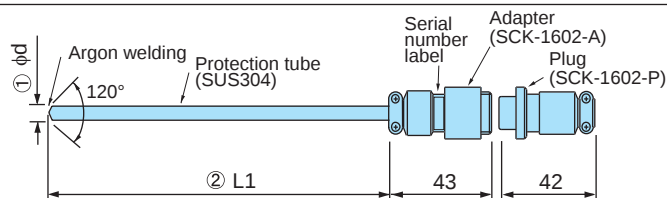
Thermocouples : T-30/T-35

																													
No lead wire T - 30 - φd - L1 - □-□-□ ① ② ⑥ ⑦ ⑧		No lead wire T - 35 - φd - L1 - □-□-□ ① ② ⑥ ⑦ ⑧																											
With lead wire T - 30 - φd - L1 - L - □□□-□-□-□-□ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧		With lead wire T - 35 - φd - L1 - L - □□□-□-□-□-□ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧																											
① Diameter of protection tube ⑤ Lead wire termination ② Length of protection tube ⑥ Thermocouple type ③ Lead wire length ⑦ Sensing junction ④ Lead protection ⑧ Mounting bracket		① Diameter of protection tube ⑤ Lead wire termination ② Length of protection tube ⑥ Thermocouple type ③ Lead wire length ⑦ Sensing junction ④ Lead protection ⑧ Mounting bracket																											
Example :T-30-5-100-K-G-N (No lead wire) :T-30-5-100-2000-EXA-Y-K-G-N (With lead wire)		Example :T-35-5-100-K-G-N (No lead wire) :T-35-5-100-2000-EXA-Y-K-G-N (With lead wire)																											
①	Diameter of protection tube	φ3.0, φ3.2, φ4.8, φ5.0, φ6.0, φ8.0, φ10.0		φ4.8, φ5.0, φ6.0, φ8.0, φ10.0, φ12.0, φ15.0 • Please contact distributors regarding φ21.7.																									
②	Length of protection tube	Specify length by “mm” (100mm to 1,000mm) • Please contact distributors regarding other length.		Specify length by “mm” (100mm to 1,000mm) • Please contact distributors regarding other length.																									
③	Lead wire length	Specify length by “mm” (100mm or more)																											
④	Lead protection	<table><tr><th>Code</th><th>Details</th><th>Operating temperature</th><th>Code</th><th>Details</th><th>Operating temperature</th></tr><tr><td>EXA</td><td>Fiberglass with stainless steel</td><td>0 to 150°C</td><td>EXD</td><td>PVC (polyvinyl chloride)</td><td>-20 to +90°C</td></tr><tr><td>EXB</td><td>Fiberglass</td><td>0 to 150°C</td><td>EXE</td><td>Silicone rubber</td><td>-55 to +180°C</td></tr><tr><td>EXC</td><td>PVC (polyvinyl chloride) with copper wire braided</td><td>-20 to +90°C</td><td></td><td></td><td></td></tr></table>				Code	Details	Operating temperature	Code	Details	Operating temperature	EXA	Fiberglass with stainless steel	0 to 150°C	EXD	PVC (polyvinyl chloride)	-20 to +90°C	EXB	Fiberglass	0 to 150°C	EXE	Silicone rubber	-55 to +180°C	EXC	PVC (polyvinyl chloride) with copper wire braided	-20 to +90°C			
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Specifications		Class : class 2 * Class 1 is available (Please specify when you order) Element : Single element * Double element is available. (Only for T-35) 																											

Thermocouples : T-80/T-85

																																												
No lead wire T - 80 - φd - L1 - □-□-□ ① ② ⑥ ⑦ ⑧		No lead wire T - 85 - φd - L1 - □-□-□ ① ② ⑥ ⑦ ⑧																																										
With lead wire T - 80 - φd - L1 - L - □□□-□-□-□-□ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧		With lead wire T - 85 - φd - L1 - L - □□□-□-□-□-□ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧																																										
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Reference		• Material of protection tube SUS316 is available. (Please specify when you order) • High temperature type Thermocouple type R, S, B for high temperature type : See page 19.																																										

Thermocouples : T-90



No lead wire

T - 90 - φd - L1 - □ - □ - □
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

With lead wire

T - 90 - φd - L1 - L - □□□ - □ - □ - □ - □
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Diameter of protection tube ⑤ Lead wire termination
② Length of protection tube ⑥ Thermocouple type
③ Lead wire length ⑦ Sensing junction
④ Lead protection ⑧ Mounting bracket

Example :T-90-5-100-K-G-N (No lead wire)

:T-90-5-100-2000-EXA-Y-K-G-N (With lead wire)

①	Diameter of protection tube	φ3.0, φ3.2, φ4.8, φ5.0, φ6.0, φ8.0																				
②	Length of protection tube	Specify length by “mm” (100mm to 1,000mm) • Please contact distributors regarding other length.																				
③	Lead wire length	Specify length by “mm” (100mm or more)																				
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		C	Fixed flange																			
• Please contact distributors regarding other mounting bracket.																						
Specifications	Class : class 2 * Class 1 is available (Please specify when you order) Element : Single element * Double element is available. (Diameter of protection tube : φ4.8 or more) (Please specify when you order)																					
	Maximum temperature for use Protection tube : SUS304																					
	Thermocouple type	Diameter of protection tube	Operating temperature for regular use	Maximum temperature																		
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	J	φ3.0 to φ3.2	200°C	300°C																		
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	T	φ3.0 to φ6.0	200°C	250°C																		
		φ8.0	250°C	300°C																		
	E	φ3.0 to φ3.2	200°C	300°C																		
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Reference	Connector																					
	Pin No.	Single Element	Double Element																			
			<table><tr><td>Pin No.</td><td>Details</td></tr><tr><td>1</td><td>+</td></tr><tr><td>2</td><td>-</td></tr></table>	Pin No.	Details	1	+	2	-		<table><tr><td>Pin No.</td><td>Details</td></tr><tr><td>1</td><td>+</td></tr><tr><td>2</td><td>-</td></tr><tr><td>3</td><td>+</td></tr><tr><td>4</td><td>-</td></tr></table>	Pin No.	Details	1	+	2	-	3	+	4	-	
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	2	-																				
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	2	-																				
	3	+																				
4	-																					
	SCK-1602-□		SCK-1604-□																			
For connector for T-90, Connector manufactured by Sanwa Connector Laboratory Co., Ltd. is used as standard. Nanaboshi Electric Mfg brand is also available (Please specify when you order). Please specify in case of no need of the plug.																						