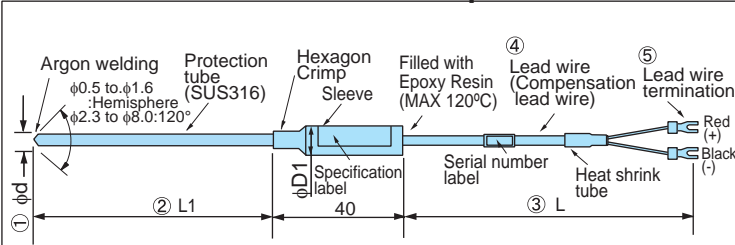


# Sheathed Thermocouples : T-101S/T-111S

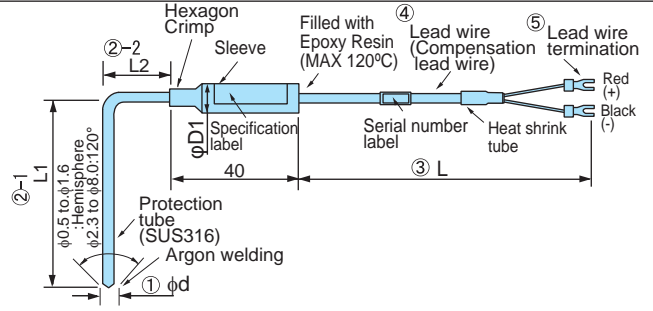


T - 101S -  $\phi d$  - L1 - L - □□□ - □ - □ - □ - □

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-101S-4.8-100-2000-EXA-Y-K-G-N



T - 111S -  $\phi d$  - L1 - L2 - L - □□□ - □ - □ - □ - □

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-111S-4.8-100-30-2000-EXA-Y-K-G-N

① Diameter of protection tube	φ0.5 (Only for K, T type), φ1.0, φ1.6, φ2.3, φ3.2, φ4.8, φ6.4, φ8.0																											
② Length of protection tube	Specify length by "mm" (100mm to 10,000mm)																											
③ Lead wire length	Specify length by "mm" (100mm or more)																											
④ Lead protection	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> <th>Operating temperature</th> </tr> </thead> <tbody> <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> </tbody> </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 border="1"> <thead> <tr> <th>Code</th> <th>Details</th> <th>Operating temperature</th> </tr> </thead> <tbody> <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> </tbody> </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		
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																										
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																										
⑤ Lead wire termination	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>Spade lugs for JIS standard "M3" size screw</td> </tr> <tr> <td>R</td> <td>Ring lugs for JIS standard "M4" size screw</td> </tr> <tr> <td>M</td> <td>Metal connector (SCK-1602-P)</td> </tr> </tbody> </table>	Code	Details	Y	Spade lugs for JIS standard "M3" size screw	R	Ring lugs for JIS standard "M4" size screw	M	Metal connector (SCK-1602-P)	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>TE*1</td> <td>Thermocouple connector (CSP01+CLP-A+CSP02)</td> </tr> <tr> <td>N</td> <td>No terminal lugs *terminal soldered</td> </tr> </tbody> </table>	Code	Details	TE*1	Thermocouple connector (CSP01+CLP-A+CSP02)	N	No terminal lugs *terminal soldered	*1 : Other thermocouple connector : See Page 10											
Code	Details																											
Y	Spade lugs for JIS standard "M3" size screw																											
R	Ring lugs for JIS standard "M4" size screw																											
M	Metal connector (SCK-1602-P)																											
Code	Details																											
TE*1	Thermocouple connector (CSP01+CLP-A+CSP02)																											
N	No terminal lugs *terminal soldered																											
⑥ Thermocouple type	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>K</td> <td>Type K (Chromel-Alumel)</td> </tr> <tr> <td>J</td> <td>Type J (Iron-Constantan)</td> </tr> </tbody> </table>	Code	Details	K	Type K (Chromel-Alumel)	J	Type J (Iron-Constantan)	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>T</td> <td>Type T (Copper-Constantan)</td> </tr> <tr> <td>E</td> <td>Type E (Chromel-Constantan)</td> </tr> </tbody> </table>	Code	Details	T	Type T (Copper-Constantan)	E	Type E (Chromel-Constantan)														
Code	Details																											
K	Type K (Chromel-Alumel)																											
J	Type J (Iron-Constantan)																											
Code	Details																											
T	Type T (Copper-Constantan)																											
E	Type E (Chromel-Constantan)																											
⑦ Measuring junction	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>G</td> <td>Grounded</td> </tr> <tr> <td>NG</td> <td>Ungrounded</td> </tr> <tr> <td>O</td> <td>Exposed *</td> </tr> </tbody> </table>	Code	Details	G	Grounded	NG	Ungrounded	O	Exposed *	* Exposed-junction type is available depending on specification such as shapes, environment of usage, etc. Please contact with our distributors.																		
Code	Details																											
G	Grounded																											
NG	Ungrounded																											
O	Exposed *																											
⑧ Mounting bracket	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Fixed nipple (nut)</td> </tr> <tr> <td>B</td> <td>Rotary nipple (nut)</td> </tr> <tr> <td>C</td> <td>Fixed flange</td> </tr> </tbody> </table>	Code	Details	A	Fixed nipple (nut)	B	Rotary nipple (nut)	C	Fixed flange	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>E</td> <td>Compression fitting</td> </tr> <tr> <td>N</td> <td>No bracket</td> </tr> </tbody> </table>	Code	Details	E	Compression fitting	N	No bracket	Specify size of mounting bracket when code is "A", "B", or "E". (See Page 6) Specify size of flange when code is "C". (See Page 6)											
Code	Details																											
A	Fixed nipple (nut)																											
B	Rotary nipple (nut)																											
C	Fixed flange																											
Code	Details																											
E	Compression fitting																											
N	No 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 : φ3.2 or more) (Please specify when you order)																																			
	Operating temperature for regular use																																			
	<table border="1"> <thead> <tr> <th>Thermocouple type</th> <th>Diameter of protection tube</th> <th>Operating temperature for regular use</th> </tr> </thead> <tbody> <tr> <td rowspan="5">K</td> <td>φ0.5</td> <td>600°C</td> </tr> <tr> <td>φ1.0 to φ2.3</td> <td>650°C</td> </tr> <tr> <td>φ3.2</td> <td>750°C</td> </tr> <tr> <td>φ4.8 to φ6.4</td> <td>800°C</td> </tr> <tr> <td>φ8.0</td> <td>900°C</td> </tr> <tr> <td rowspan="3">J</td> <td>φ1.0 to φ2.3</td> <td>450°C</td> </tr> <tr> <td>φ3.2</td> <td>650°C</td> </tr> <tr> <td>φ4.8 or more</td> <td>750°C</td> </tr> <tr> <td rowspan="3">T</td> <td>φ0.5</td> <td>300°C</td> </tr> <tr> <td>φ1.0 to φ2.3</td> <td>300°C</td> </tr> <tr> <td>φ3.0 or more</td> <td>350°C</td> </tr> <tr> <td rowspan="3">E</td> <td>φ1.0 to φ2.3</td> <td>650°C</td> </tr> <tr> <td>φ3.2</td> <td>750°C</td> </tr> <tr> <td>φ4.8 or more</td> <td>800°C</td> </tr> </tbody> </table>	Thermocouple type	Diameter of protection tube	Operating temperature for regular use	K	φ0.5	600°C	φ1.0 to φ2.3	650°C	φ3.2	750°C	φ4.8 to φ6.4	800°C	φ8.0	900°C	J	φ1.0 to φ2.3	450°C	φ3.2	650°C	φ4.8 or more	750°C	T	φ0.5	300°C	φ1.0 to φ2.3	300°C	φ3.0 or more	350°C	E	φ1.0 to φ2.3	650°C	φ3.2	750°C	φ4.8 or more	800°C
Thermocouple type	Diameter of protection tube	Operating temperature for regular use																																		
K	φ0.5	600°C																																		
	φ1.0 to φ2.3	650°C																																		
	φ3.2	750°C																																		
	φ4.8 to φ6.4	800°C																																		
	φ8.0	900°C																																		
J	φ1.0 to φ2.3	450°C																																		
	φ3.2	650°C																																		
	φ4.8 or more	750°C																																		
T	φ0.5	300°C																																		
	φ1.0 to φ2.3	300°C																																		
	φ3.0 or more	350°C																																		
E	φ1.0 to φ2.3	650°C																																		
	φ3.2	750°C																																		
	φ4.8 or more	800°C																																		
	<p><b>Sleeve Dimension (φD1)</b></p> <table border="1"> <thead> <tr> <th>Lead wire type</th> <th>Diameter of protection tube</th> <th>Lead wire type</th> </tr> </thead> <tbody> <tr> <td>EXA, EXB, EXC</td> <td>φ0.5, φ1.0, φ1.6, φ2.3, φ3.2, φ4.8</td> <td>φ10x40</td> </tr> <tr> <td>EXD, EXF</td> <td>φ8x40</td> <td>φ10x40</td> </tr> <tr> <td>EXE</td> <td>φ10x40</td> <td>φ10x40</td> </tr> </tbody> </table>	Lead wire type	Diameter of protection tube	Lead wire type	EXA, EXB, EXC	φ0.5, φ1.0, φ1.6, φ2.3, φ3.2, φ4.8	φ10x40	EXD, EXF	φ8x40	φ10x40	EXE	φ10x40	φ10x40																							
Lead wire type	Diameter of protection tube	Lead wire type																																		
EXA, EXB, EXC	φ0.5, φ1.0, φ1.6, φ2.3, φ3.2, φ4.8	φ10x40																																		
EXD, EXF	φ8x40	φ10x40																																		
EXE	φ10x40	φ10x40																																		

Reference	<ul style="list-style-type: none"> <li>Fluor resin coating is available. It is available to cover Fuluorine resin tube with φ4.8 protection tube (SUS316). Total Diameter becomes φ6.0. It is also available to do coating with T-101 whose tube is more than φ3.2. These model codes are T-101SC in this case.</li> </ul>	<ul style="list-style-type: none"> <li>Stainless flexible lead wire is available. Model Code : T-101FS/T-111FS</li> </ul>	<ul style="list-style-type: none"> <li>Spring loaded type is available (Please specify when you order)</li> </ul>
	<p>* Please contact distributors regarding Fuluorine resin tube.</p>		

# Sheathed Thermocouples : T-30S/T-35S

Argon welding 120°  
Protection tube (SUS316)  
Terminal head  
Specification label  
Serial number label  
L1  
60  
PF3/8

No lead wire  
T - 30S - φd - L1 - □-□-□  
① ② ⑥ ⑦ ⑧

With lead wire  
T - 30S - 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-30S-4.8-100-K-G-N (No lead wire)  
:T-30S-4.8-100-2000-EXA-Y-K-G-N (With lead wire)

Argon welding 120°  
Protection tube (SUS316)  
Terminal head  
Specification label  
Serial number label  
L1  
PF1/2 82

No lead wire  
T - 35S - φd - L1 - □-□-□  
① ② ⑥ ⑦ ⑧

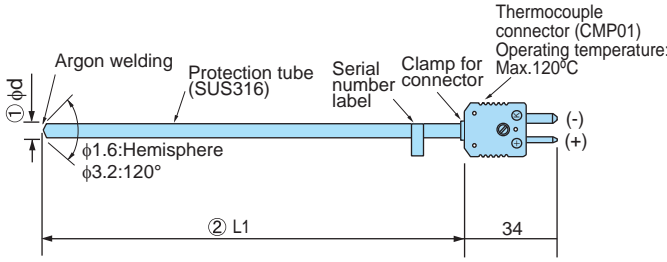
With lead wire  
T - 35S - φd - L1 - L - □□□-□-□-□-□  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

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-35S-4.8-100-K-G-N (No lead wire)  
:T-35S-4.8-100-2000-EXA-Y-K-G-N (With lead wire)

①	Diameter of protection tube	φ3.2, φ4.8, φ6.4, φ8.0																								
②	Length of protection tube	Specify length by "mm" (100mm to 10,000mm) • Please contact distributors regarding other length.																								
③	Lead wire length	Specify length by "mm" (100mm or more)																								
④	Lead protection	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Details</th> <th>Operating temperature</th> <th>Code</th> <th>Details</th> <th>Operating temperature</th> </tr> </thead> <tbody> <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> </tbody> </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			
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																								
⑤	Lead wire termination	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Details</th> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>Spade lugs for JIS standard "M3" size screw</td> <td>TE*1</td> <td>Thermocouple connector (CSP01+CLP-A+CSP02)</td> </tr> <tr> <td>R</td> <td>Ring lugs for JIS standard "M4" size screw</td> <td>N</td> <td>No terminal lugs *terminal soldered</td> </tr> <tr> <td>M</td> <td>Metal connector (SCK-1602-P)</td> <td></td> <td></td> </tr> </tbody> </table> <p style="text-align: right; font-size: small;">*1 : Other thermocouple connector : See Page 10 *See Page7</p>	Code	Details	Code	Details	Y	Spade lugs for JIS standard "M3" size screw	TE*1	Thermocouple connector (CSP01+CLP-A+CSP02)	R	Ring lugs for JIS standard "M4" size screw	N	No terminal lugs *terminal soldered	M	Metal connector (SCK-1602-P)										
Code	Details	Code	Details																							
Y	Spade lugs for JIS standard "M3" size screw	TE*1	Thermocouple connector (CSP01+CLP-A+CSP02)																							
R	Ring lugs for JIS standard "M4" size screw	N	No terminal lugs *terminal soldered																							
M	Metal connector (SCK-1602-P)																									
⑥	Thermocouple type	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Details</th> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>K</td> <td>Type K (Chromel-Alumel)</td> <td>T</td> <td>Type T (Copper-Constantan)</td> </tr> <tr> <td>J</td> <td>Type J (Iron-Constantan)</td> <td>E</td> <td>Type E (Chromel-Constantan)</td> </tr> </tbody> </table>	Code	Details	Code	Details	K	Type K (Chromel-Alumel)	T	Type T (Copper-Constantan)	J	Type J (Iron-Constantan)	E	Type E (Chromel-Constantan)												
Code	Details	Code	Details																							
K	Type K (Chromel-Alumel)	T	Type T (Copper-Constantan)																							
J	Type J (Iron-Constantan)	E	Type E (Chromel-Constantan)																							
⑦	Measuring junction	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>G</td> <td>Grounded</td> </tr> <tr> <td>NG</td> <td>Ungrounded</td> </tr> <tr> <td>O</td> <td>Exposed *</td> </tr> </tbody> </table> <p style="font-size: small;">* Exposed-junction type is available depending on specification such as shapes, environment of usage, etc. Please contact with our distributors.</p>	Code	Details	G	Grounded	NG	Ungrounded	O	Exposed *																
Code	Details																									
G	Grounded																									
NG	Ungrounded																									
O	Exposed *																									
⑧	Mounting bracket	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Details</th> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Fixed nipple (nut)</td> <td>E</td> <td>Compression fitting</td> </tr> <tr> <td>B</td> <td>Rotary nipple (nut)</td> <td>N</td> <td>No bracket</td> </tr> <tr> <td>C</td> <td>Fixed flange</td> <td></td> <td></td> </tr> </tbody> </table> <p style="font-size: small;">• Please contact distributors regarding other mounting bracket. Specify size of mounting bracket when code is "A", "B", or "E". Specify size of flange when code is "C".</p>	Code	Details	Code	Details	A	Fixed nipple (nut)	E	Compression fitting	B	Rotary nipple (nut)	N	No bracket	C	Fixed flange										
Code	Details	Code	Details																							
A	Fixed nipple (nut)	E	Compression fitting																							
B	Rotary nipple (nut)	N	No bracket																							
C	Fixed flange																									
<p>Class : class 2      * Class 1 is available (Please specify when you order) Element : Single element      * Double element is available. (Only for T-35S) (Please specify when you order)</p> <p>Operating temperature for regular use</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Thermocouple type</th> <th>Diameter of protection tube</th> <th>Operating temperature for regular use</th> </tr> </thead> <tbody> <tr> <td rowspan="3">K</td> <td>φ3.0 to φ3.2</td> <td>750°C</td> </tr> <tr> <td>φ4.8 to φ6.4</td> <td>800°C</td> </tr> <tr> <td>φ8.0</td> <td>900°C</td> </tr> <tr> <td rowspan="2">J</td> <td>φ3.2</td> <td>750°C</td> </tr> <tr> <td>φ4.8 or more</td> <td>800°C</td> </tr> <tr> <td>T</td> <td>φ3.2 or more</td> <td>350°C</td> </tr> <tr> <td rowspan="2">E</td> <td>φ3.0 to φ3.2</td> <td>650°C</td> </tr> <tr> <td>φ4.8 or more</td> <td>750°C</td> </tr> </tbody> </table>			Thermocouple type	Diameter of protection tube	Operating temperature for regular use	K	φ3.0 to φ3.2	750°C	φ4.8 to φ6.4	800°C	φ8.0	900°C	J	φ3.2	750°C	φ4.8 or more	800°C	T	φ3.2 or more	350°C	E	φ3.0 to φ3.2	650°C	φ4.8 or more	750°C	
Thermocouple type	Diameter of protection tube	Operating temperature for regular use																								
K	φ3.0 to φ3.2	750°C																								
	φ4.8 to φ6.4	800°C																								
	φ8.0	900°C																								
J	φ3.2	750°C																								
	φ4.8 or more	800°C																								
T	φ3.2 or more	350°C																								
E	φ3.0 to φ3.2	650°C																								
	φ4.8 or more	750°C																								
<p>• Fluor resin coating is available It is available to cover Fluorine resin tube with φ4.8 protection tube (SUS316). Total Diameter becomes φ6.0. It is also available to do coating with T-30S/T-35S whose tube is more than φ3.2. These model codes are T-30SC/T-35SC in this case.</p> <div style="display: flex; align-items: center;"> <div style="margin-left: 20px;"> <p>Example of Model Code T-30SC-6.0-100-PDM-NG-N (No lead wire) ① ② ⑥ ⑦ ⑧</p> <p>• Please contact distributors regarding Fluorine resin coating</p> </div> </div> <p style="font-size: small;">Operating temperature for regular use : 180°C Maximum temperature : 200°C</p> <p>• Please contact distributors regarding Fluorine resin tube.</p>																										

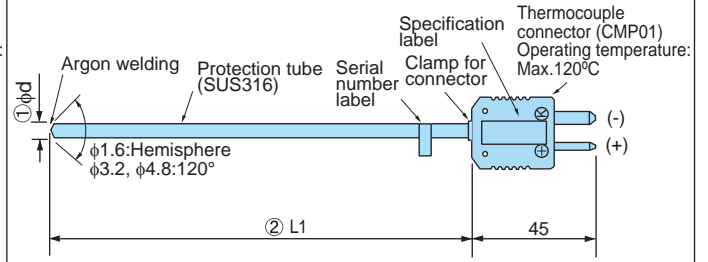
# Sheathed Thermocouples : T-70S/T-75S



T - 70S - φd - L1 - □ - □ - □  
 ① ② ③ ④ ⑤

- ① Diameter of protection tube
- ② Length of protection tube
- ③ Thermocouple type
- ④ Sensing junction
- ⑤ Mounting bracket

Example : T-70S-1.6-100-K2-G-N



T - 75S - φd - L1 - □ - □ - □  
 ① ② ③ ④ ⑤

- ① Diameter of protection tube
- ② Length of protection tube
- ③ Thermocouple type
- ④ Sensing junction
- ⑤ Mounting bracket

Example : T-75S-3.2-100-K1-G-N

① Diameter of protection tube	φ1.0, φ1.6, φ3.2	φ1.6, φ3.2, φ4.8																																										
② Length of protection tube	Specify length by "mm" (100mm to 2000mm)																																											
③ Thermocouple type	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> <th>Code</th> <th>Details</th> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>K1</td> <td>Type K (Chromel-Alumel) class 1</td> <td>J1</td> <td>Type J (Iron-Constantan) class 1</td> <td>T1</td> <td>Type T (Copper-Constantan) class 1</td> </tr> <tr> <td>K2</td> <td>Type K (Chromel-Alumel) class 2</td> <td>J2</td> <td>Type J (Iron-Constantan) class 2</td> <td>T2</td> <td>Type T (Copper-Constantan) class 2</td> </tr> </tbody> </table>	Code	Details	Code	Details	Code	Details	K1	Type K (Chromel-Alumel) class 1	J1	Type J (Iron-Constantan) class 1	T1	Type T (Copper-Constantan) class 1	K2	Type K (Chromel-Alumel) class 2	J2	Type J (Iron-Constantan) class 2	T2	Type T (Copper-Constantan) class 2																									
Code	Details	Code	Details	Code	Details																																							
K1	Type K (Chromel-Alumel) class 1	J1	Type J (Iron-Constantan) class 1	T1	Type T (Copper-Constantan) class 1																																							
K2	Type K (Chromel-Alumel) class 2	J2	Type J (Iron-Constantan) class 2	T2	Type T (Copper-Constantan) class 2																																							
④ Measuring junction	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>G</td> <td>Grounded</td> </tr> <tr> <td>NG</td> <td>Ungrounded</td> </tr> <tr> <td>O</td> <td>Exposed</td> </tr> </tbody> </table> <p>* Exposed-junction type is available depending on specification such as shapes, environment of usage, etc. Please contact with our distributors.</p>	Code	Details	G	Grounded	NG	Ungrounded	O	Exposed																																			
Code	Details																																											
G	Grounded																																											
NG	Ungrounded																																											
O	Exposed																																											
⑤ Mounting bracket	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Fixed nipple (nut)</td> <td>E</td> <td>Compression fitting</td> </tr> <tr> <td>B</td> <td>Rotary nipple (nut)</td> <td>N</td> <td>No bracket</td> </tr> <tr> <td>C</td> <td>Fixed flange</td> <td></td> <td></td> </tr> </tbody> </table> <p>Specify size of mounting bracket when code is "A", "B", or "E". Specify size of flange when code is "C".</p>	Code	Details	Code	Details	A	Fixed nipple (nut)	E	Compression fitting	B	Rotary nipple (nut)	N	No bracket	C	Fixed flange																													
Code	Details	Code	Details																																									
A	Fixed nipple (nut)	E	Compression fitting																																									
B	Rotary nipple (nut)	N	No bracket																																									
C	Fixed flange																																											
Specifications	<p>Class : class 1 or class 2 Element : Single element Operating temperature for regular use</p> <table border="1"> <thead> <tr> <th>Thermocouple type</th> <th>Diameter of protection tube</th> <th>Operating temperature for regular use</th> <th>Thermocouple type</th> <th>Diameter of protection tube</th> <th>Operating temperature for regular use</th> </tr> </thead> <tbody> <tr> <td rowspan="3">K</td> <td>φ1.0, φ1.6</td> <td>650°C</td> <td rowspan="4">T</td> <td>φ1.0, φ1.6</td> <td>300°C</td> </tr> <tr> <td>φ3.2</td> <td>750°C</td> <td>φ3.2</td> <td>350°C</td> </tr> <tr> <td>φ4.8</td> <td>800°C</td> <td>φ4.8</td> <td>350°C</td> </tr> <tr> <td rowspan="3">J</td> <td>φ1.0, φ1.6</td> <td>450°C</td> <td></td> <td></td> <td></td> </tr> <tr> <td>φ3.2</td> <td>650°C</td> <td></td> <td></td> <td></td> </tr> <tr> <td>φ4.8</td> <td>750°C</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Regarding thermocouple connectors for high-temperature use, please contact distributors Miniature connector: (Material: Ryton): CMR-01 operating temperature limit 220°C Standard connector: (Material: Ceramic): CSC-01 operating temperature limit 900°C</p>		Thermocouple type	Diameter of protection tube	Operating temperature for regular use	Thermocouple type	Diameter of protection tube	Operating temperature for regular use	K	φ1.0, φ1.6	650°C	T	φ1.0, φ1.6	300°C	φ3.2	750°C	φ3.2	350°C	φ4.8	800°C	φ4.8	350°C	J	φ1.0, φ1.6	450°C				φ3.2	650°C				φ4.8	750°C									
Thermocouple type	Diameter of protection tube	Operating temperature for regular use	Thermocouple type	Diameter of protection tube	Operating temperature for regular use																																							
K	φ1.0, φ1.6	650°C	T	φ1.0, φ1.6	300°C																																							
	φ3.2	750°C		φ3.2	350°C																																							
	φ4.8	800°C		φ4.8	350°C																																							
J	φ1.0, φ1.6	450°C																																										
	φ3.2	650°C																																										
	φ4.8	750°C																																										
Reference	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Thermocouple connector (jack) *Sold separately</p> <p>Thermocouple connector (jack) with lead wire *Sold separately</p> </div> <div style="width: 45%;"> <p>Thermocouple connector (jack) *Sold separately</p> <p>Thermocouple connector (jack) with lead wire *Sold separately</p> </div> </div> <p>Model and suffix code for thermocouple connector (jack) with lead wire</p> <table border="1"> <thead> <tr> <th>Specifications</th> <th colspan="5">Model and Suffix Code</th> </tr> <tr> <th></th> <th>W-BL-</th> <th>-□□</th> <th>□□□-□□□-□□</th> <th>-□□□□□□</th> <th></th> </tr> </thead> <tbody> <tr> <td>① Thermocouple type</td> <td>Type K (class 2) Type J (class 2)</td> <td>K2 J2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>② Lead protection</td> <td>Fiberglass with stainless steel Fiberglass PVC (polyvinyl chloride) Silicone rubber</td> <td>EXA EXB EXD EXE</td> <td></td> <td></td> <td></td> </tr> <tr> <td>③ Thermocouple connector</td> <td>Thermocouple connector CMP02 jack (with clamp) Thermocouple connector CSP02 jack (with clamp)</td> <td>TMA TSA</td> <td></td> <td></td> <td></td> </tr> <tr> <td>④ Lead wire termination</td> <td>Spade lugs for JIS standard "M3" size screw Spade lugs for JIS standard "M4" size screw Ring lugs for JIS standard "M3" size screw Ring lugs for JIS standard "M4" size screw No terminal lugs No terminal lugs *terminal soldered</td> <td>Y3 Y4 R3 R4 C N</td> <td></td> <td></td> <td></td> </tr> <tr> <td>⑤ Lead wire length (unit: mm)</td> <td colspan="4">Specify length by "mm" (100mm each)</td> <td>□□□□□□</td> </tr> </tbody> </table> <p>Please contact distributors regarding T type thermocouple.</p>		Specifications	Model and Suffix Code						W-BL-	-□□	□□□-□□□-□□	-□□□□□□		① Thermocouple type	Type K (class 2) Type J (class 2)	K2 J2				② Lead protection	Fiberglass with stainless steel Fiberglass PVC (polyvinyl chloride) Silicone rubber	EXA EXB EXD EXE				③ Thermocouple connector	Thermocouple connector CMP02 jack (with clamp) Thermocouple connector CSP02 jack (with clamp)	TMA TSA				④ Lead wire termination	Spade lugs for JIS standard "M3" size screw Spade lugs for JIS standard "M4" size screw Ring lugs for JIS standard "M3" size screw Ring lugs for JIS standard "M4" size screw No terminal lugs No terminal lugs *terminal soldered	Y3 Y4 R3 R4 C N				⑤ Lead wire length (unit: mm)	Specify length by "mm" (100mm each)				□□□□□□
Specifications	Model and Suffix Code																																											
	W-BL-	-□□	□□□-□□□-□□	-□□□□□□																																								
① Thermocouple type	Type K (class 2) Type J (class 2)	K2 J2																																										
② Lead protection	Fiberglass with stainless steel Fiberglass PVC (polyvinyl chloride) Silicone rubber	EXA EXB EXD EXE																																										
③ Thermocouple connector	Thermocouple connector CMP02 jack (with clamp) Thermocouple connector CSP02 jack (with clamp)	TMA TSA																																										
④ Lead wire termination	Spade lugs for JIS standard "M3" size screw Spade lugs for JIS standard "M4" size screw Ring lugs for JIS standard "M3" size screw Ring lugs for JIS standard "M4" size screw No terminal lugs No terminal lugs *terminal soldered	Y3 Y4 R3 R4 C N																																										
⑤ Lead wire length (unit: mm)	Specify length by "mm" (100mm each)				□□□□□□																																							

# Sheathed Thermocouples : T-80S/T-85S

Argon welding  
Protection tube (SUS316)  
Terminal head  
Specification label (Reverse side: Serial number label)

① φd  
② L1  
43  
17

No lead wire  
T - 80S - φd - L1 - □-□-□  
① ② ⑥ ⑦ ⑧

With lead wire  
T - 80S - 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-80S-4.8-100-K-G-N (No lead wire)  
              : T-80S-4.8-100-2000-EXA-Y-K-G-N (With lead wire)

Argon welding  
Protection tube (SUS316)  
Terminal head  
Specification label (Reverse side: Serial number label)

① φd  
② L1  
53  
22  
70

No lead wire  
T - 85S - φd - L1 - □-□-□  
① ② ⑥ ⑦ ⑧

With lead wire  
T - 85S - 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-85S-4.8-100-K-G-N (No lead wire)  
              : T-85S-4.8-100-2000-EXA-Y-K-G-N (With lead wire)

①	Diameter of protection tube	φ3.2, φ4.8, φ6.4, φ8.0	φ4.8, φ6.4, φ8.0
---	-----------------------------	------------------------	------------------

②	Length of protection tube	Specify length by "mm" (100mm to 10,000mm) • Please contact distributors regarding other length.	
---	---------------------------	---	--

③	Lead wire length	Specify length by "mm" (100mm or more)	
---	------------------	--	--

④	Lead protection						
		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

⑤	Lead wire termination					
		Code	Details	Code	Details	
		Y	Spade lugs for JIS standard "M3" size screw	TE*1	Thermocouple connector (CSP01+CLP-A+CSP02)	
		R	Ring lugs for JIS standard "M4" size screw	N	No terminal lugs *terminal soldered	

\*1 : Other thermocouple connector : See Page 10  
•See Page7

⑥	Thermocouple type				
		Code	Details	Code	Details
		K	Type K (Chromel-Alumel)	T	Type T (Copper-Constantan)

⑦	Measuring junction			
		Code	Details	
		G	Grounded	

\* Exposed-junction type is available depending on specification such as shapes, environment of usage, etc. Please contact with our distributors.

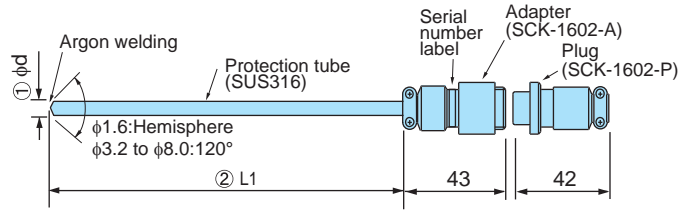
⑧	Mounting bracket				
		Code	Details	Code	Details
		A	Fixed nipple (nut)	E	Compression fitting
		B	Rotary nipple (nut)	N	No bracket

• Please contact distributors regarding other mounting bracket.  
Specify size of mounting bracket when code is "A", "B", or "E".  
Specify size of flange when code is "C".

Specifications	Class : class 2 * Class 1 is available (Please specify when you order) Element : Single element Operating temperature for regular use	Class : class 2 * Class 1 is available (Please specify when you order) Element : Single element Operating temperature for regular use																																						
	<table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>Thermocouple type</th> <th>Diameter of protection tube</th> <th>Operating temperature for regular use</th> </tr> </thead> <tbody> <tr> <td rowspan="3">K</td> <td>φ3.2</td> <td>750°C</td> </tr> <tr> <td>φ4.8 to φ6.4</td> <td>800°C</td> </tr> <tr> <td>φ8.0</td> <td>900°C</td> </tr> <tr> <td rowspan="2">J</td> <td>φ3.2</td> <td>650°C</td> </tr> <tr> <td>φ4.8 or more</td> <td>750°C</td> </tr> <tr> <td>T</td> <td>φ3.2 or more</td> <td>350°C</td> </tr> <tr> <td rowspan="2">E</td> <td>φ3.0 to φ3.2</td> <td>750°C</td> </tr> <tr> <td>φ4.8 or more</td> <td>800°C</td> </tr> </tbody> </table>	Thermocouple type	Diameter of protection tube	Operating temperature for regular use	K	φ3.2	750°C	φ4.8 to φ6.4	800°C	φ8.0	900°C	J	φ3.2	650°C	φ4.8 or more	750°C	T	φ3.2 or more	350°C	E	φ3.0 to φ3.2	750°C	φ4.8 or more	800°C	<table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>Thermocouple type</th> <th>Diameter of protection tube</th> <th>Operating temperature for regular use</th> </tr> </thead> <tbody> <tr> <td rowspan="3">K</td> <td>φ4.8, φ6.4</td> <td>800°C</td> </tr> <tr> <td>φ8.0</td> <td>900°C</td> </tr> <tr> <td>φ4.8 to φ8.0</td> <td>750°C</td> </tr> <tr> <td>T</td> <td>φ4.8 to φ8.0</td> <td>350°C</td> </tr> <tr> <td>E</td> <td>φ4.8 to φ8.0</td> <td>800°C</td> </tr> </tbody> </table>	Thermocouple type	Diameter of protection tube	Operating temperature for regular use	K	φ4.8, φ6.4	800°C	φ8.0	900°C	φ4.8 to φ8.0	750°C	T	φ4.8 to φ8.0	350°C	E	φ4.8 to φ8.0
Thermocouple type	Diameter of protection tube	Operating temperature for regular use																																						
K	φ3.2	750°C																																						
	φ4.8 to φ6.4	800°C																																						
	φ8.0	900°C																																						
J	φ3.2	650°C																																						
	φ4.8 or more	750°C																																						
T	φ3.2 or more	350°C																																						
E	φ3.0 to φ3.2	750°C																																						
	φ4.8 or more	800°C																																						
Thermocouple type	Diameter of protection tube	Operating temperature for regular use																																						
K	φ4.8, φ6.4	800°C																																						
	φ8.0	900°C																																						
	φ4.8 to φ8.0	750°C																																						
T	φ4.8 to φ8.0	350°C																																						
E	φ4.8 to φ8.0	800°C																																						

Reference	
-----------	--

# Sheathed Thermocouples : T-90S



No lead wire

T - 90S -  $\frac{\phi d}{1}$  -  $\frac{L1}{2}$  -  $\frac{\square}{6}$  -  $\frac{\square}{7}$  -  $\frac{\square}{8}$

With lead wire

T - 90S -  $\frac{\phi d}{1}$  -  $\frac{L1}{2}$  -  $\frac{L}{3}$  -  $\frac{\square\square\square}{4}$  -  $\frac{\square}{5}$  -  $\frac{\square}{6}$  -  $\frac{\square}{7}$  -  $\frac{\square}{8}$

- 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-90S-4.8-100-K-G-N (No lead wire)  
:T-90S-4.8-100-2000-EXA-Y-K-G-N (With lead wire)

①	Diameter of protection tube	φ1.6, φ3.2, φ4.8, φ6.4, φ8.0																																		
②	Length of protection tube	Specify length by "mm" (100mm to 10,000mm)																																		
③	Lead wire length	Specify length by "mm" (100mm or more)																																		
④	Lead protection	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> <th>Operating temperature</th> <th>Code</th> <th>Details</th> <th>Operating temperature</th> </tr> </thead> <tbody> <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> </tbody> </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									
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																																		
⑤	Lead wire termination	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>Spade lugs for JIS standard "M3" size screw</td> <td>TE*1</td> <td>Thermocouple connector (CSP01+CLP-A+CSP02)</td> </tr> <tr> <td>R</td> <td>Ring lugs for JIS standard "M4" size screw</td> <td>N</td> <td>No terminal lugs *terminal soldered</td> </tr> <tr> <td>M</td> <td>Metal connector (SCK-1602-P)</td> <td></td> <td></td> </tr> </tbody> </table> <p>*1 : Other thermocouple connector : See Page 10 •See Page7</p>					Code	Details	Code	Details	Y	Spade lugs for JIS standard "M3" size screw	TE*1	Thermocouple connector (CSP01+CLP-A+CSP02)	R	Ring lugs for JIS standard "M4" size screw	N	No terminal lugs *terminal soldered	M	Metal connector (SCK-1602-P)																
Code	Details	Code	Details																																	
Y	Spade lugs for JIS standard "M3" size screw	TE*1	Thermocouple connector (CSP01+CLP-A+CSP02)																																	
R	Ring lugs for JIS standard "M4" size screw	N	No terminal lugs *terminal soldered																																	
M	Metal connector (SCK-1602-P)																																			
⑥	Thermocouple type	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>K</td> <td>Type K (Chromel-Alumel)</td> <td>T</td> <td>Type T (Copper-Constantan)</td> </tr> <tr> <td>J</td> <td>Type J (Iron-Constantan)</td> <td>E</td> <td>Type E (Chromel-Constantan)</td> </tr> </tbody> </table>					Code	Details	Code	Details	K	Type K (Chromel-Alumel)	T	Type T (Copper-Constantan)	J	Type J (Iron-Constantan)	E	Type E (Chromel-Constantan)																		
Code	Details	Code	Details																																	
K	Type K (Chromel-Alumel)	T	Type T (Copper-Constantan)																																	
J	Type J (Iron-Constantan)	E	Type E (Chromel-Constantan)																																	
⑦	Measuring junction	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>G</td> <td>Grounded</td> </tr> <tr> <td>NG</td> <td>Ungrounded</td> </tr> <tr> <td>O</td> <td>Exposed *</td> </tr> </tbody> </table> <p>* Exposed-junction type is available depending on specification such as shapes, environment of usage, etc. Please contact with our distributors.</p>					Code	Details	G	Grounded	NG	Ungrounded	O	Exposed *																						
Code	Details																																			
G	Grounded																																			
NG	Ungrounded																																			
O	Exposed *																																			
⑧	Mounting bracket	<table border="1"> <thead> <tr> <th>Code</th> <th>Details</th> <th>Code</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Fixed nipple (nut)</td> <td>E</td> <td>Compression fitting</td> </tr> <tr> <td>B</td> <td>Rotary nipple (nut)</td> <td>N</td> <td>No bracket</td> </tr> <tr> <td>C</td> <td>Fixed flange</td> <td></td> <td></td> </tr> </tbody> </table> <p>• Please contact distributors regarding other mounting bracket. Specify size of mounting bracket when code is "A", "B", or "E". Specify size of flange when code is "C".</p>					Code	Details	Code	Details	A	Fixed nipple (nut)	E	Compression fitting	B	Rotary nipple (nut)	N	No bracket	C	Fixed flange																
Code	Details	Code	Details																																	
A	Fixed nipple (nut)	E	Compression fitting																																	
B	Rotary nipple (nut)	N	No bracket																																	
C	Fixed flange																																			
Specifications	<p>Class : class 2 * Class 1 is available (Please specify when you order) Element : Single element * Double element is available. (Diameter of protection tube : φ3.2 or more) (Please specify when you order)</p> <p>Operating temperature for regular use</p> <table border="1"> <thead> <tr> <th>Thermocouple type</th> <th>Diameter of protection tube</th> <th>Operating temperature for regular use</th> </tr> </thead> <tbody> <tr> <td rowspan="4">K</td> <td>φ1.6</td> <td>650°C</td> </tr> <tr> <td>φ3.2</td> <td>750°C</td> </tr> <tr> <td>φ4.8, φ6.4</td> <td>800°C</td> </tr> <tr> <td>φ8.0</td> <td>900°C</td> </tr> <tr> <td rowspan="3">J</td> <td>φ1.6</td> <td>450°C</td> </tr> <tr> <td>φ3.2</td> <td>650°C</td> </tr> <tr> <td>φ4.8 or more</td> <td>750°C</td> </tr> <tr> <td rowspan="2">T</td> <td>φ1.6</td> <td>300°C</td> </tr> <tr> <td>φ3.2 or more</td> <td>350°C</td> </tr> <tr> <td rowspan="3">E</td> <td>φ1.6</td> <td>650°C</td> </tr> <tr> <td>φ3.2</td> <td>750°C</td> </tr> <tr> <td>φ4.8 or more</td> <td>800°C</td> </tr> </tbody> </table>					Thermocouple type	Diameter of protection tube	Operating temperature for regular use	K	φ1.6	650°C	φ3.2	750°C	φ4.8, φ6.4	800°C	φ8.0	900°C	J	φ1.6	450°C	φ3.2	650°C	φ4.8 or more	750°C	T	φ1.6	300°C	φ3.2 or more	350°C	E	φ1.6	650°C	φ3.2	750°C	φ4.8 or more	800°C
Thermocouple type	Diameter of protection tube	Operating temperature for regular use																																		
K	φ1.6	650°C																																		
	φ3.2	750°C																																		
	φ4.8, φ6.4	800°C																																		
	φ8.0	900°C																																		
J	φ1.6	450°C																																		
	φ3.2	650°C																																		
	φ4.8 or more	750°C																																		
T	φ1.6	300°C																																		
	φ3.2 or more	350°C																																		
E	φ1.6	650°C																																		
	φ3.2	750°C																																		
	φ4.8 or more	800°C																																		
Reference	<p>Connector</p> <p>Pin No. Single Element Double Element</p> <table border="1"> <thead> <tr> <th>Pin No.</th> <th>Details</th> </tr> </thead> <tbody> <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> </tbody> </table> <p>For connector for T-90S, 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.</p>					Pin No.	Details	1	+	2	-	3	+	4	-																					
Pin No.	Details																																			
1	+																																			
2	-																																			
3	+																																			
4	-																																			