Model SHEATH series

Bendable Wiry Probes

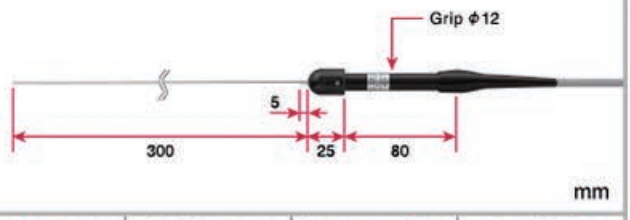
Internal temperature measurement of electric furnace
高温箱内部温度检测

Model SHEATH series is an internal temperature sensor suitable for measuring the temperature of liquids and air.
The sheath part can be bent to a radius of about 5 times the outer diameter.

套管型热电偶为内部温度传感器，适用于测量液体和气体等内部温度。
探针可弯曲半径为传感器直径的5倍。

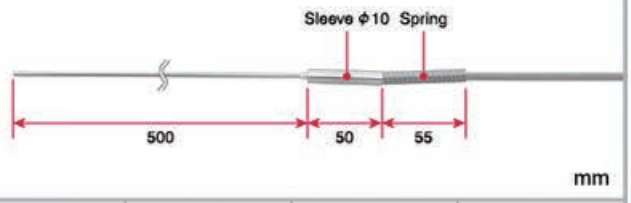
Typical probes of SHEATH series 典型产品

Type K Model A1.6-K-J1-M1-L300-TC1-ANP
Type E Model A1.6-E-J1-M1-L300-TC1-ANP



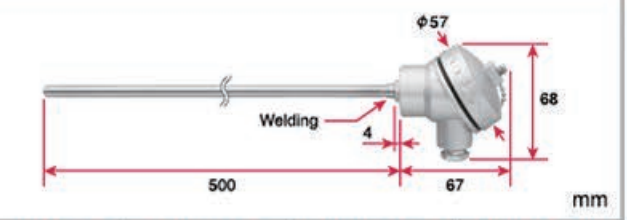
Temp. range	Tolerance	Response time	Durability
−40~650℃	±2.5℃ (at 100℃)	3 s	S

Type K Model B3.2-K-J1-M1-L500-TC1-ANP
Type E Model B3.2-E-J1-M1-L500-TC1-ANP



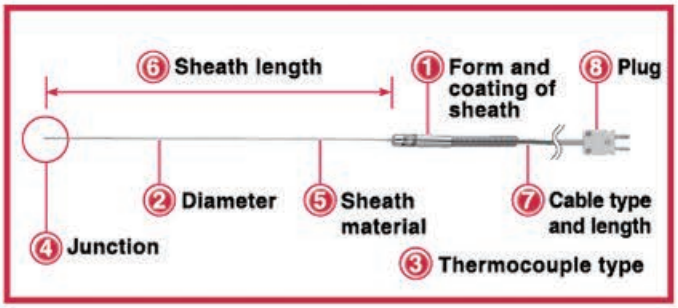
Temp. range	Tolerance	Response time	Durability
−40~750℃	±2.5℃ (at 100℃)	5 s	S

Type K Model C6.4-K-J1-M1-L500-TC1-ANP
Type E Model C6.4-E-J1-M1-L500-TC1-ANP



Temp. range	Tolerance	Response time	Durability
−40~800℃	±2.5℃ (at 100℃)	15 s	S

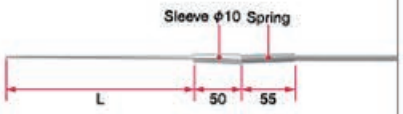
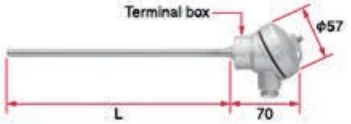
How to order of SHEATH series 选型



B3.2-K-J1-M1-L500-TC1-ANP
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Form and coating of sheath 握柄形状和镀膜	**A** : Grip type **B** : Sleeve type **C** : Terminal box type **AH** : Grip type (Fluororesin coating) **BH** : Sleeve type (Fluororesin coating) **CH** : Teminal box type (Fluororesin coating)
② Diameter 探针外径	**0.25** : φ0.25mm **0.5** : φ0.5mm **1.0** : φ1mm **1.6** : φ1.6mm **3.2** : φ3.2mm **4.8** : φ4.8mm **6.4** : φ6.4mm **8.0** : φ8.0mm
③ Thermocouple type 热电偶种类	**K** : Chromel-Alumel **E** : Chromel-Constantan
④ Junction 热接点种类	**J1** : Grounded junction **J2** : Ungrounded junction **J3** : Exposed junction
⑤ Sheath material 探针材质	**M1** : SUS316 **M2** : SUS310S (Only type K) **M3** : Inconel (Only type K)
⑥ Sheath length 探针长度	**L100** : 100mm **L200** : 200mm ⋮
⑦ Cable type and length 导线的种类和长度 (See page 9)	**TC1** : More than φ1mm in sheath diameter **TS1** : φ0.25mm, φ0.5mm in sheath diameter Standard specifications : 1m The cable length can be specified each 0.5m.
⑧ Plug 插头 (See page 8)	**ANP** (For AM-9***, HR-1*5*, AP-450) **ASP** (For HR-1*0*, AP-400) **W** (Without plug)

① Form and coating of sheath
握柄形状和镀膜

No coating	A	**Grip type** Measure by hand  ·Outer diameter φ6.4 and φ8.0 have a grip diameter of φ20mm.
coating	AH※	
No coating	B	**Sleeve type** Metal sleeve  ·The outer diameter of the sheath is φ0.25/0.5mm, and the sleeve shape is φ5×30mm/no spring.
coating	BH※	
No coating	C	**Terminal box type** Sealed terminal box  ·Can be manufactured with a sheath outer diameter of φ1mm or more.
coating	CH※	

The fluororesin coating protects the sheath by a fluororesin tube, and can be manufactured with a sheath outer diameter of φ1.0/1.6/3.2mm and a length of 1m or less. Although the response speed is slow, it has chemical resistance, so it can be used with solvents such as acids and alkalis. In addition, it is up to MAX. 200℃.

※The fluororesin coating adds 0.4mm to the original diameter.

④ Junction
热接点种类

J1 ·General purpose

J2 ·Strong against noise

J3 ·Fast response speed
·Do not use for a long time in a corrosive atmosphere or under high pressure.

Fluororesin coating and φ0.25/0.5mm cannot be manufactured.

【Supplementary information】

·The response speed is a guideline when the sheath is inserted into an object to be measured that has sufficient heat capacity and heat conduction, and is 20 times or more of the outer diameter.

·The standard resistance value is the standard resistance value of the sheath and does not include the compensating wire.

·Make sure that the total resistance of the sheath and cord does not exceed the signal source resistance of the instrument.

·If the sheath length exceeds 1000mm, extra shipping charges may apply.

Specifications of SHEATH series 规格

Outside diameter (mm)		0.25	0.5	1.0	1.6	3.2	4.8	6.4	8.0
Max. temp. (Type : K)	SUS 316 (M1)	—	—	650℃	650℃	750℃	800℃	800℃	900℃
	SUS 310S (M2)	—	—	650℃	650℃	750℃	800℃	800℃	900℃
	Inconel (M3)	500℃	500℃	650℃	650℃	750℃	900℃	1000℃	1050℃
Max. temp. (Type : E)	SUS 316 (M1)	—	—	650℃	650℃	750℃	800℃	800℃	800℃
Response time		0.4s	0.9s	2s	3s	5s	10s	15s	20s
Standard resistance (Ω/m)	Type K	570	124	32	13	4	2.2	1.0	0.7
	Type E	—	—	38	15	5	2.6	1.2	0.9
Max. length (m)		2 (until 0.5 at J2)	2	2	5	4	4	4	4
Tolecance	Type K	−40～333℃ : ±2.5℃, 333～1200℃ : ±(0.0075×|t|)℃							
	Type E	−40～333℃ : ±2.5℃, 333～800℃ : ±(0.0075×|t|)℃							

※Avoid immersing these probes in molten metal. Doing so may result in corrosion of the sheathed sensor.

※Make sure that the sum of the sheath and cable resistance values does not exceed the value of the signal source resistance of the instrument body.

※Please see website specifications of SHEATH series.