

# Model S/SX series

## High Superior Surface Probes



**Temperature measurement in moving steel sheet process**  
测量钢板压延温度

By restricting the movement of one side of the contact plate, it reduces the deformation of the contact plate due to unexpected small deposits or distortion on the surface of the object to be measured. The head of the SX is tilted  $\pm 4^\circ$ , enabling stable measurement at the time of contact.

S/SX移动系列产品为测量移动表面温度的传感器。接触辅助型SX系列,可以使感温部与被测物密切接触,减少姿势误差。

### Typical probes of S/SX series 典型产品

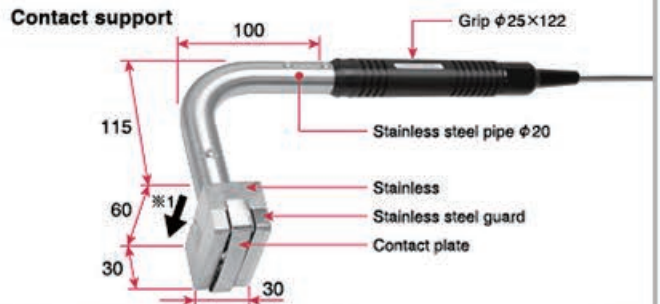
**Type K Model S-581K-01-1-TPC1-ANP**  
**Type E Model S-581E-01-1-TPC1-ANP**



※1 Direction of movement mm

Temp. range	Tolerance	Response time	Durability
-50~600°C	±2.5°C (at 100°C surface)	3 s	※2

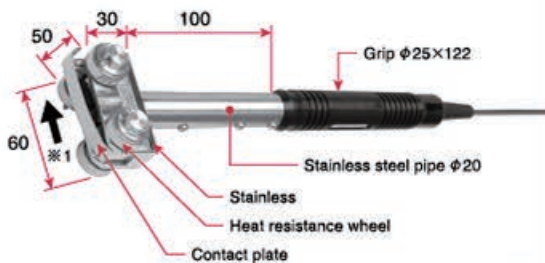
**Type K Model SX-593K-01-1-TPC1-ANP**  
**Type E Model SX-593E-01-1-TPC1-ANP**



※1 Direction of movement (to right side) mm

Temp. range	Tolerance	Response time	Durability
-50~800°C	±2.5°C (at 100°C surface)	3 s	※2

**Type K Model S-671K-01-1-TPC1-ANP**  
**Type E Model S-671E-01-1-TPC1-ANP**



※1 Direction of movement mm

Temp. range	Tolerance	Response time	Durability
-50~400°C	±2.5°C (at 100°C surface)	3 s	※2

**Type K Model SX-595K-01-1-TPC1-ANP**  
**Type E Model SX-595E-01-1-TPC1-ANP**



※1 Direction of movement (to left side) mm

Temp. range	Tolerance	Response time	Durability
-50~800°C	±2.5°C (at 100°C surface)	3 s	※2

※1 The S series and SX series probes for moving surfaces must be brought into contact with the moving direction of the object to be measured. Please use it according to the moving direction stamped on the probe. For 45 degrees and 90 degrees pipe, select the model according to the moving direction of the object to be measured.

※2 Please refer to P31 for detail of durability.

45 degrees

S-\*\*5  
SX-\*\*5

90 degrees

S-\*\*6  
SX-\*\*6



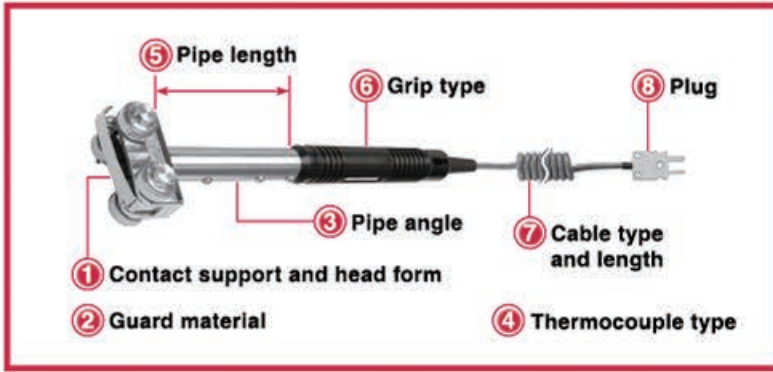
45 degrees

S-\*\*2  
SX-\*\*2

90 degrees

S-\*\*3  
SX-\*\*3

# How to order of S/SX series 选型



No contact support  
Contact support

**S-671K-01-1-TPC1-ANP**  
**SX-671K-01-1-TPC1-ANP**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Contact support and head form 接触辅助与头部形状	No contact support <b>S-5</b> : Guard type <b>S-6</b> : Wheel type Contact support <b>SX-5</b> : Guard type <b>SX-6</b> : Wheel type
② Guard material 头部材质 (MAX. temp.)	<b>7</b> : Wheel type (Max. 400°C) <b>8</b> : Guard type (Max. 600°C) <b>9</b> : Guard type (Max. 800°C)
③ Pipe angle 钢管形状 (Movement direction of the object to be measured)	<b>1</b> : Straight <b>2</b> : 45 degrees (Moving direction : Right) <b>3</b> : 90 degrees (Moving direction : Right) <b>5</b> : 45 degrees (Moving direction : Left) <b>6</b> : 90 degrees (Moving direction : Left)
④ Thermocouple type 热电偶种类	<b>K</b> : Chromel-Alumel <b>E</b> : Chromel-Constantan
⑤ Pipe length 钢管长度	<b>01</b> : 100mm <b>02</b> : 200mm ..... <b>10</b> : 1000mm
⑥ Grip type 握柄	<b>1</b> : Standard grip <b>0</b> : No grip (Only S)
⑦ Cable type and length 导线种类和长度 (See page 9)	<b>TPC1</b> (Coiled code, Length 1m only : 0.3m to 1.5m) <b>TC1</b> (Only no grip type) Standard specifications : 1m The cable length can be specified each 0.5m.
⑧ Plug 插头 (See page 8)	<b>ANP</b> (For AM-9***, HR-1*5*, AP-450, AR-650*) <b>ASP</b> (For HR-1*0*, AP-400) <b>W</b> (Without plug)

## ① Contact support and head form 接触辅助与头部形状

No contact support 无接触辅助

### Guard type

#### S-5\*\*

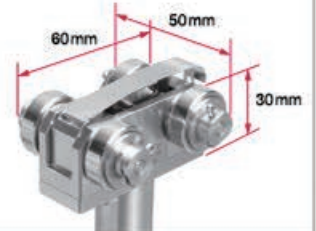
- Suitable for high temp. and high speed
- 2 types of guards available



### Wheel type

#### S-67\*

- Capable of measuring up to 200m/min
- Scratch resistant

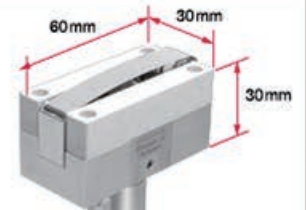


Contact support 接触辅助

### Guard type

#### SX-5\*\*

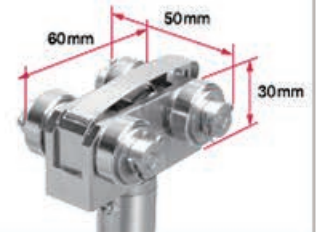
- Suitable for high temp. and high speed
- 2 types of guards available

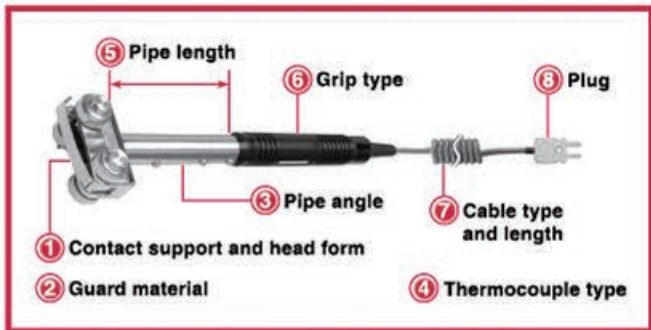


### Wheel type

#### SX-67\*

- Capable of measuring up to 200m/min
- Scratch resistant





No contact support **S-671K-01-1-TPC1-ANP**  
 Contact support **SX-671K-01-1-TPC1-ANP**

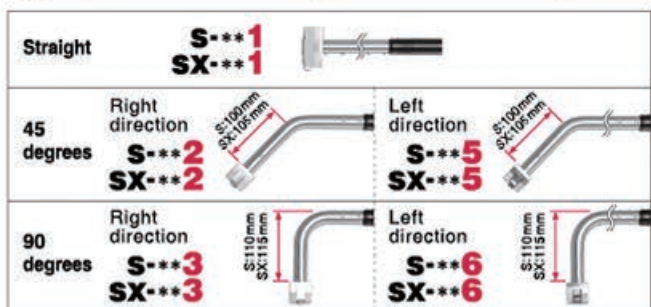
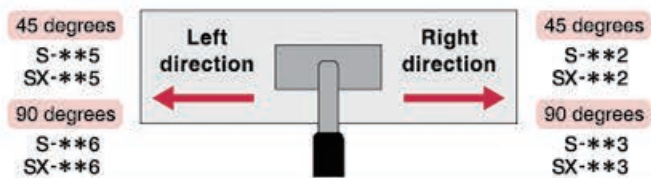
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

② Guard material 头部材质

<b>Wheel type</b> <b>S-67*, SX-67</b> Temp. range : -50~400°C · Capable of measuring up to 200m / min · Scratch resistant	
<b>Guard type (Middle temp.)</b> <b>S-58*, SX-58*</b> Temp. range : -50~600°C · Mica-based heat-resistant guard · MAX. 800m / min	
<b>Guard type (High temp.)</b> <b>S-59*, SX-59*</b> Temp. range : -50~800°C · Stainless steel guard · MAX. 400m / min	

③ Pipe angle 钢管形状

(Movement direction of the object to be measured)



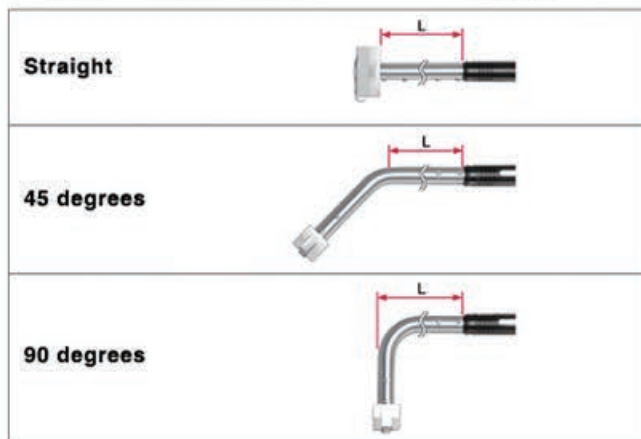
④ Thermocouple type 热电偶种类

※ Select the same type of thermocouple as thermometer.

<b>K</b> Type K	<b>E</b> Type E
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⑤ Pipe length 钢管长度

**00** 30mm    **01** 100mm    **02** 200mm    .....    **10** 1000mm



⑥ Grip type 握柄



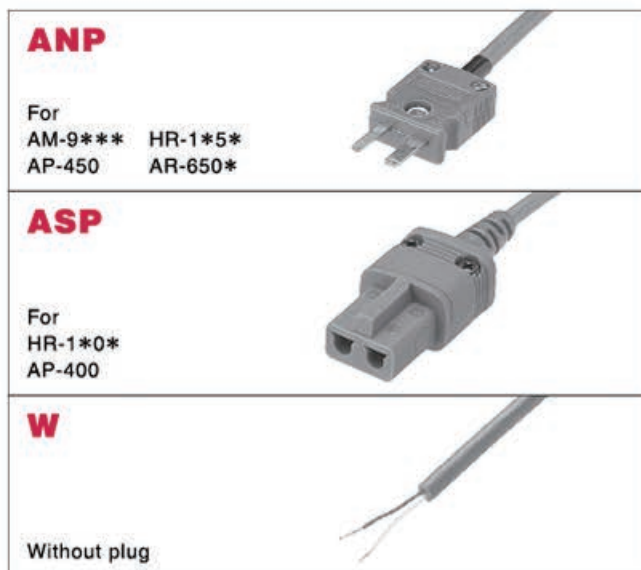
⑦ Cable type and length 导线种类与长度

Standard	Outer diameter	Heat resistant
<b>TPC1</b> <sup>※1</sup>	φ3.8mm	110°C
<b>TC1</b> <sup>※2</sup>	φ4mm	240°C

※1 Coiled code / Extension range : 0.3m to 1.5m / Length 1m only

※2 Standard specifications : 1m  
The cable length can be specified each 0.5m.

⑧ Plug 插头



## Specifications of S/SX series 规格

Model number <sup>※1</sup>		S-58* SX-58*	S-59* SX-59*	S-67* SX-67*
Thermocouple type		Type K or E		
Temp. range <sup>※2</sup>		-50~600°C	-50~800°C	-50~400°C
Tolerance <sup>※3</sup>	0°C	±2.5°C	±2.5°C	±2.5°C
	100°C	±2.5°C	±2.5°C	±2.5°C
	200°C	±2.5°C	±2.5°C	±2.5°C
	300°C	±2.5°C	±2.5°C	±2.5°C
	400°C	±3.0°C	±3.0°C	±3.0°C
	500°C	±3.8°C	±3.8°C	—
	600°C	±9.0°C	±9.0°C	—
	700°C	—	±10.5°C	—
	800°C	—	±16.0°C	—
	Tolerance calculation method t: Temperature (°C)		At within temperature range 1) -50°C ≤ t < -40°C : ±2.5°C 2) -40°C ≤ t ≤ 500°C : ±2.5°C or ±(0.0075× t ) °C, whichever is greater 3) 500°C < t ≤ 700°C : ±(0.015× t ) °C 4) 700°C < t ≤ 800°C : ±(0.02× t ) °C	
Calibration points of test report		100, 300, 500°C	100, 300, 500°C	100, 200, 300°C
Response time <sup>※4</sup>		0.4~0.5s (63.2%) 1.0~1.2s (90%) 3s (99%)		
Durability <sup>※5</sup>		Over 1000 hours at 600°C	Over 1000 hours at 600°C	Over 2000 hours at 300°C
Movable range of head (SX series only)		±4°		
Contact plate material		Inconel tickness 100μm		
Body material		Stainless steel (SUS303)		
Pipe material		Stainless steel (SUS316)		
Grip material		Polyacetal		

※1 The asterisk (\*) is replaced by the number of the model name you selected. The model number after thermocouple type is omitted.

※2 The operating temperature limit is determined by the allowable temperature limit of the sensor head contacts the measurement target.  
 Note that the operating temperature limit is not the same as the allowable temperature limits of the grip, cable, and plug.

※3 Tolerance is available at -50°C or above within the operating temperature on a stationary flat and smooth metal surface.

※4 The response time is the time required to detect 99% of the true value on a flat and smooth metal surface.

※5 Durability is the time that a flat and smooth metal surface moving at 600°C and 200m/min can be measured within tolerance  
 (or at the operating temperature limit if the operating temperature limit is below 600°)