

The function of **type s thermocouple cable** is to extend the S-type platinum rhodium thermocouple hot electrode, that is, the cold end of the mobile thermocouple, and connect with the display instrument to form a temperature measurement system. Refractory compensation wires and compensation cables for thermocouples are widely used in metallurgy, foundry, oil refining, chemical, machinery and other fields.

Selection principle of **type s thermocouple cable**

When selecting the thermocouple compensation wire, you must know the ambient temperature of the thermocouple compensation wire and the on-site industrial and mining conditions, and select the appropriate compensation wire sheath according to the on-site environmental temperature. Generally, choose polyfluoroethylene sheath when the ambient temperature is -25 ~ 105°C. Jacket, when the ambient temperature is -60 ~ 205°C, choose polyperfluoroethylene as the sheath of the compensation wire, and when the ambient temperature is -60 ~ 260°C, choose polytetrafluoroethylene as the sheath of the thermocouple compensation wire. If you need to resist signal interference, you also need to use shielded compensation wires. Common shielding structures are tinned copper wire braided shielding, alloy wire shielding, and so on.

四、规格范围

Specication Range

| 名称 Name | 线芯对数 Pair No. of core | 标称截面mm ² Nominal cross section area | 线芯结构 Core structure | |
|------------------------------|--------------------------|---|------------------------|---------|
| | | | A | R |
| 补偿导线 Compensational wire | 1 | 0.5 | 1/0.80 | 7/0.30 |
| | | 1.0 | 1/1.13 | 7/0.43 |
| 补偿电缆 Compensational cable | 1~19 | 1.5 | 1/1.37 | 7/0.52 |
| | | 2.5 | 1/1.76 | 19/0.41 |

五、主要技术要求

Main Technical Requirement

| 产品型号 Type | 补偿导线及电缆线芯 Compensational wire & cable core | | 补偿导线绝缘层着色 Insulation color of compensational wire | | 配用热电偶分度号 Thermocouple graduation |
|--------------|---|------------------|--|------------------|---|
| | 正极 Positive pole | 负极 Negative pole | 正极 Positive pole | 负极 Negative pole | |
| SC or RC | 铜 Cu | 铜镍0.6 Cu-Ni | 红 Red | 绿 Green | S (铂铑10-铂) 或 R (铂铑13-铂) S (PtRh10-PT) or R (PtRh13-PT) |
| KCA | 铁 Fe | 铜镍22 Cu-Ni | 红 Red | 蓝 Blue | K (镍铬-镍硅) K (NiCr-NiSi) |
| KCB | 铜 Cu | 铜镍40 Cu-Ni | 红 Red | 蓝 Blue | |
| KX | 镍铬10 Ni-Cr 10 | 镍硅3 Ni-Si | 红 Red | 黑 Black | E (镍铬-铜镍) E (NiCr-NiSi) |
| EX | 镍铬10 Ni-Cr 10 | 铜镍45 Cu-Ni | 红 Red | 棕 Brown | |
| JX | 铁 Fe | 铜镍45 Cu-Ni | 红 Red | 紫 Violet | J (铁-铜镍) J (Fe-CuNi) |
| TX | 铜 Cu | 铜镍45 Cu-Ni | 红 Red | 白 White | T (铜-铜镍) T (Cu-CuNi) |
| NC | 铁 Fe | 铜镍18 Cu-Ni | 红 Red | 灰 Grey | N (镍铬硅-镍硅) N (NiCrSi-NiSi) |
| NX | 镍铬14硅 Ni-Cr 14 Si | 镍硅4 Ni-Si | 红 Red | 灰 Grey | |

A stands for precise grade and Error Allowance of Compensational Cable and Wire

| 型号 Type | 使用分类 Category | 导线温度范围℃ Tem range of cable&wire | 热电动势及允差μV Pyro EMF | | | 热电偶测量端 温度℃ Measuring end tem. of thermocouple | 20℃时往复电阻值≤Ω/m Reciprocating resistance at 20℃ | | | |
|------------|------------------|---------------------------------------|--------------------|----------------------|---------------------|---|--|--------------------|--------------------|--------------------|
| | | | 热电势 Pyro EMF | 精密级 Precise grade | 普通级 Common grade | | 0.5mm ² | 1.0mm ² | 1.5mm ² | 2.5mm ² |
| SC&RC | G | 0~100 | 646 | ±30(±2.5℃) | ±60(±5.0℃) | 1000 | 0.10 | 0.05 | 0.03 | 0.02 |
| | H | 0~200 | 1441 | / | ±60(±5.0℃) | | | | | |
| KCA | G | 0~100 | 4096 | ±44(±1.1℃) | ±88(±2.2℃) | 1000 | 1.40 | 0.70 | 0.47 | 0.28 |
| | H | 0~200 | 8138 | | | 900 | | | | |
| KCB | G | 0~100 | 4096 | | | 900 | 1.04 | 0.52 | 0.35 | 0.21 |
| KX | G | -20~100 | 4096 | | | 900 | 2.20 | 1.10 | 0.73 | 0.44 |
| | H | -25~200 | 8138 | | | 900 | | | | |

106

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|----|---|---------|-------|------------|-------------|-----|------|------|------|------|
| EX | G | -20~100 | 6319 | ±81(±1.1℃) | ±138(±1.7℃) | 500 | 2.50 | 1.25 | 0.83 | 0.50 |
| | H | -25~200 | 13421 | | | 500 | | | | |
| JX | G | -20~100 | 6319 | ±62(±1.1℃) | ±123(±2.0℃) | 500 | 1.30 | 0.65 | 0.43 | 0.26 |
| | H | -25~200 | 13421 | | | 500 | | | | |
| TX | G | -20~100 | 6319 | ±30(±0.5℃) | ±60(±1.0℃) | 300 | 1.04 | 0.52 | 0.35 | 0.21 |
| | H | -25~200 | 13421 | | | 300 | | | | |
| NC | G | 0~100 | 6319 | ±48(±0.8℃) | ±90(±1.5℃) | 900 | 1.50 | 0.75 | 0.50 | 0.30 |
| | H | 0~200 | 13421 | | | 900 | | | | |
| NX | G | -20~100 | 6319 | ±43(±1.1℃) | ±86(±2.2℃) | 900 | 2.86 | 1.43 | 0.95 | 0.57 |
| | H | -25~200 | 13421 | | | 900 | | | | |

type s thermocouple cable Specification and Size
1、补偿导线；

Compensational Wire

| 芯数×标称截面mm ² Core No.*nominal cross section area | 导体种类 Conductor | 最大外径 mm Max OD | | | | 计算重量 kg/km Calculated weight | | | |
|--|-------------------|----------------|----------|---------|---------|------------------------------|-----|----|------|
| | | VV | VPV | FF | FP1F | VV | VPV | FF | FP1F |
| 2×0.5 | A | 3.7×6.4 | 4.7×7.4 | 2.6×4.6 | 3.2×5.2 | 30 | 50 | 27 | 45 |
| | R | 3.9×6.6 | 4.9×7.6 | 2.8×4.8 | 3.4×5.4 | 35 | 55 | 30 | 50 |
| 2×1.0 | A | 5.0×7.7 | 6.0×8.7 | 3.0×5.3 | 3.6×5.9 | 56 | 82 | 39 | 64 |
| | R | 5.1×8.0 | 6.1×9.0 | 3.1×5.6 | 3.7×6.2 | 60 | 87 | 45 | 69 |
| 2×1.5 | A | 5.2×8.3 | 6.2×9.3 | 3.2×5.8 | 3.8×6.4 | 68 | 93 | 54 | 77 |
| | R | 5.5×8.7 | 6.5×9.7 | 3.4×6.2 | 4.0×6.8 | 75 | 102 | 60 | 87 |
| 2×2.5 | A | 5.7×9.3 | 6.7×10.3 | 3.6×6.7 | 4.2×7.3 | 94 | 121 | 77 | 103 |
| | R | 5.9×9.8 | 6.9×10.8 | 4.0×7.3 | 4.6×7.9 | 101 | 133 | 84 | 114 |

2、补偿电缆；

Compensational Cable

| 芯数×标称截面mm ² Core No.*nominal cross section area | 导体种类 Conductor | 最大外径 mm Max OD | | | | | | 计算重量 kg/km Calculated weight | | | | | |
|--|-------------------|----------------|------|-----|------|-----|------|------------------------------|-----|-----|------|----|------|
| | | VV | VPV | FV | FP1V | FF | FP1F | VV | VPV | FV | FP1V | FF | FP1F |
| 1×2×0.5 | A | 6.9 | 7.4 | 6.7 | 7.2 | 5.0 | 5.6 | 58 | 70 | 49 | 68 | 36 | 53 |
| | R | 7.3 | 7.7 | 7.0 | 7.4 | 5.2 | 5.8 | 59 | 73 | 52 | 73 | 38 | 56 |
| 1×2×1.0 | A | 8.7 | 9.1 | 7.4 | 7.8 | 5.8 | 6.3 | 87 | 107 | 64 | 86 | 50 | 70 |
| | R | 8.9 | 9.4 | 7.6 | 8.3 | 6.1 | 6.8 | 94 | 113 | 70 | 95 | 54 | 80 |
| 1×2×1.5 | A | 9.1 | 9.8 | 7.9 | 8.4 | 6.4 | 6.9 | 104 | 125 | 78 | 103 | 62 | 89 |
| | R | 9.6 | 10.5 | 8.1 | 8.8 | 6.6 | 7.4 | 109 | 131 | 83 | 110 | 72 | 95 |
| 1×2×2.5 | A | 10.0 | 10.7 | 8.8 | 9.2 | 7.4 | 7.8 | 129 | 153 | 106 | 133 | 92 | 117 |
| | R | 10.7 | 11.3 | 9.2 | 10.1 | 7.8 | 8.7 | 143 | 179 | 113 | 144 | 99 | 126 |

Intrinsically safe compensation wire / cable also have the following indicators

| 项目 Item | 单位 Unit | 指标 Index |
|--|---------|----------|
| 工作电容 Operating capacitance | PF/m | ≤180 |
| 电容不平衡 Unbalance capacitance | P/m | ≤1 |
| 分布电感 Distributed inductance | uH/m | ≤0.6 |
| 静电感应电压 (静电压20kV) Static induction coltage(Static voltage 20kV) | V | ≤1 |
| 电磁干扰感应电压 (干扰电磁400mA/m) Induction voltage of EMI(EMI 400mA/m) | uV | ≤5 |

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|-----------|---|
| SC-G-VV | PVC insulated twisted pair PVC sheathed compensation cable for thermocouple with accuracy grade s |
| SC-G-VPV | PVC insulated twisted pair copper wire braided separately shielded PVC sheath is generally used as compensation cable with accuracy grade s for thermocouple |
| SC-G-VPVP | PVC insulated twisted pair copper wire braided sub shield and general shield PVC sheath is generally used as compensation cable for accuracy grade s thermocouple |
| SC-G-VVP | PVC insulated twisted pair copper wire braided total Shielding PVC sheath |

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| | is generally used as compensation cable with accuracy grade s for thermocouple |
| SC-H-FF | High temperature compensation cable for accuracy grade s division thermocouple with fluoroplastics insulated twisted pair fluoroplastics sheath |
| SC-H-FP1F | Fluoroplastic insulated twisted pair tinned copper wire braided separately shielded fluoroplastic sheathed high temperature compensation cable for accuracy grade s division thermocouple |
| SC-H-FP1FP1 | Fluoroplastic insulated twisted pair tinned copper wire braided sub shielded and total shielded fluoroplastic sheathed high temperature compensation cable for accuracy grade s thermocouple |
| SC-H-FFP1 | Fluoroplastic insulated twisted pair tinned copper wire braided total shielding fluoroplastic sheath accuracy grade s high temperature compensation cable for thermocouple |
| SC-H-FV105 | High temperature compensation cable for fluoroplastic insulated twisted pair heat resistant 105 °C PVC sheathed accuracy grade s thermocouple |
| SC-H-FP1V105 | Fluoroplastic insulated twisted pair tinned copper wire braided heat resistant 105 °C PVC sheathed high temperature compensation cable for accuracy grade s thermocouple |
| SC-H-FP1V105P1 | Fluoroplastic insulated twisted pair tinned copper wire braided split screen total shield heat resistant 105 °C PVC sheathed accuracy grade s high temperature compensation cable for thermocouple |
| SC-H-FV105P1 | Fluoroplastic insulated twisted pair tinned copper wire braided total shield heat resistant 105 °C PVC sheathed accuracy grade s high temperature compensation cable for thermocouple |
| | |
| SC-G-VVR | PVC insulated twisted pair PVC sheath is generally used as compensation cable for s-grade multi strand thermocouple |
| SC-G-VPVR | PVC insulated twisted pair copper wire braided separately shielded PVC sheath is generally used as compensation cable for accuracy grade s Multi |

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| | Strand thermocouple |
| SC-G-VPVPR | PVC insulated twisted pair copper wire braided sub shield and general shield PVC sheath is generally used as compensation cable for accuracy grade s Multi Strand thermocouple |
| SC-G-VVPR | PVC insulated twisted pair copper wire braided total Shielding PVC sheath is generally used as s-grade multi strand thermocouple compensation cable |
| SC-H-FFR | Fluoroplastics insulated twisted pair fluoroplastics sheathed high temperature compensation cable for s-division multi strand thermocouple |
| SC-H-FP1FR | Fluoroplastic insulated twisted pair tinned copper wire braided separately shielded fluoroplastic sheathed high temperature compensation cable for multi strand thermocouple with accuracy grade s |
| SC-H-FP1FP1R | Fluoroplastics insulated twisted pair tinned copper wire braided sub shield and total shield fluoroplastics sheathed accuracy grade s Multi Strand thermocouple high temperature compensation cable |
| SC-H-FFP1R | Fluoroplastic insulated twisted pair tinned copper wire braided total shielding fluoroplastic sheath accuracy grade s Multi Strand thermocouple high temperature compensation cable |
| SC-H-FV105R | High temperature compensation cable for multi strand thermocouple with fluoroplastic insulated twisted pair heat resistant 105 °C PVC sheath accuracy grade s |
| SC-H-FP1V105R | Fluoroplastic insulated twisted pair tinned copper wire braided heat resistant 105 °C PVC sheathed high temperature compensation cable for accuracy grade s Multi Strand thermocouple |
| SC-HS-FP1V105P1R | Fluoroplastic insulated twisted pair tinned copper wire braided split screen total shielding heat resistant 105 °C PVC sheath accuracy grade s Multi Strand thermocouple high temperature compensation cable |
| SC-H-FV105P1R | Fluoroplastic insulated twisted pair tinned copper wire braided total shield heat resistant 105 °C PVC sheathed accuracy grade s Multi Strand thermocouple high temperature compensation cable |

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| Steel strip armor | |
| SC-G-VV22 | PVC insulated twisted pair PVC sheath is usually armored with steel strip of compensation cable for accuracy grade s thermocouple |
| SC-G-VPV22 | PVC insulated twisted pair copper wire braided separately shielded PVC sheath is usually armored with compensation cable steel strip for accuracy grade s thermocouple |
| SC-G-VPVP22 | PVC insulated twisted pair copper wire braided with sub shield and general shield PVC sheath is usually armored with steel strip of compensation cable for thermocouple of accuracy grade s |
| SC-G-VVP22 | PVC insulated twisted pair copper wire braided total Shielding PVC sheath is usually armored with compensation cable steel strip for accuracy grade s thermocouple |
| SC-H-FF22 | Fluoroplastics insulated twisted pair fluoroplastics sheathed accuracy grade s high temperature compensation cable steel strip armoring for thermocouple |
| SC-H-FP1F22 | Fluoroplastic insulated twisted pair tinned copper wire braided shielding fluoroplastic sheath accuracy grade s high temperature compensation cable steel strip armoring for thermocouple |
| SC-H-FP1FP1-22 | Fluoroplastic insulated twisted pair tinned copper wire braided sub shield and total shield fluoroplastic sheath accuracy class s high temperature compensation cable steel strip armor for thermocouple |
| SC-HS-FFP1-22 | Fluoroplastic insulated twisted pair tinned copper wire braided total shielding fluoroplastic sheath accuracy grade s high temperature compensation cable steel strip armoring for thermocouple |
| SC-HS-FV105-22 | Fluoroplastic insulated twisted pair heat resistant 105 °C PVC sheathed accuracy grade s high temperature compensation cable steel strip armor for thermocouple |
| SC-HS-FP1V105-22 | Fluoroplastic insulated twisted pair tinned copper wire braided sub shield heat resistant 105 °C PVC sheath accuracy grade s high temperature |

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|--------------------|--|
| | compensation cable steel strip armor for thermocouple |
| SC-HS-FP1V105P1-22 | Fluoroplastic insulated twisted pair tinned copper wire braided split screen total shield heat resistant 105 °C PVC sheath accuracy grade s high temperature compensation cable steel strip armor for thermocouple |
| SC-H-FV105P1-22 | Fluoroplastic insulated twisted pair tinned copper wire braided total shield heat resistant 105 °C PVC sheath accuracy grade s high temperature compensation cable steel strip armor for thermocouple |
| | |
| Steel wire armour | |
| SC-G-VV32 | PVC insulated twisted pair PVC sheathed compensation cable for thermocouple with accuracy grade s |
| SC-GS-VPV32 | PVC insulated twisted pair copper wire braided separately shielded PVC sheath is generally used as compensation cable with accuracy grade s for thermocouple |
| SC-G-VPVP32 | PVC insulated twisted pair copper wire braided sub shield and general shield PVC sheath is generally used as compensation cable for accuracy grade s thermocouple |
| SC-G-VVP32 | PVC insulated twisted pair copper wire braided total Shielding PVC sheath is generally used as compensation cable with accuracy grade s for thermocouple |
| SC-H-FF32 | High temperature compensation cable for accuracy grade s division thermocouple with fluoroplastics insulated twisted pair fluoroplastics sheath |
| SC-H-FP1F32 | Fluoroplastic insulated twisted pair tinned copper wire braided separately shielded fluoroplastic sheathed high temperature compensation cable for accuracy grade s division thermocouple |
| SC-H-FP1FP1-32 | Fluoroplastic insulated twisted pair tinned copper wire braided sub shielded and total shielded fluoroplastic sheathed high temperature compensation cable for accuracy grade s thermocouple |
| SC-H-FFP1-32 | Fluoroplastic insulated twisted pair tinned copper wire braided total |

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|-------------------|--|
| | shielding fluoroplastic sheath accuracy grade s high temperature compensation cable for thermocouple |
| SC-H-FV105-32 | High temperature compensation cable for fluoroplastic insulated twisted pair heat resistant 105 °C PVC sheathed accuracy grade s thermocouple |
| SC-H-FP1V105-32 | Fluoroplastic insulated twisted pair tinned copper wire braided heat resistant 105 °C PVC sheathed high temperature compensation cable for accuracy grade s thermocouple |
| SC-H-FP1V105P1-32 | Fluoroplastic insulated twisted pair tinned copper wire braided split screen total shield heat resistant 105 °C PVC sheathed accuracy grade s high temperature compensation cable for thermocouple |
| SC-H-FV105P1-32 | Fluoroplastic insulated twisted pair tinned copper wire braided total shield heat resistant 105 °C PVC sheathed accuracy grade s high temperature compensation cable for thermocouple |