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The Company promises to constantly improve product quality and therefore reserves the right to modify the contents of the Manual without notice.

使用说明书 Operation Instruction



BIMETAL THERMOMETER

双金属温度计



隔爆/远传

Anti-explosion/ Far transmission

温度测量

Temperature measurement

- 石油
- 化工
- 冶金
- 电力
- 食品
- 药业
- 建材
-

- Petroleum
- Chemical
- Metallurgy
- Electricity
- Food
- Pharmaceutical
- Building materials
-



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双金属温度计使用说明书 Operation Instruction for Bimetal Thermometer



关于本公司

About The Company

安徽天康（集团）股份有限公司是一家国内知名的仪器仪表设计与制造公司，产品用于流程工业、过程控制，实现温度测量，压力测量、流量测量、物位测量及控制系统集成。

作为工业现场参数测量仪表的主要生产商之一，我们为国内外的客户提供应用方面的专业知识、服务及支持。

公司产品的质量、精度及性能来自于四十年的经验，以及对于最新技术的创新设计与持久开发。

Anhui Tiankang (Group) Co., Ltd is a company famous for the manufacturing and design of instruments and meters at home, its products are applied to process industry, process control, achievement of temperature measurement, stress measurement, flow measurement, level measurement and control system integration.

As one of the main producers of industrial field parameter measuring instruments, we provide professional knowledge, service and support in the application for domestic and overseas clients.

The quality, accuracy and performance of the Company's products come from forty years of experience, as well as innovative design and sustainable development of the latest technology.

健康与安全

Health And Safety

为了确保我们的产品安全，不影响健康，务必注意以下各点：

1、使用前必须仔细阅读说明书的有关章节。

2、必须遵守容器或包装上的警示标签。

3、必须由经过培训的人员按照所列信息进行安装、操作、维护及保养。一切由于违反本说明书而造成的后果均由用户承担。

4、务必遵守一般的注意事项，以避免在高压或高温下运行时发生事故。

In order to ensure our product safety and do not affect the health, make sure to pay attention to the following points:

1. Make sure to read relevant chapters of the Instructions carefully before use.

2. Make sure to follow caution Label on the container or packaging.

3. Make sure that installation, operation, maintenance and preservation are performed by trained staff according to information listed. All consequences caused by violation of the Instructions shall be assumed by users.

4. Make sure to follow general notes to avoid accident in operation under high pressure and temperature.

有关本手册所述设备使用的安全事项或任何相关的危害数据表（适用时）可以从公司取得，地址如封底所示，同时提供保养及备件信息。

Safety precautions relevant to equipment use described in the Manual and any relevant hazard data table (where applicable) can be obtained from the Company. Address is shown as the back cover and information on maintenance and spare parts is provided at the same time.

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引言 Instruction

天仪®系列双金属温度计是由安徽天康（集团）股份有限公司推出，采用现场安装方式，是一种适合测量中、低温的现场检测工业仪表，可用来直接测量气体、液体和蒸汽的温度；带电接点双金属温度计，能在公众温度超过给定值时，自动发出控制信号切断电源或报警。安徽天康（集团）股份有限公司40年的产品研发、改进和应用经验，凭借着原有的基础，不断的引进先进技术和设备使双金属温度计产品性能更可靠、性价比更高。

Tianyi® series bimetal thermometer is released by Anhui Tiankang (Group) Co., Ltd, adopting the way of field installation. This is a meter suitable for measuring field testing industrial instrument with low and middle temperature; it can be used to measure the temperature of gas, liquid and steam. Electrified bimetal thermometer with junction will send out the control signal automatically to cut off the power or alarm when the public temperature is over set value. Forty years of R&D on product, improvement and application experience, Anhui Tiankang (Group) Co., Ltd depended on original basis continuously introduces the advanced technologies and devices to make the bimetal thermometer more reliable in performance and higher in cost performance.

双金属温度计分为：普通型、户外型、防腐型和抽芯式、耐震型。其产品的特点如下：

- 1、普通型外壳用铁皮电镀，保护管连接柱用不锈钢，使用与室内一般场合使用；
- 2、户外型外壳用铝合金喷塑制造，密封性较好，适用于室内外，一般耐腐蚀场所；
- 3、防腐型外壳用铝合金喷三防漆或防腐涂料，保护管、连接柱采用铝二钛材料，连接部位均采用密封胶，可使用于多数腐蚀介质，气体的温度测量；
- 4、抽芯式温度计可抽芯拆卸，放开圆螺母将上部表体及感温元件从保护管内抽出，不需停机，在五分钟内即可更换新表芯；
- 5、耐震型外壳采用不锈钢，保护管连接柱采用304不锈钢，表壳内充硅油，适用于振动设备内介质测量。

工业过程温度测量领域，安徽天康(集团)股份有限公司用心为您的工厂服务，在天仪®系列仪表的帮助下，您可以非常自信地为您的需要作出最佳选择。

Bimetal thermometer is divided into: ordinary type, outdoor type, anti-corrosion type and core pulling type and vibration-proof type. The characteristics of its products are as follows:

1. For ordinary type, the case adopts iron sheet electroplate and joint pin of protective pipe adopts stainless steel, used in general indoor places;
2. For outdoor type, the case is made from aluminum alloy coating, with good leakage, suitable for indoor and outdoor general anti-corrosion places;
3. Anti-corrosion case adopts aluminum conformal coating or anticorrosive paint; protective pipe and joint pin adopt mo-ti steel materials; joint parts adopt sealant, which can be used to measure the temperature of most corrosive medium and gas;
4. For core pulling type, core can be pulled out and disassembled; unfasten circular nut and pull upper body and temperature-sensing element out from the protective pipe; it can be replaced with new core within 5 minutes without shutdown.
5. Vibration-proof case adopts stainless steel and joint pin of protective pipe adopts stainless steel 304; the case is filled with silicone oil and suitable for measurement of medium in vibratory equipment.

In the field of industrial process temperature measurement, Anhui Tiankang (Group) Co., Ltd diligently provides service for your factory and you can make the best choice for your needs confidently with the help of Tianyi® series instrument.

双金属温度计使用说明书 Operation Instruction for Bimetal Thermometer

运输

Transportation

包装成箱的双金属温度计，在避免雨（雪）淋的条件下需遵守JB/T9329-1999《仪器仪表运输贮存基本环境条件》GB/T15464-1995《仪器仪表包装通用技术条件》运输标准。

Bimetal thermometer packed with box needs to follow transportation standard of JB/T9329-1999 Basic Environmental Conditions for Instruments Transportation and Storage and GB/T15464-1995 General-purpose Specification for the Packaging of Instrumentation Products under the condition of keeping away from rain (snow).

搬运

Handling

搬动仪表时无需任何特殊保护措施，但需遵守轻搬轻放等注意事项。

When handling instrument, no any special protective measure is needed, but follow notes of light moving and light placing.

储藏

Storage

双金属温度计应储存于干燥通风的室内，室内空气应洁净并对仪表无腐蚀作用。

双金属温度计如不立即安装，请不要打开包装，而且仪表应在储存期间受到保护，不要受到外界原因引起损害。

卸下的双金属温度计应与湿气和灰尘隔离，推荐使用原有的包装材料。

Bimetal thermometer shall be stored in dry and ventilated room and indoor air shall be clean, without corrosive action on the instrument.

If the bimetal thermometer is not installed immediately, do not open the package, and the instrument shall be protected during storage, not damaged by external reasons.

The disassembled bimetal thermometer should be separated from moisture and dust and it is recommended to use the original packaging material.

双金属温度计使用说明书 Operation Instruction for Bimetal Thermometer



工作原理

Working principle

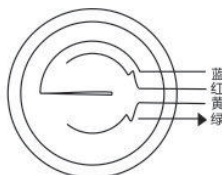
双金属感温元件采用多圈直螺旋形双金属片。一端固定，另一端（自由端）连接在芯轴上，轴向型温度计指针直接装在芯轴上。径向型结构指示针通过转角弹簧与芯轴连接。当温度变化时，感温元件自由端旋转，经芯轴传动指针在刻度盘上指示出被测介质温度的变化值。

The bimetal temperature-sensing element adopts multi-circle straight spiral bimetal strip. One end is fixed and the other end (free end) is connected to the core shaft, and the pointer of the axial-type thermometer is directly installed on the core shaft. The pointer with radial structure is connected with the core shaft through corner spring. When the temperature changes, the free end of temperature-sensing element rotates, and the change value of the measured medium temperature is indicated on the dial by pointer rotation through core shaft.

电接点温度计，指针上装有动接点，固定接点装在设定指针上，指外触头随温度变化旋转，当温度达到或超过设定值时，接点闭合发出信号，以达到自动控制和报警的目的。温度计的接点为上、下限、单限，双上限（全部常开）。

For electric contact thermometer, the pointer is provided with a movable contact and the fixed contact is installed on the set pointer, referring to rotation of outer contact with the change of temperature; when the temperature reaches or exceeds the set value, the contact closes and sends out a signal in order to achieve the purpose of automatic control and alarm. Contact of thermometer is upper and lower limit, single limit and double upper limit (all normally open).

电接点接线图
Connection Diagram of Electric Contract



电气参数：

额定功率：10VA（无感负载）

最高工作电压：220V

最大工作电流：1A

Electric parameter:

Rated power: 10VA (non-inductive load)

Maximum working voltage: 220V

Maximum working current: 1A

双金属温度计使用说明书 Operation Instruction for Bimetal Thermometer



双金属温度计性能概述

Performance overview of bimetal thermometer

类 型 Type	WSS-□ 0□	WSS-□ 1□
图 例 Figure		
测量范围 Measurement range	-80~500℃	-80~500℃
过程连接类型 Type of process connection	无固定装置、可动内/外螺纹等 No fixture, movable internal/external thread, etc.	无固定装置、可动内/外螺纹等 No fixture, movable internal/external thread, etc.
过程连接材质 Material of process connection	304、316、316L、H.C	304、316、316L、H.C
精确度等级 Accuracy class	1.0、1.5	1.0、1.5
表壳公称直径 (mm) Nominal diameter of case (mm)	60、100、150	60、100、150
表壳材质 Case material	碳钢镀铬 Chrome plated carbon steel	碳钢镀铬 Chrome plated carbon steel
附加功能选项 Option of additional function	热安装套管等 Thermowell, etc.	热安装套管等 Thermowell, etc.

双金属温度计使用说明书

Operation Instruction for Bimetal Thermometer



特殊设计和应用
Special design and application

如您需要的产品型号未包含在本产品数据表中, 请向安徽天康(集团)股份有限公司产品工程师进行咨询
If product model you need is not included in the product data table, consult the Product Engineer of Anhui Tiankang (Group) Co., Ltd

WSS-□ 2□	WSS-□ 8□	WSSX-□ □ □
		
-80~500℃	-80~500℃	-80~500℃
无固定装置、可动内/外螺纹等 No fixture, movable internal/external thread, etc.	无固定装置、可动内/外螺纹等 No fixture, movable internal/external thread, etc.	无固定装置、可动内/外螺纹等 No fixture, movable internal/external thread, etc.
304、316、316L、H.C	304、316、316L、H.C	304、316、316L、H.C
1.0、1.5	1.0、1.5	1.0、1.5
60、100、150 碳钢镀铬 Chrome plated carbon steel	60、100、150 304	60、100、150 压铸铝合金喷塑 Casting aluminum alloy coating
热安装套管等 Thermowell, etc.	热安装套管等 Thermowell, etc.	热安装套管等 Thermowell, etc.

注: JB/T8803-1998《双金属温度计》的标准, 适用于其它引用此标准的双金属温度计类型。

Note:

JB/T8803-1998 Bimetal thermometer standard is suitable for other bimetal thermometer type with reference to this standard.

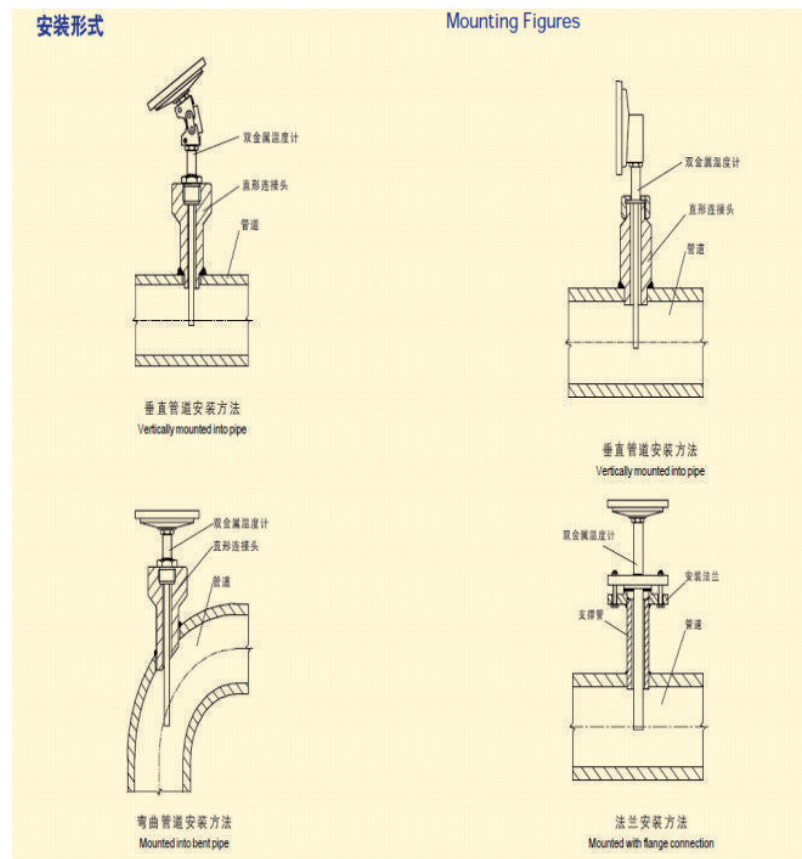
双金属温度计使用说明书

Operation Instruction for Bimetal Thermometer



双金属温度计的安装

Mounting of bimetal thermometer



双金属温度计使用说明书

Operation Instruction for Bimetal Thermometer



使用及维护

Use and maintenance

1. 双金属温度计保护管浸入被测介质中的长度必须大于感温元件的长度，一般浸入长度大于50mm、0~50℃量程的浸入长度大于100mm，以保证测量的准确性。
2. 双金属温度计在保管、使用、安装以及运输中，应避免碰撞保护管，切勿使保护管弯曲变形及将表壳当扳手使用。
3. 各类双金属温度计不宜用于测量敞开容器内介质温度，带电接点温度计，不宜在工作振动较大的场合的控制回路中使用。
4. 温度计在正常使用情况下，应定期检验。一般以每隔6个月检验一次为宜。
5. 电接点温度计不允许在强烈震动下工作，以免影响接点可靠性。

Use and maintenance

1. The length of protective pipe of bimetal thermometer immersed in the measured medium must be greater than that of temperature-sensing element; general immersed length is greater than 50mm and immersed length of 0~50℃ measurement range is greater than 100mm to ensure the measurement accuracy.
2. Bimetal thermometer shall avoid collision with protective pipe in the custody, use, installation and transportation; do not bend and deform the protective pipe and do not use the case as wrench.
3. Various types of bimetal thermometer is not suitable to be used to measure the temperature of medium in the open container and thermometer with electric contact is not suitable to be used in the control loop with larger working vibration.
4. Under normal service condition, thermometer shall be inspected regularly. In general, every 6 months are suitable for once inspection.
5. Electric contact thermometer is not allowed to work under strong vibration, so as not to affect the reliability of the contact.

双金属温度计使用说明书

Operation Instruction for Bimetal Thermometer

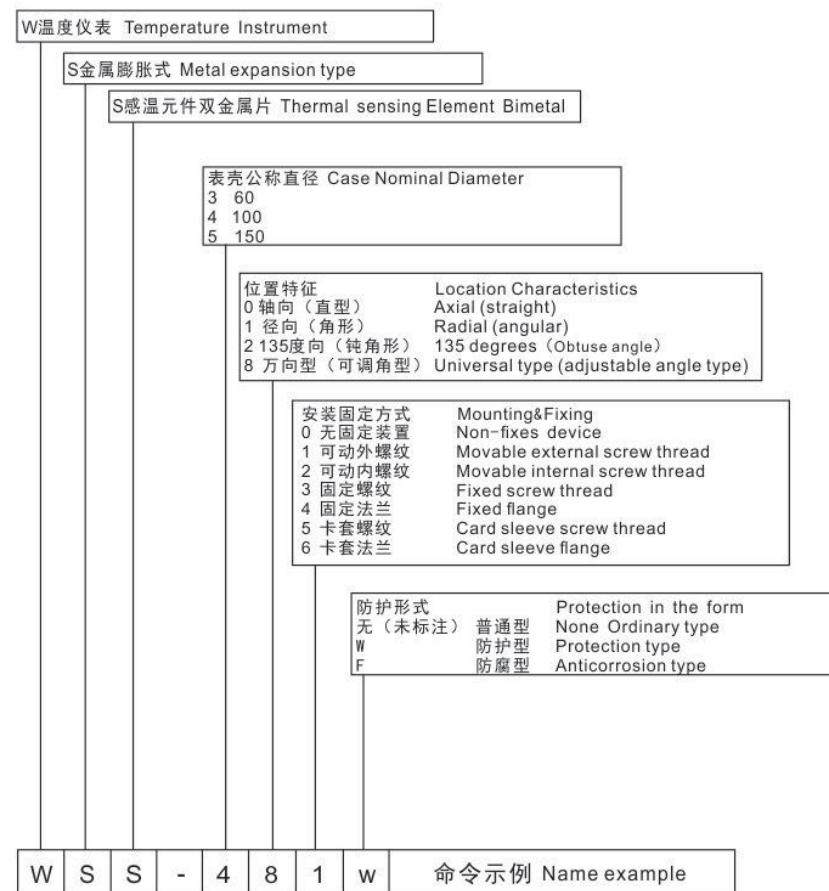


产品选型

Product selection

双金属温度计选型

Selection of bimetal thermometer



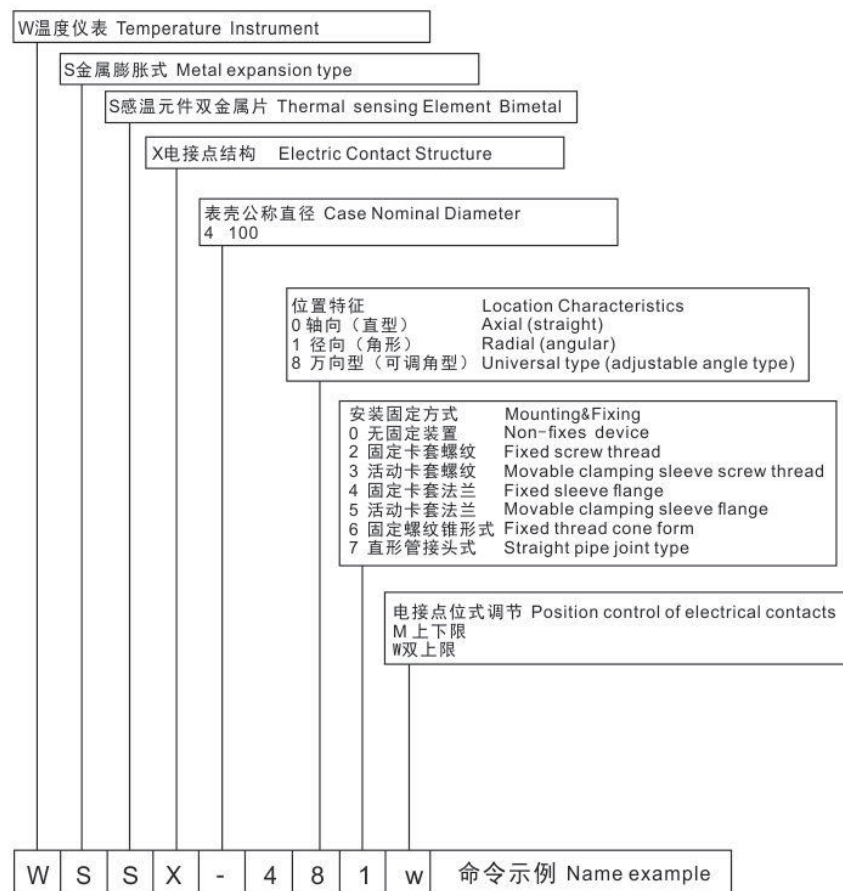
双金属温度计使用说明书

Operation Instruction for Bimetal Thermometer



电接点双金属选型

Selection of electric contact bimetal



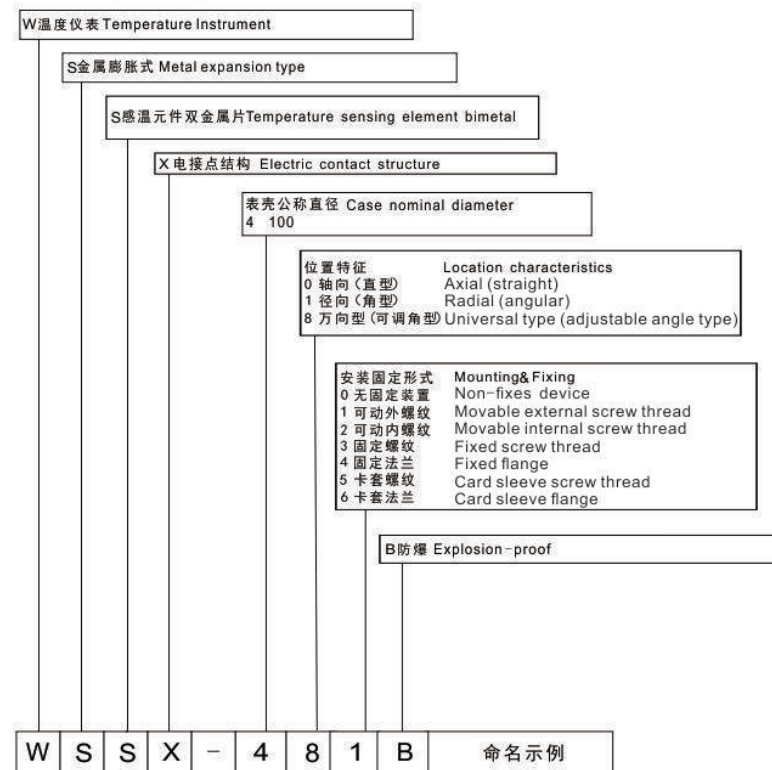
双金属温度计使用说明书

Operation Instruction for Bimetal Thermometer



防爆电接点双金属温度计选型

Selection of explosion-proof electric contact bimetal thermometer



订货须知

Ordering instruction

- 订货时须写明产品的型号、测量范围、安装方式、保护管长度、直径、精度级别等技术参数
 - 用户有特殊要求时，须注明。
- Product model, measurement range, installation, length of the protective pipe, diameter, accuracy level and other technical parameters must be indicated when ordering.
 - Special requirements of users shall be indicated.