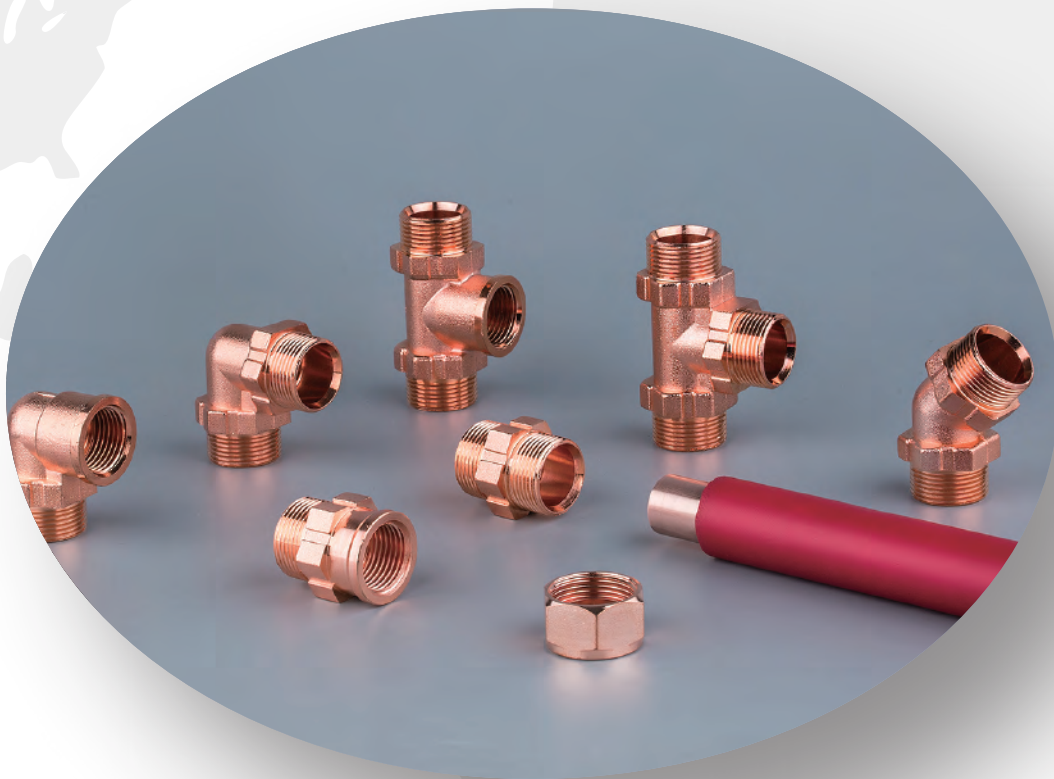


TIANQING 天庆®
PIPES & FITTINGS Professional Manufacturer



浙江天庆管业有限公司
Zhejiang Tianqing Pipeline Industry Co., Ltd.



专 注 铸 就 完 美
Concentration Makes Perfection

18世纪

镀锌钢管 Galvanized steel tube

镀锌钢管是最早投入使用的管道之一，由于其成本低廉而深受大家的欢迎，但是由于其容易生锈和堵塞管道并造成对生活饮用水的二次重度污染，严重危害人民的身体健康，因此禁止其使用是自然的事。

Galvanized steel tube is one of the earliest implied tubes. It is of low cost and popular in the market. However, it is easy to rust and plug up the pipes, which leads to secondary serious pollution to the water and it is harmful. It is finally forbidden.

20世纪70年代

铝塑复合管 Aluminum plastic composite tube

具有镀锌钢管和PVC-U管所没有的良好卫生性能、相对较高的耐压性能和较好的耐温性能。但由于铝塑复合管采用卡压式金属接头连接，不仅提高了成本（即较高的市场价格），而且连接可靠性也大大降低。同时其产品品种规格单一，应用范围也相当有限。

Aluminum plastic composite tube has excellent hygienic property, pressure resistance and temperature toleration. But it can only be connected by pressure with metal connectors, which highly increased the cost and reduced the reliability. Moreover, its small range of catalogue results in the limited application.

20世纪80年代

PVC-U 管 PVC-U tube

是最早用于代替镀锌钢管的管道之一，其具有阻燃性好，价格低廉等优势。但由于采用胶粘剂粘接，因此连接可靠性差，耐压较低，并且也不适用于输送40℃以上热水。最难以保证的是卫生安全性，这是由于胶粘剂和PVC-U均含有氯成分，虽然已经改性，但在外界条件不断变化过程中也会缓慢释放出氯成分，从而影响水质。

PVC-U tube is earliest one who substitutes galvanized steel tube. It is highly flame retardant and of low cost. The weakness is that tackifier in the joint is unstable and it is not suitable for transporting hot water over 40℃. Moreover, the tackifier has the element of chlorine and is easy to cause pollution to the water under specific conditions.

20世纪90年代

PP-R 管 PP-R tube

引进国外技术及原料而生产的新一代绿色管道产品。其无毒无味、耐热耐压、耐腐蚀、流阻小，并且可以本体材料热熔连接，大大提高了连接可靠性。但是PP-R管也存在着低温脆性、压力和温度变化加速老化以及膨胀系数过大的缺点。

New generation of green tube with imported technology and material. It is nontoxic, odorless, of high heat and pressure resistance, corrosion-resistant and low-flow-resistance. It can be connected by melt PP-R material which increase the reliability. But PP-R pipe has the disadvantages of low-temperature brittleness, accelerated aging under changing pressure and temperature and large coefficient of expansion.

铜管道 Copper Tube

铜管的稳定性和可靠性是钢管和塑料管无法企及的，同时铜管具有很好的抗菌性、抗腐蚀性和耐高温耐高压性。所以铜管在发达国家的应用极为广泛。但是，铜管的连接方式一直以来是制约其广泛推广的瓶颈。目前市场上的铜管基本是采用卡压和焊接的连接方式，但这两种连接方式都存在局限性。卡压连接方式涉及到的密封圈容易老化，影响了管道的使用寿命，后期的维护费用高。而焊接方式严重降低了铜管和接头的疲劳强度，埋地和嵌墙安装在使用过程中容易漏水，并且焊接成本高，对环境要求严苛。

基于上述原因，我们公司首创推出拥有专利技术的新型连接方式管件
— 一球面环卡自锁管件。

Copper tube is far more stable and reliable than steel and plastic tube. It also has excellent performance in bacterinertness, corrosion resistance, high thermal resistance and barotolerance. Therefore, copper tube is widely applied in developed countries. But it also has disadvantages. The connection of copper tube has been the bottleneck of restricting its wide popularization. Press fitting and welding are two typical ways so far in the market, but both are not ideal. Because obturating ring in press fitting oxidizes easily, affecting the useful time of the entire water-supply system and leading to a high maintainance cost in the future. As to welding, it seriously declines the endurance strength of copper tubes and fittings. And underground or wall-mounted installation usually results in water leakage during using. Furthermore, welding has high requirements for environment and the cost will be not reasonable.

According to above backgrounds, our company originates a brand new connection solution with patent
— Ferrule Fitting With Spherical Seal.

球面环卡管件简介

Introduction Of Ferrule Fitting With Spherical Seal

材质：黄铜

表面处理：镀紫铜

执行标准：Q/ZJTQ 1-2016

球面环卡管件属于我司新推出的专利产品，属国内首创，主要适用于家装给水领域。它具有以下几个优势：

1. 它是采用金属弹性变形内的硬密封结构，没有额外的非金属材料作为密封件，使用寿命和耐热耐压性能大幅提高。同时它也可以适用于介质为气、油等场合。
2. 它最大的优点是安装非常方便，安装工具极其简单，只需要扳手就可以进行快速安装。同时无需加热，对铜管及接头的可靠性不会带来任何影响，经济指标优势非常明显。
3. 接头的连接结构同时具有自锁能力，不会因为管道振动而产生松动的现象。嵌墙安装没有后顾之忧。
4. 安装后的接头可以拆卸重复使用，不会影响连接处的密封性能。
5. 铜管和接头外面全部加覆保温层，节约能耗，同时也增加舒适度体验，因为保温作用而使管道内的热水不会轻易冷却，停止一段时间后重新开启水温保持比较理想。

Material: Brass

Surface Treatment: Chromeplate

Operative Standard: Q/ZJTQ 1-2016

Ferrule fitting with spherical seal is the new patent product that is originated by Tianqing. It is mainly applied in family water supply system and has several following advantages:

1. It takes advantage of hard seal framework within the range of metal elastic deformation and no other nonmetal material is used as sealing element, which create a much longer useful time and high level of heat resistance and pressure resistance. In the meanwhile, it also works for transporting gas, oil and so on.
2. Convenient installation is the biggest strongpoint of the ferrule fitting with spherical seal and only a spanner is needed during the installation. Unlike the traditional joint connection, it does not need heat so that it will not affect reliability of the fitting. This is very economic.
3. The framework has the function of self lock preventing any loose from vibration. And the wall installation avoids the fear of trouble in the rear.
4. Used fitting is removable and reusable and will not affect the sealability of joint.
5. All copper tube and fitting will be covered by insulating course during the installation in order to conserve energy. The insulating course helps hot water in the tube cool much slower which maximize experience comfort.

球面环卡管件尺寸

Size Of Ferrule Fitting With Spherical Seal

表4 球面环卡管件尺寸对照表

Table 4 Reference Table of Size for Ferrule Fitting With Spherical Seal

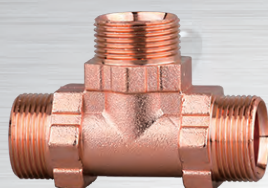
单位(Unit):mm

公称通径 Diameter Nominal DN	管件外径 Outside Diameter DW	外螺纹尺寸 External Thread R	内螺纹尺寸 Internal Thread RP
15	18	1/2"	1/2"
20	22	3/4"	3/4"
25	28	1"	1"
32	35	1 1/4"	1 1/4"

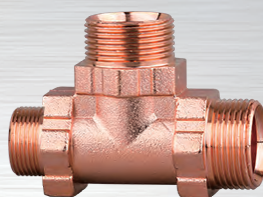
球面环卡管件型号规格

Ferrule Fitting With Spherical Seal Spec

ET 等径三通 Equal Tee	15 20 25 32	ET90 90° 承口内螺纹弯头 Male 90° Elbow with Internal Thread	15 20 25 32
RT 异径三通 Reducer Tee	15 20 25 32	S 套管接头 End Connector	15 20 25 32
TT 承口内螺三通 Male Tee with Internal Thread	15 20 25 32	SFT 承口内螺接头 Male End Connector with Internal Thread	15 20 25 32
E45 45° 弯头 45° Elbow	15 20 25 32	SMT 承口外螺接头 Male End Connector with External Thread	15 20 25 32
E90 90° 弯头 90° Elbow	15 20 25 32	R 异径接头 Reducing End Connector	15 20 25 32



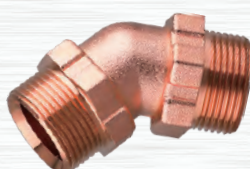
ET Equal Tee



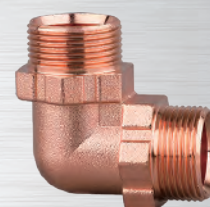
RT Reducer Tee



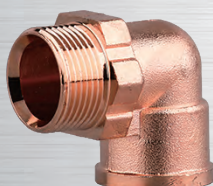
TT Male Tee with Internal Thread



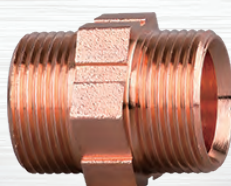
E45 45° Elbow



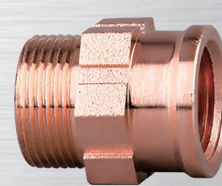
E90 90° Elbow



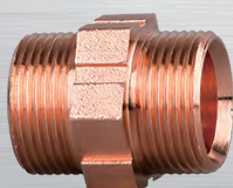
ET90 Male 90° Elbow with Internal Thread



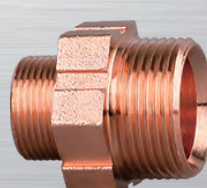
S End Connector



SFT Male End Connector with Internal Thread



SMT Male End Connector with External Thread



R Reducing End Connector

球面环卡管件的安装方式非常简单，若懂的管道布局，一般客户自己就可以安装。它的安装步骤如下：

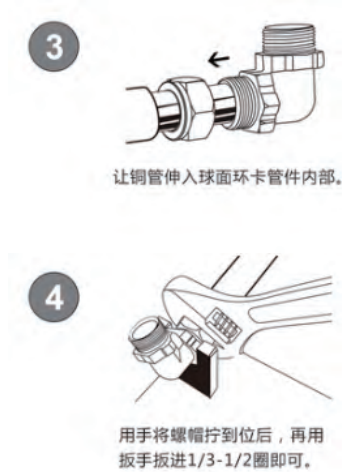
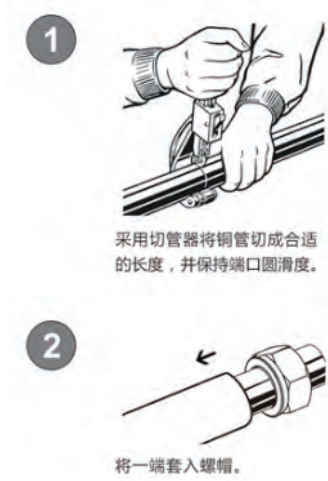
1. 采用切管器将铜管切成合适的长度，并保持端口圆滑度
2. 将一端套入螺帽
3. 让铜管伸入球面环卡管件内部
4. 用手将螺帽拧到位后，再用扳手扳进1/3-1/2圈即可

Installation of Ferrule Fitting With Spherical Seal is extraordinary convinient. Usually if knowing pipe layout, normal customer can do it themselves. Its installation steps are like followings:

1. Cut the copper pipe into needed length with the casting knife and keep each end of the pipe circular
2. Put the copper pipe into the screw nut
3. Get the pipe inside the Ferrule Fitting With Spherial Seal
4. Screw the nut in place and spin the spanner for 1/3 to 1/2 circle

> 以90度弯头为例 <

Take 90 degreee elbow as an example



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