



浙江 天庆管业 有限公司

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专注铸就完美

Concentration makes Perfection

企业简介 Company Profile

浙江天庆管业有限公司是专业的金属管道制造商，目前主要生产铜管件和不锈钢管件。公司专业生产6到325毫米铜管件和12.7到152.4毫米不锈钢管件。

公司目前拥有一流的弯管设备和挤压设备，弯管设备主要从澳洲进口，由日本YAMASUI和澳洲PONGRASS公司制造。最大弯曲直径达到13英寸（325毫米）。公司还拥有不锈钢内外表面自动抛光设备，抛光质量稳定，可靠，且成本大幅降低，开创了国内机器自动抛光的先河，为拓展国内外市场奠定了良好的基础。

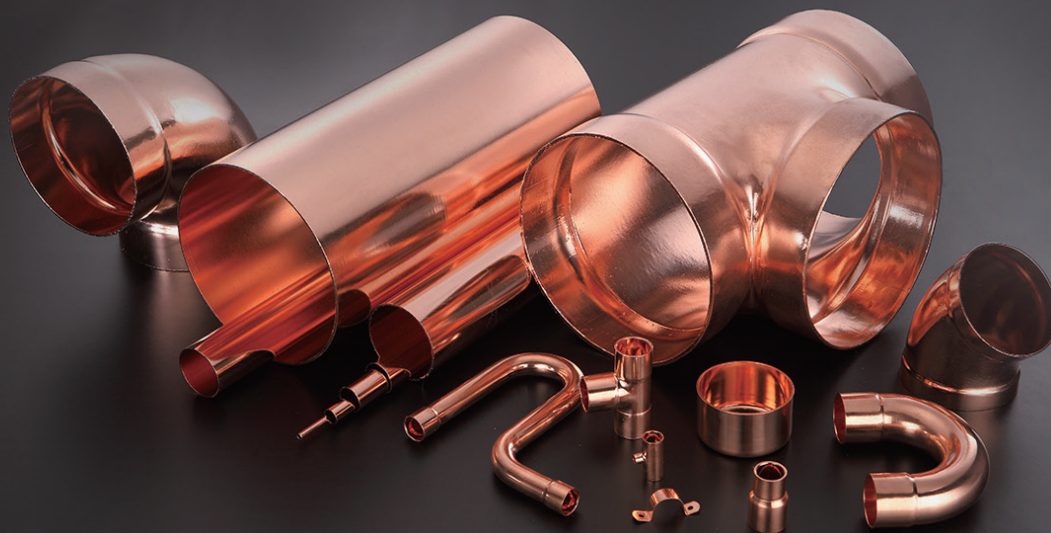
公司目前拥有员工近50人，各种加工设备100多台，年生产能力铜管件500吨，不锈钢管件300吨。公司产品主要应用于给水管道，空调，制冷，食品，医药等行业。产品主要出口到美国，加拿大，澳大利亚，中东，东南亚等国家，以及国内市场。公司坐落于中国浙江绍兴市上虞区，到上海港和宁波港路程基本一样，交通发达，希望国内外客户莅临天庆参观和指导。我们将竭诚为客户提供质量上乘，价格合理的产品。

Zhejiang Tianqing Pipeline Industry Co., Ltd. majors in producing and selling copper and stainless steel pipe fittings.

We have over twenty-year experience of pipe fitting manufacturing qualification. We have the capability to process 6 to 325-millimeter copper pipe fittings and 12.7 to 152.4-millimeter stainless steel ones.

Tianqing owns a set of big-league elbow and extruding equipment. Elbow equipment is mainly imported from Australia, which is manufactured by YAMASUI of Japan and PONGRASS of Australia. The minimum extruding diameter reaches 13 inches (325 millimeters). Tianqing also has internal and external auto polishing equipment for stainless steel fittings, which has stable-quality, low-cost and reliable outcomes that create a great basis for developing international market.

Tianqing keeps exploring and innovating and all products are produced strictly in accordance with the standard of ISO9001:2000. These products are mostly exported to America, Canada, Australia, mid-east, and east south Asia, which are applied in plumbing, air condition refrigeration, food, medicine etc. Tianqing welcomes all clients to come for a visit.



紫铜理化参数

Physical and Chemical Parameters of Copper

铜管密度 Density of Copper:	8.95-8.97	g/m ³
铜管熔点 Melting point of Copper:	1083	°C
铜管热导率 Heat conductance of Copper:	407	W/(m · K)
铜管比热容 Specific heat of Copper:	418	J/(m · K)

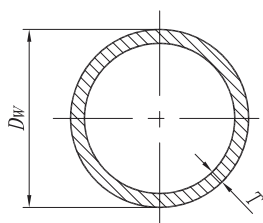
铜具有较高的耐压能力和较好的延展成型性能，使其成为空调制冷和建筑给水行业的首选材料。在给水行业超过一百年的应用历史，是其它材料难以企及的。

非常成熟的焊接工艺和可靠的焊接助剂，对于焊接质量可以有充分的信心保证，安装连接处非常可靠耐用。

Copper is of high pressure resistance and ductibility, which make it the first choice for air conditioning industry and water supply system for buildings. It has a one-hundred application history that is difficult to match by other material.

Mature welding technic and reliable welding assistant guarantee the quality of welding, making the connection extremely reliable and durable.

更多小知识请见产品尺寸页
Find more in following pages



紫铜管的规格尺寸图
Spec and Size of Copper Tube

表1 紫铜管外形尺寸参数及允许偏差

Table 1 Spec and Size of Copper Tube and Allowed Tolerance

单位(Unit):mm

公称通径 Diameter Nominal DN	铜管外径 Outside Diameter DW	壁厚 Wall Thickness T			理论重量 Theoretical Weight kg/m			外径允许偏差 Tolerance of DW		
		A 类 Class A	B 类 Class B	C 类 Class C	A 类 Class A	B 类 Class B	C 类 Class C	适用于平均外径 Applied to Any DW		
								所有状态 All Hardness	硬态 (Y) Hardest	半硬态 (Y2) Half Hardness
6	8	1.0	0.8	0.6	0.197	0.162	0.125	± 0.04	± 0.04	± 0.08
8	10	1.0	0.8	0.6	0.253	0.207	0.158			
10	12	1.2	0.8	0.6	0.364	0.252	0.192			
15	15	1.2	1.0	0.7	0.465	0.393	0.281	± 0.05	± 0.06	± 0.09
	16	1.2	1.0	0.7	0.496	0.419	0.300			
	18	1.2	1.0	0.8	0.566	0.477	0.386			
20	22	1.5	1.2	0.9	0.864	0.701	0.535	± 0.05	± 0.06	± 0.09
25	28	1.5	1.2	0.9	1.116	0.903	0.685			
32	35	2.0	1.5	1.2	1.854	1.411	1.140			
40	42	2.0	1.5	1.2	2.247	1.706	1.375	± 0.05	± 0.07	± 0.10
	44	2.0	1.5	1.2	2.354	1.787	1.440			
50	54	2.5	2.0	1.2	3.616	2.921	1.780	± 0.05	± 0.08	± 0.12
	55	2.5	2.0	1.2	3.683	2.975	1.813			
65	67	2.5	2.0	1.5	4.529	3.652	2.759	± 0.05	± 0.08	± 0.12
80	76	2.5	2.0	1.5	5.161	4.157	3.140			
		89	2.5	2.0	1.5	6.074	4.887	3.696	± 0.06	± 0.12
100	105	3.5	2.5	1.5	9.989	7.202	4.362	± 0.06	± 0.18	± 0.25
	108	3.5	2.5	1.5	10.274	7.408	4.487			
125	133	3.5	2.5	1.5	12.731	9.164	5.540	± 0.12	± 0.60	± 0.35
150	159	4.0	3.5	2.0	17.415	15.287	8.820	± 0.15	± 0.60	± 0.35
200	219	6.0	5.0	4.0	35.898	30.055	24.156	± 0.25	± 0.95	--
250	273	7.0	5.5	4.5	51.122	40.399	33.180	± 0.40	± 1.25	
300	325	8.0	6.5	5.5	71.234	58.151	49.359			

注：平均外径是指在管材任意截（断）面上测得的最大外径和最小外径的平均值。

Notes: Average DW means the average of maximum and minimum outside diameter at any cross section of tube.

铜管件承、插口
Socket End and Plug Socket End
of Copper Fittings

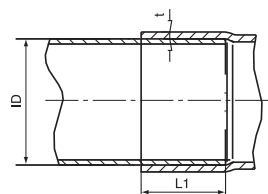
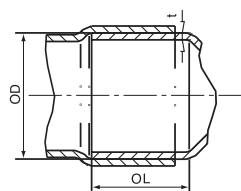


表2 紫铜管件承、插口尺寸以及壁厚

Table 2 Male and Female End Size and Wall Thickness of Copper Fitting

单位(Unit):mm

公称通径 Diameter Nominal DN	铜管外径 Outside Diameter DW	插口外径 Outer Diameter of Plug End (OD)		承口内径 Inner Diameter of Socket End (ID)		插口长度 OL ≥ Length of Plug End OL Min	承口长度 IL ≥ Length of Socket End IL Min	壁厚 T ≥ Wall Thickness T Min	
		基本尺寸 Size	允许偏差 Tolerance	基本尺寸 Size	允许偏差 Tolerance			铜 Copper	铜合金 Alloy Copper
6	8	8.04	0	8.06	+0.10	9	7	0.60	1.00
8	10	10.04		10.06		9	7	0.60	1.00
10	12	12.04		12.06		11	9	0.60	1.00
15	15	15.04	-0.09	15.06	0	13	11	0.70	1.20
	16	16.04		16.06					
	18	18.04		18.06					
20	22	22.05	0	22.07	+0.11	17	15	0.90	1.50
25	28	28.05	-0.11	28.07	0	20	18	1.00	1.60
32	35	35.06	0	35.09	+0.14	22	20	1.20	1.80
40	42	42.06		42.09		24	22	1.30	2.00
	44	44.06		44.09					
50	54	54.06	-0.13	54.09	0	27	25	1.50	2.30
	55	55.06		55.09					
65	67	67.07	0	67.10	+0.23	30	28	1.70	2.40
80	76	76.07		76.10		32	30	1.90	2.80
	89	89.07		89.10					
100	105	105.07	-0.15	105.10	0	38	36	2.40	3.50
	108	108.07		108.10					
125	133	133.2	0	133.3	+0.50	41	38	2.50	--
150	159	159.2	-0.40	159.3	0	45	42	3.00	
200	219	219.4	0 -0.80	219.6	+0.80 0	48	45	4.00	
250	273	273.6	0 -1.20	273.9	+1.20 0	51	48	5.00	
300	325	325.6	0 -1.20	325.9	+1.20 0	55	52	6.00	

注：承口内径、插口外径的最大圆度偏差不应超过相对应铜管外径的NB，最大和最小直径的平均值应在直径允许偏差范围内。
Notes: Roundness tolerance of OD and ID should be within 1 percent of the outside diameter of copper tube. The average of maximum and minimum outside diameter should be included in the tolerance of tube.

表3 各标准公称通径参照表

Table 3 Reference Table of Diameter Nominal for Different Standards

公称通径 Diameter Nominal DN	AS 3688 DN	EN 1254 DN	ASME 16.22 Water Tube Size	ASME 16.22 (R410a) Refrigeration Tube Size	GB/T 11618.1 DN
10	10	10	3/8"	3/8"	10
15	15	12/14/15	1/2"	1/2"	15
18	18	16	5/8"	5/8"	-
20	20	22	3/4"	3/4"	20
25	25	28	1"	1"	25
32	32	35	1 1/4"	1 1/4"	32
40	40	42	1 1/2"	1 1/2"	40
50	50	54	2"	2"	50
65	65	-	2 1/2"	2 1/2"	65
80	80	-	3"	3"	80
100	100	-	4"	4"	100
125	125	-	5"	5"	125
150	150	-	6"	6"	150
200	200	-	8"	8"	200
250	250	-	-	-	250
300	300	-	-	-	300

注：所有以下产品公称通径对应不同标准的公称通径可参照表。

Notes: Table above includes all products DN in different standards



T101 正三通 (三承口) Equal Tee (CXC)

10	15	18	20	25	32	40	50	65	80
100	125	150	200						

T102 异径三通 (三承口) Reducer Tee (CXC)

15*10	18*15	20*15	25*15	25*20	32*15	32*20	32*25	40*15	40*15
40*20	40*25	40*32	50*20	50*25	50*32	50*40	65*20	65*25	65*25
65*25	65*32	65*40	65*50	80*25	80*32	80*40	80*50	80*65	80*65
100*50	100*65	100*80	125*65	125*80	125*100	150*100	80*50	80*65	80*65

T103 异径三通 (三承口) Reducer Tee (CXC)

15*15*20

T104 异径三通 (三承口) Reducer Tee (CXC)

15*10*15	20*15*20	20*18*20	25*15*25	25*18*25
25*20*25				

T108 异径三通 (三承口) Reducer Tee (CXC)

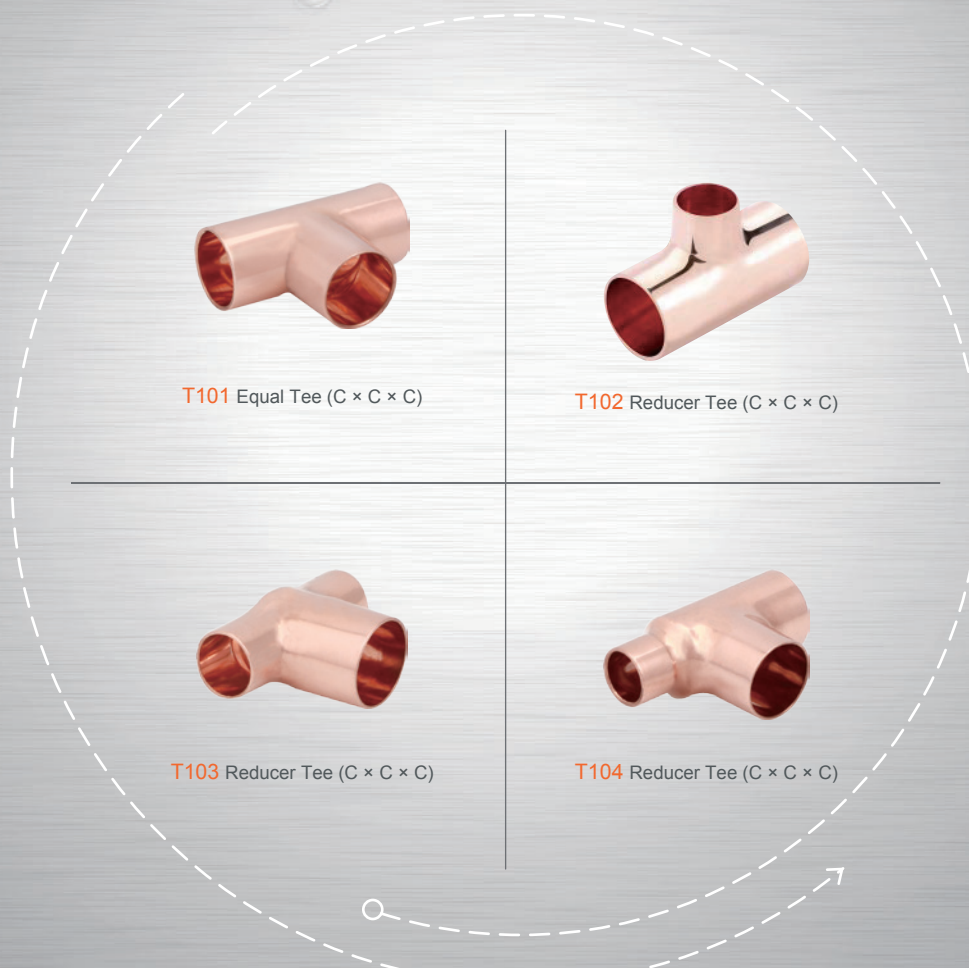
20*15*15	20*18*18	25*20*20		
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铜具有一定的杀菌作用，能使管道内的水保持洁净；使用时对周围环境没有特别的要求。

紫铜小百科
Knowledge of Copper

Copper's bactericidal action makes the water in the pipeline remaining clean and no other environmental conditions requirement when it is applied.

*C=Female End, Ftg=Male End, FT=Female-Thread End, MT=Male-Thread End



T101 Equal Tee (C × C × C)

T102 Reducer Tee (C × C × C)

T103 Reducer Tee (C × C × C)

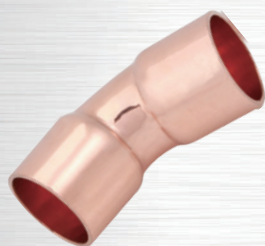
T104 Reducer Tee (C × C × C)

T201 45度弯头 (双承口) 45° Elbow (CXC)										
10	15	18	20	25	32	40	50	65	80	
100	125	150	200							
T202 45度承插口弯头 (一承口一插口) 45° Elbow with Single Socket (CXFtg)										
10	15	18	20	25	32	40				
T301 90度短半径弯头 (双承口) 90° Short Radius Elbow (CXC)										
10	15	18	20	25	32	40	50	65	80	
100	125	150	200							
T302 90度长半径弯头 (双承口) 90° Long Radius Elbow (CXC)										
10	15	18	20	25	32	40	50	65	80	
100	125	150	200							
T304 90度异径短半径弯头 (双承口) 90° Reducing Short Elbow (CXC)										
15*10	18*15	20*15	20*18	25*15	25*20					

焊接连接点能重复焊接使维护成本大为降低，如在管材出需要重新连接，其维护成本也是可以接受的。铜管道膨胀力较大，需要做好消除膨胀的防范措施。

The jointing points of welding can be redone that makes it economic and acceptable to end-users in maintenance. Additionally, the expansibility of copper pipeline is so big that necessary protective measures should be done.

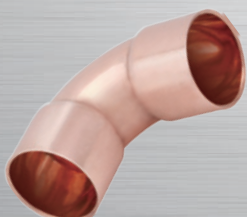
*C=Female End, Ftg=Male End, FT=Female-Thread End, MT=Male-Thread End



T201 45° Elbow (C × C)



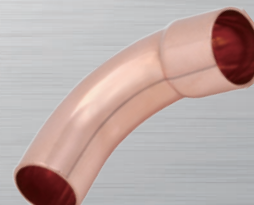
T202 45° Elbow with Single Socket (C × Ftg)



T301 90° Short Radius Elbow (C × C)



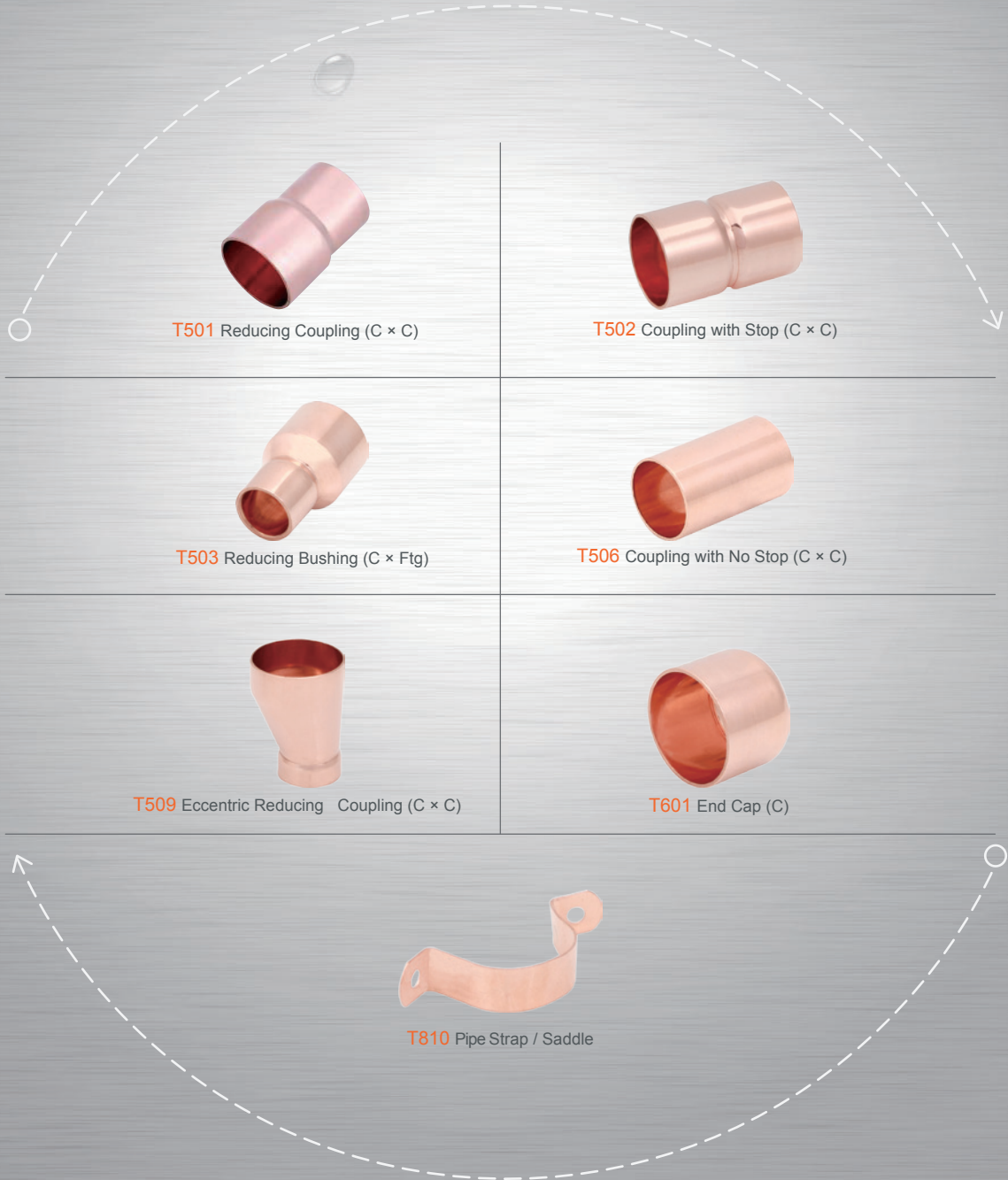
T302 90° Long Radius Elbow (C × C)



T304 90° Reducing Elbow (C × C)

T501 异径接头 (双承口) Reducing Coupling (CXC)									
15*10	18*15	20*10	20*15	20*18	25*15	25*20	32*15	32*20	32*25
40*20	40*25	40*32	65*32	125*80					
T502 套管带台阶接头 (双承口) Coupling with Stop (CXC)									
10	15	18	20	25	32	40			
10	15	18	20	25	32	40			
T503 插口异径接头 (一承口一插口) Reducing Bushing (CXFtg)									
15*10	18*15	20*15	20*18	25*15	25*20	32*15	32*20	32*25	40*20
40*25	40*32	50*20	50*25	50*32	50*40	65*32	65*40	65*50	80*40
80*50	80*65	100*50	100*65	100*80	125*80	125*100	150*80	150*100	150*125
200*125	200*150	250*150	250*200						
T506 直接 (双承口) Coupling with No Stop (CXC)									
10	15	18	20	25	32	40	50	65	80
100	125	150	200						
T509 偏心异径接头 (双承口) Eccentric Reducing Coupling (CXC)									
40*20	40*25	40*32	50*20	50*25	50*32	65*40	65*50	80*40	80*50
80*65	100*40	100*50	100*65	100*80	125*80	125*100	150*80	150*100	150*125
200*150	80*65	100*50	100*65	100*80	125*80	125*100	150*80	150*100	150*125
T601 管帽 (承口) End Cap (C)									
15	18	20	25	32	40	50	65	80	100
125	150	200							
T810 鞍形管箍 Pipe Strap/ Saddle									
10	15	18	20	25	32	40			

*C=Female End, Ftg=Male End, FT=Female-Thread End, MT=Male-Thread End



球面环卡管件

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	20	3/4"	3/4"
25	22	1"	1"
32	28	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



RT502 Reducer Tee



TT Male Tee with Internal Thread



E45 45° Elbow



E90 90° Elbow



ET90 Male 90° Elbow with Internal Thread



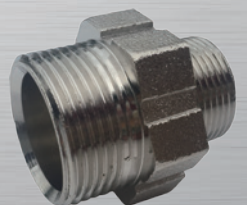
S End Connector



SFT Male End Connector with Internal Thread



SMT Male End Connector with External Thread



R Reducing End Connector

a) 安装前准备

- 安装之前需要准备焊接机(氧-乙炔焊机或电加热焊机)、管材割刀和清洁毛巾等;
- 电加热焊机需要有可靠接地,氧-乙炔焊机的工作场所需要保持良好通风状态;
- 检查焊枪的气体开关是否灵活可靠或碳导电极是否完好;
- 检查管材、管件的规格尺寸是否符合规定要求;一般家庭安装不推荐使用埋地暗敷方式,而是采用嵌墙或嵌埋天花板的暗敷方式。

b) 清洁管材管件熔接表面

- 焊接之前需要清洁管材表面和管件承口表面的氧化膜和各种污渍;
- 管材切割端口应垂直于管材中心线,如果管材端口有超差的变形则必须切除变形部位,清除产品端口的各种毛刺。



c) 管件、管材均匀加热

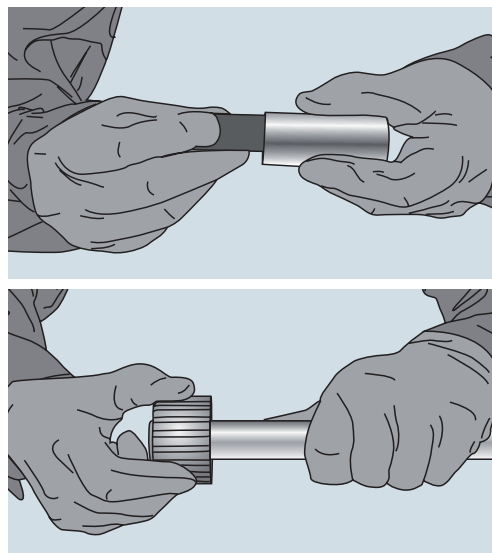
- 首先对管件进行一定程度的预热,然后将管材插入管件并对两者进行均匀的加热,对于大管件的可以采用双火焰加热方式;
- 加热时间按照标准规定执行,冬天一般延长加热时间30%。

a) Preparation before installation

- It is necessary to prepare welding machine,cutter,and cleaning fabric before installation.
- Electrical welding machine must be connected to the ground.The same,oxygen-ethyne welding machine should be dressed in the place which is well ventilated.
- Check the torch or the electrode of mineral carbon.
- Check the size of pipes and fittings.
- The pipelines layout by covered up in the wall or above the ceiling board is recommended,and under the floor is not recommended.

b) Cleaning the sealing surface

- Wiping off the oxydic film and blot on the sealing surface, and clearing away the spilliness at the end of products.
- The intersecting surface of pipes after cutting should be upright with the centerline of pipes.If any deformation, please cut it.

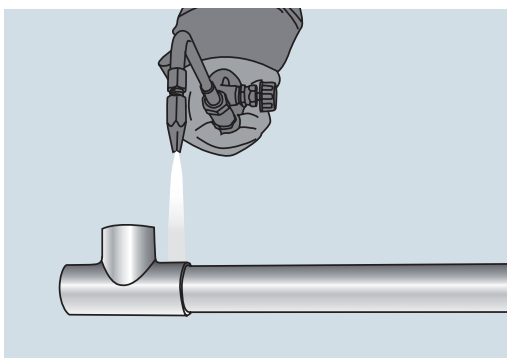


c) Heating

- First heating the fittings a moment,then push pipe in fittings and heating them together.Using double torch to heat for big size fittings is recommended.
- The time for heating is according to standard normal,but increasing 30 percent time in winter.

d) 添加焊剂和焊料

- 当管材、管件加热至要求温度时先添加焊剂，以便去除氧化皮和杂质等，然后沿着圆周匀速添加焊料至焊缝饱满均匀；
- 添加焊剂、焊料时不允许火焰直接加热焊剂、焊料，而是主要保持必要的温度；

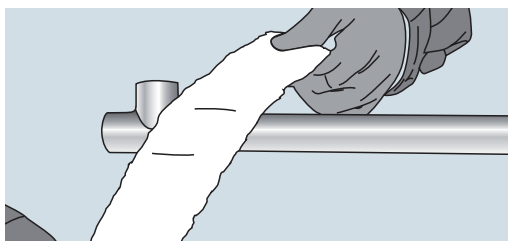


e) 定型及冷却

- 在停止加热后管材和管件之间应保持相对静止，不允许再有任何相对移位，尤其是在焊料进入凝固状态的时候；
- 冷却应采用自然冷却方式较合理，禁止使用水、冰等冷却物强行冷却。

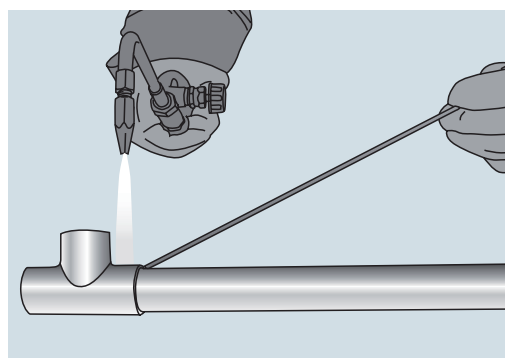
f) 管道试压

- 管道安装完后需要在常温下状态调节规定的时间后方可进行试压；
- 试压充水时应在管道的最高点安装排气口，只有当管道内的气体完全排放完毕后方可进行试压；
- 一般冷水管验收压力为系统工作压力的 1.5 倍，热水管道为系统工作压力的 2.0 倍，保压时间不小于半小时，压力下降不允许大于 3%。
- 工程安装的试压推荐先进行逐段试压，在各区段合格后再进行总管网试压，不推荐在工程完毕后才进行一次性试压。



d) Pushing welding fluid and solder

- Pushing welding fluid while heating is done, then pushing solder around joint uniformly.
- It is not allowed to heating welding fluid and solder direct, just heating pipes and fittings to keep them hot necessary.



e) Formalization and cooling

- Keeping pipes and fittings stillness while heating is over, especially at the moment while solder is becoming freezing.
- Natural cooling is regular, but forcing cooling by water or ice is forbidden.

f) Pressure testing

- After formulary time under normal temperature, then take the pressure test.
- There will be set an air outlet at the top of pipeline, then vent the air in the pipeline before testing.
- The test pressure is 1.5 times system working pressure for cold water pipeline, and is 2.0 times system working pressure for hot water pipeline. The test time is not less than half hour, and the allowed ration of pressure decrement is 3 percent.
- Do the test segment by segment is recommended, then assembly all the segment into integer pipeline after passing all the test.