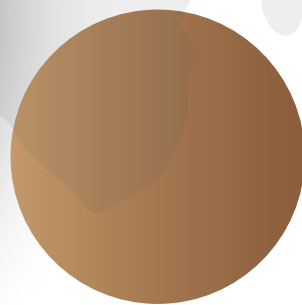


TIANQING 天庆®
PIPES & FITTINGS Professional Manufacturer



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

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	$^{\circ}\text{C}$
铜管热导率 Heat conductance of Copper:	407	$\text{W}/(\text{m} \cdot \text{K})$
铜管比热容 Specific heat of Copper:	418	$\text{J}/(\text{m} \cdot \text{K})$

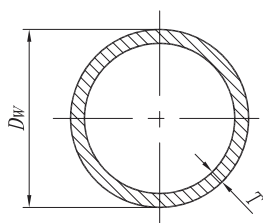
铜具有较高的耐压能力和较好的延展成型性能，使其成为空调制冷和建筑给水行业的首选材料。在给水行业超过一百年的应用历史，是其它材料难以企及的。

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			
	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	± 0.05	± 0.06	± 0.09
20	22	1.5	1.2	0.9	0.864	0.701	0.535			
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	± 0.05	± 0.07	± 0.10
40	42	2.0	1.5	1.2	2.247	1.706	1.375			
	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			
	55	2.5	2.0	1.2	3.683	2.975	1.813	± 0.05	± 0.08	± 0.12
65	67	2.5	2.0	1.5	4.529	3.652	2.759			
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	± 0.15
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

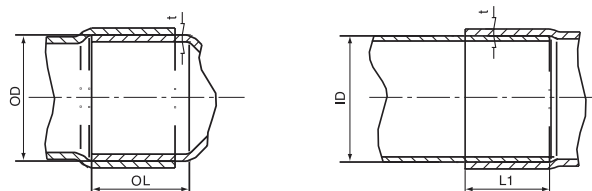


表2 紫铜管件承、插口尺寸以及壁厚

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	219.6	+0.80	48	45	4.00	
250	273	273.6	0	273.9	+1.20				
			-1.20		0	51	48	5.00	
300	325	325.6	0	325.9	+1.20	55	52	6.00	
			-1.20		0				

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 (CXCXC)					
15	20	25	32	40	50
T102 异径三通 (三承口) Reducer Tee (CXCXC)					
20*15	25*15	25*20	32*15	32*20	32*25
40*20	40*25	40*32	50*20	50*25	50*32
50*40					
T104 异径三通 (三承口) Reducer Tee (CXCXC)					
20*15*20					

T108 异径三通 (三承口) Reducer Tee (CXCXC)					
20*15*15	25*20*20				
T201 45度弯头 (双承口) 45° Elbow (CXC)					
15	20	25	32	40	50
T302 90度长半径弯头 (双承口) 90° Long Radius Elbow (CXC)					
15	20	25	32	40	

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 to makes the water in the pipeline remaining clean and no other environmental conditions requirement when it is applied.

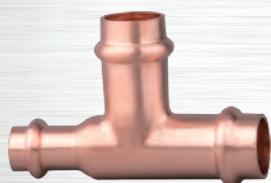
*C=Female End, Ftg=Male End, FT=Female-Thread End, MT=Male-Thread End



T101 Equal Tee (C × C × C)



T102 Reducer Tee (C × C × C)



T104 Reducer Tee (C × C × C)



T108 Reducer Tee (C × C × C)



T201 45° Elbow (C × C)



T302 90° Long Radius Elbow (C × C)

T501 异径接头 (双承口)
Reducer / Reducing Coupling (CXC)

15 | 20 | 25 | 32 | 40 | 50

T503 异径接头 (一承口一插口)
Reducing Bushing (CXF)

15 | 20 | 25 | 32 | 40 | 50

T506 直接 (双承口)
Coupling with no Stop (CXC)

15 | 20 | 25 | 32 | 40 | 50

T601 管帽
End Cap

20 | 25 | 32 | 40 | 50

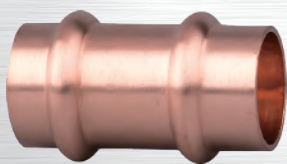
*C=Female End, Ftg=Male End, FT=Female-Thread End, MT=Male-Thread End



T501 Reducing Coupling (C x C)



T503 Reducing Bushing (C x Ftg)



T506 Coupling with No Stop (C x C)

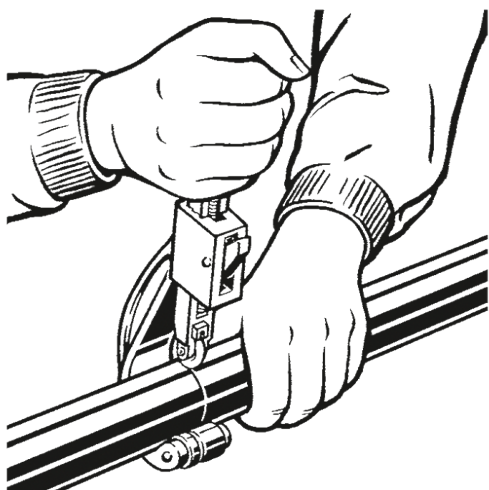


T601 End Cap (C)

To install Press Fitting, a mechanical tool with compatible jaws to fit each size fitting is required. When pressure is exerted through the press tool the joint is permanently made and the fitting cannot be disassembled or re-used. The Press Fitting profile has the advantage of a 3 Point Press making it more secure, through two presses either side of the bead and one press crimping the O-ring.

首先，在安装卡压管件之前，我们需要一把具有合适尺寸的卡压钳。当施以压力时，卡压钳能卡住并使卡压管件连接处永久密封连接且不可拆卸或循环利用。卡压管件安装后，通过卡槽两边两点的固定和O型密封圈一点的卡紧，共三点卡压使卡压管件更加安全可靠。

1



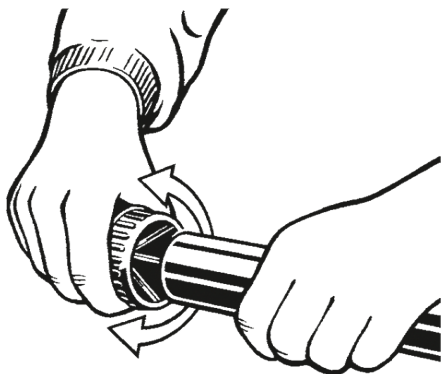
1. 管材的裁切

我们建议用管材切割器来裁切管材以保证切口的圆润度。如果使用钢锯，请确保在锯条锋利的情况下裁切。并且，一定要保证管材的端口的清洁度，无刮痕且长度一定要大于承口的长度。

1. Cut the pipe

We recommend you use a pipe cutter to cut the tube square. If you use a hacksaw, a fine toothed blade should be used and care taken to ensure the tube is cut square. Tube ends should be clean and free from scratches not less than the socket length.

2



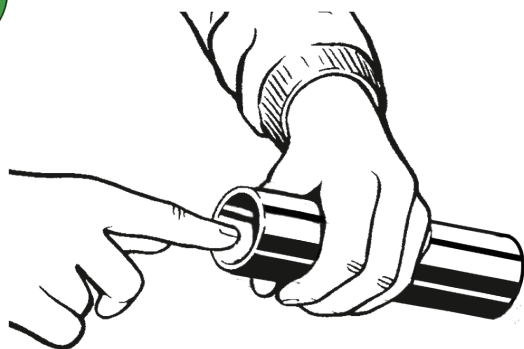
2. 除毛刺

使用除毛刺工具确保管口的内外部无毛刺或飞边。然后擦净管口以避免在插入管件时对O型密封圈造成损坏。

2. Remove burrs

Make sure that the internal and external tube end are free from burrs or shape edges by using a deburring tool. Then wipe the tube end clean to avoid damaging the O-ring on tube insertion.

3



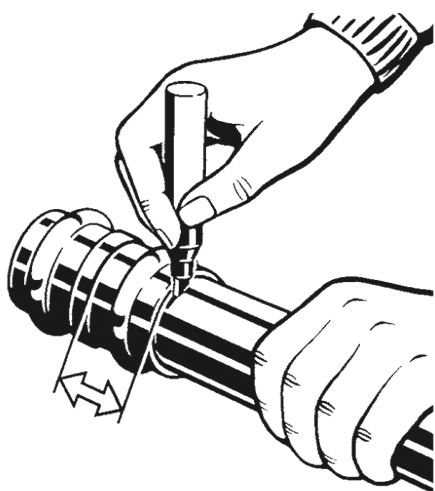
3. 涂润滑油

为方便安装和保护起见，我们建议在管子上涂一些卫生级润滑油。这能使管子更容易地插入管件并且能更好地保护连接处。

3. Apply lubricating oil

For easier installation and protection, we recommend you to apply some sanitary lubricating oil on the pipe. This will make it easier for tube to insert into the fitting. And lubrication oil will protect the joint better.

4

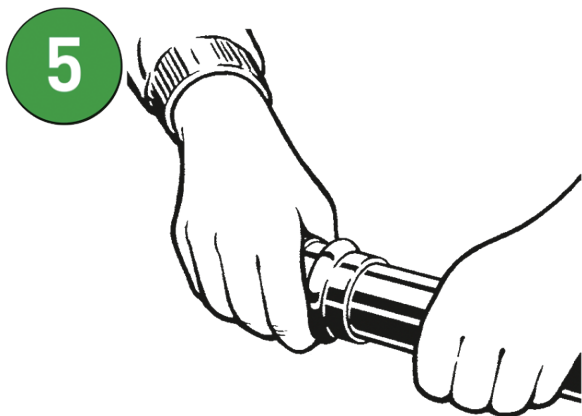


4. 标记插入深度

为了更好地连接管材和管件，管子必须完全插入管件直至触到止动台阶。用量尺在管子标记插入的深度以保证任何位移可以被更容易地发现，此步在后面卡压的步骤中是非常重要的。插入管子前请保证O型密封圈完好并在卡槽内正确位置。

4. Mark insertion depth

The tube must be fully inserted into the fitting until it reaches the tube stop in order to make a perfect joint. Use a rule to mark the socket depth of the fitting onto the tube. This will ensure that any tube movement is detected, which is especially important if the joint are to be pressed at the later time. Before inserting the copper tube ensure that the O-ring is seated correctly and free from damage.

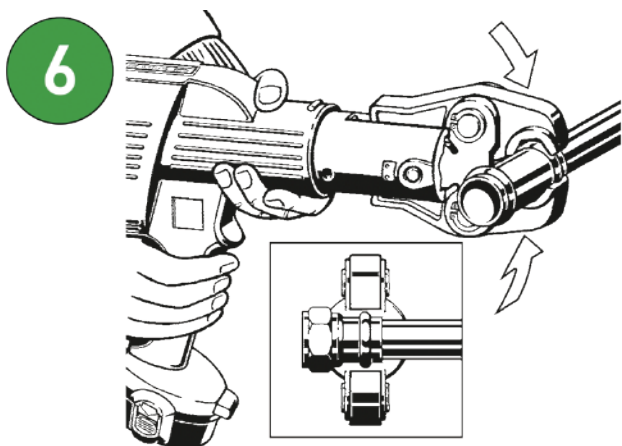


5. 保证管子插到止动台阶

为了下一步卡压操作，管材必须插入管件至止动台阶（以前面的标记为参考）。卡压操作必须在管材插到止动台阶后进行。

5. Ensure pipe is inserted up to the tube stop

To assemble the joint, the tube must be inserted into the fitting up to the tube stop. (Use the mark on the tube which was made earlier as reference.) The pressing operation should only be undertaken when the tube reaches the tube stop.



6. 使用卡压工具进行操作

使用合适的夹具并按压扳机/按钮开始卡压操作。当上下夹具完全闭合后操作完成。松开夹具完成整个步骤。

6. Complete the joint with the compression tool

Ensure that the correct size jaw for the fitting is inserted into the tool. Depress the trigger/ button to begin the compression cycle of the tool. This is complete when the mouth of the fitting is fully enclosed by the jaws. Now release the jaws from around the fitting.

重要提示

保证管件防尘，O型密封圈未损坏并保持润滑非常重要。选择未损坏的、正确尺寸的洁净管材和管件。

Important

It is important to keep the fitting free of any dust or dirt and to ensure the O-ring stays lubricated and protected from damage. Select the correct size of tube and fitting for the job. Ensure that both are clean and free from damage and imperfections.



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