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## 价值理念 OUR VALUES

企业使命：关注客户需求，提供有竞争力的解决方案和服务，为客户持续创造价值

企业愿景：不锈钢管业领域最值得信赖的企业

无论是产品的质量，还是企业的诚信，我们都致力成为客户成功路上最值得信赖的伙伴。

企业精神：不断进取，追求卓越

挑战是成功的摇篮。只有不断挑战自我，积极进取，新的精彩才会不断地出现，不断追求，才能完善自己直至卓越。

企业宗旨：为社会创造价值，为员工提供成长空间



**Corporate mission:** focus on customer needs, provide competitive solutions and services, and continuously create value for customers.

**Corporate vision:** the most trustworthy enterprise in the field of stainless steel pipe industry  
Both the quality of products and the integrity of enterprises, we are committed to becoming the most trustworthy partners of customers.

**Enterprise spirit:** continuous improvement, pursuit of excellence  
The challenge is the cradle of success. Only by constantly challenging yourself and enterprising, will the new brilliantly emerge and pursue continuously, so that we can perfect ourselves till excellence.

**Enterprise aim:** create value for society and provide growth space for employees.



Jiangsu FH Tube Industry Co., Ltd. is located at the Economic Development Zone, Dafeng District, Yancheng City, Jiangsu Province, 2.5 hours drive from Shanghai.

FH Tube mainly produce two series of seamless tubes and pipes, including Stainless steel (Ferritic and Martensitic stainless steel, 410, 410S, 430, 439, 446, 44660; Austenitic stainless steel, and Duplex stainless steel), and Nickel alloy (400, 600, 625, 800/H, 825, C276...),

With the good ability of R & D, we develop kinds of advantageous products to meet the market demand. For the boiler and heat exchanger industry, we developed super length straight and U-bent tube with max.30 meters length, and T91 and 1.4922/ X20CrMoV12-1 cold finished boiler tubes for the power plants. For the demand of oil industry, we also developed and produced corrosion resistance tubing with grade L80 13Cr and Sup13Cr/13Cr110 of coupling stock and bare pipes, and the ferritic stainless steel seamless tubes and hyper duplex stainless steel tubes for refineries. Besides, we successfully developed 17-4PH and 15-5PH martensitic stainless steel seamless tube, and the super ferritic stainless steel UNS S44660 tubes for the seawater condenser.

We always focus on the production of high quality tubing. With advanced production equipments, we produced more than 6000 metric tons of nickel alloy seamless tubes/pipes, stainless steel seamless tubes/pipes per kinds of standards as GB, American ASTM/ASME, EN, JIS, and GOST... Available Size is OD6-168mm, Wall0.8x20. 70% of products is exported to all over the world as Europe, USA, Russia, Canada, Australia, Southeast Asia, South Africa...With advanced inspection and testing equipments and machines, we carry out strict quality control and inspection system per the ISO9001:2008.



## BRIEF INTRODUCTION

To meet the customers' demand of kinds of tubes, we will continuously keep the research and innovation, upgrade the products quality and the efficiency, and supply our customers with the most benefit and high quality products, besides make our company to be a famous professional manufacturer of nickel alloy and specialty steel tubing.



## 企业简介

国标  
GB

美标  
ASTM/ASME

欧标  
EN

日标  
JIS

俄罗斯  
GOST

江苏飞鹤管业有限公司位于江苏省盐城市大丰区经济开发区内， 紧邻G15(沈海高速)大丰出口，距上海2.5小时车程， 交通方便， 地理位置优越。

公司专业生产各种高合金材料的无缝管，主要有不锈钢无缝管(包括铁素体&马氏体不锈钢， 如: 410, 410S, 430, 439, 446, 44660; 双相不锈钢和奥氏体不锈钢)， 镍合金无缝管（包括400, 600, 625, 800/H, 825, C276）两大类产品。

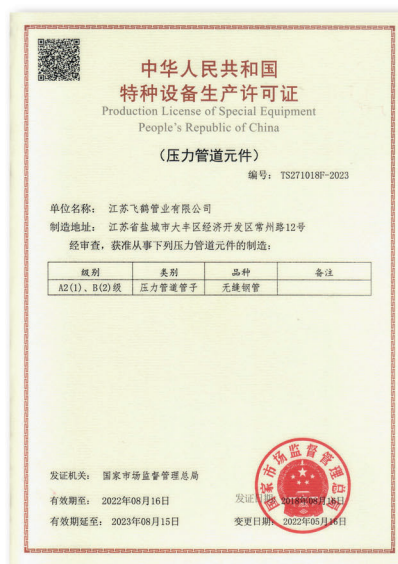
公司具有一定的研发实力，除了常规材质的不锈钢管，还开发了各种满足市场需求的优势产品。针对锅炉换热器行业的需求，公司开发了各种材质的超长直管和U型管，最长直管达30米，以及电站用T91、1.4922/X20CrMoV12-1等锅炉管。针对石油行业客户需求，公司开发了L80 13Cr及Sup13Cr/13Cr110等耐蚀合金油套管接箍料和光管，以及炼化用耐应力腐蚀的铁素体不锈钢无缝管和特超级双相不锈钢。同时，公司还成功开发了17-4PH/15-5PH沉淀硬化马氏体不锈钢无缝管及滨海电站冷凝器用超级铁素体UNS S44660不锈钢无缝钢管。通过不断的开发，逐渐树立了公司在铁素体、马氏体不锈钢无缝管和双相不锈钢无缝管等产品上的特色和优势。

我们始终坚持生产高质量产品，拥有先进的生产设备。公司执行严格的质量控制制度，通过了ISO9001质量管理体系认证，拥有完善的质量检验制度，配备有先进的质量检测仪器和设备。年生产销售符合**国标GB, 美标ASTM/ASME, 欧标EN, 日标JIS, 俄罗斯GOST**等标准的，尺寸 $\Phi 6-168 \times 0.8-20\text{mm}$ 的镍合金和不锈钢无缝管达6000吨。70%出口到欧美，俄罗斯，澳大利亚,东南亚, 南非等世界各地。

公司将以客户的产品需求为导向，持续研发创新，生产出高品质的特种管材，实现客户的最大利益，努力使公司发展成为知名的专业生产各种不锈钢及镍合金等特种管材的企业。

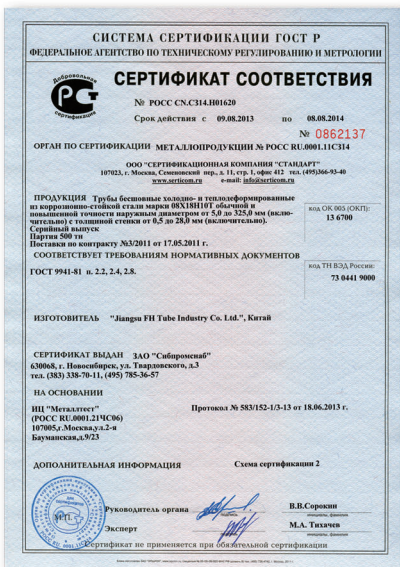
品牌价值 源于点滴的积累与不懈的奋斗

The VALUE OF BRAND comes from every single improvement made by our team.





# BRAND 企业荣誉 REPUTATION





## 质量管理 QUALITY MANAGEMENT

- 公司执行国际先进的质量管理体系，获得了ISO9001-2008质量管理体系证书。

With the ISO9001-2008 quality management system, FH Tube carry out the advanced quality management system strictly and completely.



- 公司的原材料来自国内知名工厂，部分原材料进口自欧美日本等国家的一流钢铁集团。

Our raw materials for tubes and pipes is from famous domestic melting mills, and part of the material is imported from the top-class melting mills of the world, like Europe, USA and Japan.



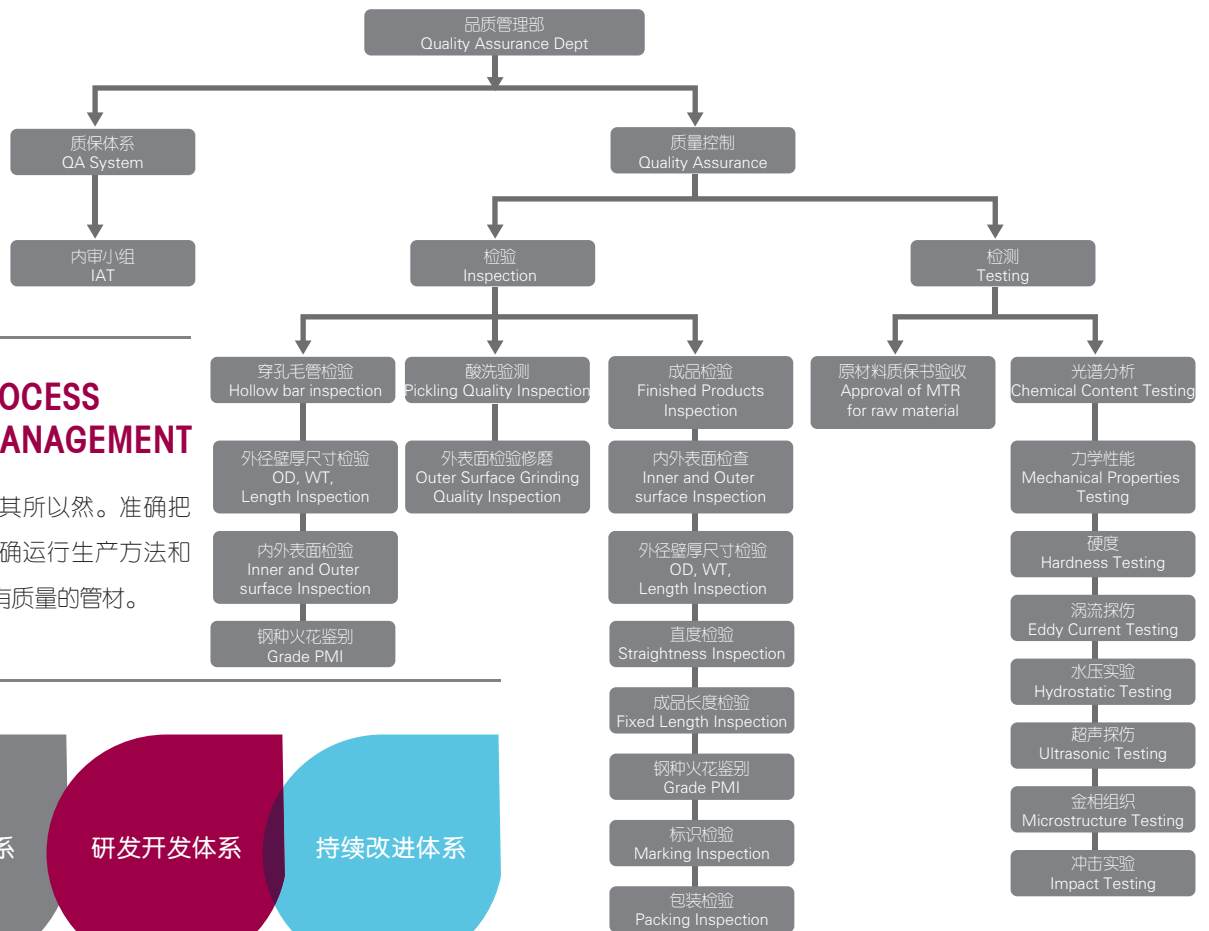
- 公司配备了先进生产设备，如计算机控制燃气自动热处理炉，高精度矫直机以及冷拔，冷轧设备，生产的钢管氧化少，内外表面质量好，成分稳定，几何尺寸精度高，综合力学性能优良。

FH Tube is equipped advanced production machines and equipments, like computer controlled natural gas fire heat treatment furnace, high precision straightening machines and cold drawn/rolling machines. The tubes/pipes has little oxidation, good outer and inner surface quality, good chemical content, high size precision/tolerance, and good comprehensive mechanical properties.

- 公司配备了先进的研发和检测设备，有光谱仪、涡流探伤仪、水压试验设备、万能材料试验机、布氏硬度计、晶间腐蚀设备、冲击试验机、金相显微镜、低倍和高倍显微镜、系列化学分析仪等，以及配套的理化分析等设施。

We also have advanced research and inspection equipments, such as spectrometer, eddy current testing machines, hydrostatic testing machines, comprehensive mechanical property testing machine, hardness testing equipment, intergranular corrosion testing equipments, compact testing machines, microstructure testing equipments, and other equipments.



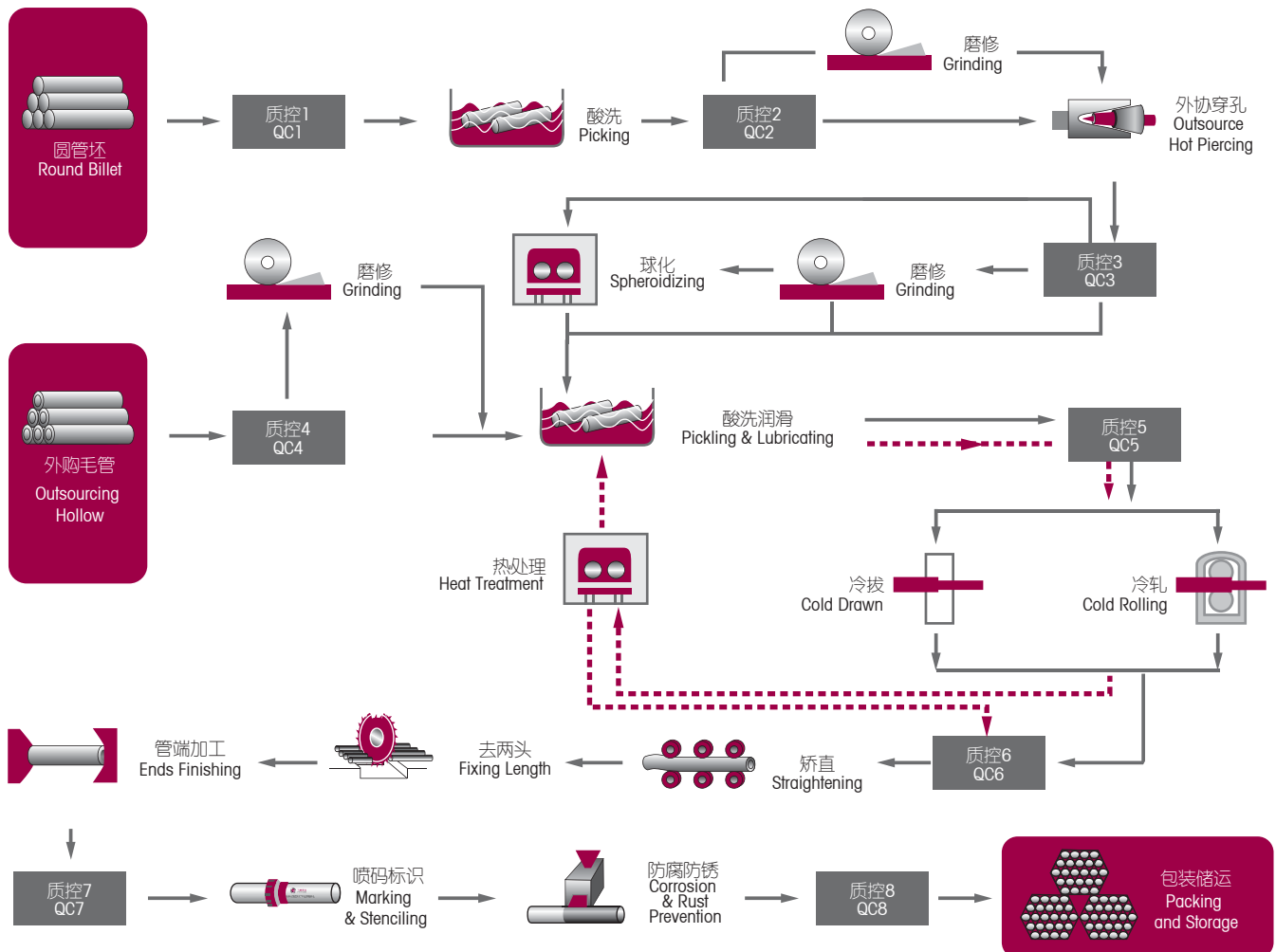


## WHOLE PROCESS QUALITY MANAGEMENT

知其然，知其所以然。准确把握材料性能，正确运行生产方法和工艺，制造真正有质量的管材。



# 生产流程 PRODUCTION FLOWCHART



## 铁素体和 马氏体不锈钢 Ferritic and Martensitic Stainless Steel Tube

飞鹤管业以先进的工艺和设备，生产的马氏体和铁素体不锈钢无缝管，以其优良的机械强度，耐氯离子腐蚀和耐应力腐蚀等性能，被广泛应用于换热器，油气开采，轴承加工等行业。

FH Tube's ferritic and martensitic stainless steel heat transferring tubing is produced to applications where better mechanical properties, hardness, chloride induced pitting, crevice and stress corrosion cracking may be considered. And the high quality tube and pipe with such material can be also used for other specific applications as petro/gas industry, bearing machining ...



### 用途 Applications:

换热器, 加热器, 预热器, 机加工, 轴承, 油气开采等

Heater, Heat Exchanger, Condenser, Machining, Bearing Machining, API service...

### 标准 Available Specifications:

#### - ASTM/ASME A/SA268

通用无缝和焊接铁素体和马氏体不锈钢管

Seamless and Welded Ferritic and Martensitic Stainless Steel Tubing for General Service

#### - API 5CT L80 9Cr/13Cr API 5CRA/ISO 13680

抗CO<sub>2</sub>腐蚀油套管接箍料

Coupling Stock Pipe for Anti-Corrosive of CO<sub>2</sub>

#### - ASTM A756 Stainless Anti-Friction Bearing Steel

耐磨不锈钢轴承钢



### 可生产管材尺寸范围 Available Sizes

产品 Products	外径 OD		壁厚 WT		长度 Length	
	Inch	MM	Inch	MM	Ft max.	Mt max.
Tube	1/2"-3"	12.0-76.2	0.02"-0.5"	0.5-12.0	105'	32.00
Pipe	NPS1/2"-6"	21.34-168.3	Sch10-Sch80	2.11-12.7	98'	30.00

可生产超长管 Super Length Tube/Pipe is our advantages.





飞鹤管业可供铁素体马氏体不锈钢无缝管材一览表 Available Grades of Ferritic and Martensitic Stainless Seamless Tube/Pipe



飞鹤管业  
FH TUBE

	国标新牌号	国标统一代码	美标牌号	美国UNS代码	欧标代码	国外公司商业牌号	特征/应用举例		
	NEW GB Grade	GB Grade	ASTM/ASTM Grade	UNS Grade	EN Grade	Foreign Commercial Grade	Characteristics/Examples of Applications		
铁素体 Ferritic Stainless Steel	06Cr13Al	S11348	405	S40500	1.4002	-	耐高温，抗氧化，耐还原性含硫气体腐蚀。空气换热器管。 High temperature resistance, oxidation resistance, and corrosion resistance. Air heat exchanger tube.	使用温度700度左右 Utilized at temperature 700 C	
	0Cr13SiAl	-	-	-	1.4724	SIC9(Sanyo) /IC256(Sandvik)		使用温度可达850度 Utilized at temperature 850 C	
	10Cr17	S11710	430	S43000	1.4016	-		使用温度可达800度 Utilized at temperature 800 C	
	0Cr18SiAl	-	-	-	1.4742	SIC10(Sanyo) /IC356(Sandvik)		使用温度可达1000度 Utilized at temperature 1000 C	
	0Cr24SiAl	-	-	-	1.4762	SIC12(Sanyo)		使用温度可达1150度 Utilized at temperature 1150 C	
	1Cr25Ti	-	-	-	-	QS25T(Sanyo)		使用温度可达1100度 Utilized at temperature 1100 C	
	16Cr25N	S12550	TP446-1/TP446-2	S44600	1.4749	2C52/2C48(Sandvik)		耐高温，抗氧化，极耐还原性含硫气体腐蚀。耐燃油灰分腐蚀。耐熔融铜铅锌腐蚀。空气换热器管。 High temperature oxidation corrosion in air, good resistance to reducing sulphurous gases. Resistance to molten copper, lead and tin. Recuperator tubes .	使用温度：446-1可达1100度， 446-2可达1075度  Utilized at temperature 1100 C for 446-1, and 1075 C for 446-2
	022Cr18Ti	S11863	439	S43035	1.4510	-		耐应力腐蚀。换热器管	
	019Cr19Mo2NbTi	S11972	444	S44400	1.4521	-		Good resistance to SCC corrosion. Heat exchanger tube	
超级铁素体 Super Ferritic Stainless Steel	00Cr27Mo3Ni2TiNb	-	S44660	S44660	-	Sea-Cure(Plymouth Tube)	耐氯离子点腐蚀，缝隙腐蚀，应力腐蚀基本免疫。耐磨蚀，高导热率，低热膨胀系数。海水淡化，电站冷凝器用管。 Good resistance to chloride pitting and crevice corrosion, immune to SCC. Good erosion resistance, high thermal conductivity and low thermal expansion. Desalination, power sea-water condenser tubes.		
	00Cr29Mo4TiNb	-	S44735	S44735	-	AL29-4C(ATI)			
	00Cr29Mo4Ni2TiNb	-	S44736	S44736	-	AL29-4-2(ATI)			
马氏体 Martensitic Stainless Steel	06Cr13	S41008	410S	S41008	1.4000	-	耐一定腐蚀，换热管 Low corrosion resistance, low thermal expansion. Heat exchanger tubes		
	12Cr13	S41010	410	S41000	1.4006	-			
	20Cr13	S42020	420	S42000	1.4021	API/13Cr L80			
	30Cr13	S42030	420J2	S42000	1.4028	-			
	14Cr17Ni2	S43110	431	S43100	-	-			
05Cr17Ni4Cu4Nb	S51740	17-4PH	S17400	1.4542	-	沉淀硬化马氏体不锈钢，高强度。 Precipitation hardening martensitic stainless steel. High strength.			
超级马氏体 Super Martensitic Stainless Steel	0Cr13Ni5Mo	-	13Cr110	S41426	1.4313	SM13CRS(NSSMC)	高强度，耐腐蚀。API油套管及接箍 High strength, good corrosive resistance. API tubing or coupling stock.		
	0Cr16Ni5Mo1N	-	-	-	1.4418	-			
	00Cr17Ni5Mo2Cu	-	17Cr110/125	-	-	SM17CRS(NSSMC)			

主要铁素体马氏体不锈钢化学成分表 Chemical Content of Typical Ferritic and Martensitic Stainless Steel

标准 Standard	钢种 Grade	碳 C	锰 Mn	磷 P	硫 S	硅 Si	铬 Cr	镍 Ni	钼 Mo	N	Nb	Ti	铝 Al	铜 Cu
A/SA268	TP405	≤ 0.08	≤ 1.00	≤ 0.040	≤ 0.030	≤ 1.00	11.50~14.50	≤ 0.50	-	-	-	-	0.1-0.3	-
A/SA268	TP410	≤ 0.15	≤ 1.00	≤ 0.040	≤ 0.030	≤ 1.00	11.50~13.50	-	-	-	-	-	-	-
A/SA268	TP410S	≤ 0.08	≤ 1.00	≤ 0.040	≤ 0.030	≤ 1.00	11.50~13.50	-	-	-	-	-	-	-
A/SA268	TP430	≤ 0.12	≤ 1.00	≤ 0.040	≤ 0.030	≤ 1.00	16.00~18.00	-	-	-	-	-	-	-
A/SA268	TP430Ti	≤ 0.10	≤ 1.00	≤ 0.040	≤ 0.030	≤ 1.00	16.00~19.50	≤ 0.75	-	-	-	5C-0.75	-	-
A/SA268	TP446-1	≤ 0.20	≤ 1.50	≤ 0.040	≤ 0.030	≤ 1.00	23.00~27.00	≤ 0.75	-	0.25	-	-	-	-
A/SA268	TP446-2	≤ 0.12	≤ 1.50	≤ 0.040	≤ 0.030	≤ 1.00	23.00~27.00	≤ 0.50	-	0.25	-	-	-	-
A/SA268	TP409	≤ 0.08	≤ 1.00	≤ 0.045	≤ 0.030	≤ 1.00	10.50~11.70	≤ 0.50	-	-	-	6C-0.75	-	-
A/SA268	TP439	≤ 0.07	≤ 1.00	≤ 0.040	≤ 0.030	≤ 1.00	17.00~19.00	≤ 0.50	-	0.04	-	0.2+ 4(C+N)-1.1	-	-
A/SA268	TP444	≤ 0.025	≤ 1.00	≤ 0.040	≤ 0.030	≤ 1.00	17.50~19.50	≤ 1.00	1.75-2.5	0.035	-	(Ti+Cb): 0.2+ 4(C+N)~0.8	-	-
A/SA756/268	440C	0.95~1.10	≤ 1.00	≤ 0.025	≤ 0.025	≤ 1.00	16.00~18.00	-	0.4-0.7	-	-	-	-	-
A/SA693	17-4PH	≤ 0.07	≤ 1.00	≤ 0.040	≤ 0.030	≤ 1.00	15.50~17.50	3.00~5.00	-	-	0.15-0.45	-	-	3.0-5.0
GOST9941-81	15Cr25Ti	≤ 0.15	≤ 0.80	≤ 0.035	≤ 0.025	≤ 1.00	24.00~27.00	-	-	-	-	5C-0.90	-	-
API 5CT	L80/9Cr	≤ 0.15	0.30~0.60	≤ 0.020	≤ 0.010	≤ 1.00	8.00~10.00	-	0.9-1.1	-	-	-	-	-
API 5CT	L80/13Cr	0.15~0.22	0.25~1.00	≤ 0.020	≤ 0.010	≤ 1.00	12.0~14.0	-	-	-	-	-	-	-
EN10088-1	0Cr13SiAl 1.4724	≤ 0.12	≤ 1.00	≤ 0.040	≤ 0.015	0.70~1.40	12.0~14.0	-	-	-	-	-	0.7-1.2	-
EN10088-1	0Cr18SiAl 1.4742	≤ 0.12	≤ 1.00	≤ 0.040	≤ 0.015	0.70~1.40	17.0~19.0	-	-	-	-	-	0.7-1.2	-
EN10088-1	0Cr24SiAl 1.4762	≤ 0.12	≤ 1.00	≤ 0.040	≤ 0.015	0.70~1.40	23.0~26.0	-	-	-	-	-	1.2-1.7	-
A/SA268	S44660	≤ 0.030	≤ 1.00	≤ 0.040	≤ 0.030	≤ 1.00	25.00~28.00	-	3.0-4.0	0.04	-	(Ti+Cb)= 0.2~1.0且 ≥ 6(C+N)~0.8	-	-
A/SA268	S44735	≤ 0.030	≤ 1.00	≤ 0.040	≤ 0.030	≤ 1.00	28.00~30.00	≤ 1.00	3.6-4.2	0.045	-	(Ti+Cb)= 0.2~1.0且 ≥ 6(C+N)~0.8	-	-

## 双相及 超级双相不锈钢 Duplex and Super Duplex Stainless Steel Tube

双相钢和超级双相钢因其兼有铁素体和奥氏体不锈钢的优点，被广泛用于石化，海水处理等含氯离子腐蚀的环境。飞鹤管业生产高质量的双相不锈钢和超级双相不锈钢换热管及流体公称管。

As the duplex and super duplex stainless steel has both the advantages of ferritic stainless steel and the austenitic stainless steel, they are widely used to produce heat transferring tubing for petrochemical industry, sea water treatment... in aggressive acidic, chloride containing environments. FH Tube supply customer duplex/super duplex tubes with high quality.

### 用途 Applications:

换热器, 冷凝器, 仪表, 流体输送等。

Heater, Heat Exchanger, Condenser, Instrumentation, Pipe lines...

### 标准 Available Specifications:

#### - ASTM/ASME A/SA789

通用无缝和焊接铁素体/奥氏体双相不锈钢管

Seamless and Welded Ferritic/Austenitic Stainless Steel Tubing for General Service

#### - ASTM/ASME A/SA790

无缝和焊接铁素体/奥氏体双相不锈钢公称管

Seamless and Welded Ferritic/Austenitic Stainless Steel Pipe



### 可生产管材尺寸范围

#### Available Sizes

产品 Products	外径 OD		壁厚 WT		长度 Length	
	Inch	MM	Inch	MM	Ft max.	Mt max.
Tube	1/2"-3"	12.0-76.2	0.02"-0.5"	0.5-12.0	105'	32.00
Pipe	NPS1/2"-10"	21.34-273.05	Sch10-Sch80	2.11-12.7	98'	30.00

可生产超长管 Super Length Tube/Pipe is our advantages.



飞鹤管业可供双相不锈钢无缝管材质一览表 Available Grades of Duplex Stainless Steel Seamless Tube/Pipe

	国标新牌号 NEW GB Grade	国标统一代码 GB Grade	美标牌号 ASTM/ASTM Grade	美国UNS代码 UNS Grade	欧标代码 EN Grade	国外公司商业牌号 Foreign Commercial Grade	特征/应用举例 Characteristics/Examples of Applications
双相钢 Duplex Stainless Steel	022Cr23Ni4MoCuN	S23043	S32304	S32304	1.4362	SAF2304 (Sandvik)	比304, 316更耐应力腐蚀, 点腐蚀, 缝隙腐蚀及磨蚀等。高强度, 屈服强度约为304, 316的2倍。 Better SCC, pitting and crevice corrosive, and Erosion corrosive resistance. High strength. Yield strength is about 2 times higher of 304 or 316.
	022Cr22Ni5Mo3N	S22253	S31803	S31803	1.4462	-	耐应力腐蚀, 点腐蚀, 缝隙腐蚀及磨蚀等。铬镍比S32205略低。 Better SCC, pitting and crevice corrosive, and Erosion corrosive resistance. High strength. Lower Cr and Ni content than S32205
	022Cr23Ni5Mo3N	S22053	S32205	S32205	1.4462	SAF2205 (Sandvik)	耐应力腐蚀, 点腐蚀, 缝隙腐蚀及磨蚀等。 Better SCC, pitting and crevice corrosive, and Erosion corrosive resistance.
超级双相钢 Super Duplex Stainless Steel	022Cr25Ni7Mo4N	S25073	S32750	S32750	1.4410	SAF2507(Sandvik)	比普通双相不锈钢更耐应力腐蚀, 点腐蚀, 缝隙腐蚀及磨蚀等, 强度更高。 Better SCC, pitting and crevice corrosive, and Erosion corrosive resistance than ordinary duplex stainless steel. Higher strength.
	022Cr25Ni7Mo3WCU	S22583	S31260	S31260	-	-	
	03Cr25Ni6Mo3Cu2N	S25554	S32550	S32550	1.4507	UR52+	
	022Cr25Ni7Mo4WCU	S27603	S32760	S32760	1.4501	Zeron100	
	00Cr27Ni7Mo5N	-	S32707	S32707	-	SAF2707(Sandvik)	特超级双相不锈钢, 比其他双相不锈钢更耐应力腐蚀, 点腐蚀, 缝隙腐蚀及磨蚀等, 强度更高。 Hyper duplex stainless steel, better SCC, pitting and crevice corrosive, and Erosion corrosive resistance than other duplex or super duplex stainless steel. higher strength.

ASTM/ASME A789/SA789

主要双相不锈钢化学成分表 Chemical Content of Typical Duplex Stainless Steel

牌号元素	C	Mn	P	S	Si	Ni	Cr	Mo	N	Cu	W	Co
S31200	0.03	2.0	0.045	0.03	1	5.5-6.5	24.0-26.0	1.2-2.0	0.14-0.20	-	-	-
S31260	0.03	1.0	0.03	0.03	0.75	5.5-7.5	24.0-26.0	2.5-3.5	0.1-0.3	0.2-0.8	0.1-0.5	-
S31500	0.03	1.2-2.0	0.03	0.03	1.4-2.0	4.3-5.2	18.0-19.0	2.5-3.0	0.05-0.1	-	-	-
S31803	0.03	2.0	0.03	0.02	1	4.5-6.5	21.0-23.0	2.5-3.5	0.08-0.2	-	-	-
S32001	0.03	4.0-6.0	0.04	0.03	1	1.0-3.0	19.05-21.5	0.6	0.05-0.17	1	-	-
S32003	0.03	2.0	0.03	0.02	1	3.0-4.0	19.05-22.5	1.5-2.0	0.14-0.20	-	-	-
S32101	0.04	4.0-6.0	0.04	0.03	1	1.35-1.7	21.0-22.0	0.1-0.8	0.20-0.25	0.10-0.8	-	-
S32202	0.03	2.0	0.04	0.01	1	1.0-2.8	21.5-24.0	0.45	0.18-0.26	-	-	-
S32205	0.03	2.0	0.03	0.02	1	4.5-6.5	22.0-23.0	3.0-3.5	0.14-0.20	-	-	-
S32304	0.03	2.5	0.04	0.04	1	3.0-5.5	21.5-24.5	0.05-0.60	0.05-0.20	0.05-0.60	-	-
S32506	0.03	1.0	0.04	0.015	0.9	5.5-7.2	24.0-26.0	3.0-3.5	0.08-0.2	-	0.05-0.30	-
S32520	0.03	1.5	0.035	0.02	0.8	5.5-8.0	23.0-25.0	3.0-5.0	0.20-0.35	0.50-3.0	-	-
S32550	0.04	1.5	0.04	0.03	1	4.5-6.5	24.0-27.0	2.9-3.9	0.10-0.25	1.5-2.5	-	-
S32707	0.03	1.5	0.035	0.01	0.5	5.5-9.5	26.0-29.0	4.0-5.0	0.3-0.5	1	-	0.5-2.0
S32750	0.03	1.2-2.0	0.035	0.02	0.8	6.0-8.0	24.0-26.0	3.0-5.0	0.24-0.32	0.5	-	-
S32760	0.03	1.0	0.03	0.01	1	6.0-8.0	24.0-26.0	3.0-4.0	0.20-0.30	0.5-1.0	0.05-1.0	-
S32906	0.03	0.8-1.5	0.03	0.03	0.8	5.8-7.5	28.0-30.0	1.50-2.60	0.30-0.40	0.8	-	-



## 高钢级合金钢管 High Grade Alloy Steel Tube/Pipe

飞鹤管业专业生产合金无缝管，因合金管化学成分中含Cr比较多，耐高温、耐低温、耐腐蚀的性能。主要用于电厂锅炉管和炼油厂炉管。主要生产材质有P9/T9, P5/T5, P91/T91, P92/T92, P24/T24, P122/T122, P911/T911等。

Because the chemical composition of the alloy tube contains more Cr, high temperature resistance, low temperature resistance and corrosion resistance. It is mainly used in power plant boiler tubes and refinery furnace tubes. Typical Grade: P9/T9, P5/T5, P91/T91, P92/T92, P24/T24, P122/T122, P911/T911...

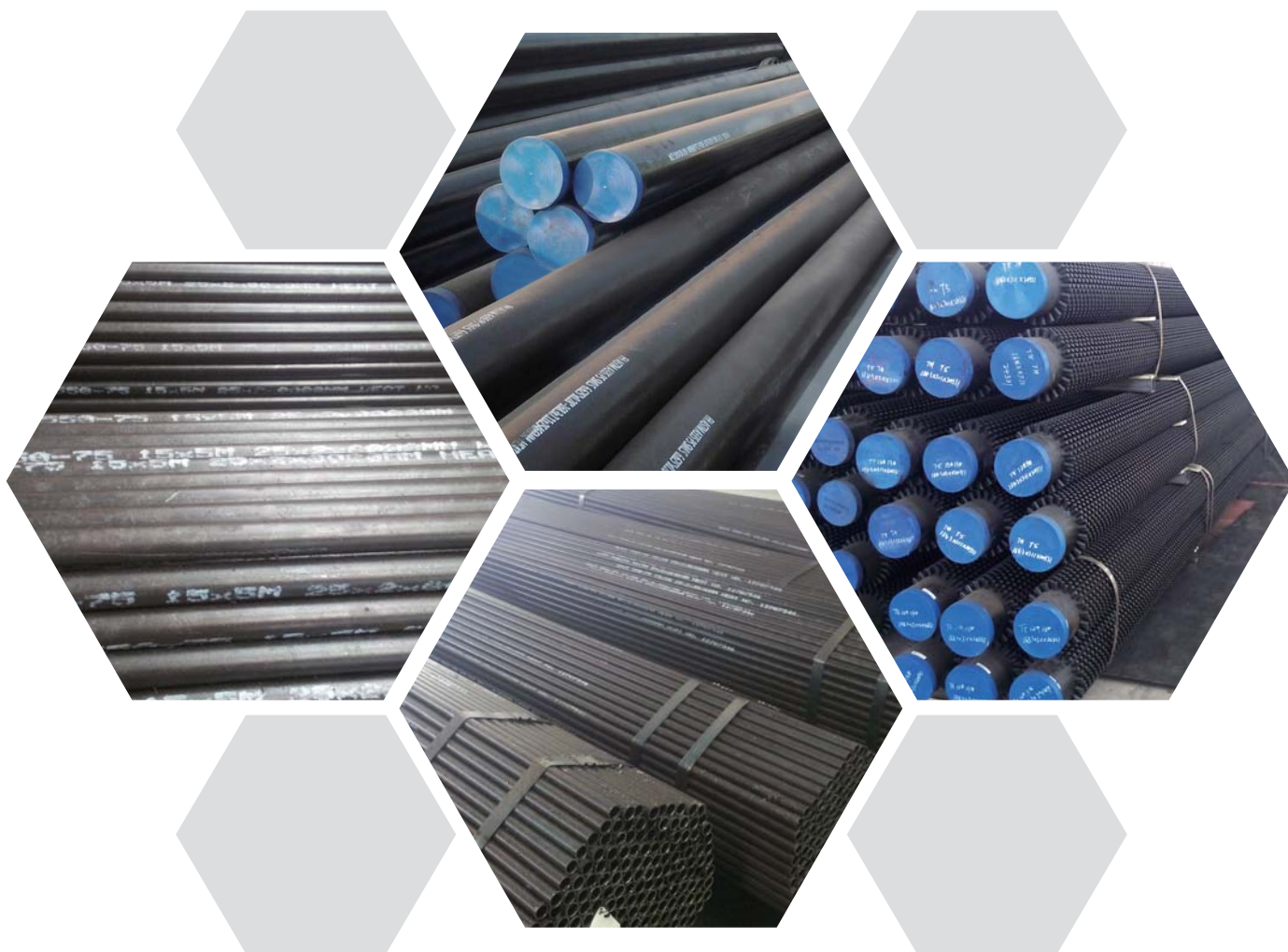


### 用途 Applications:

电厂锅炉管/炼油厂炉管  
Boiler tube of power plant / Refinery furnace tube.

### 标准 Available Specifications:

- **ASTM/ASME A/SA213/213M**  
锅炉、过热器和热交换器用无缝铁素体和奥氏体合金钢管标准规范  
Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes
- **ASTM/ASME A/SA335/335M**  
高温下使用的无缝铁素体合金钢管的标准规格  
Standard Specification for Seamless Ferritic Alloy-Steel Pipe for High-Temperature Service
- **EN10216-2**  
压力无缝钢管. 交货技术条件. 规定高温特性的非合金和合金钢管  
Seamless steel tubes for pressure purposes-  
Technical delivery conditions-  
Part 2: Non alloy and alloy steel tubes with specified elevated temperature properties



高钢级合金钢管化学成分表 Chemical Content of Typical High Grade Alloy Steel

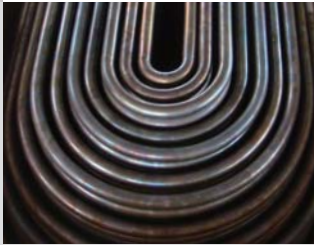
标准 Standard	钢种 Grade	碳 C	锰 Mn	磷 P	硫 S	硅 Si	铬 Cr	镍 Ni	钼 Mo
ASTM A213/ASTM A335	T5/P5	0.15	0.3-0.6	0.025	0.025	0.5	4.0-6.0	-	0.45-0.65
EN10216-2	1.7362	0.08-0.15	0.3-0.6	0.025	0.02	0.15-0.5	4.0-6.0	-	0.45-0.65
ASTM A213/ASTM A335	T9/P9	0.15	0.3-0.6	0.025	0.025	0.25-1.0	8.0-10.0	-	0.9-1.1
EN10216-2	1.7386	0.08-0.15	0.3-0.6	0.025	0.02	0.25-1.0	8.0-10.0	-	0.9-1.1
ASTM A213/ASTM A335	T91/P91	0.07-0.14	0.3-0.6	0.02	0.01	0.2-0.5	8.0-9.5	0.4	0.85-1.05
EN10216-2	1.4903	0.08-0.12	0.3-0.6	0.02	0.01	0.2-0.5	8.0-9.5	0.4	0.85-1.05
ASTM A213/ASTM A335	T92/P92	0.07-0.13	0.3-0.6	0.02	0.01	0.5	8.5-9.5	0.4	0.3-0.6
EN10216-2	1.4901	0.07-0.13	0.3-0.6	0.02	0.01	0.5	8.5-9.5	0.4	0.3-0.6
ASTM A213/ASTM A335	T24/P24	0.05-0.10	0.3-0.7	0.02	0.01	0.15-0.45	2.2-2.6	-	0.9-1.1
EN10216-2	1.7378	0.05-0.10	0.3-0.7	0.02	0.01	0.15-0.45	2.2-2.6	-	0.9-1.1
ASTM A213/ASTM A335	T122/P122	0.07-0.14	0.7	0.02	0.01	0.5	10.0-11.5	0.5	0.25-0.6
ASTM A213/ASTM A335	T911/P911	0.09-0.13	0.3-0.6	0.02	0.01	0.1-0.5	8.5-9.5	0.4	0.9-1.1
EN10216-2	1.4922/X20CrMoV11-1	0.17-0.23	1.0	0.025	0.02	0.15-0.5	10.0-12.5	0.3-0.8	0.8-1.2

标准 Standard	钢种 Grade	N	Nb	Ti	铝 Al	铜 Cu	V	B	T	Zr
ASTM A213/ASTM A335	T5/P5	-	-	-	-	-	-	-	-	-
EN10216-2	1.7362	-	-	-	0.04	0.3	-	-	-	-
ASTM A213/ASTM A335	T9/P9	-	-	-	-	-	-	-	-	-
EN10216-2	1.7386	-	-	-	0.04	0.3	-	-	-	-
ASTM A213/ASTM A335	T91/P91	0.03-0.07	0.06-0.1	0.01	0.02	-	0.18-0.25	-	-	0.01
EN10216-2	1.4903	0.03-0.07	0.06-0.1	-	0.04	0.3	0.18-0.25	-	-	-
ASTM A213/ASTM A335	T92/P92	0.03-0.07	0.04-0.09	0.01	0.02	-	0.15-0.25	0.001-0.006	1.5-2.0	0.01
EN10216-2	1.4901	0.03-0.07	0.04-0.09	-	0.04	-	0.15-0.25	0.001-0.006	1.5-2.0	-
ASTM A213/ASTM A335	T24/P24	0.012	-	0.06-0.1	0.02	-	0.2-0.3	0.0015-0.007	-	-
EN10216-2	1.7378	0.01	-	0.05-0.1	0.02	-	0.2-0.3	0.0015-0.007	-	-
ASTM A213/ASTM A335	T122/P122	0.04-0.1	0.04-0.10	0.01	0.02	0.3-1.7	0.15-0.3	0.0005-0.005	1.5-2.5	0.01
ASTM A213/ASTM A335	T911/P911	0.04-0.09	0.06-0.1	0.01	0.02	-	0.18-0.25	0.0003-0.006	0.9-1.1	0.01
EN10216-2	1.4922/X20CrMoV11-1	-	-	-	0.04	0.3	0.25-0.35	-	-	-

## U型管 U-bent Tube

飞鹤管业以熟练和专业的弯管团队，齐备的弯管工具和设备，生产各种材质的换热器用U型管，包括镍合金，不锈钢。从产品生产到包装，完全符合标准要求。以客户需求为导向，为客户提供增值服务。

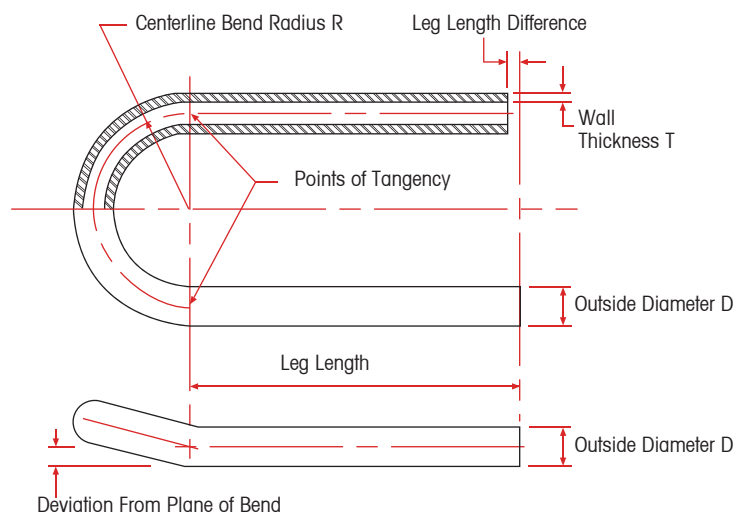
Our experienced and professional team of bending, and full tools and equipments make us provide customers almost all kinds of metal U-bent tubes with high quality. With our unique manufacturing capabilities, FH Tube also supply customer with value-added service.



### U型管优势和特长:

#### Advanced capabilities for U-bent tubes:

- 可靠的弯管机器  
Reliable bending machines
- 精密的弯管模具  
Precision bending dies
- 弯管前探伤  
Eddy current test before bending
- 最长直管长度可达32米  
Bending up to 105'(32m) developed length
- 弯管后U型部分电加热去应力退火  
Electric resistance stress relief annealing after bending
- 弯管后100%水压探伤  
Hydrostatic test after bending
- 弯管部分减径减壁检测  
OD and WT reduction Testing
- 弯管半径及脚长公差检测  
Full bending radius and tube legs tolerance check
- 专业U型管木箱包装  
Stack-rack boxing
- 详细的产品标识  
Detailed labeling

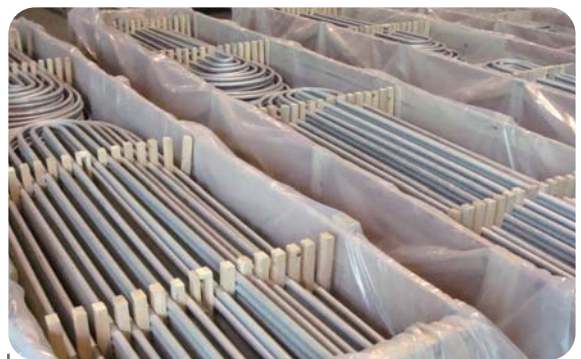


可生产的U型管 Available Metal U-bent Tubes

产品 Products	尺寸 Dimensions (mm)			标准 Standards	材质 Materials	备注 Remarks
	外径 O.D.	壁厚 W.T.	长度 Length			
换热器用U型管 U-bent Tubes for Heat Exchanger	12.7-76.2mm (1/2"-3")	0.5-5.16mm (0.02"-0.203")	Leg Length: 15.24m (50')  Total length: 32.00m(105')	ASTM/ASME A/SA213	T5, T11,T12, T22, T9, T91, TP304/304L, TP304H, TP316/316L, TP347/347H, TP316Ti, TP321/321H, TP310S	无缝铁素体和奥氏体不锈钢U型管 Seamless Ferritic and Austenitic Stainless Steel U-bent Tubes
				ASTM/ASME A/SA249	TP304, TP304L, TP316, TP316L...	焊接不锈钢U型管 Welded Stainless Steel U-bent Tubes
				ASTM/ASME A/SA789	UNS S31803/32205, UNS S32750...	双相不锈钢U型管 Duplex Stainless Steel U-bent Tubes
				ASTM/ASME A/SA163	Monel400, UNS N06600, 625, Incoloy800/800H, 825...	无缝镍合金U型管 Seamless Nickel Alloy U-bent Tubes
				ASTM/ASME A/SA268	TP405, TP409, TP410, TP430,TP439...	无缝马氏体和铁素体不锈钢U型管 Ferritic and Martensitic Stainless Steel Seamless U-bent Tubes
无缝不锈钢给水加热器用U型管 Seamless and (Welded)Re-drawn Stainless Steel Feed Water Heater U-bent Tubes	12.7-25.4mm (1/2"-1")	0.7-3.05mm (0.028"-0.12")	Leg Length: 15.24m (50')  Total length: 32.00m(105')	ASTM/ASME A/SA668/213  ASTM/ASMEA/SA803	TP304, TP304L, TP304LN, TP316, TP316L, TP316LN, TP439	电站用低压给水加热器用U型管 Low Pressure Feed Water Heater of Thermal Power Station



无缝不锈钢给水加热器用U型管  
Stainless steel U-bent Tube



镍合金U形管  
Nickel alloy U-bent Tube



电气应力退火管  
Electric stress relief annealed tubes



弯曲后的管  
Tubes after bending

## 奥氏体不锈钢 Austenitic Stainless Steel Tube

奥氏体不锈钢无缝管以其广泛的耐腐蚀性，优异的焊接性能，被大量用于锅炉换热器制造，已及流体输送。除一般的奥氏体不锈钢无缝管外，飞鹤管业还生产一些材质特殊或超级奥氏体无缝管。满足客户的特殊用途，为客户提供增值服务。

Austenitic stainless steel's resistance to general corrosion, good weldability... help the designer to use them to produce boiler and heat exchanger. It is the most widely used for heat transferring tubing. FH Tube supply the most grades of tubes with perfect quality, and value-added service.



### 用途 Applications:

换热器、锅炉、冷凝器、给水加热器、仪表、流体输送等。

Boiler, Heater, Heat Exchanger, Condenser, Feedwater Heater, Instrumentation, Pipe lines...

### 标准 Available Specifications:

#### - ASTM/ASME A/SA213

无缝(铁素体)和奥氏体合金锅炉、过热器、及换热器管

Seamless (Ferritic) and Austenitic Alloy-Steel Boiler, Superheater, and Heat-exchanger Tubes

#### - ASTM/ASME A/SA269

通用无缝和焊接奥氏体不锈钢管

Seamless and Welded Austenitic Stainless Steel Tubing for General Service

#### - ASTM/ASME A/SA312

无缝奥氏体不锈钢公称管

Seamless Austenitic Stainless Steel Pipes



### 可生产管材尺寸范围 Available Sizes

产品 Products	外径 OD		壁厚 WT		长度 Length	
	Inch	MM	Inch	MM	Ft max.	Mt max.
Tube	1/2"-3"	12.0-76.2	0.02"-0.5"	0.5-12.0	105'	32.00
Pipe	NPS1/2"-6"	21.34-168.3	Sch10-Sch80	2.11-12.7	98'	30.00

可生产超长管 Super Length Tube/Pipe is our advantages.



飞鹤管业可供奥氏体不锈钢无缝管材质一览表  
Available Grades of Austenitic Stainless Steel Seamless Tube/Pipe

	国标新牌号	国标统一代码	美标牌号	美国UNS代码	欧标代码	国外公司商业牌号	特征/应用举例
	NEW GB Grade	GB Grade	ASTM/ASTM Grade	UNS Grade	EN Grade	Foreign Commercial Grade	Characteristics/Examples of Applications
奥氏体 Austenitic Stainless Steel	06Cr19Ni10	S30408	304	S30400	1.4301	-	最基础奥氏体不锈钢, 耐水空气腐蚀。换热器, 流体输送。 The basic austenitic stainless steel. For heat exchanger and piping
	07Cr19Ni10	S30409	304H	S30409	1.4948	-	高碳, 强度, 耐温度比304高。 Higher carbon content, and strength, better heat resistance than 304
	022Cr19Ni10	S30403	304L	S30403	1.4307	-	低碳, 比304耐晶腐, 提高焊接性 Lower carbon content, better resistance to intergranular corrosion, better weldability.
	022Cr19Ni10N	S30453	304LN	S30453	1.4311	-	低碳加氮, 强度高。给水加热管。 Lower carbon content with adding of Nitrogen, higher strength. For feed water heat tubes.
	-	-	super304	S30432	-	Super304H(NSSMC)	超级304, 锅炉管 Super 304, boiler tubes
	06Cr18Ni11Ti	S32168	321	S32100	1.4541	-	含钛, 比304耐腐蚀 With content of Titanium, better corrosive resistance than 304
	07Cr18Ni11Ti	S32169	321H	S32109	1.4940	-	高碳, 强度, 耐温度比321高。 Higher carbon content, and strength, better heat resistance than 321.
	06Cr17Ni12Mo2	S31608	316	S31600	1.4401	-	耐氯离子腐蚀 Low Cl-corrosive resistance.
	022Cr17Ni12Mo2	S31603	316L	S31603	1.4404	-	低碳, 比316耐晶腐, 提高焊接性 Lower carbon content, better resistance to intergranular corrosion, better weldability
	022Cr17Ni12Mo2N	S31653	316LN	S31653	1.4406	-	低碳加氮, 强度高。给水加热管。 Lower carbon content with adding of Nitrogen, higher strength. For feed water heat tubes.
	06Cr17Ni12Mo3Ti	S31668	316Ti	S31635	1.4571	-	含钛, 比316耐腐蚀 With content of Titanium, better corrosive resistance than 316
	00Cr17Ni14Mo2	-	316LMoD/316LUG	S31603	1.4435	-	尿素级316 Urea Grade 316
	022Cr19Ni13Mo3	S31703	317L	S31703	1.4438	-	比316更耐还原性酸及局部腐蚀 Better Pitting corrosive resistance than 316
	022Cr19Ni16Mo5N	S31723	317LMN	S31725	1.4439	-	加氮, 增加强度和组织稳定性 With content of Nitrogen, higher strength and structure stability
	06Cr25Ni20	S31008	310S	S31008	1.4845	-	耐高温, 耐腐蚀 High temperature and corrosive resistance
	00Cr19Ni11	-	304L	S30403	1.4307	3RE12(Sandvik)	极纯硝酸级不锈钢, 硝酸浓度65%以下 High purity of HNO <sub>3</sub> grade stainless steel. Utilized 65% HNO <sub>3</sub> and lower
	-	-	310L	S31002	1.4335	2RE10(Sandvik)	极纯硝酸级不锈钢, 硝酸浓度85%以下 High purity of HNO <sub>3</sub> grade stainless steel. Utilized 85% HNO <sub>3</sub> and lower
	20Cr25Ni20	S31020	310H	S31009	1.4821	-	高碳, 耐温度比310S高 Higher carbon content, and strength, better heat resistance than 310S
	16Cr25Ni20Si2	S38340	314	-	1.4841	-	高硅, 抗高温氧化性和抗蠕变性能好 High silicon content, high temperature oxidation resistance and creep-rupture strength
	022Cr25Ni22Mo2N	S31053	310MoLN	S31050	1.4466	2RE69(Sandvik)	尿素级310 Urea Grade 310
-	-	310HCbN	S31042	-	HR3C(NSSMC)	高强度, 耐高温, 锅炉管 High strength, high temperature resistance. Boiler tubes	
07Cr18Ni11Nb	S34749	347H	S34709	1.4942	-	耐氧化, 耐高温锅炉管 Oxidation resistant and high temperature resistant boiler tubes	
-	-	347HFG	S34710	-	-	高晶粒度347H, 锅炉管 High grain size 347H, boiler tube	
015Cr21Ni26M5Cu2	S31782	904L	N08904	1.4539	2RK65(Sandvik)	高钼, 有更高的耐各种腐蚀性性能 High molybdenum has higher corrosion resistance.	
超级 奥氏体 Super Austenitic Stainless Steel	015Cr20Ni18Mo6CuN	S31252	S31254	S31254	1.4547	254SMO(Sandvik)	6钼, 高耐点蚀, 耐缝隙腐蚀
	00Cr20Ni24Mo6N	-	N08367	N08367	-	AL6XN, AL6XN plus(ATI)	6% Mo content, high Pitting and crevice corrosion resistance.
	00Cr21Ni25Mo6CuN	-	N08926	N08926	1.4529	-	
	015Cr24Ni22Mo8Mn3CuN	S32652	S32654	S32654	1.4652	654SMO(Outokumpu)	7钼, 更高的耐点蚀, 耐缝隙腐蚀性
00Cr22Ni27Mo7CuN	-	S31277	S31277	-	-	7% Mo content, better Pitting and crevice corrosion resistance.	



主要奥氏体不锈钢化学成分表 Chemical Content of Typical Austenitic Stainless Steel

牌号元素	C	Mn	P	S	Si	Cr	Ni	Mo	Ti	Nb	Ta	N	V	Cu	Ce	B	Al
TP304	0.08	2.0	0.045	0.03	1.0	18.0-20.0	8.0-11.0	-	-	-	-	-	-	-	-	-	-
TP304L	0.035	2.0	0.045	0.03	1.0	18.0-20.0	8.0-13.0	-	-	-	-	-	-	-	-	-	-
TP304H	0.04-0.1	2.0	0.045	0.03	1.0	18.0-20.0	8.0-11.0	-	-	-	-	-	-	-	-	-	-
TP304N	0.08	2.0	0.045	0.03	1.0	18.0-20.0	8.0-11.0	-	-	-	-	0.1-0.16	-	-	-	-	-
TP304LN	0.035	2.0	0.045	0.03	1.0	18.0-20.0	8.0-12.0	-	-	-	-	0.1-0.16	-	-	-	-	-
Super 304	0.07-0.13	1.0	0.04	0.01	0.3	17.0-19.0	7.5-10.5	-	-	0.3-0.6	-	0.05-0.12	-	2.5-3.5	-	0.001-0.01	0.003-0.03
TP309S	0.08	2.0	0.045	0.03	1.0	22.0-24.0	12.0-15.0	0.75	-	-	-	-	-	-	-	-	-
TP309H	0.04-0.1	2.0	0.045	0.03	1.0	22.0-24.0	12.0-15.0	-	-	-	-	-	-	-	-	-	-
TP310S	0.08	2.0	0.045	0.03	1.0	24.0-26.0	19.0-22.0	0.75	-	-	-	-	-	-	-	-	-
TP310H	0.04-0.10	2.0	0.045	0.03	1.0	24.0-26.0	19.0-22.0	-	-	-	-	-	-	-	-	-	-
TP310L	0.015	2.0	0.02	0.015	0.15	24.0-26.0	19.0-22.0	0.1	-	-	-	0.1	-	-	-	-	-
TP310MoLN	0.025	2.0	0.02	0.015	0.4	24.0-26.0	20.5-23.5	1.6-2.6	-	-	-	0.09-0.15	-	-	-	-	-
TP310HCbN	0.04-0.10	2.0	0.045	0.03	1.0	24.0-26.0	19.0-22.0	1.6-2.6	-	-	0.2-0.6	0.15-0.35	-	-	-	-	-
1.4841/TP314	0.2	2.0	0.045	0.015	1.5-2.5	24.0-26.0	19.0-22.0	-	-	-	-	0.11	-	-	-	-	-
TP316	0.08	2.0	0.045	0.03	1.0	16.0-18.0	10.0-14.0	2.0-3.0	-	-	-	-	-	-	-	-	-
TP316L	0.035	2.0	0.045	0.03	1.0	16.0-18.0	10.0-14.0	2.0-3.0	-	-	-	-	-	-	-	-	-
TP316N	0.08	2.0	0.045	0.03	1.0	16.0-18.0	10.0-14.0	2.0-3.0	-	-	-	0.10-0.16	-	-	-	-	-
TP316H	0.04-0.1	2.0	0.045	0.03	1.0	16.0-18.0	10.0-14.0	2.0-3.0	-	-	-	-	-	-	-	-	-
TP316Ti	0.08	2.0	0.045	0.03	0.75	16.0-18.0	10.0-14.0	2.0-3.0	5X(C+N)	-	-	0.1	-	-	-	-	-
TP316LN	0.035	2.0	0.045	0.03	1.0	16.0-18.0	10.0-14.0	2.0-3.0	-	-	-	0.10-0.16	-	-	-	-	-
TP316MoD/316LUG	0.035	2.0	0.045	0.03	1.0	16.0-18.0	10.0-14.0	2.0-3.0	-	-	-	-	-	-	-	-	-
TP317	0.08	2.0	0.045	0.03	1.0	18.0-20.0	11.0-15.0	3.0-4.0	-	-	-	-	-	-	-	-	-
TP317L	0.035	2.0	0.045	0.03	1.0	18.0-20.0	11.0-15.0	3.0-4.0	-	-	-	-	-	-	-	-	-
TP317LM	0.03	2.0	0.045	0.03	1.0	18.0-20.0	13.5-17.5	4.0-5.0	-	-	-	0.2	-	0.75	-	-	-
TP317LMN	0.03	2.0	0.045	0.03	1.0	17.0-20.0	13.5-17.5	4.0-5.0	-	-	-	0.10-0.20	-	0.75	-	-	-
TP321	0.08	2.0	0.045	0.03	1.0	17.0-19.0	9.0-12.0	-	-	-	-	0.1	-	-	-	-	-
TP321H	0.04-0.10	2.0	0.045	0.03	1.0	17.0-19.0	9.0-12.0	-	4(C+N) - 0.70	-	-	-	-	-	-	-	-
TP347	0.08	2.0	0.045	0.03	1.0	17.0-19.0	9.0-13.0	-	-	10*C - 0.01	-	-	-	-	-	-	-
TP347H	0.04-0.1	2.0	0.045	0.03	1.0	17.0-19.0	9.0-13.0	-	-	8*C - 0.01	-	-	-	-	-	-	-
347HFG	0.06-0.10	2.0	0.045	0.03	1.0	17.0-19.0	9.0-13.0	-	-	8*C - 0.01	-	-	-	-	-	-	-
S30815	0.05-0.10	0.8	0.04	0.03	1.4-2.0	20.0-22.0	10.0-12.0	-	-	-	-	0.14-0.20	-	-	0.03-0.08	-	-
S31254	0.02	1.0	0.03	0.01	0.8	19.05-20.5	17.5-18.5	6.0-6.5	-	-	-	0.18-0.25	-	0.5-1.0	-	-	-
N08367	0.03	2	0.04	0.03	1.0	20.0-22.0	23.5-25.5	6.0-7.0	-	-	-	0.18-0.25	-	0.75	-	-	-
N08926	0.02	2	0.03	0.01	0.5	19.0-21.0	24.0-26.0	6.0-7.0	-	-	-	0.15-0.25	-	0.5-1.5	-	-	-
S32654								-	-	-	-	-	-	-	-	-	-
S31277								-	-	-	-	-	-	-	-	-	-



## 镍合金 Nickel Alloy Tube/Pipe

飞鹤管业以成熟的工艺技术和生产经验，优质的原材料，为客户生产耐高温耐腐蚀的镍基合金无缝管。

FH Tube's technical and production advantages assure us to supply customers with high quality nickel alloy tubes and pipes for serious corrosion and high temperature environments. The raw material is from famous domestic melting mill or from top class plants of the world.



### 用途 Applications:

换热器, 冷凝器, 仪表, 流体输送等。

Boiler, Heater, Heat Exchanger, Condenser, Instrumentation, Pipe lines...



### 标准 Available Specifications:

#### - ASTM/ASME B/SB163

无缝镍及镍合金冷凝器和热交换器管

Seamless Nickel and Nickel Alloy Condenser and Heat Exchanger Tubes

#### - ASTM/ASME B/SB165

镍铜合金(UNS N04400)无缝管

Nickel-Copper Alloy (UNS N04400) Seamless Tube and Pipe

#### - ASTM/ASME B/SB167

镍铬铁合金(UNS N06600, N06601, N06603, N06690, N06693, N06025 and N06045)及镍钴钼合金

(UNS N06617)无缝管

Nickel-Chromium-Iron Alloys (UNS N06600, N06601, N06603, N06690, N06693, N06025 and N06045) and Nickel-Cobalt-Molybdenum Alloy (UNS N06617) Seamless Pipe and Tube

#### - ASTM/ASME B/SB423

镍铁钼铜合金(UNS N08825 and UNS N08221)无缝管

Nickel-Iron-Molybdenum-Copper Alloy (UNS N08825 and UNS N08221)

Seamless Pipe and Tube

#### - API5CRA / ISO13680

油套管及接箍料用耐蚀合金无缝管

Corrosion Resistant Alloy Seamless Tubes for Use as Casing, Tubing and Coupling Stock

#### - ASTM/ASME B/SB444

镍铬钼钨(钼)合金(UNS N06625)及镍铬钼硅合金(UNS N06219)管

Nickel-Chromium-Molybdenum-Columbium Alloy (UNS N06625) and

Nickel-Chromium-Molybdenum-Silicon

Alloy (UNS N06219) Pipe and Tube

#### - ASTM/ASME B/SB407

镍铁铬合金无缝管

Nickel-Iron-Chromium Alloy Seamless Pipe and Tube

#### - ASTM/ASME B/SB668

UNS N08028 无缝管

UNS N08028 Seamless Tubes

#### - ASTM/ASME B/SB677

UNS N08904, UNS N08925, UNS N08926 无缝管

UNS N08904, UNS N08925, UNS N08926 Seamless Pipe and Tube

#### - ASTM/ASME B/SB690

铁镍铬钼合金(UNS S08366 and UNS S08367)无缝管

Iron-Nickel-Chromium-Molybdenum Alloys (UNS S08366 and UNS S08367)

Seamless Pipe and Tube

#### - ASTM/ASME B/SB622

无缝镍及镍钴合金管

Seamless Nickel and Nickel-Cobalt Alloy Pipe and Tube

### 可生产管材尺寸范围

#### Available Sizes

产品 Products	外径 OD		壁厚 WT		长度 Length	
	Inch	MM	Inch	MM	Ft max.	Mt max.
Tube	1/2"-3"	12.0-76.2	0.02"-0.5"	0.5-12.0	105'	32.00
Pipe	NPS1/2"-6"	21.34-168.3	Sch10-Sch80	2.11-12.7	98'	30.00

可生产超长管 Super Length Tube/Pipe is our advantages.



飞鹤管业可供镍合金无缝管材质一览表 Available Grades of Nickel Alloy Seamless Tube/Pipe



飞鹤管业  
FH TUBE

国标新牌号	国标统一代码	美标牌号	美国UNS代码	欧标代码	国外公司商业牌号	特征/应用举例
NEW GB Grade	GB Grade	ASTM/ASTM Grade	UNS Grade	EN Grade	Foreign Commercial Grade	Characteristics/Examples of Applications
Ni68Cu28Fe	-	Monel400	N04400	2.4360	Monel 400(SMC)	较镍、铜耐氧化还原性等腐蚀，耐海水，氢氟酸，碱液腐蚀。化学，石化，海洋开发等用换热管。 Better oxidatong and reducing corrosive resistance. Resistance to seawater, HF and alkalis corrosion. Heat exchanger tube for chemical, petrochemical, ocean development.
-	-	K500	N05500	2.4375	Monel K500(SMC)	兼有400合金性能，可时效强化，有更高的强度和硬度。 Combining the corrosive resistance of 400 alloy. Precipitation hardened, higher strength and hardness
1Cr15Ni75Fe	NS3102	600	N06600	2.4816	Inconel 600(SMC)	耐高温氧化物介质腐蚀，用于热处理及化学加工工业装置。 Resistance to oxidation corrosion at high temperature, to Chloride-ion SCC. Tubing used for heat treatment and chemical processing.
1Cr23Ni60Fe13Al	NS3103	601	N06601	2.4851	Inconel 601(SMC)	抗高温氧化，及其它高温腐蚀形式，高温强度高。工业炉管，加热器等。 Good resistance to oxidation and other forms of high temperature corrosion. High strength at high temperature, Industrial furnace and heater tubes, etc.
20Cr25Ni60Fe10AlY	-	602	N06025	2.4633	Nicrofer 6025HT(VDM)	高高温蠕变强度，疲劳腐蚀强度，耐周期性高温氧化和渗碳。加热管和炉管等。 Excellent high temperature creep strength, good fatigue strength in the cycle fatigue mode, resistance to oxidation at high temperature in cycle condition, and to carburization. Heater and furnace tubes.
-	-	617	N06617	2.4663	Inconel 617(SMC)	高的高温组织稳定性，强度，耐氧化。燃气轮机部件等。 High metallurgical stability, strength, and oxidation resistance at high temperature. Used in gas turbine parts, and prochemical processing.
0Cr20Ni65Mo10Nb4	NS3306	625	N06625	2.4856	Inconel 625(SMC)	耐氧化-还原复合介质、耐海水腐蚀，热强度高，抗点蚀和缝隙腐蚀。用于化学加工业中苛刻腐蚀环境或海洋环境。 Resistance to combined oxidating and reducing corrosion, to seawater corrosion, high strength, resistance to pitting and crevice corrosion. Used in chemical processing and other severe invironments and ocean environment.
0Cr30Ni60Fe10	NS3105	690	N06690	2.4642	Inconel 690(SMC)	抗氯化物及高温高压水应力腐蚀，耐强氧化性介质及HNO <sub>3</sub> 腐蚀；用于核电站热交换器、蒸发器管等。 Resistance to chloride and high temperture and pressure water corrosion. Resistant to severe oxidizing acid and HNO <sub>3</sub> corrosion. Tube used in heat exchanger and the steam generator in nuclear power station.
0Cr20Ni32AlTi	NS1101	800	N08800	1.4558	Incoloy 800(SMC)	抗氧化性介质腐蚀，高温抗渗碳性良好；用于热交换器及蒸汽发生器管、合成纤维的加热管。 Resistant to oxidizing acid, and carburization at high temperature. Tubes used in heat exchanger and steam generator, and heater.
1Cr20Ni32AlTi	NS1102	800H	N08810	1.4876	Incoloy 800H(SMC)	抗氧化性介质腐蚀，抗高温渗碳，热强度高；用于合成纤维的加热管。 Resistant to oxidizing acid, and carburization at high temperature. Higher creep-rupture strength. Heater, furnace tubes. And super-heater and reheater tubes in power plant.
-	-	800HT	N08811	1.4958	Incoloy 800HT(SMC)	抗氧化性介质腐蚀，抗高温渗碳，热强度高；比800有更高的蠕变断裂强度。用于合成纤维为程中的加热管炉管等。电站过热器再热器等。 Resistant to oxidizing acid, and carburization at high temperature. Higher Creep-rupture strength. Heater, furnace tubes. And super-heater and reheater tubes in power plant.
0Cr21Ni42Mo3Cu2Ti	NS1402	825	N08825	2.4858	Incoloy 825(SMC)	耐应力腐蚀，点腐蚀及缝隙腐蚀及氧化-还原性复合介质腐蚀；用于热交换器及冷凝器、含多种离子的硫酸环境。油气井管。 Resistant to both reducing and oxidizing acids, to SCC, pitting and crevice corrosion. Heat exchanger and condenser tubes, sulfuric and phosphoric acids tubing, API tuing.

飞鹤管业可供镍合金无缝管材质一览表 Available Grades of Nickel Alloy Seamless Tube/Pipe

国标新牌号 NEW GB Grade	国统代码 GB Grade	美标牌号 ASTM/ASTM Grade	美国UNS代码 UNS Grade	欧标代码 EN Grade	国外公司商业牌号 Foreign Commercial Grade	特征/应用举例 Characteristics/Examples of Applications
00Cr15Ni60Mo16W5Fe5	NS3304	C276	N10276	2.4819	Hastelloy C276(Haynes)	耐氧化性氯化物水溶液及湿氯、次氯酸盐腐蚀；强腐蚀性氧化-还原复合介质及高温海水中，造纸等管道。 Resistant to wide rang of chloride corrosion, to both oxidizing and reducing acids corrosion, to seawater corrosion at high temperature. Paper prodution tuing, chemical processing tubing.
00Cr17Ni57Mo13W3	NS3308	C22	N06022	2.4602	Hastelloy C22(Haynes)	耐氧化还原性酸及其混合酸腐蚀。耐酸洗卤化物点腐蚀和应力腐蚀。用于醋酸、磷酸制造、核燃料回收、热交换器，烟气脱硫，造纸等工业。 Resistant to both oxidizing and reducing acid environments as well as mixed acids, to pitting and crevice corrosion in acid-halide environments. Applications include acid production, waste incineration, heat exchanger, FGD and paper processing industries.
-	NS3405	C2000	N06200	2.4675	Hastelloy C2000(Haynes)	耐氧化性、还原性的硫酸、盐酸、氢氟酸的腐蚀；用于化工设备中的反应器、热交换器等。 Resistant to both oxidizing and reducing acids, Applications include reactor and heat exchanger in chemical precessing industries.
00Ni70Mo28	NS3202	B2	N10665	2.4617	Hastelloy B2(Haynes)	耐盐酸等酸腐蚀。Resistant to HCL and H <sub>2</sub> SO <sub>4</sub>
00Mo28Ni65Fe1.5Cr1.5	NS3203	B3	N10675	2.4600	Hastelloy B3(Haynes)	比B2合金更耐腐蚀，焊接态也耐盐酸硫酸腐蚀，有更高的热稳定性。 Better corrosion resistance than B2 alloy, resistant to HCL and H <sub>2</sub> SO <sub>4</sub> corrosion in welded condition. Higher thermal stability.
0Cr20Ni35Mo3Cu3Nb	NS1403	alloy 20	N08020	2.4660	Incoloy 020(SMC)	耐各种严苛腐蚀环境腐蚀，组织稳定性好，流体输送及换热器管。 Resistant to wide range of severe environment of acids corrosion, Metallurgical stability. Fluid transportation piping and heat exchanger tubing.
00Cr27Ni31Mo3Cu	-	alloy 28	N08028	1.4563	Sanicro 28	耐各种严苛腐蚀环境腐蚀，耐氯化物及硫化氢腐蚀。湿法磷酸及油气开采工业用管。 Resistant to corrosion in severe environments, to corrosion of Chloride and H <sub>2</sub> S. Phosphoric acid production, oil gas production tubing.
00Cr27Ni31Mo7CuN	NS1404	alloy 31	N08031	1.4562	Nicrofer 3127hMo(VDM)	抗氯化物、磷酸、硫酸腐蚀；用于烟气脱硫系统、造纸工业、磷酸生产、有机酸和酯合成。 Resistant to Chloride, Phosphoric, Sulfuric acid corrosion. Tubing for FGD, pater production, and other acids production.
00Cr22Ni48Mo7Cu2Nb	NS3403	G3	N06985	2.4619	Hastelloy G3(Haynes)	优异的耐热硫酸和磷酸腐蚀；用于含有硫酸和磷酸的化工设备。优异的焊接后耐晶间腐蚀性能。 Excellent resistant to hot phosphoric and sulfuric acids, excellent resistant to intergranular corrosion after welding. Applications include phosphoric and sulfuric acids chemical equipments and tubing.
00Cr30Ni43Mo5.5W2.5Cu2Nb	NS3404	G30	N06030	2.4603	Hastelloy G30(Haynes)	耐强氧化性的复杂介质和磷酸腐蚀；用于磷酸、硫酸、硝酸及核燃料制造，化肥石化等用管。 Excellent corrosion resistant to phosphoric, sulfuric, nitric/hydrochloric, nitric/hydrofluoric and othremixed acid enviroments. Tubing for production of kinds of acids, fertilizer, and petrochemical industries.
0Cr33Ni55Mo8	-	G35	N06035	2.4643	Hastelloy G35(Haynes)	湿法磷酸蒸发器用管。 Tubing for wet-process phosphoric acid evaporator.
0Cr15Ni70Ti3AlNb	GH4145	X750	N07750	2.4669	Inconel X750(SMC)	可时效强化，温度700度时抗氧化，腐蚀，蠕变断裂强度高。电站过热器再热器管。 Precipitation hardened alloy, good resistance to corrosion and oxidation along with high strength and creep ruputre properties at temperatures to 700 C. Tubing for super heater and reheater in power station.



主要镍合金及高合金化学成分表 **Chemical Content for Typical Nickel Alloy Grades and High Alloy Grades**



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标准 Standard	钢种 Grade	镍 Ni	铬 Cr	钼 Mo	铁 Fe	铜 Cu	锰 Mn	碳 C	硅 Si	铝 Al	硫 S	磷 P	其他 Others
ASTM/ASME SB/B163	UNS N04400	63.0 min.	-	-	2.5 max.	28.0-34.0	2.0 max.	0.3 max.	0.5 max.	-	0.024 max.	-	-
ASTM/ASME SB/B472	UNS N06600	72.0 min.	14.0-17.0	-	6.0-10.0	0.5 max.	1.0 max.	0.15 max.	0.5 max.	-	0.015 max.	-	-
ASTM/ASME SB/B167	UNS N06601	63.0 min.	21.0-25.0	-		1.0 max.	1.0 max.	0.1 max.	0.5 max.	1.0-1.7	0.015 max.	-	-
ASTM/ASME SB/B472	UNS N06025	remainder	24.0-26.0	-	8.0-11.0	0.1 max.	0.15 max.	0.15-0.25	0.5 max.	1.8-2.4	0.01 max.	0.02 max.	"Ti: 0.1-0.2 Zr:0.01-0.1 Y:0.05-0.12"
ASTM/ASME SB/B472	UNS N06617	44.5 min.	20.0-24.0	8.0-10.0	3.0 max.	0.5 max.	1.0 max.	0.05-0.15	1.0 max.	0.8-1.5	0.015 max.	-	"Co:10.0-15.0 B:0.006 max. Ti: 0.6 max."
ASTM/ASME SB/B472	UNS N06625	58.0 min.	20.0-23.0	8.0-10.0	5.0 max.		0.5 max.	0.05 max.	0.5 max.	-	0.015 max.	-	-
ASTM/ASME SB/B167	UNS N06690	58.0 min.	27.0-31.0	-	7.0-11.0	0.5 max.	0.5 max.	0.05 max.	0.5 max.	-	0.015 max.	-	-
ASTM/ASME SB/B407	UNS N08800	30.0-35.0	19.0-23.0	-	39.5 min.	0.75 max.	1.5 max.	0.10 max.	1.0 max.	0.15-0.60	0.015 max.	-	Ti: 0.15-0.60
ASTM/ASME SB/B407	UNS N08810	30.0-35.0	19.0-23.0	-	39.5 min.	0.75 max.	1.5 max.	0.05-0.10	1.0 max.	0.15-0.60	0.015 max.	-	Ti: 0.15-0.60
ASTM/ASME SB/B407	UNS N08811	30.0-35.0	19.0-23.0	-	39.5 min.	0.75 max.	1.5 max.	0.06-0.10	1.0 max.	0.15-0.60	0.015 max.	-	Ti: 0.15-0.60
ASTM/ASME SB/B423	UNS N08825	38.0-46.0	19.5-23.5	2.5-3.5	22.0 min.	1.5-3.0	1.0 max.	0.05 max.	0.5 max.	0.2 max.	0.03 max.	-	Ti: 0.6-1.2
ASTM/ASME SB/B472	UNS N10276	remainder	14.5-16.5	15.0-17.0	4.0-7.0	-	1.0 max.	0.01 max.	0.08 max.	-	0.03 max.	0.04 max.	"Co:2.5 max. V:0.35 max. W:3.0-4.5 max."
ASTM/ASME SB/B472	UNS N06022	remainder	20.0-22.5	12.5-14.5	2.0-6.0	-	0.5 max.	0.015 max.	0.08 max.	-	0.02 max.	0.02 max.	"Co:2.5 max. V:0.35 max. W:2.5-3.5 max."
ASTM/ASME SB/B472	UNS N06200	remainder	22.0-24.0	15.0-17.0	3.0 max.	1.3-1.9	0.5 max.	0.01 max.	0.08 max.	0.5 max.	0.01 max.	0.025 max.	Co:2.0 max.
ASTM/ASME SB/B472	UNS N10665	remainder	1.0 max.	26.0-30.0	2.0 max.	-	1.0 max.	0.02 max.	0.10 max.		0.03 max.	0.04 max.	Co:1.0 max
ASTM/ASME SB/B472	UNS N10675	65.0 min.	1.0-3.0	27.0-32.0	1.0-3.0	0.20 max.	3.0 max.	0.01 max.	0.1 max.	0.5 max.	0.01 max.	0.03 max.	"Ti: 0.2 max. Zr:0.1 max. W:3.0 max. Co:3.0 max. V:0.2 max. Cb(Nb):0.2 max. Ta:0.20 max. Ni+Mo:94.0-98.0"
ASTM/ASME SB/B729	UNS N08020	32.0-38.0	19.0-21.0	2.0-3.0	remainder	3.0-4.0	2.0 max.	0.07 max.	1.0 max.		0.035 max.	0.045 max.	Nb+Ta:8C-1.0
ASTM/ASME SB/B668	UNS N08028	30.0-34.0	26.0-28.0	3.0-4.0	remainder	0.6-1.4	2.5 max.	0.030 max.	1.0 max.	-	0.03 max.	0.03 max.	-
ASTM/ASME SB/B472	UNS N08031	30.0-32.0	26.0-28.0	6.0-7.0	remainder	1.0-1.4	2.0 max.	0.015 max.	0.3 max.	-	0.01 max.	0.02 max.	-
ASTM/ASME SB/B622	UNS N06985	remainder	21.0-23.5	6.0-8.0	18.0-21.0	1.5-2.5	1.0 max.	0.015 max.	1.0 max.	-	0.03 max.	0.04 max.	"Co:5.0 max. W: 1.5 max. Cb(Nb)+Ta:0.50 max."
ASTM/ASME SB/B472	UNS N06030	remainder	28.0-31.5	4.0-6.0	13.0-17.0	1.0-2.4	1.5 max.	0.03 max.	0.8 max.	-	0.02 max.	0.04 max.	"Co:5.0 max. W: 1.5-4.0 Cb(Nb)+Ta:0.3-1.5"
ASTM/ASME SB/B472	UNS N06035	-	32.25-34.25	7.6-9.0	2.0 max.	0.3 max.	0.5 max.	0.05 max.	0.6 max.	0.4 max.	0.015 max.	0.03 max.	"W:0.6 max. Co:1.0 max. V:0.20 max."
ASTM/ASME SB/B637	UNS N07750	70.0 min.	14.0-17.0	-	5.0-9.0	0.5 max.	1.0 max.	0.08 max.	0.5 max.	0.4-1.0	0.01 max.	-	"Co:1.0 max Nb:0.70-1.20 Ti:2.25-2.75"



不断进取 追求卓越

CONTINUOUS IMPROVEMENT TO BE PERFECT

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