

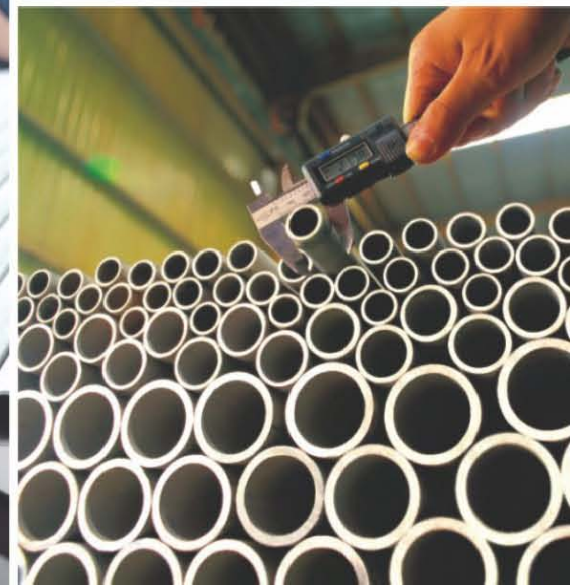
# TIANDJIN XINYUE STEEL GROUP



**STAINLESS STEEL**

诚信务实 高效共赢

Being faithful and pragmatic Pursuing high efficiency and win-win situation



# 过程控制

Process  
Control



原材料尺寸检查Raw Material Size Checking



原材料分析Raw Material Analysis



我们的产品广泛用于大型石化和能源工程，对任何一个细节的疏忽都可能带来无法预料的后果。因此，对于我们来说，确保每件产品的高度可靠，是至关重要的事情。

我们推行精准化生产流程，对质量进行全过程控制，从原材料采购到生产流程到检验检测都进行严格有效的控制，确保产品的零缺陷和高品质。

Our products have found wide application in large petrochemical and energy projects. Negligence upon any detail might result in unpredictable consequence. Therefore, it is vitally important for us to ensure high quality of each product.

We carry out precision production process to conduct effective whole-process control over quality from raw material purchasing to production process control and inspection/testing, thus ensuring zero defect and high quality of products.



固溶热处理Solution Treatment (Annealing)



冷拔Cold Drawing



通过实施过程控制把人员、过程和产品联系在一起，促进在质量、生产效率、物流、生产环境、交货和员工参与等方面取得明显改进，确保产品性能在各个环节都始终如一。我们把客户放在第一位，用事实和数据来寻求更好的解决方案，通过质量管理培训、制度规范化、制造标准化、严格评审供应商等措施，在每一个环节都确保了产品的卓越品质，使产品质量始终处于国内外信得过产品和具有持续的竞争力。

Personnel, process and products are linked together through implementation of process control, to promote obvious improvement in aspects of quality, production efficiency, logistics, production environment, delivery and employee participation, thus ensuring stable product performance in each link. We place customers in the first place, seek better solutions with facts and datas, ensure superior quality and make products trustworthy and competitive both nationwide and worldwide through quality control training, system standardization, manufacturing standardization and strict supplier review etc.



冷拔Cold Drawing



钢管平头、倒角Plain Ends、Bevel Ends



钢管中间检验Outside Grinding



钢管酸洗 Pickling



送检钢管Pending for Inspection



钢管无损检测 ET(Eddy Current Test)



钢管修磨Inside Grinding



钢管矫直Straightening



冷轧钢管Cold Rolling



钢管超声探伤检测 UT(Ultrasonic Inspection)



钢管水压检验Hydraulic Test



钢管内壁检查 Inside Surface Checking



钢管尺寸检验 Thickness Checking



钢管尺寸检验 OD Checking



成品成份检测 PMI Analysis



成品光谱鉴别 Grade Division



力学检验 Mechanical Test

# 质量保证

Quality Assurance

齐全的检测手段是确保产品质量的基础，公司拥有涡流探伤、超声波探伤、水压试验、金相分析、力学性能、硬度、碳硫分析、晶间腐蚀、德国直读光谱仪等齐全的检测设施。

Complete testing measures are the basis of ensuring product quality. The company owns complete testing facilities for eddy current inspection, ultrasonic flaw detection, hydrostatic testing, metallographic analysis, mechanical property, hardness, carbon/sulfur analysis, intergranular corrosion as well as Germany-imported direct-reading spectrometers.



钢管硬度 Hardness Test



冲击试验 Impact Test



成品打包 Packing



成品仓库 Ware House

# 不锈钢管

Stainless Steel  
Pipe / Tube



## 不锈钢无缝管 Stainless Steel Seamless Pipes/Tubes , U-Tubes

名称Name: 不锈钢无缝管, U型管Stainless Steel Seamless Pipes/Tubes, U-Tubes

尺寸范围 Size Range :

OD(6MM-720MM) X Thickness(0.5MM-60MM) X Length: upto 22Metre  
(OD:1/8"-28") ( Thickness: 10S, 40S, 80S, 160S, XXS)

标准和材质 STANDARD&GRADE:

①STANDARD : ASTM-A312/A213/A269/A270/A511/A789/A790/B677  
GRADE: TP304, TP304L, TP321(H), TP316, TP316L, TP316Ti, TP347H, TP317L,  
TP310S, 904L(UNS N08904), S31803, 2205.....

②STANDARD : JIS G3459, JIS G3463  
GRADE: SUS304, SUS304L, SUS304H, SUS304L, SUS316L, SUS316Ti, SUS321,  
SUS317, SUS317L.....

③STANDARD : GOST 9941-81, GOST 9940-81  
GRADE: 08X18H10T (321), 12X18H10T (321H), 10X17H13M2T (316Ti),  
03X17H14M2(316L), 08X18H10 (304), 10X23H18 (310S), 20X23H18(310).....

④STANDARD : GB/T 14976, GB 13296  
GRADE: 0Cr18Ni9, 00Cr19Ni10, 0Cr18Ni10Ti, 00Cr17Ni14Mo2,  
1Cr18Ni9Ti, 0Cr25Ni20.....

⑤STANDARD : DIN 17456, DIN 17458, EN10216  
GRADE: 1.4301, 1.4306, 1.4541, 1.4550, 1.4401, 1.4436, 1.4404, 1.4571, 1.4435.....

## 双相不锈钢管 Duplex Stainless Steel Pipe/Tube

名称Name 双相不锈钢管Duplex Stainless steel pipe/tube

材质Material/  
标准Standard S31803(SAF2205), S32750(SAF2507)  
ASTM A789, ASTM A790

尺寸范围  
Size range Φ6mm-219mm for S31803; Φ6mm-89mm for S32750

特征  
Feature 通过冶金学判定铁素体和奥氏体之间的比例以便查验我们产品的质量。  
Judge proportion between Ferritic and Austenitic  
by metallurgy, so as to check our products quality

产品应用  
Product application 炼油行业、石油化学行业、造纸行业、化肥行业等。  
Refining oil industry, petroleum & chemical industry,  
paper making industry, Chemical fertilizer industry, etc

## 不锈钢盘管Stainless Steel Coil Tube

名称Name 不锈钢盘管Stainless steel coil tube

尺寸范围  
Size range Φ6mm-10mm×1mm-1.5mm length:100m-200m

材质  
Material 304, 304L, 316L  
1.4301, 1.4306, 1.4404, etc

标准  
Standard ASTM A312, ASTM A213, ASTM A269  
DIN 2462, DIN 17456  
EN 10216-5, EN 10297-2  
JIS G3463, JIS G3459



# 不锈钢管

Stainless Steel  
Pipe / Tube

合金系列	钢种	规格组距
蒙乃尔合金：Monel系列	Monel400, NO4400, Alloy400, NO5500, MonelK500	6 mm-325 mm
变形高温合金：GH系列	GH4169/GH169	6 mm-325 mm
哈氏合金：Hastelloy系列	Hastelloy C-276, C-22, C-4, Hastelloy B, B-2, B-3, Hastelloy X, G, G2, G3, Hastelloy G30	6 mm-325 mm
英科耐尔：Inconel系列	UNS N06625, UNS N06601, UNS N06600, Inconel600, Alloy600, Inconel601, Alloy601, Inconel625, Alloy625, Inconel690, Incondl718, InconelX-750	6 mm-325 mm
因科洛伊：Incoloy系列	UNS 今 S66286/Incoloy A-286, UNS NO8800, Incoloy800, Alloy800, Incoloy825, Alloy825, Incoloy926/NO8926/1.4529, Alloy31 UNS NO8031/1.4562, UNS NO7080/Nimonic80A/GH80A, Incoloy901 UNS N09901/Din 1.4898 Alloy800H/800H, UNS NO8825, UNS NO8810, Incoloy800H	6 mm-325 mm



材质与执行标准					规格组距			
中国GB		日本	美国		欧盟BS EN	不锈钢无缝管	不锈钢焊管	不锈钢管件
旧牌号	新牌号	JIS	ASTM	UNS				
奥氏体不锈钢								
0Cr18Ni9	06Cr19Ni10	SUS304	304	S30400	1.4301	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr19Ni10	022Cr19Ni10	SUS304L	304L	S30403	1.4306	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
1Cr18Ni12	10Cr18Ni12	SUS305	305	S30500	1.4303	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
0Cr17Ni12Mo2	06Cr17Ni12Mo2	SUS316	316	S31600	1.4401	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
0Cr18Ni12Mo3Ti	06Cr17Ni12Mo2Ti	SUS316Ti	316Ti	S31635	1.4571	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr17Ni14Mo2	022Cr17Ni12Mo2	SUS316L	316L	S31603	1.4404	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
0Cr18Ni12Mo2Cu2	06Cr18Ni12Mo2Cu2	SUS316J1	-	-	-	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr18Ni14Mo2Cu2	022Cr18Ni14Mo2Cu2	SUS316J1L	-	-	-	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
0Cr19Ni13Mo3	06Cr19Ni13Mo3	SUS317	317	S31700	-	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr19Ni13Mo3	022Cr19Ni13Mo3	SUS317L	317L	S31703	1.4438	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
0Cr18Ni10Ti	06Cr18Ni11Ti	SUS321	321	S32100	1.4541	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
0Cr18Ni11Nb	06Cr18Ni11Nb	SUS347	347	S34700	1.455	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
超级奥氏体不锈钢								
0Cr23Ni13	06Cr23Ni13	SUS309S	309S	S30908	1.4833	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
0Cr25Ni20	06Cr25Ni20	SUS310S	310S	S31008	1.4845	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr21Ni25Mo4.5Cu			904L	N08904	1.4539	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
奥氏体-铁素体不锈钢（双相不锈钢）								
0Cr26Ni5Mo2	-	SUS329J1	329	S32900	1.4477	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr18Ni5Mo3Si2	022Cr19Ni5Mo3Si2N			S31500	1.4417	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr22Ni5Mo3N	022Cr22Ni5Mo3N	SUS329J3L		S31803	1.4462	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr22Ni5Mo3N	022Cr23Ni5Mo3N			S32205	-	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr25Ni7Mo4N	022Cr25Ni7Mo4N	UR47N+		S32750	1.4410	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
X2CrNiMoCuWN25.7.4				S32760	1.4501	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr25Ni7Mo3.5WCuN				S39277		Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
尿素级不锈钢								
0Cr19Ni9N	06Cr19Ni10N	SUS304N1	304N	S30451	1.4315	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
0Cr19Ni10NbN	06Cr19Ni9NbN	SUS304N2	XM21	S30452	-	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr18Ni10N	022Cr19Ni10N	SUS304LN	304LN	S30453	-	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
0Cr17Ni12Mo2N	06Cr17Ni12Mo2N	SUS316N	316N	S31651	-	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr17Ni13Mo2N	022Cr17Ni13Mo2N	SUS316LN	316LN/316LMod	S31653	1.4429	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr20Ni18Mo6CuN				S31254	1.4547	Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm
00Cr22Ni13Mn5Mo2N				S20910		Φ6mm-630mm	Φ15mm-Φ2200mm	Φ10mm-1200mm

# 管件车间

Pipe Fittings  
Workshop



## 管件

### 管件Stainless Steel Pipe Fitting

名称Name	管件Stainless Steel Pipe fitting
材质Material	WP304, WP304L, WP316L, WP321, WP316Ti, WP310S etc.
尺寸范围 Size range	Seamless DN20~DN630;Welded DN 20~DN1520(O.D.:1/4"-24" W.T:SCH10,40,80,160,XXS. etc.)
标准Standard	ASTM A403, ASME/ANSI B16.9, ASME/ANSI B16.11, SMS, 3A



## 法兰

### 不锈钢法兰、碳钢法兰Stainless Steel Flange, Carbon Steel Flange

名称Name	法兰Flange
材质Material	F304,F304L,F316L,F321,F316Ti,F310S, A105, etc.
制造类型 Manufacturing types	PL,SO,WN,BL,BL(s),SW,Th,PJ/SE,PJ/RJ.
标准 Standard	ASTM A182,ASTM /ANSI B16.5 and B 16.47 SERIES A+B BS STD3293, , ASME B36.10M and B36.19M JIS B2220-1984(KS B1503-1985), OR DIN SERIES AND EUROPEAN STANDARD SERIES.





# 应用领域

Application  
Fields

- 1、石化工业 Petrochemical industry
- 2、医药行业 Pharmaceutical industry
- 3、化学行业 Chemistry industry
- 4、食品工业 Food industry
- 5、航空航天工业 Aviation and aerospace industry
- 6、造纸行业 Paper Making industry
- 7、建筑装饰行业 Architectural decoration industry



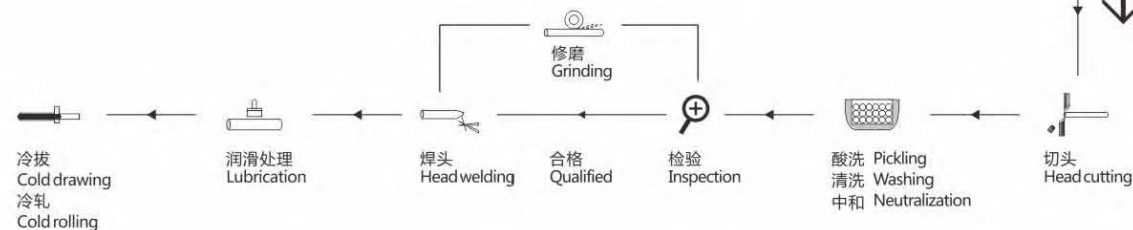
## 钢管工艺流程图

PROCESS FLOW SHEET FOR  
STEEL PIPES

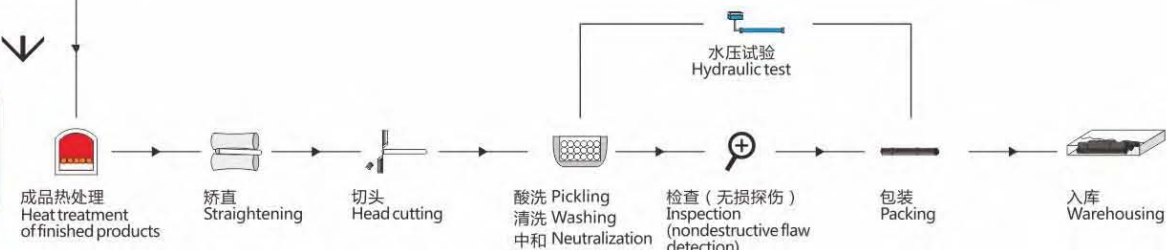
穿孔  
Piercing



冷拔/冷轧  
Cold drawing/  
Cold rolling



成品热处理和精整  
Heat treatment &  
conditioning of  
finished products



# 产品规格及技术参数

Product Specifications  
And Technical Parameters

# 内外标准对照

Comparison Between Domestic and International  
Specification of Seamless Stainless Pipes/tubes

项目	标准	GB 13296-2007	GB/T 14976-2002	ASTM 2133/A213M	ASTM A312/A312M	JIS G 3463	EN10216-5						
牌 号		00Cr18Ni9 00Cr19Ni10 0Cr25Ni20 0Cr17Ni12mo2 0Cr19Ni13mo3 0Cr17Ni14Mo2 0Cr18Ni11Nb	1Cr18Ni9Ti 0Cr18Ni10Ti 0Cr185Ni20Mo2Ti 0Cr19Ni13mo3 00Cr19Ni13Mo3	00Cr18Ni9 00Cr19Ni10 0Cr25Ni20 0Cr17Ni12mo2 0Cr19Ni13mo3 0Cr17Ni14Mo2 0Cr18Ni11Nb	1Cr18Ni9Ti 0Cr18Ni10Ti 0Cr185Ni20Mo2Ti 0Cr19Ni13mo3 00Cr19Ni13Mo3	TP301 TP316 TP317 TP347 TP347H <sup>Δ</sup> TP309H <sup>Δ</sup> TP321H <sup>Δ</sup>	TP304L TP316L TP310L TP310S TP310H <sup>Δ</sup> TP321H <sup>Δ</sup>	TP304 TP316 TP317 TP347 TP309H <sup>Δ</sup> TP310H <sup>Δ</sup> TP321H <sup>Δ</sup>	SUS 304TB SUS 316TB SUS 317TB SUS 310TB SUS 321TB SUS 321HTB <sup>Δ</sup>	SUS 304LTB SUS 316LTB SUS 317LTB SUS 310STB SUS 347TB SUS 347HTB SUS 304HTB	X5Cr18-10 X2Cr19-11 X5CrNiMo17-12-2 X2CrNiMo18-14-3 X6CrNiTi18-10	1.4301 1.4306 1.4401 1.4404 1.4541	
屈服强度Rp0.2(Mpa)		≥175 ; ≥205	≥175 ; ≥205	≥170 ; ≥205	≥170 ; ≥205	≥170 ; ≥206	≥180 ; ≥205						
抗拉强度Rm(Mpa)		≥480 ; ≥520	≥480 ; ≥520 ; ≥530	≥485 ; ≥515	≥485 ; ≥515	≥481 ; ≥520	≥460 ; ≥510						
延伸率A(%)		≥35 ; ≥40	≥35	≥35	≥35	≥27 ; ≥35	≥35 ; ≥40						
压扁实验(mm)		t≤10mm H=1.09t/(0.09+t/D)	(选做)t≤10mm H=1.09t/(0.09+t/D)	H=1.09t/(0.09+t/D)并试验完好性	H=1.09t/(0.09+t/D)并试验完好性	H=1.09t/(0.09+t/D)	H=1.09t/(0.09+t/D)并试验完好性						
扩口实验		t≤10mm GB/T242 α=60° 扩18%D	(选做)t≤10mm GB/T242扩18%D / α=30° 45° 或60°	选做内径扩张率为21-68%		α=60° 扩12%D	α=60° 9% ; 15% ; 17%						
晶粒度				" * "、" Δ " ASTM E112 / " Δ "7#或7#上" * "6#或6#上	" * "、" Δ " ASTM E112 6#或6#上	" * "、JISG0551 7#或7#上							
水压试验 ( Mpa )		GB/T 241 P=2Rt/D式中 R=50%Rp0.2 Pmax=20 Mpa GB/T 7735B级可不做水压	GB/T 241 P=2Rt/D式中 R=40%Rp0.2 可用超声或涡流探伤代替 Gb4163 12%t或GB/T 7735A级	D Pmax 水压试验P=220.6t/D 用户指定可 由无损探伤代替	D Pmax ASTM A530/A530M D≤270mm P=2Rt/D 式中R=50% Rp0.2	P=2Rt/D 式中 R=α b/4 可用无损探伤代替	P=20Rt/D式中 R=70%Rp0.2						
晶腐试验		GB/T 4334.5	GB/T 4334.5	ASTM A262法 ( 补充要求 )	ASTM A262法 ( 补充要求 )	JIS G0575 ( 特殊要求 )	EN ISO3651-2 ( A/B/C级 )						
无损探伤		GB/T 5777 C级	经双方协定, 可选做超声	ASTM E213 E309 E426	ASTM E213 E309 E426	可选涡流或超声探伤 JIS G0583EV 超声JIS G0582 UD	纵向缺陷检测 按照 EN10246-7;横向缺陷检测 按照 EN10246-6;夹层缺陷检测 按照 EN10246-17;						
热处理 ( 固溶 )		要 求	要 求	要 求	要 求	要 求	要 求						
外径偏差 ( mm )	外径	允许偏差	外径	普通级	较高级	外径	允许偏差	公差等级	允许偏差				
	6-30	+0.15/ - 0.20	6 - 10	±0.20	±0.15	10.3-48.3	+0.40/-0.80			D3	±0.75% or ± 0.3mm取大值		
	> 30-50	±0.30	> 10 - 30	±0.30	±0.20	> 48.3-114.3	+0.80/-0.80					D4	±0.5% or ± 0.1mm取大值
			> 30 - 50	±0.40	±0.30	> 114.3-219.1	+1.60/-0.80						
≤50	±0.75%D	> 50	±0.9%D	±0.8%D	> 219.1 > 457.2	+2.40/-0.80	≥60- < 80	±0.30					
壁厚偏差 ( mm )	壁厚	允许偏差	壁厚	普通级	较高级	壁厚	允许偏差	公差等级	允许偏差				
	D≤38	+20%t/ - 0	0.5 - 1	±0.15	±0.12	D < 40	D ≥ 40			T3	±10% or ±0.2mm取大值		
	D > 38	+22%t/ - 0	> 1 - 3	±14%t	±12%t - 10%t	T < 2	+0.4/0					+20%t/0	+20%t/0
> 3			±12%t - 10%t	±10%t	T ≥ 2	+20%t/0	+20%t/0	T4	±7.5% or ±0.15mm取大值				
弯曲度 ( mm/m )		T≤15mm / t > 15mm 1.5 / 1.5	T≤15mm / t > 15mm 1.5 / 2.0	合理的直度		合理的直度		实用性平直					
其他要求		可选做硬度试验 HRB < 90		HRB < 90		HRB < 90		硬度HRB < 90 ( 特殊要求 )					

## 中国与部分国家的不锈钢号近似对照表

Approximate Contrasts Form Of Stainless steel No.between China And Parts Of Other Countries

钢类 Type	钢号Steel grades					规格 Specification	常用标准 Common		
	中国 ( GB )	美国AISI ( ASTM )	日本JIS ( Japan )	德国 ( Germany )					
				DIN17006	DIN17007				
不锈钢无缝管 Stainless steel seamless tube	0Cr18Ni9	304/S30400	SUS304	X5CrNi18-10	1.4301	Φ6-530 * 0.5-28mm	GB/T14975-2002		
	00Cr19Ni10	304L/S30403	SUS304L	X2CrNi19-11	1.4306		GB/T14976-2002		
	00Cr25Ni20	310S/31008	SUS310S	X12CrNi25-21	1.4845		GB13296-91		
	0Cr17Ni12Mo2	316/S31600	SUS316	X5CrNiMo17-12-2	1.4401		国外标准 ( 部分 ) Overseas Standard		
	00Cr17Ni14Mo2	316L/S31603	SUS316L	X2CrNiMo18-14-3	1.4435		ASTM A213/A213M		
	0Cr19Ni13Mo3	317/S31700	SUS317	X5CrNiMo17-12-2	1.4449		ASTM A312/A312M		
	00Cr19Ni13Mo3	317S/S31703	SUS317L	X2CrNiMo18-16-4	1.4438		JIS G3459		
	1Cr18Ni9Ti	321/S32100	SUS321	X12CrNiTi18-9	1.4878		DIN 2462		
	0Cr18Ni10Ti			X6CrNiTi18-10	1.4541				
	0Cr18Ni11Nb	347/S34700	SUS347	X12CrNiNb18-10	1.4550				
	不锈钢焊管 Stainless steel Welded tube	0Cr18Ni9	304/S30400	SUS304	X5CrNi18-10		1.4301	Φ19-1000 * 1-20mm	GB/T12770-91
		00Cr19Ni10	304L/S30403	SUS304L	X2CrNi19-11		1.4306		GB/T12771-2000
00Cr25Ni20		310S/31008	SUS310S	X12CrNi25-21	1.4845	HG20537.2-92			
0Cr17Ni12Mo2		316/S31600	SUS316	X5CrNiMo17-12-2	1.4401	HG20537.3-92			
00Cr17Ni14Mo2		316L/S31603	SUS316L	X2CrNiMo18-14-3	1.4435	HG20537.4-92			
0Cr19Ni13Mo3		317/S31700	SUS317	X5CrNiMo11-13-3	1.4449	国外标准 ( 部分 ) Overseas Standard			
00Cr19Ni13Mo3		317S/S31703	SUS317L	X2CrNiMo18-16-4	1.4438	ASTM A312/A312M			
1Cr18Ni9Ti		321/S32100	SUS321	X12CrNiTi18-9	1.4878	ASTM A688/A688M			
0Cr18Ni10Ti				X6CrNiTi18-10	1.4541	JIS G3468			
0Cr18Ni11Nb		347/S34700	SUS347	X12CrNiNb18-10	1.4550	DIN 26462			

## 不锈钢无缝管数据参考

Reference Data Of Stainless Steel  
Seamless Pipes/Tubes

## 产品规格及技术参数

Product Specifications And Technical Parameters

## 化学成分要求

Requirements For Chemical Components

牌号 Grade	WS 代号	化学成分 Chemical Composition																
		碳, 最大 Carbon, Maximum	锰, 最大 Manganese, Maximum	磷, 最大 Phosphorus, Maximum	硫, 最大 Sulfur, Maximum	硅 Silicon	镍 Nickel	铬 Chromium	铝 Aluminium	钛 Titanium	钙+钼 Calcium + Tantalum	钽, 最大 Tantalum, Maximum	氮 <sup>c</sup> Nitrogen	钒 Vanadium	铜 Copper	铈 Cerium	硼 Boron	铝 Aluminum
TP304	S30400	0.08	2.00	0.040	0.030	0.075max	8.00-11.0	18.0-22.0	...	...	...	...	...	...	...	...	...	...
TP304H	S30409	0.04-0.10	2.00	0.040	0.030	0.075max	8.00-11.0	18.0-20.0	...	...	...	...	...	...	...	...	...	...
TP304L	S30403	0.35	2.00	0.040	0.030	0.075max	8.00-13.0	18.0-20.0	...	...	...	...	...	...	...	...	...	...
TP304N	S30451	0.08	2.00	0.040	0.030	0.075max	8.00-11.0	18.0-20.0	...	...	...	0.10-0.16	...	...	...	...	...	...
TP309H	S30909	0.04-0.10	2.00	0.040	0.030	0.075max	12.0-15.0	22.0-24.0	...	...	...	...	...	...	...	...	...	...
TP309S	S30908	0.08	2.00	0.045	0.030	0.075max	12.0-15.0	22.0-24.0	0.75max	...	...	...	...	...	...	...	...	...
TP310H	S31009	0.04-0.10	2.00	0.045	0.030	0.075max	19.0-22.0	24.0-26.0	...	...	...	...	...	...	...	...	...	...
TP310S	S31008	0.08	2.00	0.045	0.030	0.075max	19.0-22.0	24.0-26.0	0.75max	...	...	...	...	...	...	...	...	...
TP316	S31600	0.08	2.00	0.040	0.030	0.075max	11.0-14.0°	16.0-18.0	2.00-3.00	...	...	...	...	...	...	...	...	...
TP316H	S31609	0.04-0.10	2.00	0.040	0.030	0.075max	11.0-14.0°	16.0-18.0	2.00-3.00	...	...	...	...	...	...	...	...	...
TP316L	S31603	0.035	2.00	0.040	0.030	0.075max	10.0-14.0°	16.0-18.0	2.00-3.00	...	...	...	...	...	...	...	...	...
TP316N	S31651	0.08	2.00	0.040	0.030	0.075max	11.0-14.0°	16.0-18.0	2.00-3.00	...	...	...	0.10-0.16	...	...	...	...	...
TP316LN	S31653	0.035	2.00	0.040	0.030	0.075max	11.0-14.0	16.0-18.0	2.00-3.00	...	...	...	0.10-0.16	...	...	...	...	...
TP317L	S31703	0.035	2.00	0.040	0.030	0.075max	9.00-13.0	18.0-20.0	3.00-4.00	...	...	...	...	...	...	...	...	...
TP321	S32100	0.08	2.00	0.040	0.030	0.075max	9.00-13.0	17.0-20.0	...	Ti:0.7 > 5×(C+N)	...	...	...	...	...	...	...	...
TP321H	S32109	0.04-0.10	2.00	0.040	0.030	0.075max	9.00-13.0	17.0-20.0	...	...	...	...	...	...	...	...	...	...
TP347	S34700	0.08	2.00	0.040	0.030	0.075max	9.00-13.0	17.0-20.0	...	...	...	...	...	...	...	...	...	...
TP347H	S34709	0.04-0.10	2.00	0.040	0.030	0.075max	9.00-13.0	17.0-20.0	...	...	...	...	...	...	...	...	...	...

A. 按照ASTM E527标准和SAE J1086标准关于金属和合金编号(UNS)方法建立的新代号。 B. 最大值, 除非另有规定。 C. 氮的分析方法应经需方与生产厂协商同意。 D. 牌号TP316、TP315N、TP316LN和TP316H的焊接钢管, 其含镍量应在10.0~14.0%范围内。 E. 需要多次拉拔的小直径或薄壁钢管或小直径薄壁钢管, 其牌号TP304L和TP316L的含碳量必须不大于0.040%, 小直径钢管是指外径小于0.500英寸(12.7毫米)钢管, 而薄壁钢管是指平均壁厚小于0.069英寸(1.20毫米) [ 最小壁厚0.44英寸(1.10毫米) ] 的钢管。 F. 钛含量应不小于含碳量的五倍, 但不大于0.70%。 G. 钒含量应不小于含碳量的四倍, 但不大于0.60%。 H. 铌加钽含量应不小于含碳量的十倍, 但不大于1.00%。 I. 铌加钽含量应不小于含碳量的八倍, 但不大于1.0%。 J. 焊接钢管, 其含碳量应不大于0.045%。

A. New codes based on UNS in ASTM E527 and SAE J1086. B. Maximum value, unless otherwise specified. C. The analytical method of ammonia shall be agreed upon between customer and factory. D. The nickel content of TP316, TP315N, TP316LN and TP316H welded steel pipe shall be between 10.0~14.0%. E. For small diameter, thin-walled, or small diameter thin-walled steel pipe that would suffer from frequent pull, the carbon content in TP304L and TP316L shall not be higher than 0.040%. Small diameter steel pipe refers to pipe with an outside diameter less than 0.500 inch (12.7mm), thin-walled steel pipe refers to pipe with an average wall thickness less than 0.069 inch (1.20mm) and with a minimum wall thickness of 0.44 inch (1.10mm). F. Titanium content shall be no less than the five times of carbon content, but no more than 0.70%. G. Tantalum content shall be no less than the four times of carbon content, but no more than 0.60%. H. Niobium + tantalum content shall be no less than the ten times of carbon content, but no more than 1.00%. I. Niobium + tantalum content shall be no less than the eight times of carbon content, but no more than 1.0%. J. The carbon content of welded steel pipe shall not be higher than 0.045%.

## 产品规格及技术参数

Product Specifications And Technical Parameters

JISG 3459

Nominal Diameter		Nominal wall thickness																			
A	B	O.D (mm)	W.T (mm)	SCH 5S		SCH 10S		SCH 20S		SCH 40S		SCH 80S		SCH 80S		SCH 80S		SCH 80S			
				Weight(Kg/m)		Weight(Kg/m)		Weight(Kg/m)		Weight(Kg/m)		Weight(Kg/m)		Weight(Kg/m)		Weight(Kg/m)		Weight(Kg/m)		Weight(Kg/m)	
				TYPE		TYPE		TYPE		TYPE		TYPE		TYPE		TYPE		TYPE		TYPE	
				304	316	304	316	304	316	304	316	304	316	304	316	304	316	304	316		
6	1/8	10.5	1.0	0.237	0.238	1.2	0.278	0.280	1.5	0.336	0.338	1.7	0.373	0.375	2.4	0.484	0.487				
8	1/4	13.8	1.2	0.377	0.379	1.65	0.499	0.503	2.0	0.588	0.592	2.2	0.636	0.640	3.0	0.807	0.812				
10	3/8	17.3	1.2	0.481	0.484	1.65	0.643	0.647	2.0	0.762	0.767	2.3	0.859	0.865	3.2	1.12	1.13				
15	1/2	21.7	1.65	0.824	0.829	2.1	1.03	1.03	2.5	1.20	1.20	2.7	1.32	1.33	3.7	1.66	1.67				
20	3/4	27.2	1.65	1.05	1.06	2.1	1.31	0.32	2.5	1.54	1.55	2.9	1.76	1.77	3.9	2.26	2.28				
25	1	34.0	1.65	1.33	1.34	2.8	2.18	2.19	3.0	2.32	2.33	3.4	2.59	2.61	4.5	3.31	3.33				
32	1 1/4	42.7	1.65	1.69	1.40	2.8	2.78	2.80	3.0	2.97	2.99	3.6	3.51	3.53	4.9	4.61	4.64				
40	1 1/2	48.6	1.65	1.93	1.61	2.8	3.19	3.21	3.0	3.41	3.43	3.7	4.14	4.16	5.1	5.53	5.56				
50	2	60.5	1.65	2.42	2.43	2.8	4.02	4.05	3.5	4.97	5.00	3.9	5.50	5.53	5.5	7.54	7.58				
65	2 1/2	76.5	2.1	3.88	3.91	3.0	5.48	5.54	3.5	6.35	6.39	5.2	9.21	9.26	7.0	12.1	12.2				
80	3	89.1	2.1	4.55	4.58	3.0	3.43	6.48	4.0	8.38	8.53	5.5	11.5	11.5	7.6	15.4	15.5				
90	3 1/2	101.6	2.1	5.20	5.24	3.0	7.37	7.42	4.0	9.72	7.79	2.7	13.6	13.7	8.1	18.9	19.0				
100	4	114.3	2.1	5.87	5.91	3.0	8.32	8.37	4.0	11.0	11.1	6.0	16.2	16.3	8.6	22.6	22.8				
125	5	139.8	2.8	9.56	9.62	3.4	11.6	11.6	5.0	16.8	16.9	6.6	21.9	22.0	9.5	30.8	31.0				
150	6	165.2	2.8	11.3	11.4	3.4	13.7	13.8	5.0	20.0	20.1	7.1	28.0	28.1	11.0	42.3	42.5				
200	8	216.3	2.8	14.9	15.0	4.0	21.2	21.3	6.5	34.0	34.2	8.2	42.5	42.8	12.7	64.4	64.8				
250	10	267.4	3.4	22.4	22.5	4.0	26.2	26.4	6.5	52.2	42.5	9.3	59.8	60.2	15.1	94.9	95.5				
300	12	318.5	4.0	31.3	32.5	4.5	35.2	35.4	6.5	50.5	50.8	10.3	79.1	79.6	17.4	131	131				
350	14	355.6	-	-	-	-	-	-	-	-	-	11.1	95.3	95.9	19.0	159	160				
400	16	406.4	-	-	-	-	-	-	-	-	-	12.7	125	125	21.4	205	207				
450	18	457.2	-	-	-	-	-	-	-	-	-	14.3	158	159	23.8	257	259				
500	20	508.0	-	-	-	-	-	-	-	-	-	15.1	185	187	26.2	314	316				
550	22	558.8	-	-	-	-	-	-	-	-	-	15.9	215	216	28.6	378	380				
600	24	609.6	-	-	-	-	-	-	-	-	-	17.5	258	260	31.0	447	450				
650	26	660.4	-	-	-	-	-	-	-	-	-	18.9	302	304	34.0	531	534				

## 产品规格及技术参数

Product Specifications And Technical Parameters

无缝钢管ASTM A312 外径壁厚对照表 (ANSI B36.19)

TP304	Outside Diameter		Nominal Wall Thickness																	
	in	mm	Schedule 5S <sup>A</sup>		Schedule 10S <sup>A</sup>		Schedule 40S		Schedule 80S		Schedule 100S		Schedule 120S		Schedule 140S		Schedule 160S		Schedule XXS	
			in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
1/2	0.405	10.29	-	-	0.049	1.24	0.068	1.73	0.095	2.41	-	-	-	-	-	-	-	-	-	-
1/4	0.540	13.72	-	-	0.065	1.65	0.088	2.24	0.119	3.02	-	-	-	-	-	-	-	-	-	-
3/8	0.675	17.15	-	-	0.065	1.65	0.091	2.31	0.126	3.20	-	-	-	-	-	-	-	-	-	-
1/2	0.840	21.34	0.065	1.65	0.083	2.11	0.109	2.77	0.147	3.73	-	-	-	-	-	-	0.19	4.78	0.29	7.47
3/4	1.050	26.67	0.065	1.65	0.083	2.11	0.113	2.87	0.154	3.91	-	-	-	-	-	-	0.22	5.56	0.31	7.82
1.0	1.315	33.40	0.065	1.65	0.109	2.77	0.133	3.38	0.179	4.55	-	-	-	-	-	-	0.25	6.35	0.36	9.09
1 1/4	1.660	42.16	0.065	1.65	0.109	2.77	0.140	3.56	0.191	4.85	-	-	-	-	-	-	0.25	6.35	0.38	9.70
1 1/2	1.900	48.26	0.065	1.65	0.109	2.77	0.145	3.68	0.200	5.08	-	-	-	-	-	-	0.28	7.14	0.40	10.15
2	2.375	60.33	0.065	1.65	0.109	2.77	0.154	3.91	0.218	5.54	-	-	-	-	-	-	0.36	8.74	0.43	11.07
2 1/2	2.875	73.03	0.083	2.11	0.120	3.05	0.203	5.16	0.276	7.01	-	-	-	-	-	-	0.38	9.53	0.55	14.02
3	3.500	88.90	0.083	2.11	0.120	3.05	0.216	5.49	0.300	7.62	-	-	-	-	-	-	0.44	11.13	0.60	15.24
3 1/2	4.000	101.60	0.083	2.11	0.120	3.05	0.226	5.74	0.318	8.08	-	-	-	-	-	-	-	-	-	-
4	4.500	114.30	0.083	2.11	0.120	3.05	0.237	6.02	0.337	8.56	-	-	0.44	11.12	-	-	0.53	13.49	0.67	17.12
5	5.563	141.30	0.109	2.77	0.134	3.40	0.258	6.55	0.375	9.52	-	-	0.50	12.70	-	-	0.63	15.88	0.75	19.05
6	6.625	168.28	0.109	2.77	0.134	3.40	0.280	7.11	0.432	10.97	-	-	0.56	14.27	-	-	0.72	18.26	0.86	21.95
8	8.625	219.08	0.109	2.77	0.148	3.76	0.322	8.18	0.500	12.70	0.59	15.09	0.76	19.26	1.05	20.62	0.91	23.01	0.88	22.23
10	10.750	273.05	0.134	3.40	0.165	4.19	0.365	9.27	0.500 <sup>B</sup>	12.70 <sup>B</sup>	0.76	19.26	0.84	21.44	1.00	25.40	1.13	28.58	1.00	25.40
12	12.750	323.85	0.156	3.96	0.180	4.57	0.375 <sup>B</sup>	9.52 <sup>B</sup>	0.500 <sup>B</sup>	12.70 <sup>B</sup>	0.84	21.44	1.00	25.40	1.13	28.58	1.31	33.32	1.00	25.40
14	14.000	355.60	0.156	3.96	0.188 <sup>B</sup>	4.78 <sup>B</sup>	-	-	-	-	0.94	23.83	1.09	27.79	1.25	31.75	1.41	35.71	-	-
16	16.000	406.40	0.165	4.19	0.188 <sup>B</sup>	4.78 <sup>B</sup>	-	-	-	-	1.03	26.19	1.22	30.96	1.44	36.53	1.59	40.49	-	-
18	18.000	457.20	0.165	4.19	0.188 <sup>B</sup>	4.78 <sup>B</sup>	-	-	-	-	1.16	29.36	1.38	34.93	1.56	39.67	1.78	45.24	-	-
20	20.000	508.00	0.188	4.78	0.218 <sup>B</sup>	5.54 <sup>B</sup>	-	-	-	-	1.28	32.54	1.50	38.10	1.75	44.45	1.97	50.01	-	-
22	22.000	558.80	0.188	4.78	0.218 <sup>B</sup>	5.54 <sup>B</sup>	-	-	-	-	1.38	34.93	1.63	41.28	1.88	47.63	2.13	53.98	-	-
24	24.000	609.60	0.218	5.54	0.250	6.35	-	-	-	-	1.53	38.89	1.81	46.02	2.06	52.37	2.34	59.54	-	-
30	30.000	762.00	0.250	6.35	0.312	7.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-

A Schedules 5S and 10S wall thicknesses do not permit threading in accordance with the American National Standard for Pipe Threads(ANSI B1.20.1)

B These do not conform to the American National Standard for Welded and Seamless Wrought Steel Pipe(ANSI B36.10-1979).