

XTD

鑫通达特钢
XINTONGDA SPECIAL STEEL

浙江鑫通达特钢制造有限公司

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XINTONGDA SPECIAL STEEL

卓越的不锈钢 双相钢 镍基合金无缝管生产商

High Performance Stainless Steel ,Duplex Steel and Nickel Alloy Pipe & Tube Manufacturer



浙江鑫通达特钢制造有限公司

Zhejiang Xintongda Special Steel Manufacturing Co., Ltd.

地址: 浙江省丽水市松阳县西屏街道瑞阳大道209号

Add: NO. 209 RUIYANG ROAD, XIPING STREET, SONGYANG COUNTY, LISHUI CITY,
ZHEJIANG PROVINCE 323400 CHINA

TEL: +86-577-88877003 (export department) +86-577-86862205 (domestic department)

FAX: +86-577-86635318

Http: www.xtd-ss.com

E-mail: info@xtd-ss.com

XTD

鑫通达特钢
XINTONGDA SPECIAL STEEL

我们的产品应用于.....

OUR PRODUCTS ARE APPLIED TO...



XINTONGDA SPECIAL STEEL

鑫通达特钢为炼油，石油，化工，电站，采矿，造纸等行业提供流体过程连接解决方案，并提供满足及解决客户严苛工况问题的管道产品。
Xintongda Special Steel provides fluid process connection solutions for oil refining, petroleum, chemical industry, power station, mining, papermaking and other industries, and also provides pipeline products to meet and solve customers' problems under harsh working conditions.

关于我们 ABOUT US

浙江鑫通达特钢制造有限公司位于浙江省丽水市松阳县西屏街道瑞阳大道209号，紧邻E312国道和宁波上海两大世界级港口，交通运输便捷。公司注册资金10000万元，固定资产8000万元，占地面积20000平方米。

公司持有国家质检总局颁发的 A2 类压力管道制造许可证及 PED 证书、AD2000 证书，并通过了 ISO9001 认证、ISO14001 认证、ISO45001 认证、BV 船级社认证、NORSOK 挪威国家石油标准 M650 认证、DNV 挪威船级社认证、EAC(CU-TR) 俄罗斯认证、浙江制造品字标认证等，并于 2021 年获得省高新技术企业及省科技型企业。

本公司主要致力于双相钢 2205(S32205/S31803)、超级双相钢 2507(S32750)、S32760、S32550；超级奥氏体特种不锈钢 904L、S31254(254SMO)、奥氏体 304/L/H、310/H/S、314、316/L/H/Ti、317L、321/H、347/H；以及镍合金 200、400、500、600、625、800、800H、825、1.4529(926)、合金 N10276、N06022、N10665、N10675 等材质无缝圆管、方管和精轧管的生产与销售。

公司常备 304/304L、316L、310S、321、904L、254SMO、2205、2507、625、N10276 等材质的无缝管库存 10,000 吨以上，可定制切割。

旗下子公司“福建腾奇管业科技有限公司”位于福建省宁德市周宁县李墩工业园区。公司注册资金 1580 万元，占地面积 20700.43 平方米。子公司配备年产 15000 吨不锈钢无缝管生产线，可根据客户需求，定制生产各种材质大口径不锈钢无缝管(可生产最大外径尺寸中 1016mm)。

尺寸范围：
外径：1/8" to 40" (6-1016mm)
壁厚：10S to XXS (1mm-65mm)

公司产品符合 GB/14976、GB13296、GB/21833 等国家标准和美标 ASTM/ASME、日标 JS、德标 DIN、欧标 EN、俄罗斯 GOST 等国际标准。

公司全体员工与时俱进，不断创新，以振兴民族工业为己任，为提升我国装备制造业水平尽一份力。以质量求生存，以技术创新求发展，用户的满意是我们永恒的追求。

Zhejiang Xintongda Special Steel Manufacturing Co., Ltd. is located at Songyang County, Zhejiang Province of China. Up to now, we've passed the certificates of PED, AD2000, GOST, BV, ISO9001, ISO14001, ISO45001, and NORSOK-M650, EAC(CU-TR), GOST(RUSSIA), DNV, NORSOK M650 etc.

We have more than 30 years of experience of manufacturing Austenitic Stainless Steel 304/L/H, 310/H/S, 314, 316/L/H/Ti, 317L, 321/H, 347/H; Super Austenitic Stainless Steel 904L, S30815 (253MA), S31254 (254SMO); Duplex and Super Duplex Stainless Steel UNS S31803, UNS S32205, UNS S32750, UNS S32760, UNS S32550; Nickel Alloy Inconel 800 (UNS N08800), 800H (U NS N08810), 825 (UNS N08825), 600 (UNS N06600), 625 (UNS N06625), Monel 400 (UNS N04400), Alloy N10276, N06022, N10665, N10675 etc.

XTD is a comprehensive enterprise which focuses on piercing and cold drawn, annealing (bright annealing) and pipe production, and has 13 invention patents and utility model patents. We have more than 20 cold drawn and cold-rolled production machines which can achieve 25,000 tons annual output.

We have kinds of grade of different size in stock, including 304/304L, 316L, 310S, 321, 904L, 254SMO, 2205, 2507, 625, N10276 etc. Customize to required length is acceptable.

Another subsidiary and production base is in Fujian Province, with mill name "Fujian Tengqi Pipe Tech Co., Ltd." The mill's annual output reach to 15000 tons, by registered capital of 15.8 million yuan and 20700.43 m². The factory is specialized in larger OD pipes up to 1016mm.

Our products comply with the standards of ASTM A312, ASTM A213, ASTM A269, ASTM A789, ASTM A790, ASTM B622, ASTM B163, ASTM B167, ASTM B444, EN 10216-5, GB/T21833, GB/T13296, GB/T14976, etc.

Size range:
OD: 1/8" to 40" (6-1016mm)
WT: 10S to XXS (1mm-65mm)

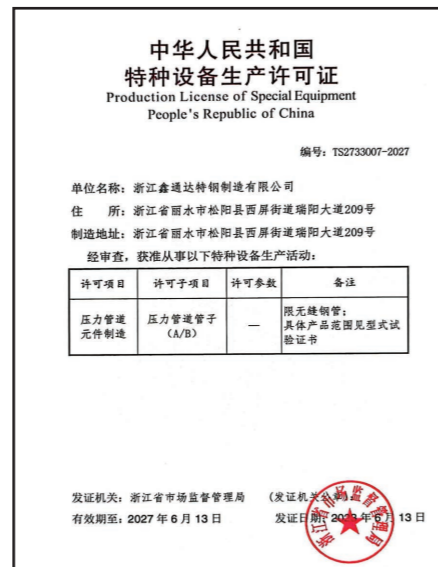
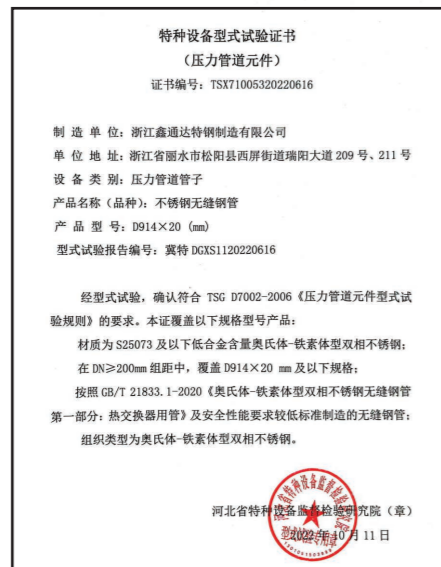
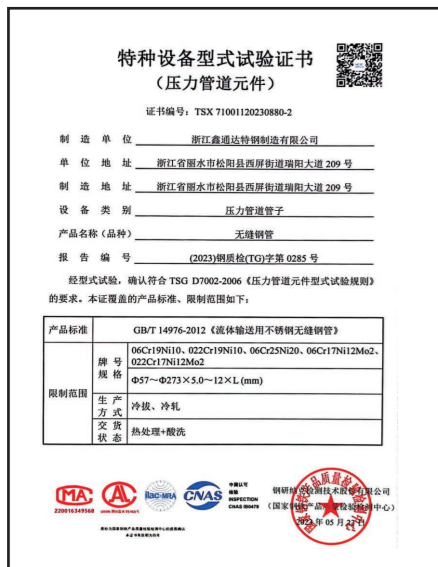
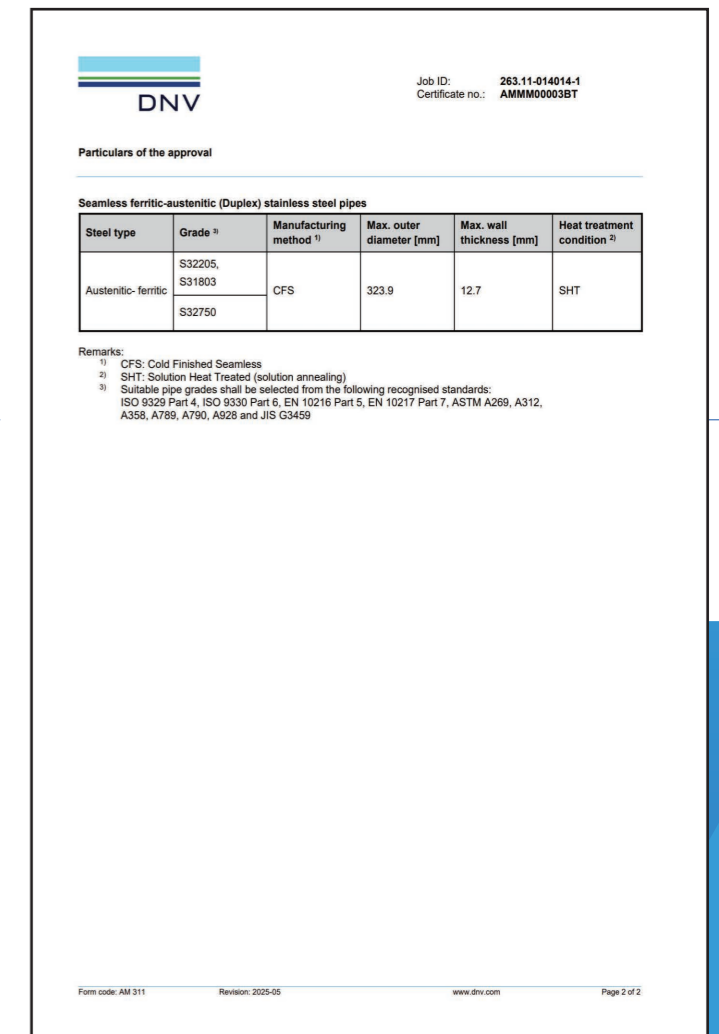
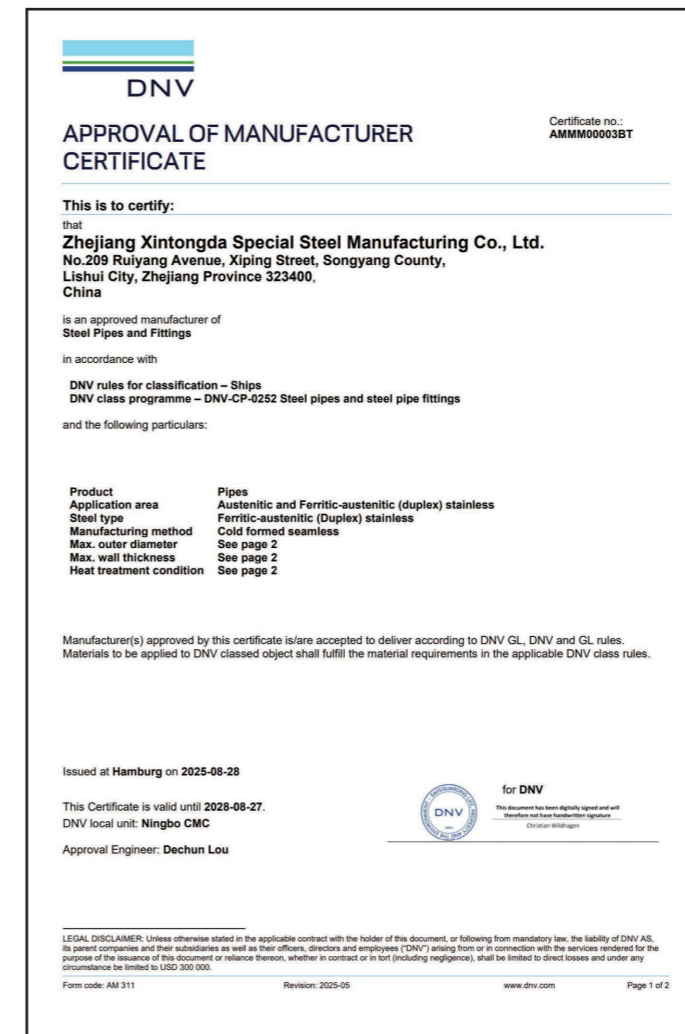
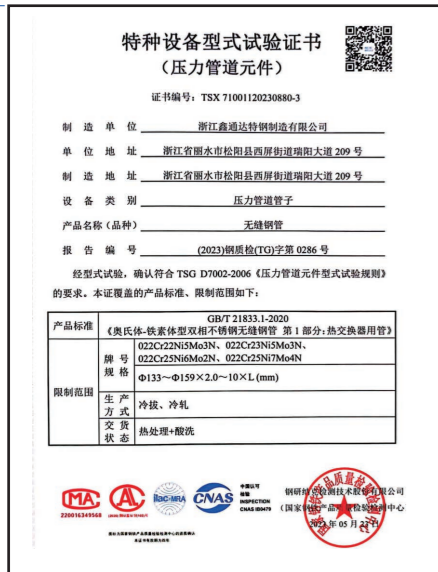
"Surviving on quality, developing on benefits, rewarding customers with Honestly and trustworthiness" is our motto. We are striving to become a world-class pipe manufacturer, providing high-quality austenitic stainless steel pipe & tube, duplex stainless-steel pipe & tube, and nickel alloy pipe & tube to the world



诚信经营 科技创新

浙江鑫通达特钢制造有限公司
Zhejiang Xintongda Special Steel Manufacturing Co., Ltd.

企业证书 Certificate



生产设备 Production Equipment

鑫通达投资数亿元新增自动化设备，通过国际化的生产设施，生产出符合国际标准的优质钢材产品。欲善其工，必先利其器，欲成其事，必先诚其意，精良的设备代表着一个企业拥有强大的生产能力和卓越的质量保证。

先进精密的生产设备保证了产品的质量。规范的管理体系保证了鑫通达的生产加工实力。

Xintongda has invested several hundred million RMB to implement automated production equipment in order to produce global standard high-quality steel products by the internationalization of the production facilities.

To excel in work, one must first sharpen the tools; to accomplish a task, one must first be sincere in intention. The sophisticated equipment represents a company's strong production capacity and excellent quality assurance.

Our advanced and sophisticated production equipment ensures the quality of pipes and tubes and standard management system ensures the production and processing strength of Xintongda.



我们的目标是提升质量，我们的保证是优化检测。



鑫通达可根据产品标准或客户要求，对钢管做无损测试和有损测试，测试内容包括成分测试，超声波测试，磁性测试，晶间腐蚀测试，硬度测试，拉伸测试，屈服强度，耐腐蚀性等。

我们检验员还根据产品标准的技术条件和客户要求进行检查成品的内外表面、形状、弯曲度、端面长度、外径和壁厚，以满足客户的要求。

XTD will conduct NDT/NDE including PMI, UT, RT, IGC, HT etc, and Destructive Test including Flattening Test, Hardness Test, Corrosion Test, Flaring Test, Tensile Test etc, the inspection are strictly controlled by requirements of the standard of the clients.

According to the technical conditions and requirements of the product standard, we will always check the inner and outer surface of pipe, the shape, bending degree, length, outer diameter and wall thickness one by one in order to meet customers' requirements.



1.COMMON AUSTENITIC STAINLESS STEEL SEAMLESS PIPE AND TUBE.

通用奥氏体不锈钢无缝管

Material:
304 304L 304H 309 309S 310 310S 310S 314 316 316L 316H 316Ti 316LN
317L 321 321H 347 347H N08904 (904L) N08367 30432 S31042

Specifications:
OD: 6-1016mm, THK: 1-65mm, L: max to 18mtr
Special specifications are available as required.

Executive standard:
GB/T 14976-2012 流体输送用不锈钢无缝管
GB/T 13296-2013 锅炉、热交换器用不锈钢无缝管
EN 10216-5 Seamless Steel Tubes for Pressure Purposes-Technical Delivery Conditions—Part 5: Stainless Steel Tubes
ASTM A312 Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes
ASTM A213 Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes
ASTM A269 Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service
ASTM A358 Standard Specification for Electric-Fusion-Welded Austenitic Chromium-Nickel Stainless Steel Pipe for High-Temperature Service and General Applications
GOST 9940 Seamless Hot-Deformed Tubes Made from Corrosion-Resistant Steel Specifications
GOST 9941 Seamless Cold and Warm-Deformed Tubes Made from Corrosion-Resistant Steel Specification
JIS G3459 Stainless Steel Pipes
JIS G3463 Stainless Steel Tubes For Boiler and Heat Exchanger

2.(SUPER) DUPLEX STEEL SEAMLESS PIPE AND TUBE.

(超级)双相钢无缝管

Specifications:
OD: 6-720mm, THK: 1-65mm, L:max to 18mtr
Special specifications are available through negotiation.

Material:
S31803, S32205, S32250, S32750, S32760, S31500, 32001, S32003, S32304.

Executive standard:
GB/T 21833.1-2020 奥氏体铁素体型双相不锈钢无缝管(第1部分: 热交换器用管)
GB/T 21833.2-2020 奥氏体铁素体型双相不锈钢无缝管(第2部分: 流体输送用管)
EN10216-5 Seamless Steel Tubes for Pressure Purposes-Technical Delivery Conditions—Part 5: Stainless Steel Tubes
ASTM A789 Standard Specification for Seamless and Welded Ferritic/Austenitic Stainless Steel Tubing for General Service
ASTM A790 Standard Specification for Seamless and Welded Ferritic/Austenitic Stainless Steel Pipe

3.NICKEL ALLOY SEAMLESS PIPE AND TUBE.

镍基合金无缝管

Specifications:
OD: 6-457mm, THK: 1-65mm, L:max to 18mtr
Special specifications are available as required

Material:
Nickel: 200(N02200, 2.4066), 201(N02201, 2.4068).....
Monel: 400(N04400, 2.4360, K-500(N05500, 2.4375)
Inconel: 600(N06600, 2.4816), 601(N06601, 2.4851), 625(N06625, 2.4856), 718(N07718, 2.4668)
Incoloy: 800(N08800, 1.4876), 800H(N08810, 1.4876), 800HT(N08811, 1.4876), 825(N08825, 2.4858)
Alloy: N10276, 2.4819, N06022, 2.4602, N10665, 2.4617, N10675, 2.4600
Other nickel alloy material also available

Executive standard:
EN 10216-5 Seamless Steel Tubes for Pressure Purposes-Technical Delivery Conditions—Part 5: Stainless Steel Tubes
ASTM B161 Standard Specification for Nickel Seamless Pipe and Tube
ASTM B163 Standard Specification for Seamless Nickel and Nickel Alloy Condenser and Heat-Exchanger Tubes
ASTM B165 Standard Specification for Nickel-Copper Alloy Seamless Pipe and Tube
ASTM B167 Standard Specification for Nickel-Chromium-Aluminum Alloys, Nickel-Chromium-Iron Alloys, Nickel-Chromium-Cobalt-Molybdenum Alloy, Nickel-Iron-Chromium-Tungsten Alloy, and Nickel-Chromium-Molybdenum-Copper Alloy Seamless Pipe and Tube
ASTM B407 Standard Specification for Nickel-Iron-Chromium Alloy Seamless Pipe and Tube
ASTM B423 Standard Specification for Nickel-Iron-Chromium-Molybdenum-Copper Alloy Seamless Pipe and Tube
ASTM B444 Standard Specification for Nickel-Chromium-Molybdenum-Niobium Alloys and Nickel-Chromium-Molybdenum-Silicon Alloy Pipe and Tube
ASTM B622 Standard Specification for Seamless Nickel and Nickel-Cobalt Alloy Pipe and Tube
ASTM B729 Standard Specification for Seamless Nickel-Iron-Chromium-Molybdenum-Copper Nickel Alloy Pipe and Tube

TUBE& PIPE APPLICATION STANDARD (ASTM)

无缝管产品应用标准 (ASTM 美标)

Material	UNS	TUBE(SMLS)	PIPE(SMLS)
TP304	S30400	ASTM A213	ASTM A312
TP304L	S30403	ASTM A213	ASTM A312
TP309S	S30908	ASTM A213	ASTM A312
TP310	S31000	ASTM A213	ASTM A312
TP310S	S31008	ASTM A213	ASTM A312
TP314	S31400	ASTM A213	ASTM A312
TP316	S31600	ASTM A213	ASTM A312
TP316L	S31603	ASTM A213	ASTM A312
TP316Ti	S31635	ASTM A213	ASTM A312
TP316N	S31651	ASTM A213	ASTM A312
TP316LN	S31653	ASTM A213	ASTM A312
TP317	S31700	ASTM A213	ASTM A312
TP317L	S31703	ASTM A213	ASTM A312
TP321	S32100	ASTM A213	ASTM A312
TP321H	S32109	ASTM A213	ASTM A312
TP347	S34700	ASTM A213	ASTM A312
310MoLN	S31050	ASTM A213	ASTM A312
904L	N09804	ASTM A213	ASTM A312
2205	S31803/S32205	ASTM A789	ASTM A790
255	S32550	ASTM A789	ASTM A790
2507	S32750	ASTM A789	ASTM A790
2760	S32760	ASTM A789	ASTM A790
/	N10276	ASTM B622	ASTM B622
/	N06022	ASTM B622	ASTM B622
Nickel 200	N02200	ASTM B163	ASTM B161
Nickel 201	N02201	ASTM B163	ASTM B161
Monel 400	N04400	ASTM B163	ASTM B165
Inconel 600	N06600	ASTM B163	ASTM B167
Inconel 625	N06625	ASTM B444	ASTM B444
Incoloy 800	N08800	ASTM B163	ASTM B407
Incoloy 800H	N08810	ASTM B163	ASTM B407
Incoloy 800HT	N08811	ASTM B163	ASTM B407
Incoloy 825	N08825	ASTM B163	ASTM B423
253 SMA/F 45	S30815	ASTM A213	ASTM A312
254 SMO	S31254	ASTM A213	ASTM A312

(Super) Austenitic Stainless Steel Chemical Composition
(超级)奥氏体不锈钢化学成分表

GRADE	UNS Designation	ASTM A312 Chemical Requirement (Max)													
		碳C	锰Mn	磷P	硫S	硅Si	镍Ni	铬Cr	钼Mo	钛Ti	铜Cu	铝Al	其他Other		
TP304	S30400	0.080	2.00	0.045	0.030	1.00	18.0-20.0	8.0-11.0	0.75	0.5-1.0	0.5-1.0	0.5-1.5	0.15-0.25		
TP304L	S30403	0.035	2.00	0.045	0.030	1.00	18.0-20.0	8.0-13.0	0.75	0.5-1.0	0.5-1.5	0.15-0.25			
TP304H	S30409	0.04-0.1	2.00	0.045	0.030	1.00	18.0-20.0	8.0-11.0	0.75	0.5-1.0	0.5-1.5	0.15-0.25			
253MA	S30815	0.05-0.1	0.80	0.040	0.030	1.4-2.0	20.0-22.0	10.0-12.0	6.0-6.5	0.5-1.0	0.5-1.5	0.15-0.25	N:0.14-0.20 Ce:0.03-0.08		
TP309S	S30908	0.080	2.00	0.045	0.030	1.00	22.0-24.0	12.0-15.0	0.75	0.5-1.0	0.5-1.5	0.15-0.25			
TP310S	S31008	0.080	2.00	0.045	0.030	1.00	24.0-26.0	19.0-22.0	0.75	0.5-1.0	0.5-1.5	0.15-0.25			
TP310H	S31009	0.04-0.1	2.00	0.045	0.030	1.00	24.0-26.0	19.0-22.0	0.75	0.5-1.0	0.5-1.5	0.15-0.25			
254SMO	S31254	0.020	1.00	0.030	0.010	0.80	19.5-20.5	17.5-18.5	6.0-6.5	0.5-1.0	0.5-1.5	0.15-0.25			
TP316	S31600	0.080	2.00	0.045	0.030	1.00	16.0-18.0	10.0-14.0	2.0-3.0	0.5-1.0	0.5-1.5	0.15-0.25			
TP316L	S31603	0.035	2.00	0.045	0.030	1.00	16.0-18.0	10.0-14.0	2.0-3.0	0.5-1.0	0.5-1.5	0.15-0.25			
TP316Ti	S31635	0.080	2.00	0.045	0.030	0.75	16.0-18.0	10.0-14.0	2.0-3.0	5(C+N)-0.7	0.5-1.5	0.15-0.25	N:≤0.1		
TP317	S31700	0.080	2.00	0.045	0.030	1.00	18.0-20.0	11.0-15.0	3.0-4.0	0.5-1.0	0.5-1.5	0.15-0.25			
TP317L	S31703	0.035	2.00	0.045	0.030	1.00	18.0-20.0	11.0-15.0	3.0-4.0	0.5-1.0	0.5-1.5	0.15-0.25			
TP321	S32100	0.080	2.00	0.045	0.030	1.00	17.0-19.0	9.0-12.0	0.75	0.5-1.0	0.5-1.5	0.15-0.25	N:≤0.1		
TP321H	S32109	0.04-0.1	2.00	0.045	0.030	1.00	17.0-19.0	9.0-12.0	0.75	0.5-1.0	0.5-1.5	0.15-0.25	N:≤0.1		
654SMO	S32654	0.020	2.0-4.0	0.030	0.005	0.50	24.0-25.0	21.0-23.0	7.0-8.0	0.3-0.6	0.5-1.5	0.15-0.25	N:0.45-0.55		
TP347	S34700	0.080	2.00	0.045	0.030	1.00	17.0-19.0	9.0-13.0	0.75	0.5-1.0	0.5-1.5	0.15-0.25	Nb:10C-1.0		
TP347H	S34709	0.04-0.1	2.00	0.045	0.030	1.00	17.0-19.0	9.0-13.0	0.75	0.5-1.0	0.5-1.5	0.15-0.25	Nb:8C-1.0		
Alloy 20	N08020	0.070	2.00	0.045	0.035	1.00	19.0-21.0	32.0-38.0	2.0-3.0	3.0-4.0	0.5-1.5	0.15-0.25	Nb+Ta:8C-1		
800	N08800	0.100	1.50	0.045	0.015	1.00	19.0-23.0	30.0-35.0	0.75	0.5-1.0	0.5-1.5	0.15-0.25			
800H	N08810	0.05-0.1	1.50	0.045	0.015	1.00	19.0-23.0	30.0-35.0	0.75	0.5-1.0	0.5-1.5	0.15-0.25			
800HT	N08811	0.06-0.1	1.50	0.045	0.015	1.00	19.0-23.0	30.0-35.0	0.75	0.5-1.0	0.5-1.5	0.15-0.25	Ti+Al:0.85-1.2		
904L	N08904	0.020	2.00	0.040	0.030	1.00	19.0-23.0	23.0-28.0	4.0-5.0	1.0-2.0	0.5-1.5	0.15-0.25	N:≤0.1		
926	N08926	0.020	2.00	0.030	0.010	0.50	19.0-21.0	24.0-26.0	6.0-7.0	0.5-1.5	0.5-1.5	0.15-0.25	N:0.15-0.25		

(Super) Duplex Steel Chemical Composition
(超级)双相钢化学成分表

GRADE	UNS Designation	ASTM A790 Chemical Requirement (Max)										
		碳C	锰Mn	磷P	硫S	硅Si	镍Ni	铬Cr	钼Mo	氮N	铜Cu	其他Other
	S31500	0.03	1.2-2.0	0.03	0.03	1.4-2.0	4.2-5.2	18.0-19.0	2.5-3.0	0.05-0.1		
	S31803	0.03	2.0	0.03	0.02	1.0	4.5-6.5	21.0-23.0	2.5-3.5	0.08-0.2		
2205	S32205	0.03	2.0	0.03	0.02	1.0	4.5-6.5	22.0-23.0	3.0-3.5	0.14-0.2		
	S32520	0.03	1.5	0.035	0.02	0.8	5.5-8.0	24.0-26.0	3.0-5.0	0.2-0.35	0.5-3.0	
255	S32550	0.04	1.5	0.04	0.03	1.0	4.5-6.5	24.0-27.0	2.9-3.9	0.1-0.25	1.5-2.5	
	S32707	0.03	1.5	0.035	0.01	0.5	5.5-9.5	26.0-29.0	4.5-5.0	0.3-0.5	1.0	Co:0.5-2.0
2507	S32750 ¹	0.03	1.2	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 ²	0.03	1.0	0.03	0.01	1.0	6.0-8.0	24.0-26.0	3.0-4.0	0.2-0.3	0.5-1.0	W:0.5-1.0

- 1. PREN: Cr+3.3Mo+16N≥41
- 2. PREN: Cr+3.3(Mo+0.5W)+16N≥41

Nickel Alloy Chemical Composition
镍基合金化学成分表

GRADE	UNS Designation	Standard (Pipe)	Chemical Requirement (Max)													
			碳C	锰Mn	磷P	硫S	硅Si	镍Ni	铬Cr	钼Mo	铜Cu	铁Fe	钛Ti	铝Al	钴Co	其他Other
Nickel 200	N02200	B161	0.15	0.35		0.010	0.35	min 99.0			0.25	0.4				
Nickel 201	N02201	B161	0.02	0.35		0.010	0.35	min 99.0			0.25	0.4				
Monel 400	N04400	B165	0.30	2.00		0.024	0.50	min 63.0			28.0-34.0	2.5				
Monel K-500	N05500		0.20	1.50		0.015	0.50	min 63.0			27.0-34.0	0.5-2.0	0.3-1.0	2.2-3.5		
Inconel 600	N06600	B167	0.15	1.00		0.015	0.50	min 72	14.0-17.0		0.50	6.0-10.0				
Inconel 601	N06601	B167	0.10	1.50		0.015	0.50	58.0-63.0	21.0-25.0		1.00	Bal				
Inconel 625	N06625	B444	0.10	0.50	0.015	0.015	0.50	min 58	20.0-23.0	min 8-10		5.0	0.4	0.4	1.0	铌Nb+钽Ta: 3.15-4.15
Inconel 718	N07718	B983	0.08	0.35	0.015	0.015	0.35	50.0-55.0	17.0-21.0	2.8-3.3	0.30	BAL	0.65-1.15	0.2-0.8	1.0	硼B:≤0.006; 铌Nb+钽Ta:4.75-5.5
Incoloy 800	N08800	B407	0.10	1.50	0.045	0.015	1.00	30.0-35.0	19.0-23.0		0.75	min 39.5	0.15-0.6	0.15-0.6		
Incoloy 800H	N08810	B407	0.05-0.1	1.50	0.045	0.015	1.00	30.0-35.0	19.0-23.0		0.75	min 39.5	0.15-0.6	0.15-0.6		
Incoloy 800HT	N08811	B407	0.06-0.1	1.50	0.045	0.015	1.00	30.0-35.0	19.0-23.0		0.75	min 39.5	0.15-0.6	0.15-0.6		铝Al+钛Ti:0.85-1.2
Incoloy 825	N08825	B423	0.05	1.00		0.030	0.50	38.0-46.0	19.5-23.5	2.5-3.5	1.5-3.0	min 22.0	0.6-1.2	0.2		
/	N10276	B622	0.01	1.00	0.040	0.030	0.08	BAL	14.5-16.5	15.0-17.0		4.0-7.0			2.5	钨W:3.0-4.5; 钒V:≤0.35
/	N06022	B622	0.015	0.50	0.020	0.020	0.08	BAL	20.0-22.5	12.5-14.5		2.0-6.0			2.5	钨W:2.5-3.5; 钒V:≤0.35
/	N10665	B622	0.02	1.00	0.040	0.030	0.10	BAL	1.0	26.0-30.0		2.0			1.0	
/	N10629	B622	0.01	1.50	0.040	0.010	0.05	BAL	0.5-1.5	26.0-30.0	0.50	1.0-6.0		0.1-0.5	2.5	

Comparison Table For Chinese And Foreign Stainless Steel Grades
中外不锈钢牌号对照表

NO	GRADE	UNS	GB		JIS	ISO	DIN/EN	GOST
			ISC	NEW				
1	304	S30400	S30408	06Cr19Ni10	SUS304	X5CrNi18-10	1.4301	08X18H10
2	304L	S30403	S30403	022Cr19Ni10	SUS304L	X2CrNi19-11	1.4306	03X18H10
3	309S	S30908	S30908	06Cr23Ni13	SUS309S	X12CrNi23-13	1.4833	10X23H13
4	310	S31000	S31020	20Cr25Ni20	SUS310	X15CrNi25-21	1.4841	20X25H20C2
5	310S	S31008	S31008	06Cr25Ni20	SUS310S	X8CrNi25-21	1.4845	/
6	314	S31400	S38340	16Cr25Ni20Si2	/	X15CrNiSi25-21	1.4841	/
7	316	S31600	S31608	06Cr17Ni12Mo2	SUS316	X5CrNiMo17-12-2	1.4401	08X16H11M3
8	316L	S31603	S31603	022Cr17Ni12Mo2	SUS316L	X2CrNiMo17-12-2	1.4404	03X17H14M2
9	316Ti	S31635	S31668	06Cr17Ni12Mo2Ti	SUS316Ti	X6CrNiMoTi17-12-2	1.4571	08X17H13M2T
10	316N	S31651	S31658	06Cr17Ni12Mo2N	SUS316N	/	1.4406	/
11	316LN	S31653	S31653	022Cr17Ni12Mo2N	SUS316LN	X2CrNiMoN17-11-2	1.4429	/
12	317	S31700	S31708	06Cr19Ni13Mo3	SUS317	/	1.4449	/
13	317L	S31703	S31703	022Cr19Ni13Mo3	SUS317L	X2CrNiMo19-14-4	1.4438	03X16H15M3
14	321	S32100	S32168	06Cr18Ni11Ti	SUS321	X6CrNiTi18-10	1.4541	08X18H10T
15	321H	S32109	S32169	07Cr19Ni11Ti	SUS321HTP	X7CrNiTi18-10	1.4878	12X18H10T
16	347	S34700	S34778	06Cr18Ni11Nb	SUS347	X6CrNiNb18-10	1.4550	08X18H12B
17	310MoLN	S31050	S31053	022Cr25Ni22Mo2N	/	X1CrNiMoN25-22-2	1.4466	/
18	904L	N08904	S31782	015Cr21Ni26Mo5Cu2	SUS890L	X1NiCrMoCu25-20-5	1.4539	/
19	2205	S31803/S32205	S22253	022Cr22Ni5Mo3N	SUS329J3L	X2CrNiMoN22-5-3	1.4462	/
20	255	S32550	S25554	03Cr25Ni6Mo3Cu2N	SUS329J4L	X2CrNiMoCuN25-6-3	1.4507	/
21	2507	S32750	S25073	022Cr25Ni7Mo4N	UR47N+	X2CrNiMoN25-7-4	1.4410	/
22	2760	S32760	S27603	022Cr25Ni7Mo4WCuN	SUS329J2L	X2CrNiMoCuWN25-7-4	1.4501	/
23	Alloy 276/C276	N10276	H10276	NS3304	/	/	2.4819	/
24	Alloy 22/C22	N06022	H06022	NS3308	/	/	2.4602	/
25	Monel 400	N04400	H04400	NS6400	/	/	2.4360	/
26	Inconel 600	N06600	/	NS3102	NCF600	/	2.4816	/
27	Inconel 625	N06625	/	NS3306	NCF625	/	2.4856	/
28	Incoloy 825	N08825	/	NS1402	NCF825	/	2.4858	/
29	Incoloy 800	N08800	/	NS1101	NCF800	/	1.4876	/
30	254/254SMO	S31254	S31252	015Cr20Ni18Mo6CuN	SUS312L	X1CrNiMoN20-18-7	1.4547	/
31	253 SMA/F 45	S30815	/	/	/	X7CrNiSiN21-11	1.4835	/
32	654 SMO	S32654	S32652	015Cr24Ni22Mo8Mn3CuN	NCF600	X1CrNiMoCuN24-22-8	1.4652	/

TEST ITEMS OF COMMON PRODUCT STANDARDS.
常见产品标准的检测需求

Standard	chemistry	stretch	Impact test		flatten	spin over	curve	hardness	Corrosion test		Metallographic examination			ET	UT	HT	size	facade	Remark
			-196	temperature					intergranular	Point corrosion	Inclusions	grain size	ferrites						
GB/T 14976-2012	√	√	X	X	X	X	X	√	X	X	X	X	X	X	√	√	√	HT can be replaced by ET or UT	
GB 13296-2013	√	√	X	X	√	√	X	√	X	X	X	X	X	√	√	√	√	HT can be replaced by ET	
GB 5310-2008	√	√	X	√	√	X	√	√	X	X	√	√	X	√	√	√	√		
GB 9948-2013	√	√	X	√	√	√	X	√	√	X	X	X	X	√	√	√	√	HT can be replaced by ET or MFL	
ASTMA312	√	√	X	X	√	X	X	X	X	X	X	X	X	√	√	√	√	HT can be replaced by ET or UT	
ASTMA213	√	√	X	X	√	√	X	√	X	X	X	√	X	√	√	√	√	HT can be replaced by ET	
ASTMA269	√	√	X	X	√	√	X	√	X	X	X	X	X	√	√	√	√	HT can be replaced by ET or UT	
JISG3459	√	√	X	X	√	X	X	X	X	X	X	√	X	X	√	√	√	HT can be replaced by ET or UT	
JISG3463	√	√	X	X	√	√	X	X	X	X	X	√	X	X	√	√	√	HT can be replaced by ET or UT	
DN 17456	√	√	X	X	X	X	X	X	X	X	X	X	X	X	√	√	√		
DN 17458	√	√	X	X	√	√	X	X	X	X	X	X	X	√	√	√	√	Flattening or flaring	
GB/T 21833.1-2020	√	√	X	X	√	√	X	√	√	√	X	X	√	√	√	√	√	HT can be replaced by ET or UT	
GB/T 21833.2-2020	√	√	X	X	√	X	X	√	√	√	X	X	√	√	√	√	√	HT can be replaced by ET or UT	
ASTMA790	√	√	X	X	√	X	X	√	X	X	X	X	X	√	√	√	√	HT can be replaced by ET or UT	

SURFACE POLISHING VS ROUGHNESS OF STAINLESS STEEL SEAMLESS TUBE.
不锈钢无缝管表面抛光与粗糙度的对照表。

Grit Size	Ra(μm)		Marking Mark	N(ISO)
目数				
60#	3.2	125	▽▽	N8
180#	1.6	63	▽▽▽	N7
220#	1.2	48	▽▽▽	
250#	0.8	32	▽▽▽	N6
300#	0.4	16	▽▽▽	N5
350#	0.25	10	▽▽▽	
400#	0.2	8	▽▽▽▽	N4
600#	0.1	4	▽▽▽▽	N3

外径尺寸和壁厚表(美标)ANSI B36.10、B36.19M
More Info visit www.xtd-ss.com

公称通径 Nominal Pipe Size		外径 Outside Diameter	公称壁厚 Nominal Wall Thickness							
NPS inch	DN	(ODmm)	Sch5s	Sch10s	Sch10	Sch20	Sch30	Sch40s	STD	Sch40
1/8	6	10.3	—	1.24	—	—	—	1.73	1.73	1.73
1/4	8	13.7	—	1.65	—	—	—	2.24	2.24	2.24
3/8	10	17.1	—	1.65	—	—	—	2.31	2.31	2.31
1/2	15	21.3	1.65	2.11	—	—	—	2.77	2.77	2.77
3/4	20	26.7	1.65	2.11	—	—	—	2.87	2.87	2.87
1	25	33.4	1.65	2.77	—	—	—	3.38	3.38	3.38
1-1/4	32	42.2	1.65	2.77	—	—	—	3.56	3.56	3.56
1-1/2	40	48.3	1.65	2.77	—	—	—	3.68	3.68	3.68
2	50	60.3	1.65	2.77	—	—	—	3.91	3.91	3.91
2-1/2	65	73.0	2.11	3.05	—	—	—	5.16	5.16	5.16
3	80	88.9	2.11	3.05	—	—	—	5.49	5.49	5.49
3-1/2	90	101.6	2.11	3.05	—	—	—	5.74	5.74	5.74
4	100	114.3	2.11	3.05	—	—	—	6.02	6.02	6.02
5	125	141.3	2.77	3.40	—	—	—	6.55	6.55	6.55
6	150	168.3	2.77	3.40	—	—	—	7.11	7.11	7.11
8	200	219.1	2.77	3.76	—	6.35	7.04	8.18	8.18	8.18
10	250	273.1	3.40	4.19	—	6.35	7.80	9.27	9.27	9.27
12	300	323.9	3.96	4.57	—	6.35	8.38	9.53	9.53	10.31
14	350	355.6	3.96	4.78	6.35	7.92	9.53	—	9.53	11.13
16	400	406.4	4.19	4.78	6.35	7.92	9.53	—	9.53	12.70
18	450	457.2	4.19	4.78	6.35	7.92	11.13	—	9.53	14.27
20	500	508.0	4.78	5.54	6.35	9.53	12.70	—	9.53	15.09
22	—	558.8	4.78	5.54	6.35	9.53	12.70	—	9.53	—
24	600	609.6	5.54	6.35	6.35	9.53	14.27	—	9.53	17.48
26	—	660.4	—	—	7.92	12.70	—	—	9.53	—
28	700	711.2	—	—	7.92	12.70	15.88	—	9.53	—
30	—	762.0	6.35	7.92	7.92	12.70	15.88	—	9.53	—
32	800	812.8	—	—	7.92	12.70	15.88	—	9.53	17.48
34	—	863.6	—	—	7.92	12.70	15.88	—	9.53	17.48
36	900	914.4	—	—	7.92	12.70	15.88	—	9.53	17.48
38	—	965.2	—	—	—	—	—	—	9.53	—
40	1000	1016.0	—	—	—	—	—	—	9.53	—
42	—	1066.8	—	—	—	—	—	—	9.53	—
44	1100	1117.6	—	—	—	—	—	—	9.53	—
46	—	1168.4	—	—	—	—	—	—	9.53	—
48	1200	1219.2	—	—	—	—	—	—	9.53	—

外径尺寸和壁厚表(美标)ANSI B36.10、B36.19M
More Info visit www.xtd-ss.com

公称通径 Nominal Pipe Size		外径 Outside Diameter	公称壁厚 Nominal Wall Thickness								
NPS inch	DN	(ODmm)	Sch60	Sch80s	XS	Sch80	Sch100	Sch120	Sch140	SCH160	XXS
1/8	6	10.3	—	2.41	2.41	2.41	—	—	—	—	—
1/4	8	13.7	—	3.02	3.02	3.02	—	—	—	—	—
3/8	10	17.1	—	3.20	3.20	3.20	—	—	—	—	—
1/2	15	21.3	—	3.73	3.73	3.73	—	—	—	4.78	7.47
3/4	20	26.7	—	3.91	3.91	3.91	—	—	—	5.56	7.82
1	25	33.4	—	4.55	4.55	4.55	—	—	—	6.35	9.09
1-1/4	32	42.2	—	4.85	4.85	4.85	—	—	—	6.35	9.70
1-1/2	40	48.3	—	5.08	5.08	5.08	—	—	—	7.14	10.15
2	50	60.3	—	5.54	5.54	5.54	—	—	—	8.74	11.07
2-1/2	65	73.0	—	7.01	7.01	7.01	—	—	—	9.53	14.02
3	80	88.9	—	7.62	7.62	7.62	—	—	—	11.13	15.24
3-1/2	90	101.6	—	8.08	8.08	8.08	—	—	—	—	—
4	100	114.3	—	8.56	8.56	8.06	—	11.13	—	13.49	17.12
5	125	141.3	—	9.53	9.53	9.53	—	12.70	—	15.88	19.05
6	150	168.3	—	10.97	10.97	10.97	—	14.27	—	18.26	21.95
8	200	219.1	10.31	12.70	12.70	12.70	15.09	18.26	20.62	23.01	22.23
10	250	273.1	12.70	12.70	12.70	15.09	18.26	21.44	25.40	28.58	25.40
12	300	323.9	14.27	12.70	12.70	17.48	21.44	25.40	28.58	33.32	25.40
14	350	355.6	15.09	—	12.70	19.05	23.83	27.79	31.75	35.71	—
16	400	406.4	16.66	—	12.70	21.44	26.19	30.96	36.53	40.49	—
18	450	457.2	19.05	—	12.70	23.83	29.36	34.96	39.67	45.24	—
20	500	508.0	20.62	—	12.70	26.19	32.54	38.10	44.45	50.01	—
22	—	558.8	22.23	—	12.70	28.58	34.93	41.28	47.63	53.98	—
24	600	609.6	24.61	—	12.70	30.96	38.89	46.02	52.37	59.54	—
26	—	660.4	—	—	12.70	—	—	—	—	—	—
28	700	711.2	—	—	12.70	—	—	—	—	—	—
30	—	762.0	—	—	12.70	—	—	—	—	—	—
32	800	812.8	—	—	12.70	—	—	—	—	—	—
34	—	863.6	—	—	12.70	—	—	—	—	—	—
36	900	914.4	—	—	12.70	—	—	—	—	—	—
38	—	965.2	—	—	12.70	—	—	—	—	—	—
40	1000	1016.0	—	—	12.70	—	—	—	—	—	—
42	—	1066.8	—	—	12.70	—	—	—	—	—	—
44	1100	1117.6	—	—	12.70	—	—	—	—	—	—
46	—	1168.4	—	—	12.70	—	—	—	—	—	—
48	1200	1219.2	—	—	12.70	—	—	—	—	—	—

COMPARISON OF DIFFERENT STANDARD TOLERANCE
各类标准的公差对照表

STANDARD	OD(D)	TOLERANCE(MM)		THICKNESS(S)	TOLERANCE	LENGTH	TOLERANCE
	MM	COMMON HIGH		MM		MM	
JIS3459 hot-finished smls pipe	D<50	±0.50		S<4	±0.5		
	D≥50	±1.0%		S≥4	±12.5%		
JIS3459 cold-finished smls pipe	D<30	±0.3		S<2	±0.2		
	D≥30	±1.0%		S≥2	±10.0%		
JISG3463 hot finished smls pipe	100<D	+0.4/-0.8		D<100, S<2	/	D<50, L<7M	+7/0
				D<100, 2.4≤S<2.4	+40%/0	D<50, 7<L<10M	+10/0
				D<100, 3.8≤S<4.6	+33%/0		
				D<100, 4.6≤S	+28%/0	D<50, 10<L<13M	+13/0
	100≤D<120	+0.4/-1.2		D>100, S<2	/	D<50, 13M<L	+15/0
	120≤D<160			D>100, 2.4≤S<2.4	/		
160≤D<200	+0.4/-1.8		D>100, 2.4≤S<3.8	+35%/0			
200≤D	+0.4/-2.4		D>100, 3.8≤S<4.6	+33%/0	D>50, 7<L<7M	+10/0	
JIS G3463 Cold finished smls pipe	<60	+0.4/-0.8		D<40, S<2.0	+0.4/0	D>50, 7<L<10M	+13/0
	60≤D<80	±0.3		D<40, S≥2.0	+20%/0		
	80≤D<100	±0.4		D≥40	+22%/0		
	100≤D<120	+0.4/-0.6					
	120≤D<160	+0.4/-0.8					
	160≤D<200	+0.4/-1.2		D>50, 10M<L	+15/0		
200≤D	+0.4/-1.6						
GB/T14975 热轧(挤、扩)钢管	D<76.1	+1.25%	±0.6	所有壁厚, 普通级PA	+15%/-12.5%		
	76.1<D<139.7	+1.5%	±0.8				
	139.7<D<273.1	+1.5%	±1.2	所有壁厚, 高级PC	±12.5%		
	273.1<D<323.9	+1.5%	±1.6				
D≥323.9	+1.5%	±0.6%					
GB/T14975 冷拔(扎)钢管	D<12.7	±0.3	±0.1	所有壁厚, 普通级PA	+12.5%/-10%		
	12.7<D<38.1	±0.3	±0.15				
	38.1<D<88.9	±0.4	±0.3				
	88.9<D<139.7	±0.9%	±0.4	所有壁厚, 高级PC	±10%		
	139.7<D<203.2	±0.9%	±0.8				
	203.2<D<219.1	±0.9%	±1.1				
219.1<D<323.9	±0.9%	±1.6					
D≥323.9	±0.9%	±0.5%					
GB/T14976 热轧(挤、扩)钢管	68<D<159	1.25%	+1%	S<15	+15%/-12.5%(+12.5%/0高级PC)		
				S≥15	+20%/-15%(+12.5%/0高级PC)		
	D>159	±1.5%		Smin<15	+25%/0(+22.5%/0高级PC)		
				Smin≥15	32.5%/0(+22.5%/0高级PC)		
GB/T14976 冷拔(扎)钢管	6<D<10	±0.2	±0.15	S≤3	±12%(+10%/0高级PC)		
	10≤D<30	±0.3	±0.2				
	30≤D<50	±0.4	±0.3	S>3	+12.5%/-10%(10%/0高级PC)		
	50≤D<219	0.85%	0.75%				
	D>219	0.9%	0.8%			Smin, all	+22%/0(+20%/0高级PC)

COMPARISON OF DIFFERENT STANDARD TOLERANCE
各类标准的公差对照表

STANDARD	OD(D)	TOLERANCE(MM)		THICKNESS(S)	TOLERANCE	LENGTH	TOLERANCE
	MM	COMMON HIGH		MM		MM	
GB/T13296 热拔(挤压)钢管	D≤140	±1.25%		Smin, ≤4	+0.9/0		
				Smin, >4	+25%/0		
	D>140	±1.0%		S, ≤4	±0.45		
				S, >4	+12.5%/-10%		
GB/T13296 冷拔(扎)钢管	D≤25	±0.1		D≤38, Smin	+20%/0		
	25<D≤40	±0.15					
	40<D≤50	±0.2		D>38, Smin	+22%/0		
	50<D≤65	±0.25					
	65<D≤75	±0.3		D≤38, S	±10%		
	75<D≤100	±0.38					
	100<D≤159	+0.38/-0.64		D>38, S	±11%		
D>159	±0.5%						
EN 10216-5 HFD	30≤D≤219.1(D2)	±1.0% or ±0.5mm, whichever is the greater (取较大者)		T1, T≤4	±15% or ±0.6mm, whichever is the greater(取较大者)	L≤6M	+5/0
				T2	±12.5% or ±0.4mm, whichever is the greater(取较大者)		
	219.1<D≤610 (D1)	±1.5% or ±0.75mm, whichever is the greater (取较大者)		T≤0.05D	+22.5%/-15%	6<L≤12	+10/0
				T1, 0.05D<T≤0.09D	±15% or ±0.6mm, whichever is the greater(取较大者)		
EN 10216-5 CFD	D3(D≤219.1)	±0.75% or ±0.3mm, whichever is the greater (取较大者)		T3	±10% or ±0.2mm, whichever is the greater(取较大者)	L>12	+by agreement/0
	D4(D≤219.1)	±0.5% or ±0.1mm, whichever is the greater (取较大者)		T4	±7.5% or ±0.15mm, whichever is the greater(取较大者)		
A213 HFD	D≤100	+0.4/-0.8		D<100, S≤2.4	+40%/0	HFD, all size	+5.0/0
		+0.4/-1.2		D<100, 2.4<S≤3.8	+35%/0		
		+0.4/-1.6		D<100, 3.8<S≤4.6	+33%/0		
	+0.4/-1.2		D>100, 2.4<S≤3.8	+35%/0			
	+0.4/-1.6		D>100, 3.8<S≤4.6	+33%/0			
100<D≤200	+0.4/-1.2		D>100, S>4.6	+28%/0			
200<D≤225	+0.4/-1.6		D>100, S>4.6	+28%/0			
A213 CFD	D<25	±0.10		D≤38.1	+20%/0	CFD, D<50.8	+3.0/0
	25≤D≤40	±0.15					
	40<D<50	±0.20					
	50≤D<65	±0.25		D>38.1	+22%/0		
	65≤D<75	±0.30					
	75≤D≤100	±0.38					
	100<D≤200	+0.38/-0.64					
200<D≤225	+0.38/-1.14						

COMPARISON OF DIFFERENT STANDARD TOLERANCE
各类标准的公差对照表

STANDARD	OD(D)	TOLERANCE(MM)	THICKNESS(S)	TOLERANCE	LENGTH	TOLERANCE
	MM	COMMON HIGH	MM		MM	MM
A269	D≤13	±0.13	D≤13	±15%	D<38	+3.2/0
	13<D<38	±0.13	13<D<356	±10%	D≥38	+4.8/0
	38≤D<89	±0.25				
	89≤D<140	±0.38				
	140≤D<203	±0.76				
	203≤D<305	±1.01				
305≤D<356	±1.26					
A270	D≤25	±0.13	for thk≥1.24, the OD tolerance, per to the table; for THK<1.24, the OD tolerance shall be negotiated	±12.5%	D≤100	+3.0/0
	25<D≤50	±0.20			100<D≤300	+5.0/0
	50<D≤75	±0.25				
	75<D≤100	±0.38				
	100<D<140	±0.38				
	140≤D<200	±0.75				
200≤D≤300	±1.25					
A312	10.3≤D≤48.3	+0.4/-0.8	10.3≤D≤73.0	+20%/-12.5%	For all sizes	+6.0/0
	48.3<D≤114.3	+0.8/-0.8	88.9≤D≤457.2, t/D≤5%	+22.5%/-12.5%		
	114.3<D≤219.1	+1.6/-0.8	88.9≤D≤457.2, t/D>5%	+15%/-12.5%		
	219.1<D≤457.2	+2.4/-0.8	D≥508.0, t/D≤5%, SMLS	+22.5%/-12.5%		
	457.2<D≤660.4	+3.2/-0.8	D≥508.0, t/D>5%, SMLS	+15%/-12.5%		
	660.4<D≤863.6	+4.0/-0.8	D≥508.0, WLD	+17.5%/-12.5%		
863.6<D≤1219.2	+4.8/-0.8					
A789	D<12.7	±0.13	S(ave): ±15%	S(Min): +30%/0	OD<38.1	+3.0/0
	12.7≤D<38.1	±0.13	S(ave): ±10%	S(Min): +20%/0	OD≥38.1	+5.00/0
	38.1≤D<88.9	±0.25				
	88.9≤D<139.7	±0.38				
139.7≤D≤203.2	±0.76					
A790	10.3≤D≤48.3	+0.4/-0.8	10.3≤D≤73.0	+20%/-12.5%	For all sizes	+6.0/0
	48.3<D≤114.3	+0.8/-0.8	88.9≤D≤457.2, t/D≤5%	+22.5%/-12.5%		
	114.3<D≤219.1	+1.6/-0.8	88.9≤D≤457.2, t/D>5%	+15.0%/-12.5%		
	219.1<D≤457.2	+2.4/-0.8	D≥508.0, t/D≤5%, SMLS	+22.5%/-12.5%		
	457.2<D≤660.4	+3.2/-0.8	D≥508.0, t/D>5%, SMLS	+15.0%/-12.5%		
	660.4<D≤762.0	+4.0/-0.8	D≥508.0, WLD	+17.5%/-12.5%		
A249	D<25.4	+0.1/-0.11	SMLS S(ave): ±10%	D≤38.1, SMLS S(Min): +20%/0	D<50.8	+3.0/0
	25.4≤D≤38.1	±0.15				
	38.1<D<50.8	±0.20				
	50.8≤D≤63.5	±0.25	WLD S(ave): ±5%	For all sizes, WLD S(Min): +18%/0	D≥50.8	+5.0/0
	63.5≤D<76.2	±0.30				
	76.2≤D≤101.6	±0.38				
101.6<D≤190.5	+0.38/-0.64					
190.5<D≤228.6	+0.38/-1.14					
B161 (Cold-worked Pipe and Tube)	D≤10	±0.10	S(ave): ±15%	S(Min): +30%/0	OD<50.8: +3.2/-0 OD≥50.8: +4.8/-0 Details refer to B829	
	10<D<16	±0.13				
	16≤D≤38	±0.19	S(ave): ±10%	S(Min): +22%/0		
	38<D≤76	±0.25				
	76<D≤114	±0.38				
	114<D≤152	±0.51	S(ave): ±12.5%	S(Min): +28%/0		
	152<D≤168	±0.64				
	168<D≤219	±0.79				
	219<D≤356	+1.57/-0.79	S(ave): +15%/-12.5%	S(Min): +30%/0		
	356<D≤610	+3.18/-0.79				

COMPARISON OF DIFFERENT STANDARD TOLERANCE
各类标准的公差对照表

STANDARD	OD(D)	TOLERANCE(MM)	THICKNESS(S)	TOLERANCE	LENGTH	TOLERANCE
	MM	COMMON HIGH	MM		MM	MM
B161 (Hot-finished Tube)	19≤D≤38	+0.4/-0.8	for nominal wall: ±12.5%	for min wall: ±28.5%/0	OD<50.8: +3.2/-0 OD≥50.8: +4.8/-0 Details refer to B829	
	38.1<D<102	±0.8				
	102<D≤235	+1.6/-0.8				
B161 (Hot-worked Pipe)	25≤D<48	±0.38	for nominal wall: +16%/-12.5%	for min wall: ±28.5%/0		
	48≤D<114	±0.51				
	114≤D<165	±0.64				
	165≤D≤235	±0.79				
B163 (N02200, N02201, N04400)	12.7≤D<15.9	+0.13/0	ave. ±12.5%	min: +25.0%/0	Cut-to-length	+3.2/-0
	15.9≤D≤38.1	±0.13	ave. ±10.0%	min: +20.0%/0		
	38.1<D≤76.2	±0.25	ave. ±10.0%	min: +22.0%/0		
B163(for rest)	12.7≤D<15.9	±0.13	ave. ±12.5%	min: +25.0%/0	Cut-to-length: >9.1m	+6.4/0
	15.9<D≤38.1	±0.19	ave. ±10.0%	min: +20.0%/0		
	38.1<D≤76.2	±0.25	ave. ±10.0%	min: +22.0%/0		
B444 (Cold-worked Pipe and Tube)	10≤D<16	±0.13		±15%	OD<50.8: +3.2/-0 OD≥50.8: +4.8/-0 Details refer to B829	
	16<D≤38	±0.19		±10%		
	38<D≤76	±0.25		±12.5%		
	76<D≤114	±0.38				
	114<D≤152	±0.51				
	152<D≤168	±0.64		±15%/-12.5%		
	168≤D<219	±0.79				
	219<D≤356	+1.57/-0.79				
	356<D≤610	+3.18/-0.79				
B622 (Cold-worked Pipe and Tube)	D≤10	±0.10	S(ave): ±15%	S(Min): +30%/0	OD<50.8: +3.2/-0 OD≥50.8: +4.8/-0 Details refer to B829	
	10<D<16	±0.13	S(ave): ±10%	S(Min): +22%/0		
	16≤D≤38	±0.19				
	38<D≤76	±0.25				
	76<D≤114	±0.38	S(ave): ±12.5%	S(Min): +28%/0		
	114<D≤152	±0.51				
	152<D≤168	±0.64				
168<D≤219	±0.79					
219<D≤356	+1.57/-0.79	S(ave): +15%/-12.5%	S(Min): +30%/0			
356<D≤610	+3.18/-0.79					
B622 (Hot-finished Tube)	19≤D≤38	+0.4/-0.8	for nominal wall: ±12.5%	for min wall: ±28.5%/0	OD<50.8: +3.2/-0 OD≥50.8: +4.8/-0 Details refer to B829	
	38.1<D<102	±0.8				
	102<D≤235	+1.6/-0.8				
B622 (Hot-worked Pipe)	25≤D<48	±0.38	for nominal wall: +16%/-12.5%	for min wall: ±28.5%/0		
	48≤D<114	±0.51				
	114≤D<165	±0.64				
	165≤D≤235	±0.79				
B729 (Cold-worked)	D≤10	±0.1	D<16, S(Ave)	±15%	D<50.8	+3.2/0
	10<D<16	±0.13	16<D≤114, S(Ave)	±10%		
	16<D≤38	±0.19	114<D≤219, S(Ave)	±12.5%		
	38<D≤76	±0.25	219<D≤610, S(Ave)	±15%/-12.5%		
	76<D≤114	±0.38	D<16, S(Min)	+30%/0		
	114<D≤152	±0.51	16<D≤114, S(Min)	+22%/0		
	152<D≤168	±0.64	114<D≤219, S(Ave)	+28%/0		
	168<D≤219	±0.79	219<D≤610, S(Ave)	+30%/0		
	219<D≤356	+1.57/-0.79				
	356<D≤610	+3.18/-0.79				
B729 (Hot-finished)	19<D≤38	-0.5	All size, S(Ave)	±12.5%	D<50.8	+3.2/0
	38.1<D<102	±0.8	All size, S(Min)	+28.5%/0	D≥50.8	+4.8/0
	102<D≤235	+1.6/-0.8				

Mechanical Character Properties

机械性能表

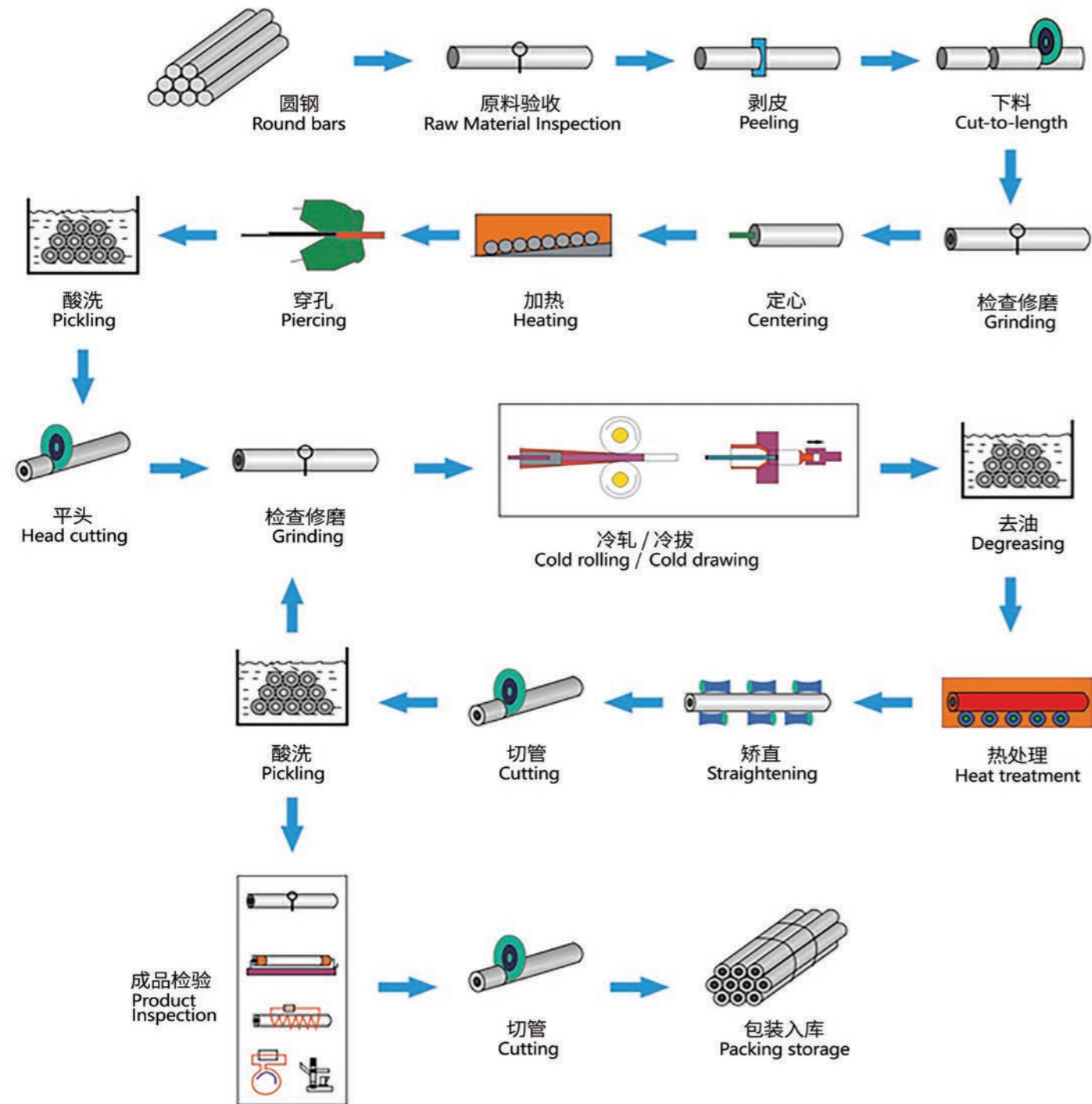
Grade	Condition&Size	Standard	Heat Treating Temp. ;min	Tensile Strength	Yield Strength	Elongation
				Min, Mpa	Min, Mpa	min, %
TP304		A312	1040°C	515	205	35
TP304L		A312	1040°C	485	170	35
TP304H	Cold Finished	A312	1040°C	515	205	35
TP304H	Hot Finished	A312	1040°C	515	205	35
253MA		A312	1040°C	600	310	35
TP309S		A312	1040°C	515	205	35
TP310S		A312	1040°C	515	205	35
TP310H		A312	1040°C	515	205	35
254SMO	t≤5mm	A312	1150°C	675	310	35
254SMO	t>5mm	A312	1150°C	655	310	35
TP316		A312	1040°C	515	205	35
TP316L		A312	1040°C	485	170	35
TP316Ti		A312	1040°C	515	205	35
TP317		A312	1040°C	515	205	35
TP317L		A312	1040°C	515	205	35
TP321	t≤9.5mm	A312	1040°C	515	205	35
TP321	t>9.5mm	A312	1040°C	485	170	35
TP321H	Cold Finished;t≤9.5mm	A312	1100°C	515	205	35
TP321H	Cold Finished;t>9.5mm	A312	1100°C	480	170	35
TP321H	Hot Finished;t≤9.5mm	A312	1050°C	515	205	35
TP321H	Hot Finished;t>9.5mm	A312	1050°C	480	170	35
654SMO		A312	1150°C	750	430	35
TP347		A312	1040°C	515	205	35
TP347H	Cold Finished	A312	1100°C	515	205	35
TP347H	Hot Finished	A312	1050°C	515	205	35
Alloy 20		A312	925-1010°C	550	240	30
N08800	cold work annealed	A312	1040°C	515	205	30
N08800	hot finished annealed	A312	1040°C	450	170	30
N08810		A312	1120°C	450	170	30
N08811		A312	1150°C	450	170	30
N08904		A312	1100°C	490	215	35
N08926		A312	1100-1150°C	650	295	35
S31500		A790	980-1040°C	630	440	30
S31803		A790	1020-1100°C	620	450	25
S32205		A790	1020-1100°C	655	450	25
S32520		A790	1080-1120°C	770	550	25
S32550		A790	1040°C min	760	550	15
S32707		A790	1080-1120°C	920	700	25
S32750		A790	1025-1125°C	800	550	15
S32760		A790	1070-1140°C	750	550	25

Mechanical Character Properties

机械性能表

Grade	Condition&Size	Standard	Tensile Strength	Yield Strength	Elongation
			Min, Mpa	Min, Mpa	Min, Mpa
N02200	Annealed: OD≤127mm	B161	380	105	35
N02200	Annealed: OD>127	B161	380	80	40
N02200	Stress-Relieved: All size	B161	450	275	15
N02201	Annealed: OD≤127mm	B161	345	80	35
N02201	Annealed: OD>127mm	B161	345	70	40
N02201	Stress-Relieved: All size	B161	415	205	15
N04400	Annealed: OD≤127mm	B165	480	195	35
N04400	Annealed: OD>127mm	B165	480	170	35
N04400	Stress-Relieved: All size	B165	585	380	15
N06600	Hot-worked or hot worked annealed; OD≤127mm	B167	550	205	35
N06600	Hot-worked or hot worked annealed; OD>127mm	B167	515	170	35
N06600	Cold-worked annealed; OD≤127mm	B167	550	240	30
N06600	Cold-worked annealed; OD>127mm	B167	550	205	35
N06601	Cold-worked annealed or hot-worked annealed	B167	550	205	30
N06625	Grade 1	B444	827	414	30
N06625	Grade 2(Solution Annealed)	B444	690	276	30
N07718					
N08800	Cold-worked annealed	B407	520	205	30
N08800	Hot-finished annealed or hot-finished	B407	450	170	30
N08810	Hot-finished annealed or cold-worked annealed	B407	450	170	30
N08811	Hot-finished annealed or cold-worked annealed	B407	450	170	30
N08825	hot-finished annealed	B423	517	172	30
N08825	cold-worked annealed	B423	586	241	30
N10276		B622	690	283	40
N06022		B622	690	310	45
N10665		B622	760	350	40
N10629		B622	760	350	40

无缝管工艺流程图
MANUFACTURING PROCESS OF SEAMLESS TUBES&PIPES



连续成型焊管生产工艺流程
CONTINUOUS MANUFACTURING PROCESS OF WELDED PIPES & TUBES

