

STAINLESS STEEL TUBE & PIPE



Integrated Supplier of Stainless Steel Products Focus on Engineering Projects over 26 Years
—— 专注于工程项目超过26年的不锈钢产品的综合供应商





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专注于工程项目超过26年的不锈钢产品的综合供应商

企业文化 Enterprise Culture

愿景: Vision:

安精神之本, 联财富之源

Keep the peace of mental, Link the source of wealth.

使命: Mission:

与世界共享中国造, 为客户利益而努力创新

Share made in China with the world and strive to innovate for customers' benefit.

价值观: Values:

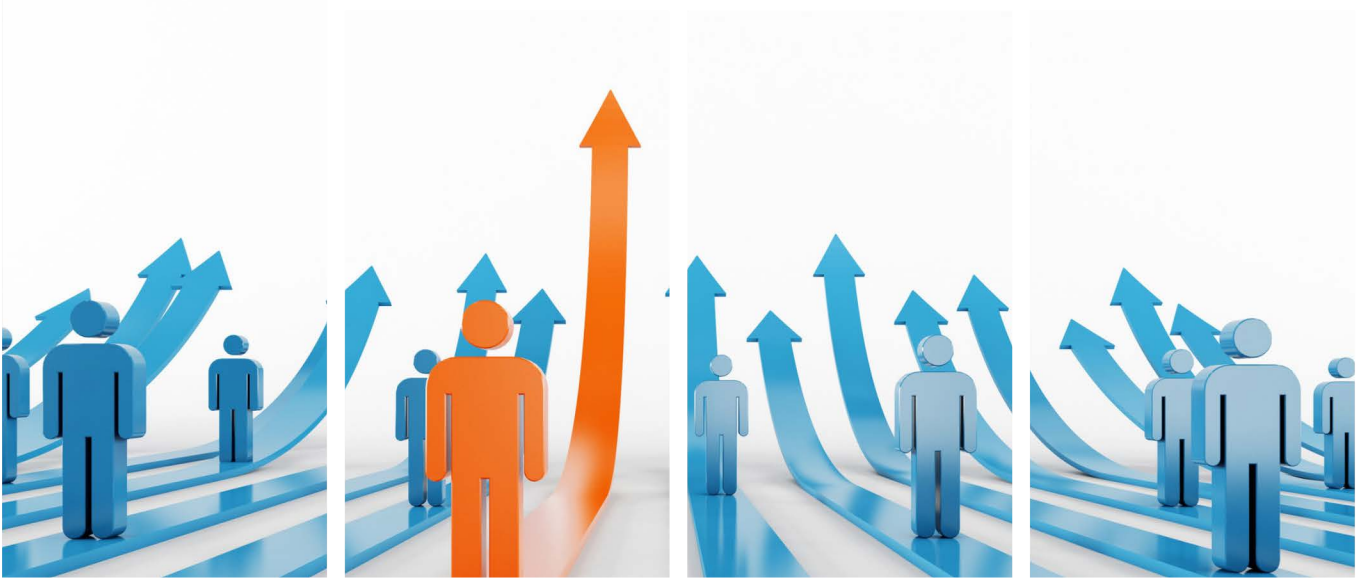
激情、敬业、创新、进取、诚信、求实、利他、共赢

Passionate, Dedicated, Innovative, Enterprising, Altruistic, Win-win, Honest, Truth-seeking.

宗旨: Aim:

为客户提供独特价值

Provide unique value for customers.





COMPANY CATALOGUE

RONSCO 企业目录

- P1 目录 Content
- P2-3 公司介绍 Company Introduction
- P4 组织结构 Organization Structure
- P5 社会责任 Social Responsibility
- P6-7 我们的优势 Our Advantages
- P8-9 产品介绍 Product Introduction
- P10 标准规范参数 Standard Specification
- P11 尺寸表 Size Specification
- P12-21 公差&表面 Tolerance & Surface
- P22 包装 Packing
- P23 订货指南 Ordering Guide
- P23 出口资质 Certificates
- P24 出口国家 Export Countries
- P24 联系我们 Contact Us



安聯鋼鐵集團

安聯鋼鐵集團以“与世界共享中国造,为客户利益而努力创新”为使命,通过不断创新业务模式,打造产品品牌,有效地促进了产业发展,深耕钢铁产业、先进材料、先进智造、国际货运、矿业、文化传媒等六大业务板块,是中国知名的综合性钢铁产业集团、世界领先的新材料,开发商和钢材采购综合服务商。截至2020年底,集团资产总额80多亿元,年营业收入40多亿元,员工总数3800余人。

下设十个子公司及海外代表处、五个生产基地、三个研究院,是中国民营企业工业100强、国家技术创新型企业、国家重点高新技术企业、国家绿色示范工厂、全国AAA级质量信用企业、最佳雇主100强企业。

ALLIANZ STEEL GROUP

With the mission of "share made in China with the world and strive to innovate for customers' benefit". Allianz Steel Group has effectively promoted the development of the industry by continuously innovating business models and building product brands. It is a well-known comprehensive steel industry group in China, a world-leading developer of new materials and a comprehensive service provider of steel procurement. Group has cultivated six business sectors, including steel industry, advanced materials, advanced manufacturing, international freight, mining and cultural media. By the end of 2020, the Group had total assets of over CNY 8 billion, annual income over CNY 4 billion and over 3,800 employees.

Allianz Steel Group has ten subsidiaries and overseas representative offices, five production bases and three research institutes, and it is one of the top 100 private enterprises in China, a national technical innovation enterprise, a national key high-tech enterprise, a national green demonstration manufacturer, a national AAA-grade quality credit enterprise and a top 100 best employer.

安联金属

湖南安联金属制品有限公司成立于1996年，RONSCO是2014年注册的商标。湖南安联是安联钢铁集团旗下专业生产不锈钢管子管件、库存不锈钢卷板、配套不锈钢加工、销售不锈钢产品到国内外客户子公司，致力于为全球客户提供不锈钢高端制造以及配套服务。公司在中国华中地区美丽的湖南长沙设有国际营销部；在不锈钢产地无锡设有分公司，公司严格按照ISO 9001质量管理体系进行现场管理，先后获得ISO 9001、CE、AAAAA信用等级认证等，产品得到SGS、BV、LR、TUV、INTERTEK等国际权威第三方机构的检验和认可。

湖南安联以“为客户提供独特价值”为宗旨，充分发挥本地的不锈钢材料资源优势和强大的加工平台，为各行各业制造业提供“一站式”配套服务解决方案，不断拓展延伸产业链，提升自身价值。作为一个在不锈钢领域有26年以上经验的供应商，我们拥有专业服务团队能够提供高标准的产品技术支持，准时合格的产品交付，专业的产品运输和清关服务，可靠的售后等全方位的服务。未来，湖南安联将继续以全球化视野，进一步深耕不锈钢行业，以技术创新继续推进信息化、自动化、智能化制造、网络化服务好和布局，深入行业细分领域，致力成为细分领域的行业标杆，增强服务能力，为社会创造价值。湖南安联始终坚持“以客户为中心”的经营理念，竭尽全力满足客户的要求，追求与客户合作双赢。湖南安联是您值得信赖的不锈钢产品一站式供应商！

ABOUT ALLIANZ METAL

Hunan Allianz Metal Products Co., Ltd was established in 1996. RONSCO is a registered trademark in 2014. Hunan Allianz is a subsidiary company of Allianz Steel Group specializing in the production of stainless steel pipe fittings, stainless steel coil in stock, stainless steel processing, and sales of stainless steel products to customers domestic and overseas. We are committed to providing high-level stainless steel manufacturing and supporting services to customers worldwide.

We have an international marketing department in Hunan Province, the central southern area of China, and a branch office in Wuxi City. The company is strictly under the ISO 9001 quality management system for on-site management, with ISO 9001, CE, AAAAA credit rating certification, etc., Products received inspection and approval of third parties like SGS, BV, LR, TUV, Intertek, and other international authority of the third party inspection and approval.

Hunan Allianz takes "Provide unique value to customers." as our purpose, and gives full play to the local advantages of stainless steel material resources and a powerful processing platform, to provide One-stop service solution for all kinds of manufacturing industries, constantly expanding and extending the industrial chain, enhancing the value.

As a supplier with more than 26 years of experience in the stainless steel field, we have a professional service team to provide high standards of technical support, timely and qualified product delivery, professional product transportation and customs clearance services, reliable after-sales, and other full range of services.

In the future, Hunan Allianz will continue to further cultivate the stainless steel industry with a global vision, and continue to promote information, automation, intelligent manufacturing, network services and layout with technological innovation, in-depth industry segmentation field, committed to becoming a segmentation of the industry benchmark field, enhancing service capacity and creating value for society.

Hunan Allianz always adheres to the "customer-oriented" business philosophy, making every effort to meet customer requirements and holding the pursuit of win-win cooperation with customers. Hunan Allianz is your reliable one-stop supplier of stainless steel products!



从1996年开始供应不锈钢
STAINLESS STEEL SUPPLYING
since 1996



从2002年就成为阿里巴巴金牌供应商
ALIBABA GOLDEN SUPPLIER SINCE 2002



专业的国际贸易团队
PROFESSIONAL INTERNATIONAL
TRADE TEAM



材料和制造的一站式解决方案
ONE-STOP SOLUTION FOR MATERIAL
& FABRICATION

组织结构 Organizational Structure



安聯鋼鐵集團 Allianz Steel Group



社会责任 Social Responsibility

1 对客户的质量, 诚信铸就品牌 Responsible for customers and credit building up brand

安聯鋼鐵集团始终把为客户提供最好的产品、最优的服务、全方位满足不同客户的需求视为企业的第一要务, 树立了企业的诚信品牌。

Allianz Steel Group always takes it as the first importance to supply good products and service for customers to meet varied demands of different customers, which helps building up credit and brand of the group.

2 对员工的责任, 用诚信增强凝聚力 Responsible for staff and workers and to consolidate cohesive force

安聯鋼鐵集团始终坚持“以人为本, 立人立企”人才观念, 大力营造了企业政通人和、劳动关系和谐、职工安居乐业、忠诚企业、爱岗敬业的良好氛围, 保持了企业旺盛的生机和活力, 增强了企业的向心力和凝聚力。

Following concept of its “people centered and enterprise development by talents”, Allianz Steel Group is striving to generate a good atmosphere for workers to establish a harmonious work relation, where workers can enjoy working and life and loyal to the enterprise. Those measures maintains vigorous life and vitality of the enterprise and consolidates centripetal force and cohesive force of the enterprise.

3 对合作伙伴的责任, 诚信推动合作共赢 Responsible for cooperative partners and credit, promoting mutual benefit of cooperation

公司高举“合作、共赢”的旗帜, 树立“诚信为本、成就客户”的经营理念, 以诚信联盟, 步入了快速发展的轨道。

Highly holding banner of cooperation and mutual benefit, with concept of “honesty for the achievement of customers”, Allianz Steel Group is moving into track for fast development working together with its partners.

4 对环境的责任, 全力创建环境友好型企业 Responsible for environment and becoming an environmental- friendly enterprise

绿色、低碳、环保新常态下企业实现健康持续发展的主题, 公司始终坚持经济发展与环境保护并重, 紧紧围绕“绿色安钢”环保目标, 全力推进资源节约型和环境友好型企业建设, 实现环境保护和经济建设的协调发展。

Green, low carbon and environmental protection under the new norm is the theme of the enterprise's healthy development. Allianz Steel Group pays more attention to economic development and environmental protection. The group is pushing forward to build into resources conserving and environmental-friendly enterprise to realize harmonious development in environmental protection and economical construction.

5 对社会的责任, 感恩回馈社会, 勇担社会责任 Responsible for society, bearing more social responsibility, pay back to the society

致富思源, 富而思进, 安聯鋼鐵集团在超过26年的创新发展中, 始终遵循并积极践行“产业报国、奉献社会”的公司精神, 树立起了有责任、敢担当、讲奉献的良好企业形象。

During its more than 26 years development, Allianz Steel Group has built up a good reputation in public in term of social responsibility and contribution with mind of “contributing to the country by developing industry”.

我们的优势 Our advantage

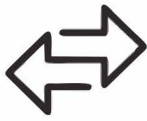
不锈钢焊管 SS Welded Pipe



焊缝100%射线检测
出货前100%涡流水压检测
100% RT
100% ET (Eddy Current Testing)
and Hydrostatic pressure test.



全年常备库存3000吨
Regular stock: 3000 tons



牌号Grades:304, 316, 310S, 904L,
2205, 2507, 54SMO, 253MA,
S32760, Monel 400, Monel K-500,
Incoloy 800, Inconel 901,
Inconel 600,
Inconel 625, GH3030 etc.



在线焊管尺寸范围从OD6mm-
OD219mm, 离线焊管可
做任意客户定制尺寸
On-line-welding SS pipe OD:
6mm ~ 219mm,
off-line-welding SS pipe
OD can be customized .



交期:最快7天
Delivery time:7 days shortest

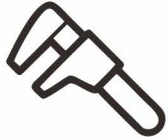


起订量:1支起订
MOQ: 1pc



提供打孔, 折弯, 坡口等加工服务
Drilling, bending, beveling
and other processing
services provided

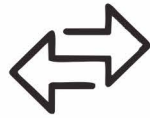
不锈钢无缝管 SS Seamless Pipe



尺寸范围:厚度0.2mm-80mm,
外径2mm-1200mm
Size range: Thk 0.2mm~80mm,
OD 2mm ~ 1200mm.



全年常备库存3000吨
Regular stock: 3000 tons



牌号Grade: 304, 316, 310S, 904L,
2205, 2507, 54SMO, 253MA,
S32760, Monel 400, Monel K-500,
Incoloy 800, Inconel 901,
Inconel 600,
Inconel 625, GH3030 etc.



起订量:1支起订
MOQ: 1pc



母管原材料来自宝钢——世界上现代化程度
最高、钢材品种最全、规格最齐全的大型钢铁
联合企业,是一家国有独资公司。

The raw materials are from Baosteel,
the large-scale wholly state-owned
company, with the most advanced
modernization in capabilities
of iron and steel.



出货前100%涡流水压检测
100% ET (Eddy Current Testing)
and Hydrostatic pressure test.



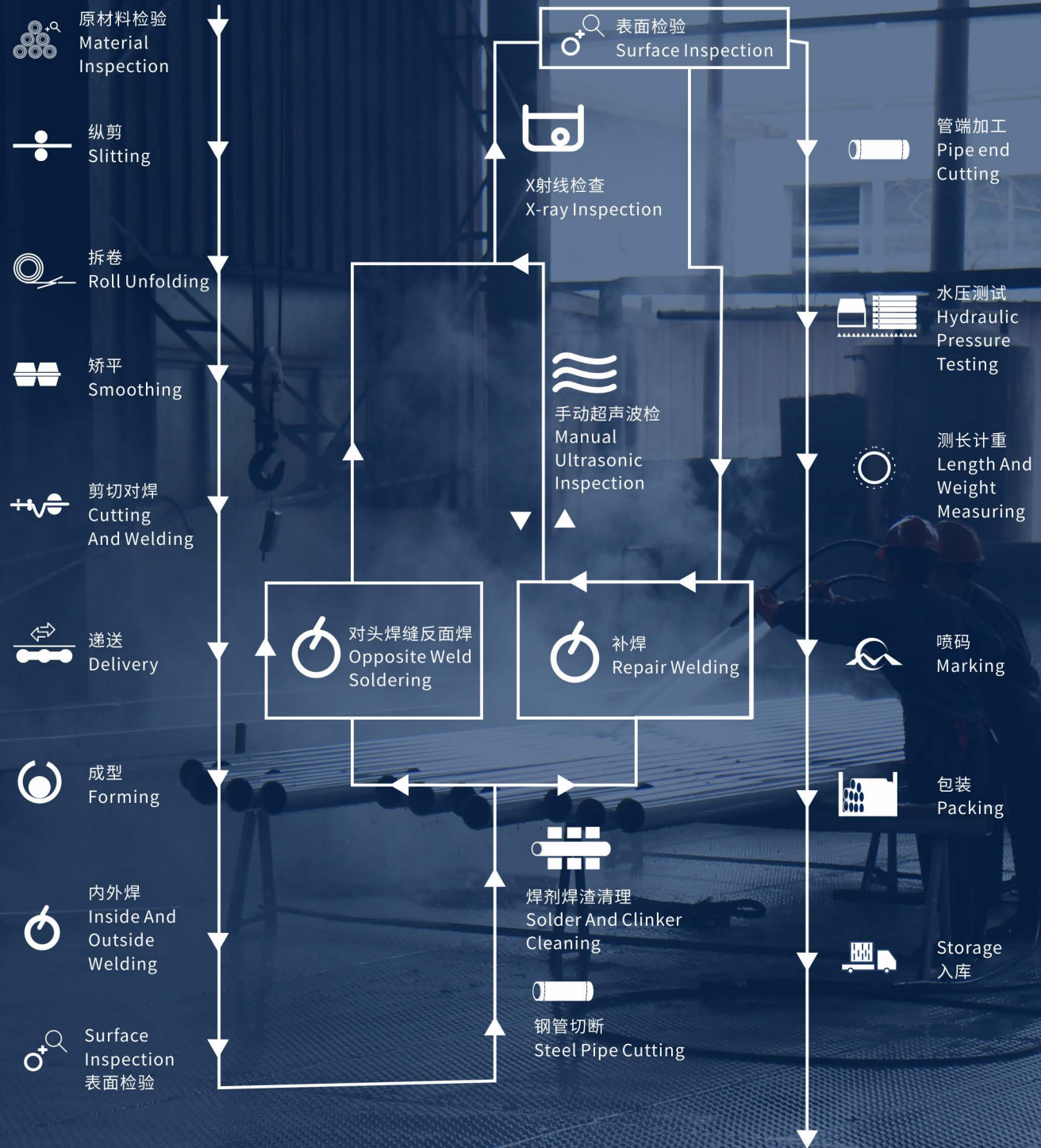
提供打孔,折弯,坡口等加工服务
Drilling, bending, beveling
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services



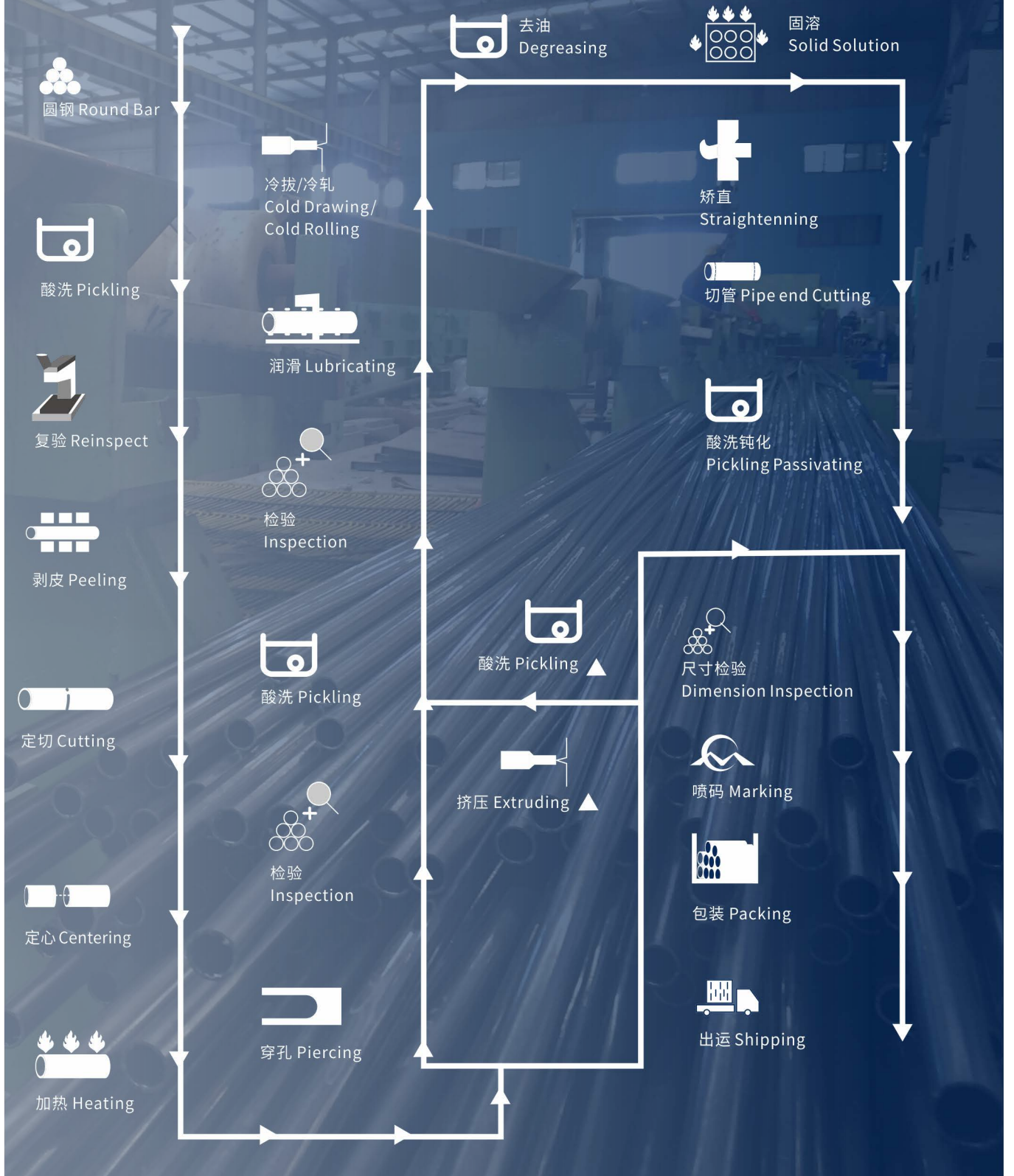
交期:最快7天
Delivery time:7 days shortest

产品介绍 Product Introductions

焊管生产检测流程 Welded Pipe Production and Inspection Flow Chart



冷拔/冷轧无缝管生产检测流程 Cold drawing/rolling seamless tube/pipe production and Inspection Flow chart



不锈钢管标准 Standard for Stainless Steel Pipe

焊管标准 Welded Pipe Standards

American Standard: ASTM A312, A358, A249, A268, A269, A554, A789, A790 etc.

无缝管标准 Seamless Pipe Standards

American Standard: ASTM A312, A213, A798, A790, A269, A268, A376, A511, B161, B163, B167, B407, B423, B444, B338, B668, A335 etc.

安联主要牌号 Main Grades

		GB	ASTM/ASME		EN	DIN	JIS
	Old Grade	New Grade	AISI	UNS			
Austenitic Stainless Steel	0Cr18Ni9	06Cr19Ni10	304	S30400	1.4301	X5CrNi18-10	SUS430
	00Cr19Ni10	022Cr19Ni10	304L	S30403	1.4306	X2CrNi19-11	SUS304L
	0Cr25Ni20	06Cr25Ni20	310S	S31008	1.4845	X12CrNi23-12	SUS310S
	0Cr17Ni12Mo2	06Cr17Ni12	316	S31600	1.4436	X5CrNiMo17-12-2	SUS316
	00Cr17Ni14Mo2	022Cr17Ni12Mo2	316L	S31603	1.4404	X2CrNiMo17-12-2	SUS316L
	0Cr16Ni12Mo2Ti	06Cr17Ni12Mo2T	316Ti	S31635	1.4571	X6CrNiTi17-12-2	SUS316Ti
	0Cr18Ni10Ti	06Cr18Ni11Ti	312	S31635	1.4541	X6CrNiTi18-10	SUS312
	0Cr23Ni13	06Cr23Ni13	309S	S30908	1.4833	X7CrNi23-14	SUS309S
	0Cr18Ni11Nb	06Cr18Ni11Nb	347	S34700	1.4550	X6CrNiNb18-10	SUS347
	-	-	904L	N08904	1.4539	W.Nr.1.4539	-
	-	-	253MA	S30815	-	W.Nr.1.4835	-
	-	-	254SMO	S31254	-	W.Nr.1.4547	-
Martensitic Stainless Steel	1Cr13	12Cr13	410	S41000	1.4006	X10Cr13	SUS410
	2Cr13	-	420	S41000	1.4006	X20Cr13	SUS420J1
Ferritic Stainless Steel	1Cr17	10Cr17	430	S43000	1.4016	X8Cr17	SUS430
	00Cr18Mo2	019Cr19Mo2NbTi	444	S44400	1.4521	-	SUS444
	1Cr25Ti	-	446	S44600	-	X8Cr28	-
Duplex Stainless Steel	00Cr22Ni5Mo3N	022Cr23Ni5Mo3N	2205	S32205		SAF2205	-
	00Cr25Ni7Mo4N	022Cr25Ni7Mo4N	2507	S32750	1.441	SAF2507	-
	00Cr18Ni5Mo3Si2	022Cr19Ni5Mo3Si	-	S31500	1.4417	3RE60	-
High Temperature Alloys	-	-	Monel400	N04400	2.4360	W.Nr.2.4360	-
	-	-	Monel K-500	N05500	2.4375	W.Nr.2.4375	-
	-	-	Inconel 600	No6600	2.4816	W.Nr.2.4816	-
	-	W.Nr.2.4816	Inconel 601	No6601	2.4851	W.Nr.2.4851	-
	-	Ns3306	Inconel 625	N06625	2.4856	W.Nr.2.4856	-
	-	N07718	Inconel 718	No7718	2.4668	W.Nr.2.4668	-
	-	N07750	Inconel X-750	N077501	2.436	W.Nr.2.4360	-
	-	Ns1101	Incoloy 800	N08800	1.4876	W.Nr.1.4876	-
	-	-	Incoloy 800HT	N08811	1.4959	W.Nr.1.4959	-
	-	Ns3304	Hastelloy C-276	N09901	2.4819	W.Nr.2.4819	-
-	Ns3308	Hastelloy C-22	N09925	2.4602	W.Nr.2.4602	-	

美标钢管尺寸表Nominal Bore Size

外径和壁厚表 Outside Diameter and Wall Thickness ASME B36.19(5S/10S/40S/80S) B36.10(20/20/30/40/80/100/120/140/160)

NPS	DN	OD	SCH5S	SCH10S	SCH10	SCH20	SCH30	SCH40S	STD	SCH40	SCH60	SCH80	XS	SCH80	SCH100	SCH120	SCH140	SCH160	XXS
1/8	6	10.3	-	1.24	1.24	-	1.45	1.73	1.73	1.73	-	2.41	2.41	2.41	-	-	-	3.15	4.83
2/8	8	13.7	-	1.65	1.65	-	1.85	2.24	2.24	2.24	-	3.02	3.02	3.02	-	-	-	-	-
3.8	10	17.1	-	1.65	1.65	-	1.85	2.31	-	-	-	3.2	3.2	3.2	-	-	-	-	-
1/2	15	21.3	1.65	2.11	2.11	-	2.41	2.77	2.77	2.77	-	3.73	3.73	3.73	-	-	-	4.78	7.47
3/4	20	26.7	1.65	2.11	2.11	-	2.41	2.87	2.87	2.87	-	3.91	3.91	3.91	-	-	-	5.56	7.82
1	25	33.4	1.65	2.77	2.77	-	2.9	3.38	3.38	3.38	-	4.55	4.55	4.55	-	-	-	6.35	9.09
1-1/4	32	42.2	1.65	2.77	2.77	-	2.97	3.56	3.56	3.56	-	4.85	4.85	4.85	-	-	-	6.35	9.7
1-1/2	40	48.3	1.65	2.77	2.77	-	3.18	3.68	3.68	3.68	-	5.08	5.08	5.08	-	-	-	7.14	10.15
2	50	60.3	1.65	2.77	2.77	-	3.18	3.19	3.91	3.91	-	5.54	5.54	5.54	-	-	-	8.74	11.07
2-1/2	65	73.0	2.11	3.05	3.05	-	4.78	5.16	5.16	5.16	-	7.01	7.01	7.01	-	-	-	-	-
3	80	88.9	2.11	3.05	3.05	-	4.78	5.49	5.49	5.49	-	7.62	7.62	7.62	-	-	-	-	-
3-1/3	90	101.6	2.11	3.05	3.05	-	4.78	5.74	-	5.74	-	8.08	-	8.08	-	-	-	-	-
4	100	114.3	2.11	3.05	3.05	-	4.78	6.02	6.02	6.02	-	8.56	8.56	8.56	-	-	-	13.49	17.12
5	125	141.3	2.77	3.4	3.4	-	-	6.55	6.55	6.55	-	9.53	9.53	9.53	-	-	-	15.88	19.05
6	150	168.3	2.77	3.4	3.4	-	-	7.11	7.11	7.11	-	10.97	10.97	10.97	-	-	-	18.26	21.95
8	200	219.1	2.77	3.76	3.76	6.35	-	8.18	8.18	8.18	10.31	12.7	12.7	12.7	15.09	18.26	20.62	23.01	22.23
10	250	273.0	3.4	4.19	4.19	6.35	7.8	9.27	9.27	9.27	12.7	12.7	12.7	15.09	18.26	21.44	25.4	28.58	25.4
12	300	323.8	3.96	4.57	4.57	6.35	8.38	9.53	9.53	10.31	14.27	12.7	12.7	17.48	21.44	25.4	28.58	33.32	25.4
14	350	355.6	3.96	4.78	6.35	7.92	9.53	9.53	9.53	11.13	15.09	12.7	12.7	19.05	23.83	27.79	31.75	35.71	-
16	400	406.4	4.19	4.78	6.35	7.92	9.53	9.53	9.53	12.7	16.66	12.7	12.7	21.44	26.19	30.96	36.53	40.49	-
18	450	457.2	4.19	4.78	6.35	7.92	11.13	9.53	9.53	14.27	19.05	12.7	12.7	23.83	20.36	34.93	39.67	45.24	-
20	500	508	4.78	5.54	6.35	9.53	12.7	9.53	9.53	15.09	20.62	12.7	12.7	26.19	32.54	38.1	44.45	50.01	-
22	550	558.8	4.78	5.54	6.35	9.53	12.7	9.53	9.53	-	22.23	-	12.7	28.58	34.93	41.28	47.63	53.98	-
24	600	609.6	5.54	6.35	6.35	9.53	14.27	9.53	9.53	17.48	24.61	12.7	12.7	30.96	38.89	46.02	52.37	59.54	-
26	650	660.4	-	-	7.92	12.7	-	-	9.53	-	-	-	12.7	-	-	-	-	-	-
28	700	711.2	-	-	7.92	12.7	15.88	-	9.53	-	-	-	12.7	-	-	-	-	-	-
30	750	762	6.35	7.92	7.92	12.7	15.88	-	9.53	-	-	-	12.7	-	-	-	-	-	-
32	800	812	-	-	7.92	12.7	15.88	-	9.53	17.48	-	-	12.7	-	-	-	-	-	-
34	850	863.6	-	-	7.92	12.7	15.88	-	9.53	17.48	-	-	12.7	-	-	-	-	-	-
36	900	914.4	-	-	7.92	12.7	15.88	-	9.53	19.05	-	-	12.7	-	-	-	-	-	-
38	950	965.2	-	-	-	-	-	-	9.53	-	-	-	12.7	-	-	-	-	-	-
40	1000	1016	-	-	-	-	-	-	9.53	-	-	-	12.7	-	-	-	-	-	-
42	1050	1066.8	-	-	-	-	-	-	9.53	-	-	-	12.7	-	-	-	-	-	-
44	1100	1117.6	-	-	-	-	-	-	9.53	-	-	-	12.7	-	-	-	-	-	-
46	1150	1168.4	-	-	-	-	-	-	9.53	-	-	-	12.7	-	-	-	-	-	-
48	1200	1219.2	-	-	-	-	-	-	9.53	-	-	-	12.7	-	-	-	-	-	-
52	-	1320.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56	-	1422.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60	-	1524	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64	1600	1624	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68	-	1727.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	1800	1828.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

厚度公差 ASTM A312/A312M Permitted Variations in Wall Thickness

NPS Designator	Tolerance, % from Nominal	
	over	Under
1/8 to 2-1/2 incl., all t/D ratios	20	12.5
3 to 18 incl., t/D up to 5%	22.5	12.5
3 to 18 incl., t/D > 5%	15	12.5
20 and larger, welded, all t/D ratios	17.5	12.5
seamless, t/D up to 5% incl.	22.5	12.5
20 and larger, seamless, t/D > 5%	15	12.5

- 1.除了A999/A999M里面有对无缝管的重量公差的隐形规定外,所有的无缝管和焊管的壁厚公差要符合以下要求。
- 2.焊管的焊缝区域壁厚公差不受以下正公差的限制。
- 3.t/D=公称壁厚/下单外径

- 1.In addition to the implicit limitation of wall thickness for seamless pipe imposed by the limitation on weight in Specification A999/A999M, the wall thickness for seamless and welded pipe at any point shall be within the tolerances specified in Table 1.
- 2.Except that for welded pipe the weld area shall not be limited by the "Over" tolerance.
- 3.t/D=Nominal Wall Thickness / Ordered Outside Diameter

长度公差 ASTM A312/A312M Permitted Variations in Length

- 1.除非另有规定,所有1/8"~8"[10.29~219.08mm]外径的钢管可做15'~24'[4572~7315mm]长度。可接受短尺,数量和最短长度由买卖双方商定。
- 2.除非另有规定,钢管不允许有接头。
- 3.如果要求定尺交货,合同要明确规定所需长度。定尺长度公差:+6mm/-0mm.

1. Unless otherwise agreed upon, all sizes from NPS 1/8 to and including NPS 8 are available in a length up to 24 ft with the permitted range of 15 to 24 ft. Short lengths are acceptable and the number and minimum length shall be agreed upon between the manufacturer and the purchaser.
2. No jointers are permitted unless otherwise specified.
3. If definite cut lengths are desired, the lengths required shall be specified in the order. No pipe shall be under the specified length and no pipe shall be more than 1/4 in. [6 mm] over the specified length.

无缝公称管的重量允许公差ASTM A999/A999M ASTM A999/A999M Permitted Variations in Mass for Seamless Pipe

1. 除第2点中注明的外, OD ≤ 12" [323.85mm] 的无缝公称管, 其任意长度的重量允许偏差为 -3.5% ~ +10%。OD > 12" [323.85mm] 的无缝公称管, 其任意长度的重量允许偏差为 -5% ~ +10%。除非另有规定, OD ≤ 4" [114.3mm] 的公称管需要单根称重或者恰当的批次来称重确定重量, OD > 4" [114.3mm] 的公称管则需单根称重来确认重量。
2. 最小壁厚: 当采购订单中的规定壁厚为最小壁厚时, 无缝公称管的任意长度重量偏差应不大于根据该指定最小壁厚算出来的理论重量的16%, 不允许有负公差。除非另有规定, OD ≤ 4" [114.3mm] 的公称管需要单根称重或者恰当的批次来称重确定重量, OD > 4" [114.3mm] 的公称管则需单根称重来确认重量。

1. Except as allowed by point 2, the mass of any length of seamless pipe in sizes NPS 12 and smaller shall not vary more than 10 % over or more than 3.5 % under that specified. For pipe in sizes larger than NPS 12, the mass of any length of pipe shall not vary more than 10 % over or more than 5 % under that specified. Unless otherwise specified, the mass of lengths of pipe in sizes NPS 4 and smaller shall be determined separately or in convenient lots; the mass of lengths of pipe in sizes larger than NPS 4 shall be determined separately.
2. Minimum Wall—If the wall thickness of the pipes specified as minimum wall in the purchase order, the mass of any length of seamless pipe shall not vary more than 16 % over that calculated theoretical weight. Unless otherwise specified, the mass of pipe in sizes NPS 4 and smaller shall be determined separately or in convenient lots; the mass of pipe in sizes larger than NPS 4 shall be determined separately.

壁厚允许公差 ASTM A999/A999M Permitted Variations in Wall Thickness.

1. 无缝和焊管:除1.1中注明的外,在公称管的任何一点上的最小壁厚不得小于规定壁厚的12.5%。
检验最小壁厚的如ASTM A999/A999M 附录表X1.1.

- 1.1 最小壁厚:当采购订单中规定公称管的壁厚为最小壁厚时,其壁厚不得小于规定的壁厚(不能有负公差)。
2. 锻造和镗孔的公称管:其壁厚公差 $-0 \sim +1/8''$ [3.2mm]
3. 铸造公称管:其壁厚公差 $-0 \sim +1/16''$ [1.6mm]

1. Seamless and Welded—Except as required by 1.1.the minimum wall thickness at any point shall not be more than 12.5% under the nominal wall thickness specified. The minimum wall thickness on inspection is shown in Table X1.1 in ATSM A999 /A999M.

- 1.1 Minimum Wall—If the wall thickness of the pipe is specified as minimum wall in the purchase order, there shall be no variation under the specified wall thickness.
2. Forged and Bored—The wall thickness shall not vary over that specified by more than 1/8 in. [3.2 mm]. There shall be no variation under the specified wall thickness.
3. Cast—The wall thickness shall not vary over that specified by more than 1/16 in. [1.6 mm]. There shall be no variation under the specified wall thickness.

内径允许公差 ASTM A999/A999M Permitted Variations in Inside Diameter

1. 锻造管, 镗孔管及铸造管:其内径公差 $-1/16''$ [1.6mm] \sim $+0$ mm.

1. Forged and Bored, and Cast—The inside diameter shall not vary under that specified by more than 1/16 in.[1.6mm].There shall be no varition over the specified inside diameter.

外径允许公差 ASTM A999/A999M Table 1 Permitted Variations in Outside Diameter

1. 对于薄壁的公称管 ($t \leq 3\% \cdot OD$), 下表的直径公差仅适用于任意一个截面的外径极值(最大值和最小值)的平均值。

- 1.1. 在薄壁公称管任何横截面上读出的极限外径(圆度)不得超过规定外径的1.5%。
注释—薄壁公称管在最终退火过程中或矫直过程中或两者兼有的过程中,常会产生椭圆形(不圆)。
下表中的外径公差通常不足以提供在薄壁公称管中附加椭圆度。

1. For thin-wall pipe, defined as pipe having a wall thickness of 3 % or less of the specified outside diameter, the diameter tolerance of below table is applicable only to the mean of the extreme (maximum and minimum) outside diameter readings in any one cross-section.

- 1.1. For thin-wall pipe, the difference in extreme outside readings (ovality) in any one cross-section shall not exceed 1.5 % of the specified outside diameter.

NOTE—Thin-wall pipe usually develops significant ovality (out-of- roundness) during final annealing, straightening, or both. The diameter tolerances given in below table are usually not sufficient to provide for additional ovality expected in thin-wall pipe.

NPS	Permitted Variations in Outside Diameter	
	over	Under
1/8-1 1/2, incl	1/64(0.015)[0.41mm]	1/32(0.031)[0.8]
Over 1 1/2 to 4, incl	1/32(0.031)[0.8mm]	1/32(0.031)[0.8]
Over 4 to 8, incl	1/16(0.062)[1.6mm]	1/32(0.031)[0.8]
Over 8 to 18, incl	3/32(0.093)[2.4mm]	1/32(0.031)[0.8]
Over 18 to 26, incl	1/8(0.125)[3.2mm]	1/32(0.031)[0.8]
Over 26 to 34, incl	5/32(0.156)[4.0mm]	1/32(0.031)[0.8]
Over 34 to 48, incl	3/16(0.187)[4.8mm]	1/32(0.031)[0.8]

长度允许公差 ASTM A999/A999M Permitted Variations in Length

1. 无缝和焊接的(无填充金属):如果订购的是长度≤24' [7.3 m]的定尺公称管, 则公称管长度公差为-0~+1/4" [6mm]。
1.1 长度>24 ft [7.3 m]的公称管, 长度允许公差买卖双方商定。

2. 锻造管, 镗孔管, 铸造管和铸造并冷锻轧管:如果订购的是定尺公称管, 则公称管的长度公差为-0~+1/8" (3mm)。
3. 按不定尺订购的公称管, 长度允许公差买卖双方商定。
4. 除非买卖双方同意, 不允许带有环焊缝。

1. Seamless and Welded (No Filler Metal Added)—If specific cut lengths of 24 ft [7.3 m] or less are ordered. No length of pipe shall be under the length specified or more than 4 in. [6 mm] over that specified.
1.1 Permissible variations in length for lengths greater than 24 ft [7.3 m] shall be subject to agreement between the manufacturer and purchaser.
2. Forged and Bored, Cast, and Cast Cold-Wrought—If specific cut lengths are ordered, no length of pipe shall be under the length specified or more than 1/8 in. [3 mm] over that specified.
3. For pipe ordered to random lengths, the lengths and variations shall be agreed upon between the manufacturer and purchaser.
4. No girth welds are permitted unless agreed upon by the manufacturer and purchaser.

直线度公差 ASTM A999/A999M Permitted Variations of Straightness

1. 成品管应有良好的直度。
2. 对于金属弧焊管, 用10' [3m]长度的直尺使其两端与钢管接触, 测得最大间隙不得大于1/8' [3.2mm]。对于长度小于10' [3m]的公称管的金属弧焊管大于 10 ft [3.0 m],
该最大偏差应根据实际长度与 10 ft [3.0 m] 的比率按比例折算。

1. The finished pipe shall be reasonably straight.
2. For metal-arc welded pipe, the maximum deviation from a 10-ft [3.0-m] straightedge placed so that both ends are in contact with the pipe shall be 1/8 in. [3.2 mm]. For metal-arc welded pipe with lengths shorter than 10 ft [3.0 m], this maximum deviation shall be prorated with respect to the ratio of the actual length to 10 ft [3.0 m].

ASTM A789 Permitted Variations in Dimensions

Size, Outside Diameter, in. [mm]	Permissible Variations in Outside Diameter in. [mm]	Average Wall Permissible Variations in Wall Thickness %
Up to 1/2 [12.7], excl	+/-0.005 [0.13]	+/-15
1/2 to 1 1/2 [12.7] 12.7 to 38.1], excl	+/-0.005 [0.13]	+/-10
1 1/2 to 3 1/2 [38.1 to 88.9] excl	+/-0.010 [0.25]	+/-10
3 1/2 to 5 1/2 [88.9-139.7], excl	+/-0.015 [0.38]	+/-10
5 1/2 to 8 [139.7-203.2], incl	+/-0.030 [0.76]	+/-10

Minimum Wall[E] Permissible Variations in Wall Thickness,[A] %		Permissible Variations in Cut Length, in.[B] [mm]		Thin Walled Tubes[C]
over	under	over	under	
30	0	1/8"[3mm]	0
20	0	1/8"[3mm]	0	less than 0.065 in.[1.6 mm]specified
20	0	3/16 "[5mm]	0	less than 0.095 in.[2.4 mm]specified
20	0	3/16 "[5mm]	0	less than 0.150 in.[3.8 mm]specified
20	0	3/16 "[5mm]	0	less than 0.150 in.[3.8 mm]specified

- A. 当订购的管子要求壁厚为 3/4 英寸 [19 毫米] 或更厚, 或内径为外径的 60 % 或更小时, 需要更大的壁厚变化。在这种尺寸上, 平均壁厚偏差为 +/- 12.5%, 最小壁厚偏差 + 25.0%/- 0% 均应被允许。对于内径小于 1/2 英寸 [12.7 毫米] 且无法在心轴上成功拉制的管材, 平均壁厚偏差 ± 15 %, 最小壁厚偏差 +30 %/-0。
- B. 这些公差适用于不超过 24 英尺 [7.3m] 的定尺长度。对于长度大于 24 英尺 [7.3m] 的, 每 10"[3m] 长度或不足 3m, 上述正公差应增加 1/8"[3mm], 或 1/2in[13毫米], 最大公差增加 13mm。
- C. 椭圆度规定按照 ASTM A789 中的 12.2。
- D. 适用于指定为平均壁的管材 (见 ASTM A789 中的 3.1.4)。
- E. 适用于指定为最小壁的管材 (见 ASTM A789 中的 3.1.4)。

- A. When tubes as ordered require wall thicknesses 3/4 in.[19mm] or over, or an inside diameter 60% or less of the outside diameter, a wider variation in wall thickness is required. On such sizes a variation in average wall thickness of 12.5% over or under, or a variation in minimum wall thickness of 25.0% over and 0 % under, shall be permitted. For tubes less than 1/2 in. [12.7 mm] in inside diameter that can not be successfully drawn over a mandrel, the average wall thickness may vary +/-15% from that specified or the minimum wall thickness may vary by +30%, -0% from that specified.
- B. These tolerances apply to cut lengths up to and including 24ft [7.3m]. For lengths greater than 24ft [7.3m], the above over-tolerances shall be increased by 1/4 in. [3 mm] for each 10 ft [3m] or fraction there of over 24 ft or 1/2 in.[13mm]. which ever is the lesser.
- C. Ovality provisions of 12.2 apply in ASTM A789.
- D.Applicable to tubing specified as average wall (see 3.1.4 ASTM A789). E.Applicable to tubing specified as minimum wall(see 3.1.4).
- E. Applicable to tubing specified as minimum wall(see 3.1.4 ASTM A789).

长度公差 A790

ASTM A790 Permitted Variations in Length

- 1.管道长度应符合以下规定:
- 1.1 除非另有约定, 从 NPS 1/8 到并包括 NPS 8 的所有直径都可提供长达 24 英尺 (备注) 长度, 允许的长度范围是 15 到 24 英尺 (备注)。短尺是可以接受的, 短尺的数量和最小长度应由制造商和买方商定。
备注: 当以 "英寸-磅" 指定为购买依据时, 此值适用。当以 "米" 指定为购买依据时, 相应的公制值应由供需双方商定。
- 1.2 如果要求定尺交货, 合同要明确规定所需长度。定尺长度公差: +6mm/-0mm.
- 1.3 除非另有说明, 否则不允许使用任何接头。

- 1.Pipe lengths shall be in accordance with the following regular practice:
- 1.1 Unless otherwise agreed upon, all sizes from NPS 1/8 to and including NPS 8 are available in a length up to 24 ft (see Note 3) with the permissible range of 15 to 24 ft(see Note 3). Short lengths are acceptable and the number and minimum length shall be agreed upon between the manuforturer and the purchaser.
Note --This value applies when the inch-pound designation of this specification is the basis of purchase. When the M designation of this specification is the basis of purchase, the corresponding metric value(s) shall be agreed upon between the manufacturer and purchaser.
- 1.2 If definite cut lengths are desired, the lengths required shall be specified in the order. No pipe shall be less than the specified length and no more than 1/4 in.[6mm] over it.
- 1.3. No jionters are permitted unless otherwise specified.

规定壁厚公差

ASTM A213 Permitted Variations from the Specified Wall Thickness

- 1.规定了最小壁厚的允许变化应符合规范 A1016/A 1016M。
- 2.规定了平均壁厚,冷成型管的壁厚允许偏差为规定平均壁厚的10%,除非买方另有规定,热成型管的壁厚允许公差按下表执行。

1. Permissible Variations from the Specified minimum Wall Thickness shall be in accordance with Specification A1016/A 1016M.
2. Permissible variations from the specified average wall thickness shall be 10 % of the specified average wall thickness for cold formed tubes and, unless otherwise specified by the purchaser, shall be in accordance with Table 6 for hot formed tubes.

热成型管平均壁厚允许偏差

Permitted Variations in Average Wall Thickness for hot Formed Tubes

备注note: t = 规定壁厚specified wall thickness, D = 规定外径specified outside diameter

公称直径范围NPS[DN]Designator	公称壁厚公差Tolerance in % from specified
1/8" ≤ OD ≤ 2-1/2" [DN6-65] [10.29-73.02mm] all t/D ratios	-12.5% +20%
OD > 2-1/2 [DN65] [73.02mm], t/D ≤ 5%	-12.5% +22.5%
OD > 2-1/2 [DN65] [73.02mm], t/D > 5%	-12.5% +15%

尺寸允许公差范围

ASTM A249 Permitted Variations in Dimensions

- 1.除壁厚公差外的尺寸公差应符合规范 A1016/A1016/M。墙对于所有管材尺寸,厚度公差应为标称壁的 +/- 10%。
- 2.焊缝的壁厚不应超过与焊缝成 90° 测量的壁厚超过规定值的 6%壁厚或 0.004 英寸 [0.1 毫米], 以较大值为准。
 - 2.1 当以下任何一项适用时, 第2点的要求不适用:
 - 2.1.1 当规定壁厚超过规定外径的12%时;
 - 2.1.2 当规定的壁厚超过 0.165 in. [4.2mm] 时;
 - 2.1.3 当指定的外径超过 3 in. [76.2mm] 时;
 - 2.1.4 当 ASTM A249中表4给出的指定牌号的指定最小屈服强度为 35 ksi [240MPa] 或更大时。

1. Dimensional tolerances other than wall thickness tolerances shall be in accordance with Specification A1016/A1016/M. Wall thickness tolerances shall be +/- 10% of nominal wall for all tubing sizes.
2. The wall thickness of the weld shall not exceed the wall thickness measured 90° from the weld by more than 6% of the specified wall thickness or 0.004 in. [0.1mm], whichever is greater.
 - 2.1 Requirements of 14.2 are not applicable when any of the following apply:
 - 2.1.1 When the specified wall thickness exceeds 12% of the specified outside diameter.
 - 2.1.2 When the specified wall thickness exceeds 0.165 in. [4.2mm].
 - 2.1.3 When the specified OD exceeds 3 in. [76.2mm].
 - 2.1.4 When the specified minimum yield strength given in Table 4 for the specified grade is 35 ksi [240MPa] or greater.

尺寸公差

ASTM A269 Permitted Variations in Dimensions

1. 外径, 壁厚, 长度公差不能超过下表。
2. 下表中给出的外径允许变化量不足以计算表中定义的薄壁管的椭圆度。在这类管道中, 任何截面的最大和最小直径与公称直径的偏差应不超过下表所列外径允许偏差的两倍; 然而, 该截面的平均直径必须仍然在给定的允许的变化范围内。

1. Variations in outside diameter, wall thickness, and length, from those specified, shall not exceed the amounts prescribed in below table.

2. The permissible variations in outside diameter given in below table are not sufficient to provide for ovality in thin-walled tubes, as defined in the Table. In such tubes, the maximum and minimum diameters at any cross section shall deviate from the nominal diameter by no more than twice the permissible variation in outside diameter given in below table; however, the mean diameter at that cross section must still be within the given permissible variation.

Size, Outside Diameter, in. [mm]	Permissible Variations in Outside Diameter in. [mm]	Permissible Variations in Wall Thickness, A %
Up to 1/2 [13]	+/-0.005[0.13]	+/-15
1/2 to 1 1/2 [13 to 38], excl	+/-0.005[0.13]	+/-10
1 1/2 to 3 1/2 [38.1 to 88.9], excl	+/-0.010[0.25]	+/-10
3 1/2 to 5 1/2 [89-140], excl	+/-0.015[0.38]	+/-10
5 1/2 to 8 [140-203], excl	+/-0.030[0.76]	+/-10
8 to 12 [203 to 305], excl	+/-0.040[1.01]	+/-10
12 to 14 [305 to 356], excl	+/-0.050[1.26]	+/-10

Permissible Variations in Cut Length, in. [mm] B		Thin Walled Tubes C
Over	Under	...
1/8[3.2]	0	less Than 0.065 in. [1.65mm] nominal
1/8[3.2]	0	less Than 0.095 in. [2.41mm] nominal
3/16[4.8]	0	less Than 0.150 in. [3.81mm] nominal
3/16[4.8]	0	less Than 0.150 in. [3.81mm] nominal
3/16[4.8]	0	less Than 0.200 in. [5.08mm] nominal
3/16[4.8]	0	less Than 0.220 in. [5.59mm] nominal

- A. 当订购的管子要求壁厚为 3/4 英寸 [19.0mm] 或更大, 或内径为外径的 60% 或更少时, 需要更大的壁厚变化。在这种尺寸上, 允许超过或低于 12.5% 的壁厚变化。对于内径小于 1/2 英寸 [12.7 毫米] 英寸的管子, 无法在心轴上成功拉制, 壁厚可能会从指定范围内浮动 +/-15%。
- B. 这些公差适用于不超过 24 英尺 [7.3m] 的切割长度。对于大于 24 英尺 [7.3m] 的长度, 上述超差每 10 英尺 [3 米] 或超过 24 英尺 [7.3 米] 的部分或 1/2 英寸 [13 毫米] 应增加 1/8 英寸 [3 毫米], 以较小者为准。
- C. 适用上述第2点的椭圆度规定。

- A. When tubes as ordered require wall thickness 3/4 in.[19.0mm] or over, or an inside diameter 60% or less of the outside diameter, a wider variation in wall thickness is required. On such sizes a variation in wall thickness 12.5% over or under will be permitted.
For tubes less than 1/2 in.[12.7mm]in inside diameter which cannot be successfully drawn over a mandrel, the wall thickness may vary +/- 15% from that specified.
- B. These tolerances apply to cut length up to and including 24 ft[7.3m]. For lengths greater than 24 ft[7.3m], the above over tolerances shall be increased by 1/8 in.[3mm] for each 10ft [3m] or fraction thereof over 24 ft[7.3m], or 1/2in[13mm], whichever is lesser.
- C. Ovality provisions of point 2 above.

厚度允许公差 ASTM A1016 Permitted Variations in Wall Thickness

1. 如果订单规定的是最小壁厚, 公差应不超过以下表规定的值。
2. 对于外径为2in (50mm)及以上, 壁厚在0.220in. (5.6mm)及以上的管子, 在任一管子的任一截面上壁厚偏差应不超过截面处实际平均壁厚的下列百分比。(实际平均壁厚定义为该截面中最厚壁和最薄壁的平均数。)
- 无缝管 ±10%
焊接管 ±5%
3. 如订单要求的冷精整管壁厚为3/4in. (19.1mm)及以上或内径小于等于60%的外径, 则应按热精整管的壁厚允许偏差。

1. Variations from the specified minimum wall thickness shall not exceed the amounts prescribed in below table.
2. For tubes 2 in. [50 mm] and over in outside diameter and 0.220 in. [5.6 mm] and over in thickness, the variation in wall thickness in any one cross section of any one tube shall not exceed the following percentage of the actual mean wall at the section. The actual mean wall is defined as the average of the thickest and thinnest wall in that section.
Seamless tubes +10%
Welded tubes +5%
3. When cold-finished tubes as ordered require wall thicknesses 3/4 in. [19.1 mm] or over, or an inside diameter 60 % or less of the outside diameter, the permitted variations in wall thickness for hot-finished tubes shall apply.

Permitted Variations in Wall Thickness				
Wall Thickness, %				
OD in.[mm]	thick≤0.095"[2.4mm]	thick>0.095"[2.4mm]- 0.150"[3.8mm]	thick>0.150"[3.8mm]- 0.180"[4.6mm]	thick>0.180"[4.6mm]
OD≤4"[100mm]	+40%, -0	+35%, -0	+33%, -0	+28%, -0
OD>4"[100mm]	..., ...	+35%, -0	+33%, -0	+28%, -0
Seamless, Hot-Finished Tubes				
≤1 1/2"[38.1mm]	+20%	-0		
>1 1/2"[38.1mm]	+20%	-0		
Seamless, Cold-Finished Tubes				
≤1 1/2"[38.1mm]	+20%	-0		
>1 1/2"[38.1mm]	+22%	-0		
Welded				
All OD	+18%	-0		

每英尺重量允许偏差 ASTM A1016/A1016M-17 ASTM A1016 Permitted Variations in Mass Per Foot[A]

Method of production	Permitted Variations in Mass Per Foot	
	over	under
Seamless, hot-finished	16%	0
Seamless cold-finished		
1-1/2 in. [38 mm] and under OD	12%	0
Over 1-1/2 in. [38 mm] OD	13%	0
Welded	10%	0

A. 这些重量允许偏差适用于外径在4"[101.6mm]及以下, 数量在50根及以上的批量管子, 以及外径超过4"[101.6mm]并超过20根的批量管子。

A. These permitted variations in mass apply to lots of 50 tubes or more in sizes 4 in. [101.6mm] and under in outside diameter and to lots of 20 tubes or more in sizes over 4 in. [101.6 mm in outside diameter.

外径公差 ASTM A1016 Permitted Variations in Outside Diameter A

1. 除2.1, 3和ASTM A1016中的25.10.4条中提供的管子外, 规定的外径偏差应不超过下表中的规定。
2. 薄壁管子在最终退火过程中或者矫直过程中或者两者都有的过程中, 常会产生椭圆形(不圆)。薄壁管定义为规定壁厚小于等于规定外径的3%, 或者规定壁厚小于等于0.020in (0.5mm)

2.1. 下表中的直接允许偏差不足以提供薄壁管中可能产生的额外圆度, 对这些管子, 这些数值只适用任一横截面中极限(最大和最小)外径读数的平均值。然而对薄壁管, 任一横截面中极限外径读数之差(圆度)应不超过下列允许的圆度。

外径 ≤ 1 in. (25.4mm), 圆度允差 ≤ 0.020in. (0.5mm)

外径 > 1 in. (25.4mm), 圆度允差 ≤ 2.0% * 规定外径

3. 对冷加工的无缝奥氏体和铁素体/奥氏体管子, 有必要对所有外径小于2in(50.8mm)的管子进行圆度允差, 以限制最终热处理时的变形。这类管子, 任截面最大和最小直径对称称直径的偏差不得大于±0.010in. (+0.25mm), 且任一截面的平均直径仍必须在下表所规定的允许偏差范围内。当第2.1点和第3点的规定发生矛盾时, 应采用较大的圆度允许偏差。

1. Except as provided in point 2.1, point 3, and 25.10.4 in ASTM A1016, variations from the specified outside diameter shall not exceed the amounts prescribed in below table

2. Thin-wall tubes usually develop significant ovality (out-of-roundness) during final annealing, or straightening, or both. Thin-wall tubes are defined as those with a specified wall 3% or less than the specified OD, or with a wall specified as 0.020 in. [0.5 mm] or less.

2.1. The diameter tolerances of below table are not sufficient to provide for additional ovality expected in thin-wall tubes, and, for such tubes, are applicable only to the mean of the extreme (maximum and minimum) outside diameter readings in any one cross section. However, for thin wall tubes the difference in extreme outside diameter readings (ovality) in any one cross section shall not exceed the following ovality allowances:

Outside Diameter, in. [mm]	Ovality Allowance
1 [25.4] and under	0.020 [0.5]
Over 1 [25.4]	2.0 % of specified outside diameter

3. For cold-finished seamless austenitic and ferritic/ austenitic tubes, an ovality allowance is necessary for all sizes less than 2 in. [50.8 mm] outside diameter, because they are likely to become out of round during their final heat treatment. For such tubes, the maximum and minimum outside diameter at any cross section shall not deviate from the nominal diameter by more than +0.010 in. [+0.25 mm]. However, the mean diameter at that cross section must still be within the given permitted variation given in below table. In the event of conflict between the provisions of point 2.1 and those of point 3, the larger value of ovality tolerance shall apply.

4. 当规定壁厚小于等于规定外径的2%时, 测量方法要由制造商和买方协商确定(见注释)

注: 非常薄的薄壁管可能不够坚硬, 无法用点接触法精确测量外径, 例如使用千分尺或卡尺。当测量薄壁管外径时, 通常用环形规来测量直径小于等于1 1/2 in (38.1mm) 的管子。在环形规上增加0.002 in. (0.05mm) 的额外公差, 以允许滑动间隙。在较大的直径上, 通常采用Pi tape进行测量, 也可采用其他方法, 例如光学方法。

4. When the specified wall is 2 % or less of the specified OD, the method of measurement is per agreement between purchaser and manufacturer (see Note).

Note-Very thin wall tubing may not be stiff enough for the outside diameter to be accurately measured with a point contact method, such as with the use of a micrometer or caliper. When very thin walls are specified, "go" - "no go" ring gauges are commonly used to measure diameters of 1/2 in. [38.1 mm] or less. A 0.002 in. [0.05 mm] additional tolerance is usually added on the "go" ring gauge to allow clearance for sliding. On larger diameters, measurement is commonly performed with a pi tape. Other methods, such as optical methods, may also be considered.

Specified Outside Diameter. in.[mm]	Specified Outside Diameter.	
	Over	Under
Seamless, Hot-Finished Tubes	1/64[0.4]	1/32[0.8]
Over 4 to 7 1/2[100 to 200], incl	1/64[0.4]	3/64[1.2]
Over 7 1/2 to 9[200 to 225], incl	1/64[0.4]	1/16[1.6]
Welded Tubes and Cold-Finished Seamless Tubes		
Under 1[25]	0.004[0.1]	0.004[0.11]
1 to 1 1/2[25 to 40], incl	0.006[0.15]	0.006[0.15]
Over 1 1/2 to 2[40 to 50], excl	0.008[0.2]	0.008[0.2]
2 to 2 1/2 [50 to 65], excl	0.010[0.25]	0.010[0.25]
2 1/2 to 3[65 to 75], excl	0.012[0.3]	0.012[0.3]
3 to 4 [75 to 100], incl	0.015[0.38]	0.015[0.38]
Over 4 to 7 1/2[100 to 200], incl	0.015[0.38]	0.025[0.64]
Over 7 1/2 to 9[200 to 225], incl	0.015[0.38]	0.045[1.14]

A.除第2点和第3中的规定外, 这些允许的变化包括不圆度。这些允许的外径变化适用于在其他制造操作之前, 例如镦粗、型锻、扩张、弯曲或抛光的热加工无缝管、焊接管和冷加工无缝管。

A. Except as provided in point 2 and point 3, these permitted variations include out-of-roundness. These permitted variations in outside diameter apply to hot-finished seamless, welded and cold-finished seamless tube before other fabricating operations such as upsetting, swaging, expanding, bending, or polishing.

长度公差 ASTM A1016 Permitted Variations in Length A

Method of Manufacturer	Specified Outside Diameter, in.[mm]	Cut Length, in.[mm]	
		Over	Under
Seamless, Hot-Finished	All sizes	3/16[5]	0[0]
Seamless, Cold-Finished	Under 2[50.8]	1/8[3]	0[0]
	2[50.8] or over	3/16[5]	0[0]
Welded	Under 2[50.8]	1/8[3]	0[0]
	2[50.8] or over	3/16[5]	0[0]

这些允许的长度变化适用于弯曲前的管子。它们适用于不超过 24 英尺[7.3m] 的切割长度。对于长度大于 24 英尺 [7.3 米], 上述超公差应每 10 英尺 [3 米] 增加 1/8 英寸 [3 毫米] 或超过 24 英尺的部分或 1/2 英寸 [13 毫米], 以较小者为准。

A. These permitted variations in length apply to tubes before bending. They apply to cut lengths up to and including 24ft[7.3m]. For lengths greater than 24ft[7.3m], the above over-tolerances shall be increased by 1/8 in.[3mm] for each 10 ft[3m] or fraction thereof over 24 ft or 1/2 in.[13mm], whichever is the lesser.

电阻焊接管焊缝凸起高度允许偏差 ASTM A1016 Permitted Variations in Height of Flash on Electric Resistance-Welded Tubes

对外径超过2in(50.8mm)或壁厚超过0.135in(3.44mm)的管子,其内侧焊缝凸起应以机械方法切除,切除后管内任何点焊缝凸起最大高度为0.10in.(0.25mm).

2. 对未经为2in(50.8mm)及以下且壁厚在0.135in(3.44mm)及以下的管子,其内侧焊缝凸起应以机械方法切除,切除后管内任何点焊缝凸起最大高度为0.006in(0.15mm).

1. For tubes over 2 in. [50.8 mm] in outside diameter, or over 0.135 in. [3.44 mm] in wall thickness, the flash on the inside of the tubes shall be mechanically removed by cutting to a maximum height of 0.010 in. [0.25 mm] at any point on the tube.

2. For tubes 2 in. [50.8 mm] and under in outside diameter and 0.135 in. [3.44 mm] and under in wall thickness, the flash on the inside of the tube shall be mechanically removed by cutting to a maximum height of 0.006 in. [0.15 mm] at any point on the tube.

直度和表面质量 ASTM A1016 Straightness and Finish

成品管应相当的直,管端平滑无毛刺,具有良好的表面。表面缺陷可以用打磨法修除,但应保持圆滑曲面,且修后壁厚不得小于本标准或产品标准或采购订单的允许值。修磨点外径可因磨去量而减少。

Finished tubes shall be reasonably straight and have smooth ends free of burrs. They shall have a workmanlike finish. It is permitted to remove surface imperfections by grinding, provided that a smooth curved surface is maintained, and the wall thickness is not decreased to less than that permitted by this or the product specification, or the purchase order. The outside diameter at the point of grinding may be reduced by the amount so removed.

常见表面Common Surface



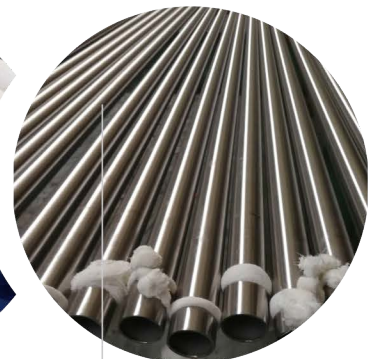
• Electro-Polished
(电解抛光)



• BA(亮面)



• Pickling(酸洗)



• Polished(抛光)





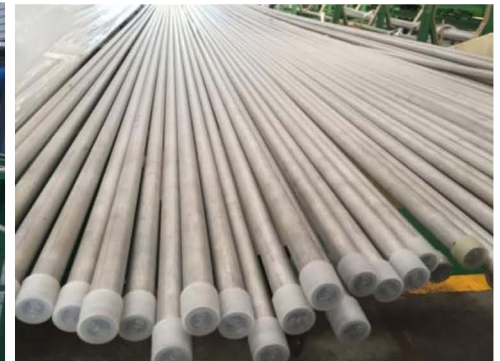
包装 Packing

$\Phi 3\text{mm} \leq \text{OD} \leq \Phi 25\text{mm}$: 采用木箱包装, 木箱厚度大于5mm, 避免运输途中产品变形弯曲。箱体内部垫一到两层不小于0.5厘米的气泡膜或者珍珠棉, 将产品铺平, 最上层与盖板的距离需大于30厘米。

$\Phi 3\text{mm} \leq \text{OD} \leq \Phi 25\text{mm}$: Packed in wooden box, the thickness of the wooden box is greater than 5mm, to avoid deformation and bending of the product during transportation. One to two layers of bubble film or pearl cotton with a thickness of not less than 0.5 cm should be placed inside the box, and the product should be flattened. The distance between the top layer and the cover should be greater than 30 cm.

$\text{OD} \geq \Phi 25\text{mm}$: 内包装采用塑料绳/麻绳/金条捆扎固定, 每捆外面用0.1mm厚度的防水编织袋缠绕, 一般两头用PVC薄膜缠绕或2mm厚度的塑钙纸包装。外加至少两根吊绳/吊带, 三米以上的长度的每件绑两根吊带, 方便装卸, 每件重量三吨以内。

$\text{OD} \geq \Phi 25\text{mm}$: The inner package is fixed with plastic rope/hemp rope/gold bar, and the outside of each bundle is wrapped with a waterproof woven bag with a thickness of 0.1mm. Plus at least two slings, each with a length of more than three meters tied with two slings for easy loading and unloading, and each piece weighs less than three tons.

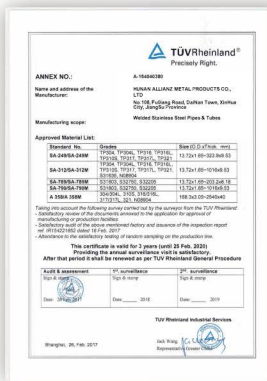


订货指南 Ordering guide

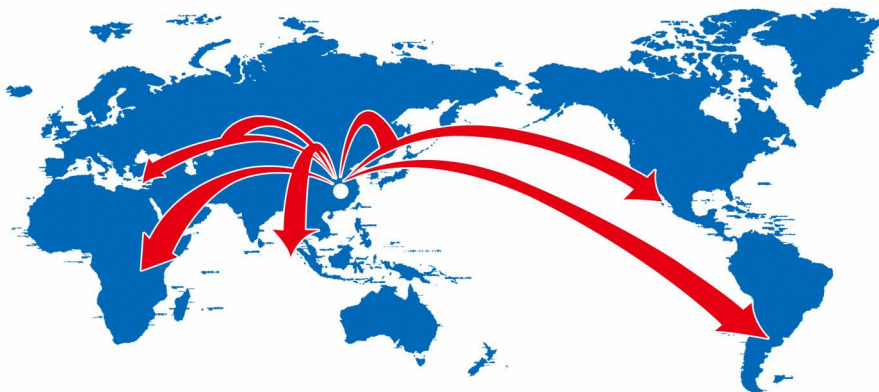
- 订货指南: 请提供以下信息
- Ordering guide: please provide the following information when ordering.

1	Product type: welded/seamless pipe 产品类型: 无缝管/焊接管
2	数量/重量/标准/牌号/交货日期 Quantity/weight/standard/grade/date of delivery
3	产品尺寸: 直径, 厚度, 长度 Product size: diameter, length, thickness.
4	表面处理 Surface: Pickling / Bright / BA / 400# / 800# / Mirror
5	应用或零部件名称 Name of application or part.
6	包装要求: 管子的直径, 重量, 长度 木箱尺寸 Package requirements: The diameter, length and weight of the pipe Wooden case size
7	备注: 如有特别需求请联系我们。 Note: Please contact us if you have any special requirements.

出口资质 Certificates



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A03 Kenya
A04 Morocco
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D09 Italy
D10 Lithuania
D11 Netherlands

B09 Mexico
B10 Panama
B11 Peru
B12 United States

D12 Romania
D13 Russia
D14 Spain
D15 Ukraine
D16 United Kingdom

Asia

C01 Bahrain
C02 Brunei
C03 United Arab Emirates
C04 Thailand
C05 Turkey
C06 Vietnam

Oceania

E01 Australia
E02 Fiji
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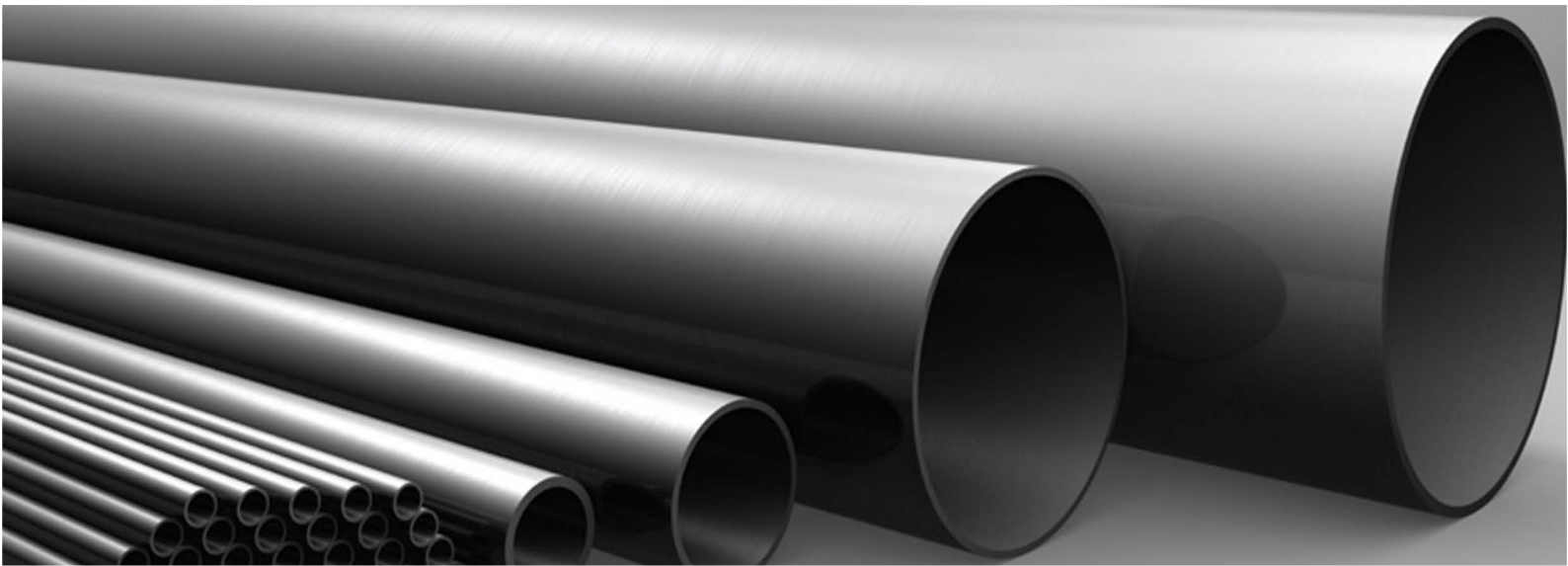
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