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 **温州利昶丰科技有限公司**  
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**利昶丰科技**



**不锈钢无缝管**  
**STAINLESS STEEL**  
**SEAMLESS PIPE**

**温州利昶丰科技有限公司**  
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## COMPANY PROFILE 企业简介

温州利昶丰科技有限公司是一家从事不锈钢生产加工，国内外销售为一体的专业服务型公司，集各种不锈钢管道产品为一体，提供各种材质换热管、不锈钢精密管、汽车摩托车用管、仪表电热用管、卫生级管、工业用管以及配套的闸阀、球阀、止回阀、蝶阀、控制阀等系列产品，为国内外客户提供一站式不锈钢管道产品服务。

**执行标准：**ASTM304, 304L, 316L; DIN1.4301, 1.4307, 1.4404等

公司坚持以“质量为先、诚信为本”的经营宗旨，热忱欢迎国内外客商、各界人士惠顾、洽谈和合作，携手共进、互利共赢。

### OUR STRENGTH

#### 我们的实力

#### 研发能力

致力于镍铬合金以及不锈钢深加工产品的技术研发，通过新旧动能转换，延长产业链条，提高产品附加值，生产产品精良、稳定、加工性能佳，受到市场一致好评。

#### 制造能力

自有生产基地，公司追求生产的准确性、精化性，不断完善自己的精益生产方式包括每一个零部件，都严格按标准精心打造，确保产品的高品质。

#### 检测能力

拥有进口直读光谱仪、超声波探伤、涡流探伤、低温冲击试验、水压试验机等先进的检测设备，从原材料到生产工艺到检验检测方法都进行严格、有效的控制。

#### 服务能力

致力于提供完善的售前、售中、售后服务，我们的销售团队全天在线，我们的工程师随时待命，以确保能快速回复您的询问，并给予专业的建议和贴心的售后服务。



## STAINLESS STEEL SEAMLESS PIPE

### 不锈钢无缝管

规格Size range :  
Φ6mm-630mm x 0.8mm-80mm

**材质Material :**

GB(China Standard) : 0Cr18Ni9Ti, 0Cr18Ni9, 0Cr25Ni20, 00Cr19Ni10, 0Cr17Ni12Mo2  
00Cr17Ni14Mo2, 0Cr18Ni12Mo2Ti, 0Cr19Ni13Mo3, 00Cr19Ni13Mo3

ASTM/ASME material: 304/304L, 316/316L, 316Ti, 321/H, 309S/H, 310S/H, 317/L, 347/H  
N08904, S31254, 800/H, S31803, 32205, S32750, S32760



## STAINLESS STEEL WELDED PIPE

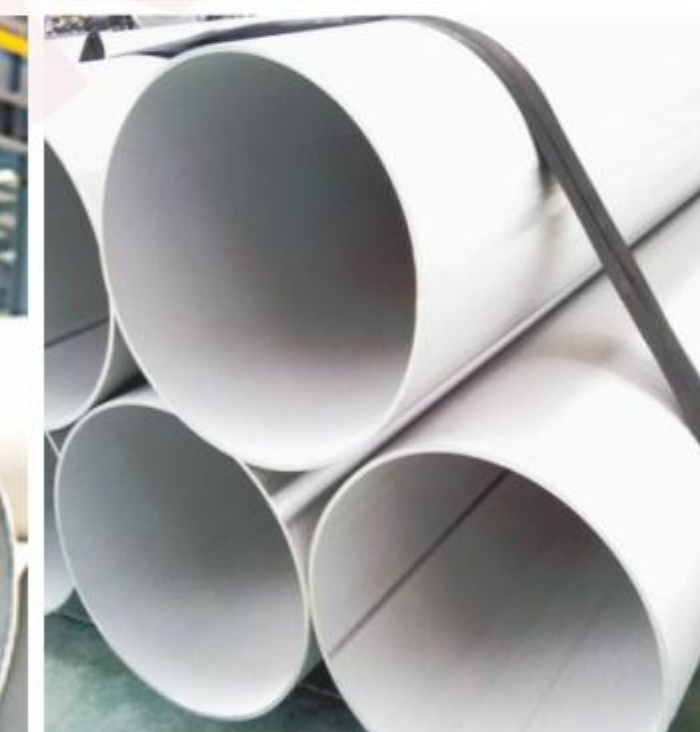
### 不锈钢焊管

规格Size range :  
Φ6mm-2020mm x 0.6mm- 100mm

**材质Material :**

GB(China Standard) : 0Cr18Ni9Ti, 0Cr18Ni9, 0Cr25Ni20, 00Cr19Ni10,  
0Cr17Ni12Mo2, 00Cr17Ni14Mo2,  
0Cr18Ni12Mo2Ti, 0Cr19Ni13Mo3, 00Cr19Ni13Mo3

ASTM/ASME material: 304/L/H, 316/L/H, 316Ti, 321/H, 309S/H, 310S/H,  
317/L, 347/H, N08904, S31254, 800/H, S31803,  
32205, S32750, S32760





# INDUSTRIAL APPLICATION FIELD

## 工业应用领域



### 耐蚀合金

CORROSION RESISTANT ALLOY

金属材料在腐蚀介质中所具有的抵抗介质侵蚀的能力，称耐蚀性。采用合金化方法获得耐蚀合金：提高金属或合金的热力学稳定性；加入易钝化合金元素；加入促使合金表面生成致密腐蚀产物保护膜合金元素。用于海洋与化学加工设备、泵、阀门零部件、容器等。



### 双相不锈钢

DUPLEX STAINLESS STEEL

### 沉淀硬化钢

PRECIPITATION HARDENING STEEL



### 高温合金

HIGH TEMPERATURE ALLOY

高温合金主要用于制造航空、舰艇和工业用燃气轮机的涡轮叶片、导向叶片、涡轮盘、高压压气机盘和燃烧室等高温部件。还用于制造航天飞行器、火箭发动机、核反应堆、石油化工设备以及煤的转化等能源转化装置。



### 特殊不锈钢

SPECIAL STAINLESS STEEL

耐空气、蒸汽、水等弱腐蚀介质和酸、碱、盐等化学腐蚀性介质腐蚀的钢。有圆钢、管件、锻件、法兰等，在高温下强度高，变形抗力大，增加了锻造开孔的难度，适合制造螺栓、排气阀等。可定做各种非标材料。

# TEXTURE OF WOOD

## 材质

### 镍200 UNS 2200 / W Nr 2. 4060

99.6%高精度镍，有良好的机械性能，良好的耐水腐蚀，用于在食品、合成纤维、苛性碱等处理时保持产品的纯度，也用于化工海运容器、电器电子部件、航空航天和导弹元件。

### 镍201 UNS 2201 / W Nr 2. 4061

近似镍200，但有少量碳元素来防止在315°C高温上的细粒度的脆化。主要应用于腐蚀性的蒸发器、燃烧皿、镀金棒材和电子元件。

### 400合金UNS N04400 / W Nr 2. 4360

镍铜合金，在大范围温度下有高强度和强韧性，在许多腐蚀环境下有出色的抗腐蚀功能。许多领域应用，特别是在船舶制造和化工制造。

### K-500合金UNS N05500 / W Nr 2. 4375

镍铜合金，除具有合金400的优秀耐腐蚀性外，通过添加铝和铌来增强强度和硬度。

### 718合金UNS N07718 / W Nr 2. 4668

沉淀硬化的镍铬合金，耐腐蚀，耐氧化，耐高温700°C下都保持高强度。有良好的拉力、韧性和稳定性，可焊接。广泛用于石油石化、燃气涡轮等许多工业领域。

### X-750合金UNS N07750 / W Nr 2. 4669

沉淀硬化的镍铬合金，耐腐蚀，耐氧化，耐高温700°C下都保持高强度。甚至到低温都有良好的性能，广泛用于工业领域。

### NICKEL 200, UNS N02200 / W. Nr 2. 4060

Commercially pure wrought nickel (99.6%) with good mechanical properties and aqueous corrosion resistance. useful for maintaining product purity in the handling of foods, synthetic fibers, and caustic alkali. Other application include chemical shipping drums, electrical and electronic parts, aerospace and missile components.

### NICKEL 201, UNS N02201/ W. Nr. 2. 4061

Similar to Nickel 200 but with low carbon controlled to prevent intergranular embrittlement at above 315°C. Typical applications are caustic evaporators, combustion boats, plater bars, and electronic components.

### ALLOY 400, UNS N04400 / W. Nr. 2. 4360

Is a Ni-Cu Alloy with high strength and toughness over a wide temperature range and excellent resistance to many corrosive environment. Used in many fields, especially Marine and Chemical processing.

### ALLOY K-500, UNS N05500 1 W. Nr. 2. 4375

Is a Ni-Cu Alloy which combines the excellent corrosion resistance of Alloy 400 with the added advantages of greater strength and hardness by adding aluminum and titanium following with age hardening.

### ALLOY 718, UNS N07718 / W.. Nr. 2. 4668

Is a precipitation hardened Ni-Cr alloy which has high strength and corrosion resistant for service temperature up to 700°C. It can be fabricated, combined with good tensile, fatigue, creep, and rupture strength. Used in a wide range of applications (Oil & Gas, Gas Turbines, and many Industrial fields)

### ALLOY X-750, UNS N07750 / W. Nr. 2. 4669

Is a precipitation hardened Ni-Cr alloy used for its corrosion and oxidation resistance and high strength at temperatures to 700°C. has excellent properties down to cryogenic temperatures. used in a wide variety of industrial fields.

# TEXTURE OF WOOD

## 材质

### 80A合金UNS N07080 / W Nr 2. 4952和2. 4631

加钛铝碳元素的沉淀硬化的镍铬合金，工作温度可到815°C，用于燃气涡轮元件(叶片、圆环和圆盘)，螺栓和核电锅炉管。

### 600合金UNS N06600 / W Nr 2. 4816

镍铬铁合金，许多有机成分和无机成分组合致使此合金耐腐蚀。耐高温时的氧化，以及其他腐蚀环境下的氧化。从低温到1095°C都应用，广泛用于化工、造纸、热处理、航空和核电等工业领域。

### 690合金UNS N06690 / W Nr 2.4642

镍铬铁合金，在许多腐蚀水质环境和高温环境都有良好的耐腐蚀性，耐高温性。高强度，良好的冶金稳定性。用于硝酸制造、煤气化设备、石油化工和核电等领域。

### X合金UNS N06002 / W Nr

镍铬铁合金，加工时添加抗氧化物质。良好的加工性能，高温时有强度。在高温650, 760, 870°C放1600小时有良好的柔软性。在石油化工应用有良好的耐裂缝腐蚀。广泛用于涡轮机，热处理和化工。

### 020合金UNS N08020

镍铬铁合金，在含硫酸的化工环境有出色的耐腐蚀性，在含氯化物，硝酸和磷酸的环境有有效的耐腐蚀性。应用于水质腐蚀环境。

### 028合金UNS N08028 / W Nr 2. 453

含不锈钢成份的合金，用于腐蚀环境，在酸性环境，硫酸环境和盐性环境都有耐腐蚀性。用于化工和石油化工工业。

### 625合金UNS N06625 / W Nr 2. 4856

镍铬钼合金，高强度，良好的加工性能，出色的耐腐蚀性。耐点状和裂缝腐蚀。良好的耐疲劳性。高拉伸强度，耐氯离子裂缝腐蚀。从低温到982°C都可用。广泛用于工业领域。

### 725合金UNS N07725

沉淀硬化的镍铬钼合金，合金625的升级版，强度是625的两倍。耐腐蚀性同625。抗氢气，氯气和二氧化碳的腐蚀，使得此合金用于酸性气体工业。抗海水的点状和裂缝腐蚀，使得此合金用于做轮船的紧固件。

### 686合金UNS N06686 / W Nr 2. 4606

单相镍铬钼钨合金，在苛刻的环境有出色的耐腐蚀性。耐点状和裂缝腐蚀。用于化工，污染控制，造纸和废物处理。

### C-4合金UNS N06455 / W Nr 2.4610

镍铬钼合金，在高温下有出色的稳定性，良好的柔软性，良好的耐腐蚀性。在甚至到1038°C都有出色的耐裂缝腐蚀，耐氧化。广泛用于化工，如污染的热矿酸，溶剂，氯化物，氯介质，干氯化物，乙酸，无水醋酸，海水和盐水。

### ALLOY 80A, UNS N07080 / W. Nr. 2. 4952 & 2. 4631

Is a precipitation hardened Ni-Cr alloy, strengthened by additions of titanium, aluminum and carbon, developed for service at temperatures UP to 815°C. used for gas turbine components (blades, rings and discs), bolts, nuclear boiler tube supports.

### ALLOY 600, UNS N06600 / W. Nr. 2. 4816

Is a Ni-Cr-Fe Alloy, it has resistance to corrosion by many organic and inorganic compounds. Resistance to oxidizing conditions at high temps. or in corrosive solutions. used in a variety of applications involving temperatures from cryogenic to above 1095°C. in wide range industrial fields (Chemical, Pulp and Paper, Heat Treating, Aircraft, and Nuclear Power Generation).

### ALLOY 690, UNS N06690 / W. Nr. 2. 4642

Is a Ni-Cr-Fe alloy with excellent resistance to many corrosive aqueous media and high temperature atmospheres, has high strength, good metallurgical stability. use for various applications (Nitric Acid production, Coal Gasification Units, Petrochemical Processing, Nuclear Power Generation).

### ALLOY x, UNS N06002 / W. Nr.

Is a Ni-Cr-Fe alloy that possesses an exceptional combination of oxidation resistance, fabric ability and high temperature strength. good ductility after prolonged exposure at temperatures of 650, 760 and 870°C for 16,000 hours. It also has resistance to stress corrosion cracking in petrochemical applications. Widely use in gas turbine engines for combustion zone components, Heat Treating Industries and Chemical Processing.

### ALLOY 020, UNS N08020

Is a Ni-Cr-Fe Alloy, it has excellent corrosion resistance in chemical environments containing sulfuric acid, and useful resistance to environments containing chlorides, nitric acid, and phosphoric acid. Applications for alloy 020 requiring resistance to aqueous corrosion are essentially the same as those for Alloy 825.

### ALLOY 028, UNS N08028 / W. Nr. 2. 453

Is a highly alloyed austenitic stainless steel offering resistance to a variety of corrosive media resistance to both oxidizing and reducing acids and salts. resistance to sulfuric acid. Used in the chemical and petrochemical processing industry

### ALLOY 625, UNS N06625 / W. Nr. 2. 4856

Is a Ni Cr Mo Alloy with high strength, excellent fabric ability and outstanding corrosion resistance. freedom from local attack (pitting and crevice corrosion), high corrosion fatigue strength, high tensile strength, and resistance to chloride ion stress corrosion cracking. Service temperatures range from cryogenic to 982°C. used in wide range industrial fields.

### ALLOY 725, UNS N07725

Is a precipitation hardened Ni-Cr-Mo Alloy, an upgrade version of Alloy 625. The strength of alloy 725 is twice than annealed alloy 625. It has essentially the same corrosion resistance as alloy 625. Used for hangers, landing nipples, side pocket mandrels and polished bore receptacles in sour gas service, where it resists the effects of hydrogen sulfide, chlorides and carbon dioxide. also attractive for high strength fasteners in marine applications, where it resists corrosion, pitting and crevice attack in sea water.

### ALLOY 686, UNS N06686 / W. Nr. 2. 4606

Is a single phase, austenitic Ni-Cr-Mo-W Alloy which has outstanding corrosion resistance in a range of severe environments. Has resistance to general, pitting and crevice corrosion increases with the alloying (Cr+Mo+W) content. Used for resistance to aggressive media in chemical processing, pollution control, pulp and paper manufacture, and waste management applications.

### ALLOY C-4, UNS N06455 / W. Nr. 2.4610

Is a Ni-Cr-Mo alloy with outstanding high temperature stability, high ductility and corrosion resistance, has excellent resistance to stress corrosion cracking and to oxidizing atmospheres up to 1038°C. has exceptional resistance to wide variety of chemical process environments. include hot contaminated mineral acids, solvents, chlorine and chlorine contaminated media (organic and inorganic), dry chlorine, formic and acetic acids, acetic anhydride, and seawater and brine solutions.



# TEXTURE OF WOOD

## 材质

### C-22合金UNS N06022 / W Nr 2. 4602

添加钨的镍铬钼合金，出色的耐点状和裂缝腐蚀。用于化工，高温环境和海水盐水环境。

### C-2000合金UNS N06200 / W Nr 2.4675

添加铜的镍铬钼合金，在大范围的温度下耐所有酸。耐点状和裂缝腐蚀。用于化工、制药、供暖系统。

### G-30合金UNS N06030 / W Nr 2.4603

镍铬钼合金，在磷酸、硫酸、硝酸等高氧化酸性环境有超级耐腐蚀性。用于化工和石油化工。

### G-35合金UNS N06035 / W Nr 2.4643

镍铬钼合金，在潮湿的酸性环境，氧化酸性环境，碱性的介质和氯离子介质的环境有良好的耐腐蚀性。

### 800合金UNS N08800 / W Nr 1.4876

镍铁铬合金，对许多介质有耐腐蚀性。耐裂缝腐蚀。抗氧化。使用温度直到816° C。用于石油和天然气,化工，石油化工，造纸，电力等腐蚀和高温环境。

### 800H合金UNS N08810 / W Nr 1. 4958

镍铁铬合金，比合金800强度更好。含碳量是0.05%-0.10%，铝+钛是0.30%- 1.20%。高温下有良好强度。

### 800HT合金UNS N08811 / W Nr 1. 4959

镍铁铬合金，压力性能比合金800H好。含碳量是0.06% - 0.10%，铝+钛是0.85%-1.20%。

### 825合金UNS N08825 / W Nr 2.4858

添加钼、铜和钛的镍铁铬合金，耐点状和裂缝腐蚀。在氧化物质和盐性物质有耐腐蚀性。用于化工、污染控制、石油和天然气，酸制造、酸洗、原子能燃料回收、辐射废物处理。用途类似合金020。

### 925合金UNS N09925

添加钼、铜、钛和铝的镍铁铬合金，是合金825的升级版，有更好的强度。用于气井井下和地表管道等元件，也用于紧固件、轮船、水泵、高强度配件系统。

### B-2合金UNS N10665

镍钼合金，对氢酸有出色的耐腐蚀性，也耐氢氯酸、硫酸、乙酸、磷酸。耐点状和裂缝腐蚀。

### B-3台金UNS N10675 / W Nr 2.4600

镍钼合金，列氢酸有出色的耐腐蚀性，也耐氢氯酸、硫酸、乙酸、磷酸等酸性介质。

### C-276合金UNS N102765 / W Nr 2.4819

镍钼铬合金，耐点状和裂缝腐蚀性能出色，耐氧化环境，温度可到1038° C。大量用于化工制造设备，使用在强氧化物，热质环境(有机和无机的)，氯化物、海水盐水环境的化工设备。

### ALLOY C-22, UNS N06022 / W. Nr. 2. 4602

Is a Ni-Cr-Mo alloy with addition of Tungsten, It has outstanding resistance to pitting, crevice corrosion,and stress corrosion cracking. oxidizing aqueous media including wet chlorine and mixtures containingnitric acid or oxidizing acids with chloride ions. used in wide variety of chemical process environments,including strong oxidizers such as ferric and cupric chlorides, chlorine, hot contaminated solutions(organic and inorganic), formic and acetic acids, acetic anhydride, and seawater and brine solutions.

### ALLOY C-2000, UNS N06200 / W. Nr. 2. 4675

Is a Ni-Cr-Mo alloy with addition of Copper, to provide enhanced temperature capability in sulfuric acid,hydrofluoric acid, and dilute hydrochloric acid. It has resistance to all acids (especially Hydrochloric,sulfuric, hydrofluoric) over large temperature range. Also has resistance to piting, crevice attack, andstress corrosion cracking. Used in Chemical processing, Pharmaceutical, and Flue Gas Desulfurizationsystems.

### ALLOY G-30, UNS N06030 / W. Nr. 2. 4603

Is a Ni-Cr-Mo alloy which has superior corrosion resistance to commercial phosphoric, sulfuric,nitric / hydrochloric, nitric / hydrofluoric acids and other complex environments containing highlyoxidizing acids. Used in Chemical and petrochemical processing.

### ALLOY G-35, UNS N06035 / W. Nr.2. 4643

Is a Ni-Cr-Mo alloy with outstanding corrosion resistance to. wet process phosphoric acid, otheroxidizing acids, alkalis, and chloride bearing media.

### ALLOY 800, UNS N08800 / W. Nr. 1. 4876

Is a Ni-Fe-Cr Alloy with general corrosion resistance to many aqueous media and stress corrosioncracking. Resistance to oxidation, carburization, and sulfidation along with rupture and creep strength atelevated temperatures. for service up to 816C. used in a variety of applications involving exposure tocorrosive environments and high temperatures in Oil and Gas, Chemical & Petrochemical processing,Paper & Pulp, Power Generations.

### ALLOY 800H, UNS N08810 / W. Nr. 1. 4958

Is a Ni-Fe- -Cr Alloy which has higher design stresses than Alloy 800 (ASME Code Case 1325 7)Carbon is 0.05 to 0.10%, Aluminum+Titanium is 0.30 to 1.20% also an average. grain size of ASTM 5,orcoarser. Have superior creep and rupture strength during extended high temperatureexposure.

### ALLOY 800HT, UNS N08811 / W. Nr.1. 4959

Is a Ni-Fe-Cr Alloy, it has higher maximum allowable design stresses than Alloy 800H Carbon is 0.06 to0.10%, Aluminum+Titanium is 0.85 to 1.20% It also has higher creep and stress rupture properties thanAlloy 800H.

### ALLOY 825, UNS N08825 ] W. Nr. 2. 4858

Is a Ni-Fe-Cr Alloy with additions of Mo, Cu, and Ti. has resistance to chloride ion stress corrosioncracking, pitting and crevice corrosion, reducing environments, variety of oxidizing substances andoxidizing salt. General and localized corrosion under diverse conditions. Usedin chemical processing, pollution control, oil and gas recovery, acid production, pickling operations,nuclear fuel reprocessing,, and handling of radioactive wastes. Applications for alloy 825 are similar tothose for Alloy 020.

### ALLOY 925, UNS N09925

Is a Ni-Fe-Cr Alloy with additions of molybdenum, copper, titanium and aluminum. an upgrade versionof Alloy 825 with higher strength obtainable by age hardening. resistance to sulfide stress cracking andstress corrosion cracking in sou (H2S containing) crude oil and natural gas. used for down hole andsurface gas well components including tubular products, valves, hangers, landing nipples, tool jointsand packers. The alloy is also useful for fasteners, marine and pump shafting and highstrength pipingsystems.

### ALLOY B-2, UNS N10665

Is a Ni-Mo alloy with excellent resistance to hydrochloric acid at all concentrations and temperatures. Italso withstands hydrogen chloride, sulfuric, acetic and phosphoric acids. The alloy has excellentresistance topitting, to stress corrosion cracking and to knife line and heat affected zone attack.

### ALLOY B-3, UNS N10675 / W. Nr. 2. 4600

Is a Ni-Mo Alloy with excellent resistance to hydrochloric acid at all concentrations and temperatures. Italso withstands sulfuric, acetic. formic and phosphoric acids, and other non oxidizing media.

### ALLOY C-276, UNS N10276 / W. Nr.2. 4819

Is a Ni-Mo-cr Alloy has excellent resistance to pitting, stress corrosion cracking, and oxidizingatmospheres up to 1038 deg. C. resistance to a wide variety of chemical process environments,including strong oxidizers, hot contaminated media (organic and inorganic), chlorine, formic and aceticacids, acetic anhydride, and seawater and brine solutions.

# MATERIAL STELECTION

## 材料故障

| Chemical Composition |        |          |         |          |          |          |          |           |
|----------------------|--------|----------|---------|----------|----------|----------|----------|-----------|
| Nickel               |        | Ni       | Fe      | Cu       | Mn       | C        | Si       | S         |
| Nickel 200           | N02200 | 99.0 min | 0.4 max | 0.25 max | 0.35 max | 0.15 max | 0.35 max | 0.010 max |
| Nickel 201           | N02201 | 99.0 min | 0.4 max | 0.25 max | 0.35 max | 0.02 max | 0.35 max | 0.010 max |

| Ni-Cu Alloy |        | Ni       | Cu        | Fe      | Mn      | C        | Si       | S         | Al        | Ti        |
|-------------|--------|----------|-----------|---------|---------|----------|----------|-----------|-----------|-----------|
| Alloy 400   | N04400 | 63.0 min | 28.0 34.0 | 2.5 max | 2.0 max | 0.30 max | 0.50 max | 0.024 max |           |           |
| Alloy K-500 | N05500 | 63.0 min | 27.0 33.0 | 2.0 max | 1.5 max | 0.18 max | 0.50 max | 0.010 max | 2.30 3.15 | 0.35 0.85 |

| Ni-Cr-Fe Alloy |        | Ni        | Cr        | Fe        | Mo       | Cu        | Mn       | C         | Si       | S         | P         | Nb+Ta    | Co        | W         |
|----------------|--------|-----------|-----------|-----------|----------|-----------|----------|-----------|----------|-----------|-----------|----------|-----------|-----------|
| Alloy 600      | N06600 | 72.0 min  | 14.0 17.0 | 6.0       |          | 0.50 max  | 1.00 max | 0.15 max  | 0.50 max | 0.015 max |           |          |           |           |
| Alloy 690      | N06690 | 58.0 min  | 27.0 31.0 | 7.0 11.0  |          | 0.50 max  | 0.50 max | 0.05 max  | 0.50 max | 0.015 max |           |          |           |           |
| Alloy X        | N06002 | Remainder | 20.5 23.0 | 17.0 20.0 | 8.0 10.0 | Remainder | 1.00 max | 0.05 0.15 | 1.00 max | 0.030 max | 0.040 max |          | 0.50 2.50 | 0.20 1.00 |
| Alloy 020      | N08020 | 32.0 38.0 | 19.0 21.0 | Remainder | 2.0 3.0  | 3.0 4.0   | 2.00 max | 0.07 max  | 1.00 max | 0.035 max | 0.045 max | 8xC 1.00 |           |           |
| Alloy 028      | N08028 | 30.0 34.0 | 26.0 28.0 | Remainder | 3.0 4.0  | 0.60 1.40 | 2.50 max | 0.03 max  | 1.00 max | 0.030 max | 0.030 max |          |           |           |

| Ni-Cr Alloy |        | Ni        | Cr        | Fe        | Mo  | Nb+Ta     | Al        | Ti        | Mn       | C        | Si       | S         | P         | Cu       | Co       | B         |
|-------------|--------|-----------|-----------|-----------|-----|-----------|-----------|-----------|----------|----------|----------|-----------|-----------|----------|----------|-----------|
| Alloy 718   | N07718 | 50.0 min  | 17.0      | Remainder | 2.8 | 4.75      | 0.20      | 0.65      | 0.35 max | 0.08 max | 0.35 max | 0.015 max | 0.015 max | 0.30 max | 1.00 max | 0.006 max |
|             |        | 55.0      | 21.0      |           | 3.3 | 5.50      | 0.80      | 1.15      |          |          |          |           |           |          |          |           |
| Alloy X-750 | N07750 | 70.0 min  | 14.0 17.0 | 5.0 9.0   |     | 0.70 1.20 | 0.40 1.00 | 2.25 2.75 | 1.00 max | 0.08 max | 0.50 max | 0.010 max |           | 0.50 max | 1.00 max |           |
| Alloy 80A   | N07080 | Remainder | 18.0 21.0 | 3.0 max   |     |           | 0.50 1.80 | 1.80 2.70 | 1.00 max | 0.10 max | 1.00 max | 0.015 max |           |          |          |           |

| Ni-Cr-Mo Alloy |        | Ni        | Cr          | Mo        | Fe        | Mn       | C         | Si       | S         | P         | Nb+Ta     | Al       | Ti        | Cu        | W         | Co       | V        |
|----------------|--------|-----------|-------------|-----------|-----------|----------|-----------|----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|----------|----------|
| Alloy 625      | N06625 | 58.0 min  | 20.0 23.0   | 8.0 10.0  | 5.0 max   | 0.50 max | 0.10 max  | 0.50 max | 0.015 max | 0.015 max | 3.15 4.15 | 0.40 max | 0.40 max  |           |           |          |          |
| Alloy-725      | N07725 | 55.0 59.0 | 19.1 22.5   | 7.0 9.5   | Remainder | 0.35 max | 0.03 max  | 0.20 max | 0.010 max | 0.015 max | 2.75 4.00 | 0.35 max | 1.00 1.7  |           |           |          |          |
| Alloy 686      | N06686 | Remainder | 19.0 23.0   | 15.0 17.0 | 5.0 max   | 0.75 max | 0.01 max  | 0.08 max | 0.020 max | 0.040 max |           |          | 0.02 0.25 |           | 3.00 4.40 |          |          |
| Alloy C-4      | N06455 | Remainder | 14.0 18.0   | 14.0 17.0 | 3.0 max   | 1.00 max | 0.015 max | 0.08 max | 0.030 max | 0.040 max |           |          | 0.70 max  |           |           | 2.00 max |          |
| Alloy C-22     | N06022 | Remainder | 20.0 22.5   | 12.5 14.5 | 2.0 6.0   | 0.50 max | 0.015 max | 0.08 max | 0.020 max | 0.020 max |           |          |           |           | 2.50 3.50 | 2.50 max | 0.35 max |
| Alloy C-2000   | N06200 | Remainder | 22.0 24.0   | 15.0 17.0 | 3.0 max   | 0.50 max | 0.01 max  | 0.08 max | 0.010 max | 0.025 max |           | 0.50 max |           | 1.30 1.90 |           | 2.00 max |          |
| Alloy G-30     | N06030 | Remainder | 28.0 31.5   | 4.0 6.0   | 13.0 17.0 | 1.50 max | 0.03 max  | 0.80 max | 0.020 max | 0.040 max | 0.30 1.50 |          |           | 1.00 2.40 | 1.50 4.00 | 5.00 max |          |
| Alloy G-35     | N06035 | Remainder | 32.25 34.25 | 7.6 9.0   | 2.0 max   | 0.50 max | 0.05 max  | 0.60 max | 0.015 max | 0.030 max |           | 0.40 max |           | 0.30 max  | 0.60 max  | 1.00 max | 0.20 max |

| Ni-Fe-Cr Alloy |        | Ni        | Fe       | Cr        | Mn      | C         | Si       | S         | P         | Al        | Ti        | Mo      | Cu        | Nb       | Al+Ti     |
|----------------|--------|-----------|----------|-----------|---------|-----------|----------|-----------|-----------|-----------|-----------|---------|-----------|----------|-----------|
| Alloy 800      | N08800 | 30.0      | 39.5     | 19.0      | 1.5 max | 0.10 max  | 1.00 max | 0.015 max |           | 0.15      | 0.15      |         | 0.75 max  |          |           |
|                |        | 35.0 min  | min      | 23.0      | max     | max       | max      | max       |           | 0.60      | 0.60      |         | max       |          |           |
| Alloy-800H     | N08810 | 30.0 35.0 | 39.5 min | 19.0 23.0 | 1.5 max | 0.05 0.10 | 1.00 max | 0.015 max |           | 0.15 0.60 | 0.15 0.60 |         | 0.75 max  |          |           |
| Alloy 800HT    | N08811 | 30.0 35.0 | 39.5 min | 19.0 23.0 | 1.5 max | 0.06 0.10 | 1.00 max | 0.015 max |           | 0.15 0.60 | 0.15 0.60 |         | 0.75 max  |          | 0.85 1.20 |
| Alloy 825      | N08825 | 38.0 46.0 | 22.0 min | 19.5 23.5 | 1.0 max | 0.05 0.10 | 0.50 max | 0.030 max |           | 0.20 max  | 0.60 1.20 | 2.5 3.5 | 1.50 3.00 |          |           |
| Alloy 925      | N09925 | 42.0 46.0 | 22.0 min | 19.5 22.5 | 1.0 max | 0.03 0.10 | 0.50 max | 0.030 max | 0.030 max | 0.10 0.50 | 1.90 2.40 | 2.5 3.5 | 1.50 3.00 | 0.50 max |           |

| Ni-Mo Alloy |        | Ni        | Mo        | Cr      | Fe      | Mn      | C        | Si       | S         | P         | W        | Co       | V        | Cu       | Al       | Ti       | Nb       | Ta       | Zr       |
|-------------|--------|-----------|-----------|---------|---------|---------|----------|----------|-----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Alloy B-2   | N10665 | Remainder | 26.0 30.0 | 1.0 max | 2.0 max | 1.0 max | 0.02 max | 0.10 max | 0.030 max | 0.040 max |          | 1.00 max |          |          |          |          |          |          |          |
| Alloy B-3   | N10675 | 65.0 min  | 27.0 32.0 | 1.0 3.0 | 1.0 3.0 | 3.0 max | 0.01 max | 0.10 max | 0.010 max | 0.030 max | 3.00 max | 3.00 max | 0.20 max | 0.20 max | 0.50 max | 0.20 max | 0.20 max | 0.20 max | 0.10 max |

| Ni-Mo-Cr Alloy |        | Ni        | Mo        | Cr        | Fe      | Mn | C        | Si       | S        | P         | W         | Co        | V | Cu | Al | Ti | Nb       | Ta | Zr       |
|----------------|--------|-----------|-----------|-----------|---------|----|----------|----------|----------|-----------|-----------|-----------|---|----|----|----|----------|----|----------|
| Alloy C-276    | N10276 | Remainder | 15.0 17.0 | 14.5 16.5 | 4.0 7.0 |    | 1.00 max | 0.01 max | 0.08 max | 0.030 max | 0.040 max | 3.00 4.50 |   |    |    |    | 2.50 max |    | 0.35 max |



# TYPICAL MECHANICAL PROPERTIES

## 典型机械性能

| Alloy          | UNS Designation | EN / DIN W. Nr. | Condition     | Tensile Strength |      | Yield Strength |      | Elongation % | Hardness NACE MR-0175 |
|----------------|-----------------|-----------------|---------------|------------------|------|----------------|------|--------------|-----------------------|
|                |                 |                 |               | ksi              | Mpa  | ksi            | Mpa  |              |                       |
| Nickel         |                 |                 |               |                  |      |                |      |              |                       |
| Nickel 200     | N02200          | 2.4066          | Annealed      | 55               | 380  | 15             | 105  | 40           |                       |
| Nickel 201     | N02201          | 2.4068          | Annealed      | 50               | 345  | 10             | 70   | 40           |                       |
| Ni-Cu Alloy    |                 |                 |               |                  |      |                |      |              |                       |
| Alloy 400      | N04400          | 2.4360          | Annealed      | 70               | 483  | 25             | 172  | 35           | HRC 35 max            |
| Alloy K-500    | N05500          | 2.4375          | Aged          | 140              | 965  | 100            | 690  | 20           | HRC 27-35             |
| Ni-Cr Alloy    |                 |                 |               |                  |      |                |      |              |                       |
| Alloy 718      | N07718          | 2.4668          | Aged          | 185              | 1275 | 150            | 1034 | 12           | HRC 35-40             |
| Alloy X-7 50   | N07750          | 2.4669          | Aged          | 170              | 1170 | 115            | 790  | 18           | HRC 35 max            |
| Alloy 80A      | N07080          | 2.4952          | Aged          | 135              | 930  | 90             | 620  | 20           |                       |
| Ni-Cr-Fe Alloy |                 |                 |               |                  |      |                |      |              |                       |
| Alloy 600      | N06600          | 2.4816          | Annealed      | 80               | 552  | 35             | 241  | 30           | HRC 35 max            |
| Alloy 690      | N06690          | 2.4642          | Annealed      | 85               | 586  | 35             | 241  | 30           |                       |
| Alloy X        | N06002          | 2.4665          | Aged          | 100              | 690  | 35             | 241  | 35           | HRC 35 max            |
| Alloy 020      | N08020          | ...             | Annealed      | 90               | 620  | 45             | 300  | 40           | HRC 32 max            |
| Alloy 028      | N08028          | 1.4563          | Annealed      | 73               | 500  | 31             | 214  | 40           | HRC 33 max            |
| Ni-Cr-Mo Alloy |                 |                 |               |                  |      |                |      |              |                       |
| Alloy 625      | N06625          | 2.4865          | Annealed      | 120              | 827  | 60             | 414  | 30           | HRC 35 max            |
| Alloy 725      | N07725          | ...             | Aged          | 150              | 1034 | 120            | 827  | 20           | HRC 43 max            |
| Alloy 686      | N06686          | 2.4606          | Sol. Annealed | 100              | 690  | 45             | 310  | 45           | HRC 40 max            |
| Alloy C-4      | N06455          | 2.4610          | Sol. Annealed | 100              | 690  | 40             | 276  | 40           |                       |
| Alloy C-22     | N06022          | 2.4602          | Sol. Annealed | 100              | 690  | 45             | 310  | 45           | HRC 40 max            |
| Alloy C-2000   | N06200          | 2.4675          | Sol. Annealed | 100              | 690  | 41             | 283  | 45           |                       |
| Alloy G-3 0    | N06030          | 2.4603          | Sol. Annealed | 100              | 690  | 45             | 310  | 60           | HRC 41 max            |
| Alloy C-3 5    | N06035          | 2.4643          | Sol. Annealed | 85               | 586  | 35             | 241  | 30           |                       |
| Ni-Fe-Cr Alloy |                 |                 |               |                  |      |                |      |              |                       |
| Alloy 800      | N08800          | 1.4876          | Annealed      | 75               | 517  | 30             | 207  | 30           | HRC 35 max            |
| Alloy 800H     | N08810          | 1.4958          | Annealed      | 65               | 448  | 25             | 172  | 30           | HRC 35 max            |
| Alloy 800HT    | N08811          | 1.4959          | Annealed      | 65               | 448  | 25             | 172  | 30           | HRC 35 max            |
| Alloy 825      | N08825          | 2.4858          | Annealed      | 85               | 586  | 35             | 241  | 30           | HRC 35 max            |
| Alloy 925      | N09925          | ...             | Aged          | 140              | 965  | 110            | 758  | 18           | HRC 35 max            |
| Ni-Mo Alloy    |                 |                 |               |                  |      |                |      |              |                       |
| Alloy B-2      | N10665          | ...             | Annealed      | 110              | 760  | 51             | 350  | 40           |                       |
| Alloy B-3      | N10675          | 2.4600          | Annealed      | 110              | 760  | 51             | 350  | 40           |                       |
| Ni-Mo-Cr Alloy |                 |                 |               |                  |      |                |      |              |                       |
| Alloy C-27 6   | N10276          | 2.4819          | Annealed      | 100              | 690  | 41             | 283  | 40           | HRC 35 max            |

### 规格

| Nickel         | UNS No | Forgings Billet / Bar for Reforging Bar, Rod, Wire | Plate Sheet Strip | Smls Pipe & Tube Condenser & Heat Exchanger Tube | Fittings ASTM B366 | Flanges Forged Fittings Valve Parts | Material for Oilfield Equipment |
|----------------|--------|----------------------------------------------------|-------------------|--------------------------------------------------|--------------------|-------------------------------------|---------------------------------|
| Nickel         |        |                                                    |                   |                                                  |                    |                                     |                                 |
| Nickel 200     | N02200 | ASTM B564, ASTM B160                               | ASTM B162         | ASTM B161, ASTM B163                             | WPN                |                                     |                                 |
| Nickel 201     | N02201 | ASTM B160                                          | ASTM B162         | ASTM B161, ASTM B163                             | WPNL               |                                     |                                 |
| Ni-Cu Alloy    |        |                                                    |                   |                                                  |                    |                                     |                                 |
| Alloy 400      | N04400 | ASTM B564, ASTM B164                               | ASTM B127         | ASTM B165, ASTM B163                             | WPNC               |                                     | NACE MR-017 5                   |
| Alloy K-500    | N05500 | ASTM B865                                          |                   |                                                  |                    |                                     | NACE MR-017 5                   |
| Ni-Cr Alloy    |        |                                                    |                   |                                                  |                    |                                     |                                 |
| Alloy 718      | N07718 | ASTM B637, AMS 5662, AMS 5663                      |                   |                                                  |                    | ASTM B637                           | NACE MR-017 5, API 6A718        |
| Alloy X-7 50   | N07750 | ASTM B637, AMS 5667                                |                   |                                                  |                    | ASTM B637                           | NACE MR-017 5, API 6A718        |
| Alloy 80A      | N07080 | ASTM B637                                          |                   |                                                  |                    | ASTM B637                           |                                 |
| Ni-Cr-Fe Alloy |        |                                                    |                   |                                                  |                    |                                     |                                 |
| Alloy 600      | N06600 | ASTM B564, ASTM B472, ASTM B166                    | ASTM B168         | ASTM B167, ASTM B163                             | WPNCI              |                                     | NACE MR-017 5                   |
| Alloy 690      | N06690 | ASTM B564, ASTM B166                               | ASTM B168         | ASTM B167, ASTM B163                             |                    | ASTM B637                           | NACE MR-017 5, API 6A718        |
| Alloy X        | N06002 | ASTM B472, ASTM B572, ASTM B5754                   | ASTM B435         | ASTM B622                                        | WPHX               |                                     | NACE MR-017 5                   |
| Alloy 020      | N08020 | ASTM B472, ASTM B473                               | ASTM B463         | ASTM B729                                        | WP20CB             | ASRM V462                           |                                 |
| Alloy 028      | N08028 | EN 10088-2                                         | ASTM B709         | ASTM B668                                        |                    |                                     | NACE MR-017 5                   |
| Ni-Cr-Mo Alloy |        |                                                    |                   |                                                  |                    |                                     |                                 |
| Alloy 625      | N06625 | ASTM B564, ASTM B472, ASTM B446                    | ASTM B443         | ASTM B444                                        | WPNCMC             |                                     | NACE MR-017 5                   |
| Alloy 725      | N07725 | ASTM B637, ASTM B805                               |                   |                                                  |                    | ASTM B637                           | NACE MR-017 5, API 6A718        |
| Alloy 686      | N06686 | ASTM B564, ASTM B574                               | ASTM B575         |                                                  |                    | ASTM B462                           | NACE MR-017 5                   |
| Alloy C-4      | N06455 | ASTM B574                                          | ASTM B575         | ASTM B622                                        | WPHC4              |                                     |                                 |
| Alloy C-22     | N06022 | ASTM B564, ASTM B472, ASTM B574                    | ASTM B575         | ASTM B622                                        | WPHC22             | ASTM B462                           | NACE MR-017 5                   |
| Alloy C-2000   | N06200 | ASTM B564, ASTM B472, ASTM B574                    | ASTM B575         | ASTM B622                                        | WPHC200            | ASTM B462                           |                                 |
| Alloy G-3 0    | N06030 | ASTM B472, ASTM B581                               | ASTM B582         | ASTM B622                                        | WPHG30             | ASTM B462                           | NACE MR-017 5                   |
| Alloy C-3 5    | N06035 | ASTM B564, ASTM B472, ASTM B574                    | ASTM B575         | ASTM B622                                        | WPHG35             | ASTM B462                           |                                 |
| Ni-Fe-Cr Alloy |        |                                                    |                   |                                                  |                    |                                     |                                 |
| Alloy 800      | N08800 | ASTM B564, ASTM B408                               | ASTM B409         | ASTM B407, ASTM B163                             | WPNIC              |                                     | NACE MR-017 5                   |
| Alloy 800H     | N08810 | ASTM B564, ASTM B408                               | ASTM B409         | ASTM B407, ASTM B163                             | WPNIC10            |                                     | NACE MR-017 5                   |
| Alloy 800HT    | N08811 | ASTM B564, ASTM B408                               | ASTM B409         | ASTM B407, ASTM B163                             | WPNIC11            |                                     | NACE MR-017 5                   |
| Alloy 825      | N08825 | ASTM B564, ASTM B425                               | ASTM B424         | ASTM B423, ASTM B163                             | WPNICMC            |                                     | NACE MR-017 5                   |
| Alloy 925      | N09925 | ASTM B637                                          |                   |                                                  |                    | ASTM B637                           | NACE MR-017 5, API 6A718        |
| Ni-Mo Alloy    |        |                                                    |                   |                                                  |                    |                                     |                                 |
| Alloy B-2      | N10665 | ASTM B564, ASTM B472                               | ASTM B333         | ASTM B622                                        | WPHB-2             | ASTM B462                           |                                 |
| Alloy B-3      | N10675 | ASTM B564, ASTM B472, ASTM B335                    | ASTM B333         | ASTM B622                                        | WPHB-3             | ASTM B462                           |                                 |
| Ni-Mo-Cr Alloy |        |                                                    |                   |                                                  |                    |                                     |                                 |
| Alloy C-27 6   | N10276 | ASTM B564, ASTM B472, ASTM B574                    | ASTM B575         | ASTM B622                                        | WPHC-27 6          | ASTM B462                           | NACE MR-017 5                   |

# SEAMLESS AND WELDED FERRITIC/AUSTENITIC STAINLESS STEEL NOMINAL TUBES

## 无缝及焊接的铁素体/奥氏体不锈钢公称管

### 化学成分要求

| UNS 标号 ① | C     | Mn         | P     | S     | Si          | Ni          | Cr            | Mo          | N           | Cu          | 其他                    |
|----------|-------|------------|-------|-------|-------------|-------------|---------------|-------------|-------------|-------------|-----------------------|
|          | ≤     | ≤          | ≤     | ≤     | ≤           |             |               |             |             |             |                       |
| S31803   | 0030  | 20         | 0030  | 0020  | 10          | 4.50 ~ 6.50 | 21.0 ~ 23.0   | 2.50 ~ 3.50 | 0.08 ~ 0.20 | ...         | ...                   |
| S31500   | 0.030 | 1.2 ~ 2.00 | 0.030 | 0.030 | 1.40 ~ 2.00 | 425 ~ 525   | 180 ~ 190     | 2.50 ~ 3.00 | 0.05 ~ 0.10 | ...         | ...                   |
| S32550   | 0.040 | 1.5        | 0.040 | 0.030 | 1.0         | 5.50 ~ 6.50 | 24.0 ~ 27.0   | 2.90 ~ 3.90 | 0.10 ~ 0.25 | 1.5 ~ 2.5   | ...                   |
| S31200   | 0.030 | 2.0        | 0.045 | 0.030 | 1.0         | 5.50 ~ 6.50 | 24.0 ~ 26.0   | 1.20 ~ 2.00 | 0.14 ~ 0.20 | ...         | ...                   |
| S31260 ② | 0.030 | 1.00       | 0.030 | 0.030 | 0.75        | 5.50 ~ 7.50 | 24.0 ~ 26.0   | 2.50 ~ 3.50 | 0.10 ~ 0.30 | 0.20 ~ 0.80 | W0.10 ~ 0.50          |
| S32304   | 0.030 | 2.50       | 0.040 | 0.040 | 1.0         | 3.0 ~ 5.5   | 21.5 ~ 24.5   | 0.05 ~ 0.60 | 0.05 ~ 0.20 | 0.50 ~ 0.60 | ...                   |
| S39274   | 0.030 | 1.0        | 0.030 | 0.020 | 0.80        | 6.0 ~ 8.0   | 24.0 ~ 26.0   | 2.50 ~ 3.50 | 0.24 ~ 0.32 | 0.20 ~ 0.80 | W1.50 ~ 2.50          |
| S32750   | 0.030 | 1.2        | 0.035 | 0.020 | 0.80        | 6.0 ~ 8.0   | 24.0 ~ 26.0   | 3.0 ~ 5.0   | 0.24 ~ 0.32 | ≤0.5        | ...                   |
| S32760   | 0.05  | 1.00       | 0.030 | 0.010 | 1.00        | 6.0 ~ 8.0   | 24.0026.00    | 3.00 ~ 4.00 | 0.20 ~ 0.30 | 0.50 ~ 1.00 | W0.50 ~ 1.00 40min. ② |
| S32900   | 0.08  | 1.00       | 0.040 | 0.030 | 0.75        | 2.50 ~ 5.00 | 23.0028.00    | 1.00 ~ 2.00 | ...         | ...         | ...                   |
| S32950 ② | 0.03  | 2.00       | 0.035 | 0.010 | 0.60        | 3.50 ~ 5.20 | 26.00 ~ 29.00 | 1.00 ~ 2.50 | 0.15 ~ 0.35 | ...         | ...                   |
| S39277   | 0.025 | 0.80       | 0.025 | 0.002 | 0.80        | 6.5 ~ 8.00  | 24.00 ~ 26.00 | 3.00 ~ 4.00 | 0.23 ~ 0.33 | 1.2 ~ 2.0   | W0.8 ~ 1.2            |
| S32520   | 0.030 | 1.5        | 0.035 | 0.020 | 0.80        | 5.5 ~ 8.0   | 24.00 ~ 26.00 | 3.00 ~ 5.00 | 0.20 ~ 0.35 | 0.5 ~ 3.00  | ...                   |

① 根据ASTM E527和SAE J1086实用规程，建立了新的UNS标号。

② %Cr+3.3%M0+16x%N.

### 拉伸性能和硬度要求

| UNS标号    | 抗拉强度 ≥ , ksi(Mpa)   | 屈服强度 ≥ , ksi(Mpa) | 2in , 或50mm 伸长率, ≥ , % | 硬度, ≤ |      |
|----------|---------------------|-------------------|------------------------|-------|------|
|          |                     |                   |                        | 布氏    | 洛氏C  |
| S31803   | 90(620)             | 65(450)           | 25                     | 290   | 30.5 |
| S31500   | 92(630)             | 64(440)           | 30                     | 290   | 30.5 |
| S32550   | 110(760)            | 80(550)           | 15                     | 297   | 31.5 |
| S31200   | 100(690)            | 65(450)           | 25                     | 280   | ...  |
| S31260 ② | 100(690)            | 65(450)           | 25                     | ...   | ...  |
| S32304   | 87(690)             | 58(400)           | 25                     | 290   | 30.5 |
| S39274   | 116(690)            | 80(550)           | 15                     | 310   | ...  |
| S32750   | 116(800)            | 80(550)           | 15                     | 310   | 32   |
| S32760   | 109-130( > 250~895) | 80(550)           | 25                     | 270   | ...  |
| S32900   | 90(620)             | 70(485)           | 20                     | 271   | 28   |
| S32950 ② | 100(690)            | 70(480)           | 20                     | 290   | 30.5 |
| S39277   | 120(825)            | 90(620)           | 25                     | 290   | 30   |
| S32520   | 112(770)            | 80(550)           | 25                     | 310   | ...  |

① 在A790/A790M-87以前，S31260的数值是：抗拉强度92ksi， 屈服强度54ksi。

② 在A790/A790M-87以前，UNS S32950的抗拉强度值是90ksi。



APPROXIMATE COMPARISON TABLE OF STAINLESS STEEL  
GRADES BETWEEN CHINA AND SOME COUNTRIES  
中国与部分国家的不锈钢号近似对照表

| 钢类<br>Type                                 | 钢号Steel grades |                 |                  |                  |                 |          | 规格                                            | 常用标准             |
|--------------------------------------------|----------------|-----------------|------------------|------------------|-----------------|----------|-----------------------------------------------|------------------|
|                                            | 中国 ( GB )      |                 | 美国AISI<br>(ASTM) | 日本JIS<br>(Japan) | 德国(Germany)     |          | Specification                                 | Common           |
|                                            | 旧牌号            | 新牌号             |                  |                  | DIN17006        | DIN17007 | D-SMM                                         | Standard         |
| 不锈钢无缝管<br>Stainless steel<br>seamless tube | 0Cr18Ni9       | 06Cr19Ni10      | 304/S30400       | SUS304           | X5CrNi18-10     | 1.4301   | 外径OD:<br>6mm-630mm<br><br>壁厚WT:<br>0.8mm-80mm | GB/T14975-2002   |
|                                            | 00Cr19Ni10     | 022Cr19Ni10     | 304L/S30403      | SUS304L          | X2CrNi19-11     | 1.4306   |                                               | GB/T14976-2002   |
|                                            | 0Cr25Ni20      | 06Cr25Ni20      | 310S/3008        | SUS310S          | X12CrNi25-21    | 1.4845   |                                               | GB13296-91       |
|                                            | 0Cr17Ni12Mo2   | 06Cr17Ni12 Mo2  | 316/S31600       | SUS316           | X5CrNiMo17-12-2 | 1.4401   |                                               | 国外标准 ( 部分 )      |
|                                            | 00Cr17Ni14 Mo2 | 02Cr17Ni14 Mo2  | 316L/S31603      | SUS316L          | X2CrNiMo18-14-3 | 1.4435   |                                               | ASTM A213/A213 M |
|                                            | 0Cr19Ni13 Mo3  | 06Cr19Ni13 Mo3  | 317/S31700       | SUS317           | X5CrNiMo11-13-3 | 1.4449   |                                               | ASTM A312/A312M  |
|                                            | 00Cr19Ni13 Mo3 | 022Cr19Ni13 Mo3 | 317/S31703       | SUS317L          | X2CrNiMo18-16-4 | 1.4438   |                                               | JIS G 3459       |
|                                            | 1Cr18Ni9Ti     | 06Cr18Ni11 Ti   | 321/S32100       | SUS321           | X12CrNiTi18-9   | 1.4878   |                                               | DIN 2462         |
|                                            | 0Cr18Ni10 Ti   | 06Cr18Ni11 Ti   |                  |                  | X6CrNiTi18-10   | 1.4541   |                                               |                  |
|                                            | 0Cr18Ni11 Nb   | 06Cr18Ni11 Nb   | 347/S34700       | SUS347           | X12CrNiNb18-10  | 1.4550   |                                               |                  |
| 不锈钢焊管<br>Stainless steel<br>Welded tube    | 0Cr18Ni9       | 0Cr19Ni10       | 304/S30400       | SUS304           | X5CrNi18-10     | 1.4301   | 外径OD:<br>6mm-630mm<br><br>壁厚WT:<br>0.8mm-80mm | GB/T12770-91     |
|                                            | 00Cr19Ni10     | 022Cr19Ni10     | 304L/S30403      | SUS304L          | X2CrNi19-11     | 1.4306   |                                               | GB/T12771-2000   |
|                                            | 0Cr25Ni20      | 06Cr25Ni20      | 310S/3008        | SUS310S          | X12CrNi25-21    | 1.4845   |                                               | HG20537.2-92     |
|                                            | 0Cr17Ni12Mo2   | 06Cr17Ni12 Mo2  | 316/S31600       | SUS316           | X5CrNiMo17-12-2 | 1.4401   |                                               | HG20537.3-92     |
|                                            | 00Cr17Ni14 Mo2 | 02Cr17Ni12 Mo2  | 316L/S31603      | SUS316L          | X2CrNiMo18-14-3 | 1.4435   |                                               | HG20537.4-92     |
|                                            | 0Cr19Ni13 Mo3  | 06Cr19Ni13 Mo3  | 317/S31700       | SUS317           | X5CrNiMo11-13-3 | 1.4449   |                                               | 国外标准 ( 部分 )      |
|                                            | 00Cr19Ni13 Mo3 | 022Cr19Ni13 Mo3 | 317/S31703       | SUS317L          | X2CrNiMo18-16-4 | 1.4438   |                                               | ASTM A312/A312 M |
|                                            | 1Cr18Ni9Ti     | 06Cr18Ni9 Ti    | 321/S32100       | SUS321           | X12CrNiTi18-9   | 1.4878   |                                               | ASTM A688/A688M  |
|                                            | 0Cr18Ni10 Ti   | 06Cr18Ni10 Ti   |                  |                  | X6CrNiTi18-10   | 1.4541   |                                               | JIS G 3468       |
|                                            | 0Cr18Ni11 Nb   | 06Cr18Ni11 Nb   | 347/S34700       | SUS347           | X12CrNiNb18-10  | 1.4550   |                                               | DIN 2462         |

NATIONAL STANDARD  
COMPARISON TABLE  
国标对照表

| 公称直径<br>Nominal<br>diameter | 外径<br>Outside<br>diameter | Sch<br>5s | Sch<br>10s | Sch<br>20s | LG  | Sch<br>20 | Sch<br>30 | STD  | Sch<br>40 | Sch<br>60 | XS   | Sch<br>80 | Sch<br>100 | Sch<br>120 | Sch<br>140 | Sch<br>160 |
|-----------------------------|---------------------------|-----------|------------|------------|-----|-----------|-----------|------|-----------|-----------|------|-----------|------------|------------|------------|------------|
| 15                          | 18                        | 1.6       | 2.1        | 2.6        | -   | -         | -         | -    | 2.9       | -         | -    | 3.6       | -          | -          | -          | 4.5        |
| 20                          | 25                        | 1.6       | 2.1        | 2.6        | -   | -         | -         | -    | 2.9       | -         | -    | 4.0       | -          | -          | -          | 5.6        |
| 25                          | 32                        | 1.6       | 2.8        | 3.2        | -   | -         | -         | -    | 3.2       | -         | -    | 4.5       | -          | -          | -          | 6.3        |
| 32                          | 38                        | 1.6       | 2.8        | 3.2        | -   | -         | -         | -    | 3.6       | -         | -    | 5.0       | -          | -          | -          | 7.1        |
| 40                          | 45                        | 1.6       | 2.8        | 3.2        | -   | -         | -         | -    | 3.6       | -         | -    | 5.0       | -          | -          | -          | 7.1        |
| 50                          | 57                        | 1.6       | 2.8        | 3.6        | -   | 3.2       | -         | -    | 4.0       | -         | -    | 5.6       | -          | -          | -          | 8.8        |
| 65                          | 76                        | 2.0       | 3.0        | 3.6        | -   | 4.5       | -         | -    | 5.0       | -         | -    | 7.1       | -          | -          | -          | 10.0       |
| 80                          | 89                        | 2.0       | 3.0        | 4.0        | -   | 4.5       | -         | -    | 5.6       | -         | -    | 8.0       | -          | -          | -          | 11.0       |
| 90                          | -                         | 2.0       | 3.0        | 4.0        | -   | 4.5       | -         | -    | 5.6       | -         | -    | 8.0       | -          | -          | -          | 12.5       |
| 100                         | 108                       | 2.0       | 3.0        | 4.0        | -   | 5.0       | -         | -    | 5.9       | -         | -    | 8.8       | -          | 11.0       | -          | 14.2       |
| 125                         | 133                       | 2.9       | 3.4        | 5.0        | -   | 5.0       | -         | -    | 6.3       | -         | -    | 10.0      | -          | 12.5       | -          | 16.0       |
| 150                         | 159                       | 2.9       | 3.4        | 5.0        | -   | 5.6       | -         | -    | 7.1       | -         | -    | 11.0      | -          | 14.2       | -          | 17.5       |
| 200                         | 219                       | 2.9       | 4.0        | 6.3        | -   | 6.3       | 7.1       | -    | 8.0       | 10.0      | -    | 12.0      | 16.0       | 17.5       | 20.0       | 22.2       |
| 250                         | 273                       | 3.6       | 4.0        | 6.3        | -   | 6.3       | 8.0       | -    | 8.8       | 12.5      | -    | 16.0      | 17.5       | 22.2       | 25.0       | 28.0       |
| 300                         | 325                       | 4.0       | 4.5        | 6.3        | -   | 6.3       | 8.8       | -    | 10.0      | 14.2      | -    | 17.5      | 22.2       | 25.0       | 28.0       | 32.0       |
| 350                         | 377                       | 4.0       | 5.0        | -          | 8.0 | 8.0       | 10.0      | 10.0 | 11.0      | 16.0      | 13.0 | 20.0      | 25.8       | 28.0       | 32.0       | 36.0       |
| 400                         | 426                       | 4.0       | 5.0        | -          | 8.0 | 8.0       | 10.0      | 10.0 | 12.5      | 17.5      | 13.0 | 22.2      | 28.5       | 30.0       | 36.0       | 40.0       |
| 450                         | 480                       | 4.0       | 5.0        | -          | 8.0 | 8.0       | 11.0      | 10.0 | 14.2      | 20.0      | 13.0 | 25.0      | 30.0       | 36.0       | 40.0       | 45.0       |
| 500                         | 529                       | 5.0       | 5.6        | -          | 8.0 | 10.0      | 12.5      | 10.0 | 16.0      | 20.0      | 13.0 | 28.0      | 32.0       | 40.0       | 45.0       | 50.0       |
| 550                         | -                         | 5.0       | 5.6        | -          | 8.0 | -         | -         | 10.0 | -         | -         | 13.0 | 30.0      | -          | -          | -          | -          |
| 600                         | 630                       | 5.6       | 6.3        | -          | 8.0 | -         | -         | 10.0 | 17.5      | -         | 13.0 | 32.0      | -          | -          | -          | -          |
| 650                         | -                         | -         | -          | -          | 8.0 | -         | -         | 10.0 | -         | -         | 13.0 | -         | -          | -          | -          | -          |
| 700                         | 720                       | -         | -          | -          | 8.0 | -         | -         | 10.0 | -         | -         | 13.0 | -         | -          | -          | -          | -          |
| 750                         | -                         | -         | -          | -          | 8.0 | -         | -         | 10.0 | -         | -         | 13.0 | -         | -          | -          | -          | -          |
| 800                         | 820                       | -         | -          | -          | 8.0 | -         | -         | 10.0 | -         | -         | 13.0 | -         | -          | -          | -          | -          |
| 850                         | -                         | -         | -          | -          | 8.0 | -         | -         | 10.0 | -         | -         | 13.0 | -         | -          | -          | -          | -          |
| 900                         | 920                       | -         | -          | -          | 8.0 | -         | -         | 10.0 | -         | -         | 13.0 | -         | -          | -          | -          | -          |
| 950                         | -                         | -         | -          | -          | 8.0 | -         | -         | 10.0 | -         | -         | 13.0 | -         | -          | -          | -          | -          |
| 1000                        | 1020                      | -         | -          | -          | 8.0 | -         | -         | 10.0 | -         | -         | 13.0 | -         | -          | -          | -          | -          |
| 1050                        | -                         | -         | -          | -          | 8.0 | -         | -         | 10.0 | -         | -         | 13.0 | -         | -          | -          | -          | -          |
| 1100                        | 1150                      | -         | -          | -          | 8.0 | -         | -         | 10.0 | -         | -         | 13.0 | -         | -          | -          | -          | -          |
| 1150                        | -                         | -         | -          | -          | 8.0 | -         | -         | 10.0 | -         | -         | 13.0 | -         | -          | -          | -          | -          |
| 1200                        | 1220                      | -         | -          | -          | 8.0 | -         | -         | 10.0 | -         | -         | 13.0 | -         | -          | -          | -          | -          |



COMPARISON TABLE OF COMMON DOMESTIC AND  
FOREIGN STANDARD SIZES FOR STAINLESS STEEL SEAMLESS PIPES  
不锈钢无缝管常用国内外标准尺寸对照表

| GB13296-2013 |                      |             | GB/T14976-2012 |              |              |               | ASTM A213/A213M |                 |                 | ASTM A312/A312M |             |      |              |           |             |                 |
|--------------|----------------------|-------------|----------------|--------------|--------------|---------------|-----------------|-----------------|-----------------|-----------------|-------------|------|--------------|-----------|-------------|-----------------|
| 外径偏差<br>(mm) | 外径                   | 允许偏差        | 类别             | 外径           | 允许偏差         |               | 类别              | 外径              | 允许偏差            | 外径              | 允许偏差        |      |              |           |             |                 |
|              | 6~30                 | +0.15/-0.20 |                |              | 普通级          | 高级            |                 |                 |                 |                 |             | 热精整管 | ≤1 01.6      | +0.4/-0.8 | 10.3~48.3   | +0.40/-0.80     |
|              | >30~50               | ±0.30       |                |              | ±1.25%D      | ±1.0%D        |                 |                 |                 |                 |             |      | >101.6~190.5 | +0.4/-1.2 | >48.3~114.3 | +0.80/-0.80     |
|              | >50                  | ±0.75%D     | >159~426       | ±1.5%D       | >190.5~228.6 | +0.4/-1.6     | >114.3~219.1    | +1.60/-0.80     |                 |                 |             |      |              |           |             |                 |
|              |                      |             | 冷拔(轧)管         | 6~10         | ±0.20        | ±0.15         | 冷精整管            | <25.4           | +0.1/-0.1       | >219.1~457      | +2.40/-0.80 |      |              |           |             |                 |
|              |                      |             |                | >10~30       | ±0.30        | ±0.20         |                 | 25.4~38.1       | +0.15/-0.15     | >457~660.4      | +3.20/-0.80 |      |              |           |             |                 |
|              |                      |             |                | >30~50       | ±0.40        | ±0.30         |                 | >38.1~50.8      | +0.2/-0.2       | >660.4~864      | +4.00/-0.80 |      |              |           |             |                 |
|              |                      |             |                | >50          | ±0.9%D       | ±0.8%D        |                 | ≥5 0.8~63.5     | +0.25/-0.25     | >864~1219       | +4.80/-0.80 |      |              |           |             |                 |
|              |                      |             |                |              |              |               |                 | ≥6 3.5~76.2     | +0.3/-0.3       |                 |             |      |              |           |             |                 |
|              |                      |             |                |              |              |               |                 | ≥7 6.2~101.6    | +0.38/-0.38     |                 |             |      |              |           |             |                 |
|              |                      |             |                |              |              |               |                 | >101.6~190.5    | +0.38/-0.64     |                 |             |      |              |           |             |                 |
|              |                      |             |                |              |              |               |                 | >190.5~228.6    | +0.38/-1.14     |                 |             |      |              |           |             |                 |
| 壁厚偏差<br>(mm) | 壁厚                   | 允许偏差        | 类别             | 壁厚           | 允许偏差         |               | 类别              | 壁厚              | 允许偏差            | 壁厚              | 允许偏差        |      |              |           |             |                 |
|              | D≤38.1               | +20%S/0%S   |                |              | 普通级          | 高级            |                 |                 |                 |                 |             | 热精整管 | ≤2.4         | +40%/-0   | 103~73      | +20S%/-12.5S%   |
|              | D>38.1               | +20%S/0%S   |                |              | <15          | +15%S/-12.5%S |                 |                 |                 |                 |             |      | ±1 2.5%S     | >2.4~4.6  | +35%/-0     | 88.9~457,S/D≤5% |
|              |                      |             | ≥15            | +20%S/-15%S  |              | >3.8~4.6      | +33%/-0         | 88.9~457,S/D>5% | +15.0S%/-12.5S% |                 |             |      |              |           |             |                 |
|              |                      |             | 冷拔(轧)管         | ≤3           | ±14%S        | +12.5S/-10%S  | >4.6            | +28%/-0         | ≥508,S/D≤5%     | +22.5S%/-12.5S% |             |      |              |           |             |                 |
|              | 冷拔(轧)热交换器管，<br>正公差交货 | >3          |                | +12.5S/-10%S | ±1 0%S       | 冷精整管          | 外径≤38.1mm       | +20%/-0         | ≥508,S/D>5%     | +15.0S%/-12.5S% |             |      |              |           |             |                 |
|              |                      |             |                |              | 外径>38.1mm    |               | +22%/-0         |                 |                 |                 |             |      |              |           |             |                 |

| DIN17456        |         |      |                     | DIN17458 |      |                     |              | ASTM A789/A789M |  |
|-----------------|---------|------|---------------------|----------|------|---------------------|--------------|-----------------|--|
| 外径偏差<br>(mm)    | 外径      | 公差等级 | 允许偏差                | 外径       | 公差等级 | 允许偏差                | 外径           | 允许偏差            |  |
|                 | da≤2191 | D2   | ±1%,<br>最小±0.5mm    | da≤2191  | D2   | ±1%,<br>最小±0.5mm    | ≤1 2.7       | ±1 3            |  |
|                 |         | D3   | ±0.75%,<br>最小±0.3mm |          | D3   | ±0.75%,<br>最小±0.3mm | >12.7~38.1   | ±0.13           |  |
|                 |         | D4   | ±0.5%,<br>最小±0.1mm  |          | D4   | ±0.5%,<br>最小±0.1mm  | >38.1~88.9   | ±0.25           |  |
| 壁厚偏差<br>(mm)    | da≤2191 | T3   | ±1 0%,<br>最小±0.2mm  | da≤2191  | T3   | ±1 0%,<br>最小±0.2mm  | >88.9~139.7  | ±0.38           |  |
|                 |         | T4   | ±7.5%,<br>最小±0.15mm |          | T4   | ±7.5%,<br>最小±0.15mm | >139.7~203.2 | ±0.76           |  |
|                 |         |      |                     |          |      |                     |              |                 |  |
|                 |         |      |                     |          |      |                     |              |                 |  |
|                 |         |      |                     |          |      |                     |              |                 |  |
| *薄壁管的定义及壁厚偏差见标准 |         |      |                     |          |      |                     |              |                 |  |

COMPARISON TABLE OF DIMENSIONAL  
TOLERANCES FOR STAINLESS STEEL WELDED PIPES  
不锈钢焊管尺寸公差对照表

| 流体输送用不锈钢焊接钢管标准GB/T12771-2008 |                      |                                   |                                   | 机械结构用不锈钢焊接标准GB/T12770-2002 |                    |              |              |               |
|------------------------------|----------------------|-----------------------------------|-----------------------------------|----------------------------|--------------------|--------------|--------------|---------------|
| 外径允许偏差                       |                      |                                   |                                   | 外径允许偏差                     |                    |              |              |               |
| 类别                           | 外径D                  | 允许偏差                              |                                   | 类别                         | 外径                 | 允许偏差         |              |               |
|                              |                      | 较高级                               | 普通级                               |                            |                    | 高级           | 较高级          | 普通级           |
| 焊接状态                         | 全部尺寸                 | $\pm 0.5\%D$ 或 $\pm 20$<br>两者取较大值 | $\pm 0.5\%D$ 或 $\pm 20$<br>两者取较大值 | 焊接状态W                      | < 20               | $\pm 0.13$   | $\pm 0.20$   | $\pm 0.30$    |
| 热处理状态                        | < 40                 | $\pm 0.20$                        | $\pm 0.30$                        |                            | $\geq 20$ - < 50   | $\pm 0.25$   | $\pm 0.40$   | $\pm 0.50$    |
|                              | $\geq 40$ - < 65     | $\pm 0.30$                        | $\pm 0.40$                        |                            | $\geq 50$          | $\pm 0.6\%D$ | $\pm 0.8\%D$ | $\pm 1.0\%D$  |
|                              | $\geq 65$ - < 90     | $\pm 0.40$                        | $\pm 0.50$                        | < 13                       | $\pm 0.10$         | $\pm 0.20$   | $\pm 0.25$   |               |
|                              | $\geq 90$ - < 168.3  | $\pm 0.80$                        | $\pm 1.00$                        | $\geq 13$ - < 25           | $\pm 0.13$         | $\pm 0.20$   | $\pm 0.40$   |               |
|                              | $\geq 168.3$ - < 325 | $\pm 0.75\%D$                     | $\pm 1\%D$                        | $\geq 25$ - < 40           | $\pm 0.25$         | $\pm 0.30$   | $\pm 0.60$   |               |
|                              | $\geq 325$ - < 610   | $\pm 0.6\%D$                      | $\pm 1\%D$                        | $\geq 40$ - < 63           | $\pm 0.30$         | $\pm 0.50$   | $\pm 0.80$   |               |
| 冷拔(轧)状态、磨抛光状态                | $\geq 610$           | $\pm 0.6\%D$                      | $\pm 0.7\%D$ 或 $\pm 1$<br>两者取较大值  | 热处理状态T                     | $\geq 63$ - < 90   | $\pm 0.51$   | $\pm 0.60$   | $\pm 1.0$     |
|                              | < 40                 | $\pm 0.15$                        | $\pm 0.20$                        |                            | $\geq 90$ - < 159  | $\pm 0.64$   | $\pm 0.80$   | $\pm 1.0$     |
|                              | $\geq 40$ - < 60     | $\pm 0.20$                        | $\pm 0.30$                        |                            | $\geq 159$ - < 300 | $\pm 0.7\%D$ | $\pm 0.8\%D$ | $\pm 1.0\%D$  |
|                              | $\geq 60$ - < 100    | $\pm 0.30$                        | $\pm 0.40$                        |                            | $\geq 300$ - < 500 | $\pm 0.8\%D$ | $\pm 1.0\%D$ | $\pm 1.25\%D$ |
|                              | $\geq 100$ - < 200   | $\pm 0.4\%D$                      | $\pm 0.5\%D$                      |                            | $\geq 500$         | 按协议          | 按协议          | 按协议           |
| $\geq 200$                   | $\pm 0.5\%D$         | $\pm 0.75\%D$                     | > 25                              |                            | $\pm 0.10$         | $\pm 0.12$   | $\pm 0.15$   |               |
| 壁厚允许偏差                       |                      |                                   | 冷拔(轧)状态WC磨抛光状态SP                  |                            | $\geq 25$ - < 40   | $\pm 0.13$   | $\pm 0.15$   | $\pm 0.18$    |
| 壁厚S                          | 壁厚允许偏差               |                                   |                                   |                            | $\geq 40$ - < 50   | $\pm 0.15$   | $\pm 0.18$   | $\pm 0.20$    |
| $\leq 0.5$                   | $\pm 0.10$           |                                   |                                   |                            | $\geq 50$ - < 60   | $\pm 0.18$   | $\pm 0.20$   | $\pm 0.23$    |
| > 0.5-1.0                    | $\pm 0.15$           |                                   |                                   |                            | $\geq 60$ - < 90   | $\pm 0.25$   | $\pm 0.28$   | $\pm 0.30$    |
| > 1.0-2.0                    | $\pm 0.20$           |                                   |                                   | $\geq 90$ - < 100          | $\pm 0.30$         | $\pm 0.35$   | $\pm 0.40$   |               |
| > 2.0-4.0                    | $\pm 0.30$           |                                   |                                   | $\geq 100$ - < 200         | 按协议                | $\pm 0.4\%D$ | $\pm 0.5\%D$ |               |
| > 4.0                        | $\pm 10\%S$          |                                   |                                   | $\geq 200$                 | 按协议                | 按协议          | 按协议          |               |
|                              |                      |                                   |                                   | 壁厚允许偏差                     |                    |              |              |               |
|                              |                      |                                   |                                   | 钢板(带)料状态                   |                    | 壁厚           | 允许偏差         |               |
|                              |                      |                                   | 热轧钢板(带)或热轧纵剪钢带                    |                            | $\leq 40$          | $\pm 10\%S$  |              |               |
|                              |                      |                                   |                                   |                            | > 4.0              | $\pm 10\%S$  |              |               |
|                              |                      |                                   | 冷轧钢板(带)或热轧纵剪钢带                    |                            | $\leq 0.5$         | $\pm 0.05$   |              |               |
|                              |                      |                                   |                                   |                            | > 0.5-1.0          | $\pm 0.11$   |              |               |
|                              |                      |                                   |                                   |                            | > 1.0-2.0          | $\pm 0.17$   |              |               |
|                              |                      |                                   |                                   |                            | > 2.0-3.0          | $\pm 7\%S$   |              |               |
|                              |                      |                                   |                                   |                            | $\geq 3.0$ -4.0    | $\pm 6\%S$   |              |               |
|                              |                      |                                   |                                   |                            | > 4.0-5.0          | $\pm 5\%S$   |              |               |



STEEL PIPE SIZE SCH INCH  
COMPARISON TABLE  
钢管尺寸-SCH英寸对照表

| NOMINAL PIPE SIZE |        | 外径     | 壁厚    |       |       |      |       |       |       |       |        |        |        |        |       |
|-------------------|--------|--------|-------|-------|-------|------|-------|-------|-------|-------|--------|--------|--------|--------|-------|
| A                 | B      | ASME   | SCH10 | SCH20 | SCH30 | STD  | SCH40 | SCH60 | XS    | SCH80 | SCH100 | SCH120 | SCH140 | SCH160 | XXS   |
| 15                | 1/2"   | 21.3   | 2.11  |       | 2.41  | 2.77 | 2.77  |       | 3.73  | 3.73  |        |        |        | 4.78   | 7.47  |
| 20                | 3/4"   | 26.7   | 2.11  |       | 2.41  | 2.87 | 2.87  |       | 3.91  | 3.91  |        |        |        | 5.56   | 7.82  |
| 25                | 1"     | 33.4   | 2.77  |       | 2.9   | 3.38 | 3.38  |       | 4.55  | 4.55  |        |        |        | 6.35   | 9.09  |
| 32                | 1.1/4" | 42.2   | 2.77  |       | 2.97  | 3.56 | 3.56  |       | 4.85  | 4.85  |        |        |        | 6.35   | 9.7   |
| 40                | 1.1/2" | 48.3   | 2.77  |       | 3.18  | 3.68 | 3.68  |       | 5.08  | 5.08  |        |        |        | 7.14   | 10.15 |
| 50                | 2"     | 60.3   | 2.77  |       | 3.18  | 3.91 | 3.91  |       | 5.54  | 5.54  |        |        |        | 8.74   | 11.07 |
| 65                | 2.1/2" | 73     | 3.05  |       | 4.78  | 5.16 | 5.16  |       | 7.01  | 7.01  |        |        |        | 9.53   | 14.02 |
| 80                | 3"     | 88.9   | 3.05  |       | 4.78  | 5.49 | 5.49  |       | 7.62  | 7.62  |        |        |        | 11.13  | 15.25 |
| 90                | 3.1/2" | 101.6  | 3.05  |       | 4.78  | 5.74 | 5.74  |       | 8.08  | 8.08  |        |        |        |        |       |
| 100               | 4"     | 114.3  | 3.05  |       | 4.78  | 6.02 | 6.02  |       | 8.56  | 8.56  |        | 11.13  |        | 13.49  | 17.12 |
| 125               | 5"     | 141.3  | 3.4   |       |       | 6.55 | 6.55  |       | 9.53  | 9.53  |        | 12.7   |        | 15.88  | 19.05 |
| 150               | 6"     | 168.3  | 3.4   |       |       | 7.11 | 7.11  |       | 10.97 | 10.97 |        | 14.27  |        | 18.26  | 21.95 |
| 200               | 8"     | 219.1  | 3.76  | 6.35  | 7.04  | 8.18 | 8.18  | 10.31 | 12.7  | 12.7  | 15.09  | 18.26  | 20.62  | 23.01  | 22.23 |
| 250               | 10"    | 273    | 4.19  | 6.35  | 7.8   | 9.27 | 9.27  | 12.7  | 12.7  | 15.09 | 18.26  | 21.44  | 25.4   | 28.68  | 25.4  |
| 300               | 12"    | 323.8  | 1.57  | 6.35  | 8.38  | 9.53 | 10.31 | 14.27 | 12.7  | 17.48 | 21.44  | 25.4   | 28.58  | 33.32  | 25.4  |
| 350               | 14"    | 355.6  | 6.35  | 7.92  | 9.53  | 9.53 | 11.13 | 15.09 | 12.7  | 19.05 | 23.83  | 27.79  | 31.75  | 35.71  |       |
| 400               | 16"    | 406.4  | 6.35  | 7.92  | 9.53  | 9.53 | 12.7  | 16.66 | 12.7  | 21.44 | 26.19  | 30.96  | 36.53  | 40.19  |       |
| 450               | 18"    | 457.2  | 6.35  | 7.92  | 11.13 | 9.53 | 14.27 | 19.05 | 12.7  | 23.19 | 39.36  | 34.93  | 39.67  | 45.24  |       |
| 500               | 20"    | 508    | 6.35  | 9.53  | 12.7  | 9.53 | 15.09 | 20.62 | 12.7  | 26.19 | 32.54  | 38.1   | 44.45  | 50.01  |       |
| 550               | 22"    | 588.8  | 6.35  | 9.53  | 12.7  | 9.53 |       | 22.23 | 12.7  | 28.58 | 34.93  | 41.28  | 47.63  | 53.98  |       |
| 600               | 24"    | 609.6  | 6.35  | 9.53  | 14.27 | 9.53 | 17.48 | 24.61 | 12.7  | 30.96 | 38.89  | 46.02  | 52.37  | 59.54  |       |
| 650               | 26"    | 660.4  | 7.92  | 12.7  |       | 9.53 |       |       | 12.7  |       |        |        |        |        |       |
| 700               | 28"    | 711.2  | 7.92  | 12.7  | 15.88 | 9.53 |       |       | 12.7  |       |        |        |        |        |       |
| 750               | 30"    | 762    | 7.92  | 12.7  | 15.88 | 9.53 |       |       | 12.7  |       |        |        |        |        |       |
| 800               | 32"    | 812.8  | 7.92  | 12.7  | 15.88 | 9.53 | 17.48 |       | 12.7  |       |        |        |        |        |       |
| 850               | 34"    | 863.6  | 7.92  | 12.7  | 15.88 | 9.53 | 17.48 |       | 12.7  |       |        |        |        |        |       |
| 900               | 36"    | 914.4  | 7.92  | 12.7  | 15.88 | 9.53 | 19.05 |       | 12.7  |       |        |        |        |        |       |
| 950               | 28"    | 965.2  |       |       |       | 9.53 |       |       | 12.7  |       |        |        |        |        |       |
| 1000              | 40"    | 1016   |       |       |       | 9.53 |       |       | 12.7  |       |        |        |        |        |       |
| 1050              | 42"    | 1066.8 |       |       |       | 9.53 |       |       | 12.7  |       |        |        |        |        |       |
| 1100              | 44"    | 1117.6 |       |       |       | 9.53 |       |       | 12.7  |       |        |        |        |        |       |
| 1150              | 46"    | 1168.4 |       |       |       | 9.53 |       |       | 12.7  |       |        |        |        |        |       |
| 1200              | 48"    | 1219.2 |       |       |       | 9.53 |       |       | 12.7  |       |        |        |        |        |       |

CHEMICAL COMPOSITION TABLE OF STAINLESS  
STEEL IN VARIOUS COUNTRIES  
各国不锈钢化学成分表

| 无缝不锈钢常用标准常见钢种化学元素含量 |         |           |      |       |       |      |             |             |           |           |           |             |           |    |
|---------------------|---------|-----------|------|-------|-------|------|-------------|-------------|-----------|-----------|-----------|-------------|-----------|----|
| 标准                  | 钢种      | C         | Mn   | P     | S     | Si   | Cr          | Ni          | Mo        | N         | Cu        | Ti          | Al        | Nb |
| A312                | TP304   | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 18.0-20.0   | 8.0-11.0    |           |           |           |             |           |    |
|                     | TP304L  | 0.035     | 2.00 | 0.045 | 0.030 | 1.00 | 18.0-20.0   | 8.0-13.0    |           |           |           |             |           |    |
|                     | TP304H  | 0.04-0.10 | 2.00 | 0.045 | 0.030 | 1.00 | 18.0-20.0   | 8.0-11.0    |           |           |           |             |           |    |
|                     | TP310S  | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 24.026.0    | 19.0-22.0   | 0.75      |           |           |             |           |    |
|                     | TP316   | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 16.0-18.0   | 11.0-14.0   | 2.00-3.00 |           |           |             |           |    |
|                     | TP316L  | 0.035     | 2.00 | 0.045 | 0.030 | 1.00 | 6.0-18.0    | 10.0-14.0   | 2.00-3.00 |           |           |             |           |    |
|                     | TP316H  | 0.04-0.10 | 2.00 | 0.045 | 0.030 | 1.00 | 6.0-18.0    | 11.0-14.0   | 2.00-3.00 |           |           |             |           |    |
|                     | TP321   | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 17.0-19.0   | 9.0-12.0    |           | 0.10      |           | 5C-0.70     |           |    |
| A312                | N0894   | 0.020     | 2.00 | 0.040 | 0.030 | 1.00 | 19.0-23.0   | 23.0-28.0   | 4.0-5.0   | 0.10      | 1.00-2.00 |             |           |    |
|                     | TP3604  | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 18.0-20.0   | 8.0-11.0    |           |           |           |             |           |    |
|                     | TP304L  | 0.035     | 2.00 | 0.045 | 0.030 | 1.00 | 18.0-20.0   | 8.0-12.0    |           |           |           |             |           |    |
|                     | TP304H  | 0.04-0.10 | 2.00 | 0.045 | 0.030 | 1.00 | 18.0-20.0   | 8.0-11.0    |           |           |           |             |           |    |
|                     | TP310S  | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 24.0-26.0   | 19.0-22.0   |           |           |           |             |           |    |
|                     | TP316   | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 16.0-18.0   | 10.0-14.0   | 2.00-3.00 |           |           |             |           |    |
|                     | TP316L  | 0.035     | 2.00 | 0.045 | 0.030 | 1.00 | 16.0-18.0   | 10.0-14.0   | 2.00-3.00 |           |           |             |           |    |
|                     | TP316H  | 0.04-0.10 | 2.00 | 0.045 | 0.030 | 1.00 | 16.0-18.0   | 11.0-14.0   | 2.00-3.00 |           |           |             |           |    |
| A269                | TP321   | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 17.0-19.0   | 9.0-12.0    |           |           |           | 5(C+N)-0.70 |           |    |
|                     | TP304   | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 18.0-20.0   | 8.0-11.0    |           |           |           |             |           |    |
|                     | TP304L  | 0.035     | 2.00 | 0.045 | 0.030 | 1.00 | 18.0-20.0   | 8.0-12.0    |           |           |           |             |           |    |
|                     | TP316   | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 16.0-18.0   | 10.0-14.0   | 2.00-3.00 |           |           |             |           |    |
|                     | TP316L  | 0.035     | 2.00 | 0.045 | 0.030 | 1.00 | 16.0-18.0   | 10.0-15.0   | 2.00-3.00 |           |           |             |           |    |
|                     | TP321   | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 17.0-19.0   | 9.0-12.0    |           |           |           | 5(C+N)-0.70 |           |    |
|                     | N0894   | 0.020     | 2.00 | 0.040 | 0.030 | 1.00 | 19.0-23.0   | 23.0-28.0   | 4.0-5.0   | 0.10      | 1.00-2.00 |             |           |    |
|                     | TP405   | 0.08      | 1.00 | 0.040 | 0.030 | 1.00 | 0.50        | 11.5-14.5   |           |           |           |             | 0.10-0.30 |    |
| A268                | TP410   | 0.15      | 1.00 | 0.040 | 0.030 | 1.00 |             | 11.5-13.5   |           |           |           |             |           |    |
|                     | TP430   | 0.12      | 1.00 | 0.040 | 0.030 | 1.00 |             | 16.0-18.0   |           |           |           |             |           |    |
|                     | TP446   | 0.20      | 1.50 | 0.040 | 0.030 | 1.00 | 0.75        | 23.0-27.0   |           | 0.25      |           |             |           |    |
|                     | S31803  | 0.030     | 2.00 | 0.030 | 0.020 | 1.00 | 4.5-6.5     | 21.0-23.0   | 2.5-3.5   | 0.08-0.20 |           |             |           |    |
| A789                | S32205  | 0.030     | 2.00 | 0.030 | 0.020 | 1.00 | 4.5-6.5     | 22.0-23.0   | 3.0-3.5   | 0.14-0.20 |           |             |           |    |
|                     | 1.4301  | 0.07      | 2.00 | 0.040 | 0.015 | 1.00 | 17.00-19.50 | 8.00-10.50  |           | 0.11      |           |             |           |    |
|                     | 1.4307  | 0.030     | 2.00 | 0.040 | 0.015 | 1.00 | 17.50-19.50 | 8.00-10.00  |           | 0.11      |           |             |           |    |
|                     | 1.4401  | 0.07      | 2.00 | 0.040 | 0.015 | 1.00 | 16.50-18.50 | 10.00-13.00 | 2.00-2.50 | 0.11      |           |             |           |    |
|                     | 1.4404  | 0.030     | 2.00 | 0.040 | 0.015 | 1.00 | 16.50-18.50 | 10.00-13.00 | 2.0-2.50  | 0.11      |           |             |           |    |
|                     | 1.4541  | 0.08      | 2.00 | 0.040 | 0.015 | 1.00 | 17.00-19.00 | 9.00-12.00  |           |           |           | 5C-0.70     |           |    |
|                     | 1.4335  | 0.08      | 2.00 | 0.040 | 0.015 | 1.00 | 24.00-26.00 | 20.00-22.00 | 0.11      | 0.20      |           |             |           |    |
|                     | 1.4462  | 0.03      | 2.00 | 0.035 | 0.015 | 1.00 | 21.00-23.00 | 4.50-6.50   | 2.50-3.50 | 0.10-0.22 |           |             |           |    |
| JIS G3463-94        | SUS3.4  | 0.08      | 2.00 | 0.040 | 0.030 | 1.00 | 18.00-20.00 | 8.00-11.00  |           |           |           |             |           |    |
|                     | SUS304L | 0.030     | 2.00 | 0.040 | 0.030 | 1.00 | 18.00-20.00 | 9.00-13.00  |           |           |           |             |           |    |
|                     | SUS316  | 0.08      | 2.00 | 0.040 | 0.030 | 1.00 | 16.00-18.00 | 10.00-14.00 | 2.00-3.00 |           |           |             |           |    |
|                     | SUS316; | 0.030     | 2.00 | 0.040 | 0.030 | 1.00 | 16.00-18.00 | 12.00-16.00 | 2.00-3.00 |           |           |             |           |    |
|                     | SUS310S | 0.08      | 2.00 | 0.040 | 0.030 | 1.50 | 24.00-26.00 | 19.00-22.00 |           |           |           |             |           |    |
|                     | SUS321  | 0.08      | 2.00 | 0.040 | 0.030 | 1.00 | 17.00-20.00 | 9.00-13.00  |           |           |           | ≥5 C%       |           |    |
|                     | SUS405  | 0.08      | 1.00 | 0.040 | 0.030 | 1.00 | 11.50-14.50 |             |           |           |           |             | 0.10-0.30 |    |
|                     | SUS410  | 0.15      | 1.00 | 0.040 | 0.030 | 1.00 | 11.50-13.50 |             |           |           |           |             |           |    |
|                     | SUS430  | 0.12      | 1.00 | 0.040 | 0.030 | 0.75 | 16.00-18.00 |             |           |           |           |             |           |    |