



河北中海钢管制造股份有限公司

HEBEI ZHONGHAI STEEL PIPE MANUFACTURING CORPORATION

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河北中海钢管制造有限公司经过十几年的不懈努力，目前已经发展成为集团公司，并于2010年11月在天津交易所上市(股权代码: 613002)。中海股份集团下设钢管, (中海钢管股份有限公司、广东孙氏无缝钢管有限公司), 房地产(乾海房地产有限公司), 农业(海鼎农业开发有限公司)。是目前国内首屈一指的集钢管生产, 房地产建造, 农业开发于一体的大型集团企业。

Through more than ten years unremitting efforts, Hebei Zhonghai Steel Pipe Manufacturing Co., Ltd. has developed into a group company. Since November 2010, Zhonghai became listed company in Tianjin Stock Exchange (share code: 613 002). Zhonghai Group consists of steel pipe, (Zhonghai Steel Pipe Manufacturing Corporation, Guangdong Sunshi Seamless Steel Pipe Co., Ltd), real estate (Qianhai Real Estate Co., Ltd.), agriculture (Hai Ding Agriculture Development Co., Ltd.) which is the leading corporation including steel pipe production, real estate construction, agricultural development.



## ► 输送流体用无缝钢管

### SEAMLESS STEEL PIPE FOR FLUID TRANSPORTATION



Usage: Applicable to transport liquid, gas, oil, etc

| 产品名称Items  | 中国 China Standard | 钢号 Steel Grade      | 美国 America Standard | 钢号 Steel Grade | 德国 Germany Standard            | 钢号 Steel Grade       | 日本 Japan Standard | 钢号 Steel Grade |
|--|-------------------|---------------------|---------------------|----------------|--------------------------------|----------------------|-------------------|----------------|
| 输送流体用无缝钢管<br>Seamless Steel Tube For Liquid Conveyance | GB/T8163-2008     | 10#<br>20#<br>Q345B | ASTM A 53/A106      | Gr.A<br>Gr.B   | DIN1629<br>DIN2448<br>DIN17175 | ST37<br>ST44<br>ST52 | JIS G3462         | STD G410       |

Standard: GB/T8163-2008, ASTM A 53/A106, DIN1629, DIN2448, DIN17175, EN10204, EN10216, JIS G3462

Steel Grade: 10#, 20#, Q345B, A53/A106 A/B, ST37, ST35.8, ST44, ST45.8, ST52, STD G410

Outer Diameter: 3"—48" (89mm—1220mm)

Wall Thickness: SCH10—SCH100 (4mm—40mm)

Length: Random Length, Fixed Length, SRL, DRL

Chemical Composition 化学成分:

| Standards | Grade | C         | Si        | Mn        | P≤    | S≤    | Cu≤  | Ni≤  | Cr≤  | Mo≤  | V≤   |
|-----------|-------|-----------|-----------|-----------|-------|-------|------|------|------|------|------|
| GB/T      | 10    | 0.07-0.14 | 0.17-0.37 | 0.35-0.65 | 0.035 | 0.035 | 0.25 | 0.25 | 0.15 | /    | /    |
|           | 20    | 0.17-0.24 | 0.17-0.37 | 0.35-0.65 | 0.035 | 0.035 | 0.25 | 0.25 | 0.25 | /    | /    |
|           | 35    | 0.32-0.39 | 0.17-0.37 | 0.50-0.80 | 0.035 | 0.035 | 0.25 | 0.25 | 0.25 | /    | /    |
|           | 45    | 0.42-0.50 | 0.17-0.37 | 0.50-0.80 | 0.035 | 0.035 | 0.25 | 0.30 | 0.25 | /    | /    |
| DIN       | Q345B | 0.12-0.20 | 0.20-0.55 | 1.20-1.60 | 0.045 | 0.045 | 0.25 | 0.25 | 0.25 | /    | /    |
|           | St35  | ≤0.18     | 0.15-0.35 | 0.35-0.65 | 0.035 | 0.035 | 0.25 | 0.25 | 0.25 | /    | /    |
|           | St45  | ≤0.25     | 0.15-0.35 | 0.50-0.80 | 0.035 | 0.035 | 0.25 | 0.25 | 0.25 | /    | /    |
|           | St55  | 0.33-0.41 | 0.15-0.35 | 0.50-0.80 | 0.035 | 0.035 | 0.25 | 0.25 | 0.25 | /    | /    |
| ASTM A53  | St52  | ≤0.20     | ≤0.55     | ≤1.50     | 0.035 | 0.035 | 0.25 | 0.25 | 0.25 | /    | /    |
|           | A     | ≤0.25     | /         | ≤0.95     | 0.05  | 0.045 | 0.40 | 0.40 | 0.40 | 0.15 | 0.08 |
| ASTM A106 | B     | ≤0.30     | /         | ≤1.20     | 0.05  | 0.045 | 0.40 | 0.40 | 0.40 | 0.15 | 0.08 |
|           | A     | ≤0.25     | ≥0.10     | 0.27-0.93 | 0.035 | 0.035 | 0.40 | 0.40 | 0.40 | 0.15 | 0.08 |
| ASTM A106 | B     | ≤0.30     | ≥0.10     | 0.29-1.06 | 0.035 | 0.035 | 0.40 | 0.40 | 0.40 | 0.15 | 0.08 |



**Mechanical Properties 机械性能:**

| Standards 标准 | Grade 钢号 | T.S. 抗拉强度(MPa) | Y.S. 屈服强度(MPa) |         | Elongation 伸长率(%)    |
|--------------|----------|----------------|----------------|---------|----------------------|
|              |          |                | <16mm          | 16-30mm |                      |
| GB/T         | 10       | 335            | 205            | 195     | 24                   |
|              | 20       | 410            | 245            | 235     | 20                   |
|              | 35       | 510            | 305            | 295     | 17                   |
|              | 45       | 590            | 335            | 325     | 14                   |
|              | Q345B    | 490            | 325            | 315     | 21                   |
| DIN          |          |                | >16mm          | >16mm   |                      |
|              | ST35     | 345-460        | 225            | 225     | 25                   |
| GB/T         | ST45     | 440-550        | 245            | 245     | 21                   |
|              | ST55     | 540-645        | 295            | 285     | 17                   |
| GB/T         | ST52     | 490-630        | 355            | 345     | 22                   |
|              | ST45     | 590-730        | 335            | 325     | 14                   |
| ASTM A53     | A        | 330            | 205            |         | 20                   |
|              | B        | 415            | 240            |         |                      |
| ASTM A106    | A        | 330            | 205            |         | 35 (longitudinal 纵向) |
|              | B        | 415            | 240            |         | 30 (longitudinal 纵向) |
|              | C        | 485            | 275            |         | 30 (longitudinal 纵向) |

**Dimension Tolerances 尺寸公差:**

| Standards 标准 | Outer Diameter Tolerance 外径公差 |               | Thickness Tolerance 壁厚公差 |            |
|--------------|-------------------------------|---------------|--------------------------|------------|
|              | D                             | 公差            | S                        | 公差         |
| GB/T         | D<50                          | ±0.50mm       | S<4mm                    | ±12.5%     |
|              | D≥50                          | ±1%           | 4-20mm                   | +15%-12.5% |
| DIN          | D<50                          | ±0.50mm       | S≥20mm                   | ±12.5%     |
|              | D≥50                          | ±1%           | S≤2·Sn                   | +15%-10%   |
|              |                               |               | 2·Sn<S≤4·Sn              | +12.5%-10% |
| S>4·Sn       | ±9%                           |               |                          |            |
| ASTM A53     | D<48.3                        | ±0.4/-0.79mm  | ±12.5%                   |            |
|              | D≥48.3                        | ±1%           |                          |            |
| ASTM A106    | D<48.3                        | ±0.4/-0.79mm  | ±12.5%                   |            |
|              | D48.3-114.3                   | ±0.79mm       |                          |            |
|              | D≥114.3                       | ±1.59/-0.79mm |                          |            |

**▶ API 5L 管线管 API 5L LINE PIPE**



It is widely used in conveying gas, water, and oil in both the oil and natural gas industries.

Standard: API SPEC 5L PSL 1

Steel Grade: GR.B, X42, X52, X60

Outer Diameter: 4"–36" (114mm–914mm)

Wall Thickness: SCH10–SCH100 (4mm–40mm)

Length: Random Length, Fixed Length, SRL, DRL

| Standard 标准  | Steel grade 钢号 | Chemical composition 化学成分 % |       |        |        |    |   |    |    |       |
|--------------|----------------|-----------------------------|-------|--------|--------|----|---|----|----|-------|
|              |                | C                           | Mn    | P      | S      | Si | V | Nb | Ti | CEpcm |
| API 5L PSL 1 | L210 or A      | ≤0.22                       | ≤0.90 | ≤0.030 | ≤0.030 | -  | - | -  | -  | ≤0.25 |
|              | L245 or B      | ≤0.28                       | ≤1.20 | ≤0.030 | ≤0.030 | -  | - | -  | -  | ≤0.25 |
|              | L290 or X42    | ≤0.28                       | ≤1.30 | ≤0.030 | ≤0.030 | -  | - | -  | -  | ≤0.25 |
|              | L320 or X46    | ≤0.28                       | ≤1.40 | ≤0.030 | ≤0.030 | -  | - | -  | -  | ≤0.25 |
|              | L360 or X52    | ≤0.28                       | ≤1.40 | ≤0.030 | ≤0.030 | -  | - | -  | -  | ≤0.25 |

| Standard 标准  | Steel grade 钢号 | Chemical composition 化学成分 % |       |        |        |    |   |    |    |       |
|--------------|----------------|-----------------------------|-------|--------|--------|----|---|----|----|-------|
|              |                | C                           | Mn    | P      | S      | Si | V | Nb | Ti | CEpcm |
| API 5L PSL 1 | L390 or X56    | ≤0.28                       | ≤1.40 | ≤0.030 | ≤0.030 | -  | - | -  | -  | ≤0.25 |
|              | L415 or X60    | ≤0.28                       | ≤1.40 | ≤0.030 | ≤0.030 | -  | - | -  | -  | ≤0.25 |

**Mechanical Properties 机械性能:**

| Standard 标准  | Steel grade 钢号 | Yield Strength (min) 屈服强度 Mpa | Tensile Strength(min) 抗拉强度 Mpa |
|--------------|----------------|-------------------------------|--------------------------------|
| API 5L PSL 1 | L210 or A      | 210                           | 335                            |
|              | L245 or B      | 245                           | 415                            |
|              | L290 or X42    | 290                           | 415                            |
|              | L320 or X46    | 320                           | 435                            |
|              | L360 or X52    | 360                           | 460                            |
|              | L390 or X56    | 390                           | 490                            |
|              | L415 or X60    | 415                           | 520                            |

**▶ 锅炉用无缝钢管**

SEAMLESS STEEL PIPE FOR LOW/MEDIUM & HIGH PRESSURE BOILER



中低压锅炉管用于中低压锅炉(工作压力一般大于 5.88Mpa, 工作温度在 450℃以下)的受热面管子、集装箱及蒸汽管道  
For manufacturing, heating-pipelines, containers, steaming pipelines of low/medium pressure boilers (P<5.88Mpa, T<450℃)

高压锅炉管用于高压锅炉(工作压力一般在 9.8Mpa 以上, 工作温度在 450℃~650℃之间)的受热面管子、集装箱、省煤器、过热器、再热器等  
It is used for heating-pipelines, containers, coal-saving devices superheaters and reheaters of high pressure boilers (P>9.8Mpa, 450℃<T<650℃)

Standard: GB/T3087-2008, GB/T5310-2008, DIN 17175, EN10216-2



Steel Grade: 10#, 20#, 20G, 20MnG  
 Outer Diameter: 4" - 24" (114mm - 610mm)  
 Wall Thickness: SCH10 - SCH100 (4mm - 40mm)  
 Length: Random Length, Fixed Length, SRL, DRL

Chemical Composition & Mechanical Properties 化学成分和机械性能:

| Standard 标准                | Grade 钢号                    | Chemical Composition 化学成分 (%) |                          |             |        |                    |        |         |
|----------------------------|-----------------------------|-------------------------------|--------------------------|-------------|--------|--------------------|--------|---------|
|                            |                             | C                             | Mn                       | Si          | Cr     | Ni                 | Cu     | P / S   |
| GB/T3087                   | 10                          | 0.07 - 0.14                   | 0.35 - 0.65              | 0.17 - 0.37 | ≤ 0.15 | ≤ 0.30             | ≤ 0.20 | ≤ 0.030 |
|                            | 20                          | 0.17 - 0.24                   | 0.35 - 0.65              | 0.17 - 0.37 | ≤ 0.25 | ≤ 0.25             | ≤ 0.20 | ≤ 0.030 |
| Mechanical Properties 机械性能 | Tensile Strength 抗拉强度 (Mpa) |                               | Yield Strength 屈服点 (Mpa) |             |        | Elongation 伸长率 (%) |        |         |
|                            | 10                          | 335 - 475                     | ≥ 195                    |             |        | ≥ 24               |        |         |
|                            | 20                          | 410 - 550                     | ≥ 245                    |             |        | ≥ 20               |        |         |

| Standard 标准                | Grade 钢号                    | Chemical Composition 化学成分 (%) |                          |             |        |                    |         |  |
|----------------------------|-----------------------------|-------------------------------|--------------------------|-------------|--------|--------------------|---------|--|
|                            |                             | C                             | Mn                       | Si          | Cr     | Mo                 | P / S   |  |
| GB/T 5310                  | 20G                         | 0.17 - 0.24                   | 0.35 - 0.65              | 0.17 - 0.37 | ≤ 0.25 | ≤ 0.15             | ≤ 0.030 |  |
|                            | 20MnG                       | 0.17 - 0.24                   | 0.70 - 1.00              | 0.17 - 0.37 | ≤ 0.25 | ≤ 0.15             | ≤ 0.030 |  |
| Mechanical Properties 机械性能 | Tensile Strength 抗拉强度 (Mpa) |                               | Yield Strength 屈服点 (Mpa) |             |        | Elongation 伸长率 (%) |         |  |
|                            | 20G                         | 410 - 550                     | ≥ 235                    |             |        | ≥ 24               |         |  |
|                            | 20MnG                       | ≥ 415                         | ≥ 240                    |             |        | ≥ 22               |         |  |

## ▶ 结构及其他用途无缝钢管

STRUCTURAL PIPE AND OTHER USE SEAMLESS PIPE



Application:  
 Widely used in mechanical processing, oil and gas industry, transportation and construction industry.

Standard: GB/T8162-2008  
 Steel Grade: 20#, 35#, 45#, Q345A, Q345B, Q345C  
 Outer Diameter: 3" - 48" (89mm - 1220mm)  
 Wall Thickness: SCH10 - SCH100 (4mm - 40mm)  
 Length: Random Length, Fixed Length, SRL, DRL  
 Process: Hot rolled and hot expanded  
 Test: Chemical Component Analysis, Mechanical Properties (Ultimate tensile strength, Yield strength, Elongation), Technical Properties (Flattening Test, Bending Test, Blow Test, Impact Test, Exterior Size Inspection, Hydrostatic Test, X-ray Test)  
 Third Party Inspection: SGS, BV, Lloyds etc.

## ▶ ERW焊管 ERW WELDED STEEL PIPE



Application:  
 Widely used in mechanical processing, petrochemical, transportation and construction industry

Standard: GB/T3091-2008, API SPEC 5L, ASTM, JIS, DIN, ISO  
 Steel Grade: Q215, Q235, Q345B, A, B, X42, X52, X60(L245-L415), SS400  
 Outer Diameter: 8" - 26" (219MM - 660MM)  
 Wall Thickness: 5.0MM - 20MM  
 Process: Electrical Resistance Weld  
 Length: 3M - 12.2M

## ▶ 螺旋钢管 SPIRAL STEEL PIPE



|                              |                   |   |
|------------------------------|-------------------|---|
| 螺旋钢管<br>Spiral Steel<br>Pipe | 外径 O. D           | 219MM - 2220MM  |
|                              | 壁厚 W.T            | 6MM - 18MM  |
|                              | 标准 Standard       | SY/T5037-2008, GB9711.1, GB9711.2, API 5L   |
|                              | 材质 Material       | Q235B/Q345B/L245/L290/L360/L415/L485/20# API 5L.B/X42/X52/X60/X70   |
|                              | 应用<br>Application | It is widely used in many common fluid engineering such as petroleum, coal gas, natural gas, water pipeline, and heating power. |



螺旋钢管主要质量指标 Spiral Steel Pipe Quality Index:

| 项 目 Item                                | 螺旋钢管 Spiral Steel Pipe   |  |  |
|---|--|--|--|
|   | API Spec 5L  | GB/T9711-1997  | SY/T5037-2000  |
| 管端外径偏差<br>Pipe End & Out Dia. Deviation | +2.38mm<br>-0.79mm   | +2.38mm<br>-0.79mm   | D<508 ±0.75%D or ±2.5<br>取小值 (smaller value)<br>D≥508 ±0.50%D or ±4.5<br>取小值 (smaller value)   |
| 壁厚公差 Wall Thickness Tolerance           | D<508 +15.0%t-12.5%t<br>D≥508 +19.5%t-8.0%t  | D<508 +15.0%t-12.5%t<br>D≥508 +17.5%t-10.0%t   | D<508 ±12.5%t<br>D≥508 ±10.0%t   |
| 焊缝余高 Surplus Height of Seam             | ≤3.18mm  | ≤3.18mm  | t≤12.5 t≤3.2mm<br>t>12.5 t≤4.8mm   |
| 直 度 Straightness                        | ≤0.2%L   | ≤0.2%L   | ≤0.2%L   |
| 管端状态<br>Pipe End Condition              | 坡口角 (Beveled Ends)30° - 35°<br>钝边 (Root Face)1.59±0.79mm<br>切斜 (Beveling)≤1.59mm                                 | 坡口角 (Beveled Ends)30° - 35°<br>钝边 (Root Face)1.59±0.79mm<br>切斜 (Beveling)≤1.59mm   | 坡口角 (Beveled Ends)30° - 35°<br>钝边 (Root Face)1.59±0.79mm<br>切斜 (Beveling)≤1.59mm   |
| 椭圆度<br>Ellipse Degree                   | D>508 ±1.0%D   | D>508 ±1.0%D   | D>508 ±1.0%D   |
| 无损探伤<br>NDT Test                        | 100% X射线或 100% 超声波加<br>管端 X射线检验。(100% X-ray<br>test or ultrasonic test<br>including X-ray test for pipe<br>ends) | 距管端 203mm 以内的焊缝<br>采用射线检验; 距管端<br>203mm 以外的焊缝采用超声<br>波检验; 对头焊缝、补焊及环<br>向焊缝采用超声波检验<br>(Radiological examination<br>is used for seam within<br>203mm from the pipe end,<br>as well as ultrasonic test<br>for the rest part and the<br>same to butt weld /patch<br>weld/circumferential weld<br>seam) | 补焊焊缝、对头焊缝及环向焊<br>缝采用 X射线或超声波检验。<br>对原始焊缝应进行 100% X射<br>线或超声波检验或进行抽查<br>(X-ray test or ultrasonic test<br>is used for patch weld/butt<br>weld/circumferential weld<br>seam; 100% X-ray or<br>ultrasonic test or spot<br>check for primary seam) |

防腐钢管 ANTI-CORROSION STEEL PIPE



Application:

The external coating is mainly used for anti-corrosion protection for liquid pipes before burying, and internal drag-reducing coating is mainly used to reduce the investment and maintenance costs.

External Corrosion Protection for steel pipes:

Single-layer FBE Coating, Two-layer FBE Coating(2FBE), Two-layer PE/PP Coating(2PE/2PP), Three-layer PE/PP Coating(3PE/3PP), Epoxy coal asphalt coatings, Polyurethane heat preservation etc.

Internal Corrosion Protection for Steel Pipes:

IPN8710 high polymer anti-corrosion coatings and cement mortar lining etc.

| 钢管公称直径范围<br>Nominal Diameter<br>Range | 钢管外径尺寸<br>Outside Diameters<br>Rang(mm) | 涂层类别<br>Coating Type                              | 涂层<br>Coating Layer   | 涂层厚度<br>Coating Thickness |
|---------------------------------------|---|---|---|---------------------------|
| DN100-600                             | 114.3-609.6                             | 3PE<br>(三层聚乙烯)<br>Three<br>Layers<br>Polyethylene | 第一层: 环氧粉末(绿色)<br>Inside Layer: Epoxy (Green)<br>中间层: 胶粘剂(白色)<br>Mid Layer: Adhesive (White)<br>最外层: 聚乙烯(黑色)<br>Outside Layer: Polyethylene<br>(Black) | 2.0-4.5mm                 |
|                                       |   | 2PE<br>(两层聚乙烯)<br>Two Layers<br>Polyethylene      | 第一层: 胶粘剂<br>Inside Layer: Adhesive<br>最外层: 聚乙烯<br>Outside Layer: Polythene  |                           |
| DN80-600                              | 88.9-609.6                              | FBE<br>(环氧粉末)<br>Epoxy                            | 环氧粉末 Epoxy  | 200-400um                 |
|                                       |   | 2FBE<br>(双层环氧粉末)<br>Two Layers<br>Epoxy           | 第一层: 环氧粉末(绿色)<br>Inside Layer: Epoxy (Green)<br>最外层: 加强型环氧粉末(灰绿色)<br>Outside layer: Intensity Epoxy<br>(Sage Green)                                   | 400-800um                 |
| DN100-600                             | 114.3-609.6                             | 3PP (三层聚丙烯)<br>Three Layers<br>Polypropylene      | 第一层: 环氧粉末(绿色)<br>Inside Layer: Epoxy(Green)<br>中间层: 胶粘剂(白色)<br>Mid Layer: Adhesive (White)<br>最外层: 聚丙烯(白色)<br>Outside Layer: Polypropylene<br>(White) | 2.5-3mm                   |

3PE/PP防腐层性能 The Properties of Anti-Corrosion Coating 3PE/PP:

| 项目 Item                                | 性能指标 Property in                     |
|--|--------------------------------------|
| 剥离强度 Peel Strength (N/cm)              | ≥60                                  |
| 20±5℃                                  | ≥40                                  |
| 50±5℃                                  |                                      |
| 阴极剥离 Cathodic stripping (mm)(65℃, 48h) | ≤10                                  |
| 冲击强度 Impact strength (J/mm)            | ≥5                                   |
| 抗弯曲 Anti-bending (2.5°)                | 聚乙烯无开裂 Polyethylene without cracking |

3PE/PP厚度 Thickness of 3PE/PP:

| 钢管 Steel pipe | 环氧厚度 Thickness of epoxy(um) | 胶粘剂 Adhesives (um) | 防腐层厚度 Thickness of coating (mm) |     |     |
|---------------|-----------------------------|--------------------|---------------------------------|-----|-----|
| DN≤100        | 60-80                       | 170-250            | 1                               | 2   | 3   |
| 100<DN≤250    |                             |                    | 1.0                             | 1.8 | 2.5 |
| 250<DN≤500    |                             |                    | 1.5                             | 2.0 | 2.5 |
| 500<DN≤800    |                             |                    | 2.0                             | 2.5 | 3.5 |
| DN≥800        |                             |                    | 2.2                             | 3.0 | 3.5 |





中海

钢管

中通四海。

ZHONGHAI STEEL PIPE

SPREAD ALL OVER OF THE WORLD