



**LINCY ENTERPRISE FOR IMPORT AND EXPORT**

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**Technical presentation**



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# Company overview

**LINCY ENTERPRISE FOR IMPORT AND EXPORT** IS A NEWLY ESTABLISHED ENTITY SPECIALIZING IN THE IMPORT AND EXPORT OF MECHANICAL PRODUCTS, PIPING & SYSTEMS, WAREHOUSE HANDLING EQUIPMENT, MACHINERY, VALVES, AND A VARIETY OF INDUSTRIAL GOODS. OUR PRIMARY OBJECTIVE IS TO PROVIDE BUSINESSES AROUND THE GLOBE WITH SUPERIOR INDUSTRIAL SOLUTIONS THAT ENHANCE EFFICIENCY AND OPERATIONAL PRODUCTIVITY.

WE ACKNOWLEDGE THAT DEPENDABLE MACHINERY AND COMPONENTS ARE ESSENTIAL FOR SUCCESSFUL OPERATIONS IN DIVERSE SECTORS. THEREFORE, WE HAVE DEVELOPED A ROBUST NETWORK OF LEADING MANUFACTURERS TO ENSURE THAT OUR CLIENTS RECEIVE HIGH-QUALITY AND INNOVATIVE PRODUCTS TAILORED TO THEIR SPECIFIC REQUIREMENTS.

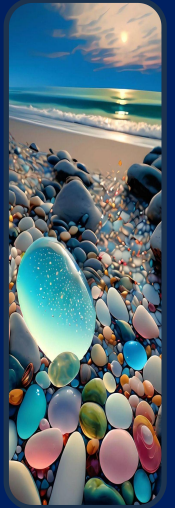
OUR COMPREHENSIVE OFFERINGS INCLUDE:- **\*\*MECHANICAL PRODUCTS:\*\*** A SELECTION OF HIGH-PERFORMANCE MECHANICAL COMPONENTS THAT CATER TO A WIDE RANGE OF INDUSTRIAL APPLICATIONS.

- **\*\*PIPING SYSTEMS:\*\*** DURABLE AND EFFICIENT PIPING SOLUTIONS THAT FULFIL THE DEMANDS OF VARIOUS PROJECTS.
- **\*\*WAREHOUSE HANDLING EQUIPMENT:\*\*** ADVANCED TOOLS DESIGNED TO OPTIMIZE WAREHOUSE OPERATIONS, THEREBY ENSURING EFFECTIVE WORKFLOWS AND HEIGHTENED PRODUCTIVITY.
- **\*\*MACHINERY:\*\*** CUTTING-EDGE MACHINERY THAT IS ENGINEERED TO STREAMLINE PROCESSES AND SIGNIFICANTLY ENHANCE PRODUCTION CAPABILITIES.
- **\*\*VALVES:\*\*** A DIVERSE ARRAY OF VALVES DESIGNED TO PROVIDE PRECISE FLOW CONTROL AND ENSURE SAFETY IN THEIR APPLICATIONS.
- **\*\*INDUSTRIAL PRODUCTS:\*\*** A BROAD ASSORTMENT OF ESSENTIAL EQUIPMENT THAT SUPPORTS MANUFACTURING, CONSTRUCTION, AND OTHER INDUSTRIAL ACTIVITIES.

OUR DEDICATION TO FACILITATING SEAMLESS GLOBAL TRADE POSITIONS US AS A TRUSTED PARTNER IN THE SOURCING OF QUALITY PRODUCTS. WE PRIORITIZE CLIENT SATISFACTION THROUGH TIMELY DELIVERIES, COMPETITIVE PRICING, AND EXCEPTIONAL CUSTOMER SUPPORT.

AS WE EMBARK ON THIS IMPORTANT VENTURE, WE ENCOURAGE PROSPECTIVE CLIENTS AND PARTNERS TO COLLABORATE WITH US IN PURSUIT OF SUCCESS AND GROWTH WITHIN THE GLOBAL MARKETPLACE. EXPERIENCE THE PROFESSIONAL DISTINCTION OF LINCY ENTERPRISE FOR IMPORT AND EXPORT, WHERE QUALITY AND COMMITMENT ALIGN.

# ERW WELDED PIPE



## What Are ERW Pipes

ERW welded steel pipe stands for Electric Resistance Welded welded steel pipe, a type of steel pipe that is manufactured using the ERW process.

ERW welded steel pipes are commonly used in various applications such as oil and gas pipelines, water transmission, structural support, and industrial machinery. They are known for their high strength, excellent weldability, and cost-effectiveness. These pipes are available in various sizes, thicknesses, and grades to suit different requirements and are widely used in the construction and manufacturing industries.

## ASTM A53 GR.B welded carbon erw steel pipe



## ERW Steel Pipe Standards

ASTM A53, ASTM A500, ASTM A795, API 5L, BS1387, BS1139, EN39, EN10219, EN10255, JIS G3444, ISO65 GB/T3091, GB/T13793

## ERW Tube Steel Grade

According to different application environments, choose the appropriate steel grade.

| ASTM A53, ASTM A500, ASTM A795, API 5L | BS1387, BS1139, EN39, EN10219, EN10255 | JIS G3444 | GB/T3091, GB/T13793 |
|--|--|-----------|---------------------|
| Grade A                                | S195                                   | STK290    | Q195                |
| Grade B                                | S235                                   | STK400    | Q235                |
| Grade C                                | S355                                   | STK500    | Q355                |

## ERW Steel Tube Dimensions

**Outside Diameter :** ½ Inch to 273 Inch, Max OD 610mm  
**Length :** 6m with Stock, Customized : 5.5 to 12m (not suitable for small OD), and cut into 1m to 5.5 according to customer requirements

# ERW WELDED PIPE

| ERW Tube Outside Diameter |        |                  | ERW Steel Tubes Thickness |        |                  |                   |                  |
|---------------------------|--------|------------------|---------------------------|--------|------------------|-------------------|------------------|
|                           |        |                  | SCH10                     | SCH40  | Class A<br>light | Class B<br>medium | Class C<br>heavy |
| DN15                      | 1/2"   | 21.3mm           | 2.11mm                    | 2.77mm | 2mm              | 2.6mm             |                  |
| DN20                      | 3/4"   | 26.7mm           | 2.11mm                    | 2.87mm | 2.3mm            | 2.6mm             | 3.2mm            |
| DN25                      | 1"     | 33.4mm           | 2.77mm                    | 3.38mm | 2.6mm            | 3.2mm             | 4mm              |
| DN32                      | 1-1/4" | 42.2mm           | 2.77mm                    | 3.56mm | 2.6mm            | 3.2mm             | 4mm              |
| DN40                      | 1-1/2" | 48.3mm           | 2.77mm                    | 3.68mm | 2.9mm            | 3.2mm             | 4mm              |
| DN50                      | 2"     | 60.3mm           | 2.77mm                    | 3.91mm | 2.9mm            | 3.6mm             | 4.5mm            |
| DN65                      | 2-1/2" | 73mm<br>76mm     | 3.05mm                    | 5.16mm | 3.2mm            | 3.6mm             | 4.5mm            |
| DN80                      | 3"     | 88.9mm           | 3.05mm                    | 5.49mm | 3.2mm            | 4mm               | 5mm              |
| DN90                      | 3-1/2" | 101.6mm          | 3.05mm                    | 5.74mm |                  |                   |                  |
| DN100                     | 4"     | 114.3mm          | 3.05mm                    | 6.02mm | 3.6mm            | 4.5mm             | 5.4mm            |
| DN125                     | 5"     | 141.3mm          | 3.4mm                     | 6.55mm |                  | 5mm               | 5.4mm            |
| DN150                     | 6"     | 168.3mm<br>165mm | 3.4mm                     | 7.11mm |                  | 5mm               | 5.4mm            |
| DN200                     | 8"     | 219.1mm          | 3.76mm                    | 8.18mm |                  |                   |                  |
| DN250                     | 10"    | 273.1mm          | 4.19mm                    | 9.27mm |                  |                   |                  |

# Square & Rectangular Steel Tube

**Square steel pipe** is a type of hollow, square-shaped tube made from steel. It is commonly used in construction, infrastructure, and industrial applications due to its strength, durability, and versatility. These pipes are available in various sizes and thicknesses to suit different applications, and they can be welded, bent, and fabricated to meet specific requirements. The square shape of the pipe provides additional strength and rigidity compared to round pipes, making them suitable for applications where structural integrity is crucial.

**SHS RHS Steel Pipe Material:** Q195 Q235 Q355; S195 S235 S355; Grade A Grade B Grade C; STK400

**Carbon Steel Square Pipe Standards:** GB/T 6728; EN10219; ASTM A500; JIS G3466; ISO65

## Square and Rectangular Steel Pipe Usage

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**Structural support:** Black square steel tube is often used in construction and infrastructure projects to provide structural support for buildings, bridges, and other structures.

**Fencing and railing:** Black steel square tube is used to create fences, railings, and barriers due to their strength and ability to withstand impact and pressure.

**Furniture and decor:** Carbon steel square tube is used in the construction of furniture, such as tables, chairs, and shelving units, as well as in decorative applications such as architectural features and art installations.

**Automotive and machinery:** Carbon steel rectangular tube is used in the manufacturing of automotive components, machinery, and equipment due to their strength and resistance to bending and torsion.

## Steel Raw Material Type



## Low Carbon Steel Pipe

**Material:**Q195 Q235 Steel

**Surface treatment:**Natural black or Painted or Hot dipped galvanized

**MOQ per size:**about 2 tons

| Diameter   |
|--|
| 20*20 to 30*30 20*40 30*40   |
| 40*40 50*50 30*50 25*50 30*60 40*60  |
| 60*60 50*70 40*80  |
| 70*70 to 100*100 60*80 50*80 100*40 120*80   |
| 120*120 to 160*80 100*150 140*80 100*180 200*100   |
| 160*160 to 200*200 200*150 250*150   |
| 250*250 to 350*350 400*200 350*300 250*200 300*200 350*200 350*250 400*250 450*250 400*300 500*200 |
| 280*280 to 400*400 450*300 450*200 400*350 400*250 500*250 500*300 400*600                         |

## Black Carbon Steel Pipes

**Type:** Round, Square and Rectangular

**Advantage:**

- ✓ **High-quality material:**use Q235 or Q355 steel materials to manufacture square and rectangular pipes, ensuring durability, strength, and long-lasting performance.
- ✓ **Precision manufacturing:**advanced production techniques and machinery ensure uniformity in dimensions and a smooth surface finish.
- ✓ **Wide range of sizes:**offers a wide range of sizes for square and rectangular pipes, allowing for versatility in various applications. This enables to find the perfect fit for specific projects requirements.
- ✓ **Reliable brand reputation:**Youfa is a well-established and reputable brand in the steel pipe industry. The products are known for quality, reliability, and adherence to international standards ASTM A500, EN10219, EN10210, JIS G3466 and certifications, such as CE, ISO, BSI, FPC.



## ASTM A500 ERW Section Square Rectangular Steel Tube



|                |                                    |
|----------------|------------------------------------|
| Categories     | Square & Rectangular Steel Tube    |
| Brand          | Youfa Steel Pipe Manufacturer      |
| Size           | 20x20mm - 400x400mm                |
| Wall thickness | 1.3mm - 20mm                       |
| Length         | 6m in stock (or customized)        |
| Material       | Q195, Q235, Q345                   |
| Surface        | black (can be oiled or painted)    |
| Package        | in bundles with export pvc package |

|                     |                                 |
|---------------------|---------------------------------|
| Standard            | ASTM A53 Gr. A, B, C            |
| Production lines    | 10                              |
| Production capacity | 800,000 tons per year           |
| Application         | construction, building material |

# Hot Galvanized Steel Pipe

## Hot Dip Galvanized Steel Pipe

**High zinc coated hot dipped galvanized pipes** are valued for their durability, corrosion resistance, and suitability for outdoor and industrial applications.

A high zinc coated galvanized steel pipe is a type of steel pipe that has been treated with a protective layer of zinc to prevent corrosion. The process of galvanization involves immersing the steel pipe in a bath of molten zinc, which creates a metallurgical bond between the zinc and the steel. This protective zinc coating helps to shield the steel from rust and corrosion, making it suitable for a wide range of applications, particularly those exposed to outdoor or harsh environments.

The high zinc coating provides enhanced protection against the elements, making the galvanized steel pipe a durable and long-lasting option for various uses, including water supply, drainage, gas transmission systems, construction, and manufacturing. The high zinc content in the coating ensures a robust defense against corrosion, making it a reliable choice for applications that require resistance to rust and degradation over time.

### \* Hot Dipped Galvanized Steel Pipe used in Circulation Field:



Civil Natural Gas Steel Pipe  
Steel Grade: Q235. S235. Grade B



Water Delivery Steel Pipe  
Steel Grade: Q235. S235. Grade B



Fire Sprinkler Steel Pipe  
Steel Grade: Q235 Q355. S235  
S355. Grade B



Galvanized Steel Drain Pipe

Steel Grade: Q235. S235. Grade B



Agricultural Irrigation Galvanized Steel Pipe

Steel Grade: Q235. S235. Grade B

**\* Hot Dipped Galvanized Steel Pipe used in Structure Field:**



Solar Structure Steel Pipe

Steel Grade: Q235 Q355.

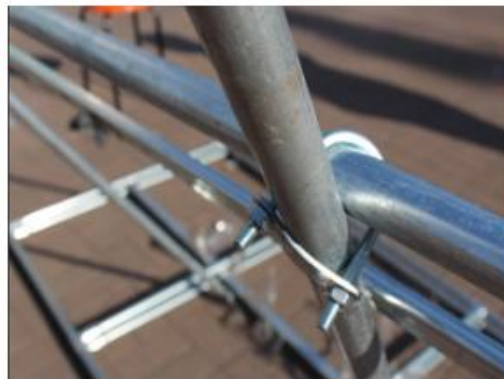
S235 S355



Construction Steel Pipe

Steel Grade: Q235 Q355.

S235 S355



Greenhouse Frame Steel

Pipe

Steel Grade: Q195-Q235.



Scaffolding Steel Pipe

Steel Grade: Q235 Q355.

S235 S355

|                         | <b>Hot Dip Galvanized Steel Pipes</b>  | <b>Pre Galvanized Steel Pipes</b> |
|-------------------------|--|-----------------------------------|
| Zinc Coating Thickness  | 220g/m <sup>2</sup> at average   | 30g/m <sup>2</sup> at average     |
|                         | 30um   | 4um                               |
| Steel Pipe Thickness    | 1.0mm and above  | 0.8mm to 2.2mm                    |
| International Standards | ASTM A53, BS1387, JIS G3444, ISO65, EN10255  | -                                 |
| Pipe Ends               | Plain, Beveled, Threaded, Groove   | Plain, Threaded                   |
| Length                  | 6m YOUFA brand gi pipies with stock, 5.5m to 12m( not suitable for small OD ) online produce | 5.8m or 6m usually                |
|                         | cutting galvanized steel pipe 1m to 5.5m according to PI requirements                        |                                   |

**Hot-dipped galvanized pipes** create an alloy layer by reacting molten metal with the iron matrix, thereby combining the matrix and the coating. The process involves pickling the steel pipe to remove surface iron oxide, followed by rinsing in an aqueous solution of ammonium chloride or zinc chloride, or a mixed solution of ammonium chloride and zinc chloride, before immersion in the hot-dip galvanizing bath. Hot-dip galvanizing has the advantages of uniform coating, strong adhesion, and long service life. The complex physical and chemical reactions between the base of the hot-dip galvanized steel pipe and the molten coating form a tightly structured zinc-iron alloy layer with strong corrosion resistance. Hot dipped galvanized pipes have a wide range of uses, including not only as pipeline pipes for general low-pressure fluids such as water, gas, and oil, but also as oil well pipes and oil transmission pipes for the petroleum industry, especially offshore oil fields, as well as pipes for oil heaters, condensers, coal tar washing oil exchangers in chemical and coking equipment, and for pile pipes in wharves and support frames in mine tunnels.

**Pre-galvanized pipes** have a very small amount of zinc coating, only 20-50g/m<sup>2</sup>, and their corrosion resistance is much lower than that of hot-dip galvanized pipes. Pre-galvanized pipes cannot be used for water and gas pipelines. The zinc layer of pre-galvanized steel pipes is thin and simply adheres to the steel pipe base, making it prone to peeling off, resulting in poor corrosion resistance.

## HOT Dipped Galvanized Steel Pipe

Round Pipe: DN 15 – 200mm

Square Pipe : 15 x 15 – 1000 x 1000mm

Rectangular Pipe: 20 x 40 – 100 x 200mm

Spiral Pipe: 219 – 1420mm

Usage: Delivery of low-pressure liquid such as Water, Gas, Air, or steam for heating and for machine structural purposes



Hot Dipped Galvanized Spiral Welded Steel Pipe



Hot Dipped Galvanized ERW Steel Pipe





# **HOT DIP GALVANIZED SQUARE PIPES**



| Specification         |         | Application   | Chemical Requirement(%) |          |           |         |         |          | Physical Requirement           |                              | Elongation Min(%)      |                      | Flattening Test  | Bend Test   | Hydrostatic & NDT   | Others  |      |   |              |        |    |
|-----------------------|---------|---|-------------------------|----------|-----------|---------|---------|----------|--------------------------------|------------------------------|------------------------|----------------------|--|---|---|---|------|---|--------------|--------|----|
|                       |         |   | C (Max)                 | Si (Max) | Mn (Max)  | P (Max) | S (Max) | Others   | Tensile Strength Min Mpa (Psi) | Yield Strength Min Mpa (Psi) | Longitudinal Direction | Transverse Direction |  |   |   |   |      |   |              |        |    |
| BS EN39               | S235GT  | Scaffolding tube  | 0.2                     | a,b      | 1.4       | 0.04    | 0.045   | 0.020(A) | 340/520                        | 235                          | 24                     | -                    | at 0°C or 90°C to the direction of flattening                                | -   | -   | -   |      |   |              |        |    |
| BS EN10255            | L       | Carbon Steel Pipes For Ordinary Piping  | 0.2                     | -        | 1.4       | 0.035   | 0.03    | -        | 320 - 520MPa                   | 195MPa                       | 20                     | -                    | Larger than DN50 Weld portion: H=0.75D The other side of weld portion H=0.6D | DN 50 and Smaller   | 50Bar or NDT  | Copper sulfate test: 4times ( 1 minute)         |      |   |              |        |    |
|                       | M       |   |                         |          |           |         |         |          |                                |                              |                        |                      |  |   |   |   |      |   |              |        |    |
|                       | H       |   |                         |          |           |         |         |          |                                |                              |                        |                      |  |   |   |   |      |   |              |        |    |
| BS EN10219            | S235JRH | Colded formed hollow section  | 0.17                    | -        | 1.4       | 0.045   | 0.045   | 0.009(N) | 320 - 520Mpa (<3mm)            | 235Mpa (<16mm)               | 24 ≤40mm               | 20 (°C)              | -  | -   | -   | -   |      |   |              |        |    |
|                       | S275J0H |   |                         |          |           |         |         |          | 340 - 470Mpa (>3<40mm)         | 225Mpa (>16<40mm)            |                        |                      |  |   |   |   |      |   |              |        |    |
|                       | S275J2H |   |                         |          |           |         |         |          | 430 - 580Mpa (<3mm)            | 275Mpa (<16mm)               |                        |                      |  |   |   |   |      |   |              |        |    |
|                       | S355J0H |   |                         |          |           |         |         |          | 410 - 560Mpa (>3<40mm)         | 265Mpa (>16<40mm)            |                        |                      |  |   |   |   |      |   |              |        |    |
|                       | S355J2H |   |                         |          |           |         |         |          | 510 - 680Mpa (<3mm)            | 355Mpa (<16mm)               |                        |                      |  |   |   |   |      |   |              |        |    |
| BS1387                | CLASSA  | Carbon Steel Pipe   | 0.2                     | -        | 1.2       | 0.045   | 0.045   | -        | 320 - 460MPa                   | 195MPa                       | 20                     | -                    | ≤DN50 without showing either crack or flaw                                   | ≤DN50 withstand the test without showing any sings of fracture or failure | 50Bar or NDT  | hot dip galvanized steel pipe, threaded if need |      |   |              |        |    |
|                       | CLASSB  |   |                         |          |           |         |         |          |                                |                              |                        |                      |  |   |   |   |      |   |              |        |    |
|                       | CLASSC  |   |                         |          |           |         |         |          |                                |                              |                        |                      |  |   |   |   |      |   |              |        |    |
| BS3059                | 320     | For Boiler  | 0.16                    | 0.35     | 0.30-0.70 | 0.04    | 0.04    | -        | 320 - 480MPa                   | 195MPa                       | 25                     |                      | H=(1+C)t/(C+1/D) : C:0.10  | -   | P=20Sa/ Dor NDT<br>P: Test Pressure(bar)<br>D: Outside diameter (mm)<br>a: specified thickness (mm)<br>S:80% of the specified minimum yield strength (N/mm <sup>2</sup> )     | Drift expanding test<br>full body normalizing   |      |   |              |        |    |
| BS3601                | 320     | Pipes for pressure service  | 0.16                    | -        | 0.30-0.70 | 0.04    | 0.04    | -        | 320 - 460MPa                   | 195MPa                       | 25                     | -                    | H=(1+C)t/(C+1/D) : C:0.10<br>.C.Constant                                     | -   | P=20Sa/ Dor NDT   | Heat treatment on the weld seam area            |      |   |              |        |    |
|                       | 360     |   |                         |          |           |         |         |          |                                |                              |                        |                      |  |   |   |   | 0.35 | - | 360 - 500MPa | 235MPa | 25 |
|                       | 430     |   |                         |          |           |         |         |          |                                |                              |                        |                      |  |   |   |   |      |   |              |        |    |
| BS6323 Part 5 Type KM | ERW1    | Carbon steel pipes for mechanical structural purposes and general structural purposes | 0.13                    | -        | 0.6       | 0.05    | 0.05    | -        | 300Mpa                         | 200Mpa                       | 10                     | D/ts20               | H=0.66D  | -   | 50 Bras or P=20Sa/D<br>P: Test Pressure<br>D: Outside Diameter(mm)<br>a: Specified Thickness(mm)<br>S:60% of the specified minimum yield strength (N/mm <sup>2</sup> ) or NDT | Minimum expansion drift                         |      |   |              |        |    |
|                       | ERW2    |   |                         |          |           |         |         |          | 340Mpa                         | 250Mpa                       | 8                      |                      | H=0.75D  |   |   | Type GKM,GZF                                    |      |   |              |        |    |
|                       | ERW3    |   |                         |          |           |         |         |          | 400Mpa                         | 300Mpa                       | 7                      |                      | H=0.85D  |   |   | Annealing                                       |      |   |              |        |    |
|                       | ERW4    |   |                         |          |           |         |         |          | 450Mpa                         | 350Mpa                       | 6                      |                      | H=0.85D  |   |   | Type NKM,NZF                                    |      |   |              |        |    |
|                       | ERW5    |   |                         |          |           |         |         |          | 500Mpa                         | 420Mpa                       | 6                      |                      | H=0.85D  |   |   | Normalizing                                     |      |   |              |        |    |
| ISO65                 | LII     | Carbon steel tubes for screwing   | 0.2                     | -        | 1.4       | 0.035   | 0.03    | -        | 320 - 520MPa                   | 195MPa                       | 20                     | -                    | -  | -   | 50Bar   | -   |      |   |              |        |    |
|                       | LI      |   |                         |          |           |         |         |          |                                |                              |                        |                      |  |   |   |   |      |   |              |        |    |
|                       | M       |   |                         |          |           |         |         |          |                                |                              |                        |                      |  |   |   |   |      |   |              |        |    |
|                       | H       |   |                         |          |           |         |         |          |                                |                              |                        |                      |  |   |   |   |      |   |              |        |    |

| Specification | Application     | Chemical Requirement(%) |          |                    |         |                    |                                  | Physical Requirement           |                              |                             | Elongation Min(%)      |                      | Flattening Test   | Bend Test   | Hydrostatic & NDT  | Others  |  |                    |
|---------------|-----------------|-------------------------|----------|--------------------|---------|--------------------|----------------------------------|--------------------------------|------------------------------|-----------------------------|------------------------|----------------------|---|---|--|---|--|--------------------|
|               |                 | C (Max)                 | Si (Max) | Mn (Max)           | P (Max) | S (Max)            | Others                           | Tensile Strength Min Mpa (Psi) | Yield Strength Mpa (Psi)     | Min                         | Longitudinal Direction | Transverse Direction |   |   |  |   |  |                    |
| API 5L (PSL1) | Line Pipe       | L175(A25)               | 0.21     | -                  | 0.06    | 0.03               | 0.03                             | -                              | 310Mpa (45000 Psi)           | 175Mpa (25400 Psi)          | 0.03                   | -                    | D<323.9mm ≥12.7mm   | Weld portion; H=3/4D<br>The other side of weld portion:H=3/5D | 2 3/8 and smaller<br>90° X12D  | P=Hydrostatic test pressure(ps)<br>S=Fiber stress, is the hoop stress expressed in megapascals<br>Equal to a percentage of specified min.<br>Yield strength to the various sizes<br>As shown in the tabulation below (psi)<br>T=Specified thickness(inch)<br>D=Outside diameter(inch) and NDT | Heat treatment on the weld seam area<br>Metallographic examination<br>fracture toughness test (PBL2) |                    |
|               |                 | L175P(A25P)             |          |                    |         |                    |                                  |                                | 310Mpa (45000 Psi)           | 175Mpa (25400 Psi)          |                        |                      |   |   |  |   |  |                    |
|               |                 | L210(A)                 | 0.22     |                    | 0.9     | 0.045-0.08         |                                  |                                | 335Mpa (48600 Psi)           | 210Mpa (30500 Psi)          |                        |                      |   |   |  |   |  |                    |
|               |                 | L245(B)                 | 0.26     |                    | 1.2     | 0.03               |                                  |                                | 415Mpa (60200 Psi)           | 245Mpa (35500 Psi)          |                        |                      |   |   |  |   |  |                    |
|               |                 | L290(X42)               |          |                    | 1.3     | 0.03               |                                  |                                | 415Mpa (60200 Psi)           | 290Mpa (42100 Psi)          |                        |                      |   |   |  |   |  |                    |
|               |                 | L320(X46)               |          |                    | 1.4     | 1.4                |                                  |                                | 0.03                         | 435Mpa (63100 Psi)          |                        |                      |   |   |  |   |  | 320Mpa (46400 Psi) |
|               |                 | L360(X52)               |          |                    |         | 1.4                |                                  |                                | 0.03                         | 460Mpa (66700 Psi)          |                        |                      |   |   |  |   |  | 360Mpa (52200 Psi) |
|               |                 | L390(X56)               |          |                    |         | 1.4                |                                  |                                | 0.03                         | 490Mpa (71100 Psi)          |                        |                      |   |   |  |   |  | 390Mpa (56600 Psi) |
|               |                 | L415(X60)               |          |                    |         | 1.45               |                                  |                                | 0.03                         | 520Mpa (75400 Psi)          |                        |                      |   |   |  |   |  | 415Mpa (60200 Psi) |
|               |                 | L450(X65)               |          |                    |         | 1.65               |                                  |                                | 0.03                         | 535Mpa (77600 Psi)          |                        |                      |   |   |  |   |  | 450Mpa (65300 Psi) |
| L485(X70)     | 1.65            | 0.03                    |          | 570Mpa (82700 Psi) |         | 485Mpa (70300 Psi) |                                  |                                |                              |                             |                        |                      |   |   |  |   |  |                    |
| API 5L (PSL1) | Line Pipe       | L245M(BM)               | 0.22     | 0.45               | 0.025   | 0.015              | CE(Pcm) ≤0.25%<br>CE(IIV) ≤0.43% | 415-760Mpa (60200-110200 Psi)  | 245-450Mpa (35500-65300Psi)  | 0.025                       | 0.015                  | D/323.9mm ≥12.7mm    | Weld portion; H=2/3D<br>The other side of weld portion H=1/2D weld ductility test | -   | P=2(f XYs min Xt) D and DNT<br>P=hydrostatic test pressure test pressure in megapascals<br>f=a factor of 0.6 or 0.8, Yp=specified yield strength for the pipebod in megapascals t=specified wall thickness in mm<br>D=Specified outside diameter in mm<br>Factor f | Heat treatment on the weld seam area<br>fracture toughness test   |  |                    |
|               |                 | L290(X42M)              |          |                    |         |                    |                                  | 415-760Mpa (60200-110200 Psi)  | 290-495Mpa (42100-71800Psi)  |                             |                        |                      |   |   |  |   |  |                    |
|               |                 | L320(X46M)              |          |                    |         |                    |                                  | 435-760Mpa (63100-110200 Psi)  | 320-525Mpa (46400-76100Psi)  |                             |                        |                      |   |   |  |   |  |                    |
|               |                 | L360(X52M)              |          |                    |         |                    |                                  | 460-760Mpa (66700-110200 Psi)  | 360-530Mpa (52200-76900Psi)  |                             |                        |                      |   |   |  |   |  |                    |
|               |                 | L390(X56M)              |          |                    |         |                    |                                  | 490-760Mpa (71100-110200 Psi)  | 390-545Mpa (56600-79000Psi)  |                             |                        |                      |   |   |  |   |  |                    |
|               |                 | L415(X60M)              |          |                    |         |                    |                                  | 520-760Mpa (75400-110200 Psi)  | 415-565Mpa (60200-81900Psi)  |                             |                        |                      |   |   |  |   |  |                    |
|               |                 | L450(X65M)              |          |                    |         |                    |                                  | 535-760Mpa (77600-110200 Psi)  | 450-600Mpa (65300-87000Psi)  |                             |                        |                      |   |   |  |   |  |                    |
|               |                 | L485(X70M)              |          |                    |         |                    |                                  | 570-760Mpa (82700-110200 Psi)  | 485-635Mpa (70300-92100Psi)  |                             |                        |                      |   |   |  |   |  |                    |
|               |                 | L555(X80M)              |          |                    |         |                    |                                  | 625-825Mpa (90600-119700 Psi)  | 555-705Mpa (80500-102300Psi) |                             |                        |                      |   |   |  |   |  |                    |
| API 5CT       | Casing & Tubing | J-55                    | -        | -                  | -       | 0.03               | 0.03                             | -                              | 517Mpa (75000 Psi)           | 379-552Mpa (55000-80000Psi) | 0.03                   | -                    | ≥16.065D<br>3.93 TO 16 DX(0.0206Dft)<br><3.93 DX(1.104-0.0518Dft)                 | -   | P=2(f XYs min Xt) D and DNT<br>P=hydrostatic test pressure test pressure in megapascals<br>f=a factor of 0.6 or 0.8, Yp=specified yield strength for the pipebod in megapascals t=specified wall thickness in mm<br>D=Specified outside diameter in mm<br>Factor f | Heat treatment on the weld seam area<br>fracture toughness test   |  |                    |
|               |                 | K-55                    | -        | -                  | -       |                    |                                  |                                | 655Mpa (95000 Psi)           | 379-552Mpa (55000-80000Psi) |                        |                      |   |   |  |   |  |                    |
|               |                 | N-80                    | -        | -                  | -       |                    |                                  |                                | 689Mpa (100000 Psi)          | 552-758Mpa (80000-11000Psi) |                        |                      |   |   |  |   |  |                    |
|               |                 | L-80                    | -        | -                  | -       |                    |                                  |                                | 655Mpa (95000 Psi)           | 552-655Mpa (80000-95000Psi) |                        |                      |   |   |  |   |  |                    |
|               |                 | P-110                   | -        | -                  | -       |                    |                                  |                                | 862Mpa (125000 Psi)          | 758-965Mpa (11000-14000Psi) |                        |                      |   |   |  |   |  |                    |

| Specification       |           | Application   | Chemical Requirement(%) |          |           |         |         | Physical Requirement                  |                                 | Elongation Min(%)             |   | Flattening Test  | Bend Test   | Hydrostatic & NDT   | Others  |
|---------------------|-----------|---|-------------------------|----------|-----------|---------|---------|---------------------------------------|---------------------------------|-------------------------------|---|--|---|---|---|
|                     |           |   | C (Max)                 | Si (Max) | Mn (Max)  | P (Max) | S (Max) | Others                                | Tensile Strength Min(Mpa (Psi)) | Yield Strength Min(Mpa (Psi)) | Longitudinal Direction                              |  |   |   |   |
| ASTM A53            | A         | Carbon steel pipes for ordinary piping                | 0.25                    | —        | 0.95      | 0.05    | 0.045   | Cu, Cr, Ni ≥0.40<br>MO≤0.15<br>V≤0.08 | 330Mpa (48000 Psi)              | 205Mpa (30000 Psi)            |   | For pipe over NPS2<br>Weld portion; H=2/3D<br>The other side of weld portion ;H=1/3D | For pipe NPS 2 and under 90° X12D<br>180° X8D<br>When order for close coiling   | Specified respectively in size and grade (p=2st/d) the minimum pressure NPS3 ≤ P=2,500 Psi<br>NPS> 3P=2,800Psi at least 5SNDT<br>And NDT(NPS2 and over) | ZN coating weight 550 g/m2(min)<br>Heat treatment on the weld seem area (Grade B)                     |
|                     | B         |   | 0.3                     | —        | 1.2       | 0.05    | 0.045   |                                       | 415Mpa (60000 Psi)              | 240Mpa (35000 Psi)            |   |  |   |   |   |
| ASTM A178           | A         | Boiler tube   | 0.06-0.18               | —        | 0.27-0.63 | 0.035   | 0.035   | —                                     | 325Mpa                          | 180Mpa                        | 35  | H=(1+e)t/(e+t/D)<br>e:0.07(C≥0.19)<br>0.09 (C≤0.18)                                  | —   | P=220.6t/ D or NDT<br>P; Hydrostatic test Pressure (Mpa)<br>t; specified wall thickness(mm)<br>D; specified outside Diameter (mm)                       | • Full body normalizing<br>• Flange test<br>• Reverse flattening test<br>• Crush test (When required) |
|                     | C         |   | 0.35                    | —        | 0.8       | 0.035   | 0.035   |                                       | 415Mpa                          | 255Mpa                        | 30  |  |   |   |   |
|                     | D         |   | 0.27                    | 0.1 min  | 1.5       | 0.03    | 0.015   |                                       | 485Mpa                          | 275Mpa                        |   |  |   |   |   |
| ASTM A214           | —         | Heat exchanger & Condenser tube                       | 0.18                    | —        | 0.27-0.63 | 0.035   | 0.035   | —                                     | —                               | —                             | H=(1+e)t/(e+t/D)<br>e:0.07(C≥0.19)<br>0.09 (C≤0.18) | —  | P=220.6t/ D or NDT<br>P; Hydrostatic test Pressure (Mpa)<br>t; specified wall thickness(mm)<br>D; specified outside Diameter (mm) | • Full body normalizing<br>• Flange test<br>• Reverse flattening test<br>• Crush test (When required)   |   |
| ASTM A252           | Grade I   | —   | —                       | —        | —         | —       | 0.05    | —                                     | 345Mpa (50000 Psi)              | 205Mpa (30000 Psi)            | 30<br>(E=48t-15.00), t=(inch)                       | —  | —   | —   |   |
|                     | Grade II  |   |                         |          |           |         |         |                                       | 415Mpa (60000 Psi)              | 240Mpa (35000 Psi)            | 25<br>(E=40t-12.50), t=(inch)                       |  |   |   |   |
|                     | Grade III |   |                         |          |           |         |         |                                       | 455Mpa (66000 Psi)              | 310Mpa (45000 Psi)            | 20<br>(E=32t-10.00), t=(inch)                       |  |   |   |   |
| ASTM A500           | A         | Structural carbon steel pipes in round                | 0.30                    | —        | 1.40      | 0.045   | 0.045   | Cu≥0.20 when required                 | 310Mpa (45000 Psi)              | 230Mpa (33000 Psi)            | 25  | H=(1+e)t/(e+t/d)<br>A; e=0.09<br>B; e=0.07<br>C; e=0.06                              | —   | —   | If necessary, stress relieved and annealed  |
|                     | B         |   | 0.30                    | —        | 1.40      | 0.045   | 0.045   |                                       | 400Mpa (58000 Psi)              | 290Mpa (42000 Psi)            | 23  |  |   |   |   |
|                     | C         |   | 0.27                    | —        | 1.40      | 0.045   | 0.045   |                                       | 425Mpa (62000 Psi)              | 315Mpa (46000 Psi)            | 21  |  |   |   |   |
|                     | D         |   | 0.30                    | —        | 1.40      | 0.045   | 0.045   |                                       | 400Mpa (58000 Psi)              | 250Mpa (36000 Psi)            | 23  |  |   |   |   |
|                     | A         | Structural carbon steel pipes in square & rectangular | 0.30                    | —        | 1.40      | 0.045   | 0.045   | Cu≥0.20 when required                 | 310Mpa (45000 Psi)              | 270Mpa (39000 Psi)            | 25  | —  | —   | —   |   |
|                     | B         |   | 0.30                    | —        | 1.40      | 0.045   | 0.045   |                                       | 400Mpa (58000 Psi)              | 315Mpa (46000 Psi)            | 23  |  |   |   |   |
|                     | C         |   | 0.27                    | —        | 1.40      | 0.045   | 0.045   |                                       | 425Mpa (62000 Psi)              | 345Mpa (50000 Psi)            | 21  |  |   |   |   |
|                     | D         |   | 0.30                    | —        | 1.40      | 0.045   | 0.045   |                                       | 400Mpa (58000 Psi)              | 250Mpa (36000 Psi)            | 23  |  |   |   |   |
| ASTM A589 (TYPE IV) | A         | WATER-WELL PIPING PIPE                                | —                       | —        | —         | 0.05    | 0.06    | —                                     | 330Mpa (48000 Psi)              | 205Mpa (30000 Psi)            |   | —  | In accordance with the specified hydrostatic pressure   | ZN Coating weight 550 g/m2(min)   |   |
|                     | B         |   | —                       | —        | —         | 0.05    | 0.06    |                                       | 415Mpa (60000 Psi)              | 240Mpa (35000 Psi)            |   |  |   |   |   |
| ASTM A795           | A         | Carbon steel pipes for fire protection use            | 0.25                    | —        | 0.95      | 0.035   | 0.035   | —                                     | —                               | —                             | —   | Weld portion; H=2/3D<br>The other side of weld Portion; h=1/3d                       | —   | In accordance with the specified hydrostatic pressure or NDT  | ZN Coating weight 460 g/m2(min)   |
|                     | B         |   | 0.30                    | —        | 1.20      | 0.035   | 0.035   |                                       |                                 |                               |   |  |   |   |   |

## BS EN 10255 Steel Tubes and Tubular Suitable for Screwing to BS EN 10226 Pipe Threads

| Series | Nominal Size |       | Outside Diameter |       |       |       | Wall Thickness |       | Mass of Black Tube |       |       |                      |       |       |       |
|--------|--------------|-------|------------------|-------|-------|-------|----------------|-------|--------------------|-------|-------|----------------------|-------|-------|-------|
|        |              |       | Max              |       | Min   |       |                |       | Plain End          |       |       | Screwed and Socketed |       |       |       |
|        |              |       | -                | DN    | in    | mm    |                |       | in                 | mm    | in    | mm                   | lb/ft | kg/ft | kg/m  |
| L      | 1/2          | 15    | 0.854            | 21.7  | 0.827 | 21.0  | 0.091          | 2.3   | 0.726              | 0.329 | 1.08  | 0.732                | 0.332 | 1.09  |       |
|        | 3/4          | 20    | 1.067            | 27.1  | 1.039 | 26.4  | 0.091          | 2.3   | 0.941              | 0.427 | 1.4   | 0.947                | 0.430 | 1.41  |       |
|        | 1            | 25    | 1.339            | 34.0  | 1.307 | 33.2  | 0.114          | 2.9   | 1.478              | 0.671 | 2.2   | 1.492                | 0.677 | 2.22  |       |
|        | 1 1/4        | 32    | 1.681            | 42.7  | 1.650 | 41.9  | 0.114          | 2.9   | 1.895              | 0.860 | 2.82  | 1.915                | 0.869 | 2.85  |       |
|        | 1 1/2        | 40    | 1.913            | 48.6  | 1.882 | 47.8  | 0.114          | 2.9   | 2.184              | 0.991 | 3.25  | 2.211                | 1.003 | 3.29  |       |
|        | 2            | 50    | 2.390            | 60.7  | 2.346 | 59.6  | 0.126          | 3.2   | 3.031              | 1.375 | 4.51  | 3.078                | 1.396 | 4.58  |       |
|        | 2 1/2        | 65    | 2.992            | 76.0  | 2.961 | 75.2  | 0.126          | 3.2   | 3.864              | 1.753 | 5.75  | 3.944                | 1.789 | 5.87  |       |
|        | 3            | 80    | 3.492            | 88.7  | 3.461 | 87.9  | 0.126          | 3.2   | 4.543              | 2.060 | 6.76  | 4.657                | 2.112 | 6.93  |       |
|        | 3 1/2        | 90    | 3.984            | 101.2 | 3.949 | 100.3 | 0.142          | 3.6   | 5.846              | 2.652 | 8.7   | 5.967                | 2.707 | 8.88  |       |
|        | 4            | 100   | 4.484            | 113.9 | 4.449 | 113.0 | 0.142          | 3.6   | 6.605              | 2.996 | 9.83  | 6.787                | 3.078 | 10.1  |       |
|        | 5            | 125   | 5.543            | 140.8 | 5.453 | 138.5 | 0.117          | 4.5   | 10.080             | 4.572 | 15    | 10.416               | 4.724 | 15.5  |       |
|        | 6            | 150   | 6.555            | 166.5 | 6.453 | 163.9 | 0.117          | 4.5   | 11.961             | 5.425 | 17.8  | 12.364               | 5.608 | 18.4  |       |
| L1     | 1/2          | 15    | 0.854            | 21.7  | 0.827 | 21.0  | 0.091          | 2.3   | 0.726              | 0.329 | 1.08  | 0.732                | 0.332 | 1.09  |       |
|        | 3/4          | 20    | 1.067            | 27.1  | 1.039 | 26.4  | 0.091          | 2.3   | 0.934              | 0.424 | 1.39  | 0.941                | 0.427 | 1.4   |       |
|        | 1            | 25    | 1.339            | 34.0  | 1.307 | 33.2  | 0.114          | 2.9   | 1.478              | 0.671 | 2.2   | 1.492                | 0.677 | 2.22  |       |
|        | 1 1/4        | 32    | 1.681            | 42.7  | 1.650 | 41.9  | 0.114          | 2.9   | 1.895              | 0.860 | 2.82  | 1.915                | 0.869 | 2.85  |       |
|        | 1 1/2        | 40    | 1.913            | 48.6  | 1.882 | 47.8  | 0.114          | 2.9   | 2.177              | 0.988 | 3.24  | 2.204                | 1.000 | 3.28  |       |
|        | 2            | 50    | 2.390            | 60.7  | 2.346 | 59.6  | 0.126          | 3.2   | 3.017              | 1.369 | 4.49  | 3.064                | 1.390 | 4.56  |       |
|        | 2 1/2        | 65    | 3.004            | 76.3  | 2.961 | 75.2  | 0.126          | 3.2   | 3.850              | 1.747 | 5.73  | 3.931                | 1.783 | 5.85  |       |
|        | 3            | 80    | 3.520            | 89.4  | 3.461 | 87.9  | 0.142          | 3.6   | 5.073              | 2.301 | 7.55  | 5.188                | 2.353 | 7.72  |       |
| 4      | 100          | 4.524 | 114.9            | 4.449 | 113.0 | 0.157 | 4.0            | 7.257 | 3.292              | 10.8  | 7.459 | 3.383                | 11.1  |       |       |
| L2     | 1/2          | 15    | 0.843            | 21.4  | 0.827 | 21.0  | 0.079          | 2.0   | 0.636              | 0.289 | 0.947 | 0.642                | 0.291 | 0.956 |       |
|        | 3/4          | 20    | 1.059            | 26.9  | 1.039 | 26.4  | 0.091          | 2.3   | 0.927              | 0.421 | 1.38  | 0.934                | 0.424 | 1.39  |       |
|        | 1            | 25    | 1.331            | 33.8  | 1.307 | 33.2  | 0.102          | 2.6   | 1.331              | 0.604 | 1.98  | 1.344                | 0.610 | 2     |       |
|        | 1 1/4        | 32    | 1.673            | 42.5  | 1.650 | 41.9  | 0.102          | 2.6   | 1.707              | 0.774 | 2.54  | 1.727                | 0.783 | 2.57  |       |
|        | 1 1/2        | 40    | 1.906            | 48.4  | 1.882 | 47.8  | 0.114          | 2.9   | 2.170              | 0.985 | 3.23  | 2.197                | 0.997 | 3.27  |       |
|        | 2            | 50    | 2.370            | 60.2  | 2.346 | 59.6  | 0.114          | 2.9   | 2.742              | 1.244 | 4.08  | 2.789                | 1.265 | 4.15  |       |
|        | 2 1/2        | 65    | 2.992            | 76.0  | 2.961 | 75.2  | 0.126          | 3.2   | 3.837              | 1.740 | 5.71  | 3.918                | 1.777 | 5.83  |       |
|        | 3            | 80    | 3.492            | 88.7  | 3.461 | 87.9  | 0.126          | 3.2   | 4.516              | 2.048 | 6.72  | 4.630                | 2.100 | 6.89  |       |
|        | 4            | 100   | 4.484            | 113.9 | 4.449 | 113.0 | 0.142          | 3.6   | 6.552              | 2.972 | 9.75  | 6.720                | 3.048 | 10    |       |
|        | 1/2          | 15    | 0.858            | 21.8  | 0.827 | 21.0  | 0.126          | 3.2   | 0.968              | 0.439 | 1.44  | 0.974                | 0.442 | 1.45  |       |
| H      | 3/4          | 20    | 1.075            | 27.3  | 1.043 | 26.5  | 0.126          | 3.2   | 1.257              | 0.570 | 1.87  | 1.263                | 0.573 | 1.88  |       |
|        | 1            | 25    | 1.346            | 34.2  | 1.311 | 33.3  | 0.157          | 4.0   | 1.969              | 0.893 | 2.93  | 1.982                | 0.899 | 2.95  |       |
|        | 1 1/4        | 32    | 1.689            | 42.9  | 1.654 | 42.0  | 0.157          | 4.0   | 2.547              | 1.155 | 3.79  | 2.567                | 1.164 | 3.82  |       |
|        | 1 1/2        | 40    | 1.921            | 48.8  | 1.886 | 47.9  | 0.157          | 4.0   | 2.937              | 1.332 | 4.37  | 2.963                | 1.344 | 4.41  |       |
|        | 2            | 50    | 2.394            | 60.8  | 2.350 | 59.7  | 0.177          | 4.5   | 4.159              | 1.887 | 6.19  | 4.207                | 1.908 | 6.26  |       |
|        | 2 1/2        | 65    | 3.016            | 76.6  | 2.965 | 75.3  | 0.177          | 4.5   | 5.329              | 2.417 | 7.93  | 5.409                | 2.454 | 8.05  |       |
|        | 3            | 80    | 3.524            | 89.5  | 3.465 | 88.0  | 0.197          | 5.0   | 6.921              | 3.139 | 10.3  | 7.056                | 3.200 | 10.5  |       |
|        | 4            | 100   | 4.528            | 115.0 | 4.453 | 113.1 | 0.213          | 5.4   | 9.744              | 4.420 | 14.5  | 9.945                | 4.511 | 14.8  |       |
|        | 5            | 125   | 5.543            | 140.8 | 5.453 | 138.5 | 0.213          | 5.4   | 12.028             | 5.456 | 17.9  | 12.364               | 5.608 | 18.4  |       |
|        | 6            | 150   | 6.555            | 166.5 | 6.453 | 163.9 | 0.213          | 5.4   | 14.313             | 6.492 | 21.3  | 14.716               | 6.675 | 21.9  |       |
|        | M            | 1/2   | 15               | 0.858 | 21.8  | 0.827 | 21.0           | 0.102 | 2.6                | 0.813 | 0.369 | 1.21                 | 0.820 | 0.372 | 1.22  |
|        |              | 3/4   | 20               | 1.075 | 27.3  | 1.043 | 26.5           | 0.102 | 2.6                | 1.048 | 0.475 | 1.56                 | 1.055 | 0.479 | 1.57  |
| 1      |              | 25    | 1.346            | 34.2  | 1.311 | 33.3  | 0.126          | 3.2   | 1.619              | 0.735 | 2.41  | 1.633                | 0.741 | 2.43  |       |
| 1 1/4  |              | 32    | 1.689            | 42.9  | 1.654 | 42.0  | 0.126          | 3.2   | 2.083              | 0.945 | 3.1   | 2.103                | 0.954 | 3.13  |       |
| 1 1/2  |              | 40    | 1.921            | 48.8  | 1.886 | 47.9  | 0.126          | 3.2   | 2.392              | 1.085 | 3.56  | 2.419                | 1.097 | 3.6   |       |
| 2      |              | 50    | 2.394            | 60.8  | 2.350 | 59.7  | 0.142          | 3.6   | 3.380              | 1.533 | 5.03  | 3.427                | 1.554 | 5.1   |       |
| 2 1/2  |              | 65    | 3.016            | 76.6  | 2.965 | 75.3  | 0.142          | 3.6   | 4.314              | 1.957 | 6.42  | 4.395                | 1.993 | 6.54  |       |
| 3      |              | 80    | 3.524            | 89.5  | 3.465 | 88.0  | 0.157          | 4.0   | 5.618              | 2.548 | 8.36  | 5.732                | 2.600 | 8.53  |       |
| 4      |              | 100   | 4.528            | 115.0 | 4.453 | 113.1 | 0.177          | 4.5   | 8.198              | 3.179 | 12.2  | 8.400                | 3.810 | 12.5  |       |
| 5      |              | 125   | 5.543            | 140.8 | 5.453 | 138.5 | 0.197          | 5.0   | 11.155             | 5.060 | 16.6  | 11.491               | 5.212 | 17.1  |       |
| 6      |              | 150   | 6.555            | 166.5 | 6.453 | 163.9 | 0.197          | 5.0   | 13.305             | 6.035 | 19.8  | 13.703               | 6.218 | 20.4  |       |
| Heavy  |              | 1/2   | 15               | 0.856 | 21.7  | 0.831 | 21.1           | 0.126 | 3.2                | 0.968 | 0.439 | 1.44                 | 0.983 | 0.446 | 1.45  |
|        |              | 3/4   | 20               | 1.072 | 27.2  | 1.047 | 26.6           | 0.126 | 3.2                | 1.260 | 0.570 | 1.87                 | 1.280 | 0.581 | 1.88  |
|        |              | 1     | 25               | 1.346 | 34.2  | 1.316 | 33.4           | 0.157 | 4.0                | 1.980 | 0.896 | 2.94                 | 2.010 | 0.912 | 2.96  |
|        | 1 1/4        | 32    | 1.687            | 42.9  | 1.657 | 42.1  | 0.157          | 4.0   | 2.550              | 1.160 | 3.8   | 2.600                | 1.180 | 3.83  |       |
|        | 1 1/2        | 40    | 1.919            | 48.8  | 1.889 | 48.0  | 0.157          | 4.0   | 2.940              | 1.340 | 4.38  | 3.010                | 1.370 | 4.42  |       |
|        | 2            | 50    | 2.394            | 60.8  | 2.354 | 59.8  | 0.142          | 3.6   | 4.320              | 1.960 | 6.43  | 4.460                | 2.020 | 6.55  |       |
|        | 2 1/2        | 65    | 3.014            | 76.6  | 2.969 | 75.4  | 0.142          | 3.6   | 4.320              | 1.960 | 6.43  | 4.460                | 2.020 | 6.55  |       |
|        | 3            | 80    | 3.524            | 89.5  | 3.469 | 88.1  | 0.157          | 4.0   | 5.620              | 2.550 | 8.37  | 5.800                | 2.630 | 8.54  |       |
|        | 4            | 100   | 4.524            | 114.9 | 4.459 | 113.3 | 0.177          | 4.5   | 8.200              | 3.720 | 12.2  | 8.340                | 3.780 | 12.5  |       |
|        | 5            | 125   | 5.534            | 140.6 | 5.549 | 138.7 | 0.196          | 5.0   | 11.15              | 5.060 | 16.6  | 11.20                | 5.080 | 17.1  |       |
|        | 6            | 150   | 6.539            | 166.1 | 6.459 | 164.1 | 0.196          | 5.0   | 13.24              | 6.000 | 19.7  | 13.30                | 6.030 | 20.3  |       |
|        | Light        | 1/2   | 15               | 0.841 | 21.4  | 0.825 | 21.0           | 0.080 | 2.0                | 0.636 | 0.289 | 0.947                | 0.646 | 0.293 | 0.956 |
|        |              | 3/4   | 20               | 1.059 | 26.9  | 1.041 | 26.4           | 0.090 | 2.3                | 0.927 | 0.421 | 1.38                 | 0.954 | 0.433 | 1.39  |
|        |              | 1     | 25               | 1.328 | 33.8  | 1.309 | 33.2           | 0.104 | 2.6                | 1.330 | 0.604 | 1.98                 | 1.360 | 0.617 | 2     |
| 1 1/4  |              | 32    | 1.670            | 42.5  | 1.650 | 41.9  | 0.104          | 2.6   | 1.710              | 0.774 | 2.54  | 1.750                | 0.794 | 2.57  |       |
| 1 1/2  |              | 40    | 1.903            | 48.4  | 1.882 | 47.8  | 0.116          | 2.9   | 2.170              | 0.985 | 3.23  | 2.220                | 1.010 | 3.27  |       |
| 2      |              | 50    | 2.370            | 60.2  | 2.347 | 59.6  | 0.116          | 2.9   | 2.740              | 1.240 | 4.08  | 2.810                | 1.270 | 4.15  |       |
| 2 1/2  |              | 65    | 2.991            | 76.0  | 2.960 | 75.2  | 0.126          | 3.2   | 3.840              | 1.740 | 5.71  | 3.980                | 1.810 | 5.83  |       |
| 3      |              | 80    | 3.491            | 88.7  | 3.460 | 87.9  | 0.126          | 3.2   | 4.520              | 2.050 | 6.72  | 4.490                | 2.130 | 6.89  |       |
| Medium | 4            | 100   | 4.481            | 113.9 | 4.450 | 113.0 | 0.142          | 3.6   | 6.550              | 2.970 | 9.75  | 6.840                | 3.100 | 10    |       |
|        | 1/2          | 15    | 0.586            | 21.7  | 0.831 | 21.1  | 0.104          | 2.6   | 0.813              | 0.369 | 1.21  | 0.828                | 0.376 | 1.22  |       |
|        | 3/4          | 20    | 1.072            | 27.2  | 1.047 | 26.6  | 0.104          | 2.6   | 1.050              | 0.475 | 1.56  | 1.070                | 0.485 | 1.57  |       |
|        | 1            | 25    | 1.346            | 34.2  | 1.316 | 33.4  | 0.126          | 3.2   | 1.620              | 0.735 | 2.41  | 1.650                | 0.748 | 2.43  |       |
|        | 1 1/4        | 32    | 1.687            | 42.9  | 1.657 | 42.1  | 0.126          | 3.2   | 2.080              | 0.945 | 3.1   | 2.130                | 0.966 | 3.13  |       |
|        | 1 1/2        | 40    | 1.919            | 48.8  | 1.889 | 48.0  | 0.126          | 3.2   | 2.400              | 1.090 | 3.57  | 2.460                | 1.120 | 3.61  |       |
|        | 2            | 50    | 2.394            | 60.8  | 2.354 | 59.8  | 0.142          | 3.6   | 3.380              | 1.530 | 5.03  | 3.470                | 1.570 | 5.1   |       |
|        | 2 1/2        | 65    | 3.014            | 76.6  | 2.969 | 75.4  | 0.142          | 3.6   | 4.320              | 1.960 | 6.43  | 4.460                | 2.020 | 6.55  |       |
|        | 3            | 80    | 3.524            | 89.5  | 3.469 | 88.1  | 0.157          | 4.0   | 5.620              | 2.550 | 8.37  | 5.800                | 2.630 | 8.54  |       |
|        | 4            | 100   | 4.524            | 114.9 | 4.459 | 113.3 | 0.177          | 4.5   | 8.200              | 3.720 | 12.2  | 8.340                | 3.780 | 12.5  |       |
|        | 5            | 125   | 5.534            | 140.6 | 5.549 | 138.7 | 0.196          | 5.0   | 11.15              | 5.060 | 16.6  | 11.20                | 5.080 | 17.1  |       |
|        | 6            | 150   | 6.539            | 166.1 | 6.459 | 164.1 | 0.196          | 5.0   | 13.24              | 6.000 | 19.7  | 13.30                | 6.030 | 20.3  |       |
|        | Heavy        | 1/2   | 15               | 0.856 | 21.7  | 0.831 | 21.1           | 0.126 | 3.2                | 0.968 | 0.439 | 1.44                 | 0.983 | 0.446 | 1.45  |
|        |              | 3/4   | 20               | 1.072 | 27.2  | 1.047 | 26.6           | 0.126 | 3.2                | 1.260 | 0.570 | 1.87                 | 1.280 | 0.581 | 1.88  |
| 1      |              | 25    | 1.346            | 34.2  | 1.316 | 33.4  | 0.157          | 4.0   | 1.980              | 0.896 | 2.94  | 2.010                | 0.912 | 2.96  |       |
| 1 1/4  |              | 32    | 1.687            | 42.9  | 1.657 | 42.1  | 0.157          | 4.0   | 2.550              | 1.160 | 3.8   | 2.600                | 1.180 | 3.83  |       |
| 1 1/2  |              | 40    | 1.919            | 48.8  | 1.889 | 48.0  | 0.157          | 4.0   | 2.940              | 1.340 | 4.38  | 3.010                | 1.370 | 4.42  |       |
| 2      |              | 50    | 2.394            | 60.8  | 2.354 | 59.8  | 0.177          | 4.5   | 4.160              | 1.890 | 6.19  | 4.190                | 1.900 | 6.26  |       |

# Round Steel Pipe as per EN 10219/2001

# Round Steel Pipe as per EN 10219/2001

| Specified side diameter | Specified thickness | Mass per unit length | Cross-sectional area | Second moment of area | Radius of gyration | Elastic section modulus | Plastic section modulus | Torsional inertia constant | Torsional modulus constant | Superficial area per metre length | Nominal length per tonne |
|-------------------------|---------------------|----------------------|----------------------|-----------------------|--------------------|-------------------------|-------------------------|----------------------------|----------------------------|-----------------------------------|--------------------------|
| D                       | T                   | M                    | A                    | I                     | i                  | W <sub>el</sub>         | W <sub>pl</sub>         | I <sub>t</sub>             | C <sub>t</sub>             | A <sub>s</sub>                    | m                        |
| mm                      | mm                  | kg/m                 | cm <sup>2</sup>      | cm <sup>4</sup>       | cm                 | cm <sup>3</sup>         | cm <sup>3</sup>         | cm <sup>4</sup>            | cm <sup>3</sup>            | m <sup>2</sup> /m                 | m                        |
| 21.3                    | 2                   | 0.95                 | 1.21                 | 0.571                 | 0.686              | 0.536                   | 0.748                   | 1.14                       | 1.07                       | 0.067                             | 1050                     |
| 21.3                    | 2.5                 | 1.16                 | 1.48                 | 0.664                 | 0.671              | 0.623                   | 0.889                   | 1.33                       | 1.25                       | 0.067                             | 863                      |
| 21.3                    | 3                   | 1.35                 | 1.72                 | 0.741                 | 0.656              | 0.696                   | 1.01                    | 1.48                       | 1.39                       | 0.067                             | 739                      |
| 26.9                    | 2                   | 1.23                 | 1.56                 | 1.22                  | 0.883              | 0.907                   | 1.24                    | 2.44                       | 1.81                       | 0.085                             | 814                      |
| 26.9                    | 2.5                 | 1.5                  | 1.92                 | 1.44                  | 0.867              | 1.07                    | 1.49                    | 2.88                       | 2.14                       | 0.085                             | 685                      |
| 26.9                    | 3                   | 1.77                 | 2.25                 | 1.63                  | 0.852              | 1.21                    | 1.72                    | 3.27                       | 2.43                       | 0.085                             | 566                      |
| 33.7                    | 2                   | 1.56                 | 1.99                 | 2.51                  | 1.12               | 1.49                    | 2.01                    | 5.02                       | 2.98                       | 0.106                             | 640                      |
| 33.7                    | 2.5                 | 1.92                 | 2.45                 | 3                     | 1.11               | 1.78                    | 2.44                    | 6                          | 3.56                       | 0.106                             | 520                      |
| 33.7                    | 3                   | 2.27                 | 2.89                 | 3.44                  | 1.09               | 2.04                    | 2.84                    | 6.88                       | 4.08                       | 0.106                             | 440                      |
| 42.4                    | 2                   | 1.99                 | 2.54                 | 5.19                  | 1.43               | 2.45                    | 3.27                    | 10.4                       | 4.9                        | 0.133                             | 502                      |
| 42.4                    | 2.5                 | 2.46                 | 3.13                 | 6.26                  | 1.41               | 2.95                    | 3.99                    | 12.5                       | 5.91                       | 0.133                             | 407                      |
| 42.4                    | 3                   | 2.91                 | 3.71                 | 7.25                  | 1.4                | 3.42                    | 4.67                    | 14.5                       | 6.84                       | 0.133                             | 343                      |
| 42.4                    | 4                   | 3.79                 | 4.83                 | 8.99                  | 1.36               | 4.24                    | 5.92                    | 18                         | 8.48                       | 0.133                             | 264                      |
| 48.3                    | 2                   | 2.28                 | 2.91                 | 7.81                  | 1.64               | 3.23                    | 4.29                    | 15.6                       | 6.47                       | 0.152                             | 438                      |
| 48.3                    | 2.5                 | 2.82                 | 3.6                  | 9.46                  | 1.62               | 3.92                    | 5.25                    | 18.9                       | 7.83                       | 0.152                             | 354                      |
| 48.3                    | 3                   | 3.35                 | 4.27                 | 11                    | 1.61               | 4.55                    | 6.17                    | 22                         | 9.11                       | 0.152                             | 298                      |
| 48.3                    | 4                   | 4.37                 | 5.57                 | 13.8                  | 1.57               | 5.7                     | 7.87                    | 27.5                       | 11.4                       | 0.152                             | 229                      |
| 48.3                    | 5                   | 5.34                 | 6.8                  | 16.2                  | 1.54               | 6.69                    | 9.42                    | 32.3                       | 13.4                       | 0.152                             | 187                      |
| 60.3                    | 2                   | 2.88                 | 3.66                 | 15.6                  | 2.06               | 5.17                    | 6.8                     | 31.2                       | 10.3                       | 0.189                             | 348                      |
| 60.3                    | 2.5                 | 3.56                 | 4.54                 | 19                    | 2.05               | 6.3                     | 8.36                    | 38                         | 12.6                       | 0.189                             | 281                      |
| 60.3                    | 3                   | 4.24                 | 5.4                  | 22.2                  | 2.03               | 7.37                    | 9.86                    | 44.4                       | 14.7                       | 0.189                             | 236                      |
| 60.3                    | 4                   | 5.55                 | 7.07                 | 28.2                  | 2                  | 9.34                    | 12.7                    | 56.3                       | 18.7                       | 0.189                             | 180                      |
| 60.3                    | 5                   | 6.82                 | 8.69                 | 33.5                  | 1.96               | 11.1                    | 15.3                    | 67                         | 22.2                       | 0.189                             | 147                      |
| 76.1                    | 2                   | 3.65                 | 4.66                 | 32                    | 2.62               | 8.4                     | 11                      | 64                         | 16.8                       | 0.239                             | 274                      |
| 76.1                    | 2.5                 | 4.54                 | 5.78                 | 39.2                  | 2.6                | 10.3                    | 13.5                    | 78.4                       | 20.6                       | 0.239                             | 220                      |
| 76.1                    | 3                   | 5.41                 | 6.89                 | 46.1                  | 2.59               | 12.1                    | 16                      | 92.2                       | 24.2                       | 0.239                             | 185                      |
| 76.1                    | 4                   | 7.11                 | 9.06                 | 59.1                  | 2.55               | 15.5                    | 20.8                    | 118                        | 31                         | 0.239                             | 141                      |
| 76.1                    | 5                   | 8.77                 | 11.2                 | 70.9                  | 2.52               | 18.6                    | 25.3                    | 142                        | 37.3                       | 0.239                             | 114                      |
| 76.1                    | 6                   | 10.4                 | 13.2                 | 81.8                  | 2.49               | 21.5                    | 29.6                    | 164                        | 43                         | 0.239                             | 96.4                     |
| 76.1                    | 6.3                 | 10.8                 | 13.8                 | 84.8                  | 2.48               | 22.3                    | 30.8                    | 170                        | 44.6                       | 0.239                             | 92.2                     |
| 88.9                    | 2                   | 4.29                 | 5.46                 | 51.6                  | 3.07               | 11.6                    | 15.1                    | 103                        | 23.2                       | 0.279                             | 233                      |
| 88.9                    | 2.5                 | 5.33                 | 6.79                 | 63.4                  | 3.06               | 14.3                    | 18.7                    | 127                        | 28.5                       | 0.279                             | 188                      |
| 88.9                    | 3                   | 6.36                 | 8.1                  | 74.8                  | 3.04               | 16.8                    | 22.1                    | 150                        | 33.6                       | 0.279                             | 157                      |
| 88.9                    | 4                   | 8.38                 | 10.7                 | 96.3                  | 3                  | 21.7                    | 28.9                    | 193                        | 43.3                       | 0.279                             | 119                      |
| 88.9                    | 5                   | 10.3                 | 13.2                 | 116                   | 2.97               | 26.2                    | 35.2                    | 233                        | 52.4                       | 0.279                             | 96.7                     |
| 88.9                    | 6                   | 12.3                 | 15.6                 | 135                   | 2.94               | 30.4                    | 41.3                    | 270                        | 60.7                       | 0.279                             | 81.5                     |
| 88.9                    | 6.3                 | 12.8                 | 16.3                 | 140                   | 2.93               | 31.5                    | 43.1                    | 280                        | 63.1                       | 0.279                             | 77.9                     |
| 101.6                   | 2                   | 4.91                 | 6.26                 | 77.6                  | 3.52               | 15.3                    | 19.8                    | 155                        | 30.6                       | 0.319                             | 204                      |
| 101.6                   | 2.5                 | 6.11                 | 7.78                 | 95.6                  | 3.5                | 18.8                    | 24.6                    | 191                        | 37.6                       | 0.319                             | 164                      |
| 101.6                   | 3                   | 7.29                 | 9.29                 | 113                   | 3.49               | 22.3                    | 29.2                    | 226                        | 44.5                       | 0.319                             | 137                      |
| 101.6                   | 4                   | 9.63                 | 12.3                 | 146                   | 3.45               | 28.8                    | 38.1                    | 293                        | 57.6                       | 0.319                             | 104                      |
| 101.6                   | 5                   | 11.9                 | 15.2                 | 177                   | 3.42               | 34.9                    | 46.7                    | 355                        | 69.9                       | 0.319                             | 84                       |
| 101.6                   | 6                   | 14.1                 | 18                   | 207                   | 3.39               | 40.7                    | 54.9                    | 413                        | 81.4                       | 0.319                             | 70.7                     |
| 101.6                   | 6.3                 | 14.8                 | 18.9                 | 215                   | 3.38               | 42.3                    | 57.3                    | 430                        | 84.7                       | 0.319                             | 67.5                     |
| 114.3                   | 2.5                 | 6.89                 | 8.78                 | 137                   | 3.95               | 24                      | 31.3                    | 275                        | 48                         | 0.359                             | 145                      |
| 114.3                   | 3                   | 8.23                 | 10.5                 | 163                   | 3.94               | 28.4                    | 37.2                    | 325                        | 56.9                       | 0.359                             | 121                      |
| 114.3                   | 4                   | 10.9                 | 13.9                 | 211                   | 3.9                | 36.9                    | 48.7                    | 422                        | 73.9                       | 0.359                             | 91.9                     |
| 114.3                   | 5                   | 13.5                 | 17.2                 | 257                   | 3.87               | 45                      | 59.8                    | 514                        | 89.9                       | 0.359                             | 74.2                     |
| 114.3                   | 6                   | 16                   | 20.4                 | 300                   | 3.83               | 52.5                    | 70.4                    | 600                        | 105                        | 0.359                             | 62.4                     |
| 114.3                   | 6.3                 | 16.8                 | 21.4                 | 313                   | 3.82               | 54.7                    | 73.6                    | 625                        | 109                        | 0.359                             | 59.6                     |
| 114.3                   | 8                   | 21                   | 26.7                 | 379                   | 3.77               | 66.4                    | 90.6                    | 759                        | 133                        | 0.359                             | 47.7                     |
| 139.7                   | 3                   | 10.1                 | 12.9                 | 301                   | 4.83               | 43.1                    | 56.1                    | 602                        | 86.2                       | 0.439                             | 98.9                     |
| 139.7                   | 4                   | 13.4                 | 17.1                 | 393                   | 4.8                | 56.2                    | 73.7                    | 786                        | 112                        | 0.439                             | 74.7                     |
| 139.7                   | 5                   | 16.6                 | 21.2                 | 481                   | 4.77               | 68.8                    | 90.8                    | 961                        | 138                        | 0.439                             | 60.2                     |
| 139.7                   | 6                   | 19.8                 | 25.2                 | 564                   | 4.73               | 80.8                    | 107                     | 1129                       | 162                        | 0.439                             | 50.5                     |
| 139.7                   | 6.3                 | 20.7                 | 26.4                 | 589                   | 4.72               | 84.3                    | 112                     | 1177                       | 169                        | 0.439                             | 48.2                     |
| 139.7                   | 8                   | 26                   | 33.1                 | 720                   | 4.66               | 103                     | 139                     | 1441                       | 206                        | 0.439                             | 38.5                     |
| 139.7                   | 10                  | 32                   | 40.7                 | 862                   | 4.6                | 123                     | 169                     | 1724                       | 247                        | 0.439                             | 31.3                     |
| 168.3                   | 3                   | 12.2                 | 15.6                 | 532                   | 5.85               | 63.3                    | 82                      | 1065                       | 127                        | 0.529                             | 81.8                     |
| 168.3                   | 4                   | 16.2                 | 20.6                 | 697                   | 5.81               | 82.8                    | 108                     | 1394                       | 166                        | 0.529                             | 61.7                     |
| 168.3                   | 5                   | 20.1                 | 25.7                 | 856                   | 5.78               | 102                     | 133                     | 1712                       | 203                        | 0.529                             | 49.7                     |
| 168.3                   | 6                   | 24                   | 30.6                 | 1009                  | 5.74               | 120                     | 158                     | 2017                       | 240                        | 0.529                             | 41.6                     |
| 168.3                   | 6.3                 | 25.2                 | 32.1                 | 1053                  | 5.73               | 125                     | 165                     | 2107                       | 250                        | 0.529                             | 39.7                     |
| 168.3                   | 8                   | 31.6                 | 40.3                 | 1297                  | 5.67               | 154                     | 206                     | 2595                       | 308                        | 0.529                             | 31.6                     |
| 168.3                   | 10                  | 39                   | 49.7                 | 1564                  | 5.61               | 186                     | 251                     | 3128                       | 372                        | 0.529                             | 25.6                     |
| 177.8                   | 4                   | 17.1                 | 21.8                 | 825                   | 6.15               | 92.8                    | 121                     | 1650                       | 186                        | 0.559                             | 58.3                     |
| 177.8                   | 5                   | 21.3                 | 27.1                 | 1014                  | 6.11               | 114                     | 149                     | 2028                       | 229                        | 0.559                             | 46.9                     |
| 177.8                   | 6                   | 25.4                 | 32.4                 | 1196                  | 6.08               | 135                     | 177                     | 2392                       | 269                        | 0.559                             | 39.3                     |
| 177.8                   | 6.3                 | 26.6                 | 33.9                 | 1250                  | 6.07               | 141                     | 185                     | 2499                       | 281                        | 0.559                             | 37.5                     |
| 177.8                   | 8                   | 33.5                 | 42.7                 | 1541                  | 6.01               | 173                     | 231                     | 3083                       | 347                        | 0.559                             | 29.9                     |
| 177.8                   | 10                  | 41.4                 | 52.7                 | 1862                  | 5.94               | 209                     | 282                     | 3724                       | 419                        | 0.559                             | 24.2                     |
| 177.8                   | 12                  | 49.1                 | 62.5                 | 2159                  | 5.88               | 243                     | 330                     | 4318                       | 486                        | 0.559                             | 20.4                     |
| 177.8                   | 12.5                | 51                   | 64.9                 | 2230                  | 5.86               | 251                     | 342                     | 4460                       | 502                        | 0.559                             | 19.6                     |

| Specified side diameter | Specified thickness | Mass per unit length | Cross-sectional area | Second moment of area | Radius of gyration | Elastic section modulus | Plastic section modulus | Torsional inertia constant | Torsional modulus constant | Superficial area per metre length | Nominal length per tonne |
|-------------------------|---------------------|----------------------|----------------------|-----------------------|--------------------|-------------------------|-------------------------|----------------------------|----------------------------|-----------------------------------|--------------------------|
| D                       | T                   | M                    | A                    | I                     | i                  | W <sub>el</sub>         | W <sub>pl</sub>         | I <sub>t</sub>             | C <sub>t</sub>             | A <sub>s</sub>                    | m                        |
| mm                      | mm                  | kg/m                 | cm <sup>2</sup>      | cm <sup>4</sup>       | cm                 | cm <sup>3</sup>         | cm <sup>3</sup>         | cm <sup>4</sup>            | cm <sup>3</sup>            | m <sup>2</sup> /m                 | m                        |
| 193.7                   | 4                   | 14.4                 | 23.8                 | 1073                  | 6.71               | 111                     | 144                     | 2146                       | 222                        | 0.609                             | 53.4                     |
| 193.7                   | 5                   | 23.3                 | 29.6                 | 1320                  | 6.67               | 136                     | 178                     | 2640                       | 273                        | 0.609                             | 43                       |
| 193.7                   | 6                   | 27.8                 | 35.4                 | 1560                  | 6.64               | 161                     | 211                     | 3119                       | 322                        | 0.609                             | 36                       |
| 193.7                   | 6.3                 | 29.1                 | 37.1                 | 1630                  | 6.63               | 168                     | 221                     | 3260                       | 337                        | 0.609                             | 34.3                     |
| 193.7                   | 8                   | 36.6                 | 46.7                 | 2016                  | 6.57               | 208                     | 276                     | 4031                       | 416                        | 0.609                             | 27.3                     |
| 193.7                   | 10                  | 45.3                 | 57.7                 | 2442                  | 6.5                | 252                     | 338                     | 4883                       | 504                        | 0.609                             | 22.1                     |
| 193.7                   | 12                  | 53.8                 | 68.5                 | 2839                  | 6.44               | 293                     | 397                     | 5678                       | 586                        | 0.609                             | 18.6                     |
| 193.7                   | 12.5                | 55.9                 | 71.2                 | 2934                  | 6.42               | 303                     | 411                     | 5869                       | 606                        | 0.609                             | 17.9                     |
| 219.1                   | 4                   | 21.2                 | 27                   | 1564                  | 7.61               | 143                     | 185                     | 3128                       | 286                        | 0.688                             | 47.1                     |
| 219.1                   | 5                   | 26.4                 | 33.6                 | 1928                  | 7.57               | 176                     | 229                     | 3856                       | 352                        | 0.688                             | 37.9                     |
| 219.1                   | 6                   | 31.5                 | 40.2                 | 2282                  | 7.54               | 208                     | 273                     | 4564                       | 417                        | 0.688                             | 31.7                     |
| 219.1                   | 6.3                 | 33.1                 | 42.1                 | 2386                  | 7.53               | 218                     | 285                     | 4772                       | 436                        | 0.688                             | 30.2                     |
| 219.1                   | 8                   | 41.6                 | 53.1                 | 2960                  | 7.47               | 270                     | 357                     | 5919                       | 540                        | 0.688                             | 24                       |
| 219.1                   | 10                  | 51.6                 | 65.7                 | 3598                  | 7.4                | 328                     | 438                     | 7197                       | 657                        | 0.688                             | 19.4                     |
| 219.1                   | 12                  | 61.3                 | 78.1                 | 4200                  | 7.33               | 383                     | 515                     | 8400                       | 767                        | 0.688                             | 16.3                     |
| 219.1                   | 12.5                | 63.7                 | 81.1                 | 4345                  | 7.32               | 397                     | 534                     | 8689                       | 793                        | 0.688                             | 15.7                     |
| 244.5                   | 5                   | 29.5                 | 37.6                 | 2699                  | 8.47               | 221                     | 287                     | 5397                       | 441                        | 0.768                             | 33.9                     |
| 244.5                   | 6                   | 35.3                 | 45                   | 3199                  | 8.43               | 262                     | 341                     | 6397                       | 523                        | 0.768                             | 28.3                     |
| 244.5                   | 6.3                 | 37                   | 47.1                 | 3346                  | 8.42               | 274                     | 358                     | 6682                       | 547                        | 0.768                             | 27                       |
| 244.5                   | 8                   | 46.7                 | 59.4                 | 4160                  | 8.37               | 340                     | 448                     | 8321                       | 681                        | 0.768                             | 21.4                     |
| 244.5                   | 10                  | 57.8                 | 73.7                 | 5073                  | 8.3                | 415                     | 550                     | 10150                      | 830                        | 0.768                             | 17.3                     |
| 244.5                   | 12                  | 68.8                 | 87.7                 | 5938                  | 8.23               | 486                     | 649                     | 11880                      | 972                        | 0.768                             | 14.5                     |
| 244.5                   | 12.5                | 71.5                 | 91.1                 | 6147                  | 8.21               | 503                     | 673                     | 12300                      | 1006                       | 0.768                             | 14                       |
| 273                     | 5                   | 33                   | 42.1                 | 3781                  | 9.48               | 277                     | 359                     | 7562                       | 554                        | 0.858                             | 30.3                     |
| 273                     | 6                   | 39.5                 | 50.3                 | 4487                  | 9.44               | 329                     | 428                     | 8974                       | 657                        | 0.858                             | 25.3                     |
| 273                     | 6.3                 | 41.4                 | 52.8                 | 4696                  | 9.43               | 344                     | 448                     | 9392                       | 688                        | 0.858                             | 24.1                     |
| 273                     | 8                   | 52.3                 | 66.6                 | 5852                  | 9.37               | 429                     | 562                     | 11700                      | 857                        | 0.858                             | 19.1                     |
| 273                     | 10                  | 64.9                 | 82.6                 | 7154                  | 9.31               | 524                     | 692                     | 14310                      | 1048                       | 0.858                             | 15.4                     |
| 273                     | 12                  | 77.2                 | 98.4                 | 8396                  | 9.24               | 615                     | 818                     | 16790                      | 1230                       | 0.858                             | 12.9                     |
| 273                     | 12.5                | 80.3                 | 102                  | 8697                  | 9.22               | 637                     | 849                     | 17400                      | 1274                       | 0.858                             | 12.5                     |
| 323.9                   | 5                   | 39.3                 | 50.1                 | 6369                  | 11.3               | 393                     | 509                     | 12740                      | 787                        | 1.02                              | 25.4                     |
| 323.9                   | 6                   | 47                   | 59.9                 | 7572                  | 11.2               | 468                     | 606                     | 15150                      | 935                        |                                   |                          |

Rectangular Steel Pipe as per EN 10219/2001

| Specified Outside Diameter |    | Specified Thickness | Mass per Unit Length | Cross-Sectional Area | Second Moment of Area |                 | Radius of Gyration |                 | Elastic Section Modulus |                    | Plastic Section Modulus |                    | Torsional Inertia Constant | Super-Ficial Area per Metre Length | Nominal Length per Tonne |      |
|----------------------------|----|---------------------|----------------------|----------------------|-----------------------|-----------------|--------------------|-----------------|-------------------------|--------------------|-------------------------|--------------------|----------------------------|------------------------------------|--------------------------|------|
| B*H                        |    | T                   | M                    | A                    | I <sub>yy</sub>       | I <sub>zz</sub> | I <sub>yy</sub>    | I <sub>zz</sub> | W <sub>el,yy</sub>      | W <sub>el,zz</sub> | W <sub>pl,yy</sub>      | W <sub>pl,zz</sub> | L <sub>t</sub>             | C <sub>1</sub>                     | A <sub>s</sub>           |      |
| mm                         | mm | kg/m                | cm <sup>2</sup>      | cm <sup>4</sup>      | cm <sup>4</sup>       | cm <sup>4</sup> | cm                 | cm              | cm <sup>3</sup>         | cm <sup>3</sup>    | cm <sup>3</sup>         | cm <sup>3</sup>    | cm <sup>4</sup>            | cm <sup>3</sup>                    | m <sup>2</sup> /m        | m    |
| 40                         | 20 | 2                   | 1.68                 | 2.14                 | 4.05                  | 1.34            | 1.38               | 0.793           | 2.02                    | 1.34               | 2.61                    | 1.6                | 3.45                       | 2.36                               | 0.113                    | 596  |
| 40                         | 20 | 2.5                 | 2.03                 | 2.59                 | 4.69                  | 1.54            | 1.35               | 0.777           | 2.35                    | 1.54               | 3.09                    | 1.88               | 4.06                       | 2.72                               | 0.111                    | 492  |
| 40                         | 20 | 3                   | 2.36                 | 3.01                 | 5.21                  | 1.68            | 1.32               | 0.748           | 2.6                     | 1.68               | 3.5                     | 2.12               | 4.57                       | 3.00                               | 0.110                    | 423  |
| 50                         | 30 | 2                   | 2.31                 | 2.94                 | 9.54                  | 4.29            | 1.8                | 1.21            | 3.81                    | 2.86               | 4.74                    | 3.33               | 9.77                       | 4.84                               | 0.153                    | 434  |
| 50                         | 30 | 2.5                 | 2.82                 | 3.59                 | 11.3                  | 5.05            | 1.77               | 1.19            | 4.52                    | 3.37               | 5.7                     | 3.98               | 11.7                       | 5.72                               | 0.151                    | 355  |
| 50                         | 30 | 3                   | 3.3                  | 4.21                 | 12.8                  | 5.7             | 1.75               | 1.16            | 5.13                    | 3.8                | 6.57                    | 4.58               | 13.5                       | 6.49                               | 0.150                    | 303  |
| 50                         | 30 | 4                   | 4.2                  | 5.35                 | 15.3                  | 6.69            | 1.69               | 1.12            | 6.1                     | 4.46               | 8.05                    | 5.58               | 16.5                       | 7.71                               | 0.146                    | 238  |
| 60                         | 40 | 2                   | 2.93                 | 3.74                 | 18.4                  | 9.83            | 2.22               | 1.62            | 6.14                    | 4.92               | 7.47                    | 5.65               | 20.7                       | 8.12                               | 0.193                    | 341  |
| 60                         | 40 | 2.5                 | 3.6                  | 4.59                 | 22.1                  | 11.7            | 2.19               | 1.6             | 7.36                    | 5.87               | 9.06                    | 6.84               | 25.1                       | 9.72                               | 0.191                    | 278  |
| 60                         | 40 | 3                   | 4.25                 | 5.41                 | 25.4                  | 13.4            | 2.17               | 1.58            | 8.46                    | 6.72               | 10.5                    | 7.94               | 29.3                       | 11.20                              | 0.190                    | 236  |
| 60                         | 40 | 4                   | 5.45                 | 6.95                 | 31                    | 16.3            | 2.11               | 1.53            | 10.3                    | 8.14               | 13.2                    | 9.89               | 36.7                       | 13.70                              | 0.186                    | 183  |
| 60                         | 40 | 5                   | 6.56                 | 8.36                 | 35.3                  | 18.4            | 2.06               | 1.48            | 11.8                    | 9.21               | 15.4                    | 11.5               | 42.8                       | 15.60                              | 0.183                    | 152  |
| 70                         | 50 | 2                   | 3.56                 | 4.54                 | 31.5                  | 18.8            | 2.63               | 2.03            | 8.99                    | 7.5                | 10.8                    | 8.58               | 37.5                       | 12.20                              | 0.233                    | 281  |
| 70                         | 50 | 2.5                 | 4.39                 | 5.59                 | 38                    | 22.6            | 2.61               | 2.01            | 10.9                    | 9.04               | 13.2                    | 10.4               | 45.8                       | 14.70                              | 0.231                    | 228  |
| 70                         | 50 | 3                   | 5.19                 | 6.61                 | 44.1                  | 26.1            | 2.58               | 1.99            | 12.6                    | 10.4               | 15.4                    | 12.2               | 53.6                       | 17.10                              | 0.230                    | 193  |
| 70                         | 50 | 4                   | 6.71                 | 8.55                 | 54.7                  | 32.2            | 2.53               | 1.94            | 15.6                    | 12.9               | 19.5                    | 15.4               | 68.1                       | 21.20                              | 0.226                    | 149  |
| 70                         | 50 | 5                   | 8.13                 | 10.4                 | 63.5                  | 37.2            | 2.48               | 1.9             | 18.1                    | 14.9               | 23.1                    | 18.2               | 80.8                       | 24.60                              | 0.223                    | 123  |
| 80                         | 40 | 2                   | 3.56                 | 4.54                 | 37.4                  | 12.7            | 2.87               | 1.67            | 9.34                    | 6.36               | 11.6                    | 7.17               | 30.9                       | 11.00                              | 0.233                    | 281  |
| 80                         | 40 | 2.5                 | 4.39                 | 5.59                 | 45.1                  | 15.3            | 2.84               | 1.65            | 11.3                    | 7.63               | 14.1                    | 8.72               | 37.6                       | 13.20                              | 0.231                    | 228  |
| 80                         | 40 | 3                   | 5.19                 | 6.61                 | 52.3                  | 17.6            | 2.81               | 1.63            | 13.1                    | 8.78               | 16.5                    | 10.2               | 43.9                       | 15.30                              | 0.230                    | 193  |
| 80                         | 40 | 4                   | 6.71                 | 8.55                 | 64.8                  | 21.5            | 2.75               | 1.59            | 16.2                    | 10.7               | 20.9                    | 12.8               | 55.2                       | 18.80                              | 0.226                    | 149  |
| 80                         | 40 | 5                   | 8.13                 | 10.4                 | 75.1                  | 24.6            | 2.69               | 1.54            | 18.8                    | 12.3               | 24.7                    | 15                 | 65                         | 21.70                              | 0.223                    | 123  |
| 80                         | 60 | 2                   | 4.19                 | 5.34                 | 49.5                  | 31.9            | 3.05               | 2.44            | 12.4                    | 10.6               | 14.7                    | 12.1               | 61.2                       | 17.10                              | 0.273                    | 239  |
| 80                         | 60 | 2.5                 | 5.17                 | 6.59                 | 60.1                  | 38.6            | 3.02               | 2.42            | 15                      | 12.9               | 18                      | 14.8               | 75.1                       | 20.70                              | 0.271                    | 193  |
| 80                         | 60 | 3                   | 6.13                 | 7.81                 | 70                    | 44.9            | 3                  | 2.4             | 17.5                    | 15                 | 21.2                    | 17.4               | 88.3                       | 24.10                              | 0.270                    | 163  |
| 80                         | 60 | 4                   | 7.97                 | 10.1                 | 87.9                  | 56.1            | 2.94               | 2.35            | 22                      | 18.7               | 27                      | 22.1               | 113                        | 30.30                              | 0.266                    | 126  |
| 80                         | 60 | 5                   | 9.7                  | 12.4                 | 103                   | 65.7            | 2.89               | 2.31            | 25.8                    | 21.9               | 32.2                    | 26.4               | 136                        | 35.70                              | 0.263                    | 103  |
| 90                         | 50 | 2                   | 4.19                 | 5.34                 | 57.9                  | 23.4            | 3.29               | 2.09            | 12.9                    | 9.35               | 15.7                    | 10.5               | 53.4                       | 15.90                              | 0.273                    | 239  |
| 90                         | 50 | 2.5                 | 5.17                 | 6.59                 | 70.3                  | 28.2            | 3.27               | 2.07            | 15.6                    | 11.3               | 19.3                    | 12.8               | 65.3                       | 19.20                              | 0.271                    | 193  |
| 90                         | 50 | 3                   | 6.13                 | 7.81                 | 81.9                  | 32.7            | 3.24               | 2.05            | 18.2                    | 13.1               | 22.6                    | 15                 | 76.7                       | 22.40                              | 0.270                    | 163  |
| 90                         | 50 | 4                   | 7.97                 | 10.1                 | 103                   | 40.7            | 3.18               | 2               | 22.8                    | 16.3               | 28.8                    | 19.1               | 97.7                       | 28.00                              | 0.266                    | 126  |
| 90                         | 50 | 5                   | 9.7                  | 12.4                 | 121                   | 47.4            | 3.12               | 1.96            | 26.8                    | 18.9               | 34.4                    | 22.7               | 116                        | 32.70                              | 0.263                    | 103  |
| 100                        | 40 | 2.5                 | 5.17                 | 6.59                 | 79.3                  | 18.8            | 3.47               | 1.69            | 15.9                    | 9.39               | 20.2                    | 10.6               | 50.5                       | 16.80                              | 0.271                    | 193  |
| 100                        | 40 | 3                   | 6.13                 | 7.81                 | 92.3                  | 21.7            | 3.44               | 1.67            | 18.5                    | 10.8               | 23.7                    | 12.4               | 59                         | 19.40                              | 0.270                    | 163  |
| 100                        | 40 | 4                   | 7.97                 | 10.1                 | 116                   | 26.7            | 3.38               | 1.62            | 23.1                    | 13.3               | 30.3                    | 15.7               | 74.5                       | 24.00                              | 0.266                    | 126  |
| 100                        | 40 | 5                   | 9.7                  | 12.4                 | 136                   | 30.8            | 3.31               | 1.58            | 27.1                    | 15.4               | 36.1                    | 18.5               | 87.9                       | 27.90                              | 0.263                    | 103  |
| 100                        | 50 | 2.5                 | 5.56                 | 7.09                 | 91.2                  | 31.1            | 3.59               | 2.09            | 18.2                    | 12.4               | 22.7                    | 14                 | 75.4                       | 21.50                              | 0.291                    | 180  |
| 100                        | 50 | 3                   | 6.6                  | 8.41                 | 106                   | 36.1            | 3.56               | 2.07            | 21.3                    | 14.4               | 26.7                    | 16.4               | 88.6                       | 25.00                              | 0.290                    | 152  |
| 100                        | 50 | 4                   | 8.59                 | 10.9                 | 134                   | 44.9            | 3.5                | 2.03            | 26.8                    | 18                 | 34.1                    | 20.9               | 113                        | 31.30                              | 0.286                    | 116  |
| 100                        | 50 | 5                   | 10.5                 | 13.4                 | 158                   | 52.5            | 3.44               | 1.98            | 31.6                    | 21                 | 40.8                    | 25                 | 135                        | 36.80                              | 0.283                    | 95.4 |
| 100                        | 50 | 6                   | 12.3                 | 15.6                 | 179                   | 58.7            | 3.38               | 1.94            | 35.8                    | 23.5               | 46.9                    | 28.5               | 154                        | 41.40                              | 0.279                    | 81.5 |
| 100                        | 50 | 6.3                 | 12.5                 | 15.9                 | 176                   | 58.2            | 3.32               | 1.91            | 35.1                    | 23.3               | 45.9                    | 28.6               | 158                        | 42.10                              | 0.273                    | 79.9 |
| 100                        | 60 | 2.5                 | 5.96                 | 7.59                 | 103                   | 46.9            | 3.69               | 2.49            | 20.6                    | 15.6               | 25.1                    | 17.7               | 103                        | 26.20                              | 0.311                    | 168  |
| 100                        | 60 | 3                   | 7.07                 | 9.01                 | 121                   | 54.6            | 3.66               | 2.46            | 24.1                    | 18.2               | 29.6                    | 20.8               | 122                        | 30.60                              | 0.310                    | 141  |
| 100                        | 60 | 4                   | 9.22                 | 11.7                 | 153                   | 68.7            | 3.6                | 2.42            | 30.5                    | 22.9               | 37.9                    | 26.6               | 156                        | 38.70                              | 0.306                    | 108  |
| 100                        | 60 | 5                   | 11.3                 | 14.4                 | 181                   | 80.8            | 3.55               | 2.37            | 36.2                    | 26.9               | 45.6                    | 31.9               | 188                        | 45.80                              | 0.303                    | 88.7 |
| 100                        | 60 | 6                   | 13.2                 | 16.8                 | 205                   | 91.2            | 3.49               | 2.33            | 41.1                    | 30.4               | 52.5                    | 36.6               | 216                        | 51.90                              | 0.299                    | 75.7 |
| 100                        | 60 | 6.3                 | 13.5                 | 17.2                 | 203                   | 90.9            | 3.44               | 2.3             | 40.7                    | 30.3               | 52.8                    | 36.9               | 223                        | 53.00                              | 0.293                    | 74   |
| 100                        | 80 | 2.5                 | 6.74                 | 8.59                 | 127                   | 90.2            | 3.84               | 3.24            | 25.4                    | 22.5               | 30                      | 25.8               | 166                        | 35.70                              | 0.351                    | 148  |
| 100                        | 80 | 3                   | 8.01                 | 10.2                 | 149                   | 106             | 3.82               | 3.22            | 29.8                    | 26.4               | 35.4                    | 30.4               | 196                        | 41.90                              | 0.350                    | 125  |
| 100                        | 80 | 4                   | 10.5                 | 13.3                 | 189                   | 134             | 3.77               | 3.17            | 37.9                    | 33.5               | 45.6                    | 39.2               | 254                        | 53.40                              | 0.346                    | 95.4 |
| 100                        | 80 | 5                   | 12.8                 | 16.4                 | 226                   | 160             | 3.72               | 3.12            | 45.2                    | 39.9               | 55.1                    | 47.2               | 308                        | 63.7                               | 0.343                    | 77.9 |
| 100                        | 80 | 6                   | 15.1                 | 19.2                 | 258                   | 182             | 3.67               | 3.08            | 51.7                    | 45.5               | 63.8                    | 54.7               | 357                        | 73.00                              | 0.339                    | 66.2 |
| 100                        | 80 | 6.3                 | 15.5                 | 19.7                 | 259                   | 183             | 3.62               | 3.04            | 51.8                    | 45.7               | 64.6                    | 55.4               | 371                        | 75.00                              | 0.333                    | 64.6 |

Rectangular Steel Pipe as per EN 10219/2001

| Specified Outside Diameter |     | Specified Thickness | Mass per Unit Length | Cross-Sectional Area | Second Moment of Area |                 | Radius of Gyration |                 | Elastic Section Modulus |                    | Plastic Section Modulus |                    | Torsional Inertia Constant | Super-Ficial Area per Metre Length |                   |
|----------------------------|-----|---------------------|----------------------|----------------------|-----------------------|-----------------|--------------------|-----------------|-------------------------|--------------------|-------------------------|--------------------|----------------------------|------------------------------------|-------------------|
| B*H                        |     | T                   | M                    | A                    | I <sub>yy</sub>       | I <sub>zz</sub> | I <sub>yy</sub>    | I <sub>zz</sub> | W <sub>el,yy</sub>      | W <sub>el,zz</sub> | W <sub>pl,yy</sub>      | W <sub>pl,zz</sub> | L <sub>t</sub>             | C <sub>1</sub>                     | A <sub>s</sub>    |
| mm                         | mm  | kg/m                | cm <sup>2</sup>      | cm <sup>4</sup>      | cm <sup>4</sup>       | cm <sup>4</sup> | cm                 | cm              | cm <sup>3</sup>         | cm <sup>3</sup>    | cm <sup>3</sup>         | cm <sup>3</sup>    | cm <sup>4</sup>            | cm <sup>3</sup>                    | m <sup>2</sup> /m |
| 250                        | 150 | 5                   | 30.1                 | 38.4                 | 3304                  | 1508            | 9.28               | 6.27            | 264                     | 201                | 320                     | 225                | 3285                       | 337.00                             | 0.783             |
| 250                        | 150 | 6                   | 35.8                 | 45.6                 | 3886                  | 1768            | 9.23               | 6.23            | 311                     | 236                | 378                     | 266                | 3866                       | 396.00                             | 0.779             |
| 250                        | 150 | 6.3                 | 37.2                 | 47.4                 | 4001                  | 1825            | 9.18               | 6.2             | 320                     | 243                | 391                     | 276                | 4078                       | 412.00                             | 0.773             |
| 250                        | 150 | 8                   | 46.5                 | 58.2                 | 4886                  | 2219            | 9.08               | 6.12            | 391                     | 296                | 482                     | 340                | 5050                       | 504.00                             | 0.766             |
| 250                        | 150 | 10                  | 57                   | 72.6                 | 5825                  | 2634            | 8.96               | 6.02            | 466                     | 351                | 582                     | 409                | 6121                       | 602.00                             | 0.757             |
| 250                        | 150 | 12                  | 66                   | 84.1                 | 6458                  | 2925            | 8.77               | 5.9             | 517                     | 390                | 658                     | 463                | 7088                       | 684.00                             | 0.738             |
| 250                        | 150 | 12.5                | 68.3                 | 87                   | 6633                  | 3002            | 8.73               | 5.87            | 531                     | 400                | 678                     | 477                | 7315                       | 704.00                             | 0.736             |
| 250                        | 150 | 16                  | 83.8                 | 106.8                | 7660                  | 3453            | 8.47               | 5.69            | 613                     | 460                | 805                     | 566                | 8713                       | 823.00                             | 0.718             |
| 260                        | 180 | 5                   | 33.2                 | 42.4                 | 4121                  | 2350            | 9.86               | 7.45            | 317                     | 261                | 377                     | 294                | 4695                       | 426.00                             | 0.863             |
| 260                        | 180 | 6.3                 | 41.2                 | 52.5                 | 5013                  | 2856            | 9.77               | 7.38            | 386                     | 317                | 463                     | 361                | 5844                       | 523.00                             | 0.853             |
| 260                        | 180 | 8                   | 51.5                 | 65.6                 | 6145                  | 3493            | 9.68               | 7.29            | 473                     | 388                | 573                     | 446                | 7267                       | 642.00                             | 0.846             |
| 260                        | 180 | 10                  | 63.2                 | 80.6                 | 7363                  | 4174            | 9.56               | 7.2             | 566                     | 464                | 694                     | 540                | 8850                       | 772.00                             | 0.837             |
| 260                        | 180 | 12                  | 73.5                 | 93.7                 | 8245                  | 4679            | 9.38               | 7.07            | 634                     | 520                | 790                     | 615                | 10330                      | 884.00                             | 0.818             |
| 260                        | 180 | 12.5                | 76.2                 | 97                   | 8482                  | 4812            | 9.35               | 7.04            | 652                     | 535                | 815                     | 635                | 10680                      | 911.00                             | 0.816             |
| 260                        | 180 | 16                  | 93.9                 | 120                  | 9923                  | 5614            | 9.11               | 6.85            | 763                     | 624                | 977                     | 759                | 12890                      | 1079.00                            | 0.796             |
| 300                        | 100 | 6                   | 35.8                 | 45.6                 | 4777                  | 842             | 10.2               | 4.3             | 318                     | 168                | 411                     | 188                | 2403                       | 306.00                             | 0.779             |
| 300                        | 100 | 6.3                 | 37.2                 | 47.4                 | 4907                  | 868             | 10.2               | 4.28            | 327                     | 174                | 425                     | 194                | 2515                       | 318.00                             | 0.773             |
| 300                        | 100 | 8                   | 46.5                 | 58.2                 | 5978                  | 1045            | 10                 | 4.2             | 399                     | 209                | 523                     | 238                | 3080                       | 385.00                             | 0.766             |
| 300                        | 100 | 10                  | 57                   | 72.6                 | 7016                  | 1224            | 9.9                | 4.11            | 474                     | 245                | 631                     | 285                | 3681                       | 455.00                             | 0.757             |
| 300                        | 100 | 12                  | 66                   | 84.1                 | 7808                  | 1343            | 9.64               | 4               | 521                     | 269                | 710                     | 321                | 4177                       | 508.00                             | 0.738             |
| 300                        | 100 | 12.5                | 68.3                 | 87                   | 8010                  | 1374            | 9.59               | 3.97            | 534                     | 275                | 732                     | 330                | 4292                       | 521.00                             | 0.736             |
| 300                        | 100 |                     |                      |                      |                       |                 |                    |                 |                         |                    |                         |                    |                            |                                    |                   |

Square Steel Pipe as per EN 10219/2001

| Specified Outside Diameter | Specified Thickness | Mass per Unit Length | Cross-Sectional Area | Second Moment of Area | Radius of Gyration | Elastic Section Modulus | Plastic Section Modulus | Torsional Inertia Constant | Torsional Modulus Constant | Super-Ficial Area per Metre Length | Nominal Length per Tonne |
|----------------------------|---------------------|----------------------|----------------------|-----------------------|--------------------|-------------------------|-------------------------|----------------------------|----------------------------|------------------------------------|--------------------------|
| B                          | T                   | M                    | A                    | I                     | i                  | W <sub>el</sub>         | W <sub>pl</sub>         | I <sub>t</sub>             | C <sub>t</sub>             | A <sub>s</sub>                     |                          |
| mm                         | mm                  | kg/m                 | cm <sup>2</sup>      | cm <sup>4</sup>       | cm                 | cm <sup>3</sup>         | cm <sup>3</sup>         | cm <sup>4</sup>            | cm <sup>3</sup>            | m <sup>2</sup> /m                  | m                        |
| 20                         | 2                   | 1.05                 | 1.34                 | 0.692                 | 0.72               | 0.692                   | 0.877                   | 1.21                       | 1.06                       | 0.0731                             | 953                      |
| 25                         | 2                   | 1.36                 | 1.74                 | 1.48                  | 0.924              | 1.19                    | 1.47                    | 2.53                       | 1.8                        | 0.0931                             | 733                      |
| 25                         | 2.5                 | 1.64                 | 2.09                 | 1.69                  | 0.899              | 1.35                    | 1.71                    | 2.97                       | 2.07                       | 0.0914                             | 610                      |
| 25                         | 3                   | 1.89                 | 2.41                 | 1.84                  | 0.874              | 1.47                    | 1.91                    | 3.33                       | 2.27                       | 0.0897                             | 529                      |
| 30                         | 2                   | 1.68                 | 2.14                 | 2.72                  | 1.13               | 1.81                    | 2.21                    | 4.54                       | 2.75                       | 0.113                              | 596                      |
| 30                         | 2.5                 | 2.03                 | 2.59                 | 3.16                  | 1.1                | 2.1                     | 2.61                    | 5.4                        | 3.2                        | 0.111                              | 492                      |
| 30                         | 3                   | 2.36                 | 3.01                 | 3.5                   | 1.08               | 2.34                    | 2.96                    | 6.15                       | 3.58                       | 0.11                               | 423                      |
| 40                         | 2                   | 2.31                 | 2.94                 | 6.94                  | 1.54               | 3.47                    | 4.13                    | 11.3                       | 5.23                       | 0.153                              | 434                      |
| 40                         | 2.5                 | 2.82                 | 3.59                 | 8.22                  | 1.51               | 4.11                    | 4.97                    | 13.6                       | 6.21                       | 0.151                              | 355                      |
| 40                         | 3                   | 3.3                  | 4.21                 | 9.32                  | 1.49               | 4.66                    | 5.72                    | 15.8                       | 7.07                       | 0.15                               | 303                      |
| 40                         | 4                   | 4.2                  | 5.35                 | 11.1                  | 1.44               | 5.54                    | 7.01                    | 19.4                       | 8.48                       | 0.146                              | 238                      |
| 50                         | 2                   | 2.93                 | 3.74                 | 14.1                  | 1.95               | 5.66                    | 6.66                    | 22.6                       | 8.51                       | 0.193                              | 341                      |
| 50                         | 2.5                 | 3.6                  | 4.59                 | 16.9                  | 1.92               | 6.78                    | 8.07                    | 27.5                       | 10.2                       | 0.191                              | 278                      |
| 50                         | 3                   | 4.25                 | 5.41                 | 19.5                  | 1.9                | 7.79                    | 9.39                    | 32.1                       | 11.8                       | 0.19                               | 236                      |
| 50                         | 4                   | 5.45                 | 6.95                 | 23.7                  | 1.85               | 9.49                    | 11.7                    | 40.4                       | 14.4                       | 0.186                              | 183                      |
| 50                         | 5                   | 6.56                 | 8.36                 | 27                    | 1.8                | 10.8                    | 13.7                    | 47.5                       | 16.6                       | 0.183                              | 152                      |
| 60                         | 2                   | 3.56                 | 4.54                 | 25.1                  | 2.35               | 8.38                    | 9.79                    | 39.8                       | 12.6                       | 0.233                              | 281                      |
| 60                         | 2.5                 | 4.39                 | 5.59                 | 30.3                  | 2.33               | 10.1                    | 11.9                    | 48.7                       | 15.2                       | 0.231                              | 228                      |
| 60                         | 3                   | 5.19                 | 6.61                 | 35.1                  | 2.31               | 11.7                    | 14                      | 57.1                       | 17.7                       | 0.23                               | 193                      |
| 60                         | 4                   | 6.71                 | 8.55                 | 43.6                  | 2.26               | 14.5                    | 17.6                    | 72.6                       | 22                         | 0.226                              | 149                      |
| 60                         | 5                   | 8.13                 | 10.4                 | 50.5                  | 2.21               | 16.8                    | 20.9                    | 86.4                       | 25.6                       | 0.223                              | 123                      |
| 60                         | 6                   | 9.45                 | 12                   | 56.1                  | 2.16               | 18.7                    | 23.7                    | 98.4                       | 28.6                       | 0.219                              | 106                      |
| 60                         | 6.3                 | 9.55                 | 12.2                 | 54.4                  | 2.11               | 18.1                    | 23.4                    | 100                        | 28.8                       | 0.213                              | 105                      |
| 70                         | 2.5                 | 5.17                 | 6.59                 | 49.4                  | 2.74               | 14.1                    | 16.5                    | 78.5                       | 21.2                       | 0.271                              | 193                      |
| 70                         | 3                   | 6.13                 | 7.81                 | 57.5                  | 2.71               | 16.4                    | 19.4                    | 92.4                       | 24.7                       | 0.27                               | 163                      |
| 70                         | 4                   | 7.97                 | 10.1                 | 72.1                  | 2.67               | 20.6                    | 24.8                    | 119                        | 31.1                       | 0.266                              | 126                      |
| 70                         | 5                   | 9.7                  | 12.4                 | 84.6                  | 2.62               | 24.2                    | 29.6                    | 142                        | 36.7                       | 0.263                              | 103                      |
| 70                         | 6                   | 11.3                 | 14.4                 | 95.2                  | 2.57               | 27.2                    | 33.8                    | 163                        | 41.4                       | 0.259                              | 88.3                     |
| 70                         | 6.3                 | 11.5                 | 14.7                 | 93.8                  | 2.53               | 26.8                    | 33.8                    | 168                        | 42.1                       | 0.253                              | 86.7                     |
| 80                         | 3                   | 7.07                 | 9.01                 | 87.8                  | 3.12               | 22                      | 25.8                    | 140                        | 33                         | 0.31                               | 141                      |
| 80                         | 4                   | 9.22                 | 11.7                 | 111                   | 3.07               | 27.8                    | 33.1                    | 180                        | 41.8                       | 0.306                              | 108                      |
| 80                         | 5                   | 11.3                 | 14.4                 | 131                   | 3.03               | 32.9                    | 39.7                    | 218                        | 49.7                       | 0.303                              | 88.7                     |
| 80                         | 6                   | 13.2                 | 16.8                 | 149                   | 2.98               | 37.3                    | 45.8                    | 252                        | 56.6                       | 0.299                              | 75.7                     |
| 80                         | 6.3                 | 13.5                 | 17.2                 | 149                   | 2.94               | 37.1                    | 46.1                    | 261                        | 57.9                       | 0.293                              | 74                       |
| 80                         | 8                   | 16.4                 | 20.8                 | 168                   | 2.84               | 42.1                    | 53.9                    | 307                        | 66.6                       | 0.286                              | 61.1                     |
| 90                         | 3                   | 8.01                 | 10.2                 | 127                   | 3.53               | 28.3                    | 33                      | 201                        | 42.5                       | 0.35                               | 125                      |
| 90                         | 4                   | 10.5                 | 13.3                 | 162                   | 3.48               | 36                      | 42.6                    | 261                        | 54.2                       | 0.346                              | 95.4                     |
| 90                         | 5                   | 12.8                 | 16.4                 | 193                   | 3.43               | 42.9                    | 51.4                    | 316                        | 64.7                       | 0.343                              | 77.9                     |
| 90                         | 6                   | 15.1                 | 19.2                 | 220                   | 3.39               | 49                      | 59.5                    | 368                        | 74.2                       | 0.339                              | 66.2                     |
| 90                         | 6.3                 | 15.5                 | 19.7                 | 221                   | 3.35               | 49.1                    | 60.3                    | 382                        | 76.2                       | 0.333                              | 64.6                     |
| 90                         | 8                   | 18.9                 | 24                   | 255                   | 3.25               | 56.6                    | 71.3                    | 456                        | 88.8                       | 0.326                              | 53                       |
| 100                        | 3                   | 8.96                 | 11.4                 | 177                   | 3.94               | 35.4                    | 41.2                    | 279                        | 53.2                       | 0.39                               | 112                      |
| 100                        | 4                   | 11.7                 | 14.9                 | 226                   | 3.89               | 45.3                    | 53.3                    | 362                        | 68.1                       | 0.386                              | 85.2                     |
| 100                        | 5                   | 14.4                 | 18.4                 | 271                   | 3.84               | 54.2                    | 64.6                    | 441                        | 81.7                       | 0.383                              | 69.4                     |
| 100                        | 6                   | 17                   | 21.6                 | 311                   | 3.79               | 62.3                    | 75.1                    | 514                        | 94.1                       | 0.379                              | 58.9                     |
| 100                        | 6.3                 | 17.5                 | 22.2                 | 314                   | 3.76               | 62.8                    | 76.4                    | 536                        | 97                         | 0.373                              | 57.3                     |
| 100                        | 8                   | 21.4                 | 27.2                 | 366                   | 3.67               | 73.2                    | 91.1                    | 645                        | 114                        | 0.366                              | 46.8                     |
| 100                        | 10                  | 25.6                 | 32.6                 | 411                   | 3.55               | 82.2                    | 105                     | 750                        | 130                        | 0.357                              | 39.1                     |
| 100                        | 12                  | 28.3                 | 36.1                 | 408                   | 3.36               | 81.6                    | 110                     | 794                        | 136                        | 0.338                              | 35.3                     |
| 100                        | 12.5                | 29.1                 | 37                   | 410                   | 3.33               | 82.1                    | 111                     | 804                        | 137                        | 0.336                              | 34.4                     |
| 120                        | 3                   | 10.8                 | 13.8                 | 312                   | 4.76               | 52.1                    | 60.2                    | 488                        | 78.2                       | 0.47                               | 92.3                     |
| 120                        | 4                   | 14.2                 | 18.1                 | 402                   | 4.71               | 67                      | 78.3                    | 637                        | 101                        | 0.466                              | 70.2                     |
| 120                        | 5                   | 17.5                 | 22.4                 | 485                   | 4.66               | 80.9                    | 95.4                    | 778                        | 122                        | 0.463                              | 57                       |
| 120                        | 6                   | 20.7                 | 26.4                 | 562                   | 4.61               | 93.7                    | 112                     | 913                        | 141                        | 0.459                              | 48.2                     |
| 120                        | 6.3                 | 21.4                 | 27.3                 | 572                   | 4.58               | 95.3                    | 114                     | 955                        | 146                        | 0.453                              | 46.7                     |
| 120                        | 8                   | 26.4                 | 33.6                 | 677                   | 4.49               | 113                     | 138                     | 1163                       | 175                        | 0.446                              | 37.9                     |
| 120                        | 10                  | 31.8                 | 40.6                 | 777                   | 4.38               | 129                     | 162                     | 1376                       | 203                        | 0.437                              | 31.4                     |
| 120                        | 12                  | 35.8                 | 45.7                 | 806                   | 4.2                | 134                     | 174                     | 1518                       | 219                        | 0.418                              | 27.9                     |
| 120                        | 12.5                | 36.9                 | 47                   | 817                   | 4.17               | 136                     | 178                     | 1551                       | 223                        | 0.416                              | 27.1                     |

Square Steel Pipe as per EN 10219/2001

| Specified Outside Diameter | Specified Thickness | Mass per Unit Length | Cross-Sectional Area | Second Moment of Area | Radius of Gyration | Elastic Section Modulus | Plastic Section Modulus | Torsional Inertia Constant | Torsional Modulus Constant | Super-Ficial Area per Metre Length | Nominal Length per Tonne |
|----------------------------|---------------------|----------------------|----------------------|-----------------------|--------------------|-------------------------|-------------------------|----------------------------|----------------------------|------------------------------------|--------------------------|
| B                          | T                   | M                    | A                    | I                     | i                  | W <sub>el</sub>         | W <sub>pl</sub>         | I <sub>t</sub>             | C <sub>t</sub>             | A <sub>s</sub>                     |                          |
| mm                         | mm                  | kg/m                 | cm <sup>2</sup>      | cm <sup>4</sup>       | cm                 | cm <sup>3</sup>         | cm <sup>3</sup>         | cm <sup>4</sup>            | cm <sup>3</sup>            | m <sup>2</sup> /m                  | m                        |
| 260                        | 6                   | 47.1                 | 60                   | 6405                  | 10.3               | 493                     | 569                     | 9970                       | 739                        | 1.02                               | 21.2                     |
| 260                        | 6.3                 | 49.1                 | 62.6                 | 6635                  | 10.3               | 510                     | 591                     | 10480                      | 772                        | 1.01                               | 20.4                     |
| 260                        | 8                   | 61.6                 | 78.4                 | 8178                  | 10.2               | 629                     | 734                     | 13090                      | 955                        | 1.01                               | 16.2                     |
| 260                        | 10                  | 75.8                 | 96.6                 | 9865                  | 10.1               | 759                     | 894                     | 16040                      | 1156                       | 0.997                              | 13.2                     |
| 260                        | 12                  | 88.6                 | 113                  | 11200                 | 9.96               | 862                     | 1028                    | 18880                      | 1337                       | 0.978                              | 11.3                     |
| 260                        | 12.5                | 91.9                 | 117                  | 11550                 | 9.93               | 888                     | 1063                    | 19550                      | 1381                       | 0.976                              | 10.9                     |
| 260                        | 16                  | 114                  | 145                  | 13740                 | 9.73               | 1057                    | 1289                    | 23990                      | 1663                       | 0.958                              | 8.77                     |
| 300                        | 6                   | 54.7                 | 69.6                 | 9964                  | 12                 | 664                     | 764                     | 15430                      | 997                        | 1.18                               | 18.3                     |
| 300                        | 6.3                 | 57                   | 72.6                 | 10340                 | 11.9               | 689                     | 795                     | 16220                      | 1042                       | 1.17                               | 17.5                     |
| 300                        | 8                   | 71.6                 | 91.2                 | 12800                 | 11.8               | 853                     | 991                     | 20310                      | 1293                       | 1.17                               | 14                       |
| 300                        | 10                  | 88.4                 | 113                  | 15520                 | 11.7               | 1035                    | 1211                    | 24970                      | 1572                       | 1.16                               | 11.3                     |
| 300                        | 12                  | 104                  | 132                  | 17770                 | 11.6               | 1184                    | 1402                    | 29510                      | 1829                       | 1.14                               | 9.65                     |
| 300                        | 12.5                | 108                  | 137                  | 18350                 | 11.6               | 1223                    | 1451                    | 30600                      | 1892                       | 1.14                               | 9.3                      |
| 300                        | 16                  | 134                  | 171                  | 22080                 | 11.4               | 1472                    | 1774                    | 37840                      | 2299                       | 1.12                               | 7.46                     |
| 350                        | 8                   | 84.2                 | 107                  | 20680                 | 13.9               | 1182                    | 1366                    | 32560                      | 1787                       | 1.37                               | 11.9                     |
| 350                        | 10                  | 104                  | 133                  | 25190                 | 13.8               | 1439                    | 1675                    | 40130                      | 2182                       | 1.36                               | 9.61                     |
| 350                        | 12                  | 123                  | 156                  | 29050                 | 13.6               | 1660                    | 1949                    | 47600                      | 2552                       | 1.34                               | 8.16                     |
| 350                        | 12.5                | 127                  | 162                  | 30050                 | 13.6               | 1717                    | 2020                    | 49390                      | 2642                       | 1.34                               | 7.86                     |
| 350                        | 16                  | 159                  | 203                  | 36510                 | 13.4               | 2086                    | 2488                    | 61480                      | 3238                       | 1.32                               | 6.28                     |
| 400                        | 10                  | 120                  | 153                  | 38220                 | 15.8               | 1911                    | 2214                    | 60430                      | 2892                       | 1.56                               | 8.35                     |
| 400                        | 12                  | 141                  | 180                  | 44320                 | 15.7               | 2216                    | 2587                    | 71840                      | 3395                       | 1.54                               | 7.07                     |
| 400                        | 12.5                | 147                  | 187                  | 45880                 | 15.7               | 2294                    | 2683                    | 74600                      | 3518                       | 1.54                               | 6.81                     |
| 400                        | 16                  | 184                  | 235                  | 56150                 | 15.5               | 2808                    | 3322                    | 93280                      | 4336                       | 1.52                               | 5.43                     |



| Nominal Size | Outside Diameter(D) | Wall Thickness(t) | Weight(Wpe) |       | Calculated Inside Diameter(d) |      | Hydraulic Test Pressure(pst) |                |     |                |       |     |       |       |
|--------------|---------------------|-------------------|-------------|-------|-------------------------------|------|------------------------------|----------------|-----|----------------|-------|-----|-------|-------|
|              |                     |                   | lb/ft       | kg/m  | in                            | mm   | Grade A25(Std)               | Grade A (L210) |     | Grade B (L245) |       |     |       |       |
|              | in                  | mm                | in          | mm    | lb/ft                         | kg/m | in                           | mm             | Std | Alt            | Std   | Alt |       |       |
| 6            | 1/8                 | 10.2              | 2.6         | 0.487 | 0.49                          | 2    | 0.404                        | 0.407          | 1.8 | 0.366          | 0.369 | 1.8 | 0.36  | 0.363 |
| 8            | 1/4                 | 13.5              | 2.9         | 0.765 | 0.769                         | 2.3  | 0.641                        | 0.645          | 2   | 0.57           | 0.574 | 1.8 | 0.515 | 0.519 |
| 10           | 3/8                 | 17.2              | 2.9         | 1.02  | 1.03                          | 2.3  | 0.839                        | 0.845          | 2   | 0.742          | 0.748 | 1.8 | 0.67  | 0.676 |
| 15           | 1/2                 | 21.3              | 3.2         | 1.44  | 1.45                          | 2.6  | 1.21                         | 1.22           | 2.3 | 1.08           | 1.09  | 2   | 0.947 | 0.956 |
| 20           | 3/4                 | 26.9              | 3.2         | 1.87  | 1.88                          | 2.6  | 1.56                         | 1.57           | 2.3 | 1.39           | 1.4   | 2.3 | 1.38  | 1.39  |
| 25           | 1                   | 33.7              | 4           | 2.93  | 2.95                          | 3.2  | 2.41                         | 2.43           | 2.9 | 2.2            | 2.22  | 2.6 | 1.98  | 2     |
| 32           | 1 1/4               | 42.4              | 4           | 3.79  | 3.82                          | 3.2  | 3.1                          | 3.13           | 2.9 | 2.82           | 2.85  | 2.6 | 2.54  | 2.57  |
| 40           | 1 1/2               | 48.3              | 4           | 4.37  | 4.41                          | 3.2  | 3.56                         | 3.6            | 2.9 | 3.24           | 3.28  | 2.9 | 3.23  | 3.27  |
| 50           | 2                   | 60.3              | 4.5         | 6.19  | 6.26                          | 3.6  | 5.03                         | 5.1            | 3.2 | 4.49           | 4.56  | 2.9 | 4.08  | 4.15  |
| 65           | 2 1/2               | 76.1              | 4.5         | 7.93  | 8.05                          | 3.6  | 6.42                         | 6.54           | 3.2 | 5.73           | 5.85  | 3.2 | 5.71  | 5.83  |
| 80           | 3                   | 88.9              | 5           | 10.3  | 10.5                          | 4    | 8.36                         | 8.53           | 3.6 | 7.55           | 7.72  | 3.2 | 6.72  | 6.89  |
| 100          | 4                   | 114.3             | 5.4         | 14.5  | 14.8                          | 4.5  | 12.2                         | 12.5           | 4   | 10.8           | 11.1  | 3.6 | 9.75  | 10    |
| 125          | 5                   | 139.7             | 5.4         | 17.9  | 18.4                          | 5    | 16.6                         | 17.1           |     |                |       |     |       |       |
| 150          | 6                   | 165.1             | 5.4         | 21.3  | 21.9                          | 5    | 19.8                         | 20.4           |     |                |       |     |       |       |

| Nominal Size | Outside Diameter(D) |      | Wall Thickness(t) |      | Weight(Wpe) |      | Calculated Inside Diameter(d) |      | Hydraulic Test Pressure(pst) |                |     |                |   |
|--------------|---------------------|------|-------------------|------|-------------|------|-------------------------------|------|------------------------------|----------------|-----|----------------|---|
|              | in                  | mm   | in                | mm   | lb/ft       | kg/m | in                            | mm   | Grade A25(Std)               | Grade A (L210) |     | Grade B (L245) |   |
|              | in                  | mm   | in                | mm   | lb/ft       | kg/m | in                            | mm   | Std                          | Alt            | Std | Alt            |   |
| 1/2          | 0.840               | 21.3 | 0.109             | 2.8  | 0.85        | 1.28 | 0.622                         | 15.7 | 700                          | 700            | -   | 700            | - |
|              |                     |      | 0.147             | 3.7  | 1.09        | 1.61 | 0.546                         | 13.9 | 850                          | 850            | -   | 850            | - |
|              |                     |      | 0.294             | 7.5  | 1.72        | 2.55 | 0.252                         | 6.3  | 1000                         | 1000           | -   | 1000           | - |
| 3/4          | 1.050               | 26.7 | 0.113             | 2.9  | 1.13        | 1.7  | 0.824                         | 20.9 | 700                          | 700            | -   | 700            | - |
|              |                     |      | 0.154             | 3.9  | 1.48        | 2.19 | 0.742                         | 18.9 | 850                          | 850            | -   | 850            | - |
|              |                     |      | 0.308             | 7.8  | 2.44        | 3.64 | 0.434                         | 11.1 | 1000                         | 1000           | -   | 1000           | - |
| 1            | 1.315               | 33.4 | 0.133             | 3.4  | 1.68        | 2.52 | 1.049                         | 26.6 | 700                          | 700            | -   | 700            | - |
|              |                     |      | 0.179             | 4.5  | 2.17        | 3.21 | 0.957                         | 24.4 | 850                          | 850            | -   | 850            | - |
|              |                     |      | 0.358             | 9.1  | 3.66        | 5.45 | 0.599                         | 15.2 | 1000                         | 1000           | -   | 1000           | - |
| 1 1/4        | 1.660               | 42.2 | 0.140             | 3.6  | 2.27        | 3.43 | 1.380                         | 35.0 | 1000                         | 1200           | -   | 1300           | - |
|              |                     |      | 0.191             | 4.9  | 3.00        | 4.51 | 1.278                         | 32.4 | 1300                         | 1800           | -   | 1900           | - |
|              |                     |      | 0.382             | 9.7  | 5.22        | 7.77 | 0.896                         | 22.8 | 1400                         | 2200           | -   | 2300           | - |
| 1 1/2        | 1.900               | 48.3 | 0.145             | 3.7  | 2.72        | 4.07 | 1.610                         | 40.9 | 1000                         | 1200           | -   | 1300           | - |
|              |                     |      | 0.200             | 5.1  | 3.63        | 5.43 | 1.500                         | 38.1 | 1300                         | 1800           | -   | 1900           | - |
|              |                     |      | 0.400             | 10.2 | 6.41        | 9.58 | 1.100                         | 27.9 | 1400                         | 2200           | -   | 2300           | - |



API 5L Line Pipe

ASTM A53 Welded Pipes / A106 Seamless Pipes  
Dimensions, Weights (Masses) per Unit Length, and Test Pressures for Plain-End Pipe

| Nominal Size | Outside Diameter(D) |        | Wall Thickness(t) |        | Weight(W <sub>pipe</sub> ) |        | Calculated Inside Diameter(d) |       | Note 1. 1psi=0.07031 kg/cm <sup>2</sup> 2. 1lb/ft=0.45359kg/ft |                |                |                  |                  |                  |                  |                  |                  |                  |                  |  |  |
|--------------|---------------------|--------|-------------------|--------|----------------------------|--------|-------------------------------|-------|--|----------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--|--|
|              |                     |        |                   |        |                            |        |                               |       | Hydrostatic Test Pressure(psi)                                 |                |                |                  |                  |                  |                  |                  |                  |                  |                  |  |  |
|              | in                  | mm     | in                | mm     | lb/ft                      | kg/m   | in                            | mm    | Std  | Grade A (L175) | Grade B (L210) | Grade X42 (L245) | Grade X46 (L290) | Grade X52 (L360) | Grade X56 (L390) | Grade X60 (L415) | Grade X65 (L450) | Grade X70 (L485) | Grade X80 (L565) |  |  |
| 24           | 24.000              | 610.0  | 0.250             | 6.4    | 63.47                      | 95.26  | 23.500                        | 597.2 | Std  | 380            | 440            | 790              | 860              | 980              | 1050             | 1130             | 1220             | 1310             | 1500             |  |  |
|              |                     |        |                   |        |                            |        |                               |       | Alt  | 470            | 550            | 790              | 860              | 980              | 1050             | 1130             | 1220             | 1310             | 1500             |  |  |
|              |                     |        | 0.281             | 7.1    | 71.25                      | 105.56 | 23.438                        | 595.8 | Std  | 420            | 490            | 890              | 970              | 1100             | 1180             | 1260             | 1370             | 1480             | 1690             |  |  |
|              |                     |        |                   |        |                            |        |                               |       | Alt  | 530            | 610            | 890              | 970              | 1100             | 1180             | 1260             | 1370             | 1480             | 1690             |  |  |
|              |                     |        | 0.312             | 7.9    | 79.01                      | 117.30 | 23.376                        | 594.2 | Std  | 470            | 550            | 980              | 1080             | 1220             | 1310             | 1400             | 1520             | 1640             | 1870             |  |  |
|              |                     |        |                   |        |                            |        |                               |       | Alt  | 590            | 680            | 980              | 1080             | 1220             | 1310             | 1400             | 1520             | 1640             | 1870             |  |  |
|              |                     |        | 0.344             | 8.7    | 86.99                      | 129.00 | 23.312                        | 592.6 | Std  | 520            | 600            | 1080             | 1190             | 1340             | 1440             | 1550             | 1680             | 1810             | 2060             |  |  |
|              |                     |        |                   |        |                            |        |                               |       | Alt  | 650            | 750            | 1080             | 1190             | 1340             | 1440             | 1550             | 1680             | 1810             | 2060             |  |  |
|              |                     |        | 0.375             | 9.5    | 94.71                      | 140.68 | 23.250                        | 591.0 | Std  | 560            | 660            | 1180             | 1290             | 1460             | 1580             | 1690             | 1830             | 1970             | 2250             |  |  |
|              |                     |        |                   |        |                            |        |                               |       | Alt  | 700            | 820            | 1180             | 1290             | 1460             | 1580             | 1690             | 1830             | 1970             | 2250             |  |  |
|              |                     |        | 0.406             | 10.3   | 102.40                     | 152.32 | 23.188                        | 589.4 | Std  | 610            | 710            | 1280             | 1400             | 1580             | 1710             | 1830             | 1980             | 2130             | 2410             |  |  |
|              |                     |        |                   |        |                            |        |                               |       | Alt  | 760            | 890            | 1280             | 1400             | 1580             | 1710             | 1830             | 1980             | 2130             | 2440             |  |  |
|              |                     |        | 0.438             | 11.1   | 110.32                     | 163.93 | 23.124                        | 587.8 | Std  | 660            | 770            | 1380             | 1510             | 1710             | 1840             | 1970             | 2140             | 2300             | 2630             |  |  |
|              |                     |        |                   |        |                            |        |                               |       | Alt  | 820            | 960            | 1380             | 1510             | 1710             | 1840             | 1970             | 2140             | 2300             | 2630             |  |  |
|              |                     |        | 0.469             | 11.9   | 117.98                     | 175.51 | 23.062                        | 586.2 | Std  | 700            | 820            | 1480             | 1620             | 1830             | 1970             | 2110             | 2290             | 2460             | 2810             |  |  |
|              |                     |        |                   |        |                            |        |                               |       | Alt  | 880            | 1030           | 1480             | 1620             | 1830             | 1970             | 2110             | 2290             | 2460             | 2810             |  |  |
|              |                     |        | 0.500             | 12.7   | 125.61                     | 187.06 | 23.000                        | 584.6 | Std  | 750            | 880            | 1580             | 1730             | 1950             | 2100             | 2250             | 2440             | 2630             | 3000             |  |  |
|              |                     |        |                   |        |                            |        |                               |       | Alt  | 940            | 1090           | 1580             | 1730             | 1950             | 2100             | 2250             | 2440             | 2630             | 3000             |  |  |
|              |                     |        | 0.562             | 14.3   | 140.81                     | 210.07 | 22.876                        | 581.4 | Std  | 840            | 980            | 1770             | 1940             | 2190             | 2360             | 2530             | 2740             | 2950             | 3000             |  |  |
|              |                     |        |                   |        |                            |        |                               |       | Alt  | 1050           | 1230           | 1770             | 1940             | 2190             | 2360             | 2530             | 2740             | 2950             | 3370             |  |  |
|              |                     |        | 0.625             | 15.9   | 156.17                     | 232.94 | 22.750                        | 578.2 | Std  | 940            | 1090           | 1970             | 2160             | 2440             | 2630             | 2810             | 3000             | 3000             | 3000             |  |  |
|              |                     |        |                   |        |                            |        |                               |       | Alt  | 1170           | 1370           | 1970             | 2160             | 2440             | 2630             | 2810             | 3050             | 3280             | 3630             |  |  |
|              |                     |        | 0.688             | 17.5   | 171.45                     | 255.69 | 22.624                        | 575.0 | Std  | 1030           | 1200           | 2170             | 2370             | 2680             | 2890             | 3000             | 3000             | 3000             | 3000             |  |  |
|              |                     |        |                   |        |                            |        |                               |       | Alt  | 1290           | 1510           | 2170             | 2370             | 2680             | 2890             | 3100             | 3350             | 3610             | 3630             |  |  |
| 0.750        | 19.1                | 186.41 | 278.32            | 22.500 | 571.8                      | Std    | 1130                          | 1310  | 2360   | 2590           | 2930           | 3000             | 3000             | 3000             | 3000             | 3000             |                  |                  |                  |  |  |
|              |                     |        |                   |        |                            | Alt    | 1410                          | 1640  | 2360   | 2590           | 2930           | 3150             | 3380             | 3630             | 3630             | 3630             |                  |                  |                  |  |  |
| 0.812        | 20.6                | 201.28 | 299.41            | 22.376 | 568.8                      | Std    | 1220                          | 1420  | 2560   | 2800           | 3000           | 3000             | 3000             | 3000             | 3000             | 3000             |                  |                  |                  |  |  |
|              |                     |        |                   |        |                            | Alt    | 1520                          | 1780  | 2560   | 2800           | 3170           | 3630             | 3630             | 3630             | 3630             | 3630             |                  |                  |                  |  |  |
| 0.875        | 22.2                | 216.31 | 321.79            | 22.250 | 565.6                      | Std    | 1310                          | 1530  | 2760   | 3000           | 3000           | 3000             | 3000             | 3000             | 3000             | 3000             |                  |                  |                  |  |  |
|              |                     |        |                   |        |                            | Alt    | 1640                          | 1910  | 2760   | 3020           | 3410           | 3630             | 3630             | 3630             | 3630             | 3630             |                  |                  |                  |  |  |

| NPS Designator | DN Designator | Specified Outside Diameter, in.(mm) | Specified Wall Thickness, in.(mm) | Nominal Weight (Mass) per Unit Length, Plain End, lb/ft(kg/m) | Weight Class | Schedule No. | Test Pressure, psi [nPa] |            |
|----------------|---------------|-------------------------------------|-----------------------------------|---|--------------|--------------|--------------------------|------------|
|                |               |                                     |                                   |   |              |              | Grade A                  | Grade B    |
|                |               |                                     |                                   |   |              |              |                          |            |
| 1/2            | 15            | 0.840(21.3)                         | 0.109(2.77)                       | 0.85(1.27)  | STD          | 40           | 700(4.8)                 | 700(4.8)   |
|                |               |                                     | 0.147(3.73)                       | 1.09(1.62)  | XS           | 80           | 850(5.9)                 | 850(5.9)   |
|                |               |                                     | 0.188(4.78)                       | 1.31(1.95)  | -            | 160          | 900(6.2)                 | 900(6.2)   |
|                |               |                                     | 0.294(7.47)                       | 1.72(2.55)  | XXS          | -            | 1000(6.9)                | 1000(6.9)  |
| 3/4            | 20            | 1.050(26.7)                         | 0.113(2.87)                       | 1.13(1.69)  | STD          | 40           | 700(4.8)                 | 700(4.8)   |
|                |               |                                     | 0.154(3.91)                       | 1.48(2.20)  | XS           | 80           | 850(5.9)                 | 850(5.9)   |
|                |               |                                     | 0.219(5.56)                       | 1.95(2.90)  | -            | 160          | 950(6.5)                 | 950(6.5)   |
|                |               |                                     | 0.308(7.82)                       | 2.44(3.64)  | XXS          | -            | 1000(6.9)                | 1000(6.9)  |
| 1              | 25            | 1.315(33.4)                         | 0.133(3.38)                       | 1.68(2.50)  | STD          | 40           | 700(4.8)                 | 700(4.8)   |
|                |               |                                     | 0.179(4.55)                       | 2.17(3.24)  | XS           | 80           | 850(5.9)                 | 850(5.9)   |
|                |               |                                     | 0.250(6.35)                       | 2.85(4.24)  | -            | 160          | 950(6.5)                 | 950(6.5)   |
|                |               |                                     | 0.358(9.09)                       | 3.66(5.45)  | XXS          | -            | 1000(6.9)                | 1000(6.9)  |
| 1 1/4          | 32            | 1.660(42.2)                         | 0.140(3.56)                       | 2.27(3.39)  | STD          | 40           | 1200(8.3)                | 1300(9.0)  |
|                |               |                                     | 0.191(4.85)                       | 3.00(4.47)  | XS           | 80           | 1800(12.4)               | 1900(13.1) |
|                |               |                                     | 0.250(6.35)                       | 3.77(5.61)  | -            | 160          | 1900(13.1)               | 2000(13.8) |
|                |               |                                     | 0.382(9.70)                       | 5.22(7.77)  | XXS          | -            | 2200(15.2)               | 2300(15.9) |
| 1 1/2          | 40            | 1.900(48.3)                         | 0.145(3.68)                       | 2.72(4.05)  | STD          | 40           | 1200(8.3)                | 1300(9.0)  |
|                |               |                                     | 0.200(5.08)                       | 3.63(5.41)  | XS           | 80           | 1800(12.4)               | 1900(13.1) |
|                |               |                                     | 0.281(7.14)                       | 4.86(7.25)  | -            | 160          | 1950(13.4)               | 2050(14.1) |
|                |               |                                     | 0.400(10.16)                      | 6.41(9.56)  | XXS          | -            | 2200(15.2)               | 2300(15.9) |
| 2              | 50            | 2.375(60.3)                         | 0.154(3.91)                       | 3.66(5.44)  | STD          | 40           | 2300(15.9)               | 2500(17.2) |
|                |               |                                     | 0.218(5.54)                       | 5.03(7.48)  | XS           | 80           | 2500(17.2)               | 2500(17.2) |
|                |               |                                     | 0.344(8.74)                       | 7.47(11.11)   | -            | 160          | 2500(17.2)               | 2500(17.2) |
|                |               |                                     | 0.436(11.07)                      | 9.04(13.44)   | XXS          | -            | 2500(17.2)               | 2500(17.2) |
| 2 1/2          | 65            | 2.875(73.0)                         | 0.203(5.16)                       | 5.80(8.63)  | STD          | 40           | 2500(17.2)               | 2500(17.2) |
|                |               |                                     | 0.276(7.01)                       | 7.67(11.41)   | XS           | 80           | 2500(17.2)               | 2500(17.2) |
|                |               |                                     | 0.375(9.52)                       | 10.02(14.90)  | -            | 160          | 2500(17.2)               | 2500(17.2) |
|                |               |                                     | 0.552(14.02)                      | 13.71(20.39)  | XXS          | -            | 2500(17.2)               | 2500(17.2) |
| 3              | 80            | 3.500(88.9)                         | 0.125(3.18)                       | 4.51(6.72)  | -            | -            | 1290(8.9)                | 1500(10.0) |
|                |               |                                     | 0.156(3.96)                       | 5.58(8.29)  | -            | -            | 1600(11.0)               | 1870(12.9) |
|                |               |                                     | 0.188(4.78)                       | 6.66(9.92)  | -            | -            | 1930(13.3)               | 2260(15.6) |
|                |               |                                     | 0.216(5.49)                       | 7.58(11.29)   | STD          | 40           | 2220(15.3)               | 2500(17.2) |
|                |               |                                     | 0.250(6.35)                       | 8.69(12.93)   | -            | -            | 2500(17.2)               | 2500(17.2) |
|                |               |                                     | 0.281(7.14)                       | 9.67(14.40)   | -            | -            | 2500(17.2)               | 2500(17.2) |
|                |               |                                     | 0.300(7.62)                       | 10.26(15.27)  | XS           | 80           | 2500(17.2)               | 2500(17.2) |
|                |               |                                     | 0.438(11.13)                      | 14.34(21.35)  | -            | 160          | 2500(17.2)               | 2500(17.2) |
| 3 1/2          | 90            | 4.000(101.6)                        | 0.600(15.24)                      | 18.60(27.68)  | XXS          | -            | 2500(17.2)               | 2500(17.2) |
|                |               |                                     | 0.125(3.18)                       | 5.18(7.72)  | -            | -            | 1120(7.7)                | 1310(9.0)  |
|                |               |                                     | 0.156(3.96)                       | 6.41(9.53)  | -            | -            | 1400(9.7)                | 1640(11.3) |
|                |               |                                     | 0.188(4.78)                       | 7.66(11.41)   | -            | -            | 1690(11.7)               | 1970(13.6) |
|                |               |                                     | 0.226(5.74)                       | 9.12(13.57)   | STD          | 40           | 2030(14.0)               | 2370(16.3) |
|                |               |                                     | 0.250(6.35)                       | 10.02(14.92)  | -            | -            | 2250(15.5)               | 2500(17.2) |
|                |               |                                     | 0.281(7.14)                       | 11.17(16.63)  | -            | -            | 2500(17.2)               | 2500(17.2) |
|                |               |                                     | 0.318(8.08)                       | 12.52(18.63)  | XS           | 80           | 2800(19.3)               | 2800(19.3) |

**ASTM A53 Welded Pipes / A106 Seamless Pipes**  
 Dimensions, Weights (Masses) per Unit Length, and Test Pressures for Plain-End Pipe

| Note 1.1psi=0.07031kg/cm2 2.1lb/ft=0.45359kg/ft |                |                                     |                                   |   |              |              |                          |             |
|---|----------------|-------------------------------------|-----------------------------------|---|--------------|--------------|--------------------------|-------------|
| NPS Designator                                  | DN Designator  | Specified Outside Diameter, in.(mm) | Specified Wall Thickness, in.(mm) | Nominal Weight (Mass) per Unit Length, Plain End, lb/ft(kg/m) | Weight Class | Schedule No. | Test Pressure, psi [mPa] |             |
|   |                |                                     |                                   |   |              |              | Grade A                  | Grade B     |
| 20  | 500            | 20.000(508)                         | 0.250 (6.35)                      | 52.78(78.55)  | -            | 10           | 450(3.1)                 | 520(3.6)    |
|   |                |                                     | 0.281 (7.14)                      | 59.23(88.19)  | -            | -            | 510 (3.5)                | 590 (4.1)   |
|   |                |                                     | 0.312 (7.92)                      | 65.66(97.67)  | -            | -            | 560 (3.9)                | 660(4.5)    |
|   |                |                                     | 0.344 (8.74)                      | 72.28(107.60)   | -            | -            | 620 (4.3)                | 720 (5.0)   |
|   |                |                                     | 0.375 (9.52)                      | 78.67(117.02)   | STD          | 20           | 680 (4.7)                | 790 (5.4)   |
|   |                |                                     | 0.406(10.31)                      | 84.04(126.53)   | -            | -            | 730 (5.0)                | 850 (5.9)   |
|   |                |                                     | 0.438 (11.13)                     | 91.59(136.37)   | -            | -            | 790 (5.4)                | 920 (6.3)   |
|   |                |                                     | 0.469(11.91)                      | 97.92(145.70)   | -            | -            | 850 (5.9)                | 950 (6.5)   |
|   |                |                                     | 0.500(12.70)                      | 104.23(155.12)  | XS           | 30           | 900 (6.2)                | 1050 (7.2)  |
|   |                |                                     | 0.594(15.09)                      | 123.23(183.42)  | -            | 40           | 1170(8.1)                | 1250 (8.6)  |
|   |                |                                     | 0.812(20.62)                      | 166.56(247.83)  | -            | 60           | 1460 (10.1)              | 1710(11.80) |
|   |                |                                     | 1.031(26.19)                      | 209.06(311.17)  | -            | 80           | 1860 (12.8)              | 2170 (15.0) |
|   |                |                                     | 1.281(32.54)                      | 256.34(381.53)  | -            | 100          | 2310 (15.9)              | 2690 (18.5) |
|   |                |                                     | 1.500(38.10)                      | 296.65(441.49)  | -            | 120          | 2700 (18.6)              | 2800 (19.3) |
|   |                |                                     | 1.750(44.45)                      | 341.41(508.11)  | -            | 140          | 2800 (19.3)              | 2800 (19.3) |
|   |                |                                     | 1.969(50.01)                      | 379.53(564.81)  | -            | 160          | 2800 (19.3)              | 2800 (19.3) |
| 24  | 600            | 24.000(610)                         | 0.250 (6.35)                      | 63.47(94.46)  | -            | 10           | 380(2.6)                 | 440(3.0)    |
|   |                |                                     | 0.281 (7.14)                      | 71.25(106.08)   | -            | -            | 420 (2.9)                | 490 (3.4)   |
|   |                |                                     | 0.312 (7.92)                      | 79.01(117.51)   | -            | -            | 470(3.2)                 | 550(3.8)    |
|   |                |                                     | 0.344 (8.74)                      | 86.99(129.5)  | -            | -            | 520 (3.6)                | 600 (4.1)   |
|   |                |                                     | 0.375 (9.52)                      | 94.71(140.88)   | STD          | 20           | 560 (3.9)                | 660 (4.5)   |
|   |                |                                     | 0.406(10.31)                      | 102.40(152.37)  | -            | -            | 610 (4.2)                | 710 (4.9)   |
|   |                |                                     | 0.438 (11.13)                     | 110.32(164.26)  | -            | -            | 660 (4.5)                | 770 (5.3)   |
|   |                |                                     | 0.469(11.91)                      | 117.98(175.54)  | -            | -            | 700 (4.8)                | 820 (5.7)   |
|   |                |                                     | 0.500(12.70)                      | 125.61(186.94)  | XS           | -            | 750 (5.2)                | 880 (6.1)   |
|   |                |                                     | 0.562(14.27)                      | 140.81(209.50)  | -            | 30           | 840(5.8)                 | 980 (6.8)   |
|   |                |                                     | 0.688(17.48)                      | 171.45(255.24)  | -            | 40           | 1030 (7.1)               | 1200(8.3)   |
|   |                |                                     | 0.938 (23.83)                     | 231.25(344.23)  | -            | -            | 1410 (9.7)               | 1640 (11.3) |
|   |                |                                     | 0.969 (24.61)                     | 238.57(355.02)  | -            | 60           | 1450 (10.0)              | 1700 (11.7) |
|   |                |                                     | 1.219(30.96)                      | 296.86(441.78)  | -            | 80           | 1830 (12.6)              | 2130 (14.7) |
|   |                |                                     | 1.531(38.89)                      | 367.74(547.33)  | -            | 100          | 2300 (15.9)              | 2680 (18.5) |
|   |                |                                     | 1.812(46.02)                      | 429.79(639.58)  | -            | 120          | 2720 (18.8)              | 2800 (19.3) |
| 2.062(52.37)                                    | 483.57(719.63) | -                                   | 140                               | 2800 (19.3)   | 2800 (19.3)  |              |                          |             |
| 2.344(59.54)                                    | 542.64(807.63) | -                                   | 160                               | 2800 (19.3)   | 2800 (19.3)  |              |                          |             |
| 26  | 650            | 26.000(660)                         | 0.250 (6.35)                      | 68.82(102.42)   | -            | -            | 350(2.4)                 | 400(2.8)    |
|   |                |                                     | 0.281 (7.14)                      | 77.26(115.02)   | -            | -            | 390 (2.7)                | 450 (3.1)   |
|   |                |                                     | 0.312 (7.92)                      | 85.68(127.43)   | -            | 10           | 430(3.0)                 | 500(3.4)    |
|   |                |                                     | 0.344 (8.74)                      | 94.35(140.45)   | -            | -            | 480(3.3)                 | 560 (3.9)   |
|   |                |                                     | 0.375 (9.52)                      | 102.72(152.80)  | STD          | -            | 520 (3.6)                | 610 (4.2)   |
|   |                |                                     | 0.406(10.31)                      | 111.08(165.28)  | -            | -            | 560 (3.9)                | 660 (4.5)   |
|   |                |                                     | 0.438 (11.13)                     | 119.69(178.20)  | -            | -            | 610 (4.2)                | 710 (4.9)   |
|   |                |                                     | 0.469(11.91)                      | 128.00(190.46)  | -            | -            | 650 (4.5)                | 760 (5.2)   |
|   |                |                                     | 0.500(12.70)                      | 136.30(202.85)  | XS           | 20           | 690 (4.8)                | 810 (5.6)   |
|   |                |                                     | 0.562(14.27)                      | 152.83(227.37)  | -            | -            | 780(5.4)                 | 910 (6.3)   |



# ASTM A53 Welded Pipes / A106 Seamless Pipes

Dimensions, Weights (Masses) per Unit Length, and Test Pressures for Threaded and Coupled Pipe

ASTM A252

Note 1.1psi=0.07031kg/cm<sup>2</sup> 2.1lb/ft=0.45359kg/ft

| NPS Designator | DN Designator | Specified Outside Diameter, in.(mm) | Specified Wall Thickness, in.(mm) | Nominal Weight (Mass) per Unit Length, Plain End, lb/ft.(kg/m) | Weight Class | Schedule No. | Test Pressure, psi [mPa] |             |
|----------------|---------------|-------------------------------------|-----------------------------------|--|--------------|--------------|--------------------------|-------------|
|                |               |                                     |                                   |  |              |              | Grade A                  | Grade B     |
|                |               |                                     |                                   |  |              |              | 1/2                      | 15          |
| 3/4            | 20            | 1.050(26.7)                         | 0.147(3.73)                       | 1.09(1.62)   | XS           | 80           | 850(5.9)                 | 850(5.9)    |
|                |               |                                     | 0.294(7.47)                       | 1.72(2.54)   | XXS          | —            | 1000(6.9)                | 1000(6.9)   |
|                |               |                                     | 0.113(2.87)                       | 1.14(1.69)   | STD          | 40           | 700(4.8)                 | 700(4.8)    |
| 1              | 25            | 1.315(33.4)                         | 0.154(3.91)                       | 1.48(2.21)   | XS           | 80           | 850(5.9)                 | 850(5.9)    |
|                |               |                                     | 0.308(7.82)                       | 2.45(3.64)   | XXS          | —            | 1000(6.9)                | 1000(6.9)   |
|                |               |                                     | 0.133(3.38)                       | 1.69(2.50)   | STD          | 40           | 700(4.8)                 | 700(4.8)    |
| 1 1/4          | 32            | 1.660(42.2)                         | 0.179(4.55)                       | 2.19(3.25)   | XS           | 80           | 850(5.9)                 | 850(5.9)    |
|                |               |                                     | 0.358(9.09)                       | 3.66(5.45)   | XXS          | —            | 1000(6.9)                | 1000(6.9)   |
|                |               |                                     | 0.140(3.56)                       | 2.28(3.40)   | STD          | 40           | 1000(6.9)                | 1100(7.6)   |
| 1 1/2          | 40            | 1.900(48.3)                         | 0.191(4.85)                       | 3.03(4.49)   | XS           | 80           | 1500(10.3)               | 1600(11.0)  |
|                |               |                                     | 0.382(9.70)                       | 5.23(7.76)   | XXS          | —            | 1800(12.4)               | 1900(13.1)  |
|                |               |                                     | 0.145(3.68)                       | 2.74(4.04)   | STD          | 40           | 1000(6.9)                | 1100(7.6)   |
| 2              | 50            | 2.375(60.3)                         | 0.200(5.08)                       | 3.65(5.39)   | XS           | 80           | 1500(10.3)               | 1600(11.0)  |
|                |               |                                     | 0.400(10.16)                      | 6.41(9.56)   | XXS          | —            | 1800(12.4)               | 1900(13.1)  |
|                |               |                                     | 0.154(3.91)                       | 3.68(5.46)   | STD          | 40           | 2300(15.9)               | 2500(17.2)  |
| 2 1/2          | 65            | 2.875(73.0)                         | 0.218(5.54)                       | 5.08(7.55)   | XS           | 80           | 2500(17.2)               | 2500(17.2)  |
|                |               |                                     | 0.436(11.07)                      | 9.06(13.44)  | XXS          | —            | 2500(17.2)               | 2500(17.2)  |
|                |               |                                     | 0.203(5.16)                       | 5.85(8.67)   | STD          | 40           | 2500(17.2)               | 2500(17.2)  |
| 3              | 80            | 3.500(88.9)                         | 0.276(7.01)                       | 7.75(11.52)  | XS           | 80           | 2500(17.2)               | 2500(17.2)  |
|                |               |                                     | 0.552(14.02)                      | 13.72(20.39)   | XXS          | —            | 2500(17.2)               | 2500(17.2)  |
|                |               |                                     | 0.216(5.49)                       | 7.68(11.35)  | STD          | 40           | 2200(15.2)               | 2500(17.2)  |
| 3 1/2          | 90            | 4.000(101.6)                        | 0.300(7.62)                       | 10.35(15.39)   | XS           | 80           | 2500(17.2)               | 2500(17.2)  |
|                |               |                                     | 0.600(15.24)                      | 18.60(27.66)   | XXS          | —            | 2500(17.2)               | 2500(17.2)  |
|                |               |                                     | 0.226(5.74)                       | 9.27(13.71)  | STD          | 40           | 2000(13.8)               | 2400(16.5)  |
| 4              | 100           | 4.500(114.3)                        | 0.318(8.08)                       | 12.67(18.82)   | XS           | 80           | 2800(19.3)               | 2800(19.3)  |
|                |               |                                     | 0.237 (6.02)                      | 10.92(16.23)   | STD          | 40           | 1900 (13.1)              | 2200 (15.2) |
|                |               |                                     | 0.337 (8.56)                      | 15.20(22.60)   | XS           | 80           | 2700 (18.6)              | 2800 (19.3) |
| 5              | 125           | 5.563(141.3)                        | 0.674(17.12)                      | 27.62(41.09)   | XXS          | —            | 2800 (19.3)              | 2800 (19.3) |
|                |               |                                     | 0.258 (6.55)                      | 14.90(22.07)   | STD          | 40           | 1700 (11.7)              | 1900 (13.1) |
|                |               |                                     | 0.375 (9.52)                      | 21.04(31.42)   | XS           | 80           | 2400 (16.5)              | 2800 (19.3) |
| 6              | 150           | 6.625(168.3)                        | 0.750(19.05)                      | 38.63(57.53)   | XXS          | —            | 2800 (19.3)              | 2800 (19.3) |
|                |               |                                     | 0.280 (7.11)                      | 19.34(28.58)   | STD          | 40           | 1500 (10.3)              | 1800 (12.4) |
|                |               |                                     | 0.432(10.97)                      | 28.88(43.05)   | XS           | 80           | 2300 (15.9)              | 2700 (18.6) |
| 8              | 200           | 8.625(219.1)                        | 0.864(21.95)                      | 53.19(79.18)   | XXS          | —            | 2800(19.3)               | 2800(19.3)  |
|                |               |                                     | 0.277 (7.04)                      | 25.53(38.07)   | —            | 30           | 1200 (8.3)               | 1300 (9.0)  |
|                |               |                                     | 0.322 (8.18)                      | 29.35(43.73)   | STD          | 40           | 1300 (9.0)               | 1600 (11.0) |
| 10             | 250           | 10.750(273.0)                       | 0.500(12.70)                      | 44.00(65.41)   | XS           | 80           | 2100(14.5)               | 2400 (16.5) |
|                |               |                                     | 0.875(22.22)                      | 72.69(107.94)  | XXS          | —            | 2800 (19.3)              | 2800 (19.3) |
|                |               |                                     | 0.279 (7.09)                      | 32.33(48.80)   | —            | 30           | 950 (6.5)                | 1100 (7.6)  |
| 12             | 300           | 12.750(323.8)                       | 0.307 (7.80)                      | 35.33(53.27)   | —            | 30           | 1000 (6.9)               | 1200 (8.3)  |
|                |               |                                     | 0.365 (9.27)                      | 41.49(63.36)   | STD          | 40           | 1200 (8.3)               | 1400 (9.7)  |
|                |               |                                     | 0.500(12.70)                      | 55.55(83.17)   | XS           | 60           | 1700 (11.7)              | 2000 (13.8) |
|                |               |                                     | 0.330 (8.38)                      | 45.47(67.72)   | —            | 30           | 950 (6.5)                | 1100 (7.6)  |
|                |               |                                     | 0.375 (9.52)                      | 51.28(76.21)   | STD          | —            | 1100 (7.6)               | 1200 (8.3)  |
|                |               |                                     | 0.500(12.7)                       | 66.91(99.4)  | XS           | —            | 1400 (9.7)               | 1600 (11.0) |

| Outside Diameter in. | Nominal wall Thickness in. | Weight Per Unit Lengths lb/ft | Outside Diameter in. | Nominal wall Thickness in. | Weight Per Unit Lengths lb/ft | Outside Diameter in. | Nominal wall Thickness in. | Weight Per Unit Lengths lb/ft |
|----------------------|----------------------------|-------------------------------|----------------------|----------------------------|-------------------------------|----------------------|----------------------------|-------------------------------|
| 6                    | 0.134                      | 8.4                           | 10 3/4               | 0.365                      | 40.52                         | 16                   | 0.134                      | 22.73                         |
|                      | 0.141                      | 8.83                          |                      | 0.438                      | 48.28                         |                      | 0.141                      | 23.9                          |
|                      | 0.156                      | 9.75                          |                      | 0.5                        | 54.79                         |                      | 0.15                       | 25.42                         |
|                      | 0.164                      | 10.23                         |                      | 0.134                      | 17                            |                      | 0.164                      | 27.76                         |
| 8                    | 0.172                      | 10.72                         | 12                   | 0.141                      | 17.87                         | 18                   | 0.172                      | 29.1                          |
|                      | 0.141                      | 11.85                         |                      | 0.15                       | 19                            |                      | 0.179                      | 30.27                         |
|                      | 0.172                      | 14.39                         |                      | 0.164                      | 20.75                         |                      | 0.188                      | 31.78                         |
|                      | 0.109                      | 9.92                          |                      | 0.172                      | 21.75                         |                      | 0.203                      | 34.28                         |
|                      | 0.141                      | 12.79                         | 8 5/8                | 0.203                      | 25.6                          |                      | 0.219                      | 36.95                         |
|                      | 0.172                      | 15.54                         |                      | 0.219                      | 27.58                         |                      | 0.23                       | 38.77                         |
|                      | 0.188                      | 16.96                         |                      | 0.23                       | 28.94                         |                      | 0.25                       | 42.09                         |
|                      | 0.203                      | 18.28                         |                      | 0.25                       | 31.4                          |                      | 0.281                      | 47.22                         |
|                      | 0.219                      | 19.68                         | 12 3/4               | 0.281                      | 35.2                          | 20                   | 0.312                      | 52.32                         |
|                      | 0.25                       | 22.38                         |                      | 0.312                      | 38.98                         |                      | 0.344                      | 57.57                         |
|                      | 0.277                      | 24.72                         |                      | 0.322                      | 28.58                         |                      | 0.375                      | 62.64                         |
|                      | 0.312                      | 27.73                         |                      | 0.344                      | 30.45                         |                      | 0.438                      | 72.86                         |
|                      | 0.322                      | 28.58                         | 10                   | 0.375                      | 33.07                         | 22                   | 0.469                      | 77.87                         |
|                      | 0.344                      | 30.45                         |                      | 0.438                      | 38.33                         |                      | 0.5                        | 82.85                         |
|                      | 0.375                      | 33.07                         |                      | 0.5                        | 43.43                         |                      | 0.141                      | 26.92                         |
|                      | 0.438                      | 38.33                         |                      | 0.109                      | 14.73                         |                      | 0.172                      | 32.78                         |
|                      | 0.5                        | 43.43                         | 10 3/4               | 0.134                      | 18.07                         | 24                   | 0.188                      | 35.8                          |
|                      | 0.109                      | 11.53                         |                      | 0.141                      | 19.01                         |                      | 0.219                      | 41.63                         |
|                      | 0.12                       | 12.67                         |                      | 0.15                       | 20.2                          |                      | 0.23                       | 43.69                         |
|                      | 0.134                      | 14.13                         |                      | 0.164                      | 22.07                         |                      | 0.25                       | 47.44                         |
|                      | 0.141                      | 14.86                         | 12                   | 0.172                      | 23.13                         | 26                   | 0.281                      | 53.23                         |
|                      | 0.15                       | 15.79                         |                      | 0.179                      | 24.05                         |                      | 0.312                      | 58.99                         |
|                      | 0.164                      | 17.24                         |                      | 0.188                      | 25.05                         |                      | 0.344                      | 64.93                         |
|                      | 0.172                      | 18.07                         |                      | 0.203                      | 27.23                         |                      | 0.375                      | 70.65                         |
|                      | 0.179                      | 18.79                         | 14                   | 0.219                      | 29.34                         | 28                   | 0.438                      | 82.23                         |
|                      | 0.188                      | 19.72                         |                      | 0.23                       | 30.78                         |                      | 0.469                      | 87.89                         |
|                      | 0.203                      | 21.26                         |                      | 0.25                       | 33.41                         |                      | 0.5                        | 93.54                         |
|                      | 0.219                      | 22.9                          |                      | 0.281                      | 37.46                         |                      | 0.172                      | 36.46                         |
|                      | 0.23                       | 24.02                         | 10 3/4               | 0.312                      | 41.48                         | 30                   | 0.188                      | 39.82                         |
|                      | 0.25                       | 26.06                         |                      | 0.33                       | 43.81                         |                      | 0.219                      | 46.31                         |
|                      | 0.109                      | 12.4                          |                      | 0.344                      | 45.62                         |                      | 0.25                       | 52.78                         |
|                      | 0.12                       | 13.64                         |                      | 0.375                      | 49.61                         |                      | 0.281                      | 59.23                         |
|                      | 0.134                      | 15.21                         | 12 3/4               | 0.438                      | 57.65                         | 32                   | 0.312                      | 65.66                         |
|                      | 0.141                      | 15.99                         |                      | 0.5                        | 65.48                         |                      | 0.344                      | 72.28                         |
|                      | 0.15                       | 17                            |                      | 0.134                      | 19.86                         |                      | 0.375                      | 78.67                         |
|                      | 0.164                      | 18.56                         |                      | 0.141                      | 20.89                         |                      | 0.438                      | 91.59                         |
|                      | 0.172                      | 19.45                         | 14                   | 0.15                       | 22.21                         | 34                   | 0.469                      | 97.92                         |
|                      | 0.179                      | 20.23                         |                      | 0.164                      | 24.26                         |                      | 0.5                        | 104.23                        |
|                      | 0.188                      | 21.23                         |                      | 0.172                      | 25.43                         |                      | 0.172                      | 40.13                         |
|                      | 0.203                      | 22.89                         |                      | 0.179                      | 26.45                         |                      | 0.188                      | 43.84                         |
|                      | 0.219                      | 24.65                         | 10 3/4               | 0.203                      | 29.94                         | 36                   | 0.219                      | 50.99                         |
|                      | 0.23                       | 25.87                         |                      | 0.219                      | 32.26                         |                      | 0.25                       | 58.13                         |
|                      | 0.25                       | 28.06                         |                      | 0.23                       | 33.86                         |                      | 0.281                      | 65.24                         |
|                      | 0.279                      | 31.23                         |                      | 0.25                       | 36.75                         |                      | 0.312                      | 72.34                         |
|                      | 0.307                      | 34.27                         | 12 3/4               | 0.281                      | 41.21                         | 38                   | 0.375                      | 86.69                         |
|                      | 0.344                      | 38.27                         |                      | 0.312                      | 45.65                         |                      | 0.438                      | 100.96                        |
|                      | 0.365                      | 40.52                         |                      | 0.344                      | 50.22                         |                      | 0.469                      | 109.95                        |
|                      | 0.438                      | 48.28                         |                      | 0.375                      | 54.62                         |                      | 0.5                        | 114.92                        |
|                      | 0.5                        | 54.79                         | 14                   | 0.438                      | 63.5                          | 40                   | 0.469                      | 117.98                        |
|                      |                            |                               |                      | 0.469                      | 67.84                         |                      | 0.5                        | 125.62                        |
|                      |                            |                               |                      |                            |                               |                      |                            |                               |
|                      |                            |                               |                      |                            |                               |                      |                            |                               |

**ASTM A500 Round Pipes**

| Nominal Size | Outside Diameter |       | Wall Thickness |      | Weight |       |        |
|--------------|------------------|-------|----------------|------|--------|-------|--------|
|              | inch             | mm    | inch           | mm   | lb/ft  | kg/ft | kg/m   |
| 1/2          | 0.840            | 21.3  | 0.109          | 2.77 | 0.85   | 0.39  | 1.27   |
| 3/4          | 1.050            | 26.7  | 0.113          | 2.87 | 1.13   | 0.51  | 1.69   |
| 1            | 1.315            | 33.4  | 0.104          | 2.64 | 1.34   | 0.61  | 2.00   |
| 1 1/4        | 1.660            | 42.2  | 0.110          | 2.79 | 1.81   | 0.82  | 2.71   |
|              | 1.660            | 42.2  | 0.140          | 3.56 | 2.27   | 1.03  | 3.39   |
|              | 1.660            | 42.2  | 0.191          | 4.85 | 3.00   | 1.36  | 4.47   |
| 1 1/2        | 1.900            | 48.3  | 0.114          | 2.90 | 2.17   | 0.98  | 3.25   |
|              | 1.900            | 48.3  | 0.145          | 3.68 | 2.72   | 1.23  | 4.05   |
|              | 1.900            | 48.3  | 0.200          | 5.08 | 3.63   | 1.64  | 5.41   |
| 2            | 2.375            | 60.3  | 0.121          | 3.07 | 2.92   | 1.32  | 4.33   |
|              | 2.375            | 60.3  | 0.154          | 3.91 | 3.65   | 1.66  | 5.44   |
|              | 2.375            | 60.3  | 0.218          | 5.54 | 5.02   | 2.28  | 7.48   |
| 2 1/2        | 2.875            | 73    | 0.156          | 3.96 | 4.53   | 2.05  | 6.74   |
|              | 2.875            | 73    | 0.188          | 4.78 | 5.40   | 2.45  | 8.04   |
|              | 2.875            | 73    | 0.203          | 5.16 | 5.79   | 2.63  | 8.63   |
|              | 2.875            | 73    | 0.276          | 7.01 | 7.66   | 3.47  | 11.41  |
| 3            | 3.500            | 88.9  | 0.156          | 3.96 | 5.58   | 2.53  | 8.30   |
|              | 3.500            | 88.9  | 0.188          | 4.78 | 6.63   | 3.01  | 9.92   |
|              | 3.500            | 88.9  | 0.226          | 5.49 | 7.58   | 3.44  | 11.29  |
| 3 1/2        | 4.000            | 101.6 | 0.156          | 3.96 | 6.40   | 2.90  | 9.54   |
|              | 4.000            | 101.6 | 0.188          | 4.78 | 7.63   | 3.46  | 11.41  |
|              | 4.000            | 101.6 | 0.226          | 5.74 | 9.11   | 4.13  | 13.57  |
| 4            | 4.500            | 114.3 | 0.156          | 3.96 | 7.25   | 3.29  | 10.78  |
|              | 4.500            | 114.3 | 0.188          | 4.78 | 8.64   | 3.92  | 12.91  |
|              | 4.500            | 114.3 | 0.219          | 5.56 | 10.00  | 4.54  | 14.91  |
|              | 4.500            | 114.3 | 0.237          | 6.02 | 10.79  | 4.89  | 16.08  |
|              | 4.500            | 114.3 | 0.337          | 8.56 | 14.98  | 6.79  | 22.32  |
| 5            | 5.563            | 141.3 | 0.258          | 6.55 | 14.62  | 6.63  | 21.77  |
|              | 5.563            | 141.3 | 0.375          | 9.53 | 20.78  | 9.43  | 30.97  |
| 6            | 6.625            | 168.3 | 0.280          | 7.11 | 18.97  | 8.60  | 28.26  |
| 8            | 8.625            | 219.1 | 0.322          | 8.18 | 28.55  | 12.95 | 42.55  |
|              | 8.625            | 219.1 | 0.500          | 12.7 | 43.39  | 19.68 | 64.64  |
| 10           | 10.750           | 273.0 | 0.365          | 9.27 | 40.48  | 18.36 | 60.29  |
|              | 10.750           | 273.0 | 0.500          | 12.7 | 54.74  | 24.83 | 81.53  |
| 12           | 12.750           | 323.8 | 0.375          | 9.52 | 49.56  | 22.48 | 73.79  |
|              | 12.750           | 323.8 | 0.500          | 12.7 | 65.42  | 29.67 | 97.44  |
| 14           | 14.000           | 355.6 | 0.375          | 9.52 | 54.57  | 24.75 | 81.25  |
|              | 14.000           | 355.6 | 0.500          | 12.7 | 72.09  | 32.70 | 107.40 |
| 16           | 16.000           | 406.4 | 0.375          | 9.52 | 62.58  | 28.39 | 93.18  |
|              | 16.000           | 406.4 | 0.500          | 12.7 | 82.77  | 37.54 | 123.31 |
| 18           | 18.000           | 457   | 0.375          | 9.52 |        |       | 105.06 |
|              | 18.000           | 457   | 0.500          | 12.7 |        |       | 139.16 |
| 20           | 20.000           | 508   | 0.375          | 9.52 |        |       | 117.03 |
|              | 20.000           | 508   | 0.500          | 12.7 |        |       | 155.13 |
| 24           | 24.000           | 609.6 | 0.375          | 9.52 |        |       | 140.89 |
|              | 24.000           | 609.6 | 0.500          | 12.7 |        |       | 186.95 |

**ASTM A500 GRA/B/C Cold Formed Hollow Section**

| Square Pipes |               | Rectangular Pipes |               |
|--------------|---------------|-------------------|---------------|
| Size(mm)     | Thickness(mm) | Size(mm)          | Thickness(mm) |
| 10 x 10      | 0.6 - 1.0     | 20 x 10           | 0.6 - 1.0     |
| 12 x 12      | 0.6 - 1.0     | 25 x 12           | 0.6 - 1.0     |
| 16 x 16      | 0.6 - 1.2     | 38 x 19           | 0.6 - 1.5     |
| 19 x 19      | 0.6 - 1.5     | 50 x 25           | 0.6 - 1.5     |
| 20 x 20      | 0.6 - 1.5     | 50 x 30           | 1.0 - 3.0     |
| 25 x 25      | 1.0 - 2.75    | 60 x 40           | 1.5 - 3.5     |
| 30 x 30      | 1.0 - 2.75    | 75 x 50           | 1.5 - 4.0     |
| 32 x 32      | 1.0 - 3.0     | 80 x 40           | 1.5 - 4.0     |
| 38 x 38      | 1.0 - 3.0     | 100 x 50          | 2.0 - 6.0     |
| 40 x 40      | 1.0 - 3.5     | 100 x 60          | 2.0 - 6.0     |
| 50 x 50      | 1.0 - 5.0     | 100 x 75          | 2.0 - 6.0     |
| 60 x 60      | 1.0 - 6.0     | 120 x 60          | 3.0 - 6.0     |
| 63.5 x 63.5  | 1.0 - 6.0     | 120 x 80          | 3.0 - 6.0     |
| 70 x 70      | 1.5 - 6.0     | 125 x 50          | 3.0 - 6.0     |
| 75 x 75      | 1.5 - 6.0     | 125 x 75          | 3.0 - 6.0     |
| 80 x 80      | 2.0 - 6.0     | 150 x 50          | 3.0 - 6.0     |
| 90 x 90      | 2.0 - 6.0     | 150 x 75          | 3.0 - 6.0     |
| 100 x 100    | 2.3 - 6.0     | 150 x 100         | 4.0 - 12      |
| 120 x 120    | 4.0 - 6.0     | 160 x 80          | 4.0 - 6.0     |
| 125 x 125    | 4.0 - 6.0     | 175 x 100         | 4.0 - 12      |
| 150 x 150    | 4.0 - 8.0     | 200 x 100         | 4.0 - 12      |
| 200 x 200    | 6.0 - 12      | 200 x 150         | 4.0 - 12      |
| 250 x 250    | 6.0 - 12      | 250 x 150         | 5.0 - 12      |
| 300 x 300    | 6.0 - 12      | 300 x 200         | 5.0 - 12      |
| 350x350      | 6.0 - 12      | 350x250           | 5.0 - 12      |
| 400 x 400    | 6.0 - 12      | 400 x 200         | 5.0 - 12      |
| 500x500      | 6.0 - 16      | 500x300           | 5.0-16        |



### ASTM A795 Black and Red and Hot Dipped Zinc-Coated, Welded Steel Pipe for Fire Protection Use

| Dimensions, Weights, and Test Pressure For Light-Weight Fire Protection Pipe—Schedule 10 A |               |                  |       |                |      |                  |       |  |     |
|--|---------------|------------------|-------|----------------|------|------------------|-------|--|-----|
| NPS Designator   | DN Designator | Outside Diameter |       | Wall Thickness |      | Weight Plain End |       | Test Pressure<br>Seamless and Electric-Resistance-Welded |     |
|  |               | in               | mm    | in             | mm   | lb/ft            | kg/m  | psi  | MPa |
| 3/4  | 20            | 1.05             | 26.7  | 0.083          | 2.11 | 0.86             | 1.28  | 700  | 4.8 |
| 1  | 25            | 1.315            | 33.4  | 0.109          | 2.77 | 1.41             | 2.09  | 700  | 4.8 |
| 1 1/4  | 32            | 1.66             | 42.2  | 0.109          | 2.77 | 1.81             | 2.69  | 1000   | 6.9 |
| 1 1/2  | 40            | 1.9              | 48.3  | 0.109          | 2.77 | 2.09             | 3.11  | 1000   | 6.9 |
| 2  | 50            | 2.375            | 60.3  | 0.109          | 2.77 | 2.64             | 3.93  | 1000   | 6.9 |
| 2 1/2  | 65            | 2.875            | 73    | 0.12           | 3.05 | 3.53             | 5.26  | 1000   | 6.9 |
| 3  | 80            | 3.5              | 88.9  | 0.12           | 3.05 | 4.34             | 6.46  | 1000   | 6.9 |
| 3 1/2  | 90            | 4                | 101.6 | 0.12           | 3.05 | 4.98             | 7.41  | 1200   | 8.3 |
| 4  | 100           | 4.5              | 114.3 | 0.12           | 3.05 | 5.62             | 8.37  | 1200   | 8.3 |
| 5  | 125           | 5.563            | 141.3 | 0.134          | 3.4  | 7.78             | 11.58 | 1200   | 8.3 |
| 6  | 150           | 6.625            | 168.3 | 0.134          | 3.4  | 9.3              | 13.85 | 1000   | 6.9 |
| 8  | 200           | 8.625            | 219.1 | 0.188          | 4.78 | 16.96            | 25.26 | 800  | 5.5 |
| 10   | 250           | 10.75            | 273.1 | 0.188          | 4.78 | 21.23            | 31.62 | 700  | 4.8 |

Dimensions, Weights, Test Pressures For Standard-Weight Fire Protection Pipe—Schedule 30 and Schedule 40

| NPS Designator | DN Designator | Outside Diameter |       | Wall Thickness |      | Weight Plain End |       | Test Pressure<br>Seamless and Electric-Resistance-Welded |     |
|----------------|---------------|------------------|-------|----------------|------|------------------|-------|--|-----|
|                |               | in               | mm    | in             | mm   | lb/ft            | kg/m  | psi  | MPa |
| 1/2            | 15            | 0.84             | 21.3  | 0.109          | 2.77 | 0.85             | 1.27  | 700  | 4.8 |
| 3/4            | 20            | 1.05             | 26.7  | 0.113          | 2.87 | 1.13             | 1.68  | 700  | 4.8 |
| 1              | 25            | 1.315            | 33.4  | 0.133          | 3.38 | 1.68             | 2.5   | 700  | 4.8 |
| 1 1/4          | 32            | 1.66             | 42.2  | 0.14           | 3.58 | 2.27             | 3.4   | 1000   | 6.9 |
| 1 1/2          | 40            | 1.9              | 48.3  | 0.145          | 3.68 | 2.72             | 4.07  | 1000   | 6.9 |
| 2              | 50            | 2.375            | 60.3  | 0.154          | 3.91 | 3.66             | 5.5   | 1000   | 6.9 |
| 2 1/2          | 65            | 2.875            | 73    | 0.203          | 5.16 | 5.8              | 8.68  | 1000   | 6.9 |
| 3              | 80            | 3.5              | 88.9  | 0.216          | 5.49 | 7.58             | 11.35 | 1000   | 6.9 |
| 3 1/3          | 90            | 4                | 101.6 | 0.226          | 5.74 | 9.12             | 13.71 | 1200   | 8.3 |
| 4              | 100           | 4.5              | 114.3 | 0.237          | 6.02 | 10.8             | 16.25 | 1200   | 8.3 |
| 5              | 125           | 5.563            | 141.3 | 0.258          | 6.55 | 14.63            | 22.07 | 1200   | 8.3 |
| 6              | 150           | 6.625            | 168.3 | 0.28           | 7.11 | 18.99            | 28.6  | 1200   | 8.3 |
| 8              | 200           | 8.625            | 219.1 | 0.277          | 7.04 | 24.72            | 38.09 | 1200   | 8.3 |
| 10             | 250           | 10.75            | 273.1 | 0.307          | 7.8  | 34.27            | 53.29 | 1000   | 6.9 |

Note 1.1psi=0.07031ka/cm2 2.1lb/ft=0.45359ka/ft



# Seamless Steel Pipe

**STANDARD:** API 5L API 5CT, ASTM A106, ISO3183, GB/T 9711

**GRADE:** GR.B, X42~X70 PSL1 PSL2

**APPLICATION:**

It is used for conveying gas, water, and petroleum for oil and natural gas industries.



| Outside Diameter |       | Wall Thickness(mm) |       |       |       |       |        |
|------------------|-------|--------------------|-------|-------|-------|-------|--------|
| INCH             | MM    | SCH20              | SCH40 | STD   | XS    | SCH80 | SCH160 |
| 1/4              |       |                    | 2.24  | 2.24  | 3.02  | 3.02  |        |
| 3/8              |       |                    | 2.31  | 2.31  | 3.2   | 3.2   |        |
| 1/2              | 21.3  |                    | 2.77  | 2.77  | 3.73  | 3.73  | 4.78   |
| 3/4              | 26.7  |                    | 2.87  | 2.87  | 3.91  | 3.91  | 5.56   |
| 1                | 33.4  |                    | 3.38  | 3.38  | 4.55  | 4.55  | 6.35   |
| 1 1/4            | 42.2  |                    | 3.56  | 3.56  | 4.85  | 4.85  | 6.35   |
| 1 1/2            | 48.3  |                    | 3.68  | 3.68  | 5.08  | 5.08  | 7.14   |
| 2                | 60.3  |                    | 3.91  | 3.91  | 5.54  | 5.54  | 8.74   |
| 2 1/2            | 73.0  |                    | 5.16  | 5.16  | 7.01  | 7.01  | 9.53   |
| 3                | 88.9  |                    | 5.49  | 5.49  | 7.62  | 7.62  | 11.13  |
| 3 1/2            | 101.6 |                    | 5.74  | 5.74  | 8.08  | 8.08  |        |
| 4                | 114.3 |                    | 6.02  | 6.02  | 8.56  | 8.56  | 13.49  |
| 5                | 141.3 |                    | 6.55  | 6.55  | 9.53  | 9.53  | 15.88  |
| 6                | 168.3 |                    | 7.11  | 7.11  | 10.97 | 10.97 | 18.26  |
| 8                | 219.1 | 6.35               | 8.18  | 8.18  | 12.7  | 12.7  | 23.01  |
| 10               | 273.1 | 6.35               | 9.27  | 9.27  | 12.7  | 15.09 | 28.38  |
| 12               | 323.9 | 6.35               | 9.53  | 10.31 | 12.7  | 17.48 | 33.32  |
| 14               | 355.6 | 7.92               | 9.53  | 11.13 | 12.7  | 19.05 | 35.71  |
| 16               | 406.4 | 7.92               | 9.53  | 12.7  | 12.7  | 21.44 | 40.49  |
| 18               | 457.2 | 7.92               | 9.53  | 14.27 | 12.7  | 23.88 | 45.24  |
| 20               | 508   | 9.53               | 9.53  | 15.09 | 12.7  | 26.19 | 50.01  |
| 22               | 558.8 | 9.53               | 9.53  |       | 12.7  | 28.58 | 53.98  |
| 24               | 609.6 | 9.53               | 9.53  | 17.48 | 12.7  | 30.96 | 59.54  |
| 26               | 660.4 | 12.7               | 9.53  |       | 12.7  |       |        |

# CS/GI/MS/SS Fittings in all Standard grade and thickness



● Slip on Flange



● Welding Neck Flange



● Threading Flange



● Blind Flange



● Tee Reducer



● Tee Straight



● L/R 180° Elbow



● S/R 180° Elbow



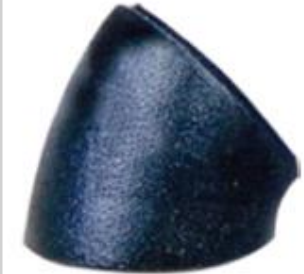
● L/R 90° Elbow



● S/R 90° Elbow



● L/R 45° Elbow



● S/R 45° Elbow



● Ecc Reducer



● Con Reducer



● Cap



## Carbon Steel Fitting



Reducing Tee



Straight Tee



Ecc Reducer



Con Reducer



L/R  
180° Elbow



S/R  
180° Elbow



L/R  
90° Elbow



S/R  
90° Elbow



L/R  
45° Elbow



S/R  
45° Elbow



Bend pipe



Cap

45° , 90° AND 180° CARBON STEEL ELBOW  
 STANDARD: ASME/ANSI B16.9  
 GRADE:WPB

| Outside Diameter |       | Wall THICKNESS(mm) | Outside Diameter |      |      |
|------------------|-------|--------------------|------------------|------|------|
| INCH             | MM    |                    | 45°              | 90°  | 180° |
|                  |       | SCH40              | KG               | KG   | KG   |
| 1/2              | 21.3  | 2.77               | 0.04             | 0.08 | 0.16 |
| 3/4              | 26.7  | 2.87               | 0.05             | 0.1  | 0.21 |
| 1                | 33.4  | 3.38               | 0.08             | 0.16 | 0.3  |
| 1 1/4            | 42.2  | 3.56               | 0.13             | 0.25 | 0.5  |
| 1 1/2            | 48.3  | 3.68               | 0.18             | 0.38 | 0.72 |
| 2                | 60.3  | 3.91               | 0.38             | 0.65 | 1.3  |
| 2 1/2            | 73.0  | 5.16               | 0.65             | 1.29 | 2.58 |
| 3                | 88.9  | 5.49               | 1.02             | 2.03 | 4.06 |
| 3 1/2            | 101.6 | 5.74               | 1.22             | 2.45 | 4.87 |
| 4                | 114.3 | 6.02               | 1.93             | 3.85 | 7.1  |
| 5                | 141.3 | 6.55               | 3.26             | 6.51 | 13.6 |
| 6                | 168.3 | 7.11               | 6.06             | 10.1 | 20.2 |
| 8                | 219.1 | 8.18               | 7.96             | 18.9 | 21.8 |
| 10               | 273.1 | 9.27               | 12.5             | 25   | 50   |
| 12               | 323.9 | 9.53               | 38.6             | 66.1 | 108  |
| 14               | 355.6 | 9.53               | 34.1             | 68.1 | 136  |
| 16               | 406.4 | 9.53               | 44.7             | 39.3 | 179  |
| 18               | 457.2 | 9.53               | 56.5             | 113  | 226  |
| 20               | 508   | 9.53               | 70               | 140  | 230  |
| 22               | 558.8 | 9.53               | 77               | 170  | 340  |
| 24               | 609.6 | 9.53               | 101              | 202  | 404  |
| 26               | 660.4 | 9.53               | 119              | 238  | 476  |

## STRAIGHT AND REDUCER TEE

STANDARD: ASME/ANSI B16.9  
GRADE:WPB



Straight Tee



Reducer Tee

| Outside Diameter |             | Outside Diameter |             |
|------------------|-------------|------------------|-------------|
| INCH             | MM          | INCH             | INCH        |
| 3/4x3/4          | 26.7x26.7   | 6x6              | 168.3x168.3 |
| 3/4x1/2          | 26.7x21.3   | 6x5              | 168.3x141.3 |
| 1x1              | 33.4x33.4   | 8x8              | 219.1x219.1 |
| 1x3/4            | 33.4x26.7   | 8x6              | 219.1x168.3 |
| 1 1/4x1 1/4      | 42.2x42.2   | 10x8             | 273x219.1   |
| 1 1/4x1          | 42.2x33.4   | 10x10            | 273.1x273.1 |
| 1 1/2x1 1/2      | 48.3x48.3   | 12x12            | 323.8x323.8 |
| 1 1/2x1 1/4      | 48.3x42.2   | 12x10            | 323.8x273.1 |
| 2x2              | 60.3x60.3   | 14x14            | 355.6x355.6 |
| 2x1 1/2          | 60.3x48.3   | 14x12            | 355.6x323.8 |
| 3x3              | 88.9x88.9   | 18x18            | 457x457     |
| 3x2 1/2          | 88.9x73     | 18x16            | 457x406.4   |
| 4x4              | 114.3x114.3 | 20x20            | 508x508     |
| 4x3              | 114.3x88.9  | 24x18            | 508x457     |
| 5x5              | 141.3x141.3 | 24x24            | 610x610     |
| 5x4              | 141.3x114.3 | 24x20            | 610x508     |

## FLANGES

### WELDING NECK FLANGES

STANDARD ASME/ANSI B16.9  
GRADE:WPB

| NPS   | OD  | ID    | Thickness | Unit Weight | NPS  | OD  | ID    | Thickness | Unit Weight |
|-------|-----|-------|-----------|-------------|------|-----|-------|-----------|-------------|
| INCH  | MM  | MM    | MM        | KGS         | INCH | MM  | MM    | MM        | KGS         |
| 1/2   | 89  | 21.3  | 11.5      | 0.5         | 5    | 254 | 141.3 | 24        | 9.2         |
| 3/4   | 99  | 26.9  | 13        | 0.7         | 6    | 279 | 168.3 | 25.5      | 11          |
| 1     | 108 | 33.7  | 14.5      | 1.1         | 8    | 343 | 219.1 | 29        | 18.3        |
| 1 1/4 | 117 | 42.4  | 16        | 1.5         | 10   | 406 | 273   | 30.5      | 25          |
| 1 1/2 | 127 | 48.3  | 17.5      | 1.8         | 12   | 483 | 323.9 | 32        | 39          |
| 2     | 152 | 60.3  | 19.5      | 2.7         | 14   | 533 | 355.6 | 35        | 51          |
| 2 1/2 | 178 | 73    | 22.5      | 4.4         | 16   | 597 | 406.4 | 37        | 60          |
| 3     | 190 | 88.9  | 24        | 5.2         | 18   | 635 | 457   | 40        | 71          |
| 3 1/2 | 216 | 101.6 | 24        | 6.4         | 20   | 698 | 508   | 43        | 88          |
| 4     | 229 | 114.3 | 24        | 7.5         | 24   | 813 | 610   | 48        | 119         |

### BLIND FLANGES

STANDARD ASME/ANSI B16.9  
GRADE:WPB

| NPS   | OD  | ID    | Thickness | Unit Weight | NPS  | OD  | ID    | Thickness | Unit Weight |
|-------|-----|-------|-----------|-------------|------|-----|-------|-----------|-------------|
| INCH  | MM  | MM    | MM        | KGS         | INCH | MM  | MM    | MM        | KGS         |
| 1/2   | 89  | 21.3  | 11.5      | 0.4         | 5    | 254 | 141.3 | 24        | 9           |
| 3/4   | 99  | 26.9  | 13        | 0.7         | 6    | 279 | 168.3 | 25.5      | 12          |
| 1     | 108 | 33.7  | 16        | 0.9         | 8    | 343 | 219.1 | 29        | 21          |
| 1 1/4 | 117 | 42.4  | 16        | 1.3         | 10   | 406 | 273   | 30.5      | 30          |
| 1 1/2 | 127 | 48.3  | 17.5      | 1.6         | 12   | 483 | 323.9 | 32        | 45          |
| 2     | 152 | 60.3  | 19.5      | 2.6         | 14   | 533 | 355.6 | 35        | 59          |
| 2 1/2 | 178 | 73    | 22.5      | 4.1         | 16   | 597 | 406.4 | 37        | 79          |
| 3     | 190 | 88.9  | 24        | 5           | 18   | 635 | 457   | 40        | 97          |
| 3 1/2 | 216 | 101.6 | 24        | 6.4         | 20   | 698 | 508   | 43        | 124         |
| 4     | 229 | 114.3 | 24        | 7.1         | 24   | 813 | 610   | 48        | 188         |

## CONCENTRIC AND ECCENTRIC REDUCER

STANDARD ASME/ANSI B16.9  
GRADE:WPB



CON Reducer



EOC Reducer

| Outside Diameter |             | Outside Diameter |             |
|------------------|-------------|------------------|-------------|
| INCH             | MM          | INCH             | INCH        |
| 3/4x1/2          | 26.7x21.3   | 5x3              | 141.3x88.9  |
| 1x3/4            | 33.4x26.7   | 6x5              | 168.3x141.3 |
| 1x1/2            | 33.4x21.3   | 6x4              | 168.3x114.3 |
| 1 1/4x1          | 42.2x33.4   | 8x6              | 219.1x168.3 |
| 1 1/4x3/4        | 42.2x26.7   | 8x4              | 219.1x114.3 |
| 1 1/2x1 1/4      | 48.3x42.2   | 10x8             | 273.1x219.1 |
| 1 1/2x1          | 48.3x33.4   | 10x6             | 273.1x168.3 |
| 2x1 1/2          | 60.3x48.3   | 12x10            | 323.9x273.1 |
| 2x1              | 60.3x33.4   | 12x8             | 323.9x219.1 |
| 2 1/2x2          | 73x60.3     | 14x12            | 355.6x323.8 |
| 2 1/2x1 1/2      | 73x48.3     | 14x10            | 355.6x273.1 |
| 3x2 1/2          | 88.9x73     | 18x16            | 457x406.4   |
| 3x2              | 88.9x60.3   | 18x14            | 457x355.6   |
| 4x3              | 114.3x88.9  | 20x18            | 508x457     |
| 4x2 1/2          | 114.3x73    | 24x20            | 610x508     |
| 5x4              | 141.3x114.3 | 24x18            | 610x457     |

## THREADED FLANGE

STANDARD ASME/ANSI B16.9  
GRADE:WPB

| NPS   | OD  | ID    | Thickness | Unit Weight | NPS  | OD  | ID    | Thickness | Unit Weight |
|-------|-----|-------|-----------|-------------|------|-----|-------|-----------|-------------|
| INCH  | MM  | MM    | MM        | KGS         | INCH | MM  | MM    | MM        | KGS         |
| 1/2   | 89  | 21.3  | 11.5      | 0.4         | 5    | 254 | 141.3 | 24        | 7           |
| 3/4   | 99  | 26.9  | 13        | 0.7         | 6    | 279 | 168.3 | 25.5      | 8.4         |
| 1     | 108 | 33.7  | 14.5      | 0.9         | 8    | 343 | 219.1 | 29        | 13          |
| 1 1/4 | 117 | 42.4  | 16        | 1.2         | 10   | 406 | 273   | 30.5      | 17.8        |
| 1 1/2 | 127 | 48.3  | 17.5      | 1.5         | 12   | 483 | 323.9 | 32        | 29.5        |
| 2     | 152 | 60.3  | 19.5      | 2.3         | 14   | 533 | 355.6 | 35        | 39          |
| 2 1/2 | 178 | 76.1  | 22.5      | 3.7         | 16   | 597 | 406.4 | 37        | 47          |
| 3     | 190 | 88.9  | 24        | 4.2         | 18   | 635 | 457   | 40        | 50          |
| 3 1/2 | 216 | 101.6 | 24        | 5.3         | 20   | 698 | 508   | 43        | 68          |
| 4     | 229 | 114.3 | 24        | 5.9         | 24   | 813 | 610   | 48        | 93          |



Welding Neck Flange



Blind Flange



Slip on Flange



Threaded Flange

## SLIP ON FLANGES

STANDARD ASME/ANSI B16.9  
GRADE:WPB

| NPS   | OD  | ID    | Thickness | Unit Weight | NPS  | OD  | ID    | Thickness | Unit Weight |
|-------|-----|-------|-----------|-------------|------|-----|-------|-----------|-------------|
| INCH  | MM  | MM    | MM        | KGS         | INCH | MM  | MM    | MM        | KGS         |
| 1/2   | 89  | 22.5  | 11.5      | 0.4         | 5    | 254 | 144   | 24        | 6.3         |
| 3/4   | 99  | 28    | 13        | 0.7         | 6    | 279 | 170.5 | 25.5      | 7.5         |
| 1     | 108 | 34.5  | 14        | 0.8         | 8    | 343 | 221.5 | 29        | 12.6        |
| 1 1/4 | 117 | 43.5  | 16        | 1.1         | 10   | 406 | 276.5 | 30.5      | 18.5        |
| 1 1/2 | 127 | 49.5  | 17.5      | 1.4         | 12   | 483 | 327   | 32        | 28          |
| 2     | 152 | 65    | 19.5      | 2.2         | 14   | 533 | 359   | 35        | 36          |
| 2 1/2 | 178 | 73    | 22.5      | 3.6         | 16   | 597 | 410.5 | 37        | 46          |
| 3     | 190 | 90.5  | 24        | 4.1         | 18   | 635 | 462   | 40        | 50          |
| 3 1/2 | 216 | 106.5 | 24        | 5.2         | 20   | 698 | 513   | 43        | 64          |
| 4     | 229 | 116   | 24        | 5.6         | 24   | 813 | 616   | 48        | 89          |

### Octagonal Cap

| SIZE | IN | 3/8  | 1/2  | 3/4  | 1    | 1 1/4 | 1 1/2 |
|------|----|------|------|------|------|-------|-------|
|      | MM | 10   | 15   | 20   | 25   | 32    | 40    |
| A    |    | 17   | 19   | 22   | 24   | 27    | 28    |
| S    |    | 20.6 | 24.6 | 30.4 | 37.2 | 47    | 53    |
| SIZE | IN | 2    |      |      |      |       |       |
|      | MM | 50   |      |      |      |       |       |
| A    |    | 32   |      |      |      |       |       |
| S    |    | 65   |      |      |      |       |       |



STANDARD: ENGB/T-3287 ;BS EN-10242;KHT300-6 etc.  
GRADE:Malleable Iron

### Bushing

| SIZE | IN | 3/8*1/4 | 1/2*1/4 | 1/2*3/8 | 3/4*3/8 | 3/4*1/2 | 1*1/2 |
|------|----|---------|---------|---------|---------|---------|-------|
|      | MM | 10×8    | 18×8    | 15×10   | 20×10   | 20×15   |       |
| L    |    | 18.5    | 22.5    | 22.5    | 24.5    | 24.5    | 28    |
| H    |    | 6       | 6       | 6       | 6       | 6       | 6     |
| S    |    | 18.4    | 22      | 22      | 29.6    | 29.6    | 37.4  |



### Union

| SIZE | IN | 1/2   | 3/4 | 1     | 1 1/4 | 1 1/2 | 2  |
|------|----|-------|-----|-------|-------|-------|----|
|      | MM | 15    | 20  | 25    | 32    | 40    | 50 |
| L    |    | 46    | 50  | 56    | 63    | 68    | 76 |
| SIZE | IN | 2 1/2 | 3   | 4     |       |       |    |
|      | MM | 65    | 80  | 100   |       |       |    |
| L    |    | 83    | 93  | 113.5 |       |       |    |



### Straight Tee

| SIZE | IN | 1/4   | 3/8 | 1/2   | 3/4  | 1    | 1 1/4 |
|------|----|-------|-----|-------|------|------|-------|
|      | MM | 8     | 10  | 15    | 20   | 25   | 32    |
| A    |    | 20    | 24  | 27    | 32   | 37   | 44.5  |
| SIZE | IN | 1 1/2 | 2   | 2 1/2 | 3    | 4    | 6     |
|      | MM | 40    | 50  | 65    | 80   | 100  | 150   |
| A    |    | 48.5  | 57  | 68.5  | 77.5 | 96.5 | 129   |



### Coupling

| SIZE | IN | 1/4   | 3/8 | 1/2   | 3/4 | 1   | 1 1/4 |
|------|----|-------|-----|-------|-----|-----|-------|
|      | MM | 8     | 10  | 15    | 20  | 25  | 32    |
| L    |    | 26    | 29  | 35    | 38  | 44  | 49    |
| SIZE | IN | 1 1/2 | 2   | 2 1/2 | 3   | 4   | 6     |
|      | MM | 40    | 50  | 65    | 80  | 100 | 150   |
| L    |    | 53    | 63  | 72    | 77  | 91  | 118   |



## Reducing Socket

| SIZE | MM | 10×8        | 15×8      | 15×10   | 20×15       | 25×10       | 25×15   |
|------|----|-------------|-----------|---------|-------------|-------------|---------|
|      | IN | 3/8×1/4     | 1/2×1/4   | 1/2×3/8 | 3/4×1/2     | 1×3/8       | 1×1/2   |
| A    |    | 29          | 35        | 36      | 38          | 44          | 44      |
| SIZE | MM | 32×15       | 32×20     | 32×25   | 40×15       | 40×20       | 40×25   |
|      | IN | 1 1/4×1/2   | 1 1/4×3/4 | 1 1/4×1 | 1 1/2×1/2   | 1 1/2×3/4   | 1 1/2×1 |
| A    |    | 49          | 49        | 49      | 53          | 53          | 53      |
| SIZE | MM | 40×32       | 50×15     | 50×20   | 50×25       | 50×32       | 50×40   |
|      | IN | 1 1/2×1 1/4 | 2×1/2     | 2×3/4   | 2×1         | 2×1 1/4     | 2×1 1/2 |
| A    |    | 53          | 63        | 63      | 63          | 63          | 63      |
| SIZE | MM | 65×15       | 65×20     | 65×25   | 65×32       | 65×40       | 65×50   |
|      | IN | 2 1/2×1/2   | 2 1/2×3/4 | 2 1/2×2 | 2 1/2×1 1/4 | 2 1/2×1 1/2 | 2 1/2×2 |
| A    |    | 72          | 72        | 72      | 72          | 72          | 72      |
| SIZE | MM | 80×15       | 80×20     | 80×25   | 80×32       | 80×40       | 80×50   |
|      | IN | 3×1/2       | 3×3/4     | 3×1     | 3×1 1/4     | 3×1 1/2     | 3×2     |
| A    |    | 71          | 71        | 71      | 71          | 71          | 71      |
| SIZE | MM | 80×65       | 100×15    | 100×20  | 100×25      | 100×32      | 100×40  |
|      | IN | 3×2 1/2     | 4×1/2     | 4×3/4   | 4×1         | 4×1 1/4     | 4×1 1/2 |
| A    |    | 71          | 84        | 84      | 84          | 84          | 84      |
| SIZE | MM | 100×50      | 100×65    | 100×80  | 25×20       |             |         |
|      | IN | 4×2         | 4×2 1/2   | 4×3     | 1×3/4       |             |         |
| A    |    | 84          | 84        | 84      | 44          |             |         |



## Nipple

| SIZE | IN | 1/4   | 3/8  | 1/2   | 3/4  | 1   | 1 1/4 |
|------|----|-------|------|-------|------|-----|-------|
|      | MM |       |      |       |      |     |       |
| L    |    | 8     | 10   | 15    | 20   | 25  | 32    |
|      | S  | 36    | 36   | 44    | 47   | 53  | 56    |
|      |    | 16.7  | 19.2 | 23.6  | 29.2 | 36  | 45    |
| SIZE | IN |       |      |       |      |     |       |
|      | MM |       |      |       |      |     |       |
| L    |    | 1 1/2 | 2    | 2 1/2 | 3    | 4   |       |
|      | S  | 40    | 50   | 65    | 80   | 100 |       |
|      |    | 58    | 68   | 73    | 81   | 95  |       |
|      |    | 63    | 63   | 79.4  | 91.6 | 117 |       |



## 90 Elbow

| SIZE | IN | 1/4   | 3/8 | 1/2  | 3/4  | 1    | 1 1/4 |
|------|----|-------|-----|------|------|------|-------|
|      | MM |       |     |      |      |      |       |
| A    |    | 20    | 24  | 27   | 32   | 37   | 44.5  |
| SIZE | IN |       |     |      |      |      |       |
|      | MM |       |     |      |      |      |       |
| L    |    | 1 1/2 | 2   | 2 Y  | 3    | 4    | 6     |
|      | S  | 40    | 50  | 65   | 80   | 100  | 150   |
|      |    | 48.5  | 57  | 68.5 | 77.5 | 96.5 | 129   |



## Plain Plug

| SIZE | IN | 1/4   | 3/8 | 1/2   | 3/4  | 1    | 1 1/4 |
|------|----|-------|-----|-------|------|------|-------|
|      | MM |       |     |       |      |      |       |
| L    |    | 15.5  | 17  | 22.5  | 24   | 27   | 30    |
| B    |    | 10    | 10  | 13    | 14   | 16.5 | 20    |
| S    |    | 6     | 7   | 10    | 12   | 15   | 18    |
| SIZE | IN |       |     |       |      |      |       |
|      | MM |       |     |       |      |      |       |
| L    |    | 1 1/2 | 2   | 2 1/2 | 3    | 4    |       |
|      | S  | 40    | 50  | 65    | 80   | 100  |       |
|      |    | 31    | 36  | 40.5  | 45.5 | 51   |       |
| B    |    | 21    | 25  | 26.5  | 29.5 |      |       |
| S    |    | 22    | 26  | 30    | 34   | 44   |       |
























## Reducing Tee

| SIZE | IN | 1 1/4×1/2×1   | 1 1/4×3/4×1       | 1 1/4×1×1         | 1 1/2×1/2×1 1/4 | 1 1/2×3/4×1 1/4 | 1 1/2×1×1   |
|------|----|---------------|-------------------|-------------------|-----------------|-----------------|-------------|
|      | MM | 32×15×25      | 32×20×25          | 32×25×25          | 40×15×32        | 40×20×32        | 40×25×25    |
| A    |    | 34            | 36                | 39                | 35              | 37              | 40          |
| B    |    | 37            | 40                | 40                | 41              | 43              | 44          |
| C    |    | 31            | 34                | 36                | 34              | 36              | 36          |
| SIZE | IN | 1 1/2×1×1 1/4 | 1 1/2×1 1/4×1     | 1 1/2×1 1/4×1 1/4 | 2×1/2×1 1/2     | 2×3/4×1 1/2     | 2×1×1 1/4   |
|      | MM | 40×25×32      | 4×32×25           | 40×32×32          | 50×15×40        | 50×20×40        | 50×25×32    |
| A    |    | 41            | 45                | 45                | 37              | 40              | 43          |
| B    |    | 45            | 47                | 47                | 47              | 49              | 51          |
| C    |    | 40            | 41                | 44.5              | 35              | 37              | 40          |
| SIZE | IN | 2×1×1 1/2     | 2×1 1/4×1 1/4     | 2×1 1/4×1 1/2     | 2×1/2×1         | 2×1 1/2×1 1/2   | 2 1/2×3/4×2 |
|      | MM | 50×25×40      | 50×32×32          | 50×32×40          | 50×40×25        | 5×40/40         | 65×20/50    |
| A    |    | 42            | 47                | 47                | 51              | 51              | 43.5        |
| B    |    | 49            | 53                | 53                | 54              | 54              | 57          |
| C    |    | 40            | 44.5              | 45                | 45              | 48.5            | 40          |
| SIZE | IN | 2 1/2×1×2     | 2 1/2×1 1/4×1 1/2 | 2 1/2×1 1/4×2     | 2 1/2×1 1/2×2   | 2 1/2×2×2       | 3×1×2 1/2   |
|      | MM | 65×25×50      | 65×32×40          | 65×32×50          | 65×40×50        | 65×50×50        | 80×25×65    |
| A    |    | 45            | 51.5              | 51.5              | 54.5            | 59.5            | 49.5        |
| B    |    | 58            | 61                | 61                | 61              | 64              | 67          |
| C    |    | 42            | 45                | 47                | 51              | 57              | 47.5        |
| SIZE | IN | 3×1 1/4×3 1/2 | 3×1 1/2×2 1/2     | 3×2×2 1/2         | 3×2 1/2×2 1/2   |                 |             |
|      | MM | 80×32×65      | 80×40×65          | 80×50/65          | 80×40×65        |                 |             |
| A    |    | 54.5          | 57.5              | 61.5              | 61.5            |                 |             |
| B    |    | 69            | 71                | 71                | 71              |                 |             |
| C    |    | 51.5          | 54.5              | 59.5              | 59.5            |                 |             |

# Grooved Fitting

Standard: ANSI B36.10, JIS B2302, ASME/ANSI/BS1560/-  
 DIN2616 etc.  
 Steel grade: GR.A GR.B

|  |  |   |   |   |   |
|--|--|---|---|---|---|
| <br>11.25° Elbow<br>(grooved)      | <br>22.5° Elbow<br>(grooved)            | <br>45° Elbow                        | <br>90° Elbow                          | <br>Flange<br>Adapter<br>(grooved) | <br>Reducer<br>(grooved) |
| <br>Mechanical<br>Tee<br>(grooved) | <br>Mechanical<br>Cross<br>(grooved)    | <br>Reducing<br>Tee<br>(grooved)     | <br>Reducing<br>Cross<br>(grooved)     | <br>Blind<br>Flange                | <br>Flexible<br>Coupling |
| <br>Reducer<br>(threaded)         | <br>Treaded<br>Flange                 | <br>Mechanical<br>Tee<br>(threaded) | <br>Mechanical<br>Cross<br>(threaded) | <br>Reducing<br>Tee<br>(threaded) | <br>Tee<br>(grooved)    |
| <br>Cross<br>(grooved)           | <br>Heavy Duty<br>Flange<br>(grooved) | <br>Heavy Duty<br>Coupling         |   |   |   |

## FLEXIBLE COUPLING

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|
| 50(2)               | 60.3                  |
| 65(2-1/2×1)         | 76.1                  |
| 80(3)               | 88.9                  |
| 100(4)              | 108                   |
| 100(4)              | 114.3                 |
| 125(5)              | 133                   |
| 125(5)              | 139.7                 |
| 150(6)              | 159                   |
| 150(6)              | 165.1                 |
| 150(6)              | 168.3                 |
| 200(8)              | 216.3                 |
| 200(8)              | 219.1                 |
| 250A(10)            | 267.4                 |
| 250(10)             | 273                   |
| 300A(12)            | 318.5                 |



FLEXIBLE COUPLING

## RIGID COUPLING

(A)

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|
| 50(2)               | 60.3                  |
| 65(2-1/2×1)         | 76.1                  |
| 80(3)               | 88.9                  |
| 100(4)              | 108                   |
| 100(4)              | 114.3                 |
| 125(5)              | 133                   |
| 125(5)              | 139.7                 |
| 150(6)              | 159                   |
| 150(6)              | 165.1                 |
| 200(8)              | 219.1                 |
| 250(10)             | 273                   |
| 300(12)             | 323.9                 |

## RIGID COUPLING

(B)

| NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) |
|------------------|-----------------------|
| 1"               | 33.7                  |
| 1-1/4"           | 42.4                  |
| 1-1/2"           | 48.3                  |
| 2-1/2"           | 73                    |
| 3"               | 88.9                  |
| 4"               | 114.3                 |
| 6"               | 168.3                 |
| 8"               | 216.3                 |
| 8"               | 219.1                 |
| 10"              | 267.4                 |
| 12"              | 318.5                 |

## HEAVY DUTY COUPLING

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|
| 65(2-1/2×1)         | 76.1                  |
| 80(3)               | 88.9                  |
| 100(4)              | 114.3                 |
| 150(6)              | 165.1                 |



HEAVY DUTY COUPLING



RIGID COUPLING

**90° Elbow**  
90度弯头 (A)

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|
| 50(2)               | 60.3                  |
| 65(2-1/2×1)         | 76.1                  |
| 65(3)               | 88.9                  |
| 100(4)              | 108                   |
| 100(4)              | 114.3                 |
| 125(5)              | 133                   |
| 125(5)              | 139.7                 |
| 150(6)              | 165.1                 |
| 200(8)              | 219.1                 |
| 250(10)             | 273                   |
| 300(12)             | 323.9                 |

**90° Elbow**  
90度弯头 (B)

| NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) |
|------------------|-----------------------|
| 2-1/2"           | 73                    |
| 3"               | 88.9                  |
| 4"               | 114.3                 |
| 5"               | 141.3                 |
| 6"               | 168.3                 |
| 8"               | 219.1                 |

**90° Elbow**  
90度弯头 (C)

| NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) |
|------------------|-----------------------|
| 2"               | 60.3                  |
| 30"              | 76.1                  |
| 3"               | 88.9                  |
| 4"               | 114.3                 |
| 5-1/2"           | 139.7                 |
| 6-1/2"           | 165.1                 |
| 216              | 216.3                 |
| 267              | 267.4                 |
| 318              | 318                   |



**MECHANICAL CROSS (GROOVED)**  
沟槽机械四通 (A)

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|
| 100×50(4×2)         | 114.3×60.3            |
| 100×65(4×2-1/2)     | 114.3×73              |
| 100×65(4×2-1/2)     | 114.3×76.1            |
| 100×80(4×3)         | 114.3×88.9            |
| 125×65(5×2-1/2)     | 139.7×76.1            |
| 125×80(5×3)         | 139.7×88.9            |
| 150×65(6×2-1/2)     | 165.1×76.1            |
| 150×80(6×3)         | 165.1×88.9            |
| 150×100(6×4)        | 165.1×114.3           |
| 200×65(8×2-1/2)     | 219.1×76.1            |
| 200×80(8×3)         | 219.1×88.9            |
| 200×100(8×4)        | 219.1×114.3           |
| 250×65(10×2-1/2)    | 273×76.1              |
| 250×80(10×3)        | 273×88.9              |
| 250×100(10×4)       | 273×114.3             |



MECHANICAL CROSS (GROOVED)  
沟槽机械四通

**MECHANICAL CROSS (GROOVED)**  
沟槽机械四通 (B)

| NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) |
|------------------|-----------------------|
| 2-1/2"×1"        | 73×33                 |
| 2-1/2"×21-1/4"   | 73×42                 |
| 2-1/2"×1-1/2"    | 73×48                 |
| 3"×1"            | 89×33                 |
| 3"×1-1/4"        | 89×42                 |
| 3"×1-1/2"        | 89×48                 |
| 3"×2"            | 89×60                 |
| 4"×1"            | 114×33                |
| 4"×1-1/4"        | 114×42                |
| 4"×1-1/2"        | 114×48                |
| 4"×2"            | 114×60                |
| 4"×2-1/2"        | 114×73                |
| 4"×3"            | 114×89                |
| 6"×1"            | 168×33                |
| 6"×1-1/4"        | 168×42                |
| 6"×1-1/2"        | 168×48                |
| 6"×2"            | 168×60                |
| 6"×2-1/2"        | 168×73                |
| 6"×3"            | 168×89                |
| 8"×2"            | 219×60                |



MECHANICAL CROSS (THREADED)  
丝接机械四通

**MECHANICAL CROSS(THREADED)**

丝接机械四通 (B)

| NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) |
|------------------|-----------------------|
| 2-1/2"x1"        | 73×Rc1                |
| 2-1/2"x1-1/4"    | 73×Rc1-1/4            |
| 2-1/2"x1-1/2"    | 73×Rc1-1/2            |
| 3"x1"            | 88.9×Rc1              |
| 3"x1-1/4"        | 88.9×Rc1-1/4          |
| 3"x1-1/2"        | 88.9×Rc1-1/2          |
| 3"x2"            | 88.9×Rc2              |
| 4"x1"            | 114.3×Rc1             |
| 4"x1-1/4"        | 114.3×Rc1-1/4         |
| 4"x1-1/2"        | 114.3×Rc1-1/2         |
| 4"x2"            | 114.3×Rc2             |
| 6"x1"            | 168.3×Rc1             |
| 6"x1-1/2"        | 168.3×Rc1-1/2         |
| 6"x2"            | 168.3×Rc2             |

**MECHANICAL TEE (GROOVED)**

沟槽机械三通 (A)

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|
| 100×50(4×2)         | 114.3×60.3            |
| 100×65(4×2-1/2)     | 114.3×73              |
| 100×65(4×2-1/2)     | 114.3×76.1            |
| 100×80(4×3)         | 114.3×88.9            |
| 125×65(5×2-1/2)     | 139.7×76.1            |
| 125×80(5×3)         | 139.7×88.9            |
| 150×65(6×2-1/2)     | 165.1×76.1            |
| 150×80(6×3)         | 165.1×88.9            |
| 150×100(6×4)        | 165.1×114.3           |
| 200×65(8×2-1/2)     | 219.1×76.1            |
| 200×80(8×3)         | 219.1×88.9            |
| 200×100(8×4)        | 219.1×114.3           |
| 250×65(10×2-1/2)    | 273×76.1              |
| 250×80(10×3)        | 273×88.9              |
| 250×100(10×4)       | 273×114.3             |

**MECHANICAL TEE (GROOVED)**

沟槽机械三通 (B)

| NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) |
|------------------|-----------------------|
| 2-1/2"x1"        | 73×33                 |
| 2-1/2"x1-1/4"    | 73×42                 |
| 2-1/2"x1-1/2"    | 73×48                 |
| 3"x1"            | 89×33                 |
| 3"x1-1/4"        | 89×42                 |
| 3"x1-1/2"        | 89×48                 |
| 3"x2"            | 89×60                 |
| 4"x1"            | 114×33                |
| 4"x1-1/4"        | 114×42                |
| 4"x1-1/2"        | 114×48                |
| 4"x2"            | 114×60                |
| 4"x2-1/2"        | 114×73                |
| 4"x3"            | 114×89                |
| 6"x1"            | 168×33                |
| 6"x1-1/4"        | 168×42                |
| 6"x1-1/2"        | 168×48                |
| 6"x2"            | 168×60                |
| 6"x2-1/2"        | 168×73                |
| 6"x3"            | 168×89                |
| 8"x2"            | 219×60                |

MECHANICAL TEE (GROOVED)  
沟槽机械三通

**MECHANICAL TEE (THREADED)****丝接机械三通 (A)**

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) | NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|---------------------|-----------------------|
| 50×25(2×1)          | 60.3×Rc1              | 125×25(5×1)         | 139.7×Rc1             |
| 65×25(2-1/2×1)      | 76.1×Rc1              | 125×32(5×1-1/4)     | 139.7×Rc1-1/4         |
| 65×32(2-1/2×1-1/4)  | 76.1×Rc1-1/4          | 125×40(5×1-1/2)     | 139.7×Rc1-1/2         |
| 65×40(2-1/2×1-1/2)  | 76.1×Rc1-1/2          | 125×50(5×2)         | 139.7×Rc2             |
| 80×25(3×1)          | 88.9×Rc1              | 125×65(5×2-1/2)     | 139.7×Rc2-1/2         |
| 80×32(3×1-1/4)      | 88.9×Rc1-1/4          | 125×80(5×3)         | 139.7×Rc3             |
| 80×40(3×1-1/2)      | 88.9×Rc1-1/2          | 150×25(6×1)         | 159×Rc1               |
| 80×50(3×2)          | 88.9×Rc2              | 150×32(6×1-1/4)     | 159×Rc1-1/4           |
| 100×25(4×1)         | 108×Rc1               | 150×40(6×1-1/2)     | 159×Rc1-1/2           |
| 100×32(4×1-1/4)     | 108×Rc1-1/4           | 150×50(6×2)         | 159×Rc2               |
| 100×40(4×1-1/2)     | 108×Rc1-1/2           | 150×50(6×2-1/2)     | 159×Rc2-1/2           |
| 100×50(4×2)         | 108×Rc2               | 150×50(6×3)         | 159×Rc3               |
| 100×65(4×2-1/2)     | 108×Rc2-1/2           | 150×25(6×1)         | 165.1×Rc1             |
| 100×25(4×1)         | 114.3×Rc1             | 150×32(6×1-1/4)     | 165.1×Rc1-1/4         |
| 100×32(4×1-1/4)     | 114.3×Rc1-1/4         | 150×40(6×1-1/2)     | 165.1×Rc1-1/2         |
| 100×40(4×1-1/2)     | 114.3×Rc1-1/2         | 150×50(6×2)         | 165.1×Rc2             |
| 100×50(4×2)         | 114.3×Rc2             | 150×50(6×2-1/2)     | 165.1×Rc2-1/2         |
| 100×65(4×2-1/2)     | 114.3×Rc2-1/2         | 150×50(6×3)         | 165.1×Rc3             |
| 125×25(5×1)         | 133×Rc1               | 200×25(8×1)         | 219.1×Rc1             |
| 125×32(5×1-1/4)     | 133×Rc1-1/4           | 200×32(8×1-1/4)     | 219.1×Rc1-1/4         |
| 125×40(5×1-1/2)     | 133×Rc1-1/2           | 200×40(8×1-1/2)     | 219.1×Rc1-1/2         |
| 125×50(5×2)         | 133×Rc2               | 200×50(8×2)         | 219.1×Rc2             |
| 125×65(5×2-1/2)     | 133×Rc2-1/2           | 200×65(8×2-1/2)     | 219.1×Rc2-1/2         |
| 125×80(5×3)         | 133×Rc3               | 200×80(8×3)         | 219.1×Rc3             |

**MECHANICAL TEE (THREADED)****丝接机械三通 (B)**

| NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) | NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) |
|------------------|-----------------------|------------------|-----------------------|
| 2-1/2"×1"        | 73×Rc1                | 4"×2"            | 114.3×Rc2             |
| 2-1/2"×1-1/4"    | 73×Rc1-1/4            | 6"×1"            | 168.3×Rc1             |
| 2-1/2"×1-1/2"    | 73×Rc1-1/2            | 6"×1-1/2"        | 168.3×Rc1-1/2         |
| 3"×1"            | 88.9×Rc1              | 6"×2"            | 168.3×Rc2             |
| 3"×1-1/4"        | 88.9×Rc1-1/4          |                  |                       |
| 3"×1-1/2"        | 88.9×Rc1-1/2          |                  |                       |
| 3"×2"            | 88.9×Rc2              |                  |                       |
| 4"×1"            | 114.3×Rc1             |                  |                       |
| 4"×1-1/4"        | 114.3×Rc1-1/4         |                  |                       |
| 4"×1-1/2"        | 114.3×Rc1-1/2         |                  |                       |

**MECHANICAL TEE (THREADED)**

丝接机械三通

**REDUCING TEE (GROOVED)**

沟槽异径三通

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|
| 65×50(2/1/2×2)      | 76.1×60.3             |
| 80×50(3×2)          | 88.9×60.3             |
| 80×65(3×2-1/2)      | 88.9×76.1             |
| 100×50(4×2-1/2)     | 108×76.1              |
| 100×80(4×3)         | 108×88.9              |
| 100×50(4×2)         | 114.3×60.3            |
| 100×65(4×2-1/2)     | 114.3×76.1            |
| 100×80(4×3)         | 114.3×88.9            |
| 100×80(4×3)         | 114.3×88.9            |
| 125×100(5×4)        | 133×108               |
| 125×65(5×2-1/2)     | 139.7×76.1            |
| 125×80(5×3)         | 139.7×88.9            |
| 125×100(5×4)        | 139.7×114.3           |
| 150×100(6×4)        | 159×108               |
| 150×100(6×4)        | 159×114.3             |
| 150×125(6×5)        | 159×133               |
| 150×65(6×2-1/2)     | 165.1×76.1            |
| 150×80(6×3)         | 165.1×88.9            |
| 150×100(6×4)        | 165.1×114.3           |
| 150×125(6×5)        | 165.1×139.7           |
| 200×50(8×2)         | 219.1×60.3            |
| 200×65(8×2-1/2)     | 219.1×76.1            |
| 200×80(8×3)         | 219.1×88.9            |
| 200×100(8×4)        | 219.1×114.3           |
| 200×125(8×5)        | 219.1×139.7           |
| 200×150(8×6)        | 219.1×165.1           |
| 250×150(10×4)       | 273×114.3             |
| 250×150(10×6)       | 273×165.1             |
| 250×200(10×8)       | 273×219.1             |
| 300×100(12×4)       | 323.9×114.3           |
| 300×125(12×5)       | 323.9×139.7           |
| 300×150(12×6)       | 323.9×165.1           |
| 300×200(12×8)       | 323.9×219.1           |
| 300×250(12×10)      | 323.9×273             |

**REDUCING TEE (GROOVED)**

沟槽异径三通 (B)

| NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) |
|------------------|-----------------------|
| 2-1/2"×1"        | 73×60.3               |
| 3"×2"            | 76.1×60.3             |
| 3"×2"            | 88.9×60.3             |
| 3"×2-1/2"        | 89×73                 |
| 3"×3"            | 88.9×76.1             |
| 4"×2"            | 114.3×60.3            |
| 4"×2-1/2"        | 114.3×73              |
| 4"×3"            | 114.3×89              |
| 5-1/2"×2"        | 139.7×60.3            |
| 5-1/2"×3"        | 139.7×76.1            |
| 5-1/2"×3"        | 139.7×88.9            |
| 5T-1/2"×4"       | 139.7×114.3           |
| 5"×2-1/2"        | 14L3×73               |
| 5"×3"            | 14L3×88.9             |
| 5"×4"            | 14L3×114.3            |
| 6-1/2"×3"        | 165.1×76.1            |
| 6-1/2"×3"        | 165.1×88.9            |
| 6-1/2"×4"        | 165.1×114.3           |
| 6-1/2"×5-1/2"    | 165.1×139.7           |
| 6"×3"            | 168.3×88.9            |
| 6"×4"            | 168.3×114.3           |
| 6"×5"            | 168.3×141.3           |
| 8"×6"            | 219.1×168.3           |



REDUCING TEE (GROOVED)

沟槽异径三通

**REDUCING TEE (THREADED)**

丝接异径三通 (A)

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|
| 50×25(2×1)          | 60.3×Rc1              |
| 50×32(2×1-1/4)      | 60.3×Rc1-1/4          |
| 50×40(2×1-1/2)      | 60.3×Rc1-1/2          |
| 65×20(2-1/2×3/4)    | 76.1×Rc3/4            |
| 65×20(2-1/2×3/4)    | 76.1×Rc3/4            |
| 65×25(2-1/2×1)      | 76.1×Rc1              |
| 65×32(2-1/2×1/4)    | 76.1×Rc1-1/4          |
| 65×40(2-1/2×1/2)    | 76.1×Rc1-1/2          |
| 65×20(2-1/2×2)      | 76.1×Rc2              |
| 80×25(3×1)          | 88.9×Rc1              |
| 80×25(3×1)          | 88.9×Rc1              |
| 80×32(3×1-1/4)      | 88.9×Rc1-1/4          |
| 80×40(3×1-1/2)      | 88.9×Rc1-1/2          |
| 80×50(3×2)          | 88.9×Rc2              |
| 80×65(3×2-1/2)      | 88.9×Rc2-1/2          |
| 100×65(4×2-1/2)     | 108×Rc2-1/2           |
| 100×80(4×3)         | 108×Rc3               |
| 100×25(4×1)         | 114.3×Rc1             |
| 100×25(4×1)         | 114.3×Rc1             |
| 100×32(4×1-1/4)     | 114.3×Rc1-1/4         |
| 100×40(4×1-1/2)     | 114.3×Rc1-1/2         |
| 100×50(4×2)         | 114.3×Rc2             |
| 100×65(4×2-1/2)     | 114.3×Rc2-1/2         |
| 100×80(4×3)         | 114.3×Rc3             |
| 125×65(5×2-1/2)     | 133×Rc2-1/2           |
| 125×80(5×3)         | 133×Rc3               |
| 125×25(5×1)         | 139.7×Rc1             |
| 125×32(5×1-1/4)     | 139.7×Rc1-1/4         |
| 125×40(5×1-1/2)     | 139.7×Rc1-1/2         |
| 125×80(5×7/2)       | 139.7×Rc2             |
| 150×25(6×1)         | 165.1×Rc1             |
| 150×50(6×2)         | 165.1×Rc2             |
| 150×50(6×3)         | 165.1×Rc2             |
| 150×65(6×2-1/2)     | 165.1×Rc2             |
| 150×80(6×3)         | 165.1×Rc3             |
| 200×50(8×2)         | 219.1×Rc2             |
| 200×65(8×2-1/2)     | 219.1×Rc2-1/2         |
| 200×80(8×3)         | 219.1×Rc3             |

**REDUCING TEE (THREADED)**

丝接异径三通 (B)

| NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) |
|------------------|-----------------------|
| 3"×1"            | 88.9×Rc1              |
| 3"×1-1/4"        | 88.9×Rc1-1/4          |
| 3"×1-1/2"        | 88.9×Rc1-1/2          |
| 3"×2"            | 88.9×Rc2              |
| 4"×1"            | 114.3×Rc1             |
| 4"×1-1/4"        | 114.3×Rc1-1/4         |
| 4"×1-1/2"        | 114.3×Rc1-1/2         |
| 4"×2"            | 114.3×Rc2             |
| 5-1/2"×1"        | 139.7×Rc1             |
| 5-1/2"×1-1/4"    | 139.7×Rc1-1/4         |
| 5-1/2"×1-1/2"    | 139.7×Rc1-1/2         |
| 5T-1/2"×2"       | 139.7×Rc2             |
| 6-1/2"×1"        | 165.1×Rc1             |
| 6-1/2"×1-1/4"    | 165.1×Rc1-1/4         |
| 6-1/2"×1-1/2"    | 165.1×Rc1-1/2         |
| 6-1/2"×2"        | 165.1×Rc2             |



REDUCING TEE (THREADED)

丝接异径三通

**TEE (GROOVED)**

正三通 (A)

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|
| 50(2)               | 60.3                  |
| 65(2-1/2)           | 76.1                  |
| 80(3)               | 88.9                  |
| 100(4)              | 108                   |
| 100(4)              | 114.3                 |
| 125(5)              | 133                   |
| 125(5)              | 139.7                 |
| 150(6)              | 159                   |
| 150(6)              | 165.1                 |
| 150(6)              | 168.3                 |
| 200(8)              | 219.1                 |
| 250(10)             | 273                   |
| 300(10)             | 323.9                 |

**TEE (GROOVED)**

1E三通 (B)

| NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) |
|------------------|-----------------------|
| 2-1/2"           | 73                    |
| 3"               | 88.9                  |
| 4"               | 114.3                 |
| 5-1/2"           | 139.7                 |
| 5"               | 141.3                 |
| 6-1/2"           | 165.1                 |
| 6"               | 168.3                 |
| 8"               | 219.1                 |

**REDUCING CROSS(GROOVED)**

沟槽异径四通

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|
| 100×65(4×2-1/2)     | 114.3×76.1            |
| 100×80(4×3)         | 114.3×88.9            |
| 125×65(5×2-1/2)     | 139.7×76.1            |
| 125×80(5×3)         | 139.7×88.9            |
| 125×100(5×4)        | 139.7×114.3           |
| 150×65(6×2-1/2)     | 165.1×76.1            |
| 150×80(6×3)         | 165.1×88.9            |
| 150×100(6×4)        | 165.1×114.3           |
| 150×125(6×5)        | 165.1×139.7           |
| 200×100(8×4)        | 219.1×114.3           |
| 200×125(8×5)        | 219.1×139.7           |
| 200×150(8×6)        | 219.1×165.1           |

**CROSS (GROOVED)**

正四通

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|
| 65(2-1/2)           | 76.1                  |
| 80(3)               | 88.9                  |
| 100(4)              | 114.3                 |
| 125(5)              | 139.7                 |
| 150(6)              | 165.1                 |
| 200(8)              | 219.1                 |

**45° Elbow**

45° 弯头 (A)

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|
| 50(2)               | 60.3                  |
| 65(2-1/2)           | 76.1                  |
| 80(3)               | 88.9                  |
| 100(4)              | 108                   |
| 100(4)              | 114.3                 |
| 125(5)              | 133                   |
| 125(5)              | 139.7                 |
| 150(6)              | 159                   |
| 150(6)              | 165.1                 |
| 200(8)              | 219.1                 |
| 250(10)             | 273                   |
| 300(10)             | 323.9                 |

**45° Elbow**

45° 弯头 (B)

| NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) |
|------------------|-----------------------|
| 3"               | 88.9                  |
| 4"               | 114.3                 |
| 6"               | 168.3                 |

45° Elbow  
45° 弯头CROSS (GROOVED)  
正四通REDUCING CROSS(GROOVED)  
沟槽异径四通TEE (GROOVED)  
正三通

**REDUCER (THREADED)**

丝接大小头 (A)

| <b>NORMAL SIZE (mm/in)</b> | <b>OUTSIDE DIAMETER (mm)</b> | <b>NORMAL SIZE (mm/in)</b> | <b>OUTSIDE DIAMETER (mm)</b> |
|----------------------------|------------------------------|----------------------------|------------------------------|
| 50×25(2×3/4)               | 60.3×Rc3/4                   | 125×50(5×2)                | 133×Rc2                      |
| 50×25(2×1)                 | 60.3×Rc1                     | 125×65(5×2-1/2)            | 133×Rc2-1/2                  |
| 50×32(2×1-1/4)             | 60.3×Rc1-1/4                 | 125×80(5×3)                | 133×Rc3                      |
| 50×40(2×1-1/2)             | 60.3×Rc1-1/2                 | 125×25(5×1)                | 139.7×Rc1                    |
| 65×25(2-1/2×1)             | 76.1×Rc1                     | 125×32(5×1-1/4)            | 139.7×Rc1-1/4                |
| 65×32(2-1/2×1-1/2)         | 76.1×Rc1-1/4                 | 125×40(5×1-1/2)            | 139.7×Rc1-1/2                |
| 65×40(2-1/2×1-1/2)         | 76.1×Rc1-1/2                 | 125×50(5×2)                | 139.7×Rc2                    |
| 65×50(2-1/2×2)             | 76.1×Rc2                     | 125×65(5×2-1/2)            | 139.7×Rc2-1/2                |
| 80×25(3×1)                 | 88.9×Rc1                     | 125×80(5×3)                | 139.7×Rc3                    |
| 80×32(3×1-1/4)             | 88.9×Rc1-1/4                 | 150×25(6×1)                | 159×Rc1                      |
| 80×40(3×1-1/2)             | 88.9×Rc1-1/2                 | 150×32(6×1-1/4)            | 159×Rc1-1/4                  |
| 80×50(3×2)                 | 88.9×Rc2                     | 150×40(6×1-1/2)            | 159×Rc1-1/2                  |
| 80×65(3×2-1/2)             | 88.9×Rc2-1/2                 | 150×50(6×2)                | 159×Rc2                      |
| 100×25(4×1)                | 108×Rc1                      | 150×50(6×2-1/2)            | 159×Rc2-1/2                  |
| 100×32(4×1-1/4)            | 108×Rc1-1/4                  | 150×50(6×3)                | 159×Rc3                      |
| 100×40(4×1-1/2)            | 108×Rc1-1/2                  | 150×25(6×1)                | 165.1×Rc1                    |
| 100×50(4×2)                | 108×Rc2                      | 150×32(6×1-1/4)            | 165.1×Rc1-1/4                |
| 100×65(4×2-1/2)            | 108×Rc2-1/2                  | 150×40(6×1-1/2)            | 165.1×Rc1-1/2                |
| 100×80(4×3)                | 108×Rc3                      | 150×50(6×2)                | 165.1×Rc2                    |
| 100×25(4×1)                | 114.3×Rc1                    | 150×50(6×2-1/2)            | 165.1×Rc2-1/2                |
| 100×32(4×1-1/4)            | 114.3×Rc1-1/4                | 150×50(6×3)                | 165.1×Rc3                    |
| 100×40(4×1-1/2)            | 114.3×Rc1-1/2                | 200×25(8×1)                | 219.1×Rc1                    |
| 100×50(4×2)                | 114.3×Rc2                    | 200×32(8×1-1/4)            | 219.1×Rc1-1/4                |
| 100×65(4×2-1/2)            | 114.3×Rc2-1/2                | 200×40(8×1-1/2)            | 219.1×Rc1-1/2                |
| 100×80(4×3)                | 114.3×Rc3                    | 200×50(8×2)                | 219.1×Rc2                    |
| 125×25(5×1)                | 133×Rc1                      | 200×65(8×2-1/2)            | 219.1×Rc2-1/2                |
| 125×32(5×1-1/4)            | 133×Rc1-1/4                  | 200×80(8×3)                | 219.1×Rc3                    |
| 125×40(5×1-1/2)            | 133×Rc1-1/2                  |                            |                              |

## REDUCER (THREADED)

丝接大小头 (B)

| NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) | NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) |
|------------------|-----------------------|------------------|-----------------------|
| 2"×1-1/4"        | 60.3×Rc1-1/4          | 4"×1-1/4"        | 114.3×Rc1-1/4         |
| 2-1/2"×1"        | 73×Rc1                | 4"×1-1/2"        | 114.3×Rc1-1/2         |
| 2-1/2"×1-1/4"    | 73×Rc1-1/4            |                  |                       |
| 2-1/2"×1-1/2"    | 73×Rc1-1/2            |                  |                       |
| 2-1/2"×2"        | 73×Rc2                |                  |                       |
| 3"×2"            | 88.9×Rc2              |                  |                       |
| 4"×2"            | 114.3×Rc2             |                  |                       |



REDUCER (THREADED)  
丝接大小头

## REDUCER (GROOVED)

沟槽大小头 (A)

| NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) | NORMAL SIZE (mm/in) | OUTSIDE DIAMETER (mm) |
|---------------------|-----------------------|---------------------|-----------------------|
| 65×50(2-1/2×2)      | 76.1×60.3             | 150×125(6×5)        | 159×133               |
| 80×50(3×2)          | 88.9×60.3             | 150×125(6×5)        | 159×139.7             |
| 80×65(3×2-1/2)      | 88.9×76.1             | 150×50(6×2)         | 165.1×60.3            |
| 100×65(4×2-1/2)     | 108×76.1              | 150×65(6×2-1/2)     | 165.1×76.1            |
| 100×80(4×3)         | 108×88.9              | 150×80(6×3)         | 165.1×88.9            |
| 100×50(4×2)         | 114.3×60.3            | 150×100(6×4)        | 165.1×114.3           |
| 100×65(4×2-1/2)     | 114.3×76.1            | 150×125(6×5)        | 165.1×139.7           |
| 100×80(4×3)         | 114.3×88.9            | 200×65(8×2)         | 219.1×60.3            |
| 125×65(5×2-1/2)     | 133×76.1              | 200×65(8×2-1/2)     | 219.1×76.1            |
| 125×80(5×3)         | 133×88.9              | 200×80(8×3)         | 219.1×88.9            |
| 125×100(5×4)        | 133×108               | 200×100(8×4)        | 219.1×114.3           |
| 125×100(5×4)        | 133×114.3             | 200×125(8×5)        | 219.1×139.7           |
| 125×50(5×2)         | 139.7×60.3            | 200×150(8×6)        | 219.1×159             |
| 125×65(5×2-1/2)     | 139.7×76.1            | 200×150(8×6)        | 219.1×165.1           |
| 125×80(5×3)         | 139.7×88.9            | 250×100(10×4)       | 273×114.3             |
| 125×100(5×4)        | 139.7×108             | 250×150(10×6)       | 273×165.1             |
| 125×100(5×4)        | 139.7×114.3           | 250×200(10×8)       | 273×219.1             |
| 150×65(6×2-1/2)     | 159×76.1              | 300×150(12×6)       | 323.9×165.1           |
| 150×80(6×3)         | 159×88.9              | 300×200(12×8)       | 323.9×219.1           |
| 150×100(6×4)        | 159×108               | 300×250(12×10)      | 323.9×273             |
| 150×100(6×4)        | 159×114.3             |                     |                       |

## REDUCER (GROOVED)

沟槽大小头 (B)

| NORMAL SIZE (in) | OUTSIDE DIAMETER (mm) |
|------------------|-----------------------|
| 2-1/2"×1"        | 73×60.3               |
| 3"×2"            | 88.9×60.3             |
| 3"×2-1/2"        | 88.9×76.1             |
| 4"×2-1/2"        | 114.3×60.3            |
| 4"×2"            | 114.3×73              |
| 4"×3"            | 114.3×88.9            |
| 5"×3"            | 141.3×88.9            |
| 5"×4"            | 141.3×114.3           |
| 6"×2-1/2"        | 168.3×73              |
| 6"×3"            | 168.3×88.9            |
| 6"×4"            | 168.3×114.3           |
| 6"×5"            | 168.3×141.3           |
| 8"×6"            | 219.1×168.3           |



REDUCER (GROOVED)  
沟槽大小头

## HEAVY DUTY FLANGE (GROOVED)

### 重型法兰 2.5

| NORMAL SIZE<br>(mm/in) | OUTSIDE<br>DIAMETER(mm) | WORKING<br>PRESSURE(MPA) | DIMENSIONS(MM) |      |     |     | NO. OF<br>HOLES |
|------------------------|-------------------------|--------------------------|----------------|------|-----|-----|-----------------|
|                        |                         |                          | A              | B    | C   | D   |                 |
| 65(2-1/2×2)            | 76.1                    | 2.5                      | 63.5           | 17   | 185 | 145 | 8               |
| 65(3)                  | 88.9                    | 2.5                      | 63.5           | 17   | 200 | 160 | 8               |
| 100(4)                 | 108                     | 2.5                      | 67.5           | 16.5 | 235 | 190 | 8               |
| 100(4)                 | 114.3                   | 2.5                      | 68             | 15   | 230 | 190 | 8               |
| 150(6)                 | 159                     | 2.5                      | 68             | 17   | 300 | 250 | 8               |
| 150(6)                 | 165                     | 2.5                      | 68             | 17   | 300 | 250 | 8               |
| 200(8)                 | 219.1                   | 2.5                      | 77             | 20   | 360 | 310 | 12              |

## ADAPTOR FLANGE (GROOVED)

### 高径法兰 L6 (A)

| NORMAL SIZE<br>(mm/in) | OUTSIDE<br>DIAMETER(mm) | WORKING<br>PRESSURE(MPA) | DIMENSIONS(MM) |    |     |     | NO. OF<br>HOLES |
|------------------------|-------------------------|--------------------------|----------------|----|-----|-----|-----------------|
|                        |                         |                          | A              | B  | C   | D   |                 |
| 50(2)                  | 60.3                    | 1.6                      | 50             | 15 | 160 | 125 | 4               |
| 65(2-1/2)              | 76.1                    | 1.6                      | 50             | 15 | 178 | 145 | 4               |
| 80(3)                  | 88.9                    | 1.6                      | 50             | 15 | 194 | 160 | 8               |
| 100(4)                 | 108                     | 1.6                      | 55             | 15 | 213 | 180 | 8               |
| 100(4)                 | 114.3                   | 1.6                      | 55             | 15 | 213 | 180 | 8               |
| 125(5)                 | 133                     | 1.6                      | 58             | 17 | 243 | 210 | 8               |
| 125(5)                 | 139.7                   | 1.6                      | 58             | 17 | 243 | 210 | 8               |
| 150(6)                 | 159                     | 1.6                      | 65             | 17 | 280 | 240 | 8               |
| 150(6)                 | 165.1                   | 1.6                      | 65             | 17 | 280 | 240 | 8               |
| 200(8)                 | 219.1                   | 1.6                      | 78             | 19 | 340 | 295 | 8\12            |
| 250(10)                | 273                     | 1.6                      | 83             | 17 | 404 | 355 | 12              |
| 300(12)                | 323.9                   | 1.6                      | 88             | 17 | 416 | 410 | 12              |

## ADAPTOR FLANGE (GROOVED)

### 高径法兰 L6 (B)

| NORMAL SIZE<br>(in) | OUTSIDE<br>DIAMETER(mm) | WORKING<br>PRESSURE(MPA) | DIMENSIONS(MM) |    |     |     | NO. OF<br>HOLES |
|---------------------|-------------------------|--------------------------|----------------|----|-----|-----|-----------------|
|                     |                         |                          | A              | B  | C   | D   |                 |
| 2-1/2"              | 73                      | 1.6                      | 50             | 15 | 178 | 145 | 4               |
| 3"                  | 88.9                    | 1.6                      | 50             | 15 | 194 | 160 | 8               |
| 4"                  | 114.3                   | 1.6                      | 50             | 15 | 213 | 180 | 8               |
| 6"                  | 168.3                   | 1.6                      | 55             | 17 | 280 | 240 | 8               |



HEAVY DUTY FLANGE (GROOVED)  
重型法兰2.5



ADAPTOR FLANGE (GROOVED)  
高径法兰L6

## BLIND FLANGE

### 盲片 (A)

| NORMAL SIZE<br>(mm/in) | OUTSIDE<br>DIAMETER(mm) | WORKING<br>PRESSURE(MPA) | HEIGHT(MM) |
|------------------------|-------------------------|--------------------------|------------|
| 50(2)                  | 60.3                    | 2.5                      | 28         |
| 65(2-1/2×2)            | 76.1                    | 2.5                      | 28         |
| 80(3)                  | 88.9                    | 2.5                      | 29         |
| 100(4)                 | 108                     | 2.5                      | 31         |
| 100(4)                 | 114.3                   | 2.5                      | 31         |
| 125(5)                 | 133                     | 2.5                      | 31.5       |
| 125(4)                 | 139.7                   | 2.5                      | 31.5       |
| 150(6)                 | 159                     | 2.5                      | 31.5       |
| 150(6)                 | 165.1                   | 2.5                      | 31         |
| 200(8)                 | 219.1                   | 2.5                      | 36.5       |
| 250(10)                | 273                     | 2.5                      | 33         |



BLIND FLANGE  
盲片

## BLIND FLANGE

### 盲片 (B)

| NORMAL SIZE<br>(in) | OUTSIDE<br>DIAMETER(mm) | WORKING<br>PRESSURE(MPA) | HEIGHT(MM) |
|---------------------|-------------------------|--------------------------|------------|
| 2-1/2"              | 73                      | 2.5                      | 28         |
| 3"                  | 88.9                    | 2.5                      | 29         |
| 6"                  | 168.3                   | 2.5                      | 31         |



22.5° Elbow  
22.5°弯头

## 22.5° Elbow

### 22.5°弯头

| NORMAL SIZE<br>(mm/in) | OUTSIDE<br>DIAMETER(mm) |
|------------------------|-------------------------|
| 65(2-1/2×2)            | 76.1                    |
| 80(3)                  | 88.9                    |
| 100(4)                 | 114.3                   |
| 150(6)                 | 165.1                   |
| 200(8)                 | 219.1                   |

## 11.25° Elbow

### 11.25°弯头

| NORMAL SIZE<br>(mm/in) | OUTSIDE<br>DIAMETER(mm) |
|------------------------|-------------------------|
| 65(2-1/2×2)            | 76.1                    |
| 80(3)                  | 88.9                    |
| 100(4)                 | 114.3                   |
| 150(6)                 | 165.1                   |
| 200(8)                 | 219.1                   |



11.25° Elbow  
11.25°弯头

## GASKET RING

橡胶密封圈

| NAME            | GASKET | GENERAL SERVICE RECOMMENDATION   | TEMPERATURE RANGE |
|-----------------|--------|--|-------------------|
| EPDM            | E      | Water supply, drainage, sewage and normal temperature air, weak acid and weak alkali | -30°C~+130°C      |
| NBR             | D      | Petroleum based oils   | -20°C~+80°C       |
| SILICOMN RUBBER | S      | Drinking water, hot dry air and some hot chemicals                                   | -40°C~+180°C      |



GASKET RING  
橡胶密封圈

## THREADED FLANGE

丝接法兰

| NORMAL SIZE<br>(mm/in) | OUTSIDE DIAMETER(mm) | WORKING PRESSURE(MPA) | DIMENSIONS(MM) |    |     |       | NO. OF HOLES |
|------------------------|----------------------|-----------------------|----------------|----|-----|-------|--------------|
|                        |                      |                       | A              | B  | C   | D     |              |
| 25(1)                  | Rc1                  | 1.6                   | 18             | 10 | 85  | 110   | 4            |
| 32(1-1/4)              | Rc1-1/4              | 1.6                   | 18             | 11 | 100 | 130   | 4            |
| 40(1-1/2)              | Rc1-1/2              | 1.6                   | 19             | 13 | 110 | 145   | 4            |
| 50(2)                  | Rc2                  | 1.6                   | 20             | 13 | 125 | 15    | 4            |
| 65(2-1/2)              | Rc2-1/2              | 1.6                   | 21             | 15 | 144 | 178   | 4            |
| 80(3)                  | Rc3                  | 1.6                   | 25.5           | 15 | 160 | 193.5 | 8            |
| 100(4)                 | Rc4                  | 1.6                   | 25.75          | 15 | 180 | 213.5 | 8            |



THREADED FLANGE  
丝接法兰

## BOLTS & NUTS

螺栓螺母

| SIZE    | THREADED LENGTH L1 | TOTAL LENGTH | FISHTAIL BOLT WIDTH | NUT WIDTH |
|---------|--------------------|--------------|---------------------|-----------|
| M10×55  | 30±3               | 55±1.2       | 14.5±0.5            | 9.6~10    |
| M10×60  | 30±3               | 60±1.2       | 14.5±0.5            | 9.6~10    |
| M10×65  | 30±3               | 65±1.2       | 14.5±0.5            | 9.6~10    |
| M12×65  | 36+4               | 65±1.2       | 15.2±0.4            | 11.6~12   |
| M12×70  | 36+4               | 70+1.2       | 15.2±0.4            | 11.6~12   |
| M12×75  | 41+4               | 70+1.2       | 15.2±0.4            | 11.6~12   |
| M16×85  | 41+4               | 85+1.2       | 19.0-19.9           | 15.3~16   |
| M20×120 | 50+5               | 120+2.0      | 24±0.8              | 18.9~20   |

The mechanical properties of bolts shall not be lower than grade 8.8 specified in GB / T 3098.1, and the thread tolerance shall be 6G. The mechanical properties of the nut shall comply with Grade 8 requirements specified for nuts in GB / T 3098.2, thread tolerance 6h.



BOLTS & NUTS  
螺栓螺母

All kinds of valves and fittings for different applications such as waterline, streamline, HVAC, Airline, Firefighting, etc



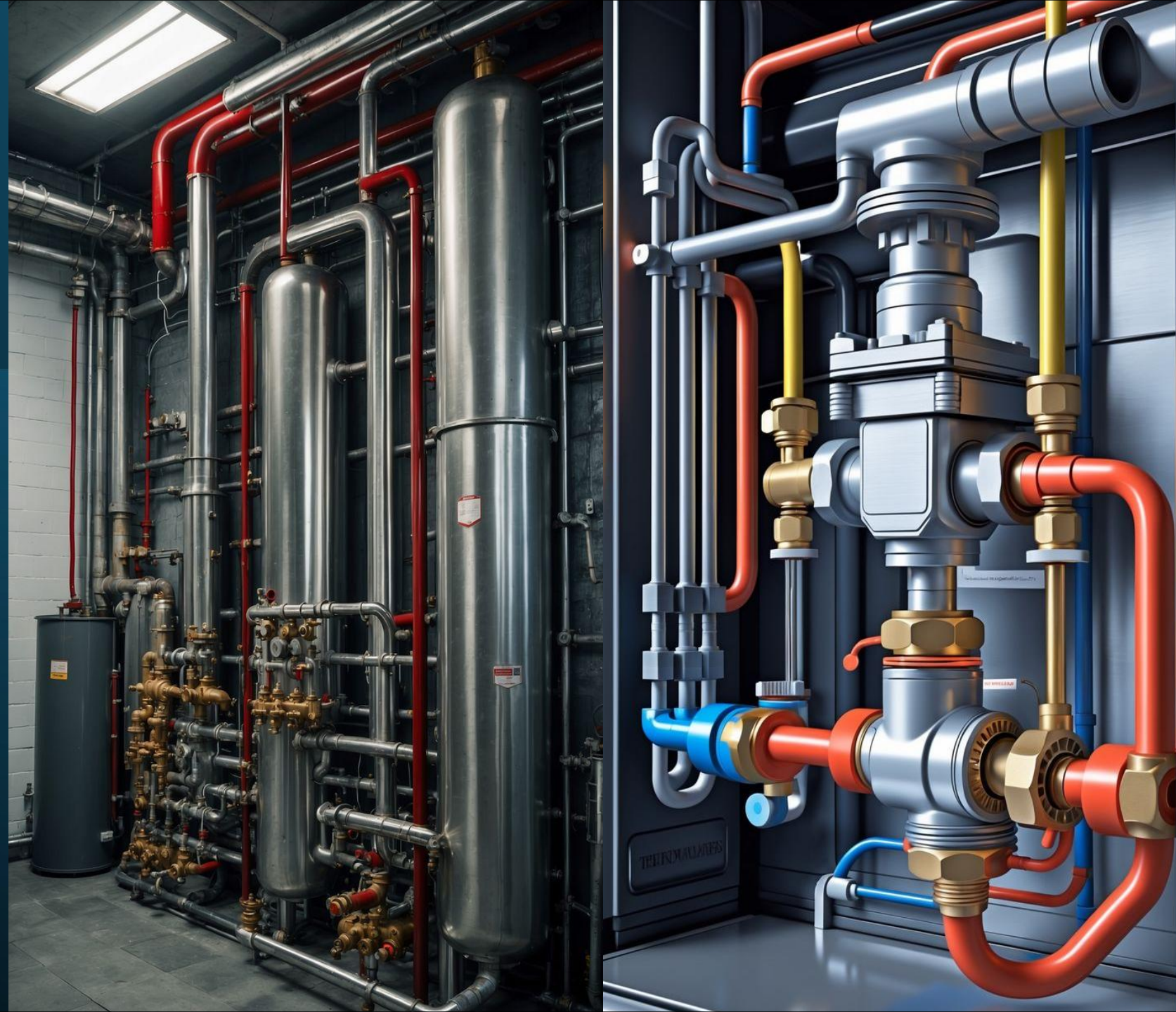
# Wide Range of Valves and Fittings





Massive collection of Normal and moisture-proof Gauges

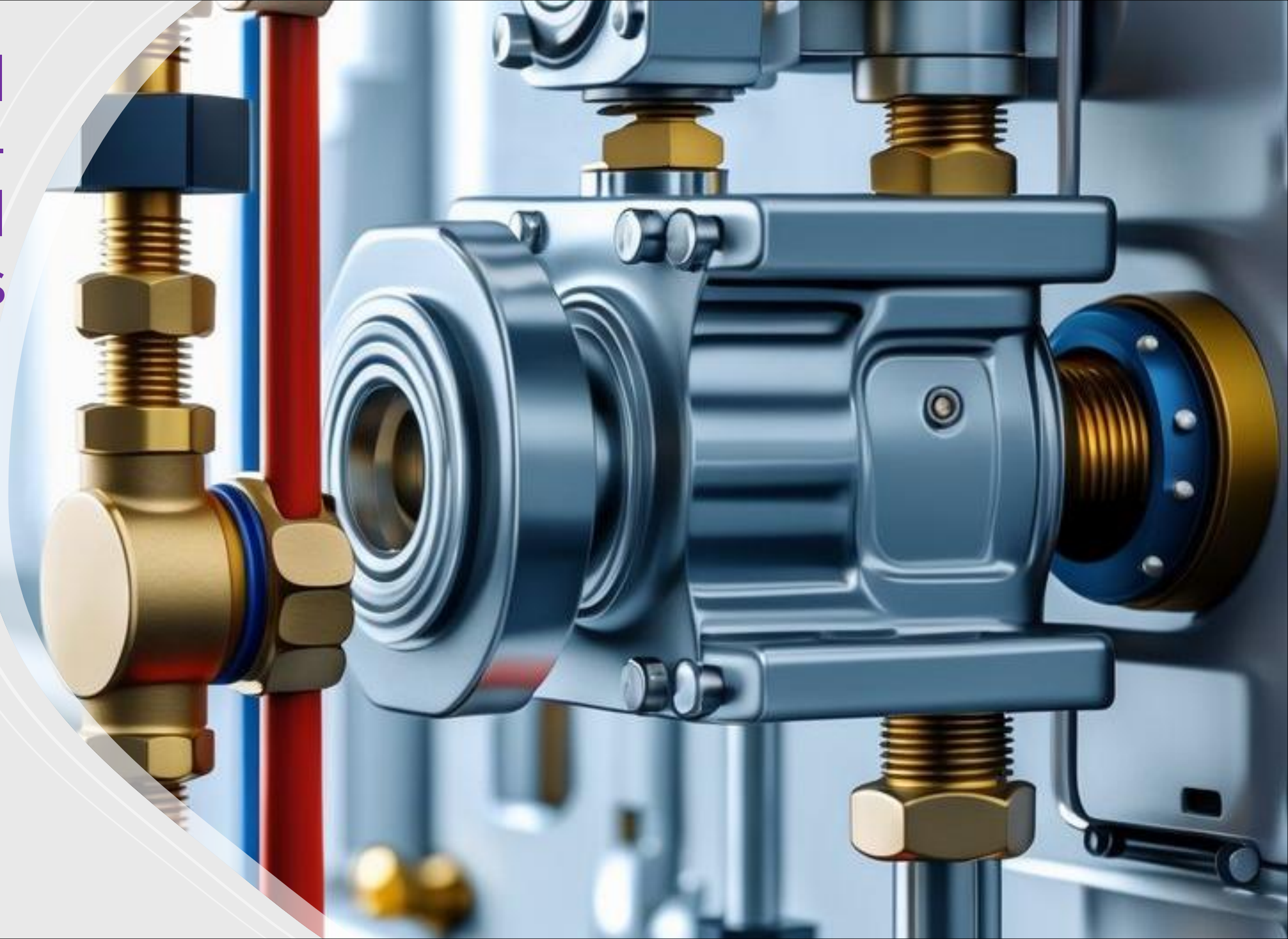
Skid mounted  
systems for  
Hot Water,  
Steam,  
wastewater,  
etc



# Customized Skid Mounted Systems



# Customized Skid- Mounted Systems

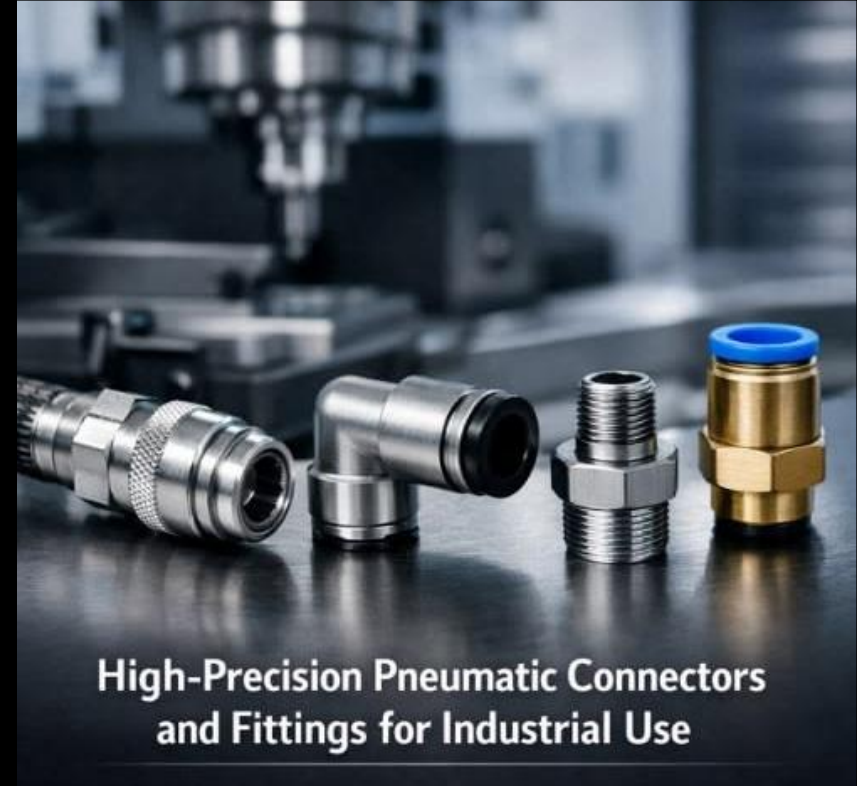




- Customized piping system for chemicals

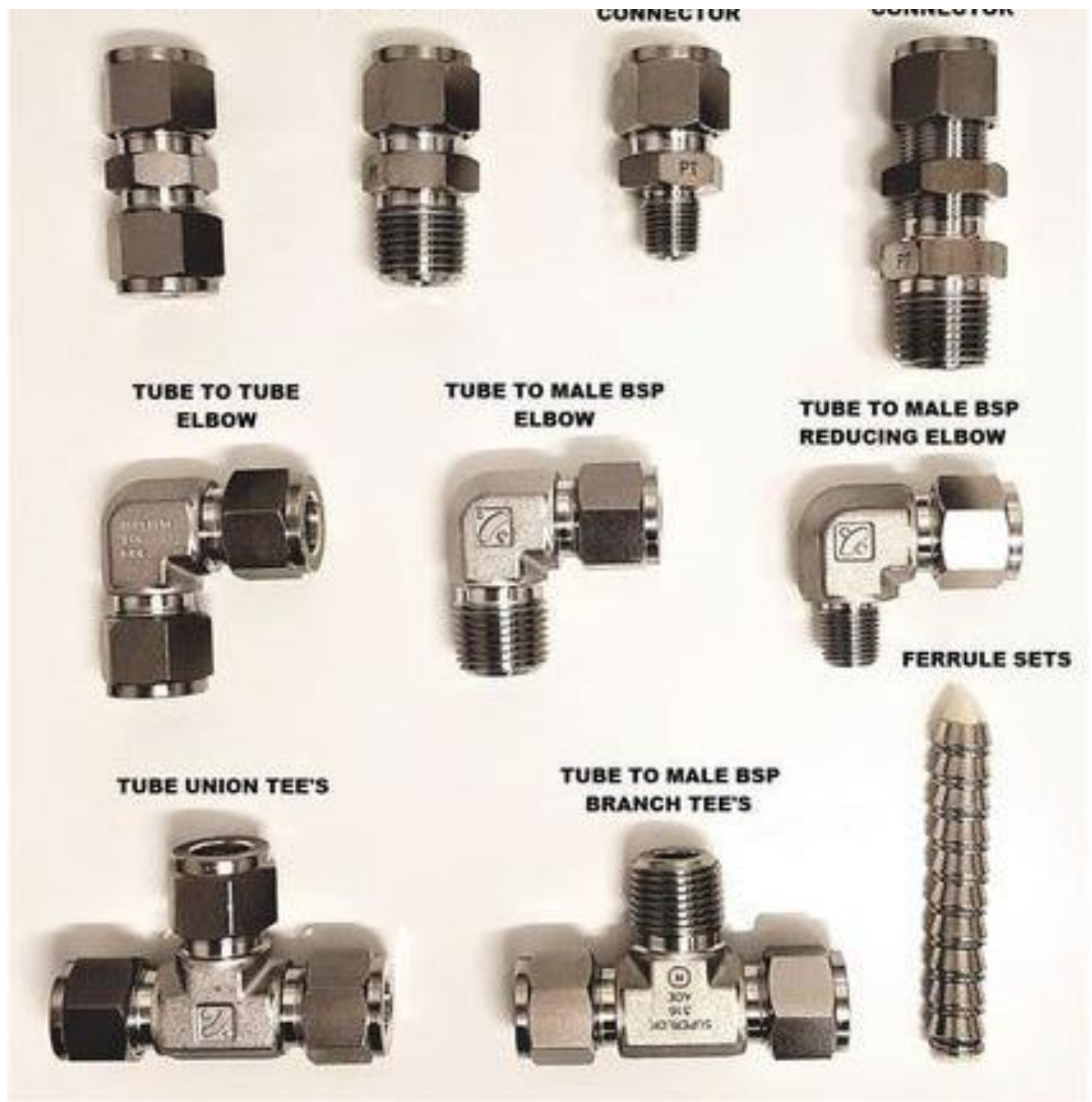
All in one  
source





High-Precision Pneumatic Connectors  
and Fittings for Industrial Use

# Instrumentation fittings





Warehouse handling materials



Manual warehouse handling equipment



# Submersible Pumps in all standard capacities and customized





Skid assembled auto-controlled pump system for different applications

# Mission

## Vision and Mission

Our mission is to facilitate seamless global trade by delivering superior industrial solutions that address the diverse needs of our clients. We are dedicated to:

1. **Ensuring Quality:** Collaborating with leading manufacturers to offer a comprehensive range of mechanical products, machinery, valves, fittings, and warehouse handling equipment that adhere to the highest industry standards.
2. **Enhancing Operational Efficiency:** Providing businesses with essential tools designed to optimize workflows and significantly improve productivity within their operations.
3. **Fostering Enduring Relationships:** Building strong and trustworthy partnerships with clients and stakeholders through exceptional customer service, competitive pricing, and punctual deliveries.
4. **Promoting Innovation:** Constantly seeking and implementing innovative solutions that respond to the evolving requirements of our clients and the industries we serve.
5. **Contributing to Sustainable Development:** Advocating for environmentally responsible practices throughout our operations and supply chain, thereby contributing to a sustainable future for our communities and the planet.

By adhering to these principles, we aim to support our clients in achieving their objectives while enhancing our reputation as a trusted partner within the global import and export arena.

# Vision

To establish ourselves as a globally recognized leader in the import and export sector of industrial and mechanical materials, renowned for our unwavering commitment to excellence, innovation, and sustainable practices. We aspire to create an environment in which businesses flourish by providing access to high-quality, dependable industrial solutions that drive efficiency and productivity across various sectors.



THANK YOU

LE IMPORT AND EXPORT TEAM

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