

# The Global Source For Quality Steel Products



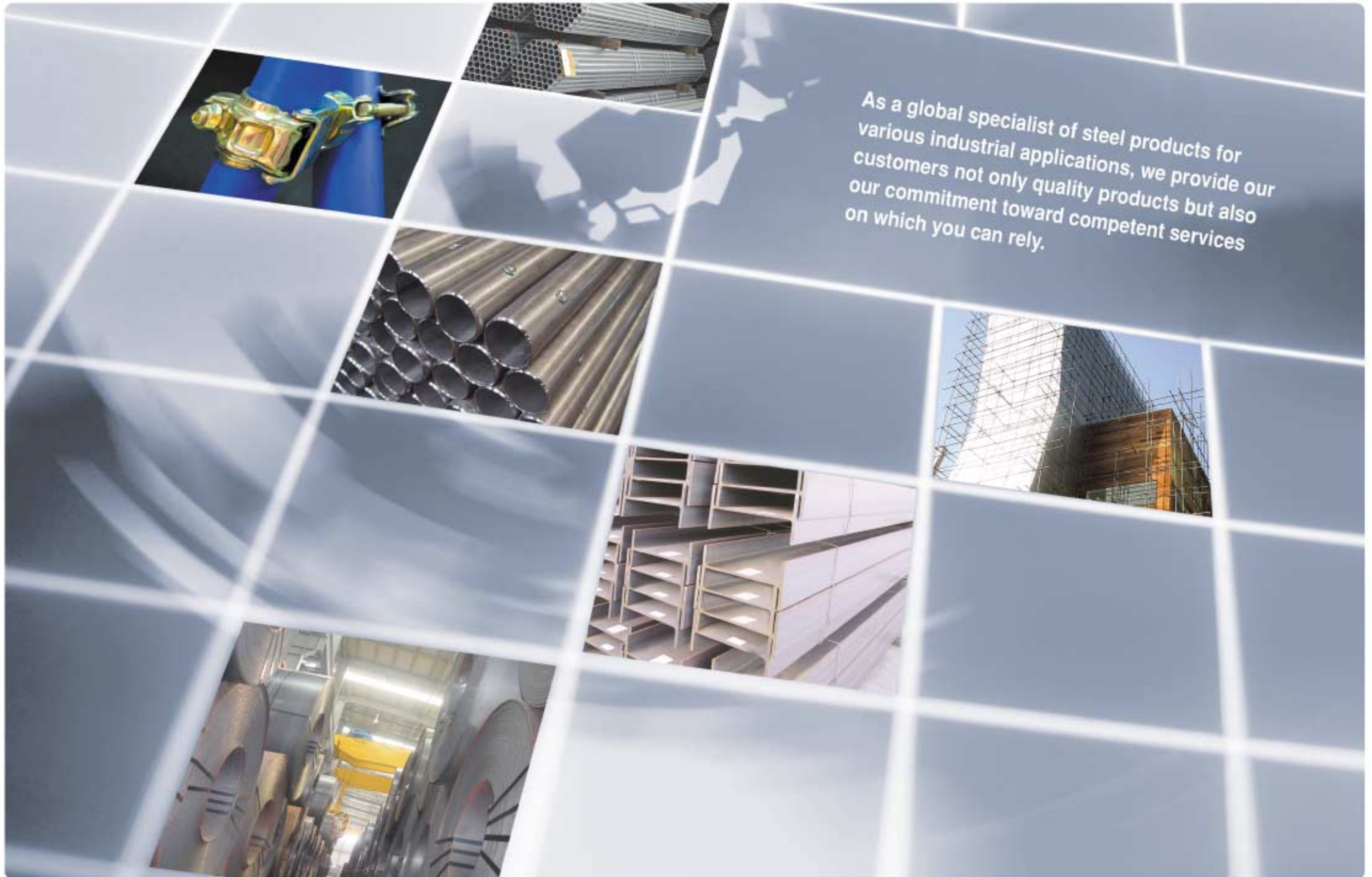
## **WANJOO METAL INC.**

7th Fl., Wooyoung Venture Tower Bldg 1330-13, Seocho - Dong, Seocho - Gu,  
Seoul, Republic of Korea  
TEL. +82-2-585-2581, 2571, 2510 Fax. +82-2-585-2587, 8799  
E-mail. [business@wanjoometal.com](mailto:business@wanjoometal.com)  
Web-site. [www.wanjoometal.com](http://www.wanjoometal.com)



The information and data in this catalog are accurate to the best of our knowledge and belief, but are intended for general information only. Applications suggested for the materials are described only to help readers make their own evaluations and decisions, and are neither guarantees nor to be construed as express or implied warranties of suitability for specific applications.

Designed by Korea Metal Journal Co., Ltd. (08.04) Tel: 82-2-583-4161



As a global specialist of steel products for various industrial applications, we provide our customers not only quality products but also our commitment toward competent services on which you can rely.

We provide electric resistance welded(ERW) pipe widely known throughout the industry for its high quality and consistent performance in the field of high temperature & pressure steel pipes for general plants, oil transmission, ship building, industrial plumbing, structural pipes for commercial & residential buildings, mechanical structures, automobile and scaffolding pipes.

ERW pipes are available with square ends or beveled for welding, threaded and coupled, Victaulic grooved. Surface finishes are available in black or bare, or with protective coatings of customer's requirements.

### Ordinary Purpose

Suitable for transmitting relatively low pressure vapor, air, water or oil. Supposed to be operated under 350 °C. Available to use in industrial piping or irrigation water or oil transmission.

Carbon Steel Pipes for Ordinary Piping to ASTM A53 Gr. A  
Plain End : Black/Galvanized (BPE/GPE)

Size	Outdia.		Thickness		Kg/Ft	pcs/ lift	
	Inch	mm	Inch	mm		Kgs	pcs
1/2 "	0.840	21.3	40	0.109	2.77	0.39	120
3/4 "	1.050	26.7	40	0.113	2.87	0.51	84
1 "	1.315	33.4	40	0.133	3.38	0.76	60
			80	0.179	4.55	0.99	60
1 1/4 "	1.660	42.2	10	0.109	2.77	0.82	42
			40	0.140	3.56	1.03	42
			80	0.191	4.85	1.36	42
1 1/2 "	1.900	48.3	10	0.109	2.77	0.95	36
			40	0.145	3.68	1.23	36
			80	0.200	5.08	1.65	36
2 "	2.375	60.3	10	0.109	2.77	1.20	26
			40	0.154	3.91	1.66	26
			80	0.218	5.54	2.28	26
2 1/2 "	2.875	73.0	10	0.120	3.05	1.60	18
			40	0.203	5.16	2.63	18
3 "	3.500	88.9	10	0.120	3.05	1.97	14
			40	0.216	5.49	3.44	14
			80	0.300	7.62	4.65	14
3 1/2 "	4.000	101.6	40	0.226	5.74	4.13	12
			10	0.120	3.05	2.55	10
4 "	4.500	114.3	40	0.237	6.02	4.89	10
			80	0.337	8.56	6.79	10
			10	0.134	3.41	3.54	7
5 "	5.563	141.3	40	0.258	6.55	6.63	7
			10	0.134	3.41	4.23	7
6 "	6.625	168.3	40	0.280	7.11	8.60	7

Threaded & Coupling : Black / Galvanized (BTC/GTC)

Size	Outdia.		Thickness		Kg/Ft	pcs/ lift	
	Inch	mm	Inch	mm		Kgs	pcs
1/2 "	0.840	21.3	40	0.109	2.77	0.39	120
3/4 "	1.050	26.7	40	0.113	2.87	0.51	84
1 "	1.315	33.4	40	0.133	3.38	0.76	60
1 1/4 "	1.660	42.2	40	0.140	3.56	1.03	42
1 1/2 "	1.900	48.3	40	0.145	3.68	1.24	36
2 "	2.375	60.3	40	0.154	3.91	1.67	26
2 1/2 "	2.875	73.0	40	0.203	5.16	2.64	18
3 "	3.500	88.9	40	0.216	5.49	3.46	14
3 1/2 "	4.000	101.6	40	0.226	5.74	4.17	12
4 "	4.500	114.3	40	0.237	6.02	4.94	10

Structural Fence Pipes to BS1387 Light with Plain End  
Plain End : Black / Galvanized(BPE/GPE)

Size	Outdia.		Thickness		Kg/Ft	pcs/ lift	
	Inch	mm	Inch	mm		Kgs	pcs
1 "	1.315	33.4	0.104	2.64	0.611	91	
1 1/4 "	1.660	42.2	0.104	2.64	0.785	61	
1 1/2 "	1.900	48.3	0.116	2.95	1.006	61	
2 "	2.375	60.3	0.116	2.95	1.272	37	
2 1/2 "	2.875	73.0	0.110	2.79	1.473	19	
2 1/2 "	2.875	73.0	0.128	3.25	1.704	19	

Scaffolding Pipe(PGI/Hot-Dip Galvanized)  
Both Ends Rivetted and Pinned(Optional)

Size	Outdia.		Thickness		Kg/Ft	Kg/M	pcs/ lift	
	Inch	mm	Inch	mm			Kgs	pcs
1 1/2 "	1.913	48.6	0.094	2.4	0.834	2.735	100	



### Structural Purpose

Recommended to use in civil engineering, commercial/residential buildings, load bearing working towers, railing / fencing application.

### Mechanical Purpose

Used in various mechanical parts of automobile, bicycle, machinery, furniture or house appliances.

### Hot Dip Galvanized Pipes

Hot dip galvanized pipes have excellent surface appearance and provide superior corrosion resistance. Ultimate service life may depend on coating thickness and the severity of the environment.



BS Class A-1/A-2 Pipes with Plain End  
Light : BPE/GPE

Size	Outdia.				Thickness		Kg/Ft	pcs/ lift
	Max		Min		Inch	mm		
	Inch	mm	Inch	mm				
1/2 "	0.841	21.4	0.825	21.0	0.080	2.03	0.290	200
3/4 "	1.059	26.9	1.041	26.4	0.092	2.34	0.430	140
1 "	1.328	33.8	1.309	33.2	0.104	2.64	0.613	90
1 1/4 "	1.670	42.5	1.650	41.9	0.104	2.64	0.786	60
1 1/2 "	1.903	48.4	1.882	47.8	0.116	2.95	0.991	60
2 "	2.370	60.2	2.347	59.6	0.116	2.95	1.253	40
2 1/2 "	2.991	76.0	2.960	75.2	0.128	3.25	1.768	30
3 "	3.491	88.7	3.460	87.9	0.128	3.25	2.076	19
4 "	4.481	113.9	4.450	113	0.144	3.66	3.014	14

Medium : BPE/GPE

Size	Outdia.				Thickness		Kg/Ft	pcs/ lift
	Max		Min		Inch	mm		
	Inch	mm	Inch	mm				
1/2 "	0.856	21.7	0.831	21.1	0.104	2.64	0.372	200
3/4 "	1.072	27.2	1.047	26.6	0.104	2.64	0.482	140
1 "	1.346	34.2	1.316	33.4	0.128	3.25	0.744	90
1 1/4 "	1.687	42.9	1.657	42.1	0.128	3.25	0.957	60
1 1/2 "	1.919	48.8	1.889	48.0	0.128	3.25	1.100	60
2 "	2.394	60.8	2.354	59.8	0.144	3.66	1.554	40
2 1/2 "	3.014	76.6	2.969	75.4	0.144	3.66	1.984	30
3 "	3.524	89.5	3.469	88.1	0.160	4.06	2.582	19
4 "	4.524	114.9	4.459	113.3	0.176	4.47	3.698	14
5 "	5.534	140.6	5.459	138.7	0.192	4.88	4.938	10
6 "	6.539	166.1	6.459	164.1	0.192	4.88	5.852	10

Heavy : BPE/GPE

Size	Outdia.				Thickness		Kg/Ft	pcs/ lift
	Max		Min		Inch	mm		
	Inch	mm	Inch	mm				
1/2 "	0.856	21.7	0.831	21.1	0.128	3.25	0.442	200
3/4 "	1.072	27.2	1.047	26.6	0.128	3.25	0.579	140
1 "	1.346	34.2	1.316	33.4	0.160	4.06	0.905	90
1 1/4 "	1.687	42.9	1.657	42.1	0.160	4.06	1.170	60
1 1/2 "	1.919	48.8	1.889	48.0	0.160	4.06	1.350	60
2 "	2.394	60.8	2.354	59.8	0.176	4.47	1.881	40
2 1/2 "	3.014	76.6	2.969	75.4	0.176	4.47	2.408	30
3 "	3.524	89.5	3.469	88.1	0.192	4.88	3.078	19
4 "	4.524	114.9	4.459	113.3	0.212	5.38	4.389	14
5 "	5.534	140.6	5.459	138.7	0.212	5.38	5.425	10
6 "	6.539	166.1	6.459	164.1	0.212	5.38	6.462	10

Pre-Galvanized Fence Tube  
PG : Plain End

Size	Outdia.		Thickness		Kg/Ft	pcs/ lift
	Inch	mm	Inch	mm		
1 "	1.315	33.4	0.065	1.65	0.394	91
			0.065	1.65	0.503	61
1 1/4 "	1.660	42.2	0.085	2.16	0.650	61
			0.065	1.65	0.579	61
1 1/2 "	1.900	48.3	0.090	2.29	0.792	61
			0.065	1.65	0.728	37
2 "	2.375	60.3	0.095	2.41	1.049	37

PGI : Swaged End

Size	Outdia.		Thickness		Kg/Ft	pcs/ lift
	Inch	mm	Inch	mm		
1 "	1.315	33.4	0.065	1.65	0.394	91
1 1/4 "	1.660	42.2	0.065	1.65	0.503	61
			0.085	2.16	0.650	61



Pipe fittings are prepared from Carbon Steel, Stainless Steel, Alloy Steel, and Duplex. We are only dealing with pipe fittings from selective sources who have been recognized as qualified manufacturer in Korea. We can assure you that our pipe fittings are to meet or even exceed the requirements of domestic as well as international standards of various applications.

### Major Applications

- equipment piping for water,
- gas to maintain the line system of buildings,
- transportation piping for fluid, slurries, crude oil,
- petroleum and so on.

### Main Products

- Butt-welding fittings : (carbon steel, alloy steel and stainless steel)  
Item : elbow, tee, reducer, cap, stub-end (lap-joint)
- Forged fittings : (carbon steel, alloy steel and stainless steel)  
Item : elbow, tee, reducer, coupling, cross, cap, o-let (WOL, SOL, TOL, EOL), union, swaged nipple, plug, nipolets
- Flanges : (carbon steel, alloy steel and stainless steel)  
Item : welding neck, slip-on, socket welding, blind.



Material	Item	Production Range		Capacity(Ton)	
		Mold Type	Fabrication Type	Monthly	Yearly
Carbon Steel Alloy Steel	Elbow	~ 82"	~ 140"	3,250	39,000
Stainless Steel Duplex Steel	Tee	~72"	~ 140"	1,650	19,800
	Reducer	~ 48"	~ 140"	800	9,600
Ni-Base Alloy Steel	Cap	~ 120" (Seamless Type)	~ 122" (Welded Type)	717	8,604
Cu-ni Alloy Steel	Stub-end	~ 16"	~ 60"	75	900
	Forged Fittings	~ 4"		125	1,500
	Outlet				
	Fittings	~ 36"		50	600

Standard steel billets for rolling mills and forging operation are provided in various international standards, including 3SP/PS, 5SP/PS, ASTM A 615 Grade 40, IS2830, JIS3101, SS400, ASTM 36, DIN17100 ST 37.2, BS 4360, BS 4449, Q237 and Q257.

### Prime Steel Square Billets

- Grade : 3sp/ps and/or 5sp/ps as per GOST 380-94
- Sizes : 125x125, 130x130, 150x150
- Length : 9.000, 11.700 mm
- Packing/Marking : Export Standard Packing
- Tolerance : Tolerance of size : 4/-5mm
- Tolerance of length : 1/-200mm
- Corner Radius : 15mm max.
- Straightness : 15mm max. per running meter
- Twist : Up to 12mm per meter



Steel quality	Chemical composition according to GOST						
	C	Si	Mn	Cr	Ni	S	P
GOST 380-94							
St0	0.23max					0.060max	0.070max
St1	0.06-0.12	0.15-0.30	0.25-0.50	0.30max	0.30max	0.050max	0.040max
St2	0.09-0.15	0.15-0.30	0.25-0.50	0.30max	0.30max	0.050max	0.040max
St3	0.14-0.22	0.15-0.30	0.40-0.65	0.30max	0.30max	0.050max	0.040max
St4	0.18-0.27	0.15-0.30	0.40-0.70	0.30max	0.30max	0.050max	0.040max
St5	0.28-0.37	0.15-0.30	0.50-0.80	0.30max	0.30max	0.050max	0.040max





Hot-rolled steel coils are provided in a range that offers extensive performance features, versatility and economy as well as reliabilities for various applications.

Thickness & Width limits (in mm)

Product	Finishes	Thickness		Width	
		Min	Max	Min	Max
Hot-rolled dry	Mill finish	2.00	12.00	1,219	1,540
Hot-rolled dry	Trimmed edges	2.00	12.00	1,219	1,540
Hot-rolled pickled	Pickled & oiled, Mill edge	1.50	6.00	1,219	1,540
Hot-rolled pickled	Pickled & oiled, trimmed edge	1.50	6.00	1,219	1,540

Inside diameter, mill finish	762mm
Inside diameter, pickled & trimmed	610mm standard, 762 mm on request
Tolerance on inside diameter	+0 / -50mm
Outside diameter	Max 10/7 × width (limit 2100mm)

Stainless Steel is a common name for metal alloys that consist of a minimum of 11% Chromium (Cr) and more than 50% Iron (Fe). Although it is called "stainless", a better term for it is "highly stain resistant". We are providing all of commonly required forms of stainless steel including seamless / welded stainless steel pipes, coils, sheets, plates, butt weld fittings and flanges. When selecting manufacturing sources, we take great care to deal with only reliable partners. Furthermore our people who are knowledgeable and fully experienced in stainless steel industry will plan and coordinate all aspects of supply chain to ensure on-time delivery of quality products to your budget.

### Pipes

Outside Diameters : 9.52mm to 2032.0mm  
Wall thicknesses : 0.8mm to 20.0mm

### Coils & Sheets

Thicknesses : 0.1mm to 8.0mm  
Width : up to 1,524mm



### Plates

Thicknesses : over 9.0mm  
Width : up to 1,524mm

☆ Please consult with us for size not listed here

### Material

Duplex (S31803)  
Stainless Steels (316L, 304L, 310, 321, 430 etc)

### Specifications

KS, JIS and ASTM

### Testings

Rockwell Hardness Test  
Eddy Current Test  
PMI & Radiographic Test  
Hydrostatic Test

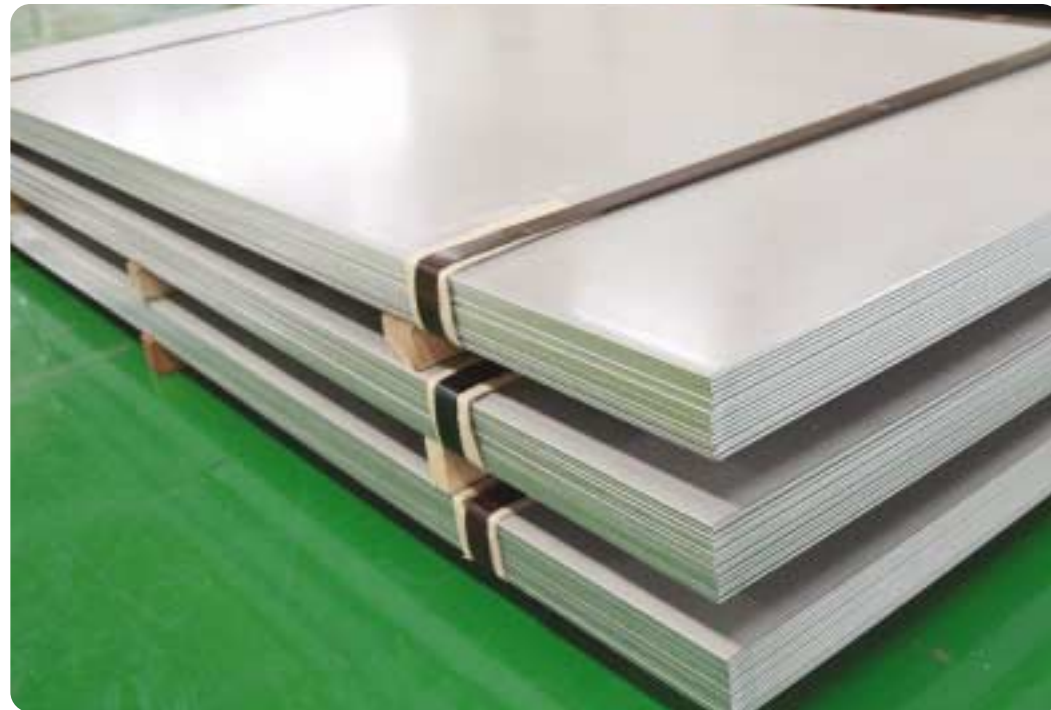
When you inquire about STS products, please specify the followings

1. Spec. & Grade :
2. Size & Q'ty :
3. Usage :
4. Condition of use : Temperature, Pressure, etc
5. Detail of process after purchasing : (Welding, Cutting, Bending)
6. End facing :
7. Surface finish :
8. Others :



A full range of pressure vessel, structural, quenched & tempered and chrome-moly steel plates are available only from renowned manufacturers in Korea. We have been trying to meet most demanding delivery schedules for both full-sheet and cut-to-size requirements, in sizes up to 10" thick, 120" wide and 480" long.

To ensure long-term satisfaction, all plates from Korean manufacturers are clearly identified as to the heat and slab number and fully documented for traceability. From small quantities to large, we are truly global source for;



**ASTM/ASME SA516 GRADE 70 PVQ PLATE (AS ROLLED or NORMALIZED)**

Carbon steel plates intended primarily for service in welded pressure vessels where improved notch toughness is important.

**ASME/SA36/ASTM A36 PLATE**

Widely accepted general-purpose structural-quality steel offering a constant 36 KSI min yield point for all thicknesses of material. Typical applications include construction of buildings, bridges and other structures by means of welding, bolting and riveting.

**CSA G40.21 44W PLATE**

Meets specified strength requirements and is suitable for general welded construction where notch toughness at low temperatures is not a design requirement.

**CSA G40.21 50W PLATE**

In addition to the 44W, Quality Plates also stocks the higher strength steel plate in grade G40.21 50W, sometimes referred to by its metric designation of 350W. Suitable for general welded construction where notch toughness at low temperatures is not a design requirement.

**Q & T 100/ASTM A514 PLATE**

Used where high strength, good weldability, improved notch toughness and excellent formability are required. Typical applications include heavy construction and forestry equipment, off-highway vehicles and structural applications (bridges).

**Q & T 400F PLATE**

Used where abrasive resistance and good impact values are important. It has good wear resistance and weldability, provides longer wear life and reduces downtime. It is 4 times the strength and 8 times the abrasion resistance of regular mild steel. Typical applications include liner plates in hoppers, chutes and trucks for the mining, transportation and pulp and paper industries.

**CSA G40.21 50 WT CAT 3 PLATE**

Medium strength, low alloy plate specifically designed to provide strength and notch toughness at temperatures of .20° F. Typical applications include construction equipment and welded construction with specified design requirements as appropriate.

**ASME SA387**

Covers chromium-molybdenum alloy steel plates. This material is primarily intended for welded boilers and pressure vessels designed for elevated temperature service. Includes ASME SA387 GRADE 11 CL 2 N & T (1.25% CHROME, 0.5% MOLY) and ASME SA387 GRADE 22 CL 2 N & T (2.25% CHROME, 1% MOLY)

**Available Size**

width(mm)	1500≤	2000≤	2200≤	2400≤	2600≤	2800≤	3000≤	3200≤	3500≤	3800≤	3800≤	3900≤	4000≤
thickness(mm)	<2000	<2200	<2400	<2600	<2800	<3000	<3200	<3500	<3600	<3800	<3900	<4000	<4100
6≤T<7	15	15	15	15	15	15	15						
7≤T<8	18	18	18	18	18	18	18						
8≤T<9	18	18	18	18	18	18	18						
9≤T<10	24	24	24	24	24	24	24	24	24	24	24	24	24
10≤T<12	24	24	24	24	24	24	24	24	24	24	24	24	24
12≤T<15	25	25	25	25	25	25	25	25	25	25	25	25	25
15≤T<20	25	25	25	25	25	25	25	25	25	25	25	25	25
20≤T<25	25	25	25	25	25	25	25	25	25	24	22	21	21
25≤T<30	25	25	25	25	25	25	23	21.5	20	19	17.5	16.5	16.5
30≤T<35	25	25	25	24	22	20.5	19	18	16.5	16	14.5	13.5	13.5
35≤T<40	25	24	22.5	20.5	19	17.5	16.5	15.5	14	13.5	12.5	12	11.5
40≤T<45	21	19	17	16	16.5	15	14	13	12	12	11	10.5	10
45≤T<50	21	19	17	16.5	14.5	13.5	12.5	12	11	10.5	9.5	9	9
50≤T<55	17	15.5	14.5	13.5	12.5	11.5	11	10	10	9			
55≤T<60	15.5	14.5	13	12	11.5	10.5	10	9	9	8.5			
60≤T<65	14.5	13	12	11.5	10.5	10	9.5	8.5	8.5				
65≤T<70	13.5	12.5	11.5	10.5	10	9	8.5	8	8				
70≤T<75	12.5	11.5	10.5	10	9	8.5	8	7.5					
75≤T<80	11.5	11	10	9	8.5	8	7.5	7					
80≤T<85	11	10	9.5	8.5	8	7.5	7	6.5					
85≤T<90	10.5	9.5	9	8	7.5	7	6.5	6.5					
90≤T<95	10	9	8.5	8	7.5	7	6.5	6					
95≤T<100	9.5	8.5	8	7.5	7	6.5	6	5.5					
100≤T<105	9	8	7.5	7	6.5	6	6	5.5					
105≤T<110	8.5	8	7.5	7	6.5	6	5.5	5					
110≤T<115	8.5	7.5	7	6.5	6	5.5	5.5	5					
115≤T<120	8	7.5	6.5	6	6	5.5	5	5					

※ MAX단종

13.5 tons
13 tons
12.8 tons



## 16 Ferro Alloys

Our global sourcing strategy makes us to act as one of global sources of certain specialized Ferro alloys. Customer-oriented management team is committed to provide excellent services and high quality products to our valuable customers over the world. Positioning ourselves as one of the leading suppliers of specialized Ferro molybdenum and Molybdenum oxide, we will do our best to provide quality Ferro alloys to satisfy the requirements for a comprehensive range of industrial applications with reasonable prices.

Molybdenum is alloyed with steel making it stronger and more highly resistant to heat because molybdenum has such a high melting temperature. The iron and steel industries account for more than 75% of molybdenum consumption.

The two largest uses of molybdenum are as an alloy in stainless steels and in alloy steels. Stainless steels include the strength and corrosion-resistant requirements for water distribution systems, food handling equipment, chemical processing equipment, home, hospital, and laboratory requirements. Alloy steels include the stronger and tougher steels needed to make automotive parts, construction equipment and gas transmission pipes.

SPECIFICATION	
MO : 60% min	CU : 0.5 % MAX
S : 0.1 % MAX	P : 0.05 % MAX
C : 0.10 % MAX	C : 0.10 % MAX
SI : 1.0 % MAX	

### Ferro molybdenum



PACKING : IN 250KG STEEL DRUM  
ON PALLETS  
SIZE : 10-50MM, 90% MIN  
ORIGIN : CHINA

### Applications

Ferro molybdenum is used mainly in production of alloys steel, such as structural steel, spring steel, bearing steel, tool steel, anti-acid stainless steel, heat-resistant steel and magnetic steel etc.

PACKING : IN 250KG STEEL DRUM ON PALLETS OR 1MT P.P BAG  
SIZE : 0-50MM 90% MIN

ORIGIN : CHINA

Package : Either drums or plastic woven bags. Drums 100kg or 250kg. Seal the cover with lead, pallet provided ; Plastic woven bags 1000kg. Your special requests are always available.

### Applications

It is powder and light-green mainly used in the field of smelting ferromoly, molybdenum chemical industry.

SPECIFICATION	
Mo : 57% min or 51%min	C : 0.1% max
P: 0.05% max.	Cu : 0.50% max
S : 0.1% max	Si : 1.5% max

### Molybdenum Oxide



## Aluminum Alloys

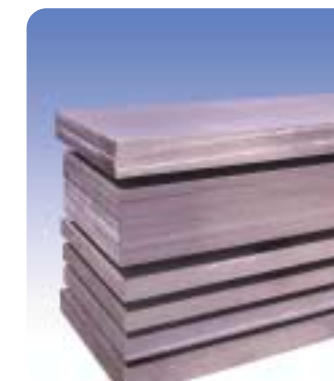
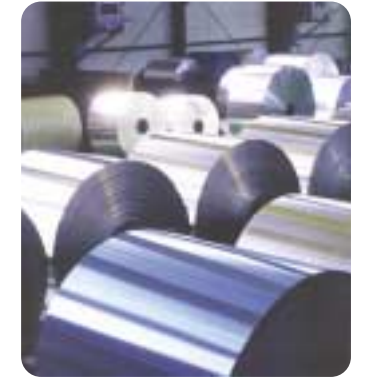
We supply diverse grades of Aluminum for various commercial applications. Our capacity range of 6082 specification is up to 3" Outside Diameter for bars which are mainly applicable to general engineering fields. In addition, wide range of different kind of Aluminum alloy product such as coils, sheets, plates and rods are available to serve our customers. We are also dealing with AA5083 for cryogenic applications in the field of petroleum and gas industries.

### Grades

AA6082, AA5083, AA2024, AA1100 etc

### Applications

Structural sections and components, Offshore applications, High stress applications, Trusses, Bridges, Cranes, Transport applications, Ore skips, Beer barrels and so on.



### Size Range

#### **Coiled Sheet**

Thickness : 0.2 ~ 4.0mm  
Max. Width : 1,700mm / Max. Weight : 9,000Kg

#### **Sheet & Plate**

Thickness : 0.2 ~ 200mm  
Max. Width : 1,700mm / Max. Length : 4,000mm

#### **Circled Sheet**

Thickness : 0.4 ~ 3.2mm  
Diameter : 200mm ~ 600mm

#### **Rod & Bars**

Outside Diameter : up to 76.2mm  
Max. Length : 6,000mm

☆ Please consult with us for grades not listed here



**TUBE & COUPLER**

The versatile scaffold consisting of tube & coupler provides access to unusual and unconventional shaped structures replacing or supplementing many system scaffolds. Since only four basic parts (steel tubes, double coupler, swivel coupler and base plate) are needed, it is extremely easy to erect and dismantle in any application.

Furthermore all components are manufactured to meet or exceed the highest level of international standards (BS; British Standard, JIS; Japanese Industrial Standard), our tube & coupler scaffold ensure exceptional durability and reliable performance while securing long - term safety of workers.

**Major Applications**

- Petrochemical
- Refinery
- Ship building
- Industrial Construction
- Building Construction
- Renovation
- Insulating
- Heat Exchangers
- Cooling Towers
- Painting
- Maintenance
- Furnaces
- Pressure Vessels and much more.

**SCAFFOLD TUBES**

High tensile scaffold tubes are designed for tube & coupler scaffolding. The tubes have hot-dipped galvanized surfaces finish so as to provide excellent appearance with sufficient durability in such applications where salty air or long-term weather exposures are inevitable.

Safety Regulation		Korean Standard	British Standard (BS1139)
Material	Standard No.	JIS G3444	JIS G3101
	Code	STK500	SS400
Specification (mm)		48.6(0.D)×2.4(THK)×CTR	48.3(0.D)×4(THK)×CTR
Galvanization		Pre-Gal/Hot-Dip	Hot-Dip
Unit Weight		2.73kg/m	4.37kg/m



A modern light weight collective safety netting system which is made of durable high tensile coated PVC provides highest quality safety solutions. It is designed to protect workers on site preventing fatalities and serious accidents when working at height. It is extremely easy to install / dismantle and also prevents a fall of debris that may result in property damage and personnel injury. With safety netting system, your workers move around freely and work safely at the job site.

**Major Applications**

- General Fall Protection
- High Rise Construction (Residential / Commercial)
- Bridge Construction and Repair
- Steel & Concrete Construction

**Benefits and Advantages**

- Comprehensive fall protection (Encompassing personnel & debris protection in one system)
- Extremely easy to install
- Keep the appearance of site in good order when used with PVC mesh scaffold enclosures





**DOUBLE COUPLERS**

Drop forged load bearing double couplers incorporating captive "T" bolts provide strong grip when connecting two 48.3mm outside diameter scaffold tubes at right angle.  
 Specification : 48.3 x 48.3mm (1 29 / 32 " 29 / 32 ")  
 Material : Drop forged carbon steel  
 Standard : BS1139(1982 & 1991), En 74 Class A & B



Pressed load bearing double couplers provide sufficient grip when connecting two 48.3mm outside diameter scaffold tubes at right angle.  
 Specification : 48.3x48.3mm (1 29 / 32 " 29 / 32 ")  
 Material : Hot rolled high strength steel sheet  
 Standard : BS1139 (1982 & 1991), En 74 Class A & B



Pressed load bearing double couplers designed to fit two scaffold tubes at right angle.  
 Specification : 42.7~48.6mm  
 Material : Hot rolled high strength steel sheet  
 Standard : KS / JIS



**SWIVEL COUPLERS**

Drop forged load bearing swivel couplers incorporating captive "T" bolts provide strong grip when connecting two 48.3mm outside diameter scaffold tubes at any angle for diagonal bracing.  
 Specification : 48.3 x 48.3mm (1 29 / 32 " 1 29 / 32 ")  
 Material : Drop forged carbon steel  
 Standard : BS1139(1982 & 1991), En 74 Class A & B



Pressed load bearing swivel couplers provide sufficient grip when connecting two 48.3mm outside diameter scaffold tubes at any angle for diagonal bracing.  
 Specification : 48.3 x 48.3mm (1 29 / 32 " 1 29 / 32 ")  
 Material : Hot rolled high strength steel sheet  
 Standard : BS1139(1982 & 1991), En 74 Class A & B



Pressed load bearing swivel couplers designed to fit two scaffold tubes at any angle for diagonal bracing.  
 Specification : 42.7~ 48.6mm  
 Material : Hot rolled high strength steel sheet  
 Standard : KS / JIS



**BASE PLATE**

Secure footing of tube & coupler scaffolding is ensured, since it prevents lateral movements of vertical tubes.  
 Specification : 41.9ø , 120 x 120mm

**JOINT PIN**

Used for vertical connection of two scaffold tubes.  
 Specification : 41.9ø x 212mm

**BONE JOINT**

Used for horizontal connection of two scaffold tubes.  
 Specification : 41.9ø x 212mm



**HIGH STRENGTH STEEL PLANKS**

Extremely sturdy steel planks has little tendency to sag under load. The safety of workers is enhanced since the top surface of plank has non-skid, raised dimple pattern to drain off water through it. Unlike conventional wood planks, steel planks provides fire resistance solutions to such applications as refineries and industrial plants.

Width : 210 / 250mm  
 Height : 50mm  
 Length : 4,000mm  
 Material : Pre-Galvanized SGCC steel(1.2mm THK)

## 22 Personal Protective Equipment

Personal protective equipment (PPE) is designed to protect workers from serious injuries or illnesses on site resulting from contact with chemical, radiological, physical, electrical, mechanical, or other occupational hazards. Besides face shields, safety glasses, hard hats, and safety shoes, PPE includes a variety of devices and garments such as goggles, coveralls, gloves, vests, earplugs, and respirators.



### Hard Hat

- ABS or HDPE shell, anti-impact, anti-puncture
- Groove on the brim, could match with earmuff or face shield
- Liner : 1 pin lock (regular) plastic suspension, 2 pin lock (regular) nylon webbing suspension, 3 ratchet nylon webbing suspension, washable sweat band
- Shell color : red, blue, white, yellow, orange, green. Custom color is also available with logo
- Approval : tested by German TUV, meet CE/EN397 standard



### Reflective Vests

- Material : polyester oxford or polyester knitted material
- Reflective material : PVC sheet or TC reflective tape
- Size : Standard S/M/L size available.
- Widely used in construction site, working place, cleaner, traffic policemen, working at night or under any special working environment.



### Safety Shoes

Safety shoes protect workers where they are exposed to injury as a result of falling or rolling objects.

- Upper : Leather
- Steel toe cap
- Steel midsole
- PU/PU, PU/TPU or PU/NPU sole
- Certified to EN345 All steel toe shoes meet or exceed ASTM F2413-05 (formerly ANSI Z41 PT99) I/75 C/75 standards.



### Safety Goggle

- Maximum panoramic and peripheral field of vision
- Large frame designed to fit over protective or prescription eyewear
- Soft, flexible PVC frame provides comfort, fit and seal
- Frame : environmental PVC, transparent and soft.
- Lens : PC or PVC, Clear lens with protection film.
- PC lens are treated with anti-fog on request from buyer
- Approval : tested by German TUV, meet CE/EN166 standard.

## Cryogenic Insulation



### Rigid Polyisocyanurate Foam Insulation CFC-free, blowing agent : HCFC141b

The PIRfoam140, CFC-free polyisocyanurate (PIR), is produced as a continuous foam bunstock with the ability to be fabricated into any shape and sizes such as sheets, pipe shells, tank and vessel coverings and custom parts for a variety of insulation, core material and carving applications. While retaining all of the benefits of rigid polyurethane insulation, PIRfoam140 offers greater dimensional stability over a wider service temperature range.

#### Physical Properties

Property	Test Method	Unit	Value
Nominal Density	ASTM D 1622	kg/m <sup>3</sup>	50+/-5
Thermal Conductivity	ASTM C 518	W/m.K	Max. 0.019 (Initial)
	or ASTM C 177	W/m.K	Max. 0.023 (180 days)
Closed Cell Content	ASTM D 2856	%	Min. 90
Operating Temperature	Upper Limit	+120 °C	(+248 °F)
	Lower Limit	-170 °C	(-274 °F)
Compressive Strength	ASTM D 1621		
	X Direction	kg/cm <sup>2</sup> (kPa)	Min. 2.5 (245)
	Y Direction	kg/cm <sup>2</sup> (kPa)	Min. 2.5 (245)
Tensile Strength	ASTM D 1623		
	X Direction	kg/cm <sup>2</sup> (kPa)	Min. 2.0 (196)
	Y Direction	kg/cm <sup>2</sup> (kPa)	Min. 2.0 (196)
Linear Expansion Coefficient	ASTM E 228		
	X Direction	m/m.K	Max. 70 x 10 <sup>-6</sup>
	Y Direction	m/m.K	Max. 70 x 10 <sup>-6</sup>
Safety Factor			
	X Direction		Min. 1.5
	Z Direction		Min. 1.5
Water Vapor Permeability	ASTM E 96	μg m/Ns	Max. 6 x 10 <sup>-3</sup>
Fire Resistive Properties			
	Burning time	BS 4735 OR	sec
Burning Length of Fire	KS M 3809	mm	Max. 60
Flame Spread Index	ASTM E 84		Max. 25

### Benefits and Advantages

- Closed cell structure enabling excellent moisture resistance
- Improved dimensional stability
- Outstanding insulating value
- Low thermal conductivity
- Rigid, lightweight and strong
- Easy to fabricate into virtually any shape & size
- Superior compatibility with polyester and epoxy resins



### Major Applications

PIRfoam140 may be used for such applications operating within the temperature range -170 °C to +120 °C (-274 °F to +248 °F). It is designed for use in a wide range of applications including :

- Oil refinery & Petrochemical plant
- LPG / LNG Gas & Cryogenic Plant
- LPG / LNG Carrier
- LPG / LNG Receiving Terminals
- Ethylene /Ammonia Production Plant
- Cryogenic pipework and equipment
- Cold Storage & HVAC Applications