



YOUFA STEEL PIPE GROUP

TOP 500 ENTERPRISES OF CHINA INDUSTRY LEADING BRANDS

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www.youfasteelpipe.com / www.chinayoufa.com



TIANJIN YOUFA INTERNATIONAL TRADE CO., LTD



YOUFA STEEL PIPE GROUP

STOCK CODE: 601686

Listed enterprises on the main board of the Shanghai Stock Exchange

Youfa is the strongest welded steel pipe manufacturing group around China.



Brand "YOUFA" is the leading and outstanding brand in the industry.



Brand ZHENGJINYUAN is the growing champion in the industry.



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Profile of the Group

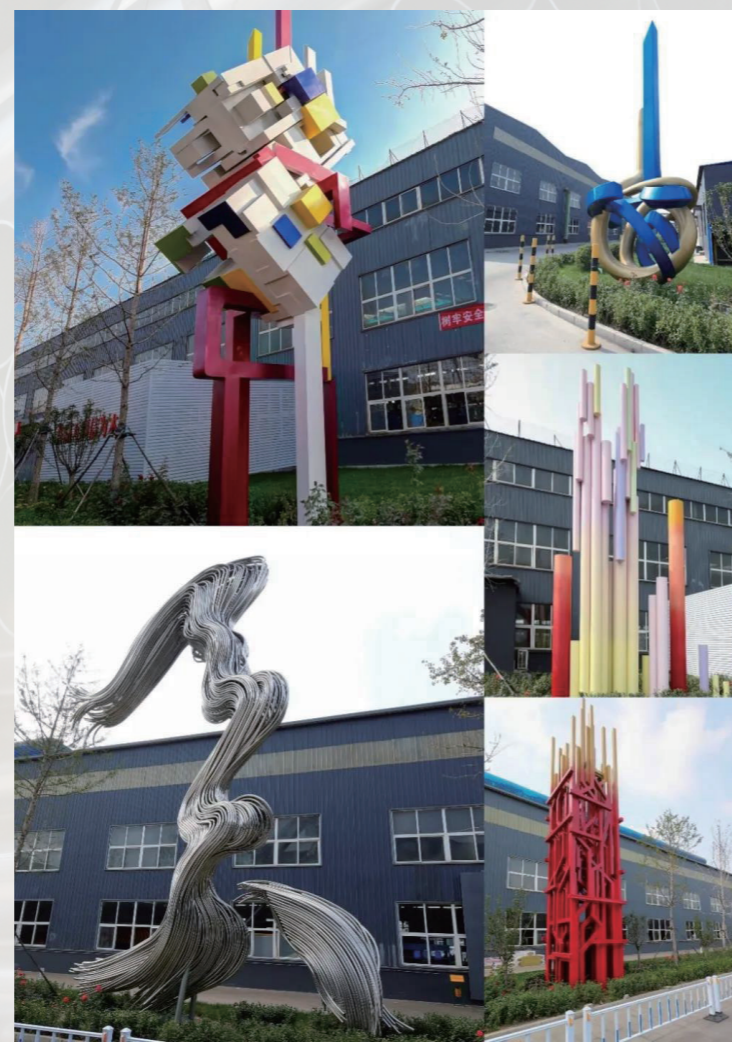
Tianjin Youfa Steel Pipe Group Co., Ltd. was established on July 1, 2000, and its headquarters is located in Tianjin Daquzhuang Town, the largest steel pipe production base in China. The company is a large scale steel pipe manufacturing enterprise integrating the production of various pipe products such as ERW steel pipe, spiral welded pipe, hot-dip galvanized steel pipe, plastic lining composite pipe, plastic coated steel pipe, square and rectangular steel pipe, hot-dip galvanized square and rectangular steel pipe, stainless Steel Pipe, pipe fitting and scaffolding, etc. Output is over 10 million tons every year.

In addition to its headquarters in Tianjin, the company currently has a number of subsidiaries in Tangshan, Handan, Shaanxi, Liyang and other cities, with more than 9000 employees, 293 production lines of steel pipe and scaffolding, 3 national accreditation laboratories and 2 Tianjin accreditation enterprise technology centers. In 2020, the annual sales of Youfa steel pipes will be nearly 12 million tons. By the end of 2017, the whole group had 88 utility model patents and 4 invention patents. There are 32 patents in the process of application and acceptance. Since 2010, Youfa's steel pipe production and sales have increased by more than one million tons annually for 11 consecutive years.

The "Youfa" was recognized as a well known trademark in China by the Trademark Office of the State Administration for Industry and Commerce in March 2008. Youfa Group products have been awarded the title of "Tianjin Famous-brand Products" by the Tianjin Municipal Government for many consecutive years. The steel pipes of "Youfa" brand and "Zhengjinyuan" brand won the Gold Cup Award, the highest award in China's metallurgical industry. Until 2021, Tianjin Youfa Steel Pipe Group has been among the top 500 Chinese enterprises, the top 500 Chinese manufacturing

enterprises and the top 500 Chinese private enterprises for 16 consecutive years, and has maintained its leading position in the industry in terms of national production and sales volume for 16 consecutive years.

"Youfa" brand steel pipes sell well all over the country and are widely used in key national projects such as Three Gorges Project, Capital International Airport, Shanghai Pudong International Airport, the 2008 Olympic Games venues, and 2010 Shanghai World Expo exhibition hall. They are exported to 100 countries and regions in European Union, North America, South America, Africa, South-east Asia, and the Middle East. They are recognized by the industry as the first brand in the industry, with a domestic comprehensive market share of more than 30%.



Tianjin Youfa Steel Pipe Factory

Production Base	Factory Name	Products Name	Production Lines
Tianjin Production Base	Tianjin Youfa Steel Pipe Group Co., Ltd.-No.1 Branch Company;	Hot Dipped Galvanized Steel Pipe	16
		ERW Steel Pipe	9
	Tianjin Youfa Steel Pipe Group Co., Ltd.-No.2 Branch Company;	ERW Steel Pipe	7
		Square/Rectangular Steel Pipe	15
	Tianjin Youfa Dezhong Steel Pipe Co., Ltd.;	Galvanized Square/Rectangular steel Pipe	6
		SSAW Steel Pipe	5
	Tianjin Youfa Pipeline Technology Co., Ltd.;	Steel Pipe of Lining Plastic	10
		Plastic Coated Steel Pipe	3
	Tianjin Youfa Ruida Traffic Facilities Co., Ltd.	Highway Materials	9
		Stainless Steel Pipe	10
	Tianjin Youfa Stainless Steel Pipe Co., Ltd.;	Stainless Steel Pipe Fitting	5
		Tewoo & Youfa Industry Development Co., Ltd. Tianjin Youfa Steel Pipe Group Sales Co., Ltd. Tianjin Youfa International Trade Co., Ltd. Tianjin Youfa Hongtuo Steel Pipe Manufacture Co., Ltd. Tianjin Xindesheng Investment Co., Ltd. Tianjin Tuanbo Yifanfengshun Hotel Co., Ltd. Tianjin Youfa Advertising Co., Ltd. Tianjin Jinghai Daquzhuang Yaoshun Hospital	
Tangshan Production Base	Tangshan Zhengyuan Pipeline Industry Co., Ltd.;	Hot Dipped Galvanized Steel Pipe	12
		ERW Steel Pipe	17
		Steel Pipe of Lining Plastic	4
	Tangshan Youfa Steel Pipe Manufacture Co., Ltd.;	ERW Steel Pipe	11
		ERW Steel Pipe	11
		Galvanize	12
Tangshan Youfa New Building Equipment Co., Ltd.	Ringlock Scaffolding System	9	
Handan Production Base	Handan Youfa Steel Pipe Co., Ltd.;	Hot Dipped Galvanized Steel Pipe	8
		ERW Steel Pipe	12
		Square/Rectangular Steel Pipe	13
		Galvanized Square/Rectangular Steel Pipe	4
		SSAW Steel Pipe	4
		Steel Pipe of Lining Plastic	4
Shaanxi Production Base	Shaanxi Youfa Steel Pipe Co., Ltd.;	Hot Dipped Galvanized Steel Pipe	6
		ERW Steel Pipe	12
		Square/Rectangular Steel Pipe	6
		Galvanized Square/Rectangular Steel Pipe	3
		Steel Pipe of Lining Plastic	3
		Plastic Coated Steel Pipe	3
Liyang Production Base	Jiangsu Youfa Steel Pipe Co., Ltd.;	Hot Dipped Galvanized Steel Pipe	6
		ERW Steel Pipe	10
		Square/Rectangular Steel Pipe	9
		Galvanized Square/Rectangular Steel Pipe	4
	Huludao City Steel Pipe Industrial Co., Ltd.;	Welded Steel Oil Pipe	15
	Chengdu Yunganglian Logistics Co., Ltd.;	Logistics Centre	
Total			293



TIANJIN YOUFA PRODUCTION BASE



TANGSHAN YOUFA PRODUCTION BASE



HANDAN YOUFA PRODUCTION BASE



SHAANXI YOUFA PRODUCTION BASE



LIYANG YOUFA PRODUCTION BASE

Tianjin Youfa Steel Pipe Project

Year	Country	Project	Usage
2014-2015	-	Chevron Corporation Oil Platform	Scaffolding steel pipe
2015	Ethiopia	Adama Industrial Parks	Construction steel pipe
2017	Jordan	Mafrac	Solar mounting systems steel pipe
2017	Mexico	Kaixo	Solar mounting systems steel pipe
2018	Viet Nam	Cong ty TNHH Gain Lucky Textile Factory	Solar mounting systems steel pipe
2019	Kuwait	Kuwait International Airport	Construction steel pipe
2019	Ethiopia	Polaroid Airport	Conduit steel pipe
2019	Egypt	New Cairo Business Center	Fire sprinkler and water delivery steel pipe



Galvanized Steel Pipe used in ADAMA INDUSTRIAL PARK PROJECT in ETHIOPIA



Scaffolding Steel Pipes used in Chevron Corporation Oil Platform

Core member of national important industry association

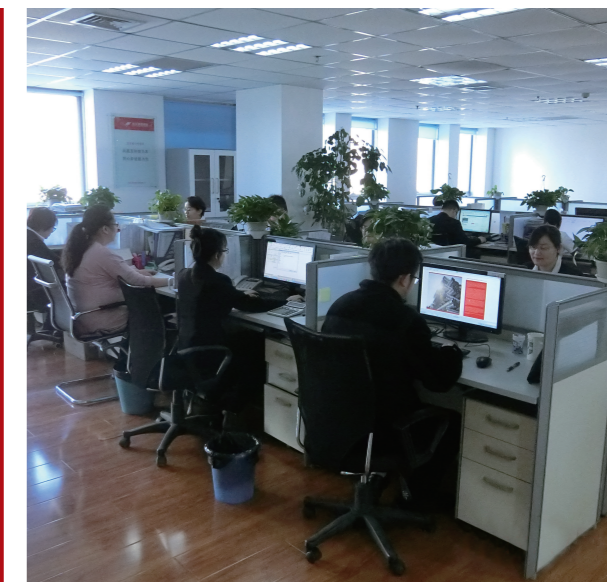


Tianjin Youfa International Trade Co., Ltd

Tianjin Youfa International Trade Co., Ltd, was founded in March, 2010, as the foreign trade window of Youfa Steel Pipe Group. The company is located in 7-8th Floor, Guotou Building, Dafeng Road, Hongqiao District, Tianjin City. The office covers an area of 1000 m². There are about 80 staffs; among them more than 50 have CET-6 certificates and some even better. Our annual sales of steel products are nearly 280,000.00 tons.

Through several years of hard work, we have established export business relationship with many big Transnational Enterprises. Based on the high quality and the considerate service, our products have set up a prominent brand image at home and abroad. Our sales markets mainly are: Middle & South America, the Southeast Asia, Middle East and Africa and so on, nearly covering 125 countries and regions, obtaining a well-deserved reputation. We have built a long-term cooperation with many clients, and have received word of praise from customers all over the world.

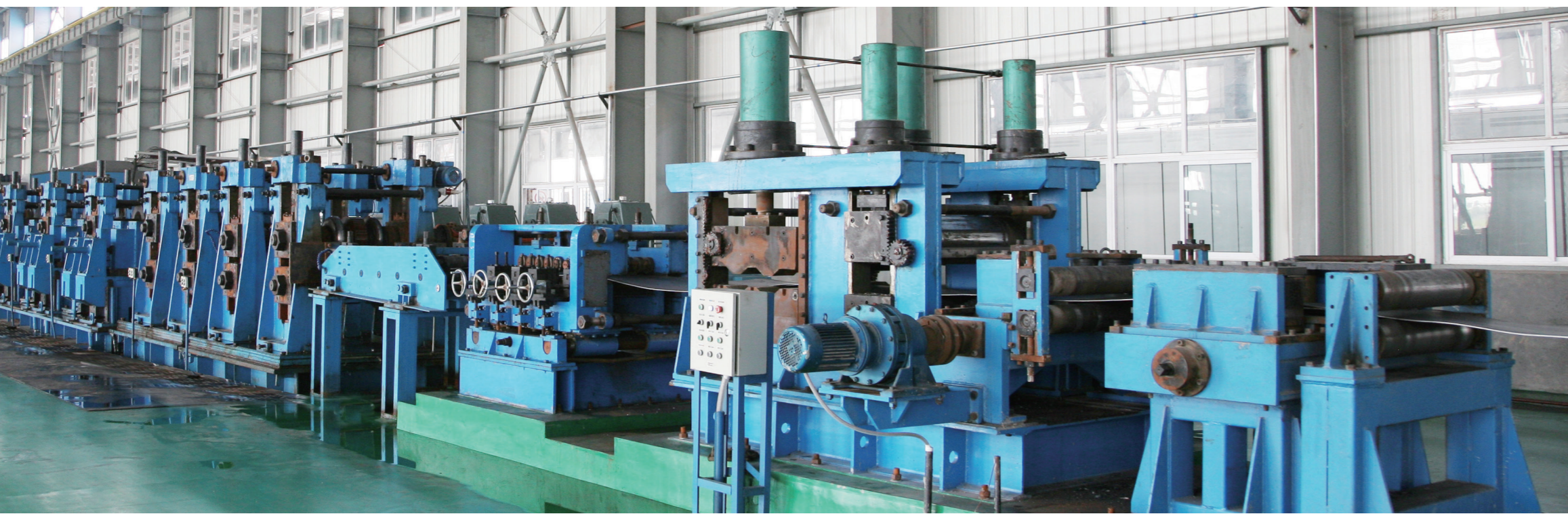
Carbon steel pipes meet the following standards: API 5L, ASTM A53/A500, ASTM A795, EN10219/10255, BS1387, BS1139, EN39, ISO65, DIN2440, JIS G3444/3466, etc. and are approved by the Third Party. They are widely used in oil and natural gas, low pressure liquid and mineral powder delivery, and for industrial and civil construction fields and for piles field. Paying attention to the quality of products and services,



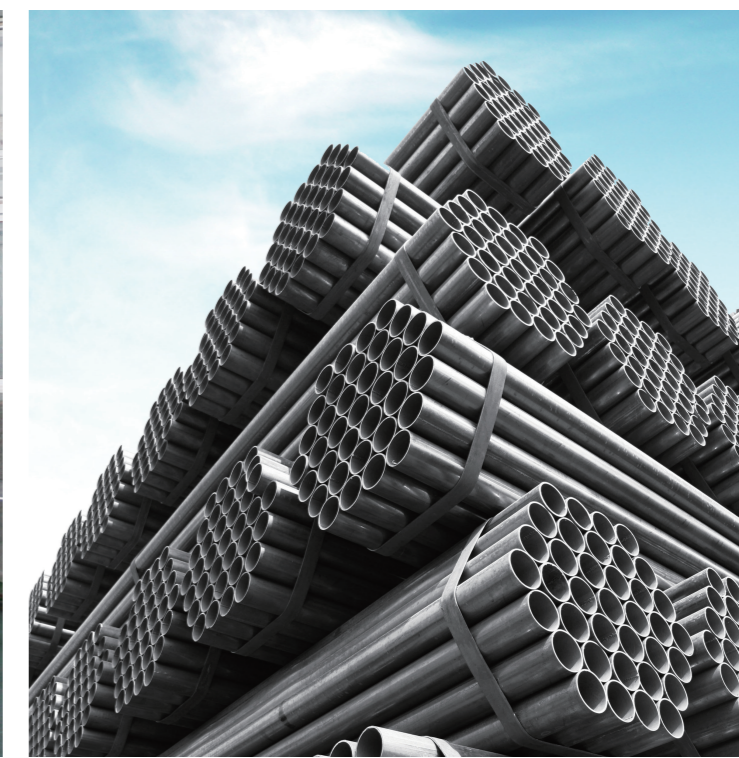
possessing normative QAS, we have acquired certificates of API5L, ISO9001, ISO14000, ISO18000, FPC, BSI and UL/FM quality system.

In order to provide customers a more personalized service, we founded Tianjin Youfa Hongtuo Steel Pipe Manufacture Co., Ltd as processing factory, specially designed for foreign trade service. It covers an area of 20000 square meters. There are about 200 employees, 10 lathes, 7 cutting machines, 2 sets of grooving machine, 2 sets of automatic paint or oil production line. We are committed to meet customer's various after-processing requirements.

Pursuing the "Customer first, Integrity first" principle, we are sincerely expecting to cooperate with you!



ERW Steel Pipe Production Line



ERW Steel Pipe Yard

ERW Steel Pipe

Size: DN15-600mm

Usage: low pressure liquid delivery such as water, gas, air, oil and steam and for machine structural purposes

Manufacturer

Tianjin Youfa Steel Pipe Group Co., Ltd - No.2 Branch Company

Tangshan Youfa Steel Pipe Manufacture Co., Ltd

Tangshan Zhengyuan Steel Pipe Co., Ltd

Handan Youfa Steel Pipe Co., Ltd

Shaanxi Youfa Steel Pipe Co., Ltd

Hot Dipped Galvanized Steel Pipe

Round Pipe: DN15-200mm
Square Pipe: 20x20-200x200mm
Rectangular Pipe: 20x40-100x200mm
Spiral Pipe: 219-1420mm

Usage: delivery of low pressure liquid such as water, gas, air, steam for heating and for machine structural purposes

Manufacturer

Tianjin Youfa Steel Pipe Group Co., Ltd - No.1 Branch Company

Handan Youfa Steel Pipe Co., Ltd

Tangshan Zhengyuan Steel Pipe Co., Ltd

Tianjin Youfa Dezhong Steel Pipe Co., Ltd

Shaanxi Youfa Steel Pipe Co., Ltd



Tangshan Zhengyuan Hot Dipped Galvanized Steel Pipe Yard



Hot Dipped Galvanized Square Pipe



Hot Dipped Galvanized Spiral Welded Steel Pipe



Hot Dipped Galvanized ERW Steel Pipe

Square /Rectangular Steel Pipe

Square Steel Pipe:20x20-400x400mm
Rectangular Pipe:20x40-300x500mm

Usage:steel struction,mechanical,manufacturing,construction,
automobile manufacturing,shipbuilding,electricity and so on.

Manufacturer

Tianjin Youfa Dezhong Steel Pipe Co., Ltd

Handan Youfa Steel Pipe Co., Ltd

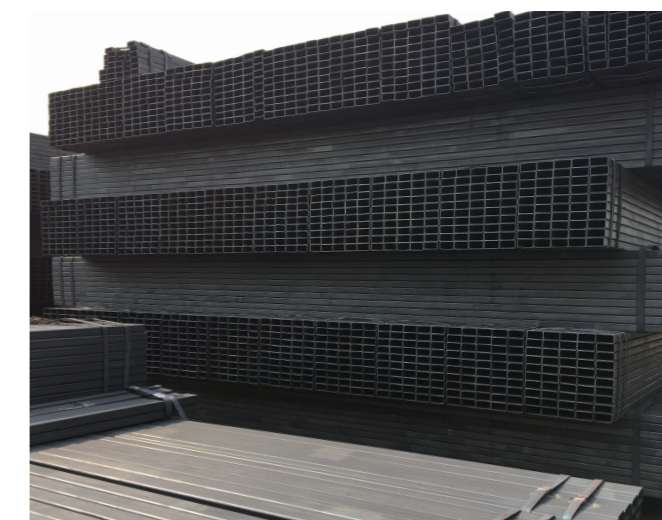
Shaanxi Youfa Steel Pipe Co., Ltd



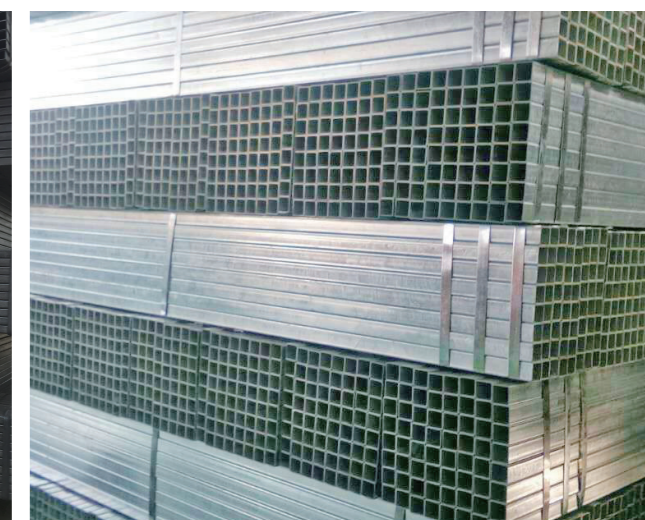
Square Tube Production Line



Rectangular Tube Yard



Rectangular Tube



Square Tube

Steel Pipe of Lining Plastic

Size: DN15-300mm

Usage: high-level drinking water convey

Manufacturer

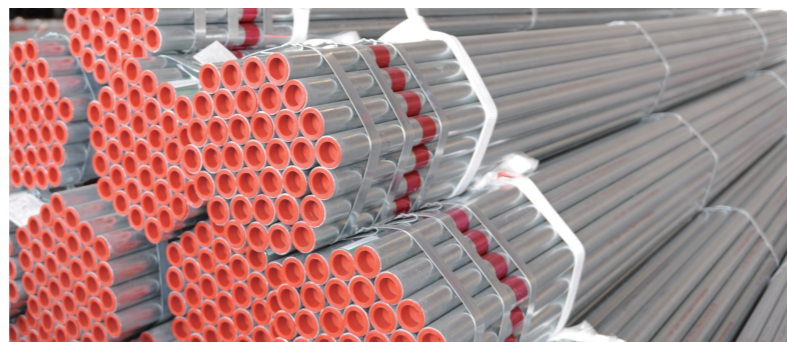
Tianjin Youfa Steel Pipe Group Co., Ltd- No. 1 Branch Company.

Tangshan Zhengyuan Steel Pipe Co., Ltd

Handan Youfa Steel Pipe Co., Ltd



Steel Pipe of Lining Plastic for Cold Water



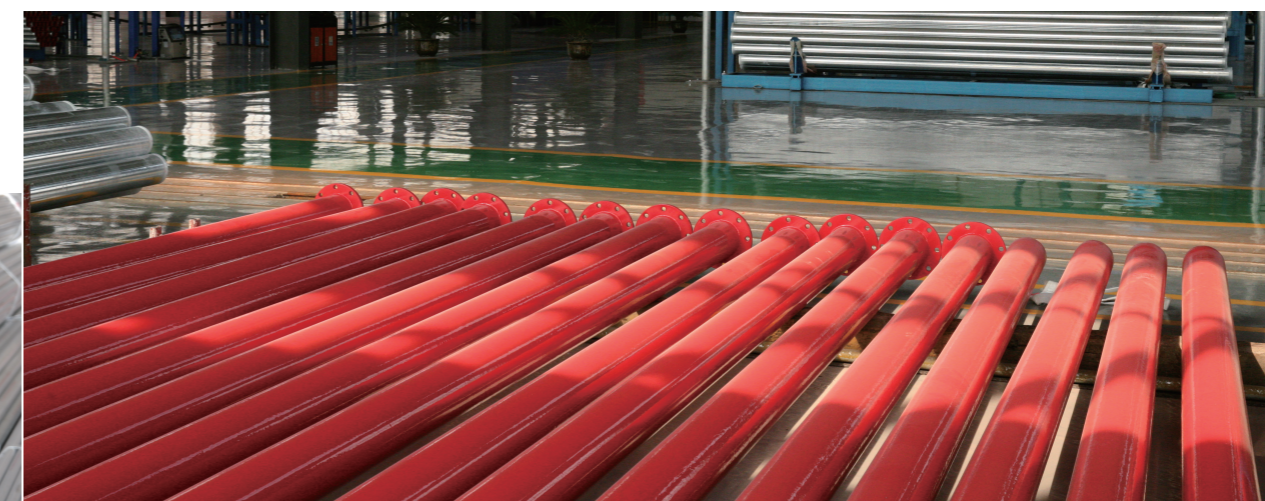
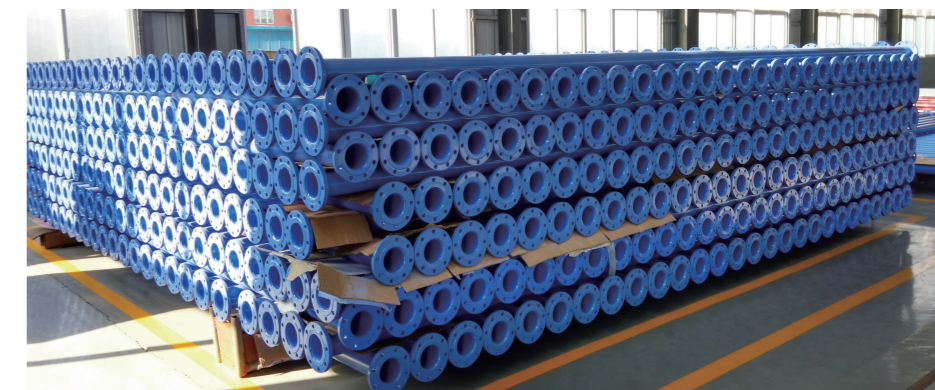
Steel Pipe of Lining Plastic for Hot Water



Steel Pipe of Lining Plastic Production Line



Plastic Coated Composite Pipe Production Workshop



Plastic Coated Composite Pipe Production Workshop

Plastic Coated Steel Pipe

Size: DN15-DN500

Usage: water supply, fire protection, wire and cable pipe, vent pipe

Manufacturer

Tianjin Youfa Pipeline Technology Co.,Ltd

Tianjin Youfa Steel Pipe Group Co., Ltd- No. 1 Branch Company.

SSAW Steel Pipe

Specification: OD219-3000mm

Usage: the line pipe of petroleum 、 gas and delivery of low pressure liquid such as water、 gas、 air、 steam for heating, and for piles and the construction field for structure

Manufacturer

Tianjin Youfa Pipeline Technology Co., Ltd

Handan Youfa Steel Pipe Co., Ltd



Spiral Steel Pipe Yard



Spiral Steel Pipe Production Line



3PE Spiral Steel Pipe

Solar Structure

C-profile with holes Square tube

Manufacturer

Tianjin Youfa Ruida Traffic Facilities Co., Ltd



Highway Materials

Wave beam steel guardrail steel column
discourage block column cap ends

Manufacturer

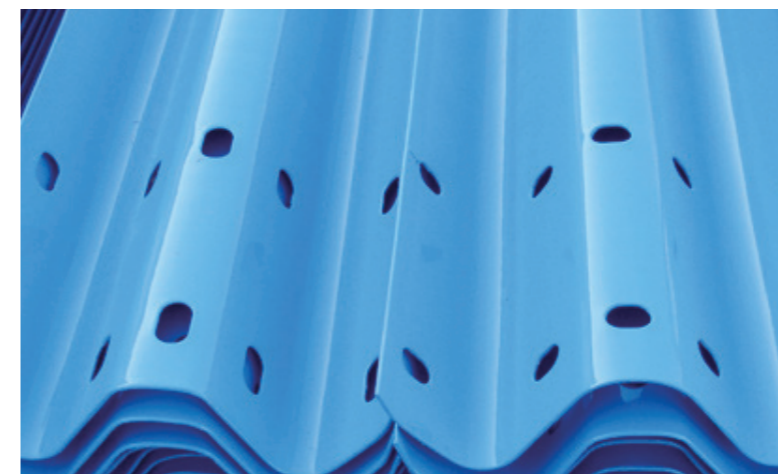
Tianjin Youfa Ruida Traffic Facilities Co., Ltd



Discourage Block Column Cap



Wave Beam Steel Guardrail



Spray Wave Beam Steel Guardrail



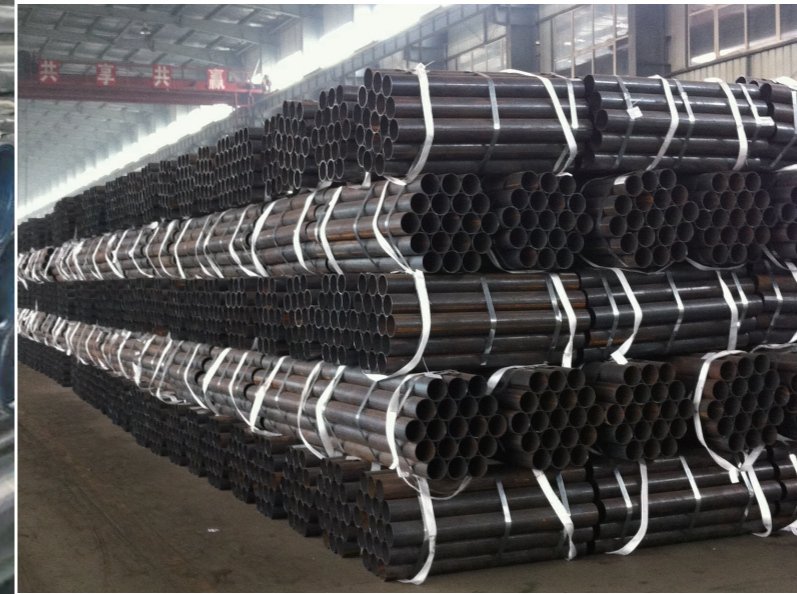
Round Steel Columns



Grooved with Caps

Processing Factory

Tianjin Youfa Hongtuo Steel Pipe Manufacture Co., Ltd



Cut in Short Length



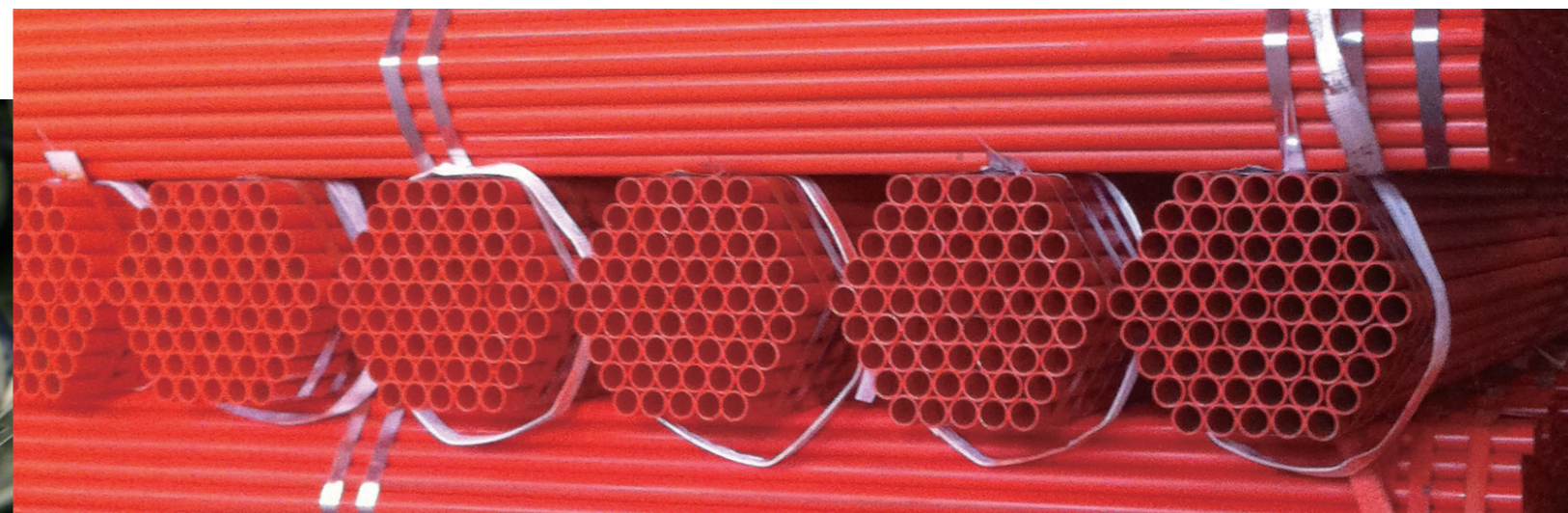
PVC Wrapped



Oiled and PVC Wrapped



Threaded with Coupling



Painted

Youfa Laboratory and Quality Control



Honor & Certificates



直读光谱仪
Direct reading spectrometer

落锤冲击试验机
Drop hammer impact test machine

快速智能定硫仪
Fast intelligent sulfur determination instrument

电子万能试验机
Electronic universal testing machine

维氏硬度计
Vivitorinox hardness tester

盐雾试验箱
Salt spray test box



Certificate of Authority to use the Official API Monogram
License Number: 5L-0556 ORIGINAL

The American Petroleum Institute hereby grants to
TIANJIN YOUFA PIPELINE TECHNOLOGY CO., LTD.
Xinxing Industry Park
Daqu Zhuang Town
Jinghai, Tianjin
People's Republic of China

the right to use the Official API Monogram™ on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q1™ and API-SL and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: 5L-0556

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: Manufacturer of Line Pipe Plain End at PSL 1 - Type of Pipe: SAWH / Delivery Condition: R / Max. Grade: X52

QMS Exclusions: Design and Development, Servicing, Customer Property

Effective Date: AUGUST 6, 2019
Expiration Date: DECEMBER 4, 2021

To verify the authenticity of this license, go to www.api.org/compliance.

Certificate of Compliance

Certificate Number: 20170131-EK2730
Report Reference: EK2730-20170104
Issue Date: 2017-JANUARY-31

Issued to: TIANJIN YOUFA INTERNATIONAL TRADE CO., LTD
RM 1502-1509, 15F, NO. 4 Anshan Building
Chang Road (Aoshan Ch.) / Hongqiao District
300120 Tianjin, CHINA

This is to certify that representative samples of:
Metallic Sprinkler Pipe
Schedule 10 steel sprinkler pipe in the 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6, 8, 10 and 12 in sizes, as per ASTM A576, Grade B, Type E
Schedule 40 steel sprinkler pipe in the 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6, 8, 10 and 12 in sizes, as per ASTM A53, Grade B, Type E

Have been investigated by UL in accordance with the Standard(s) indicated in this Certificate.

UL 887 - Metallic Sprinkler Pipe for Fire Protection Service
UL-CORD 20165 - Light Wall Steel Pipe for Sprinkler Service

See the UL Online Certification Directory at www.ul.com/database for additional information.

Additional Information:
UL has been investigated by UL in accordance with the Standard(s) indicated in this Certificate.

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

bsi. Certificate

This is to certify that Tianjin Youfa Dezhong Steel Pipe Co Ltd

API: Not Applicable

Head Office Address: No. 4, Anshan Building, Chang Road (Aoshan Ch.) / Hongqiao District, 300120 Tianjin, China

ISO Certificate Number: BWP 718596

It is authorized to use the ISO registered BSI Product Certificate. This certificate is issued in accordance with the BSI Product Certificate Scheme. The certificate is issued to the manufacturer of the product. The certificate is issued to the manufacturer of the product. The certificate is issued to the manufacturer of the product.

For and on behalf of BSI: Helen Barker, Managing Director, BSI Group (UK) Ltd

Original registered: 15/01/2018
Latest issue: 15/01/2018
Expiry date: 15/01/2023

...making excellence a habit.

Steel Pipe Standards

Specifications		Application	Chemical Requirement(%)						Physical Requirement	
			C (Max)	Si (Max)	Mn (Max)	P (Max)	S (Max)	Others	Tensile Strength Min Mpa (Psi)	Yield Strength Min Mpa (Psi)
BS EN39	S235GT	Scaffolding tube	0.2	a,b	1.4	0.04	0.045	0.020(Al)	340/520	235
BS EN10255	L	Carbon Steel pipes for ordinary piping	0.2	-	1.4	0.035	0.03	-	320-520MPa	195MPa
	M									
	H									
BS EN10219	S235JRH	Colded formed hollow section	0.17	-	1.4	0.045	0.045	0.009(N)	360-510Mpa (<3mm) 340-470Mpa (≥3 < 40mm)	235Mpa (<16mm) 225Mpa (>16 < 40mm)
	S275JOH		0.2	-	1.5	0.04	0.04	0.009(N)	430-580Mpa (<3mm) 410-560Mpa (≥3 < 40mm)	275Mpa (<16mm) 265Mpa (>16 < 40mm)
	S275J2H		0.2	-	1.5	0.035	0.035	-		
	S355JOH		0.2	0.55	1.6	0.04	0.04	0.009(N)	510-680Mpa (<3mm) 490-630Mpa (≥3 < 40mm)	355Mpa (<16mm) 345Mpa (>16 < 40mm)
	S355J2H		0.2	0.55	1.6	0.035	0.035	-		
BS1387	CLASS A	Carbon steel pipe	0.2	-	1.2	0.045	0.045	-	320-460Mpa	195Mpa
	CLASS B									
	CLASS C									
BS3059	320	For Boiler	0.16	0.35	0.30-0.70	0.04	0.04	-	320-480Mpa	195Mpa
BS3601	320	Pipes for Pressure Service	0.16	-	0.30-0.70	0.04	0.04	-	320-460Mpa	195Mpa
	360									
	430									
BS6323 Part 5 Type KM	ERW 1	Carbon Steel pipes for Mechanical Purposes and General Structural Purposes	0.13	-	0.6	0.05	0.05	-	300Mpa	200Mpa
	ERW 2									
	ERW 3									
	ERW 4									
	ERW 5									
ISO65	L II	Carbon steel tubes for screwing	0.2	-	1.4	0.035	0.03	-	320-520MPa	195MPa
	L I									
	M									
	H									

Elongation Min(%)		Flattening Test	Bend Test	Hydrostatic & NDT	Others			
Longitudinal Direction	Transverse Direction							
24	-	at 0°C or 90°C to the direction of flattening	-	-	-			
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: 4 times(1 minute)
			D	21	27	34		
r	65	85	100	150	170	220		
24 ≤40mm	20 (°C)	-	-	-	-	-	-	
20 ≤40mm	0							
	-20							
20 ≤40mm	0							
	-20							
20	-	≤DN50 without showing either crack or flaw	≤DN50 withstand the test without showing any signs of fracture or failure	50Bar or NDT	hot dip galvanized steel pipe, Threaded if need			
25		$H=(1+C)t/(C+1/D)$; C:0.10		P=20Sa/D Or NDT P:Test Pressure(bar) D:Outside Diameter(mm) a:Specified Thickness(mm) S:80% of the specified minimum yield strength (N/m ²)	*Drift expanding test *Full body Normalizing			
25		$H=(1+C)t/(C+1/D)$ *C: Constant	Gr	Weld Portion	Other	P=20Sa/D Or NDT	*Heat treatment on the weld seam area	
			320	0.029	0.1			
			360	0.026	0.09			
25		430	0.023	0.08				
22								
10	D/t≤20	H=0.66D	-	50 Bars or P=20Sa/D	*Minimum expansion drift			
8		H=0.75D						
7		H=0.85D						
6		H=0.85D						
6		H=0.85D						
20	-	-	-	50Bar	-			

Specifications	Application	Chemical Requirement(%)						Physical Requirement	
		C (Max)	Si (Max)	Mn (Max)	P (Max)	S (Max)	Others	Tensile Strength Min Mpa(Psi)	Yield Strength Min Mpa(Psi)
API 5L (PSL1)	Line Pipe	0.21	-	0.6	0.03	0.03	-	310Mpa (45000 psi)	175Mpa (25400 psi)
					0.045-0.08			310Mpa (45000 psi)	175Mpa (25400 psi)
		0.22		0.9	335Mpa (48600 psi)			210Mpa (30500 psi)	
				1.2	415Mpa (60200 psi)			245Mpa (35500 psi)	
		0.26		1.3	415Mpa (60200 psi)			290Mpa (42100 psi)	
				1.4	435Mpa (63100 psi)			320Mpa (46400 psi)	
					460Mpa (66700 psi)			360Mpa (52200 psi)	
					490Mpa (71100 psi)			390Mpa (56600 psi)	
					520Mpa (75400 psi)			415Mpa (60200 psi)	
				1.45	535Mpa (77600 psi)			450Mpa (65300 psi)	
1.65	570Mpa (82700 psi)	485Mpa (70300 psi)							
API 5L (PSL2)	Line Pipe	0.22	0.45	1.2	0.025	0.015	CE(Pcm) ≤0.25% CE (IIW) ≤0.43%	415-760Mpa (60200-110200 psi)	245-450Mpa (35500-65300 psi)
				1.3				415-760Mpa (60200-110200 psi)	290-495Mpa (42100-71800 psi)
		1.3		435-760Mpa (63100-110200 psi)				320-525Mpa (46400-76100 psi)	
		1.4		460-760Mpa (66700-110200 psi)				360-530Mpa (52200-76900 psi)	
		0.12		1.4				490-760Mpa (71100-110200 psi)	390-545Mpa (56600-79000 psi)
				1.6				520-760Mpa (75400-110200 psi)	415-565Mpa (60200-81900 psi)
				1.6				535-760Mpa (77600-110200 psi)	450-600Mpa (65300-87000 psi)
				1.7				570-760Mpa (82700-110200 psi)	485-635Mpa (70300-92100 psi)
				1.85				625-825Mpa (90600-119700 psi)	555-705Mpa (80500-102300 psi)
				1.85				625-825Mpa (90600-119700 psi)	555-705Mpa (80500-102300 psi)
API 5CT	Casing & Tubing	-	-	-	0.03	0.03	-	517Mpa (75000 psi)	379-552Mpa (55000-80000 psi)
		-	-	-				655Mpa (95000 psi)	379-552Mpa (55000-80000 psi)
		-	-	-				689Mpa (100000 psi)	552-758Mpa (80000-110000 psi)
		-	-	-				655Mpa (95000 psi)	552-655Mpa (80000-95000 psi)
		-	-	-				862Mpa (125000 psi)	758-965Mpa (11000-140000 psi)

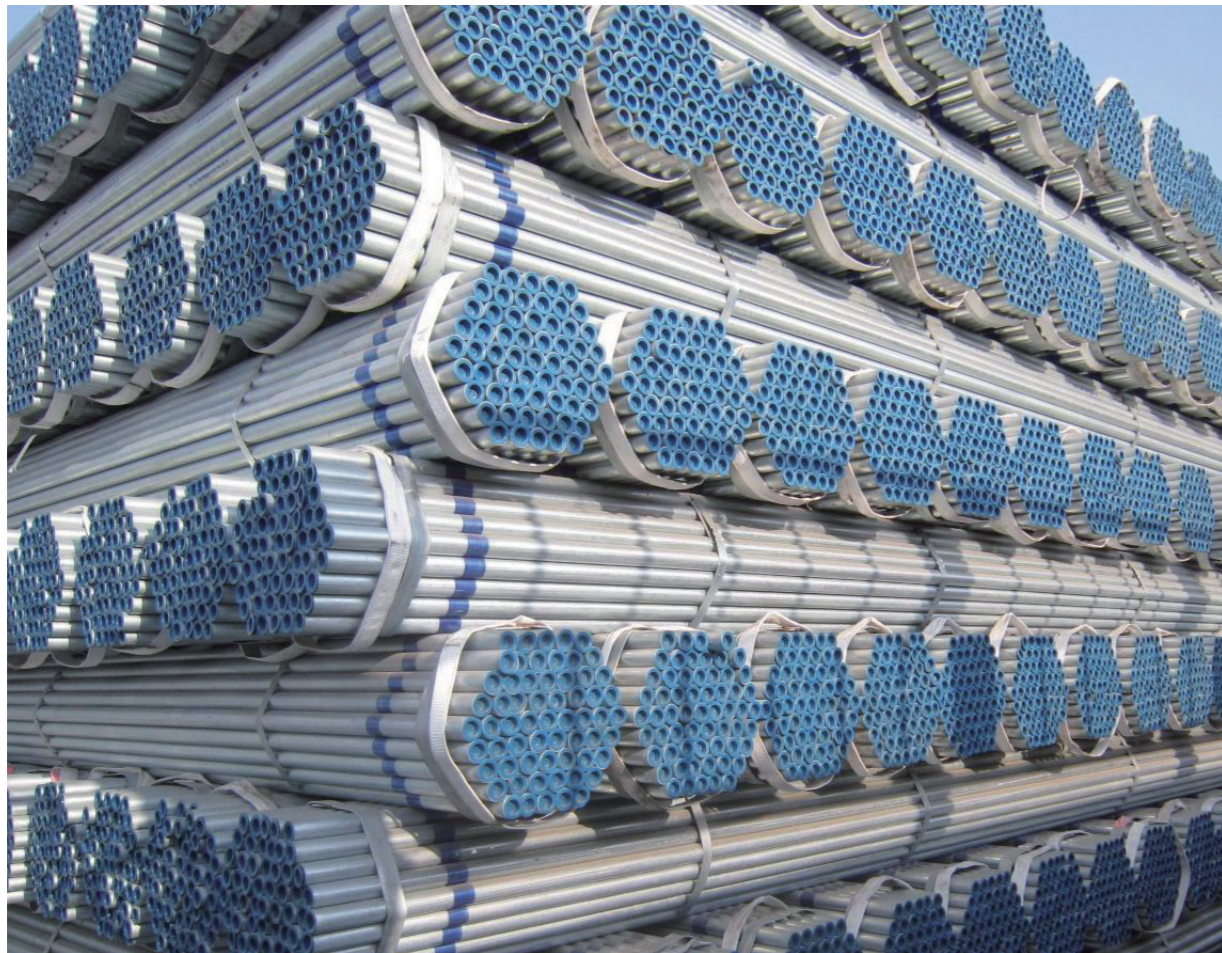
Elongation Min (%)		Flattening Test	Bend Test	Hydrostatic & NDT	Others																												
Longitudinal Direction	Transverse Direction																																
$e = \frac{A^{0.2}}{625,000 \times U^{0.9}}$ e, minimum elongation in 2 in (50.8mm)	A, Cross-Sectional area of the test specimen in sq in U, Specified minimum ultimate tensile strength in Psi	Weld portion; H=3/4D The other side of weld portion; H=3/5D	2 3/8 and smaller 90° X 12D	P=2st/D P=hydrostatic test Pressure(psi) S= fiber stress, is the hoop stress expressed in megapascals equal to a percentage of specified min. yield strength for the various sizes as shown in the tabulation below. (psi) t= specified thickness(inch) D= Outside Diameter(inch)and NDT	*Heat treatment on the weld seam area *Metallographic Examination *Fracture Toughness Test(PSL2)																												
		D<323.9mm ≥12.7mm Weld portion; H=2/3D The other side of weld portion H=1/2D Weld ductility test D/t>10 The other side of weld portion; H=1/3D Weld ductility Test H=3.07T/(0.07+3t/D) less than X 52 H=3.05T/(0.05+3t/D) X 52 and higher	<table border="1"> <thead> <tr> <th rowspan="2">Grade</th> <th rowspan="2">Size Designation</th> <th colspan="2">percent of specified min. yield stress</th> </tr> <tr> <th>Standard Test Pressure</th> <th>Alternate Test Pressure</th> </tr> </thead> <tbody> <tr> <td>A25</td> <td>5 9/16</td> <td>60</td> <td>75</td> </tr> <tr> <td>A</td> <td>2 3/8 and larger</td> <td>60</td> <td>75</td> </tr> <tr> <td>B</td> <td>2 3/8 and larger</td> <td>60</td> <td>75</td> </tr> <tr> <td rowspan="3">X42-X80</td> <td>5 9/16 and smaller</td> <td>60</td> <td>75</td> </tr> <tr> <td>5 9/16 and 8 5/8</td> <td>75</td> <td>75</td> </tr> <tr> <td>8 5/8-20 inch 20 and larger</td> <td>85</td> <td>85</td> </tr> <tr> <td>90</td> <td>90</td> <td>90</td> <td>90</td> </tr> </tbody> </table>			Grade	Size Designation	percent of specified min. yield stress		Standard Test Pressure	Alternate Test Pressure	A25	5 9/16	60	75	A	2 3/8 and larger	60	75	B	2 3/8 and larger	60	75	X42-X80	5 9/16 and smaller	60	75	5 9/16 and 8 5/8	75	75	8 5/8-20 inch 20 and larger	85	85
Grade	Size Designation	percent of specified min. yield stress																															
		Standard Test Pressure	Alternate Test Pressure																														
A25	5 9/16	60	75																														
A	2 3/8 and larger	60	75																														
B	2 3/8 and larger	60	75																														
X42-X80	5 9/16 and smaller	60	75																														
	5 9/16 and 8 5/8	75	75																														
	8 5/8-20 inch 20 and larger	85	85																														
90	90	90	90																														
$e = \frac{A^{0.2}}{625,000 \times U^{0.9}}$ e, minimum elongation in 2 in (50.8mm)	A, Cross-Sectional area of the test specimen in sq in U, Specified minimum ultimate tensile strength in Psi	≥16, 0.65D 3.93 to 16 DX(0.980-0.020 6 D/t) <3,93 DX(1,104-0,051 8 D/t)	P=2(f X Ys min X t)/D and NDT. P=hydrostatic test pressure test pressure in megapascals. f=a factor of 0.6 or 0.8, Yp=specified yield strength for the pipebod in megapascals. t= specified wall thickness in mm D= Specified Outside diameter in mm Factor f	<table border="1"> <thead> <tr> <th rowspan="2">Standard Test Pressure</th> <th>SIZE</th> <th>H40</th> <th>J55, K55</th> <th>L80, N80</th> </tr> </thead> <tbody> <tr> <td>9 5/8 <</td> <td>0.8</td> <td>0.8</td> <td>0.8</td> </tr> <tr> <td>≥9 5/8</td> <td>0.6</td> <td>0.6</td> <td>0.8</td> </tr> </tbody> </table>	Standard Test Pressure	SIZE	H40	J55, K55	L80, N80	9 5/8 <	0.8	0.8	0.8	≥9 5/8	0.6	0.6	0.8	*Heat treatment on the weld seam area *Fracture Toughness Test															
		Standard Test Pressure				SIZE	H40	J55, K55	L80, N80																								
9 5/8 <	0.8		0.8	0.8																													
≥9 5/8	0.6	0.6	0.8																														
9 to 28. D(1.074-0.0194 D/t) 9 to 28. D(1.074-0.0194 D/t)	All DX(1.086-0.0163 D/t)																																

Specifications	Application	Chemical Requirement(%)						Physical Requirement	
		C (Max)	Si (Max)	Mn (Max)	P (Max)	S (Max)	Others	Tensile Strength Min Mpa(Psi)	Yield Strength Min Mpa(Psi)
ASTM A53	A	0.25	-	0.95	0.05	0.045	Cu,Cr,Ni ≤0.40 MO≤0.15 V≤0.08	330Mpa (48000 psi)	205Mpa (30000 psi)
	B	0.30	-	1.20	0.05	0.045		415Mpa (60000 psi)	240Mpa (35000 psi)
ASTM A178	A	0.06~0.18	-	0.27~0.63	0.035	0.035	-	325Mpa	180Mpa
	C	0.35	-	0.8	0.035	0.035		415Mpa	255Mpa
	D	0.27	0.1 min	1.5	0.03	0.015		485Mpa	275Mpa
ASTM A214	-	0.18	-	0.27~0.63	0.035	0.035	-	-	-
ASTM A252	Grade I	-	-	-	-	0.05	-	345Mpa (50000 psi)	205Mpa (30000 psi)
	Grade II	-	-	-	-	0.05		415Mpa (60000 psi)	240Mpa (35000 psi)
	Grade III	-	-	-	-	0.05		455Mpa (66000 psi)	310Mpa (45000 psi)
ASTM A500	A	0.30	-	1.40	0.045	0.045	Cu≥0.20 When required	310Mpa (45000 psi)	230Mpa (33000 psi)
	B	0.30	-	1.40	0.045	0.045		400Mpa (58000 psi)	290Mpa (42000 psi)
	C	0.27	-	1.40	0.045	0.045		425Mpa (62000 psi)	315Mpa (46000 psi)
	D	0.30	-	1.40	0.045	0.045		400Mpa (58000 psi)	250Mpa (36000 psi)
	A	0.30	-	1.40	0.045	0.045	Cu≥0.20 When Required	310Mpa (45000 psi)	270Mpa (39000 psi)
	B	0.30	-	1.40	0.045	0.045		400Mpa (58000 psi)	315Mpa (46000 psi)
	C	0.27	-	1.40	0.045	0.045		425Mpa (62000 psi)	345Mpa (50000 psi)
	D	0.30	-	1.40	0.045	0.045		400Mpa (58000 psi)	250Mpa (36000 psi)
ASTM A589 (Type IV)	A	-	-	-	0.05	0.06	-	330Mpa (48000 psi)	205Mpa (30000 psi)
	B	-	-	-	0.05	0.06		415Mpa (60000 psi)	240Mpa (35000 psi)
ASTM A795	A	0.25	-	0.95	0.035	0.035	-	-	-
	B	0.30	-	1.20	0.035	0.035		-	-

Elongation Min (%)		Flattening Test	Bend Test	Hydrostatic & NDT	Others
Longitudinal Direction	Transverse Direction				
$\frac{A^{0.2}}{U^{0.9}}$ e-625,000 X U ^{0.9} e;minimum elongation in 2 in(50.8mm) A;Cross-Sectional area of the test specimen in sq in U;Specified minimum ultimate tensile strength in Psi ;		For pipe over NPS 2 Weld portion; H=2/3D The other side of weld portion; H=1/3D	For Pipe NPS 2 and under 90° X 12D 180° X 8D When order for close coiling	Specified respectively in size and grade (p=2st/D) The min pressure NPS 3 ≤ P=2,500 Psi NPS >3 P=2,800Psi at least 5S NDT And NDT (NPS 2 and over)	*ZN Coating Weight 550 g/m2(min) *Heat treatment on the weld seem area (Grade B)
35		H=(1+e)t/(e+t/D) e,0.07(C≥0.19) 0.09 (C≤0.18)		P=220.6t/D or NDT P;hydrostatic test Pressure(Mpa) t;specified wall thickness(mm) D;specified outside diameter(mm)	*Full Body Normalizing *Flange Test *Reverse Flattening Test *Crush test(when required)
30					
		H=(1+e)t/(e+t/D) e,0.07(C≥0.19) 0.09 (C≤0.18)		P=220.6t/D or NDT P;hydrostatic test Pressure(Mpa) t;specified wall thickness(mm) D;specified outside diameter(mm)	*Full Body Normalizing *Flange Test *Reverse Flattening Test *Crush test(when required)
30 (E=48t+15.00),t=(inch)		H=(1+e)t/(e+t/D) A; e=0.09 B; e=0.07 C; e=0.06			
25 (E=40t+12.50),t=(inch)					
20 (E=32t+10.00),t=(inch)					
25					
23					If necessary, stress relieved, annealed
21					
23					
25					
		$\frac{A^{0.2}}{U^{0.9}}$ e-625,000 X U ^{0.9} e;minimum elongation in 2 in(50.8mm) A;Cross-Sectional area of the test specimen in sq in U;Specified minimum ultimate tensile strength in Psi ;		In accordance with the specified hydrostatic pressures	*ZN Coating Weight 550 g/m2(min)
		Weld portion; H=2/3D The other side of weld portion; H= 1/3D		In accordance with the specified hydrostatic pressures or NDT	*ZN Coating Weight 480 g/m2(min)

ISO 65-Carbon Steel Tubes Suitable for Screwing in acc. ISO 7/1

DN	Designation of Thread	Outside Diameter D (mm)	Thicknesses (T) and masses per unit length (M) according to the series											
			Heavy Series			Medium Series			Light Series 1			Light Series 2		
			T (mm)	Plain End M (kg/m)	Screwed Socketed M (kg/m)	T (mm)	Plain End M (kg/m)	Screwed Socketed M (kg/m)	T (mm)	Plain End M (kg/m)	Screwed Socketed M (kg/m)	T (mm)	Plain End M (kg/m)	Screwed Socketed M (kg/m)
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						



API 5L Line Pipe

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

Nominal Size	Outside Diameter(D)		Wall Thickness(t)		Weight(Wpe)		Calculated Inside Diameter(d)		Hydrostatic Test Pressure(psi)				
									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

Nominal Size	Outside Diameter(D)		Wall Thickness(t)		Weight(Wpe)		Calculated Inside Diameter(d)		Hydrostatic Test Pressure(ksi)										
									Note 1.1psi=0.07031 kg/cm ² 2.1lb/ft=0.45359kg/ft										
									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 (L555)	
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			

ASTM A53 Welded Pipes / A106 Seamless Pipes

Dimensions, Weights (Masses) per Unit Length, and Test Pressures for Plain-End Pipe

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)	0.113(2.87) 0.154(3.91) 0.219(5.56) 0.308(7.82)	1.13(1.69) 1.48(2.20) 1.95(2.90) 2.44(3.64)	STD XS -- XXS	40 80 160 --	700(4.8) 850(5.9) 950(6.5) 1000(6.9)	700(4.8) 850(5.9) 950(6.5) 1000(6.9)
1	25	1.315(33.4)	0.133(3.38) 0.179(4.55) 0.250(6.35) 0.358(9.09)	1.68(2.50) 2.17(3.24) 2.85(4.24) 3.66(5.45)	STD XS -- XXS	40 80 160 --	700(4.8) 850(5.9) 950(6.5) 1000(6.9)	700(4.8) 850(5.9) 950(6.5) 1000(6.9)
1 1/4	32	1.660(42.2)	0.140(3.56) 0.191(4.85) 0.250(6.35) 0.382(9.70)	2.27(3.39) 3.00(4.47) 3.77(5.61) 5.22(7.77)	STD XS -- XXS	40 80 160 --	1200(8.3) 1800(12.4) 1900(13.1) 2200(15.2)	1300(9.0) 1900(13.1) 2000(13.8) 2300(15.9)
1 1/2	40	1.900(48.3)	0.145(3.68) 0.200(5.08) 0.281(7.14) 0.400(10.16)	2.72(4.05) 3.63(5.41) 4.86(7.25) 6.41(9.56)	STD XS -- XXS	40 80 160 --	1200(8.3) 1800(12.4) 1950(13.4) 2200(15.2)	1300(9.0) 1900(13.1) 2050(14.1) 2300(15.9)
2	50	2.375(60.3)	0.154(3.91) 0.218(5.54) 0.344(8.74) 0.436(11.07)	3.66(5.44) 5.03(7.48) 7.47(11.11) 9.04(13.44)	STD XS -- XXS	40 80 160 --	2300(15.9) 2500(17.2) 2500(17.2) 2500(17.2)	2500(17.2) 2500(17.2) 2500(17.2) 2500(17.2)
2 1/2	65	2.875(73.0)	0.203(5.16) 0.276(7.01) 0.375(9.52) 0.552(14.02)	5.80(8.63) 7.67(11.41) 10.02(14.90) 13.71(20.39)	STD XS -- XXS	40 80 160 --	2500(17.2) 2500(17.2) 2500(17.2) 2500(17.2)	2500(17.2) 2500(17.2) 2500(17.2) 2500(17.2)
3	80	3.500(88.9)	0.125(3.18) 0.156(3.96) 0.188(4.78) 0.216(5.49) 0.250(6.35) 0.281(7.14) 0.300(7.62) 0.438(11.13) 0.600(15.24)	4.51(6.72) 5.58(8.29) 6.66(9.92) 7.58(11.29) 8.69(12.93) 9.67(14.40) 10.26(15.27) 14.34(21.35) 18.60(27.68)	-- -- -- STD -- -- XS -- XXS	-- -- -- 40 -- -- 80 160 --	1290(8.9) 1600(11.0) 1930(13.33) 2220(15.3) 2500(17.2) 2500(17.2) 2500(17.2) 2500(17.2) 2500(17.2)	1500(10.0) 1870(12.9) 2260(15.6) 2500(17.2) 2500(17.2) 2500(17.2) 2500(17.2) 2500(17.2) 2500(17.2)
3 1/2	90	4.000(101.6)	0.125(3.18) 0.156(3.96) 0.188(4.78) 0.226(5.74) 0.250(6.35) 0.281(7.14) 0.318(8.08)	5.18(7.72) 6.41(9.53) 7.66(11.41) 9.12(13.57) 10.02(14.92) 11.17(16.63) 12.52(18.63)	-- -- -- STD -- -- XS	-- -- -- 40 -- -- 80	1120(7.7) 1400(9.7) 1690(11.7) 2030(14.0) 2250(15.5) 2500(17.2) 2800(19.3)	1310(9.0) 1640(11.3) 1970(13.6) 2370(16.3) 2500(17.2) 2500(17.2) 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/cm ² 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 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 GR.A/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 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 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



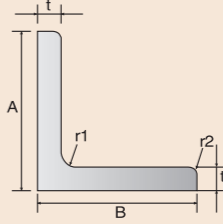
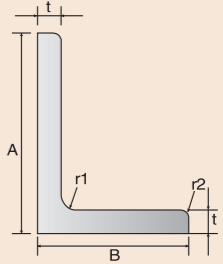
Note 1.1psi=0.07031kg/cm2 2.1lb/ft=0.45359kg/ft

Fitting

			
● 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	

Section Steel

Equal & Unequal Angle Bar

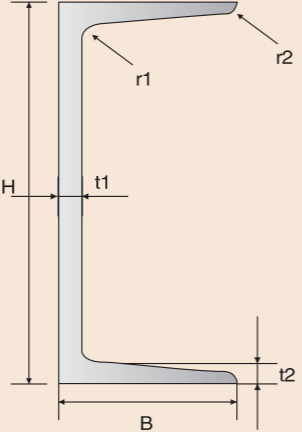
AVAILABLE STEEL GRADE	EQUAL ANGLE BAR	UNEQUAL ANGLE BAR
Q235B, Q345B A36, A572 Gr.50 S235JR, S355JR SS400,		
DIMENSION IN BOLD IN BELOW TABLES FOR EQUAL&UNEQUAL ANGLE ARE RECOMMENDED		

EQUAL ANGLE BAR DIMENSION-I (MM)		
A*B	t	UNIT WEIGHT (KG/M)
20*20	3/4	0.889/1.145
25*25	3/4	1.124/1.459
30*30	3/4	1.373/1.786
36*36	3/4/5	1.656/2.163/2.654
40*40	3/4/5	1.852/2.422/2.976
45*45	3/4/5/6	2.088/2.736/3.369/3.985
50*50	3/4/5/6	2.332/3.059/3.770/4.465
56*56	3/4/5/8	2.624/3.446/4.251/6.568
60*60	4/5	3.68/4.55
63*63	4/5/6/8	3.907/4.822/5.721/7.469
65*65	5/6/8	5.00/5.91/7.66
70*70	4/5/6/7/8	4.372/5.397/6.406/7.398/8.373
75*75	5/6/7/8/10	5.818/6.905/7.976/9.030/11.089
80*80	5/6/7/8/10	6.211/7.376/8.525/9.658/11.874

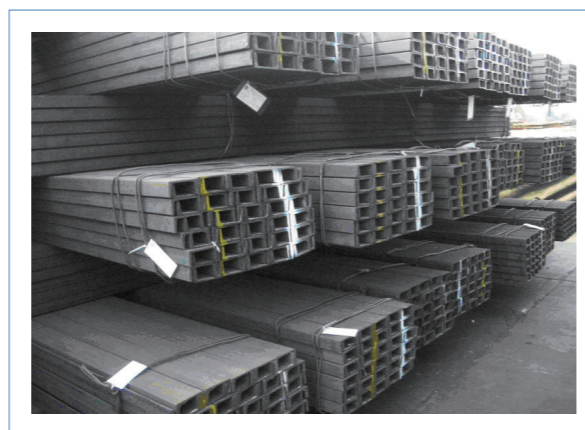
EQUAL ANGLE BAR DIMENSION-II (MM)		
A*B	t	UNIT WEIGHT (KG/M)
90*90	6/7/8/10/12	8.350/9.656/10.946/13.476/15.940
100*100	6/7/8/10/12/14	9.366/10.830/12.276/15.120/17.898/20.611
110*110	7/8/10/12/14	11.928/13.532/16.690/19.782/22.809
120*120	8	14.7
125*125	8/10/12/14	15.504/19.133/22.696/26.193
130*130	9/12/15	17.9/23.4/28.8
140*140	10/12/14/16	21.488/25.522/29.490/33.393
150*150	12/15/19	27.3/33.6/41.9
160*160	10/12/14/16	24.729/29.391/33.987/38.518
180*180	12/14/16/18	33.159/38.383/43.542/48.634
200*200	14/16/18/20/24	42.894/48.680/54.401/60.056/71.168

UNEQUAL ANGLE BAR DIMENSION (MM)		
A X B	t	UNIT WEIGHT (KG/M)
100 X 50	6/8	6.85/8.99
100 X 75	7/9/10	9.32/11.8/13
125 X 75	7/10/12	10.7/14.9/17.8
150 X 90	9/10/12	16.5/18.2/21.6
200 X 100	10/12	23/27.3

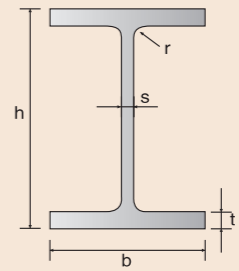
Steel Channel

AVAILABLE STEEL GRADE	STEEL CHANNELS
Q235B, Q345B A36, A572 Gr.50 S235JR, S355JR SS400,	
DIMENSION IN BOLD IN BELOW TABLES FOR STEEL CHANNELS ARE RECOMMENDED	

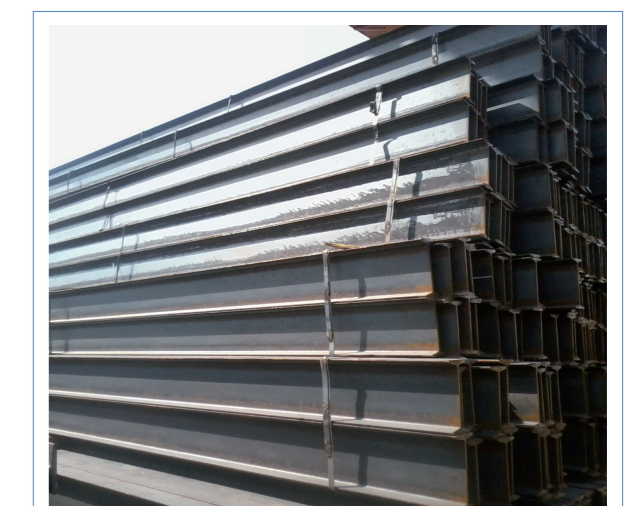
CHANNEL DIMENSION (MM)			UNIT WEIGHT (KG/M)
H * B	t1	t2	
75*40	3.8	7	5.3
75*40	5	7	6.92
100 * 50	3.8	6	7.3
100 * 50	4.5	7.5	8.97
100 * 50	5	7.5	9.36
125 * 65	6	6.8	11.66
125 * 65	5.2	8	13.4
150 * 75	5.5	7.3	14.66
150 * 75	6	10	17.9
150 * 75	6.5	10	18.6



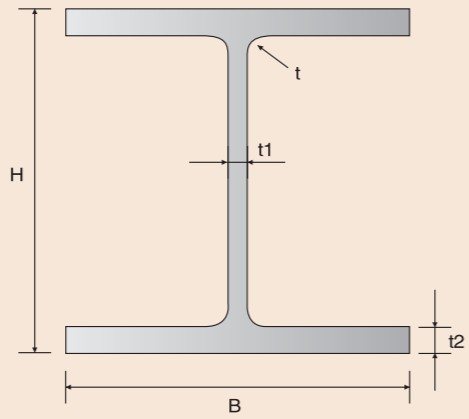
IPE / IPEAA

AVAILABLE STEEL GRADE	IPE/IPEAA
Q235B, Q345B A36, A572 Gr.50 S235JR, S355JR SS400,	
DIMENSION IN BOLD IN BELOW TABLES FOR IPE/IPEAA ARE RECOMMENDED	

NOMINAL SIZE	DIMENSION					UNIT WEIGHT (KG/M)
	h	b	s	t	r	
IPE AA-100	97.6	55	3.6	4.4	7	6.72
IPE-100	100	55	4.1	5.7	7	8.10
IPE AA-120	117	64	3.8	4.8	7	8.36
IPE-120	120	64	4.4	6.3	7	10.4
IPE AA-140	136.6	73	3.8	5.2	7	10.05
IPE-140	140	73	4.7	6.9	7	12.9
IPE AA-160	156.4	82	4	5.6	7	12.31
IPE-160	160	82	5.0	7.4	9	15.8
IPE AA-180	176.4	91	4.3	6.2	9	14.94
IPE-180	180	91	5.3	8.0	9	18.8
IPE AA-200	196.4	100	4.5	6.7	12	17.95
IPE-200	200	100	5.6	8.5	12	22.4



H Beam

AVAILABLE STEEL GRADE	H BEAM
Q235B, Q345B A36, A572 Gr.50 S235JR, S355JR SS400,	
DIMENSION IN BOLD IN BELOW TABLES FOR H BEAM ARE RECOMMENDED	

ITEM	H*B (mm) NORMINAL SIZE	t1 (mm)	t2 (mm)
HW	100*100, 125*125, 150*150, 175*175, 200*200, 250*250, 300*300, 350*350, 400*400	6 ~ 45	8 ~ 35
HM	150*100, 200*150, 250*175, 300*200, 350*250, 400*300, 450*300, 500*300, 600*300,	6 ~ 14	9 ~ 23
HN	100*50, 125*60, 150*75, 175*90, 200*100, 250*125, 300*150, 350*175, 400*150, 400*200, 450*150, 450*200, 500*150, 500*200, 600*200, 700*300, 800*300, 900*300	5 ~ 18	7 ~ 28

HW, HM, HN STAND FOR H BEAMS WITH WIDE FLANGE, MEDIUM FLANGE, NARROW FLANGE SEPARATELY.



Coil and Plate



Galvanized Steel Coil

SPECIFICATION:

Thickness: 0.25–4.0mm; **Width:** 900–1250mm;

Zinc Coating: 80–275g/m²;

Internal Diameter: 508mm or 610mm

Coil Weight: 4–8MT

Quality: commercial and structural quality

Surface Treatment: zero spangle, regular spangle, minimum spangle, oiled & dry, chromated,

Standard: JIS G 3302, ASTM A 653M, EN 10327

Steel Grade: SGCC, DX51D+Z, S250GD, S280GD, S350GD

Usage: widely used in building materials, light industrial, transportation and farming. Such as for making steel profile for wall and roofing, T-bar, studs, fireproof door, air conditioning duct; enclosure of home appliance, kitchen appliance etc.

Pre-painted Galvanized Steel Coil

SPECIFICATION:

Thickness: 0.23–1.2mm (BMT)

Width: 900–1250mm

Zinc Coating: 80–275g/m²

Color: according to RAL color fan(PE;PVDF coating)

Internal Diameter:508mm or 610mm

Coil Weight: 4–8MT

Quality: commercial and structural quality

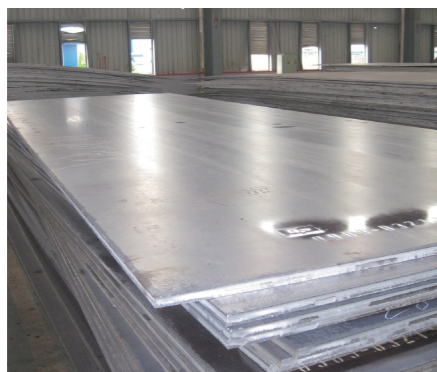
Standard: JIS G 3312, ASTM A755M, EN 10169

Steel Grade: CGCC, DX51D+Z, S250GD, S280GD,S350GD

Usage: widely used in building materials, light industrial, transportation and farming. Such as for making steel profile for wall and roofing, sandwich panel, corrugated sheet, T-bar, home appliance, kitchen appliance etc.



Hot Rolled Steel Plate



SPECIFICATION:

Thickness: 6—200mm;

Width: 1524—5000mm; **Length:** 6000—16000mm

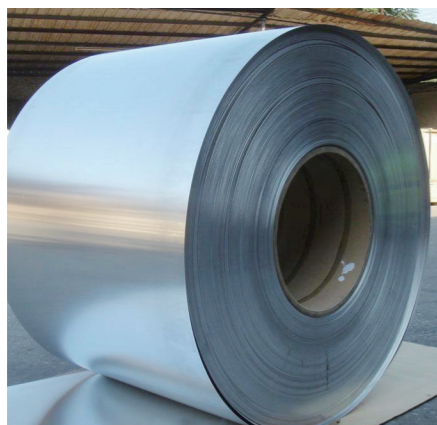
Steel Grade: SS400, SM490, A36, A572 GR50, S235/275/355JR, S690QL, A514, A516 GR60/70...

Thickness: 6—60mm;

Width: 1800—3500mm; **Length:** 6000—16000mm

Ship Buiding Plate : Grade A, B, AH32/36, D, DH32/36, E, EH 32/36

Hot Rolled Steel Coil



SPECIFICATION:

Thickness: 1.8mm---20mm;

Width: 940mm—2010mm

Standard: Japanese industry standard, Germany industry standard, American standard, American Petroleum Institute standard

Steel Grade: SS400, SPHC, SPHT1/T2, SAE1006/1008, S235/275JR, API5L X60/65/70

Usage : raw materials for producing cold rolling steel coils; raw materials in industrial, such as making pipe, container, ship, automobile, etc.

Cold Rolled Steel Coil



SPECIFICATION:

Thickness: 0.2---2.0mm; **Width:** 1000—1250mm;

Standard: JISG 3141—2005, EN10130/EN10139

Steel Grade: SPCC, SPCD, SPCE, SPCEN. DC01(St12), DC03(St13), DC04(St 14, St15)

Technical Treatment of Cold Rolled Steel Coil: Bright, annealed, flating, cold hardness and so on.

Usage : widely used in construction, transportation and other industries, such as motorcycles, fitting apparatuses. Door-making, appliance, furniture, pipe, tank, refrigerators, washers, dryers; also materials for producing galvanized steel coils and pre-painted galvanized steel coils.

All Staff of Tianjin Youfa International Trade Co., Ltd



Tianjin Youfa Steel Pipe Group Culture

YOUFA'S MISSION: 友发的使命
TO LET ITS EMPLOYEES GROW HAPPILY; 让员工幸福成长
TO PROMOTE THE HEALTHY DEVELOPMENT OF THE INDUSTRYT. 促进行业健康发展

YOUFA'S VISION: 友发的愿景
TO BECOME A GLOBAL EXPERT OF PIPELINE SYSTEM. 做全球管道系统专家

YOUFA'S CORE VALUE: 友发核心价值观
TO BE WIN-WIN WITH INTEGRITY POLICY; 共赢互利信为本
TO ADVANCE TOGETHER WITH VIRTUE FIRST. 同心并进德为先

YOUFA'S SPIRIT: 友发的精神
TO DISCIPLINE OURSELVES, BENEFIT OTHERS; 律己利他
COOPERATE AND FORGE AHEAD. 合作进取