



## Steel manufacturing



We are keen to choose the best types of raw materials , as we adopt the best suppliers of raw materials in the world to ensure access to products with outstanding quality and high efficiency in order to guarantee meeting the most accurate global specifications.



# steel

## material with tradition and future



The history of steel goes back to 2,000 BC, to a time when the first simple ferrous materials were produced. In antiquity and the Middle Ages, ore was smelted in a kiln at very high temperatures, without actually melting. This was an inhomogeneous material that had a varying carbon content and contained no other alloying elements.

In the 14th century AD, the first charcoal-heated blast furnaces came into existence in Europe, making the melting of iron possible. The resulting cast iron was brittle due to its high carbon content and not suitable for forging. It therefore had to be meticulously processed to burn out the carbon, slag and other accompanying elements.



In 1784, Henry Cort developed the puddling process. In this process, the molten pig iron was brought into contact with air by stirring it manually to eliminate elements such as carbon, sulphur or phosphorus from the material. The procedure enabled the manufacture of a forgeable and resilient crude steel, also known as wrought iron.

In the 19th century, steel took on an increasingly important role. As the invention of the steam engine made the transportation of heavy loads possible, the coal industry

began to supply the coke necessary for steel manufacture. Steel was of great importance for the railways, steamships and defence industry. The Eiffel Tower still stands as a monument of the technical progress of that time, constructed for the Paris World Exhibition in 1889.

Since the creation of that famous Parisian landmark, steel production has grown steadily. Production processes have evolved over the years, so that today there are over 2,500

standard grades that are used in a wide variety of applications.



the railway sector was once one of the largest markets for steel .

## Why is construction steel used so frequently?

The reasons for the use of construction steels are mainly their yield strength, formability



and suitability for welding and machining. The most frequently sold steel is general

or non-alloyed construction steel. This is due to the fact that:

Its properties are suitable for the most common applications;

It is cost-effective;

It has good processing and welding properties;

The variety with the required properties for machining can be selected individually

from a large number of different alloys;

A large selection of, mostly standardized, semi-finished products is available.

### **What grades of steel are there?**

The largest grouping of steels are construction steels. They are also referred to as ordinary steel or structural steel. This group accounts for more than 90 % of total

steel production. It includes unalloyed construction steels, as well as fine grain and

weather-resistant structural steels. Some corrosion-resistant stainless steels (INOX) are



classed as structural steels, too, because they are used for similar structures to those

constructed from the grades mentioned above.

In the context of this PRAXIS brochure, mainly unalloyed structural steels will be considered.

Information on stainless steel (INOX) or rust- and acid-resistant steels can be found in our PRAXIS brochure “PFERD tools for use on stainless steel (INOX)”.





## types of construction steel

### Rebars \ reinforcement steel for building

We produce steel bars in all sizes

10,12,14,16,18,20,22,25,28,32,40 mm.

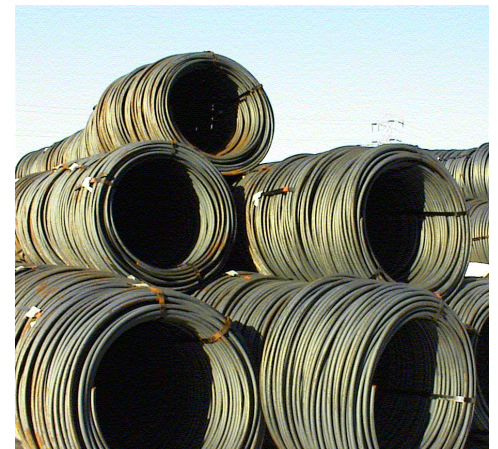


### Plain wire rod

We produce plain wire rod in all sizes from 5.5 to 16 mm.

### Rebar coils

We produce rebar coils in all sizes from 6 to 16 mm





## Rectangular & square tube

Produced from the hot and the cold rolled steel coils with different sizes and thickness from 0.6 to 6 mm .

### square welded steel pipes

Nominal Dimensions (mm)	A mm	B mm	Thickness (mm)												No. Pcs./ Bndl.
			0.6	0.7	0.8	0.9	1	1.1	1.15	1.2	1.4	1.5	1.8	2	
12 x 12	12	12	0.21	0.24	0.27	0.32	0.33	0.38	0.40	0.41					100
16 x 16	16	16	0.28	0.33	0.37	0.42	0.45	0.53	0.55	0.57	0.65	0.68			100
19 x 19	19	19	0.34	0.39	0.44	0.51	0.54	0.63	0.66	0.68	0.79	0.82	0.98	1.07	100
20 x 20	20	20	0.36	0.41	0.47	0.54	0.6	0.66	0.69	0.71	0.83	0.89	1.06	1.16	100
25 x 25	25	25	0.46	0.53	0.61	0.68	0.75	0.83	0.88	0.90	1.03	1.10	1.31	1.48	100
30 x 30	30	30		0.64	0.74	0.82	0.91	1.01	1.06	1.09	1.27	1.30	1.59	1.79	100
40 x 40	40	40					1.22	1.35	1.42	1.47	1.69	1.81	2.16	2.38	64
50 x 50	50	50					1.53	1.70	1.77	1.83	2.13	2.28	2.73	3.01	64
60 x 60	60	60						2.04	2.14	2.22	2.59	2.68	3.32	3.64	36
70 x 70	70	70								2.60	3.02	3.23	3.86	4.27	30
75 x 75	75	75								2.78	3.23	3.46	4.14	4.58	30
80 x 80	80	80									3.46	3.71	4.44	4.91	30
100 x 100	100	100										4.64	5.57	6.15	20
Nominal Dimensions (mm)	A mm	B mm	Thickness (mm)										No. Pcs./ Bndl.		
			2.3	2.5	2.8	3	3.2	3.5	3.8	4	4.8	5		5.8	6
30 x 30	30	30	2.04	2.18	2.41	2.59	2.74								100
40 x 40	40	40	2.69	2.94	3.29	3.50	3.49	3.95	4.38	4.52					64
50 x 50	50	50	3.37	3.72	4.15	4.42	4.76	5.11	5.57	5.78					64
60 x 60	60	60	4.08	4.51	5.05	5.37	5.78	6.21	6.77	7.03					36
70 x 70	70	70	4.78	5.30	5.93	6.31	6.81	7.31	7.96	8.29	9.25	10.02			30
75 x 75	75	75	5.14	5.69	5.93	6.78	7.32	7.86	8.56	8.92					30
80 x 80	80	80	5.49	6.08	6.65	7.25	7.83	8.41	8.97	9.54	11.42	11.77	13.66	14.08	30
100 x 100	100	100	7.07	7.65	8.52	9.13	9.87	10.61	11.54	12.51	14.43	14.92	17.30	17.85	20
125 x 125	125	125				11.49	12.21	13.34	14.52	15.19	18.19	18.84	21.85	22.42	12
150 x 150	150	150				13.85	14.72	15.91	17.51	18.34	21.97	22.76	26.40	27.13	9



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## rectangular welded steel pipes

Nominal Dimensions (mm)	A mm	B mm	Thickness (mm)													No. Pcs./ Bndl.
			0.6	0.7	0.8	0.9	1	1.1	1.15	1.2	1.4	1.5	1.8	2		
10 x 25	10	25	0.31	0.36	0.41	0.47	0.50	0.55	0.57	0.59	0.67	0.71	0.89	0.89	150	
10 x 30	10	30	0.36	0.41	0.47	0.53	0.58	0.65	0.67	0.68	0.78	0.83	1.31	1.05	150	
10 x 40	10	40	0.45	0.52	0.59	0.67	0.73	0.83	0.85	0.87	1.00	1.06	1.31	1.36	160	
15 x 30	15	30	0.41	0.47	0.53	0.61	0.65	0.74	0.75	0.77	0.89	0.94	1.17	1.21	150	
20 x 30	20	30	0.45	0.52	0.59	0.67	0.73	0.82	0.85	0.87	1.00	1.06	1.31	1.36	100	
20 x 40	20	40		0.65	0.72	0.82	0.89	1.00	1.03	1.06	1.22	1.30	1.59	1.68	80	
25 x 50	25	50		0.81	0.91	1.03	1.13	1.25	1.31	1.34	1.55	1.65	2.02	2.15	80	
30 x 60	30	60		0.97	1.11	1.24	1.38	1.53	1.59	1.69	1.88	2.00	2.47	2.62	60	
40 x 80	40	80					1.86	2.05	2.14	2.19	2.57	2.71	3.29	3.56	50	
50 x 100	50	100								2.75	3.20	3.42	4.14	4.50	30	
60 x 120	60	120										4.19	5.01	5.49	30	
100 x 150	100	150												7.74	12	
100 x 200	100	200												9.27	12	

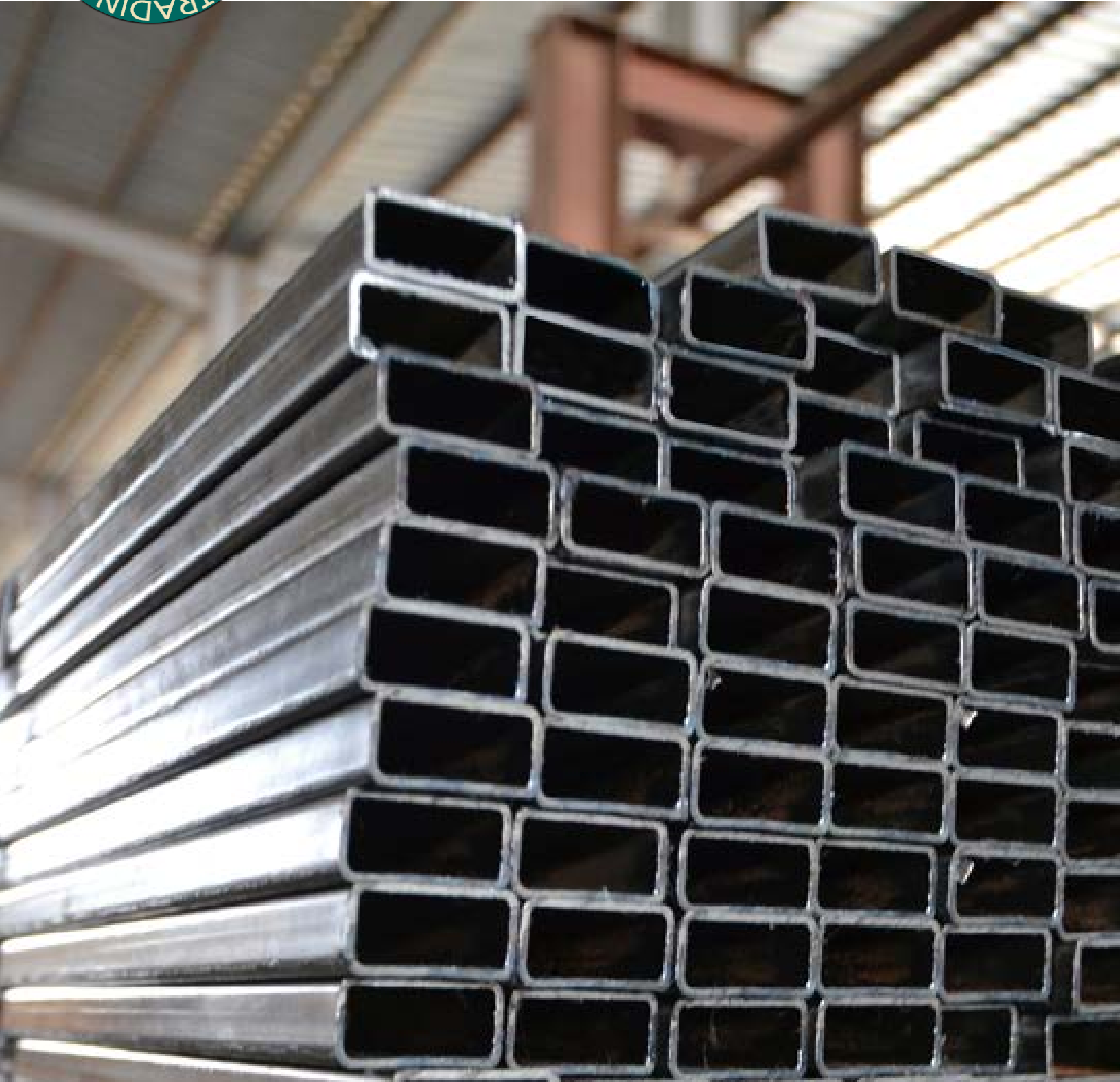
  

Nominal Dimensions (mm)	A mm	B mm	Thickness (mm)											No. Pcs./ Bndl.	
			2.5	2.8	3	3.2	3.5	3.8	4	4.8	5	5.8	6		
25 x 50	25	50	2.74	3.08	3.25	3.49	3.79	4.08	4.27						80
30 x 60	30	60	3.33	3.74	3.96	4.22	4.56	4.98	5.21						60
40 x 80	40	80	4.51	5.05	5.37	5.75	6.21	6.77	7.09	8.44	8.79				50
50 x 100	50	100	5.69	6.34	6.78	7.26	7.86	8.56	8.98	10.70	11.11	12.75	13.14		30
60 x 120	60	120	6.77	7.72	8.24	8.76	9.56	10.35	10.86	12.96	13.46	15.48	15.97		30
100 x 150	100	150	9.61	10.79	11.54	12.28	13.41	14.52	15.26	18.24	18.96	21.85	22.56		12
100 x 200	100	200	11.61	12.99	13.89	14.79	16.15	17.51	18.40	22.01	22.88	26.41	27.27		12



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## Hot rolled steel sheets :

Produced from the hot rolled steel coil for applications in structural fabrications and in standard sizes or as per customer requirements





## Hot rolled steel sheets

Thickness	Size (m)	Width (mm)	Length (mm)	Pcs. / Bndl.	Weight (ton)
1.2	1 x 2	1000	2000	150	2.826
1.4	1 x 2	1000	2000	125	2.746
1.45	1 x 2	1000	2000	125	2.846
1.5	1 x 2	1000	2000	120	2.826
1.8	1 x 2	1000	2000	100	2.826
2	1 x 2	1000	2000	90	2.826
2.3	1 x 2	1000	2000	80	2.889
2.5	1 x 2	1000	2000	75	2.944
2.8	1 x 2	1000	2000	65	2.857
3	1 x 2	1000	2000	60	2.826
3.2	1 x 2	1000	2000	55	2.763
3.5	1 x 2	1000	2000	50	2.748
3.8	1 x 2	1000	2000	45	2.685
4	1 x 2	1000	2000	45	2.826
4.8	1 x 2	1000	2000	35	2.637
5	1 x 2	1000	2000	35	2.746
5.8	1 x 2	1000	2000	30	2.732
6	1 x 2	1000	2000	30	2.826
7.8	1 x 2	1000	2000	20	2.449
8	1 x 2	1000	2000	20	2.512
9.8	1 x 2	1000	2000	15	2.308
10	1 x 2	1000	2000	15	2.355
11.8	1 x 2	1000	2000	15	2.779
12	1 x 2	1000	2000	15	2.826

Thickness	Size (ft.)	Width (mm)	Length (mm)	Pcs. / Bndl.	Weight (ton)
1.2	4 x 8	1220	2440	100	2.804
1.4	4 x 8	1220	2440	85	2.781
1.45	4 x 8	1220	2440	80	2.711
1.5	4 x 8	1220	2440	80	2.804
1.8	4 x 8	1220	2440	65	2.734
2	1 x 2	1220	2440	60	2.804
2.3	1 x 2	1220	2440	50	2.687
2.5	4 x 8	1220	2440	50	2.921
2.8	4 x 8	1220	2440	45	2.944
3	4 x 8	1220	2440	40	2.804
3.2	4 x 8	1220	2440	40	2.991
3.5	4 x 8	1220	2440	35	2.863
3.8	4 x 8	1220	2440	30	2.664
4	4 x 8	1220	2440	30	2.804
4.8	4 x 8	1220	2440	25	2.804
5	4 x 8	1220	2440	25	2.921
5.8	4 x 8	1220	2440	20	2.711
6	4 x 8	1220	2440	20	2.804
7.8	4 x 8	1220	2440	15	2.734
8	4 x 8	1220	2440	15	2.804
9.8	4 x 8	1220	2400	12	2.748
10	4 x 8	1220	2400	12	2.804
11.8	4 x 8	1220	2400	10	2.757
12	4 x 8	1220	2400	10	2.804



Thickness	Size (mm)	Width (mm)	Length (mm)	Pcs. / Bndl.	Weight (ton)
2.8	1500 x 3000	1500	3000	25	2.473
3	1500 x 3000	1500	3000	25	2.649
3.8	1500 x 3000	1500	3000	20	2.685
4	1500 x 3000	1500	3000	20	2.826
4.8	1500 x 3000	1500	3000	15	2.543
5	1500 x 3000	1500	3000	15	2.649
5.8	1500 x 3000	1500	3000	14	2.868
6	1500 x 3000	1500	3000	14	2.967
7.8	1500 x 3000	1500	3000	10	2.755
8	1500 x 3000	1500	3000	10	2.826
9.8	1500 x 3000	1500	3000	8	2.769





## Cold rolled steel sheets

Produced from the cold rolled steel coils for applications in home appliances with different thickness from 0.35 to 3 mm and in standard sizes or as per customer requirements .

### coled rolled steel sheet

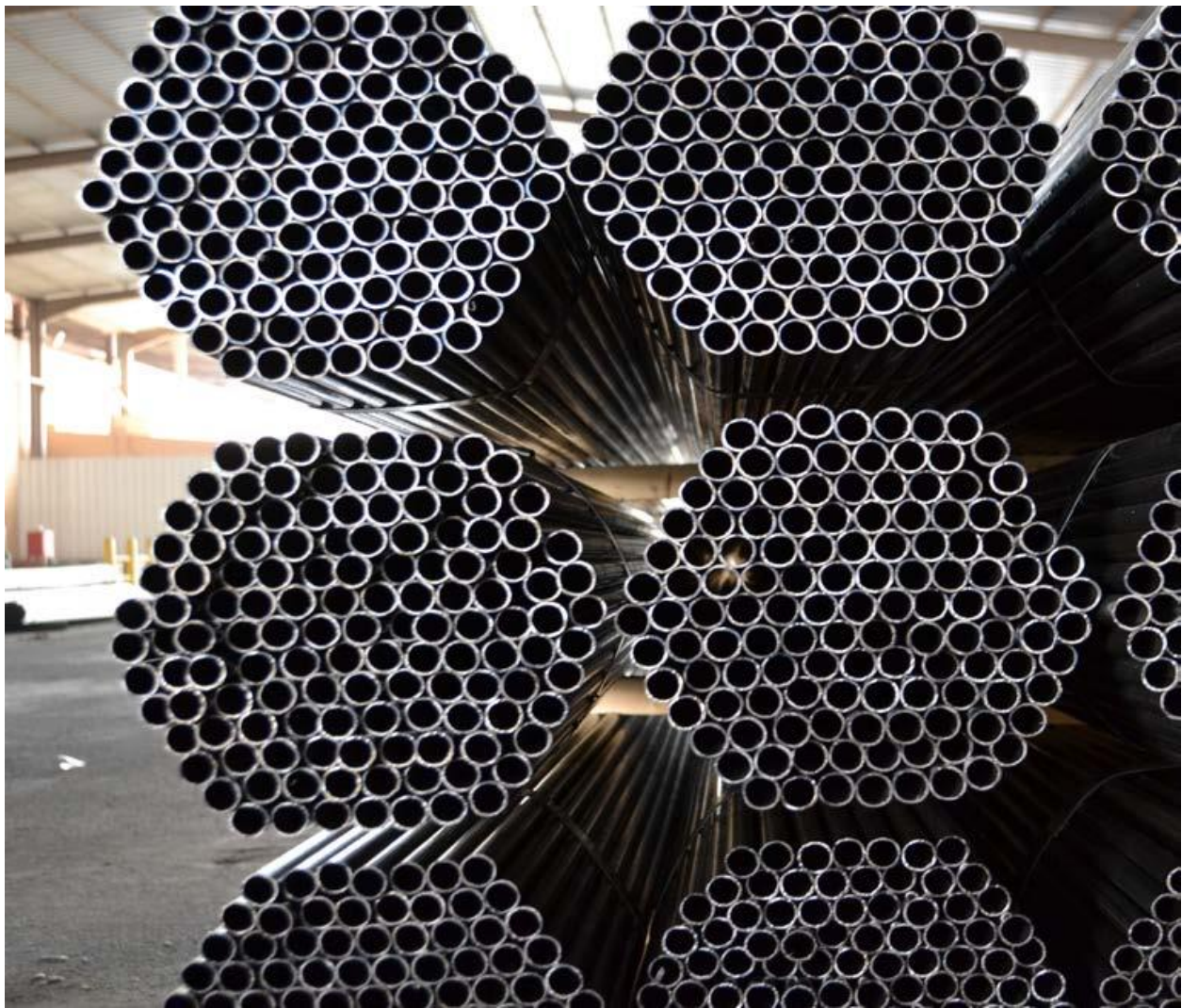
Thickness	Size (m)	Width (mm)	Length (mm)	Pcs. / Bndl.	Weight (ton)
0.35	1 x 2	1000	2000	500	2.748
0.4	1 x 2	1000	2000	450	2.826
0.5	1 x 2	1000	2000	350	2.748
0.55	1 x 2	1000	2000	325	2.806
0.6	1 x 2	1000	2000	300	2.826
0.7	1 x 2	1000	2000	250	2.748
0.8	1 x 2	1000	2000	225	2.826
0.9	1 x 2	1000	2000	200	2.826
1	1 x 2	1000	2000	175	2.748
1.2	1 x 2	1000	2000	150	2.826
1.5	1 x 2	1000	2000	120	2.826
1.8	1 x 2	1000	2000	100	2.826
2	1 x 2	1000	2000	90	2.826

Thickness	Size (ft.)	Width (mm)	Length (mm)	Pcs. / Bndl.	Weight (ton)
0.35	4 x 8	1220	2440	350	2.863
0.4	4 x 8	1220	2440	300	2.804
0.5	4 x 8	1220	2440	225	2.629
0.55	4 x 8	1220	2440	225	2.892
0.6	4 x 8	1220	2440	200	2.804
0.7	4 x 8	1220	2440	175	2.863
0.8	4 x 8	1220	2440	150	2.804
0.9	4 x 8	1220	2440	130	2.734
1	4 x 8	1220	2440	120	2.804
1.2	4 x 8	1220	2440	100	2.804
1.5	4 x 8	1220	2440	80	2.804
1.8	4 x 8	1220	2440	65	2.734
2	4 x 8	1220	2440	60	2.804



## Black pipes

Produced from the hot rolled black steel coils , from 0.5 to 6 inches





## black pipes

Nominal Dimensions (english)	A mm	Thickness (mm)												No. Pcs./ Bndl.
		0.7	0.8	0.9	1	1.1	1.2	1.4	1.5	1.8	2	2.3	2.5	
Ø ½"	21.3	0.36	0.40	0.45	0.50	0.58	0.59	0.69	0.73	0.93	0.95	1.15	1.18	127
Ø ¾"	26.7	0.45	0.51	0.59	0.63	0.72	0.75	0.87	0.93	1.16	1.22	1.46	1.49	127
Ø 1"	33.4	0.56	0.64	0.75	0.80	0.92	0.95	1.10	1.18	1.47	1.55	1.84	1.90	91
Ø 1 ¼"	42.2	0.74	0.82	0.93	1.02	1.15	1.21	1.41	1.51	1.86	1.99	2.35	2.45	61
Ø 1 ½"	48.3		0.94	1.07	1.17	1.20	1.39	1.62	1.73	2.13	2.28	2.69	2.82	61
Ø 2"	60.3						1.75	2.03	2.17	2.65	2.87	3.38	3.56	61
Ø 2 ½"	76.0						2.22	2.58	2.76	3.38	3.66	4.28	4.63	37
Ø 3"	88.9						2.60	3.02	3.23	3.94	4.29	4.98	5.33	37
Ø 4"	113.5							3.90	4.17	5.05	5.54	6.45	6.89	19
Ø 5"	141.3										6.87	7.94	8.56	7
Ø 6"	165.1												10.22	7

Nominal Dimensions (english)	A mm	Thickness (mm)												No. Pcs./ Bndl.
		2.6	2.8	3.0	3.2	3.5	3.8	4.0	4.5	4.8	5.0	5.8	6.0	
Ø ¾"	26.7	1.59	1.69	1.79										127
Ø 1"	33.4	2.02	2.15	2.31	2.38	2.64	2.89	2.98						91
Ø 1 ¼"	42.2	2.59	2.77	2.94	3.08	3.43	3.69	3.86						61
Ø 1 ½"	48.3	3.02	3.18	3.39	3.55	3.98	4.26	4.36						61
Ø 2"	60.3	3.74	4.02	4.29	4.50	4.96	5.39	5.54						61
Ø 2 ½"	76.0	4.85	5.12	5.46	5.82	6.40	6.92	7.12						37
Ø 3"	88.9	5.63	5.98	6.38	6.76	7.47	8.08	8.37	9.37	10.02	10.34	12.02	12.38	37
Ø 4"	113.5	7.34	7.76	8.29	8.77	9.62	10.47	10.88	12.18	13.00	13.48	15.53	16.11	19
Ø 5"	141.3	8.90	9.56	10.19	10.9	11.95	12.83	13.54	15.18	16.13	16.81	19.39	20.06	7
Ø 6"	165.1	10.59	11.29	12.08	13.03	14.15	15.33	16.21	18.18	19.22	20.13	23.08	24.01	7





## Galvanized pipes

Galvanized pipes for water pipeline with sizes from 0.5 to 6 inch, according to the international standards





## black galvanized steel pipes

NOMINAL SIZE	OUTER DIAMETER				WALL THICKNESS		PCS./ BNDL.	MASS BLACK TUBE	
	max.		min.		inch	mm		PLAIN END	Screwed & Socketed
	inch	mm	inch	mm					
Ø ½"	0.841	21.400	0.825	21.000	0.080	2.000	127	0.947	0.956
Ø ¾"	1.059	26.900	1.041	26.400	0.092	2.300	101	1.38	1.39
Ø 1"	1.328	33.800	1.309	33.200	0.104	2.600	61	1.98	2.00
Ø 1 ¼"	0.670	42.500	1.650	41.900	0.104	2.600	44	2.54	2.57
Ø 1 ½"	1.903	48.400	1.882	47.800	0.116	2.900	44	3.23	3.27
Ø 2"	2.370	60.200	2.347	59.600	0.116	2.900	30	4.08	4.15
Ø 2 ½"	2.991	76.000	2.960	75.200	0.126	3.200	30	5.71	5.83
Ø 3"	3.491	88.700	3.460	87.900	0.144	3.200	19	6.72	6.83
Ø 4"	4.481	113.900	4.450	113.000	0.176	3.600	10	9.75	10.06