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PROFESSIONAL MAKES GREAT WORK



CATALOG

STEEL PLATE BEAM PIPES FITTINGS

COMPANY INTRODUCTION

PROFILE

ALPSIAN was born in 2012 in Shanghai as a company committed to providing quality industrial products (mainly pipeline products) and services to worldwide projects in following industries:

- 1>Oil and Gas
- 2>Power
- 3>Chemical
- 4>Petrochemical
- 5>Mining/Minerals
- 6>Water and Sewage network lines

Composed of highly qualified, skilled, and experienced engineers and inspectors, we are confident to manage every aspect of our undertaken projects. Over the past ten years, our proven technologies, products and services have been acknowledged by VEOLIA, KOGAS, DUGAS, SAZEH, NIOC, METSO, etc.

Why are we doing better than others? it comes from following works:

No compromises on quality (as per client's requests)
High-efficient communication skills with clients.
Over 200 audited manufacturers & machining shops.
Production A to Z stages inspection system.
Professional makes great work, we are greatly honored to take any of your inquiries.



BOILER AND PRESSURE VESSELS STEEL

Specification Range

Plate

Thickness: 6mm-400mm

Width: 50mm-4020mm

Length: 50mm-18000mm

Coil

Thickness: 1.2mm-19mm

Width: 50mm-2000mm

Length: Can't less than 50mm



Steel Grade	Executive Standard	A515 Grade 70 Chemical Composition					
		The Element Max (%)					
		C	Mn	P	S	Si	
20g,16Mng, 15CrMog 12CrMoVg,19Mng 22Mng,13MnNiCrMoNbg	GB713-97						
20R,16MnR,15MnVR 15CrMoR,13MnNiMoNbR 15MnNbR,15MnVNR	GB6654-96						
16MnDR,09MnNiDR,15MnNiDR	GB3531						
12Cr2Mo1R,14Cr1MoR 07MnCrMoVR,07MnNiCrMoVDR	GB150						
SB410,SB450,SB480	JIS G 3103						
SPV235,SPV315,SPV355 SPV410,SPV450,SPV490	JIS G 3115						
SGV410,SGV450,SGV480	JIS G 3118						
SBV1A,SBV1B,SBV2,SBV3	JIS G 3119						
SEV245,SEV295,SEV345	JIS G 3124						
HI,III,10CrMo910,15Mo3 13CrMo44,19Mn6	DIN17155						
BHW35	Thyssen						
13MnNiMo54	Dillingen						
1Cr0.5Mo,2.25Cr1Mo 1.25Cr0.5Mo	Special purpose & condition						
(S)A299M (S)A515M(Gr.60,65,70) (S)A516M(Gr.55,60,65,70) (S)A204M(Gr.A,B,C) (S)A387M(Gr.11,12,22) (S)A537M(CL.1,CL.2) (S)A662M(Gr.A,B,C) (S)A302M(Gr.A,B,C,D) (S)A737M(Gr.B,C) (S)A738M(Gr.A,B,C) (S)A533M(I,II)	ASTM、ASME						
P235GH,P265GH,P295GH P355GH,16Mo3,13CrMo4-5 10CrMo9-10,11CrMo9-10	EN10028-2						
A42,A52,A48	NF A36-205						
20MnHR,20HR,16MnHR	Special purpose & condition						
161G430	BS1501						

A516 Grade 70 Chemical Composition					
Grade	The Element Max (%)				
	C	Si	Mn	P	S
A516 grade 70					
Thick <12.5mm	0.27	0.13-0.45	0.79-1.30	0.035	0.035
Thick12.5-50mm	0.28	0.13-0.45	0.79-1.30	0.035	0.035
Thick50-100mm	0.3	0.13-0.45	0.79-1.30	0.035	0.035
Thick100-200mm	0.31	0.13-0.45	0.79-1.30	0.035	0.035
Thick>200mm	0.31	0.13-0.45	0.79-1.30	0.035	0.035

A516 Grade 70 Mechanical Property				
Grade	Thickness	Yield	Tensile	Elongation
	mm	Min Mpa	Mpa	Min %
A516 grade 70	6-40	260	485-620	0.21
	40-100	260	485-620	0.17

A516 Grade 65 Chemical Composition					
Grade	The Element Max (%)				
	C	Si	Mn	P	S
A516 grade 65					
Thick <12.5mm	0.24	0.13-0.45	0.79-1.30	0.035	0.035
Thick12.5-50mm	0.26	0.13-0.45	0.79-1.30	0.035	0.035
Thick50-100mm	0.28	0.13-0.45	0.79-1.30	0.035	0.035
Thick100-200mm	0.29	0.13-0.45	0.79-1.30	0.035	0.035
Thick>200mm	0.29	0.13-0.45	0.79-1.30	0.035	0.035

A516 Grade 65 Mechanical Property				
Grade	Thickness	Yield	Tensile	Elongation
	mm	Min Mpa	Mpa	Min %
A516 grade 65	6-40	240	450-585	0.23
	40-100	240	450-585	0.19

A516 Grade 60 Chemical Composition					
Grade	The Element Max (%)				
	C	Si	Mn	P	S
A516 grade 60					
Thick <12.5mm	0.21	0.13-0.45	0.55-0.98	0.035	0.035
Thick12.5-50mm	0.23	0.13-0.45	0.55-0.98	0.035	0.035
Thick50-100mm	0.25	0.13-0.45	0.55-0.98	0.035	0.035
Thick100-200mm	0.27	0.13-0.45	0.55-0.98	0.035	0.035
Thick>200mm	0.27	0.13-0.45	0.55-0.98	0.035	0.035

A516 Grade 60 Mechanical Property				
Grade	Thickness	Yield	Tensile	Elongation
	mm	Min Mpa	Mpa	Min %
A516 grade 60	6-40	220	415-550	0.25
	40-100	220	415-550	0.21

A516 Grade 55 Chemical Composition					
Grade	The Element Max (%)				
	C	Si	Mn	P	S
A516 grade 55					
Thick <12.5mm	0.24	0.13-0.45	0.79-1.30	0.035	0.035
Thick12.5-50mm	0.26	0.13-0.45	0.79-1.30	0.035	0.035
Thick50-100mm	0.28	0.13-0.45	0.79-1.30	0.035	0.035
Thick100-200mm	0.29	0.13-0.45	0.79-1.30	0.035	0.035
Thick>200mm	0.29	0.13-0.45	0.79-1.30	0.035	0.035

A516 Grade 55 Mechanical Property				
Grade	Thickness	Yield	Tensile	Elongation
	mm	Min Mpa	Mpa	Min %
A516 grade 55	6-50	205	380-515	0.27
	50-200	205	380-515	0.23



CORTEN STEEL/WEATHERING STEEL

Specification Range

Plate

Thickness: 1mm-200mm

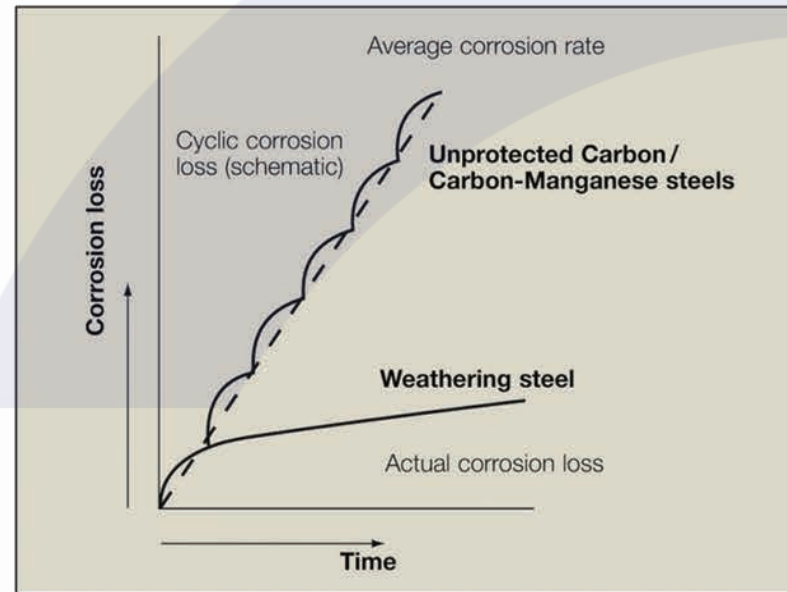
Width: 1m-4m

Length: 1m-13m

Coil

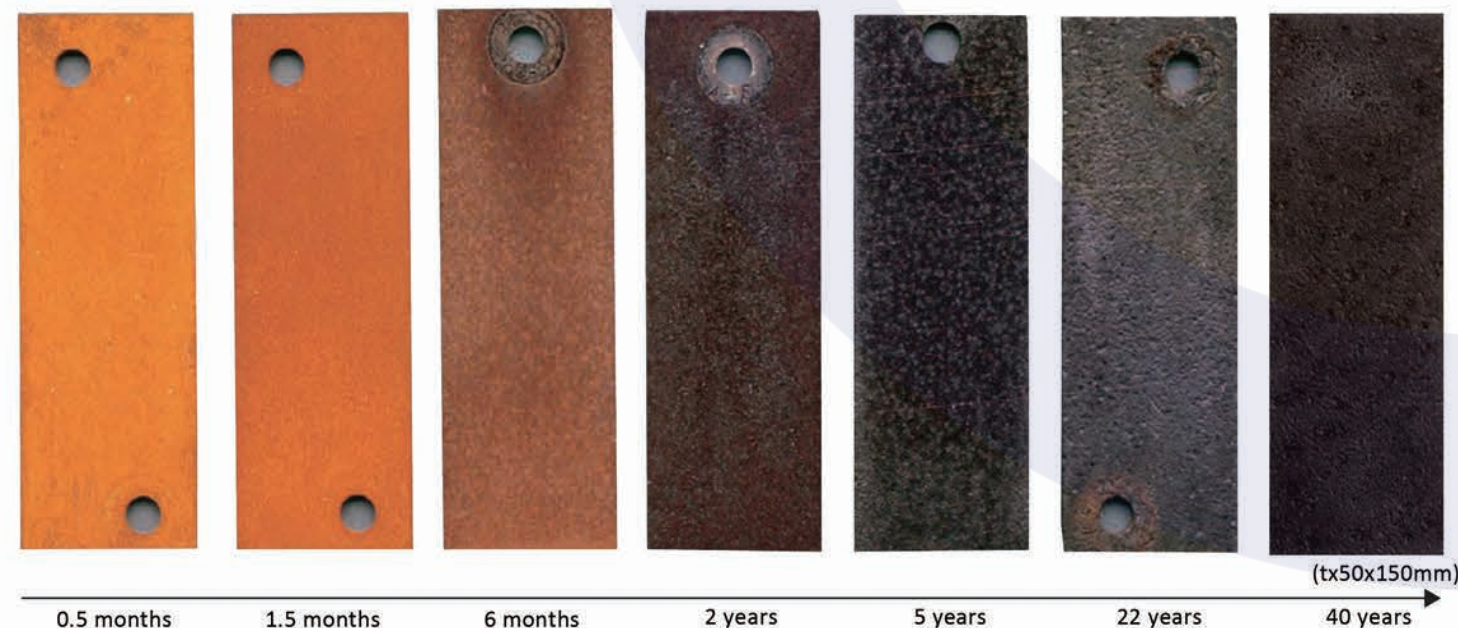
Thickness: 0.6mm-10mm

Width: 1m-2m



Schematic comparison between the corrosion loss of weathering steel and ordinary structural steel.

The basic metallurgical difference between weathering steel and ordinary structural steel is the addition of chromium, copper and nickel alloying elements, which give the weathering steel its enhanced resistance to corrosion. Comparison of the material standards for weathering steel and ordinary structural steel shows that the specification requirements for all other elements in the steel chemistry are similar.



ASTM

Corten A	Corten B	
A588 Gr.A	A588 Gr.B	A588 Gr.C
A242	A709 Gr.50W	

ASME

SA588 Gr.A	SA588 Gr.B	SA588 Gr.C	SA588 Gr.K
SA871 Type I Gr.60	SA871 Type I Gr.65	SA871 Type II Gr.60	
SA871 Type II Gr.65	SA871 Type III Gr.60	SA871 Type III Gr.65	

EN

S235J2W	S355J2WP	S355J0W	S355J0WP
S355J2G1W	S355J2G2W	S355K2G1W	S355K2G2W

JIS

SPA-H	SMA 400 AW	SMA 400 BW	SMA 490 AW
SMA 490 BW	SMA 490 CW	SMA 50 AW	SMA 50 CP

UNI

Fe360DKI	Fe510C1KI	Fe510D1KI	Fe510C2KI
Fe510D2K1	WR 50 A	WR 50 B	WR 50 C

NFA

E24W4	E36WA3	E36WA4	E36WB3
E36WB4	WT St37-3	WT St52-3	

ASTM Corten A Chemical Composition

Grade	C Max	Si	Mn	S Max	Cr	Ni	Cu	Nb	Nb+V=Ti	P
Corten A	0.12	0.25-0.75	0.20-0.50	0.07-0.15	0.50-1.25	0.65	0.25-0.55	0.25-0.55	-	0.07-0.15

ASTM Corten A Mechanical Properties

Grade	Permissible Yield Point Ratio	Yield Strength MPa(min)	Tensile Strength Mpa	Elongation % (min)	Bend
Corten A	-	345	485	20	1t



WEAR RESISTANT STEEL

Specification Range

Plate

Thickness: 1mm-200mm

Width: 1m-4m

Length: 1m-13m



Chemical Composition(Max%)

Material	C	Si	Mn	P	S	Cr	Ni	Mo	Ti	Bt	Als	CEV
NM300	0.23	0.7	1.6	0.025	0.015	0.7	0.5	0.4	0.05	0.0005-0.0006	0.01	0.45
NM360	0.25	0.7	1.6	0.025	0.015	0.8	0.5	0.5	0.05	0.0005-0.0006	0.01	0.48
NM400	0.3	0.7	1.6	0.025	0.01	1	0.7	0.5	0.05	0.0005-0.0006	0.01	0.55
NM450	0.35	0.7	1.7	0.025	0.01	1.1	0.8	0.55	0.05	0.0005-0.0006	0.01	0.6
NM500	0.38	0.7	1.7	0.02	0.01	1.2	1	0.65	0.05	0.0005-0.0006	0.01	0.65
NM550	0.38	0.7	1.7	0.02	0.01	1.2	1	0.7	0.05	0.0005-0.0006	0.01	0.72
NM600	0.38	0.7	1.9	0.02	0.01	1.5	1	0.7	0.05	0.0005-0.0006	0.01	0.76

Mechanical Properties

Material	Tensile MPA	Elongation %	Impact energy -20°C	HBW
NM300	≥1000	≥14	≥24	270-300
NM360	≥1100	≥12	≥24	330-390
NM400	≥1200	≥10	≥24	370-430
NM450	≥1250	≥7	≥24	420-480
NM500	≥1250	≥7	≥24	≥470
NM550	≥1250	≥7	≥24	≥530
NM600	≥1250	≥7	≥24	≥570

HARDOX 400 PLATE

Chemical Composition (max %)

C	Si	Mn	P	S	Cr	Ni	Mo	B	Thickness (mm)	Hardness (HBW)	Y.S(MPa)
0.26	0.7	1.6	0.025	0.01	1.4	1.5	0.6	0.005	3.2 - 80.0	425 - 475	1100 - 1300
									80.1 - 103.0	410 - 475	1050 - 1300
									103.1 - 130.0	390 - 475	1000 - 1300

Mechanical Properties

HARDOX 500 PLATE

Chemical Composition (max %)

C	Si	Mn	P	S	Cr	Ni	Mo	B	Thickness (mm)	Hardness (HBW)	Y.S(MPa)
0.3	0.7	1.6	0.02	0.01	1.5	1.5	0.6	0.005	4.0 - 32.0	470 - 530	1250 - 1400
									32.1 - 103.0	450 - 540	1250 - 1400

Mechanical properties

HARDOX 550 PLATE

Chemical Composition (max %)

C	Si	Mn	P	S	Cr	Ni	Mo	B	Thickness (mm)	Hardness (HBW)	Charpy V 10x10
0.37	0.5	1.3	0.02	0.01	1.4	1.4	0.6	0.004	8.00 - 65.00	525 - 575	30 J / -40 °C

Mechanical Properties

HARDOX 600 PLATE

Chemical Composition (max %)

C	Si	Mn	P	S	Cr	Ni	Mo	B	Thickness (mm)	Hardness (HBW)
0.47	0.7	1.4	0.015	0.01	1.2	2.5	0.7	0.005	6.0 - 51	570 - 640
									51.1 - 65	550 - 640

Mechanical Properties



SEAMLESS PIPE

Max diameter: 36" (914.4mm) Mini diameter: 1/2" (21.3mm)
Max thickness: 60mm Mini thickness: 2.11mm

Welded Steel Pipe

ERW Steel Pipe & ERW Casing
LSAW Steel Pipe
SSAW Steel Pipe

Seamless Steel Pipe(SMLS Pipe)

Structure Tube
Fluid Pipe
Boiler Pipe
Line Pipe

Tubing & Casing(OCTG)

Casing Pipe
Drill Pipe
Petroleum Cracking Tube

COATING

3PE 3PP FBE Epoxy Special

STANDARD

ASTM A53 Gr.B	Black and hot-dipped zinc-coated steel pipes welded and seamless
ASTM A106 Gr.B	Seamless carbon steel for high temperature service
ASTM SA179	Seamless cold-drawn low-carbon steel heat exchanger and condenser
ASTM SA192	Seamless carbon steel boiler tubes for high pressure
ASTM SA210	Seamless Medium-carbon boiler and superheater tubes
ASTM A213	Seamless alloy-steel boiler, superheater, and heat-exchanger tubes
ASTM A333 GR.6	seamless and welded carbon and alloy steel pipe intended for use at low
ASTM A335 P9,P11,T22,T91	Seamless ferritic alloy-steel pipe for high-temperature service
ASTM A336	Alloy steel forgings for pressure and high-temperature parts
ASTM SA519 4140/4130	Seamless carbon for mechanical tubing
API Spec 5CT	Seamless steel pipe for casing
API Spec 5L PSL1/PSL2 Gr.b, X42/46/52/56/65/70	Seamless steel pipe for line pipe
DIN 17175	Seamless steel tube for elevated temperture
DN2391	Cold drawn seamless prevision pipe
DIN 1629	Seamless circular unalloyed steel tubes subject to special requirements



Nominal Pipe Size		Outside Diameter and Wall Thickness ASME B36, 10m, B36.10M, B36.19M																		
Outside Diameter		Normal Wall Thickness-SCH5s, 10s, 40s, 80s for stainless steel.																		
NPS(inch)	DN	OD(mm)	SCH5s	SCH10s	SCH10	SCH20	SCH30	SCH40s	STD	SCH40	SCH60	SCH80s	XS	SCH80	SCH100	SCH120	SCH140	SCH160	XXS	
1/8	6	10.3	---	1.24	---	---	---	1.73	1.73	1.73	---	2.41	2.41	2.41	---	---	---	---	---	
1/4	8	13.7	---	1.65	---	---	---	2.24	2.24	2.24	---	3.02	3.02	3.02	---	---	---	---	---	
3/8	10	17.1	---	1.65	---	---	---	2.31	2.31	2.31	---	3.2	3.2	3.2	---	---	---	---	---	
1/2	15	21.3	1.65	2.11	---	---	2.41	2.77	2.77	2.77	---	3.73	3.73	3.73	---	---	---	4.78	7.47	
3/4	20	26.7	1.65	2.11	---	---	2.41	2.87	2.87	2.87	---	3.91	3.91	3.91	---	---	---	5.56	7.82	
1	25	33.4	1.65	2.77	---	---	2.9	3.38	3.38	3.38	---	4.55	4.55	4.55	---	---	---	6.35	9.09	
1-1/4	32	42.2	1.65	2.77	---	---	2.97	3.56	3.56	3.56	---	4.85	4.85	4.85	---	---	---	6.35	9.7	
1-1/2	40	48.3	1.65	2.77	---	---	3.18	3.68	3.68	3.68	---	5.08	5.08	5.08	---	---	---	7.14	10.15	
2	50	60.3	1.65	2.77	---	---	3.18	3.91	3.91	3.91	---	5.54	5.54	5.54	---	---	---	8.74	11.07	
2-1/2	65	73	2.11	3.05	---	---	4.78	5.16	5.16	5.16	---	7.01	7.01	7.01	---	---	---	9.53	14.02	
3	80	88.9	2.11	3.05	---	---	4.78	5.49	5.49	5.49	---	7.62	7.62	7.62	---	---	---	11.13	15.24	
3-1/2	90	101.6	2.11	3.05	---	---	4.78	5.74	5.74	5.74	---	8.08	8.08	8.08	---	---	---	---	---	
4	100	114.3	2.11	3.05	---	---	4.78	6.02	6.02	6.02	---	8.56	8.56	8.56	---	11.13	---	13.49	17.12	
5	125	141.3	2.77	3.4	---	---	---	6.55	6.55	6.55	---	9.53	9.53	9.53	---	12.7	---	15.88	19.05	
6	150	168.3	2.77	3.4	---	---	---	7.11	7.11	7.11	---	10.97	10.97	10.97	---	14.27	---	18.26	21.95	
8	200	219.1	2.77	3.76	---	6.35	7.04	8.18	8.18	8.18	10.31	12.7	12.7	12.7	15.09	18.26	20.62	23.01	22.23	
10	250	273.1	3.4	4.19	---	6.35	7.8	9.27	9.27	9.27	12.7	12.7	12.7	12.7	15.09	18.26	21.44	25.4	25.4	
12	300	323.9	3.96	4.57	---	6.35	8.38	9.53	9.53	10.31	14.27	12.7	12.7	12.7	17.48	21.44	25.4	28.58	33.32	
14	350	355.6	3.96	4.78	6.35	7.92	9.53	9.53	9.53	11.13	15.09	12.7	12.7	12.7	19.05	23.83	27.79	31.75	35.71	
16	400	406.4	4.19	4.78	6.35	7.92	9.53	9.53	9.53	12.7	16.66	---	12.7	12.7	12.7	21.44	26.19	30.96	36.53	40.49
18	450	457.2	4.19	4.78	6.35	7.92	11.13	---	9.53	14.27	19.05	---	12.7	12.7	12.7	23.83	29.36	34.93	39.67	45.24
20	500	508	4.78	5.54	6.35	9.53	12.7	---	9.53	15.09	20.62	---	12.7	12.7	12.7	26.19	32.54	38.1	44.45	50.01
22	---	559	4.78	5.54	6.35	9.53	12.7	---	9.53	---	22.23	---	12.7	12.7	12.7	28.58	34.93	41.28	47.63	53.98
24	600	610	5.54	6.35	6.35	9.53	14.27	---	9.53	17.48	24.61	---	12.7	12.7	12.7	30.96	38.89	46.02	52.37	59.54
26	---	660	---	---	7.92	12.7	---	---	9.53	---	---	---	12.7	12.7	12.7	---	---	---	---	---
28	700	711	---	---	7.92	12.7	15.88	---	9.53	---	---	---	12.7	12.7	12.7	---	---	---	---	---
30	---	762	6.35	7.92	7.92	12.7	15.88	---	9.53	---	---	---	12.7	12.7	12.7	---	---	---	---	---
32	800	813	---	---	7.92	12.7	15.88	---	9.53	17.48	---	---	12.7	12.7	12.7	---	---	---	---	---
34	---	864	---	---	7.92	12.7	15.88	---	9.53	17.48	---	---	12.7	12.7	12.7	---	---	---	---	---
36	900	914	---	---	7.92	12.7	15.88	---	9.53	19.05	---	---	12.7	12.7	12.7	---	---	---	---	---
38	---	965	---	---	---	---	---	---	9.53	---	---	---	12.7	12.7	12.7	---	---	---	---	---
40	1000	1016	---	---	---	---	---	---	9.53	---	---	---	12.7	12.7	12.7	---	---	---	---	---
42	---	1067	---	---	---	---	---	---	9.53	---	---	---	12.7	12.7	12.7	---	---	---	---	---
44	1100	1118	---	---	---	---	---	---	9.53	---	---	---	12.7	12.7	12.7	---	---	---	---	---
46	---	1168	---	---	---	---	---	---	9.53	---	---	---	12.7	12.7	12.7	---	---	---	---	---
48	1200	1219	---	---	---	---	---	---	9.53	---	---	---	12.7	12.7	12.7	---	---	---	---	---
52	---	1321	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
56	---	1422	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
60	---	1524	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
64	1600	1626	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
68	---	1727	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
72	1800	1829	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
76	---	1930	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
80	2000	2032	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

SECTION STEEL

H BEAM



MODEL	SIZE	SECTION SIZE(MM)					T. W Kg/m	m ² /m	Cross section cm ²
		H	B	t1	t2	r			
100×100	HW100×100×6×8	100	100	6	8	8	16.9	0.574	21.59
125×125	HW125×125×6.5×9	125	125	6.5	9	8	23.6	0.723	30.00
150×150	HW150×150×7×10	150	150	7	10	8	31.1	0.872	39.65
175×175	HW175×175×7.5×11	175	175	7.5	11	13	40.4	1.013	51.43
200×200	HW200×200×8×12	200	200	8	12	13	49.9	1.162	63.53
	HW200×204×12×12	200	204	12	12	13	56.2	1.170	71.53
250×250	HW244×252×11×11	244	252	11	11	13	63.8	1.452	81.31
	HW250×250×9×14	250	250	9	14	13	71.8	1.460	91.43
	HW250×255×14×14	250	255	14	14	13	81.6	1.470	103.9
300×300	HW294×302×12×12	294	302	12	12	13	83.5	1.750	106.3
	HW300×300×10×15	300	300	10	15	13	93.0	1.758	118.5
	HW300×305×15×15	300	305	15	15	13	105	1.768	133.5
350×350	HW338×351×13×13	338	351	13	13	13	105	2.032	133.3
	HW344×348×10×16	344	348	10	16	13	113	2.038	144.0
	HW344×354×16×16	344	354	16	16	13	129	2.050	164.7
	HW350×350×12×19	350	350	12	19	13	135	2.054	171.9
	HW350×357×19×19	350	357	19	19	13	154	2.068	196.4
400×400	HW388×402×15×15	388	402	15	15	22	140	2.316	178.5
	HW394×398×11×18	394	398	11	18	22	147	2.320	186.8
	HW394×405×18×18	394	405	18	18	22	168	2.334	214.4
	HW400×400×13×21	400	400	13	21	22	172	2.336	218.7
	HW400×408×21×21	400	408	21	21	22	197	2.352	250.7
	HW414×405×18×28	414	405	18	28	22	232	2.374	295.4
	HW428×407×20×35	428	407	20	35	22	283	2.406	360.7
	HW458×417×30×50	458	417	30	50	22	415	2.486	528.6
	HW498×432×45×70	498	432	45	70	22	604	2.596	770.1
	HW492×465×15×20	492	465	15	20	22	202	2.776	258.0
500×500	HW502×465×15×25	502	465	15	25	22	239	2.796	304.5
	HW502×470×20×25	502	470	20	25	22	259	2.806	329.6
150×100	HM148×100×6×9	148	100	6	9	8	20.7	0.670	26.35
200×150	HM194×150×6×9	194	150	6	9	8	29.9	0.962	38.11
200×175	HM244×175×7×11	244	175	7	11	13	43.6	1.152	55.49
300×200	HM294×200×8×12	294	200	8	12	13	55.8	1.350	71.05
	HM298×201×9×14	298	201	9	14	13	64.4	1.360	82.03
350×250	HM340×250×9×14	340	250	9	14	13	78.1	1.640	99.53
400×300	HM390×300×10×16	390	300	10	16	13	105	1.938	133.3
450×300	HM440×300×11×18	440	300	11	18	13	121	2.036	153.9
500×300	HM482×300×11×15	482	300	11	15	13	111	2.120	141.2
	HM488×300×11×18	488	300	11	18	13	125	2.132	159.2
550×300	HM544×300×11×15	544	300	11	15	13	116	2.244	148.0
	HM550×300×11×18	550	300	11	18	13	130	2.256	166.0
600×300	HM582×300×12×17	582	300	12	17	13	133	2.318	169.2
	HM588×300×12×20	588	300	12	20	13	147	2.330	187.2
	HM594×302×14×23	594	302	14	23	13	170	2.346	217.1
100×50	HN100×50×5×7	100	50	5	7	8	9.3	0.376	11.85
125×60	HN125×60×6×8	125	60	6	8	8	13.1	0.464	16.69
150×75	HN150×75×5×7	150	75	5	7	8	14.0	0.576	17.85
175×90	HN175×90×5×8	175	90	5	8	8	18.0	0.686	22.90
200×100	HN198×99×4.5×7	198	99	4.5	7	8	17.8	0.769	22.69
	HN200×100×5.5×8	200	100	5.5	8	8	20.9	0.775	26.67
250×125	HN248×124×5×8	248	124	5	8	8	25.1	0.968	31.99
	HN250×125×6×9	250	125	6	9	8	29.0	0.974	36.97

MODEL	SIZE	SECTION SIZE(MM)							
300×150	HN298×149×5.5×8	298	149	5.5	8	13	32.0	1.159	40.80
	HN300×150×6.5×9	300	150	6.5	9	13	36.7	1.165	46.78
350×175	HN346×174×6×9	346	174	6	9	13	41.2	1.354	52.45
	HN350×175×7×11	350	175	7	11	13	49.4	1.364	62.91
400×150	HN400×150×8×13	400	150	8	13	13	55.2	1.362	70.37
400×200	HN396×199×7×11	396	199	7	11	13	56.1	1.552	71.41
	HN400×200×8×13	400	200	8	13	13	65.4	1.562	83.37
450×150	HN446×150×7×12	446	150	7	12	13	52.6	1.456	66.99
	HN450×151×8×14	450	151	8	14	13	60.8	1.466	77.49
450×200	HN446×199×8×12	446	199	8	12	13	65.1	1.650	82.97
	HN450×200×9×14	450	200	9	14	13	74.9	1.660	95.43
475×150	HN470×150×7×13	470	150	7	13	13	56.2	1.504	71.53
	HN475×151.5×8.5×15.5	475	152	8.5	15.5	13	67.6	1.517	86.16
	HN482×153.5×10.5×19	482	154	10.5	19	13	83.5	1.535	106.40
500×150	HN492×150×7×12	492	150	7	12	13	55.1	1.548	70.21
	HN500×152×9×16	500	152	9	16	13	72.4	1.568	92.21
	HN504×153×10×18	504	153	10	18	13	81.1	1.578	103.33
500×200	HN496×199×9×14	496	199	9	14	13	78	1.748	99.3
	HN500×200×10×16	500	200	10	16	13	88	1.758	112.3
	HN506×201×11×19	506	201	11	19	13	102	1.772	129.3
550×200	HN546×199×9×14	546	199	9	14	13	81	1.848	103.8
	HN550×200×10×16	550	200	10	16	13	92	1.858	117.3
600×200	HN596×199×10×15	596	199	10	15	13	92	1.946	117.8
	HN600×200×11×17	600	200	11	17	13	103	1.956	131.7
	HN606×201×12×20	606	201	12	20	13	118	1.970	149.8
625×200	HN625×198.5×13.5×17.5	625	198.5	13.5	17.5	13	118	1.995	150.6
	HN630×200×15×20	630	200	15	20	13	133	2.008	170.0
	HN638×202×17×24	638	202	17	24	13	156	2.028	198.7
650×300	HN646×299×12×18	646	299	12	18	18	144	2.433	183.6
	HN650×300×13×20	650	300	13	20	18	159	2.443	202.1
	HN656×301×14×22	656	301	14	22	18	173	2.457	220.9
700×300	HN692×300×13×20	692	300	13	20	18	163	2.527	207.5
	HN700×300×13×24	700	300	13	24	18	182	2.543	231.5
750×300	HN734×299×12×16	734	299	12	16	18	143	2.609	182.7
	HN742×300×13×20	742	300	13	20	18	168	2.627	214.0
	HN750×300×13×24	750	300	13	24	18	187	2.643	238.0
800×300	HN758×303×16×28	758	303	16	28	18	224	2.665	284.8
	HN792×300×14×22	792	300	14	22	18	188	2.725	239.5
850×300	HN800×300×14×26	800	300	14	26	18	207	2.741	263.5
	HN834×298×14×19	834	298	14	19	18	179	2.801	227.5
	HN842×299×15×23	842	299	15	23	18	204	2.819	259.7
900×300	HN850×300×16×27	850	300	16	27	18	229	2.837	292.1
	HN858×301×17×31	858	301	17	31	18	255	2.855	324.7
	HN890×299×15×23	890	299	15	23	18	210	2.915	266.9
900×300	HN900×300×16×28	900	300	16	28	18	240	2.937	305.8
	HN912×302×18×34	912	302	18	34	18	283	2.965	360.1

MODEL	SIZE	SECTION SIZE(MM)							
1000×300	HN970×297×16×21	970	297	16	21	18	217	3.065	276.0
	HN980×298×17×26	980	298	17	26	18	248	3.087	315.5
	HN990×298×17×31	990	298	17	31	18	271	3.107	345.3
	HN1000×300×19×36	1000	300	19	36	18	310	3.131	395.1
	HN1008×302×21×40	1008	302	21	40	18	345	3.151	439.3
100×50	HT95×48×3.2×4.5	95	48	3.2	4.5	8	5.98	0.362	7.621
	HT97×49×4×5.5	97	49	4	5.5	8	7.36	0.368	9.379
100×100	HT96×99×4.5×6	96	99	4.5	6	8	12.72	0.565	16.21
125×60	HT118×58×3.2×4.5	118	58	3.2	4.5	8	7.27	0.448	9.26
	HT120×59×4×5.5	120	59	4	5.5	8	8.95	0.454	11.40
125×125	HT119×123×4.5×6	119	123	4.5	6	8	15.80	0.707	20.12
150×75	HT145×73×3.2×4.5	145	73	3.2	4.5	8	9.01	0.562	11.47
	HT147×74×4×5.5	147	74	4	5.5	8	11.09	0.568	14.13
150×100	HT139×97×3.2×4.5	139	97	3.2	4.5	8	10.55	0.646	13.44
	HT142×99×4.5×6	142	99	4.5	6	8	14.35	0.657	18.28
150×150	HT144×148×5×7	144	148	5	7	8	21.80	0.856	27.77
	HT147×149×6×8.5	147	149	6	8.5	8	26	0.864	33.68
175×90	HT168×88×3.2×4.5	168	88	3.2	4.5	8	11	0.668	13.56
	HT171×89×4×6	171	89	4	6	8	14	0.676	17.59
175×175	HT167×173×5×7	167	173	5	7	13	26	0.994	33.32
	HT172×175×6.5×9.5	172	175	6.5	9.5	13	35	1.009	44.65
200×100	HT193×98×3.2×4.5	193	98	3.2	4.5	8	12	0.758	15.26
	HT196×99×4×6	196	99	4	6	8	16	0.766	19.79
200×150	HT188×149×4.5×6	188	149	4.5	6	8	21	0.949	26.35
200×200	HT192×198×6×8	192	198	6	8	13	34	1.142	43.69
250×125	HT244×124×4.5×6	244	124	4.5	6	8	20	0.961	25.87
250×175	HT238×173×4.5×8	238	173	4.5	8	13	31	1.137	39.12
300×150	HT294×148×4.5×6	294	148	4.5	6	13	25	1.149	31.90
300×200	HT286×198×6×8	286	198	6	8	13	39	1.330	49.33
350×175	HT340×173×4.5×6	340	173	4.5	6	13	29	1.341	36.97
400×150	HT390×148×6×8	390	148	6	8	13	37	1.338	47.57
400×200	HT390×198×6×8	390	198	6	8	13	44	1.538	55.57

注：截面面积计算公式： $2 \times B \times t_2 + t_1 \times (H - 2 \times t_2) + 0.858 \times r^2$ 其中“0.858=4-π”



CHANNEL

型号	尺寸/mm						截面 面积 /cm ²	理论 重量 /kg·m ⁻¹	参 考 数 值						Z ₀ /cm	
	h	b	d	t	r	r ₁			X-X W _x /cm ³	I _x /cm ⁴	i _x /cm	Y-Y W _y /cm ³	I _y /cm ⁴	i _y /cm		Y ₁ -Y ₁ l _y /cm ⁴
5	50	37	4.5	7	7	3.5	6.928	5.438	10.4	26	1.94	3.55	8.3	1.1	20.9	1.35
6.3	63	40	4.8	7.5	7.5	3.75	8.451	6.634	16.1	50.8	2.453	4.5	11.92	1.19	28.4	1.36
8	80	43	5	8	8	4	10.248	8.045	25.3	101	3.15	5.79	16.6	1.27	37.4	1.43
10	100	48	5.3	8.5	8.5	4.25	12.748	10.007	39.7	198	3.95	7.8	25.6	1.41	54.9	1.52
12.6	126	53	5.5	9	9	4.5	15.692	12.318	62.1	391	4.953	10.2	38	1.57	77.1	1.59
14a	140	58	6	9.5	9.5	4.75	18.516	14.535	80.5	564	5.52	13	53.2	1.7	107	1.71
14b	140	60	8	9.5	9.5	4.75	21.316	16.733	87.1	609	5.35	14.1	61.1	1.69	121	1.67
16a	160	63	6.5	10	10	5	21.962	17.24	108	866	6.28	16.3	73.3	1.83	144	1.8
16	160	65	8.5	10	10	5	25.162	19.752	117	935	6.1	17	83.4	1.82	161	1.75
18a	180	68	7	10.5	10.5	5.25	25.699	20.174	141	1270	7.04	20	98.6	1.96	190	1.88
18	180	70	9	10.5	10.5	5.25	29.299	23	152	1370	6.84	21.5	111	1.95	210	1.84
20a	200	73	7	11	11	5.5	28.837	22.637	178	1780	7.86	24.2	128	2.11	244	2.01
20	200	75	9	11	11	5.5	32.831	25.777	191	1910	7.64	25.9	144	2.09	268	1.95
22a	220	77	7	11.5	11.5	5.75	31.846	24.999	218	2390	8.67	28.2	158	2.23	298	2.1
22	220	79	9	11.5	11.5	5.75	36.246	28.453	234	2570	8.42	30.1	176	2.21	326	2.03
25a	250	78	7	12	12	6	34.917	27.41	270	3370	9.82	30.6	176	2.24	322	2.07
25b	250	80	9	12	12	6	39.917	31.335	282	3530	9.41	32.7	196	2.22	353	1.98
25c	250	82	11	12	12	6	44.917	35.26	295	3690	9.07	35.9	218	2.21	384	1.92
28a	280	82	7.5	12.5	12.5	6.25	40.034	31.427	340	4760	10.9	35.7	218	2.33	388	2.1
28b	280	84	9.5	12.5	12.5	6.25	45.634	35.823	366	5130	10.6	37.9	242	2.3	428	2.02
28c	280	86	11.5	12.5	12.5	6.25	51.234	40.219	393	5500	10.4	40.3	268	2.29	463	1.95

型号	尺寸/mm						截面 面积 /cm ²	理论 重量 /kg·m ⁻¹	参 考 数 值						Z ₀ /cm	
	h	b	d	t	r	r ₁			X-X W _x /cm ³	I _x /cm ⁴	i _x /cm	Y-Y W _y /cm ³	I _y /cm ⁴	i _y /cm		Y ₁ -Y ₁ /cm ⁴
32a	320	88	8	14	14	7	48.513	38.083	475	7600	12.5	46.5	305	2.5	552	2.24
32b	320	90	10	14	14	7	54.913	43.107	509	8140	12.2	49.2	336	2.47	593	2.16
32c	320	92	12	14	14	7	61.313	48.131	543	8690	11.9	52.6	374	2.47	643	2.09
36a	360	96	9	16	16	8	60.91	41.814	660	11900	14	63.5	455	2.73	818	2.44
36b	360	98	11	16	16	8	68.11	53.466	703	12700	13.6	66.9	497	2.7	880	2.37
36c	360	100	13	16	16	8	75.31	59.928	746	13400	13.4	70	536	2.67	948	2.34
40a	400	100	10.5	18	18	9	75.068	58.928	879	17600	15.3	78.8	592	2.81	1070	2.49
40b	400	102	12.5	18	18	9	83.068	65.208	932	18600	15	82.5	640	2.78	1140	2.44
40c	400	104	14.5	18	18	9	91.068	71.488	986	19700	14.7	86.1	688	2.75	1220	2.42
6.5	65	40	4.3	7.5	7.5	3.75	8.547	6.709	17	55.2	2.54	4.59	12	1.19	28.3	1.38
12	120	53	5.5	9	9	4.5	15.362	12.059	57.7	346	4.75	10.2	37.4	1.56	77.7	1.62
24a	240	78	7	12	12	6	34.217	26.86	254	3050	9.45	30.5	174	2.25	325	2.1
24b	240	80	9	12	12	6	39.017	30.628	274	3280	9.17	32.5	194	2.23	355	2.03
24c	240	82	11	12	12	6	43.817	34.396	293	3570	8.96	34.4	213	2.21	388	2
27a	270	82	7.5	12.5	12.5	6.25	39.284	30.838	323	4360	10.5	35.5	216	2.34	393	2.13
27b	270	84	9.5	12.5	12.5	6.25	44.684	35.077	347	4690.1	10.3	37.7	239	2.31	428	2.06
27c	270	86	11.5	12.5	12.5	6.25	50.084	39.316	372	5018.1	10.1	39.8	261	2.28	467	2.03
30a	300	85	7.5	13.5	13.5	6.75	43.902	34.463	403	6047.9	11.7	41.1	260	2.43	467	2.17
30b	300	87	9.5	13.5	13.5	6.75	49.902	39.173	433	6447.9	11.4	44	289	2.41	515	2.13
30c	300	89	11.5	13.5	13.5	6.75	55.902	43.833	463	6947.9	11.2	46.4	316	2.38	560	2.09



“首钢”牌产品质量证明书

QUALITY CERTIFICATE OF "SHOUGANG" BRAND

钢厂: 首钢集团 首钢集团钢铁有限公司
MANUFACTURER: SHOUGANG GROUP SHOUGANG JIUGUANG IRON AND STEEL CO., LTD.

订货单位 Customer	合同编号 Contract No.	0000147867	许可证号 License No.	
收货单位 Purchaser	交货状态 Condition of Supply	热轧卷板	交货日期 Date of Delivery	2018-09-18 14:35:06
产品名称 Product	牌号 Steel Grade	Q235B	页号 Page No.	共1页, 第1页
规格 Specification	厚度 Thickness	3.0mm		

尺寸 Size (mm)	重量 Weight	化学成分 Chemical Composition (%)	力学性能 Mechanical Properties	冲击性能 Impact Properties
厚度: 3.0mm	重量: 1.00kg	C: 0.25, Si: 0.03, Mn: 0.03, P: 0.005, S: 0.005, Al: 0.03, Cr: 0.03, Ni: 0.03, Cu: 0.03, Ce: 0.03	屈服强度: 355MPa, 抗拉强度: 455MPa, 伸长率: 22%, 断面收缩率: 56%	冲击功: 27J, 冲击温度: 20℃



湖南华菱湘潭钢铁有限公司

HUNAN VALIN XIANGTAN IRON AND STEEL CO., LTD.

产品质量证明书

MILL'S TEST CERTIFICATE/INSPECTION CERTIFICATE

ACC. TO EN10204:2004 3.2

湖南省湘潭市岳塘区
Zip Code: 411101
Yuetang, Xiangtan, Hunan, P. R. C.
Phone: (0086-731) 58653019
Fax: (0086-731) 58653019
http://www.hmxg.com.cn

证明书号 Certificate No.	18010000292	交货状态 Condition of Supply	热轧卷板	标准 Specification	LR 8155
合同号 Contract No.	S219150000	分牌号 Mark No./Hull No.	Q235B	产品名称 Product	船体用结构钢板
订货单位 Customer		许可证号 License No.	9000/3258/0014/1	有效期至 Valid To	2021-08-06
收货单位 Purchaser					

钢板号 Plate No.	炉号 Heat No.	尺寸及重量 Material Description	化学成分 Chemical Composition (%)	力学性能 Mechanical Properties	冲击性能 Impact Properties	UT 等级	弯曲 Test
18010000292	18010000292	厚度: 3.0mm, 宽度: 1500mm, 长度: 12000mm, 重量: 1.00kg	C: 0.25, Si: 0.03, Mn: 0.03, P: 0.005, S: 0.005, Al: 0.03, Cr: 0.03, Ni: 0.03, Cu: 0.03, Ce: 0.03	屈服强度: 355MPa, 抗拉强度: 455MPa, 伸长率: 22%, 断面收缩率: 56%	冲击功: 27J, 冲击温度: 20℃	UT 等级	弯曲 Test



新余钢铁股份有限公司

XINYU IRON & STEEL CO., LTD.

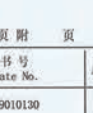
产品质量证明书

INSPECTION CERTIFICATE

中国·江西省新余市冶金路1号 邮编: 338001
No. 1 YEJIN ROAD, XINYU CITY, JIANGXI PROVINCE, CHINA

订货单位 CUSTOMER	合同号 CONTRACT NO.	W12019080613	许可证号 License No.	
收货单位 PURCHASER	客户订单号 CUSTOMER ORDER NO.		有效期至 Valid To	2019-9-21 9:03
产品名称 PRODUCT	证明书编号 CERTIFICATE NO.	H289-25314-2-1	有效期至 Valid To	2019-9-21
规格 SPECIFICATION	厚度 THICKNESS	3.0mm		

钢板号 Plate No.	炉号 Heat No.	尺寸及重量 Material Description	化学成分 Chemical Composition (%)	力学性能 Mechanical Properties	冲击性能 Impact Properties	UT 等级	弯曲 Test
18010000292	18010000292	厚度: 3.0mm, 宽度: 1500mm, 长度: 12000mm, 重量: 1.00kg	C: 0.25, Si: 0.03, Mn: 0.03, P: 0.005, S: 0.005, Al: 0.03, Cr: 0.03, Ni: 0.03, Cu: 0.03, Ce: 0.03	屈服强度: 355MPa, 抗拉强度: 455MPa, 伸长率: 22%, 断面收缩率: 56%	冲击功: 27J, 冲击温度: 20℃	UT 等级	弯曲 Test



湖南华菱湘潭钢铁有限公司

HUNAN VALIN XIANGTAN IRON AND STEEL CO., LTD.

产品质量证明书

MILL'S TEST CERTIFICATE/INSPECTION CERTIFICATE

ACC. TO EN10204:2004 3.2

证明书号 Certificate No.	A890800170	交货状态 Condition of Supply	热轧卷板	标准 Specification	LR 8155
合同号 Contract No.	S219010130	分牌号 Mark No./Hull No.	Q235B	产品名称 Product	船体用结构钢板
订货单位 Customer		许可证号 License No.	9000/3258/0014/1	有效期至 Valid To	2021-08-06
收货单位 Purchaser					

钢板号 Plate No.	炉号 Heat No.	尺寸及重量 Material Description	化学成分 Chemical Composition (%)	力学性能 Mechanical Properties	冲击性能 Impact Properties	UT 等级	弯曲 Test
18010000292	18010000292	厚度: 3.0mm, 宽度: 1500mm, 长度: 12000mm, 重量: 1.00kg	C: 0.25, Si: 0.03, Mn: 0.03, P: 0.005, S: 0.005, Al: 0.03, Cr: 0.03, Ni: 0.03, Cu: 0.03, Ce: 0.03	屈服强度: 355MPa, 抗拉强度: 455MPa, 伸长率: 22%, 断面收缩率: 56%	冲击功: 27J, 冲击温度: 20℃	UT 等级	弯曲 Test

合计(Total)	8	块(Pieces)	总计(Total)	13.816	t	UT 等级	弯曲 Test
备注 Remarks							
检验 Inspection							
检验员 Inspector							
检验日期 Inspection Date							

Cert. No.	GH3619039-A	Feng Renhui	质量部长 Quality Minister
Test Date	2019-1-31		

We hereby certify that the material described herein has been made to the applicable specification by the BASIC OXYGEN (L.D.) process and tested in accordance with the requirements of the American Bureau of Shipping Rules with satisfactory results.

质量部长
Quality Minister