

## Application of steel grade & specification

APPLICATION	STANDARD	PRODUCT GRADE	MECHANICAL PROPERTIES			CHEMICAL COMPOSITION														
			Tensile	Yield Strength	Elongation	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	Nb	V	Ti			
			Min, Mpa	Min, Mpa	Min, %	Max, %	%	%	Max, %	Max, %	%	%	%	%	%	%	%	%		
HOT ROOLED STEEL PLATE FOR STRUCTURAL QUALITY	ASTM	A36	400-550	250	20	0.25	0.80-1.20	0.15-0.40	0.4	0.05										
		A283 Gr.C	380-515	205	22	0.24	0.90 Max		0.035	0.04										
		A573 Gr.70	485-620	290	18	0.27	0.85-1.20													
	JIS	SM400A	400-510	235	22	0.23	0.50-1.20	0.35 Max	0.035	0.035										
		SM400B				0.60-1.40														
		SM490A	490-610	315	21	0.20	1.60 Max	0.55 Max												
		SM490B				0.18														
		SM490YA				0.2														
		SM490YB																		
		SS400	400-510	245	21						0.050	0.050								
	SS490	490-610	285	19																
	EN	S235 JR	360-510	235	22	0.170	1.40 Max	0.55 Max	0.035	0.035										
		S235 JO							0.030	0.030										
		S235 J2							0.025	0.025										
		S275 JR	410-560	275	19	0.21	1.50 Max		0.035	0.035										
		S275 JO				0.18			0.030	0.030										
		S275 J2				0.025			0.025											
		S355 JR	470-630	355	18	0.24	1.6 Max		0.55 Max	0.035	0.035									
		S355 JO				0.20				0.030	0.030									
	S355 J2	0.025				0.025														
	AS	3678 Gr.250	410	280	22	0.22	0.22	1.70 Max	0.55 Max	0.040	0.30 Max	0.50 Max	0.40 Max	0.10 Max				0.040 Max		
3678 Gr.300		430	320	21																
3678 Gr.350		450	360	20																
Nb+V+Ti=0.150 Max																				
HOT ROOLED STEEL PLATE FOR PAESSURE VESSEL QUALITY	ASTM	A285 Gr.C	380-515	205	23	0.28	0.90 Max	0.15-0.40	0.035	0.035	0.30 Max	0.40 Max	0.40 Max	0.12 Max	0.02 Max	0.03 Max	0.03 Max	0.03 Max		
		A515 Gr.60	415-550	220	21	0.24														
		A515 Gr.70	485-620	260	17	0.31	1.20 Max													
		A516 Gr.60	415-550	220	21	0.21	0.60-1.20													
		A516 Gr.70	485-620	260	17	0.27	0.85-1.20													
HIGH-STRENGTH LOW ALLOY STEEL FOR STRUCTURAL QUALITY	ASTM	A572 Gr.50	450	345	18	0.23	1.35 Max	0.15-0.40	0.040	0.050					0.005-0.050	0.01-0.15	0.006-0.04			
		A709 Gr.50																		
HOT ROLLED STEEL PLATE FOR LINE PIPE	API	2W Gr.50	448	345-517	23	0.16	1.15-1.60	0.05-0.50	0.030	0.010	0.25 Max	0.75 Max	0.35 Max	0.08 Max	0.03 Max	0.01 Max	0.007-0.02			
		5L X42	414-758	290-496	30	0.22	1.30 Max	0.025	0.015											
		5L X60	517-758	414-565	24		1.40 Max													
		5L X65	531-758	448-600			1.45 Max													
		5L X70	565-758	483-621			1.65 Max													
Nb+V+Ti=0.150 Max																				
HOT ROLLED STEEL PLATE FOR LINE HULL STRUCTURAL	ABS	Gr.A	400-520	235	22	0.21	0.50-1.20	0.50 Max	0.035	0.035	0.20 Max	0.40 Max	0.35 Max	0.08 Max	0.02-0.05	0.05-0.10	0.02 Max			
		AH32	440-590	315	22	0.18	0.90-1.60	0.10-0.50												
		AH36	490-620	355	21															
		DH32	440-590	315	22															
		DH36	490-620	355	21															
		EH32	440-590	315	22															
		EH36	490-620	355	21															
	Lloyd's	Gr.A	400-520	235	22	0.21	0.50-1.20	0.50 Max	0.035	0.035										

Note : Mechanical properties and chemical composition table shows basic chemical contents of each sheel standard, they might be changed according to their remarks or regulations.