

Mechanical Properties

Specification	Grade	Yield Strength, MPa, min	Ultimate Tensile Strength, MPa, min		Elongation % min GL 5.65 √So		Internal diameter of bend		
ASTM-A-36		250	400-550		200 mm GL -18 50 mm GL-21				
							< 12 mm	> 12 mm	
IS: 5986:2011	165	165	290-400		30		Close	1t	
	205	205	330-440		28		1t	2t	
	235	235	360-470		26		1t	2t	
	255	255	410-520		24		1t	2t	
	325	325	420-530		19		2t	3t	
	355	355	420-530		18		2t	3t	
	420	420	480-590		15		2t	3t	
	490	490	540-650		12		2t	3t	
	560	560	610-720		10		2t	3t	
ASTM-A-588		345	485 min		200 mm GL 16	50 mm GL 19	< /-20 1t	< 20 < 25 1.5t	> 25 < 40 2t
DIN 17100	ST 52.3 <16 mm 16-40 >40-63	355 345 355	490-630			18			
Charpy Impact energy 27J at –20°C									
SAILCOR (IRSM-41) HCRS(Cu + P)		340	480		22		1t		
		< 16 mm	16-40 mm	40-60 mm	UTS				
IS 2002/2009	1	235	225	215	360-480	24		2t	
	2	265	255	245	410-530	22		2t	
	3	290	285	280	460-580	21		3t	
		YS		UTS	200 mm GL	50 mm GL			
ASTM-A-285	C	205		385-515	23	27			
ASTM-A-515	60	220		415-550	21	25			
	65	240		450-585	19	23			
	70	260		485-620	17	21			
ASTM-A516	55	205		380-515	23	27			
	60	220		415-550	21	25			
	65	240		450-585	19	23			
	70	260		485-620	17	21			
Charpy Impact energy 18 J for Gr 60 & 65 at – 51°C and 20J for Gr 70 at – 46°C for upto 25 mm: 18J for Gr 60 & 65 at – 46°C and 20J for Gr 70 at – 40°C for > 25 < 50									
ASTM-A-537	Class I	345	485-620			18	22		
DIN 17155	HI	235 for <16mm	225 for 16-40 mm	360-480		24			
Charpy Impact energy 31J at 0°C									

For ASTM-A-588/285/204/ 515/ 516/ 537 & DIN 17100
Bend Test is a supplementary requirement