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CHEMICAL COMPOSITION OF CARBON STEEL

CARBON STEEL, ALLOY STEEL, LOW TEMP, PIPE & TUBES SPECIFICATION

CHEMICAL ANALYSIS									Mechnical Properties			SPECIFIC REQUIREMENT
									Tensile Strength	Yield Strength	Elongation	
Specification	WT	C%	Mn%	P% MAX	S% MAX	Si%	Cr%	Mo%	Mpa	Mpa	50mm MIN Longitudinal	
ASTM A 53/A	AW	0.25MAX	0.95MAX	0.050	0.060	-	-	-	331MIN	207 MIN	36	Cr Mo Cu Ni Va
ASTM A 53/B	AW	0.30MAX	1.20MAX	0.050	0.060	-	-	-	413MIN	240MIN	29.5	0.40 0.15 0.40 0.40 0.08
ASTM A 106/A	AW	0.25MAX	0.27-	0.025	0.025	0.10MIN	0.40MAX	0.15MAX	330MIN	205MIN	35/28	five elements not to exceed
ASTM A 106/B	AW	0.30MAX	0.93	0.025	0.025	0.10MIN	0.40MAX	0.15MAX	415MIN	240MIN	30/22	1%
ASTM A 106/C	AW	0.35MAX	0.29-	0.025	0.025	0.10MIN	0.40MAX	0.15MAX	485MIN	275MIN	30/22	
			1.06									
			0.29-									
			1.06									
ASTM A 179	MW	0.06-018	0.27-	0.048	0.048	-	-	-	325MIN	180MIN	35.0	Hardness 72 HRB MAX
ASTM A 214	MW	0.18MAX	0.63	0.050	0.050	-	-	-	385MIN	180MIN	35.0	Hardness 72 HRB MAX
ASTM A 192	MW	0.06-0.18	0.27-	0.048	0.048	0.25MAX	-	-	325MIN	180MIN	35.0	Hardness 77 HRB MAX
ASTM A 209/T1	MW	0.10-0.20	0.63	0.045	0.045	0.10-0.50	-	0.44-0.65	380MIN	205MIN	30/22	Hardness 80 HRB MAX
ASTM A 209/T1a	MW	0.15-0.25	0.27-	0.045	0.045	0.10-0.50	-	0.44-0.65	365MIN	195MIN	30/22	Hardness 81 HRB MAX
ASTM A 209/T1B	MW	0.14MAX	0.63	0.045	0.045	0.10-0.50	-	0.44-0.65	415MIN	220MIN	30/22	Hardness 77 HRB MAX
ASTM A 210/A-1	MW	0.27MAX	0.30-	0.048	0.058	0.10MIN	-	-	415MIN	255MIN	30/22	Hardness 79 HRB MAX
ASTM A 210/C	MW	0.35MAX	0.80	0.048	0.058	0.10MIN	-	-	485MIN	275MIN	30/22	Hardness 89 HRB MAX
			0.30-									
			0.80									
			0.30-									
			0.80									
			0.93MAX									
			0.29-									
			1.06									
ASTM A 213/T2	MW	0.10/0.20	0.30-	0.045	0.045	0.10-0.30	0.50-0.81	0.44-0.65	415MIN	205MIN	30/22	Hardness 85 HRB MAX
ASTM A 213/T5	MW	0.15MAX	0.61	0.030	0.030	0.50MAX	4.00-6.00	0.44-0.65	415MIN	205MIN	30/22	Hardness 85 HRB MAX
ASTM A 213/T11	MW	0.15MAX	0.30-	0.030	0.030	0.50-1.00	1.00-1.50	0.44-0.65	415MIN	205MIN	30/22	Hardness 85 HRB MAX
ASTM A 213/T12	MW	0.15MAX	0.60	0.045	0.045	0.50MAX	0.80-1.25	0.44-0.65	415MIN	220MIN	30/22	Hardness 85 HRB MAX
ASTM A 213/T22	MW	0.15MAX	0.30-	0.030	0.030	0.50MAX	1.90-2.60	0.87-1.13	415MIN	205MIN	30/22	Hardness 85 HRB MAX
			0.60									
			0.30-									
			0.61									
			0.30-									
			0.60									
ASTM A 333/1	AW	0.30MAX	0.40-	0.025	0.025	-	-	-	380MIN	205MIN	25/20	Impact AS-50F
ASTM A 333/6	AW	0.30MAX	1.06	0.025	0.025	0.10MIN	-	-	415MIN	240MIN	30/22	FOR 40X10J/18/14
ASTM A 334/1	AW	0.30MAX	0.29-	0.025	0.025	-	-	-	380MIN	205MIN	35/28	-50F 40X10J/18/14
ASTM A 334/6	AW	0.30MAX	1.06	0.025	0.025	0.10MIN	-	-	415MIN	240MIN	30/22	90 HRB MAX
			0.40-									
			1.06									
			0.29-									
			1.06									
ASTM A 335/P1	AW	0.10-0.20	0.30-	0.025	0.025	0.10-0.50	-	0.44-0.65	380MIN	205MIN	30/22	
ASTM A 335/P2	AW	0.10-0.20	0.80	0.025	0.025	0.10-0.30	0.50-0.81	0.44-0.65	380MIN	205MIN	30/22	
ASTM A 335/P5	AW	0.15MAX	0.30-	0.025	0.025	0.50MAX	4.00-6.00	0.45-0.65	415MIN	205MIN	30/22	
ASTM A 335/P9	AW	0.15MAX	0.61	0.025	0.025	0.25-1.00	8.00-10.00 1.00-	0.09-1.10	415MIN	172MIN	30/22	
ASTM A 335/P11	AW	0.15MAX	0.30-	0.025	0.025	0.50-1.00	1.50	0.44-0.65	415MIN	205MIN	30/22	
ASTM A 335/P12	AW	0.15MAX	0.60	0.025	0.025	0.50MAX	0.80-1.25	0.44-0.65	415MIN	205MIN	50/22	
ASTM A 335/P22	AW	0.15MAX	0.30-	0.025	0.025	0.50MAX	1.90-2.60	0.87-1.13	415MIN	205MIN	30/22	
			0.60									
			0.30-									
			0.60									
			0.30-									
			0.61									
			0.30-									
			0.60									
BS/3059/1/33		0.15MAX	0.30-	0.050	0.050	-	-	-	324-441	186MIN	25	
BS/3059/2/33		0.15MAX	0.70	0.050	0.050	0.10-0.35	-	-	324-441	186MIN	21	
BS/3059/2/45		0.12-0.18	0.40-	0.035	0.035	0.10-0.35	-	-	441-560	245MIN	22	
BS/3059/2/620		0.10-0.15	0.70	0.040	0.040	0.10-0.35	0.70-1.10	0.45-0.65	441-618	235MIN	22	
			0.90-									
			1.20									
			0.40-									
			0.70									
DIN/17175/ST35.8		0.17MAX	0.40MIN	0.040	0.040	0.35MAX	-	-	340-441	235MIN	25	
DIN/17175/ST45.8		0.22MAX	0.45MIN	0.040	0.040	0.10-0.35	-	-	441-540	255MIN	25	
DIN/17175/15MO3		0.12-0.20	0.50-	0.040	0.040	0.10-0.35	-	0.25-0.35	441-540	284MIN	21	
DIN/17175/13CrMO44		0.10-0.18	0.80	0.040	0.040	0.10-0.35	0.70-1.60	0.40-0.50	441-570	294MIN	22	
DIN/17175/10CrM910		0.15MAX	0.40-	0.040	0.040	0.15-0.50	2.0-2.5	0.9-1.10	441-570	294MIN	22	
			0.70									
			0.40-									
			0.60									
ASTM A 199/T5	MW	0.50-0.15	0.30-	0.030	0.030	0.50MAX	4.00-6.00	0.45-0.65	415MIN	170MIN	30/22	Hardness 85 HRB MAX
ASTM A 199/T11	MW	0.50-0.15	0.60	0.030	0.030	0.50-1.00	1.00-1.50	0.44-0.65	415MIN	170MIN	30/22	Hardness 85 HRB MAX
ASTM A 199/T22	MW	0.50-0.15	0.30-	0.030	0.030	0.50MAX	1.90-2.60	0.87-1.13	415MIN	170MIN	30/22	Hardness 85 HRB MAX
ASTM A 199/T4	MW	0.15MAX	0.60	0.030	0.030	0.50-1.00	2.15-2.85	0.44-0.65	415MIN	170MIN	30/22	Hardness 85 HRB MAX
ASTM A 199/T7	MW	0.15MAX	0.30-	0.030	0.030	0.50-1.00	6.00-8.00	0.45-0.65	415MIN	170MIN	30/22 30/22	Hardness 85 HRB MAX
ASTM A 200/T5	MW	0.15MAX	0.60	0.030	0.030	0.50-1.00	4.00-6.00	0.45-0.65	415MIN	170MIN	30/22	Hardness 85 HRB MAX
ASTM A 200/T11	MW	0.50-0.15	0.30-	0.030	0.030	0.50-1.00	1.00-1.50	0.44-0.65	415MIN	170MIN	30/22	Hardness 85 HRB MAX
ASTM A 200/T22	MW	0.50-0.15	0.60	0.030	0.030	0.50MAX	1.90-2.60	0.87-1.13	415MIN	170MIN	30/22	Hardness 85 HRB MAX
ASTM A 200/T4	MW	0.50-0.15	0.30-	0.030	0.030	0.50-1.00	2.15-2.85	0.44-0.65	415MIN	170MIN	30/22	Hardness 85 HRB MAX
ASTM A 200/T7	MW	0.15MAX	0.60	0.030	0.030	0.50-1.00	6.00-8.00	0.45-0.65	415MIN	170MIN	30/22	Hardness 85 HRB MAX
ASTM A 199/T9	MW	0.15MAX	0.30-	0.030	0.030	0.25-1.00	8.00-10.0	0.90-1.10	415MIN	170MIN		Hardness 85 HRB MAX
			0.60									
			0.30-									
			0.60									
			0.30-									
			0.60									
			0.30-									
			0.60									
			0.30-									
			0.60									
			0.30-									
			0.60									