

POPULAR STANDARDS AND SPECIFICATIONS														
QUALITY		CHEMICAL ANALYSIS									MECHANICAL PROPERTIES			SPECIFIC REQUIREMENT
											TENSILE STRENGT	YEILD STRESS	ELONGATI ON	
SMLS	WELED	SPECIFICATION	WT	C%	Min %	p% MAX	S% MAX	Si %	Cr %	Mo %	MPa	MPa	50 mm MIN L ongiludinal	
*	*	ASTM A53/A	AW	0.25 MAX	0.95 MAX	0.050	0.060	-	-	-	331 MIN	207 MIN	36	-
*	*	ASTM A53/B	AW	0.30 MAX	0.120 MAX	0.050	0.060	-	-	-	413 MIN	240 MIN	29.5	-
*	-	ASTM A106/A	AW	0.25 MAX	0.27-0.93	0.025	0.025	0.10 MIN	0.40 MAX	0.15 MAX	330 MIN	205 MIN	35/28	CR MO CU NI VA .40 .15 .40 .40 .08 FIVE ELEMENTS NOT TO EXCEED 1%
*	-	ASTM A106/B	AW	0.30 MAX	0.29-1.06	0.025	0.025	0.10 MIN	0.40 MAX	0.15 MAX	415 MIN	240 MIN	30/22	
*	-	ASTM A106/C	AW	0.35 MAX	0.29-1.06	0.025	0.025	0.10 MIN	0.40 MAX	0.15 MAX	485 MIN	275 MIN	30/22	
*	-	ASTM A179	MW	0.06-0.18	0.27-0.63	0.048	0.048	-	-	-	325 MIN	180 MIN	35.0	HARDNESS 72HRB MAX HARDNESS 72 HRB MAX HARDNESS 77HRB MAX
-	*	ASTM A 214	MW	0.18 MAX	0.27-0.63	0.050	0.050	-	-	-	385 MIN	180 MIN	35.0	
*	*	ASTM A192	MW	0.06-0.18	0.27-0.63	0.048	0.048	0.25 MAX	-	-	325 MIN	180 MIN	35.0	
*	-	ASTM A209T1	MW	0.10-0.20	0.30-0.80	0.045	0.045	0.10-0.50	-	0.44-0.65	380 MIN	205 MIN	30/22	HARDNESS 80HRB MAX HARDNESS 81 HRB MAX HARDNESS 77HRB MAX
*	-	ASTM A209ITa	MW	0.15-0.25	0.39-0.80	0.045	0.045	0.10-0.50	-	0.44-0.65	365 MIN	195 MIN	30/22	
*	-	ASTM A209T1 B	MW	0.14 MAX	0.39-0.80	0.045	0.045	0.10-0.50	-	0.44-0.65	415 MIN	220 MIN	30/22	
*	-	ASTM A210/A-1	MW	0.27 MAX	0.93 MAX	0.048	0.058	0.10 MIN	-	-	415 MIN	255 MIN	30/22	HARDNESS 79HRB MAX HARDNESS 89HRB MAX
*	-	ASTM A210/C	MW	0.35 MAX	0.29-1.06	0.048	0.058	0.10 MIN	-	-	485 MIN	275 MIN	30/22	
*	-	ASTM A213T2	MW	0.10-0.20	0.30-0.61	0.045	0.045	0.10-0.30	0.50-0.81	0.44-0.65	415 MIN	205 MIN	30/22	HARDNESS 85HRB MAX HARDNESS 85HRB MAX HARDNESS 85HRB MAX HARDNESS 85HRB MAX HARDNESS 85HRB MAX
*	-	ASTM A213T5	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.50 MAX	4.00-6.00	0.44-0.65	415 MIN	205 MIN	30/22	
*	-	ASTM A213T11	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.50-1.00	1.00-1.50	0.44-0.65	415 MIN	205 MIN	30/22	
*	-	ASTM A213T12	MW	0.15 MAX	0.30-0.61	0.045	0.045	0.50 MAX	0.80-1.25	0.44-0.65	415 MIN	205 MIN	30/22	
*	-	ASTM A213T-22	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.50 MAX	1.90-2.60	0.87-1.13	415 MIN	205 MIN	30/22	
*	*	ASTM A333/1	AW	0.30 MAX	0.40-1.06	0.025	0.025	-	-	-	380 MIN	205 MIN	25/20	
*	*	ASTM A333/6	AW	0.30 MAX	0.29-1.06	0.025	0.025	0.10 MIN	-	-	415 MIN	240 MIN	30/18	
*	*	ASTM A334/1	AW	0.30 MAX	0.40-1.06	0.025	0.025	-	-	-	380 MIN	205 MIN	35/28	
*	*	ASTM A334/6	AW	0.30 MAX	0.29-1.06	0.025	0.025	0.10 MIN	-	-	415 MIN	240 MIN	30/22	
*	-	ASTM A335/P1	AW	0.10-0.20	0.30-0.80	0.025	0.025	0.10-0.50	-	0.44-0.65	380 MIN	205 MIN	30	
*	-	ASTM A335/P2	AW	0.10-0.20	0.30-0.61	0.025	0.025	0.10-0.30	0.50-0.81	0.44-0.65	380 MIN	205 MIN	30	
*	-	ASTM A335/P5	AW	0.15 MAX	0.30-0.60	0.025	0.025	0.50 MAX	4.00-6.00	0.44-0.65	415 MIN	205 MIN	30	
*	-	ASTM A335/P11	AW	0.15 MAX	0.30-0.60	0.025	0.025	0.50-1.00	1.00-1.50	0.44-0.65	415 MIN	205 MIN	30	
*	-	ASTM A335/P12	AW	0.15 MAX	0.30-0.61	0.025	0.025	0.50 MAX	0.80-1.25	0.44-0.65	415 MIN	205 MIN	30	
*	-	ASTM A335/P22	AW	0.15 MAX	0.30-0.61	0.025	0.025	0.50 MAX	1.90-2.60	0.87-1.13	415 MIN	205 MIN	30	
*	*	BS/3059/90/ PartII320		0.15 MAX	0.30-0.70	0.050	0.050	-	-	-	324-441	186 MIN	25	
*	*			0.15 MAX	0.40-0.70	0.050	0.050	0.10-0.35	-	-	324-441	186 MIN	21	
*	-	BS/3059/90/PartII/ 360		0.12-0.18	0.90-1.20	0.035	0.035	0.10-0.35	-	-	441-560	245 MIN	22	
*	-	BS/3059/90/PartII/ 440		0.10-0.15	0.40-0.70	0.040	0.040	0.10-0.35	0.70-1.10	0.45-0.65	441-618	235 MIN	22	
*	-	BS/3059/90/PartII/ 620												
**	-	DIN/17175/ST35.8		0.17 MAX	0.40 MIN	0.040	0.040	0.35 MAX	-	-	340-441	235 MIN	25	
**	-	DIN/17175/ST45.8		0.22 MAX	0.45 MIN	0.040	0.040	0.10-0.35	-	-	441-540	255 MIN	25	
**	-	DIN/17175/15M03		0.12-0.20	0.50-0.80	0.040	0.040	0.10-0.35	-	0.25-0.35	441-540	284 MIN	21	
*	-	DIN/ 17175/13CRM044		0.10-0.18	0.40-0.70	0.040	0.040	0.10-0.35	0.70-1.00	0.40-0.50	441-570	294 MIN	22	
*	-	DIN/17175/1 OCRM910		0.15 MAX	0.40-0.60	0.040	0.040	0.15-0.50	2.0-2.5	0.9-1.10	441-570	294 MIN	22	
*	-	ASTM A1991T5	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.50 MAX	4.00-6.00	0.45-0.65	415 MIN	170 MIN	30/22	
*	-	ASTM A1991T11	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.50-1.00	1.00-1.50	0.44-0.65	415 MIN	170 MIN	30/22	
*	-	ASTM A1991T22	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.50 MAX	1.90-2.60	0.87-1.13	415 MIN	170 MIN	30/22	
*	-	ASTM A1991T4	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.50-1.00	2.15-2.85	0.45-0.65	415 MIN	170 MIN	30/22	
*	-	ASTM A1991T-7	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.50-1.00	6.00-8.00	0.45-0.65	415 MIN	170 MIN	30/22	
*	-	ASTM A2001T5	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.50-1.00	4.00-6.00	0.45-0.65	415 MIN	170 MIN	30/22	
*	-	ASTM A2041T11	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.50 MAX	1.00-1.50	0.44-0.65	415 MIN	205 MIN	30/22	
*	-	ASTM A2001T22	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.50-1.00	1.90-2.60	0.87-1.13	415 MIN	205 MIN	30/22	
*	-	ASTM A2001T4	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.50 MAX	2.15-2.85	0.44-0.65	415 MIN	205 MIN	30/22	
*	-	ASTM A2001T7	MW	0.15 MAX	0.30-0.50	0.030	0.030	0.50-1.00	6.00-8.00	0.44-0.65	415 MIN	170 MIN	30/22	
*	-	ASTM A1991T9	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.25-1.00	8.00-10.0	0.90-1.10	415 MIN	170 MIN	30/22	
*	-	ASTM A2001T9	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.25-1.00	8.00-10.0	0.90-1.10	415 MIN	170 MIN	30/22	
*	-	ASTM A2131T9	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.25-1.00	8.00-10.0	0.90-1.10	415 MIN	170 MIN	30/22	
*	-	ASTM A355/P9	MW	0.15 MAX	0.30-0.60	0.030	0.030	0.25-1.00	8.00-10.0	0.90-1.10	415 MIN	172 MIN	30/22	
-	*	ASTM A 178/A	MW	0.06-0.18	0.27-0.63	0.050	0.050	0.50-1.00	-	-	325 MIN	172 MIN	30/22	
-	*	ASTM A 178/C	MW	0.35 MAX	0.80 MAX	0.050	0.050	-	-	-	415 MIN	180 MIN	35	
-	*	ASTM A 178/D	MW	0.27 MAX	1.0-1.5	0.030	0.030	0.10 MIN	-	-	485 MIN	255 MIN	30	