

A792/A792M-06a

Chemical Requirements

Composition, % -- Heat Analysis Element, Maximum, Unless Otherwise Shown														
Designation	C	Mn	P	S	Al	Cu	Ni	Cr	Mo	V	Cb	Ti	N	B
CS Type A	0.10	0.60	0.030	0.035	...	0.25	0.20	0.15	0.06	0.008	0.008	0.025	...	...
CS Type B	0.02 to 0.15	0.60	0.030	0.035	...	0.25	0.20	0.15	0.06	0.008	0.008	0.025	...	...
CS Type C	0.08	0.60	0.10	0.035	...	0.25	0.20	0.15	0.06	0.008	0.008	0.025	...	...
FS	0.02 to 0.10	0.60	0.020	0.035	...	0.25	0.20	0.15	0.06	0.008	0.008	0.025	...	...
DS	0.06	0.60	0.020	0.035	0.01, min	0.25	0.20	0.15	0.06	0.008	0.008	0.025
HTS	0.02 to 0.15	0.60	0.040, min	0.035	...	0.25	0.20	0.15	0.06	0.008	0.008	0.025

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Composition, % -- Heat Analysis Element, maximum, Unless Otherwise Shown													
Designation	C	Mn	P	S	Cu	Ni	Cr	Mo	V	Cb	Ti	N	
Structural Steel:													
Grade 33 [230]	0.20	1.35	0.04	0.040	0.25	0.20	0.15	0.06	0.008	0.008	0.025	...	
Grade 37 [255]	0.20	1.35	0.10	0.040	0.25	0.20	0.15	0.06	0.008	0.008	0.025	...	
Grade 40 [275]	0.25	1.35	0.10	0.040	0.25	0.20	0.15	0.06	0.008	0.008	0.025	...	
Grade 50 Class 1, Class 2 and Class 4 [340 Class 1, Class 2 and Class 4]	0.25	1.35	0.20	0.040	0.25	0.20	0.15	0.06	0.008	0.008	0.025	...	
Grade 80 [550] Class 1	0.20	1.35	0.04	0.040	0.25	0.20	0.15	0.06	0.008	0.015	0.025	...	
Grade 80 [550] Class 2	0.02	1.35	0.05	0.020	0.25	0.20	0.15	0.06	0.10	0.10	0.15	...	

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Mechanical Property Requirements, Structural Steel Base Metal (Longitudinal)

Inch-Pound Units			
Grade	Yield Strength, min, ksi	Tensile Strength, min, ksi	Elongation in 2 in., min, %
33	33	45	20
37	37	52	18
40	40	55	16
50 Class 1	50	65	12
50 Class 2	50	...	12
50 Class 4	50	60	12
80 Class 1	80	82	...
50 Class 2	80	82	...
SI Units			
Grade	Yield Strength, min, ksi	Tensile Strength, min, ksi	Elongation in 2 in., min, %
230	230	310	20
255	255	360	18
275	275	380	16
340 Class 1	340	450	12
340 Class 2	340	...	12
340 Class 4	340	410	12
550 Class 1	550	570	...
550 Class 2	550	570	...

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Typical Ranges of Mechanical Properties (Nonmandatory)

Longitudinal Direction					
Designation	Yield Strength		Elongation 2 in. [50mm], %	Rm value	n value
	ksi	MPa			
CS Type A	30/60	[205/410]	≥ 20	...	...
CS Type B	35/60	[245/410]	≥ 20	...	...
CS Type C	30/65	[205/450]	≥ 15	...	...
FS	25/40	[170/275]	≥ 24	1.0/1.4	0.16/0.20
DS	20/35	[140/240]	≥ 30	1.3/1.7	0.18/0.22
HTS	30/65	[205/450]	≥ 15	...	...