

# Macksteel Warehouse, Inc.

415 20th Ave SE Watertown, SD 57201 P#(605)882-2177 F#(605)882-2980 www.macksteel.com

Carbon Steel Sheets and Plates		Chemistry (General)					Mechanical Properties				Typical Applications
Common Name	ASTM Spec.	C max	Mn max	P max	S max	Si max	Tensile Strength ksi	Yield Strength ksi	Elong. In 2"	Brinell *	
Mild Steel, CQ - Commercial Quality	A569	0.15	0.6	0.03	0.035	N/A	52 *	30 to 50	25% min.	108	This material is intended for parts where bending, moderate forming or drawing, and welding may be involved. Used for tanks, barrels, farm implements, etc.
A36, Structural Quality	A36	.25*	.80 – 1.20*	0.04	0.05	0.4	58 to 80	36 min.	23% min.	119-159	Used in riveted, bolted, or welded construction of bridges and buildings, and for general structural purposes.
Grade 50, HSLA, High Strength - Low Alloy	A572	0.23	1.35	0.04	0.05	0.4	65 min	50 min	21%	135 min.	Used when higher strength, savings in weight, improved formability and weldability are important. Often used in heavy equipment, truck frames and components.
	A607	0.23	1.35	0.04	0.04	N/A	65 min	50 min	22%		
	A715	0.15	1.65	0.02	0.025	N/A	60 min	50 min	24%		
	A936	0.15	1.65	0.025	0.035	N/A	60 min	50 min	22%		
Grade 80, HSLA, High Strength - Low Alloy	A656	0.18	1.65	0.025	0.035	0.6	90 min	80 min	15%	190 min.	Used for same reasons as grade 50 material, with an even better strength to weight ratio. Often used in truck frames, crane booms, and rail cars.
	A715	0.15	1.65	0.02	0.025	N/A	90 min	80 min	18%		
	A936	0.15	1.65	0.025	0.035	N/A	90 min	80 min	12%		
Cor-ten, HSLA corrosion resistant	A588 B	0.2	1.35	0.04	0.05	0.5	70 min	50 min	21%	147 min.	Same basic properties as other HSLA steels with added resistance to corrosion. Often used in bridges or structures where maintenance cost considerations are important.
	A606	0.22	1.25	N/A	0.04	N/A	70 min	50 min	22%		
T-1, Construction Alloys	A514 B	.12 - .21	.70 – 1.00	0.035	0.035	.20 - .35	110 to 130	100 min	18%	228 min.	Nearly 3 times as strong as A36. Used as liners for construction equipment, mining machinery, chutes, wear plates, etc.
AR200, ARTN Abrasion Resistant	N/A	.32 to .36	.90 to 1.30	0.035	0.05	0.04	90 typ	70 typ	15%	185-235	Primarily used for liners of refuse trucks, cement mixers, mining
AR400 Abrasion Resistant	N/A	0.3	0.48	0.035	0.04	0.25	177 typ	145 typ	16%	360-440	This steel is heat treated to produce a high strength, high hardness product.

\*Approximate values

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Grade 50 Comparisons		Chemistry (General)					Mechanical Properties				Min. Bend Radius
ASTM Spec.	ASTM Spec.	C max	Mn max	P max	S max	Si max	Tensile Strength ksi	Yield Strength ksi	Elong. In 2"	Brinell *	
A570	Structural Steel, Sheet and Strip, Carbon, Hot Rolled	0.25	1.35	0.035	0.04	N/A	65 min	50 min.	17%		2 ½ T
A572	High Strength Low-Alloy Columbium-Vanadium Structural Steel	0.23	1.35	0.04	0.05	0.4	65 min	50 min	21%	135 min.	2 t
A607 Class 1	Steel Sheet and Strip, High Strength,	0.23	1.35	0.04	0.04	N/A	65 min	50 min	20%		2 t
A935 Type 1	Steel Sheet and Strip, Heavy	0.23	1.5	0.04	0.04	N/A	65 min	50 min	20		2 t
Improved Formability											
A656 Type 3	Hot-Rolled Structural Steel,	0.18	1.65	0.025	0.035	0.6	60 min	50 min	23%		1 t
A715	Steel, Sheet and Strip, High Strength, Low-Alloy, Hot Rolled, Cold Rolled with Improved Formability	0.15	1.65	0.02	0.025	N/A	60 min.	50 min.	24%		1 t
A936	Steel, Sheet and Strip, Heavy Thickness Coils, High Strength, Low-Alloy, Hot Rolled, with Improved Formability	0.15	1.65	0.025	0.035	N/A	60 min	50 min.	22%		1 t