

MATERIAL SPECIFICATIONS

Specifications & Heat Treatment				Chemical Composition Max Percent Unless Range is Given						Mechanical Properties (Minimum)			
ASTM	SAE	MIL-S-15083	Heat Treatment	C.	Mn.	Si.	Ni.	Cr.	Mo.	Tensile PSI	Yield PSI	%EL in 2"	% RA
		Federal QQ-S-681											
A-216 GR WCA	1021	65-35	Normalize	.25	.75	.60				60,000	30,000	22	30
A-216 GR WCB	1026	70-36	Normalize	.30	.90	.60				70,000	36,000	24	35
A-352 GR LCB	1026		N & T or Q & T	.30	1.00	.60				70,000	36,000	24	35
A-352 GR LC2			N & T or Q & T	.25	.50-.80	.60	2.0-3.0			70,000	40,000	24	35
A-217 GR WCG			N & T or Q & T	.25	.50-.80	.60	2.0-3.0			70,000	40,000	24	35
A-217 GR WC9			N & T	.18	.40-.60		2.0-2.75	.90-1.20					
A-217 GR C-5			N & T	.20	.40-.70	.75		4.0-6.5	.45-.65	90,000	60,000	18	35
A-148 GR 80-50	8625	80-50	N or N & T or Q & T	.30	.60-1.0	.75	.40-.80	.40-.80	.15-3.0	80,000	50,000	22	35
A-148 GR 90-60	8630	90-60	N or N & T or Q & T	.25-.35	.60-1.0	.75	.40-.80	.40-.80	.15-.30	90,000	60,000	20	40
A-148 GR 105-85	8630	105-85	N or N & T or Q & T	.25-.35	.60-1.0	.75	.40-.80	.40-.80	.15-.30	105,000	85,000	17	35
A-148 GR 120-95	8630	120-95	N or N & T or Q & T	.25-.35	.60-1.0	.75	.40-.80	.40-.80	.15-.30	120,000	95,000	14	30
A-148 GR 150-125	8630	150-125	N or N & T or Q & T	.25-.35	.60-1.0	.75	.40-.80	.40-.80	.15-.30	150,000	125,000	9	22
A-148 GR 175-145	8640	175-145	N or N & T or Q & T	.35-.45	.60-1.0	.75	.40-.80	.40-.80	.15-.30	175,000	145,000	6	12

HIGH ALLOY STEELS

A-296 GR CA-15	410		N & T or Q & T	.15	1.0	1.5		11.5-14.0		90,000	65,000	18	30
A-351 GR CF3	304L		Q 1900°F	.03	1.5	2.0	8-12	17-21		70,000	30,000	35	
A-351 GR CF8	304		Q 1900°F	.08	1.5	2.0	8-11	18-21		70,000	30,000	35	
A-351 GR CF3M	316L		Q 1900°F	.03	1.5	2.0	9-13	17-21	2-3	70,000	30,000	30	
A-351 GR CF8M	316		Q 1900°F	.08	1.5	2.0	9-12	18-21	2-3	70,000	30,000	30	
A-351 GR CN7M			Q 2050°F	.07	1.5	1.5	27.5-30.5	19-21	2-3	62,500	25,000	35	
A-351 GR CA6NM			N & T 1100°F Min.	.06	1.0	1.0	3.5-4.5	11.5-14	.40-1.0	110,000	80,000	15	35
A-297 GR HF			As Cast	.20-.40	2.0	2.0	8-12	18-23		70,000	35,000	25	
A-297 GR HH	447		As Cast	.20-.50	2.0	2.0	11-14	24-28		75,000	35,000	10	
A-297 GR HK			As Cast	.20-.60	2.0	2.0	18-22	24-28		65,000	35,000	25	
A-297 GR HT			As Cast	.35-.75	2.0	2.5	33-37	13-17		65,000		4	
A-297 GR HX			As Cast	.35-.75	2.0	2.5	64-68	15-19		60,000			
A-128 GR B-2	Hadfield Mang.		1900°F WQ	1.05-1.20	11.5-14		1.0						
A-296 GR CW-12M	Hastelloy®C		ST 2150°F	.12	1.0	1.5	Remainder	15.5-20	15-20				Other
A-296 GR CY-40	Inconel		ST 2150°F	.40	1.5	3.0	Remainder	14-17					W5.25, V.40, CO2.50, & FE7.50
A-296 GR CZ-100	Nickel		As Cast	1.0	1.5	2.0	Remainder						FE11.0
A-296 GR M-35	Monel		As Cast	.35	1.5	2.0	Remainder						FE3.0 + CU1.25
A-296 GR N-12M	Hastelloy®B		ST 2150°F	.12	1.0	1.0	Remainder	1.0	26-33				CU26-33 & FE3.50
													CO2.50, V.60 & FE6.0

Eagle Alloy Inc. is capable of producing any steel specifications. The above is a representative sample of alloys produced.

- **ASTM A-128**
Austenitic Manganese Steel Casting
- **ASTM A-148**
High Strength Castings for structural purposes
- **ASTM A-216**
Carbon Steel Castings suitable for Fusion Welding for high temperature service
- **ASTM A-217**
Alloy Steel Castings for pressure containing parts for high temperature service
- **ASTM A-296**
Corrosion-Resistant Iron Chromium-Nickel and Nickel Base Alloy Castings for general applications
- **ASTM A-297**
Heat Resistant Iron-Chromium and Iron-Chromium-Nickel Alloy Castings for general applications
- **ASTM A-351**
Austenitic Steel Castings for high temperature service
- **ASTM A-352**
Ferritic Steel Castings for pressure containing parts suitable for low temperature services

SHELL CASTING CHARACTERISTICS:

- > Patterns usually made of cast iron or steel. Very durable.
- > Uses resin-coated sand that bonds when applied to the preheated pattern.
- > Tolerances: +/- .030/ inch
- > Surface Finish: 200-250 rms* Good letter detail.
- > Dimensional repeatability: Excellent
- > Tooling Wear: Excellent
- > Size range: 1-400 lbs
- > Overall: An economical way to get quality steel castings quickly and consistently with low probability of sand defects and dimensional discrepancies.

*[Secondary surface finish improvement operations available]

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