

STEEL CASTINGS - TECHNICAL DATA

CARBON & LOW ALLOY STEELS



MONMET

Monmet helps our customers solve their problems with an unmatched expertise in alloy and process selection.

ALLOY	ASTM SPECIFICATION	CHEMICAL COMPOSITION (Maximum unless range specified)							MINIMUM MECHANICAL PROPERTIES					EQUIVALENT FOREIGN SPECS		CHARACTERISTICS & APPLICATIONS	
		C %	Si %	Mn %	Ni %	Cr %	Mo %	Other %	CHARPY "V" NOTCH ft. lb.	TENSILE STRENGTH (KSI)	YIELD STRENGTH (KSI)	ELONGATION %	REDUCTION OF AREA %	BRITISH STANDARD	GERMAN STANDARD		
CARBON STEEL	A27: N-1	0.25	0.80	0.75													<p>These grades of low carbon steel castings are intended for general applications that require up to 70 ksi tensile strength. These grades are suitable for assembly with other steel parts by fusion welding. They are also exhibit good machineability.</p> <p>These low carbon alloys are used for valves, flanges, fittings, or other pressure-containing parts for high-temperature service. They are suitable for assembly with other castings or wrought steel parts by fusion welding.</p> <p>Low carbon steel grades intended for pressure-containing parts such as valves, fittings, etc. suitable for low-temperature service.</p> <p>The low carbon steel is suitable for heavy-walled castings for steam turbine applications.</p> <p>The chemical composition of these carbon steel grades is similar to the standard wrought grades.</p>
	A27: N-2	0.35	0.80	0.60													
	A27: U 60-30	0.25	0.80	0.75						60	30	22	30				
	A27: 60-30	0.30	0.80	0.60						60	30	24	35		1020		
	A27: 65-35	0.30	0.80	0.70						65	35	24	35				
	A27: 70-36	0.35	0.80	0.70						70	36	22	30		1030		
	A27: 70-40	0.25	0.80	1.20						70	40	22	30				
	A216: WCA	0.25	0.60	0.70	0.50	0.50	0.20	V 0.03, Cu 0.3		60-85	30	24	35				
	A216: WCB	0.30	0.60	1.00	0.50	0.50	0.20	V 0.03, Cu 0.3		70-95	36	22	35				
	A216: WCC	0.25	0.60	1.20	0.50	0.50	0.20	V 0.03, Cu 0.3		70-95	40	22	35				
	A352: LCA	0.25	0.60	0.70	0.50	0.50	0.20	V 0.03, Cu 0.3	13 (-25 F)	60-85	36	24	35	GS-CK16			
	A352: LCB	0.30	0.60	1.00	0.50	0.50	0.20	V 0.03, Cu 0.3	13 (-50 F)	65-90	35	24	35				
	A352: LCC	0.25	0.60	1.20	0.50	0.50	0.20	V 0.03, Cu 0.3	13 (-50 F)	70-95	40	22	35				
	A356: Grade 1	0.35	0.60	0.70						70	36	20					
	A915: SC 1020	0.18-0.23	0.30-0.60	0.40-0.80													
	A915: SC 1025	0.22-0.28	0.30-0.60	0.40-0.80													
A915: SC 1030	0.28-0.34	0.30-0.60	0.50-0.90														
A915: SC 1040	0.37-0.44	0.30-0.60	0.50-0.90														
A915: SC 1045	0.43-0.50	0.30-0.60	0.50-0.90														
LOW ALLOY STEEL	A217: WC1	0.25	0.60	0.50-0.80			0.45-0.65		60-90	35	24	35				<p>Low carbon steels for pressure containing parts. These alloys are also suitable for high-temperature applications. They exhibit good weldability, good machineability, as well as superior mechanical properties when compared with carbon steels intended for the same type of applications.</p> <p>Since these grades possess varying degrees of suitability for high-temperature and corrosion-resistant service, the requirements of the applicable construction codes should be considered when selecting the alloy grade.</p> <p>C12A is a relatively new alloy. It allows the use of martensitic 9% Cr 1% Mo grade at high temperatures.</p> <p>These ferritic grades for valves, fittings, and other pressure containing parts are intended primarily for low-temperature service. Selection of grade will depend on design and service conditions.</p> <p>These low alloy ferritic steels are intended for cylinders (shells), valve chests, throttle valves, and other heavy-walled castings for steam turbine applications.</p> <p>These alloys are suitable for pressure containing parts when used in normalized and tempered or quenched and tempered conditions.</p> <p>The weldability of the grades varies from readily weldable to weldable only with adequate precautions. Users should note that hardenability of some of the grades may restrict the maximum size at which the mechanical properties are obtained (ex. Grade 7)</p> <p>This specification (ASTM A915) was developed to help purchasers and suppliers order products based on the more familiar AISI/SAE designations. While the cast grades are similar, they are not identical to the wrought materials, particularly in the instances of Si and Mn content.</p>	
	A217: WC4	0.05-0.20	0.60	0.50-0.80	0.70-1.10	0.50-0.80	0.45-0.65		60-90	35	24	35					
	A217: WC5	0.05-0.20	0.60	0.40-0.70	0.60-1.0	0.50-0.90	0.90-1.20		70-95	40	20	35					
	A217: WC6	0.05-0.20	0.60	0.50-0.80		1.0-1.50	0.45-0.65		70-95	40	20	35					
	A217: WC9	0.05-0.18	0.60	0.40-0.70		20.0-2.75	0.90-1.20		70-95	40	20	35					
	A217: WC11	0.15-0.21	0.30-0.60	0.50-0.80		1.0-1.50	0.45-0.65		80-105	50	18	45					
	A217: C5	0.20	0.75	0.40-0.70		4.0-6.50	0.45-0.65		90-115	60	18	35					
	A217: C12	0.20	1.00	0.35-0.65		8.0-10.0	0.90-1.20		90-115	60	18	35					
	A217: C12A	0.12	0.20-0.50	0.30-0.60	0.40	8.0-9.5	0.85-1.05	Cb 0.06-0.10	85-110	65	20	45					
	A352: LC1	0.25	0.60	0.50-0.80			0.45-0.65		13 (-75 F)	65-90	35	24	35				
	A352: LC2	0.25	0.60	0.50-0.80	2.0-3.0				15 (-100 F)	70-95	40	24	35				
	A352: LC2-1	0.22	0.60	0.55-0.75	2.50-3.50	1.35-1.85	0.30-0.60		30 (-100 F)	105-130	80	18	30				
	A352: LC3	0.15	0.60	0.50-0.80	3.0-4.0				15 (-150 F)	70-95	40	24	35				
	A352: LC4	0.15	0.60	0.50-0.80	4.0-5.0			Cu 0.30	15 (-175 F)	70-95	40	24	35				
	A352: LC9	0.13	0.45	0.90	8.50-10.0	0.50	0.20	V 0.03	20 (-320 F)	85	75	20	30				
	A356: Grade 2	0.25	0.60	0.70			0.45-0.65			65	35	22	35				
	A356: Grade 5	0.25	0.60	0.70		0.40-0.70	0.40-0.60			70	40	22	35				
	A356: Grade 6	0.20	0.60	0.50-0.80		1.0-1.50	0.45-0.65			70	45	22	35				
	A356: Grade 8	0.20	0.20-0.60	0.50-0.90		1.0-1.50	0.90-1.20	V 0.05-0.15		80	50	18	45				
	A356: Grade 9	0.20	0.20-0.60	0.50-0.90		1.0-1.50	0.90-1.20	V 0.20-0.35		85	60	15	45				
	A356: Grade 10	0.20	0.60	0.50-0.80		2.0-2.75	0.90-1.20			85	55	20	35				
	A487: Grade 1	0.30	0.80	1.00				V 0.04-0.12		85-115	55-85	22	40-45				
	A487: Grade 2	0.30	0.80	1.0-1.40			0.10-0.30			85-115	53-65	22	35-40				
	A487: Grade 4	0.30	0.80	1.00	0.40-0.80	0.40-0.80	0.15-0.30			90-130	60-95	18-15	35-40				
	A487: Grade 6	0.05-0.38	0.80	1.30-1.70	0.40-0.80	0.40-0.80	0.30-0.40			115-120	80-95	18-12	25-30				
	A487: Grade 7	0.05-0.20	0.80	0.60-1.0	0.70-1.0	0.40-0.80	0.40-0.60	V 0.03-0.1		115	100	15	30				
	A487: Grade 8	0.05-0.20	0.80	0.50-0.90		2.0-2.75	0.90-1.10			85-110	55-85	20-17	30-35				
	A487: Grade 9	0.05-0.33	0.80	0.60-1.0		0.75-1.10	0.15-0.30			90-115	60-95	18-15	35				
A487: Grade 10	0.30	0.80	0.60-1.0	1.40-2.0	0.55-0.90	0.20-0.40			100-125	70-100	18-15	35					
A487: Grade 11	0.05-0.20	0.60	0.50-0.80	0.70-1.10	0.50-0.80	0.45-0.65			70-130	40-85	20-17	35					
A487: Grade 12	0.05-0.20	0.60	0.40-0.70	0.60-1.0	0.50-0.90	0.90-1.20			70-130	40-85	20-17	35					
A487: Grade 13	0.30	0.60	0.80-1.10	1.40-1.75		0.20-0.30			90-130	60-85	18-17	35					
A487: Grade 14	0.55	0.60	0.80-1.10	1.40-1.75		0.20-0.30			120-145	95	14	30					
A487: Grade 16	0.12	0.50	2.10	1.0-1.40					70-95	40	22	35					
A915: SC 4130	0.28-0.33	0.30-0.60	0.50-1.10		0.80-1.10	0.15-0.25											
A915: SC 4140	0.38-0.43	0.30-0.60	0.70-1.10		0.80-1.10	0.15-0.25											
A915: SC 4330	0.28-0.33	0.30-0.60	0.60-0.90	1.65-2.0	0.70-0.90	0.20-0.30											
A915: SC 4340	0.38-0.43	0.30-0.60	0.60-0.90	1.65-2.0	0.70-0.90	0.20-0.30											
A915: SC 8620	0.18-0.23	0.30-0.60	0.60-1.0	0.40-0.70	0.40-0.60	0.15-0.25											
A915: SC 8625	0.23-0.28	0.30-0.60	0.60-1.0	0.40-0.70	0.40-0.60	0.15-0.25											
A915: SC 8630	0.28-0.33	0.30-0.60	0.60-1.0	0.40-0.70	0.40-0.60	0.15-0.25											

Monmet can supply a complete range of carbon and low alloy steels.

Carbon Steel ■
Low Alloy Steel ■