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Aluminum and Zinc Alloy Properties of Sand & Permold Castings

Alloy	Heat Treating	Ultimate Tensile (ksi)	Min. Yield Strength Set @ 2% (ksi)	Elongation %	Hardness Rockwell E Scale 1/16 ball	Pressure Tightness	Machinability
Aluminum Alloys							
319	T6	36	24	2.0	85.5	B	A
355	T51	28	23	1.5	76.0	A	C
355	T6	35	25	3.0	85.5	A	B
C355	T6	39	29	5.0	89.0	A	B
356	T51	25	20	2.0	71.0	A	C
356	T6	33	24	3.5	79.0	A	A
A356	T51	26	18	3.0	71.0	A	C
A356	T6	40	30	6.0	82.5	A	A
357	T51	26	17	3.0	80.0	B	C
357	T6	45	35	3.0	91.0	B	B
A357	T6	45	35	3.0	89.0	B	B
380	None	46	23	3.5	85.5	B	C
712	*	35*	25*	5.0*	82.5	C	A
Zinc Alloys							
ZA3	None	41	--	10	87	C	C
ZA8	None	34	30	1.5	95.5	C	C
ZA12	None	43	30	2	93	C	B
ZA27	None	61	46	9.5	100	C	B

(712 also known as D712, D612, and 40E)

These values are for separately cast test bars and are typical values.
 * Test 30 days after casting

Key
 A = Excellent
 B = Good
 C = Fair

Applicable Military Specifications

- * Mechanical/chemical inspection to MIL-A-21180QQ-A-601, AMS-4217
- * System control to MIL-45208
- * Gage control to MIL-STD-45662
- * Penetrant inspection to MIL-STD-6866
- * Radiographic inspection to MIL-STD-453, MIL-STD-2175
- * Heat treat to MIL-H-6088
- * N.D.T. to MIL-STD-410