



DESIGNATION	ALLOY GROUP	ZINC	ZINC	ZINC	ZINC	ZINC-ALUMINUM	ACuZinc	MAGNESIUM	ALUMINUM	PLASTIC	BRASS	POWDERED METAL	MILD STEEL	
	ASTM Designation	AC43A	AG40A	AC41A	AG40B						B16	B 426 grade 1	C1010	
	General Designation	ZAMAK 2	ZAMAK 3	ZAMAK 5	ZAMAK 7	ZA-8	ACuZinc 5	AZ-91D	380	Polypropylene Nylon (30% Glass)	Brass 360	FC-0208-R as sintered	1010	
COMPOSITION PERCENTAGE BY WEIGHT	Al Aluminum	3.5 - 4.3	3.5 - 4.3	3.5-4.3	3.5 - 4.3	8.0 - 8.8	2.8 - 3.3	8.3 - 9.7	-	-	-	-	-	
	Cu Copper	2.5 - 3.0	0.25 Max.	0.75 - 1.25	0.25 Max.	0.8 - 1.3	5.0 - 6.0	0.30 Max.	-	-	-	-	-	
	Mg Magnesium	0.02 - 0.05	0.025 - 0.05	0.03 - 0.08	0.005 - 0.20	0.015 - 0.030	0.025 - 0.05	Remainder	-	-	-	-	-	
	Fe Iron (Maximum)	0.100	0.100	0.100	0.100	0.075	0.075	0.075	0.005	-	-	-	-	
	Pb Lead (Maximum)	0.005	0.005	0.005	0.003	0.006	0.005	0.02	-	-	-	-	-	
	Cd Cadmium (Maximum)	0.004	0.004	0.004	0.002	0.006	0.004	0.02	-	-	-	-	-	
	Sn Tin (Maximum)	0.003	0.003	0.003	0.001	0.003	0.003	0.02	-	-	-	-	-	
	Ni Nickel	-	-	-	0.005 - 0.020	-	-	0.002 Max.	-	-	-	-	-	-
	Zn Zinc	Remainder	Remainder	Remainder	Remainder	Remainder	Remainder	0.35 - 1.0	-	-	-	-	-	-
	PHYSICAL PROPERTIES	Density												
kg/m <sup>3</sup>		6655	6600	6700	6600	6300	6850	1827	2713	900	1400	8500	6700	7900
lb/in <sup>3</sup>		0.240	0.238	0.242	0.24	0.227	0.247	0.066	0.098	0.032	0.05	0.307	0.242	0.283
Melting Range														
°C		379 - 390	381 - 387	380 - 386	381 - 387	375 - 404	402 - 502	468 - 596	538 - 593	-	-	885 - 900	N/A	1370
°F		715 - 734	718 - 728	717 - 727	718 - 728	707 - 759	755 - 936	875 - 1105	1000 - 1100	-	-	1630 - 1660	N/A	2500
Coefficient of Thermal Expansion														
µm/m°K		27.8	27.4	27.4	27.4	23.3	24.0	25.2	21.2	80 - 150	23 - 40	20.5	9.2	11.4
µin/in°F		15.4	15.2	15.2	15.2	12.9	13.3	14.0	11.8	44 - 83	13 - 22	11.4	5.1	6.3
Thermal Conductivity														
W/m°K		104.7	113.0	108.9	113.0	114.7	106.0	72.3	96.2	0.16 - 0.24	0.5	115.0	44 (est.)	47 (est.)
BTU/ft.hr°F		60.5	65.3	62.9	65.3	66.3	61.2	41.8	55.6	0.092 - 0.139	0.29	67.0	25 (est.)	27 (est.)
Electrical Conductivity														
10 <sup>-6</sup> Ω.m		68.4	63.9	66.3	63.9	62.2	64.0	141.0	63.9	N/A	N/A	66.0	N/A	160 (est.)
%IACS		25.0	27.0	26.0	27.0	27.7	26.9	12.2	27.0	N/A	N/A	26.0	N/A	N/A
MECHANICAL PROPERTIES	Tensile Strength													
	MPa	359	283	328	283	374	407	234	324	33	120	379 - 470	415	415
	psi	52,000	41,000	47,600	41,000	54,200	59,000	34,000	47,000	4,800	17,400	55,000 - 68,000	60,000	60,000
	Yield Strength (0.2% offset)													
	MPa	283	221	228	221	290	338	159	165	-	-	305 - 360	330	325
	psi	41,000	32,000	33,000	32,000	42,000	49,000	23,000	24,000	-	-	44,000 - 52,000	48,000	47,000
	Compressive Yield Strength (0.1% offset)													
	MPa	641	414	600	414	252	N/A	165	N/A	-	-	N/A	N/A	N/A
	psi	93,000	60,000	87,000	60,000	37,000	N/A	24,000	N/A	-	-	N/A	N/A	N/A
	Elongation (% in 2 inches) (% in 51 mm)													
		7	10	7	13	8	5	3	3	>100	6	18 - 53	1	18
	Shear Strength													
	MPa	317	214	262	214	276	280	138	186	-	-	220 - 260	N/A	311
	psi	46,000	31,000	38,000	31,000	40,000	40,600	20,000	27,000	-	-	32,000 - 38,000	N/A	45,000
	Hardness													
BHN (Brinell)	up to 100	up to 82	up to 91	up to 80	up to 103	up to 118	up to 63	up to 80	-	-	120	110	124 - 162	
Impact Strength														
J	47.5 <sup>1</sup>	58.3 <sup>1</sup>	65.1 <sup>1</sup>	58.3 <sup>1</sup>	42.0 <sup>1</sup>	N/A	6.0 <sup>1</sup>	4.0 <sup>2</sup>	-	-	N/A	6.8	N/A	
ft.lbs.	35 <sup>1</sup>	43 <sup>1</sup>	48 <sup>1</sup>	43 <sup>1</sup>	31 <sup>1</sup>	N/A	5 <sup>1</sup>	3 <sup>2</sup>	-	-	N/A	5	N/A	
Fatigue Strength (Rotary Bend 5x10 <sup>6</sup> cycles)														
MPa	58.6	47.6	56.5	46.9	103	N/A	97	138	13.8	17.2	138.0	155.0	N/A	
psi	8,500	6,900	8,200	6,800	15,000	N/A	14,000	20,000	2,000	2,500	20,000	23,000	N/A	

Note: Data shown is typical for the material and process used and is intended for comparison and guidance only.

<sup>1</sup> 1/4 inch Unnotched Charpy <sup>2</sup> 10mm Unnotched Charpy

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