Alloy 5052

Alternative Designations: AS 5052; DIN AlMg2.5; EN AW – 5052; JIS A5052P; NF A 5052.
Note: Garmco products are routinely produced to AA specifications, but other National Standards may be met on request.

Chemical Composition:	Elements									
5052	Si	Fe	Cu	Mn	Mg	Cr	Zn	Each	Total	Al
(% max)	0.25	0.40	0.10	0.10	2.2 – 2.8	0.15 – 0.35	0.10	0.05	0.15	Remainder

Characteristics:

Corrosion Resistance	Excellent
Anodising	Good
Formability	Very Good (in soft temper)
Machinability	Fair
Weldability	Excellent
Brazeability	Good

Typical Uses: General sheet metal work; appliances; fuel tanks; street light standards; blinds; road signs; seam welded tubes; paneling and structures in marine environments; miscellaneous marine and transport applications.
Availability:

Cut-To-Length Sheet					
Temper	H32	H34	H36	H38	O
Thickness	0.5 – 3.2	0.5 – 2.5	0.5 – 3.2	0.5 – 2.4	1.2 – 3.2
Min. Width	750	750	750	750	900
Max. Width	1535	1535	1535	1535	1535
Min. Length	800	800	800	800	1000
Max. Length	6100	6100	6100	6100	6100

Coiled Sheet					
Temper	H32	H34	H36	H38	O
Thickness	0.4 – 3.2	0.3 – 2.5	0.3 – 3.2	0.3 – 2.4	0.3 – 3.2
Min. Width	750	750	750	750	750
Max. Width	1535	1535	1535	1535	1535

Slit Coils Minimum Widths, mm			
Thickness (mm)	Temper		
Over	Up To	H2X/H3X/FX/GX	O/W17/H111
0.29	0.39	200	Not Avail.
0.39	0.46	200	450
0.46	0.50	200	300
0.50	0.60	200	200
0.60	0.70	200	200
0.70	0.80	200	200

0.80	1.25	200	200
1.25	1.80	200	200
1.80	2.50	200	200

Circles					
Temper	H32	H34	H36	H38	O
Thickness	0.9 – 3.2	0.9 – 2.5	0.9 – 3.2	0.9 – 2.4	0.9 – 3.2
Min. Dia.(B)	500 (150)	500 (150)	500 (150)	500 (150)	500 (150)
Max. Dia.(B)	1535 (660)	1535 (660)	1535 (660)	1535 (660)	1535 (660)

(B): Blanked only. Sizes not inside bracket refer to sheared circle sizes available.
Mechanical Properties (To Aluminum Association Standards):

Temper	Gauge Range, mm		Ultimate Tensile Strength MPa			Yield Strength MPa		Elongation in 50 mm, %		Ult Shear Strength, MPa
	Over	Up to	Minimum	Typical	Maximum	Minimum	Typical	Minimum	Typical @ 1.6mm	Typical
O	0.30	0.32	170	195	215	65	90	13		125
	0.32	0.63	170	195	215	65	90	15		125
	0.63	1.20	170	195	215	65	90	17		125
	1.20	3.20	170	195	215	65	90	19	25	125
H32	0.40	0.63	215	230	265	160	195	4		140
	0.63	1.20	215	230	265	160	195	5		140
	1.20	3.20	215	230	265	160	195	7	12	140
H34	0.30	0.32	235	260	285	180	215	3		145
	0.32	0.63	235	260	285	180	215	3		145
	0.63	1.20	235	260	285	180	215	4		145
	1.20	2.50	235	260	285	180	215	6	10	145
H36	0.30	0.32	255	275	305	200	240	2		160
	0.32	0.63	255	275	305	200	240	3		160
	0.63	1.20	255	275	305	200	240	4		160
	1.20	3.20	255	275	305	200	240	4	8	160
H38	0.30	0.32	270	290		220	255	2		165
	0.32	0.63	270	290		220	255	3		165
	0.63	1.20	270	290		220	255	4		165
	1.20	3.20	270	290		220	255	4	7	165

Note: 5052 is an alloy which spontaneously softens after rolling until it reaches a stable condition. The process is accelerated by means of a stabilising anneal, giving the material an H3-temper. For this reason, 5052 is normally supplied in the H3-temper, in which the stable condition is achieved before shipment.
Modulus of Elasticity: 69,300 MPa
Bend Radii: Minimum recommended internal bend radii for 90° cold bends at right angle to the rolling direction.

Thickness

Temper	0.4mm	0.8mm	1.6mm	3.0mm
O	0 t	0 t	0 t	0.5 t
H32	0 t	0 t	1 t	1.5 t
H34	0 t	1 t	1.5 t	2 t
H36	1 t	1 t	1.5 t	2.5 t
H38	1 t	1.5 t	2.5 t	3 t

t = Thickness

Welding: 5052 is readily welded by the TIG and MIG processes. The commonly used filler alloys are 5356 and 5654. Welding 5052 in the H32, H34, H36 or H38 will reduce the tensile and yield strengths in the heat affected zone to those of the annealed condition. 5052 may also be gas welded or resistance welded, but the resulting joints are not as strong or as corrosion resistant as the inert gas welded joints. Moreover, gas welding could result in excessive heat distortion and, in thinner gauges, may burn through. It is essential that all traces of flux used in welding or brazing are removed by scrubbing with hot water upon completion.

Annealing: 345°C ± 5°C, until all parts have reached the annealing temperature.

Weight Calculation: Weight per square meter in kilograms: 2.68 x thickness in mm.