Alloy 5005

Alternative Designations: AS 5005; BS 5005; DIN AlMg1; EN AW – 5005; JIS A5005P; NF A 5005.
Note: Garmco products are routinely produced to AA specifications, but other National Standards may be met on request.

Chemical Composition:	Elements									
5005	Si	Fe	Cu	Mn	Mg	Cr	Zn		Each	Al
(% max)	0.3	0.7	0.2	0.2	0.5 – 1.1	0.1	0.25		0.05	Remainder

Characteristics:

Corrosion Resistance	Excellent
Anodising	Very Good
Formability	Very Good
Machinability	Fair
Weldability	Very Good
Brazeability	Good

Typical Uses: General sheet metal work; domestic appliances; commercial signs; vehicle number plates; architectural panels and flashings.
Note: Special grades are available for anodising; general purpose grades should not be used for this application. 5005 is suitable for commercial anodising but not for bright anodising.
Availability:

Cut-To-Length Sheet									
Temper	H12	H14	H16	H18	O	H32	H34	H36	H38
Thickness	0.5 –3.2	0.5 – 3.2	0.5 – 3.2	0.5 – 2.8	1.2 – 3.2	0.5 – 3.2	0.5 – 3.2	0.5 – 3.2	0.5 –2.4
Min. Width	750	750	750	750	900	750	750	750	750
Max. Width	1560	1560	1560	1560	1560	1560	1560	1560	1560
Min. Length	800	800	800	800	1000	800	800	800	800
Max. Length	6100	6100	6100	6100	6100	6100	6100	6100	6100

Coiled Sheet									
Temper	H12	H14	H16	H18	O	H32	H34	H36	H38
Thickness	0.4 –3.2	0.3 – 3.2	0.3 – 3.2	0.3 – 2.8	0.3 – 3.2	0.4– 3.2	0.3 – 3.2	0.3 – 3.2	0.3 –2.4
Min. Width	750	750	750	750	750	750	750	750	750
Max. Width	1560	1560	1560	1560	1560	1560	1560	1560	1560

Slit Coils Minimum Widths, mm			
Thickness (mm)	Temper		
Over	Up To	H1X/H2X/H3X/FX/GX	O/W11/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	H12	H14	H16	H18	O	H32	H34	H36	H38
Thickness	0.9 –3.2	0.9 – 3.2	0.9 – 3.2	0.9 – 2.8	0.9 – 3.2	0.9 – 3.2	0.59– 3.2	0.9 – 3.2	0.9 –2.4
Min. Dia.(B)	500 (150)	500 (150)	500 (150)	500 (150)	500 (150)	500 (150)	500 (150)	500 (150)	500 (150)
Max. Dia.(B)	1535 (660)	1535 (660)	1535 (660)	1535 (660)	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	105	125	145	35	40	12		75
	0.32	0.63	105	125	145	35	40	16		75
	0.63	1.20	105	125	145	35	40	19		75
	1.20	3.20	105	125	145	35	40	21	25	75
H12	0.40	0.63	125	140	165	95	130	2		95
	0.63	1.20	125	140	165	95	130	4		95
	1.20	3.20	125	140	165	95	130	6	10	95
H14	0.30	0.32	145	160	185	115	150	1		95
	0.32	0.63	145	160	185	115	150	1		95
	0.63	1.20	145	160	185	115	150	2		95
	1.20	3.20	145	160	185	115	150	3	6	95
H16	0.30	0.32	165	180	205	135	170	1		105
	0.32	0.63	165	180	205	135	170	1		105
	0.63	1.20	165	180	205	135	170	2		105
	1.20	3.20	165	180	205	135	170	3	5	105
H18	0.30	0.32	185	200			195	1		110
	0.32	0.63	185	200			195	1		110
	0.63	1.20	185	200			195	2		110
	1.20	3.20	185	200			195	3	4	110
H32	0.40	0.63	120	140	160	85	115	3		95
	0.63	1.20	120	140	160	85	115	4		95

	1.20	3.20	120	140	160	85	115	7	11	95
H34	0.30	0.32	140	160	180	105	140	2		95
	0.32	0.63	140	160	180	105	140	3		95
	0.63	1.20	140	160	180	105	140	4		95
	1.20	3.20	140	160	180	105	140	5	8	95
H36	0.30	0.32	160	180	200	125	165	1		105
	0.32	0.63	160	180	200	125	165	2		105
	0.63	1.20	160	180	200	125	165	3		105
	1.20	3.20	160	180	200	125	165	4	6	105
H38	0.30	0.32	180	200			185	1		110
	0.32	0.63	180	200			185	2		110
	0.63	1.20	180	200			185	3		110
	1.20	3.20	180	200			185	4	5	110

Note: H2-temper designations indicate that a different process has been used to achieve mechanical characteristics similar to those of the corresponding H1-tempers. However, property limits of H2-tempers differ from the above in that the Maximum Tensile Strength and Minimum Yield Strength provisions do not apply. Where required, material supplied in H2-tempers can be produced to meet the mechanical property limits of the equivalent H1-tempers. An H3-temper designation indicates that the metal is given a stabilising anneal. This is available when required, but is not normally necessary.
Modulus of Elasticity: 69,000 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 t
H12	0 t	0 t	0 t	0.5 t
H14	0 t	0 t	0 t	1 t
H16	0.5 t	1 t	1 t	1.5 t
H18	1 t	1.5 t	2 t	2.5 t
H32	0 t	0 t	0 t	0.5 t
H34	0 t	0 t	0 t	1 t
H36	0.5 t	1 t	1 t	1.5 t
H38	1 t	1.5 t	2 t	2.5 t

t = Thickness
Welding: 5005 is readily welded by the TIG and MIG processes. The commonly used filler alloys are 4043 and 5654. Welding 5005 in the H12, H14, H16, H18, H32, H34, H36 or H38 will reduce the tensile and yield strengths in the heat affected zone to those of the annealed condition.
5005 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: 2.70 x thickness in mm.