GUIDE TO SELECTION

ALUMINUM COIL/SHEET/PLATE

NON-HEAT TREATABLE (COMMON) ALLOYS

1100 (UNS A91100) is commercially pure aluminum (99.00% minimum). Excellent corrosion resistance, workability and weldability; high thermal conductivity. Tensile strength range 14 to 24 KSI. Uses include deep drawing, spinning, sheet metal work, decorative and architectural applications, air ducts, name plates, fan blades, etc. Conforms to AMS QQ-A-250/1 and ASTM B209.

3003 (UNS A93003) is alloyed with 1.2% manganese to provide a tensile strength range of 17 to 30 KSI. Excellent workability, weldability, and corrosion resistance. Used for drawing, spinning, fuel tanks, sheet metal work and other applications where slightly higher strength than 1100 is required. Conforms to AMS QQ-A-250/2 and ASTM B209.

5005 (UNS A95005) is alloyed with .8% magnesium. Tensile strength range 18 to 30 KSI. Excellent workability, weldability, and corrosion resistance. Specified for applications comparable to 1100 and 3003 — where anodizing is required. Anodized finish matches that of architectural alloy 6063. Conforms to Federal specification ASTM B209.

5052 (UNS A95052) is alloyed with 2.5% magnesium. Tensile strength range 31 to 44 KSI. Very good corrosion resistance, good workability, weldability and strength. Used for aircraft fuel tanks, storm shutters, refrigerator liners, utensils, electronic mounting plates and panels, fan blades, etc. Conforms to AMS QQ-A-250/8 and ASTM B209.

5083 (UNS A95083) is alloyed with 4.45% magnesium, 0.65% manganese and 0.15% chromium. Tensile strength range: 40 to 59 KSI. For use in structures requiring high weld efficiency for maximum joint strength — plus light weight and corrosion resistance. Applications: marine components, truck bodies, construction equipment, tanks, structural towers, drilling rigs, cryogenic applications, etc. Conforms to ASTM B209 and AMS QQ-A-250/6.

5086 (UNS A95086) is alloyed with 4.0% magnesium, .45% manganese and 0.15% chromium. This alloy has a typical tensile strength range of 40 to 54 KSI. It offers resistance to stress corrosion and superior resistance to atmospheric corrosion plus good general workability. Applications include tanks (stationary, trailer and rail-car), marine components and welded assemblies of all kinds. Conforms to AMS QQ-A-250/7 and ASTM B209.

5454 (UNS A95454) is alloyed with 2.7% magnesium, 0.8% manganese and 0.12% chromium. Tensile strength range 36 to 47 KSI. Good formability, weldability and corrosion resistance. Uses include pressure vessels (ASME code approved for up to 400° F.), tanks dumptruck bodies, welded structures, etc. Conforms to AMS QQ-A-250/10 and ASTM B209.

HEAT TREATABLE (STRONG) ALLOYS

2024 (UNS A92024) is alloyed with 4.5% copper. Tensile strength range 30 to 63 KSI. Fair workability and corrosion resistance. Forming operations are limited. Used for high strength structural and aircraft applications. Also available as Alclad for improved corrosion resistance. 2024 conforms to AMS QQ-A-250/4 and ASTM B209.

6061 (UNS A96061) is alloyed with 1.0% magnesium and .6% silicon. Tensile strength range 20 to 42 KSI. Good formability, weldability and corrosion resistance. Used for engineering and structural applications, boats, furniture, transportation equipment, etc. Conforms to AMS QQ-A-250/11 and ASTM B209.

7050 is alloyed with zinc (5.7-6.7%), copper (2.0-2.6%) and magnesium (1.9-2.6%) to offer superior strength, stress corrosion resistance and toughness. Stocked in T7451, a temper intermediate to T3 and T76. Used in aricraft and missile applications. Conforms to AMS 4050, MMS 1420, BAC 5439 Class A, BMS 7-323 and MIL-STD 2154.

7075 (UNS A97075) and *Alclad 7075* are heavily alloyed with zinc with lesser amounts of magnesium, copper and chromium. One of the strongest of the aluminum alloys, its use parallels that of 2024 with 7075 selected when higher mechanical properties are desired. Forming operations are limited. Also available as Alclad for improved corrosion resistance. All 7075 flat products conform to ASTM B209; 7075 Bare conforms to AMS QQ-A-250/12, Alclad 7075, AMS QQ-A-250/13.

QC-7 This high-strength aluminum alloy is fully heat treated and stress relieved. It has outstanding thermal conductivity along with high strength and surface hardness and as such it is suitable for polishing and texturing. Used in production injection molds, blow molds, structural foam molds, RIM molds and aluminum die sets, it is weldable and highly machinable. Conforms to ANSI H35.2.

CAST ALUMINUM PLATE

M-1 An extraordinarily dense, dimensionally stable high strength aluminum plate designed especially for the high temp plastic molding industry. 100% ultrasonically inspected to insure a porosity-free condition. Superior machinability and high Brinell hardness without heat treatment make M-1 a cost saving alternative in a variety of mold applications. Conforms to ANSI H35.2.

WEIGHT CONVERSION FACTORS

Once you know the weight of a particular size of sheet or plate in a given alloy, it is easy to determine the appropriate weight for alternative alloys by using these conversion factors.

	1100 5005 6061	3003	5052 5454	5083 5086 5456	2014 Alclad 2014	2024 Alclad 2024	7005 Alclad 7075
Conversion Factor:	1.00 (.098)	1.01 (.099)	0.98 (.097)	0.979 (.096)	1.03 (.101)	1.02 (.100)	1.03 (.101)

Note: Densities in lbs./cubic inch are indicated in parentheses.