

Technical Information

Aluminium Grades

Grade	Description
1050	Is a moderate strength alloy known for its excellent corrosion resistance, high ductility and highly reflective finish. Common applications are lamp reflectors, architectural flashings, and chemical plant equipment
1100	Is a low strength commercially pure alloy with excellent corrosion resistance and workability. It can be welded, brazed & soldered. Common applications are spinning, reflectors, and general sheetmetal work
1200	Is a moderate strength commercially pure alloy with high corrosion resistance and thermal conductivity. Common applications are processing equipment, kitchenware, and general sheetmetal work
5005	A moderate strength alloy with very good resistance to atmospheric corrosion, with good weldability and anodising properties. Common applications are can-bodies, furniture, roofing, cladding, signage, and anodised parts
5052	Is a medium to high strength alloy that has very good corrosion resistance to marine & industrial atmosphere, very good weldability and cold formability. Common applications are boats, trucks, boilers, and road signs
5083	Is the highest strength of the non heat treatable alloys with exceptional performance in extreme environments. It is highly resistant to attack from seawater and industrial chemical environments. Retains exceptional strength after welding. Common applications are boats, trucks, vehicles, and trains
6005	Is a medium strength alloy with excellent corrosion resistance. Common applications are formwork, tubing, furniture, ladders and pylons
6060	Is a medium strength alloy with very good corrosion resistance, weldability and anodising properties. Used for complex profiles. Common applications are architectural windows & doors, geometric shapes, interior fittings, and furniture
6061	Is a medium to high strength alloy with very good corrosion resistance and weldability. Not suitable for complex profiles. Common application are trucks, boats, bridges, aerospace, and pylons
6063	Is a medium strength alloy with good surface finish, high corrosion resistance and weldability. Commonly referred to as the architectural alloy. Used for intricate profiles. Common application are architectural windows & doors, shop fittings, balustrades, and geometric shapes
6082	Is the highest strength of 6000 alloys. The surface finish is not as good as 6060 or 6063 but has excellent corrosion resistance and weldability. Common applications are bridges, cranes, marine, and transport
6351	Is a high strength alloy with excellent corrosion resistance and weldability. Common applications are structural members, marine, road & transport

Technical Information

Extrusion & Rolled Tempers

Temper	Description
O	Fully Annealed, Soft

Extrusion Tempers

Temper	Description
T3	Solution heat treated, cold worked and then naturally aged
T4	Solution heat treated and then naturally aged
T5	Cooled from elevated temperature and then artificially aged
T6	Solution heat treated and then artificially aged
T651	Solution heat treated, stress relieved by stretching and then artificially aged
T7	Solution heat treated then stabilised
T8	Solution heat treated, cold works and then artificially aged

Rolled Tempers

Temper	Description
H111	Work hardened by shaping process but less than the amount required for H11
H112	Has some tempering from shaping but no control over amount of strain hardening or thermal treatment
H12	Work hardened to quarter hard
H14	Work hardened to half hard
H24	Work hardened and then partially annealed to half hard
H32	Work hardened and then stabilised by low-temperature heat treatment to quarter hard
H321	Strain hardened less than the required for a controlled H32 temper
H116	Special corrosion resistant temper
H34	Work hardened and then stabilised to half hard

While care has been taken to supply this information, it is intended to provide a general guideline only. It should not be your only source and we recommend you seek technical advice for the suitability of your intended use.

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Bend Radii for 90 Degree Cold Forming of Sheet & Plate

Alloy	Temper	0.4 (mm)	0.8 (mm)	1.6 (mm)	3.0 (mm)	4.0 (mm)	6.0 (mm)	10.0 (mm)	12.0 (mm)
1200	H12	0	0	0	0.5	1	1	1.5	2
	H14	0	0	0	1	1	1.5	2	2.5
3003	O	0	0	0	0	0.5	1	1	1.5
5005	H32	0.5	1	1	1.5				
	H34	1	1.5	2	3				
5052	H32	0	0	0	0.5	1	1	1.5	1.5
5083	H321		2	2	2.25	2.25	2.5	3	3.25
	H116		2	2	3	3.5	4		
5251	H32	0	0	1	1.5	1.5	1.5	1.5	2
	H34	0	1	1.5	2	2	2.5	2.5	3
6061	T6	1	1	1.5	2.5	3	4	4.5	5

The radii listed are the recommended minimum for bending sheets and plates without fracturing in a standard press break. It is recommended that a test bend is carried out prior to commencing fabrication. This information supplied is for guide purposes only, specifics should be done in consultation with an engineer.

Tolerance

Unless otherwise specified the AS/NZS1866 and AS/NZS1734 industry standard's on tolerances apply. Special tolerances may be able to be specified in discussion with the mill.

Definition

The production of any manufactured product has limits of accuracy which are taken into consideration in the design and production process. It is expected that products are manufactured within acceptable deviation limits. These are what are known as tolerances and are generally expressed in a plus or minus fraction. For example the acceptable manufactured deviation of $1.5\text{mm} \pm 0.12\text{mm}$ is 1.38mm or 1.62mm.

Tolerances will differ between products, this is affected by shape, thickness, length, grade, temper and whether it is extruded or rolled.

Technical Information

Storing Aluminium

If storing aluminium for long periods of time it should be stored vertically indoors in a clean, dry, dust free environment with good air circulation.

Handling

To avoid surface damage, care is required when handling aluminium. Lengths of raw material should be interleaved with plastic, cell air or paper to avoid rub marks. Sheet and long or heavy extrusions should be lifted with a minimum of two people. Do not drag or scrape aluminium against other hard or sharp surfaces.

Water Staining

Is generally a white powdery substance on the surface of the aluminium caused by the entrapment of moisture between the surfaces of closely packed aluminium. High magnesium alloys are more susceptible to water staining however, it is only aesthetic and does not alter the mechanical properties of the metal.

If material is delivered wet it should be wiped down and then allowed to dry thoroughly before storing.

The extent of the stains can be determined by the roughness of the surface. Light staining will be smooth and can be removed by brushing, extensive stains will have a rough surface and will require chemical removal.

Cleaning Methods

Listed below are several cleaning methods for raw aluminum in ascending order of harshness

- Water
- Soap or detergent
- Kerosene, turpentine or white spirits
- Non-etching chemical cleaner
- Wax-based polish
- Abrasive wax
- Abrasive cleaner

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