Alloy Specification Sheet – 5251

Alloy 5251 is a medium strength alloy

Possessing good ductility and therefore

Good formability. It also possesses high

Corrosion resistance, particularly in marine environments.

Element	% Present
Silicon	0.4
Iron	0.5
Copper	0.15
Manganese	0.1 to 0.5
Magnesium	1.7 to 2.4
Zinc	0.15
Titanium	0.15
Chromium	0.15
Aluminium	Balance

Alloy 5251 is known for work hardening rapidly and is readily weldable.

Mechanical Property	H22	H24	H26	O
Proof Stress 0.2% (Mpa)	165	190	215	80
Tensile Strength (Mpa)	210	230	255	180
Shear Strength (Mpa)	125	135	145	115
Elongation A5 (%)	14	13	9	26
Hardness Vickers (HV)	65	70	75	46

Physical Property	Value
Density	2.69 g/cm3
Melting Point	625°C
Modulus of Elasticity	70 GPa
Electrical Resistivity	0.044 x 10 $^{-6}$ Ωm
Thermal Conductivity	134 W/mK
Thermal Expansion	25 x 10 $^{-6}$ / K

Fabrication Process	Rating
Workability – Cold	Very Good
Machinability	Average
Weldability – Gas	Very Good
Weldability –Arc	Very Good
Weldability –Resistance	Very Good
Brazability	Poor
Solderability	-

Alloy 5251 is most commonly supplied in sheet and plate form with H22, H24, H26 and 0 condition tempers.

Applications:-

- Boats
- Panelling and Pressings
- Containers
- Marine Structures
- Vehicle Panels