



Aluminium Alloy 5251 H22

Material Data Sheet

Scope

Aluminium alloy 5251 is a medium strength alloy with good ductility and good formability. Alloy 5251 is known for work hardening rapidly and is readily weldable. It has a high corrosion resistance particularly in marine environments.

Application

This material is used for containers, durniture tubing, marine structures, boats, panelling and pressings, aircraft parts, silos and vehicle panels.

Supplied Forms

- Sheet
- Plate

Alloy Designations

Aluminium alloy 1050 also corresponds to: Al Mg2 and Al 2.0 Mg 0.3 Mn.

Temper Types

The most common tempers for 5251 aluminium are: H24 - Work hardened by rolling then annealed to half hard, H26 - Work hardened by rolling then annealed to three quarter hard, H22 - Work hardened by rolling then annealed to quarter hard and O - Soft.

Fabrication

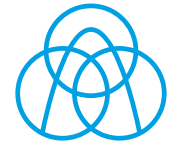
- Weldability - Gas: Very Good
- Weldability - Arc: Very Good
- Weldability - Resistance: Very Good
- Brazability: Poor
- Workability - Cold: Very Good
- Machinability: Average

Welding

Aluminium alloy 5251 is a readily weldable alloy. The recommended filler wire is 5356 when welding alloy 5251 to itself, 6XXX series alloys, 7XXX series alloys and most other 5XXX series alloys. When welding alloy 5251 to 5005, 5020, 1XXX series or 3XXX series alloys, the recommended filler wire is 4043.

Chemical Composition

Element	% Present
Manganese (Mn)	0.10 - 0.50
Iron (Fe)	0.50 Typical
Copper (Cu)	0.15 Typical
Magnesium (Mg)	1.70 - 2.40
Silicon (Si)	0.40 Typical
Zinc (Zn)	0.15 Typical
Chromium (Cr)	0.15 Typical
Titanium (Ti)	0.15 Typical
Aluminium (Al)	Balance



Mechanical properties at room temperature

Property	Value
Proof Strength	165 MPa
Tensile Strength	210 MPa
Elongation	14 %
Shear Strength	125 MPa
Hardness Vickers	65 HV

Properties above are for material in the H22 condition

Reference data for some physical properties (for guidance only)

Property	Value
Density	2.69 Kg/m ³
Melting Point	625 °C
Thermal Expansion	25 x 10 ⁻⁶ /K
Modulus of Elasticity	70 GPa
Thermal Conductivity	134 W/m.K
Electrical Resistivity	0.044 x 10 ⁻⁶ Ω .m

Editor

thyssenkrupp Materials (UK) Ltd
Cox's Lane
Cradley Heath
West Midlands
B64 5QU

Important Note

Information given in this data sheet about the condition or usability of materials respectively products are no warranty for their properties, but act as a description.

The information, we give on for advice, comply to the experiences of the manufacturer as well as our own. We cannot give warranty for the results of processing and application of the products.