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BRIEF DESCRIPTION

The Alumold® 400 alloy has been optimised to provide good shape stability and high strength properties throughout the plate thickness.

Typical applications include blow moulds, thermoforming moulds and injection moulds for small series.

PROCESSING METHODS

Weldability

- TIG/MIG welding well adapted*
- repair welding TIG/MIG well adapted* filler alloys: AA 5180, AA 4145
- * A drop of strength in the proximity of the weld shall be taken into account. The corrosion resistance of the heat affected zone is reduced.

Surface treatments

Anodizing	
 technical / hard 	excellent
 decorative 	not suited
Polishing	good
Hard chrome plating	well adapted
Chemical nickel plating	well adapted
Chemical texturing	well adapted

Machinability

excellent*

* Plates in Alumold[®] 400 are supplied in stress relieved condition, either by stretching or by compression. No further thermal treatment is recommended.

AVAILABILITY

Alumold[®] 400 rolled plates are available in tempers T651 or T652 in following dimensions :

Thickness	Width	
(over to)	T651	T652
25 - 152.4 mm 152.4 - 203.2 mm 203.2 - 305 mm	1500 mm 1020 mm	1500 mm 1450 mm

(other dimensions on request)

Technical Datasheet

ALUMOLD[®] 400 rolled

Reference specification: IS 5626

Edition February 2012

CHEMICAL COMPOSITION

Alumold[®] 400 is based on an alloy of the 7000 series.

PHYSICAL PROPERTIES (nominal values)

Density	2.79 g/cm ³
Elastic modulus, tensile	72000 MPa
Elastic modulus, compression	73000 MPa
Poisson's coefficient	0.33
Lin. thermal expansion coefficient (20°-100°C)	23.5 10 ⁻⁶ K ⁻¹
Thermal conductivity (20°C)	122 W/m⋅K
Specific heat (20°C)	960 J/kg⋅K
Thermal diffusivity	45.5•10 ⁻⁶ m ² /s

MECHANICAL STRENGTH

Min. tensile properties (Tempers T651 / T652, at 1/4-thickness)

Thickness (over to)	Rm [MPa]	Rp0.2 [MPa]	A50 [%]
25 - 38.1 mm	440	390	9
38.1 - 76.2 mm	415	370	8
76.2 - 127 mm	415	370	7
127 - 152.4 mm	400	350	7
152.4 - 203.2 mm	395	340	6
203.2 - 254 mm	390	330	5
254 - 305 mm	sans val	eurs garant	ies

Typical strength for various thicknesses

Thickness (over to)	Rm [MPa]	Rp0.2 [MPa]	A50 [%]	Hardness HB*
25 - 38.1 mm	465	415	12	140
38.1 - 76.2 mm	440	395	11	130
76.2 - 127 mm	440	395	10	130
127 - 152.4 mm	430	380	10	130
152.4 - 203.2 mm	425	370	9	125
203.2 - 254 mm	420	360	9	125
254 - 305 mm	400	340	5	120

*only for information

TOLERANCES

Plate thickness (over to)	Temper	Thickness tolerance	Flatnes long.	s [mm/m] transv.
25 - 60 mm 60 - 80 mm 80 - 100 mm 100 - 203.2 mm 150 - 305 mm	T651 T651 T651 T651 T652	+ 1.8 / - 0 mm + 2.2 / - 0 mm + 3.0 / - 0 mm + 3.5 / - 0 mm + 6 / - 0 mm	0.2 0.2 0.2 0.2 0.2 0.4	0.2 0.2 0.2 0.2 0.2 0.2

Heating the alloy can result in loss of strength of properties or of capability for fabrication, assembly or application in a particular case. Whenever a new application of this alloy is contemplated, and if this application involves special properties such as corrosion resistance, toughness, fatigue strength, it is strongly recommended that the user should consult the producer in order to make a precise and appropriate selection of the material. The information in this publication does they again antee of properties or of capability for fabrication, assembly or application in a particular case. The appendix to technical datasheet is an integral part of this datasheet. The processing instructions presented in the appendix shall be taken into account by the user. Constellium reserves the right to modify this data sheet without prior warning. This edition replaces all previous editions.