Technical Datasheet

AA 5083

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BRIEF DESCRIPTION

Alloy 5083 is used for apparatus and machine parts which are subjected to moderate stress.

Examples include welded machines and assemblies, shipbuilding, pressure vessels and cryogenic apparatus.

PROCESSING METHODS

Weldability

- TIG/MIG — excellent
  Filler alloy — AA 5183, AA 5356
- by resistance — excellent

Anodizing

- technical — excellent
- decorative — moderate

Machinability — good

Corrosion Behaviour

- excellent in inland atmosphere
- excellent in marine atmosphere

AVAILABILITY

5083 sheets and plates are available in tempers H111 all thicknesses and for a limited thickness range also in tempers H12/22/32, H14/24/34, and H16/26/36.

Thickness	Max. width
0.04” – 0.12”	98”
0.121” – 0.47”	95”
0.12” – 4”	86”

For thicknesses above 4”, casted blocks in alloy 5083 are recommended.

CHEMICAL COMPOSITION (weight %)

Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti +Zr
max. 0.4	max. 0.4	max. 0.10	0.40 1.00	4.0 4.9	0.05 0.25	max. 0.25	max 0.15

PHYSICAL PROPERTIES (nominal values)

Density	0.096 Lbs./cu inch
Elastic Modulus	10300 KSI
Lin. thermal expansion coefficient (68°-212°F)	13.2/°F
Thermal conductivity (77°F)	810 English units
Electrical Conductivity (68°F)	29% (of IACS)

MECHANICAL STRENGTH

Min. tensile properties

Thickness (over ... to)	Tensile Rm [KSI]	Yield Rp0.2 [KSI]	A50 [%]
Tempers 0 / H111			
0.04” - 2”	40	18	15
2” - 3”	39	17	14
3” - 4”	38	16	12
Temper H12/22/32			
0.04’ - 1.57”	44	32	10
Temper H14/24/34			
0.04” - 1”	49	36	7
Temper H16/26/36			
0.04” – 0.157”	52	43	3

Heating the alloy can result in loss of strength and / or corrosion resistance. 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 not imply a guarantee of properties or of capability for fabrication, assembly or application in a particular case. Euralco reserves the right to modify this data sheet without prior warning. This edition march 2005 replaces all previous editions.