



ExELL 5083 Al is a premium quality aluminum alloy sold in a ready-to-use condition. Stock is available in either **CAST MOLD PLATE** or **PRECISION MACHINED CAST PLATE**. This highly engineered aluminum alloy requires no stress-relieving after machining.

PHYSICAL PROPERTIES

Density	0.096 lb/in ³
Coefficient of thermal expansion	13.4 $\mu\text{in/in}\cdot^{\circ}\text{F}$
Thermal conductivity (@ 68 °F)	69 Btu/ft·hr·°F
Electrical conductivity (@ 68 °F)	29% IACS
Modulus of elasticity	10,200 ksi

Benefits of using **ExELL 5083 Al** Cast Plate include:

- ◆ High Strength
- ◆ Pre-homogenized and stress relieved
- ◆ Dimensionally stable throughout
- ◆ Extremely low porosity
- ◆ Low weight-to-volume (density)
- ◆ Lower cost than rolled plate

TYPICAL ANALYSIS

Si	0.25	Mg	4.70
Mn	0.50	Other	1.00
Cr	0.08	Al	Balance



CAST MOLD PLATE

ExELL 5083 Al is manufactured to strict process parameters that assure consistent properties and characteristics, such as:

- ◆ ExcELLEnt machinability
- ◆ ExcELLEnt weldability
- ◆ ExcELLEnt corrosion resistance
- ◆ Good etching properties
- ◆ Good hard anodizing properties

ExELL 5083 Al Cast Mold Plate is used in a wide range of applications including:

- ◆ Plastic injection molds
- ◆ Molds for composite materials
- ◆ Forming and low pressure blow molds
- ◆ Vacuum form molds
- ◆ Deep drawing molds
- ◆ R.I.M. and R.T.M. molds
- ◆ Rubber molds

TYPICAL MECHANICAL PROPERTIES

- | | |
|----------------------------------|------------|
| ◆ Ultimate Tensile Strength | 36 ksi Max |
| ◆ Yield Strength | 16 ksi Max |
| ◆ Elongation (thickness depend.) | 10 – 16 % |
| ◆ Hardness | 70 HB |

ExELL 5083 Al is manufactured to rigorous standards of special tooling quality for optimum service performance. From primary smelting to casting and through final product testing, the finished product is a material with excellent cleanliness, structure uniformity and consistent mechanical properties. Some specifics of manufacturing include:

- ◆ Very precise chemistry control
- ◆ Tight casting process parameters
- ◆ Close tolerance sawing of 6-sides
- ◆ Complete testing and quality assurance



CAST MOLD PLATE

ExELL 5083 Cast Mold Plate is available from stock in the following sizes and tolerances:

Thicknesses: from 4 to 41 inches
 Widths: vary by thickness with a maximum of 100 inches
 Lengths: can be custom cut from 158 inch maximum lengths

Thickness tolerance: Sizes <5 ½ inches: +0.125 inch || <24 inches: +0.200 inch || >24 inch: +0.400 inch
 Tolerance-width: Sizes <5 ½ inches: +0.125 inch || <24 inches: +0.200 inch || >24 inch: +0.400 inch
 Tolerance-length: Sizes <5 ½ inches: +0.125 inch || <24 inches: +0.200 inch || >24 inch: +0.400 inch

PRECISION MACHINED CAST PLATE

ExELL 5083 AI is manufactured to strict process parameters to assure consistent properties and characteristics, such as:

- ExcELLent machinability
- ExcELLent weldability
- ExcELLent corrosion resistance
- Good etching properties
- Good hard anodizing properties

ExELL 5083 AI Precision Machined Cast Plate is used in a wide range of applications including:

- Jigs and fixtures
- Gages, indexing tables and modeling boards
- Mounting and base plates
- Pattern plates
- Where close tolerances and dimensional stability is required



PRECISION MACHINED CAST PLATE

TYPICAL MECHANICAL PROPERTIES

- ◆ Ultimate Tensile Strength 40 ksi Max
- ◆ Yield Strength 19 ksi Max
- ◆ Elongation 15 %
- ◆ Hardness 75 HB

ExELL 5083 Precision Machined Cast Plate is available from stock in the following sizes and tolerances:

Thicknesses: from 0.250 – 4.000 inches by 1/8 inch increments
Widths: vary by thickness with a maximum of 80 inches
Lengths: can be custom cut from 144 inch maximum lengths

Thickness tolerance: +0.004 inches
Roughness (Ra): 0.016 μ inches
Sawing tolerance: +0.012 inches
Flatness tolerance: Sizes <0.25 in thick: 0.030 in|| <0.50 in thick: 0.016 in|| >0.50 in thick: 0.005 in

This information is intended to provide general data on our products and their uses and is based on our knowledge at the time of publication. No information should be construed as a guarantee of specific properties of the products described or suitability for a particular application. Ellwood Specialty Steel reserves the right to make changes in practices which may render some information outdated or obsolete. Ellwood Specialty Steel should be consulted for current information and/or capabilities.



ELLWOOD SPECIALTY STEEL
499 Honeybee Lane
New Castle, PA 16105
800-932-2188
724-654-9550 Fax
Email: esssales@elwd.com
www.ess.elwd.com



ELLWOOD SPECIALTY METALS
3282 St. Etienne Boulevard
Windsor, Ontario N8W 5E1
877-978-2772
519-944-4491 Fax
Email: esmsales@elwd.com
www.esm.elwd.com