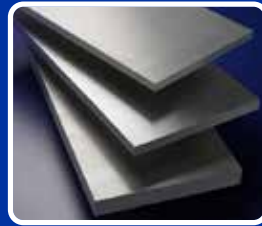


# Aluminum Plate Guide



**The Complete Source for all Your  
Aluminum Plate Requirements**



**Alro Steel**  
**Metals & Plastics**

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**America's Premier Metals & Plastics Service Center**

# Cast Aluminum Tooling Plate

## MIC6®

This continuously cast and thermally stabilized 7XXX series alloy exhibits excellent flatness, dimensional stability and very low internal stress, making high speed machining possible with little or no distortion. MIC6® is finished to a typical 20 micro-inch surface finish on both sides eliminating costly additional surface machining. This alloy is suited for low-strength tooling and mold applications such as vacuum form molds.

**Alro stocking range: 1/4" thick up to 4" thick**



## Alca 5®

These 5XXX series plate alloys offer consistent mechanical and dimensional characteristics as well as superior anodizing, excellent weldability and improved corrosion resistance. Offered with PVC masking, these products have outstanding performance characteristics such as excellent flatness tolerances, superior corrosion resistance and extraordinary surface finish. Alca 5® plate alloys are fantastic products for the jig and fixture industry.

**Alro stocking range: 1/4" thick up to 4-1/2" thick**

# Rolled & Extruded Plate

## 6061-T651

One of the most versatile of the heat treatable aluminum alloys. It offers good mechanical properties and corrosion resistance. It can be fabricated and welded by many of the commonly used techniques. This alloy is primarily used in general tooling applications, but is also suited for low pressure applications including prototype injection molds, compression molds, RIM molds, structural foam molds and large blow molds.

**Alro stocking range: 1/4" thick up to 14" thick**

## 2024-T351

This general purpose, high strength, heat treatable alloy has good overall machinability and can be used in many molding applications including blow molding and structural foam molding. 2024 has characteristics that lends itself well to general tooling plate applications.

**Alro stocking range: 1/4" thick up to 6" thick**

## 7050-T7451

One of the hardest, toughest, and durable aluminum alloys available. It offers superior through-hardened thickness, especially in thicker sections, as well as high stress corrosion cracking resistance. Primarily designed for aerospace applications, this alloy also finds uses in the military and mobile equipment markets, among others.

**Alro stocking range: 1" thick up to 6" thick**

## 7075-T651

This general purpose alloy exhibits high strength with fair corrosion resistance and machinability. This alloy is ideally suited for high stressed aircraft parts, production injection molds, blow molds, structural foam molds, RIM molds and aluminum die sets.

**Alro stocking range: 1/4" thick up to 9" thick**

## 6061-T6511 (Extruded)

Alro offers the highest-quality extruded wide bar in the industry. This product offers the minimum mechanical properties of higher priced 6061-T651 rolled plate, tight thickness tolerances (all on the plus side of nominal) and the best flatness of any extruded bar, all at an exceptional value. Proven in high-speed production environments, this innovative product reduces machine setup time and extends tool life with fewer rejects and less waste. All this, combined with ready availability and a wide range of sizes, makes extruded aluminum plate an ideal alternative to rolled plate.

**Alro stocking range: 1/4" thick up to 8" thick by widths up to 16" wide**

# Aluminum Mold Plate



## Max 5®

These 5XXX series mold plates are a modified 5083 alloy that provides strength, good anodizing response, weldability and machinability. These products are also produced using the direct chill process that helps insure dimensional stability and consistent through hardness. Max 5® is an excellent plate offering for the prototype mold industry because of its improved strength to weight ratio and will function in many mold applications such as injection molds and blow molds.

**Alro stocking range 5XXX series: 3" up to 20" thick; >20" thick inquiry only**

## Alumold® 500

Alumold® 500 is a high strength aluminum mold plate product that offers exceptional thermal conductivity for an aluminum alloy, which can improve cycle times and molding efficiencies when compared to typical mold steels such as P-20. Alumold® 500 accepts a wide range of surface treatments which can improve resistance to abrasion and mechanical stress. This 7XXX series alloy is ideally suited for blow molds, injection molds, aluminum die sets as well as other high pressure mold applications. Alumold® 500 can be considered a good alternative to P-20 in certain mold applications, offering advantages in weight reduction, dimensional stability and reduced operating costs. This versatile aluminum is available in rolled and forged thicknesses.

**Alro stocking range Alumold® 500: 1" to 10" thick, rolled and stress relieved  
10" to 20" thick, forged and stress relieved  
> 20" thick, by inquiry only**

## Mechanical Properties

	Material Producer	Alloy Series	Mill Process	Stock Thickness Range	Yield Strength (ksi)	Typical Hardness (Brinell)	Thermal Conductivity (btu/ft/hr/ft²/°F)
<b>Cast Tooling Plate</b>							
MIC6®	Alcoa	7XXX	Cast	1/4" - 4"	15	65	82
Alca 5®	PCP	5XXX	Cast	1/4" - 4-1/2"	18	70	69
<b>Rolled &amp; Extruded Plate</b>							
6061-T651	Multiple	6XXX	Rolled	1/4" - 14"	40-42	95	96
2024-T351	Multiple	2XXX	Rolled	1/4" - 6"	47-48	120	70
7050-T7451	Multiple	7XXX	Rolled	1" - 6"	64	---	90
7075-T651	Multiple	7XXX	Rolled	1/4" - 9"	70-79	150	75
6061-T6511	Multiple	6XXX	Extruded	1/4" - 3-1/2"	35	95	96
<b>Mold Plate</b>							
Max 5®	PCP	5XXX	Cast	3" - 20"	18	70	69
Alumold® 500	Constellium	7XXX	Rolled/Forged	1" - 20"	60-78	165-185	88

*Note: The information provided above is for reference only and should only be used as such. The findings listed above are supplied in good faith and do not come with any guarantee or warranty from Alro or the manufacturers.*



Laser cutting available for plate up to 3/8" thick. Plasma cutting plate from >1/2" thick up to 1" thick.



Waterjet processing offers an alternative to traditional aluminum plate processing.



Precision sawing of aluminum mold plate up to 30" thick.



# Alro Locations



● **Metals**   ● **Plastics**   ● **Outlet Stores**

Alro Steel was founded in 1948 by brothers Al and Robert Glick in Jackson, Michigan. The company is a distributor of metals and plastics. Alro is focused on offering cut-to-size metals and plastics with next day delivery to over 50,000 customers in North America. Alro operates over 80 locations in 16 states and provides a broad inventory of products under the following companies: Alro Steel, Alro Metals, Alro Metals Outlet, and Alro Plastics. Focused on exceeding our customers' expectations, we build relationships with all our customers, large and small. [To learn more, please visit alro.com.](http://alro.com)

## Over 80 Locations in 16 States!

Florida	Michigan	Pennsylvania
Illinois	Missouri	Tennessee
Indiana	New York	Virginia
Iowa	North Carolina	Wisconsin
Kentucky	Ohio	
Maryland	Oklahoma	



Pictured, the Alro Steel facility in Pottsville, Michigan



Metals	Bar	Pipe & Tube	Plate & Sheet	Structural	Grating & Exp. Metal
Alloy	●	●	●		
Aluminum	●	●	●	●	●
Brass	●		●		
Bronze	●	●			
Carbon Steel	●	●	●	●	●
Cast Iron	●	●			
Copper	●	●	●		
Stainless Steel	●	●	●	●	●
Tool Steel	●		●		

## e-Business Solutions

- Alro Online Store ([MyAlro.com](http://MyAlro.com))
- Customized Summary Billing
- Tool Management Solutions
- B2B Transactions

Ask your Alro Representative for details!



# Alro Steel

## Metals & Plastics

Since 1948

