

Comparison Chart

Aluminum Tooling Plate

North American Producers

	Vista Metals	<u>Alpase</u>	<u>Alcoa</u>	<u>PCP</u>
Product Name:	ATP-5	<u>K100-S</u>	Mic-6	Alca 5
Gauge Range	1/4" – 4"	1/4" – 4"	1/4" – 4"	1/4" – 4"
Aluminum Alloy	5083 Modified	5083 Modified	7000 Series	5083 Modified
Std. Widths	48.5", 60.5" & 72.5"	38.25", 48.5" & 60.5"	48.5" & 60.5"	48.5, 60.5, 72.5, 96.5
Standard Lengths	96.5", 120.5", 144.5"	96.5" & 144.5"	96.5", 120.5", 144.5"	96.5 & 144.5"
Surface Condition	Precision Milled	Precision Milled	Precision Milled	Precision Milled
Surface Finish	20 RMS or Better	20 RMS or Better	20 RMS or Better	20 RMS of Better
Thickness Tolerance	+/005"(All Gauges)	+/005"(All Gauges)	+/005"(All Gauges)	+/005"(All Gauges)
Flatness Deviation	1/4" - 1/2" Within .015"	1/4" - 1/2" Within .015"	1/4" - 5/8" Within .015"	1/4" - 1/2" Within .015"
Flatness Deviation	5/8" & Up Within .005"	5/8" & Up Within .010"	3/4" & Up Within .005"	5/8" & Up Within .005"
Typical Yield	18 ksi	18 ksi	15 ksi	18 ksi
Typical Tensile	41 ksi	41 ksi	24 ksi	41 ksi
Elongation in 2"	12 – 15%	12 – 15%	3%	15%

[❖] Additional Engineering Data And Important Comparison Information To Consider On Page 2

<u>Product Name</u>	ATP-5	<u>K100-S</u>	Mic-6	Alca 5
Density	.096 lb. / in. ³	.096 lb. / in. ³	.101 lb. / in. ³	.096 lb. / in. ³
Brinell Hardness	70	60 – 70	65	70
Corrosion Resistance	Excellent	Excellent	Poor	Excellent
Thermal Conductivity	81 btu/ft²hr°F	81 btu/ft²hr°F	82 btu/ft²hr°F	69.3 btu/ft h.°F
CTE (68-212 °F) CTE (213-392 °F)	13.1 x 10 ⁻⁶ 13.4 x 10 ⁻⁶	13.2 x 10 ⁻⁶ Not Published	13.1 x 10 ⁻⁶ 13.6 x 10 ⁻⁶	13.2 x 10 ⁻⁶ Not Published
Modulus of Elasticity	10.1 ksi x 10 ³	10.3 ksi x 10 ³	10.3 ksi x 10 ³	10.3 x 10 ⁶ psi
Welding Characteristics	Excellent	Excellent	Poor	Very Good
Micro-Structure	Virtually Porosity Free	Virtually Porosity Free	Porous Micro Structure	Virtually Porosity Free
Anodizing	Very Good	Very Good	Special Procedures Req'd.	Very Good

When comparing Cast Aluminum Tooling Plate products: It is important to understand the different production methods used to produce the products. The billets used to produce the ATP-5 Aluminum Tooling Plate, K100-S and Alca 5 are all manufactured using a vertical DC casting process. The vertical DC process provides a billet that is virtually porosity free and its structure is guaranteed in vacuum and pressure applications including plastic molds, heating & cooling plates, low pressure manifolds, vacuum forming tools & many other applications where a solid structure would be required. The Alcoa Mic-6 product is produced using a horizontal casting process in which the structure can exhibit porosity which can show up as surface defects and this porous structure can also cause leaks in applications involving vacuum and pressure.

In addition to the casting process: The alloy composition of each product determines other attributes that can play a significant role in critical applications. The ATP-5 Aluminum Tooling Plate, K100-S & Alca 5 products are produced using a modified 5083 aluminum alloy. This alloy provides higher strength and elongation properties, high corrosion resistance, premium anodize response, premium painting qualities and superior welding characteristics. The Mic-6 produced using a 7000 series alloy that has lower properties, poor corrosion resistance, challenging anodizing and painting parameters along with poor welding characteristics.

Flatness tolerances: ATP-5 Aluminum Tooling Plate and Alca-5 are flat within .005" on gauges 5/8" thick and over. Mic-6 is only flat within .005" on gauges 3/4" and over. The Alpase K100-S is only flat within .010" on gauges 5/8" and over and Alpase K100-S is not offered in a flat within .005" plate product at all.

Most Importantly - Cost Savings: Due to the modified 5083 alloy composition, the ATP-5 Aluminum Tooling Plate has a 5% lower density than the Mic-6 product. This means that every piece of plate purchased is going to weigh 5% less. This should make the ATP-5 Aluminum Tooling Plate product an easy sell to your customers... it has the tolerances of Mic-6, higher strength and elongation properties, premium anodizing and painting qualities, superior welding characteristics, higher corrosion resistance, is guaranteed in vacuum and pressure applications and actually weighs 5% less than Mic-6.