

Info Sheet VaPore™

Vapore™ is Palmer Foundry's proprietary process of producing vacuum tight aluminum castings of exceptional quality. Thousands of our aluminum castings are in service worldwide for critical high vacuum applications with a spotless record of no field failures due to casting defects or vacuum leaks.

With 9 Torr pump down capabilities, Vapore™ castings are high performance, exceptional quality castings expertly finished by skilled craftsmen and high precision CNC machines.

Casting is often a better and less expensive process of producing parts than machined aluminum billets or stainless steel weldments — and VaPore™ produces the best of the best — due to the many ways we've invented to control casting variables. With VaPore™, you get:

- **Casting Design Assistance:** We ensure that the casting design is optimized for vacuum integrity and cost effectiveness.
- **Pattern Design:** Our extensive experience in this specialized field means all necessary tooling is designed and constructed for long life and efficient casting production.
- **VAPore™6:** Our specially developed aluminum alloy is optimized for vacuum tightness and highly managed porosity while maintaining excellent machining and polishing characteristics.
- **VAPore™ Metal Processing:** Our sophisticated metal processing and handling technology delivers high quality metal that is free of impurities.
- **High Quality Mold Production:** Exclusive molding and coremaking practices perfected over decades are an integral part of our VaPore™ process.
- **Complete Finishing:** VaPore™ castings are finished by highly skilled craftsmen. Heat treating, straightening, and gauging of critical dimensions are closely controlled to meet and exceed your quality standards.
- **Quality & Process Control:** Advanced serialization, sampling and our state-of-the-art inspection technology that digitizes the surface of the casting comprise our industry leading quality assurance system.
- **Machining & Final Finishing for Clean Room Assembly:** We can recommend several highly qualified machining partners who complement the VaPore™ aluminum casting process. This makes it easy to purchase complete components consisting of VaPore™ aluminum casting that have been machined, polished, helium leak tested, cleaned, and packaged for clean room assembly.



PALMERFOUNDRY™
Advanced Aluminum Technologies

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Material Specifications

Chemical Composition Limits

Element %	Max/Range
Silicon	6.50 -7.50
Iron	.20
Copper	.20
Manganese	.10
Magnesium	.25 - .45
Zinc	.10
Titanium	.20
Others, each	.05
Others, total	.15
Aluminum	Balance



Minimum Mechanical Properties (test bars)

Ultimate Strength (ksi)	Yield Strength (ksi, .2%)	% Elongation (in 2 inches)	Typical Brinell Hardness (500 kg load, 10 mm ball)
34	24	3.0	70-105

For more information about VaPore™, call us today at 413-283-2976 or visit us on the web at PalmerFoundry.com.



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