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PalmerFoundry.com

Stable-Cast[™]

Stable-Cast™ is Palmer Foundry's own proprietary series of heat treated aluminum casting alloys that provide dimensionally stable aluminum casting without sacrificing machining properties. With the Stable-Cast™ series, machining operations can be high speed and distortion free, without interrupting the machining process for intermediate stress relieving. Aluminum castings made with the Stable-Cast™ processes are very cost effective for high precision applications.

Instrument castings usually require superior dimensional stability and excellent machining properties combined with good soundness and cosmetic appearance. Machining characteristics and stability are primarily a function of casting alloy and associated heat treatment, while soundness and cosmetics are determined mainly by good casting design combined with high quality foundry practices and attention to detail.

Compared to the more widely known 356-T6 and 356-T51 alloys, the Stable-Cast[™] series of aluminum casting alloys from Palmer Foundry provide extraordinary stability without sacrificing machining properties. The table below summarizes the relative performance of these materials compared to the 356 series:

Table 1. Typical Alloy Characteristics		Note: Relative ratings (1=excellent, 2=good, 3=fair, 4=poor)		
	Stable-Cast™ 3	Stable-Cast™ 6	356-T6	356-T51
Ultimate Tensile	30,000	34,000	33,000	25,000
Yield Strength	26,000	24,000	24,000	17,000
% Elongation	1%	3.5%	3%	2%
Brinell Hardness	85	75	75	60
Machinability	1	1	2	4
Stability Rating	1	1	4	1
Material Cost	1	3	3	2
Castability	2	1	1	1

Table 1. Typical Alloy Characteristics

From Table 1 it is easily recognized that 356-T6 suffers from poor dimensional stability while 356-T51 has poor machining characteristics. These drawbacks limit design flexibility and performance while increasing costs. In comparison, Stable-Cast[™] 3 provides the best overall choice for most high precision casting applications. We recommend Stable-Cast[™] 3 for most instrument applications. If improved castability is essential due to the complexity of the configuration, then Stable-Cast[™] 6 is normally used. If the application requires the unique combination of high stability and ductility, then HyDuct5[™] is recommended.

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

