



## ***Tooling and Casting Options***

**A brief discussion about the decision process for Prototyping,  
Tooling, and Production of Metal Castings**

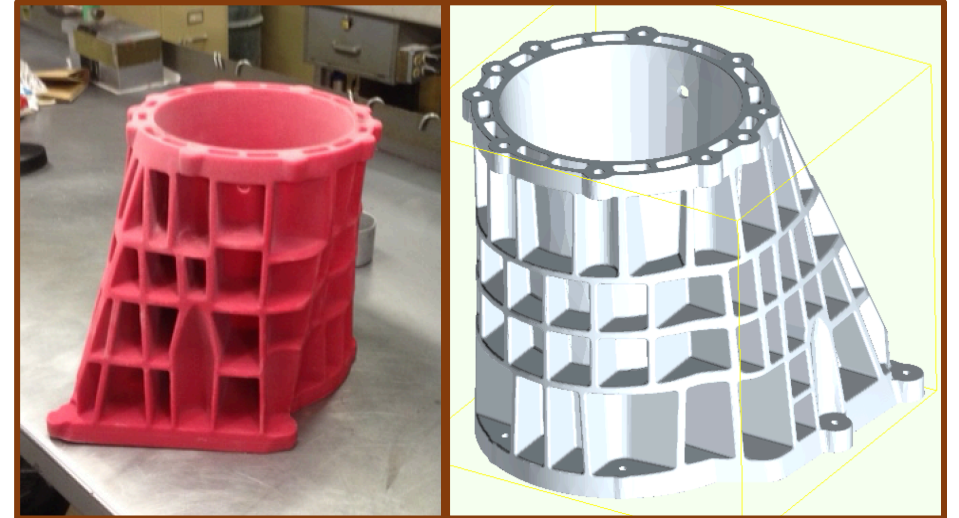
**Contact: AnchorTech, LLC  
16610 SE 34<sup>th</sup> Way  
Vancouver, WA 98683**

**Bob Grainger  
Office: 360 836 8217  
Mobile: 651 238 5949  
Email: [Bob@AnchorTechLLC.com](mailto:Bob@AnchorTechLLC.com)**



## What drives the choice of the casting process

- **Part Complexity**
- **Quantity of parts needed**
- **Material need (SS, Bronze, etc.)**
- **Metallurgical properties**
- **Timing**
- **Need for repeat quantities**



### **Rapid Prototype Transfer Case**

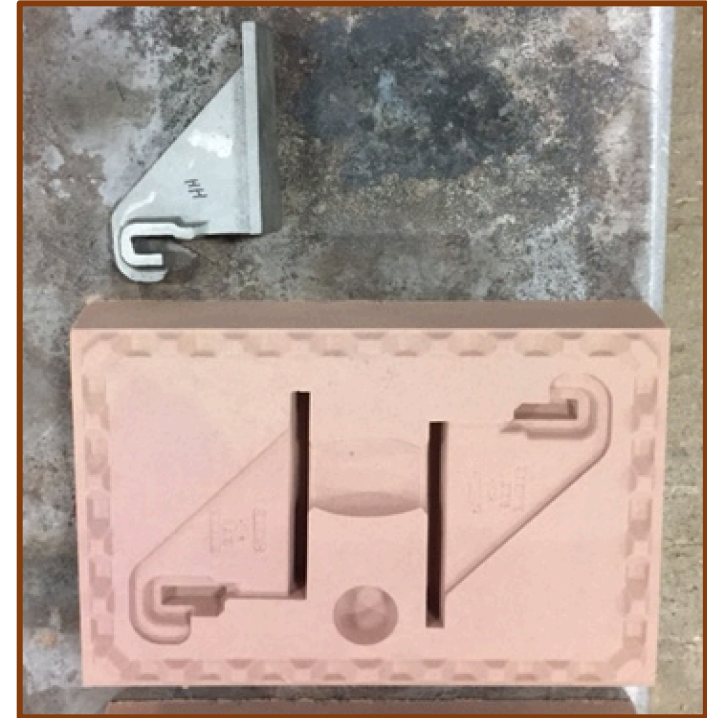
**Delivery: 2 Weeks**

**Cost: \$4,500**



# Process Options

- **Sand Cast (Green-Sand)**
- **Sand Cast (Chemically bonded)**
- **Loose-Molding**
- **Rapid Investment Cast**
- **Regular Investment Casting**
- **Die Cast**
- **Permanent Mold**
- **DMLS (Direct metal laser sinter)**



Typical Chem bonded sand mold with SS Casting it produces



# Material Options

- **Gray Iron**
- **Ductile Iron**
- **White Iron**
- **Steel (All grades)**
- **Stainless Steel (All Grades)**
- **Inconel Grades**
- **Aluminum**
- **Zinc**



Inconel 625 Casting



# Post Casting Processes Available

- **Machining**
- **Painting**
- **Powder coating**
- **Anodizing**
- **Assembly**



**Powder coated Hose Guide  
with Retainer & Lanyard**



# What information is needed to provide a quote and pick a process

- **Options:**
- **On old casting for Reverse engineering.**
- **Casting Drawing with Tolerances**
- **CAD Data file (STP format is best)**
- **Number of parts needed**
- **Post Process requirements**

- **Options:**
- **Prototype**
- **Investment Cast**
- **Match Plate**
- **Cope & Drag (top & bottom)**
- **Cores or no cores**
- **Loose Mold**



# Patterns: How long will it take?

- **From STP File**
- **Pattern complete**
- **1<sup>st</sup> Articles**
- **1<sup>st</sup> Article Approval**

- **1 Week or less for Quote**
- **1 to 4 Weeks**
- **1 to 2 weeks**
- **1 Week (Usually)**



# Production: How long will it take?

- **1<sup>st</sup> Article approval**
- **Production sampling**
- **Production parts**
- **Post Processing**
- **Delivery transit time**

- **A few days to 1 week**
- **1 week for First Articles**
- **1 to 4 weeks after F.A. Approval**
- **Depends on the requirement**
- **Domestic – 1 week or less**
- **Off shore: 4 to 7 weeks**





# Quality & Certifications

- **1<sup>st</sup> Article Inspection Report**
- **Metallurgical Certification if required.**

- **Completed by Source Inspector or the foundry.**
- **Submission of Metallurgical report form Spectrographic analysis.**



# Other Resources

- **Design & CAD:**
- **Rapid Prototyping:**
- **Pattern Making:**
- **Source Inspection in China:**
- **JS&A: Denver**
- **General Pattern, Minneapolis**
- **Springbrook Pattern, Wisconsin**
- **Newstart Industries, Beijing**



# Why AncorTech?

- **We manage the process from start to finish.**
- **Process Selection**
- **Vendor Selection**
- **Drafting of part and tooling review**
- **1<sup>st</sup> Article delivery and review**
- **Post Processing management: Machining, Decorating, Etc**
- **Delivery arrangement.**



# Contact Information

- Thanks for attending today.
- Please feel free to call at any time with any additional questions or for a review of an existing opportunity.
- Bob Grainger  
AnchorTech, LLC  
16610 SE 34th Way  
Vancouver, WA 98683.
- Bob's Phone: 651 238 5949  
Email: Ayecapnbob@aol.com  
Email: [Bob@AnchorTechLLC.com](mailto:Bob@AnchorTechLLC.com)  
[www@AnchorTechLLC.com](http://www.AnchorTechLLC.com)