



# Investment Casting Institute Casting Contest Entry Form

#109

Entry in the casting contest is open to only Institute regular members and universities. Return this form, along with supplementary information, photos and the original part to the address the bottom of the page.

- 1. Name of part Pump Housing Casting type text here
- 2. Size of part 11in x 8in x 7in
- 3. Part is used in (product) Aircraft Engine
- 4. Function(s) of the part Distribute fluids though the internal core passages of the casting.

Name: Jake Robben  
 Signature: Jacob Robben  
 Company: O'Fallon Casting  
 Address: 600 Cannonball Lane

City: O'Fallon  
 State/Country: MO  
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 Phone: 636-272-6176  
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 E-mail: jrobben@ofalloncasting.com

*Entry gives permission for information and photos to be published in INCAST or other publications. Photos or castings sent remain the property of the Institute.*

*NOTE: Casting contest participants are responsible for all shipping and associated tariffs and fees.*

- 5. Material used (composition of metal or alloy): C355-T6
- 6. Is the part currently in production?  
 Yes    No
- 7. Was the part ever made by another metalworking method?  
 Yes    No  
 If so, what method? \_\_\_\_\_
- 8. Are any secondary operations performed?  
 Yes    No  
 If yes, what kind? \_\_\_\_\_

On a separate sheet of paper, please include the following information if applicable.

- 9. How does your customer benefit from using this part i.e. replace an assembly of several parts, reduced cost by x%, improved product reliability, performance?
- 10. What makes this part unique?
- 11. State any special design requirements and/or process requirements.
- 12. For universities: Principles demonstrated by the entry.
- 13. For universities: Challenges faced by the students.
- 14. Please feel free to furnish additional information not covered in the above questions.

Return this cover sheet, supplemental information, photos and/or casting to:



**Investment Casting Institute**  
 1 Paragon Drive, Suite 110 Montvale, NJ 07645  
 Phone: 201-573-9770 Fax: 201-573-9771  
 E-mail: [ici@investmentcasting.org](mailto:ici@investmentcasting.org)

## **2020 Investment Casting Institute Casting Contest Entry Form**

### **O'Fallon Casting**

600 Cannonball Lane  
O'Fallon, MO 63366

- 9. How does your customer benefit from using this part i.e. replace an assembly of several parts, reduced cost by x%, improved product reliability, performance?**

The number and complexity of the internal core passages in this casting allow our customer to decrease the overall size and number of pieces in the pump assembly. Instead of multiple pieces with less complex geometries being assembled together, this one piece investment casting saves them weight and eliminates future failure points at the assembly location.

- 10. What makes this part unique?**

The pump housing casting contains multiple interconnected core passages throughout the inside of the casting, with varying diameters and depths. The combination of thin walls in certain areas, large masses of metal in others and the grade B metallurgical requirements make this casting a challenge, something ideally suited for the investment casting process.

- 11. State any special design requirements and/or process requirements?**

Along with the intricate core passage areas, the casting has a very tight profile tolerance, grade B metallurgy and high pressure tightness requirements. To access the internal core passages, weld plug openings were incorporated into the design

- 14. Please feel free to furnish additional information not covered in the above questions.**

The pump housing casting is an excellent example of the investment casting process. The multiple core passages, tight tolerances and grade B metallurgical requirements make investment casting the ideal process for creating this part. The ability of the process to take what would have to be multiple parts in a different process and turn

them into one casting really makes the investment casting process the right choice for this part.