

Lost Foam Metal Casting

fact sheet

Lost foam metal casting was first done in the late 1950s, but recent improvements in materials, processes and tools have dramatically increased the use of this technique during the past decade. Research sponsored by the Lost Foam Consortium has been responsible for many of these improvements. Lost foam casting begins with a foam model of the part, which is coated with ceramic and placed in a container. The container is filled with sand and vibrated to compact the sand. Molten metal is then poured into the mold, displacing the foam. This technique saves approximately 30 to 50 percent on energy costs and simplifies the casting process. For example, one part made with the lost foam process can replace 10 parts made using die casting.

REPORTED BENEFITS

- Reduces or eliminates machining, assembly, and materials handling
- Allows use of alternatives to silica sand
- Increases productivity and reliability (fewer redds)
- Reduces emissions, heat, and noise
- More complex parts can be cast
- Eliminates cores and parting lines

Barriers to Market Acceptance

1. price
2. risk of failure
- ➔ 3. benefits not understood
4. priorities not on benefits of new technology
5. lack of technology awareness

Development Stage

1. need for the technology identified
2. technology concept developed
3. initial research findings reported
4. research on concept completed
5. commercial pilot completed
6. introduction to commercial market
- ➔ 7. immature market demand
8. mature market demand
9. market saturation

WISCONSIN APPLICATIONS

More complex castings such as motor frames, valves, crankshafts, and cylinder heads.

TYPICAL PAYBACK

Two to five years.

MORE INFORMATION

- Lost Foam Consortium, American Foundrymen's Society, 505 State Street, Des Plaines, IL 60016, 800.537.4237
<http://www.umn.edu/~foundry>
- "Metal Casting, Success Through Partnership: Lost Foam", US Department of Energy Office of Industrial Technologies
<http://www.oit.doe.gov/factsheets/metalcast/pdfs/mciof.pdf>
- "Advanced Lost Foam Casting", US Department of Energy Office of Industrial Technologies
<http://www.oit.doe.gov/factsheets/metalcast/pdfs/lostfoam.pdf>
- "1998 Lost Foam Casting and Supplier Directory", American Foundrymen's Society, 505 State Street, Des Plaines, IL 60016, Phone 800.537.4237, Fax 847.824.7848
<http://www.afsinc.org>
- "The Casting Hub: A Starting Point for the Metal Casting Industry"
<http://www.castinghub.com>
- "Today's Lost Foam Technology Differs From Yesteryear," Modern Casting, April 1997
- "Lots of Activity Taking Place Among Lost Foam Job Shops," Modern Casting, April 1997
- Vulcan Engineering, Box 307, Helena Industrial Park, Helena, AL 35080, Phone 205.663.0732, Fax 205.663.9103



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