LOST FOAM CASTING PROCESS OF THE FUTURE

The Lost Foam Casting Process has come a long way since its first introduction in 1953, but in fairness after the first real production line in 1980; and over the past 30 years there have been considerable improvements, both in basic materials and the improved design of the equipment.

The Lost Foam Casting Process is rather unique and for the right selection of castings to be produced, nothing comes close to it. It would be wise to even consider redesigning the casting or adding different items to it such as brackets or combining multiple parts into one casting. The process allows maximum flexibility in designs, which are not possible in other casting processes, in most cases.

There are various points you must consider in using this process:

a. Additives not required
b. Binders not required
c. Flexibility in design
d. Cores not required
e. Minimum scrap
f. Less machining
g. Reduced finishing
h. Environmentally friendly
i. Reduced energy required
j. Reduced insurance premiums
k. Smaller footprint
l. Reduced manpower

Robotic Cluster Coating Unit

In recent years, we have seen changes not only in raw materials, but also various aspects of equipment improvements.

Raw materials have changed in a couple of areas. The introduction of modified raw beads for the production of patterns and the various co-polymer beads to assist the use with iron castings and reduction of lustrous carbon.

Sand or Media

The introduction of synthetic sand produced in a ceramic form has several different advantages, more fluidity and therefore, better compaction and longer lasting with minimum fines.

Coatings have been improved to give better control of coverage to the foam pattern and assist in removing the gases from the polystyrene foam pattern.

The use of a robot for dipping the foam pattern cluster into the coating is preferred as it gives a more consistent coating application.

Sand Fill Hopper and Rain Gate

The sand fill hopper has been developed for assuring consistency of the use of the media, in the past the correct amount of media was either by weight or time. The new patented system precisely controls the media by volume, which guarantees consistency in the correct amount of media to be delivered to the flask.

Sand Fill Hopper

Sand Fill and Compaction

Equipment for raining the media around the cluster must be precisely controlled and must be interlocked with the compaction system. The patented rain gate operates in three modes: fast, slow or stopped.

Sand Rain Gate

Vector-Flo™ Compaction System

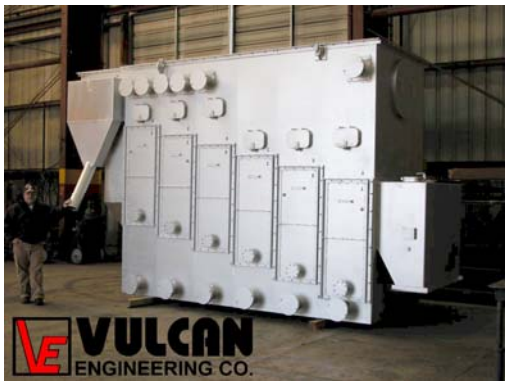
The new patented Vector-Flo™ Compaction Table System provides advanced control of media flow and compaction which can be altered to fit each part and with precise repeatability. The compaction system uses four motors with a clamped flask, allowing the vibratory motor vectors to be adjusted to accommodate various programs of differing recipes while filling the flask with media. In fact, we can now ensure sand can flow up hill to completely compact blind holes, even at the base of the foam pattern.

Patented Vector-Flo™ Compaction System

We can arrange for a test unit to try the process for your product which will allow future and existing customers to carry out detailed tests.

Sand Cooling

We have redesigned the sand cooler to operate in the Lost Foam casting system. This cooler allows the sand to cascade through various sections of the cooler passing over water cooled tubes. The tube bundles are designed to easily be replaced when required with a minimum of down time.



MD-654 Sand Cooler

Automation

Automation is playing a more important part in the Lost Foam Casting Process, as robots are used in several areas, i.e., cluster insertion, molten metal pouring and casting extraction; to ensure consistency, reduce manpower and increase safety.

Automatic Insertion of Foam Clusters into Flasks

Degating is also being automated which makes it more environmentally friendly, takes away weight and reach by operator and a lot safer than a manual approach for this task.

Robotic Degating

For the right product such as cylinder heads, cylinder blocks, pipe fittings, valves, fire hydrants, motor starters, and many more, the Lost Foam Casting Process is the perfect match.

Lost Foam is the way of the future, as reduction in manpower, safer and more friendly working environment, include that with many other savings which makes the foundry to handle more production with increased profits.

Website: www.vulcangroup.com

30 FPH Aluminum Lost Foam Line w/25 Minutes Cooling
Note the Robots for Insertion of Foam/Pouring & Extraction

35 FPH Aluminum Line to Produce Truck Parts w/ 1 Hour Cooling
Note the Casting Extraction Robot