

WAX RUNNERS

The Purchase of Injected Wax Parts

A significant trend in the investment casting industry in the past year or so has been the growth of buying in of injected parts from the supply chain.

Blayson has always worked closely with its customers in order to respond to their changing needs. The philosophy of customer service is fundamental to Blayson and has resulted in many developments in wax products and process over the years. Whilst R&D projects continue to feature strongly in this regard, the company's investment in injection equipment in the recent past has been significant. Three MPI presses are installed on site at Cambridge and plans exist for further capacity to be added as the market develops.



Whilst runner bars and frames form the focus for existing sales, wax patterns can be supplied as well.

Traditionally investment casting foundries have manufactured their own runner bars and frames, either by hand pouring or injecting on their own premises. This results in a wide quality range varying considerably from company to company. With runner quality being a prerequisite for defect free castings this is of great importance.

When pressure on manufacturing capacity and limitations on capital expenditure capability are added into the equation, consideration is increasingly being given to the purchase of ready to use injected wax runner parts.

This integration of the wax supply chain into the investment casting process offers many benefits and

potentially considerable cost savings, particularly from hidden costs. The more obvious savings are in energy, space (for wax storage, wax tanks, dies etc.), time, inventory simplification, capital expenditure, plus reduction of unaccounted for time and costs, and so on.

The fundamental benefit is with regard to simplification of the process route. Investment casting is a complicated procedure requiring a wide-ranging technical expertise of the manufacturer. The foundry personnel have not only to be metallurgists but also to have a working knowledge of wax handling and injection requirements, ceramics and slurry systems, the effects of humidity in both shell drying and dewax, metal removal systems etc. Accordingly anything that reduces the number of disparate skills needed is to be welcomed.

The first requirement in moving to the purchase of injected parts is to analyse and understand the current process, usage and costs. Our experience is that once this is undertaken the real cost of what is normally regarded as of little consequence quickly changes.

The first discovery is that the initial thoughts on actual usage are (sometimes hopelessly) incorrect. It seems that most companies have a self appointed and conscientious operative who takes responsibility for ensuring that supplies of the variety of runners needed for day to day production are maintained. These activities often go unrecorded and so real numbers and associated costs only become apparent once a change in the process is made.

It will also be found that the variety of runner shapes in use has become considerably extended over time. As new parts are introduced into production a new runner is often designed to go with it, however few runners are ever retired and so the available number grows. The change to the purchase of injected parts results in a much-simplified

number of runners, helping the assembly process by focussing on the real needs for successful production of the finished casting.

Failed injections are of course never factored into calculations – but they exist and their cost cannot be understated. Whilst the wax can be reused, each failure is a missed press cycle, wasting energy and operative time and most importantly money.

The purchase of the correct number of injected runners from a specialist wax company results in improved runner quality, reduced inventory, frees space for other operations, reduces energy usage, reduces capital expenditure requirements and allows more effective use of existing production resources (both equipment and personnel).

Another important point is that as a specialist wax manufacturer wax batch control is a daily routine. All Blayson's wax products, whether reclaim or virgin, are individually produced and controlled to a specification agreed with the customer. Additionally a Certificate of Conformity accompanies every batch despatched, this ensures consistency and repeatability giving a high level of performance.

The other area that can benefit greatly from buying in is in the area of **soluble wax cores**. The use of and complexity of soluble cores is increasing and with soluble wax being difficult to inject at the best of times, production problems often result. Typically soluble wax is much more viscous than pattern or runner wax and often older and less efficient presses are used for their manufacture. To help the industry resolve these difficulties, Blayson is commencing the supply of injected soluble cores. We believe that this will be a significant benefit to foundries. By supplying the exact number of soluble cores that are required, major production flow difficulties and resulting additional costs can be avoided. Our thoughts are that ultimately this initiative

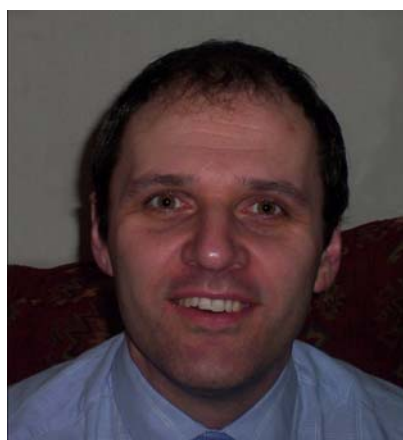
could lead to patterns being injected around soluble cores followed by leaching out of the soluble core and delivery to the customer of ready to assemble coreless patterns.

For more information contact davemorson@blayson.com

New Technical Manager

Since joining Blayson in November 2004 Phil Hancock has been developing his knowledge of investment casting wax both from the raw materials as well as the finished wax and process viewpoint.

As a result Technical Director Dave Bond is delighted to announce that Phil has been promoted to the position of Technical Manager. "Since his arrival at Blayson Phil has worked with dedication and enthusiasm to understand the complexities of wax. This when added to his undoubted process knowledge from his years working in investment casting gives him a perspective rarely found in the industry. His friendly nature and infectious drive and enthusiasm for developing wax materials and enhancing the investment casting process has quickly integrated him into the Blayson team and engendered good relationships with our customers".



This move into management marks an important step in the development of the Blayson

technical team at a time when important research projects are underway. These are designed to further the company's understanding of wax materials and their use in the process.

For more information contact davebond@blayson.com

Investment Casting Information Source

Blayson is the custodian of many papers on the global investment casting industry that have been presented at conferences around the world over the past 20 years.

The company feels strongly that the important data contained in these lectures should be readily available to the industry. Accordingly to aid the dissemination of the information Blayson sponsors a website for this purpose.

www.investmentcastingwax.com provides technical information about investment casting wax and now in addition contains a library created from papers given over past years.

This allows views both of the up to date technical developments in wax and worldwide market information as well as the historical view showing change over time.

The 'Market Lectures' page contains a series of presentations made at international conferences showing the investment casting industry sales and market statistics from 1989 to date.

On the 'Technical Lectures' page are a series of papers that contain useful information on the composition and use of investment casting wax as well as the technological developments that have taken place.

If you have any comment to make regarding this site please contact Richard Hirst: rdohirst@blayson.com