



# FOUNDRY INSIGHT

Improving Performance in Production

September 2009

Volume 3, Issue 3

Pyrotek.info

## ask the expert...

### INTEGRATED MELTING SYSTEM SHOWS PERFORMANCE BENEFITS IN REMELTING



*Chris Vild,  
Melting System  
Product  
Manager,  
Pyrotek  
Metallurgics  
Division,  
Solon, Ohio,  
USA*

The Integrated Melting System (IMS) from Pyrotek delivers improved performance and productivity in metal remelting. Chris Vild, an equipment specialist in this area of technology, responds to a range of questions frequently posed by potential customers who could benefit significantly from the range of process features and benefits offered by this system.

**Q: What is the IMS system?**

**A:** The Integrated Melting System is a unique equipment combination engineered to process machining chips and convert them back into usable metal. Designed specifically for foundries, the IMS can be used by any facility generating chips from machining operations.

Systems are custom-designed to customer specifications, considering the material to be processed, the desired end product and any existing equipment. A unique feature of the IMS is its energy efficiency. It uses waste heat from other thermal processes, such as the melting furnace, to significantly increase the thermal efficiency of the complete process.

**Q: What are the central features of IMS which make it special?**

**A:** At the heart of the IMS, the LOTUSS™ system, developed by Pyrotek's

Metallurgics Division, is one of the leading technologies available for melting light gauge scrap. The LOTUSS system operates in conjunction with a Metallurgics Tensor™ Series circulation pump or an electromagnetic pump. Metal is pumped from the main furnace chamber into a circular refractory well. The well design incorporates a unique and patented shape to generate a downward vortexing action for the metal flow.



*Pyrotek Metallurgics' IMS boosts performance and productivity in metal remelting*

While a conveyor continuously introduces scrap into the LOTUSS, the metal flow pattern quickly submerges the scrap charge materials. The metal is then directed into the dross well located downstream of the LOTUSS, where proper dross treatment and fluxing is completed. Because the charge well is separate from the dross well, charging can be continuous even during fluxing and dross working / removal operations.

**Q: What are the benefits in operation?**

**A:** The LOTUSS system delivers a range of key process benefits:

- With a low initial capital investment, high metal recovery rates are achieved for maximum metal production.
- The easily-installed equipment is designed for continuous, automated operation and low operating and maintenance costs. The system can be retrofitted to existing furnaces.

**Q: What are the key equipment components?**

**A:** Systems are available for processes up to 2 mt/hr. Available modules include the following:

- Hot Air Drier
- Receiving and Storage Hoppers
- Conveyors
- Shredders
- Centrifuge
- Magnetic Separator
- Weigh Belt
- Control Panel
- LOTUSS
- Metallurgics Circulation Pump / EMP Pump
- Emission Control Equipment
- Transfer Pumps
- Molten Metal Filters
- STAR Degassing System
- Other equipment can be supplied as needed

**Q: Is any special preparation required for the chips?**

**A:** The chip preparation module is specifically designed to remove water and water-based lubricants from chips and the enclosed chip drying system has no moving parts and utilizes waste heat. Hot air passes through chips to remove moisture and lubricants, reducing moisture to less than 0.15%. With operating

*Continued on page 2*

## Ask the Expert

Continued from page 1

temperatures at approximately 600°F (315°C), the enclosed evaporative system has a drying efficiency of up to 99.9% with no flame.

**Q: What about process control?**

**A:** PLC control and integration is handled seamlessly by the Integrated Control Panel (ICP) with touch screen HM I control. The ICP allows total integration of the entire chip processing system including both T-35SD and LOTUSS systems. A networked PC can provide a user-friendly interface between the common network(s) allowing for complete flexibility and integration.

**Q: What does Pyrotek offer by way of engineering and project support?**

**A:** Full engineering and project support is offered to customers from Pyrotek's highly experienced and dedicated support team comprising of design and engineering specialists, all with the common goal to improve customer performance.

*\* Chris Vild is Melting Systems Product Manager, Pyrotek Metallurgy Division Solon, Ohio, USA.*

[www.pyrotek.info](http://www.pyrotek.info)