



# FOUNDRY INSIGHT

Improving Performance in Production

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## ask the expert...

### PYROTEK TURNKEY LAUNDER SYSTEMS DELIVER IDEAL FOUNDRY PROCESS SOLUTIONS



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Laundry systems constitute vital elements in molten metal delivery in casting operations. Here, Pyrotek Foundry Sales Engineer, Alan Sale, responds to a range of questions frequently posed by clients, outlining the products and services provided by Pyrotek in elaborating tailor-made laundry systems for foundry customers' specific process applications.

Whether you are expanding your casting operation, or involved in building a new installation, Pyrotek can supply high quality turnkey laundry systems, integrated in your plant layout to maximise process efficiency and boost performance.

From initial laundry design through to installation, Pyrotek has all the key elements — including vital technical support, in-house casting and steelwork manufacturing — to deliver a custom turnkey solution tailored to your specific plant requirements.

**Q: What is necessary from the outset in terms of laundry systems design, etc?**

A: Working with customers' own engineering staff, Pyrotek initially conducts a complete, comprehensive on-site evaluation of your laundry system

demands. Through understanding the particular needs, we are able to suggest methods to optimise the system performance and operation.

Laundry system designs take into account all the key parameters — the length of a laundry, the flow rate of the metal, the metal temperature, the power rating and density of the heater elements, and the material used in construction of the laundry refractory.

Considering all these metrics, experienced technicians produce precise CAD drawings to illustrate the proposed laundry configurations for your casting operations. Each system is designed with close attention to user-friendly features such as anchor inserts for easy removal of launders and replacement of linings.

Pyrotek turnkey laundry systems are designed to merge smoothly from one profile to another to match dimensions of existing equipment, such as furnace tapouts, filter bowls, tubs and degassing devices.

**Q: What about the particular material and product developments involved?**

A: The company's expertise in high-temperature materials technology enables us to recommend the specific products best suited to your application.

Pyrotek can also provide a complete thermal profile of the laundry backup lining and castable. This helps to ensure that the working lining maintains a suitable hot face, while at the same time the steelwork shell remains at a safe working temperature. This allows

metal to be maintained at precise temperatures and reduces the cost of energy required.



Pyrotek turnkey laundry systems deliver improved performance – through design, manufacture, installation and application

**Q: What speciality steelwork structures can be supplied?**

A: Pyrotek metal fabricators manufacture the laundry shell frames to meet the exact requirements of your operation. Special framework styles include pedestal-mounted, roller-mounted and crane suspended.

To accommodate tilting furnaces, speciality steelwork is also available, such as drop-in sections.

Water-cooled laundry systems can also be converted to thermally-efficient insulated linings. Existing steel shells can often be incorporated into the system, further reducing cost.

Ask the Expert...continued

## Pyrotek Turnkey Launder Systems Deliver Ideal Foundry Process Solutions

### Q: How can castable refractory linings be applied for launders?

A: Pyrotek offers a broad range of castables for launders, ranging from high density to low density thermally insulating castables.

The widely used Pyrocast AR is a general purpose, cement based castable, well suited to most launder applications.

Employing Pyrotek high-density castables can minimize erosion of the refractory in high velocity molten metal flow areas.

When maintaining metal temperature is a paramount issue, low-density castables are offered, which deliver excellent insulating properties.

All materials supplied are non-wetting to molten aluminium facilitating cleaning and maintenance. Pyrotek sales engineers can provide you with specific technical data on the entire castable product line and suggest the optimum combinations for your operation.

### Q: What products are available to support operating performance?

A: To minimize thermal losses through the steelwork, and maximize launder life, Pyrotek offers a complete range of backup linings—including low-density boards, microporous insulating material and the Pyrotek-patented Wollite pour-in insulation.

Ancillary materials to support launder systems include gaskets, jointing cements, repair mastics, and coatings.

A complete line of consumable products for the casting station complements

Pyrotek's launder systems materials portfolio, which includes cast iron tap hole plugs, furnace tap-out blocks, cones, thermocouples and filters. For enhanced metal quality Pyrotek offers ceramic foam filters, glass fabric filters and degassing equipment and ancillaries.

### Q: How does Pyrotek offer complete turnkey provision?

A: To ensure a quality fit for customers, all Pyrotek launder systems are pre-assembled and inspected at dedicated manufacturing facilities prior to shipment.

For ease of installation, the turnkey launder systems are delivered complete with installation drawings and all materials required for final assembly—from the refractory, to gaskets and mortar for jointing, through to the basic nuts, bolts and washers. Additionally, Pyrotek engineers can provide installation assistance on-site.

### Q: What other complementary systems are available from Pyrotek?

A: For a variety of process applications including furnace lids, crucibles, filter boxes, low-pressure diecast covers and holders, Pyrotek offers another range of complementary systems for added performance. Heated cover systems, incorporating heaters as modules, enable the refractories to be preheated prior to the introduction of metal. This retains the metal's heat during transfer and also holds the molten metal at temperature during periods of inactivity. In addition, the heated cover system keeps refractory surfaces hot,

thus avoiding refractory thermal shock.

Pyrotek heated cover systems offer a range of further process advantages:

- Heated launders eliminate the need to employ mobile crucible delivery systems that are prone to accidents and involve high labour costs.
- Furnace gas consumption and overall energy costs are reduced through conservation of heat.
- Various design styles of heater elements are offered, to meet specific process requirements, and depending on the application, a heated cover system can be designed to control temperatures up to 982°C (1800°F).

These systems can be customized for specific process requirements and can be purchased as component parts or as a complete turnkey system, including installation.

*Alan Sale is a Pyrotek Foundry Sales Engineer, based in Gainesville, Georgia, USA. He is a Pyrotek specialist with over 20 years experience in casting process technologies, including 10 years with Wagstaff Engineering. His emphasis is on refractory consumables for casting, their design, application, maintenance and related customer operating practices. Alan holds a Bachelor of Science degree in engineering.*

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