

## ask the expert...

### IMPROVED GASKETS AND SEALS BOOST PERFORMANCE AND CUT COSTS IN DIECASTING OPERATIONS



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The application of optimum seal and gasket products delivers benefits of improved performance and reduced energy costs in foundry production processes, typically in low-pressure and counter-pressure diecasting.

In this column, Jeff Seavers, Foundry Sales Engineer, based at Pyrotek Columbia City, Indiana, outlines some of the background and essential elements relating to these key products and responds to some questions commonly posed by foundry customers concerning their application and process benefits.

#### Q: What are gaskets and seals in a foundry context?

A: A gasket can be defined as a mechanical seal to fill the space between two objects, generally to prevent leakage while under compression. Gaskets can function to fill irregularities and save money by allowing effective mating of "less than perfect" surfaces on machined or cast parts.

#### Q: What particular materials are gaskets made from?

A: It is usually desirable that a gasket be

made from a material that is yielding to some degree, able to deform and tightly fill the space it is designed for, including any slight irregularities on any machined or cast mating surface.

Gaskets are commonly cut from sheet materials, sewn from cloth fabrics, or made from square or round rope material. Gaskets may be made from ceramic fiber products such as paper and rope, IR3, Graphfoil, mineral wool paper and many other materials. Spirally wound gaskets are also available. Gaskets that must withstand compressive loads can



Fibreseal pre-cut gaskets – for high temperature applications

be made from compressed fibers. Gaskets can also comprise durable jackets made in 304 stainless steel or Inconel® mesh and are free of asbestos and ceramic fiber.

Pyrotek offers a wide range of asbestos-free ropes and tadpoles, and an extensive range of "Fiberseal" gasketing materials, which are available in a variety of forms and properties including a range of heat tolerances. A range of densities and thicknesses is available to suit a wide variety of applications and they can be pre-cut to exact dimension requirements.

Common gasket materials are available from stock. Many of the products are available exclusively from Pyrotek and specialised designs can be fabricated to meet exact requirements of temperature resistance, form, size, density and wear-resistance.

#### Q: What diecasting applications use gaskets?

A: Some of the broad application areas include furnaces, ladles, crucible and pot lids, glow bars, burners, flues, doors and port plugs. One of the most common products is the stack-up gasket. These gaskets prevent leakage between the casting stalk tube and bushings. Another common gasket type is called a "tadpole" gasket, an effective seal for a furnace door in heat-treating / ageing furnaces. These rope and tadpole products deliver real benefits in minimizing energy costs by providing more efficient seals. Special product coatings further improve air seal properties and abrasion-resistance, resulting in a reduction in plant and equipment maintenance.

#### Q: What special features are included in the Pyrotek product range?

A: A comprehensive range of products is available to fit most foundry applications and any budget. Pyrotek supplies a wide range of gasket materials, including sewn products, and can offer custom gaskets that can be cut by die or CNC methods. No tooling costs are involved when the gasket can be cut with a CNC.

Additionally, high temperature gaskets are also offered for applications in the aluminium and glass process industries. These materials find application

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as seals for carbon bake operations, siphons and furnace doors, and as gaskets for launders and footstools. Their process advantages include resistance to molten aluminium and are ceramic fiber-free and low cost.

**Q: What about service after a sale, consulting services, or help with a specific need?**

A: Full consultation and after-sales service is offered to customers by Pyrotek product specialists, including discussions and advice on special custom-made products for specific requirements. Pyrotek Evansville can assist with all your high-temperature gasketing applications.

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



*Stackup gaskets*