



# RFM CONTINUOUS ROD CASTING SPOUT

## MOLTEN ALUMINIUM DELIVERY

Pyrotek RFM® Continuous Rod Casting Spouts are used to deliver molten aluminium to the copper casting wheel. This high performance material provides benefits like increased caster uptime, higher quality casts with fewer bar breaks, and consistent, low-cost start-ups.

Each spout is custom designed to fit precisely with the copper wheel and stainless steel belt. The high-strength refractory allows for thin (3–5 millimetre; 0.12–0.20 inch) cross-sections at the spout exit, without compromising the fit, creating a smooth, reliable transition from the spout to the wheel. The spout material is less thermally conductive than steel, and absorbs less heat from molten metal during start-up, even with minimal pre-heat. This reduces frozen cast starts and energy costs from excessive preheating. The low thermal expansion coefficient prevents spout bowing and warping which reduces turbulent flow and increases metal quality.

The RFM casting spout is designed for use without a ceramic paper lining which helps reduce unplanned downtime and incomplete coil scrap. This also eliminates quality issues due to paper inclusions.

The spout's non-wetting Boron Nitride Lubricat®-ZS coating acts as a protective barrier that facilitates smooth metal flow, enhances product life and allows metal skull to be removed without aggressive scraping.

RFM spouts are available with an optional closed top, which skims oxides and creates a smoother top surface. This design allows for auto-start, faster casting speeds and reduces steel belt heat exposure.

### PROPERTIES

Density – kg/m <sup>3</sup> (lb/ft <sup>3</sup> )	1600 (100)
Maximum Service Temperature	780°C (1436°F)
Thickness – mm (in)	3–25 (0.125–0.75)
Hardness Shore D	77
Modulus of Rupture – MPa (psi) at 375°C (705°F)	16.5 (2400)
Thermal Expansion Coefficient – mm/mm/°C x 10 <sup>-6</sup> (in/in/°F x 10 <sup>-6</sup> )	9 (5)
Thermal Conductivity – W/m·K at 500°C (BTU·in/ft <sup>2</sup> ·hr·°F at 930°F)	0.43 (3.0)



Open Top Casting Spout in Copper Wheel



RFM Casting Spout just clears the Continuous Steel Belt



Closed Top Casting Spout in Wheel



Closed Top Casting Spout Mounted to Turkish

### BENEFITS

- Eliminates contamination and downtime due to ceramic paper fragments; fewer inclusions and longer casting runs without bar breaks
- Three times the service life of lined steel
- Dimensionally stable with less thermal expansion than steel
- Higher thermal shock resistance and cycling tolerances than cast refractories
- Low thermal conductivity helps maintain aluminium temperature and reduce frozen casts
- Surface moisture is removed with minimal preheating
- Closed tip provides a better surface finish on the top of the bar
- Non-wetting to molten aluminium
- Can be built to custom dimensions

Lubricat®-ZS is a registered trademark of ZYP Coatings, Inc.

