
RENO
REFRACTORIES, INC.
MINI MILL SOLUTIONS
P.O. Box 201 | Morris, AL 35116 | 205.647.0240 or 1.800.741.7366 | www.renorefractories.com

Facilities and Expertise to provide for your Mini Mill Services

RENO Refractories, Inc. is a distinctive value provider to the Mini Mill steel industry. Our team of refractory experts brings diverse backgrounds in refractory applications and mini mill steel operations.

Collaboratively, we possess the expertise to comprehensively assess all facets of your operation and suggest the safest and most cost-effective refractory systems.

ELECTRIC ARC FURNACE

A significant part of the maintenance expenses of the Electric Arc Furnace is related to the water-cooled panels that line the furnace's interior—leaks caused by arcing to the panels and thermal fatigue caused by leaks cause disruption of operations. The energy losses are also a prohibitive cost. Reno Refractories, Inc. has developed unique materials to line the panels' surfaces, significantly reducing energy losses and arcing to the panels. These products are:

Water Panel Coverings - Reno NC 908 for the roof panels.

Precast Furnace Runners - Reno Cast 8510 CR or Reno Cast 6020 CR. The non-toxic chrome containing castables have exceptional corrosion resistance to iron oxide slags.

Deltas - Reno Cast 70 TSR and Reno Cast 85 TSR represent a standard in refractory materials designed to withstand extreme thermal conditions. The term "TSR" in their nomenclature refers to their exceptional Thermal Shock Resistance, which sets them apart in delta applications.

Precast Slag Window Port - The port opening is exposed to extremely hot iron oxide vapors. These vapors convert alumina silicates into ferrosilicon, which expands when new crystals are formed. These vapors do not affect the high magnesium oxide in Reno Mag Cast 92.

Slag Rolls - Reno fabricates precast rolls using Reno Cast 8510 CR. This alumina chrome ore product displays excellent thermal cycling behavior and good steel slag corrosion when exposed intermittently. Use Reno Mag Cast 757 CR for more corrosion resistance if needed.

Consteel Covers - In high temperature settings, continuous melting furnaces using heat from the stove on steel scrap pose challenges for vibratory feeder units with covered hoods. Some operations choose lower cost options, resulting in flame impingement, excessive heat, and refractory porosity, leading to iron oxide laden gas penetration, and shortening product life. Reno provides a solution with Reno GN 25 LW gunned insulation Reno ElectroCast™ 386-C and Reno Coat It AL surface treatment. ASAP Cast 60 LC can be used when boring and shavings aren't used.

SPARKBOX

Sparkbox and Gas Off-Take - Cover the hot face with Reno NC Gun 85 for the first 50% of the duct length, then the remaining 50% of the duct and the spark box, using Reno NC 70. Reno Jet Cast NC 85 or Reno Jet Cast NC 70 can be used when vast quantities are required; Reno Cast 85 TSR and Reno Cast 70 TSR for thermal shock resistant precast blocks.

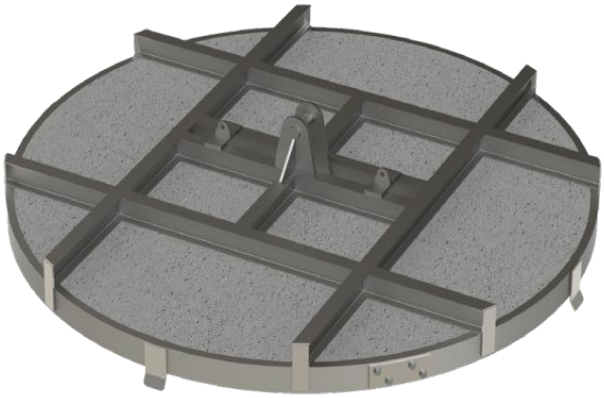
LADLE LININGS

Ladle Well Blocks - Ladle Well Blocks must last following a balanced refractory life according to the changes in the bottom, walls, and slag line. Precast shapes can be made with Reno Mag Cast 757 CR or Reno Mag Cast 6020 CR, both magnesia chromite compositions. Reno Mag Patch 92 is used as a patch material.

Precast Ladle Bottoms - With the new ElectroCast™ Technology, more life can be achieved due to its superior mineral synthetization, bonding strength, and resistance to high pressure erosion. Cast with Reno ElectroCast™ 386-C and include an impact pad made with Reno Cast 85 TSR.

Ladle Safety Linings - Safety linings must tolerate multiple hot face brick repairs and replacement campaigns. Mullite minerals do not perform as well as bauxite compositions in these applications as sometimes the dolomite brick may become dislodged, and molten steel touches the safety lining for one heat. Reno Cast 85 TSR can tolerate thermal cycling and very high temperatures. Under development is a dry vibe lining material, Reno Backfill 86.

Brick Retainer Rings - Reno recommends precast shapes manufactured with our RENO Guard Technology. This concept uses a high concentration of steel fibers and a refractory slurry. These retainer rings can tolerate extreme abuse from descale equipment and thermal shock conditions to keep the brick linings tight and under compression.



Ladle Covers – These covers are cast with Reno Regen Cast LI or Reno Cast 40 TSR and SS fibers for better resistance to mechanical abuse. Robust internal steel reinforcement and removing the traditional steel skin allows heat to vent through the cover and last longer. Higher thermal flows reduce skin corrosion under and next to the bath.

Ladle LMF Deltas - Lower severity application, infrequent replacement; Reno Cast 70 TSR is a good choice.

Ladle Preheat Walls - These walls must endure countless heating and cooling cycles. Reno NC Gun 70 with SS fibers can take years of abuse without damage. Reno NC Gun 70 is a pure mullite, no cement, sol-gel technology that is thermally stable and can withstand more heating and cooling cycles than traditional gunned or cast products.

REHEAT FURNACE

Reheat Furnace Sub-hearths – Reno ASAP Pump 50 LC offers a low cement material's stability and high strength advantages, suitable for pumping and casting into place to form a robust and monolithic structure.

Reheat Furnace Hearths - Reheat furnace hearths often use high alumina fused blocks arranged in rows, with an economical castable in between. Reno ElectroCast™ 3SB provides performance similar to electro-fused blocks, with solid bond strengths and low permeability.

This unique combination prevents mill scales from sticking to blocks and castable material like Reno ElectroPump™ 370 placed strategically. Quick turnaround and durable hearths contribute to higher steel production quality at a lower cost.

Reheat Furnace Skid Blocks - Reno Cast 98 TSR-NS, a high alumina material for precast blocks, is designed to resist steel scale attack and degradation.

Reheat Furnace Side Walls - Insulate with Reno ASAP Lite 35, then shotcrete the hot face with Reno Jet Cast 66. This system provides a thermally efficient lining with rapid installation, requiring minimal labor.

Reheat Furnace Roof - Reno Cast 65 XCLC, cast with boom crane and concrete hopper or pump cast with Reno Cast 65 LC. These can be mixed and pumped outside the building to reduce dust within the furnace area.

TUNDISH LININGS

Tundish Safety Linings – For less than 24 heats per sequence, Reno ElectroCast™ 370 castable offers enhanced thermal shock resistance, ideal for safety tundish box lining. For equal to or more than 24 heats per sequence, use Reno ElectroCast™ 370 for lower walls and Reno Cast 8510 CR for the top 14″ of the tundish in extended campaigns.

Safety Lining Coating - Reno Mag Seal protects the safety lining surface from gases, fluxes, slags, and abrasion.

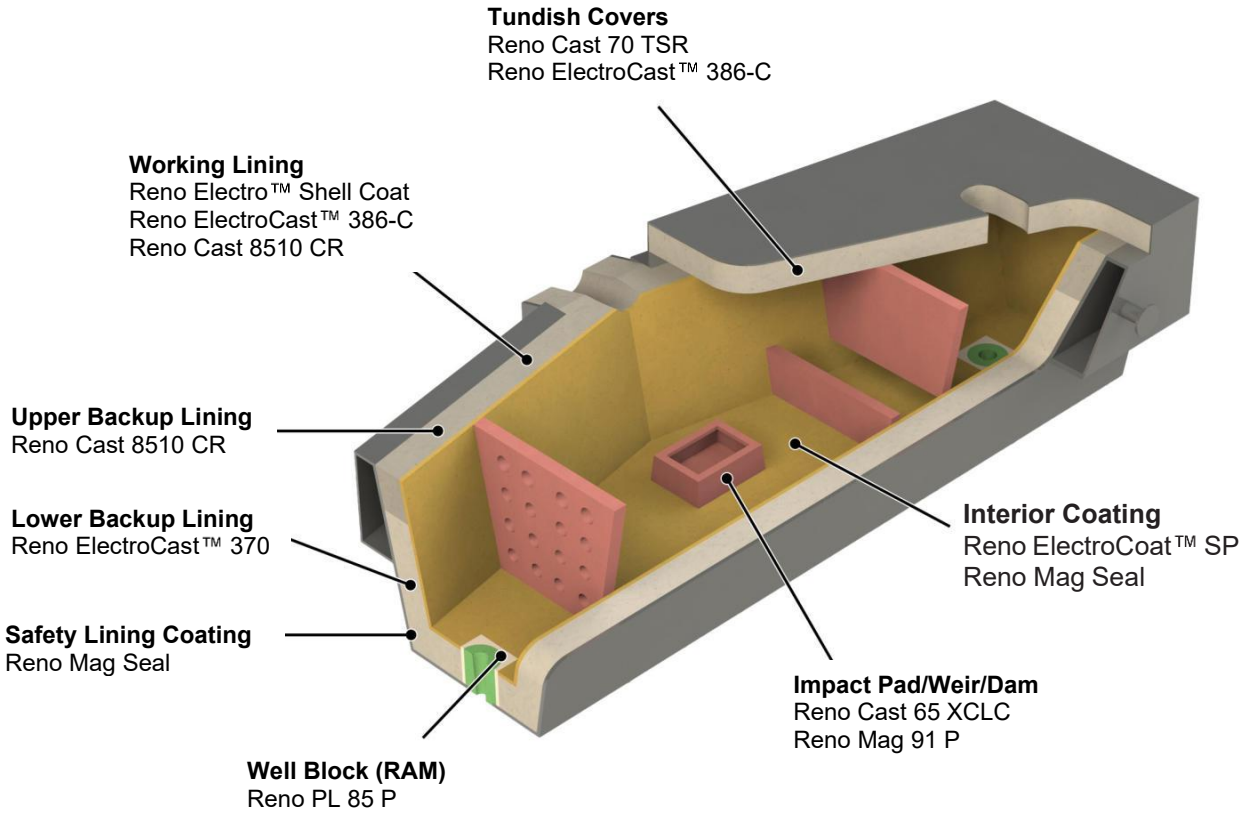
Tundish Working Linings - Reno Electro™ Shell Coat on the steel + Reno ElectroCast™ 386-C + coat before each campaign with Reno Mag Seal or Reno ElectroCoat™ SP. Plants that run extended campaigns (typically over 20 heats) use Reno Cast 8510 CR in the slag line.

Tundish Interiors - Apply Reno ElectroCoat™ SP as a thin layer on cleaned hot face surfaces through brushing or spraying. This coating, containing pure alumina and magnesia spinel minerals, is a natural maintenance surface for the hot face. An alternative is our Reno Mag Seal for a lower cost option.

Tundish Impact Pad/ Weir/ Dam - The application varies case by case. For mills using pads with walls, Reno Cast 65 XCLC is recommended. If the steel is duplex charged into the tundish on either end or if the impact pad experiences direct stream impact, Reno Mag Cast 91 P is suggested.

Precast Tundish Covers - Reno manufactures tundish covers with a proprietary system of reinforced refractory, ensuring stability, durability, and longevity. The precast covers are crafted using Reno Cast 70 TSR with steel fibers and Reno ElectroCast™ 386-C.

Tundish Maintenance - Reno Plastic 85 P patches tundish walls and floors and is suitable for general patching. Reno PL 349 CRM, fortified with alumina-chrome oxide, is recommended for tundish slag line repair. Reno MO Super 3 is a super duty air set mortar for general brick mortar, including safety linings.



MISCELLANEOUS LININGS

Vacuum Degas Hoods - These hoods may encounter splashed metal and slag during alloying. We suggest using our Reno Mag Cast 757 CR for cast installations or Reno Mag Gun 826 CR for gun installations.

Slag Pot Protection - Reno BlakIce #2 is our cost-effective spray on solution. This silica and carbon refractory paint effectively seals surfaces, preventing slag adherence to cast iron pots. It is also suitable for applications like ladle lips and LMF Hoods.

MAINTENANCE PRODUCTS

Reno Electro™ Shell Coat is a product that employs radiation heat wave deflection and bending characteristics.

In numerous ladles, the design often needs more space for the refractory to achieve optimal performance. Many ladles have thin walls, typically 2.5” to 4.5”. Reno Electro™ Shell Coat is designed to lower steel shell temperatures, mitigating ovality and flexing issues caused by soft, hot steel shells.

MAKE RENO YOUR FIRST CALL
FOR ALL OF YOUR MONOLITHIC NEEDS!

It is the mission of Reno Refractories, Inc. to investigate, develop, communicate and deliver valuable refractory products and services to our customers in North America. We have a responsibility to supply the best value in refractory technology by optimizing the profits and safety of our customers. We take pride in our reputation as a leader in these endeavors.

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