

Purging Systems and Components

Stirring for Steelmaking



The best purging systems use Vesuvius purge plugs

Whether your stirring is low-pressure, high-flow, or any other parameter, we offer an excellent range of plug types to fit your existing system and quality requirements. Vesuvius plugs give you simpler change-outs, reduced steel penetration, and increased resistance to erosion.

The perfect balance of bubble volume, size, and flow rate.

Vesuvius has the best solutions to stir your steel and achieve your production goals.

Housing Blocks

Blocks typically experience higher turbulence than the rest of the lower lining, so Vesuvius customizes blocks to suit your ladle lining. We use a range of designs and high-quality materials for a perfect taper fit with Vesuvius purge plugs. Design options include lifting hook configuration and locating rings.



Plug and Block Assemblies (PBA)

The ultimate in assembly quality. To reduce your installation challenges and risk, order factory-fitted plugs pre-assembled in their housing blocks. They can be supplied as changeable or non-changeable units and can also be used with the IPV safety system.



Purge Plug Setter

Use the right tool for the job. Our plug setters have been specially designed to interface with our equipment and ensure repeatable insertion depth every time, and are recommended for use with any of our plugs.



Setting Assist Fixture

An indispensable tool for proper plug installation. Our assist tools are designed to take the weight off the installer and ensure the plug is centered. The assist holds the plug upright while mortar is applied, then pivots for insertion into the housing block.

Housing Block Setter

If you're individually installing blocks, our block setter is designed to maintain proper alignment of the block while the surround cures. This tool centers the block firmly on the centerline of the hole for the plug.



Purge Plug Extractor

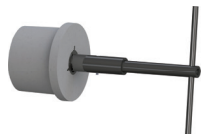
When it's time to change the plug, we have the proper tool. The importance of carefully pulling out spent plugs means you'll see the value of having the proper plug extractor.



Vesuvius promises the highest quality

Vesuvius means quality refractory and equipment. Our purging systems are durable, integrated solutions that increase your ladle up-time and help you build a reputation for quality steel.

With a range of Vesuvius support and ancillary equipment, advanced stirring keeps getting better.



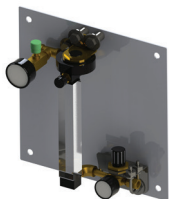
Inner Nozzle Setter and Extractor

An essential tool if you want to carefully install, extract, reuse your inner nozzles, and reduce your costs.



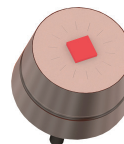
IPV Safety System and other mechanisms

Vesuvius IPV is a cost-effective solution giving your steelmaking confidence, total safety, simple assembly, and no gas leakage. Additionally, Vesuvius offers third-party mechanisms and value-priced mechanisms.



Custom Test Equipment

Occasionally, a customer may want custom equipment that nobody else can provide. Vesuvius's portfolio of successful designs and installations means we can custom design test equipment for use with one of our new purging systems, and ensure that it works exactly as planned.



Wear Indicator

To help determine when a plug is spent, Vesuvius offers a wear indicator as an optional feature. The indicator glows a contrasting red with distinct shape-change relative to the surrounding castable.



Manipulator

Are you working harder, or smarter? A manipulator is the proper power tool to handle plugs in the shop. Third-party suppliers through Vesuvius offer devices that efficiently drive setters and extractors with increased safety.



Mortar and Installation Materials

Mortar, gunning, castables, and related refractories are advanced refractory products that get more life out of your linings. Vesuvius can take the guess-work out of picking quality mortars and repair materials.



Troubleshooting and Technical Support

When you have technical challenges, turn to Vesuvius experts for the answer. Our Purging System Technical Managers are stationed in your region, around the world. Our people go on-site and do whatever it takes to help you stir better.

Vesuvius is your Partner in Performance - We offer exactly what you need

Purging System Technical Managers work onsite with you

When you request Vesuvius to help you stir better, we send our managers to your plant, where they typically spend 1-2 days on the shop floor gathering data. Vesuvius experts will examine your ladle, operations,

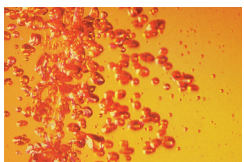


equipment, and maintenance, as well as note your preferences and goals. We work with you in your shop to gather as much information as necessary to support a full, informed analysis.



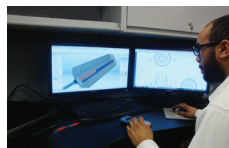
Product Development Laboratory (PDL)

The PDL is a prototyping facility, where scientists and engineers focus on prototypes to develop best manufacturing practices and transfer developed technologies to our manufacturing. The majority of PDL work is driven by customer projects, where we input new designs and application-specific modifications. Additionally, whenever Vesuvius R&D develops new processes and materials, PDL receives the research to cast experimental products and do full-size testing.



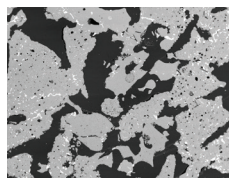
Computational Fluid Dynamics (CFD) analysis

Vesuvius uses powerful computing to model complex physics and determine the optimal position for plugs in your ladle and reduce risk, cost, and time when investigating new products. With CFD, design variations are rapidly iterated, and we then pass the benefits to you. Vesuvius also uses water-models and dye to validate our numeric calculations and computer modeling



Design Team for your new Purging System

After our Managers review your shop operations and collect data, Vesuvius refractory and mechanical engineers evaluate the technical data to develop integrated vessel purging solutions. We design and build to the most recent ladle and industry criteria, which include current ladle modification standards and codes.



Research and Development (R&D) Team

Research scientists at Vesuvius do cutting-edge material science. Our R&D team does the research in-house, and uses advanced analysis tools to investigate physical and chemical specimen properties. The team creates new mixes and uses product samples to conduct various destructive and other tests. Vesuvius R&D also creates specialized equipment and scale-model systems to simulate the steelmaking environment and explore the chemical interactions among metals and refractories.

Installation, Commissioning and ongoing Technical Support

Vesuvius does more than just deliver products when you need them. As your partner in performance, we are committed to making sure everything works just as designed.



Our technicians and managers work with you to install and commission your purging system. We are everywhere you want us to be, ready to help you with anything you need.

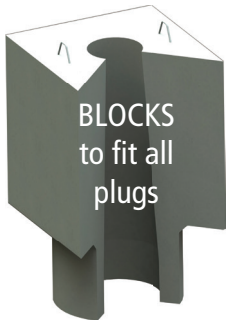
You know the reasons for ladle stirring

De-sulfurization. Reduced non-metallic inclusions.
Uniform distribution of temperature and alloying additives.
Cleaner steel.

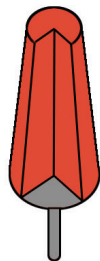
Now you can stir the best way with Vesuvius purge plugs

An industry leader in flow control. Vesuvius plugs are highly customizable in a wide range of flow rates and provide a more complete stir than top lances. Studies show efficient stirring can't be accomplished with a top lance. Our plugs are your most effective tool for stirring steel.

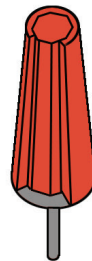
	<i>Highest Quality Recrystallized Alumina Uni-directional</i>	<i>FOUNDRY ONLY Quality Refractory Omni-directional</i>	<i>Composite with Porous Core Omni-directional</i>	<i>Castable with Slots Uni-directional</i>	<i>SPA = CDS + CPA Slotted Composite with Porous Core</i>	<i>Quality refractory Fired Alumina Uni-directional</i>
Temperature Reduction	✓			✓ ✓		
Purging Opening Efficiency	✓	✓	✓	✓	✓ ✓	✓
Wear Indicator Option	✓		✓	✓	✓	✓
Long Life & Resists Attack	✓ ✓			✓		✓
Alloy & Temp Homogeneity	✓		✓	✓	✓	
Clean Steel, Small Bubbles		✓	✓ ✓		✓	
Desulfurization, High-Flow	✓ ✓			✓ ✓		
Foundry		✓ ✓	✓	✓ ✓		
Heavy Oxygen Lancing						✓ ✓
Customer-specific Application	✓	✓	✓	✓ ✓	✓	✓



RCA



POROUS



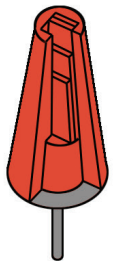
CPA



CDS

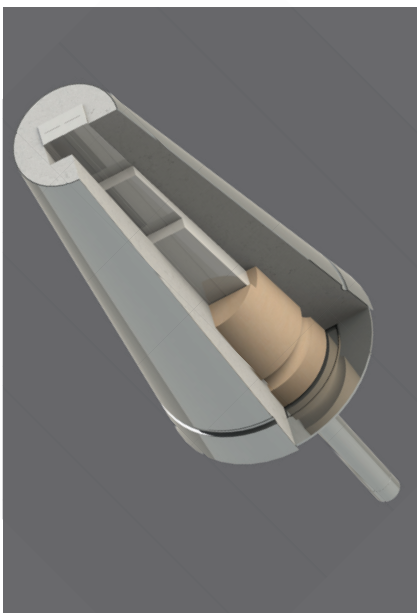


SPA



PLATE

The purge plug and material recommendations listed above are for general consideration. Please consult your Vesuvius representative for assistance in selecting the specific materials, purge plugs, and purging system solutions to match your performance requirements.



For more information on these products and on our complete package of solutions please contact our local service center:

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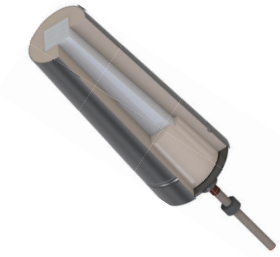
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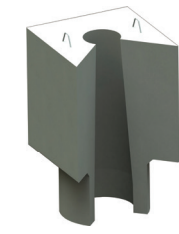


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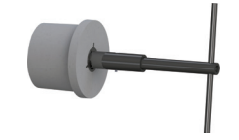
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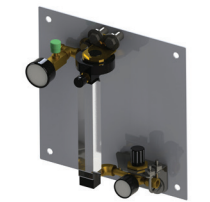
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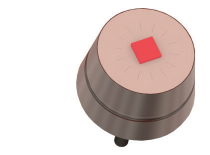
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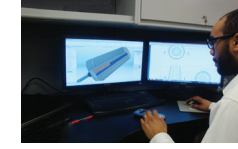
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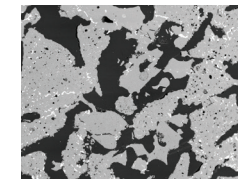


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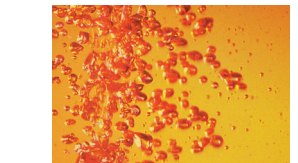
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