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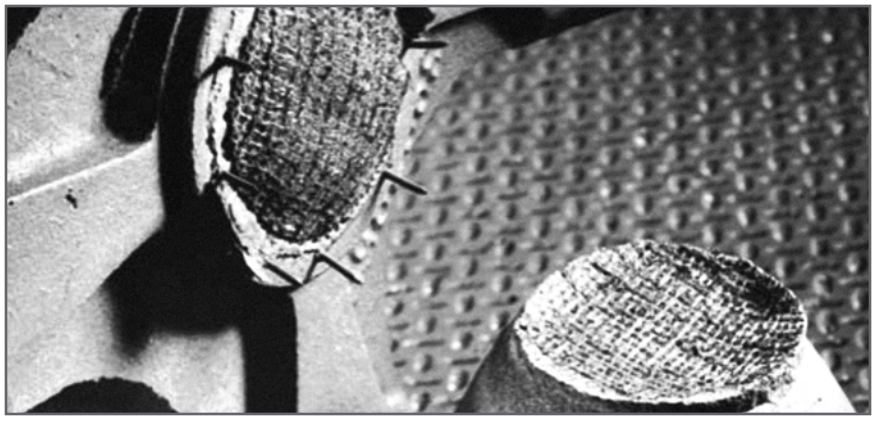
User Guide: Silica Mesh To Facilitate Riser And Gating Removal

High silica fiberglass mesh was originally introduced as a filtration media for removing impurities from steel, copper-based metal alloys, aluminum, malleable and ductile iron castings. Another application has emerged by using it to quickly and easily remove risers from castings.

Riser Breakers generally consist of a cut disc of silica mesh filter material that is embedded directly into the inner wall of a shell or sand-based breaker core. This Riser Breaker is then typically attached to the bottom of any variety of riser sleeve (exothermic, shell-based, etc.) and then placed into the pattern. If there is a concern about the riser "flow", a small feeder hole is cut in the center of the silica mesh to ensure the molten metal flow is adequate. The primary benefits in using Riser Breakers include an upper temperature threshold of 1620°, complete rigidity (no deflection into casting),and the ability to be used for most of all ferrous and non-ferrous metals like grey iron, ductile iron, low-carbon and Manganese steel etc..

- Readily fit to most common riser sleeves.
- No deflection into casting.
- Knocks-off easily with minimal force.
- Cost-efficient de-risering + no capital investment.
- Center hole for flow rate management.
- Use in standard riser feeder application or as part of direct-pour sleeve.



Silica mesh can be used for riser knock-off as a riser removal plane

Riser Removal:

There are three mesh sizes available for silica mesh:

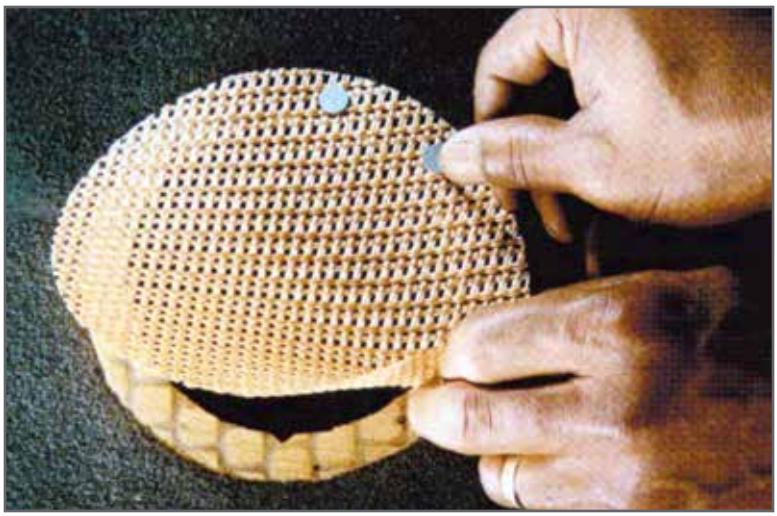
1.5 x 1.5mm, 2.0 x 2.0mm and 2.5 x 2.5mm.

Among them, the 2.5x2.5mm is the best suited for riser removal. This weave offers the greatest percentage of open area which allows for proper metal feed to the casting. The material is available to foundries as flat fabric, or it can be purchased in die-cut pieces. In either case, for riser removal applications, it is common practice to cut a small hole through the silica mesh. This permits any impurities which may be trapped on

the mesh surface during pouring, to flow up into the riser. This small opening also ensures effective feeding by the riser, while still facilitating good riser break off, and minimizing fabric sagging. Silica mesh has been found to be most effective as a breaker material when used with neck down riser sleeves. In many applications, the silica mesh can replace breaker cores with much lower cost insertion of the fabric by itself or in conjunction with a breaker core.

Filtration & Riser Removal:

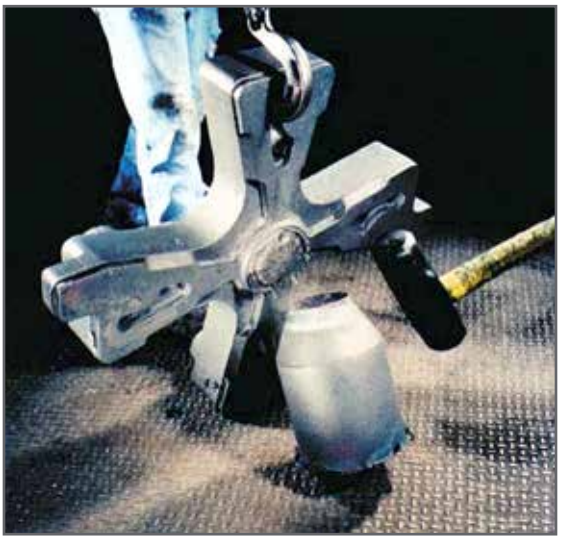
In direct pour applications, where the riser also serves as the point of metal entry, silica mesh may serve two purposes: acting as both a molten metal filter, and a riser knock off plane.



How To Apply:

Silica mesh may be fastened to insulating or exothermic riser sleeves by nailing or gluing the fabric to the base of the sleeve. Although silica mesh can withstand pouring temperatures to 1620°C, it will become soft when contact with molten metal. Therefore, it is recommended that a riser pad of 1/4" - 3/8" be used to prevent a mesh imprint on the casting's surface.

Riser Removal:



Riser removal is easy, even on large castings.

Abrasive wheel cutting is eliminated when using silica mesh for a breaker material.

While the effectiveness of silica mesh, in terms of riser knock-off characteristics, is still largely dependent upon the ductility and temperature of the metal at the time of riser removal, in most cases, including ductile iron castings, 100% de-risering is achieved during shake-out operations.

Also the large risers are simply removed by impact with a mallet or hammer of sufficient size. This procedure is normally followed by a minor grinding operation to remove the riser pad and achieve final casting cosmetic standards.

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