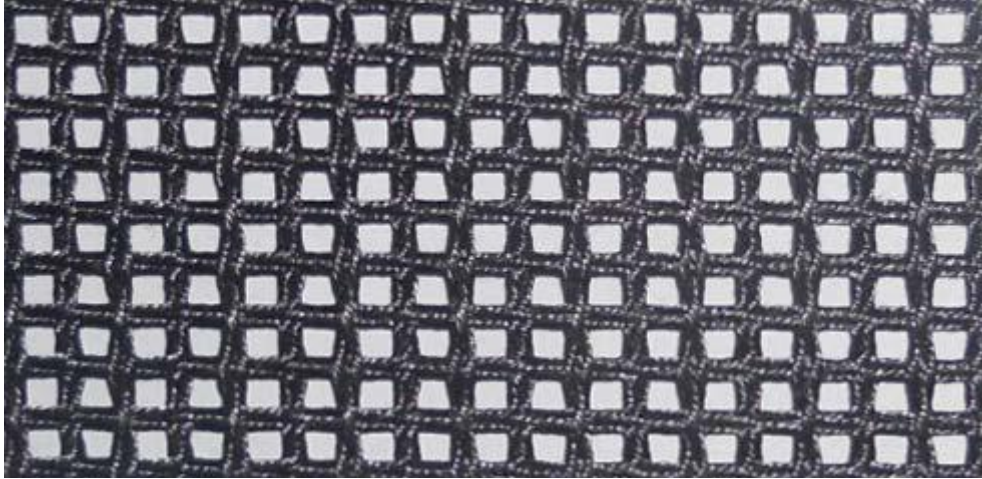


## CARBONIZED SILICA MESH FILTER

Carbonized silica mesh filter can extract dross, slag, refractory particles, and non-metallic inclusions from molten metals. It is developed as a low cost, high efficiency alternative to cellular ceramic filter or reticulated ceramic foam filters.



Carbonized silica mesh is made from specially treated silica yarns and is capable of withstanding pouring temperatures up to 1620°C (2948°F).

These silica mesh filters are ideal for in-mold filtration of gray, malleable, white, compacted graphite, and ductile cast irons, as well as non-ferrous aluminum and copper-based metal alloys and many types of small scale steel casting filtration.

Besides being cost effective, smokeless, having low gas emissions, the carbonized silica mesh filter can be slow to dissolve in the liquid metal and slow to transfer heat electronically since there is a porous, non-graphitic carbon coating on the filter surface. The surface tension of the liquid metal prevents it from penetrating the filter until a sufficient metallostatic head has been developed by accumulation of the liquid metal against the upstream face of the filter. So for most applications of ceramic filters, a higher pouring temperature is needed to break through the surface tension to realize a smooth flow.

The strong, porous carbon coating could insulate the filter against the flow of heat from the liquid metal, improving the priming of the filter and reducing the degree of superheat needed to maintain the fluidity of the liquid metal. Once there is enough back pressure for the liquid metal to flow through the filter, the char within the pores of the filter prevents the finely divided streams of liquid metal from freezing off within the pores.

Once a significant amount of liquid metal has flowed through the filter, it will have been heated sufficiently for the insulating properties of the char coating to be no longer needed. The insulating property of the carbon coating reduces the degree of superheat required to ensure passage of the first liquid metal through the filter, thereby reducing the superheat required for the entire quantity of metal in the ladle, because it is impractical to increase the superheat of just a small portion of that quantity added to each successive mold in the group fed from that ladle. This realizes a significant saving in energy as well as an improvement in the metallurgical quality of the liquid metal, because higher temperatures increase the rates of the adverse chemical reactions in the ladle.

The carbonized silica mesh filters can be placed under the riser sleeves or at the ingates to the casting cavity where they can also act as the removal plane to help riser or gating parts easily to be knock off from castings.

#### **APPLICATION**

- Ferrous and non ferrous castings filtration, small scale steel castings filtration, aiding on riser or gating removal

#### **ADVANTAGES**

- Excellent stiffness and toughness, carbon coating is mechanically stronger and has good anti-impact resistance
- Mesh and grid is well organized and has high integrity which ensure the best filtration effect
- Very cost-effective compared with ceramic filters & greatly reduce filtration cost
- Easy installation
- Reduces scrap and oxides, captures impurities, brings down the casting rejection rate due to slag inclusions
- Reduces molten metal turbulence, improves molten metal distribution and flow
- Carbonized silica mesh filter produce minimal odor and smoke while being used, good for operators' health and safety, and for castings quality
- Aids the priming of the filter and saves energy
- Keeps operators away from molten metal and it's easy to handle metal scrap recycling (silica mesh floats on top of the molten metal when the metal is recycled and can be easily scooped out) - this can greatly reduce cost

#### **SPECIFICATIONS**

- Yarn type: High silica fiberglass
- SiO<sub>2</sub> contents: ≥96%
- Weave pattern: Mock Leno
- Density weight: 350-580g/m<sup>2</sup>
- Pre cut size available: 35x35mm to 400x1000mm
- Mesh size: 1.5x1.5mm, 2.0x2.0mm, 2.5x2.5mm
- Thickness: 0.18-0.35mm
- Working temperature: Up to 1620 °C (2948°F).
- Soft Point: 1700°C (3092°F).
- Gas emission: ≤60cm<sup>3</sup>/g>

>carbonized\_silica\_mesh