

Metal Foundry Refractories

Section 2. Ceramic Filters

2.1. General Descriptions:

Ceramic filters are used effectively for straining the nonmetallic inclusions and impurities from molten metals. Ceramic filter modifies turbulence flow and provides laminar and steady flow of melt in casting systems, which reduces entrapped gas, pin holes, mold erosion and sand defects. Hence filtering improves the microstructure homogeneity, mechanical properties, machinability, surface quality and performance of final products.

Generally ceramic filters help to produce higher quality product at simple casting system and lower production costs with reducing of casting defects and rejection rate.

Dirgodaz Amol Industries Co. manufactures of ceramic filters including of ceramic foam filter (CFF) and ceramic strainer(CS) for metal foundry industries.

2.2. Ceramic Foam Filter:

Ceramic foam filter is special classes of porous material with interconnected porous structure.

The porous microstructure provides a large filtration surface area which is appropriate for high trapping efficiencies.

SD-CFF/S1 ceramic foam filter with a maximum service temperature of 1500°C are designed for filtration of cast iron (ductile, grey) and non-ferrous alloys (aluminum and copper alloys).

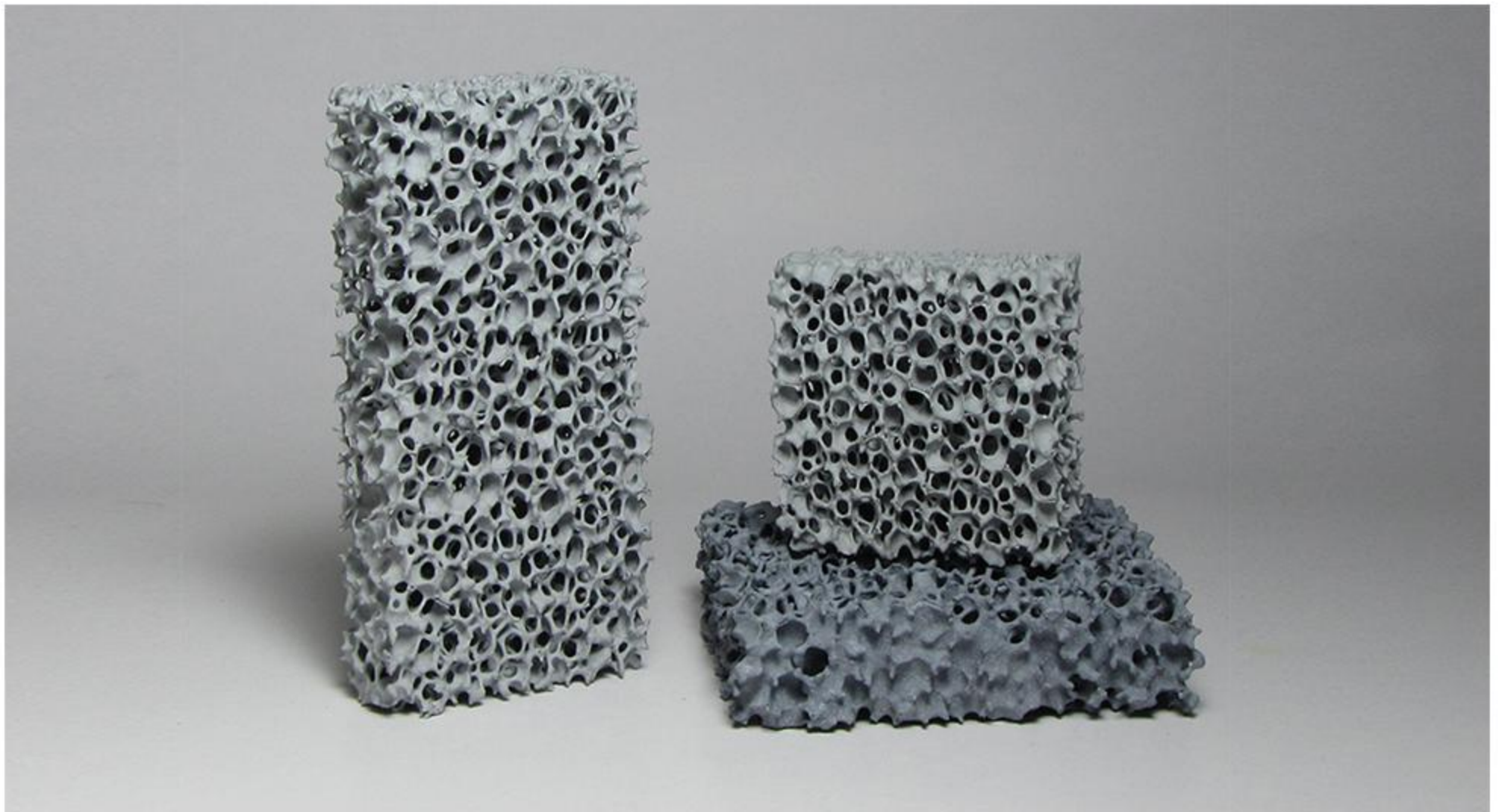
Properties such as good chemical corrosion resistance, resistance to sudden temperature changes and high thermal stability up to temperatures of 1500 °C, provide optimum conditions for filtration during the casting process.

This filter can be used in the filtration box of gating system and for direct pouring on the filter.

Ceramic foam filter is produces with common Replica Technique (polyurethane polymeric sponge method). This method consists of the immersion of polymeric sponge in the ceramic slurry, followed by the removal of excess slurry, drying, pyrolysis and burn out of the polymeric substrate to leaves the cross-linked porous structure and sintering with an appropriate atmospheric and temperature conditions for final densification.

Physical properties of this product is listed in the below table.

ceramic foam filter			
Product code	S.T (°C)	B.D (g/cm ³)	Porosity (%)
SD-CFF-F1	1500	0.35-0.40	85
Shapes	Dimension (mm)		
Square	50*50*22		
Rectangle	50*30*22,50*75*22, 50*100*22		
Pore size (PPI)	10,15		



نسوزهای صنعت ریخته گری فلزات

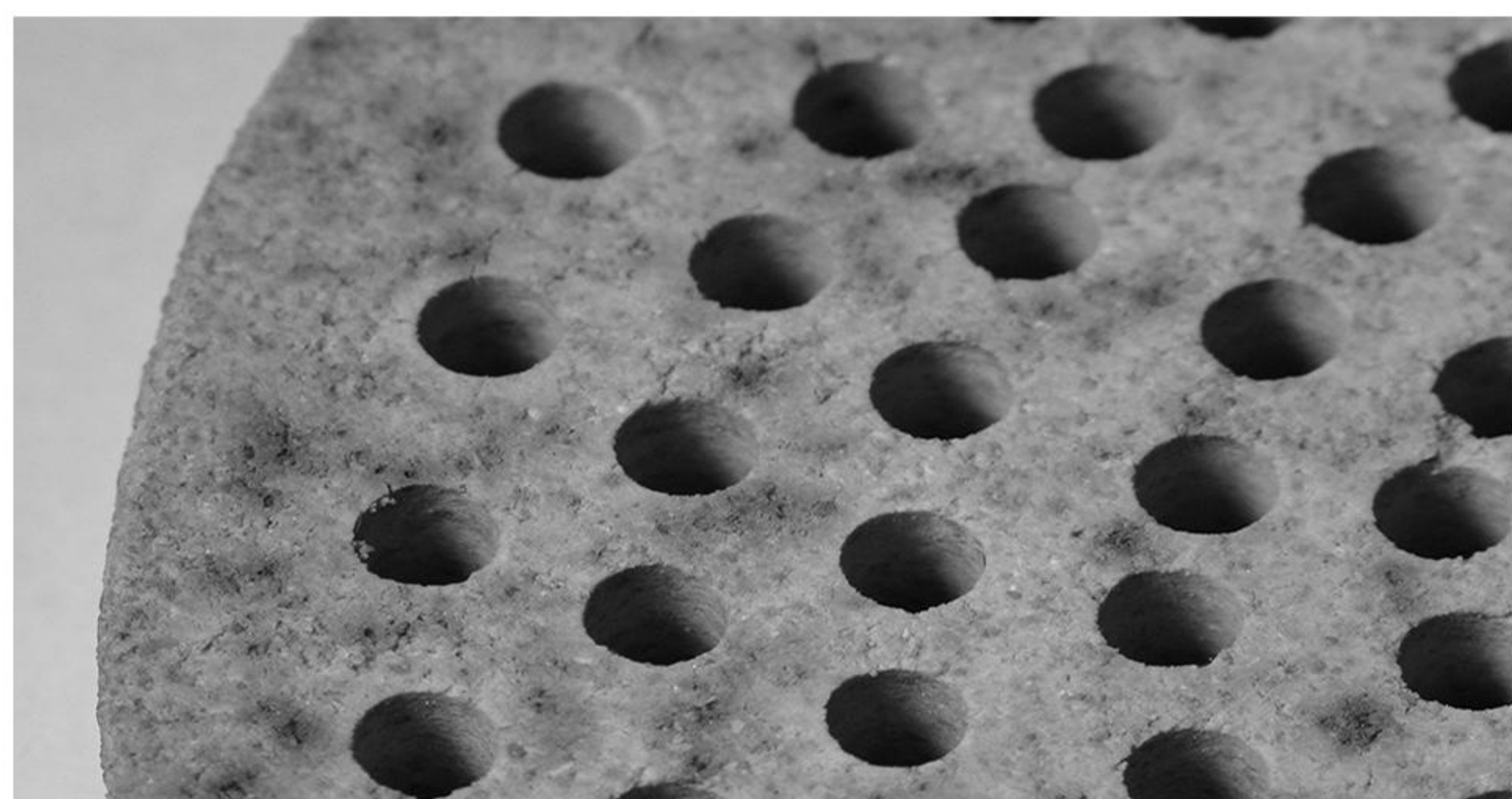
2.3. Ceramic Strainer(CS):

These strainers are ceramic material on the basis of mullite and cordierite phases, which are designed for maximum service temperature of 1500°C. Ceramic strainers have a special function of impurity straining and constant flow of molten metals.

These strainers are characterized by good thermo-mechanical properties and chemical resistance in molten metals. These products are formed by pressing technique in the shape of cellular structure with different dimensions and holes diameters.

Physical properties of these products are listed in the below table.

Ceramic strainer		
Product code	SD-F65/29	SD-F63/61
shape	round	round
Dimension (mm)	62*7	62*7
Hole diameter (mm)	5	3
Hole NO.	29	61



۳.۲. صافی سرامیکی (CS):

این صافی ها بر پایه مواد سرامیکی از نوع فازهای کوردیریت و مولایت بوده و برای ماکزیمم دمای کاری ۱۵۰۰ درجه سانتیگراد طراحی شده اند. عملکرد اصلی این صافی ها شامل تامین جریان آرام و یکنواخت و تصفیه ناخالصی مذاب فلزات می باشد.

صافی های فوق دارای مشخصه هایی چون خواص ترمومکانیکی و مقاومت شیمیایی مناسب در مذاب فلزات می باشند. این محصولات توسط روش پرس و در شکل ساختار سلولی با ابعاد کلی و اندازه حفرات متفاوت تولید می شوند. خواص فیزیکی این محصولات در جدول زیر نشان داده شده است.

صافی سرامیکی		
SD-F63/61	SD-F65/29	کد محصول
دایره	دایره	شکل
۷*۶۲	۷*۶۲	قطر - ضخامت (میلی متر)
۳	۵	قطر حفره (میلی متر)
۶۱	۲۹	تعداد حفره

