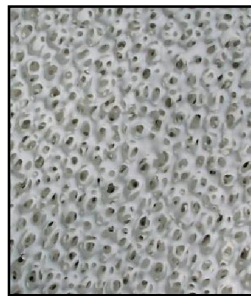


VUKOPOR® A Ceramic Foam Filters

Characteristics

VUKOPOR® A ceramic foam filters are designed for filtration of aluminium and non-ferrous metal alloys in cast houses, particularly in primary and secondary processing of molten metal, as well as for filtration of castings in foundries.

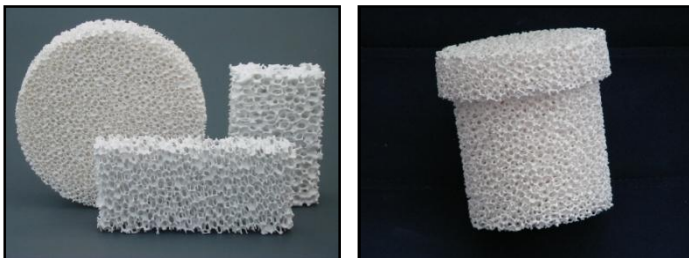
A typical feature of the structure of VUKOPOR® A ceramic foam filters is the three-dimensional network of opened pores forming a labyrinth of their ceramic body. It is this structure together with the ceramics of the filter that enable efficient utilization of all filtering mechanisms necessary for effective filtration and continuous mould filling.



The filters have a typical homogenous ceramic structure with a minimum of choked places on both the effective areas as well as inside the filter. These features, together with their resistance to chemicals used in metallurgical works and heat stability up to temperatures of 1350 °C, provide optimum conditions for filtration during the whole casting process. Their chemical composition, with adhesion forces active inside the filter ceramics, is ideal for capturing inclusions, particularly those on the basis of Al₂O₃.

Foundry Filters

The foundry VUKOPOR® A filters are used in special filter prints of the gating system in the mould as well as for direct pouring on the filter in combination with exothermic sleeves or insulating cups. They are manufactured in a huge scale of dimensions and various shapes.



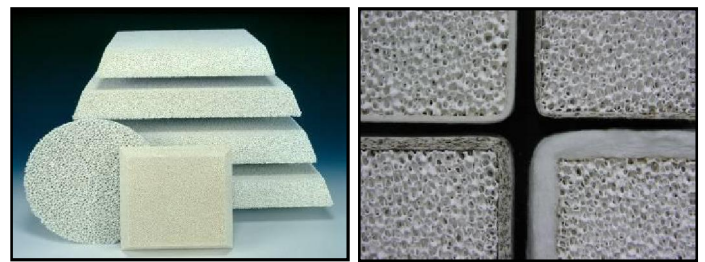
Special designed shapes of VUKOPOR® A filters so-called "corks" are being used in combination with ceramic pipes in low-pressure die casting. The "corks" are provided with an expandable gasket and so they are inserted inside to rising tubes.

Thanks to their huge filtering capacity and their material properties they can be used for many casting cycles and such replace the usage of one-shot filters or metal gratings.

Metallurgical Filters

The metallurgical VUKOPOR® A filters are manufactured in a scale of square and round shapes with tapered sides providing their correct placement in horizontal filter bowls. Filters with an application in vertical position are manufactured in square or other special shapes without tapered sides.

All the types of filters are recommended to be equipped by sealing or expandable gaskets to fix them in the right position in linings and boxes. Metallurgical filters should be pre-heated before filtering and thus the maximum filtration capacity and pouring rate is achieved.



Technical Specification

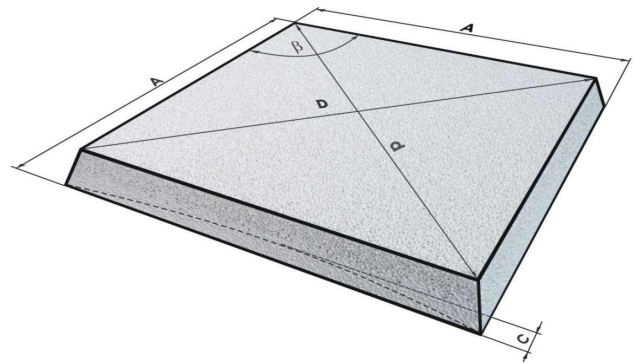
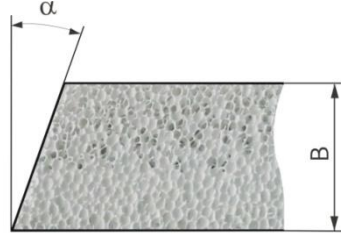
Chemical Composition:	Al ₂ O ₃ , SiO ₂
Application Temperature:	max. 1350 °C
Bond:	ceramic
Colour:	white (different scales of whiteness are allowed)
Porosity:	10, 20, 30, 40, 50, 60 ppi; or combined 20/40, 30/50 etc.
Filter Surface:	smooth or moulded (waved)
Special Improvements:	sealing gasket - cf.g. 2; 6,4 mm expandable gasket - 3.1mm
Basic Shapes:	square, circle, rectangle
Special Shapes:	according to customers request
Tolerance of Dimensions:	+ 0,5 / - 1,5 mm (up to 99 mm) + 0,5 / - 2,5 mm (100 - 150 mm) <small>Note: measured with callipers equipped with flat contact elements (46x30 mm)</small>

Closed pores, cracks and holes in the effective areas of the filter are not allowed. The surface area of the sidewalls can be filled with ceramics.

Standard Dimensions and Technical Parametres of Metallurgical Filters

Dimensions (Inch)	Dimensions (mm)	Dimensional Tolerances (mm)	Weight and Tolerances (g)	Capacity (t Al)	Flow rate (kg Al/min)
7 x 7 x 2	178 x 178 x 50	178 ± 3	560 ± 60	5	20 - 60
9 x 9 x 2	228 x 228 x 50	228 ± 3	960 ± 100	10	40 - 120
12 x 12 x 2	305 x 305 x 50	305 ± 3	1740 ± 160	15	80 - 240
15 x 15 x 2	381 x 381 x 50	381 ± 3	2770 ± 220	25	120 - 360
17 x 17 x 2	431 x 431 x 50	431 ± 3	3600 ± 250	35	160 - 480
20 x 20 x 2	508 x 508 x 50	508 ± 4	5020 ± 300	45	230 - 690

Dimension A see table above
 Thickness B + 0 / - 2
 Value C max. 2 mm (on each edge)
 D - d ≤ 0.6% x A
 Angle α 18° ± 1°
 Angle β 90° ± 1°



Standard Dimensions and Technical Parametres of Foundry Filters

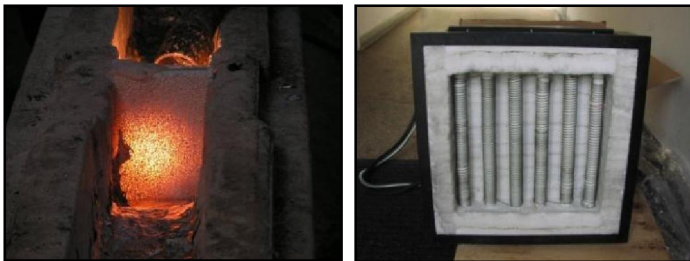
Dimensions (mm)	Thickness (mm)	Capacity (kg)	Flow Rate (kg/s)	Capacity (kg)	Flow Rate (kg/s)	Capacity (kg)	Flow Rate (kg/s)
		10 ppi		20 ppi		30 ppi	
40x40x	15, 22	27	1,5	19	1	16	1
50x30x	15, 22	25	1,5	18	1	15	1
50x50x	15, 22	42	2	30	1,5	25	1,5
75x50x	22	64	3	45	2,5	38	2
75x75x	22	96	5	67	4	56	3
100x100x	22	170	9	120	7	100	5,5
125x125x	25	265	14	187	10	156	8,5
150x150x	25	383	20	270	15	225	12
ø 40x	15, 22	21	1	15	1	13	1
ø 50x	22	33	1,5	24	1,5	20	1
ø 75x	22	75	4	53	3	44	2,5
ø 100x	22	134	7	94	5	79	4,5
ø 125x	25	209	11	150	8	120	6,5
ø 150x	25	300	16	210	12	170	10

Handling and Use

Ceramic foam filters are fragile and should be handled accordingly. Take a filter out of the package and carefully remove possible ceramic particles by hand or blow them off with pressure air. It is recommended to handle foundry filters without gloves.

By no means try to adapt the filter (cutting or grinding). Its shape and dimensions must correspond with the space in the gating system or in the filter bowl. When choosing a size, shape, dimensions and porosity of a filter, you should keep to the generally applicable rules and principles taking into account the position of the filter, required filtering capacity and pouring rate.

Before use, preheat the metallurgical filters by a suitable equipment (electric or gas heating). The preheating should be done continuously and equally throughout the whole surface area of the filter. When a filter is supplied with an expanding sealing gasket, special attention should be paid to the margins of the filter. Preheated to a temperature of 350 – 400 °C, the filter can be used for casting.



During casting, a horizontally fitted filter must be continuously immersed in the metal. Do not “clean” the filter surface during casting to avoid damage. After a campaign, take the filter out of the box, usually using a pair of pliers. Vertical fitting of a filter gradually leads to different levels of metal before and after the filter as it gradually becomes choked with inclusions. After casting, the filter is removed from the box.

It is not necessary to preheat foundry filters before use. In the case it is required a sealing because of the filter position in a chamber, it can be protected with a sealing gasket of heat resistant fibre material.

Packaging and Marking

The foundry filters are packed in cardboard boxes protecting them from damage. Layers of filters are separated with paper and soft tissue. Space is left between individual filters to prevent contact in the box.

The metallurgical filters are packed separately in cardboard boxes and placed in vertical position to master boxes. Master boxes are laid on wooden pallets.

The box with filters must be delivered undamaged without apparent defects. Each box has a filter identification tag containing data on: filter type, porosity, dimension, production date, production order number, number of the inspection worker, additional label, etc.

Transportation and Storing

The cardboard boxes and packages with ceramic foam filters are transported in covered means of transport. They can only be stored in covered and dry storage rooms. It is only allowed to stack six layers on each other. If during the transport the filters were exposed to high humidity, they have to be dried at the temperature of 110 °C until completely dry before use.

The cardboard boxes with the foundry filters are allowed to be stack maximally in seven layers on each other on wooden pallets.

The metallurgical filters are stored in boxes and transported in a vertical position to prevent from their destruction.

Quality Control Process

The ceramic foam filters are manufactured in compliance with the quality control standards ISO 9001 : 2000.