



## USER GUIDE ON AMI<sup>TM</sup> CERAMIC FOAM FILTER

### 1. SELECT THE SUITABLE CERAMIC FOAM FILTER

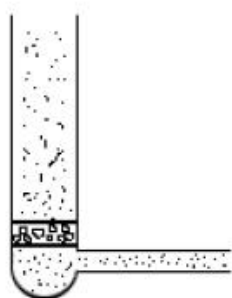
Metal Flow	Applicable PPI	Filtering Flux (kg/cm <sup>3</sup> )	Ratio of Effective Area and the Section Area of the Runner Pipe	Applicable Temperature (°C)	Recommended Product Type
Aluminium & Alloy casting	10—40	1—1.5	6—8	1100	ALO
Iron and alloy casting, Ductile Iron	10—20	2—2.4	3—4	1450	SIC
Gray Iron	10—20	3—5	≥3	1450	SIC
Copper casting	10—20	2—2.4	≥3	1450	SIC
Steel and alloy casting	8—20	1.5—2	4—10	1680	ZRO

#### Instruction:

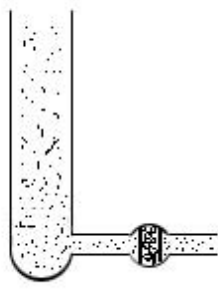
- 1) Select the suitable type of ceramic foam filter according to the kind of metal flow.
- 2) Select the suitable PPI according to the fluidity and purity of the metal flow, and the material, weight and required quality of the cast.
- 3) Because of the spoiler function and the “Filter cake effect” of the ceramic foam filter, the section area of the foam filter is requested to be the 2-4.5 times to the section area of the runner pipe. We can get the section area of the ceramic foam filter according to the volume of the metal flow, the filtering flux of the filter and the section area of the runner pipe, then we can determine the size.

### 2. User guide of the Ceramic Foam filter

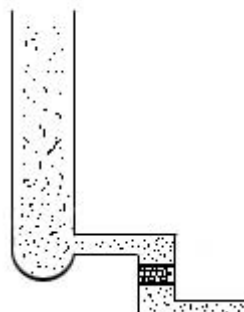
#### a) Make the installation correct



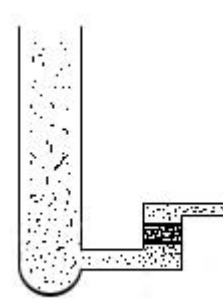
Mode I



Mode II



Mode III



Mode IV

Mode I is applied to the situation that there is no transverse runner pipe or the ceramic foam filter can be put into the transverse runner pipe, such as the minitype cast and steel casting; Mode II is most popular and with best effect, it is applied for various of casts; Mode III is not applicable to the metal flow which is easily oxygenated, such as iron and stainless steel; Mode IV avoid the direct concussion to the foam filter, and is provided with high capture index.

Ceramic foam filter can be put into various position in the casting system, but we shall chose the right mode according to the characteristics of the cast and the working conditions. Commonly speaking, it shall be the ideal mode that the ceramic foam filter is put vertically in the transverse runner pip and as closer as possible to the cast (the inner sprue), such as Mode II.

- b) We shall try our best to avoid the situation that the metal flow strike the filter directly. If can not, then we shall keep the cast height within 20-40cm.
- c) We shall apply the cast temperature with the upper limit of the technique. In this temperature the metal flow will be in good fluidity, this will help the metal flow pass the foam filter favorably. In case the temperature is on the low side, the biggish surface tension may block the metal flow. We can shake the mould by using the hammer slightly, then the surface tension will be overcome and the metal flow can pass favorably.
- d) Open the inner runner pipe and apply the slag collecting tank. Applying ceramic foam filter, we can use bigger dimension of the inner runner pipe. Use the slag collecting tank before the foam filter, we can release the load of the foam filter and increase the filtering effect.
- e) In high temperature, the strength of the ceramic foam filter will be half of the one in room temperature, so we shall select square shape filter to reduce the cantilever length when designing the casting system. The honeycomb ceramic filter shall be considered to be used as supporter behind the ceramic foam filter in big size. This will extend the working life of the foam filter. The total area of the holes on the honeycomb ceramic shall not be less than 1/3 of the effective area of the foam filter.
- f) In order to raise the filtering effect, we shall apply several ceramic foam filters in the runner pipe. The foam filter in low PPI shall be put in front of the one in high PPI. For big cast, we can apply multiple foam filters in multiple sects in the casting system.
- g) Initiate Press Head: it shall be not less than 200mm for gray iron casting; and not less than 300mm for stainless steel casting.

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