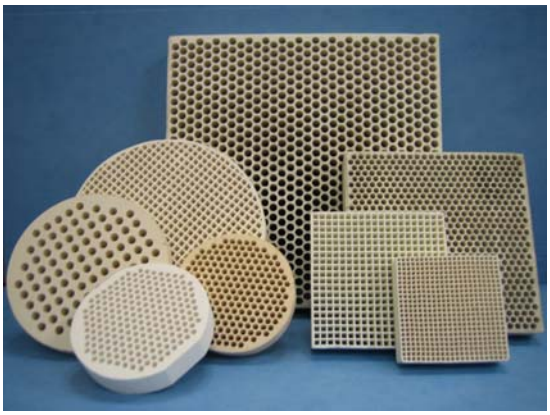

InterSource Ceramic Strainers

InterSource offers a complete line of TaoFil ® Ceramic Strainers, which have excellent properties of good thermal stability, high specific surface area, and resistance to acid and alkali. They are applicable to wide and extensive industrial applications and processes. We can supply more than ten kinds of materials to meet standards of Europe and America

1. Advantages:

Decrease the impurity in the melting parts;
Improve the mechanical properties;
Decrease machining cost and improve the cutting characteristics;
Improve stain resistance;
Improve casting quality;
Improve yield;
Increase pour rate;
Improve machine tool life

2. Function and Characteristics of InterSource Ceramic Strainers

Higher refractoriness and higher softening temperature;
Filtrating minor slag;
High thermal resistance and shock resistance;
Good flow rate;
No contaminating the casting parts;
Increase intensity.

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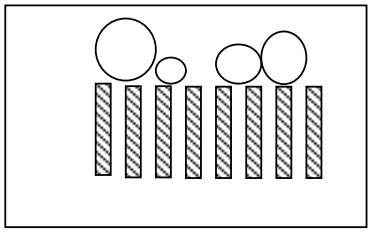
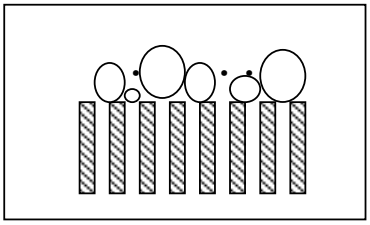
3. InterSource Ceramic Strainer's Working Mechanism

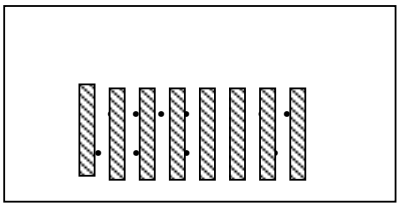
Screening：Slag bigger than the mesh will be screened.



Collecting：Slag smaller than the mesh will adhere to the bigger.



Adherence: Minor slag will adhere to the mesh walls.



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Selection of InterSource Ceramic Strainer

Different casting conditions require different installation method, different specifications of strainers, and different framework sizes.

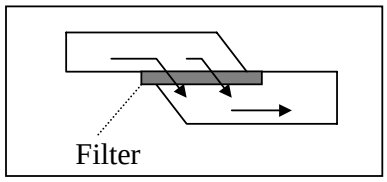
I. Principles for designing casting systems

1. Change the sprue runner to bugle shape and put the strainer into the original systems. This will insure the adequate casting acreage. After the casting, the strainer turns into melt down material and can not contaminate the sand model. Put the jam site behind the strainer as near as possible which will guarantee the runner be filled timely.
2. To prevent that the casting speed will be extended, don't put the strainer in general casting system as jam site.
3. The minor casting area should be three to six times of the entire sprue runners' minimal areas.
4. There should be a frame in the model with the size a little bigger than the strainer 2.5% longer and 0.6mm deeper.
5. During the horizontal subtype, the strainer is installed horizontally, the melt going through the strainer from the up box to the down slag will float into the upper sprue runner which guarantee the adequate casting .The strainer can be installed with a 45° angle, depending on specific conditions.
6. During the vertical subtype, the strainer should be located near the jam site.

   If the loam core is used, the strainer should be put in model, without being located in the bottoms of the sprue runners.
7. The actual casting quantity and casting speed should be lower than the referenced index separately indicated in the casting quantity list and casting speed list.

II. The location of the filter

1. Horizontal location



----Melt getting through the strainer from the up box to down sprue runners.
---Put the strainer in the down sprue runner at the same level with subtype line.
---Slag floating up to the up box, and adhere to the upper sprue runners.

Note: What is described above is just a suggestion.

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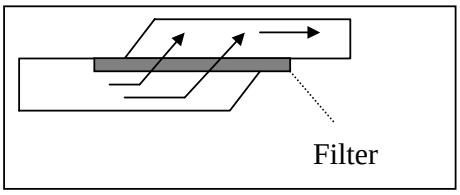
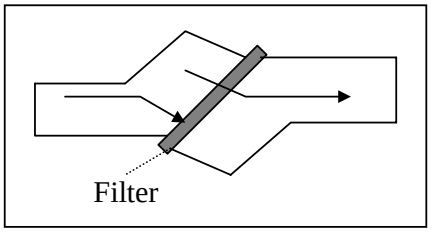
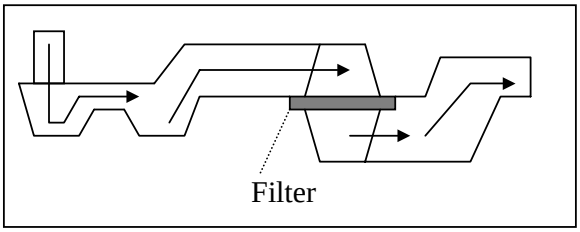
---Melt going through the strainer from the down box to the up box.
---Put the strainer in the down sprue runner at the same level with subtype line.
---Slag floating up to the down side of the tilter.



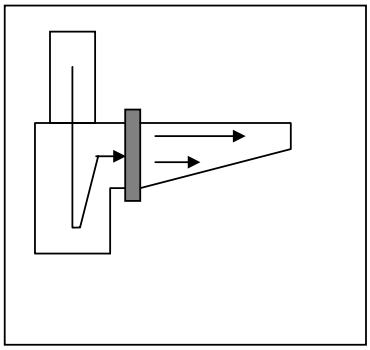


---Melt going through the strainer from up box to down runner channel.
---Most strainers are located in the down box, while only a few are located in upper box with 30~45angle.

---Strainer with 50~70mm thickness is settled within the mould cavities. Slag will float to the upper boxes' runner gates.
---The nearly the strainer to the reaction chamber, the more possibility channel be jam- med. If the strainer are near the chamber, bigger ones should be used.



1. Strainer Near the Vertical Runner Channels



----Strainers are vertically located in the sprue cups.
---4～5mm is in the upper box ,the others in the down boxes
---Can guarantee the molten metal directly impact the strainer surface.
---The socker near the sprue cups can fill up slag; so more cast capacity can be guaranteed.

Note: The above is just a suggestion.

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Vertical Installation of Strainer

1. Introduce

Vertically subtype is a method that put challenges to casting industry; one of the challenges is vertically locate strainers.

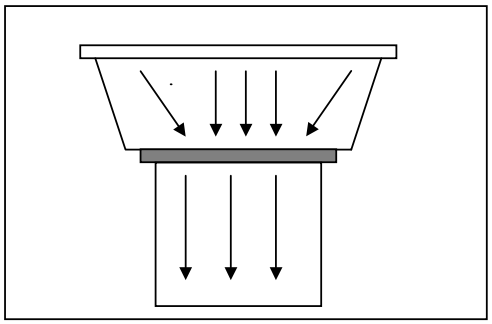
2. Usual Strainer Digit

In the sprue cups

----If not adopt loam core, the strainer will be put into after the mould closing, so it will not affect the original casting speed.

---If not use lock set, the strainer will float into the sprue cup, and put mould sand into the molten metal.

---After analysis, it be discovered that the strainer putting in the sprue cup will not as good as in the mould cavity



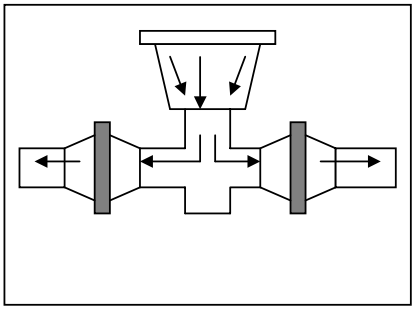
In the mould cavities

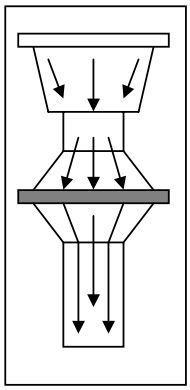
---The loam core is under located.

---If the loam core is in the mould, the casting time will not be affected .

---There will be another extra procedure, if loam core is not located in the mould.

---During the sand scrip, the possibility which casting sand is vitiated will decreased due to the strainer be locked





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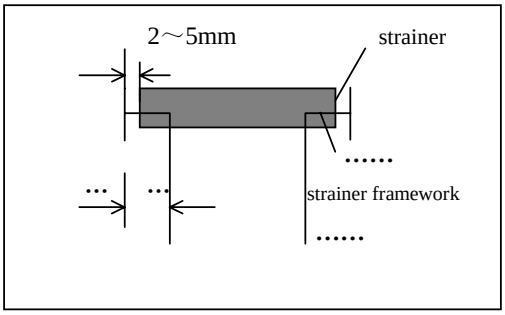
III. Strainer Framework Design

The framework is to support the filter. There should be an extra area about 2～5mm in all dimensions. We suggest the sand mould should be protruded about 4～5mm as strainer framework.

Strainer Framework Size	Formula
Length	Strainer length×1.025mm
Width	Strainer width×1.025mm
Thickness	Strainer thickness＋0.60mm



IV. Effective Filtration Areas

The effective area is the area which is in contact with the molten metal, the following formulas is designed for calculate the strainer's effective filtration area.

Strainer Form	Efficiency filtrate area（A）（mm^2）
Rotundity Strainer	A＝（π/4）×(φ－4mm)^2
Rectangle/square strainer	A＝（L－4mm）×(W－4mm)

Note: φ，L，W stand for strainer diameter，length，and width.

The effective filtrate area will directly affect the casting system. The casting speed will be slow and cast time is longer in case of inadequate filtrate area. On the other side, if the filtrate area is too large, cost will increase.

V. The Thickness of the Strainer

If the strainer is too thick, both the resistance of the casting system and the cost will increase. But the intensity will be too thin strainer. We can provide some suggestions about the strainer thickness.

VI. Choice of Strainers for Different Types of Melt

According to the block areas of casting system, effective filtrate areas will be chosen, and according to the melt type and casting speed and casting time, special diameter will be chosen.

Cast Iron

There are gray iron, ductile iron, special iron etc.

1） The effective filtrate areas of gray iron are at least 3 time of the casting system block areas, usually 3～5 times, while to ball iron is at least 5 times, usually 5～7 times. For gray iron, the mesh should be less than 2mm. smaller mesh will be more effective. While for ductile iron, the mesh should be larger than 2mm, or else, the mesh will be blocked.

2） For other iron, please refer to the gray and ductile iron.

Special Strainer Selection List For Gray Iron

Strainer model	Section size mm	Length mm	Bole	Aperture mm	Efficiency filtrate area mm^2	Casting velocity Kg/s	Casting capacity Kg
TAF-G130-10	38.1×38.1	10	328	1.5	1030	2～3	21～35
TAF-G130-13	38.1×38.1	13	328	1.5	1030	2～3	21～35
TAF-G136-15	40.0×40.0	15	407	1.5	1150	2～4	35～60
TAF-G136-13	43.5×43.5	13	472	1.5	1400	2～4	41～70
TAF-G145-13	49.7×49.7	13	538	1.5	1910	3～4	47～80
TAF-G145-18	49.7×49.7	18	538	1.5	1910	3～4	47～80
TAF-G145-22	49.7×49.7	22	492	1.8	1910	4～7	65～110
TAF-G152-10	55.0×55.0	10	795	1.5	2310	4～6	65～110
TAF-G152-13	55.0×55.0	13	795	1.5	2310	4～6	65～110

Special Strainer Selection List For Ductile Iron

Strainer model	Section size mm	Length mm	Hole	Aperture mm	Efficiency filtrate area mm^2	Casting velocity Kg/s	Casting capacity Kg
TAF-D130-10	37.0×37.0	10	161	2.3	960	1～3	14～37
TAF-D130-13	37.0×37.0	13	161	2.3	960	1～3	14～37
TAF-D136-15	40.0×40.0	15	188	2.3	1150	1～3	16～44
TAF-D136-22	40.0×40.0	22	188	2.3	1150	1～3	16～44
TAF-D138-10	43.5×43.5	10	216	2.3	1400	1～3	16～44
TAF-D138-13	43.5×43.5	13	216	2.3	1400	1～3	16～44
TAF-D140-13	55.0×55.0	13	216	2.5	2310	2～4	27～72
TAF-D145-10	50.0×50.0	10	294	2.3	1930	2～4	28～75
TAF-D145-13	50.0×50.0	13	294	2.3	1930	2～4	28～75
TAF-D145-15	50.0×50.0	15	294	2.3	1930	2～4	28～75
TAF-D145-18	50.0×50.0	18	294	2.3	1930	2～4	28～75
TAF-D145-22	50.0×50.0	22	294	2.3	1930	2～4	28～75
TAF-D148-13	66.0×66.0	13	429	2.1	2310	2～5	35～95
TAF-D152-10	55.0×55.0	10	359	2.3	2310	2～5	30～80
TAF-D152-13	55.0×55.0	13	359	2.3	2310	2～5	30～80

Cast Steel

There is carbon steel, abrasion-resistant steel, refractory steel. The effective filtrate areas of casting steel are least 4 times of the casting system block areas, usually 4～6 times. The strainer's meshes are usually about 2.7mm, this because the casting steel's high contractility.

Special Strainer Selection List For Cast Steel

Strainer model	Section size mm	Length mm	Hole	Aperture mm	Efficiency filtrate area mm^2	Casting velocity Kg/s	Casting capacity Kg
TAF-Sc160-15	Φ50.8	15	163	2.7	1575	1～3	30
TAF-Sc160-23	Φ50.8	23	163	2.7	1575	1～3	30
TAF-Sc163-15	Φ65.0	15	265	2.7	2507	2～5	50
TAF-Sc165-15	Φ75.0	15	379	2.7	3630	3～8	71
TAF-Sc165-25	Φ75.0	25	379	2.7	3630	3～8	71
TAF-Sc168-15	Φ105	15	661	2.7	6650	5～13	128
TAF-S160-13	50.0×50.0	13	216	2.7	1936	1～4	38
TAF-S165-15	54.3×54.3	15	247	2.7	2237	2～5	44
TAF-S168-13	74.0×74.0	13	525	2.7	4355	3～9	86

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Non-ferrous alloy

There are aluminum alloy, copper alloy, magnesium alloy and zinc alloy etc.

1） The effective filtrate areas of gray iron should be larger one of over 4 times of the casting system block areas or 2 times of the cross section, which will guarantee the lower degree of resistance.

2） The meshes to non-ferrous ally filter are 2.3～2.5mm.

3） Please refer to the casting steel strainer selection list.

PROPERTY OF INTERSOURCE CERAMIC STRAINER

Al_2O_3	53-57%
SiO_2	38-42%
Fe_2O_3	＜1.5%
TiO_2	＜1.5%
Density	＞1.6g/cm^3
CCS(compact compression strength)	＞40Mpa
Porosity	35-41%
MOR(modulus of rupture)	＞10 Mpa

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