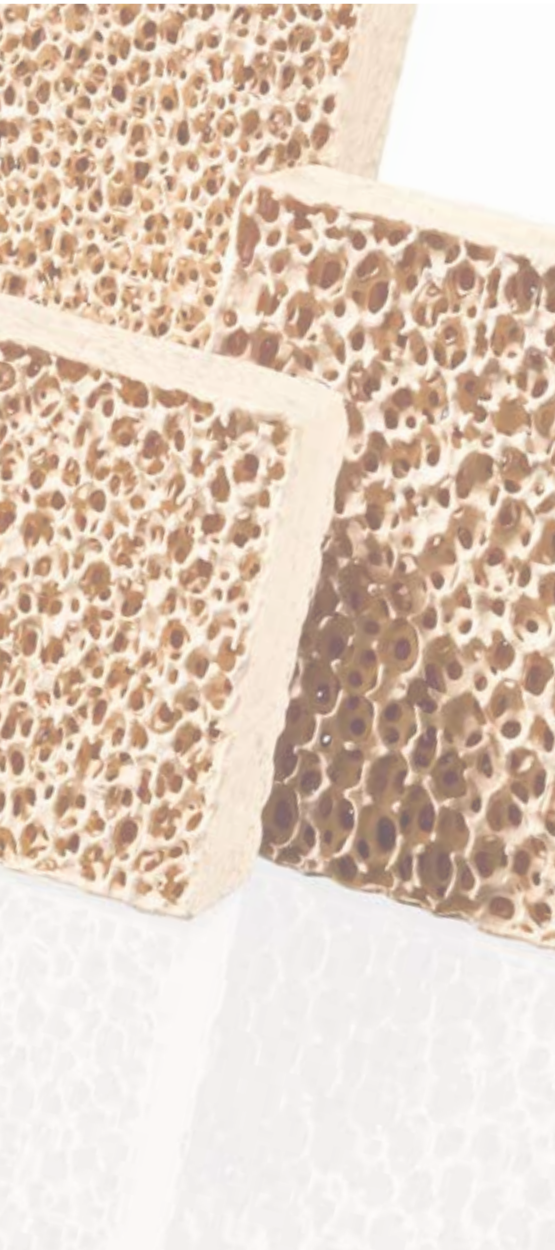


STELEX* ZR *ULTRA*

Zirconia based filters for high temperature, high strength steel applications



STELEX ZR *ULTRA* filters

for the filtration of ferrous alloys

STELEX ZR *ULTRA* provides the steel casting producer with the ability to produce higher quality castings using filtration technology with a greater degree of confidence in the performance.

A combination of improved zirconia ceramic and filter framing technology is the basis for the introduction of Foseco's new generation of STELEX ZR filters.

STELEX ZR *ULTRA* filters have a lower mass and this facilitates the generation of a more consistently open structure. The frame and ceramic ensure that the filter has very low friability. STELEX ZR *ULTRA* provides all the benefits normally associated with steel filtration together with some important new advantages:

- + Reduced potential for flow related defects
 - more consistent capacity and flow rates of metal through the filter
 - improved filter priming through reduced metal chill at the beginning of the pour
- + Potential for enhanced casting cleanliness
 - the use of finer filters with molten steel where previously this had not been possible
 - greater filtration efficiency and a higher level of turbulence control
 - reduction in the possibility of metal bypassing the filter
 - very low friability reducing filter inclusions in the casting
- + Foundries can have greater confidence in the overall performance of steel filtration products than ever before

KEY BENEFITS

- + Improved Production Costs
 - Reduced casting repair
 - Reduced heat treatment
 - Reduced machining allowance
- + Shorter Lead Times
 - Reduced casting repair
- + Improved casting quality
 - Reduced inclusions
 - Improved surface finish
 - Improved properties
- + Consistent Performance
 - Superior Priming
 - More consistent flow rate and capacity
- + Ability to use finer porosity filters for even higher filtration efficiency



STELEX ZR *ULTRA* filters

ensure clean castings

Calculation of the gating system

In gating systems using STELEX ZR *ULTRA* foundry filters, the cross-section of the downsprue should be the smallest or controlling section of the running system. The calculation of this choke area (C_A) is based on the "general downsprue formula".

$$C_A = \frac{22.6 \times W}{\xi \times \rho \times t \times \sqrt{H}}$$

C_A : downsprue area [cm²]
 22.6 : constant
 W : poured weight [kg]
 ξ : friction factor
 ρ : density [g/cm³]
 t : required pouring time [s]
 H : pouring height effective [cm]

Based on an extensive range of applications and experience, Foseco recommends the following gating ratio.

downsprue	1.0
ratio of runner	1.1
ratio of ingates	1.2

The area of the entrance face of the filter must be large enough to ensure that casting cavity is filled with molten metal before the filter becomes blocked.

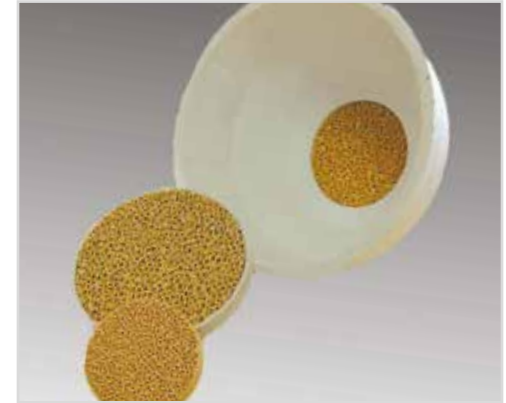
Foseco recommends the front face filter area to be at least 3.0 times larger than the calculated choke area (C_A). It is also important to ensure the exit face of the filter is well supported. A support area of 30% of the front face area should be applied.

Application of STELEX ZR filters

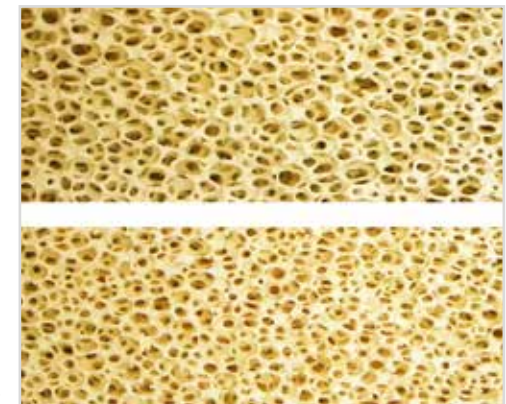
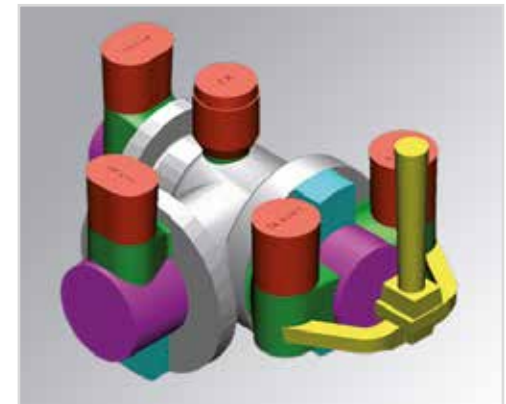
Filtration effectiveness largely depends upon the correct application of STELEX ZR *ULTRA* filters. When applying filters we always recommend using STELEX filter prints which have been developed in close co-operation with foundrymen and Foseco experts. Positioned horizontally in the runner system and close to the downsprue, STELEX ZR *ULTRA* filters will prime quickly, thereby ensuring a consistent flow through the whole filter area. Typically, these filter prints are placed on the parting line.

In order to avoid turbulence, abrupt changes in the direction of metal flow after the filter should be avoided. This is especially important when casting steel alloys, because a turbulent flow will lead to reoxidation and the development of new non-metallic inclusions within the metal stream.

Application to investment castings



Valve housing with STELEX ZR filter applied



Available in coarse and fine porosity

Quality is assured

Higher quality and lower costs

Quality management

The Foseco quality management system is certified against DIN ISO 9001, VDA 6.1 and ISO 14001. All relevant product quality features of STELEX filters are controlled and recorded according to these quality standards.

Further information regarding filter sizes, flow rates and filter capacities can be obtained from your local Foseco team.



Impingement testing unit

Service

Our engineers and product managers work in partnership with our customers to help them improve productivity, process control, casting quality and the working environment.



Visual quality control



Statistical process control



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