



Ceramic Filter Elements – Product Data

What They Do

Remove solid particles from gases in difficult conditions.

Particles are removed to prepare the gas for a downstream process, such as catalytic reaction, or for discharge to atmosphere. Alternatively, the objective may be to collect the solids i.e. product recovery.

The elements are highly refractory, able to operate at temperatures at up to 900 °C or in the presence of corrosive gases such as SO₂ or HCl.

How They Work

A pressure difference is applied to the element, low pressure at the **open end**. This pressure difference draws gas from the dirty side of the filter, through the annular **wall** of the filter element and up its **core** to be discharged into the clean chamber. The solid particles are retained on the **surface** of the element.

From time to time a reverse pulse of air or other gas is applied to the open end of the element. This causes a momentary reverse flow of gas which dislodges the accumulated solids from the element surface, allowing them to be collected in a hopper beneath.

Typically, a number of elements are mounted vertically open end uppermost hanging from a header plate. The header plate separates the dirty and clean sides of the filter. The elements are often arranged in rows and the reverse pulses are applied to one row at a time in a controlled sequence.

The elements are made from aluminosilicate ceramic fibres. These fibres are approximately 2.5 µm in diameter, which is very fine compared to most cleanable filter media. This very fine structure, coupled with the 8 mm wall thickness of the medium, gives excellent solids removal efficiency, normally 100%.

In the first 10 - 20 reverse pulse cleaning cycles only a proportion of the collected dust is removed by the cleaning action. The remainder forms a conditioning layer which increases the pressure drop across the filter. After these initial cycles equilibrium is reached and the pressure drop stabilises at a level that is mainly a function of the properties of the dust.

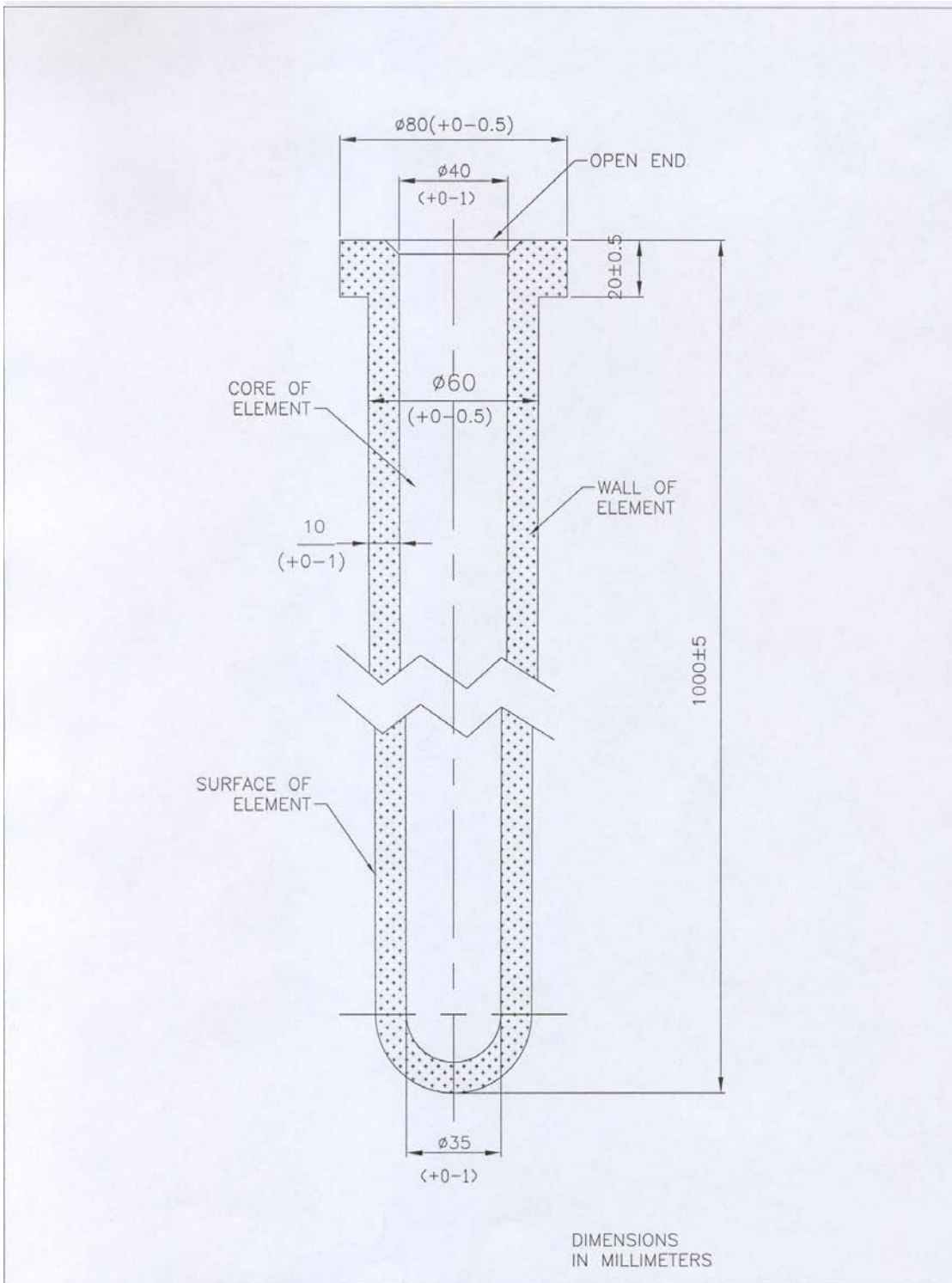
Properties

Porosity	87.5 - 91.0 % void
Composition (after firing)	SiO ₂ ...52.2 % Al ₂ O ₃ ...47.8 %
Density	300 - 400 g/l
Temperature service limit	900 °C
Corrosion limitations	not suitable for use with HF

Dimensions

Filter element	see drawing overleaf. Note this is compatible with the industry standard element, 1000 mm long x 60 o.d.
Spacing	>100 mm centres to avoid bridging





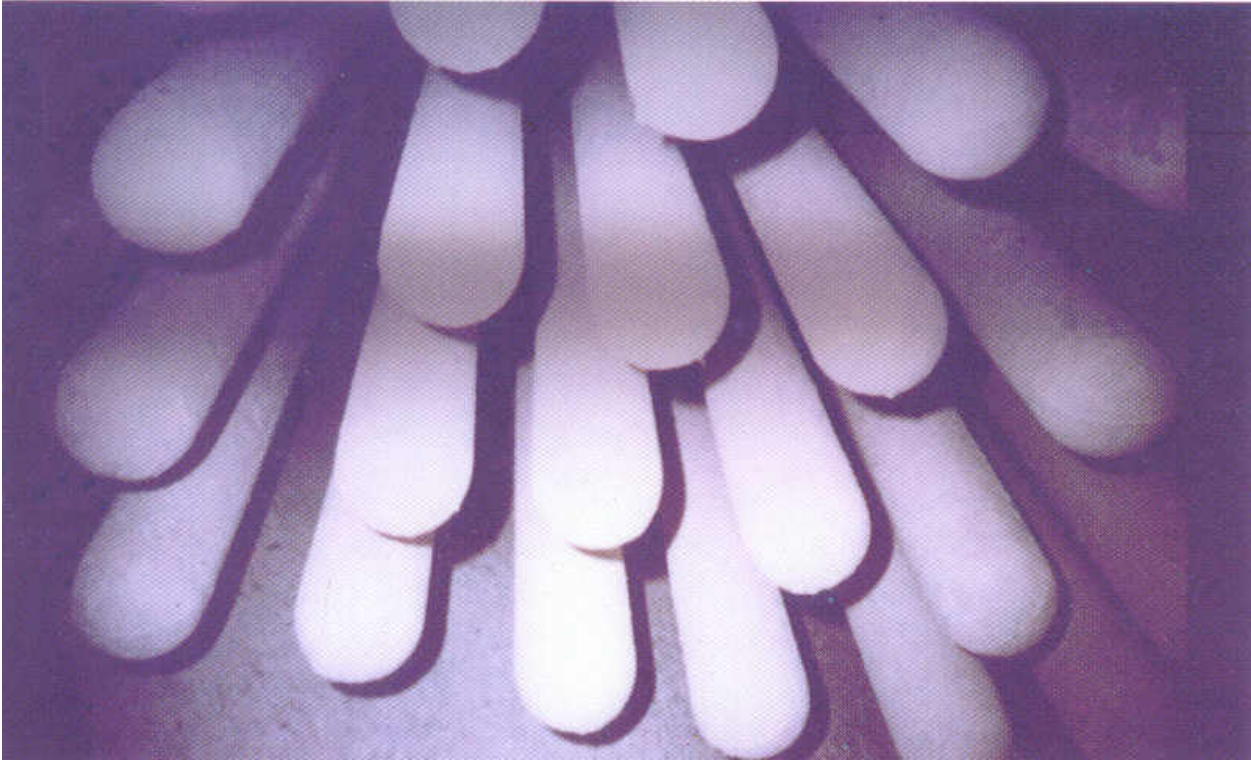
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CERAMIC FILTER ELEMENTS



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