

Hall Pyke Ltd Case History No. :- 26 Food Ingredients clean In Place Filter

Date	: August 2006
Fluid	: Viscous food ingredients
Flow rate	: 45 m ³ /hr (9 165 gpm)
Level of suspended solids	: a high level of suspended solids
Line size	: 3"
Working pressure	: up to 10 barG using PD pumps
Retention rating	: 600 μ
Purpose of filter	: remove misc debri & packing etc

Requirement:-

The client had been successfully using a duplex tough woven polypropylene bag filter arrangement to filter this and similar products for many years. They wanted ideally to use a permanent filter media that could be regenerated and reused continually and reduce their inventory, minimise operator intervention in the process.

Problems to be overcome

The bags whilst being very tough woven polypropylene which can often be washed and reused on many applications can't be cleaned on this process as they become grossly contaminated with solids. They tried mesh baskets but encountered the same problem that they became un-cleanable. In order to achieve uninterrupted flow necessitated using a duplex filter.

Solution:-

We supplied them with an RPA model DCF1600 Disc Cleaned Filter which utilises a very robust 380 micron slotted wedge wire element. As the apertures are slot shaped we decided to use a finer grade than the 600 micron bags they had been using in order to achieve a similar level of separation. Flow enters the vessel at the top to the side and flows down through and from the inside to the outside of the element. Debris collects on the inside of the element. A Teflon cleaning disc shaped doctor is actuated by a piston and cleans the debris off the element and deposits it in a sump below the element for periodic discharge by the line pressure upon the purge valve opening.

The cleaning action is continuous and keeps the delta-P to a minimum at all times. The purging of solids can be set for timed intervals based on the solids loading.

The filter can be fully automatic and require no operator intervention and the cleaning and purging cycle can be initiated by DP sensors on some applications.

The piston seal in the lid is a flush seal which is useful on applications with sticky fluids and abrasive constituents which might damage the piston. They are also available in a Twin version using twin pneumatic actuators mounted outboard and driving the central doctor drive shaft for applications where the fluid might damage the pneumatic pistons and therefore needs to be isolated from them.

We have used DCF filters on fluids with viscosities up to 1 million centipoises.