Hall Pyke

Trap-filter Backwash Protocol

The SMART choice for filtration

Technical Procedure

Trap-filter Backwash Protocol

Introduction

Hall Pyke's Trap-filters incorporate a rigid outer net that reduces pleat deformation and decreases the possibility of damage when the filter is used in the reverse flow direction. Backwashing is often implemented to increase the life of trap/guard filters used to filter diatomaceous earth or PVPP powder. It is important to note that ideally pressure gauges are installed across the housing to record the differential pressure. Backwashing is more successful if it is implemented before the filter is excessively blocked.

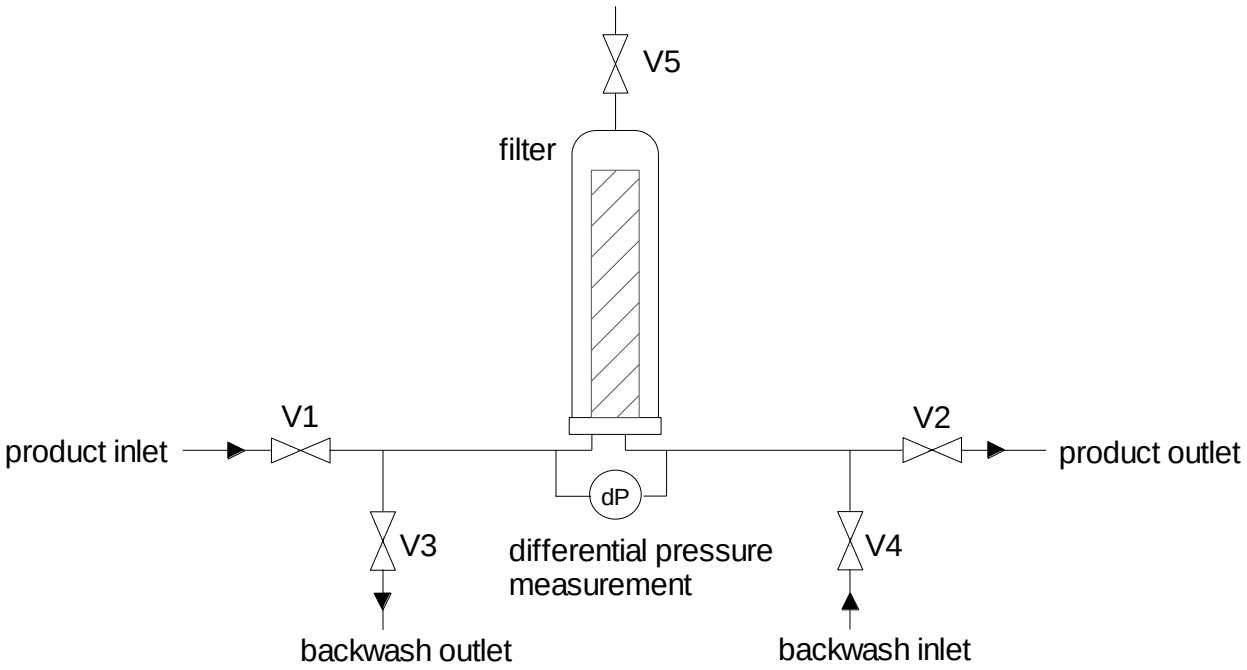
Backwash Protocol

The following procedure offers guidance as to how to achieve a successful backwash:

1. Record the initial clean differential pressure across the Trap-filter cartridge.
2. Initiate a backwash cycle when the differential pressure across the Trap-filter. cartridge before it rises to 2-3× the original clean differential pressure or on a timed cycle.
3. Stop the process flow by closing valves V1 and V2.
4. Begin backwash flow by opening valves V3 and V4. Ensure the housing is vented through V5 during the backwash cycle.
5. Close valves V3 and V4, and open valves V1 and V2 to resume normal forward flow filtration.
6. Note the decrease in the differential pressure and repeat the backwash sequence if required to allow the differential pressure to reach a near-constant value.

- The backwash flow should be 1-1.5× the forward flow rate, but not exceed the differential pressures outlined below.
- Hot water at 50-60°C can be beneficial for washing the filters. The filters should be rinsed in cold water first. The filters can be sanitised in hot water at 80°C.
- The filters can be backwashed following the above protocol with a caustic solution e.g. 1% w/v NaOH at 55-60°C and at up to 1.5 bar differential pressure.

Backwash Schematic



Maximum allowable differential flow in reverse flow direction

It is important to note that if it is not feasible to measure the differential pressure across the filters, then the reverse flow should initially be trialled from a lower flow rate e.g. 0.5× the forward flow, until the process can be optimised. The maximum pressure difference in reverse flow should not be exceeded, due to the risk of the filter being compromised and trapped particles being released to the downstream side.

20°C (68°F)	2.1 bar (30 psi)
80°C (176°F)	1.0 bar (15 psi)

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