

REDOX OXIDATION



Fleck 5600 valve for automatic backwash

Redox Filter with manual backwash

What is Oxidation Reduction

The Removal of dissolved gases and heavy metals from water by the means of an electrochemical reaction produced by the redox alloy of copper and zinc.

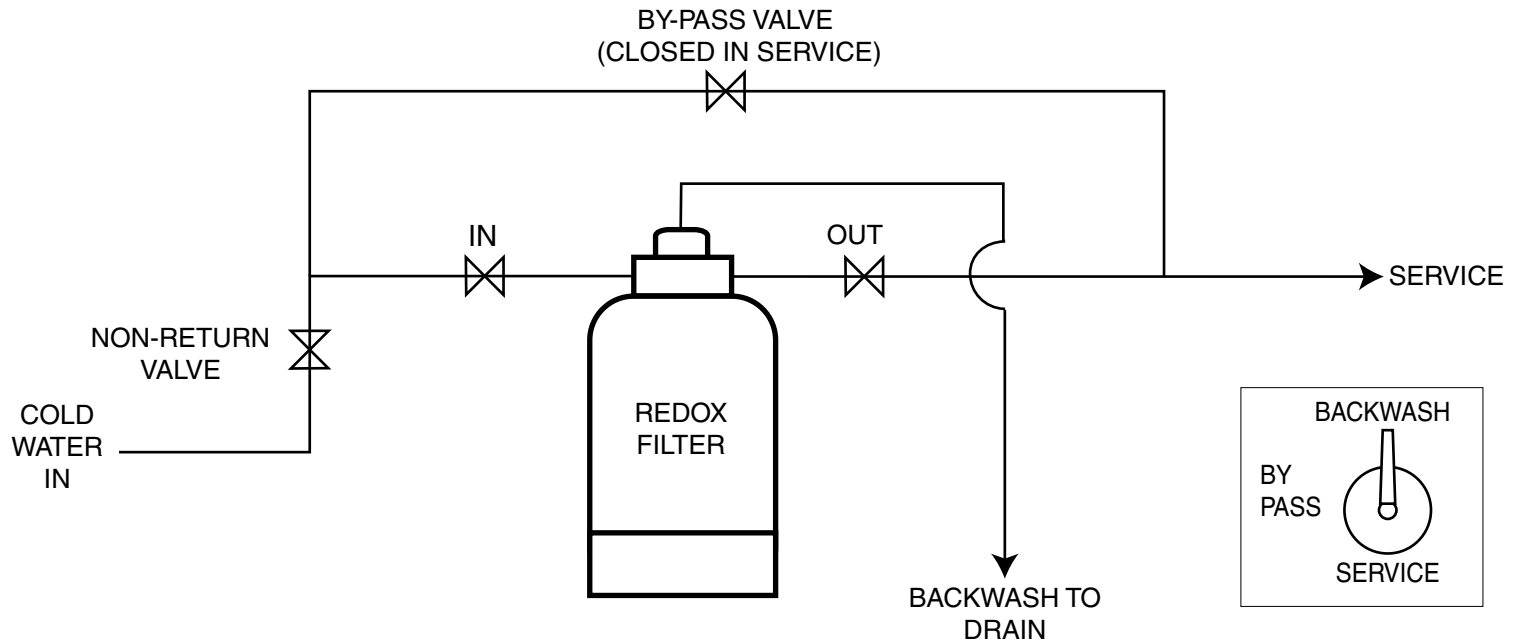
How does it work

The Redox media filter bed is made up of very fine alloy particles which have excellent mechanical filtration properties. Particulate matter is trapped in the filter bed and many dissolved pollutants are converted by oxidation. This filter therefore offers a very versatile media for pollutant removal which is very durable. The bed is also resistant to microbiological contamination. Maintenance is simple, the filter requires backwashing every 12-14 days, the filter media lasts 2-3 years.

What are its applications

- 💡 **Dechlorination**
99% of chlorine in water is removed by oxidation reduction, a process in which chlorine gas is electrochemically reduced into water soluble ions.
- 💡 **Removal of dissolved heavy metals**
Redox media removes up to 98% of water soluble cations of harmful contaminants like lead, mercury, copper, nickel, chromium, cadmium, arsenic, antimony, cobalt and most other dissolved heavy metals - see table overleaf. Soluble metals are reduced into insoluble metal ions and metallic contaminants are bonded to the redox alloy.
- 💡 **Controlling microorganisms** by three measures.
 - i) The disruption of electron transport causes a cascade of cellular damage.
 - ii) Direct electrochemical contact.
 - iii) The formation of hydroxyl radicals and hydrogen peroxide interferes with a microorganism's ability to function.
- 💡 **Prevents accumulation of hard scale** (primarily calcium carbonate).
The redox alloy media alters the morphology of the insoluble calcium magnesium carbonate and the sulfate crystals, found in water into smaller evenly shaped rounded grains. These form a powdery compound that will not adhere to metallic surfaces and can be easily removed by filtration.
- 💡 **Removal of iron**
The Redox filter media combines the dissolved oxygen and soluble ferrous iron forming insoluble ferric hydroxide and ferric oxide which is then catalytically removed.

SCHEMATIC DIAGRAM OF TYPICAL INSTALLATION



MANUAL BACKWASH

To be executed every 12-14 days. Simply turn the backwash valve lever to the backwash position as shown in the diagram above right. Backwash for 10 minutes (when the water is not being used by any other application within the system). After the 10 minutes has passed return the handle back to the service position. Manual backwash valve are not available for RD38 and RRD52 Models.

AUTOMATIC BACKWASH

Factory set at 12 day intervals - the backwash is automatically initiated and controlled using a Fleck filter valve, this operation is initiated at 2.00am (when water is usually not being used) however the initiation time is user adjustable.

SUMMARY

The Pozzani Redox filter is one of the best all round filters that achieves reliable chlorine reduction whilst removing a broad spectrum of pollutants. Its bed remains intrinsically sterile whilst maintenance and running costs are minimal. The filter is not suitable for saline water or where chloride levels are high.

Redox Media Performance

Contaminant	Level In Untreated Water (Parts Per Million)	After Treatment With Redox Filter Medium
Chlorine	75	0.01
Arsenic	5	0.01
Asbestos	100	0.1
Cadmium	5	0.01
Chloroform	1	0.002
Chromium	5	0.01
Coliform Bacteria	*2000	*1
Hydrogen Sulfide	10	0.01
Lead	2.05	0.1
Lindane Pesticide	5	0.002
Malathion Pesticide	5	0.002
Mercury	1	0.001
Salmonella Bacteria	*2000	*1
Silver	1	0.01
Trichlorethane	1	0.002

*Counts per millilitre
The test data is from research capabilities of redox filter media and activated carbon.

Technical Specifications

Model	Service Flowrate Ltrs/Min	Backwash Flowrate Ltrs/Min	Port Size ("BSP)	Total Height		Automatic Backwash Valve	Vessel Diameter	Total Weight Dry
				Manual Backwash	Automatic Backwash			
RD 8	8	16	3/4"	21"	25"	F5600	8"	20
RD18	18	36	3/4"	26"	30"	F5600	8"	34
RD28	28	56	3/4"	39"	43"	F5600	8"	48
RD38	38	72	1"	N/A	43"	F2510	9"	62
RD52	52	104	1"	N/A	43"	F2850	10"	88



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