

PETRECO HYDROMATION

Nutshell filter

APPLICATIONS

- Oilfield produced water
- Onshore
- Offshore (fixed and floating)
- Power generation
- Municipal water filtration
- Chemical and petrochemical production facilities

ADVANTAGES

- Media scrubbing cycle prevents filterbed fouling
- Minimized energy consumption during backwash cycle
- Reduced operating, maintenance, and downtime costs
- Media scrubber that generates a minimum of 40,000 galUS/min [9,085 m³/h] of pumping shear rate with only a small horsepower motor
- Use of feedwater for backwashing
- Less than 5% media attrition per year
- 0.5%–1% throughput backflush volume, which minimizes waste volume
- Greater than 99% annualized online performance
- Effluent concentrations down to nondetectable limits of suspended oil and solids

PETRECO HYDROMATION* nutshell filters are downflow, deep-bed walnut-shell media filters that are designed for produced water filtration. As liquid passes through the media bed, oil and solids are efficiently retained in the bed. The contaminants are easily backwashed out of the media bed with a specially designed rotating media-scrubbing agitator. Its design enables fluidizing the media and fabricating high-flow horizontal units without the use of treatment chemicals or air sparging.

Operating principle and key features

In oilfield applications, HYDROMATION filters are used to remove suspended solids and hydrocarbons from produced water, surface water, seawater, and freshwater sources. In metal working, power generation, municipal, chemical, and petrochemical applications, the filters treat and remove suspended solids, oily residues, ash, and metallic hydroxides from industrial liquids, including specialty applications such as cleaning up contaminated condensate.

Performance

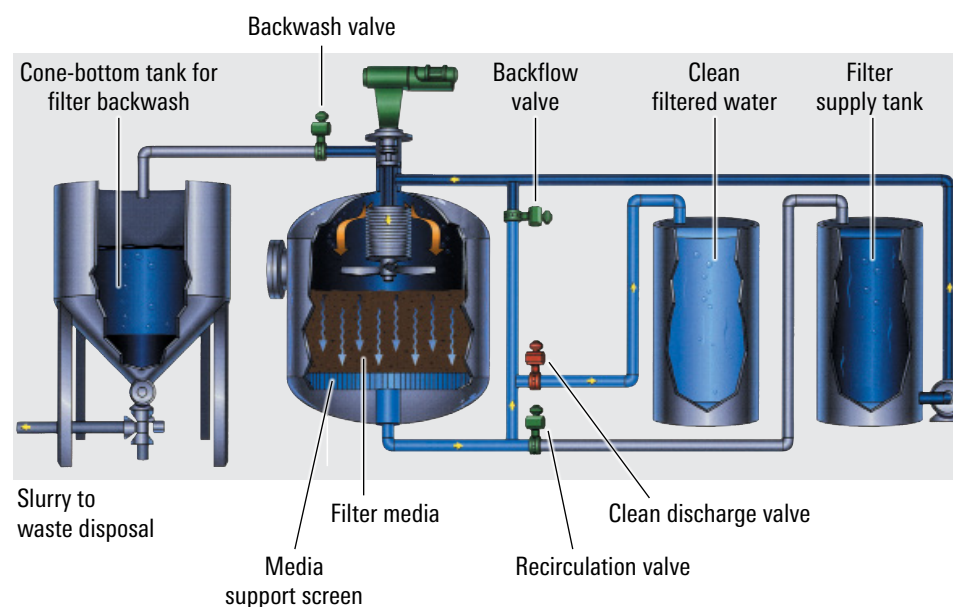
Under normal operating conditions, HYDROMATION filters remove 95%–99% of suspended solids and 90%–99% of insoluble hydrocarbons without the use of chemicals.

Product range

Single filtration units are available to accommodate water flow rates of up to 175,000 bbl/d [1,130 m³/h]. HYDROMATION filters give double the throughput of conventional deep-bed sand or graded mixed-media filters.

Options and types

- Vertical—10 standard models sizes from 7 to 133 ft² [0.65 to 12.4 m²]
- Horizontal—9 standard model sizes from 122 to 486 ft² [11.3 to 45 m²] with larger custom sizes available



Typical setup in which HYDROMATION nutshell filter is used.

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Installation examples

- Seawater filtration system, offshore Bergen, North Sea
- 1,000,000-bbl/d water filtration, Kern River, California, USA
- 34,000-bbl/d water for floating production, storage, and offloading (FPSO) operation, Benchamas field, offshore Thailand
- 310,000-bbl/d water filtration, McKittrick, California, USA
- 1,300-galUS/min filtration for deep well disposal for BP Chemicals
- Ethylene quench water for Bariven SA and Pequiven El Tablazo



The use of HYDROMATION filters in larger vessels has reduced the the volume of produced backwash, providing lower capex and opex.



The filters help reduce utility maintenance because they do not require gas scouring during backwash.

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