

FILTRATION SOLUTIONS FRACKING



Fracking

Filtration of Injection Water Used in Fracking Operations

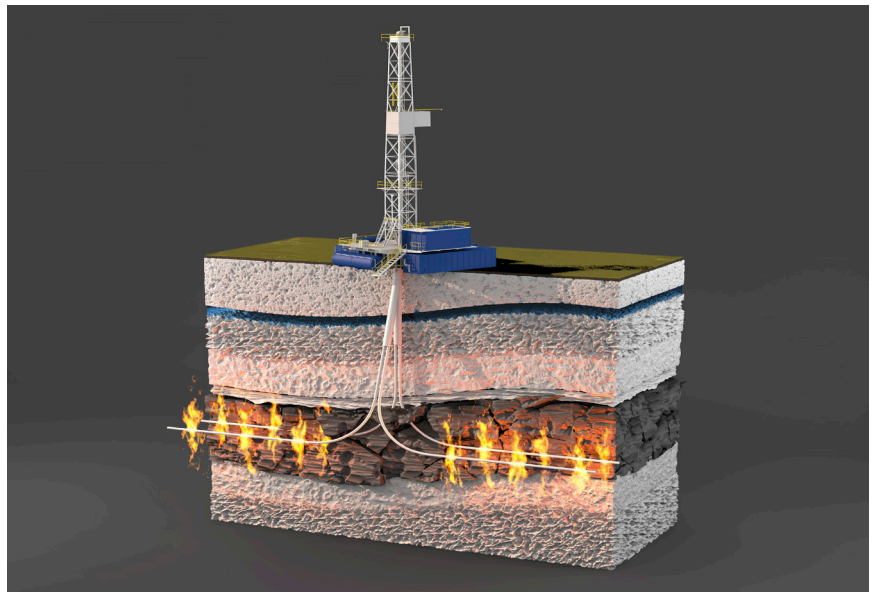
Typically hydraulic fracturing uses between 4.5 and 13 million litres of water per well, with large projects using up to 19 million litres. Additional water is used when wells are refractured meaning that the average well requires 11 to 30 million litres of water over its lifetime. Pumping water into the ground at high speed causes it to heat up encouraging bacteria and moulds to multiply and this growth can inhibit the flow of gas. If unchecked the extraction lines can be obstructed by a black slime of microorganisms. Water Treatment Injection Water is normally treated with biocides to prevent growth of microorganisms, but environmental and public safety concerns means that there is a growing demand to eliminate the need for chemicals that may taint water supplies near wells. "The most dangerous part in the shale frack is the biocide," said a CEO of a major energy company which is a major extractor of gas from shale. "That's the number-one thing the industry is trying to find a way around."

This is resulting in alternative methods for bioburden control being sought.

Membrane Filtration

The use of membrane filters for removal of microorganisms has proven to be a reliable and cost effective method in water treatment systems utilised across a range of industries. The technology is modular and easily scalable to meet specific process demands and Amazon Filters' expertise in system design ensures life times between change-out are long.

Amazon Filters' **SupaPore VP** microfiltration cartridges use a pleated high surface area Polyethersulphone membrane that has been designed for the removal of bacteria and moulds from water based liquids.



Product Features

- Exceptionally high flow rates with low clean pressure losses
- High removal efficiencies for microorganisms quantified by extensive testing
- Wide chemical compatibility

Prefiltration Systems

Amazon Filters is able to offer an extensive selection of prefilters to ensure the life of the membrane filters are maximised and costs are kept to a minimum. Our product portfolio includes both depth and pleated depth filters.

Amazon Depth Filters

Amazon Filters are recognized as leaders in the field of meltblown depth filter cartridge technology. Our leading edge research has resulted in the manufacture of filters where the diameters of the blown fibres are controlled to produce different pore sizes throughout the production process. This enables the retention of contaminants throughout the depth of the media. The fibre density is increased towards the inside of the media giving true progressive retention and therefore long filter life.

Filters can be supplied in standard format or as large diameter, high flow versions for large scale operations. They are available with removal ratings ranging from 0.3 – 200 µm.

Amazon Pleated Filter

Amazon Filters provides high surface area pleated cartridges using a range of different media types including polypropylene, glass fibre and nylon mesh with absolute removal ratings ranging from 0.3 – 400 µm. Filters can be supplied in standard format or as large diameter, high flow versions for large scale operations. We also provide multi-layered 'XP' versions designed with built-in prefiltration to offer extended life in applications where feed water quality is poor.

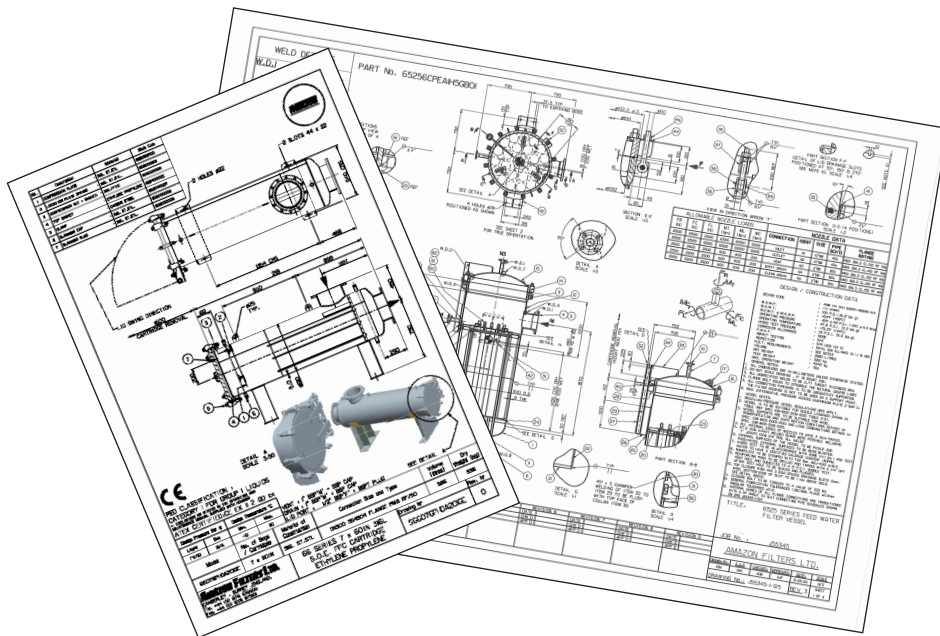


AMAZON

Filter Housings

Amazon Filters has particular strength in the design and manufacture of filter housings for the critical demands of the Oil and Gas industry.

Our expertise and engineering design techniques have made us one of the leading manufacturers of cartridge and bag filter housings. We have extensive experience in the manufacturing of vessels in a wide range of alloys including Alloy 22, Duplex (S31803) and Super Duplex (S32760/50), enabling housings to be used even in the most aggressive of process environments. We can also supply coated housings including rubber, 3M Scotchkote, vinyl ester or glass flake and provide housings manufactured from PTFE. Other more exotic



materials and coatings are available on request.

Our design team is fully conversant in the increasing technical demands of pressure vessel design codes including ASME VIII, PD5500 and EN13445. All our products meet the demand of ATEX and conform to the latest version of the Pressure Equipment Directive (PED) 97/23/EC.

Larger housings are available in various design styles for higher flow rates. Our capabilities mean we can offer housings suitable for at least 300 stacks of standard cartridges and 30 stacks of large diameter **SupaPleat FFC** cartridges. Amazon has great experience in design code requirements for these more demanding duties.



Customised and Mobile Systems



The major strength behind Amazon Filters success as a leading housing manufacturer has been our ability to engineer the right housing to suit the customer's requirements - we welcome the challenge!

We can modify most of our existing housings with a range of additions including heating jackets, adjustable legs, and all common connection styles (flanged, screwed, etc) set in the orientation to suit the process. We also have the design and build resources to provide customer specific systems, including fully functional trolleys and skids fitted with pumps and valving. Where local infrastructure is a problem we are also able to provide fully functional filtration systems enclosed in a container. They can be simply taken to site, connected to inlet and outlet piping and used.

Oil and Gas Industry

In addition to supplying systems for Fracking operations Amazon Filters is also a major supplier of filtration and separation media to the wider Oil and Gas Industry. We manufacture a wide range of depth and pleated filters ensuring the optimum product can be supplied for the key applications found in Upstream and Downstream operations. We are able to offer both absolute and nominal rated filters with either nylon or polypropylene media. This range includes **SupaSpun II**, **SupaGard**, **SupaPleat II**, **SupaPleat FFC**, **Contour** and **VisClear** cartridges, **DuoLine** bags and **SupaMesh** metal filters. Our products are used on many applications including Produced Water, SRP membrane protection, Amine Sweetening and Glycol streams. Amazon Filters has built a reputation of designing high quality filter vessels to support its range of premium filters and we have onshore and offshore installations in service all around the world.

Please contact us at sales@amazonfilters.co.uk for further information on our product range.



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