Diverse Environmental Solutions

BCI BASIC CONCEPTS INC
Justrite Safety Group

HFF Oil Stop Valve

Manufacturer's Recommended Installation and Maintenance

HFF OIL STOP VALVE

The HFF Oil Stop Valve is a filtration device proven to reduce most organic hydrocarbons to non-detect levels. The HFF is constructed from a high impact resistant, perforated plastic casing, which is moisture, chemical and corrosion resistant. Packed within the walls of the filter are BCI Polymer Granules, a proprietary blend of USDA food-grade polymers, which encapsulate hydrocarbons, such as sheen, gasoline, diesel, and refined oils. Wrapped around the casing is a patented filtration media, BCI Agent-Q (US Patent 8,986,822), to provide initial protection against hydrocarbons, while processing clean water at high filtration rates. The exterior of the HFF is finished off with a vinyl-coated, mesh netting that protects the filter from dirt, sediments, and debris. The lifeline of the filter, however, is the pre-filter. Inserted at the top of the filter, this first line of defense polypropylene bag increases the HFF's longevity by capturing mud, trash, or other particulates.

The HFF can be utilized in a multitude of applications, including substations, bulk storage tank farms, storm drain inserts, oil-water separator outflows, etc. If there is a significant release of hydrocarbons, the HFF will shut off and back-up the containment area, thereby preventing contaminated water from escaping. Each HFF is designed to meet site-specific standards and is backed by a Product Liability and Pollution Insurance Policy of up to $7 million.

SITE PREPARATION

Careful attention should be paid not to allow trash, debris, and other elements, to come in contact with the HFF Oil Stop Valve. It is up to the contractor and on-site engineer to ensure the filter is installed in an area where it will not be exposed to harmful matter, such as dirt, that could shorten its lifespan.

A pre-filter MUST be utilized to prevent silt and mud from clogging the HFF. The device currently comes with a 25 micron polypropylene pre-filter, but nylon pre-filters or other polypropylene pre-filters work as well. The HFF can be installed in a number of areas, but for maximum flow rates, we recommend it drain into a permeable, gravel floor, free of dirt and fines. The permeability of gravel makes it a perfect drain bed, allowing for sufficient drainage and reducing the likelihood of water pooling. If an HFF must be installed in a dirt-prone area, an adequate amount of clean washed stone, with a minimum of 33 percent void space, must be placed in front of the inlet to the HFF. This will prevent debris, such as leaves, pallet wood, grass shavings, etc., from washing into the HFF.

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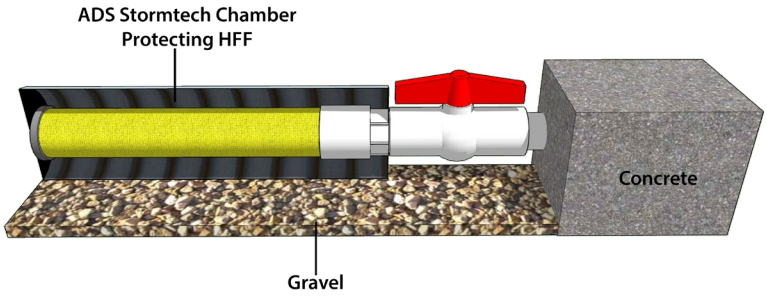
INSTALLATION OF THE HFF OIL STOP VALVE

The HFF relies heavily on gravity to process water at high flow rates. The HFF should be installed with a minimum one foot of head pressure for maximum filtration. The filter is versatile, in that it can be installed vertically or horizontally, and has a multi-directional flow, meaning water is processed on all sides of the filter. The picture on the right shows a horizontal installation of a multiple HFF unit.

Prior to installation, ensure the fittings on the HFF match up with the receptacle it will be mounted or attached to. Your HFF will have one of a multitude of fittings: male, female, or a site-specific fitting. The male or female fitting simply screws into the receiving adaptor. Do not force. Forcing could damage the threads or crack the pipe.



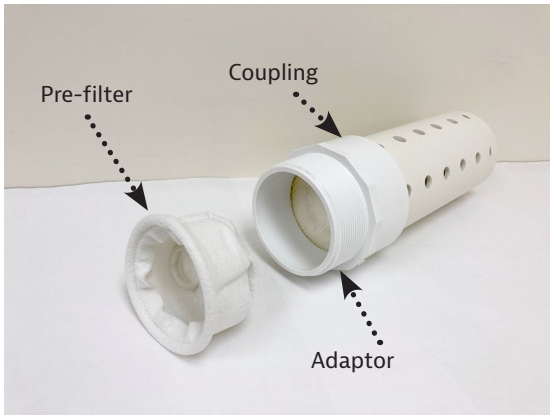
Once installed, it is important to protect the filter from obstacles it may encounter within the substation. We encourage the use of ADS StormTech Chambers, for their durability and ease of use. As seen in the drawing on the left, the pipe protects the filter from being crushed and provides easy access to the pre-filter during O&M checks.

You can also choose to house the filter in a manhole outside the containment area, as demonstrated by the picture on the right. A drain from inside the containment unit connects to a pipe leading to the manhole, housing the HFF. Drained water from the containment area is then filtered through the HFF, before flowing out to a gravel leach pond. It is essential to make sure the drain, fittings, and pipe are free of dirt, while being installed. This will prevent any large influxes of mud from reaching the HFF, or prevent any potential clogs in the drain or piping. Another protective measure is to cover the manhole, with a grate or other type of cover, to help prevent the filter from being stepped on by maintenance personnel. It also serves a protective barrier for the filter from sediment and trash that could enter from outside the manhole.

Whatever method you decide upon, make sure the protective mechanism does not obstruct flow rates, and that suitable protection from rodents, UV rays, and other nuisances is provided.

MAINTENANCE FOR THE HFF

Each HFF will require a different level of maintenance, based on the amount of silt, dirts and hydrocarbons the pre-filter is exposed to. All HFFs have a pre-filter for protection from volatile substation elements. EMPHASIZE TO YOUR O&M CREWS THAT EVERY FILTER MUST HAVE ONE. It is essential to the productivity and lifespan of the filter that pre-filter checking be set up on a preventative maintenance schedule. If an HFF is not flowing properly, it can usually be directly attributed to a dirty pre-filter.



Pre-Filter Cleaning

To clean the pre-filter, detach the adapter from the coupling and pull the pre-filter out. Turn it inside out to remove any debris. Use a standard water hose, 10 to 15 PSI, to remove any dirt or dust from the pre-filter. Inspect the pre-filter for holes or cracks that could affect its performance. Keep spare pre-filters on-site to replace older or damaged ones.

HFF Cleaning

While you have the pre-filter out, inspect the inside of the HFF to ensure no debris, dirt or sediment have accumulated. If these elements are found inside, use the water hose to back flush the filter and remove the contaminants. After the cleaning of the pre-filter, and back flushing and inspecting of the HFF, the unit is ready to be reassembled and put back into service.

IN CASE OF OIL EXPOSURE TO THE HFF

Back flushing and cleaning the HFF will not remove solidified hydrocarbons within the filter. Once the HFF contains solidified hydrocarbons, the flow rate will decrease. The reduction of water flow is proportional to the amount of hydrocarbons that have solidified inside the HFF. Drips and drops will cause the polymers to solidify over time, but will not cause the system to shut off.

During a hydrocarbon spill, the HFF will shut off and back up the containment area. DO NOT remove the HFF, until the spill is completely cleaned up. Spare HFFs should be on-site to replace the contaminated unit.

DISPOSAL OF THE HFF

Disposal of waste material should be done in accordance to local, state and federal regulations. In most cases, solidified products can go to municipal waste landfills.