

Operation & Maintenance Manual

Oil/Water Separator

Model FII-OWS



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1.0 Product Photographs



Photograph 1 – Oil/Water Separator (Side View)

1. 1" Inlet Valve
2. 1" Drain
3. 1" Oil Discharge
4. 2" Water Discharge



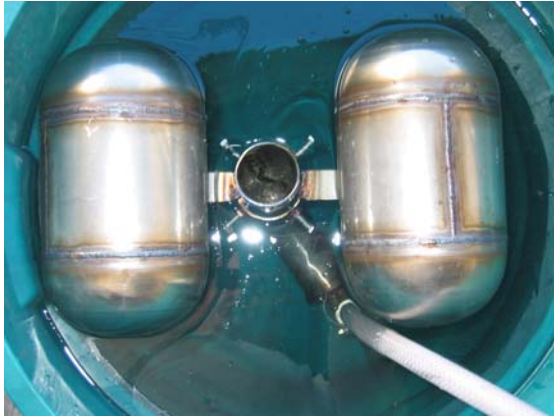
Photograph 2 – Oil/Water Separator (Top View)

- 5. Oil Control Window
- 6. Inlet Baffled Section
- 7. Oil Collection Weir
- 8. Water Discharge Section
- 9. Coalescing Media in Removal Basket



Photograph 3 – Oil/Water Separator (Alternate Top View)

- 5. Oil Control Window
- 6. Inlet Baffled Section
- 9. Coalescing media in removal basket



Photograph 4 – Floating Intake

2.0 General Information

2.1 Safety

General fire preventions methods should be employed at all times when oil is present. Care should also be taken to keep the area surrounding the Oil/Water Separator clean since oil and water can result in injuries due to slipping and falling.

2.2 Pump Selection

A pump is used for the inlet oil/water mixture. A positive displacement pump with a 110 V plug is supplied to minimize mechanical emulsion.

3.0 Oil/Water Separator Installation

Setting up the Oil/Water Separator for the first time:

1. Place the separator on a level foundation – preferably a gravel or concrete base. The separator tank must be level to within 1/8” per foot in order to operate properly. Water should always flow away from the base of the unit.
2. Install valves or plugs in the cleanout and drain couplings.
3. Connect the oil/water inlet piping to the separator inlet connection. A valve is installed in the influent line to control the rate of flow.
4. Mount the level switches, if required.
5. From the oil removal chamber, connect the pipe and tubing and provide a catch vessel to receive all separated tramp oil (5 Gallon pail provided). This vessel should have an open top for continuous observation of oil levels to prevent a spill.
6. Connect the water outlet piping to the water outlet. No valve is required since the weir and the outlet dimensions will control the amount of oil/water mixture in the separator. (This is supplied the water outlet hose to be directed back to the sump).
7. Add one ball valve (not provided) to the bottom of the unit to assist in cleaning.

4.0 System Operation

Note: The following procedure should be utilized after both the initial installation of the unit and any future restarts of the unit following cleaning.

Caution: *Filter Innovations* oil/water separators will discontinue the aqueous flow in the event of a high influx of oil. The oil will flow at the rated capacity of the separator unit. Use a receptacle of sufficient capacity or be prepared to change the receptacle frequently

4.1 Filling the Unit

1. Begin by filling the unit with clean water or a compatible water soluble solution. Fill from the inlet end and make sure the water level is high enough to at least exceed the bottom portion of the separator weir. This procedure prevents premature break-out of the oil on the clean water side of the weir.
2. Continue to fill the unit with the oil/water mixture that is to be separated until the solution begins to exit the coalescer.
3. Adjust the product skimmer inside the unit so that the intake is about ½" above the water level. This ensures that no water will escape down the pipe into the oil storage tank.
4. **Important:** Adjust the water discharge pipe by screwing it in or out until its height is just below that of the oil weir.

4.2 Starting Up the Pump

To start up the pump for the first time:

1. Turn on the pump.
2. Check the power draw on all legs.
3. Check the flow rate of the water.
4. Regulate the flow rate of the water with the upstream gate valve. This flow should not exceed the design capacity of the system
5. Check for water leakage around the pump and fittings.

4.3 System Start Requirements

- System must be started
- Level in the Oil/Water Separator sump must be at the Hi level switch
- Level in the Oil/Water Separator sump must be at the Low level switch
- Any downstream equipment must be ready to accept water
- The main alarm must not be on

4.4 System Stop Conditions

The system will stop if any of the conditions outlined in Section 4.3 (System Start Requirements) are not met.

5.0 Adjustments

Note: To make adjustments, restart the pump and set the discharge pip 1/16"-1/8" below the top level of the oil weir. *This will remain a permanent setting unless the unit must be moved.*

Various periods will elapse before enough oil will accumulate on the media that the oil will rise to the surface. For the most successful operation, allow between 1/2" to 3/4" of oil to build up on the media side of the coalescer. This setting will produce an oil discharge with 0-5% water remaining in suspension. **Caution:** Do not make changes to the weir after this initial setting.

During operation, oil will accumulate on the inlet section of the Oil/Water separator. This oil must be removed periodically. This can be accomplished by loosening the set screw on the slide in the "window."

Options for discharging oil in primary sector:

1. If minimal turbulence is caused by the pump in the inlet section, the window can be left fully open.
2. To minimize turbulence, the window can be left partially open.
3. To eliminate turbulence, the window should be fully closed during operation. Window can be opened periodically to remove oil.

6.0 Maintenance

Note: The frequency of maintenance and cleaning is dependent on the solids concentration in the influent and is therefore site-specific.

The inlet section of the coalescer provides a settling area for solids. Within this area, Filter Innovations coalescers also contain an outlet. This outlet permits the installation of a manual valve for periodic removal of the solids content.

6.1 Cleaning the Coalescer

1. Screw the discharge pipe higher to ensure the same height which will remove the free oil from top of the solution.
2. Drain the coalescing separator.
3. Remove the media basket, open the drain connections and use a hose or pressure cleaner to remove all solids and particulate.
4. Clean the interior of the coalescer and the oil weir in the same manner.

Note: Ensure that the cleaning procedure does not result in uncontained pollution.

6.2 Media Pack Reassembly

To replace the media pack:

1. Position the media pack as it was prior to being removed.
2. Restart the system as outlined in Section 4.0 (System Operation).

7.0 Troubleshooting

7.1 General Troubleshooting Techniques

- Check for leaks around the separator
- Drain and clean the separator on a year or bi-annual basis, as required.
- Remove the coalescing media and clean or replace media if necessary.
- Check the tank anode (if present) and replace is necessary.

7.2 Typical Problems and Solutions

Problem: No oil is being discharged from the tubular oil weir

Causes/Solutions:

- Discharge piping is too low – increase elevation by screwing higher
- No oil is accumulating on the surface

Problem: Process water has oil in it

Causes/Solutions:

- Influent flow is too great for the system design – reduce flow by closing the inlet ball valve
- Unit was started without enough solution to exceed the bottom of the vertical weir
- Chemical emulsified oil cannot be separated

Problem: Exit oil has aqueous content

Causes/Solutions:

- Skimmer opening is below the oil/water interface – adjust skimmer alignment to allow more oil to collect before skimming
- Discharge pipe is set too high – reduce elevation by screwing lower
- Coalescer is restricted by dirt – clean unit

Problem: Unit is overflowing

Causes/Solutions:

- Output is restricted – clean unit
- Output too great for system design – reduce flow to coalescer by closing inlet flow control valve

Problem: Pump is picking up air

Causes/Solutions:

- Floating intake is too high – adjust accordingly