Cat® Bulk Fuel Filtration Systems

Bulk Fuel Filtration

Clean dry fuel is absolutely essential in order to achieve long injector life. The filtration systems on machines are not designed to clean heavily contaminated fuel. A good portion of water and dirt can be removed from supply fuel by using proper storage tank settling and draining practices. Most of the remaining water and dirt can be removed by using bulk filtration or adding filtration and water separation capacity to each machine in the fleet. The most cost effective and efficient method to ensure clean dry fuel is delivered to machine fuel tanks is to use bulk filter coalescer systems.

Filter coalescer filtration systems have been the standard method to clean large volumes of fuel in the airline and petroleum industries for more than 40 years. These filtration units are designed to remove solid particles and water from the fuel with single pass filtration. These units are placed in the fuel supply line between the fuel storage tank and fueling station. The units are designed to meet the maximum flow requirements of the fuel delivery system.

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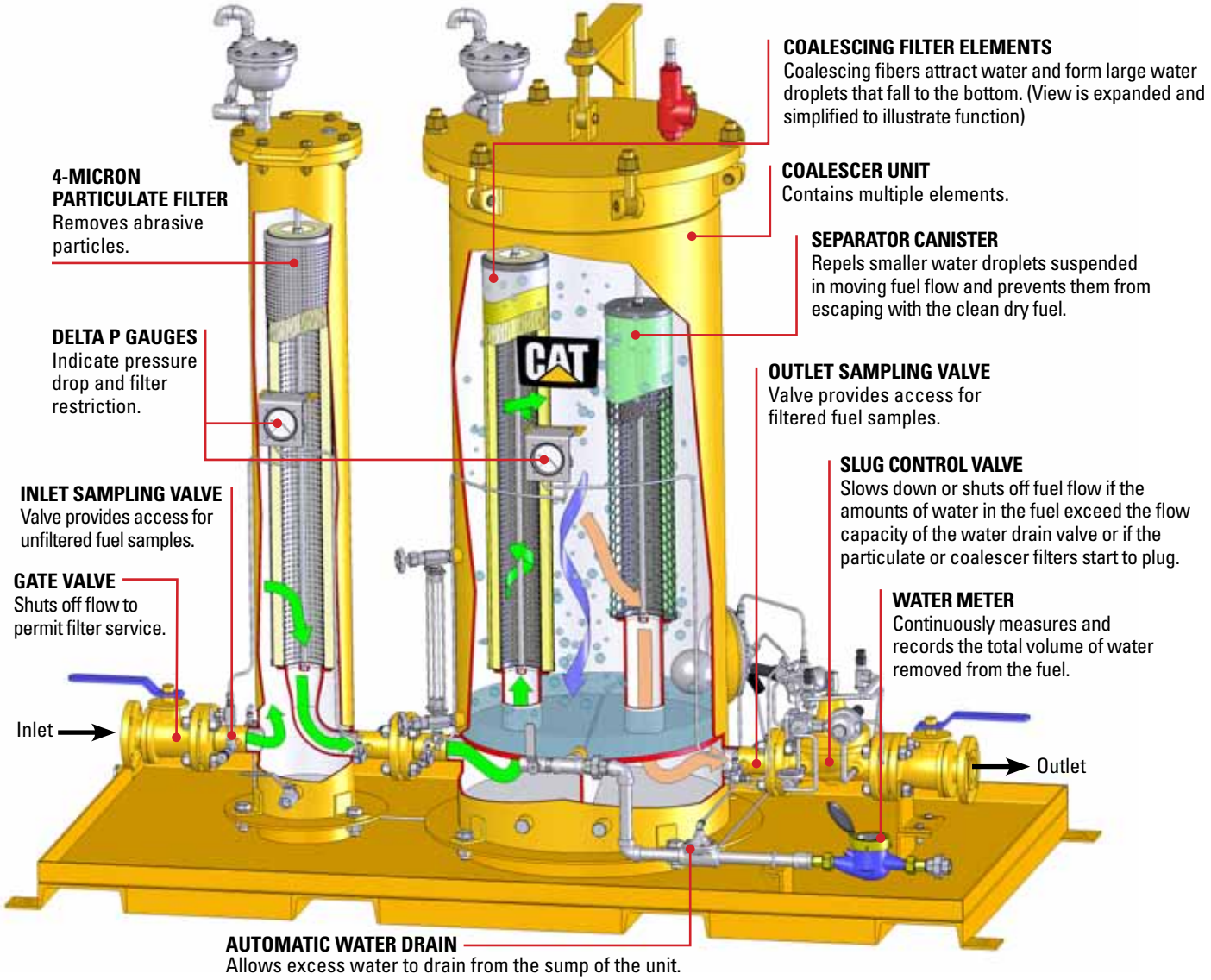
Bulk Fuel Filtration Applications

The Caterpillar Bulk Fuel Filtration System is intended for use in any application where users store fuel for machines or engines. The filter coalescer units are placed in series between the fuel pump on the fuel storage tank and the fuel station. Smaller units are intended for remote day tank or fuel truck applications. The system does not require electrical power unless it is used in extremely cold climates. An optional electric fuel heater is available for cold climates where water removed from the fuel may freeze.

Part Number	Fuel Flow Rate
370-8568	50 GPM
370-8569	100 GPM
370-8570	200 GPM
370-8571	300 GPM



Features, Benefits and Results

Gate valve	• Shuts off flow during service or removal of unit.
4-micron particulate filter	• Effectively traps and holds large volumes of particulate debris. • Large capacity elements allow for longer change intervals.
Coalescer unit	• Strips water from fuel and automatically drains the water to an external water storage vessel. • Capable of removing 1% water by volume to less than .05% at the rated flow of the unit. • Float mechanism in the bottom of the unit monitors the water level.
Coalescing filter elements	• Water removed by these elements falls to the bottom of the coalescer unit and is automatically drained to an external water storage vessel.
Separator cartridge	• A fine mesh canister fits over the outlet port of the coalescer housing and prevents water droplets from escaping.
Automatic water drain	• When water level is at or below an acceptable level, the valve is shut off. • When water level is above the acceptable level, the float will rise and trigger a rotary valve on the pivot of the float arm to open the automatic water drain valve. • If the water and float continue to rise above normal, the slug control valve will completely shut off flow to prevent water from passing downstream. • As the water level drops, the float drops, allowing the slug control valve to open and outlet flow to resume.
Flow meter	• Installed on the automatic water drain valve and allows the total amount of water removed to be monitored.
Slug control valve	• Used to temporarily reduce fuel flow to assure proper operation of the coalescer and particulate filters. • Reduces flow as filter restriction increases.
Fluid sampling ports	• Allows for fuel samples to be removed for analysis. • Inboard and outboard ports are included.
Electric fuel heater (Optional)	• For use in cold climates where water removed from the fuel may freeze.

50 gallons per minute
This unit is suitable for applications where remote machines refuel from smaller day tanks with delivery pumps rated up to 50 gallons per minute.

100 gallons per minute
This unit is suitable for larger capacity day tanks and delivery flow rates up to 100 gpm.

200 gallons per minute
This unit will handle larger flow rates found on most fuel islands.

300 gallons per minute
This unit will handle the high volume flow rates required for the largest machines.

Filter Elements

The Caterpillar bulk fuel filtration uses three types of elements to remove dirt and water from the fuel.

Pre-Filter Elements
Pre-Filter elements remove dirt and particulate debris from the fuel. Pre-filter elements are constructed of high-quality, full synthetic filter media rated at 4-micron, beta 200. Elements are sized to require replacement about once per month in most applications. This will vary depending on the amount of fuel passing through the unit and the amount of debris in the fuel.

Coalescer Elements
Coalescer elements strip water from the fuel. The coalescer elements are made from a hydrophyllic media which attracts and holds small water droplets. Fuel containing free and emulsified water flows from the inside of the coalescer element to the outside. As the small water droplets pass over the fibers of the hydrophyllic media of the coalescer element, they are attracted and held. As additional small droplets continue to be attracted and held on the hydrophyllic media, they contact each other and combine into larger water droplets. These droplets continue to grow in size until the mass of the large droplet exceeds the attraction to the coalescing media. The large droplets break loose and fall to the bottom of the coalescer vessel where they are drained off. Because coalescer elements attract and then shed water, they do not plug like a typical particulate filter. Replacements intervals for coalescer elements are typically only once per year.

	Prefiter Element		Coalescer Element		Separator Canister	
	PART NUMBER	QTY	PART NUMBER	QTY	PART NUMBER	QTY
50 gpm Unit	372-1034	1	372-1035	1	372-1040	1
100 gpm Unit	372-1034	1	372-1036	1	372-1041	1
200 gpm Unit	372-1034	1	372-1037	1	372-1041	1
300 gpm Unit	372-1039	1	372-1038	1	372-1041	1

Separator Canisters
Due to the high flow rate of fuel through the coalescer elements, flow forces will cause some small water droplets to be washed off the coalescer fibers. The separator canisters fit over the coalescer elements and prevent these small droplets from escaping to the outlet of the coalescer vessel. Separator canisters are constructed of 100 mesh (150 micron) teflon coated stainless steel wire screen. The teflon coating on the screen wire makes it hydrophobic, which repels water droplets. Fuel flows freely through the screen. Water droplets are prevented from passing through the screen and fall to the bottom of the coalescer vessel where they are drained off. Separator canisters do not require replacement unless they are physically damaged.

PEHJ0156-02
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