

PLASTIC COALESCING CHAMBERS AND SYSTEMS

CHAMBERS	PARTS LISTS
420	P-4200
620	P-3900
1220	P-9400

Refer to Bulletin F-303

DESCRIPTION

The Liquid Separation Coalescer takes oil out of rinse water, cleaning solutions, waste effluents and pollution control systems, and separates oil from water in hydraulic systems. It handles dissimilar liquids with a specific gravity difference of 0.09 and greater and leaves the effluent with less than 10 ppm of the discontinuous phase.

It is highly effective in separating oil and water by coalescing and gravity separation. The oil/water mixture is pumped through the coalescing element which holds the small particles until they grow large enough to float off. The light phase rises to the top, the heavy phase sinks to the bottom. The phase to be removed must be periodically bled off.

Coalescing systems and chambers are designed to separate fluids with a difference in specific gravity. Used for this purpose, the coalescing element will normally have an indefinite life. The coalescing element will, however, remove particulate matter, though not intended nor efficient for this purpose.

Constant exposure to particulate matter above 5 micron will cause premature plugging of the coalescing element, rendering the coalescing system ineffective. For this reason, when particulate is present, prefiltration of 3 to 5 micron is recommended.

For solutions such as cleaners or rinses, various particle sizes are abundantly present. In these applications, a separate filtration system ahead of the coalescer is recommended. Bulk particulate removal can best be accomplished employing a filtration system which provides 5 to 10 tank turnovers per hour with 50 to 100 micron media.

! PRE-START-UP

1. Review accompanying pump-motor Operating Instructions (if a coalescing system) to assure proper startp.
2. Install all hoses (disconnected for shipping) and tighten hose clamps.
3. Check that chamber wing nuts are secure and vent screw is closed on filter chamber and coalescing chamber.
4. Wet coalescing element with primary constituent of solution being separated (water, acid, alkaline). This can be achieved by removing the element and immersing it in the pure primary solution or filling chamber with same.

START-UP

1. Prime pump according to pump operating instructions and energize motor.
2. Secure hoses so they do not move or fall out of tank.
3. Open valve in cover to release air from chambers. Close valve screw when solution level rises to top of chamber.

PRE-FILTER

1. For solutions which have solids contamination, it is recommended that a pre-filter of 3-5 micron be employed before the coalescing element. This will prevent the coalescing element from serving as a filter and experiencing premature operating life failure.
2. Remove and replace the filter cartridge as required. The usual indication for cartridge replacement is a reduction in flow rate.
3. Refer to the filter chamber parts list and the next section for cartridge replacement.

COALESCING CHAMBER

1. The coalescing chamber works on the principle of coalescing finely divided droplets into large droplets on the outside surface of the element. These large droplets form and, because of differences in specific gravity, float to the top of the chamber or fall to the bottom.
2. The primary phase, whether heavy or light, is usually a constant flow and recirculated to the original reservoir. For solution transfer, the primary discharge may be directed to a second reservoir.
3. The secondary phase, whether heavy or light, may be "drawn off" manually or automatically. Recommended automatic methods are: timer, or conductivity devices wired to a solenoid valve. An automatic means of emptying the coalescing chamber of the secondary phase solution can be furnished as an option (consult Application Engineering Department.)
4. The flow rate and degree of separation will vary with the system. If too much oil is accumulated in the chamber, oil will carry over with the water (or other liquid) discharged. If the flow rate is too high, oil will be entrained in the discharge flow instead of floating to the top of the chamber. Throttling the discharge valve will correct this situation.
5. A clear shell chamber or sight glass will show the phase split.

COALESCING ELEMENT

1. Solution flow through the coalescing element is from the inside (through center) to the outside.
2. Be sure the coalescing element is wetted (polarized) with the primary phase prior to operation. (i.e. if it is a rinse water-oil containing system, wet with clean water, If an acid cleaner with oil, wet with clean acid). It is best to flow 'pure' primary phase through the element.
3. A plugged coalescing element can be cleaned with clean fuel oil or replaced.
4. Polarization of the replacement coalescing element is the same procedure as above.

TO REPLACE COALESCING ELEMENT

1. Vent the chamber, drain and remove the cover.
2. Loosen and remove top lock cap nut on coalescing element.
3. Lift element out.
4. Replace with new element after polarizing per instructions above.
5. Reassemble
6. For replacement coalescing elements refer to Parts List or Bulletin M-210.

TO REPLACE DEPTH CARTRIDGES (PRE-FILTER)

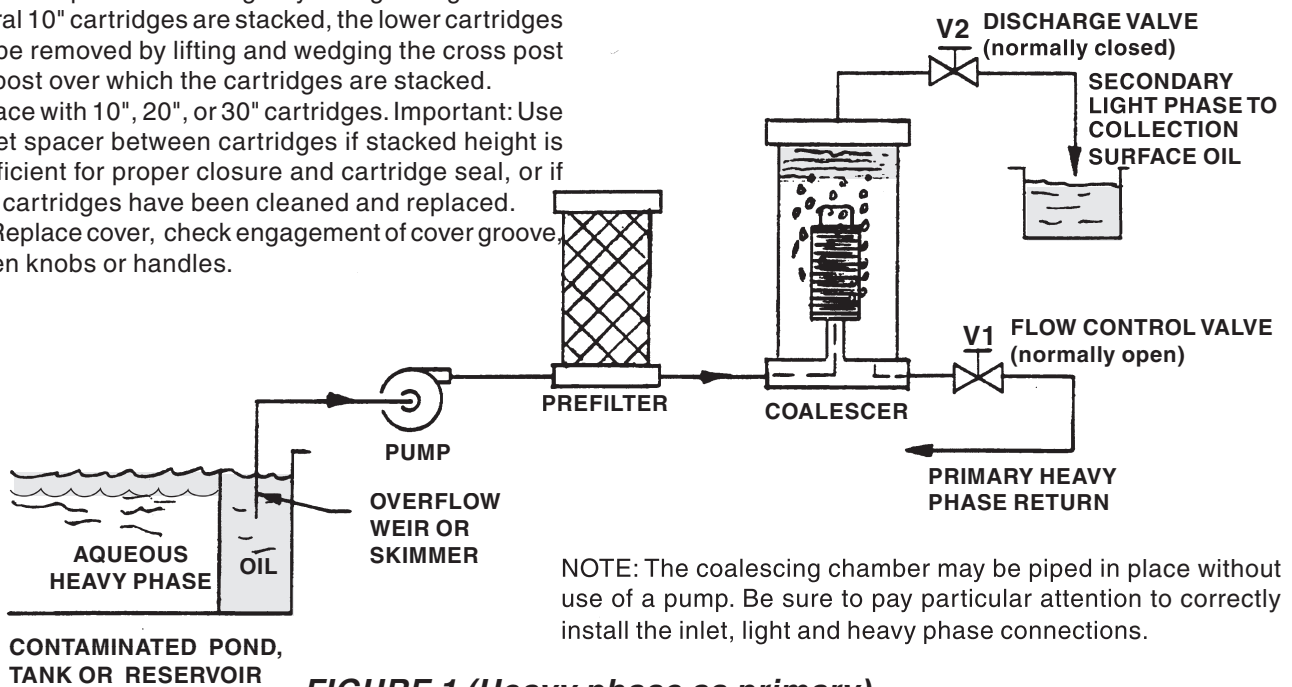
IMPORTANT: Filter chambers having a shell and base of identical material will have the shell permanently sealed to the base. When shell and base are different materials, a flat gasket will provide the seal.

1. Stop pump and remove four knobs or handles at cover and lift cover straight up.
2. Remove top used cartridge by lifting straight out. If several 10" cartridges are stacked, the lower cartridges may be removed by lifting and wedging the cross post or V-post over which the cartridges are stacked.
3. Replace with 10", 20", or 30" cartridges. Important: Use gasket spacer between cartridges if stacked height is insufficient for proper closure and cartridge seal, or if used cartridges have been cleaned and replaced.
4. Replace cover, check engagement of cover groove, tighten knobs or handles.

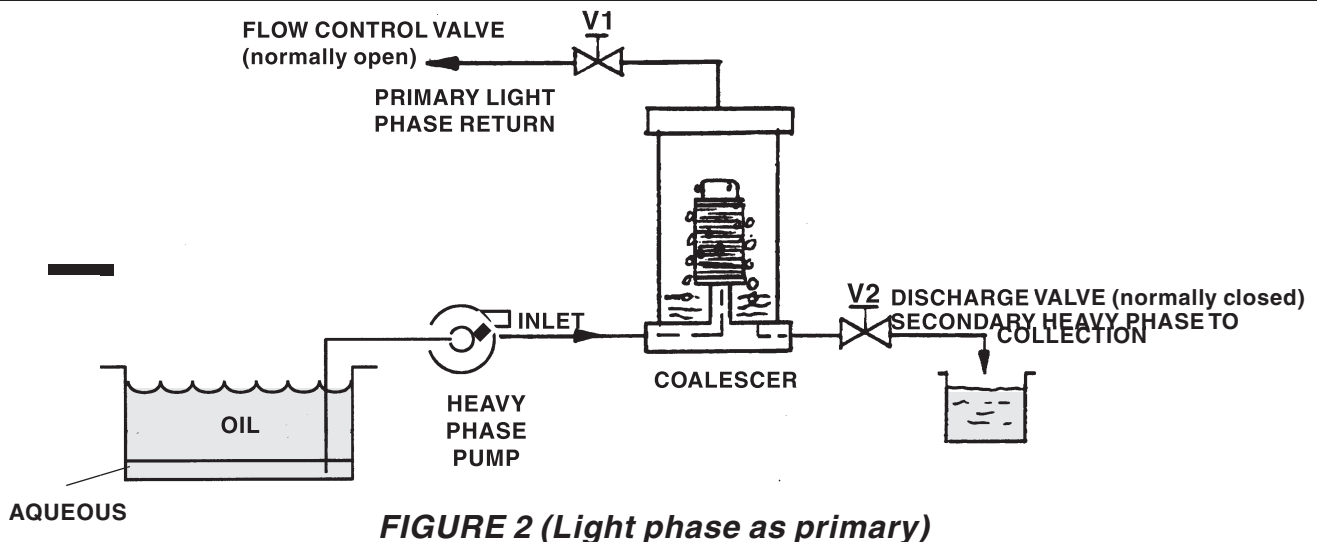
⚠ COALESCING SYSTEM

1. Before energizing motor, primary phase flow control valve V1 should be open and secondary phase flow control valve should be closed.
2. When secondary phase is collected in coalescing chamber, open valve V2 to purge chamber of this solution. For some conditions it may be necessary to then partially close V1 and force secondary phase to exit chamber.
3. Return V1 & V2 to their normal positions.

The individual components of the system feature non-metallic contact for use with corrosive liquids. Consult Application Engineering Department to obtain current information on larger systems.



NOTE: The coalescing chamber may be piped in place without use of a pump. Be sure to pay particular attention to correctly install the inlet, light and heavy phase connections.



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