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**CUSTOMER
DRIVEN**

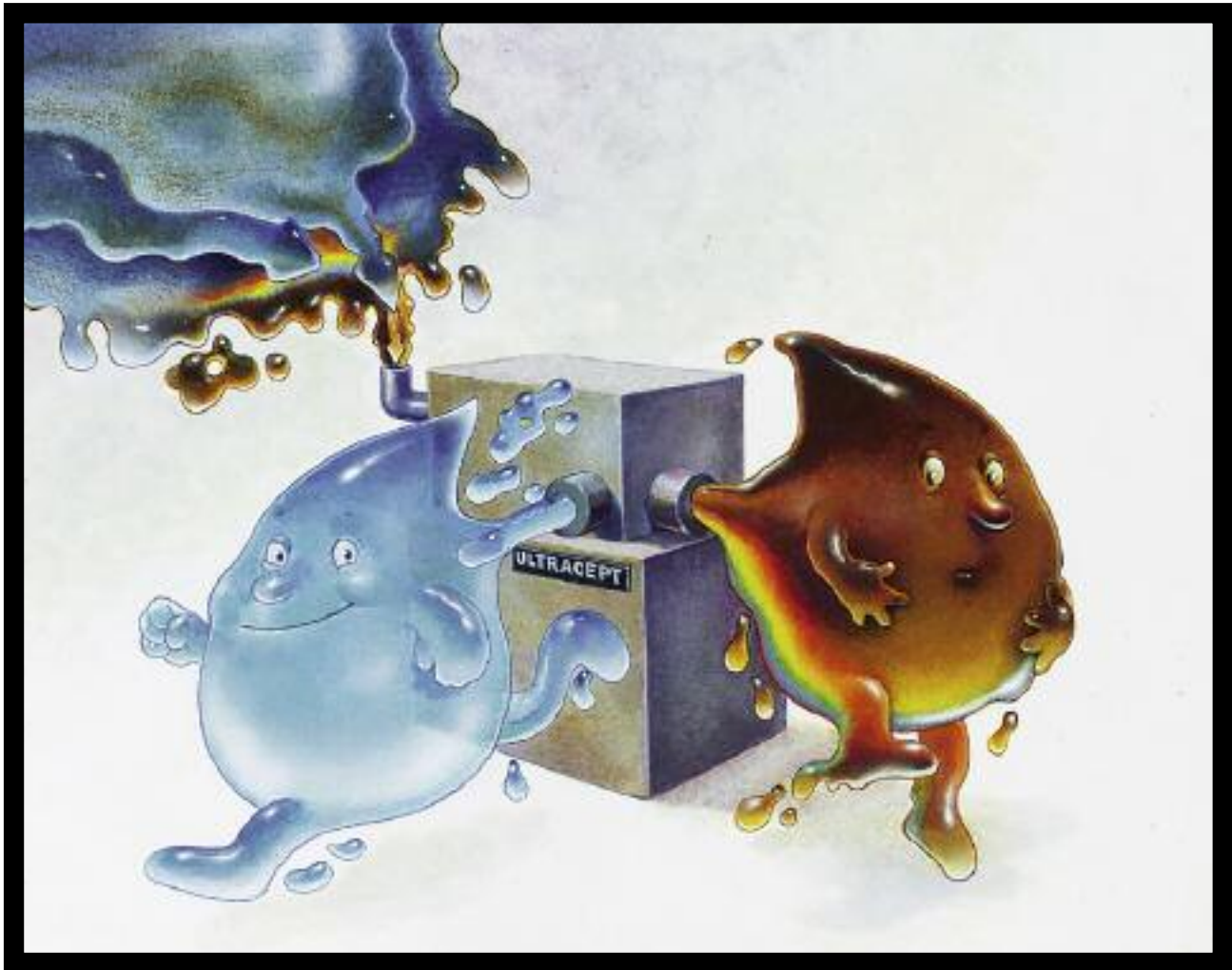
JAY R. SMITH MFG. CO.®

MEMBER OF ACORN'S FAMILY OF COMPANIES

MEMBER OF:



ENGINEERED PLUMBING PRODUCTS



ULTRACEPT®

Installation Manual

P.O. Box 3237 • 2781 Gunter Park Drive East • Montgomery, Alabama 36109-0237
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800-767-0466

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Model Number Configuration

The **ULTRACEPT** system has been designed to provide efficient service for many years. However, its performance and efficiency will be effected by how it is installed, maintained and operated. Each unit has been fully assembled, inspected and tested before it was sent to you. All that is needed now is a good understanding of how the unit operates and a few final plumbing and/or electrical connections.

All units are designed the same with only 3 things that can vary:

Flow Rate - Measured in **Gallons Per Minute (GPM)**

Construction Material - Most units are made from 11 gage 304 **(S)**tainless Steel. **(M)**ild Steel construction is also available.

Waste Oil Storage Tank - All units have integral (internal) waste oil storage compartments but units are offered with separate waste oil storage “tanks” that provide additional storage capacity.

Below is the Model Numbering Configuring Table. If you have misplaced the packing slip supplied with your unit, refer to this table and pages 2 and 3 to determine which unit you have.

Example: Typical 25 GPM unit made out of Stainless with a storage tank would be a **8625-04S**.

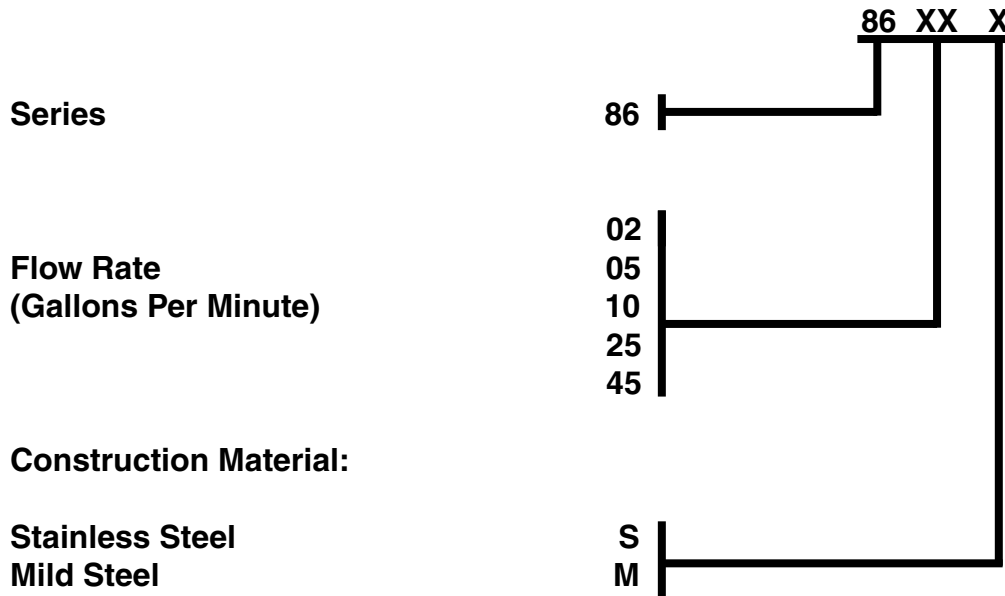


FIGURE NUMBER	8600 Series 1	DRAWN BY: CMD	CHECKED BY: SW	APPROVED BY: SW	DATE: 6-19-98	SCALE: NONE	SIZE A	DRAWING NUMBER s8600 Series1	T
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DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

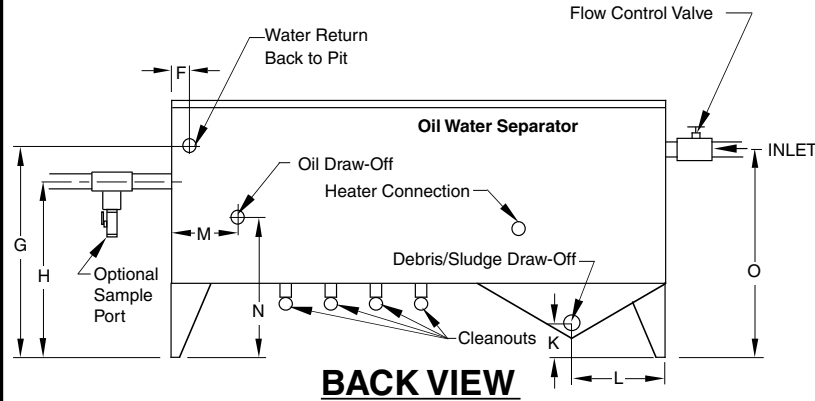
WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA

ULTRACEPT® WATER COHESIVE OIL/WATER SEPARATOR

U. S. Pat. No. 6,139,730

**CITY OF LOS ANGELES
DEPT. OF BUILDING AND
SAFETY RR-55-49**

ACCEPTED FOR USE
CITY OF NEW YORK
DEPARTMENT OF BUILDINGS
MEA-350-96-E



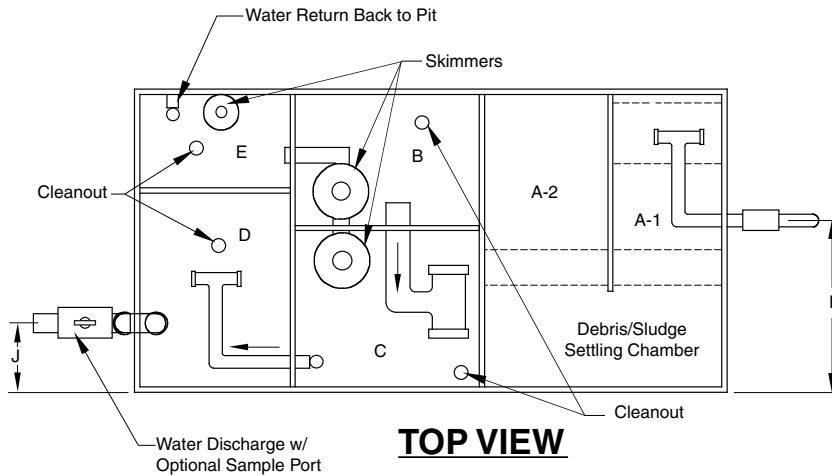
Model	Construction Material	Flow Rate GPM	Inlet	Outlet	Water Return	Sludge Draw-Off	Oil Outlet	Waste Oil Cap	Length	Width	Height	Weight	Water Volume
8602	S,M	2	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	4 gal	36"	24"	36"	150 lbs	67 gal
8605	S, M	5	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	12 gal	60"	36"	36"	600 lbs	168 gal

S = Stainless Steel

M = Mild Steel

Model	F	G	H	J	K	L	M	N	O	P	Q
8602	4.00	31.00	28.5	10.00	12.00	6.32	8.00	24.56	34.25	21.00	12 ^{3'}
8605	5.125	25.7	25.7	2.5	4.47	12.07	12.00	16.7	33.32	18.00	45 ^{3'}

All Cleanouts and Water Return Lines are to be plumbed to a common 3" Line that goes back to Surge Pit. All external plumbing fittings are Sch. 40 PVC unless otherwise specified.



- A** Inlet Compartment
- B** Primary Skimming Compartment
- C** Secondary Skimming Compartment
- D** Final Polishing Compartment
- E** Oil Collection Compartment
- F** Water Return from Side
- G** Water Return height from grade
- H** Water Discharge height from grade
- J** Water Discharge from side

- K** Sludge draw-off height from grate
- L** Sludge draw-off from side
- M** Oil draw-off from side
- N** Oil draw-off height from grade
- O** Inlet height from grade
- P** Inlet location from side
- Q** Cubes (ft.)

NOTE: Ultracept® units exposed to freezing temperatures may require pipe insulation to be installed on exposed plumbing. Pipe insulation is by others.



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MEMBER OF:



T	8-10-11	Rev. Fig. No., Tables	TBW	TWK		
S	6-7-11	Revised Table	TBW	TK		
R	5-11-11	Revised Table, Added Note	TBW	TK		
Q	09/25/08	Corrected "J" Dimension	JJ	SW		
P	1-9-06	Revised Table	TBW	SW		
REV.	DATE	DESCRIPTION	BY	CKD. BY	WT. LBS	VOL. CF

FIGURE NUMBER	8600 Series2	DRAWN BY: CMD	CHECKED BY: SW	APPROVED BY: SW	DATE: 10-13-98	SCALE: NONE	SIZE A	DRAWING NUMBER s8600 Series2	K
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DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

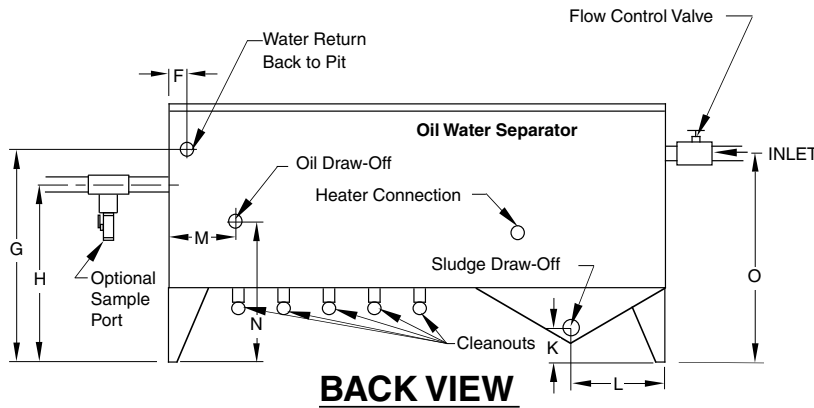
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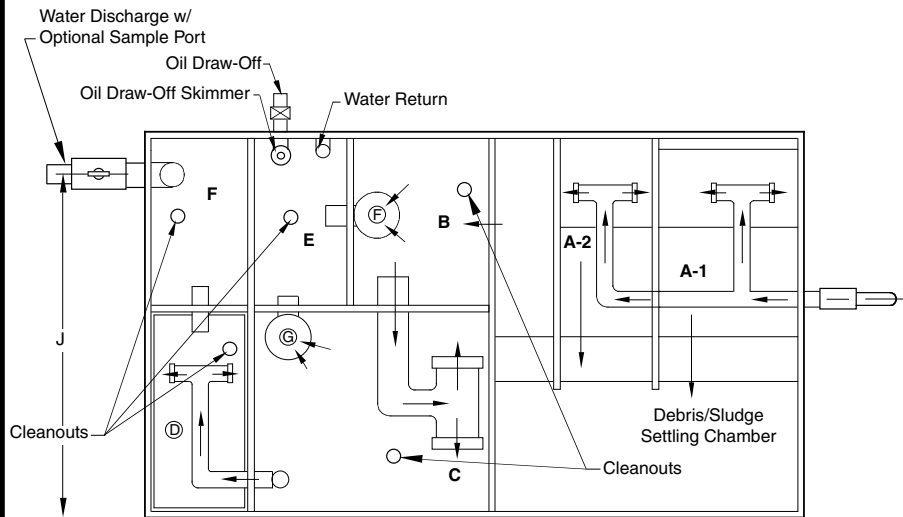
BACK VIEW

Model	Construction Material	Flow Rate GPM	Inlet	Outlet	Water Return	Sludge Draw-Off	Oil Outlet	Waste Oil Cap	Length	Width	Height	Weight	Water Volume
8610	S,M	10	2"	3"	1 1/2"	3"	1 1/2"	23 gal	72"	36"	48"	925 lbs	400 gal
8625	S,M	25	2"	3"	1 1/2"	3"	1 1/2"	29 gal	84"	48"	48"	1175 lbs	628 gal
8645	S,M	45	2"	3"	1 1/2"	3"	1 1/2"	35 gal	96"	48"	48"	1395 lbs	718 gal

S = Stainless Steel M = Mild Steel

Model	F	G	H	J	K	L	M	N	O	P	Q
8610	18.07	35.82	33.7	29.88	6.00	12.07	21.875	28.82	43.69	18.00	72
8625	18.99	31.70	33.70	6.00	6.00	18.07	23.875	21.70	43.57	24.00	112
8645	26.875	36.00	33.88	42.12	6.15	18.07	32.31	29.00	43.88	24.00	128

All Cleanouts and Water Return Lines are to be plumbed to a common 3" Line that goes back to Surge Pit. All external plumbing fittings are Sch. 40 PVC unless otherwise specified.



TOP VIEW

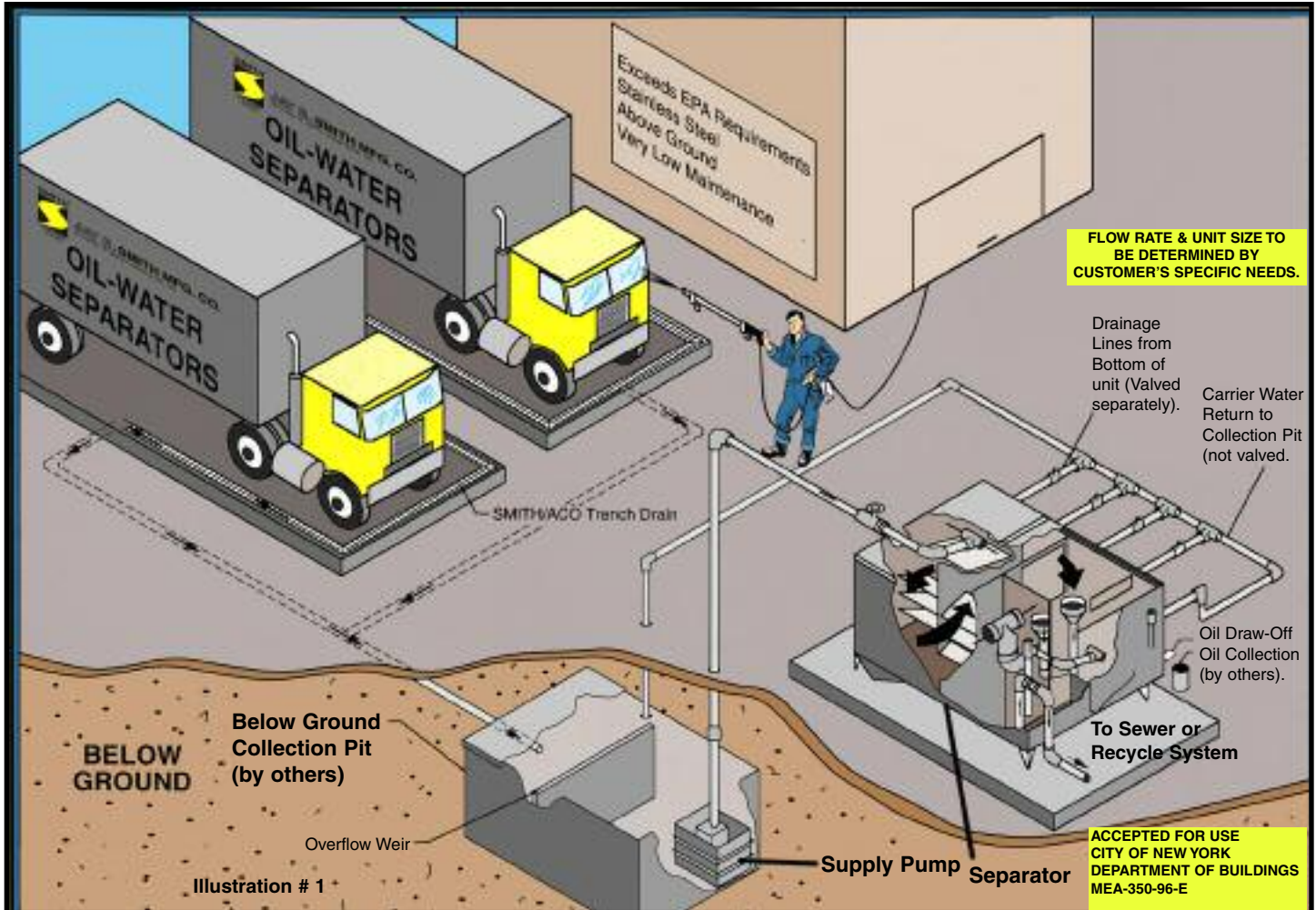
- | | |
|--|--|
| A Inlet Compartment | K Sludge draw-off height from grade |
| B Primary Skimming Compartment | L Sludge draw-off from side |
| C Secondary Skimming Compartment | M Oil draw-off from side |
| D Final Polishing Compartment | N Oil draw-off height from grade |
| E Oil Collection Compartment | O Inlet height from grade |
| F Water Return from Side | P Inlet location from side |
| G Water Return height from grade | Q Cubes (ft.) |
| H Water Discharge height from grade | |
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NOTE: Ultracept® units exposed to freezing temperatures may require pipe insulation to be installed on exposed plumbing. Pipe insulation is by others.

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K	8-22-11	Rev. Fig. No., Tables	TBW	TWK		
J	05/13/09	Added Sch. 40 PVC note	JJ	SW		
H	01/09/09	Spelling Correction	JJ	SW		
G	2-28-05	Revised Table	TBW	SW		
F	10/10/03	Added Optional Sample Port	JJ	SW		
REV.	DATE	DESCRIPTION	BY	CKD. BY	WT. LBS	VOL. CF

Typical Truck Wash Installation



System Overview

Above is an illustration of a typical Ultracept installation showing the wash pad, collection pit and oil/water separator. There are four basic components.

***Collection Pit**

***Supply Pump (by others)**

***Separator**

***Discharge Point**

1. Collection Pit - This is where the oily waste water accumulates prior to being pumped into the separator. Jay R. Smith Mfg. Co. recommends that an overflow weir be installed in the pit on the inlet side. This weir will reduce the amount of solids that could enter

into the separator. The most common type of collection pit is a pre-cast concrete tank, such as a septic tank, measuring a minimum of four feet in depth and having a holding capacity of no less than 500 gallons.

$$D' \times W' \times H' = \text{Cubic feet} \times 7.48 = \text{Gal.}$$

2. Supply Pump - There are various types of supply pumps used to bring waste water from the collection pit to the separator. The most common is the standard type submersible sewage pump with an integral float switch and the other is a positive displacement air driven diaphragm pump, both of which are optional components offered by Jay R. Smith Mfg. Co. Please take the time to check your local regulations to determine which

type will be best for your application.

Submersible - the most common type pump used with oil and water separators. This type is float switch operated and automatically turns on as water enters the collection pit, and





Cage

it must be placed in the factory supplied cage (above) which will raise the pump inlet 12" off of the bottom of the collection pit. This is done to reduce the possibility of solids being pumped into the separator.

Note: All electrical connections made inside the collection pit **MUST** be made in a water-proof junction box.

Air Diaphragm - These pumps produce less agitation in the waste water which reduces the amount of mechanical emulsions. If you select this type of pump, you must have compressed air at your facility and you must use a foot valve on the suction line inside the collection pit. If your air diaphragm pump was supplied by Jay R. Smith Mfg. Co., all components needed for the installation of the pump are supplied with the pump kit.



3. Oil/Water Separator - This unit will provide you virtually oil free water that can be safely discharged.

4. Discharge Point

This is where your processed (clean) water will go after having the oil removed. The most common discharge point is to a sanitary sewer. However, this may not be possible in some areas and the need to recycle the water and or perform post treatments may be required. Consult your local authorities or your Ultracapt Representative for your specific discharge requirements.

Site Location

The Ultracapt unit must be placed on a level slab. This slab could be an existing slab or one specifically made for the unit. Either way, the unit should be placed as close as possible to the surge pit.

THE MOST IMPORTANT PART IS TO BE SURE THAT THE UNIT IS LEVEL.

Making the Plumbing Connections

Regardless of the unit being installed, each separator has the same four plumbing connections, which are all labeled.

1. Inlet
2. Clean Water Outlet
3. Drainage
4. Oil Draw-off

Special Note:

Regardless of the unit being installed, each one is basically the same. One may have more drainage connections than another or the inlet and outlet connections may be in different locations and/or different sizes, but they all connect the same way.

If your unit has a waste oil storage tank located below the separator, the drainage ports of the separator may be located on the sides and the rear of the unit instead of the bottom.

Note to Installer: If installation is outside in an environment which could freeze, it is the responsibility of the installer to insulate drainage piping.



Inlet Connection

Inlet Connection:

This connection will receive the water from the supply pump/collection pit. It is to be connected to the unit using the flow control valve (provided). The flow control valve should **NOT** be completely opened. During normal operation and depending on the type and location of the supply pump, this valve will most likely only be opened 1 to 2 turns from completely closed.



Clean Water Outlet:

This connection will transport processed water from the separator to the discharge point discussed earlier. Refer to the drawings on pages 2 or 3 for the location and rough-in dimensions of the clean water outlet for your specific unit.

Drainage Connections:

Every Ultracapt® unit has a drainage port in each compartment. As noted earlier, the location of the outlets on each unit may vary depending upon your model. Regardless of their locations, they have all been plumbed at the factory into one common drainage line that is to be plumbed back to the collection pit.



SPECIAL NOTE

As illustrated above, all the drainage ports (**except for the water return line**) are valved. This prevents cross contamination between each compartment. Additionally, Jay R. Smith Mfg. Co. recommends that the common drainage line returning back to the collection pit be a minimum of 3" in diameter.

START-UP

When all plumbing connections have been made and the unit checked to be sure it is level, you may proceed with the start-up. However, **before** filling the unit with water, you must check to see if the unit was supplied with either a heater or a collection pit alarm (see page 8). Each of these components, if supplied, must be installed before the unit and the collection pit are filled with water.

FILLING THE UNIT:

Always fill the unit with clean water (**NEVER USE DIRTY WATER FROM THE COLLECTION PIT**). All compartments of the separator must be filled with water, even compartment "E", the oil storage compartment. Refer to pages 2 or 3 for compartment location.

The unit is considered full when the water reaches a level just below the tops of the skimmers (about 1/2" to 1" below).

If your unit was supplied with an oil storage "tank", DO NOT fill it with water.

Skimmer Adjustments:

All units are completely tested and the skimmer heights set at the factory. However, minor skimmer adjustments may be needed to insure proper operation. The flow control valve (page 5) at the inlet connection should be opened approximately 2 complete turns from its closed position.



Assuming the unit has now been filled with **clean water**, begin filling the collection pit, also with **clean water**, to a level in which it activates the float control device that operates the supply pump. Once water begins to be supplied to the separator from the collection pit, allow the unit to operate until the water level rises to a level which causes the unit to begin to skim water into both skimmers. After the unit has been operating for a few minutes, adjustments should be made to the flow control valve so that the unit begins to skim water in both compartment "B" and "C". **IMPORTANT** - Adjust the flow control valve so that the skimming in these two compartments is continuous but **MINIMAL**. Once the flow control valve has been set as close as possible, final adjustment of the skimming volume of both skimmers can be performed by rotating the skimmers either up or down.

Waste Oil Storage Compartment (WOSC)

Compartment "E". During the initial installation process, with the unit running, using only clean water and having properly set the skimming action in compartments "B" and "C", the water level in compartment "E" will be **BELOW** the oil draw-off skimmer. **i.e. no water should be allowed to skim into the oil draw-off skimmer**. With the unit running, there will be a known operating water level in the **WOSC**. During normal operation, as oil starts to accumulate in this compartment, this operating level will rise to a point that it will begin to skim oil into the **WOSC** skimmer. The level of the accumulated oil should be periodically checked and when needed, removed through the oil draw-off valve in the rear of the unit.



Water Return Line:

The purpose of this line is to allow the carrier water that carried the oil into the WOSC to be continuously drained back to the collection pit via the same common drainage line as used with the drainage outlets mentioned earlier, with one exception.

THERE MUST NOT BE A VALVE ON THE WATER RETURN LINE.

This line must always be open in order for the unit to operate properly.



Regular Maintenance

In order for your separator(s) to operate at the highest efficiency possible, it will be required that a regularly scheduled maintenance program be followed. To do this, follow the process below.

Note: The frequency of the maintenance will be determined by the individual application. Jay R. Smith Mfg. Co. recommends that maintenance be done once a week.

Step 1. Turn off the supply pump in the collection pit.

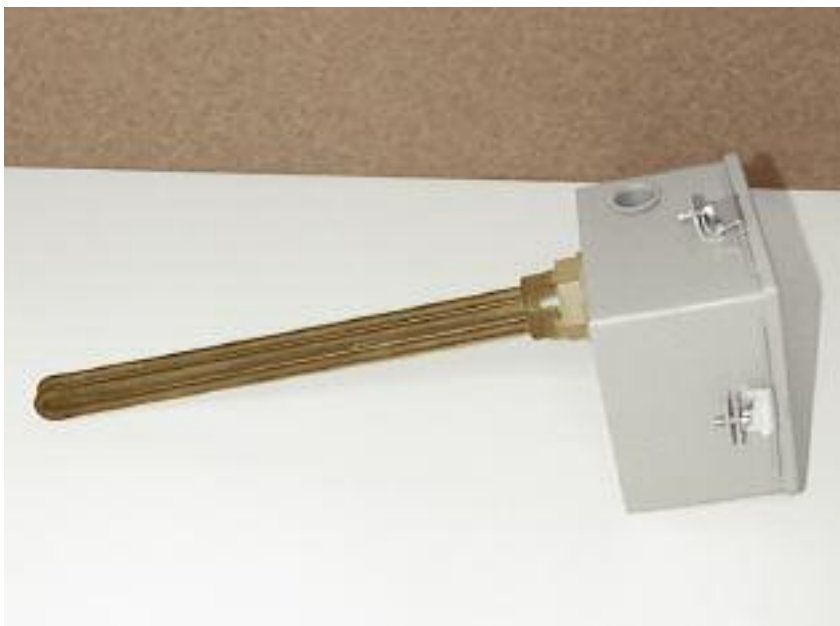
Step 2. Check the amount of solids in the collection pit. If solids have accumulated to a point near the intake of the supply pump, it must be cleaned out to prevent solids from entering the separator.

Step 3. In the separator, check the amount of solids in compartments "A-1" and "A-2". If solids have collected in these two compartments, it is recommended that they be removed through the sludge draw-off valve located on the back of the unit.

Step 4. With the supply pump turned off, drain the compartments "C", "D" and ("F", if you have one of the larger units), rinse any debris and/or solids from these compartments and clean off any grease and oil from the top edge of the skimmers. Remove any debris from the screen in compartment "B" and refill previously drained compartments with Clean Water. Refilling must be done through compartment "C".

Step 5. Check the oil level in the WOSC and/or the storage tank. If needed, remove any accumulated oil.

Optional Features:



Heater kits are used for low-temperature freeze protection on outdoor Ultracept installation in moderate climates. The heater kit includes a low-temperature thermostat with an adjustable set point.

Installation Note: The heater should be installed in the heater port on the rear of the oil/water separator using teflon tape or other suitable thread sealant. Power should be supplied through the knock-out on the box using code-approved Flex-tite or conduit. Wiring connections should be made for either 120V AC or 240V AC according to the schematic diagram on the inside of the heater box cover.

Model	Element Length	Thread Size	Wattage	Voltage	Amps
8602HK	13 3/8"	1 1/4"	1000	120/240 V AC	8.4/4.2
8603HK	13 3/8"	1 1/4"	1000	120/240 V AC	8.4/4.2
8605HK	13 3/8"	1 1/4"	1000	120/240 V AC	8.4/4.2
8625HK	13 1/4"	2"	3000	120/240 V AC	25/12.5
8610HK	13 1/4"	2"	3000	120/240 V AC	25/12.5
8645HK	15 1/8"	2"	4000	120/240 V AC	34/17



Collection Pit Alarm

Tank Alerts are typically used inside the collection pit to warn of a high level condition within the collection pit. The supplied float switch is mounted inside the pit with the alarm panel being mounted outside the pit.

The 115VAC mercury switch activated panel has both a loud horn and an indicator light to indicate a high level condition. Also included is a silencer-reset switch and an 8' power cord.

Glossary of Terms

Aeration: To introduce air into water, usually by a pump which produces a bubbling action.

Ambient air: The untreated air around us.

BAT (Best Available Technology): A system or process which is economically achievable.

BCT (Best Control Technology): The best system or process available, regardless of cost.

BOD (Biological Oxygen Demand): The amount of oxygen required to destroy organic material in waste water.

BPT: (Best Practical Technology)

COD: (Chemical Oxygen Demand)

Close-loop System: A recycling system. Water is re-used through a pressure washer or cooling system. There is no discharge from this type system.

Coalescing Plates: These are series of plates used in other separators to cause oil to collect. The oil will adhere to the plates, some coming into suspension. For proper operation, these plates must be frequently cleaned.

Contaminant: Any substance that pollutes or is regulated by law, such as oil, diesel fuel, industrial grease, transmission fluid, gasoline, etc. A foreign substance in water.

Controlled Skimming: The Ultrcept process by which a funnel type pipe allows oil and water to flow over its sides as the water level rises. This process removes contaminants from waste water.

DOT: Department Of Transportation.

Discharge: Includes, but not limited to any spilling, leaking, pumping, pouring, emitting, emptying or dumping.

EPA (Environmental Protection Agency): This government agency was formed in 1970 to administer and enforce Federal environmental laws such as, CAA(Clean Air Act), CWA(Clean Water Act), SDWS(Safe Drinking Water Act) and RCRA(Resource Conservation and Recovery Act).

Effluent: The water discharge from a waste water holding tank or an oil/water separator.

Emulsified Oil: Oils that are dissolved in water that will not readily come into suspension.

Filter: Used to remove solids from effluent after it passes through the oil/water separator. Two types are generally used; bag or cartridge, depending on the contaminant.

Flocculation: A process which brings emulsified oils into suspension, usually by adding acid or bentonite clay.

GPH (Gallons Per Hour)

GPM (Gallons Per Minute)

Head: The vertical distance a pump must move water.

Hydrocarbon: A carbon-based compound, usually meaning grease, oil or fuel.

Incline Plates: Plates that slow water agitation and help bring oil into suspension.

mg/l (Milligram Per Liter): Milligrams of a substance contained or dissolved in 1 liter of solution (usually water). Numerically equal to parts per million.

NPDES (National Pollution Discharge Elimination System): Permits issued by state Environmental offices for sewage and industrial waste discharge.

ph: The measure of acidity or alkalinity of a material. A ph of 7 is neutral, while a ph of 1 is acidic, and a ph of 14 is alkaline.

PPM (Parts Per Million): Measurement by weight of a substance dissolved in a liquid. For example, 100 ppm is equal to 1 oz. of material in about 80 gallons of water.

Potable Water: Water which is suitable for drinking.

Reclamation: Processing of contaminated water to bring it to a condition suitable for re-use.

Sanitary Sewer: A sewer intended to receive sanitary sewage with or without industrial wastes and without the admixture of surface water, storm water or clear water drainage. A pipe which carries sewage and excludes storm, surface or ground water.

Sludge: Any heavy deposit or sediment that settles out in drains or surge pits.

Storm Sewer: Collection system for surface run-off.

Surface Water: Lakes, streams, canals or waterways; any naturally occurring body of water that is exposed to air.

Suspended Solids: Fine particles in water that do not readily settle to the bottom.

Suspension: The process by which a substance rises to the surface.

Jay R. Smith Mfg. Co.[®], Environmental Products Group Limited Warranty

This Warranty covers Ultracept Oil/Water Separators (The "Products").

GUARANTEE/WARRANTY: All Smith products are guaranteed against defective materials and workmanship for a period of one year from the date of purchase. We will replace, free of charge, any product proven defective that has been properly installed, properly maintained, and used in accordance with recommended instructions. **WE SHALL NOT BE RESPONSIBLE FOR ANY LABOR CHARGES OR ANY LOSS, INJURY OR DAMAGES WHATSOEVER, INCLUDING INCIDENTAL OR CONSEQUENTIAL DAMAGES. THE IMPLIED WARRANTY IS LIMITED SOLELY TO THE REPLACEMENT OF THE DEFECTIVE GOODS.** This warranty is in lieu of other warranties, express, implied in fact or implied by law.

EXCEPTIONS TO WARRANTY:

1. This warranty does not cover defects caused by:

- (a) Installation not in strict accordance with instructions issued with these products.
- (b) shipping or improper handling.
- (c) abuse, abnormal use, or accident.
- (d) use for a purpose or in a manner for which the Products were not intended.
- (e) improper storage, installation, maintenance, or repair.

JRS will not pay for the cost of repair performed other than in accordance with this Warranty. Written notice of a Product or a component part believed to be defective as covered by this warranty should be sent to the following address and should include Buyer's name, address, proof of purchase, and a brief description of the defects.

Jay R. Smith Mfg. Co.[®]
Environmental Products Group
2781 Gunter Park Drive East
Montgomery, Alabama 36109

In no event, will warranty compensation or other damages available from JRS, exceed the sale price received by JRS for the Product.

Exclusive Remedy: The exclusive remedy under this Warranty is repair or replacement of any defective parts at JRS's option, provided

- (a) The defect is reported to JRS in writing within the applicable Warranty period.
- (b) JRS authorizes return of the defective part for replacement or repair; and
- (c) The defective part is returned to JRS freight and transportation costs prepaid, with a suitable letter and a copy of the purchase invoice. The letter should include a description of the defect and how and when the Product containing the defective part was used. All shipping and transportation costs associated with the return of the defective part are the responsibility of the buyer.

JRS will ship (freight collect) to the Buyer, Products repaired or replaced under this warranty.