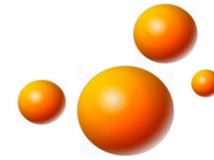
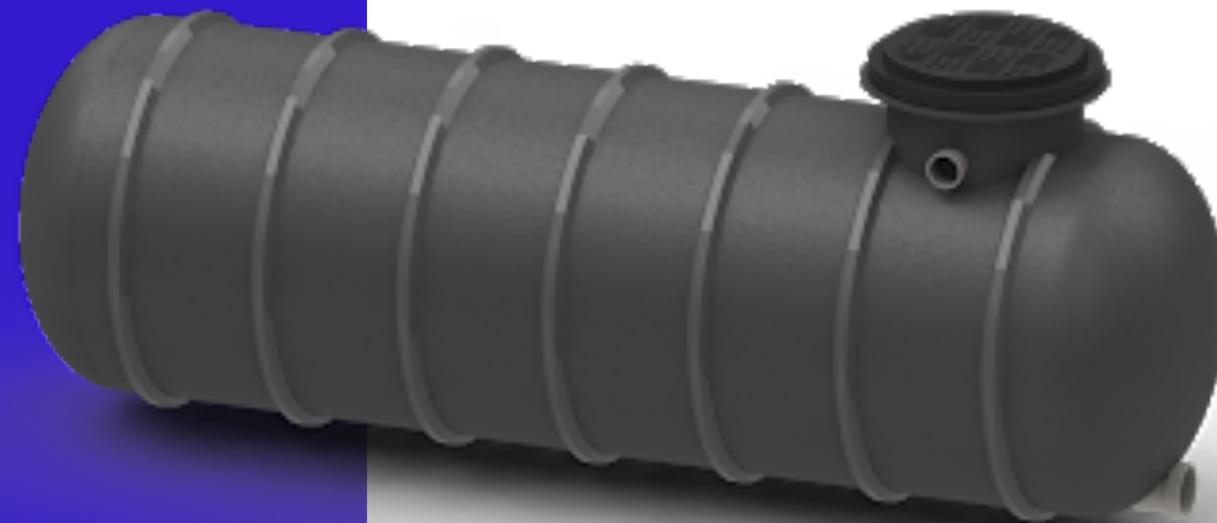


UWS-PLUS MODEL

UNDERGROUND OIL/WATER SEPARATORS



United International
HYDRO TECHNOLOGIES



UIHT Oil/ Water Separators by Coalescence:

UWS-PLUS Separators are engineered to collect sand, grit, grease and free oil (hydrocarbons and other petroleum products) from storm water runoff, spills and vehicle maintenance operations.

Function:

The Oil/ Water Separator is a stationary underground, wastewater treatment vessel, filled with water. Internal baffles and inclined plate/ cartridge coalescers to accelerate the oil/ water separation process. Waste accumulates within the separator while effluent is discharged by gravity. The system is designed for access from above for observation, maintenance and cleaning.

OUR EXPERIENCE

UIHT offers customized Oil Separator Tank packages for the reduction of oil and gas in storm and drainage water. UIHT maintains project management and quality assurance standards that are in compliance with the requirements of the leading oil and petrochemical companies across the globe.

UIHT optimized process design and comprehensive project management can produce a cost-effective package.

Characteristics:

- Outlet parameters lower than 5 ppm.
- Includes a dedicated sand and solids settling chambers.
- Designed in accordance with EN 858.
- Vessel manufactured in Polyurethane Coated Carbon Steel.
- Oil and hydrocarbon separation and solids settling chambers.
- Accumulation of oil and hydrocarbon on water surface.
- Coalescing plates with large specific surface: 240 m²/m³.
- Polishing coalescing cartridge on final stage.
- Oil removal by upper manhole.
- Level sensors for oil interface layer

PARAMETER	PERFORMANCE UWS-PLUS MODEL
Stokes' Law	✓
ASTM D-4201	✓
UL 1316	✓
API 421	✓
USCG 46CFR 162.050	✓
15 PPM	✓
10 PPM	✓
UL 2215	✓
Intermittent Flow	✓
Continuous Flow	



UWS-PLUS Oil/ Water Separators are unparalleled in performance, structural strength, product compatibility, and corrosion resistance. With hundreds of high-performance separators in commercial operation throughout the world, UIHT's patented oil/ water separators have a proven record of reliability.

UWS-PLUS Oil/ Water Separators handle a wide range of oily discharges from paved surfaces at petroleum, industrial, military, commercial, and municipal facilities. Most common applications include facilities with vehicle fueling, repair/ maintenance areas and wash pads. UWS-PLUS Oil/ Water Separators come in a variety of capacities and designs, available in either a cylindrical or rectangular vessel. Single and double-wall construction is available for both underground and aboveground applications.

UIHT engineers have designed a functional means of primary separation that not only meets these federal, state, and local oil and grease discharge limitation requirements, but also surpasses them. And unlike other oil/ water separators, UIHT separators are easy to operate and maintain!

Each Oil/ Water separator is backed by UIHT Tank's professional design, engineering, fabrication, delivery and service. UWS-PLUS separators come directly from UIHT's manufacturing facilities. This practice ensures complete quality control, from expert design to timely delivery by our experienced drivers. Construction and performance certification of the separator in strict accordance with Underwriters' Laboratories Subject SU-2215 is also available.



UWS-PLUS Oil/ Water Separators are competitively priced and are readily available from a network of knowledgeable regional factory representatives and distributors. In addition, UIHT provides a wide array of support information, including an engineering manual with detailed information, specifications, and engineering drawings for selecting and specifying oil/ water separators and accessories. You can depend on UIHT Tank to provide you with environmentally safe

and structurally sound oil water separator solutions well into the 21st century and beyond.

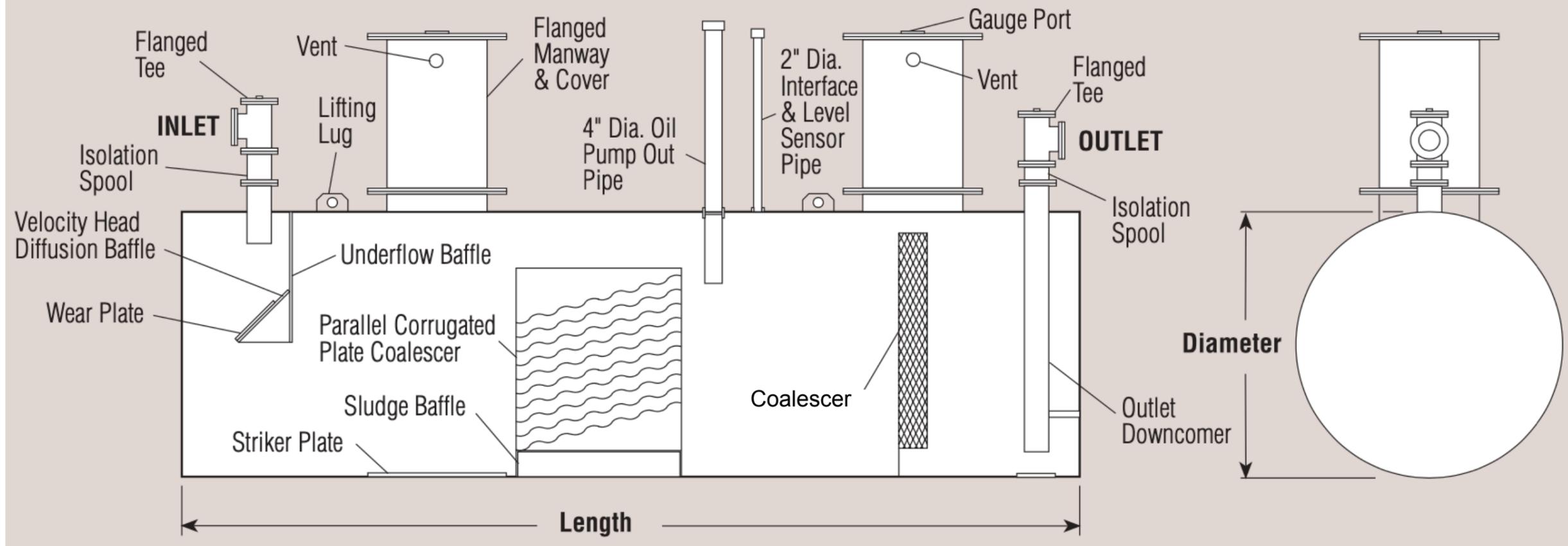
In addition, all protected UWS-PLUS Oil/ Water Separators carry a 30-year limited warranty against corrosion and structural failure.

From the solid heavyweight construction to the patented design and operating simplicity, a UWS-PLUS Oil/ Water Separator is a product of experience, backed by a company with 15+ years of private ownership and management.

Additional Features:

- Oil and Hydrocarbon Detection Alarm.
- Oil maximum level alarm.
- Maximum Solids level alarm to avoid clogging.
- Mechanical skimmer for separated oil removal.





MODEL	Total Volume (Gallons)	Total Spill Capacity (Gallons)	Inlet/ Outlet	Flow Rate (gpm)	Diameter (inches)	Length (inches)	Approx. Wt. (lbs.)
UWS-P-00350	350	175	4"	55	3'-6"	6'-0"	1,590
UWS-P-00550	550	275	4"	100	3'-6"	7'-9"	2,024
UWS-P-01000	1,000	500	6"	200	4'-0"	10'-9"	3,001
UWS-P-02000	2,000	1,000	6"	300	5'-4"	12'-0"	4,122
UWS-P-03000	3,000	1,500	8"	400	5'-4"	18'-0"	5,001
UWS-P-04000	4,000	2,000	8"	500	5'-4"	24'-0"	5,760
UWS-P-05000	5,000	2,500	8"	600	6'-0"	23'-10"	8,082
UWS-P-06000	6,000	3,000	10"	700	6'-0"	28'-8"	9,484
UWS-P-07000	7,000	3,500	10"	800	7'-0"	24'-4"	11,124
UWS-P-08000	8,000	4,000	10"	900	7'-0"	28'-0"	11,959
UWS-P-09000	9,000	4,500	12"	1,000	8'-0"	24'-0"	11,983
UWS-P-10000	10,000	5,000	12"	1,200	8'-0"	26'-8"	12,696
UWS-P-12000	12,000	6,000	12"	1,500	8'-0"	32'-0"	14,131
UWS-P-15000	15,000	7,500	14"	2,000	10'-0"	25'-6"	19,567
UWS-P-20000	20,000	10,000	16"	2,500	10'-6"	31'-0"	23,316
UWS-P-25000	25,000	12,500	18"	3,000	10'-6"	38'-9"	30,456
UWS-P-30000	30,000	15,000	20"	4,000	10'-6"	46'-6"	35,586
UWS-P-40000	40,000	20,000	24"	5,000	12'-0"	47'-3"	44,389
UWS-P-50000	50,000	25,000	24"	6,000	12'-0"	59'-0"	51,511

PERFORMANCE ADVANTAGES

- Consistently removes large quantities of non-emulsified organic contaminants to non-detectable levels or levels meeting regulatory codes.
- Especially effective in removing oil and grease, total petroleum hydrocarbons, and dissolved hydrocarbons.
- Eliminates or reduces waste volume, mobility and toxicity.
- Uses no anthracite coal fillers
- Enhanced coalescer system is comprised of oleophilic plates to maximize separation and minimize maintenance.
- Removable plates simplifies routine cleaning.
- Removes free floating oils and settleable solids for oil/ water mixtures to achieve 10 ppm effluent quality (or 15 ppm if specified).
- Includes a 30-year internal/ external corrosion and structural warranty.

SEPARATOR DESIGN & SIZING

Since each site is unique, the most effective approach is to analyze each situation and design the system accordingly. UIHT engineering staff can help determine the best fit for your technical considerations and site specific needs:

• Inlet flow rates	• Inlet/ Outlet Concentration
• Effluent Quality	• Specific Gravity of Contaminants

UWS-PLUS separators are sized primarily on flow rates. A complete list of flow rate plate pack options are available. Contact your UIHT representative for more information.

INTERCEPTORS

UWS-PLUS Oil/ Water Separators are used specifically for the removal of free floating oil, grease, and settleable oily coated solids from oil/ water discharges associated with many types of industrial facilities. Designed to remove oils with a specific gravity less than .95, high performance separators from 15 ppm oil/ grease discharge (Model UWS-PLUS) down to UL-Approved

APPLICATION

Oil drippings and spills from parking lots, driveways, oil terminals, airplane aprons, runways, and other vehicular traffic surfaces are being washed into our water supplies by rainwater, creating serious environmental concerns.

UWS-PLUS Oil/ Water Separators are designed to meet EPA and local guidelines for rainwater runoff control.

ELECTRONICS

Oil/ Water Separator monitoring and control systems can be configured to satisfy a wide range of customer requirements. Control panels, sensors, probes and gauges are available for double-wall and single-wall oil/water separator systems as well as for single-tank or multiple-tank installations. UIHT carries a full line of pump controls, inlet and outlet pumps, and waste oil pumps. We can package the right model with the proper electronics so when the tank arrives the only thing left to do is connect the piping.

OPTIONAL FEATURES

- Single-wall, Double-Wall Separator
- Manway Extension
- Tank Sump
- Cross-Flow Baffle
- Coalescer Plate Packs
- Oil Stop Valve
- Anchor Straps
- Deadman Anchor System

The unique cross flow design of the UWS-PLUS model results in the most efficient use of the corrugated plate pack.

PLATE COALESCER

This type of equipment uses gravity separation similar to the skim vessels, but in addition the coalescence of oil droplets. Bigger droplets flow faster to the phase interface. These skim vessels retrofitted with the plate interceptors. Corrugated Plate Interceptors (CPI) and the most effective plate coalescer that are able to separate oil droplets down to sizes of 30-50 μm . The main difference between CPI and cross-flow devices is that the plate axes of the corrugations are parallel to the direction of flow in CPI and are perpendicular in the cross-flow devices.

PLATE COALESCER
HIGH PERFORMANCE

ACCESSORIES FOR OIL/ WATER SEPARATORS

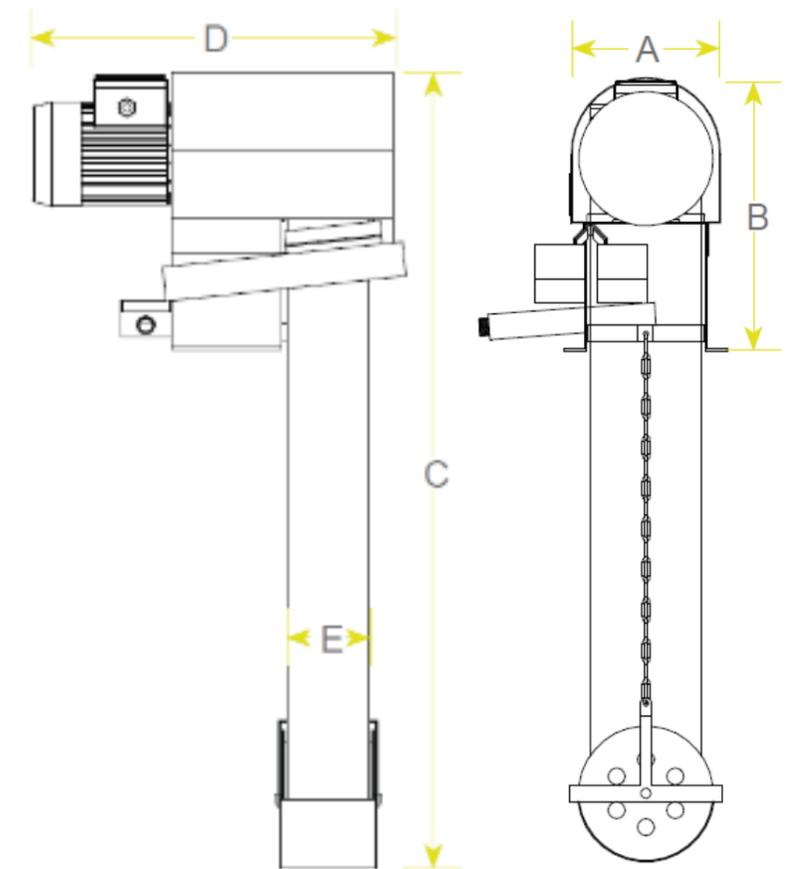
MECHANICAL SKIMMER

Function

Collection of mineral oil and hydrocarbon present in water or aqueous solutions.

Characteristics

- Equipment manufactured in AISI 304 stainless steel.
- Oil belt designed for extreme conditions.
- Steel safety chain to prevent the loss of the skimmer if the belt breaks.
- Anti-splash protection in AISI 304 stainless steel.
- Can be used as a pretreatment, before the filtration or combined with a coalescing system.
- Compact, robust and handy.
- Programmer and explosion protection in option.
- Skimmer with explosion-proof protection ATEX in option.



REFERENCE	A [MM]	B [MM]	C [MM]	D [MM]	E [MM]	FLOW [L/H]
SKM-100	176	320	--	420	100	50
SKM-150	176	320	--	470	150	76
SKM-200	176	320	--	520	200	100

OIL FILTER AND AUTOMATIC CLOSURE DEVICES FOR OIL/ WATER SEPARATOR

- Automatic closure device composed of a float and shut-off valve for standard UIHE ® Oil/ Water separators designed to float in the water and oil interphase with a density of 850 kg/m³.
- Oil filter made of PP-GFRP with circular structure and bottom cap for connection with UIHE ® Oil/ Water separators. Removable and washable filter.



REFERENCE	MODEL	FLOW [L/S]	Ø PIPE [MM]
UIHE-DOR	CVC-SH	2	110
UIHE-DOR	CVC-SH	3	110
UIHE-DOR	CHC-SH	3	110
UIHE-DOR	CHC-SH	5	125
UIHE-DOR	CHC-SH	7	160
UIHE-DOR	CHC-SH	20	200
UIHE-DOR	CHC-SH	25	250
UIHE-DOR	CHC-SH	30	315
UIHE-DOR	CHC-SH	50	400
UIHE-DOR	CHC-SH	70	500

REFERENCE	MODEL	FLOW [L/S]	Ø PIPE [MM]
UIHE-FILTRO	CVC-SH	2	110
UIHE-FILTRO	CVC-SH	3	110
UIHE-FILTRO	CHC-SH	3	110
UIHE-FILTRO	CHC-SH	5	125
UIHE-FILTRO	CHC-SH	7	160
UIHE-FILTRO	CHC-SH	20	200
UIHE-FILTRO	CHC-SH	25	250
UIHE-FILTRO	CHC-SH	30	350

HYDROCARBON LEVEL DETECTION ALARM

- Equipment of level detection of hydrocarbon, oil and grease to install in grease and oil/ water separators with working temperatures (-20 to 50°C).



HYDROCARBON, SAND AND SOLIDS DETECTION ALARM

- Combined alarm system for oil, hydrocarbon, sand and solids.



HYDROCARBON, SAND AND SOLIDS DETECTION ALARM

- Detection of maximum level of oil and hydrocarbon on the water surface. To be installed in civil construction tanks or open top tanks.
- The probe is placed on three floats and detects an hydrocarbon layer up to 15 mm thick.



Manufacturing

Standard 24", 30" and 36" diameter manways permit access to the inside of the vessel for maintenance from above. Double bolt ring manways for secondary containment sumps and custom, large rectangular access chambers to allow for total unconfined, unrestricted access from above, are also available.

Forming Heads: Sheet steel is cut with a rotary shear and flanged to form tank head.

Rolling Steel: Steel plates from 7 ga. to 1/2" are rolled to form the rigid shell of the vessel

Fitting Components: Flanged and threaded fittings, and other special components are fitted to the vessel, then welded in place.

Welding: All separators are sealed with a continuous exterior full-fillet lap weld.

Coating: Polyurethane, fiberglass reinforced polyester or other high-grade coatings are applied based on the separator's end use.

Testing: All separators are air tested for leaks at 5 psi. All seams are inspected to ensure weld integrity.

Electrical Isolation: UL-Listed dielectric nylon bushings or flange isolation kits are used in each opening to electrically isolate the separator from piping, preventing the entry of stray currents or galvanic action through piping connections.

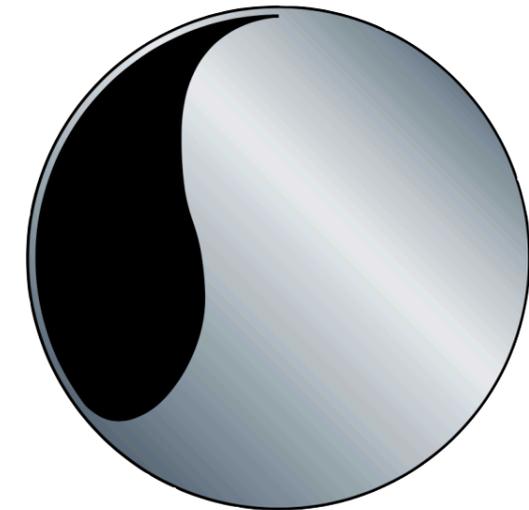
Protective Coating: A tough, heavy duty dielectric coating of polyurethane covers the separator and seals it from the surrounding soil providing the first line of defense against stray current and galvanic corrosion.

VESSEL CONSTRUCTION

UIHT Tank's Steel Oil/ Water Separators and Interceptors are second to none in design, quality and workmanship. The following information describes UIHT's standard vessel construction and fabrication options for steel separators and interceptors.

Single-wall

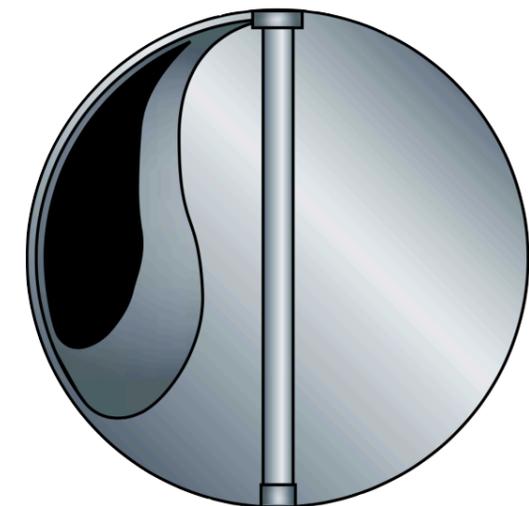
Standard single-wall vessels are constructed of mild carbon or stainless steel meeting ASTM specifications. Material thicknesses from 7 gauge to 1/2" can be specified. Superior "ribbed" strength is achieved with continuous exterior full-fillet lap welds, employing a minimum 1/2" overlap on both head and shell joints. All separators and interceptors are factory air tested for leaks at 5 psi.



Single-wall

Double-wall

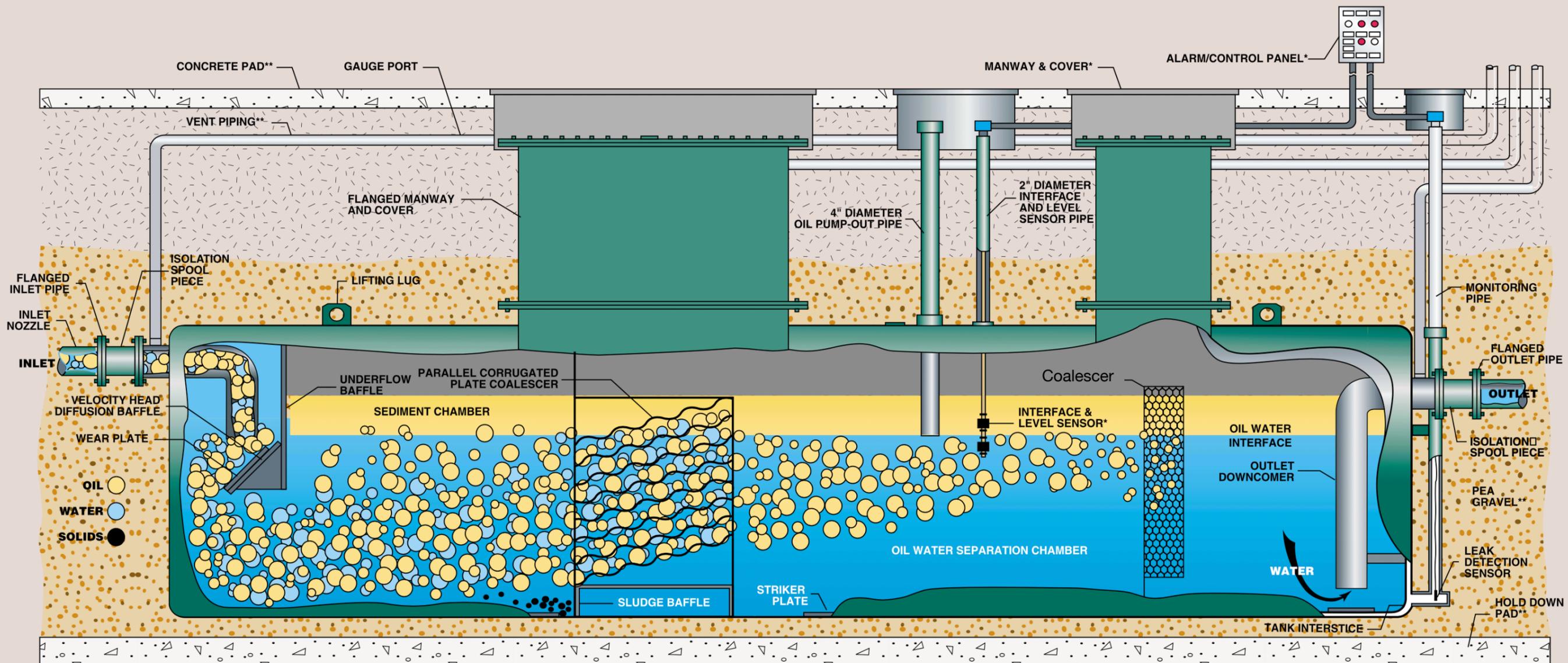
Double-wall vessels are constructed by wrapping a secondary steel wall completely around the primary vessel. Each double-wall vessel is constructed employing the same basic fabrication techniques as are used on single-wall vessels. The area between the vessel walls, known as the interstice, can be monitored with a leak detection system installed in the monitor tube, located on the vessel head.



Double-wall

UWS-PLUS SYSTEM PROCESS

How It Works . . .



Diffusion Baffle

- The velocity head diffusion baffle, located near the inlet of the separator, is designed to serve four basic functions:
 - To dissipate the velocity head, thereby improving the overall hydraulic characteristics of the separator.
 - To direct incoming flow downward and outward maximizing the use of the separator volume.
 - To reduce flow turbulence and to distribute the flow evenly over the separator's cross-sectional area.
 - To isolate inlet turbulence from the rest of the separator.

Monitoring Systems

For easy and efficient operation and maintenance, an oil level sensor can sound an alarm at high oil levels so waste oil can be removed from the separator. Double-wall separators can be furnished with a leak detection system for the interstitial space. Additional monitoring equipment is available for oil or water level sensing, alarm and pump-out control.

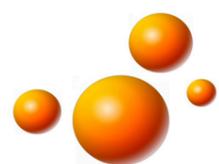
Internal Chambers

In the sediment chamber, heavy solids settle out, and concentrated oil slugs rise to the surface. As the oily water passes through the parallel corrugated plate coalescer (an inclined arrangement of parallel corrugated plates) the oil rises and coalesces into sheets on the underside of each plate. The oil then creeps up the plate surface, and breaks loose at the top in the form of large globules. These globules then rise rapidly to the surface of the separation chamber where the separated oil accumulates.

The effluent flows downward to the outlet downcomer, where it is discharged by gravity displacement from the lower regions of the separator.

The Oil/ Water Separator is buried and filled with water. Each separator includes a combination of baffles and coalescer packs, based on effluent requirements, to accelerate separation. Oil storm water enters through the inlet and gravity naturally settles heavier solids to the bottom of the tank as the oil floats to the top of the water level. The oily water then passes through the coalescing plates in a straight flow or cross flow direction depending on the tank model.

The configuration of the packs efficiently coalesces or joins oil droplets together forming larger masses of oil that rise to the surface where it accumulates and can be removed. Gravity displacement discharges the effluent through the outlet at a lower point in the tank chamber. Separator systems can also be equipped with electronic monitoring with high oil level alarms, oil stop valve, and control panel.



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