



FAT, OIL, GREASE, AND SEDIMENT SEPARATION

# Proceptor<sup>®</sup> and FOG-ceptor<sup>®</sup>

*Technical Manual*





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# 1 Proceptor and FOG-ceptor Overview

Drainage and wastewater contaminated with fuels, fat, oils, grease and suspended solids are common in many commercial, institutional, and industrial businesses due to the products produced, used, distributed, and/or stored. Increasingly, stringent environmental regulations require that fat, oil, grease and suspended solids be restricted to certain levels prior to being discharged into receiving sewer systems. In addition, increasing sewer-use surcharges for effluent exceeding regulatory limits (i.e., fat, oil, grease, BOD, pH, and suspended solids) means discharging over-strength wastewater is more costly.

Proceptor® oil, grease and solids separator effectively remove floatables (i.e., free oil, grease) and allow solids to settle resulting in reduced and/or eliminated sewer-use surcharges and penalties to end users.

The hydromechanical FOG-ceptor fat, oil, grease and solids separator effectively remove floatables (i.e., free fat, oil, grease) and allow solids to settle resulting in reduced and/or eliminated sewer-use surcharges and penalties to end users.

Developed by Zurn Green Turtle, Proceptor and FOG-ceptor separators achieve maximum removal treatment efficiency of free fat, oil, grease, and suspended solids from wastewater flows because of the unique hydraulic flow patterns. The controlled hydraulic flow patterns further ensure that captured contaminants will not scour or resuspend. Proceptor is ideal as a point-source spill control device, eliminating the possibility of soil and/or ground water contamination and costly remediation. The elliptical design of the unit allows for enhanced treatment efficiency and ease of cleaning.

The large capacity volume of the Proceptor ensures that adequate wastewater retention time is achieved for maximum contaminant removal efficiency. The large storage capacity also reduces the need for frequent cleaning, thereby saving the operator/owner significant maintenance expenses.

Proceptor and FOG-ceptor separators are constructed from Fiberglass Reinforced Plastics (FRP). Fiberglass is the preferred material for industrial and commercial waste streams since FRP is chemically inert, and impermeable to retained waste. The fiberglass construction eliminates the concern for internal and external corrosion of the tank that can result in leakage to the surrounding soil and causing contamination. Fiberglass has a longer projected life span (50+ years) as compared to concrete and/or steel. As the manufacturer of Proceptor and FOG-ceptor separators, Zurn Green Turtle ensures maximum manufacturing quality using computer controlled rotational molding, strand roving reinforcement and hand lay-up with various types of woven and non-woven reinforcements. A lifetime warranty is standard protection against leakage, corrosion, and structural failure.

Proceptor units are available in a variety of sizes and configurations to meet site and performance requirements. Accessories and options include suction pipes and custom wall reinforcements for deep burial and double wall design. Electronic monitoring devices can be installed to ensure that appropriate cleaning cycles are implemented and to notify the owner/operator of any operational problems (large spills or high oil content in effluent discharge).

The systems are also available with parallel plate style coalescers, which are designed to increase the efficiency of free oil separation for certain applications.

For over a decade, Zurn Green Turtle has helped thousands of commercial, institutional and industrial customers meet local effluent requirements.



## 1.1 THE PROCEPTOR SEPARATOR ADVANTAGE

- Short payback period – eliminates or reduces sewer-use surcharges
- Engineered systems – ensure better separation efficiency of oil, grease, and solids
- Engineered hydraulics to ensure compliance with sewer discharge regulations
- Variable wastewater flows accommodated
- Prevents scouring or resuspension of contaminants during peak flows (when adequately sized)
- Enhanced removal of free or mechanically dispersed mineral oil with coalescer option
- Larger storage capacity significantly reduces waste disposal/maintenance frequency lowering operational costs
- Easy to maintain by vacuum or pump truck
- Easy to install and handle due to being lightweight
- Non-corrosive, inert, and impermeable fiberglass material
- Sound structure – units built to withstand pressures for below ground installation; and can be installed above ground
- Models available from 50 to 10,000 US gallons (190 L to 37,850 L). Custom-designed separators are available
- Accessories and options such as alarms, monitors and remote suction are available
- Industry-leading lifetime warranty against corrosion, leaks, and structural failures

## 1.2 APPLICATIONS

- Restaurants (including fast food outlets and cafeterias)
- Hospitals, senior facilities and schools
- Wholesale food outlets
- Food processing plants
- Grocery stores
- Hotels
- Automotive and truck repair shops
- Service stations
- Car washes
- Factories
- Spill control applications
- Light and heavy industrial operations

## 1.3 LIFETIME WARRANTY

This warranty is provided by Zurn Industries, LLC, Zurn Industries Limited and their subsidiaries (collectively, “Zurn”). Proceptor and FOG-ceptor® oil and grease separators are not intended for residential or consumer use, and may not be purchased or sold for those applications. Zurn warrants to the original purchaser that all Proceptor and FOG-ceptor oil and grease separators purchased from Zurn will be free from defects in materials and workmanship for a period of one (1) year following the date of initial delivery to the purchaser, subject to the terms and conditions below.

Upon submission of a warranty registration card ([zurn.com/green-turtle-warranty](http://zurn.com/green-turtle-warranty)) to Zurn by the owner within the first 30 days of ownership, Zurn further warrants that, if the Proceptor and FOG-ceptor separators are installed, operated, and maintained in accordance with Zurn instructions and applicable state/provincial and federal regulatory requirements, the Proceptor and FOG-ceptor devices, for the lifetime of the plumbing system into which such devices were originally installed:

- 1 The Proceptor and FOG-ceptor is installed, operated, and maintained in accordance with the Proceptor and FOG-ceptor Installation Instructions and Proceptor and FOG-ceptor Owner’s Manual.
- 2 Oil Multi-Cell (OMC) and Gravity Grease Multi-Cell (GMC) models are installed as shallow burial having a maximum depth of 6 feet from the top of the tank to grade. (For deeper installation, a custom reinforced Proceptor or FOG-ceptor must be authorized by Zurn.)
- 3 There are no post-installations or repairs of the original Proceptor or FOG-ceptor separator.

All of the warranties herein are subject to the following conditions. If these conditions are not met, this warranty shall be null and void.

- 1 The Proceptor and FOG-ceptor is installed, operated, and maintained in accordance with the Proceptor and FOG-ceptor Installation Instructions and Proceptor and FOG-ceptor Owner’s Manual.
- 2 Oil Multi-Cell (OMC) and Gravity Grease Multi-Cell (GMC) models are installed as shallow burial having a maximum depth of 6 feet from the top of the tank to grade. (For deeper installation, a custom reinforced Proceptor or FOG-ceptor must be authorized by Zurn.)



- 3 There are no post-installations or repairs of the original Proceptor or FOG-ceptor separator.
- 4 The original installation has been carried out in Canada or the United States.
- 5 The original installation was performed following the Proceptor or FOG-ceptor installation procedures by a trained contractor with all his/her required registrations, certificates and/or licenses, to complete the installation, repair or alteration in accordance with recognized industry practices and applicable regulatory requirements.
- 6 The Proceptor or FOG-ceptor has been operated and maintained in accordance with regulatory requirements designed to minimize the possibility of structural failures and releases of regulated substances.
- 7 The Proceptor or FOG-ceptor shall not be installed or used in any application other than commercial, industrial, or institutional use.
- 8 After initial installation of the Proceptor or FOG-ceptor, the tank installation checklist supplied by Zurn must be properly completed by the contractor and/or the owner's representative, and the completed checklist must be submitted to Zurn within 30 days after installation (failure to deliver the document will result in denial of the claim).
- 9 If the Proceptor or FOG-ceptor is remanufactured, moved, or removed from the ground for any reason prior to the expiration of this warranty, the structural warranty protections will terminate.
- 10 The sole warranty for accessories, including but not limited to frames and covers, extension collars, alarms, pumps, valves, coalescers, suction pipes, sludge judge, draw-off pipes, strainers, etc. is that they are warranted for a period of one (1) year against defects in materials and workmanship from date of shipment.
- 11 Consumable parts including but not limited to gaskets and O-rings are excluded from this warranty.

ZURN'S LIABILITY UNDER THIS WARRANTY IS LIMITED, AT ZURN'S DISCRETION, TO REPAIR THE DEFECTIVE PROCEPTOR OR FOG-CEPTOR, TO REPLACE PROCEPTOR OR FOG-CEPTOR IN EXCHANGE FOR THE DEFECTIVE TANK, OR TO REFUND OF THE ORIGINAL PURCHASE PRICE. ZURN IS NOT LIABLE FOR ANY LABOR, SHIPPING, OR OTHER INSTALLATION COSTS, AND SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, PUNITIVE, CONSEQUENTIAL OR OTHER DAMAGES IN CONNECTION WITH SUCH PROCEPTOR OR FOG-CEPTOR INCLUDING, WITHOUT LIMITATION, COSTS, EXPENSES, OR LIABILITIES ASSOCIATED WITH ENVIRONMENTAL CONTAMINATION, FINES OR PENALTIES, FIRES, EXPLOSIONS, OR ANY OTHER CONSEQUENCES ALLEGEDLY ATTRIBUTABLE TO A BREACH OF THE WARRANTY OR DAMAGES UNDER DECEPTIVE TRADE PRACTICES OR SIMILAR CONSUMER PROTECTION ACTS. THE FOREGOING CONSTITUTES ZURN'S SOLE AND EXCLUSIVE OBLIGATION AND ZURN MAKES NO EXPRESS OR IMPLIED REPRESENTATION OR WARRANTY, OR ANY WARRANTY OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSES WHATSOEVER. NO EMPLOYEE OF ZURN OR ANY OTHER PARTY IS AUTHORIZED TO MAKE ANY OTHER REPRESENTATIONS OR WARRANTIES OTHER THAN THE WARRANTY SET FORTH HEREIN.

THIS WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY, AND ACCEPTANCE OF THIS EXCLUSIVE REMEDY IS A CONDITION OF THE PURCHASE OF THESE PRODUCTS

- 12 Customer assumes the risk of and agrees to indemnify Zurn Green Turtle against and hold Zurn Green Turtle harmless from all liability relating to (i) assessing the suitability for Customer's intended use of the Proceptor and of any system design or drawing and (ii) determining the compliance of Customer's use of the Proceptor with applicable laws, regulations, codes and standards. For Proceptors resold by Customer, Customer retains and accepts full responsibility for all warranty and other claims relating to, or arising from, Customer's Proceptor system which includes or incorporates Proceptor or components thereof manufactured or supplied by Zurn Green Turtle, and Customer is solely responsible for any and all representations and warranties regarding the Proceptor system made or authorized by Customer. Customer will indemnify Zurn Green Turtle and hold Zurn Green Turtle harmless from any liability, claims, loss, cost or expenses (including reasonable legal fees) attributable to Customer's Proceptor system or representations or warranties concerning same.

#### 1.4 CONTACT ZURN

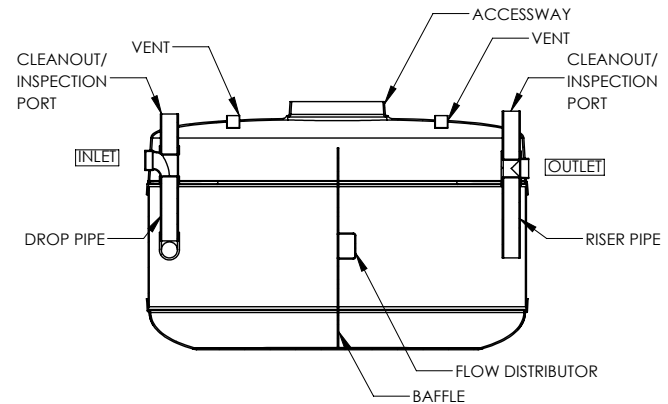
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## 2 Design and Operation

### 2.1 COMPONENTS & CONFIGURATIONS

Proceptor and FOG-ceptor are constructed out of fiberglass reinforced plastic (FRP) and the piping arrangement is constructed of polyvinyl chloride (PVC) pipe. A drop pipe with a tee opening directs wastewater into the midsection of the Proceptor. Where applicable, a baffle separates the unit into two chambers while the flow distributor regulates flow into the second chamber. A riser pipe in the second chamber allows cleaner water to displace out of the Proceptor or FOG-ceptor. The Proceptor or FOG-ceptor tank is equipped with vent ports, inspection ports and an access way for regular inspection and maintenance. Figure 2.1 depicts components of a standard single tank Proceptor separator. A variety of configurations and sizes are available (See Section 3).



**Figure 2.1:** Proceptor Components  
(Single Manway Tank Shown)

### 2.2 PRINCIPLES OF OPERATION: PROCEPTOR

#### Proceptor

Wastewater enters the unit through an inlet drop pipe, typically a 4" or 6" PVC sewer pipe, which discharges the wastewater below the normal liquid surface in the tank (see Figure 2.1 and Figure 2.2). The inlet drop pipe is configured to discharge wastewater horizontally along the tank walls. The standard separator tank has two chambers separated by a baffle and UPC separator tanks have three chambers separated by baffles. For larger Proceptor systems consisting of two or more tanks in series, each tank represents a chamber and is baffle-less. Upon entering the tank, oil, grease and other liquids with a specific gravity less than water rise to the surface in the first chamber, while suspended solids settle to the bottom by gravity. The wastewater then flows into the second chamber by a means of a flow distributor on the baffle wall, ensuring a smooth flow path, where further separation occurs. Cleaner water from the middle elevation of the tank is displaced through the riser pipe into the downstream sewer system.

Proceptor separators are engineered to ensure a smooth flow path. This is accomplished by the use of elliptical chambers, which is critical in minimizing the formation of turbulent eddy currents. A non-turbulent state within the separator promotes the separation of oil, grease, and solids from process wastewater. The separator design also minimizes the potential for short-circuiting, ensuring the required wastewater retention time within the separator. Furthermore, the configuration of Proceptor separators reduces the potential for influent wastewater from passing through the oil/grease or sludge layers at the top. This feature prevents scouring and/or resuspension of contaminants if actual flow rates exceed the design flow rate.

A standard Proceptor contains two 3" diameter PVC vent connections (one per chamber) for venting gases to the outside (see Figure 2.3). The contractor installing a Proceptor is required to provide piping from the vent connections to the venting system. A 24" diameter extension collar located at the center or at both ends of the separator provides access for maintenance. Maintenance is performed by a liquid disposal company using a vacuum or pump truck. The curved bottom design on the Proceptor promotes easy maintenance including removal of contaminants.

Proceptor separators are available with an extension collar, a frame and cover (cast iron for traffic loading, fiberglass composite for pedestrian conditions or above-ground applications). All other external piping, including pipes required for inlet and outlet connections, venting, suction piping (optional), etc., must be supplied by the contractor unless otherwise stated.

## FOG-ceptor

A standard FOG-ceptor contains either one or two 3" diameter PVC vent connections for venting gases to the outside (see Figure 2.3). The contractor installing a FOG-ceptor is required to provide piping from the vent connections to the venting system. A 20" diameter extension collar located at the center of the separator provides access for maintenance. Maintenance is performed by a liquid disposal company using a vacuum or pump truck.

FOG-ceptor separators are available with an extension collar, a frame and cover (fiberglass composite for all conditions up to H-20 rating or above-ground applications). All other external piping, including pipes required for inlet and outlet connections, venting, suction piping (optional), etc., must be supplied by the contractor unless otherwise stated.

For hydro-mechanical tanks like the FOG-ceptor units or Proceptor tanks labeled with an IAP suffix will come with a Zurn Green Turtle supplied flow control. The vented flow control unit is to be externally installed prior to the separator inlet (influent) end. Please see section 5.1.1 for more details.

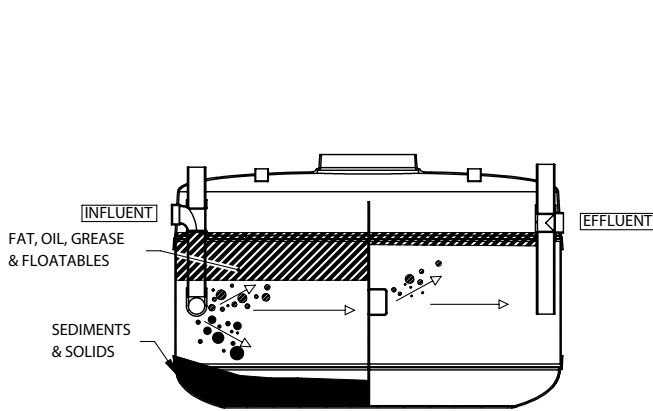


Figure 2.2 : Proceptor in Operation

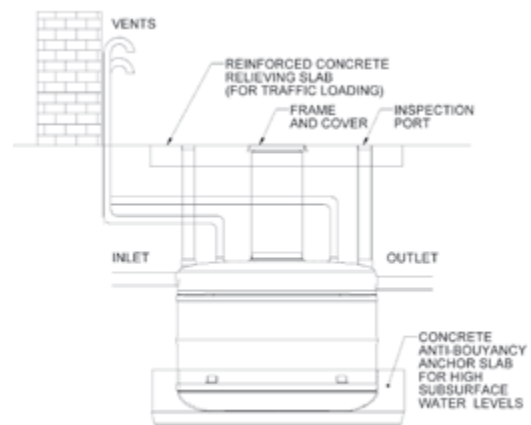


Figure 2.3 : Typical Proceptor Profile

## 3 Sizing Guidelines

Proceptor sizing information is based on best available data including laboratory testing (in-house), field testing, theoretical modeling, and monitoring studies. Proceptor sizing information is continually being updated with the most accurate available information to assist in sizing a proper unit for a specific application.

**Incorrect sizing, improper installation and/or inefficient maintenance will affect the performance of Proceptor separators.**

### 3.1 STANDARD SIZING CONSIDERATIONS

The following are standard sizing considerations for typical sites. If the site conditions are different from the below, please contact a Zurn Green Turtle representative for assistance.

- 1 **Flow Type.** The separator must be gravity fed.
- 2 **Pollutant.** Proceptor separators remove free oil, grease and settleable solids. The standard sized separator cannot remove chemically emulsified or dissolved oils. Consult a Zurn Green Turtle representative for sizing assistance if emulsified oil/grease are present.
- 3 **Temperature.** The inlet water temperature must be between 4°C (39°F) and 60°C (140°F). For industrial applications, please contact a Zurn Green Turtle representative for assistance.



- 4 **Specific Gravity.** The oil and grease specific gravity must be less than 0.95. Specific gravity of the wastewater must be equal to or greater than 1.0.
- 5 **Detergent Use.** For equipment wash down, car wash, or any other applications where soaps and detergents will be used, oil and grease emulsification may be a problem and can reduce the effectiveness of the separator.
- 6 **Wastewater Strength.** Notify a Zurn Green Turtle representative if chemicals of any kind are expected to be present in the process water or if the effluent is high temperature. A special resin may be required in tank manufacturing.
- 7 **Discharge Limits.** Many local authorities have minimum size requirements or very conservative factors. Please verify with your local municipal sewer authority and plumbing code regulations.
- 8 **Installation Depth.** Proceptor separators buried more than 6' from the top of the tank to grade will require reinforcement at an additional charge.
- 9 **Water Table Depth.** Please note that if ground water table may rise more than one foot higher than the bottom of the tank, a custom designed tank and proper anti buoyancy slab should be used. Please contact Zurn Green Turtle for more information.

### 3.2 OTHER DESIGN CONSIDERATIONS

Gravity separators rely on retention time (the amount of time wastewater is retained in the separator) to allow oil and grease to float to the top and solids to settle to the bottom.

The retention time required to meet regulated discharge limits is a function of the type of contaminants present in the wastewater, initial loading rates, particulate size, specific gravity, and the interactive potential of certain pollutants and the separator design. Although flow rates are important design criteria for the selection of a separator, they are not the only criteria.

Other factors need to be considered as well, a few of which are listed below:

- 1 **Monitoring Oil/Grease Level.** Manual monitoring must be performed before a regular cleaning schedule can be established. If and when increased activity occurs, the cleaning schedule must be adjusted accordingly. Zurn Green Turtle takes the guesswork out of servicing the separator when an electronic alarm is used to indicate when the system needs maintenance.
- 2 **Remote Suction Maintenance.** Remote suction pipe are available for indoor application where the maintenance cover is not easily accessible by pump trucks, or where opening the maintenance cover is undesirable due to odor issues. The Proceptor can be equipped with a factory installed suction pipe which extends from the bottom of the tank. The suction pipe is connected to a camlock fitting on an exterior wall for pump truck access.
- 3 **High Contaminant Loading.** High contaminant loading in processed wastewater requires a larger separator to allow for a longer retention time and more storage capacity.
- 4 **Reduce Frequency of Maintenance.** Increasing the size of the separator may reduce the frequency of maintenance, a cost-effective solution for many applications.
- 5 **Light Emulsification.** Larger capacity separators should be used in wash-down or car wash applications where oil globule sizes are quite small as a result of the interaction with high pressure water. Also, the soaps or detergents used will chemically emulsify oil and a longer retention time is required for the oil emulsion to break down.
- 6 **Space Restriction.** Coalescers can be used to reduce the size of the separator for the same treatment flow rate (oil applications only). Solids must be separated prior to entry into the coalescer since solids tend to plug coalescing filters quickly. Coalescers are not recommended for high solids/sediment wastewater applications due to the frequency of maintenance.
- 7 **Above-Ground Installation in Cold Climate.** Separators intended to be installed above the frost line may be required to be insulated and/or equipped with explosion proof heaters.



### 3.3 GREASE SEPARATORS

Proceptor gravity grease interceptors are available in several design configurations to meet applicable Plumbing Code standards throughout North America.

Sizing for Proceptor grease interceptors should always comply with applicable local, Provincial, State and Federal Codes. The sizing guidelines provided below are Minimum Provincial Code Calculated 1 minute residence time sizing - Section 3.3, or Manufacturer Sizing - Section 3.3.1 and 3.3.2, or CSA / PDI (Plumbing and Drainage Institute) Sizing - Section 3.3.3, and are included as guidelines only.

Minimum 1 Minute Residence Time Proceptor Grease Separator Sizing Chart		
Model Number	Flow Rating	Minimum Grease Capacity
	1 Minute Residence Time (US gpm)	Pounds
GMC 50	50	100
GMC 100	100	200
GMC 150	150	300
GMC 200	200	400
GMC 250	250	500
GMC 300	300	600
GMC 500	500	1000

#### 3.3.1 MANUFACTURER SIZING GUIDELINES - FOR ALL PROCEPTOR GMC MODELS EXCEPT PDI & CSA CERTIFIED MODELS

##### STEP 1: Determine Flow Rate

Determine the peak flow rates (**Q**): add up all the fixture loads discharging to the grease separator (these include: rinse, prep, 3-compartment sinks, floor drain, mop sink, etc.) and establish peak flow rate by dividing fixture capacity by the drain down time (one or two minutes depending on local code).

If fixture quantity and/or volume are unknown, assume worse case scenario by establishing peak flow rate based on drain size connecting to grease separator. For example: 4 in drain at 1/4 in/foot or 2mm/100mm = 110 US gpm

##### STEP 2: Determine Hydraulic Retention Time Required

In order to meet a 100 mg/l effluent discharge regulation, Proceptor separators require the following hydraulic retention time (HRT):

- 5 minutes retention for non-emulsified grease
- 30 minutes retention for emulsified grease from sinks only
- For heavily emulsified wastewater, call a Zurn Green Turtle representative for assistance

##### STEP 3: Calculate Size of the Proceptor

Multiply the peak flow rate (**Q**) by the hydraulic retention time (**HRT**) to determine the volume of the separator (**V**)

$$V = Q \times HRT$$



**STEP 4: Choose a Proceptor Size**

Choose the Proceptor size equal or closest to the value of V. Please refer to Grease Separator Sizing Chart in Section 3.3.2.

**For example:**

- 1 Restaurant with wash sink (30 US Gal) at one minute drain down time = 30 US gpm  
Recommendation: 30 US gpm x 5 minutes = Proceptor GMC 150 US Gal
- 2 Restaurant with 3-pot sink (30 US Gal) with soaps at one minute drain down time = 30 US gpm  
Recommendation: 30 US gpm x 30 minutes = 900 US Gal = Proceptor GMC 1000 US Gal

For high flow rates or high grease content in wastewater such as from large commercial and industrial applications, please call for a Zurn Green Turtle representative for support.

**3.3.2 MANUFACTURER GREASE SEPARATOR SIZING CHART**

Proceptor Grease Separator Sizing Chart		
Model Number	Flow Rating	
	Non-Emulsified Grease (US gpm)	Emulsified Grease from Sinks Only <sup>(1)</sup> (US gpm)
GMC 50	10	2
GMC 100	20	3
GMC 150	30	5
GMC 200 / GMC250	40 / 50	7 / 8.5
GMC 300	60	10
GMC 500	100	17
GMC 750	150	25
GMC 1000 & GMC 1000(2)	200	33
GMC 1300	260	43
GMC 1500 & GMC 1500(2)	300	50
GMC 2000(2)	400	67
GMC 2600(2)	520	87
GMC 3000(2)	600	100
GMC 4000(2)	800	133
GMC 5000(2)	1,000	167
GMC 6000(2)	1,200	200
GMC 7000(2)	1,400	233
GMC 8000(3)	1,600	267
GMC 9000(3)	1,800	300
GMC 10000(3)	2,000	333

Pipe sizes shown in standard drawings reflect the lowest flow scenario in all cases. Larger pipe sizes are available. It is the responsibility of the designer to inform Zurn Green Turtle of the design flow rate and pipe size for each project.

Caution: For larger units, or applications involving degreasers, surfactants, emulsifiers, corrosive wastewater, pumped effluent (not gravity fed), contact a Zurn Green Turtle representative.

Notes: (1) Based on 30 minute retention time (ref: Metcalf & Eddy, Inc., Revised by George Tchobanoglous and Franklin L Burton, Wastewater Engineering: Treatment, Disposal and Reuse. 3rd Ed. , 1991).



3.3.3 PROCEPTOR PDI AND CSA SIZING –  
FOR PROCEPTOR GMC 100 IAP, GMC 150 IAP, GMC 200 IAP, GMC 250 IAP, GMC 300 IAP  
as published in PDI- G101 standard – revised March 2010

**Sizing Method Based on Pipe Size and Slope**

When the final configuration of fixtures in a facility is not known or to allow for additional fixtures in the future, this method shall be used or to size the interceptor for the maximum flow that the drain line from the facility can carry.

Sizing Method Based on Pipe Size and Slope			
Pipe Size (inches)	Full Pipe Flow @ 1/4 slope	Interceptor Size 1 minute drain	Interceptor Size 2 minute drain
2"	19.44 gpm	20 gpm	10 gpm
3"	58.67 gpm	75 gpm	35 gpm
4"	125.77 gpm	-	75 gpm

**Procedure for Sizing Grease Interceptor**

Table 8.3.2 is provided to show the standard formula in steps for sizing grease interceptors to suit requirements of specific fixtures. An example of this sizing formula application is included to illustrate the steps.

Table 8.3.2 Procedure for Sizing Grease Interceptors		
Steps	Formula	Example
1	Determine cubic content of fixture Multiply length x width x depth	A sink 48" long by 24" wide by 12" deep <b>Cubic content:</b> 48 x 24 x 12 = 13,824 cubic inches
2	Determine capacity in gallons 1 gal. = 231 cubic inches	<b>Content in gallons</b> $\frac{13,824}{231} = 59.8$ gallons
3	Determine actual drainage load. The fixture is normally filled to about 75% of capacity with water. The items being washed, displace about 25% of the fixture content, thus actual drainage load = 75% of fixture capacity.	<b>Actual Drainage Load</b> .75 x 59.8 = 44.9 gallons
4	Determine flow rate and drainage period. In general, good practice dictates a 1 minute drainage period; however, where conditions permit, a 2 minute drainage period is acceptable. Drainage period is the actual time required to completely drain the fixture. Flow rate = $\frac{\text{Actual Drainage Load}}{\text{Drainage Period}}$	<b>Calculate Flow Rate</b> For 1-minute period: $\frac{44.9}{1} = 44.9$ gpm Flow Rate For 2-minute period: $\frac{44.9}{2} = 22.5$ gpm Flow Rate
5	Selective Interceptor From Table 1 select Interceptor which corresponds to the flow rate calculated. Note: Select next larger size when flow rate falls between two sizes listed.	<b>Select Interceptor</b> For 1-minute period – 44.9 gpm requires PDI size 50 For 2-minute period – 22.5 gpm requires PDI size 25.



### Sizing by Known Compartment Sizing

Table 8.3.3 is included as a selection chart for standard PDI Certified grease interceptors applicable to various size fixtures commonly used in domestic, commercial and institutional installations. The selections listed are based on the sizing formula covered in Table 8.3.2 by GPM.

Fixture Compartment Size (inches)	Number of Compartments	Drainage Load (gallons)	Recommended PDI Size Grease Interceptor	
			1-minute Drainage Period	2-minute Drainage Period
18 x 12 x 6	1	4.2	7	4
16 x 14 x 8	1	5.8	7	4
20 x 18 x 8	1	9.4	10	7
18 x 6 x 8	2	15.0	15	10
20 x 18 x 8	2	18.7	20	10
30 x 20 x 8	1	15.6	20	10
24 x 20 x 12	1	18.7	20	10
22 x 20 x 8	2	22.9	25	15
22 x 20 x 12	2	34.3	35	20
24 x 24 x 12	2	44.9	50	25
22 x 20 x 12	4	68.6	75	35
24 x 24 x 12	4	89.8	100	50

### Dishwashers

A separate grease interceptor is recommended for each commercial dishwasher. The size of the interceptor is determined by the GPM discharge rate of the dishwasher as specified by the manufacturer. Select proper interceptor of equivalent or next higher rate from Table 8.3 .2.

### Multiple Fixtures

Where multiple fixtures are served by a single interceptor calculate the interceptor size per section 8.3.1 or, calculate the capacity of each fixture and total the fixture capacities up, or establish the total capacity of the maximum number of fixtures that may be drained simultaneously. Then using the GPM capacity calculated proceed with sizing of the interceptor to the nearest PDI size, larger than the calculated capacity based on a one minute or two minute drain down time.

PDI-G 101 Certified Proceptor Model	CSA B481.1 Certified Proceptor Model	Rated Capacity (gpm)	Grease Capacity (pounds)	Height Top of Tank (inches)	Inlet Invert D1 (inches)	Outlet Invert D2 (inches)
—	GMC 50 IAP	50	100	62 x 32 x 24	12	11
GMC 100 IAP	GMC 100 IAP	100	200	62 x 32 x 28	20	19
GMC 150 IAP	GMC 150 IAP	100	200	62 x 32 x 32	28	27
GMC 200 IAP	GMC 200 IAP	100	200	62 x 32 x 44	36	35
GMC 250 IAP	GMC 250 IAP	100	200	62 x 32 x 52	44	43
GMC 300 IAP	GMC 300 IAP	100	200	62 x 32 x 60	52	51
GMC 500 IAP	—	100	200	96 x 62 x 47	32	30
FOG-ceptor Z-50H	FOG-ceptor Z-50H	50	100	48 x 48 x 32	16	15
FOG-ceptor Z-75H	FOG-ceptor Z-75H	75	150	48 x 48 x 36	20	19
FOG-ceptor Z-250H	FOG-ceptor Z-250H	100	200	62 x 32 x 52	44	43
FOG-ceptor Z250H-MD in Series	FOG-ceptor Z250H-MD in Series	100	3,245	2 (62 x 32 x 72)	50-1/2	49-1/2

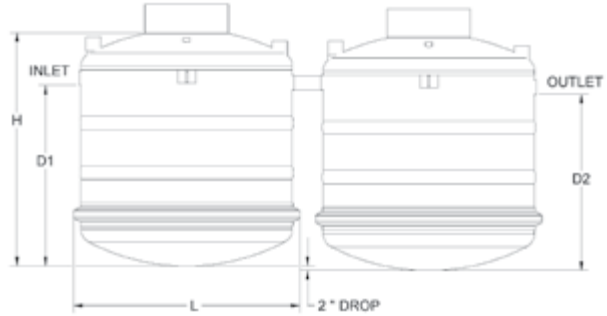


### 3.3.4 STANDARD GREASE SEPARATOR CAPACITY AND DIMENSIONS

Standard Grease Separator with Single Accessway							
System Type	Model Number	Total Liquid Capacity (US gal)	Storage Capacity		Tank Dimension L x W x H (inches)	Inlet to Tank Bottom, D1 (inches)	Outlet to Tank Bottom, D2 (inches)
			Grease (US gal)	Solids (US gal)			
System 1: Single Tank	GMC 50	50	12	11	62 x 32 x 24	12	11
	GMC 100	100	42	23	62 x 32 x 32	20	19
	GMC 150	150	66	48	62 x 32 x 40	28	27
	GMC 200	200	90	72	62 x 32 x 48	36	35
	GMC 300	300	156	103	62 x 32 x 64	52	51
	GMC 500	500	279	87	96 x 62 x 47	32	30
	GMC 750	750	410	200	96 x 62 x 60	45	43
	GMC 1000	1,000	577	295	96 x 62 x 74	59	57
	GMC 1300	1,300	707	446	96 x 62 x 89	74	72
	GMC 1500	1,500	819	540	96 x 62 x 100	85	83



**PROCEPTOR AND FOG-CEPTOR**  
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**System 1 : Single Tank**

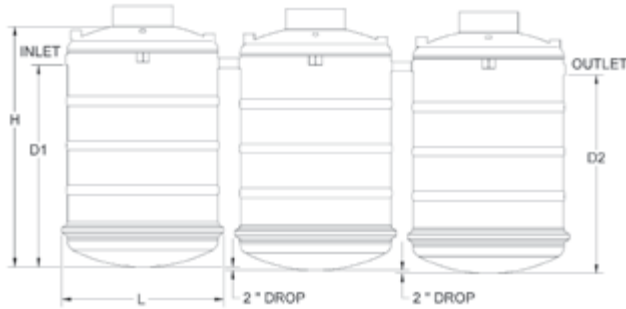
**System 2 : Two Tanks in Series**

**PDI-G 101 and CSA B481.1 Certified Grease Interceptors (Hydromechanical)**

PDI-G 101 Certified Proceptor Model	CSA B481.1 Certified Proceptor Model	Rated Capacity (gpm)	Grease Capacity (pounds)	Height Top of Tank (inches)	Inlet Invert D1 (inches)	Outlet Invert D2 (inches)
—	GMC 50 IAP	50	100	62 x 32 x 24	12	11
GMC 100 IAP	GMC 100 IAP	100	200	62 x 32 x 28	20	19
GMC 150 IAP	GMC 150 IAP	100	200	62 x 32 x 32	28	27
GMC 200 IAP	GMC 200 IAP	100	200	62 x 32 x 44	36	35
GMC 250 IAP	GMC 250 IAP	100	200	62 x 32 x 52	44	43
GMC 300 IAP	GMC 300 IAP	100	200	62 x 32 x 60	52	51
GMC 500 IAP	—	100	200	96 x 62 x 47	32	30
FOG-ceptor Z-50H	FOG-ceptor Z-50H	50	18	48 x 48 x 32	16	15
FOG-ceptor Z-75H	FOG-ceptor Z-75H	75	20	48 x 48 x 36	20	19
FOG-ceptor Z-250H	FOG-ceptor Z-250H	250	38	62 x 32 x 52	44	43
FOG-ceptor Z250H-MD in Series	FOG-ceptor Z250H-MD in Series	100	3,245	2 (62 x 32 x 72)	50-1/2	49-1/2

**Standard Grease Separator with Single Accessway**

System Type	Model Number	Total Liquid Capacity (US gal)	Storage Capacity		Tank Dimension L x W x H (inches)	Inlet to Tank Bottom, D1 (inches)	Outlet to Tank Bottom, D2 (inches)
			Grease (US gal)	Solids (US gal)			
<b>System 2:</b> Two Tanks in Series	GMC 1000(2)	1,000	559	174	2 (96 x 62 x 47)	32	30
	GMC 1500(2)	1,500	819	401	2 (96 x 62 x 60)	45	43
	GMC 2000(2)	2,000	1,154	589	2 (96 x 62 x 74)	59	57
	GMC 2600(2)	2,600	1,415	891	2 (96 x 62 x 89)	74	72
	GMC 3000(2)	3,000	1,638	1,080	2 (96 x 62 x 100)	85	83
	GMC 4000(2)	4,000	1,712	1,315	2 (94 x 94 x 109)	79	77
	GMC 5000(2)	5,000	2,226	1,776	2 (94 x 94 x 126)	96	94
	GMC 6000(2)	6,000	2,883	2,092	2 (94 x 94 x 143)	113	111
GMC 7000(2)	7,000	3,396	2,611	2 (94 x 94 x 161)	131	129	



**System 3 : Three Tanks in Series**



**System 4 : UPC | IAPMO Approved**  
(Dual Accessway, Single Tank or Two Tanks in Series Design)

Standard Grease Separator with Single Accessway							
System Type	Model Number	Total Liquid Capacity (US gal)	Storage Capacity		Tank Dimension L x W x H (inches)	Inlet to Tank Bottom, D1 (inches)	Outlet to Tank Bottom, D2 (inches)
			Grease (US gal)	Solids (US gal)			
System 3: Three Tanks in Series	GMC 8000(3)	8,000	3,810	2,707	3 (94 x 94 x 132)	102	100
	GMC 9000(3)	9,000	4,324	3,139	3 (94 x 94 x 143)	113	111
	GMC 10000(3)	10,000	4,795	3,700	3 (94 x 94 x 155)	125	123

### 3.3.5 UPC | IAPMO | FLORIDA GREASE SEPARATOR CAPACITY AND DIMENSIONS

UPC / IAPMO / Florida Grease Separator (US only)							
System Type	Model Number	Total Liquid Capacity (US gal)	Storage Capacity		Tank Dimension L x W x H (inches)	Inlet to Tank Bottom, D1 (inches)	Outlet to Tank Bottom, D2 (inches)
			Grease (US gal)	Sediment (US gal)			
System 4: UPC / IAPMO APPROVED	GMC 100 IAP	100	42	23	62 x 32 x 32	20	19
	GMC 150 IAP	150	66	48	62 x 32 x 40	28	27
	GMC 200 IAP	200	90	72	62 x 32 x 48	36	35
	GMC 250 IAP	250	119	91	62 x 32 x 56	44	43
	GMC 300 IAP	300	156	103	62 x 32 x 64	52	51
	GMC 500 IAP/UPC	500	279	125	96 x 62 x 55	33	30
	GMC 750 IAP/UPC	750	521	125	96 x 62 x 68	46	43
	GMC 1000 IAP/UPC	1,000	782	125	96 x 62 x 82	60	57
	GMC 1300 IAP/UPC	1,300	1,061	125	96 x 62 x 97	75	72
	GMC 1500 IAP/UPC	1,500	1,248	125	96 x 62 x 101	83	80
	GMC 2000 UPC	2,000	1,712	125	96 x 62 x 132	110	107
	GMC 2000 IAP	2,000	1,564	250	2 (96 x 62 x 82)	60	57
	GMC 2000(2) UPC	2,000	1,564	250	2 (96 x 62 x 82)	60	57
	GMC 2600 IAP/UPC	2,600	2,122	250	2 (96 x 62 x 97)	75	72
System 4: Florida Approved	GMC 750 FL	750	596	53	96 x 62 x 68	46	43
	GMC 1000 FL	1,000	856	53	96 x 62 x 82	60	57
	GMC 1250 FL	1,300	11,136	53	96 x 62 x 97	75	7
System 4: Phoenix Approved	GMC 500-P	500	279	125	96 x 62 x 55	33	30
	GMC 7500-P	750	521	125	96 x 62 x 68	46	43
	GMC 1000-P	1,000	782	125	96 x 62 x 82	60	57
	GMC 1300-P	1,300	1,061	125	96 x 62 x 97	75	72
	GMC 1500-P UPC	1,500	1,248	125	96 x 62 x 101	83	80
	GMC 2000 P	2,000	1,564	250	2 (96 x 62 x 82)	60	57
GMC 2600 P	2,600	2,122	250	2 (96 x 62 x 97)	75	72	



### 3.4 OIL SEPARATORS

#### 3.4.1 SIZING GUIDELINES

##### **STEP 1: Determine the Flow Rate**

Determine peak flow rates (Q): add up all fixtures (e.g., hose bibs) and other sources of liquid discharge to oil separator and establish peak flow rate.

If fixture quantity and/or volume are unknown, assume worse case scenario by establishing peak flow rate based on drain size connecting to oil separator. (For example: 4 in drain at 1/4 in/foot or 2mm/100mm = 110 gpm (US))

##### **STEP 2: Determine the Retention Time Required**

In order to meet the 10 mg/l effluent discharge regulation enforced by most pre-treatment authorities, Proceptor requires the following retention times (HRT):

- 10 minutes retention for non-emulsified oil **with** the use of a coalescer
- 30 minutes retention for non-emulsified oil **without** the use of a coalescer
- 60 minutes retention for light emulsified oil (mechanical mixing)

##### **STEP 3: Calculate the Size of the Proceptor**

Multiply the peak flow rate (Q) by the hydraulic retention time (HRT) to determine the volume of the separator (V)

$$V = Q \times \text{HRT}$$

##### **STEP 4: Choose a Proceptor Size**

Choose the Proceptor size equal or closest to the value of V. Please refer to Oil Separator Sizing Chart in Section 0.

##### **For example:**

- 1 Spills containment 10 US gpm of potential flow from spills

Scenario 1: 10 US gpm x 10 min. = Proceptor OMC 100 US gallon **with** a coalescer

Scenario 2: 10 US gpm x 30 min = Proceptor OMC 300 **without** coalescer

- 2 Mechanics shop rinsing floor lightly with soap and using two (2) 1/2" hose bibs = 2 X 5 US gpm = 10 US gpm (30 psi)

Scenario 1 (if continuous flow exist for more than 60 minutes): 10 US gpm x 60 min. = Proceptor OMC 750 US gallon

Scenario 2 (if it is a batch flow where wash time is less than 60 minutes): Wash time = 30 minutes, 10 US gpm x 30 min.  
wash time = Proceptor OMC 300 without coalescer

If flow rate is unknown, assume worse case scenario by establishing peak flow rate based on size of drain size connecting to the oil separator. For example: 4in drain at 1/4 in/foot = 110 gpm).





### 3.4.2 OIL SEPARATOR SIZING CHART

Proceptor Oil Separator Sizing Chart		
Model Number	Flow Rating	
	Non-Emulsified Oil without Coalescer (US gpm)	Non-Emulsified Oil with Coalescer (US gpm)
OMC 50	2	5
OMC 100	3	10
OMC 150	5	15
OMC 200	7	20
OMC 300	10	30
OMC 500	17	50
OMC 750	25	75
OMC 1000 & OMC 1000(2)	33	100
OMC 1300	43	130
OMC 1500 & OMC 1500(2)	50	150
OMC 2000(2)	67	200
OMC 2600(2)	87	260
OMC 3000(2)	100	300
OMC 4000(2)	133	400
OMC 5000(2)	167	500
OMC 6000(2)	200	600
OMC 7000(2)	233	700
OMC 8000(3)	267	800
OMC 9000(3)	300	900
OMC 10000(3)	333	1000

Pipe sizes shown in standard drawings reflect the lowest flow scenario in all cases. Larger pipe sizes are available. It is the responsibility of the designer to inform Zurn Green Turtle of the design flow rate and pipe size for each project.

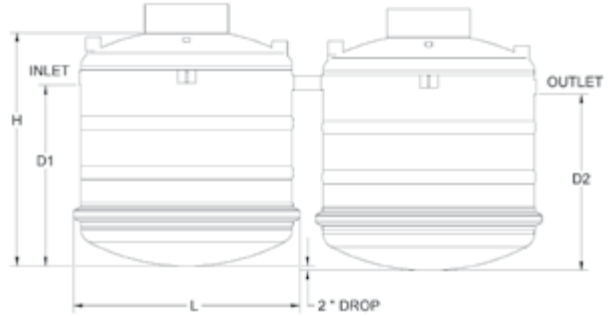
Caution: For larger units, or applications involving degreasers, surfactants, emulsifiers, corrosive wastewater, pumped effluent (not gravity fed), contact a Zurn Green Turtle representative.

### 3.4.3 STANDARD OIL SEPARATOR CAPACITY AND DIMENSIONS

Standard Oil Separator with Single Accessway							
System Type	Model Number	Total Liquid Capacity (US gal)	Storage Capacity		Tank Dimension L x W x H (inches)	Inlet to Tank Bottom, D1 (inches)	Outlet to Tank Bottom, D2 (inches)
			Oil (US gal)	Sediment (US gal)			
System 1: Single Tank	OMC 50	50	12	11	62 x 32 x 24	12	11
	OMC 100	100	42	23	62 x 32 x 32	20	19
	OMC 150	150	66	48	62 x 32 x 40	28	27
	OMC 200	200	90	72	62 x 32 x 48	36	35
	OMC 300	300	156	103	62 x 32 x 64	52	51
	OMC 500	500	279	87	96 x 62 x 47	32	30
	OMC 750	750	410	200	96 x 62 x 60	45	43
	OMC 1000	1,000	577	295	96 x 62 x 74	59	57
	OMC 1300	1,300	707	446	96 x 62 x 89	74	72
	OMC 1500	1,500	819	540	96 x 62 x 100	85	83



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**System 1 : Single Tank**

**System 2 : Two Tanks in Series**

**Standard Oil Separator with Single Accessway**

System Type	Model Number	Total Liquid Capacity (US gal)	Storage Capacity		Tank Dimension L x W x H (inches)	Inlet to Tank Bottom, D1 (inches)	Outlet to Tank Bottom, D2 (inches)
			Oil (US gal)	Sediment (US gal)			
<b>System 2:</b> Two Tanks in Series	OMC 1000(2)	1,000	559	174	2 (96 x 62 x 47)	32	30
	OMC 1500(2)	1,500	819	401	2 (96 x 62 x 60)	45	43
	OMC 2000(2)	2,000	1,154	589	2 (96 x 62 x 74)	59	57
	OMC 2600(2)	2,600	1,415	891	2 (96 x 62 x 89)	74	72
	OMC 3000(2)	3,000	1,638	1,080	2 (96 x 62 x 100)	85	83
	OMC 4000(2)	4,000	1,712	1,315	2 (94 x 94 x 109)	79	77
	OMC 5000(2)	5,000	2,226	1,776	2 (94 x 94 x 126)	96	94
	OMC 6000(2)	6,000	2,883	2,092	2 (94 x 94 x 143)	113	111
OMC 7000(2)	7,000	3,396	2,611	2 (94 x 94 x 161)	131	129	



**System 3 : Three Tanks in Series**



**System 4 : UPC | IAPMO Approved**  
(Dual Accessway, Single Tank or Two Tanks in Series Design)

Standard Oil Separator with Single Accessway							
System Type	Model Number	Total Liquid Capacity (US gal)	Storage Capacity		Tank Dimension L x W x H (inches)	Inlet to Tank Bottom, D1 (inches)	Outlet to Tank Bottom, D2 (inches)
			Oil (US gal)	Sediment (US gal)			
System 3: Three Tanks in Series	OMC 8000(3)	8,000	3,810	2,707	3 (94 x 94 x 132)	102	100
	OMC 9000(3)	9,000	4,324	3,139	3 (94 x 94 x 143)	113	111
	OMC 10000(3)	10,000	4,795	3,700	3 (94 x 94 x 166)	125	123

### 3.4.4 UPC | IAPMO OIL SEPARATOR CAPACITY AND DIMENSIONS



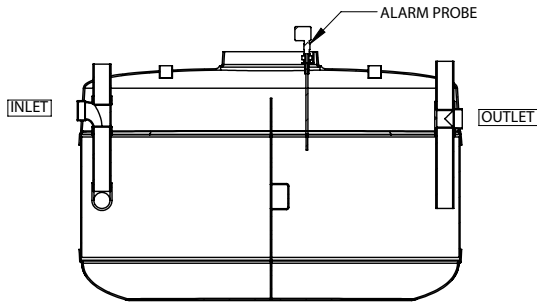
**System 5 : UPC | IAPMO Approved**  
(Triple Accessway, Single Tank or Two Tanks in Series Design)

UPC / IAPMO Oil Separator with Triple Accessway (US only)							
System Type	Model Number	Total Liquid Capacity (US gal)	Storage Capacity		Tank Dimension L x W x H (inches)	Inlet to Tank Bottom, D1 (inches)	Outlet to Tank Bottom, D2 (inches)
			Oil (US gal)	Sediment (US gal)			
System 5: Single Tank	OMC 500 UPC	500	279	125	96 x 62 x 55	33	30
	OMC 750 UPC	750	521	125	96 x 62 x 68	46	43
	OMC 1000 UPC	1,000	782	125	96 x 62 x 82	60	57
	OMC 1300 UPC	1,300	1,061	125	96 x 62 x 97	75	72
	OMC 1500 UPC	1,500	1,248	125	96 x 62 x 101	83	80

## 4 Accessories and Options

### 4.1 ALARM

The alarm is an electronic monitoring system designed to trigger a visual and audible alarm when a preset level of oil or grease is reached within the treatment chamber. The feature acts as a safeguard against spills caused by exceeding the oil/grease storage capacity of the separator and eliminates the need for manual inspection.



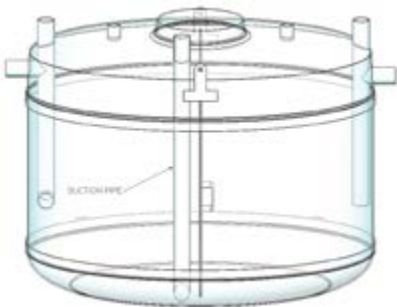
**Figure 4.1 :** Alarm Mounted in Proceptor

### 4.2 COALESCING FILTER for Small Diameter Oil Globules (>20 $\mu\text{m}$ )

Coalescing elements cause fine free oil droplets to agglomerate into larger droplets, thus enhancing gravity separation. According to Stokes' Law, the rise velocity of a droplet of oil is directly proportional to the square of its diameter. Coalescers will not remove chemically emulsified or dissolved oil. Solids must be separated prior to entry into the coalescer since solids tend to plug coalescing filters quickly. The addition of a coalescer within the separator can allow for a reduction in the required sizing of the separator. For sizing information for Proceptor oil separators with coalescers refer to Section 0. (Not recommended where soaps are present in wastewater). Not for food grease applications.

### 4.3 SUCTION PIPE FOR INDOOR INSTALLATIONS

A suction pipe is used when remote tank cleanout is desired. Internal piping allows the system to be maintained if a servicing vehicle logistically cannot access the top of the tank. The schedule pipe extends to the bottom of the separator to permit for all liquid and solid waste to be suctioned out. This piping is to be plumbed to an exterior wall allowing for a pumping truck to attach to the wall port instead of opening the frame and cover for traditional servicing.



**Figure 4.3 :** Suction Pipe Accessory with Proceptor

### 4.4 DOUBLE WALL

Proceptor separators can be supplied with a secondary wall made from durable fiberglass for added protection against leaks.

## 4.5 LEVEL MONITOR FOR DOUBLE WALL OR HOLDING TANKS

The system uses an ultrasonic level sensor field installed in the interstitial space between the tank walls or within a holding tank at a preset level for cleanout. Once the sensor comes into contact with liquid, it sends a signal through an externally mounted relay controller and indicator panel, to alert personnel that there is fluid in the interstitial space or a high level within the holding tank.

## 4.6 FIBERGLASS PRODUCTS

Large capacity and custom oil separators are available for special applications. To complement its oil and grease separators, Zurn Green Turtle also manufactures a wide range of fiberglass products including aboveground tanks, holding tanks, emergency spill holding tanks, surge tanks, catch basins, sump tanks, neutralizing systems, valve chambers, sample chambers and other.

For more information, please visit [zurn.com](http://zurn.com) or contact a Zurn Green Turtle representative.

# 5 Installation and Maintenance

## 5.1 INSTALLATION

Proceptor separators must be installed in accordance with the provided installation instructions. The installer must ensure that all Federal, State/Provincial, and local codes such as the National Fire Code, Municipal Building and/or Plumbing codes and municipal pretreatment sewer-use regulations are followed.

Refer to Drawings: Installation Section for detailed installation procedures, and drawings.

### 5.1.1 HYDRO-MECHANICAL TANKS

For hydro-mechanical tanks like the FOG-ceptor units or Proceptor tanks labeled with an IAP suffix will come with a Zurn Green Turtle supplied flow control. The vented flow control unit is to be externally installed prior to the separator inlet (influent) end. Please follow all provided installation drawings and instructions which pertains to your tank as they are in accordance with how your unit was tested and rated. In addition to the flow control, each applicable tank would come with labels and markings in accordance with PDI, ASME A112.14 and CSA B481 standards and certifications.

## 5.2 MAINTENANCE

Proceptor separators have no moving parts and are constructed of materials that are non-reactive in their intended environment. Regularly scheduled removal of captured materials and cleaning of the internal surfaces are the only forms of maintenance required.

If the Proceptor installed at your facility contains a coalescing filter, it will be necessary for the filter to be removed and pressure washed whenever the Proceptor is pumped out or if testing indicates noncompliance with local effluent standards. See Owner's manual for detailed instructions.

## 5.3 IMPORTANCE OF MAINTENANCE

Maintenance of a Proceptor unit is critical to ensure that separation efficiency is not compromised. The buildup of floatables and solids within the separator reduces the potential treatment volume and could, therefore, reduce the water retention time within the separator resulting in reduced separation efficiency. Furthermore, if contaminants are allowed to accumulate, the maximum storage capacities may be exceeded, resulting in the release of previously captured oil, grease, and solids.



## 5.4 MAINTENANCE FREQUENCY

The frequency of maintenance depends on the application and the model of the Proceptor. Some applications have very little oil, grease and/or solids in the waste stream and, therefore, reaching the maximum storage capacities will take a longer period of time. For other applications, the maximum storage capacities will be reached in a shorter period of time. Maintenance should be performed when the storage capacity reaches 50% or annually, whichever comes first.

The following table describes when maintenance should be performed on the various standard Proceptor models.

Proceptor Maintenance Schedule (Applies to all tank model names of equivalent liquid capacity)							
System Type	Model Number		Total Liquid Capacity (US gal)	Storage Capacity		Maintenance Recommended	
				Oil/Grease (US gal)	Solids/Sediment (US gal)	Oil/Grease (inches)	Solids/Sediment (inches)
System 1: Single Tank	GMC 50	OMC 50	50	12	11	1	1.5
	GMC 100	OMC 100	100	42	23	4	3
	GMC 150	OMC 150	150	66	48	6	5
	GMC 200	OMC 200	200	90	72	8	7
	GMC 250	OMC 250	250	119	91	10	8
	GMC 300	OMC 300	300	156	103	13	9
	GMC 500	OMC 500	500	279	87	8	3
	GMC 750	OMC 750	750	410	200	11	6
	GMC 1000	OMC 1000	1,000	577	295	16	9
	GMC 1300	OMC 1300	1,300	707	446	19	13
	GMC 1500	OMC 1500	1,500	819	540	22	15
	FOG-ceptor Z-50H	—	50	18	9	1	1.5
	FOG-ceptor Z-75H	—	75	20	10	2.5	2.25
FOG-ceptor Z-250H	—	250	123	87	10	8	
System 2: Two Tanks in Series	GMC 1000(2)	OMC 1000(2)	1,000	559	174	8	3
	GMC 1500(2)	OMC 1500(2)	1,500	819	401	11	6
	GMC 2000(2)	OMC 2000(2)	2,000	1,154	589	16	9
	GMC 2600(2)	OMC 2600(2)	2,600	1,415	891	19	13
	GMC 3000(2)	OMC 3000(2)	3,000	1,638	1,080	22	15
	GMC 4000(2)	OMC 4000(2)	4,000	1,712	1,315	15	15
	GMC 5000(2)	OMC 5000(2)	5,000	2,226	1,776	20	19
	GMC 6000(2)	OMC 6000(2)	6,000	2,883	2,092	25	22
	GMC 7000(2)	OMC 7000(2)	7,000	3,396	2,611	30	26
	FOG-ceptor Z250H-MD in Series	—	500	427	—	44	—
System 3: Three Tanks in Series	GMC 8000(3)	OMC 8000(3)	8,000	4,508	3,032	22	19
	GMC 9000(3)	OMC 9000(3)	9,000	5,115	3,542	25	22
	GMC 10000(3)	OMC 10000(3)	10,000	5,672	4,205	28	25

## 5.5 INSPECTION PROCEDURES

Measurements must be taken of the oil/grease and/or solids levels in order to determine if maintenance is required. See the Owner's Manual for detailed instructions. There are two main methods of inspecting a Proceptor separator to determine if maintenance is required:

### Manual Sludge Level Inspection

Manual Sludge Level Inspection measures the depth of solids or sludge within a Proceptor using a transparent dipstick tube equipped with a built-in ball check valve to hold the sludge sample. The tube should be graduated to indicate the depth of sludge, water level, and grease or oil layer in the Proceptor separator.

Follow the manufacturer's instructions which generally will tell you to slowly lower the device to the bottom of the tank. Do NOT plunge it to the bottom, which will result in an inaccurate reading and possibly damage the ball check valve. Keep the unit as vertical as possible when raising it up, without allowing it to bend or bounce while it is full of water. Look at the sample through the markers on the device and then empty it before further use.

### Manual Oil/Grease Level Inspection

Manual oil/grease level inspection can be performed with a dip stick, measuring tape or gauge rod. Spread a thin coating of a water level indicator paste on the dip stick, measuring tape, or gauge rod in the area where water is likely to appear. Slowly lower the measuring device into the tank to where the oil/water interface is anticipated. Slowly remove the measuring device from the tank. The absence of color change by the water paste indicates that the measuring device did not reach the oil/water interface therefore remeasurement is necessary. A change in color by the water paste indicates where the oil/water interface occurs and the depth of oil can be determined.

### Automatic Oil/Grease Alarm

An automatic oil/grease level sensor can be installed within any Proceptor unit to indicate, via an audio and visual alarm, when the oil/grease level has reached a preset storage volume.

## 5.6 MAINTENANCE METHODS

Proceptor units are normally serviced by a vacuum or pumping removal technique. The Vacuum or Pumping Service Industry that cleans underground tanks, sewers and catch basins is a well-established sector of the service industry. Costs to clean a Proceptor vary based on the size of unit and transportation distances. Consult your local Waste Management Authority for an approved list of licensed "Liquid Waste Handlers".

Maintenance of a Proceptor separator is simple. The 24-inch diameter manhole cover is removed and the vacuum hose is inserted into the unit. For models with suction pipes, maintenance can be performed without lifting the manhole cover. **Always fill the interceptor with clean water after cleaning the unit for optimum treatment efficiency.**

## 5.7 SPILLS

Should an oil or grease spill occur that drains into the interceptor, it must be cleaned immediately. The appropriate governing agency should also be notified in the event of a spill.

## 5.8 DISPOSAL

The disposal of oil, grease and sediment collected in Proceptor separators will be included in the price from the vacuum service industry. Some wastes generated by food facilities are acceptable for farm disposal or use as biodiesel feedstock. Transporting and disposing of accumulated oil, grease, and solids should be carried out in accordance with the authority having jurisdiction.



## 6 Specification Sheets

### GREASE WASTE INTERCEPTORS

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

##### 1.2 SUMMARY

A. Section Includes:

1. Grease interceptors.

##### 1.3 DEFINITIONS

A. FRP: Fiberglass-reinforced plastic.

##### 1.4 ACTION SUBMITTALS

A. Product Data: Include materials of fabrication, dimensions, rated capacities, retention capacities, operating characteristics, size and location of each pipe connection, furnished specialties, and accessories.

B. Shop Drawings: For each type and size of interceptor indicated .

1. Include materials of construction, dimensions, rated capacities, retention capacities, location and size of each pipe connection, furnished specialties, and accessories.

##### 1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Interceptors, drawn to scale, on which the following items are shown and coordinated with each other, based on input from Installers of the items involved:

1. Interceptors.
2. Piping connections. Include size, location, and elevation of each.
3. Interface with underground structures and utility services.

##### 1.6 PROJECT CONDITIONS

A. Interruption of Existing Sewer Services: Do not interrupt services to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary sewer services according to requirements indicated:

1. Notify [Architect] [Construction Manager] [Owner] no fewer than [seven] <Insert number> days in advance of proposed interruption of service.
2. Do not proceed with interruption of sewer services without [Architect's] [Construction Manager's] (Owner's) written permission.

#### PART 2 - PRODUCTS

##### 2.1 GREASE INTERCEPTORS

A. Grease Interceptors: Fiberglass, to be appropriately sized based on anticipated usage and flow rates to meet applicable sanitary sewer discharge limits incl. municipal by-laws.

1. Include accessways, tanks, and piping or openings to retain grease and to permit wastewater flow.
2. PVC cement welded type socket ports, or straight pipe, fitted into interceptor walls for each pipe connection.



3. Accessway Extension Collar:
  - a. Fiberglass risers (EC2), 24-inch (610-mm).
4. Accessway Frames and Covers: Round cover with non slip cover finish, gasketed and non vented top design with "Proceptor" lettering cast into cover.
  - a. Cast Iron: AASHTO M306 Traffic load rated. 24-inch (610-mm) diameter cover with 0.25" (6-mm) gasket. Two closed pickholes. Non Bolted or Bolted option. Weight 249 lbs. ASTM A48 CL35B.
  - b. Fiberglass: Pedestrian loading 24" diameter bolted and gasketed.
5. Watertight Flexible Caulking: Sikaflex 255 or Sikaflex 221 or approved alternate to provide watertight seal at extension collar joints.

B. Capacities and Characteristics:

1. Number of Compartments: <x cells>
2. Grease Retention Capacity: <xxx USG>
3. Solids Retention Capacity: <xxx USG>
4. Inlet and Outlet Pipe Size: <4"/6">
  - a. Centerline of Inlet to Floor: <Insert inches (mm)>.
  - b. Centerline of Outlet to Floor: <Insert inches (mm)>.
5. Vent Pipe Size: <3">.
6. Installation Position: Underground with accessway collar riser to grade.
7. OPTIONS as required:
  - a. 4" Side Suction port for remote pump-out.
  - b. Alarm for high oil accumulation. Includes alarm probe to be installed near top of tank accessway and alarm panel with buzzer and light for indoor wall mount.
8. Zurn Green Turtle Proceptor Model: <GMC XXX>.

## 2.2 FIBERGLASS ACCESSWAY RISERS

A. Fiberglass accessway extensions: Fiberglass wound pipe.

1. Length: From top of underground tank to underside of access frame at grade.
2. Extension Sections: 0.25-inch (6-mm) minimum thickness and (24-inch (610-mm)] diameter as single continuous piece, without joints unless approved by the manufacturer.
  - a. Sealant: Watertight Flexible Caulking, Sikaflex 255 or Sikaflex 221 or approved alternate to provide watertight seal at extension collar joining to tank on bottom and access frame at top.

## PART 3 – EXECUTION

### 3.1 EARTHWORK

- A. Excavating and trenching and backfilling are to meet local building code.
- B. Backfill per Zurn Green Turtle Installation Instructions. Pea gravel is preferred backfill material.

### 3.2 INSTALLATION

- A. Install fiberglass interceptors according to manufacturer's installation instructions.

### 3.3 CONNECTION

- A. Piping installation requirements are to meet local code for sanitary waste and vent piping.



Drawings indicate general arrangement of piping, fittings, and specialties.

B. Make piping connections between interceptors and piping systems.

## OIL SEDIMENT WASTE INTERCEPTORS

### PART I - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

A. Section Includes:

1. Oil interceptors.

#### 1.3 DEFINITIONS

A. FRP: Fiberglass-reinforced plastic.

#### 1.4 ACTION SUBMITTALS

A. Product Data: Include materials of fabrication, dimensions, rated capacities, retention capacities, operating characteristics, size and location of each pipe connection, furnished specialties, and accessories.

B. Shop Drawings: For each type and size of interceptor indicated.

1. Include materials of construction, dimensions, rated capacities, retention capacities, location and size of each pipe connection, furnished specialties, and accessories.

#### 1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Interceptors, drawn to scale, on which the following items are shown and coordinated with each other, based on input from Installers of the items involved:

1. Interceptors.
2. Piping connections. Include size, location, and elevation of each.
3. Interface with underground structures and utility services.

#### 1.6 PROJECT CONDITIONS

A. Interruption of Existing Sewer Services: Do not interrupt services to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary sewer services according to requirements indicated:

1. Notify [Architect] [Construction Manager] [Owner] no fewer than [seven] <Insert number> days in advance of proposed interruption of service.
2. Do not proceed with interruption of sewer services without [Architect's] [Construction Manager's] [Owner's] written permission.

### PART 2 – PRODUCTS

#### 2.1 OIL INTERCEPTORS

A. Oil Interceptors: Fiberglass, to be appropriately sized based on anticipated usage and flow rates to meet applicable sanitary sewer discharge limits, incl. municipal by-laws.

1. Include accessways, cells or baffles, and piping or openings to retain grease and to permit wastewater flow.
2. PVC cement welded type socket ports, or straight pipe, fitted into interceptor walls for each pipe connection.

3. Accessway Extension Collar:
  - a. Fiberglass risers (EC2), 24-inch (610-mm).
4. Accessway Frames and Covers: Round cover with non slip cover finish, gasketed and non vented top design with "Proceptor" lettering cast into cover.
  - a. Cast Iron: AASHTO M306 Traffic load rated. 24-inch (610-mm) diameter cover with 0.25" (6-mm) gasket. Two closed pickholes. Non Bolted or Bolted option. Weight 249 lbs. ASTM A48 CL35B.
  - b. Fiberglass: Pedestrian loading 24" diameter bolted and gasketed.
5. Watertight Flexible Caulking: Sikaflex 255 or Sikaflex 221 or approved alternate to provide watertight seal at extension collar joints.

B. Capacities and Characteristics:

1. Number of Compartments: <x cells>
2. Oil Retention Capacity: <xxx USG>.
3. Solids Retention Capacity: <xxx USG>.
4. Inlet and Outlet Pipe Size: <4"/6">.
  - a. Centerline of Inlet to Floor: <Insert inches (mm)>.
  - b. Centerline of Outlet to Floor: <Insert inches (mm)>.
5. Vent Pipe Size: <3">.
6. Installation Position: Underground with accessway collar riser to grade.
7. OPTIONS as required:
  - a. Suction port for remote pump-out.
  - b. Alarm for high oil accumulation. Includes alarm probe to be installed near top of tank accessway and alarm panel for indoor wall mount.
8. Zurn Green Turtle Proceptor Model : <OMC XXX>.

## 2.2 FIBERGLASS ACCESSWAY RISERS

A. Fiberglass accessway extensions: Fiberglass wound pipe.

1. Length: From top of underground tank to underside of access frame at grade.
2. Extension Sections: 0.25-inch (6-mm) minimum thickness and [24-inch (610-mm)] diameter single continuous piece, without joints unless approved by the manufacturer.
3. Sealant: Watertight Flexible Caulking, Sikaflex 255 or Sikaflex 221 or approved alternate to provide watertight seal at extension collar joining to tank on bottom and access frame at top.

## PART 3 – EXECUTION

### 3.1 EARTHWORK

- A. Excavating and trenching and backfilling are to meet local building code.
- B. Backfill per Zurn Green Turtle Installation Instructions. Pea gravel is preferred backfill material.

### 3.2 INSTALLATION

- A. Install fiberglass interceptors according to manufacturer's installation instructions.

### 3.3 CONNECTIONS

- A. Piping installation requirements are to meet local code for sanitary waste and vent piping. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Make piping connections between interceptors and piping systems.



## STANDARD PROCEPTOR OIL / GREASE POINT ALARM SPECIFICATION SHEET

### Description

The Zurn Green Turtle Oil/Grease Point Alarm is specifically designed for use in Proceptor Oil or Grease Gravity type separators. The unit contains no moving parts, eliminating maintenance due to mechanical malfunction.

An integrated pulse card (PMC) is mounted directly onto the probe in an explosion proof epoxy coated housing. This allows the alarm panel electronics to be mounted up to 1 km (0.7 mile) away using inexpensive 2-conductor shielded wire. Wetted parts are 316SS and Teflon, and the alarm panel housing is Type 4 metal, providing a tough, yet economical, solution for switch point elevation alarm in Proceptor Separators.

A relay is included for user-supplied remote devices such as pump controls, connection to building automation systems, etc.

### Operation

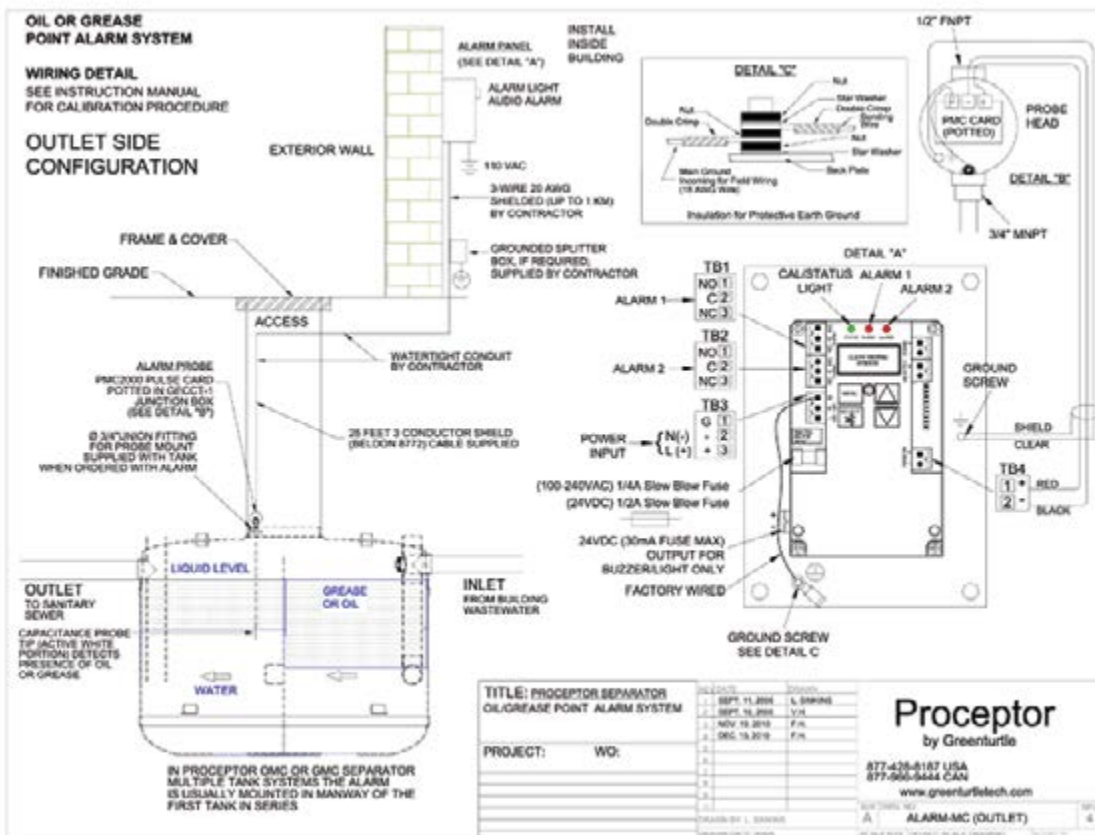
The probe length is determined by the distance from the desired alarm point up to the process connection of the probe head. The bottom 100 mm of the probe is a Teflon-coated active capacitance probe, which is calibrated with clean water by the installer or operator. The remainder of the probe is sealed within a stainless tube so that any level changes of the upper air surface are discounted.

During wastewater flows, water is gradually displaced through the separator as the oil/grease rises to the surface and accumulates.

When the tip of the probe, which is normally submerged in water, senses a decrease in capacitance from contact with the oil/grease, the alarm switch closes a relay contact and triggers an alarm light and buzzer at the panel. This is the signal for the maintenance operator to have the tank pumped out and then refill with clean water. Once the unit is refilled with clean water the alarm light will go out.

### Specifications (Standard)

Power Input:	110 -240 VAC, 50/60 Hz, 0.15A or 24 VDC, 0.25A
Relay:	2 x SPDT, 10 amp @ 250 VAC, Dry Contact (relays trigger at same setpoint)
Sensitivity:	0.0018 pf
Accuracy:	+/- 2 mm
Time Delay:	Field Selectable 0 to 600 seconds
Relay:	High or Low Selectable
Temperature:	Controller Electronics: -4°F to 140°F (-20°C to 60°C) PMC Electronics: -75°F to 140°F (-60°C to 60°C) Probe: -75°F to 480°F (-60°C to 250°C)
Wetted Parts:	316SS and Teflon
Process Connection:	3/4" NPT standard
Pressure Rating:	max 1500 psi
Housing:	Controller: NEMA 4 Metal
PMC Electronics:	Epoxy Coated Cast Aluminum
Electrical Rating:	Controller: CSA 22.2; UL61010-1 Probe: Explosion Proof Class 1, Div. 1, Group C & D (File # 56812)





## 7 Installation

### 7.1 INSTALLATION PROCEDURES

#### INSTALLATION MANUAL

#### PROCEDURE

Use this procedure together with the applicable installation drawing.

#### SCOPE

- 1. Standard buried tanks are designed to withstand the load of the pea gravel under gravity only, and NO additional load including but not limited to water table, vehicular load, snowbank load, building foundation, etc. are allowed on the tanks. For installations in traffic areas, a relieving slab must be installed as outlined in the Zurn Green Turtle Info Hub drawings section corresponding to the Proceptor model installed.
- 2. For high water table installations contact your local Zurn Site works representative for engineer design help.
- 3. The bottom of the Proceptor tanks (both above ground and buried) should always be fully supported.

#### A) EXCAVATION

- 1. Excavation for the installation of a Proceptor separator must conform to OSHA and/or local excavation codes and standards. Topsoil removed during excavation should not be used as approved backfill material.
- 2. Excavation should include an allowance for shoring and bracing where required. For multiple tank units, ensure adequate space between tanks for performing compaction when required and making connections between tanks.
- 3. Install a geo-textile fabric in the excavation to prevent migration of small particles in the backfill if native soil has small particles and more that 3% of its weight passes through a #8 sieve (2.38mm square screen opening) regardless of backfill material. The contractor is responsible for purchasing and installing the filter fabric.
- 4. In areas with a water table, contact Zurn Green Turtle for custom tank design..

#### B) INSTALL AND LEVEL GRANULAR BASE

- 1. 6" layer of pea gravel (or approved equivalent backfill. If equivalent backfill is used, it must be compacted to 98% S.P.D. - see end of document for backfill specifications) must be installed and leveled at the bottom of the excavation to the proper elevation for the installation of the separator base.

#### C) CONCRETE ANCHORING SLAB

**A concrete anchoring slab is recommended for all tank installations.** 20 MPa (3000 psi) concrete shall be poured around the lower portion of the tank as shown on the installation drawing.

Please note that if ground water table may rise **more than one foot higher than the bottom of the tank**, a custom designed tank and proper anti buoyancy slab should be used. Please contact Zurn Green Turtle for more information.

Please skip step "C" if not using anchoring slab

- 1. If backfill material other than pea gravel is used, compact backfill in 6" to 8" layers to 98% S.P.D.
- 2. Install and level the tank on the backfill. Use metal lifting lugs on upper sides of tank for handling, if equipped. Do not use any of the pipe fittings on the tank for lifting purposes. When lifting with slings, use load level beams.
- 3. The contractor must fill the separator with water up to the outlet pipe prior to pouring concrete around the unit.
- 4. Pour ready mix concrete slab all around the separator cells to the volume, height, and dimensions shown on the Installation Drawing. Ensure that the anchor brackets (if equipped) on the side of the tank are covered.

#### D) BALLAST TANK

- If continuing from Step B), fill the separator with water up to the outlet pipe.

## E) GRANULAR BACKFILL TO THE INLET AND OUTLET PIPES

Pea gravel (or an approved equivalent backfill compacted to 98% of Standard Proctor Density in each layer) must be placed in uniform layers of 150 mm (6") to not more than 200 mm (8") in depth up to the bedding for the inlet and outlet pipes.

Note: Backfill is not to contain topsoil. See end of document for backfill specification.

## F) INLET, OUTLET AND VENT PIPES

- 1. Install standard pipe bedding for the inlet and outlet pipes per the sewer design. Attach inlet and outlet pipes to the Proceptor unit. *If this is a PDI installation, install the flow control provided on the inlet of the tank, with the vent up. Connect the flow control vent according to local plumbing code and PDI requirements.*
- 2. Vent ports are provided on the top of all Proceptor separators. The vent ports should be extended to above grade per the plumbing codes governing the installation location. Vents maintain equilibrium with the atmosphere and prevent the creation of a vacuum within the Proceptor. A gooseneck must be provided at the top of the venting system to help prevent foreign particles and storm water from entering the Proceptor or plugging the vents.

## G) FLOW CONTROL FOR HYDRO-MECHANICAL TANKS

For hydro-mechanical tanks like the FOG-ceptor units or Proceptor tanks labeled with an IAP suffix will come with a Zurn Green Turtle supplied flow control. The vented flow control unit is to be externally installed prior to the separator inlet (influent) end. Please see section 5.1.1 for more details.

## H) CONNECT EXTENSION COLLAR TO TANK BODY

Proceptor separators are manufactured with a short neck at the top, which is marginally less in diameter than the extension collar. The fiberglass extension collar slides over the neck. Use only Zurn Green Turtle fiberglass extension collar (EC20 for 20" dia accessways, EC2 for 24" dia accessways and EC3 for 36" dia accessways). This collar is designed to fit physically and perform structurally for this application.

- 1. To trim the extension collar to fit, dry fit on the tank and measure from bottom of collar to Final Finished Grade. (= A).
- 2. Measure the height that the frame and cover will add to the collar (= B). Note that the cast iron covers bell fit over the collar. If the frame and cover is fiberglass, it should be factory bonded to the extension collar already.
- 3. Allow for a gap (prox 1") between the frame and extension collar so that loading at grade is not transferred to the extension collar. This gap should be filled with flexible sealant after installation. (Gap =C)
- 4. Calculate the required collar height: A - B - C = final extension height.
- 5. Measure and cut the fiberglass extension collar with a grinder or other appropriate cutting tool. Suggested grinding wheel material is zirconia alumina grit 24.
- 6. Place the extension collar on the tank.
- 7. Seal the joint between the tank and collar from the inside, with SIKAFLEX 221 or 255. A standard caulking gun will hold a 300 ml tube of Sikaflex. This joint is normally dry on the inside, but if the sewer line backs up the oil or grease may rise in the extension. Sealing the joint at the time of installation prevents backed up oil or grease from leaking into the ground.

## I) CLEANOUT AND SAMPLE PORTS

Extend to grade or cap as required by customer, design engineer or local code.

## J) ACCESSORIES (OPTIONAL)

- 1. **Suction Line** - If a suction line has been provided as an option on the Proceptor separator, the contractor is responsible for extending the line to above top of grade using SCH 40 PVC pipe (or equivalent pipe as specified in the plans). The pipe must be suitable for use as a suction pipe. Limit to four bends. 90° elbows if used, must be wide radius - use preferred < 45° elbows. Most pumper companies recommend that the maximum horizontal run recommended is 125 ft, and maximum vertical rise recommended is 15 ft. Vertical rise of 20 ft. may be allowed if pumper has capability. Install a quick disconnect fitting (i.e., Type "D" Cam-Loc fitting) at the outside termination of the suction line for easy



connection to a vacuum truck hose. Ensure that the exposed suction port is protected from damage, ie. use bollards.

- 2. **Oil/Grease Point Alarm** - Information is provided as a separate document.
- 3. **Coalescer** - Tanks shipped on their sides with coalescers will have retaining tabs to keep the coalescer in place while tank is being moved. If equipped, remove the bolts and tabs once the tank is set in place. If left installed, they may impede removal of coalescer pack(s) for maintenance. Further information on the coalescer is provided as a separate document.
- 4. **Double Wall** - Connect interstitial leak monitor conduit. Extend conduit with water tight seal. Install accessible port directly above bottom of tank so probe can be pulled out for inspection in the future. See tank detail and installation drawings. To install leak monitor device, see Level Monitor wiring instructions provided as a separate document.

#### **K) BACKFILL TO ABOVE THE BASE OF THE EXTENSION COLLAR**

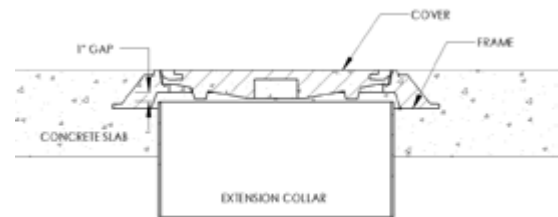
Backfill with pea gravel (or an approved equivalent compacted to 98% S.P.D.) to 18" above the base of the extension collar.

#### **L) BACKFILL TO THE SURFACE RELIEVING SLAB**

Pea gravel (or an approved equivalent backfill compacted to 98% S.P.D. in each layer) must be placed around the extension collar to the bottom of the concrete bearing slab, surface grade or pavement sub-grade in layers 150 mm (6") to 200 mm (8") thick.

#### **M) FRAME AND COVER**

Place the frame above the extension collar with the cover at finished grade elevation. Leave a gap between frame and top of extension of approx. 1 inch to prevent the vertical load transfer from the frame to the tank. Pour concrete around the frame to secure it in place, size to be determined by Engineer or local code based on site use. Seal between collar and frame with flexible watertight material, ie. Sikaflex.



#### **N) REINFORCING (RELIEVING) SLAB – FOR TRAFFIC LOADING ONLY**

Pour concrete relieving slab, 25 MPa (3600 psi), at the surface with traffic loading frame and cover embedded in slab and centered over extension collar to secure the frame and transfer live loads to the surrounding backfill around the tank. The design of the slab shall be based on AASHTO H-20 loading; 16,000-pound dynamic wheel load. Pour the concrete slab in place with steel reinforcing bars as shown on the Proceptor installation drawings.

Slab designs for standard Proceptors are available from Zurn Green Turtle. The contractor must verify that the concrete relieving slab design is suitable for the application and conforms to local codes and standards.

#### **O) REINFORCING (RELIEVING) SLAB – FOR NON-TRAFFIC LOADING ONLY**

Pour concrete relieving slab, 25 MPa (3600 psi), at the surface with traffic loading frame and cover embedded in slab and centered over extension collar to secure the frame and transfer live loads to the surrounding backfill around the tank.

This slab is rated for pedestrian load only.

Slab designs for standard Proceptors are available from Zurn Green Turtle. The contractor must verify that the concrete relieving slab design is suitable for the application and conforms to local codes and standards.

### **GRANULAR BACKFILL SPECIFICATION**

#### **PEA GRAVEL**

Pea gravel is a naturally rounded aggregate with a particle size not less than 3 mm (1/8") and not greater than 18 mm (3/4"). Gravel must be clean and free flowing, free from large rocks, dirt, sand, roots, organic materials or debris. Upon screening, analysis of the backfill material must have no more than 3% of its weight passing through a #8 sieve (2.38 mm square screen opening). Dry density must be a minimum of 96.3 lbs/ft<sup>3</sup>.

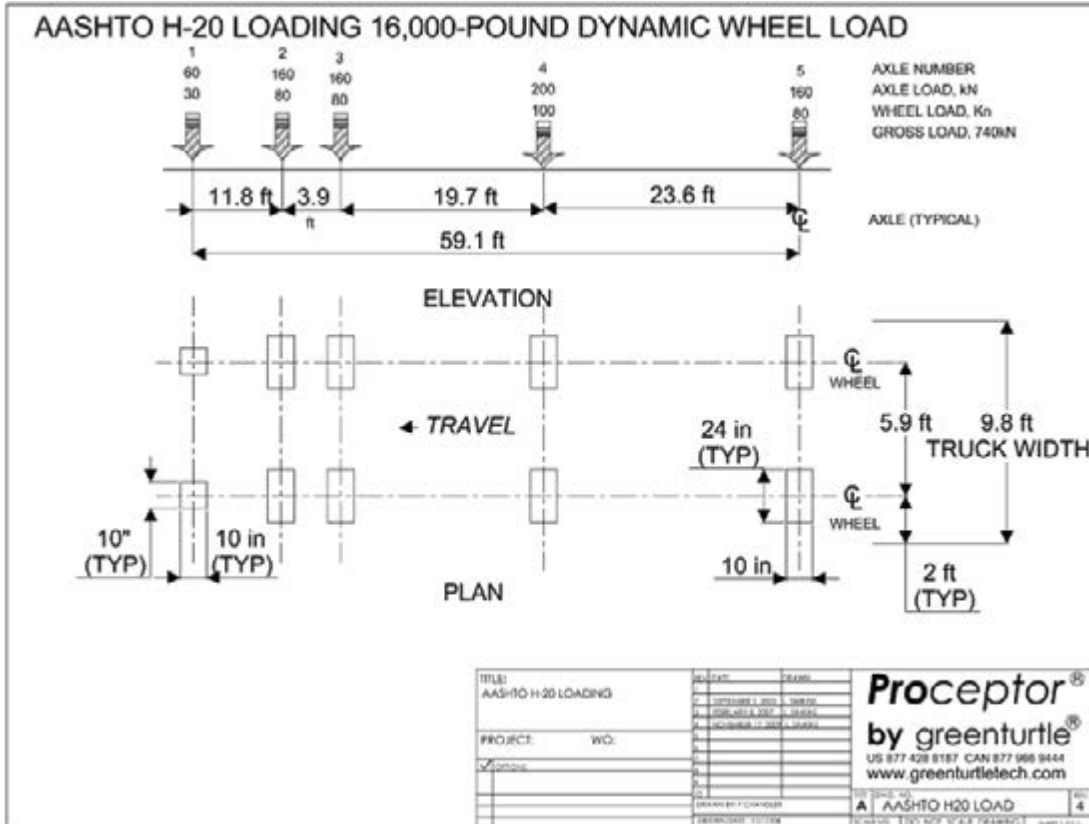


### CRUSHED STONE (APPROVED EQUIVALENT TO PEA GRAVEL)

Crushed stone or gravel is not less than 3 mm (1/8") and not greater than 12 mm (1/2"). Aggregate must be clean and free flowing, free from large rocks, dirt, sand, roots, organic materials or debris. Materials should be washed or screened to remove fine particles. Upon screening, analysis of the backfill material shall have no more than 3% of its weight passing through #8 sieve (2.38 mm square screen opening). Dry density must be a minimum of 95 lbs/ft<sup>3</sup>. During placement, this backfill material must be compacted to 98% S.P.D.

## 7.2 TRAFFIC RELIEVING SLAB DRAWINGS

### 7.2.1 AASHTO H-20 LOADING SLAB DRAWING



### 7.2.2 RELIEVING SLAB DRAWINGS GMC/OMC 50 - 10000

To ensure you retrieve the most current drawings, links to drawings take you to the Zurn website where you will be able to select files in PDF or CAD formats. You must have internet access in order to view and download drawings from the links that follow.

#### Relieving Slab Drawings

- Single Slab Small
- Single Slab Single Access
- Double Slab Single Access
- Double Slab 92in Tanks
- Triple Slab 92in Tanks
- Single Slab Dual Access
- Double Slab Dual Access
- Single Slab Triple Access
- Single Slab Single Access – Non Traffic
- Single Slab Dual Access – Non Traffic



### 7.3 INSTALLATION DRAWINGS GMC/OMC 50 - 10000

To ensure you retrieve the most current drawings, links to drawings take you to the Zurn website where you will be able to select files in PDF or CAD formats. You must have internet access in order to view and download drawings from the links that follow.

#### Installation Drawings

- GMC PDI
- GMC / OMC 50 – 300
- GMC / OMC 500 – 150 0
- GMC / OMC 1000(2) – 3 000(2)
- GMC / OMC 4000(2) – 7000(2)
- GMC / OMC 8000(3) – 10000(3)
- GMC 500 – 1500 FL-IAP
- GMC 2000 – 2600 IAP
- OMC 500 – 1500 IAP

### 7.4 COVER DRAWINGS

To ensure you retrieve the most current drawings, links to drawings open PDF files from the Zurn website. You must have internet access in order to view and download drawings from the links that follow.

Cover Drawings ( <http://www.greenturtletech.com/hub-pc-options.php> )

- FC20 FRP BRO (PDF)
- FC24 FRP BRO (PDF)
- FC24 FRP BSQ (PDF)
- FC GH4 (PDF)
- FC GH4 B (PDF)
- FCH 36 (PDF)
- EC2 (PDF)
- EC3 (PDF)
- Collar Height (PDF)
- Coupling EC2 (PDF)
- Collar Reducer (PDF)

## 8 Drawings: Grease Separators

To ensure you retrieve the most current drawings, links to drawings take you to the Zurn website where the Proceptor model will be highlighted in blue. There, you will be able to select files in PDF or CAD formats. You must have internet access in order to view and download drawings from the links that follow.

Drawings: Grease Separators Go to the Grease Interceptors tab now

- |               |                    |                    |
|---------------|--------------------|--------------------|
| • GMC 50      | • GMC 1500(2)      | • GMC 2000 UPC     |
| • GMC 100     | • GMC 2000(2)      | • GMC 2000 IAP     |
| • GMC 100 IAP | • GMC 2600(2)      | • GMC 2000(2) UPC  |
| • GMC 150     | • GMC 3000(2)      | • GMC 2600 IAP/UPC |
| • GMC 150 IAP | • GMC 4000(2)      | • GMC 750 FL       |
| • GMC 200     | • GMC 5000(2)      | • GMC 1000 FL      |
| • GMC 200 IAP | • GMC 6000(2)      | • GMC 1250 FL      |
| • GMC 250 IAP | • GMC 7000 (2)     | • GMC 500-P        |
| • GMC 300     | • GMC 8000(3)      | • GMC 7500-P       |
| • GMC 300 IAP | • GMC 9000(3)      | • GMC 1000-P       |
| • GMC 500     | • GMC 10000(3)     | • GMC 1300-P       |
| • GMC 750     | • GMC 500 IAP/UPC  | • GMC 1500-P UPC   |
| • GMC 1000    | • GMC 750 IAP/UPC  | • GMC 2000-P       |
| • GMC 1300    | • GMC 1000 IAP/UPC | • GMC 2600-P       |
| • GMC 1500    | • GMC 1300 IAP/UPC |                    |
| • GMC 1000(2) | • GMC 1500 IAP/UPC |                    |

## 9 Drawings: Oil Separators

To ensure you retrieve the most current drawings, links to drawings take you to the Zurn website where the Proceptor model will be highlighted in blue. There, you will be able to select files in PDF or CAD formats. You must have internet access in order to view and download drawings from the links that follow.

Drawings: Oil Separators Go to the Oil Separators tab now

- OMC 50
- OMC 100
- OMC 150
- OMC 200
- OMC 300
- OMC 500
- OMC 750
- OMC 1000
- OMC 1300
- OMC 1500(1)
- OMC 2000(2)
- OMC 2600(2)
- OMC 3000(2)
- OMC 4000(2)
- OMC 5000(2)
- OMC 6000(2)
- OMC 7000(2)
- OMC 8000(3)
- OMC 9000(3)
- OMC 10000(3)
- OMC 1000 UPC
- OMC 1300 UPC
- OMC 1500 UPC

## 10 Drawings: Solids Separators

To ensure you retrieve the most current drawings, links to drawings take you to the Zurn website where the Proceptor model will be highlighted in blue. There, you will be able to select files in PDF or CAD formats. You must have internet access in order to view and download drawings from the links that follow.

## 11 Drawings: Decontamination & Holding Tanks

To ensure you retrieve the most current drawings, links to drawings take you to the Green Turtle website where the Proceptor model will be highlighted in blue. There, you will be able to select files in PDF or CAD formats. You must have internet access in order to view and download drawings from the links that follow.

Drawings: Decontamination & Holding Tanks Go to the Decontamination & Holding Tanks tab now

- EHT 50
- EHT 100
- EHT 150
- EHT 200
- EHT 300
- EHT 500
- EHT 750
- EHT 1000
- EHT 1300
- EHT 1500

## 12 Drawings: FOG-ceptors

To ensure you retrieve the most current drawings, links to drawings take you to the Zurn website where the FOG-ceptor model will be highlighted in blue. There, you will be able to select files in PDF or CAD formats. You must have internet access in order to view and download drawings from the links that follow.

Drawings: FOG-ceptors Go to the FOG-ceptors tab now

- FOG-ceptor Z-50H
- FOG-ceptor Z-75H
- FOG-ceptor Z-250H
- FOG-ceptor Z250H-MD in Series

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