Alternative Methods and Materials Request Application

Development Services
333 S. Meridian
Puyallup, WA 98371
Phone: 253-864-4165
www.cityofpuyallup.org

Application Fees

- Alternative Methods Application Fee: $250

Effective Per 4/1/23 City of Puyallup Fee Schedule

An Alternative Methods and Materials Request (AMR) is used to deviate from City of Puyallup design standards. The City of Puyallup's design standards are **MINIMUM** requirements and are considered to be fair, reasonable and promote public safety. The applicant is obligated to assure City Staff this request as necessary, justifiable and will not reduce public safety.

Submittal Instructions

1. Create an account at https://permits.puyallupwa.gov/Portal/Account/Register or Sign into the CityView Portal
2. Select "Apply for an Engineering Permit"
3. From the *Choose Application Type* drop down list, select "Alternative Methods/ Materials Request". Fill out all sections of the online form and upload all required documents. Note: Failure to upload all the required documents for Step 7 *Upload Files* may delay the processing of your application.

Project Information

Site Address: 401 15th Ave. Parcel #: 9810000014 Zoning: MED

Project Name: GSH Kitchen Expansion Land Use Application #: - Building Application #: PRCTI20250548

Owner Information

Name: MULTICARE HEALTH SYSTEM

Mailing Address: 14400 Metcalf Ave.

City: Overland Park State: KS Zip Code: 66223-2989

Phone: 253-697-4000 E-mail:

Applicant Information

Name: Brad Hinthorne

Mailing Address: 1301 5th Ave #2300

City: Seattle State: WA Zip Code: 98101

Phone: (206) 381-6000 E-mail: Brad.Hinthorne@perkinswill.com

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Contractor Information

Name: Nathan Ostrander - MacDonald Miller

Mailing Address: 17930 International Blvd, Suite 120

City: SeaTac State: WA Zip Code: 98188

Phone: 206-768-3846 E-mail: Nathan.Ostrander@macmiller.com

Engineer/Architect Information

Name: David Jacques - MacDonald Miller

Mailing Address: 17930 International Blvd, Suite 120

City: SeaTac State: WA Zip Code: 98188

Phone: 206-768-4148 E-mail: david.jacques@macmiller.com

Deviation Justification

Address items 1-9 below. If additional reports, supporting documents and attachments are necessary to clarify/support this request, material shall be listed in item 9 and referenced within items 1-9:

1. Describe the proposed deviation request. (What requirements is the project seeking relief from?)

Per the City of Puyallup review comments, a minimum 750 gallon gravity outdoor grease interceptor is required. This project is requesting to use two 500 gallon polyethylene grease interceptors installed in series.

The interceptors are dual certified for gravity and hydromechanical applications (IAPMO/ANSI Z1001-2021 / ASME A112.14.3-TYPE D & CSA B481.1).

2. Describe how the proposed deviation request is based on sound engineering principles. (Explain how the granting of this modification will not result in risk or harm related to traffic, storm drainage, water, sanitary sewer, transportation, fire protection or structural matters)

The incterceptors are rated for the anticipated flow of fats oils and grease (FOG). They are also certified to code standards to perform as stated. Additionally, the grease interceptors will not impose a fire hazard to the facility as described in the attached letter from the Fire Protection Engineer.

3. Describe how a strict application of the requirement would impose an undue hardship on the applicant. What makes the project in question unique from others to allow a deviation from city standards?

The site layout does not allow installation of an outdoor interceptor. There no commercially available prefabricated 750 gallon interceptors that will fit through any existing openings in the building. The City of Puyallup previously approved the existing, field fabricated, interior grease interceptor that is failing. The proposed replacement grease interceptors are made from polyethylene and are proven to perform better than concrete interceptors in contact with FOG waste. Polyethylene intereceptors are lightweight, corrosion-resistant, and more resistant to cracking and temperature fluctuations.

4. Describe how the requirements for safety, environmental considerations, function, appearance, and maintainability would be fully met, assuming the granting of your request.

The safety, environmental considerations, functions and maintenance of polyethylene interceptors are no different than a concrete gravity grease interceptor. They require regular pumpout typically on a 90 day basis.

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5. Describe how granting the modification provides adequate protection of public health, safety, and welfare

The protection of public health, safety, and welfare of polyethylene interceptors are no different than a concrete gravity grease interceptor. They require regular pumpout typically on a 90 day basis.

6. Does this request require different maintenance cycles, equipment, or skills?

No, the proposed grease interceptors have the same pumpout schedule as an outdoor 750 gallon grease interceptor.

7. Does this request provide for a service life equal to or greater than the City Requirement?

The proposed grease interceptors will provide a longer service life.

8. Describe how the granting of the proposed modification will be in the best interest of the public.

The proposed grease interceptors will reduce the amount of fats oils and grease entering the public sanitary sewer.

9. List reports, supporting documentation and attachments accompanying this request:

Permit drawings, letter from Fire Protection Engineer, Grease Interceptor documentation including specs, warranty, maintenance and test report. Explanatory information about concrete vs polyethylene material construction.

Submittal Checklist

➢ Use the check boxes below to ensure the following documents are submitted as applicable at the time of application

- ☒ 1. Completed and Signed Alternative Methods and Materials Request Application
- ☒ 2. Site Plan and/or and other technical documents to support the deviation request

Certification

I certify that I have read this application and declare under penalty of perjury that the information contained herein is correct and complete.

Signature of Applicant:  Date: 08.04.2025

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THIS SHEET IS FOR CITY USE ONLY

CITY DEPARTMENT	APPROVED	DENIED	DATE
Development Engineering			
Conditions:			
Planning			
Conditions:			
Traffic Engineering			
Conditions:			
Public Works - Streets			
Conditions:			
Public Works - Water			
Conditions:			
Public Works - Collections			
Conditions:			
Stormwater Engineering			
Conditions:			
Fire Code Official			
Conditions:			
Miscellaneous			
Conditions:			

	APPROVED	DENIED	DATE
City Engineer			8/29/2025
Development Engineering Manager			8/29/2025

Conditions of Approval:

The AMR is approved with Conditions as follows:

-Only Schier GB-500-B units shall be used. The Schier GB-500 is NOT approved for use.

-The installer shall maximize the length of pipe entering the unit to the maximum extent possible in an effort minimize turbulent flow into the unit.

-Due to the unique circumstances of the proposed installation, the City will increase inspections of the outlet sewer line and/or downstream sewer main for a one year period. After the one year timeframe, routine inspections will be performed to confirm that the Grease Interceptors are functioning properly. If there is found to be regular and chronic accumulation of Fats/Oils/Grease (FOG) in the line in exceedance of City Standards which is 100 mg/l, the applicant will be required to install Grease Traps at the sinks in the kitchen to be coordinated with the City. If the addition of the Grease Traps does not result in adequate improvement of the FOG removal performance of the pretreatment system, the applicant will then be required to design and install an exterior installation that complies with current City regulations.

MANNEX ENGINEERING

11 Jul 2025

City of Pullayup
Building Services and Fire Prevention
333 S. Meridian, 2nd Fl
Puyallup, WA 98371

Attn: Mr. David Drake, Fire Inspector

Project: **MultiCare Good Samaritan Hospital**

Re: **Grease interceptor fire protection assessment**

Mr. Drake,

This letter is to provide a Code assessment for the fire protection requirements related to the proposed grease interceptor replacement for the subject project.

Background

The MultiCare Good Samaritan Hospital project includes renovation of the kitchen, including replacement of the existing grease interceptor with two new grease interceptors constructed of polypropylene.

The following comment was received during the pre-application meeting with the City of Puyallup Development and permitting Services (Fire Review - David Drake, City of Puyallup)

> "Provide a FPE report stating the type of polyethylene can be used inside the hospital. This report will need to detail the requirements for fire sprinkler, fire alarm, building type of construction and so on. The concern is this type of commodity can be allowed per the 2021 IFC for this type of occupancy."

Mannex Engineering was retained by Perkins&Will to help resolve this issue.

Code review

1. WSFC 2021

1.1. Chapter 50 hazardous Materials

1.1.1. Table 5003.1.1 "Maximum Allowable Quantity per Control Area of Hazardous Materials Posing a Physical Hazard" - The MAQ for Class IIIB combustible liquids is 13,200 gallons for facilities in which an automatic speaker system is not installed; and an unlimited quantity in buildings in which an automatic spring system is installed.

Comment: Given the quantity of two (2) 500 gal interceptors, this room is not a Hazardous (H) occupancy.

1.2. Chapter 57 Flammable and Combustible Liquids

1.2.1. §5704.2.2 Tank storage. The provisions of this section shall apply to the storage of flammable and combustible liquids in fixed aboveground tanks inside of buildings.

Comment: It is unclear if grease interceptors are within the scope of a "tank" as used in Chapter 57 of the WSFC. The WSFC defines a Tank as:

> §202 Tank. A vessel containing more than 60 gal.

The definition seems to include a grease interceptor. However, I have never encountered a project in which the requirements of Ch. 57 of the WSFC were applied to a grease interceptor.

Grease interceptors contain oils and grease that are Class IIIB combustible liquids. These liquids have a specific gravity of less than 1.0, resulting in the majority floating on top of water (i.e., the principal basis of the operation of a grease interceptor). However, a portion of the oils and greases are mixed in an emulsion with the water, resulting in a weak fire if combustion could be maintained at all.

However, proceeding a conservative basis as if the interceptors are a "tanks".

1.2.2. §5704.2.7 Design, fabrication and construction requirements for tanks. The design, fabrication and construction of tanks shall comply with NFPA 30. Each tank shall bear permanent nameplate are marking indicating the standard used as the basis of design.

1.2.3. §5704.2.7.1 Materials used in tank construction. The materials used in tank construction shall be accordance with NFPA 30. The materials for construction for tanks and their appurtenances shall be compatible with liquids to be stored.

2. NFPA 30 (2021)

2.1. §21.4.1 Materials of Construction. Tanks shall be of steel or other approved noncombustible material in accordance with 21.4.1.1 through 21.4.1.4, or of combustible materials in accordance with 21.4.1.1 and 21.4.1.3 through 21.4.1.5.

Comment: This section allows tanks constructed of combustible polymers (e.g., polypropylene), subject to meeting the following requirements.

2.2. §21.4.1.5 Combustible Materials.

2.2.1. §21.4.1.5.1 Tanks shall be permitted to be constructed of combustible materials where approved.

Comment: This section allows tanks constructed of combustible polymers (e.g., polypropylene), subject to the Approval of the Code official.

2.2.2. §21.4.1.5.2 Tanks constructed of combustible materials shall be limited to any of the following:

(1) Underground installation

(2) Use where required by the properties of the ignitable (flammable or combustible) liquid stored

(3) Aboveground storage of Class IIIB liquids [FP ≥ 200°F (93°C)] in areas not exposed to a spill or leak of Class I or Class II liquids [FP < 140°F (60°C)]

(4) Storage of Class IIIB liquids [FP ≥ 200°F (93°C)] inside a building protected by an approved automatic fire-extinguishing system

Comment: Subsection (3) applies. Subsection (4) applies.

Conclusions

A. The aggregate amount of Class IIIB combustible liquids in the two grease interceptors does not result in a Hazardous (H) occupancy classification.

B. The most conservative approach to Code assessment of the grease interceptors assumes they fall within the scope of the WSFC of a "tank" as regulated for the purpose of holding Class IIIB combustible liquids.

C. The WSFC allows tank materials to be per NFPA 30.

D. NFPA 30 allows the material of the interceptors to be plastic as the building is sprinklered.

If you have any further questions, please do not hesitate to contact me.
Sincerely,

11 Jul 25

Mark R. Mannex, PE

President

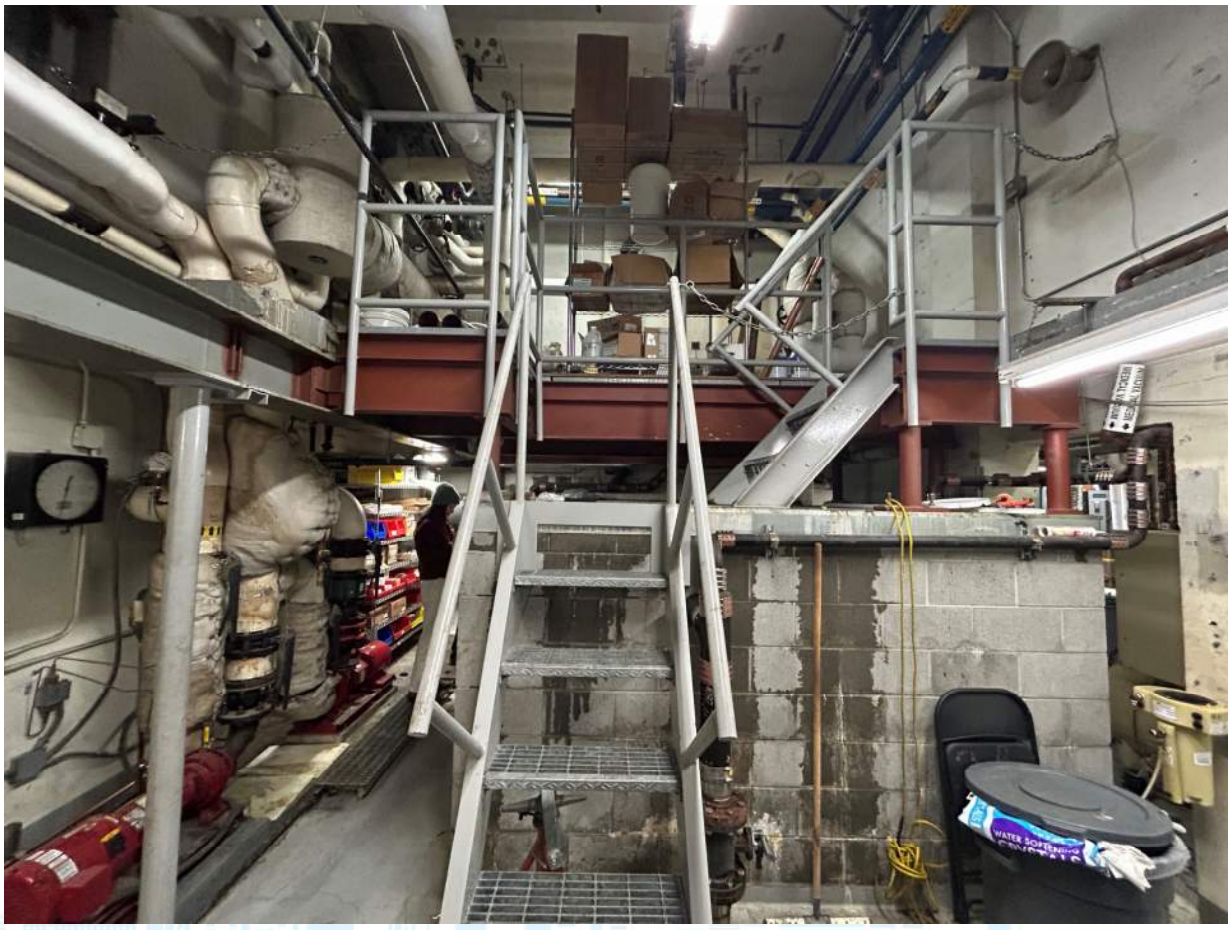
MANNEX ENGINEERING LLC

07-11-2025

Good Samaritan Grease Interceptor

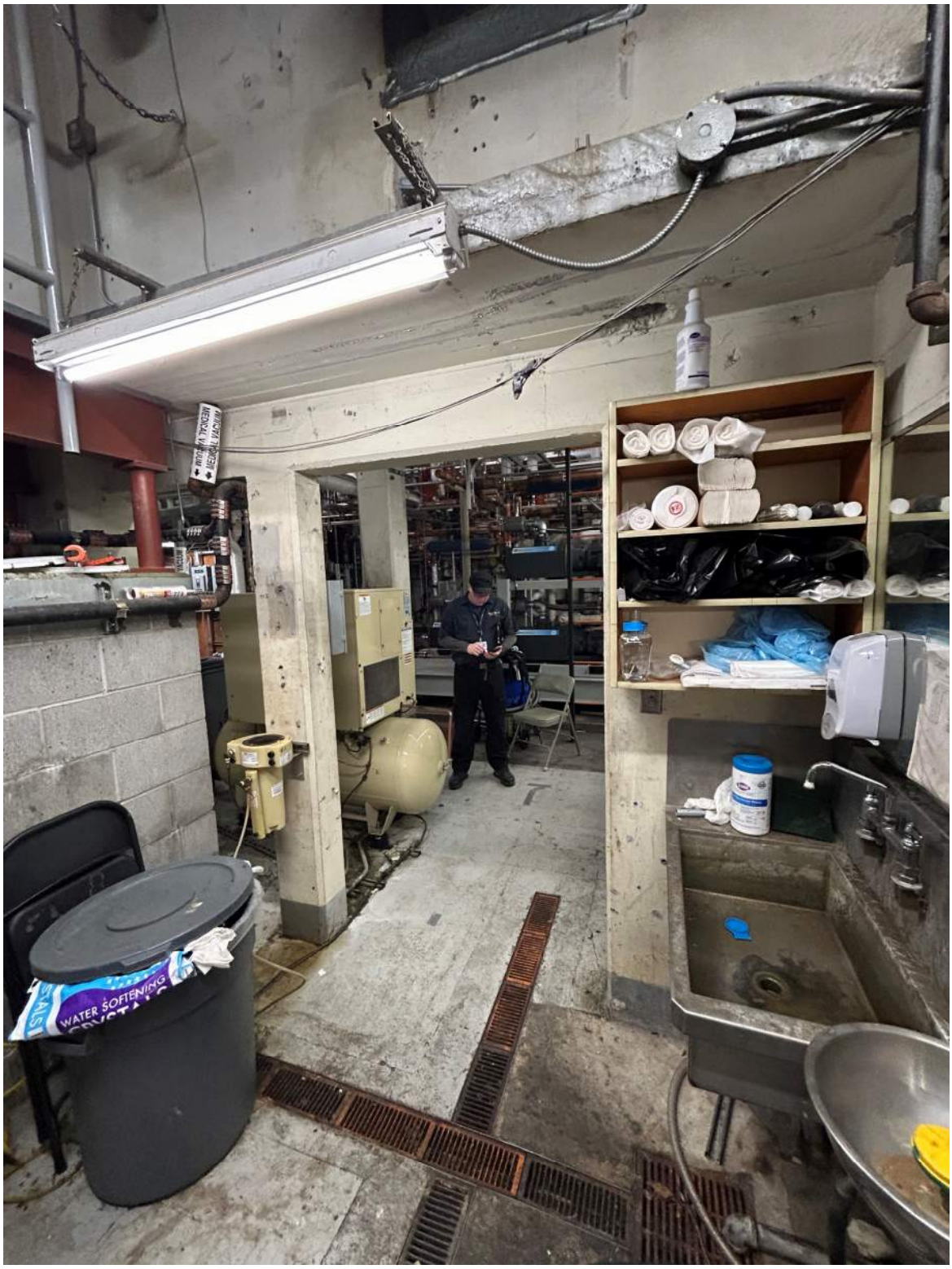
Existing Scope:

- The existing field fabricated grease interceptor is located within the mechanical room below the kitchen level. It was constructed in place with CMU blocks and epoxy coated to seal the concrete.
- The epoxy lining has failed. Pieces have broken off and clogged the outflow pipe causing the interceptor to overflow. Also effluent has begun to seep through the pores of the concrete and is exposed on the exterior causing stains and odor.
- The walls of the interceptor are being used to structurally support the mezzanine floor structure.



Looking straight on.

Looking left.



Looking right.

Gravity Grease Interceptor Installation Issues

- A concrete interceptor is too large to bring into the mechanical room as the door openings are not wide enough.
- Installation would require removal of a portion of the exterior wall/window system and a portion of an interior physical therapy wall to bring new interceptor into mechanical room.
- Logistics are unknown as to how to lift and carry a precast concrete interceptor into the middle of a building. Typically these require cranes which cannot be used indoors.

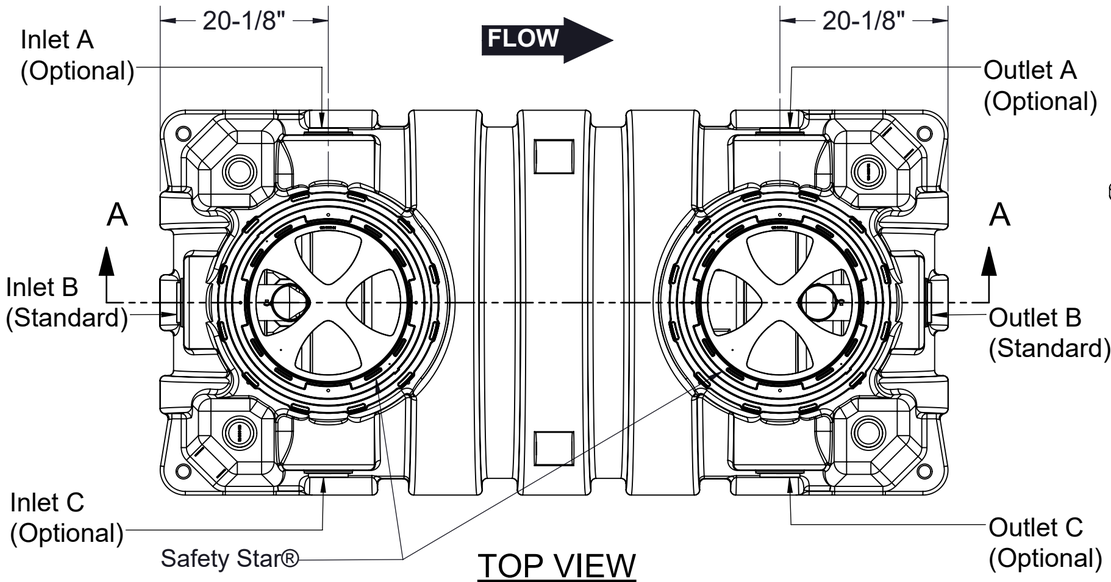
Proposed Scope

- Provide (2) 500 gallon polyethylene hydromechanical grease interceptor (3,048 lbs grease capacity) that can fit through the existing doors on a pallet jack.
- Provide a pumpout kit for remote pumping to a pumpout truck in the loading dock area.
- Provide an inspection and test port on the outlet of the interceptor to ensure no grease is entering the public sanitary sewer system.

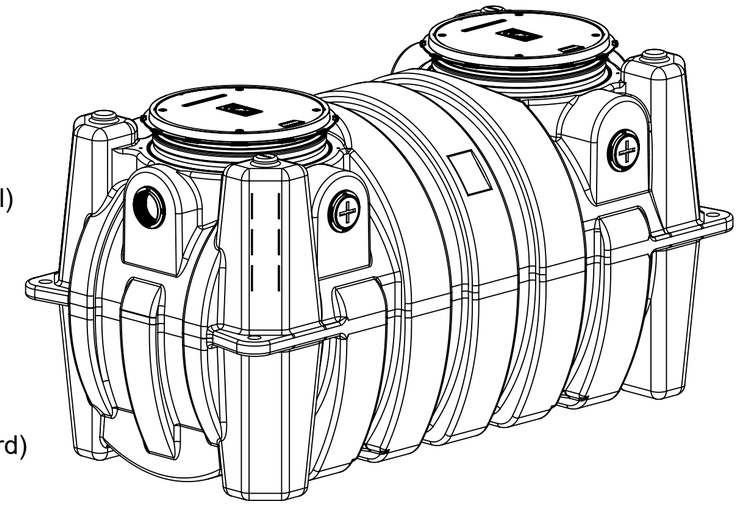
SPECIFICATIONS

Notes:

1. 4" FPT inlet/outlet with 4" plain end adapters, triple inlet and triple outlet.
2. Unit weight - w/ composite covers: 452 lbs. (For wet weight add 4,254 lbs.)
3. Maximum operating temperature: 150º F continuous
4. Capacities - Liquid: 510 gal.
   Grease: 2,948 lbs. (404 gal.) @100 GPM
   Solids: 102 gal.
5. Satisfies Miami DERM 99% efficiency requirements; retaining 2,817 lbs. of grease at 99.2% efficiency.
6. For gravity drainage applications only.
7. Do not use for pressure applications.
8. Cover placement allows full access to tank for proper maintenance.
9. Vent not required unless per local code.
10. Engineered inlet and outlet diffusers with inspection ports are removable to inspect / clean piping.
11. Integral air relief / Anti-siphon / Sampling access.
12. Adjustable cover adapters provide up to 4" of additional height.
13. Designed for below-grade, above-grade, indoor or outdoor installations.
14. Safety Star®, access restrictor built into each cover adapter, prevents accidental entry to tanks (450 lb rating).



TOP VIEW
(COVERS REMOVED FOR CLARITY)



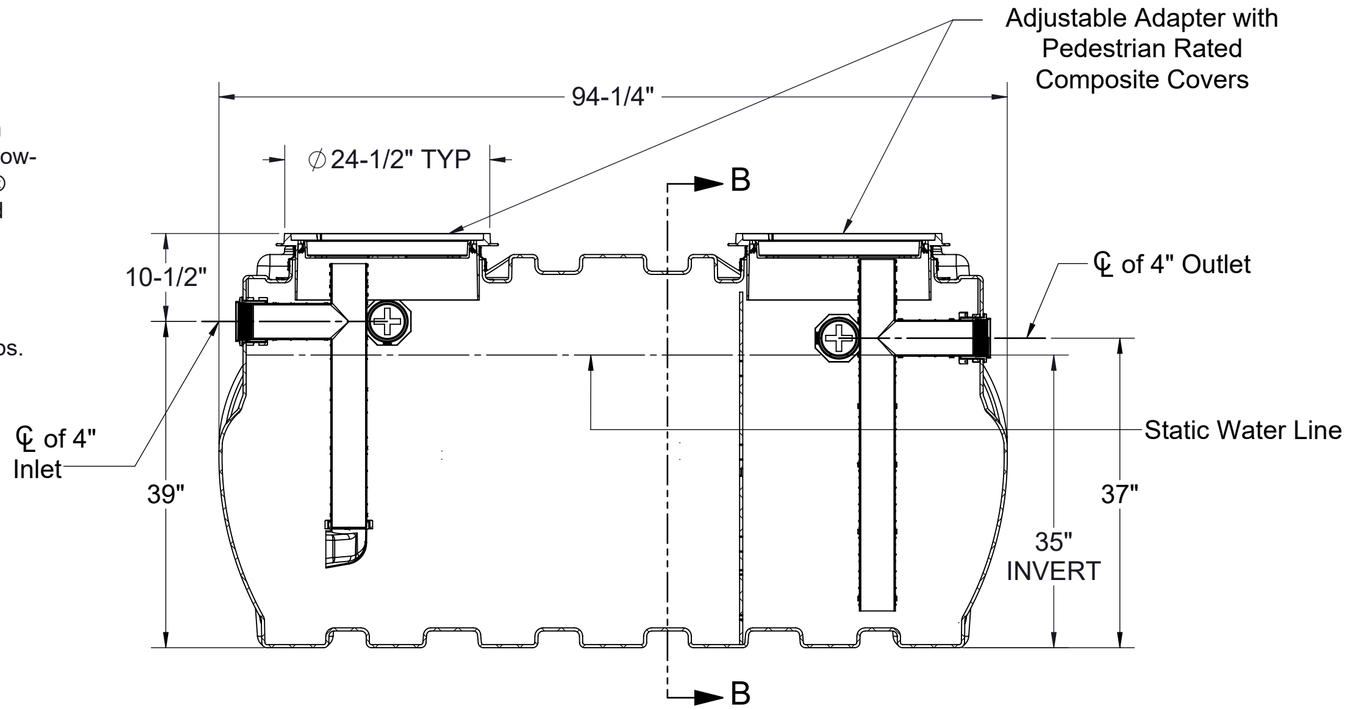
ISOMETRIC VIEW

ENGINEER SPECIFICATION GUIDE

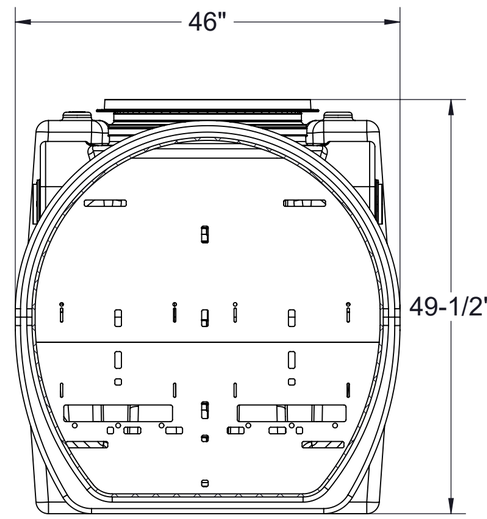
Schier Great Basin™ grease interceptor model # GB-500-B shall be lifetime guaranteed and made in USA of seamless, rotationally-molded polyethylene with minimum 7/16" uniform wall thickness. Interceptor shall be furnished for above or below-grade installation with adjustable cover adapter, Safety Star® access restrictor built into each cover adapter, three inlet and three outlet options. Interceptor shall be certified to ASME A112.14.3 (Type D) and CSA B481.1 as well as certified to IAPMO/ANSI Z1001-2021. Interceptor flow rate shall be 100 GPM. Interceptor grease capacity shall be 2,817 lbs. Cover shall provide water/gas-tight seal and have minimum 2,000 lbs. load capacity.

CERTIFIED PERFORMANCE

Great Basin™ hydromechanical grease interceptors are third party performance-tested and listed by IAPMO to ASME #A112.14.3 and CSA B481.1 grease interceptor standards and greatly exceed requirements for grease separation and storage. They are compliant to the Uniform Plumbing Code and the International Plumbing Code.



SECTION A-A



SECTION B-B

Type D certification does not require a flow control

MIAMI-DADE COUNTY

Satisfies Miami DERM 99% efficiency requirements. Product labels are permanently attached to inside and outside of unit for easy viewing.

SPECIFICATION SHEET

MODEL NUMBER:

GB-500-B

PART NUMBER: 4075-006-01

DESCRIPTION:
GB-500-B GREASE INTERCEPTOR 100 GPM, 4" INLET/OUTLET, PEDESTRIAN RATED COMPOSITE COVERS

DWG BY:	DATE:	REV:	ECO:
C. BUSENITZ	4/26/2022	A	BB - 12/5/22

UPC ® UPC C ®

SCHIER

6455 Woodland Dr
Shawnee, KS 66218
Tel: 913-951-3300
Fax: 913-951-3399
schierproducts.com

INDOOR/OUTDOOR

GB-500 / GB-1000 / GB-1500

On-grade perfection

Cover adapter gives you 4" of free adjustment at grade with 5° tilt

Best-in-class capacity

Certified grease capacity with superior solids capacity

No flow control required

Models GB-1000, GB-1500

Structural baffle system

Independently molded tank sections are bolted and welded together to create baffle wall(s)

Pumpout port options

GB-500: use PP3 kit
GB-1000, GB-1500: alternate configurations available with preinstalled pumpout ports

GB-1000

ACCESSORIES

sold separately

Field cut riser

FCR2 for buried installations, 32" tall, stackable up to 3 (94" tall)

OR

Adapter for corrugated riser

CA2 connects to supplied 24" corrugated pipe

▲ Adjustable cover adapters provide up to 4" of additional height.

GB-500

Flow rate / Grease capacity
100 GPM (6.3 L/s) / 3,048 lbs. (1,382.3 kg)
Solids capacity 128 gal. (484.5 L)
Liquid capacity 510 gal. (1,930.6 L)
Connection options 4" or 6" plain end

STANDARD CONFIGURATIONS

4" with Pedestrian covers	4075-002-01
6" with Pedestrian covers	4075-004-01
4" with Traffic covers	4075-001-01
6" with Traffic covers	4075-003-01

GB-1000 Dual Rated

Flow rates / Grease capacities
100 GPM (6.3 L/s) / 5,495 lbs. (2,492.1 kg)
200 GPM (12.6 L/s) / 4,959 lbs. (2,249 kg)
Solids capacity 211 gal. (798.7 L)
Liquid capacity 1,000 gal. (3,785.4 L)
Connection options 4" or 6" plain end

STANDARD CONFIGURATIONS

4" with Pedestrian covers	4080-003-01
6" with Pedestrian covers	4080-001-01
4" with Traffic covers	4080-004-01
6" with Traffic covers	4080-002-01

GB-1500 Dual Rated

Flow rates / Grease capacities
100 GPM (6.3 L/s) / 10,041 lbs. (4,563 kg)
200 GPM (12.6 L/s) / 9,446 lbs (4,036 kg)
Solids capacity 318 gal. (1,203 L)
Liquid capacity 1,588 gal. (6,011 L)
Connection options 4" or 6" plain end

STANDARD CONFIGURATIONS

4" with Pedestrian covers	4085-004-01
6" with Pedestrian covers	4085-002-01
4" with Traffic covers	4085-003-01
6" with Traffic covers	4085-001-01

Pumpout port option: *See website for configurations with preinstalled pumpout ports.*

GB-1000 — **Certified as both hydromechanical and gravity grease interceptors** — GB-1500

Dual certified to ASME A112.14.3 / CSA B481.1 (Type D) and IAPMO/ANSI Z1001

SCHIER

LIFETIME GUARANTEED **GREASE INTERCEPTORS** | Made in the USA

913-951-3300
schierproducts.com

LIFETIME WARRANTY

Effective April 1st, 2007 Schier Products represents and warrants that all grease interceptor products (“Products”) will be free from any and all defects in material and workmanship during the lifetime of the plumbing system in which the Products were originally installed and will, at its option, agree to repair, replace, or supply credit to the original purchaser.

This warranty does not cover wear and tear, extreme temperatures or pH levels, nor does it cover damage from naturally occurring phenomenon, including, but not limited to UV, freeze-related damage, or natural disasters. If the Products are warehoused without cover from the elements (direct sun, rain, sleet, snow, windblown gravel dust or sand) or are susceptible to damage from regular business traffic (passing forklifts and vehicles) this warranty will be null and void and the Products will not be considered for return. This warranty does not cover the purchaser’s cost for parts required in routine maintenance.

This warranty shall be effective if, and only if, the Products were:

- installed in accordance with Schier Product’s notes, specifications and instructions, for installation, operation and maintenance;
- installed in conformance with all applicable building and plumbing codes and passed all applicable testing methods immediately following installation;
- not subjected to misuse or abuse, whether negligent or intentional;
- never modified, repaired or altered by any individual(s) not authorized by Schier Products;

Our warranty is void if the product is not installed to local code. Schier recommends installation only by a licensed plumber.

GREASE INTERCEPTOR CALCULATIONS

Quote: X7F7DD1X

Reference No. 79644

Project Name: Good Samaritan Hospital

Step 1: Flow rate to grease interceptor

Fixture flow rate: (cu in / 231) = gal x 0.75 / 2 min = 2 min flow rate

NAME	TYPE	DIMENSIONS	QTY	CU IN	FLOW RATE
3 Compartment Sink	3 Compartment Sink	21" x 21" x 14" (3)	1	18,522	30.07 GPM
Floor Drain	Floor Drain	N/A	10	N/A	0 GPM
Floor Sink	Floor Sink	N/A	15	N/A	0 GPM
Hand Sink	Hand Sink	10" x 14" x 5"	12	8,400	13.68 GPM
Mop Basin	Mop Basin	24" x 24" x 10"	2	11,520	18.7 GPM
Prep Sink One Bowl	Prep Sink One Bowl	21" x 21" x 14"	4	24,696	40.08 GPM
Prep Sink Two Bowls	Prep Sink Two Bowls	21" x 21" x 14" (2)	3	37,044	60.15 GPM
Soup Kettle	Soup Kettle	20 gal.	2	9,240	20 GPM
Total					**182.63 GPM**

Flow rate used to size interceptor (less of fixture or pipe size)
Pipe size (4 in):
Pipe Size flow rate per Manning's Formula **75 GPM**

Step 2: Grease Production

Servings per day x Grease production value x Days between pump-outs = Grease output

Servings per day: 1500
Grease production value: 0.0325 lbs per serving (Cafeteria - Heat & Serve: Medium / Flatware)
Days between pump-outs: 60 days

1500 x 0.0325 x 60 = 2925 lbs of FOG

SCHIER MODEL	
GB-500	**Description:** GREASE INTERCEPTOR 100 GPM, 4" PLAIN/FPT CONNECTIONS, PEDESTRIAN RATED COMPOSITE COVERS **Dimensions:** Length: 94.25", Width: 46", Height: 49.5" **Flow Rate/Grease Capacity:** 100 GPM / 3048 lbs **Liquid Capacity:** 510 gal

Specification Note: This Great Basin model has been sized to the flow rate and grease production requirements of the application and may not be substituted by liquid capacity alone. Any substitution requests must be approved by the specifying engineer and the authority having jurisdiction.

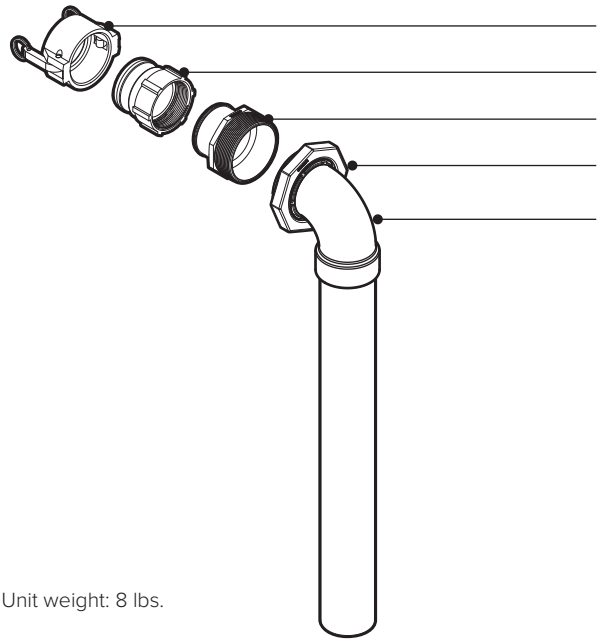
Please contact support@schierproducts.com for technical and procurement support for the specified Great Basin model.

SPECIFICATION AND INSTALLATION GUIDE

Failure to follow this guidance voids your warranty

PP3

Pumpout Port Kit for use with Grease Interceptors Models GB-50, GB-75, GB-250 and GB-500 and Legacy Models GB-50, GB-75 and GB-250



Unit weight: 8 lbs.

Engineer Specification Guide:

Schier model PP3 pumpout port kit for use with current Great Basin models GB-50, GB-75, GB-250, GB-500 and legacy Great Basin models GB-50, GB-75 and GB-250.

Installation Notes

1. Maximum vertical distance from static water line of grease interceptor to pumpout port hook-up shall not exceed 21 feet.
2. Maximum horizontal distance from grease interceptor to pumpout truck (including pumper hose) shall not exceed 100 feet.
3. Plumbing from interceptor to hook-up to have a maximum quantity of 6 elbow fittings.
4. Designed for maximum 3" pumpout line diameter.
5. Solid wall PVC recommended for pumpout line. Do not use foam core PVC.
6. Additional plumbing fitting(s)/piping required to complete installation. Fitting(s) determined by unit outlet configuration.
7. A valve is recommended on the pumpout line for odor and overflow containment.

Contents

SCHIER

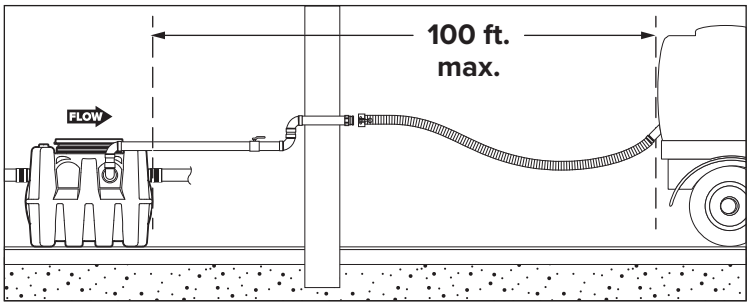
MODEL NUMBER: PP3	DESCRIPTION: Pumpout Port Kit		
PART #: 8400-014-01	DATE: 07/01/2024	REV:	ECO:

6455 Woodland Dr. | Shawnee, KS 66218 | 913-951-3300 | schierproducts.com

SPECIAL PRECAUTIONS

Failure to follow this guidance voids your warranty

Maximum horizontal distance from grease interceptor to pumpout truck (including pumper hose) shall not exceed 100 feet.



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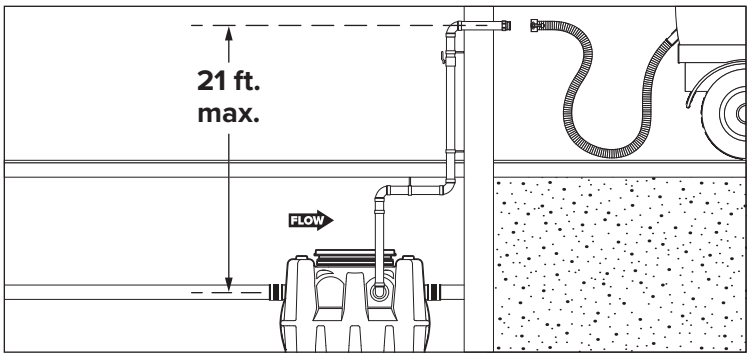
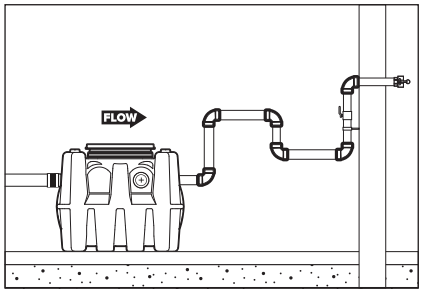
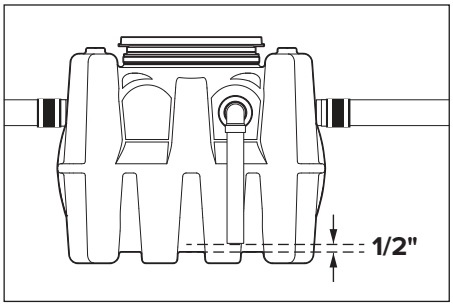


Plumbing from interceptor to hook-up to have a maximum quantity of 6 elbow fittings.



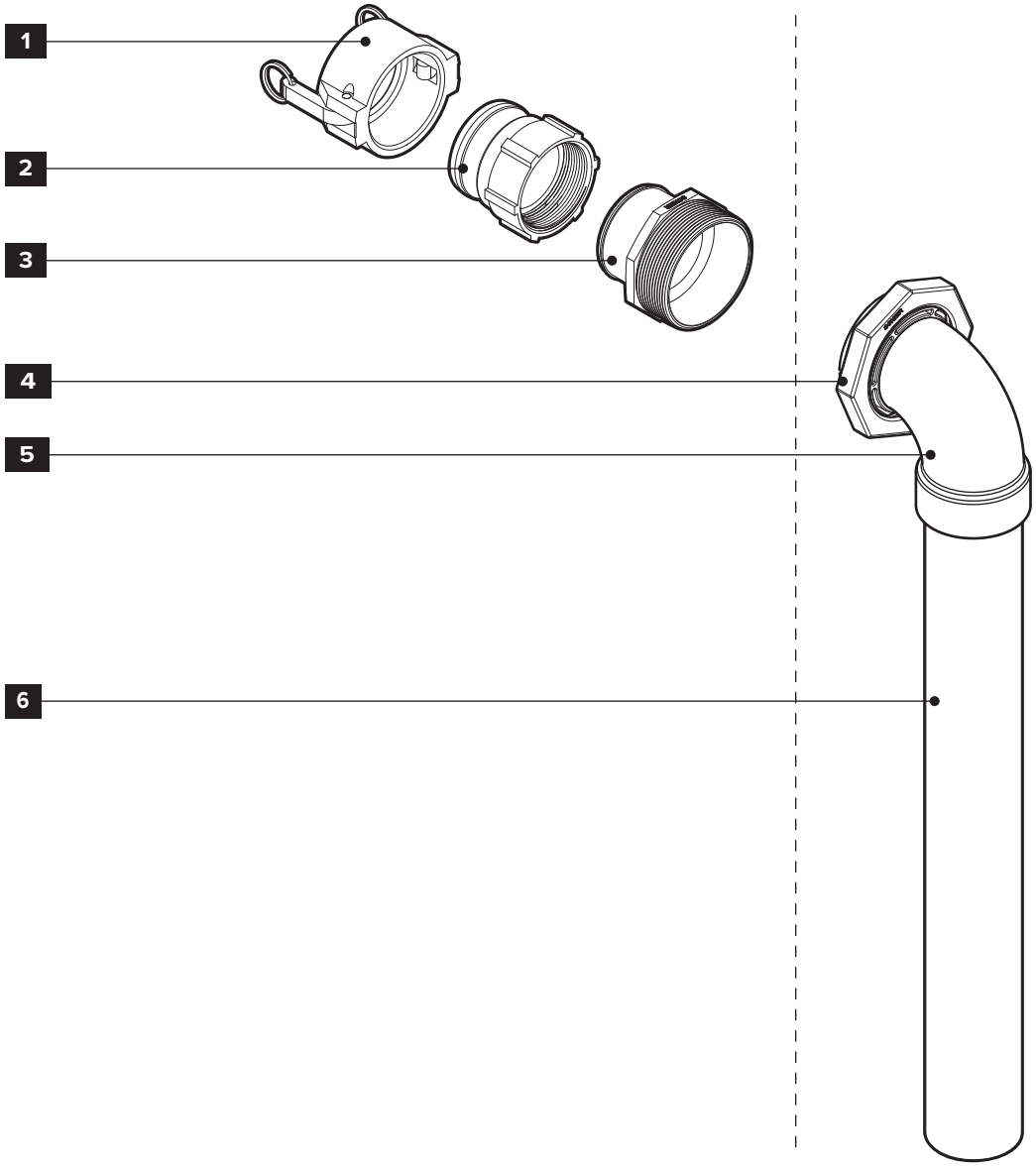
Minimum 1/2" clearance at interceptor floor for internal 3" PVC pipe



GETTING TO KNOW THE PP3

External Components

Internal Components



External Components

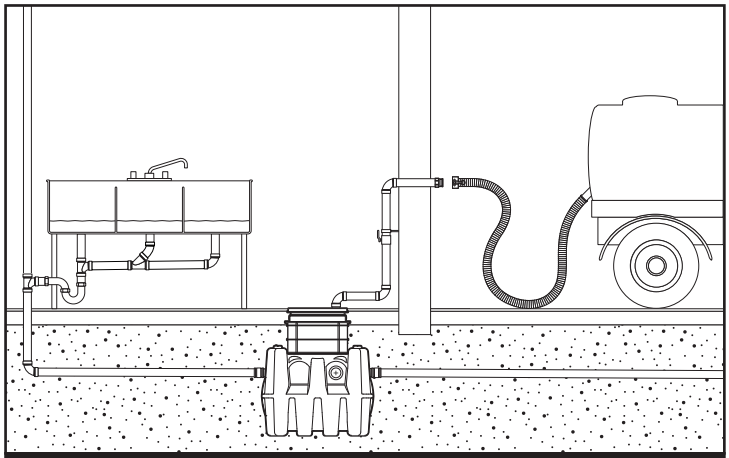
1. 3" cam and groove cap
2. 3" cam and groove fitting
3. 4" MPT x 3" plain end fitting

Internal Components

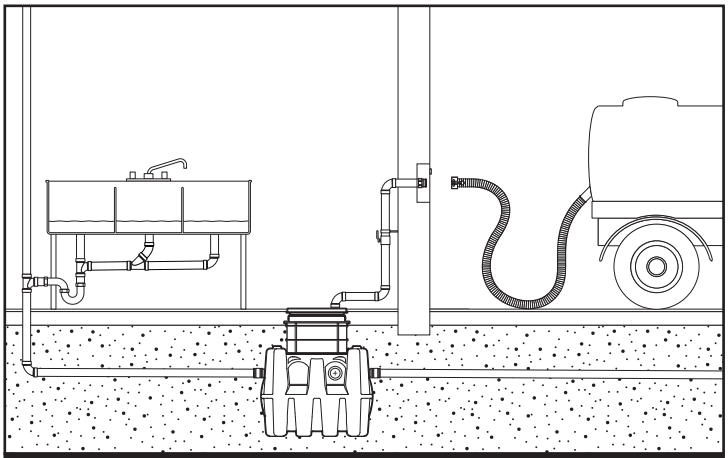
4. Bulkhead connection retaining nut
5. 4" PVC pumpout port adapter with 3" PVC elbow fitting
6. Internal 3" PVC pipe

INSTALLATION

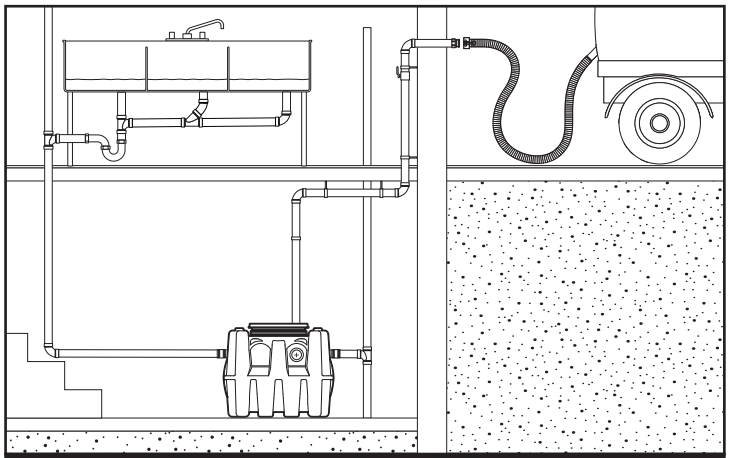
Use the following illustrations for guidance to plan your pumpout port piping layout.



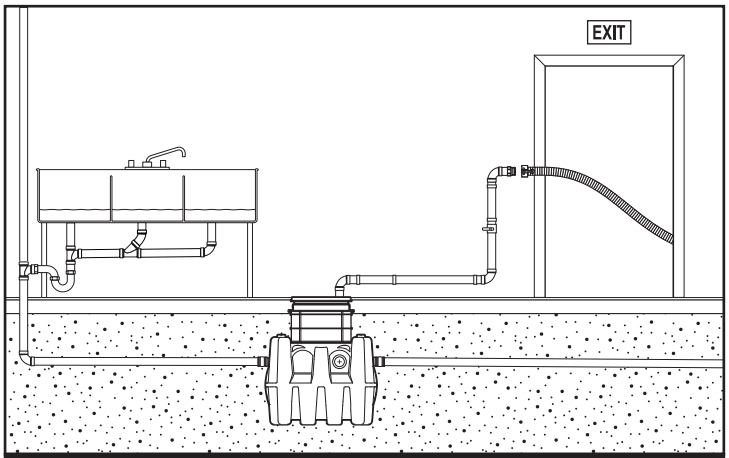
Below Grade Installation with Outdoor Remote Pumpout Hook-up



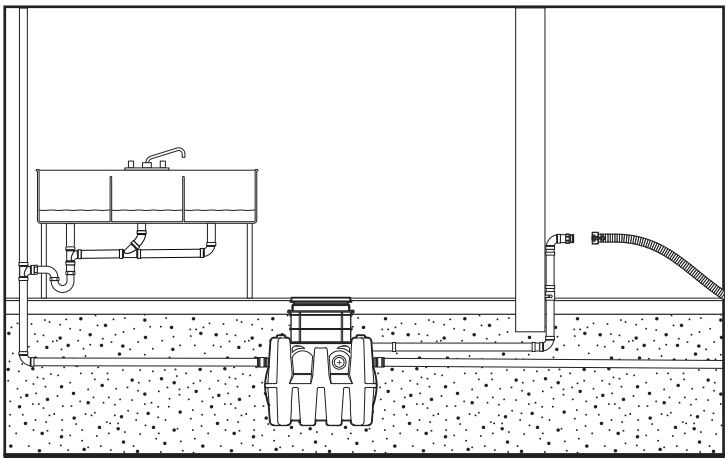
Below Grade Installation with Enclosed Outdoor Remote Pumpout Hook-up



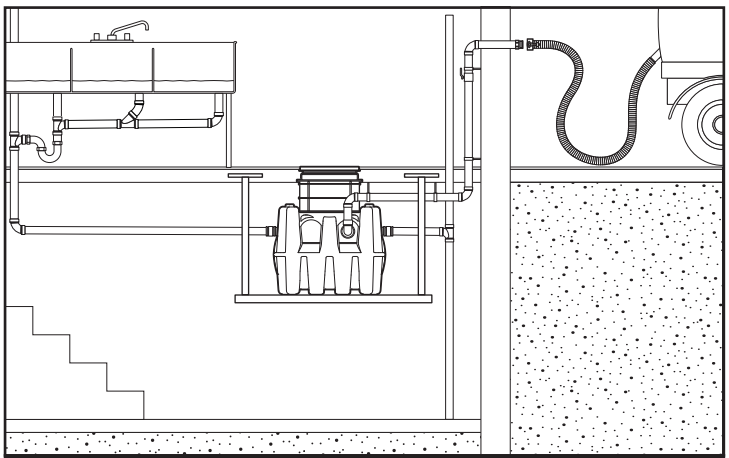
At Grade Basement Installation with Outdoor Remote Pumpout Hook-up



Below Grade Installation with Indoor Remote Pumpout Hook-up



Below Grade Installation with Outdoor Remote Pumpout Hook-up



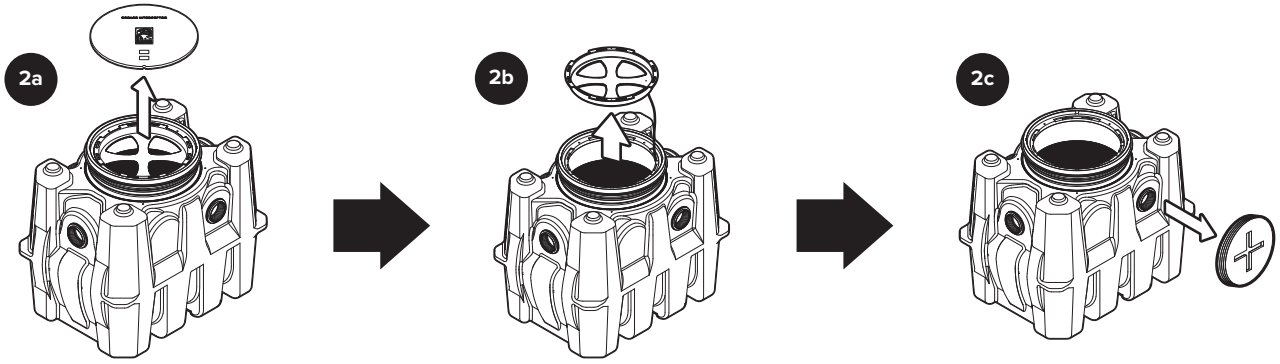
Recessed and Suspended Installation with Outdoor Remote Pumpout Hook-up

INSTALLATION

1 Plan pumpout plumbing

See **"INSTALLATION IDEAS"** for guidance. Choose an unused outlet on the interceptor to convert into a pumpout port and choose a location for the pumpout hook-up. **NOTE:** This kit does not include the additional plumbing fittings/piping from the interceptor to the hook-up location. You will need to plan out the pumpout plumbing based on site conditions and local codes and provide all additional piping, valves, connections and hardware needed to complete this installation.

2 Prepare interceptor for pumpout port installation



Remove cover

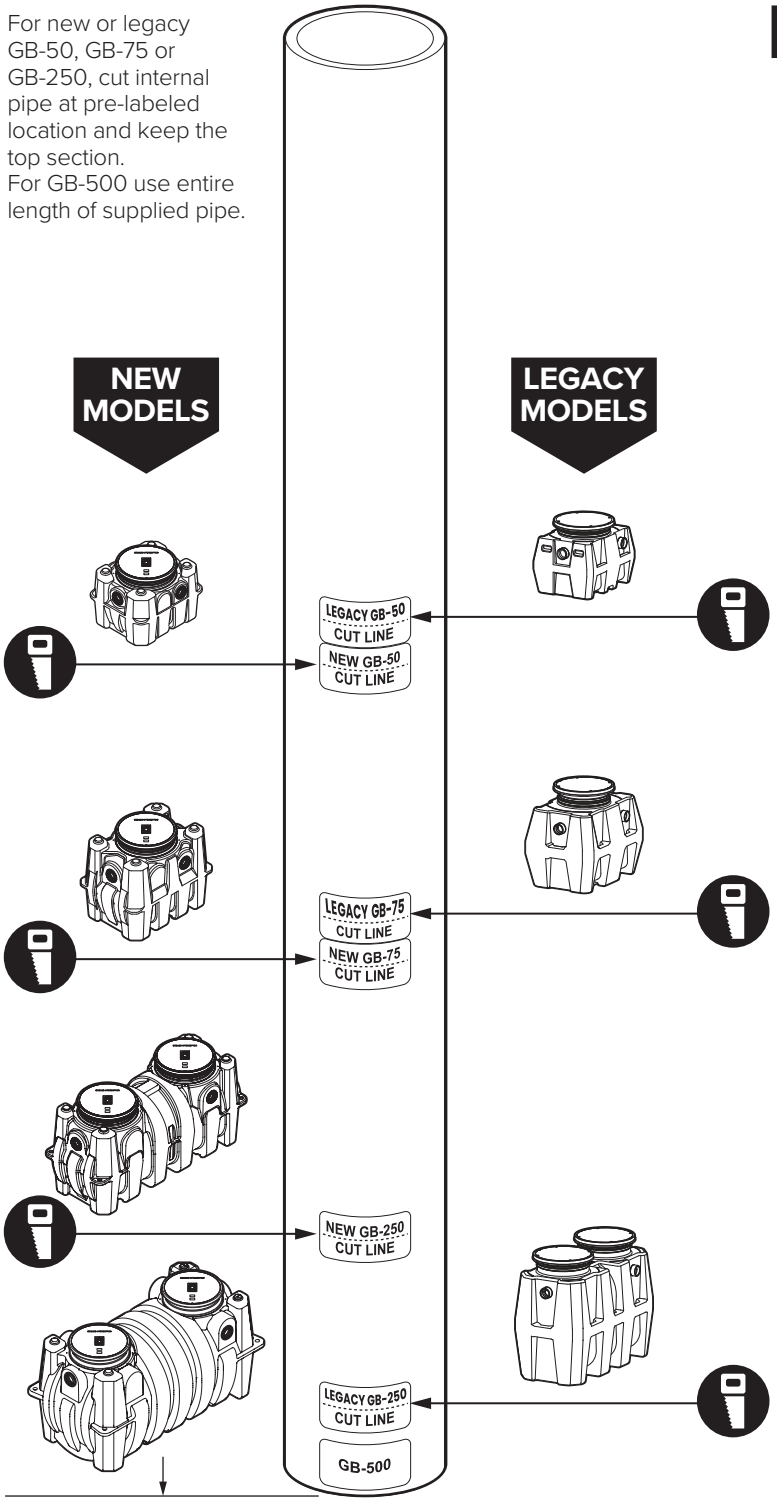
Remove Safety Star® insert, leave tethered to unit

If necessary, remove cleanout plug from outlet chosen for pumpout port connection

3 Assemble and Install Internal Pipe Assembly

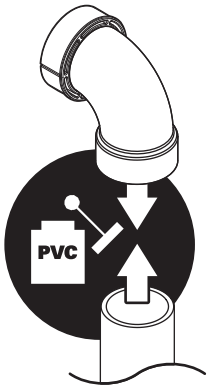
3a

For new or legacy GB-50, GB-75 or GB-250, cut internal pipe at pre-labeled location and keep the top section.
For GB-500 use entire length of supplied pipe.



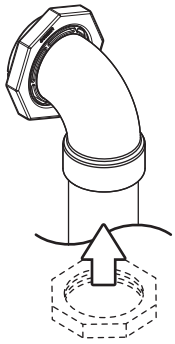
3b

Use PVC primer/ cement to assemble internal vertical pipe to pumpout port adapter with elbow fitting.

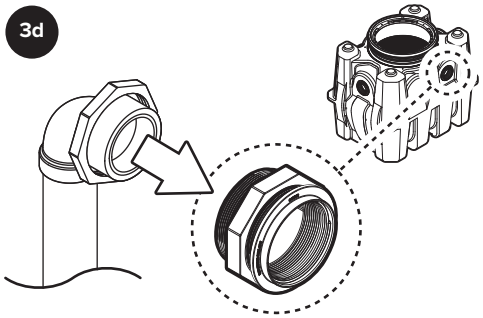


3c

Place the bulkhead connection retaining nut into position against the rim of the pumpout port adapter, starting at the bottom of the internal pipe assembly and slide it up and over the elbow.

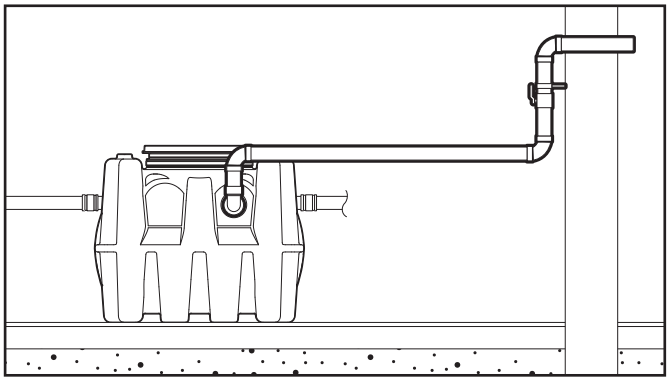


3d

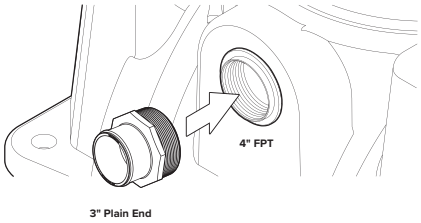


Place internal pipe assembly onto desired internal connection stub. Ensure piping assembly is pointed down (as shown) and there is at least 1/2" of clearance between the pipe and floor of unit. Securely tighten hand tighten retaining nut.

4 Connect External Piping

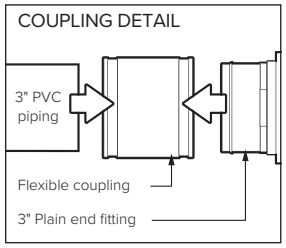


4a



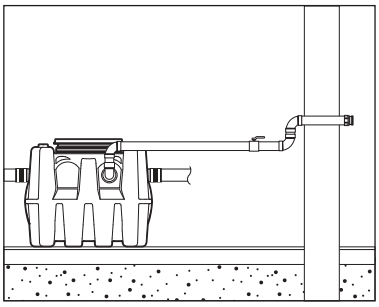
Install 4" MPT x 3" plain end fitting into desired external connection using pipe thread sealant or tape.

4b



Mechanically couple 3" PVC piping to pumpout port connection on interceptor. **Do not solvent weld.**

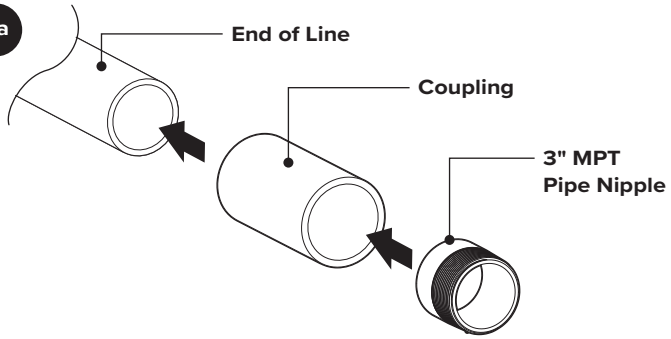
4c



Install remainder of PVC piping and fittings to the pumpout hook-up location. **Note:** A valve is recommended for odor and overflow containment.

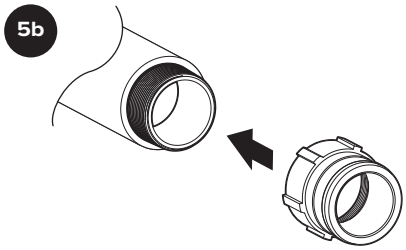
5 Connect Pumpout Hook-up

5a



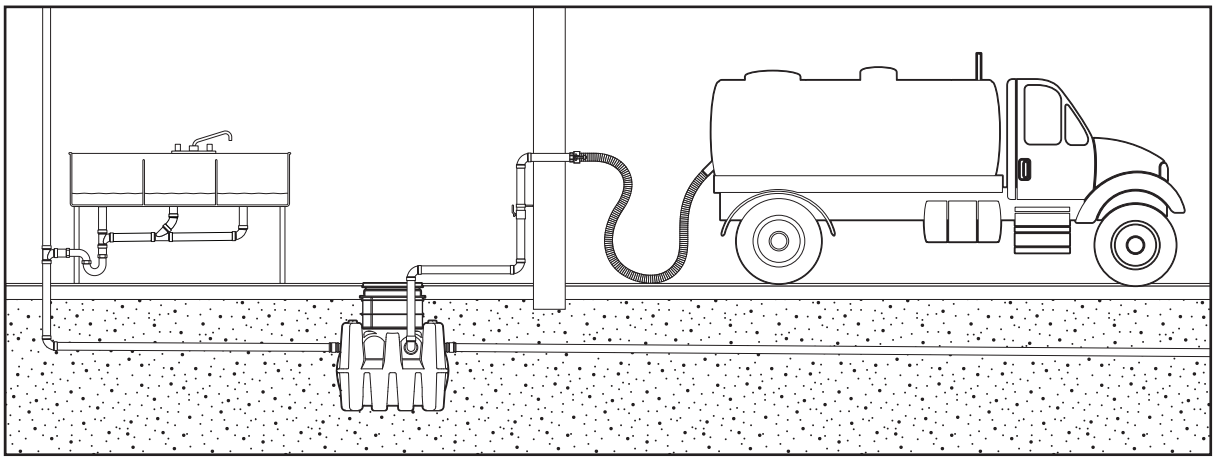
At the end of the pumpout plumbing line, install a 3" MPT pipe nipple (**Not included with this kit**) using a coupling of your choice.

5b



Securely attach supplied 3" Cam and Groove Fitting to pipe nipple using pipe thread sealant or tape.

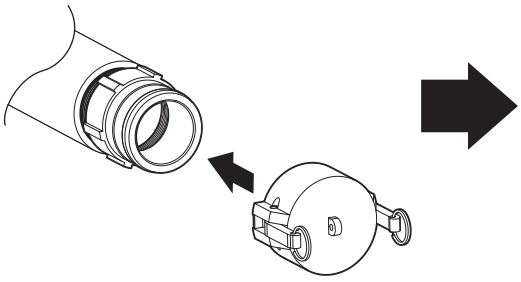
6 Test Pumpout Port



Run sinks to ensure interceptor is full of water. Attach pumper hose to 3" cam and groove fitting. Open valve (if installed on line). Turn on pump, make sure interceptor is pumped out and inspect pumpout plumbing for leaks.

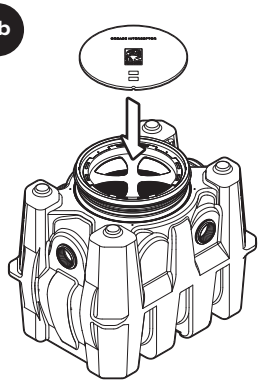
7 Cap off hookup and re-assemble interceptor

7a



Install cap on cam and groove fitting

7b



Replace safety star insert and cover, tightening cover bolts securely (if applicable).

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TEST REPORT

Report Number: **1757-18022** **Project Number:** 31068

Report Issued: November 15th, 2018

Client: Schier Products
9500 Woodend Rd.
Edwardsville, KS 66111 **Contact:** Charlie Ismert

Source of Samples: Samples were manufactured at the client's facility in Edwardsville, KS. The sample was witnessed tested by Dale E. Holloway of IAPMO R&T Lab. Samples are manufactured in good condition.

Date of Testing: November 5th, 2018 through November 13th, 2018

Sample Description: HDPE Grease Interceptor.

Model: **GB-500 (100 gpm)**

Refer to the manufacturer's drawings and installation instructions for more detailed measurements and information.

Scope of Testing: The above grease interceptor was witnessed tested to meet the requirements of ASME A112.14.3-2018 "Hydromechanical Grease Interceptors", and CSA B481.0 and B481.1-12 "Grease Interceptors".

Conclusion: **The GB-500 (100 gpm) Grease Interceptor DID COMPLY with the requirements of ASME A112.14.3-2018 "Hydromechanical Grease Interceptors" and CSA B481.0 and B481.1-12 "Grease Interceptors".**

By the signature below, I certify that all the testing and preparation for this report was performed under direct supervision of IAPMO R&T Lab, unless otherwise stated.

Witness tested and reported by,

Dale E. Holloway, Regional Technical Manager
IAPMO R&T Lab

Primary Standards: ASME A112.14.3-2018

2 General Requirements
2.1 Rating
2.2 Inlet and Outlet Connections
2.3 Flow Controls and/or Vents
3 Testing
3.1 Construction of Test Equipment
3.2 Installation of Testing Equipment
3.3 Preliminary Test Procedure
3.4 Rating Test Procedure
3.5 Skimming Procedure
4 Labeling, Installation, and Maint.
4.1 Labeling
4.2 Installation Components
4.3 Maintenance and Cleaning Instructions

Test Results: All test and evaluations were conducted per the written procedures in the specific standards.

CSA B481.0 and B481.1-12

See IAPMO R&T Test Report Number 1757-18021

Test Results: All test and evaluations were conducted per the written procedures in the specific standards.

ASME A112.14.3-2018

2 General Requirements:

2.1 Rating: **COMPLIES**
The flow rate and grease retention capacity of each grease interceptor was determined by application of the parameter of this Standard.
The unit tested was a "Type C" - Units without an external flow control, directly connected.

2.2 Inlet and Outlet Connections: **COMPLIES**
Inlet and Outlet connections - Hubless coupling is compliant with ASTM A888

2.3 Flow Controls and/or Vents: **COMPLIES**

2.3.1 Flow control and Vents or air intakes were used.

2.3.2 When a flow control and/or vent is used during testing for rating a grease interceptor, the rating of the unit did not exceed the maximum flow through the flow control.

The manufacturer's literature reflected that the rating was achieved with the flow control and vent attached, and that the flow control and vent was installed with the unit.

Testing

3.1 Construction of Test Equipment:

3.1.1 Test Sink: **COMPLIES**

Length - 8' (8 ft)
Width - 2' (2 ft)
Depth - 12.5" (12.5 inches)

Corrosion Resistant Material - stainless steel (yes)

Number of compartments - 2 (2)

Structurally reinforced - yes (yes)
Supported on legs - yes (yes)
Rim height with legs - 3' (3 ft)
Legs structurally supported - yes (yes)

3.1.1.1 Sink Waste Connections: **COMPLIES**

Each sink compartment was fitted with a 1-½" (up to 50 gpm) or 2" (greater than 50 gpm) standard sink waste connection with flange, crossbars, slip joint tailpiece, and locknut.

The waste connections were located on opposite sides of the center partition in the corner formed by the side of the sink and the center partition.

3.1.1.2 Water Level Gauges: **COMPLIES**

Each compartment was equipped with a gauge connection and a water level gauge with gauge glass.

Each gauge connection was fitted into the bottom of a sink compartment and in close proximity to the waste outlet.

Each gauge was mounted on the outside of the sink, adjacent to its respective gauge connection, and extended diagonally upward from the bottom center to the top outside corners.

The gauges were calibrated to read directly the number of inches of water in the sink compartments above the sink waste flange.

3.1.1.3 Movable Sink Partitions: **COMPLIES**

Each compartment of the sink was fitted with a movable partition, making it possible to regulate the size of the compartment to any desired capacity.

3.1.2 Skimming Tank: **COMPLIES**
The skimming tank was rectangular in shape and open at the top.

Tank Length - 12'
Tank Width - 36"
Tank Depth - 28"

Tank was made of corrosion resistant material - yes (yes)
Tank was structurally reinforced - yes (yes)

Waste outlet diameter - 4" (4 inches)
The waste outlet was connected to the bottom of the tank at one end and trapped to retain approximately 18 inches of water in the tank.

The tank provided a stationary baffle located approximately 4 ft. from the end of the tank receiving the discharge from the interceptor. This baffle extended the width of the tank and to within 4" of the bottom of the tank.

3.2 Installation of Testing Equipment:

3.2.1 Direct Connection Test Types A, B, and C:
Findings- The "GB-500" was a Type C unit.

3.2.1.1 Waste Piping: **COMPLIES**
The combined horizontal waste, vertical waste riser, interceptor inlet, and discharge piping shall; be 2 inches for test flows of 50 gpm or less and 3 inches for test flows over 50 gpm. Discharge piping from the interceptor on test shall be equal to the outlet of the interceptor.
Findings - Test flow was 100 gpm. Pipe size was 3 inches.

3.2.1.2 Sink and Interceptor Locations: **COMPLIES**
The sink was located with the sink rim 13 feet above the outside bottom of the grease interceptor being tested. The interceptor shall be so located that its bottom is 10 ft. below the floor level upon which the sink is located.

3.2.1.3 Skimming Tank Location: **COMPLIES**
The skimming tank was located low enough, with respect to the interceptor, for the discharge piping from the interceptor to clear the tank rim by not less than 3 inches.

3.2.1.4 Installation of Waste Piping: **COMPLIES**

(a) *Sink Connections*- The sink outlet waste connection from each sink compartment was 1-½ inches in size (for up to 50 gpm) or 2" (for over 50 gpm) and each connection was fitted with a quarter-turn ball quick-opening valve.
(b) *Combined Horizontal Waste Piping*- The combined horizontal waste piping into which the sink outlets connect were installed with the center line 11 inches below the bottom of the sink and properly hung and braced from the sink reinforcement and supports. The waste pipe was fitted to the inlet of a flow control and vent.
(c) *Flow Control and/or Vent Device (Optional)*- The flow control and device was adequate in size for the interceptor to be tested and was equipped with the proper size orifice and/or other details to provide the proposed flow rate of the subject interceptor. The waste piping on either side of the flow control and vent was fitted with unions to permit removal of the device.

(d) *Vertical Waste Riser*- The vertical waste riser was connected to the outlet of the flow control and vent device and extended downward to connect to the grease interceptor inlet by means of an elbow and a short horizontal nipple. Test flows exceeding 50 gpm requiring connections larger than 2", interceptor inlet and outlet sizes shall be no less than 3".

(e) *Interceptor Inlet Connection*- If the inlet diameter of the interceptor to be tested exceeds the riser pipe diameter size, reducing couplings shall be permitted.

(f) *Interceptor Discharge*- The discharge pipe from the interceptor outlet to the skimming tank shall be the same size to the outlet of the interceptor. The skimming tank had a minimum pitch of 1/8 inch per foot and was provided with a 2 inch vent properly located to prevent siphoning of the interceptor.

3.2.2 Indirect Connection Test Type D: **NOT APPLICABLE**

3.3 Preliminary Test Procedure:

3.3.1 Media Analysis: **COMPLIES**
pH of water - 6.4 (6.0 to 8.0)
Specific Gravity of Lard - 0.875 at 150°F (0.875 ± 0.005 at 150°F)
Viscosity in Seconds Saybolt Universal @ 150°F

3.3.2 Establishing Sink Compartment Capacity: **COMPLIES**
Capacity of compartment 1- 120 gallons (1.2 x flow rate of interceptor)
Capacity of compartment 2- 120 gallons (1.2 x flow rate of interceptor)

3.3.3 Establishing Vol. of Incremental Discharge: (based on 10" water above sink outlet): **COMPLIES**
Compartment 1 Discharge - 100 gallons (equal to flow rate of interceptor)
Compartment 2 Discharge - 100 gallons (equal to flow rate of interceptor)

3.3.4 Computation of Flow Rate: **FOLLOWED**
The flow rate from the sink was computed by timing the rate of drainage of the first 9 ½" of water from the sink compartment, measured from the 10" mark to the datum line ½" above the sink outlet flange.

3.3.4.1 Check Flow Rate Tests: **COMPLIES**

Test number	Compartment	Time (sec)	gpm	Based on Time
1	1	73	78.1	-
2	1	87	65.5	-
3	1	87	65.5	-
			Avg: 69.7	
1	2	83	68.7	-
2	2	83	68.7	-
3	2	83	64.8	-
			Avg: 67.4	
1	1 & 2 simultaneous	111	102.7	Compartment 1
2	1 & 2 simultaneous	111	102.7	Compartment 1
3	1 & 2 simultaneous	111	102.7	Compartment 1
			Avg: 102.7	
1	1 & 2 simultaneous	113	100.9	Compartment 2
2	1 & 2 simultaneous	113	100.9	Compartment 2
3	1 & 2 simultaneous	113	100.9	Compartment 2
			Avg: 100.9	

For the above simultaneous flow rates, the time for total discharge shall be between 108.6 seconds and 114 seconds.

3.3.4.2 Calibrated Drainage Flow Rates: **COMPLIES**
Proposed flow rate of Interceptor being tested - 100 gpm.
The average of the above calibrated flow rates for simultaneous discharge was equal and didn't exceed by not more than 5% the proposed flow rated of the interceptor being tested.
Findings - 101.8 gpm average (105 gpm max.)

3.4 Rating Test Procedure: **FOLLOWED**
See Table 1 of test report for Rating Testing.

3.4.1 Test Media: **FOLLOWED**
Certification tests were conducted with fresh, unused lard and water as defined and both within a temperature range from 150°F to 160°F.

3.4.2 Ratio of Lard to Water: **FOLLOWED**
The test lard was introduced into one compartment, during each incremental discharge, in the ratio of 1 lb. of lard for each 5 gallons of water in that compartment. Consequently, the proportion of lard to the total amount of water discharged from both sink compartments during each increment was 1 lb. for each 10 gallons respectively. The required amount of test lard, within the above temperature range, was weighed out and poured into the test compartment of the sink.
Findings- 20 lbs per increment used.

3.4.3 Test Increments: **FOLLOWED**

Each test increment consisted of the simultaneous discharge of water from both sink compartments and the lard from the test compartment.

During the first test increment, the lard was poured into compartment 1 while compartment 2 discharged clear water. During the second test increment the lard was poured into compartment 2 while the water in compartment 1 remained clear.

3.4.4 Flow Rates: **FOLLOWED**

The drainage period for each increment was gauged and timed on the basis of the flow from the compartment containing the clear water. The flow rate from the sink was computed and recorded for each increment. (See Table 1 of test report).

3.4.5 Efficiency Determinations (Minimum Grease Capacity): **NOT USED**

At the option of the manufacturer the efficiency determination was conducted at the interceptors minimum grease capacity per Table 1 or at the interceptor's maximum grease capacity by determining the break down point.

3.4.6 Efficiency Determinations (Maximum Grease Capacity): **FOLLOWED**

The grease was removed from the skimming tank and the efficiency of the interceptor was computed at intervals of five increments or less until the average efficiency reached 93% or less and/or the incremental efficiency reached 85% or less (See Table 1 of test report).

3.4.6.1 Duration of the Test: **FOLLOWED**

The testing was continued until the average efficiency reached 85% or less and/or the incremental efficiency reached 75% or less.

3.4.6.2 Determination of Test Breakdown Grease Capacity: **FOLLOWED**

Maximum grease retention capacity was established at the increment preceding two successive increments in which either the average efficiency is less than 90% or the incremental efficiency is less than 80 %.

3.4.7 Efficiency Determinations (Minimum Grease Capacity): **NOT USED**

3.4.8 Performance Requirements for Certification: **COMPLIES**

The interceptor did conform with or exceeded the following requirements at the breakdown point:

(a) Had an average efficiency of 90% or more.2

Findings – 95.3 %

(b) Had an incremental efficiency of 80% or more.

Findings – 81.3 %

(c) Had retained not less than 2 lbs of grease for each 1 gpm average flow rate as determined during the testing.

Findings – 3048.61 lbs.

3.4.9 Rated Capacities: **COMPLIES**

Standard rating flow rate and grease retention capacities for grease interceptors were tested in accordance with the above test procedure and did conform with the requirement of ASME A112.14.3-2018.

Findings- Flow Rate 100 gpm
Grease Retention Capacity Rating - 200 lbs.
Actual Grease Retention Capacity - 3048.61 lbs.

3.5 Skimming Procedure: **FOLLOWED**

The skimming procedure was initiated 5 minutes after the increment to be skimmed has discharged into the tank. The baffles were used alternately until the amounts of grease collected in the procedure are less than 1% by visual observation. Upon completion of the skimming procedure, water shall be drained from the bottom of the pail by means of a spigot. The remainder of the water was collected as describe in the procedure until only a few drops are observed. The lard is then weighed to the nearest ½ gram.

4 Labeling, Installation, and Maintenance

4.1 Labeling: **COMPLIES**

Products were labeled with the following information:

(a) Manufacturer's name - Schier Products (yes)
(b) Model number - GB-500 (yes)
(c) Rated flow(s) - yes (yes)
(d) "Inlet" and "Outlet" - yes (yes)
(e) ASME A112.14.3 - yes (yes)
(f) Efficiency at the minimum grease capacity - yes (yes)
(g) If appropriate, flow control model number and or orifice size - NA

4.2 Installation Components: **COMPLIES**

The grease interceptor was provided with complete installation instructions, including but not limited to the following:

(a) Flow control and/or vent requirements - yes (yes)
(b) Separate trapping requirements - yes (yes)
(c) Elevation and accessibility requirements - yes (yes)
(d) Safety and health-related instructions - yes (yes)
(e) Cleanout locations - yes (yes)
(f) Instructions that show the clearances required for maintenance, cleaning, and hazard prevention - yes (yes)
(g) Cautions against installation in any manner except as tested and rated- yes (yes)
(h) Where a reducer is required on the outlet, it shall be eccentric with the flat on the bottom- NA

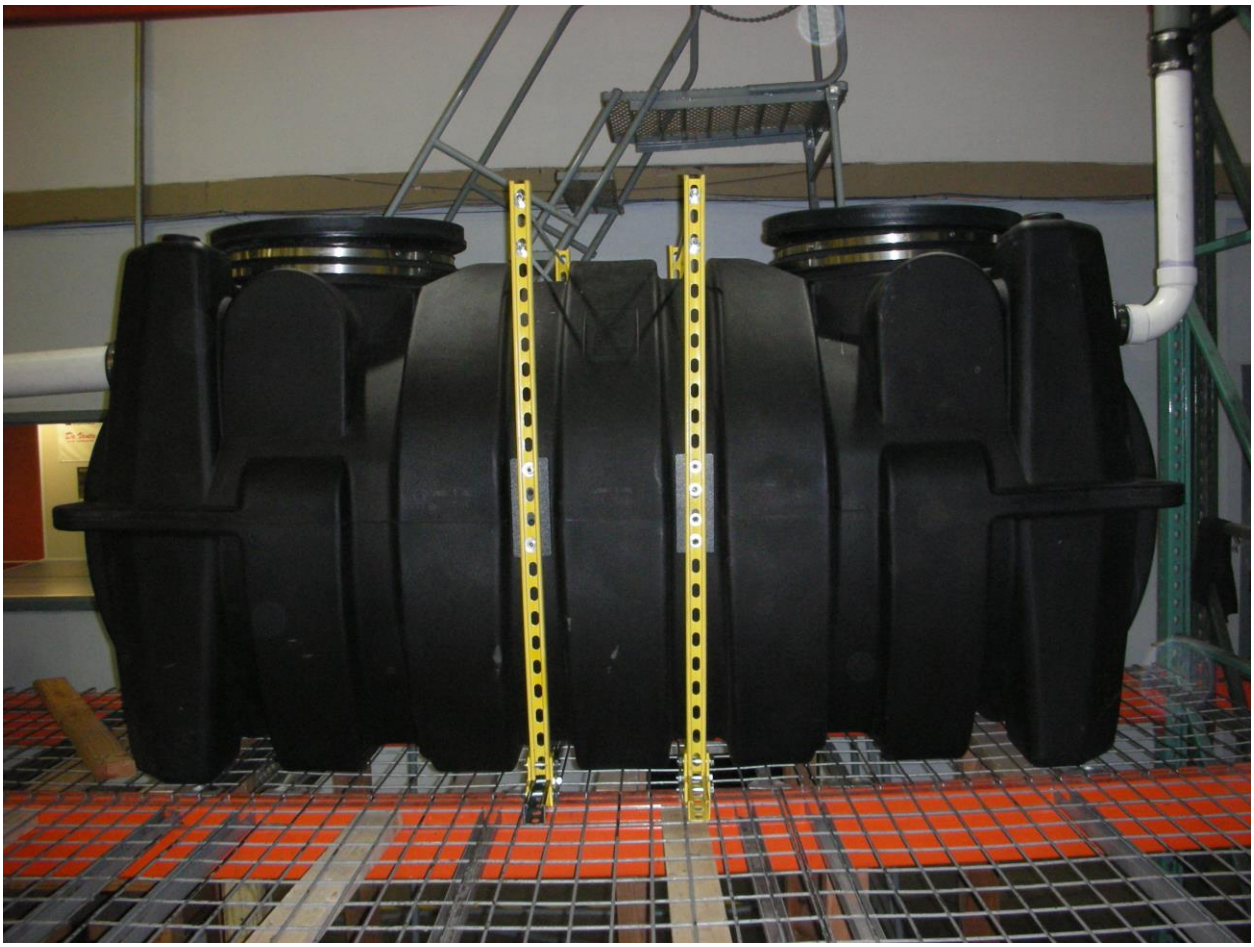
4.3 Maintenance and Cleaning Instructions: **COMPLIES**

Units were provided with complete maintenance instructions including but not limited to the following:

(a) Maintenance Instructions - yes (yes)
(b) Safety and health provisions - yes (yes)
(c) Cleaning instructions - yes (yes)

Each grease interceptor was provided with service instructions and cleaning instructions which included a trouble-shooting guide as well as instructions for performing necessary servicing or for obtaining servicing.

Pictures



GB-500 (100 gpm)

TABLE 1 – Test Results per ASME A112.14.3-2018

"GB-500" (100 gpm) Grease Interceptor					INCREMENTAL				ACCUMULATED			
Test No.	Grease Sink	Water Sink	Drop Time (sec)	Flow Rate (GPM)	Lbs added	Lbs skimmed	Lbs retained	Efficiency (%)	Lbs added	Lbs skimmed	Lbs retained	Efficiency (%)
1	1	2	113	100.9	20	0.09	19.91	99.6	20	0.09	19.91	99.6
2	2	1	111	102.7	20	0.16	19.84	99.2	40	0.25	39.75	99.4
3	1	2	113	100.9	20	0.24	19.76	98.8	60	0.49	59.51	99.2
4	2	1	111	102.7	20	0.33	19.67	98.4	80	0.82	79.18	99.0
5	1	2	112	101.8	20	0.34	19.66	98.3	100	1.16	98.84	98.8
6	2	1	111	102.7	20	0.33	19.67	98.4	120	1.49	118.51	98.8
7	1	2	112	101.8	20	0.41	19.59	98.0	140	1.90	138.10	98.6
8	2	1	111	102.7	20	0.40	19.60	98.0	160	2.30	157.70	98.6
9	1	2	113	100.9	20	0.38	19.62	98.1	180	2.68	177.32	98.5
10	2	1	111	102.7	20	0.32	19.68	98.4	200	3.00	197.00	98.5
11	1	2	113	100.9	20	0.46	19.54	97.7	220	3.46	216.54	98.4
12	2	1	111	102.7	20	0.14	19.86	99.3	240	3.60	236.40	98.5
13	1	2	113	100.9	20	0.31	19.69	98.5	260	3.91	256.09	98.5
14	2	1	111	102.7	20	0.51	19.49	97.5	280	4.42	275.58	98.4
15	1	2	113	100.9	20	0.43	19.57	97.9	300	4.85	295.15	98.4
16	2	1	111	102.7	20	0. 31	19.69	98.5	320	5.16	314.84	98.4
17	1	2	113	100.9	20	0.50	19.50	97.5	340	5.66	334.34	98.3
18	2	1	111	102.7	20	0.43	19.57	97.9	360	6.09	353.91	98.3
19	1	2	112	101.8	20	0.49	19.51	97.6	380	6.58	375.42	98.3
20	2	1	111	102.7	20	0.36	19.64	98.2	400	6.94	393.06	98.3
21	1	2	113	100.9	20	0.61	19.39	97.0	420	7.55	412.45	98.2
22	2	1	111	102.7	20	0.43	19.57	97.9	440	7.98	432.02	98.2
23	1	2	113	100.9	20	0.39	19.61	98.1	460	8.37	451.63	98.2
24	2	1	111	102.7	20	0.45	19.55	97.8	480	8.82	471.18	98.2
25	1	2	113	100.9	20	0.44	19.56	97.8	500	9.26	490.74	98.1
26	2	1	111	102.7	20	0.58	19.42	97.1	520	9.84	510.16	98.1
27	1	2	113	100.9	20	0.53	19.47	97.4	540	10.37	529.63	98.1
28	2	1	111	102.7	20	0.43	19.57	97.9	560	10.80	549.20	98.1

Performance Rating

"GB-500" (100 gpm) Grease Interceptor					INCREMENTAL				ACCUMULATED			
Test No.	Grease Sink	Water Sink	Drop Time (sec)	Flow Rate (GPM)	Lbs added	Lbs skimmed	Lbs retained	Efficiency (%)	Lbs added	Lbs skimmed	Lbs retained	Efficiency (%)
29	1	2	112	101.8	20	0.56	19.44	97.2	580	11.36	568.64	98.0
30	2	1	111	102.7	20	0.44	19.56	97.8	600	11.80	588.20	98.0
31	1	2	113	100.9	20	0.82	19.18	95.9	620	12.62	607.38	98.0
32	2	1	111	102.7	20	0.35	19.65	98.3	640	12.97	627.03	98.0
33	1	2	112	101.8	20	0.50	19.50	97.5	660	13.47	646.53	98.0
34	2	1	111	102.7	20	0.36	19.64	98.2	680	13.83	666.17	98.0
35	1	2	113	100.9	20	0.44	19.56	97.8	700	14.27	685.73	98.0
36	2	1	111	102.7	20	0.46	19.54	97.7	720	14.73	705.27	98.0
37	1	2	113	100.9	20	0.52	19.48	97.4	740	15.25	724.75	97.9
38	2	1	111	102.7	20	0.42	19.58	97.9	760	15.67	744.33	97.9
39	1	2	113	100.9	20	0.47	19.53	97.7	780	16.14	763.86	97.9
40	2	1	111	102.7	20	0.47	19.53	97.7	800	16.61	783.39	97.9
41	1	2	113	100.9	20	0.57	19.43	97.2	820	17.18	802.82	97.9
42	2	1	111	102.7	20	0.26	19.74	98.7	840	17.44	822.56	97.9
43	1	2	113	100.9	20	0.53	19.47	97.4	860	17.97	842.03	97.9
44	2	1	111	102.7	20	0.36	19.64	98.2	880	18.53	861.47	97.9
45	1	2	111	102.7	20	0.42	19.58	97.9	900	18.75	881.25	97.9
46	2	1	111	102.7	20	0.42	19.58	97.9	920	19.17	900.83	97.9
47	1	2	113	100.9	20	0.46	19.54	97.7	940	19.63	920.37	97.9
48	2	1	111	102.7	20	0.39	19.61	98.1	960	20.02	939.98	97.9
49	1	2	113	100.9	20	0.51	19.49	97.5	980	20.53	959.47	97.9
50	2	1	111	102.7	20	0.41	19.59	98.0	1000	20.94	979.06	97.9
51	1	2	111	102.7	20	0.45	19.55	97.8	1020	21.39	998.61	97.9
52	2	1	111	102.7	20	0.55	19.45	97.3	1040	21.94	1018.06	97.9
53	1	2	112	101.8	20	0.54	19.46	97.3	1060	22.48	1037.52	97.9
54	2	1	111	102.7	20	0.47	19.53	97.7	1080	22.95	1057.05	97.9
55	1	2	111	102.7	20	0.49	19.51	97.6	1100	23.44	1076.56	97.9
56	2	1	111	102.7	20	0.38	19.62	98.1	1120	23.82	1096.18	97.9
57	1	2	113	100.9	20	0.44	19.56	97.8	1140	24.26	1115.74	97.9

Performance Rating

"GB-500" (100 gpm) Grease Interceptor					INCREMENTAL				ACCUMULATED			
Test No.	Grease Sink	Water Sink	Drop Time (sec)	Flow Rate (GPM)	Lbs added	Lbs skimmed	Lbs retained	Efficiency (%)	Lbs added	Lbs skimmed	Lbs retained	Efficiency (%)
58	2	1	111	102.7	20	0.40	17.60	98.0	1160	24.66	1135.34	97.9
59	1	2	113	100.9	20	0.38	19.62	98.1	1180	25.04	1154.96	97.9
60	2	1	111	102.7	20	0.38	19.62	98.1	1200	25.42	1174.58	97.9
61	1	2	112	101.8	20	0.51	19.49	97.5	1220	25.93	1194.07	97.9
62	2	1	110	103.6	20	0.36	19.64	98.2	1240	26.29	1213.71	97.9
63	1	2	113	100.9	20	0.48	19.52	97.6	1260	26.77	1233.23	97.9
64	2	1	110	103.6	20	0.41	19.59	98.0	1280	27.18	1252.82	97.9
65	1	2	113	100.9	20	0.45	19.55	97.8	1300	27.63	1272.37	97.9
66	2	1	110	103.6	20	0.34	19.66	98.3	1320	27.97	1292.03	97.9
67	1	2	113	100.9	20	0.58	19.42	97.1	1340	28.55	1311.45	97.9
68	2	1	110	103.6	20	0.42	19.58	97.9	1360	28.97	1331.03	97.9
69	1	2	112	101.8	20	0.56	19.44	97.2	1380	29.53	1350.47	97.9
70	2	1	110	103.6	20	0.52	19.48	97.4	1400	30.05	1369.95	97.9
71	1	2	113	100.9	20	0.30	19.70	98.5	1420	30.35	1389.65	97.9
72	2	1	111	102.7	20	0.18	19.82	99.1	1440	30.53	1409.47	97.9
73	1	2	113	100.9	20	0.45	19.55	97.8	1460	30.98	1429.02	97.9
74	2	1	110	103.6	20	0.31	19.69	98.5	1480	31.29	1448.71	97.9
75	1	2	112	101.8	20	0.47	19.53	97.7	1500	31.76	1468.24	97.9
76	2	1	111	102.7	20	0.36	19.64	98.2	1520	32.12	1487.88	97.9
77	1	2	112	101.8	20	0.55	19.45	97.3	1540	32.67	1507.33	97.9
78	2	1	110	103.6	20	0.36	19.64	98.2	1560	33.03	1526.97	97.9
79	1	2	113	100.9	20	0.50	19.50	97.5	1580	33.53	1546.47	97.9
80	2	1	111	102.7	20	0.42	19.58	97.9	1600	33.95	1566.05	97.9
81	1	2	113	100.9	20	0.50	19.50	97.5	1620	34.45	1585.55	97.9
82	2	1	111	102.7	20	0.47	19.53	97.7	1640	34.92	1605.08	97.9
83	1	2	113	100.9	20	0.55	19.45	97.3	1660	35.47	1624.53	97.9
84	2	1	111	102.7	20	0.41	19.59	98.0	1680	35.88	1644.12	97.9
85	1	2	113	100.9	20	0.60	19.40	97.0	1700	36.48	1663.52	97.9

Performance Rating

"GB-500" (100 gpm) Grease Interceptor					INCREMENTAL				ACCUMULATED			
Test No.	Grease Sink	Water Sink	Drop Time (sec)	Flow Rate (GPM)	Lbs added	Lbs skimmed	Lbs retained	Efficiency (%)	Lbs added	Lbs skimmed	Lbs retained	Efficiency (%)
86	2	1	111	102.7	20	0.47	19.53	97.7	1720	36.95	1683.05	97.9
87	1	2	113	100.9	20	0.50	19.50	97.5	1740	37.45	1702.55	97.8
88	2	1	110	103.6	20	0.39	19.61	98.1	1760	37.84	1722.16	97.9
89	1	2	112	101.8	20	0.53	19.47	97.4	1780	38.37	1741.63	97.8
90	2	1	110	103.6	20	0.58	19.42	97.1	1800	38.95	4761.05	97.8
91	1	2	113	100.9	20	0.50	19.50	97.5	1820	39.45	1780.55	97.8
92	2	1	110	103.6	20	0.48	19.52	97.6	1840	39.93	1800.07	97.8
93	1	2	112	101.8	20	0.77	19.23	96.2	1860	40.70	1819.30	97.8
94	2	1	110	103.6	20	0.48	19.52	97.6	1880	41.18	1838.82	97.8
95	1	2	112	101.8	20	0.66	19.34	96.7	1900	41.84	1858.16	97.8
96	2	1	110	103.6	20	0.65	19.35	96.8	1920	42.49	1877.51	97.8
97	1	2	112	101.8	20	0.74	19.26	96.3	1940	43.23	1896.77	97.8
98	2	1	110	103.6	20	0.63	19.37	96.9	1960	43.86	1916.14	97.8
99	1	2	112	101.8	20	0.77	19.23	96.2	1980	44.63	1935.37	97.7
100	2	1	111	102.7	20	0.24	19.76	98.8	2000	44.87	1955.13	97.8
101	1	2	113	100.9	20	0.47	19.53	97.7	2020	45.34	1974.66	97.8
102	2	1	111	102.7	20	0.48	19.52	97.6	2040	45.82	1994.18	97.8
103	1	2	112	101.8	20	0.76	19.24	96.2	2060	46.58	2013.42	97.7
104	2	1	111	102.7	20	0.69	19.31	96.6	2080	47.27	2032.73	97.7
105	1	2	113	100.9	20	0.83	19.17	95.9	2100	48.10	2051.90	97.7
106	2	1	110	103.6	20	0.70	19.30	96.5	2120	48.80	2071.20	97.7
107	1	2	112	101.8	20	0.88	19.12	95.6	2140	49.68	2090.32	97.7
108	2	1	110	103.6	20	0.66	19.34	96.7	2160	50.34	2109.66	97.7
109	1	2	112	101.8	20	0.82	19.18	95.9	2180	51.16	2128.84	97.7
110	2	1	110	103.6	20	0.82	19.18	95.9	2200	51.98	2148.02	97.6
111	1	2	112	101.8	20	0.79	19.21	96.1	2220	52.77	2167.23	97.6
112	2	1	110	103.6	20	0.66	19.34	96.7	2240	53.43	2186.57	97.6
113	1	2	113	100.9	20	1.22	18.78	93.9	2260	54.65	2205.35	97.6

Performance Rating

"GB-500" (100 gpm) Grease Interceptor					INCREMENTAL				ACCUMULATED			
Test No.	Grease Sink	Water Sink	Drop Time (sec)	Flow Rate (GPM)	Lbs added	Lbs skimmed	Lbs retained	Efficiency (%)	Lbs added	Lbs skimmed	Lbs retained	Efficiency (%)
114	2	1	110	103.6	20	0.70	19.30	96.5	2280	55.35	2224.65	97.6
115	1	2	112	101.8	20	0.92	19.08	95.4	2300	56.27	2243.73	97.6
116	2	1	110	103.6	20	0.96	19.04	95.2	2320	57.23	2262.77	97.5
117	1	2	113	100.9	20	0.54	19.46	97.3	2340	57.77	2282.23	97.5
118	2	1	110	103.6	20	0.62	19.38	96.9	2360	58.39	2301.61	97.5
119	1	2	113	100.9	20	0.94	19.06	95.3	2380	59.33	2320.67	97.5
120	2	1	110	103.6	20	0.86	19.14	95.7	2400	60.19	2339.81	97.5
121	1	2	112	101.8	20	1.23	18.77	93.9	2420	61.42	2358.58	97.5
122	2	1	110	103.6	20	0.96	19.04	95.2	2440	62.38	2377.62	97.4
123	1	2	112	101.8	20	1.26	18.74	93.7	2460	63.64	2396.36	97.4
124	2	1	110	103.6	20	0.99	19.01	95.1	2480	64.63	2415.37	97.4
125	1	2	113	100.9	20	1.54	18.46	92.3	2500	66.17	2433.83	97.4
126	2	1	110	103.6	20	1.11	18.89	94.5	2520	67.28	2452.72	97.3
127	1	2	112	101.8	20	1.35	18.65	93.3	2540	68.63	2471.37	97.3
128	2	1	110	103.6	20	0.96	19.04	95.2	2560	69.59	2490.41	97.3
129	1	2	112	101.8	20	1.38	18.62	93.1	2580	70.97	2509.03	97.2
130	2	1	110	103.6	20	1.31	18.69	93.5	2600	72.28	2527.72	97.2
131	1	2	113	100.9	20	1.86	18.14	90.7	2620	74.14	2545.86	97.2
132	2	1	111	102.7	20	1.04	18.96	94.8	2640	75.18	2564.82	97.2
133	1	2	112	101.8	20	1.57	18.43	92.2	2660	76.75	2583.25	97.1
134	2	1	110	103.6	20	1.37	18.63	93.2	2680	78.12	2601.88	97.1
135	1	2	112	101.8	20	1.78	18.22	91.1	2700	79.90	2620.10	97.0
136	2	1	110	103.6	20	1.71	18.29	91.5	2720	81.61	2638.39	97.0
137	1	2	112	101.8	20	1.74	18.26	91.3	2740	83.35	2656.65	97.0
138	2	1	110	103.6	20	1.82	18.18	90.9	2760	85.17	2674.83	96.9
139	1	2	112	101.8	20	2.42	17.58	87.9	2780	87.59	2692.41	96.8
140	2	1	110	103.6	20	1.92	18.08	90.4	2800	89.51	2710.49	96.8
141	1	2	113	100.9	20	2.29	17.71	88.6	2820	91.80	2728.20	96.7

Performance Rating

"GB-500" (100 gpm) Grease Interceptor					INCREMENTAL				ACCUMULATED			
Test No.	**Grease Sink**	**Water Sink**	**Drop Time (sec)**	**Flow Rate (GPM)**	**Lbs added**	**Lbs skimmed**	**Lbs retained**	**Efficiency (%)**	**Lbs added**	**Lbs skimmed**	**Lbs retained**	**Efficiency (%)**
142	2	1	110	103.6	20	1.67	18.33	91.7	2840	93.47	2746.53	96.7
143	1	2	112	101.8	20	2.77	17.23	86.2	2860	96.24	2763.76	96.6
144	2	1	110	103.6	20	1.76	18.24	91.2	2880	98.00	2782.00	96.6
145	1	2	112	101.8	20	2.85	17.15	85.8	2900	100.85	2799.15	96.5
146	2	1	110	103.6	20	2.59	17.41	87.1	2920	103.44	2816.56	96.5
147	1	2	113	100.9	20	2.86	17.14	85.7	2940	106.30	2833.70	96.4
148	2	1	110	103.6	20	2.73	17.27	86.4	2960	109.03	2850.97	96.3
149	1	2	112	101.8	20	2.90	17.10	85.5	2980	111.93	2868.07	96.2
150	2	1	110	103.6	20	2.85	17.15	85.8	3000	114.78	2885.22	96.2
151	1	2	112	101.8	20	3.77	16.23	81.2	3020	118.55	2901.45	96.1
152	2	1	110	103.6	20	3.16	16.84	84.2	3040	121.71	2918.29	96.0
153	1	2	112	101.8	20	3.67	16.33	81.7	3060	125.38	2934.62	95.9
154	2	1	110	103.6	20	3.17	16.83	84.2	3080	128.55	2951.45	95.8
155	1	2	112	101.8	20	3.85	16.15	80.8	3100	132.40	2967.60	95.7
156	2	1	110	103.6	20	3.23	16.77	83.9	3120	135.63	2984.37	95.7
157	1	2	112	101.8	20	4.33	15.67	78.4	3140	139.96	3000.04	95.5
158	2	1	110	103.6	20	3.54	16.46	82.3	3160	143.50	3016.50	95.5
159	1	2	112	101.8	20	4.14	15.86	79.3	3180	147.64	3032.36	95.4
160	2	1	110	103.6	20	3.75	16.25	**81.3**	3200	151.39	**3048.61**	**95.3**
161	1	2	112	101.8	20	4.48	15.52	77.6	3220	155.87	3064.13	95.2
162	2	1	110	103.6	20	4.69	15.31	76.6	3240	160.56	3079.44	95.0
163	1	2										
164	2	1										
165	1	2										
166	2	1										
167	1	2										
168	2	1										
169	1	2										

Performance Rating

DEBUNKING GRAVITY GREASE INTERCEPTOR MYTHS

January 24, 2024

Gravity grease interceptors play a crucial role in preventing fats, oils and grease (FOG) from entering the municipal sewer system from commercial kitchens, reducing the risk of clogs and environmental contamination. However, misconceptions about these interceptors persist. In this blog post, we'll explore the common myths surrounding gravity grease interceptors and shed light on the truth.

WHAT IS A GRAVITY GREASE INTERCEPTOR?

Let's start with the basics. A gravity grease interceptor is a passive device designed to capture and separate FOG from wastewater before it enters the sewer system. These interceptors are usually identified by their large holding volume in gallons and rely on the principle of gravity to separate the lighter FOG from the water.

WHAT IS THE DIFFERENCE BETWEEN A GRAVITY AND HYDROMECHANICAL GREASE INTERCEPTOR?

The other category of interceptors is known as hydromechanical. These units increase separation performance through the use of flow control, air intake and baffles, which markedly decreases the time necessary to separate. Traditionally, the key differentiator is that hydromechanical units are performance-rated and gravity units are not.

Schier's gravity units (GB-1000 and GB-1500) are dual-certified to both hydromechanical performance standards (**ASME A112.14.3**) and gravity design and structural standards (**IAPMO/ANSI Z1001-2021**)*. They are the first and only dual-certified 1,000 and 1,500 gallon units on the market, making them superior to other gravity grease interceptors that are not performance-certified.

COMMON MISCONCEPTIONS ABOUT GRAVITY GREASE INTERCEPTORS

1. **Concrete vs. polyethylene:** The first common misconception is that all gravity grease interceptors are made of concrete. While concrete interceptors are indeed common, polyethylene gravity grease interceptors are gaining popularity due to their durability, ease of installation, and lower maintenance requirements. Concrete grease interceptors are problematic in that they are highly corrosive, whereas Schier's polyethylene units carry a lifetime guarantee.

2. **Retention time fallacy:** One of the most widespread misconceptions is the belief that longer retention times in grease interceptors lead to better grease separation. In reality, retention time is not a reliable indicator of performance. The efficiency of grease separation depends on factors such as design, flow rates and proper maintenance.
   ***Myth busted**: Jurisdictions that require a 20–30 minute retention time don't take flow rate into account. The GB-1000 is rated at 200 GPM with a liquid capacity of 1,000 gallons. If tested to the 200 GPM flow rate, retention time is 5 minutes. This means that according to gravity rules, the unit couldn't meet the retention time requirement. Yet, this unit tested out at an efficiency exceeding 96%.*

3. **The "25% rule":** The 25% rule suggests that a grease interceptor should be pumped out if the depth of the floating grease layer and the settled solids layer (combined) exceeds 25% of the interceptor's total water column. However, this rule is considered *junk science* by experts in the field. Proper sizing and pumpout frequency depend on various factors, including the type of establishment, local regulations, and kitchen practices. A more accurate sizing method, like Grease Production Sizing Method, takes all these variables into account.
   ***Myth busted**: When tested to failure, grease interceptors have been proven to hold over 75% of the liquid capacity in grease, some of them hold over 90%.*

4. **Bigger is not always better:** Another misconception is that a larger interceptor is always better. While a larger capacity may be necessary for high-grease-producing establishments, excessively oversized interceptors can lead to poor grease separation and higher maintenance costs. Proper sizing is the key to efficient and cost-effective grease management.
   ***Myth busted**: Oversizing can also lead to a build-up of hydrogen sulfide gas (H2S). H2S leads to corrosion (in concrete units), odor issues, chemical reactions and microbial issues, which damage both the interceptor and the conveyance system downstream.*

5. **Gravity grease interceptors must hold the Z1001 certification:** Gravity grease interceptors are required to have the Z1001 certification*, ensuring that they meet industry standards for grease separation. It is crucial for users to check for this certification when selecting an interceptor. Most concrete units are not certified.

*__ANSI Z1001-2018__ is the fourth version of the standard that was first published in 2007. Before this, there was no third-party national standard for the construction of gravity grease interceptors. The important thing to remember is that this standard covers the design of the interceptor, not performance. For testing purposes, the standard only calls for the interceptor to be filled with water to ensure water tightness for certification. The unit must also have a minimum liquid volume of 300 gallons and have two compartments. Other design criteria would be structural strength, access openings, inlets and outlets, venting, partitions and baffles, air space, risers, covers and pipe connectors. All of these design elements are called out in detail to certify the product (concrete, fiberglass or thermoplastic) to the standard.

SUMMARY

Grease interceptors are vital tools in maintaining clean and efficient wastewater systems high-grease-producing food service establishments. To dispel common misconceptions, must recognize that not all interceptors are made of concrete, longer retention times don't

necessarily equate to better performance, the "25% rule" is unreliable for sizing, and bigger is not always better. Understanding these facts is key to effective grease management, ensuring compliance with regulations, and protecting our environment from FOG pollution.

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