



June 22, 2016

SCHIER PRODUCTS
SEAN B. DUFFY
9500 WOODEND RD.
EDWARDSVILLE KS 66111

Re: Description: GREASE INTERCEPTOR
Manufacturer: SCHIER PRODUCTS
Product Name: (trans id 2723943) GREAT BASIN EXTERIOR GREASE INTERCEPTORS
Model Number(s): GB 75 AND GB 250
Product File No: 20160162

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters SPS 382 through 384, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. SPS 382.34 (5) (c) based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of February 2021.

This approval supersedes the approval issued on February 10, 2016 under product file number 20160001.

This alternate approval is contingent upon compliance with the following stipulation(s):

- A sampling manhole or open top outlet diffuser shall be installed in the discharge piping of the interceptor.
- No flow control device shall be installed in the inlet piping serving the interceptor.
- The interceptor shall be protected from freezing.
- Sizing shall be done in accordance with the following formula:

Meals or customers per day x grease production per meal* x days per pump-out cycle = required grease capacity

* = see grease production categories A-F in attachment A.

Note, this alternative sizing method is based on a regular cycle of pump outs. Therefore, the owner of the interceptor shall keep maintenance records such that the pump out interval may be verified. The waste hauler shall be properly licensed under s. NR 113.05 and maintain pump out records that may be cross referenced with owner's records.

- Shall discharge to Municipal Sewer only. Shall not discharge to a Private Onsite Wastewater Treatment System.
- Maximum depth of bury from top of unit to grade, 72 inches.
- If multiple units are installed an inlet manifold method will be used with the ability to clean ALL horizontal piping.
- This alternate may be rescinded by the Department at any time if performance of the products deemed to be unacceptable

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The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

A handwritten signature in black ink, appearing to read 'Glen W. Schlueter', written over a horizontal line.

Glen W. Schlueter
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Grease Production Sizing

January 12, 2015

Although sizing grease interceptors, whether gravity or hydromechanical, has always been based solely on flow rate, this strategy falls short in that it does not consider how much grease a specific food service facility could produce.

There are many times when volume or flow rate sizing would lead to the same size interceptor for a subway sandwich shop as for a Mexican grill, however it is well understood by inspectors that these two types of restaurants produce significantly different amounts of fats, oils and grease (FOG).

Schier recommends using a grease production calculation to determine how much grease a particular restaurant is likely to produce in order to ensure that the specified grease interceptor has sufficient grease storage capacity to allow for a realistic and affordable pump out frequency.

front, in which case you may have to make an educated guess or phone a friend or consult a medium. Most of the time you can get close enough that the calculation makes sense. Just remember that its better to err on the high side.

3. Days per pump-out cycle - this is simply the maintenance cycle you plan to use for pumping out the interceptor. Most people will not maintain an interceptor that is sized to be cleaned out more often than once per month and most jurisdictions won't let an interceptor be maintained less often than once every 90 days. Somewhere in between is the sweet spot for your project.

The formula for calculating grease production is very straight forward. You simply take the amount of grease expected per meal (a,b,c,d,e, or f), times the number of meals expected per day, times the number of days between pump outs to arrive at the grease capacity required for the interceptor.

Lets take a couple of real-world examples:

Example 1

McDonalds (medium grease producer, no flatware - category "c")

400 meals per day X 0.025 lbs per meal = 10 lbs FOG per day, or 300 lbs every 30 days, or 600 lbs every 60 days, or 900 lbs every 90 days.

You can also take a grease interceptors' certified capacity and divide it by the amount of grease production per day, to determine the pump out frequency as follows:

10 lbs per day would require:

Schier GB-75, 75 gpm, 616 lbs = 61 days between pump-outs

Schier GB-250, 100 gpm, 1076 lbs = 108 days between pump-outs

Trapzilla TZ-400, 75 gpm, 400 lbs = 40 days between pump-outs

determining a pump-out frequency.

Sorry Charlie, that's just not going to work.

When in doubt ask them for their certified test reports to see what their actual/real/genuine/true/factual capacity is, then base the pump-out cycle on that.

2 comments

Ken Loucks
Feb 28, 2016

@Cyril, thanks for your post. It's important to remember that hydromechanical grease interceptors are "sized" based on flow rate and flow rate alone. The Grease Productions Sizing method we introduce here is a "selection" tool. Sizing by flow rate will only produce the minimum flow rate required for the interceptor. This sizing method allows an engineer to approximate the amount of grease an FSE might produce and then evaluate alternative HGIs based on their grease storage capacities. There has really never been a method like this that can aide an engineer in making a more appropriate selection of grease interceptor. This method cannot be used for sizing gravity type grease interceptors because they are not tested and rated for performance; we don't know how much grease they can store which make it impossible to use a method like this to select the correct GGI.

Cyril Unger,
CPD, GPD,
FASPE
Feb 28, 2016

30 years ago, I found 5 ways to calculate the size of a grease interceptor (in the ground type). Using the same input data, I obtained 5 different sizes. As has been pointed out by others and Joe, there are many variables to consider. The current group of codes from IAPMO and ICC have dropped the old method of sizing based type on facility and meals served in favor of the fixture units attached. The old method was for large in ground interceptors and tended to over size. The fixture unit method is geared for the small hydro-mechanical in building units and produces sizing that is too small. As Joe pointed out, these hydro-

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Great Basin™ Big Foot™ Sewer Viewer™ Trapper™ Accessories



Grease Production Sizing

[watch video](#)

Schier recommends the Grease Production Sizing method for product selection: first by flow rate, then by grease capacity for pump-out cycle. Review plumbing code and locally adopted ordinances for specific requirements.

Step 1: size by flow rate

Hydromechanical Grease Interceptor Sizing Using Gravity Flow Rates (Per Ch. 10 of the Uniform Plumbing Code)

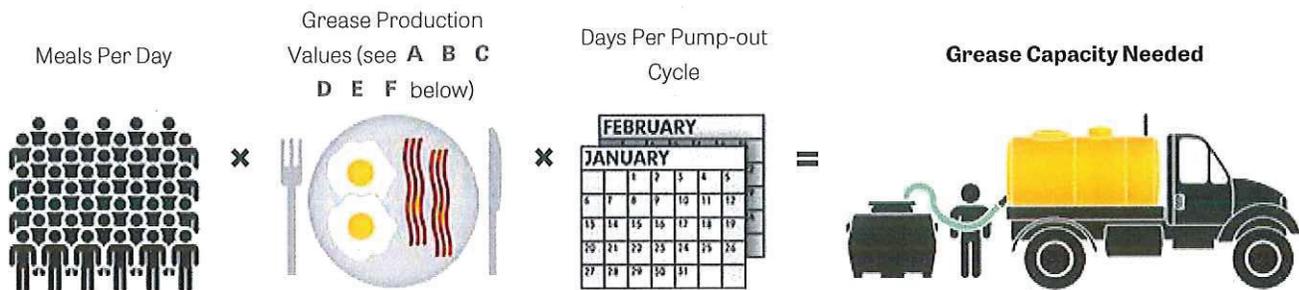
A

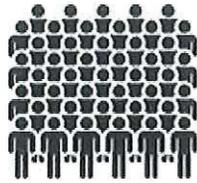
Diameter of Grease Waste Pipe	Maximum Full Pipe Flow*	Size of Grease Interceptor	
		One-minute Drainage	Two-minute Drainage
		Period	Period
2"	20 GPM	20 GPM	20 GPM
3"	60 GPM	75 GPM	35 GPM
4"	125 GPM	150 GPM	75 GPM
5"	230 GPM	250 GPM	125 GPM
6"	375 GPM	500 GPM	250 GPM

*¼ inch slope per foot (20.8mm/m) based on Manning's formula with friction factor N = 0.012.

 Recommended

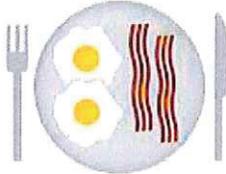
Step 2: calculate grease capacity





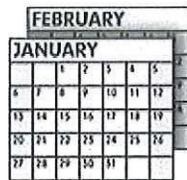
Meals Per Day

×



Grease Production Values (see **A B C D E F** below)

×



Days Per Pump-out Cycle



Grease Capacity Needed

Restaurant Type	Grease Production Values	Examples
Low Grease Production	A 0.005 lbs / meal (no flatware)	Sandwich Shop, Convenience Store, Bar, Sushi Bar, Delicatessen, Snack Bar, Frozen Yogurt, Hotel Breakfast Bar, Residential
	B 0.0065 lbs / meal (with flatware)	
Medium Grease Production	C 0.025 lbs / meal (no flatware)	Coffee House, Pizza, Grocery Store (no fryer), Ice Cream Parlor, Fast Food, Greek, Indian, Low Grease Output FSE (w/fryer)
	D 0.0325 lbs / meal (with flatware)	
High Grease Production	E 0.035 lbs / meal (no flatware)	Cafeteria, Family Restaurant, Italian, Steak House, Bakery, Chinese, Buffet, Mexican, Seafood, Fried Chicken, Grocery Store (w/fryer)
	F 0.0455 lbs / meal (with flatware)	

Quick Reference for Great Basin™ Sizing

Grease Production Value	Meals / Day	30 Day Cycle	60 Day Cycle	90 Day Cycle
A	250	GB-15	GB-15	GB-20
	500	GB-15	GB-35	GB-50
	750	GB-20	GB-50	GB-75
	1,000	GB-35	GB-75	GB-75
B	250	GB-15	GB-20	GB-35
	500	GB-20	GB-50	GB-75
	750	GB-35	GB-75	GB-75
	1,000	GB-50	GB-75	GB-75
C	250	GB-50	GB-75	GB-75
	500	GB-75	GB-250	GB-250
	750	GB-75	GB-250	GB-250 (x2)
	1,000	GB-250	GB-250 (x2)	GB-250 (x2)
D	250	GB-50	GB-75	GB-250
	500	GB-75	GB-250	GB-250 (x2)
	750	GB-250	GB-250 (x2)	GB-250 (x2)
	1,000	GB-250	GB-250 (x2)	GB-250 (x3)
E	250	GB-75	GB-75	GB-250
	500	GB-75	GB-250	GB-250 (x2)
	750	GB-250	GB-250 (x2)	GB-250 (x2)
	1,000	GB-250	GB-250 (x2)	GB-250 (x3)
F	250	GB-75	GB-250	GB-250
	500	GB-250	GB-250 (x2)	GB-250 (x2)
	750	GB-250	GB-250 (x2)	GB-250 (x3)
	1,000	GB-250 (x2)	GB-250 (x3)	GB-250 (x4)

Schier first published the Grease Production Sizing Method in 2012 and has since used it for thousands of installations. Grease production values based on comprehensive data from Brown Grease Supply Study, field inspections from various jurisdictions, surveys of end users and pumper contractors. Actual grease production is independent to each restaurant and will vary by entree, kitchen practices and other factors.