Grease Interceptor Sizing Methods

Grease interceptors are passive devices required by municipalities to stop fat, oil, and grease (FOG) from entering the city's sanitary sewer system. These materials cause blockages in the system, which cause backups and overflows. Grease interceptors are designed to separate FOG from wastewater so that they can be removed before they enter the sewer system. All restaurants, caterers, school cafeterias and other commercial cooking facilities shall avoid discharging FOG into the municipal sewer system. Grease interceptors must receive wastewater from all contributory sources, such as pot sinks, dishwashers, floor drains and mat washing area drains before draining to the sanitary sewer system. Interceptors must typically be sized for the peak wastewater flow from all contributory sources. For grease interceptors to function properly they must also be regularly serviced and maintained by a qualified personnel.

The following are three most popular sizing methods currently acceptable to various jurisdictions. Since there is little agreement among various authorities on grease interceptor sizing, and these methods are somewhat arbitrary and subjective to individual interpretation, a specifying engineer should consult local authority before using any of following sizing methods. Fortunately, PDI, ASME, IAPMO, and UPC are revising their sizing methods, it is expected that a generally accepted sizing protocol will be eventually established. Please come back to visit our website for the latest development.

A. Interceptor Sizing Based on Waste Pipe Diameter Size

For a waste pipe installed with a typical slope of ¼" per foot, there is a maximum flow if water flows on its own gravity. Based on this theory, an interceptor can be selected based on the following chart. Since the flow control is required to be installed with the interceptor, this method is simple and reasonable.

Interceptor Sizing using Maximum Gravity Flow Rates

Pipe Diameter	Slope/ft ¼"	Maximum Full Pipe Flow (nominal)	Interceptor Size 1 Min. (nominal)	Interceptor Size 2 Min. (nominal)
2"	.240	20 gpm	20 gpm	10 gpm
3"	.240	60 gpm	75 gpm	35 gpm
4"	.240	125 gpm	150 gpm	75 gpm
5"	.240	230 gpm	250 gpm	125 gpm
6"	.240	375 gpm	500 gpm	250 gpm

B. Interceptor Sizing Based on Point of Use Fixture Size

Steps	Formula	Example
1	Determine volume of fixture by multiplying length by width by depth.	A sink 48 inch long x 24 inch wide x 12 inch deep. Volume = 48 x 24 x 12 = 13824 cubic inch
2	Determine capacity in gallons 1gallon = 231 cubic inches	Volume in gallons 13824/231=59.8 gallons
3	Determine actual drainage load. The fixture is normally filled to 75% of capacity with water. The items being washed displace about 25% of the fixture content; thus, actual drainage load is 75% of fixture capacity.	Actual drainage load: 0.75 x 59.8 p 44.9 gal
4	Determine flow rate and drainage period. In general, good practice dictates a one-minute drainage period; however, when conditions permit, a two-minute drainage period is acceptable. Drainage period is the actual time period to completely drain the fixture Flow rate = Actual drainage load/Drainage period	Calculate flow rate for one-minute period. 44.9/1 = 44.9 gpm Flow Rate Two-minute period 44.9/2 = 22.5 gpm Flow Rate
5	Select interceptor. Select interceptor which corresponds to the flow rate calculates. Note: Select next large size when flow rate falls between two sizes listed.	For one-minute period – 44.9 gpm requires PDI size “50”. For two-minute period – 22.5 gpm requires PDI size “25”.

C. Interceptor Sizing Based on Drainage Fixture Units

Fixture Outlet or Trap Size (Inch)	Drainage Fixture-unit value	GPM Equivalent	PDI Size Grease Interceptor
1 1/4	1	7.5	10
1 1/2	2	15	15
2	3	22.5	25
2 1/2	4	30	35
3	5	37.5	50
4	6	45	50

Since the possibility of all the fixtures are used and drained simultaneously is very low, using above sizing method can potentially result in an enormous flow and gross over sizing of the interceptor. The specifying engineer should consider the loading factor for any individual fixture based on the realistic usage.

Note: Most jurisdictions are getting away from the arbitrary DFU sizing guidelines.