

GEOFLOW

SUBSURFACE DRIP

FIELD FLOW

Job Description:	22176 Umland Circle APN 109-420-034, JN 17255
Contact:	Greg Schram, PE 73540
Prepared by:	Chris Balanesi
Date:	29-Dec-17

Please fill in the shaded areas and drop down menus:
 This spreadsheet is a guide for **small** systems with **residential** waste & is not a complete

Worksheet 1- Field Flow

Total field

Total Quantity of effluent to be disposed per day	360	gallons / day
Hydraulic loading rate	0.33	gallons / sq.ft. / day
Minimum Dispersal Field Area	1,091	square ft.
Total Dispersal Field Area	1,238	square ft.

64mpa ✓

Flow per zone

Number of Zones	1	zone(s)
Dispersal area per zone	1,238	square ft.
Choose line spacing between WASTEFLOW lines	2	ft.
Choose emitter spacing between WASTEFLOW emitters	2	ft.
Total linear ft. per zone (minimum required)	619	ft. per zone
Total number of emitters per zone	310	emitters per zone
Select Wasteflow dripline (16mm)	Wasteflow PC - 1 gph	dripline
Pressure at the beginning of the dripfield	45	psi
Feet of Head at the beginning of the dripfield	103.95	ft.
What is the flow rate per emitter in gph?	1.02	gph
Dose flow per zone	5.26	gpm

Note: A few States or Counties require additional flow for flushing. Please check your local regulations
 Flush velocity calculation below is for PC dripline. Classic dripline requires less flow to flush than PC.
 Please refer to Geoflow's spreadsheet "Design Flow and Flush Curves" at www.geoflow.com or call 800-

If required, choose flush velocity	1	ft/sec
How many lines of WASTEFLOW per zone?	8	lines
Fill in the <i>actual</i> length of longest dripline lateral	90	ft.
Flush flow required at the end of each dripline	0.74	gpm
Total Flow required to achieve flushing velocity	5.92	gpm
Total Flow per zone- worst case scenario	11.18	gpm

Select Filters and zone valves

Select Filter Type	Vortex Screen Filter	
Recommended Filter (item no.)	AP4E-1.5F	in Screen Filter 0-20gpm
Select Zone Valve Type	Electric Solenoid	-
Recommended Zone Valve (item no.)	0	0

Dosing

Number of doses per day / zone:	12	doses
Timer ON. Pump run time per dose/zone:	5.42	mins:secs
Timer OFF. Pump off time between doses	1:54	hrs:mins
Per Zone - Pump run time per day/zone:	1:08	hrs:mins
All Zones - Number of doses per day / all zones	12	doses / day
Allow time for field to pressurize	0:00:30	hrs:mins:secs
Filter flush timer	0:00:20	hrs:mins:secs
Drain timer	0:05:00	hrs:mins:secs
Field flush timer	0:01:00	hrs:mins:secs
Field flush counter	3	cycles
Time required to complete all functions per day	2:30	hrs:mins
Dose volume per zone	30	gallons per dose

PUMP SIZING

Job Description:	22176 Umland Circle
Contact:	Greg Schram, PE 73540
Prepared by:	Chris Balanesi
Date:	19-Dec-17

Please fill in the shaded areas and drop down menus:

This spreadsheet is a guide for small systems with residential waste & is not a complete

Pressure losses may be grossly overstated, particularly if designing with WASTEFLOW

The letters on the diagram(right) match the letters in section 2 below.

Worksheet - Pump Sizing

Section 1 - Summary from Worksheet 1

Flow required to dose field	5.26	gpm
Flow required to flush field	5.92	gpm
Flow required to dose & flush field	11.18	gpm
Filter	AP4E-1.5F	
No. of Zones	1	zones
Zone valve	-	
Dripline	Wasteflow PC - 1	gph
Dripline longest lateral	90.00	ft.

Section 2	Ft of head	Pressure
A. Flush line - Losses through return line		
Select Pipe from dropdown menu	PVC schedule 40	
Select Flush Line Diameter	1" inch	
Length of return line	150. ft.	
Equivalent length of fittings	38. ft.	
Elevation change. (if downhill enter 0)	0. ft.	
Pressure loss in 100 ft of pipe	2.38. ft.	1.03 psi
<i>Total pressure loss from end of dripline to return tank</i>	<i>4.5. ft.</i>	<i>1.94 psi</i>
B. Dripline - Losses through Wasteflow dripline		
Length of longest dripline lateral	90. ft.	
Minimum dosing pressure required at end of dripline	23.10. ft.	10.00 psi
Loss through dripline during flushing	1.29. ft.	0.559 psi
<i>Total minimum required dripline pressure</i>	<i>24.39. ft.</i>	<i>10.56 psi</i>
A+B. Minimum Pressure required at beginning of dripline		
<i>CALCULATED</i> pressure required at beginning of dripline	28.87. ft.	12.50 psi
<i>SPECIFIED</i> pressure at beginning of dripline (from)	104.0. ft.	45.00 psi
Great! <i>SPECIFIED</i> Pressure is greater than <i>CALCULATED</i> Pressure requirement. Go to next step		
C. Drip components - Losses through headworks		
Filter	9.0. ft.	3.90 psi
Zone valve pressure loss (not in diagram)	- ft.	- psi
Flow meter pressure loss (not in diagram)	2.00. ft.	0.87 psi
Other pressure losses	5.00. ft.	2.16 psi
<i>Total loss through drip components</i>	<i>16.01. ft.</i>	<i>6.93 psi</i>
D. Supply line - Minimum Pressure head required to get from pump tank to top of dripline		
Select Pipe from dropdown menu	PVC schedule 40	
Select Supply line diameter	1" inch	
Length of supply line	150. ft.	
Equivalent length of fittings	38. ft.	
Height from pump to tank outlet	7. ft.	
Elevation change. (if downhill enter 0)	25. ft.	
Pressure loss/gain in 100 ft. of pipe	7.74. ft.	3.35 psi
<i>Total gain or loss from pump to field</i>	<i>46.6. ft.</i>	<i>20.15 psi</i>
Total dynamic head	166.5. ft.	72.08 psi
Pump capacity * - Field Flush Flow	11.2 gpm	72.08 psi
- Field Dose Flow	5.3 gpm	
- Filter Flush Flow	- gpm	- psi
Pump Model Number	Orenco PF1007	
Voltz / Hp / phase	0.75 hp	

* Note: Pump capacity flow assumes flow in dripline does not change during a dose cycle. With Wasteflow CL: For more accurate flows please see Geoflow's **Flushing worksheet**

If you need assistance designing for this additional flow, please

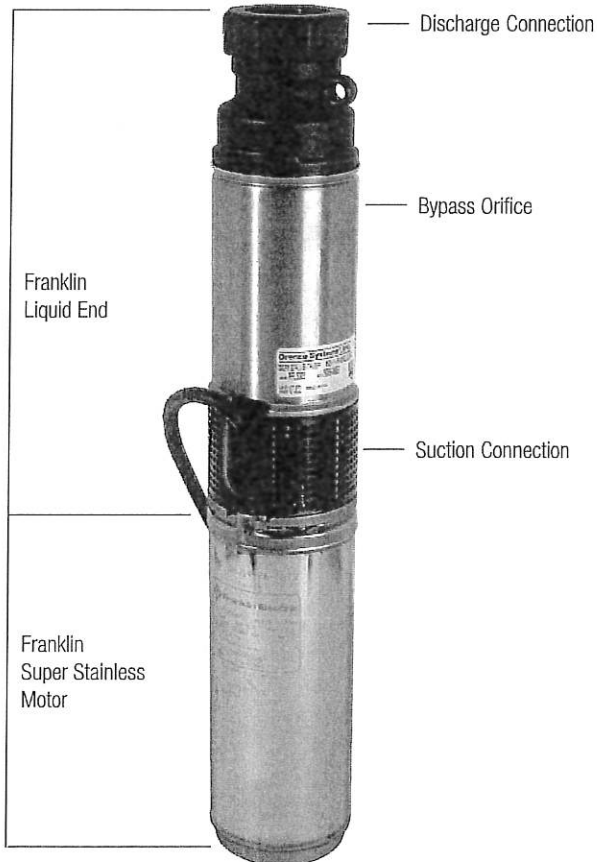
- See Geoflow flushing worksheet or
- Contact Geoflow at 800-828-3388.

PF Series 60-Hz, 4-inch (100-mm) Submersible Effluent Pumps

Applications

Our 4-inch (100-mm) Submersible Effluent Pumps are designed to transport screened effluent (with low TSS counts) from septic tanks or separate dosing tanks. All our pumps are constructed of lightweight, corrosion-resistant stainless steel and engineered plastics; all are field-serviceable and repairable with common tools; 60-Hz PF Series models are CSA certified to the U.S. and Canadian safety standards for effluent pumps, meeting UL requirements.

Orenco's Effluent Pumps are used in a variety of applications, including pressurized drainfields, packed bed filters, mounds, aerobic units, effluent irrigation, effluent sewers, wetlands, lagoons, and more. These pumps are designed to be used with a Biotube® pump vault or after a secondary treatment system.



Features/Specifications

To specify this pump for your installation, require the following:

- Minimum 24-hour run-dry capability with no deterioration in pump life or performance*
- Patented 1/8-inch (3-mm) bypass orifice to ensure flow recirculation for motor cooling and to prevent air bind
- Liquid end repair kits available for better long-term cost of ownership
- TRI-SEAL™ floating impeller design on 10, 15, 20, and 30 gpm (0.6, 1.0, 1.3, and 1.9 L/sec) models; floating stack design on 50 and 75 gpm (3.2 and 4.7 L/sec) models
- Franklin Electric Super Stainless motor, rated for continuous use and frequent cycling
- Type SOOW 600-V motor cable

* Not applicable for 5-hp (3.73 kW) models

Standard Models

See specifications chart, pages 2-3, for a list of standard pumps. For a complete list of available pumps, call Orenco.

Product Code Diagram

PF -

Cord length, ft (m):†
Blank = 10 (3) 20 = 20 (6)
30 = 30 (9) 50 = 50 (15)

Check valve:
Blank = no internal check valve
CV = internal check valve†

Voltage, nameplate:
1 = 115* 200 = 200
2 = 230 4 = 460

Frequency:
1 = single-phase 60 Hz
3 = three-phase 60 Hz

Horsepower (kW):
03 = 1/4 hp (0.25) 05 = 1/2 hp (0.37)
07 = 3/4 hp (0.56) 10 = 1 hp (0.75)
15 = 1 1/2 hp (1.11) 20 = 2 hp (1.50)
30 = 3 hp (2.24) 50 = 5 hp (3.73)

Nominal flow, gpm (L/sec):
10 = 10 (0.6) 15 = 15 (1.0)
20 = 20 (1.3) 30 = 30 (1.9)
50 = 50 (3.2) 75 = 75 (4.7)

Pump, PF Series

* 1/2-hp (0.37kW) only

† Available for 10 gpm (0.6 L/sec), 1/2 hp (0.37 kW) only

‡ Note: 20-ft cords are available only for single-phase pumps through 1 1/2 hp



Using a Pump Curve

A *pump curve* helps you determine the best pump for your system. Pump curves show the relationship between flow and pressure (total dynamic head, or TDH), providing a graphical representation of a pump's optimal performance range. Pumps perform best at their nominal flow rate. These graphs show optimal pump operation ranges with a solid line and show flow rates outside of these ranges with a dashed line. For the most accurate pump specification, use Orenco's PumpSelect™ software.

Pump Curves

