



Filter Sizing Formula

The correct sizing of a TOWER-FLO® Water Filter System is important to obtaining satisfactory filter performance. Sizing of a TOWER-FLO® filter is based upon the **total volume of water** in the cooling system.

If you don't know the total volume of water in your cooling system, use this simple, six step Filter Sizing Formula below to help quickly find the proper size filter. If you already know your system volume, start with Step 4.

PROJECT: _____ DATE: _____

STEP 1 Gallons of water in tower basin or sump*.

This volume information may be available in your cooling tower owner's manual. If not, determine the length, width, and depth of water in your sump and use the following formula.

Length X Width X Depth of Water = Cubic Feet X 7.5 gals per cu ft. = Gallons in Sump

_____ X _____ X _____ = _____ X 7.5 = _____ gals

STEP 2 Gallons of water in system piping.

Select the nominal size of pipe attached to your condenser water system.

2" 2-1/2" 3" 4" 5" 6" 8" 10" 12" 14" 16" 18" 20"

and multiply by the total length of run - both directions - of each pipe size on your system.

Pipe size ~ gallons per foot X length of run in feet = Gallons In System Piping

_____ gals per ft X _____ = _____ gals

STEP 3 Gallons of water in tower.

Add one gallon per ton of rated capacity of your cooling tower.

_____ Ton cooling capacity X 1 gallon = _____ gals

STEP 4 Total System Volume.

Add results from 1, 2, and 3.

STEP 5 Filter Turnover Rate.

The total volume of water in your system should be filtered no less than 24 times per day; once every 60 minutes. If your cooling tower is exposed to excessive dust or dirt, or you want to filter process water which is exposed to excessive contamination, you may be well advised to filter the water 30 times per day; once every 45 minutes. An undersized filter will not deliver the desired performance.

Divide the result of Step 4 by either 60 or 45 minutes.

STEP 6 Filter flow rate for sizing.

Use this GPM flow rate to size the filter you need from the Charts on the next two pages.



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NSF Listed
Form GEN-SIZE:8/00

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Continued

PIPE VOLUME CHART
FOR COMPLETING STEP 2

Nominal Pipe Size	Gal per Foot of Length
2"	.1743
2 1/2"	.2487
3"	.3841
4"	.6613
5"	1.0393
6"	1.501
8"	2.5989
10"	4.0965
12"	5.8754
14"	7.162
16"	9.49
18"	12.14
20"	15.12
24"	22.05
26"	26.00
30"	34.90
36"	50.70
42"	69.42

MULTI-VESSEL CHART

TANK DIA.	NO. TANKS	SQ. FT. FILTER AREA	GPM FLOW RATE*	PIPE SIZE
42	1	9.62	192	3
48	1	12.57	251	4
54	1	15.90	318	4
42	2	19.24	385	4
60	1	19.63	294	4
66	1	23.76	475	6
48	2	25.14	503	6
72	1	28.27	565	6
54	2	31.80	636	6
78	1	33.18	664	6
84	1	38.48	770	6
60	2	39.26	785	6
90	1	44.18	884	8
66	2	47.52	950	8
54	3	47.70	954	8
96	1	50.26	1005	8
72	2	56.54	1131	8
102	1	56.70	1135	8
60	3	58.89	1178	8
108	1	63.61	1272	8
78	2	66.36	1327	8
114	1	70.88	1416	8
66	3	71.28	1426	8
84	2	76.96	1540	8
120	1	78.53	1571	10
72	3	84.81	1696	10
90	2	88.35	1767	10
78	3	99.54	1991	10
96	2	100.52	2011	10
102	2	113.40	2270	10
84	3	115.44	2309	10
108	2	127.22	2545	10
90	3	132.54	2651	10
114	2	141.75	2832	10
96	3	150.78	3016	12
120	2	157.06	3124	12
102	3	170.10	3405	12

* CAPACITY @ 20 GPM/FT²

Higher flow rates can be attained by use of multiple filter vessels. Consult Tower-Flo® for assistance in selection and design.

*Other factors that influence the selection of a particular Series of filter are operating pressure, water temperature, water chemistry, installation style, and/or operating requirements. Consult the Specifications for each Series or consult Tower-Flo® for assistance in matching the correct Series to your application.