

## Drip Tip: How to Calculate Total Zone Flow to Correctly Size Supply Headers and Control Zone Kits

After your dripline design is complete you will need to identify the total zone flow to help select the mainline, supply and flush headers, and the control zone kit (valve, filter and regulator).

Calculating total flow for the dripline zone can be done by adding up the total length of dripline in the zone.

As an example, let's use 650 feet for the total length.

1. Convert the total dripline length to hundreds of feet (650 feet would be 6.5 in hundreds of feet).
2. Multiply total dripline length in hundreds of feet by the flow per 100 feet for your specified dripline. This rate can be found in **Table 1**. To read the table, **select the emitter flow rate in the row across the top**, either 0.4 GPH (1.6 l/hr), 0.6 GPH (2.31 l/hr) or 0.9 GPH (3.41 l/hr) and **then select the emitter spacing in the left column**, either 12" (.3 m), 18" (.46 m) or 24" (.61m). Follow emitter flow rate down and emitter spacing across to find the flow per 100 feet for the XF Series dripline specified.

### Example

**Length:** 650 feet of dripline / 100 = 6.50  
**Emitter:** 0.9 GPH (3.41 l/hr) emitters  
**Spacing:** 18" (0.46m) emitter spacing

**Calculation:** 6.50 x 1.02 gpm (12.36 l/m) = 6.6 gpm (80.34 l/m) for the zone.

Supply lines and headers should be sized to provide the flow to the zone without exceeding 5 feet per second velocity. To select the appropriate size, you can use the zone water requirement and the

reference piping information in Table 2 or use the reference section in the Rain Bird Landscape Irrigation Products catalog.

**Table 1: XF Series Dripline Flow**

XF Series Dripline Flow (per 100 feet)						
Emitter Spacing	0.4 GPH Emitter		0.6 GPH Emitter		0.9 GPH Emitter	
Inches	GPH	GPM	GPH	GPM	GPH	GPM
12"	42	0.70	61	1.02	92	1.53
18"	28	0.47	41	0.68	61	1.02
24"	21	0.35	31	0.52	46	0.77

XF Series Dripline Flow (per 100 Meters)						
Emitter Spacing	1.6 L/Hr Emitter		2.3 L/Hr Emitter		3.4 L/Hr Emitter	
Centimeters	L/Hr	L/Min	L/Hr	L/Min	L/Hr	L/Min
30cm	533	8.89	767	12.78	1133	18.89
46cm	348	5.80	500	8.33	739	12.32
61cm	262	4.37	377	6.28	557	9.29

**Table 2: Maximum Flow Per Zone**

Maximum Flow Per Zone (English)					
Sch. 40 PVC Header Size	Max. Flow* GPM	PSI Loss**	Poly Pipe Header Size	Max. Flow* GPM	PSI Loss**
1/2"	4.7 GPM	7.7 PSI	1/2"	4.7 GPM	8.8 PSI
3/4"	8.3 GPM	5.6 PSI	3/4"	8.3 GPM	6.3 PSI
1"	13.5 GPM	4.2 PSI	1"	13.5 GPM	4.8 PSI
1 1/4"	23.1 GPM	3.1 PSI	1 1/4"	23.1 GPM	3.1 PSI
1 1/2"	33.9 GPM	2.9 PSI	1 1/2"	33.9 GPM	2.9 PSI
2"	52.4 GPM	1.9 PSI	2"	52.4 GPM	1.9 PSI

\* Based on maximum velocity of 5' per second

\*\* Per 100' of tubing

Maximum Flow Per Zone (Metric)					
Sch. 40 PVC Header Size	Max. Flow* LPM	Bar Loss**	Poly Pipe Header Size	Max. Flow* LPM	Bar Loss**
1.27 cm	17.8	0.53	1.27 cm	17.8	0.61
1.91 cm	31.4	0.39	1.91 cm	31.4	0.43
2.54 cm	51.1	0.29	2.54 cm	51.1	0.33
3.18 cm	87.4	0.21	3.18 cm	87.4	0.22
3.81 cm	128.3	0.20	3.81 cm	128.3	0.20
5.08 cm	198.4	0.13	5.08 cm	198.4	0.13

\* Based on maximum velocity of 1.52 m per second

\*\* Per 30.5 meters of tubing