Irrigation Association Friction Loss Chart 2008

Class 200 PVC IPS Plastic Pipe

ANSI/ASAE S376.2 ASTM D2241 SDR 21 C=150

psi loss per 100 feet of pipe

Nominal size	Shown for convenience Class 315 1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		6"	
Avg. ID	0.696		0.910		1.169		1.482		1.700		2.129		2.581		3.146		4.046		5.955	
Pipe OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625	
Avg. wall	0.072		0.070		0.073		0.089		0.100		0.123		0.147		0.177		0.227		0.335	
Min. wall	0.062		0.060		0.063		0.079		0.090		0.113		0.137		0.167		0.214		0.316	
Flow {gpm}	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss
1	0.84	0.25	0.49	0.07	0.30	0.02	0.19	0.01	0.14	0.00										
2	1.68	0.90	0.99	0.24	0.60	0.07	0.37	0.02	0.28	0.01	0.18	0.00								
3	2.53	1.90	1.48	0.52	0.90	0.15	0.56	0.05	0.42	0.02	0.27	0.01								
4	3.37	3.24	1.97	0.88	1.19	0.26	0.74	0.08	0.56	0.04	0.36	0.01	0.24	0.01						
5	4.21	4.89	2.46	1.33	1.49	0.39	0.93	0.12	0.71	0.06	0.45	0.02	0.31	0.01						
6	5.05	6.86	2.96	1.86	1.79	0.55	1.11	0.17	0.85	0.09	0.54	0.03	0.37	0.01	0.25	0.00				
7	5.90	9.12	3.45	2.47	2.09	0.73	1.30	0.23	0.99	0.12	0.63	0.04	0.43	0.02	0.29	0.01				
8	6.74	11.68	3.94	3.17	2.39	0.94	1.49	0.30	1.13	0.15	0.72	0.05	0.49	0.02	0.33	0.01				
9	7.58	14.53	4.43	3.94	2.69	1.17	1.67	0.37	1.27	0.19	0.81	0.06	0.55	0.02	0.37	0.01				
10	8.42	17.66	4.93	4.79	2.99	1.42	1.86	0.45	1.41	0.23	0.90	0.08	0.61	0.03	0.41	0.01				
12	10.11	24.75	5.91	6.71	3.58	1.98	2.23	0.63	1.69	0.32	1.08	0.11	0.73	0.04	0.49	0.02				
14	11.79	32.93	6.90	8.93	4.18	2.64	2.60	0.83	1.98	0.43	1.26	0.14	0.86	0.06	0.58	0.02				
16	13.48	42.16	7.88	11.44	4.78	3.38	2.97	1.07	2.26	0.55	1.44	0.18	0.98	0.07	0.66	0.03	0.40	0.01		
18	15.16	52.44	8.87	14.23	5.37	4.21	3.34	1.33	2.54	0.68	1.62	0.23	1.10	0.09	0.74	0.03	0.45	0.01		
20			9.85	17.29	5.97	5.11	3.72	1.61	2.82	0.83	1.80	0.28	1.22	0.11	0.82	0.04	0.50	0.01		
22			10.84	20.63	6.57	6.10	4.09	1.92	3.11	0.99	1.98	0.33	1.35	0.13	0.91	0.05	0.55	0.01		
24			11.82	24.24	7.17	7.17	4.46	2.26	3.39	1.16	2.16	0.39	1.47	0.15	0.99	0.06	0.60	0.02		
26			12.81	28.11	7.76	8.31	4.83	2.62	3.67	1.34	2.34	0.45	1.59	0.18	1.07	0.07	0.65	0.02		
28			13.80	32.25	8.36	9.53	5.20	3.01	3.95	1.54	2.52	0.52	1.71	0.20	1.15	0.08	0.70	0.02		
30			14.78	36.64	8.96	10.83	5.57	3.41	4.24	1.75	2.70	0.59	1.84	0.23	1.24	0.09	0.75	0.03		
32					9.55	12.21	5.94	3.85	4.52	1.97	2.88	0.66	1.96	0.26	1.32	0.10	0.80	0.03	0.37	0.00
34					10.15	13.66	6.32	4.31	4.80	2.21	3.06	0.74	2.08	0.29	1.40	0.11	0.85	0.03	0.39	0.00
36					10.75	15.18	6.69	4.79	5.08	2.45	3.24	0.82	2.20	0.32	1.48	0.12	0.90	0.04	0.41	0.01
38					11.35	16.78	7.06	5.29	5.36	2.71	3.42	0.91	2.33	0.36	1.57	0.14	0.95	0.04	0.44	0.01
40					11.94	18.45	7.43	5.82	5.65	2.98	3.60	1.00	2.45	0.39	1.65	0.15	1.00	0.04	0.46	0.01
42					12.54	20.20	7.80	6.37	5.93	3.27	3.78	1.09	2.57	0.43	1.73	0.16	1.05	0.05	0.48	0.01
44					13.14	22.02	8.17	6.94	6.21	3.56	3.96	1.19	2.69	0.47	1.81	0.18	1.10	0.05	0.51	0.01
46					13.73	23.91	8.55	7.54	6.49	3.86	4.14	1.29	2.82	0.51	1.90	0.19	1.15	0.06	0.53	0.01
48					14.33	25.87	8.92	8.15	6.78	4.18	4.32	1.40	2.94	0.55	1.98	0.21	1.20	0.06	0.55	0.01
50					14.93	27.90	9.29	8.79	7.06	4.51	4.50	1.51	3.06	0.59	2.06	0.23	1.25	0.07	0.58	0.01
55							10.22	10.49	7.76	5.38	4.95	1.80	3.37	0.71	2.27	0.27	1.37	0.08	0.63	0.01
60							11.15	12.33	8.47	6.32	5.40	2.11	3.67	0.83	2.47	0.32	1.50	0.09	0.69	0.01
65							12.07	14.30	9.18	7.33	5.85	2.45	3.98	0.96	2.68	0.37	1.62	0.11	0.75	0.02
70							13.00	16.40	9.88	8.41	6.30	2.81	4.29	1.10	2.89	0.42	1.74	0.12	0.81	0.02
75							13.93	18.63	10.59	9.56	6.75	3.20	4.59	1.25	3.09	0.48	1.87	0.14	0.86	0.02
80							14.86	21.00	11.29	10.77	7.20	3.60	4.90	1.41	3.30	0.54	1.99	0.16	0.92	0.02
85									12.00	12.05	7.65	4.03	5.21	1.58	3.50	0.60	2.12	0.18	0.98	0.03
90									12.71	13.40	8.10	4.48	5.51	1.76	3.71	0.67	2.24	0.20	1.04	0.03
95									13.41	14.81	8.55	4.95	5.82	1.94	3.92	0.74	2.37	0.22	1.09	0.03
100									14.12	16.28	9.00	5.45	6.12	2.13	4.12	0.81	2.49	0.24	1.15	0.04
110											9.90	6.50	6.74	2.55	4.53	0.97	2.74	0.29	1.27	0.04
120											10.80	7.63	7.35	2.99	4.95	1.14	2.99	0.34	1.38	0.05
130											11.70	8.85	7.96	3.47	5.36	1.32	3.24	0.39	1.50	0.06
140											12.60	10.16	8.57	3.98	5.77	1.52	3.49	0.45	1.61	0.07
150											13.50	11.54	9.19	4.52	6.18	1.73	3.74	0.51	1.73	0.08
160											14.40	13.01	9.80	5.10	6.60	1.95	3.99	0.57	1.84	0.09
170													10.41	5.70	7.01	2.18	4.24	0.64	1.96	0.10
180													11.02	6.34	7.42	2.42	4.49	0.71	2.07	0.11
190													11.64	7.01	7.83	2.67	4.74	0.79	2.19	0.12
200													12.25	7.71	8.24	2.94	4.98	0.86	2.30	0.13
220													13.47	9.19	9.07	3.51	5.48	1.03	2.53	0.16
240													14.70	10.80	9.89	4.12	5.98	1.21	2.76	0.18
260															10.72	4.78	6.48	1.41	2.99	0.21
280															11.54	5.48	6.98	1.61	3.22	0.25
300															12.37	6.23	7.48	1.83	3.45	0.28
320															13.19	7.02	7.98	2.06	3.68	0.31
340															14.02	7.86	8.47	2.31	3.91	0.35
360															14.84	8.73	8.97	2.57	4.14	0.39
380																	9.47	2.84	4.37	0.43
400																	9.97	3.12	4.60	0.48
420																	10.47	3.42	4.83	0.52
440																	10.97	3.72	5.06	0.57
460																	11.46	4.04	5.29	0.62
480																	11.96	4.37	5.52	0.67
500																	12.46	4.72	5.75	0.72

Shaded area represents velocities over 5 ft/s. Use with caution.

Irrigation Association Friction Loss Chart 2008

Schedule 40 PVC IPS Plastic Pipe

ASTM D1785 C=150

psi loss per 100 feet of pipe

Nominal size	1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		6"	
Avg. ID	0.602		0.804		1.029		1.360		1.590		2.047		2.445		3.042		3.998		6.031	
Pipe OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625	
Avg. wall	0.119		0.123		0.143		0.150		0.155		0.164		0.215		0.229		0.251		0.297	
Min. wall	0.109		0.113		0.133		0.140		0.145		0.154		0.203		0.216		0.237		0.280	
Flow {gpm}	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss
1	1.13	0.50	0.63	0.12	0.39	0.04	0.22	0.01	0.16	0.00										
2	2.25	1.82	1.26	0.44	0.77	0.13	0.44	0.03	0.32	0.02	0.19	0.00								
3	3.38	3.85	1.89	0.94	1.16	0.28	0.66	0.07	0.48	0.03	0.29	0.01								
4	4.50	6.55	2.52	1.60	1.54	0.48	0.88	0.12	0.65	0.06	0.39	0.02	0.27	0.01						
5	5.63	9.91	3.16	2.42	1.93	0.73	1.10	0.19	0.81	0.09	0.49	0.03	0.34	0.01						
6	6.75	13.89	3.79	3.40	2.31	1.02	1.32	0.26	0.97	0.12	0.58	0.04	0.41	0.02	0.26	0.01				
7	7.88	18.48	4.42	4.52	2.70	1.36	1.54	0.35	1.13	0.16	0.68	0.05	0.48	0.02	0.31	0.01				
8	9.01	23.66	5.05	5.79	3.08	1.74	1.76	0.45	1.29	0.21	0.78	0.06	0.55	0.03	0.35	0.01				
9	10.13	29.43	5.68	7.20	3.47	2.17	1.99	0.56	1.45	0.26	0.88	0.08	0.61	0.03	0.40	0.01				
10	11.26	35.77	6.31	8.75	3.85	2.63	2.21	0.68	1.61	0.32	0.97	0.09	0.68	0.04	0.44	0.01				
12	13.51	50.14	7.57	12.27	4.62	3.69	2.65	0.95	1.94	0.44	1.17	0.13	0.82	0.05	0.53	0.02				
14	15.76	66.71	8.84	16.32	5.39	4.91	3.09	1.26	2.26	0.59	1.36	0.17	0.96	0.07	0.62	0.03				
16	18.01	85.42	10.10	20.90	6.17	6.29	3.53	1.62	2.58	0.76	1.56	0.22	1.09	0.09	0.71	0.03	0.41	0.01		
18	20.26	106.24	11.36	25.99	6.94	7.82	3.97	2.01	2.90	0.94	1.75	0.28	1.23	0.12	0.79	0.04	0.46	0.01		
20			12.62	31.59	7.71	9.51	4.41	2.45	3.23	1.14	1.95	0.33	1.36	0.14	0.88	0.05	0.51	0.01		
22			13.89	37.69	8.48	11.35	4.85	2.92	3.55	1.37	2.14	0.40	1.50	0.17	0.97	0.06	0.56	0.02		
24			15.15	44.28	9.25	13.33	5.29	3.43	3.87	1.60	2.34	0.47	1.64	0.20	1.06	0.07	0.61	0.02		
26			16.41	51.36	10.02	15.46	5.74	3.98	4.20	1.86	2.53	0.54	1.77	0.23	1.15	0.08	0.66	0.02		
28			17.67	58.91	10.79	17.73	6.18	4.56	4.52	2.13	2.73	0.62	1.91	0.26	1.23	0.09	0.71	0.02		
30			18.94	66.94	11.56	20.15	6.62	5.19	4.84	2.42	2.92	0.71	2.05	0.30	1.32	0.10	0.77	0.03		
32					12.33	22.71	7.06	5.85	5.16	2.73	3.12	0.80	2.18	0.34	1.41	0.12	0.82	0.03	0.36	0.00
34					13.10	25.41	7.50	6.54	5.49	3.06	3.31	0.89	2.32	0.38	1.50	0.13	0.87	0.03	0.38	0.00
36					13.87	28.24	7.94	7.27	5.81	3.40	3.51	0.99	2.46	0.42	1.59	0.14	0.92	0.04	0.40	0.01
38					14.64	31.22	8.38	8.04	6.13	3.76	3.70	1.10	2.59	0.46	1.68	0.16	0.97	0.04	0.43	0.01
40					15.41	34.33	8.82	8.84	6.46	4.13	3.89	1.21	2.73	0.51	1.76	0.18	1.02	0.05	0.45	0.01
42					16.18	37.58	9.26	9.67	6.78	4.52	4.09	1.32	2.87	0.56	1.85	0.19	1.07	0.05	0.47	0.01
44					16.95	40.96	9.71	10.54	7.10	4.93	4.28	1.44	3.00	0.61	1.94	0.21	1.12	0.06	0.49	0.01
46					17.73	44.47	10.15	11.45	7.42	5.35	4.48	1.57	3.14	0.66	2.03	0.23	1.17	0.06	0.52	0.01
48					18.50	48.12	10.59	12.39	7.75	5.79	4.67	1.69	3.28	0.71	2.12	0.25	1.23	0.07	0.54	0.01
50					19.27	51.90	11.03	13.36	8.07	6.25	4.87	1.83	3.41	0.77	2.20	0.27	1.28	0.07	0.56	0.01
55							12.13	15.94	8.88	7.45	5.36	2.18	3.75	0.92	2.42	0.32	1.40	0.08	0.62	0.01
60							13.24	18.72	9.68	8.75	5.84	2.56	4.09	1.08	2.65	0.37	1.53	0.10	0.67	0.01
65							14.34	21.72	10.49	10.15	6.33	2.97	4.44	1.25	2.87	0.43	1.66	0.11	0.73	0.02
70							15.44	24.91	11.30	11.65	6.82	3.41	4.78	1.43	3.09	0.50	1.79	0.13	0.79	0.02
75							16.54	28.31	12.10	13.23	7.30	3.87	5.12	1.63	3.31	0.56	1.91	0.15	0.84	0.02
80							17.65	31.90	12.91	14.91	7.79	4.36	5.46	1.84	3.53	0.63	2.04	0.17	0.90	0.02
85									13.72	16.69	8.28	4.88	5.80	2.06	3.75	0.71	2.17	0.19	0.95	0.03
90									14.52	18.55	8.76	5.43	6.14	2.29	3.97	0.79	2.30	0.21	1.01	0.03
95									15.33	20.50	9.25	6.00	6.48	2.53	4.19	0.87	2.42	0.23	1.07	0.03
100									16.14	22.55	9.74	6.59	6.82	2.78	4.41	0.96	2.55	0.25	1.12	0.03
110											10.71	7.87	7.51	3.31	4.85	1.14	2.81	0.30	1.23	0.04
120											11.68	9.24	8.19	3.89	5.29	1.34	3.06	0.36	1.35	0.05
130											12.66	10.72	8.87	4.52	5.73	1.56	3.32	0.41	1.46	0.06
140											13.63	12.30	9.55	5.18	6.17	1.79	3.57	0.47	1.57	0.06
150											14.61	13.97	10.24	5.89	6.61	2.03	3.83	0.54	1.68	0.07
160											15.58	15.75	10.92	6.63	7.05	2.29	4.08	0.61	1.79	0.08
170													11.60	7.42	7.50	2.56	4.34	0.68	1.91	0.09
180													12.28	8.25	7.94	2.85	4.59	0.75	2.02	0.10
190													12.97	9.12	8.38	3.15	4.85	0.83	2.13	0.11
200													13.65	10.03	8.82	3.46	5.11	0.92	2.24	0.12
220													15.01	11.96	9.70	4.13	5.62	1.09	2.47	0.15
240													16.38	14.06	10.58	4.85	6.13	1.28	2.69	0.17
260															11.46	5.63	6.64	1.49	2.92	0.20
280															12.35	6.46	7.15	1.71	3.14	0.23
300															13.23	7.34	7.66	1.94	3.37	0.26
320															14.11	8.27	8.17	2.19	3.59	0.30
340															14.99	9.25	8.68	2.45	3.81	0.33
360															15.87	10.29	9.19	2.72	4.04	0.37
380																	9.70	3.01	4.26	0.41
400																	10.21	3.31	4.49	0.45
420																	10.72	3.62	4.71	0.49
440																	11.23	3.95	4.94	0.53
460																	11.74	4.28	5.16	0.58
480																	12.25	4.64	5.38	0.63
500																	12.76	5.00	5.61	0.68
Working pressure	600 psi		480 psi		450 psi		370 psi		330 psi		280 psi		300 psi		260 psi		220 psi		180 psi	

Shaded area represents velocities over 5 ft/s.
Use with caution.

Irrigation Association Friction Loss Chart 2008

Polyethylene Drip Tubing (ID controlled)

C=140

psi loss per 100 feet of pipe

Nominal size	1/4"		Common inside diameters for nominal 1/2" drip tubing														3/4"	
Avg. ID	0.170		0.520		0.600		0.613		0.620		0.622		0.630 16 mm		0.669 17 mm		0.830	
Flow {gpm}	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss	Velocity {ft/s}	psi loss
0.1	1.41	3.78	0.15	0.02	0.11	0.01	0.11	0.01	0.11	0.01	0.11	0.01	0.10	0.01	0.09	0.00	0.06	0.00
0.2	2.82	13.64	0.30	0.06	0.23	0.03	0.22	0.03	0.21	0.03	0.21	0.02	0.21	0.02	0.18	0.02	0.12	0.01
0.3	4.24	28.89	0.45	0.13	0.34	0.06	0.33	0.06	0.32	0.05	0.32	0.05	0.31	0.05	0.27	0.04	0.18	0.01
0.4	5.65	49.23	0.60	0.21	0.45	0.11	0.43	0.10	0.42	0.09	0.42	0.09	0.41	0.08	0.36	0.06	0.24	0.02
0.5	7.06	74.42	0.75	0.32	0.57	0.16	0.54	0.14	0.53	0.14	0.53	0.14	0.51	0.13	0.46	0.09	0.30	0.03
0.6			0.91	0.45	0.68	0.23	0.65	0.20	0.64	0.19	0.63	0.19	0.62	0.18	0.55	0.13	0.36	0.05
0.7			1.06	0.60	0.79	0.30	0.76	0.27	0.74	0.26	0.74	0.25	0.72	0.24	0.64	0.18	0.41	0.06
0.8			1.21	0.77	0.91	0.38	0.87	0.35	0.85	0.33	0.84	0.32	0.82	0.30	0.73	0.23	0.47	0.08
0.9			1.36	0.96	1.02	0.48	0.98	0.43	0.96	0.41	0.95	0.40	0.93	0.38	0.82	0.28	0.53	0.10
1.0			1.51	1.17	1.13	0.58	1.09	0.52	1.06	0.50	1.05	0.49	1.03	0.46	0.91	0.34	0.59	0.12
1.2			1.81	1.63	1.36	0.81	1.30	0.73	1.27	0.69	1.27	0.68	1.23	0.64	1.09	0.48	0.71	0.17
1.4			2.11	2.17	1.59	1.08	1.52	0.98	1.49	0.92	1.48	0.91	1.44	0.85	1.28	0.64	0.83	0.22
1.6			2.41	2.78	1.81	1.39	1.74	1.25	1.70	1.18	1.69	1.16	1.64	1.09	1.46	0.82	0.95	0.29
1.8			2.72	3.46	2.04	1.73	1.95	1.55	1.91	1.47	1.90	1.45	1.85	1.36	1.64	1.02	1.07	0.36
2.0			3.02	4.21	2.27	2.10	2.17	1.89	2.12	1.79	2.11	1.76	2.06	1.65	1.82	1.23	1.18	0.43
2.2			3.32	5.02	2.49	2.50	2.39	2.25	2.34	2.13	2.32	2.10	2.26	1.97	2.01	1.47	1.30	0.52
2.4			3.62	5.90	2.72	2.94	2.61	2.65	2.55	2.51	2.53	2.47	2.47	2.32	2.19	1.73	1.42	0.61
2.6			3.92	6.84	2.95	3.41	2.82	3.07	2.76	2.91	2.74	2.86	2.67	2.69	2.37	2.01	1.54	0.70
2.8			4.22	7.85	3.17	3.91	3.04	3.52	2.97	3.33	2.95	3.28	2.88	3.08	2.55	2.30	1.66	0.81
3.0			4.53	8.91	3.40	4.44	3.26	4.00	3.18	3.79	3.16	3.73	3.08	3.50	2.73	2.62	1.78	0.92
3.5			5.28	11.86	3.97	5.91	3.80	5.33	3.71	5.04	3.69	4.96	3.60	4.66	3.19	3.48	2.07	1.22
4.5			6.79	18.89	5.10	9.41	4.89	8.48	4.78	8.03	4.75	7.90	4.63	7.43	4.10	5.54	2.67	1.94
5.0			7.54	22.96	5.67	11.44	5.43	10.31	5.31	9.76	5.27	9.60	5.14	9.03	4.56	6.74	2.96	2.36
5.5					6.23	13.65	5.97	12.30	5.84	11.64	5.80	11.46	5.65	10.77	5.01	8.04	3.26	2.81
6.0					6.80	16.04	6.51	14.45	6.37	13.67	6.33	13.46	6.17	12.65	5.47	9.44	3.55	3.31
7.0							7.60	19.23	7.43	18.19	7.38	17.91	7.20	16.83	6.38	12.56	4.15	4.40
8.0									8.49	23.30	8.44	22.93	8.22	21.55	7.29	16.09	4.74	5.63
9.0																	5.33	7.01
10.0																	5.92	8.52
11.0																	6.51	10.16
12.0																	7.11	11.94
13.0																	7.70	13.85
14.0																	8.29	15.88
15.0																	8.88	18.05

Shaded area represents velocities over 5 ft/s.
Use with caution.

HDL-PC & HDL-R

Maximize drip system longevity with robust material construction and pressure compensation for standard and reclaimed applications.

KEY BENEFITS

- Pressure-compensating emitters for consistent flow and uniform coverage
- Check height of 6' minimizes system drainage and runoff
- Color-coded stripes provide easy identification of flow
- UV Resistant facilitates product longevity
- Stretch-wrapped coils stay intact and make installation quick and easy
- Superior grit tolerance provided by proprietary emitter design with multiple inlet filters, a wide turbulent labyrinth and a full-size outlet pool
- Reclaimed product (HDL-R) identified by purple stripes assists in visual identification when using non-potable water

PRODUCT SPECIFICATIONS

- Available flow rates: 0.6, 0.9 GPH
- Available emitter spacing: 12", 18", 24"
- Tubing dimensions: 0.660" x 0.560" (outside/inside diameter)

OPERATING SPECIFICATIONS

- Operating range: 10 to 60 PSI
- Minimum filtration: 120 mesh (125 microns)
- Warranty period: 5 years (plus 2 additional years for environmental stress cracking)

HDL-PC

HDL-R (Reclaimed)

HDL – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Spacing	3 Length	4 Options
HDL-06 = 0.6 GPH flow	**12** = 12"	**100** = 100'	**PC** = Pressure-compensating
HDL-09 = 0.9 GPH flow	**18** = 18"	**250** = 250'	**R** = Reclaimed
	24 = 24"	**500** = 500'	
		1K = 1,000'	

Example:
HDL-09-12-1K-PC = 0.9 GPH, 12" emitter spacing, 1,000" coil with PC emitter
Note: Two HDL-PC products are available in 100' coils: HDL-06-12-100-PC and HDL-09-12-100-PC

HUNTER DRIPLINE COLOR CODE

STRIPE COLOR	TUBING COLOR
0.9 GPH - Black	HDL-PC - Light brown tubing pressure-compensating
0.6 GPH - Gray	HDL-R - Light brown with purple stripe - pressure-compensating reclaimed
Reclaimed - Purple	

MAXIMUM RUN LENGTHS

HDL-PC/R – 0.4 GPH

Pressure (PSI)	Emitter Spacing (in.) 12	18	24
10	205	285	361
15	285	404	511
20	339	475	604
25	380	532	675
30	411	582	735
40	463	657	831
50	507	719	912
60	548	772	981

HDL-PC/R – 0.6 GPH

Pressure (PSI)	Emitter Spacing (in.) 12	18	24
10	168	236	298
15	236	333	423
20	280	395	501
25	314	441	560
30	339	482	610
40	385	545	688
50	419	594	753
60	451	638	810

HDL-PC/R – 0.9 GPH

Pressure (PSI)	Emitter Spacing (in.) 12	18	24
10	114	164	208
15	164	233	292
20	192	273	348
25	214	304	385
30	236	333	419
40	267	376	479
50	292	414	523
60	314	441	560

POINT-SOURCE EMITTERS

Ensure accurate irrigation for mixed and sparse plantings with a wide range of flow rates.

KEY BENEFITS

- Pressure-compensating for consistent and reliable flow
- Color-coded by flow for easy identification in the field
- Earth-tone colors blend in well with the surrounding environment
- Three inlet variations: ¼" barb, 10-32 thread, ½" FPT
- Coined edges for easy grip
- Self-piercing barb
- Optional diffuser cap
- Self-flushing diaphragm

OPERATING SPECIFICATIONS

- Recommended pressure range: 20 to 50 PSI
- Minimum filtration: 150 mesh; 100 microns
- Warranty period: 2 years

½" FEMALE THREAD (BROWN BASE)

	Model	Inlet Type	Flow (GPH)
Blue	HEB-05-BR	½" female thread	0.5
Black	HEB-10-BR	½" female thread	1.0
Red	HEB-20-BR	½" female thread	2.0
Tan	HEB-40-BR	½" female thread	4.0
Orange	HEB-60-BR	½" female thread	6.0

EMITTER MODEL CHART

	Model	Inlet Type	Flow (GPH)
Blue	HE-050-B	Self-piercing barb	0.5
Black	HE-10-B	Self-piercing barb	1.0
Red	HE-20-B	Self-piercing barb	2.0
Tan	HE-40-B	Self-piercing barb	4.0
Orange	HE-60-B	Self-piercing barb	6.0
Blue	HE-050-T	10-32 thread	0.5
Black	HE-10-T	10-32 thread	1.0
Red	HE-20-T	10-32 thread	2.0
Tan	HE-40-T	10-32 thread	4.0
Orange	HE-60-T	10-32 thread	6.0
Blue	HEB-05	½" female thread	0.5
Black	HEB-10	½" female thread	1.0
Red	HEB-20	½" female thread	2.0
Tan	HEB-40	½" female thread	4.0
Orange	HEB-60	½" female thread	6.0

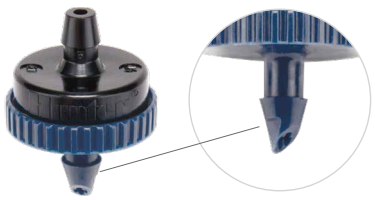
Hunter Emitter Multi-Tool
P/N HEMT
(Punches pilot holes and pellets, inserts and removes emitters, cuts tubing)

Pocket Punch
P/N POCKETPUNCH
(Punches, inserts, and removes emitters)

DIFFUSER CAP
(HE-DIFF)
Use for flows higher than 2 GPH to diffuse the water and prevent erosion.

½" FEMALE THREAD
Brown base matches IH Risers and blends into landscaping

Inlet Options



① Self-piercing barb

② 10-32 thread

③ ½" female thread

RESIDENTIAL & COMMERCIAL IRRIGATION
Built on Innovation®

01 **Durable:** Highest quality components are built to last in tough conditions

02 **Convenient:** All-in-one preassembled kit

03 **Reliable:** Commercial-grade components are factory assembled and water tested

PCZ AND ACZ DRIP CONTROL ZONE KITS

Durable and Convenient Control Zone Kits Designed for Residential Applications

PCZ/ACZ Drip Control Zone Kits: These pre-assembled kits bring together the popular PGV valve with both a filter and a pressure regulator, providing you with a complete control zone. The PGV valve features high-grade material construction, including a bonnet made of reinforced glass-filled nylon. The kit also includes a stainless steel filter screen, flush cap, and pressure regulator to maintain a consistent 25 or 40 PSI. To save both time and labor, use the ACZ kit to meet your anti-siphon needs.

Learn more. Visit hunterindustries.com for more detailed information.

DRIP CONTROL ZONE KITS FEATURES & SPECIFICATIONS

Features

- Factory-assembled and water-tested
- Highest quality components (stainless steel filter screen, standard flush cap, top-of-the-line regulator)
- Wide flow range to cover most micro irrigation applications
- Warranty period: 2 years
- Most robust pressure-regulating filter available

Specifications

ACZ-075:
- Pressure regulation: 25 or 40 PSI
- Flow: 0.5 to 15 GPM (30 to 900 GPH)
- Operating pressure: 20 to 120 PSI
- Operating temperature: up to 120°F
- 150 mesh stainless steel screen
- ¾" outlet

ACZ-101:
- Pressure regulation: 25 or 40 PSI
- Flow: 0.5 to 15 GPM (30 to 900 GPH)
- Operating pressure: 20 to 120 PSI
- Operating temperature: up to 120°F
- 150 mesh stainless steel screen
- ¾" outlet

PCZ-101:
- Pressure regulation: 25 or 40 PSI
- Flow: 0.5 to 15 GPM (30 to 900 GPH)
- Operating pressure: 20 to 120 PSI
- Operating temperature: up to 120°F
- 150 mesh stainless steel screen
- ¾" outlet

HFR Filter Regulator:
- Pressure regulation: 25 or 40 PSI
- Flow: 0.5 to 15 GPM (30 to 900 GPH)
- Operating pressure: 20 to 120 PSI
- Operating temperature: up to 120°F
- 150 mesh stainless steel screen
- HFR-100-075: 1" inlet x ¾" outlet
- HFR-075: ¾" inlet x ¾" outlet

DRIP CONTROL ZONE KITS – SPECIFICATION BUILDER: ORDER 1 + 2

1 Model	2 Options
ACZ-075 = ¾" PGV-ASV valve with HFR-075	**25** = 25 PSI regulator
ACZ-101 = 1" PGV-ASV valve with HFR-100-075	
PCZ-101 = 1" NPT PGV globe valve with 1" HFR	**40** = 40 PSI regulator
HFR-075 = ¾" NPT filter system and ¾" outlet	
HFR-100-075 = 1" NPT filter system and ¾" outlet	

Model

ACZ-075
Height: 14¼"
Width: 11"
Depth: 3"
¾" inlet x ¾" outlet

ACZ-101
Height: 14¼"
Width: 11"
Depth: 3"
1" inlet x ¾" outlet

PCZ-101
Height: 6"
Width: 13"
Depth: 3"
1" inlet x ¾" outlet

HFR-100-075-25
HFR-100-075-40
Height: 7"
Width: 6½"
Depth: 3"
1" inlet x ¾"outlet

HFR-075-25
HFR-075-40
Height: 7"
Width: 6½"
Depth: 3"
¾" inlet x ¾" outlet

Helping our customers succeed is what drives us. While our passion for innovation and engineering is built into everything we do, it is our commitment to exceptional support that we hope will keep you in the Hunter family of customers for years to come.

Gregory R. Hunter, President of Hunter Industries

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TECHLINE® CV

Maximum Uniformity in
Subsurface and On-Surface
Including Slopes

17mm DRIPLINE

APPLICATIONS

- Subsurface or on-surface installations
- Turf, shrubs, trees and flowers
- Sports turf, tennis courts, golf courses
- Slopes
- Longer lateral runs
- Curved, angular or narrow planting areas
- High traffic/high liability areas
- Areas subject to vandalism
- High wind areas
- At-grade windows
- Green walls, green roofs
- Raised planters

SPECIFICATIONS

- Broadest choice of emitter flow rates: 0.26, 0.4, 0.6 and 0.9 GPH
- Emitter spacings: 12", 18" and 24" (24" spacing available for 0.6 and 0.9 GPH only)
- Pressure compensation range: 14.5 to 58 psi
- Bending radius: 7"
- Maximum recommended system pressure: 58 psi
- Minimum pressure required: 14.5 psi
- Tubing diameter: 0.66" OD; 0.56" ID; 0.050" wall
- Coil lengths: 100', 250', 500', 1,000'
- Recommended minimum filtration: 120 mesh
- Diaphragm made of silicon
- ISO 9261 Standard Compliance

FEATURES & BENEFITS

2 psi CHECK VALVE IN EACH EMITTER

All emitters turn on and off at the same time, maximizing balance of application. Holds back up to 4.6' of water (elevation change). No low emitter drainage, great on slopes. Delivers more precise watering.

UNIQUE PATENTED EMITTER DESIGN WITH PHYSICAL ROOT BARRIER

Offset flow path, extra large bath area and raised outlet prevent root intrusion without chemical reliance.

PRESSURE COMPENSATING

Precise and equal amounts of water are delivered over a broad pressure range.

CONTINUOUS SELF-FLUSHING EMITTER DESIGN

Flushes debris as it is detected, throughout operation, not just at the beginning or end of a cycle, ensuring uninterrupted emitter operation.

EMITTER WITH ANTI-SIPHON FEATURE

Prevents ingestion of debris into tubing caused by vacuum.

SELF-CONTAINED, ONE-PIECE DRIPLINE CONSTRUCTION

Assures reliable, easy installation.

FLEXIBLE UV RESISTANT TUBING

Adapts to any planting area shape - tubing curves at a 7" radius. For on-surface installations withstands heat and direct sun.

MAKES INSTALLATION QUICKER

Does not require air/vacuum relief vent or automatic flush valve for on-surface or subsurface installations. Use manual flush valves at exhaust headers.

LASER ETCHING FOR EASY IDENTIFICATION

TECHLINE CV MADE WITH POST CONSUMER RECYCLED MATERIAL

QUALIFIES FOR USE ON **LEED PROJECTS**

LIMITED WARRANTY FOR DRIPLINES

Netafim warrants any polyethylene tubing and driplines (Techline® HCVXR, HCVXR-RW and RWP, CV, DL, RW, RWP and EZ) sold to be free from original defects in materials and workmanship for a period of seven (7) years and ten (10) years for environmental stress cracking - from the date of original delivery.

GENERAL GUIDELINES

	TURF												SHRUB & GROUNDCOVER											
	CLAY SOIL			LOAM SOIL			SANDY SOIL			COARSE SOIL			CLAY SOIL			LOAM SOIL			SANDY SOIL			COARSE SOIL		
EMITTER FLOW	0.26 GPH			0.4 GPH			0.6 GPH			0.9 GPH			0.26 GPH			0.4 GPH			0.6 GPH			0.9 GPH		
EMITTER SPACING	18″			12″			12″			12″			18″			18″			12″			12″		
LATERAL (ROW) SPACING	18″	20″	22″	12″	14″	18″	12″	14″	18″	12″	14″	16″	18″	21″	24″	18″	21″	24″	16″	18″	20″	16″	18″	20″
BURIAL DEPTH	Bury evenly throughout the zone from 4″to 6″												On-surface or bury evenly throughout the zone to a maximum of 6″											
APPLICATION RATE (INCHES/HOUR)	0.19	0.17	0.15	0.64	0.55	0.43	0.98	0.84	0.65	1.48	1.27	1.11	0.19	0.16	0.14	0.30	0.26	0.23	0.73	0.65	0.59	1.11	0.99	0.89
TIME TO APPLY ¼″ OF WATER (MINUTES)	80	89	97	23	27	35	15	18	23	10	12	13	80	93	106	50	58	66	20	23	26	13	15	17
Following these maximum spacing guidelines, emitter flow selection can be increased if desired by the designer. 0.9 GPH flow rate available for areas requiring higher infiltration rates, such as coarse sandy soils.																								

Note: 0.4, 0.6 and 0.9 GPH are nominal flow rates. Actual flow rates used in the calculations are 0.42, 0.61 and 0.92 GPH.

SPECIFYING MODEL NUMBER

Reference for Ordering Information Chart

SAMPLE MODEL NUMBER

TLCV4-1210

A Techline CV Dripline = **TLCV**

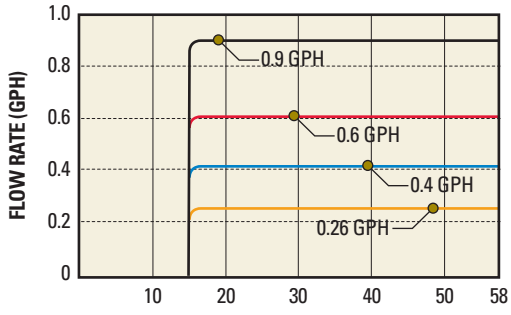
B EMITTER FLOW RATE
- 0.26 GPH = **26**
- 0.4 GPH = **4**
- 0.6 GPH = **6**
- 0.9 GPH = **9**

C EMITTER SPACING
- 12″ = **12**
- 18″ = **18**
- 24″ = **24**

D COIL LENGTH
- 100′ = **01**
- 250′ = **025**
- 500′ = **05**
- 1,000′ = **10**

BLANK TUBING MODEL NUMBERS:
100′ = TLCV001
250′ = TLCV0025
500′ = TLCV005
1,000′ = TLCV010

FLOW RATE VS. PRESSURE



Techline CV emitters open at 14.5 psi and close at 2 psi.

FLOW PER 100 FEET

EMITTER SPACING	0.26 EMITTER		0.4 EMITTER		0.6 EMITTER		0.9 EMITTER	
	GPH	GPM	GPH	GPM	GPH	GPM	GPH	GPM
12″	26.4	0.44	42.3	0.71	60.8	1.01	92.5	1.54
18″	17.6	0.29	28.2	0.47	40.5	0.68	61.6	1.03
24″	-	-	-	-	30.4	0.51	46.2	0.77

MAXIMUM LENGTH OF A SINGLE LATERAL (FEET)

EMITTER SPACING		12″				18″				24″	
EMITTER FLOW (GPH)		0.26	0.4	0.6	0.9	0.26	0.4	0.6	0.9	0.6	0.9
INLET PRESSURE	20 psi	331	242	190	144	468	344	270	204	342	260
	25 psi	413	302	238	180	584	429	338	257	430	326
	35 psi	518	380	299	227	737	540	426	323	542	412
	45 psi	594	436	343	260	845	620	489	371	622	472
	55 psi	655	480	378	287	932	684	539	410	686	522
	60 psi	681	500	393	298	969	713	561	426	716	544

ORDERING INFORMATION

FLOW RATE	EMITTER SPACING	COIL LENGTH	MODEL NUMBER
0.26 GPH	12″	100′	TLCV26-1201
		250′	TLCV26-12025
		1,000′	TLCV26-1210
	18″	100′	TLCV26-1801
		250′	TLCV26-18025
		1,000′	TLCV26-1810
0.4 GPH	12″	100′	TLCV4-1201
		250′	TLCV4-12025
		1,000′	TLCV4-1210
	18″	100′	TLCV4-1801
		250′	TLCV4-18025
		1,000′	TLCV4-1810
0.6 GPH	12″	100′	TLCV6-1201
		250′	TLCV6-12025
		500′	TLCV6-1205
		1,000′	TLCV6-1210
	18″	100′	TLCV6-1801
		250′	TLCV6-18025
		500′	TLCV6-1805
		1,000′	TLCV6-1810
	24″	100′	TLCV6-2401
		250′	TLCV6-24025
		1,000′	TLCV6-2410
0.9 GPH	12″	100′	TLCV9-1201
		250′	TLCV9-12025
		500′	TLCV9-1205
		1,000′	TLCV9-1210
	18″	100′	TLCV9-1801
		250′	TLCV9-18025
		500′	TLCV9-1805
		1,000′	TLCV9-1810
	24″	100′	TLCV9-2401
		250′	TLCV9-24025
		1,000′	TLCV9-2410
BLANK TUBING		100′	TLCV001
		250′	TLCV0025
		500′	TLCV005
		1,000′	TLCV010

NETAFIM™

NETAFIM USA
CS 888 638 2346
www.netafimusa.com

POINT SOURCE EMITTERS

SELF-PIERCING EMITTERS

With Check Valve

APPLICATIONS

- For use with blank polyethylene tubing, Techline® HCVXR, CV, DL and RW
- Install on-surface or subsurface
- Wide-spaced plantings
- Tree planting
- Hanging baskets
- Flower boxes
- Planters or pots

SPECIFICATIONS

- Flow rates: 0.5, 1.0 and 2.0 GPH
- Pressure compensation range: 10.15 to 58 psi
- Maximum pressure: 58 psi
- Uses 0.160" x 0.220" micro-tubing (Model EDTUBE - in black or white)
- Barb size: Inlet 0.160" - 0.170"
  Outlet 0.160"
- Recommended minimum filtration: 120 mesh

FEATURES & BENEFITS

SELF-PIERCING BARB

Easy to install, no tools required. Optional insertion tool available.

1.74 psi INTERNAL CHECK VALVE

Helps prevent low emitter drainage holding back up to a 3.9' column of water. Can be used with Techline HCVXR and CV Dripline.

ANTI-SIPHON OPERATION

Prevents contaminants from being drawn into the emitter.

PRESSURE COMPENSATING

Delivers the same flow from 10.15 to 58 psi.

SELF-CLEANING ACTION

Exclusive TurboNet® flow path design regulates flow and provides continuous self-cleaning action during operation.

BLUE EMITTER
0.5 GPH

BLACK EMITTER
1.0 GPH

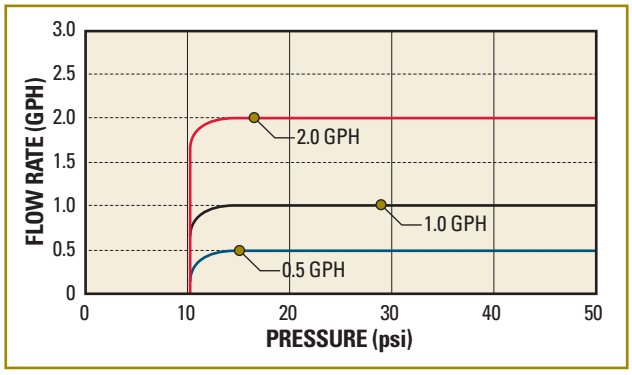
RED EMITTER
2.0 GPH

INSERTION TOOL
Model SPDT

ORDERING INFORMATION

FLOW RATE	COLOR	BAG QUANTITY	MODEL NUMBER
0.5 GPH	BLUE	25	SPCV05-25
		100	SPCV05-100
		250	SPCV05-250
		1,000	SPCV05-1000
1.0 GPH	BLACK	25	SPCV10-25
		100	SPCV10-100
		250	SPCV10-250
		1,000	SPCV10-1000
2.0 GPH	RED	25	SPCV20-25
		100	SPCV20-100
		250	SPCV20-250
		1,000	SPCV20-1000

FLOW RATE VS. PRESSURE



POINT SOURCE EMITTERS

TECHFLOW EMITTERS

Pressure Compensating

APPLICATIONS

- For use with systems with a wide range of pressure variations (14.5 to 58 psi)
- Install on-surface or subsurface
- Wide range of plant spacings
- Hanging baskets, flower baskets, pots, interiorscapes

SPECIFICATIONS

- Flow rates: 0.5, 1.0 and 2.0 GPH
- Pressure compensation range: 14.5 to 58 psi
- Maximum pressure: 58 psi
- Uses 0.160" x 0.220" micro-tubing (Model EDTUBE - in black or white)
- Barb size: Inlet 0.160" - 0.170"
  Outlet 0.160"
- Recommended minimum filtration: 120 mesh

FEATURES & BENEFITS

UNIQUE EMITTER DESIGN

Regulates flow and provides continuous self-cleaning action during operation.

2.2 psi INTERNAL CHECK VALVE

Helps prevent low emitter drainage by holding back up to a 5' column of water.

ANTI-SIPHON OPERATION

Prevents contaminates from being drawn into emitter.

COLOR-CODED EMITTER

Denotes flow rate.

CAN BE USED WITH TECHLINE® HCVXR AND CV DRIPLINE

Without causing dripline drainage.

RED WPC EMITTER
0.5 GPH

BLACK WPC EMITTER
1.0 GPH

GREEN WPC EMITTER
2.0 GPH

WPC SHOWN WITH BUG CAP

BUG CAP

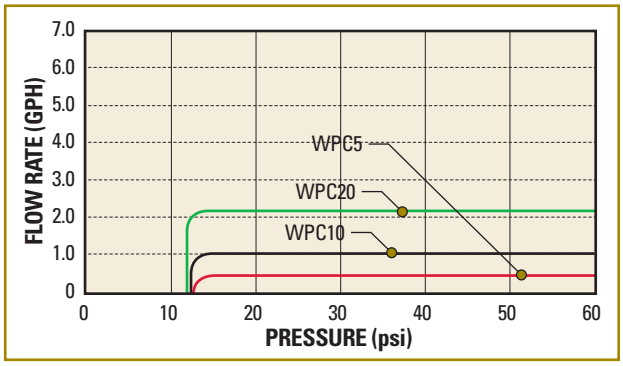
BARBED ADAPTER
ADAPTS TO ¼" BARB

WPC SHOWN WITH BARBED ADAPTER

ORDERING INFORMATION

FLOW RATE	COLOR	BAG QUANTITY	MODEL NUMBER
BARB INLET X NIPPLE OUTLET			
0.5 GPH	RED	25	WPC5
		250	WPC5-250
1.0 GPH	BLACK	25	WPC10
		250	WPC10-250
2.0 GPH	GREEN	25	WPC20
		250	WPC20-250
BUG CAP			
-	-	25	WPBC
BARBED ADAPTER			
-	-	25	11WPCON47-B

FLOW RATE VS. PRESSURE



POINT SOURCE EMITTERS

Non-Pressure Compensating

BD & WP EMITTERS

APPLICATIONS

- Use in piping networks with limited pressure variation
- Planters and pots
- Wide-spaced plantings

SPECIFICATIONS

- Flow rates: 0.5, 1.0 and 2.0 GPH
- BD and WP models use 0.160" x 0.220" micro-tubing (Model EDTUBE)
- Barb size: Inlet 0.160" - 0.170"
  Outlet 0.160"
- Maximum pressure: 29 psi
- Recommended minimum filtration: 120 mesh

FEATURES & BENEFITS

WIDE TURBULENT FLOW PASSAGE

Resists clogging and works well in low pressure applications.

BARB INLET

For easier installations.

COLOR-CODED EMITTER

Denotes flow rate.

RED BD EMITTER
0.5 GPH

BLACK BD EMITTER
1.0 GPH

GREEN BD EMITTER
2.0 GPH

RED WP EMITTER
0.5 GPH

BLACK WP EMITTER
1.0 GPH

GREEN WP EMITTER
2.0 GPH

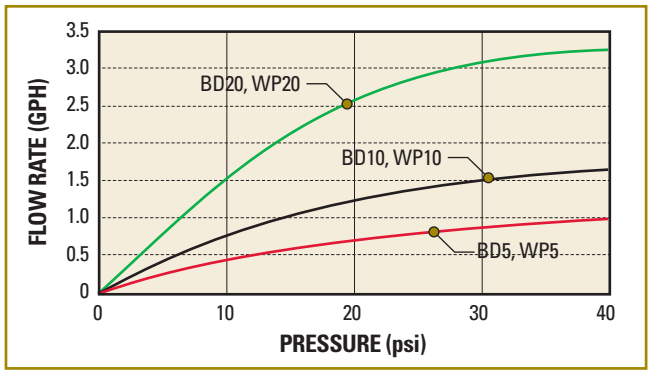
BD EMITTERS ORDERING INFORMATION

FLOW RATE	COLOR	BAG QUANTITY	MODEL NUMBER
0.5 GPH	RED	25	BD5
		250	BD5-250
1.0 GPH	BLACK	25	BD10
		250	BD10-250
2.0 GPH	GREEN	25	BD20
		250	BD20-250

WP EMITTERS ORDERING INFORMATION

FLOW RATE	COLOR	BAG QUANTITY	MODEL NUMBER
0.5 GPH	RED	25	WP5
		250	WP5-250
1.0 GPH	BLACK	25	WP10
		250	WP10-250
2.0 GPH	GREEN	25	WP20
		250	WP20-250

FLOW RATE VS. PRESSURE



POINT SOURCE EMITTERS

COMPARISON

POINT SOURCE EMITTERS COMPARISON CHART

	SELF-PIERCING EMITTERS			TECHFLOW EMITTERS			BD and WP EMITTERS		
Emitter Flow Rate (GPH)	0.5	1.0	2.0	0.5	1.0	2.0	0.5	1.0	2.0
									
APPLICATION	For Quick and Easy Installations Requiring No Tools			For Systems with a Wide Range of Pressure Variation			For Low Pressure or Gravity Fed Systems		
TOOL REQUIRED FOR INSTALLATION	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
PRESSURE COMPENSATION RANGE	10.15 to 58 psi	10.15 to 58 psi	10.15 to 58 psi	14.5 to 58 psi	14.5 to 58 psi	14.5 to 58 psi	No	No	No
MAXIMUM PRESSURE	58 psi	58 psi	58 psi	58 psi	58 psi	58 psi	29 psi	29 psi	29 psi
INTERNAL CHECK VALVE	1.74 psi, holds up to 3.9′ of water			2.2 psi, holds up to 5′ of water			No	No	No
ANTI-SIPHON	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
SELF-CLEANING	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
BAG QUANTITY: 25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
100	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
250	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1,000	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A

NETAFIM™

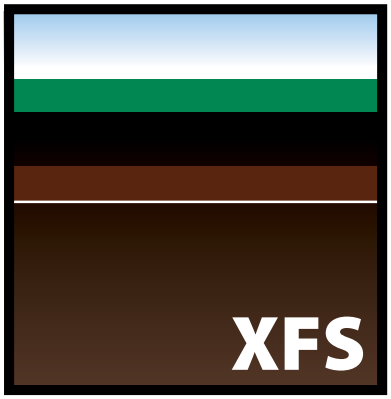
NETAFIM USA
(888) 638 2346
www.netafimusa.com

LPSEM 10/16

XFS Dripline With Copper Shield™ Technology

Dripline Series

LOOK FOR THE COPPER-COLORED TUBING



SUB-SURFACE

Applications

Rain Bird® XFS Dripline with Copper Shield™ for sub-surface drip irrigation is the latest innovation in the Rain Bird Xerigation™ Family. Rain Bird's patent-pending Copper Shield™ Technology protects the emitter from root intrusion, creating a long-lasting, low maintenance sub-surface drip irrigation system for use under turf grass or shrub and groundcover areas. XFS Series Dripline with Copper Shield™ is perfect for small, narrow and tight planting areas, as well as areas with tight curves or many switchbacks.

It accepts Rain Bird Easy Fit Compression Fittings, XFF Dripline Barbed Insert Fittings and other 17 mm barbed insert fittings.

Features

Simple

- Rain Bird's patent pending copper-colored XFS dripline with Copper Shield™ Technology protects the emitter from root intrusion with out requiring EPA-approved handling procedures - unlike some manufacturers who use harsh chemicals or treated filters to protect the emitter from root intrusion
- Through the use of a proprietary tubing material, the copper-colored XFS Dripline with Copper Shield™ is the most flexible dripline tubing in the industry making it the easiest sub-surface dripline to design with and install
- It accepts Rain Bird Easy Fit Compression Fittings, XFF Dripline Barbed Insert Fittings and other 17 mm barbed insert fittings
- Rain Bird's low-profile emitter design reduces in-line pressure loss, allowing longer lateral runs, simplifying design and reducing installation time
- Variety of emitter flow rates, emitter spacing and coil lengths provide design flexibility for either sub-surface turf grass or sub-surface shrub and groundcover applications

Reliable

- XFS emitters are protected from root intrusion by Rain Bird's patent-pending Copper Shield™ Technology resulting in a system that does not require maintenance or replacement of chemicals to prevent root intrusion
- The pressure-compensating emitter design provides a consistent flow over the entire lateral length ensuring higher uniformity for increased reliability in the pressure range of 8.5 to 60 psi

Durable

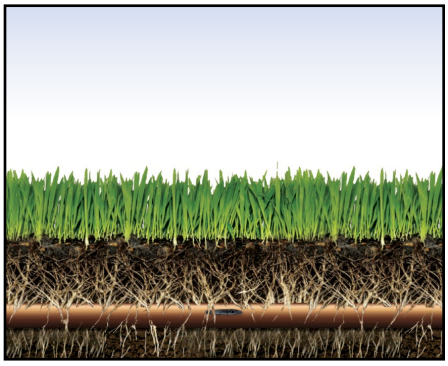
- Dual-layered tubing (copper over black) provides unmatched resistance to chemicals, algae growth and UV damage
- Grit Tolerant: Rain Bird's proprietary emitter design resists clogging by use of an extra-wide flow path combined with a self-flushing action

Operating Range

- **Pressure:** 8.5 to 60 psi (,58 to 4,14 bar)
- **Flow rates:** 0.42, 0.6 and 0.9 gph (1,6 l/h, 2,3 l/hr and 3,5 l/hr)
- **Temperature:**
  Water: Up to 100°F (37,8° C)
  Ambient: Up to 125°F (51,7° C)
- **Required Filtration:** 120 Mesh

Specifications

- **OD:** 0.634"
- **ID:** 0.536"
- **Thickness:** 0.049"
- **12", 18", 24"** (30,5 cm, 45,7 cm, 61,0 cm) spacing
- **Available in 100' and 500'** (30,5 m and 152,4 m) coils
- **Coil Color:** Copper, Purple, Copper with purple stripe



XFS Dripline Models

XFS-04-12-100	XFS-09-12-500
XFS-04-12-500	XFS-09-18-100
XFS-04-18-100	XFS-09-18-500
XFS-04-18-500	XFS-09-24-500
XFS-06-12-100	XFSP-04-12-500
XFS-06-12-500	XFSP-04-18-500
XFS-06-18-100	XFSP-06-12-500
XFS-06-18-500	XFSP-06-18-500
XFS-06-24-500	XFSP-09-12-500
XFS-09-12-100	XFSP-09-18-500

How To Specify

XFS - 06 - 12 - 100

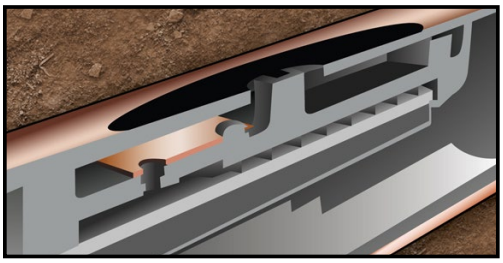
- **Model**
- **Flow Rate (0.6 GPH)**
- **Emitter Spacing (12" Inches)**
- **Coil Length (100 Feet)**

XFSP = Purple to indicate models that use non-potable water

XFSPS = Purple stripe to indicate models that use non-potable water

XFS Dripline With Copper Shield™ Technology

Dripline Series



Specifications

The flexible, copper-colored polyethylene tubing shall have factory installed pressure-compensating, inline emitters spaced evenly per listed spacing. The flow rate from each installed inline emitter shall be 0.4, 0.6 or 0.9 gallons per hour when inlet pressure is between 8.5 and 60 psi.

The inline emitter diaphragm shall have a pressure-regulating diaphragm with a spring action allowing it to self-rinse if there is a plug at the outlet hole. The flexible tubing allows for easy non-linear installations. The inline emitter shall have copper shield technology installed to protect the emitter from root intrusion. The inline emitter inlet shall be raised off the inside tube wall to minimize dirt intrusion.

The XFS Dripline inline tubing shall be manufactured by Rain Bird Corporation, Azusa, California.

XFS Dripline Maximum Lateral Length (Feet)

Inlet Pressure psi	Maximum Lateral Length (feet) 12" Spacing Nominal Flow (GPH): 0.42	0.6	0.9
15	352	273	155
20	399	318	169
30	447	360	230
40	488	395	255
50	505	417	285
60	573	460	290

	18" Spacing Nominal Flow (GPH): 0.42	0.6	0.9
15	374	314	250
20	417	353	294
30	481	413	350
40	530	465	402
50	610	528	420
60	734	596	455

	24" Spacing Nominal Flow (GPH): 0.6	0.9
15	424	322
20	508	368
30	586	414
40	652	474
50	720	488
60	780	514

XFS Dripline Maximum Lateral Length (Meters)

Inlet Pressure bars	Maximum Lateral Length (meters) 30.5 cm Spacing Nominal Flow (l/h): 1.6	2.3	3.5
1.0	107.2	83.2	47.2
1.4	121.6	96.9	51.5
2.1	136.2	109.7	70.1
2.8	148.7	120.4	77.7
3.5	153.9	127.1	86.9
4.1	174.6	140.2	88.4

	45.7 cm Spacing Nominal Flow (l/h): 1.6	2.3	3.5
1.0	114	95.7	76.2
1.4	127.1	107.6	89.6
2.1	146.6	125.9	106.7
2.8	161.5	141.7	122.5
3.5	185.9	160.9	128.0
4.1	223.7	181.7	138.7

	61.0 cm Spacing Nominal Flow (l/h): 2.3	3.5
1.0	129.2	98.2
1.4	154.8	112.2
2.1	178.6	123.2
2.8	198.7	144.5
3.5	219.5	148.7
4.1	237.7	156.7

LEED Compliant

LEED LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

Contains at least 20% post consumer recycled polyethylene which qualifies for LEED credit 4.2

Rain Bird's Professional Customer Satisfaction Policy

XF Series Dripline offers five (5) years on product workmanship and seven (7) years on environmental stress cracking

Rain Bird Corporation
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Tucson, AZ 85756
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Azusa, CA 91702
Phone: (626) 812-3400
Fax: (626) 812-3411

Specification Hotline
800-458-3005 (U.S. and Canada)

Rain Bird International, Inc.
1000 West Sierra Madre Ave.
Azusa, CA 91702
Phone: (626) 963-9311
Fax: (626) 852-7343

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www.rainbird.com

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XFS Sub-Surface Dripline Models

Model	Flow gph	Spacing in.	Coil Length ft.
XFS-04-12-100	0.42	12	100
XFS-04-12-500	0.42	12	500
XFS-04-18-100	0.42	18	100
XFS-04-18-500	0.42	18	500
XFS-06-12-100	0.60	12	100
XFS-06-12-500	0.60	12	500
XFS-06-18-100	0.60	18	100
XFS-06-18-500	0.60	18	500
XFS-06-24-500	0.60	24	500
XFS-09-12-100	0.90	12	100
XFS-09-12-500	0.90	12	500
XFS-09-18-100	0.90	18	100
XFS-09-18-500	0.90	18	500
XFSP-04-12-500 (Purple)	0.42	12	500
XFSP-04-18-500 (Purple)	0.42	18	500
XFSP-06-12-500 (Purple)	0.60	12	500
XFSP-06-18-500 (Purple)	0.60	18	500
XFSP-09-12-500 (Purple)	0.90	12	500
XFSP-09-18-500 (Purple)	0.90	18	500

XFS Sub-Surface Dripline Models — METRIC

Model	Flow l/h	Spacing cm	Coil Length m
XFD-04-12-100	1.60	30.5	250
XFD-04-12-500	1.60	30.5	250
XFD-04-18-100	1.60	45.7	250
XFD-04-18-500	1.60	45.7	25
XFS-06-12-100	2.30	30.5	30.5
XFS-06-12-500	2.30	30.5	152.9
XFS-06-18-100	2.30	45.7	30.5
XFS-06-18-500	2.30	45.7	152.9
XFS-06-24-500	2.30	61.0	152.9
XFS-09-12-100	3.50	30.5	30.5
XFS-09-12-500	3.50	30.5	152.9
XFS-09-18-100	3.50	45.7	30.5
XFS-09-18-500	3.50	45.7	152.9
XFSP-04-12-500 (Purple)	1.60	30.5	152.9
XFSP-04-18-500 (Purple)	1.60	45.7	152.9
XFSP-06-12-500 (Purple)	2.30	30.5	152.9
XFSP-06-18-500 (Purple)	2.30	45.7	152.9
XFSP-09-12-500 (Purple)	3.50	30.5	152.9
XFSP-09-18-500 (Purple)	3.50	45.7	152.9

XFS Sub-Surface Dripline Maximum Lateral Lengths (Feet)

Inlet Pressure psi	Maximum Lateral Length (feet) 12" Spacing Nominal Flow (gph): 0.42	0.6	0.9	18" Spacing Nominal Flow (gph): 0.42	0.6	0.9	24" Spacing Nominal Flow (gph): 0.6	0.9
15	352	273	155	374	314	250	424	322
20	399	318	169	417	353	294	508	368
30	447	360	230	481	413	350	586	414
40	488	395	255	530	465	402	652	474
50	505	417	285	610	528	420	720	488
60	573	460	290	734	596	455	780	514

XFS Sub-Surface Dripline Maximum Lateral Lengths (Meters) — METRIC

Inlet Pressure bar	Maximum Lateral Length (Meters) 30.5 cm Nominal Flow (l/h): 1.6	2.3	3.4	45.7 cm Nominal Flow (l/h): 1.6	2.3	3.4	61.0 cm Nominal Flow (l/h): 2.3	3.4
1.0	107.2	83.2	47.2	114	95.7	76.2	129.2	98.2
1.4	121.6	96.9	51.5	127.1	107.6	89.6	154.8	112.2
2.1	136.2	109.7	70.1	146.6	125.9	106.7	178.6	123.2
2.8	148.7	120.4	77.7	161.5	141.7	122.5	198.7	144.5
3.5	153.9	127.1	86.9	185.9	160.9	128.0	219.5	148.7
4.1	174.6	140.2	88.4	223.7	181.7	138.7	237.7	156.7

XFS Sub-Surface Dripline Flow(per 100 Feet of Tubing)

Emitter Spacing	0.42 gph Emitter		0.6 gph Emitter		0.9 gph Emitter	
12"	42.0 gph	0.70 gpm	61.0 gph	1.02 gpm	92.0 gph	1.53 gpm
18"	28.0 gph	0.47 gpm	41.0 gph	0.68 gpm	61.0 gph	1.02 gpm
24"	------ gph	------ gpm	31.0 gph	0.51 gpm	46.0 gph	0.77 gpm

XFS Sub-Surface Dripline Flow(per 100 Meters of Tubing)

Emitter Spacing	1.6 l/h Emitter		2.3 l/h Emitter		3.4 l/h Emitter	
0.30 meter	531.1 l/h	8.85 l/m	757.9 l/h	12.6 l/m	1136.7 l/h	18.9 l/m
0.46 meter	351.8 l/h	5.86 l/m	502.2 l/h	8.4 l/m	741.3 l/h	12.4 l/m
0.61 meter	------- l/h	----- l/m	378.7 l/h	6.3 l/m	559.0 l/h	9.3 l/m

Xeri-Bug Emitter Specifications and Models

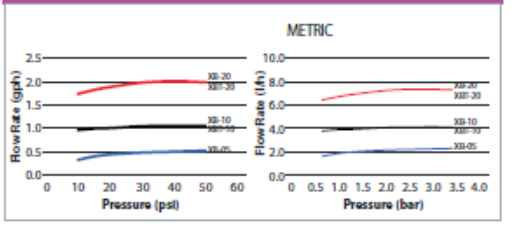
Model	Inlet Type/ Color	Nominal Flow gph	Filtration Required mesh
XB-05PC	Barb/Blue	0.5	200
XB-10PC	Barb/Black	1.0	150
XB-20PC	Barb/Red	2.0	150
XB-05PC1032	10-32T/Blue	0.5	200
XB-10PC1032	10-32T/Black	1.0	150
XB-20PC1032	10-32T/Red	2.0	150
XBT-10PC	½" FPT/Black	1.0	150
XBT-20PC	½" FPT/Black	2.0	150

Xeri-Bug Emitter Specifications and Models METRIC

Model	Inlet Type/ Color	Nominal Flow l/h	Filtration Required micron
XB-05PC	Barb/Blue	1.89	75
XB-10PC	Barb/Black	3.79	100
XB-20PC	Barb/Red	7.57	100
XB-05PC1032	10-32T/Blue	1.89	75
XB-10PC1032	10-32T/Black	3.79	100
XB-20PC1032	10-32T/Red	7.57	100
XBT-10PC	½" FPT/Black	3.79	100
XBT-20PC	½" FPT/Black	7.57	100

Xeri-Bug™ Emitter, TS025-1/4" stake, and DBC025 Diffuser Bug Cap

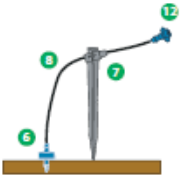
Xeri-Bug Emitter Performance



(For reference numbers below, please see the System Overview page 110)

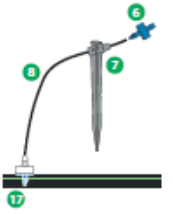
Installation Option 1*

Using a Xeriman Tool, insert an emitter directly into ½" or ¾" drip tubing or between dripline emitters as needed.



Installation Option 2*

For more precise water placement, use ¼" distribution tubing, a ¼" tubing stake, and a bug cap.

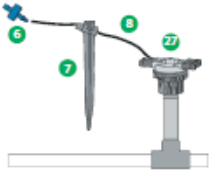


Installation Option 3

For precise water placement, a barbed connector can be punched into distribution tubing. The emitter is then placed at the end of the ¼" distribution tubing. NOTE: should the emitter become dislodged, unregulated flow will occur.

Installation Option 4*

The Xeri-Bird 8 provides a centralized location for up to eight emitters. A mix of Xeri-Bug and/ or PC emitters can be used to provide the flow rates needed for different plant materials. Tentacles of ¼" distribution tubing, ¼" tubing stakes, and bug caps allow for precise water placement.



Installation Option 5

The 6 Outlet Manifold provides a centralized water distribution connection for up to six emission devices. Connect the ¼" distribution tubing to one of the outlets. Use a ¼" tubing stake to ensure precise water placement. The emitter is placed on the end of the 1/4" distribution tubing to regulate the water flow. NOTE: should the emitter become dislodged, unregulated flow will occur.

* *Preferred installation options, which provide flow regulation at the source.*

Xerigation® Control Zone Kits

Complete Zone Coverage

Xerigation® Control Zone Kits (XCZ) provides a complete and easy to install package that will properly deliver water to the drip irrigation system. Rain Bird's XCZ's contain all three essential components to ensure the drip install operates at its optimal performance for years to come. The control zone kits contain three major components: the valve, filter, and pressure regulator. Each component performs an important function on supplying the proper water conditions for the drip irrigation system. Rain Bird XCZ pre-packages these components making it easy for you to select, order, and install.

Xerigation® Commercial and Residential Control Zone Kits

Valve

- Decades of proven performance for peace of mind
- Commercial or Residential
- Low, medium, and high flow rates
- Valves for reclaimed water
- Valves with Anti-Siphon
- Low flow without weeping

Filter

- Prevents sediments and impurities from entering the drip system
- Extends the life of the drip system for years to come
- Basket filters with quick check indicators
- Easy to clean commercial disk filters for harsh water

Pressure Regulator

- Pressure Regulation ensures constant outlet pressure for proper operation
- Reduces the chance of tube and fitting blow outs
- Pressure regulator built into the filter to minimize size (Look for the white dot)
- Stand alone options

Savings • Convenience • Reliability

RAIN BIRD®

Model	Flow Rate	Flow rate capability (.9 gph dripline with 12" emitter spacing)	Valve Type	2-Wire Compatible	Filtration Type	Pressure Regulator	Inlet / Outlet Size	Size	Minimal Valve Box Size
Commercial Control Zone Kits									
 XCZ-150-LCS	15-62 GPM	1000 to 4000 feet of dripline	150-PEB	Yes	120 Mesh Disc Filter (130 Micron)	40 PSI	1.5" x 1.5"	20.5" Length	Jumbo Rectangular
 XCZ-150-PRB-COM	15-40 GPM	1000 to 2500 feet of dripline	150-PESB		200 Mesh Stainless Steel (75 Micron)		1.5" x 1"	17.5" or 11" Length	
 XCZ-100-PRB-COM	0.3-20 GPM	20 to 1300 feet of dripline	100-PESB				1" x 1"	14" Length	Mini-Standard Rectangular
 XCZ-100-PRB-LC			100-PEB				1" x 1"	12" Length	
Commercial Control Zone Kits for Reclaimed Water									
 XCZ-150-LCR	15-62 GPM	1000 to 4000 feet of dripline	150-PESBR	Yes	120 Mesh Disc Filter (130 Micron)	40 PSI	1.5" x 1.5"	23.5" Length	Jumbo Rectangular
 XCZ-100-PRBR	0.3-20 GPM	20 to 1300 feet of dripline	100-PESBR		200 Mesh Stainless Steel (75 Micron)		1" x 1"	10.5" Length	Mini-Standard or 10" Round
Residential Control Zone Kits									
 XCZPGA-100-PRF	3-15 GPM	200 to1000 feet of dripline	100-PGA	Yes	200 Mesh Stainless Steel (75 Micron)	40 PSI	1" x 1"	11" Length	Mini-Standard or 10" Round
 XCZ-100-PRF			100-DV	No				10" Length	
 XCZLF-100-PRF	0.2-10 GPM	13 to 650 feet of dripline	LFV-100						
 XCZ-075-PRF	0.2-5 GPM	13 to 300 feet of dripline	LFV-075			30 PSI	3/4" x 3/4"		
Residential Control Zone Kits with Anti-Siphon									
 XACZ-100-PRF	3-15 GPM	200 to 1000 feet of dripline	100-ASV	No	200 Mesh Stainless Steel (75 Micron)	40 PSI	1" x 1"	14" Height	
 XACZ-075-PRF	0.2-5 GPM	13 to 300 feet of dripline	ASV-LFV-075			30 PSI	3/4" x 3/4"		

RAIN BIRD®

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TORO® DL2000™ SERIES SUBSURFACE DRIPLINE

WATER SMART®

Toro® DL2000 Dripline is the most technologically advanced subsurface irrigation system available. Through its non-toxic ROOTGUARD® technology, only DL2000 delivers optimal water application directly to the root zone while safely inhibiting root intrusion.

FEATURES & BENEFITS

U.S. Government-Approved ROOTGUARD® Protection

The pre-emergent, ROOTGUARD® material, is impregnated into the emitter during the molding process and creates a "force field" effect around the emitter outlet, diverting root growth and assuring long term reliability.

At Grade Or Buried Options

Can be installed at grade or buried 4" – 8" underground, delivering irrigation directly to the plant's root zone.

Pressure-Compensating Self-cleaning Emitters

Provide precise, trouble-free water application. ROOTGUARD® impregnated emitters are inseparably welded to the inside wall of durable polyethylene dripline tubing during manufacturing.

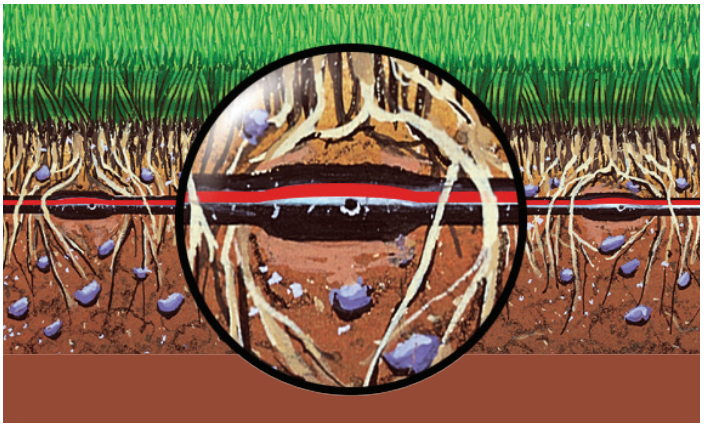
Environmentally Friendly

Irrigation takes place at or below grade so there is minimal water loss due to mist, evaporation, run-off or wind. Fertigation needs are reduced because water is applied only at the root zone.

Safety and Liability

When DL2000 is installed below ground, the landscape surface is free from irrigation equipment that may disrupt activities or cause injury. Sub-surface performance also avoids slippery walkways and roadways as well as wet walls, fences and windows.

Effluent Options Available



Distinctive red stripe on tubing signifies DL2000 with ROOTGUARD

DL2000 MODEL LIST

Model	Description
5/8" DL 2000 PC DRIPLINE WITH ROOTGUARD	
RGP-212-01	0.5 gph, 12" emitter spacing, 100 ft. coil
RGP-412-01	1.0 gph, 12" emitter spacing, 100 ft. coil
RGP-218-01	0.5 gph, 18" emitter spacing, 100 ft. coil
RGP-418-01	1.0 gph, 18" emitter spacing, 100 ft. coil
RGP-212-05	0.5 gph, 12" emitter spacing, 500 ft. coil
RGP-412-05	1.0 gph, 12" emitter spacing, 500 ft. coil
RGP-218-05	0.5 gph, 18" emitter spacing, 500 ft. coil
RGP-418-05	1.0 gph, 18" emitter spacing, 500 ft. coil
RGP-212-10	0.5 gph, 12" emitter spacing, 1000 ft. coil
RGP-412-10	1.0 gph, 12" emitter spacing, 1000 ft. coil
RGP-218-10	0.5 gph, 18" emitter spacing, 1000 ft. coil
RGP-418-10	1.0 gph, 18" emitter spacing, 1000 ft. coil
5/8" DL2000 PC PURPLE DRIPLINE WITH ROOTGUARD	
RGP-212-05-E	0.5 gph, 12" emitter spacing, 500 ft. coil
RGP-412-05-E	1.0 gph, 12" emitter spacing, 500 ft. coil
RGP-218-05-E	0.5 gph, 18" emitter spacing, 500 ft. coil
RGP-418-05-E	1.0 gph, 18" emitter spacing, 500 ft. coil

5/8" OD			INLET PRESSURE VS. MAXIMUM LENGTH OF RUN IN FEET			
Part No.	Flow Rate (gph)	Emitter Spacing	15 psi	25 psi	30 psi	40 psi
RGP-212	.53	12"	250'	360'	400'	460'
RGP-218	.53	18"	350'	515'	565'	650'
RGP-412	1.0	12"	160'	240'	260'	300'
RGP-418	1.0	18"	240'	340'	375'	430'

DL2000 PERFORMANCE TABLE

Flow Rate	.53/1.00 gph
Inside Diameter	0.620"
Outside Diameter	0.710"
Wall	0.045"
Operating pressure (P)	15–60 psi
Minimum filtration requirement	120 Mesh
Hazen-Williams C factor	140
Barb loss factor (Kd)	.98

SPECIFICATIONS

Operational

- Design flexibility for narrow, odd-shaped landscape areas
- Precise watering puts water where it's needed; avoids water marks on expensive hardscapes, glass or signage
- Distinctive red strip on tubing signifies DL2000 with ROOTGUARD®

Warranty

- Against Root Intrusion: Seven years
- Hose: Five years pro-rated

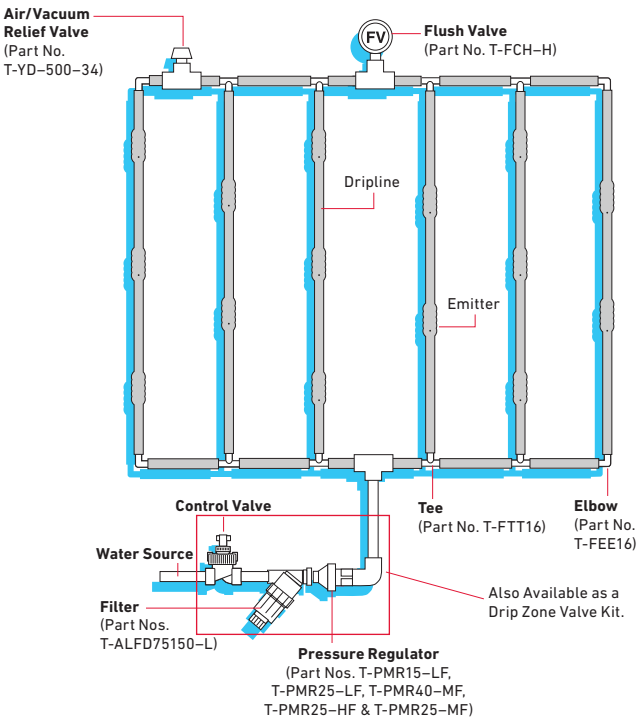
PRECIPITATION RATE FOR EVENLY SPACED LATERALS AND EMITTERS

Precipitation Rate for Drip Laterals (inches/hour)							
Emitter Flow (gph)	Emitter Spacing (in.)	Spacing Between Drip Laterals					
		6 in.	12 in.	18 in.	24 in.	30 in.	36 in.
0.53	12	1.7	0.85	0.57	0.43	0.34	0.28
0.53	18	1.13	0.57	0.38	0.28	0.23	0.19
1.00	12	3.27	1.64	1.09	0.82	0.65	0.55
1.00	18	2.18	1.09	0.73	0.55	0.44	0.36

Precipitation Rate (in./hr.) = Precipitation Rate Formula:

$$\frac{231.1 \times \text{Emitter Flow (gph)}}{\text{Lateral Spacing (in.)} \times \text{Emitter Spacing (in.)}}$$

Note: *This formula applies to evenly spaced drip irrigation laterals and emitters.*



Other fittings available:

- Coupling (Part No. T-FCC16)
- Adapter (Part No. T-FAM16)
- Compression Adapter (Part No. T-CA-710)

Specifying Information—DL2000

RGP X-XX-XX-E			
Emitter Flow	*Emitter Spacing*	*Coil Length*	*Optional*
X	XX	XX	E
2—.53 gph 4—1.0 gph	12—12" 18—18"	01—100' 05—500' 10—1000'	E—Purple Tubing for Non-potable Water
Example: A 500' coil of Pressure-compensating Dripline with rootguard, 12" emitter spacing and 0.5 gph, would be specified as: **RGP-212-05**			

Note: *Specify/use Loc-Eze Fittings or .710 Compression Fittings.*

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NGE® EMITTERS

Designed for demanding drip irrigation installations, the Toro® New Generation Emitter (NGE) has what it takes to keep your system flowing.

FEATURES & BENEFITS

Uniform Flow Rates

Make the NGE ideal for use in difficult topographical conditions.

Unique Emitter Design And Pressure Compensating Diaphragm

Allows the emitter to self-flush during operation and shut-down to facilitate cleaning. This ensures the emitter is free of debris at start-up and during the emitter operation.

Stops the emitter from draining below 2-3 psi preventing complete drainage of the system. This reduces the time required to refill the system at start-up improving the overall operation.

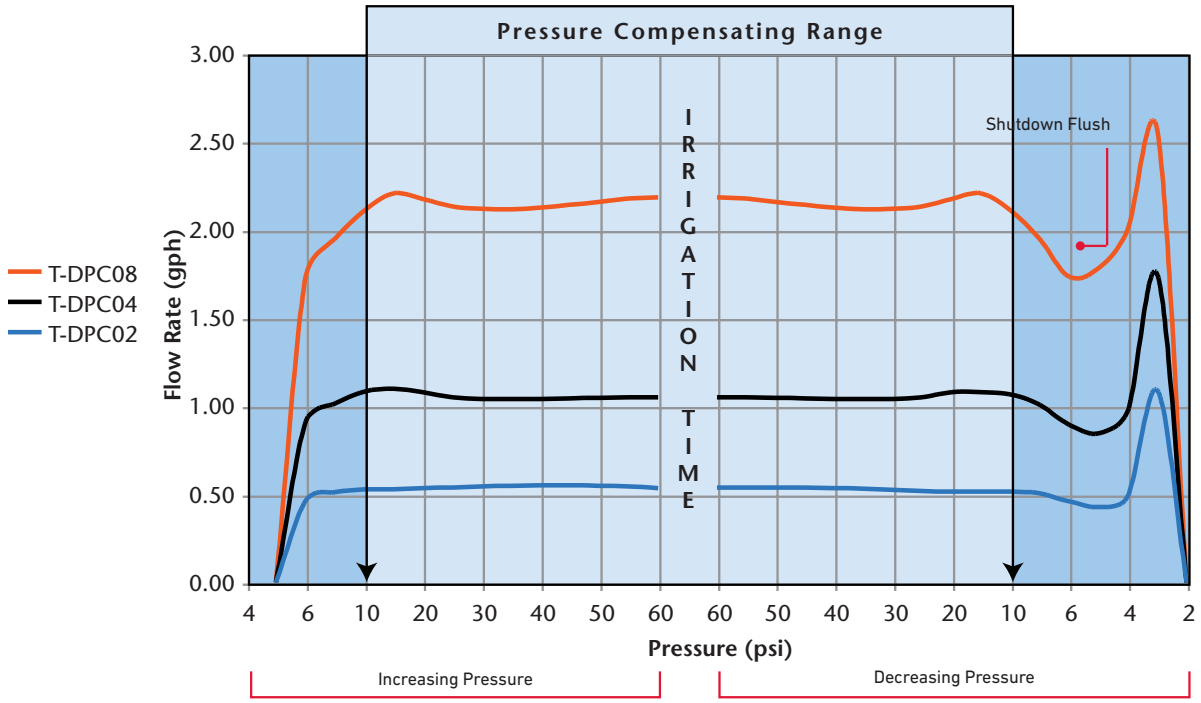
Allows the emitter to close inhibiting back siphoning and preventing the emitter from being contaminated with debris

Low Coefficient Of Variation (CV)

As tested by Toro and independent labs, the NGE is one of the best performing pressure-compensating emitters available.

1.0 gph *2.0 gph* *0.5 gph*

Male Adapter
Option for use with ¼" exit tubing



NGE FLOW RATES

Pressure	DPC02	DPC04	DPC08
psi	gph	gph	gph
6	0.46	0.91	1.73
8	0.51	1.01	1.95
10	0.53	1.08	2.11
15	0.53	1.10	2.21
20	0.53	1.08	2.17
25	0.54	1.05	2.13
30*	0.54	1.04	2.12
35	0.55	1.04	2.12
40	0.55	1.04	2.12
45	0.55	1.04	2.14
50	0.55	1.05	2.16
55	0.54	1.05	2.18
60	0.54	1.05	2.18

**Recommended operating pressure*

SPECIFICATIONS

Operational

- Recommended operating pressure: 8-60 psi
- Average Flow Rates:
  - T-DPC02 – 0.5 gph
  - T-DPC04 – 1 gph
  - T-DPC08 – 2 gph
- Color-coded snap-on dust cap (0.5 gph Blue; 1 gph Black; 2 gph Red) deters dust and insects from entering the emitter
- Barbed inlet allows emitters to be installed directly onto hose or used with ¼" tubings

Warranty

- Two years

NGE PERFORMANCE TABLE

		T-DPC02	T-DPC04	T-DPC08
Nominal Flow Rate (Q)	gph	0.5 gph	1.0 gph	2.0 gph
Recom. Pressure Range (P)	psi	8–60 psi		
Emitter Exponent (x)		0.000	0.000	0.002
Coefficient of Variation (Cv)		3%		
Min. Filtration Requirement		140 Mesh (105 Micron)		
Optional Outlet		-MA (Male Adapter) -DC (Snap-on Dust Cap)		
Color (Cap)		Blue	Black	Red

Specifying Information—NGE® Emitters

Model	*Description*
	NGE SF (Self-flushing) Pressure-compensating Turbulent Flow Emitter with Male Adapter
T-DPC02-MA	0.5 gph NGE Self-flushing Pressure-compensating Emitter with Male Adapter (black)
T-DPC04-MA	1.0 gph NGE Self-flushing Pressure-compensating Emitter with Male Adapter (black)
T-DPC08-MA	2.0 gph NGE Self-flushing Pressure-compensating Emitter with Male Adapter (black)
	NGE SF (Self-flushing) Pressure-compensating Turbulent Flow Emitter with Dust Cap
T-DPC02-DC-BLUE	0.5 gph NGE Self-flushing Pressure-compensating Emitter with Dust Cap (blue)
T-DPC04-DC	1.0 gph NGE Self-flushing Pressure-compensating Emitter with Dust Cap (black)
T-DPC08-DC-RED	2.0 gph NGE Self-flushing Pressure-compensating Emitter with Dust Cap (red)

Platinum Member

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DRIP ZONE VALVE KITS

Pre-packaged and ready for installation – Toro® Drip Zone Valve Kits provide everything you need for drip zone automation. No need to specify or purchase separate parts.

FEATURES & BENEFITS

Everything You Need is in the Kit

- Toro Y-Filter – protects against contamination.
- Control Valve – controls the flow of water
- Pressure Regulator – reduces system pressure to levels suitable for drip irrigation

Specially Designed For Low-volume Drip Applications

- These kits are a simple, one-stop package
- Less valve kits also available

Reliable Valve Options

- TPV Series, 1" Inline
- EZ-Flo® Plus, 1" AVB and 1" Inline
- Irritrol® 700 UltraFlow® Valve, 1" Inline

TPV Series Drip Zone Kit

Specifications	TORO EZ-FLO PLUS	TORO EZ-FLO PLUS AVB*	TORO TPV	IRRITROL® 700 ULTRAFLOW IN-LINE
Part Number	DZK-EZF	DZK-EZF-AS	DZK-TPV	DZK-700
Description	Drip Zone Valve Kit, 1" EZ-Flo	Drip Zone Valve Kit, 1" EZ-Flo Plus, AVB	Drip Zone Valve Kit, 1" TPV	Drip Zone Valve Kit, 1" 700 UltraFlow, In-line
Connection Size	1"	1"	1"	1"
Control Valve Solenoid	24 Vac, Inrush: 0.4 amps, 11.5 VA, Holding 0.20 amps, 5.75 VA			
Minimum Flow Rate	0.10 gpm	0.25 gpm	0.10 gpm	0.10 gpm
Maximum Flow Rate	25 gpm	25 gpm	25 gpm	30 gpm
Maximum Pressure	120 psi	120 psi	120 psi	120 psi
Y-Filter Degree of Filtration	150 mesh/ 100 Microns	150 mesh/ 100 Microns	150 mesh/ 100 Microns	150 mesh/ 100 Microns
Regulator-Preset Pressure	30 psi	30 psi	30 psi	40 psi
Thread Connection-Upstream	Female NPT	Female NPT	Female NPT	Female NPT
Thread Connection-Downstream	Female NPT	Female NPT	Female NPT	Female NPT

Note: Consult your local plumbing code for backflow prevention requirements.
**AVB = Atmospheric Vacuum Breaker (Anti-siphon Valve).*

DRIP ZONE VALVE KITS MODEL LIST

Model	Description
DZK-EZF-AS	1" EZ-Flo Plus Valve, AVB, Filter, Regulator & Fittings
DZK-EZF	1" EZ-Flo Plus, Filter, Regulator & Fittings
DZK-TPV	1" TPV, Filter, Regulator & Fittings
DZK-700	1" 700 UltraFlow Inline Valve, Filter, Regulator & Fittings
DZK-X	Drip Zone Kit Less Valve with Filter, Regulator & Fittings

Specifying Information—Drip Zone Valve Kits

DZK-XXX-XX		
Kit	*Valve Type*	
DZK	**XXXXXX**	
DZK—Drip Zone Kit	EZF-AS—1" EZ-Flo Plus AVB EZF—1" EZ-Flo Plus TPV—1" TPV	700—1" In-line X—1" No Valve
Example: A Drip Zone Kit with a 700 Series UltraFlow, 1" commercial valve would be specified as: **DZK-700**		

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