

Pressure Compensating Spray Stakes Design Info

STEP 1

Determine how many spray stakes you can operate at the same time. Use the Zone Flow chart to establish how much water it would take to operate one zone of spray stakes with the spray stake flow rate you have selected. You do not need to operate the maximum amount, but do not exceed the maximum. If the amount of water required exceeds the amount you have available, you might reduce the zone size or consider using a lower flow spray stake. **Suggestion:** Build a table listing the flow of each zone you wish to operate.

Zone Flow (GPM)

Spray Stake Flow Rate	Number of Spray Stakes in a Zone										
	100	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000
3.2 GPH	5	27	53	80	107	133	160	187	213	240	267
6.6 GPH	11	55	110	165	220	275	330	385	440	495	550
7.9 GPH	13	66	132	198	263	329	395	461	527	593	658
10.6 GPH	18	88	177	265	353	442	530	618	707	795	883

Length of Run Considerations

Longer Run	Shorter Run
Spray stake with lower flow rate	Spray stake with higher flow rate
Higher pressure	Lower pressure
Wider spacing of spray stakes	Closer spacing of spray stakes
Larger tubing diameter	Smaller tubing diameter
Downhill slope	Uphill slope

STEP 2

Determine how long a row or 'run' you can make with each line of spray stakes. This is influenced by several factors and you can balance them according to your priorities. **The Length of Run Considerations** chart demonstrates how the influencing factors are related.

When the spacing for the spray stakes has been determined, you are ready to select the pipe size and operating pressure:

- There are four Length of Run charts, one for each flow rate.
- Select the chart based on the flow rate you will be using (see pages 9 and 10).
- Select the spacing to be used for the spray stakes. Reading across to each pipe size, find the maximum length of run (in feet) available for several inlet pressures (in psi).
- Each option also includes the number of pots for that length of run (shown in parenthesis).

Note: The Length of Run charts do not account for slope. Although the pressure compensating feature of the PC spray stake will ensure that all flows will be the same, it is still necessary to operate the spray stake with a minimum of 22 psi and a maximum of 55 psi. If you are working with slopes, it is advisable to use a qualified Netafim Dealer to assist you in your design to be certain you have a pressure balanced system.

STEP 3

Select the major system components. Once you have selected the spray stake, established the flow of each zone and sized the poly pipe, it is time to size the major system components. Several key components and the most commonly selected models are listed here. For additional options, contact Netafim USA Customer Service.

Valves

Netafim offers Valve solutions for nearly every need. The Valves chart shows the most common valves used in spray stake systems and includes electric solenoid valves for automatic systems (used with a controller) and pressure reducing valves to manage system pressure in a manually operated system with high pressures (over 60 psi).

Filters

Filter options include disc, screen, sand media and hydrocyclones (for sandy wells). Some filters are for specific water applications and some are multi-purpose. Excellent options are available for both well water and surface water sources. Recommended filtration is 120 mesh.

Water Meters

Water Meters are the simplest and best 'window' into what is going on in your system. The key to a long lasting, low maintenance system is through preventative maintenance. A periodic check of the water meter can tell you when it's time for maintenance.

Automation

Growers considering automation should visit our website or call 888-NETAFIM to request brochures relating to Automation Products. With a variety of controllers to fit many needs; from 16 to 600 valves with standard multi-wire, dual strand cable, stand-alone, radio control or central control, you can start with simple or richly featured programs and immediately realize the full potential of an automated system.

Piping, Fittings and Accessories

Netafim offers a wide selection of Polyethylene (PE) Pipe, Fittings and Accessories used in a successful spray stake system. Your qualified Netafim dealer should be able to guide you through this selection process.

3.2 GPH Plum

Spacing (inches)	Inlet Pressure	Polyethylene (PE) Pipe Size			
		16mm (0.52" ID)	1/2" (0.60" ID)	3/4" (0.82" ID)	1" (1.06" ID)
24	25 psi	108' (54)	138' (69)	246' (123)	384' (192)
	30 psi	146' (73)	188' (94)	332' (166)	522' (261)
	35 psi	170' (85)	220' (110)	390' (195)	614' (307)
	40 psi	190' (95)	244' (122)	436' (218)	686' (343)
	45 psi	206' (103)	266' (133)	476' (238)	748' (374)
36	25 psi	144' (48)	186' (62)	324' (108)	504' (168)
	30 psi	195' (65)	249' (83)	438' (146)	684' (228)
	35 psi	228' (76)	294' (98)	516' (172)	807' (269)
	40 psi	255' (85)	327' (109)	576' (192)	903' (301)
	45 psi	276' (92)	357' (119)	627' (209)	981' (327)
48	25 psi	176' (44)	224' (56)	392' (98)	608' (152)
	30 psi	236' (59)	304' (76)	532' (133)	828' (207)
	35 psi	280' (70)	360' (90)	624' (156)	975' (244)
	40 psi	312' (78)	400' (100)	696' (174)	1,092' (273)
	45 psi	340' (85)	436' (109)	760' (190)	1,188' (297)
60	25 psi	185' (37)	235' (47)	410' (82)	635' (127)
	30 psi	270' (54)	340' (68)	590' (118)	920' (184)
	35 psi	315' (63)	400' (80)	700' (140)	1,100' (220)
	40 psi	350' (70)	450' (90)	795' (159)	1,235' (247)
	45 psi	385' (77)	490' (98)	860' (172)	1,350' (270)
72	25 psi	234' (39)	294' (49)	510' (85)	798' (133)
	30 psi	312' (52)	402' (67)	696' (116)	1,079' (180)
	35 psi	366' (61)	474' (79)	816' (136)	1,272' (212)
	40 psi	414' (69)	528' (88)	912' (152)	1,422' (237)
	45 psi	450' (75)	576' (96)	995' (166)	1,548' (258)
96	25 psi	280' (35)	360' (45)	616' (77)	960' (120)
	30 psi	384' (48)	488' (61)	840' (105)	1,303' (163)
	35 psi	448' (56)	576' (72)	984' (123)	1,535' (192)
	40 psi	496' (62)	640' (80)	1,103' (138)	1,719' (215)
	45 psi	544' (68)	696' (87)	1,199' (150)	1,871' (234)

Reading the Length of Run Chart

220' (110)

Flow: 3.2 GPH

Spacing: 24"

Pressure: 35 psi

PE Pipe Size: 1/2"

Maximum Run Length: 220'

Number of Pots: 110

6.6 GPH Grey

24	25 psi	68' (34)	88' (44)	154' (77)	240' (120)
	30 psi	92' (46)	118' (59)	208' (104)	326' (163)
	35 psi	106' (53)	138' (69)	244' (122)	384' (192)
	40 psi	120' (60)	154' (77)	274' (137)	430' (215)
	45 psi	130' (65)	166' (83)	298' (149)	468' (234)
36	25 psi	90' (30)	117' (39)	204' (68)	315' (105)
	30 psi	123' (41)	156' (52)	276' (92)	429' (143)
	35 psi	144' (48)	183' (61)	324' (108)	504' (168)
	40 psi	159' (53)	204' (68)	360' (120)	564' (188)
	45 psi	174' (58)	222' (74)	393' (131)	615' (205)
48	25 psi	112' (28)	144' (36)	244' (61)	384' (96)
	30 psi	152' (38)	192' (48)	332' (83)	520' (130)
	35 psi	176' (44)	224' (56)	392' (98)	612' (153)
	40 psi	196' (49)	252' (63)	436' (109)	684' (171)
	45 psi	212' (53)	272' (68)	476' (119)	744' (186)
60	25 psi	115' (23)	145' (29)	255' (51)	400' (80)
	30 psi	160' (32)	205' (41)	365' (73)	575' (115)
	35 psi	195' (39)	245' (49)	435' (87)	685' (137)
	40 psi	220' (44)	275' (55)	490' (98)	770' (154)
	45 psi	240' (48)	305' (61)	535' (107)	840' (168)
72	25 psi	150' (25)	186' (31)	324' (54)	498' (83)
	30 psi	198' (33)	252' (42)	438' (73)	678' (113)
	35 psi	234' (39)	300' (50)	510' (85)	798' (133)
	40 psi	258' (43)	330' (55)	570' (95)	893' (149)
	45 psi	282' (47)	360' (60)	624' (104)	972' (162)
96	25 psi	176' (22)	232' (29)	392' (49)	600' (75)
	30 psi	240' (30)	304' (38)	528' (66)	816' (102)
	35 psi	280' (35)	360' (45)	616' (77)	960' (120)
	40 psi	312' (39)	400' (50)	696' (87)	1,079' (135)
	45 psi	344' (43)	440' (55)	752' (94)	1,176' (147)

7.9 GPH Brown

		Polyethylene (PE) Pipe Size			
Spacing (inches)	Inlet Pressure	16mm (0.52" ID)	1/2" (0.60" ID)	3/4" (0.82" ID)	1" (1.06" ID)
24	25 psi	60' (30)	78' (39)	138' (69)	214' (107)
	30 psi	82' (41)	104' (52)	186' (93)	290' (145)
	35 psi	96' (48)	122' (61)	218' (109)	342' (171)
	40 psi	108' (54)	136' (68)	244' (122)	382' (191)
	45 psi	115' (57)	148' (74)	264' (132)	416' (208)
36	25 psi	81' (27)	105' (35)	180' (60)	282' (94)
	30 psi	108' (36)	141' (47)	246' (82)	384' (128)
	35 psi	129' (43)	165' (55)	288' (96)	450' (150)
	40 psi	144' (48)	183' (61)	321' (107)	504' (168)
	45 psi	156' (52)	198' (66)	351' (117)	546' (182)
48	25 psi	100' (25)	128' (32)	220' (55)	340' (85)
	30 psi	132' (33)	172' (43)	296' (74)	464' (116)
	35 psi	156' (39)	200' (50)	348' (87)	544' (136)
	40 psi	176' (44)	224' (56)	392' (98)	608' (152)
	45 psi	192' (48)	244' (61)	424' (106)	664' (166)
60	25 psi	100' (20)	130' (26)	230' (46)	355' (71)
	30 psi	145' (29)	185' (37)	325' (65)	510' (102)
	35 psi	170' (34)	220' (44)	385' (77)	610' (122)
	40 psi	195' (39)	250' (50)	435' (87)	685' (137)
	45 psi	210' (42)	270' (54)	475' (95)	750' (150)
72	25 psi	132' (22)	168' (28)	288' (48)	444' (74)
	30 psi	180' (30)	228' (38)	390' (65)	606' (101)
	35 psi	210' (35)	264' (44)	456' (76)	714' (119)
	40 psi	234' (39)	294' (49)	510' (85)	798' (133)
	45 psi	252' (42)	324' (54)	558' (93)	864' (144)
96	25 psi	160' (20)	200' (25)	344' (43)	536' (67)
	30 psi	216' (27)	272' (34)	472' (59)	728' (91)
	35 psi	256' (32)	320' (40)	552' (69)	856' (107)
	40 psi	280' (35)	360' (45)	616' (77)	960' (120)
	45 psi	304' (38)	392' (49)	672' (84)	1,048' (131)

Reading the Length of Run Chart

348' (87)

Flow: 7.9 GPH

Spacing: 48"

Pressure: 35 psi

PE Pipe Size: 3/4"

Maximum Run Length: 348'

Number of Pots: 87

10.6 GPH Blue

24	25 psi	50' (25)	64' (32)	114' (57)	178' (89)
	30 psi	68' (34)	88' (44)	154' (77)	242' (121)
	35 psi	80' (40)	102' (51)	182' (91)	284' (142)
	40 psi	88' (44)	115' (57)	204' (102)	318' (159)
	45 psi	96' (48)	121' (61)	218' (109)	346' (173)
36	25 psi	69' (23)	87' (29)	150' (50)	234' (78)
	30 psi	90' (30)	117' (39)	204' (68)	318' (106)
	35 psi	108' (36)	138' (46)	240' (80)	375' (125)
	40 psi	120' (40)	153' (51)	267' (89)	420' (140)
	45 psi	129' (43)	161' (54)	291' (97)	456' (152)
48	25 psi	84' (21)	108' (27)	184' (46)	284' (71)
	30 psi	112' (28)	144' (36)	248' (62)	388' (97)
	35 psi	132' (33)	168' (42)	292' (73)	456' (114)
	40 psi	148' (37)	188' (47)	324' (81)	508' (127)
	45 psi	160' (40)	204' (51)	352' (88)	552' (138)
60	25 psi	85' (17)	105' (21)	190' (38)	295' (59)
	30 psi	120' (24)	150' (30)	270' (54)	425' (85)
	35 psi	140' (28)	180' (36)	320' (64)	505' (101)
	40 psi	160' (32)	205' (41)	360' (72)	570' (114)
	45 psi	175' (35)	225' (45)	395' (79)	620' (124)
72	25 psi	108' (18)	138' (23)	240' (40)	372' (62)
	30 psi	150' (25)	192' (32)	324' (54)	504' (84)
	35 psi	174' (29)	222' (37)	384' (64)	594' (99)
	40 psi	192' (32)	246' (41)	426' (71)	666' (111)
	45 psi	210' (35)	270' (45)	462' (77)	720' (120)
96	25 psi	136' (17)	168' (21)	288' (36)	448' (56)
	30 psi	184' (23)	232' (29)	392' (49)	608' (76)
	35 psi	208' (26)	272' (34)	464' (58)	720' (90)
	40 psi	232' (29)	304' (38)	512' (64)	800' (100)
	45 psi	256' (32)	328' (41)	560' (70)	871' (109)