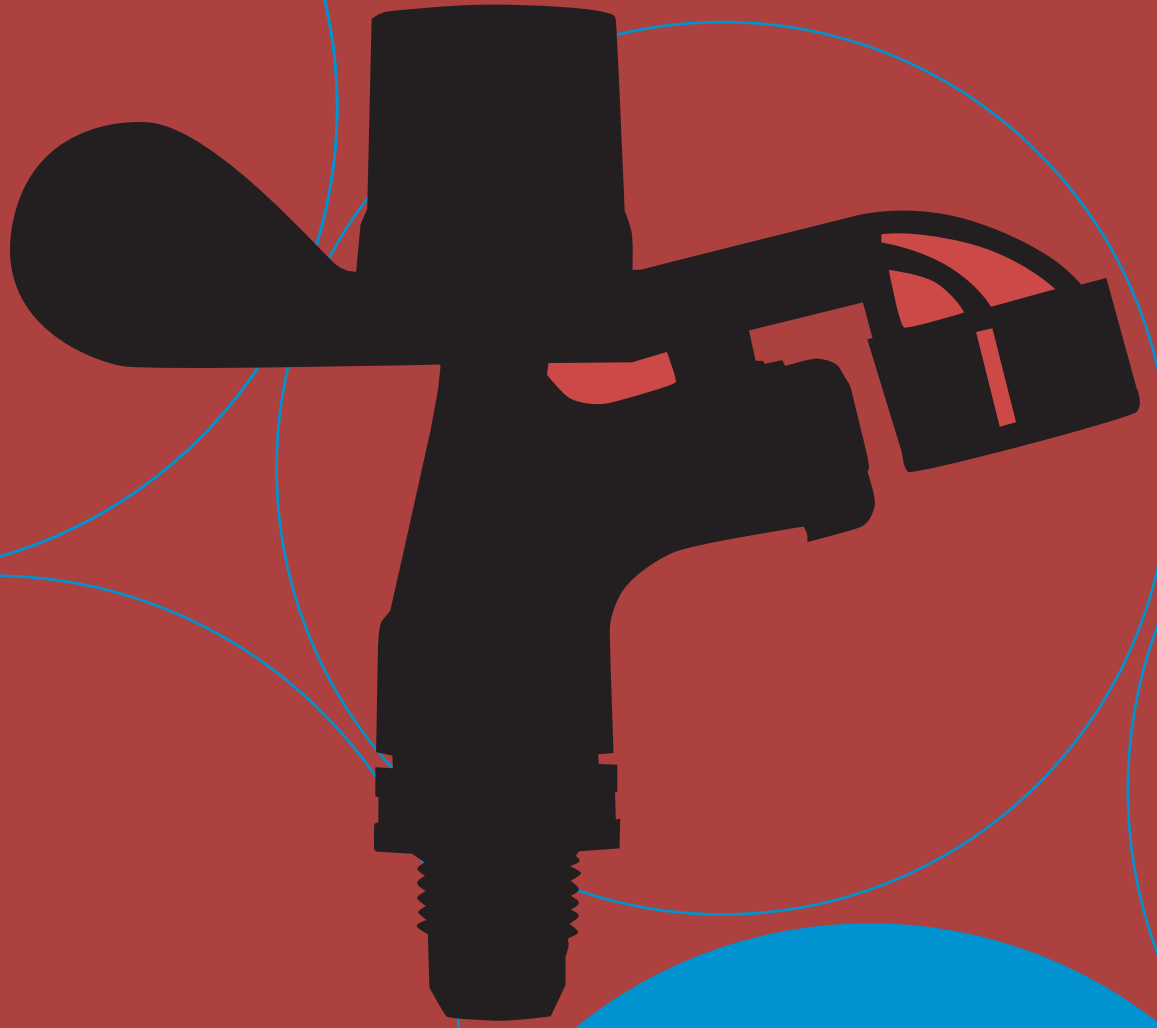


SOLID SET PRODUCTS



**Senninger**[®]
Irrigation, Inc.

Contents [Products



Since 1963 Senninger products have been constructed entirely of engineering-grade thermoplastics for strength and durability. They are warranted for two years on materials, workmanship and performance. Nozzles are color-coded for easy size identification and warranted to maintain correct orifice size for five years.

Figures reflect data from tests performed in accordance with the American Society of Agriculture and Biological Engineers (ASABE) standard S398.1. Consult factory for availability of other nozzles.



3 **Mister**
[upright or inverted]



4 **Super Spray**
[upright or inverted]



5 **Spray Stakes**



5 **Triad**



12 **Xcel Wobbler**
[high or mid angle]



6 **Smooth Drive**



14 **Impact Sprinklers**
[20 Series]



7 **T-Spray**
[upright or inverted]



16 **Impacts Sprinklers**
[30,40,50 Series]



8 **mini & i-mini Wobblers**
[upright or inverted]



22 **Impact Sprinklers**
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10 **Wobblers**
[standard or low angle]



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[70,80 Series]



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[Landscape Grade, Low Flow, Medium Flow, High Flow, Extended Flow, Limiting Valve]

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Upright&Inverted]Mister™

FEATURES:

- Outstanding uniformity
- Bridge-less design for uninterrupted 360° pattern
- Easy to clean nozzle and check valve, quick twist tool-free disassembly
- Multiple connection options to retrofit existing systems
- Color-coded nozzles
- Engineering-grade UV-resistant thermoplastic construction
- Built-in check valve (inverted models)
- Minimum operating pressure 30 psi or 2 bar

The NEW patented Senninger Mister is designed specifically for propagation or other low volume misting application. Innovative internal check valve prevents draining from inverted models immediately following each irrigation session. It also provides consistent system start-up delivering an instantaneous, highly uniform distribution ideal for short-cycle applications.

NEW!



Upright Recommended Spacing- at 12 in. above crop

	Double Row	R O Y G	Single Row	R O Y G
4 ft [1.22 m] Table				
Head Spacing	2-4 ft [0.61-1.22 m]	● ● ● ●	2-3.5 ft [0.61-1.07 m] 2-3 ft [0.61-0.92 m]	● ● ● ●
Lateral Spacing	2 ft [0.61 m] 2-4 ft [0.61-1.22 m]	● ● ● ●		
5 ft [1.53 m] Table				
Head Spacing	2-3 ft [0.61-0.92 m]	● ● ● ●	3 ft [0.92 m]	● ● ● ●
Lateral Spacing	2-4 ft [0.61-1.22 m]	● ● ● ●	2-3 ft [0.61-0.92 m]	● ● ● ●
6 ft [1.83 m] Table				
Head Spacing	2-3 ft [0.61-0.92 m]	● ● ● ●	2-3 ft [0.61-0.92 m]	● ● ● ●
Lateral Spacing	2-4 ft [0.61-1.22 m] 3-4 ft [0.82-1.22 m] 2.5-4 ft [0.76-1.22 m] 2-4 ft [0.61-1.22 m]	● ● ● ●		

Data shown at 30 psi [2 bar]. Other spacing options may produce higher uniformities and lower scheduling coefficients. Check valve option available with different spacing recommendations. Consult factory for details.

Upright Nozzles



Red (R)
6.8 to 8.6 gph
(25.7 to 32.6 lph)

Orange (O)
10.8 to 14.0 gph
(40.9 to 53.0 lph)

Yellow (Y)
14.1 to 18.3 gph
(53.4 to 69.3 lph)

Green (G)
17.8 to 23.4 gph
(67.4 to 88.6 lph)



Connections:

1/4" barb



3/8" M BSW
-1/4" F press



1/2" M
NPT



1/4" M
press fit



Inverted Nozzles



Blue (B)
12.5 to 16.2 gph
(47.3 to 61.3 lph)

Lt. Blue (LT BL)
7.5 to 9.7 gph
(28.4 to 36.7 lph)

Purple (P)
15.9 to 20.5 gph
(60.2 to 77.6 lph)

Black (BK)
17.8 to 23.4 gph
(67.4 to 88.6 lph)

The Mister Drop Adapter Assembly is available in overall lengths of 3, 4, or 6 ft (0.92, 1.22, or 1.83 m) Components include: 1/4" barb x barb connector; 1/4" tubing; slip-over weight; Mister

Inverted Recommended Spacing- at 24 in. above crop

	Double Row	LT BL BL P BK	Single Row	LT BL BL P BK
4 ft [1.22 m] Table				
Head Spacing	2-4 ft [0.61-1.22 m]	● ● ● ●	2-2.5 ft [0.61-0.76 m]	● ● ● ●
Lateral Spacing	2-3.5 ft [0.61-1.07 m] 2-3 ft [0.61-0.92 m] 2-2.5 ft [0.61-0.76 m] 2.5-3 ft [0.76-0.92 m]	● ● ● ●		
5 ft [1.53 m] Table				
Head Spacing	2-4 ft [0.61-1.22 m]	● ● ● ●	2-2.5 ft [0.61-0.76 m]	● ● ● ●
Lateral Spacing	2-3 ft [0.61-0.92 m] 2-2.5 ft [0.61-0.76 m] 2.5-3 ft [0.76-0.92 m]	● ● ● ●	2 ft [0.61 m]	● ● ● ●
6 ft [1.83 m] Table				
Head Spacing	2-3.5 ft [0.61-1.07 m]	● ● ● ●	2.5 ft [0.76 m]	● ● ● ●
Lateral Spacing	2-2.5 ft [0.61-0.76 m] 3-3.5 ft [0.92-1.07 m] 2.5-3.5 ft [0.76-1.07 m] 2.5 ft [0.76 m] 2 ft [0.61 m]	● ● ● ●		

Data shown at 30 psi [2 bar]. Other spacing options may produce higher uniformities and lower scheduling coefficients. Consult factory for details.

SuperSpray® [Sprays



The Super Spray's interchangeable deflector pads allow customization of spray angle and droplet size.



FEATURES:

- For upright or inverted installations
- Standard inlet: 3/4" or 1/2" NPT male
- Flow rates: 0.54 to 6.54 gpm [130 to 1548 L/hr]
- Deflector pads available in flat, concave, convex and smooth, medium-grooved or deep grooved
- Two-year warranty on materials, workmanship AND performance
- Color-coded nozzles for easy size identification /warranted to maintain correct orifice size for five years

U.S. Data								Metric	[bar]	0.75	1.0	1.5	2.0	2.5	3.0
Sprinkler Base Press. [psi]	10	15	20	25	30	35	40	Data	[psi]	10.88	14.50	21.75	29.00	36.25	43.50
#5 Nozzle - Beige [5/64"]								#5 Nozzle - Beige [1.98mm]							
Flow [gpm]	0.54	0.66	0.77	0.86	0.94	1.01	1.08	Flow [L/hr]	130	148	180	209	234	256	
Diam. at 3.0' ht. [ft.]	15.0	17.0	18.0	18.5	19.0	19.5	20.0	Diam. at 1.0m ht. [m]	4.7	5.1	5.5	5.8	6.0	6.2	
Diam. at 6.0' ht. [ft.]	15.5	17.5	19.5	21.5	22.5	23.5	24.5	Diam. at 2.0m ht. [m]	4.8	5.3	6.2	6.8	7.2	7.5	
#6 Nozzle - Gold [3/32"]								#6 Nozzle - Gold [2.38mm]							
Flow [gpm]	0.78	0.96	1.11	1.24	1.36	1.47	1.57	Flow [L/hr]	180	216	252	288	324	360	
Diam. at 3.0' ht. [ft.]	16.0	17.5	18.5	19.5	20.0	20.5	21.0	Diam. at 1.0m ht. [m]	5.0	5.3	5.7	6.1	6.3	6.5	
Diam. at 6.0' ht. [ft.]	17.5	19.5	21.5	23.5	24.5	25.5	26.5	Diam. at 2.0m ht. [m]	5.4	5.9	6.5	7.4	7.6	8.1	
#7 Nozzle - Lime [7/64"]								#7 Nozzle - Lime [2.78mm]							
Flow [gpm]	1.08	1.32	1.52	1.70	1.87	2.02	2.15	Flow [L/hr]	252	288	360	432	468	504	
Diam. at 3.0' ht. [ft.]	16.5	18.0	19.5	20.5	21.5	22.0	22.5	Diam. at 1.0m ht. [m]	5.1	5.4	6.0	6.5	6.7	7.0	
Diam. at 6.0' ht. [ft.]	19.5	21.5	23.5	25.5	26.5	27.5	28.5	Diam. at 2.0m ht. [m]	6.1	6.5	7.4	8.0	8.5	8.7	
#8 Nozzle - Lavender [1/8"]								#8 Nozzle - Lavender [3.18mm]							
Flow [gpm]	1.42	1.74	2.01	2.25	2.46	2.66	2.84	Flow [L/hr]	324	396	468	540	612	684	
Diam. at 3.0' ht. [ft.]	17.0	18.5	20.5	22.5	23.5	24.0	24.5	Diam. at 1.0m ht. [m]	5.3	5.6	6.5	7.1	7.4	7.6	
Diam. at 6.0' ht. [ft.]	21.0	23.0	25.0	27.0	28.0	29.0	30.0	Diam. at 2.0m ht. [m]	6.5	6.9	7.8	8.5	8.9	9.1	
#9 Nozzle - Grey [9/64"]								#9 Nozzle - Grey [3.57]							
Flow [gpm]	1.80	2.21	2.55	2.85	3.12	3.37	3.60	Flow [L/hr]	432	504	612	684	792	864	
Diam. at 3.0' ht. [ft.]	17.5	19.5	21.5	23.5	25.0	26.0	26.5	Diam. at 1.0m ht. [m]	5.4	5.9	6.8	7.5	8.0	8.2	
Diam. at 6.0' ht. [ft.]	22.0	25.0	27.0	29.0	30.0	31.0	32.0	Diam. at 2.0m ht. [m]	6.9	7.5	8.4	9.1	9.5	9.8	
#10 Nozzle - Turquoise [5/32"]								#10 Nozzle - Turquoise [3.97mm]							
Flow [gpm]	2.25	2.75	3.18	3.56	3.90	4.21	4.50	Flow [L/hr]	540	612	756	864	972	1080	
Diam. at 3.0' ht. [ft.]	18.5	21.0	23.0	25.0	26.5	27.5	28.0	Diam. at 1.0m ht. [m]	5.8	6.3	7.2	8.0	8.4	8.6	
Diam. at 6.0' ht. [ft.]	23.0	26.0	28.0	30.0	31.0	32.0	33.0	Diam. at 2.0m ht. [m]	7.2	7.8	8.7	9.4	9.8	10.1	
#11 Nozzle - Yellow [11/64"]								#11 Nozzle - Yellow [4.37mm]							
Flow [gpm]	2.73	3.35	3.87	4.33	4.74	5.12	5.47	Flow [L/hr]	648	756	900	1044	1188	1296	
Diam. at 3.0' ht. [ft.]	20.5	23.0	25.0	27.0	28.5	29.5	30.0	Diam. at 1.0m ht. [m]	6.4	6.9	7.8	8.6	9.0	9.3	
Diam. at 6.0' ht. [ft.]	24.0	27.0	29.0	31.0	32.0	33.0	34.0	Diam. at 2.0m ht. [m]	7.5	8.1	9.1	9.7	10.1	10.4	
#12 Nozzle - Red [3/16"]								#12 Nozzle - Red [4.76mm]							
Flow [gpm]	3.27	4.01	4.63	5.18	5.67	6.13	6.54	Flow Flow [L/hr]	792	900	1080	1260	1404	1548	
Diam. at 3.0' ht. [ft.]	22.5	25.0	27.0	29.0	30.5	31.5	32.0	Diam. at 1.0m ht. [m]	7.0	7.5	8.4	9.2	9.6	9.9	
Diam. at 6.0' ht. [ft.]	25.0	28.0	30.0	32.0	33.0	34.0	35.0	Diam. at 2.0m ht. [m]	7.8	8.4	9.4	10.0	10.4	10.7	

Sprinkler performance may vary with actual field conditions. Performance data shown is based on the Super Spray being used with the flat smooth deflector pad. Other nozzle sizes and deflector pads are available; consult factory for specific performance data. Stream height is approximately the same as the nozzle height when using the flat smooth deflector pad under no wind conditions. Minimum recommended riser height is 1.5 ft. (0.46 m).

Sprays] SprayStakes

Senninger Spray Stakes are an intelligent choice for in-container irrigation.

FEATURES:

- Directional indicator for easy positioning
- Easy to remove for cleaning and maintenance
- Shut-off feature for non-use
- Large flutes for increased stability in soil
- Three color-coded flow rates to match application requirements
- Deflection surface provides a good application pattern
- Two-year warranty on materials, workmanship AND performance



[For use with 0.125" I.D. Tubing]

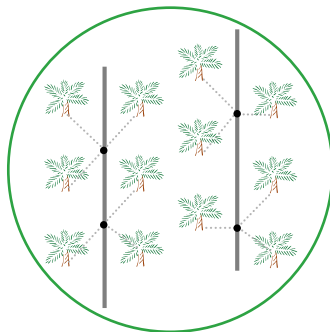


Emitter Selection-based on container size or area

Container Size	Radius of Coverage	Spray Stake	Flow @20 psi [1.38 bar]	Distribution Pattern
10 gallon	12" [0.31m]	black	4 gph [15.1 lph]	90 Degrees
15 gallon	18" [0.46m]	brown	8 gph [30.3 lph]	120 Degrees
30 gallon	20" [0.51m]	green	12 gph [45.4 lph]	160 Degrees

The Triad is an excellent alternative to micro-irrigation. It's a unique 3-stream sprinkler for orchard irrigation that's ideal for irrigating small root zones associated with young trees.

Spray] Triad



The Senninger Triad uses one line of polyethylene tube every other row and one emitter for every three trees.*

FEATURES:

- Recommended for oil palms, pecans, coconuts, mangos, citrus, walnut and other fruit trees.
- 3 adjustable nozzles for precise direction and trajectory control.
- 3/4" slip F base solvent-welds directly to PVC riser, eliminating the need for a connecting fitting.
- Requires less filtration than traditional micro-irrigation.
- Reduces the number of laterals required by 50% compared to micro sprinklers.
- Fewer lateral requirements allow greater access to trees for harvesting and orchard maintenance.



Radii

Nozzle [psi]	10	15	20	25	30	35	Metric	[bar]	0.75	1.0	1.5	2.0	2.5
								[psi]	10.88	14.50	21.75	29.00	36.25
0 Degree Trajectory							0 Degree Trajectory						
Flow** [gpm]	0.94	1.16	1.36	1.52	1.68	1.82	Flow [L/hr.]		213	263	309	382	413
Minimum throw [ft.]	9.5	12.0	13.0	13.0	13.0	13.0	Minimum throw [m]		2.85	3.65	3.96	3.96	3.96
Maximum throw [ft.]	10.0	13.5	15.0	16.5	17.0	17.5	Maximum throw [m]		3.04	4.11	4.57	5.18	5.33
30 Degrees Trajectory							30 Degrees Trajectory						
Minimum throw [ft.]	17.5	23.5	25.0	25.5	26.0	26.5	Minimum throw [m]		5.33	7.16	7.62	7.92	8.08
Maximum throw [ft.]	21.5	29.0	31.5	32.5	33.5	34.5	Maximum throw [m]		6.55	8.84	9.60	10.21	10.52

* Tree diking is recommended for best water retention. ** Flow rate is for all three nozzles combined. Riser height is 1.5ft. (0.46m)

SmoothDrive™ [Non-Impact

NEW!





**SEE PG. 34
FOR RISER
ADAPTER!**

Senninger's new Smooth Drive is designed for under-tree, open-field and nursery irrigation. Its unique "walking diffuser" helps deliver an extremely uniform pattern, without distortion from bracket legs.

FEATURES:

- Precision-contoured deflector provides greater throw and enhanced distribution
- Advanced braking mechanism for smooth, consistent rotation speed and minimal riser stress
- Rugged design stands up in harsh field conditions
- User friendly method of assembly no tools required for accessing nozzle
- Flow rates: 1.22 to 2.79 gpm [279 to 633 L/hr]
- Operating pressures: 25 to 40 psi [1.75 to 2.75 bar]
- Standard Inlet: 1/2" M NPT; Optional Inlet: Combination 1/2" socket and 3/4" spigot, solvent-weld base for theft resistance
- Two-year warranty on materials, workmanship AND performance
- Color-coded nozzles for easy size identification /warranted to maintain correct orifice size for five years



Ordinary Devices	Smooth Drive
	
Shadows created by fixed bracket legs	Walking diffuser eliminates leg shadows
<p>Ordinary rotating sprinklers have stationary legs that block water and create leg shadows (drier areas). The Smooth Drive's walking diffuser eliminates bracket leg shadows resulting in unobstructed uniform distribution.</p>	

SD2214

U.S. Data					Metric	[bar]	1.75	2.0	2.5	2.75
Sprinkler Base Press. [psi]	25	30	35	40	Data	[psi]	25.38	29.00	36.25	39.88
#6 Nozzle - Gold [3/32"]					#6 Nozzle - Gold [2.38mm]					
Flow [gpm]	1.22	1.34	1.45	1.55	Flow [L/hr]		279	299	335	352
Diam. at 1.5' ht. [ft.]	58.2	59.4	60.6	61.4	Diam. at 0.5m ht. [m]		17.8	18.1	18.6	18.8
#7 Nozzle - Lime [7/64"]					#7 Nozzle - Lime [2.78mm]					
Flow [gpm]	1.68	1.84	1.99	2.12	Flow [L/hr]		384	411	459	481
Diam. at 1.5' ht. [ft.]	60.4	62.6	64.2	65.0	Diam. at 0.5m ht. [m]		18.5	18.9	19.7	19.9
#8 Nozzle - Lavender [1/8"]					#8 Nozzle - Lavender [3.18mm]					
Flow [gpm]	2.21	2.42	2.62	2.79	Flow [L/hr]		506	540	605	633
Diam. at 1.5' ht. [ft.]	60.8	63.2	65.4	66.8	Diam. at 0.5m ht. [m]		18.6	19.1	20.1	20.4

Sprinkler performance may vary with actual field conditions. Other nozzle sizes are available; consult factory for specific performance data. Minimum recommended height is 1.5 ft. (0.46 m).

Sprays] T-Spray™

The Senninger T-Spray delivers a fine spray – ideal for delicate stock. It can be mounted upright or inverted and is also available in a high angle model for upright installations only.



FEATURES:

- 360° Spray nozzle.
- No moving parts for longer life
- High-angle upright T-stem provides larger diameter of coverage
- Removable T-stem for easy cleaning
- Color-coded stems for easy size identification
- Flow rates: 0.98 to 2.85 gpm [216 to 684 L/hr]
- Operating pressures: 15 to 40 psi [1.0 to 3.0 bar]
- Inlet: 1/2" M NPT male
- Two-year warranty on materials, workmanship AND performance



Standard Angle for upright or inverted installations

U.S. Data								Metric Data					
Sprinkler Base Press. [psi]	15	20	25	30	35	40		[bar]	1.0	1.5	2.0	2.5	3.0
								[psi]	14.50	21.75	29.00	36.25	43.50
#6 Nozzle - Gold [3/32"]								#6 Nozzle - Gold [2.38mm]					
Flow [gpm]	0.98	1.14	1.27	1.40	1.52	1.63	Flow [L/hr]		216	288	324	360	396
Diam. at 1.5' ht. [ft.]	15.5	17.0	18.0	19.0	20.0	21.0	Diam. at 0.5m ht. [m]		4.7	5.3	5.7	6.2	6.5
Diam. at 3.0' ht. [ft.]	17.5	18.5	19.5	20.5	21.5	22.0	Diam. at 1.0m ht. [m]		5.3	5.7	6.2	6.6	6.8
#7 Nozzle - Lime [7/64"]								#7 Nozzle - Lime [2.78mm]					
Flow [gpm]	1.34	1.56	1.73	1.90	2.05	2.20	Flow [L/hr]		288	360	432	468	540
Diam. at 1.5' ht. [ft.]	17.0	18.5	19.5	20.5	21.0	21.5	Diam. at 0.5m ht. [m]		5.1	5.7	6.2	6.4	6.7
Diam. at 3.0' ht. [ft.]	18.5	19.5	20.5	21.5	22.5	23.0	Diam. at 1.0m ht. [m]		5.6	6.0	6.5	6.9	7.1
#8 Nozzle - Lavender [1/8"]								#8 Nozzle - Lavender [3.18mm]					
Flow [gpm]	1.73	2.01	2.23	2.45	2.65	2.85	Flow [L/hr]		396	468	540	612	684
Diam. at 1.5' ht. [ft.]	18.0	19.5	20.5	21.0	21.5	22.0	Diam. at 0.5m ht. [m]		5.4	6.0	6.4	6.6	6.8
Diam. at 3.0' ht. [ft.]	19.0	20.0	21.0	22.0	23.0	23.5	Diam. at 1.0m ht. [m]		5.7	6.2	6.6	7.0	7.3

High Angle for upright installations

U.S. Data								Metric Data					
Sprinkler Base Press. [psi]	15	20	25	30	35	40		[bar]	1.0	1.5	2.0	2.5	3.0
								[psi]	14.50	21.75	29.00	36.25	43.50
#8 Nozzle - Dark Lavender [1/8"]								#8 Nozzle - Dark Lavender [3.18mm]					
Flow [gpm]	1.73	2.01	2.23	2.45	2.65	2.85	Flow [L/hr]		396	468	540	612	684
Diam. at 1.5' ht. [ft.]	25.5	27.5	29.0	30.0	31.0	32.0	Diam. at 0.5m ht. [m]		7.7	8.5	9.1	9.5	9.9

Sprinkler performance may vary with actual field conditions. Other nozzle sizes are available; consult factory for specific performance data. Minimum recommended riser height is 1.5 ft. (0.46 m).

mini-Wobblers® [Wobblers

Upright



SEE PG. 34
FOR RISER
ADAPTER!

The Senninger mini-Wobblers employ the same unique off-center rotary-action as the standard Wobblers. It provides extremely uniform coverage over a large diameter at low pressures.

FEATURES:

- Low evaporative loss.
- Multi-level throw, approximate angle: 10°
- Color-coded nozzles for easy size identification
- Flow rates: 0.42 to 2.61 gpm [97 to 576 L/hr]
- Operating pressures: 15 to 35 psi [1.0 to 2.5 bar]
- Inlet: 1/2" M NPT
- Two-year warranty on materials, workmanship AND performance
- Color-coded nozzles for easy size identification /warranted to maintain correct orifice size for five years



The mini-Wobblers can be mounted on the Riser Adapter for installation versatility. [see pg. 34]

i-mini-Wobblers® [Wobblers

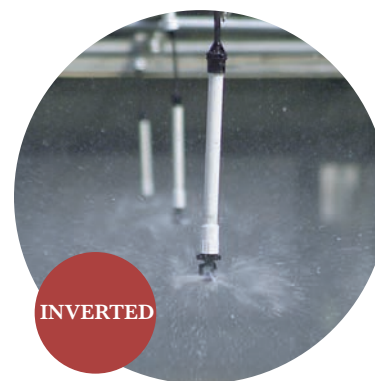
Inverted



The Senninger i-mini-Wobblers employ the same unique off-center rotary-action as the standard Wobblers. It produces a broad, rain-like application.

FEATURES:

- Low evaporative loss.
- Multi-level throw, approximate angle: 0° inverted
- Color-coded nozzles for easy size identification
- Flow rates: 0.75 to 2.61 gpm [176 to 576 L/hr]
- Operating pressures: 20 to 35 psi [1.5 to 2.5 bar]
- Inlet: 1/2" M NPT
- Two-year warranty on materials, workmanship AND performance
- Color-coded nozzles for easy size identification /warranted to maintain correct orifice size for five years



The Inverted mini-Wobblers produces a broad, rain-like application.

mini-Wobbler [Upright]

U.S. Data						Metric Data				
Sprinkler Base Press. [psi]	15	20	25	30	35	[bar] [psi]	1.0 14.50	1.5 21.75	2.0 29.00	2.5 36.25
#4 Nozzle - Light Blue [1/16"]						#4 Nozzle - Light Blue [1.59mm]				
Flow [gpm]	0.42	0.50	0.56	0.62	0.68	Flow [L/hr]	97	119	137	151
Diam. at 1.5' ht. [ft.]	26.5	28.0	29.0	30.0	30.5	Diam. at 0.5m ht. [m]	8.0	8.7	9.1	9.3
Diam. at 3.0' ht. [ft.]	31.0	32.0	33.0	33.5	34.0	Diam. at 1.0m ht. [m]	9.3	9.8	10.2	10.4
#5 Nozzle - Beige [5/64"]						#5 Nozzle - Beige [1.98mm]				
Flow [gpm]	0.64	0.75	0.84	0.91	0.99	Flow [L/hr]	144	176	205	230
Diam. at 1.5' ht. [ft.]	31.0	33.5	35.0	35.5	36.0	Diam. at 0.5m ht. [m]	9.3	10.4	10.8	11.0
Diam. at 3.0' ht. [ft.]	36.5	39.0	39.5	39.5	39.5	Diam. at 1.0m ht. [m]	11.0	12.0	12.1	12.1
#6 Nozzle - Gold [3/32"]						#6 Nozzle - Gold [2.38mm]				
Flow [gpm]	0.95	1.10	1.25	1.36	1.47	Flow [L/hr]	216	252	288	324
Diam. at 1.5' ht. [ft.]	33.0	36.0	37.0	37.0	37.5	Diam. at 0.5m ht. [m]	10.0	11.1	11.3	11.5
Diam. at 3.0' ht. [ft.]	39.5	42.0	42.0	42.0	42.0	Diam. at 1.0m ht. [m]	11.9	12.8	12.8	12.9
#7 Nozzle - Lime [7/64"]						#7 Nozzle - Lime [2.78mm]				
Flow [gpm]	1.30	1.51	1.69	1.86	2.01	Flow [L/hr]	288	360	396	468
Diam. at 1.5' ht. [ft.]	35.0	37.5	38.5	39.0	39.0	Diam. at 0.5m ht. [m]	10.5	11.5	11.8	12.0
Diam. at 3.0' ht. [ft.]	41.0	43.0	43.0	43.0	43.0	Diam. at 1.0m ht. [m]	12.3	13.1	13.1	13.1
#8 Nozzle - Lavender [1/8"]						#8 Nozzle - Lavender [3.18mm]				
Flow [gpm]	1.67	1.95	2.18	2.39	2.61	Flow [L/hr]	360	468	540	576
Diam. at 1.5' ht. [ft.]	35.5	38.5	39.0	39.5	40.0	Diam. at 0.5m ht. [m]	10.8	11.8	12.0	12.2
Diam. at 3.0' ht. [ft.]	41.5	43.0	43.5	43.5	43.5	Diam. at 1.0m ht. [m]	12.5	13.2	13.2	13.2

Also available with #9 and #10 Nozzle. Consult factory for specific performance data.

Sprinkler performance may vary with actual field conditions. Upright model stream heights range from 1.5 - 3.0 ft (0.46 - 0.9 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46 m).

i-mini-Wobbler [Inverted]

U.S. Data					Metric Data			
Sprinkler Base Press. [psi]	20	25	30	35	[bar] [psi]	1.5 21.75	2.0 29.00	2.5 36.25
#5 Nozzle-Beige [5/64"]					#5 Nozzle - Beige [1.98mm]			
Flow [gpm]	0.75	0.84	0.91	0.99	Flow [L/hr]	176	205	230
Diam. at 3.0' ht. [ft.]	30.0	31.0	31.0	31.5	Diam. at 1.0m ht. [m]	9.27	9.48	9.59
Diam. at 6.0' ht. [ft.]	32.0	32.5	33.0	33.0	Diam. at 2.0m ht. [m]	9.76	9.97	9.59
#6 Nozzle-Gold [3/32"]					#6 Nozzle - Gold [2.38mm]			
Flow [gpm]	1.10	1.25	1.36	1.47	Flow [L/hr]	252	288	324
Diam. at 3.0' ht. [ft.]	31.0	31.4	31.8	32.0	Diam. at 1.0m ht. [m]	9.45	9.67	9.77
Diam. at 6.0' ht. [ft.]	34.0	34.5	35.0	35.0	Diam. at 2.0m ht. [m]	10.4	10.6	10.8
#7 Nozzle-Lime [7/64"]					#7 Nozzle - Lime [2.78mm]			
Flow [gpm]	1.51	1.69	1.86	2.01	Flow [L/hr]	360	396	468
Diam. at 3.0' ht. [ft.]	31.0	32.0	32.0	32.5	Diam. at 1.0m ht. [m]	9.57	9.79	9.89
Diam. at 6.0' ht. [ft.]	35.0	35.5	36.0	36.5	Diam. at 2.0m ht. [m]	10.7	11.0	11.1
#8 Nozzle-Lavender [1/8"]					#8 Nozzle - Lavender [3.18mm]			
Flow [gpm]	1.95	2.18	2.39	2.61	Flow [L/hr]	468	540	576
Diam. at 3.0' ht. [ft.]	31.5	32.0	32.5	33.0	Diam. at 1.0m ht. [m]	9.70	9.91	10.0
Diam. at 6.0' ht. [ft.]	35.5	36.0	36.5	37.0	Diam. at 2.0m ht. [m]	10.9	11.1	11.3

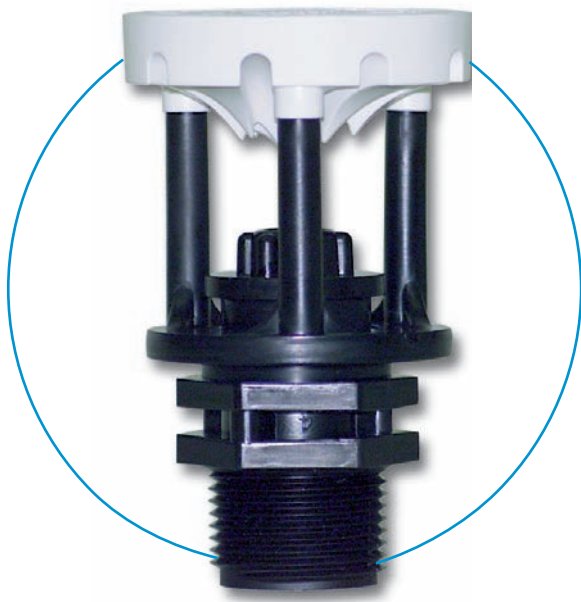
Sprinkler performance may vary with actual field conditions. Inverted model stream heights range from 0.5 - 1.5 ft (0.2 - 0.46 m) above nozzle based on pressure and nozzle size.

Wobblers® [Standard&Low Angle



Standard-Angle

NOTE:
Care must be taken to stabilize the riser. For other installation details, contact our factory.



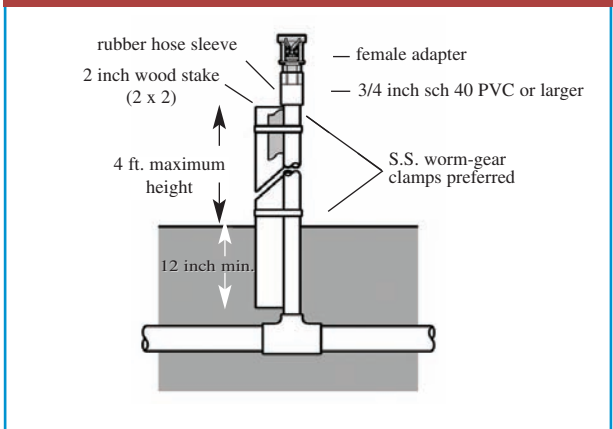
Low-Angle

The Senninger Wobbler has a unique off-center rotary-action. This design provides extremely uniform coverage over a large diameter at low pressures.

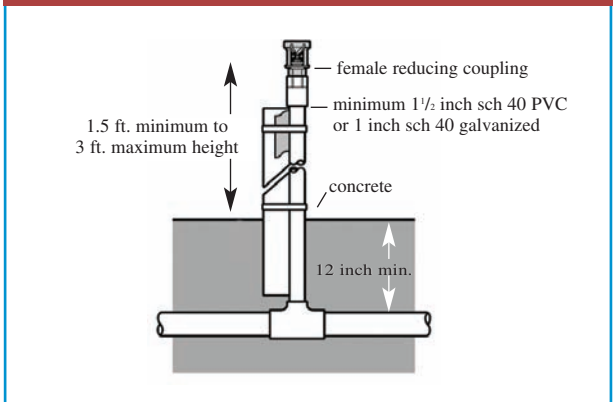
FEATURES:

- Only one moving part for longer life
- Built for strength and durability
- Flow rates: 0.78 to 8.25 gpm [180 to 1908 L/hr]
- Low evaporative loss
- Inlet: 3/4" and 1/2" M NPT
- Two-year warranty on materials, workmanship AND performance
- Color-coded nozzles for easy size identification /warranted to maintain correct orifice size for five years.

WOBBLER ON RISER SUPPORTED WITH STAKE



WOBBLER ON RISER WITH CONCRETE



Standard & Low Angle] Wobblers®



The Wobbler produces droplets which resist wind drift.

U.S. Data							Metric Data					
Sprinkler Base Press. [psi]	10	15	20	25	30	35	[bar]	0.75	1.0	1.5	2.0	2.5
							[psi]	10.88	14.50	21.75	29.00	36.25
#6 Nozzle - Gold [3/32"]							#6 Nozzle - Gold [2.38mm]					
Flow [gpm]	0.78	0.95	1.10	1.23	1.35	1.45	Flow [L/hr]	180	216	252	288	324
SA Diam. at 1.5' ht. [ft.]	34.0	39.0	41.5	43.5	44.0	45.0	SA Diam. at 0.5m ht. [m]	10.6	11.7	12.9	13.4	13.8
LA Diam. at 1.5' ht. [ft.]	29.0	34.5	38.0	40.5	41.0	-	LA Diam. at 0.5m ht. [m]	9.1	10.4	11.9	12.5	-
#7 Nozzle - Lime [7/64"]							#7 Nozzle - Lime [2.78mm]					
Flow [gpm]	1.06	1.30	1.50	1.68	1.84	1.99	Flow [L/hr]	252	288	360	396	468
SA Diam. at 1.5' ht. [ft.]	36.5	41.5	43.5	45.0	45.5	46.5	SA Diam. at 0.5m ht. [m]	11.4	12.5	13.4	13.8	14.2
LA Diam. at 1.5' ht. [ft.]	31.5	37.0	40.0	41.5	42.0	-	LA Diam. at 0.5m ht. [m]	9.9	11.1	12.4	12.8	-
#8 Nozzle - Lavender [1/8"]							#8 Nozzle - Lavender [3.18mm]					
Flow [gpm]	1.40	1.71	1.98	2.21	2.42	2.62	Flow [L/s]	324	396	468	540	612
SA Diam. at 1.5' ht. [ft.]	38.5	43.5	45.0	46.5	47.0	48.0	SA Diam. at 0.5m ht. [m]	12.0	13.1	13.9	14.3	14.7
LA Diam. at 1.5' ht. [ft.]	34.0	39.0	41.5	42.5	43.0	-	LA Diam. at 0.5m ht. [m]	10.6	11.7	12.8	13.1	-
#9 Nozzle - Grey [9/64"]							#9 Nozzle - Grey [3.57mm]					
Flow [gpm]	1.80	2.20	2.54	2.84	3.11	3.36	Flow [L/hr]	432	504	612	684	792
SA Diam. at 1.5' ht. [ft.]	40.5	45.5	46.5	47.5	48.0	49.0	SA Diam. at 0.5m ht. [m]	12.6	13.7	14.3	14.6	15.0
LA Diam. at 1.5' ht. [ft.]	35.5	40.5	42.5	43.5	44.0	-	LA Diam. at 0.5m ht. [m]	11.1	12.2	13.1	13.4	-
#10 Nozzle - Turquoise [5/32"]							#10 Nozzle - Turquoise [3.97mm]					
Flow [gpm]	2.22	2.72	3.14	3.51	3.85	4.16	Flow [L/hr]	540	612	756	864	972
SA Diam. at 1.5' ht. [ft.]	42.0	47.0	48.0	48.5	49.0	50.0	Standard Angle	13.1	14.2	14.7	14.9	15.3
LA Diam. at 1.5' ht. [ft.]	36.0	41.0	43.0	44.0	44.5	-	LA Diam. at 0.5m ht. [m]	11.2	12.3	13.2	13.5	-
#11 Nozzle - Yellow [1 1/64"]							#11 Nozzle - Yellow [4.37mm]					
Flow [gpm]	2.69	3.30	3.81	4.26	4.67	5.05	Flow [L/hr]	648	720	900	1040	1152
SA Diam. at 1.5' ht. [ft.]	43.0	48.0	49.0	49.5	50.0	51.0	SA Diam. at 0.5m ht. [m]	13.4	14.5	15.0	15.2	15.6
LA Diam. at 1.5' ht. [ft.]	36.5	42.0	43.5	44.5	45.0	-	LA Diam. at 0.5m ht. [m]	11.4	12.6	13.4	13.7	-
#12 Nozzle - Red [3/16"]							#12 Nozzle - Red [4.76mm]					
Flow [gpm]	3.23	3.96	4.57	5.11	5.60	6.05	Flow [L/hr]	756	900	1080	1260	1404
SA Diam. at 1.5' ht. [ft.]	44.0	49.0	50.0	50.5	51.0	51.5	SA Diam. at 0.5m ht. [m]	13.7	14.8	15.3	15.5	15.7
LA Diam. at 1.5' ht. [ft.]	37.0	42.5	44.0	45.0	45.5	-	LA Diam. at 0.5m ht. [m]	11.6	12.8	13.5	13.8	-
#13 Nozzle - White [1 3/64"]							#13 Nozzle - White [5.16mm]					
Flow [gpm]	3.80	4.65	5.38	6.01	6.59	7.12	Flow [L/hr]	900	1044	1260	1476	1656
SA Diam. at 1.5' ht. [ft.]	44.5	49.5	50.5	51.0	51.5	52.0	SA Diam. at 0.5m ht. [m]	13.8	14.9	15.4	15.7	15.9
LA Diam. at 1.5' ht. [ft.]	37.5	43.0	44.5	45.5	46.0	-	LA Diam. at 0.5m ht. [m]	11.7	12.9	13.7	14.0	-
#14 Nozzle - Blue [7/32"]							#14 Nozzle - Blue [5.56mm]					
Flow [gpm]	4.40	5.39	6.23	6.97	7.64	8.25	Flow [L/hr]	1044	1188	1476	1692	1908
SA Diam. at 1.5' ht. [ft.]	45.0	50.0	51.0	51.5	52.0	52.5	SA Diam. at 0.5m ht. [m]	14.0	15.1	15.6	15.8	16.0
LA Diam. at 1.5' ht. [ft.]	38.0	43.5	45.0	46.0	46.5	-	LA Diam. at 0.5m ht. [m]	11.9	13.1	13.8	14.1	-

Sprinkler performance may vary with actual field conditions. Other nozzle sizes are available; consult factory for specific performance data. Stream heights range from 2.5 - 5.5 ft (0.8 - 1.7 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46 m).

Xcel-Wobbler® [Wobblers



High-Angle
New Increased Diameter

Senninger's Xcel-Wobbler maximizes the area of coverage. Its unique off-center rotary action provides extremely uniform coverage at low pressures with a very low evaporative loss.

FEATURES:

- Counter-balance design produces smooth, stable performance
- Only one moving part for longer life
- Inlet sizes 3/4" or 1/2" M NPT
- Flow rates: 0.78 to 6.97 gpm [180 to 1584 L/hr]
- Low wind drift and evaporative loss at low pressures
- Two-year warranty on materials, workmanship AND performance
- Color-coded nozzles for easy size identification / warranted to maintain correct orifice size for five years



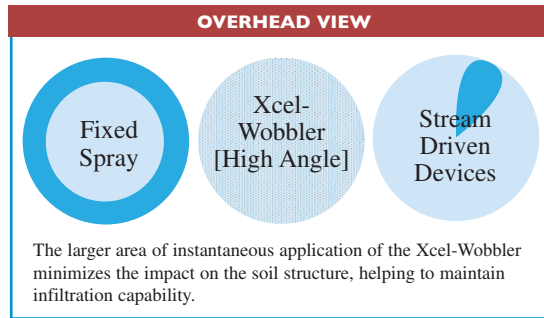
Mid-Angle
New Look & Stronger Design!



The Xcel-Wobbler provides a maximized area of coverage for under-tree applications and nursery canopy applications.



Wobblers] Xcel-Wobbler®



U.S. Data Sprinkler Base Press. [psi]	10	15	20	25	Metric Data	[bar] [psi]	0.75 10.88	1.0 14.50	1.5 21.75	1.75 25.38
#6 Nozzle - Gold [3/32"]					#6 Nozzle - Gold [2.38mm]					
Flow [gpm]	0.78	0.95	1.10	1.23	Flow [L/hr]		180	216	252	288
HA Diam. at 1.5' ht. [ft.]	36.5	41.0	45.0	46.0	HA Diam. at 0.5m ht. [m]		11.4	12.4	13.8	14.0
MA Diam. at 1.5' ht. [ft.]	32.0	35.0	38.5	41.0	MA Diam. at 0.5m ht. [m]		9.9	10.6	12.0	12.6
#7 Nozzle - Lime [7/64"]					#7 Nozzle - Lime [2.78mm]					
Flow [gpm]	1.06	1.30	1.50	1.68	Flow [L/hr]		252	288	360	396
HA Diam. at 1.5' ht. [ft.]	40.0	46.5	47.0	50.5	HA Diam. at 0.5m ht. [m]		12.5	14.0	14.7	15.5
MA Diam. at 1.5' ht. [ft.]	33.0	36.5	40.5	41.0	MA Diam. at 0.5m ht. [m]		10.2	11.0	12.4	12.5
#8 Nozzle - Lavender [1 1/8"]					#8 Nozzle - Lavender [3.18mm]					
Flow [gpm]	1.40	1.71	1.98	2.21	Flow [L/hr]		324	396	468	504
HA Diam. at 1.5' ht. [ft.]	42.0	46.5	47.0	51.5	HA Diam. at 0.5m ht. [m]		13.0	14.0	14.8	15.8
MA Diam. at 1.5' ht. [ft.]	34.0	38.5	41.0	42.5	MA Diam. at 0.5m ht. [m]		10.6	11.6	12.7	13.0
#9 Nozzle - Grey [9/64"]					#9 Nozzle - Grey [3.57mm]					
Flow [gpm]	1.80	2.20	2.54	2.84	Flow [L/hr]		432	504	612	648
HA Diam. at 1.5' ht. [ft.]	44.0	47.0	50.5	52.5	HA Diam. at 0.5m ht. [m]		13.6	14.2	15.6	16.0
MA Diam. at 1.5' ht. [ft.]	34.5	40.5	42.0	43.0	MA Diam. at 0.5m ht. [m]		10.8	12.2	12.9	13.1
#10 Nozzle - Turquoise [5/32"]					#10 Nozzle - Turquoise [3.97mm]					
Flow [gpm]	2.22	2.72	3.14	3.51	Flow [L/hr]		540	612	756	828
HA Diam. at 1.5' ht. [ft.]	44.5	49.0	50.5	53.5	HA Diam. at 0.5m ht. [m]		13.8	14.8	15.7	16.4
MA Diam. at 1.5' ht. [ft.]	36.0	41.0	42.5	44.0	MA Diam. at 0.5m ht. [m]		11.2	12.3	13.1	13.4
#11 Nozzle - Yellow [1 1/64"]					#11 Nozzle - Yellow [4.37mm]					
Flow [gpm]	2.69	3.30	3.81	4.26	Flow [L/hr]		648	720	900	972
HA Diam. at 1.5' ht. [ft.]	44.5	50.5	51.5	54.0	HA Diam. at 0.5m ht. [m]		13.9	15.2	16	16.5
MA Diam. at 1.5' ht. [ft.]	36.0	41.5	43.0	44.0	MA Diam. at 0.5m ht. [m]		11.3	12.5	13.2	13.4
#12 Nozzle - Red [3/16"]					#12 Nozzle - Red [4.76mm]					
Flow [gpm]	3.23	3.96	4.57	5.11	Flow [L/hr]		756	900	1080	1188
HA Diam. at 1.5' ht. [ft.]	46.0	50.5	52.0	54.5	HA Diam. at 0.5m ht. [m]		14.3	15.3	16.1	16.7
MA Diam. at 1.5' ht. [ft.]	36.5	41.5	44.5	44.5	MA Diam. at 0.5m ht. [m]		11.4	12.5	13.6	13.6
#13 Nozzle - White [13/64"]					#13 Nozzle - White [5.16mm]					
Flow [gpm]	3.80	4.65	5.38	6.01	Flow [L/hr]		900	1044	1260	1368
HA Diam. at 1.5' ht. [ft.]	46.5	51.0	52.5	55.5	HA Diam. at 0.5m ht. [m]		14.4	15.4	16.3	17.0
MA Diam. at 1.5' ht. [ft.]	36.5	41.5	44.5	45.0	MA Diam. at 0.5m ht. [m]		11.4	12.5	13.6	13.7
#14 Nozzle - Blue [7/32"]					#14 Nozzle - Blue [5.56mm]					
Flow [gpm]	4.40	5.39	6.23	6.97	Flow [L/hr]		1044	1188	1476	1584
HA Diam. at 1.5' ht. [ft.]	47.0	51.0	53.0	55.5	HA Diam. at 0.5m ht. [m]		14.5	15.4	16.4	17.0
MA Diam. at 1.5' ht. [ft.]	37.0	42.5	45.0	46.5	MA Diam. at 0.5m ht. [m]		11.6	12.8	13.9	14.2

Sprinkler performance may vary with actual field conditions. Other nozzle sizes are available; consult factory for specific performance data. Stream heights range from 2.5 - 5.5 ft (0.8 - 1.7 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46).

20series[Impacts



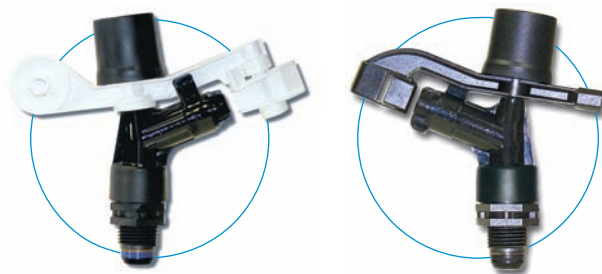
The 20 series full-circle impacts are Senninger's most economical sprinklers. Effective for various overhead and undertree applications.

FEATURES:

- Single nozzle design for maximum throw
- Three trajectories available:
2009 - 9°- fights wind drift and evaporation
2014 - 14°- ideal for undertree irrigation
2023 - 23°- for maximum throw on overhead systems
- Wide range of nozzle and vane combinations for excellent distribution at all pressures
- Built-in hex wrench for easy in-the-field maintenance
- Standard lower bearing pipe thread:
1/2" M NPT (female also available)
- Flow rates: 1.22 to 3.98 gpm [288 to 900 L/hr]
- Color-coded nozzles for easy size identification /warranted to maintain correct orifice size for five years
- Two-year warranty on materials,workmanship AND performance

Other Models:

- Wedgedrive for lower application rates.
- Aluminum Arm resists icing during freezing temperatures.



2009HD-1-1/2" M

U.S. Data Sprinkler Base Press. [psi]	30	35	40	45	50	Metric Data	[bar] [psi]	2.0 29.00	2.5 36.25	3.0 43.50	3.5 50.75
#6 Nozzle - Gold [3/32"]						#6 Nozzle-Gold [2.38mm]					
Flow [gpm]	1.34	1.45	1.55	1.64	—	Flow [L/hr]		288	324	360	—
Diam. at 1.5' ht. [ft.]	58	60	62	64	—	Diam. at 0.5m ht. [m]		17.6	18.4	19.3	—
#7 Nozzle - Lime [7/64"]						#7 Nozzle-Lime [2.78mm]					
Flow [gpm]	1.84	1.99	2.12	2.25	2.37	Flow [L/hr]		396	468	504	540
Diam. at 1.5' ht. [ft.]	60	62	64	66	67	Diam. at 0.5m ht. [m]		18.2	19.0	19.9	20.5
#8 Nozzle - Lavender [1/8"]						#8 Noz.-Lavender [3.18mm]					
Flow [gpm]	2.42	2.62	2.79	2.97	3.12	Flow [L/hr]		540	612	648	720
Diam. at 1.5' ht. ft. [ft.]	62	64	66	68	69	Diam. at 0.5m ht. [m]		18.8	19.7	20.5	21.1
#9 Nozzle - Grey [9/64"]						#9 Nozzle- Grey [3.57mm]					
Flow [gpm]	3.08	3.33	3.56	3.78	3.98	Flow [L/hr]		684	756	828	900
Diam. at 1.5' ht. [ft.]	64	66	68	70	71	Diam. at 0.5m ht. [m]		19.4	20.3	21.2	21.7

Sprinkler performance may vary with actual field conditions. Diameters shown are for standard straight bore nozzles and stream straightening vanes. Other nozzles and/or vane combinations are available; Consult factory for specific performance data. Stream heights range from 1.5-3.0 ft. (0.46-0.9m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m).

Mounting Options:

- Vandal-resistant coupling and special wrench
- 3/4" slip with base swivel
- Quick-connect base and connector



2014HS-1-1/2" M

U.S. Data						Metric Data	[bar]	2.0	2.5	3.0	3.5
Sprinkler Base Press. [psi]	30	35	40	45	50		[psi]	29.00	36.25	43.50	50.75
#6 Nozzle - Gold [3/32"]						#6 Nozzle - Gold [2.38mm]					
Flow [gpm]	1.34	1.45	1.55	1.64	—	Flow [L/hr]		288	324	360	—
Diam. at 1.5' ht. [ft.]	66	68	70	72	—	Diam. at 0.5m ht. [m]		20.0	20.9	21.8	—
#7 Nozzle - Lime [7/64"]						#7 Nozzle - Lime [2.78mm]					
Flow [gpm]	1.84	1.99	2.12	2.25	2.37	Flow [L/hr]		396	468	504	540
Diam. at 1.5' ht. [ft.]	68	70	72	74	75	Diam. at 0.5m ht. [m]		20.6	21.5	22.4	22.9
#8 Nozzle - Lavender [1/8"]						#8 Nozzle - Lavender [3.18mm]					
Flow [gpm]	2.42	2.62	2.79	2.97	3.12	Flow [L/hr]		540	612	648	720
Diam. at 1.5' ht. [ft.]	70	72	74	76	77	Diam. at 0.5m ht. [m]		21.2	22.1	23.0	23.5
#9 Nozzle - Grey [9/64"]						#9 Nozzle - Grey [3.57mm]					
Flow [gpm]	3.08	3.33	3.56	3.78	3.98	Flow [L/hr]		684	756	828	900
Diam. at 1.5' ht. [ft.]	71	73	75	77	78	Diam. at 0.5m ht. [m]		21.5	22.4	23.3	23.8

Sprinkler performance may vary with actual field conditions. Stream heights range from 3.0-5.0 ft. (0.9-1.5m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m).

2023HS-1-1/2" M

U.S. Data						Metric Data	[bar]	2.0	2.5	3.0	3.5
Sprinkler Base Press. [psi]	30	35	40	45	50		[psi]	29.00	36.25	43.50	50.75
#6 Nozzle-Gold [3/32"]						#6 Nozzle-Gold [2.38mm]					
Flow [gpm]	1.34	1.45	1.55	1.64	—	Flow [L/hr]		288	324	360	—
Diam. at 1.5' ht. [ft.]	74	75	76	77	—	Diam. at 0.5m ht. [m]		22.5	22.9	23.4	—
#7 Nozzle-Lime [7/64"]						#7 Nozzle-Lime [2.78mm]					
Flow [gpm]	1.84	1.99	2.12	2.25	2.37	Flow [L/hr]		396	468	504	540
Diam. at 1.5' ht. [ft.]	76	77	78	79	80	Diam. at 0.5m ht. [m]		23.1	23.5	24.0	24.4
#8 Noz.-Lavender [1/8"]						#8 Noz.-Lavender [3.18mm]					
Flow [gpm]	2.42	2.62	2.79	2.97	3.12	Flow [L/hr]		540	612	648	720
Diam. at 1.5' ht. [ft.]	78	79	80	81	82	Diam. at 0.5m ht. [m]		23.7	24.2	24.6	25.0
#9 Nozzle-Grey [9/64"]						#9 Nozzle- Grey [3.57mm]					
Flow [gpm]	3.08	3.33	3.56	3.78	3.98	Flow [L/hr]		684	756	828	900
Diam. at 1.5' ht. [ft.]	79	80	81	82	83	Diam. at 0.5m ht. [m]		24.0	24.5	24.9	25.3

Sprinkler performance may vary with actual field conditions. Stream heights range from 6.5-9.5 ft. (2.0-3.0m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m).

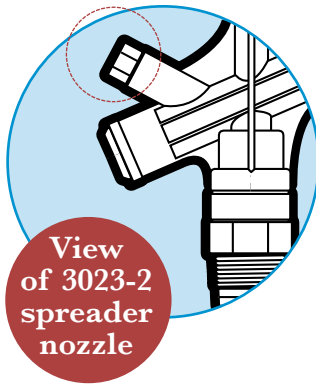
30series[Impacts



The 30 Series begins Senninger's line of full-circle 3/4" impact sprinklers. Designed specifically for lower flows and maximum efficiency.

FEATURES:

- Single and double nozzle designs available. Double nozzle only available in 23° model.
- Two trajectories available:
3012- 12° - ideal for undertree irrigation
3023- 23° - for maximum throw on overhead systems
- Wide range of nozzle and vane combinations for excellent distribution at all pressures
- Built-in hex wrench for easy in-the-field maintenance
- Standard lower bearing pipe thread: 3/4" M NPT (female also available)
- Flow rates: 1.84 to 6.42 gpm [0.11 to 0.41 L/s]
- Color-coded nozzles for easy size identification /warranted to maintain correct orifice size for five years
- Two-year warranty on materials, workmanship AND performance



Senninger impacts provide uniform water distribution and excellent reliability.



3012-1-3/4" M

U.S. Data						Metric Data	[bar]	2.0	2.5	3.0	3.5
Sprinkler Base Press. [psi]	30	35	40	45	50		[psi]	29.00	36.25	43.50	50.75
#7 Nozzle - Lime [7/64"]						#7 Nozzle - Lime [2.78mm]					
Flow [gpm]	1.84	1.99	2.12	2.25	2.37	Flow [L/s]		0.11	0.13	0.14	0.15
Diam. at 1.5' ht. [ft.]	71	74	77	80	82	Diam. at 0.5m ht. [m]		21.4	22.8	24.1	25.1
#8 Nozzle - Lavender [1/8"]						#8 Nozzle - Lavender [3.18mm]					
Flow [gpm]	2.42	2.62	2.79	2.97	3.12	Flow [L/s]		0.15	0.17	0.18	0.20
Diam. at 1.5' ht. [ft.]	73	76	79	82	84	Diam. at 0.5m ht. [m]		22.0	23.4	24.7	25.7
#9 Nozzle - Grey [9/64"]						#9 Nozzle - Grey [3.57mm]					
Flow [gpm]	3.08	3.33	3.56	3.78	3.98	Flow [L/s]		0.19	0.21	0.23	0.25
Diam. at 1.5' ht. [ft.]	75	78	81	84	86	Diam. at 0.5m ht. [m]		22.6	24.0	25.3	26.3
#10 Nozzle - Turquoise [5/32"]						#10 Nozzle - Turquoise [3.97mm]					
Flow [gpm]	3.82	4.13	4.41	4.68	4.93	Flow [L/s]		0.24	0.26	0.29	0.31
Diam. at 1.5' ht. [ft.]	76	79	82	85	87	Diam. at 0.5m ht. [m]		22.9	24.3	25.6	26.6

Sprinkler performance may vary with actual field conditions. Diameters shown are for standard straight bore nozzles and stream straightening vanes. Other nozzles and/or vane combinations are available; Consult factory for specific performance data. Stream heights range from 2.5-4.5 ft. (0.8-1.4m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m).

3023-1-3/4" M

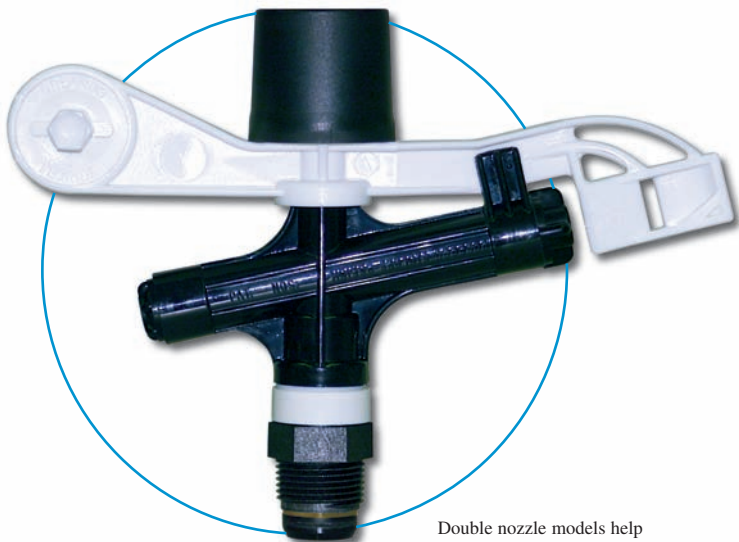
U.S. Data						Metric Data				
Sprinkler Base Press. [psi]	30	35	40	45	50	[bar] [psi]	2.0 29.00	2.5 36.25	3.0 43.50	3.5 50.75
#7 Nozzle - Lime [7/64"]						#7 Nozzle - Lime [2.78mm]				
Flow [gpm]	1.84	1.99	2.12	2.25	2.37	Flow [L/s]	0.11	0.13	0.14	0.15
Diam. at 1.5' ht. [ft.]	80	82	84	86	87	Diam. at 0.5m ht. [m]	24.2	25.1	26.0	26.6
Diam. at 6.0' ht. [ft.]	83	84	85	86	88	Diam. at 2.0m ht. [m]	25.2	25.7	26.1	26.6
#8 Nozzle - Lavender [1/8"]						#8 Nozzle - Lavender [3.18mm]				
Flow [gpm]	2.42	2.62	2.79	2.97	3.12	Flow [L/s]	0.15	0.17	0.18	0.20
Diam. at 1.5' ht. [ft.]	83	85	86	87	88	Diam. at 0.5m ht. [m]	25.1	26.0	26.4	27.0
Diam. at 6.0' ht. [ft.]	86	87	88	89	90	Diam. at 2.0m ht. [m]	26.1	26.6	27.0	27.5
#9 Nozzle - Grey [9/64"]						#9 Nozzle - Grey [3.57mm]				
Flow [gpm]	3.08	3.33	3.56	3.78	3.98	Flow [L/s]	0.19	0.21	0.23	0.25
Diam. at 1.5' ht. [ft.]	85	87	88	90	91	Diam. at 0.5m ht. [m]	25.8	26.6	27.2	27.8
Diam. at 6.0' ht. [ft.]	87	89	90	91	92	Diam. at 2.0m ht. [m]	26.4	27.2	27.6	28.1
#10 Nozzle - Turquoise [5/32"]						#10 Nozzle - Turquoise [3.97mm]				
Flow [gpm]	3.82	4.13	4.41	4.68	4.93	Flow [L/s]	0.24	.026	0.29	0.31
Diam. at 1.5' ht. [ft.]	87	89	90	91	92	Diam. at 0.5m ht. [m]	26.4	27.2	27.6	28.1
Diam. at 6.0' ht. [ft.]	88	90	92	93	94	Diam. at 2.0m ht. [m]	26.7	27.6	28.3	28.7

3023-2-3/4" M

U.S. Data						Metric Data				
Sprinkler Base Press. [psi]	30	35	40	45	50	[bar] [psi]	2.0 29.00	2.5 36.25	3.0 43.50	3.5 50.75
7x4 #7 Range Nozzle - Lime [7/64"] x #4 Spreader Nozzle [1/16"]						7x4 #7 Lime [2.78mm] x #4 Nozzle [1.59mm]				
Flow [gpm]	3.01	3.25	3.48	3.69	3.89	Flow [L/s]	0.19	0.21	0.23	0.25
Diam. at 1.5' ht. [ft.]	80	82	84	86	87	Diam. at 0.5m ht. [m]	24.2	25.2	26.1	26.8
Diam. at 6.0' ht. [ft.]	83	84	85	86	88	Diam. at 2.0m ht. [m]	25.3	25.7	26.1	26.5
8x5 #8 Range Lavender [1/8"] x #6 Spreader Nozzle [5/64"]						8x5 #8 Nozzle - Lavender[3.18mm] x #5 Nozzle [1.98mm]				
Flow [gpm]	3.58	3.86	4.13	4.38	4.62	Flow [L/s]	0.22	0.25	0.27	0.29
Diam. at 1.5' ht. [ft.]	83	85	86	87	88	Diam. at 0.5m ht. [m]	25.1	26.0	26.7	27.4
Diam. at 6.0' ht. [ft.]	86	87	88	89	90	Diam. at 2.0m ht. [m]	26.0	26.6	27.1	27.5
8x6 #8 Range Lavender [1/8"] x #6 Spreader Nozzle [3/32"]						8x6 #8 Nozzle -Lavender[3.18mm] x #6 Nozzle [2.38mm]				
Flow [gpm]	3.84	4.14	4.43	4.70	4.95	Flow [L/s]	0.24	0.27	0.29	0.31
Diam. at 1.5' ht. [ft.]	83	85	86	87	88	Diam. at 0.5m ht. [m]	25.1	26.0	26.7	27.4
Diam. at 6.0' ht. [ft.]	86	87	88	89	90	Diam. at 2.0m ht. [m]	26.0	26.6	27.1	27.5
9x5 #9 Nozzle - Grey [9/64"] x #5 Spreader Nozzle [5/64"]						9x5 #9 Nozzle- Grey [3.57mm] x #5 Nozzle [1.98mm]				
Flow [gpm]	4.16	4.50	4.81	5.10	5.38	Flow [L/s]	0.26	0.29	0.32	0.34
Diam. at 1.5' ht. [ft.]	85	87	88	90	91	Diam. at 0.5m ht. [m]	25.8	26.6	27.2	27.8
Diam. at 6.0' ht. [ft.]	87	89	90	91	92	Diam. at 2.0m ht. [m]	26.4	27.1	27.6	28.1
9x6 #9 Nozzle-Grey [9/64"] x #6 Spreader Nozzle [3/32"]						9x6 #9 Nozzle-Grey [3.57mm] x #6 Nozzle [2.38mm]				
Flow [gpm]	4.41	4.77	5.10	5.41	5.70	Flow [L/s]	0.27	0.31	0.33	0.36
Diam. at 1.5' ht. [ft.]	85	87	88	90	91	Diam. at 0.5m ht. [m]	25.8	26.6	27.2	27.8
Diam. at 6.0' ht. [ft.]	87	89	90	91	92	Diam. at 2.0m ht. [m]	26.4	27.1	27.6	28.1
10x5 #10 Nozzle-Turquoise [5/32"] x #5 Spreader Nozzle [5/64"]						10x5 #10 Nozzle - Turquoise [3.97mm] x #5 Nozzle [1.98mm]				
Flow [gpm]	4.97	5.37	5.74	6.09	6.42	Flow [L/s]	0.31	0.34	0.38	0.41
Diam. at 1.5' ht. [ft.]	87	89	90	91	92	Diam. at 0.5m ht. [m]	26.4	27.1	27.6	28.1
Diam. at 6.0' ht. [ft.]	88	90	92	93	94	Diam. at 2.0m ht. [m]	26.8	27.5	28.2	28.7

Sprinkler performance may vary with actual field conditions. Stream heights range from 6.0ft.-7.5ft. (1.8-2.3m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m)

40series[Impacts

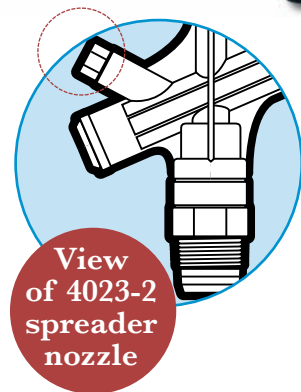


Double nozzle models help maximize uniformity.

The 40 Series full-circle impacts are designed for maximum efficiency at intermediate flows.

FEATURES:

- Single and double nozzle designs available. Double nozzle only available in 23° model.
- Two trajectories available:
12° - ideal for undertree irrigation
23° - for maximum throw on overhead systems
- Wide range of nozzle and vane combinations for excellent distribution at all pressures
- Built-in hex wrench for easy in-the-field maintenance
- Standard lower bearing pipe thread: 3/4" M NPT (female also available)
- Flow rates: 3.82 to 12.6 gpm [0.24 to 0.78 L/s]
- Color-coded nozzles for easy size identification /warranted to maintain correct orifice size for five years
- Two-year warranty on materials, workmanship AND performance



View of 4023-2 spreader nozzle



4012-1-3/4" M

U.S. Data								Metric Data		[bar]	2.0	2.5	3.0	3.5	4.0					
Sprinkler Base Press. [psi]								30	35	40	45	50	55	60	[psi]	29.00	36.25	43.50	50.75	58.00
#10 Nozzle - Turquoise [5/32"]								#10 Nozzle - Turquoise [3.97mm]												
Flow [gpm]	3.82	4.13	4.41	4.68	4.93	5.17	5.40	Flow [L/s]	0.24	0.26	0.29	0.31	0.33							
Diam. at 1.5' ht. [ft.]	73	77	80	83	86	89	91	Diam. at 0.5m ht. [m]	22.0	23.7	25.0	26.3	27.5							
#11 Nozzle - Yellow [11/64"]								#11 Nozzle - Yellow [4.37mm]												
Flow [gpm]	4.63	5.00	5.34	5.67	5.98	6.27	6.55	Flow [L/s]	0.29	0.32	0.35	0.38	0.41							
Diam. at 1.5' ht. [ft.]	76	80	83	86	89	92	94	Diam. at 0.5m ht. [m]	22.9	24.6	25.9	27.3	28.4							
#12 Nozzle - Red [3/16"]								#12 Nozzle - Red [4.76mm]												
Flow [gpm]	5.52	5.97	6.37	6.76	7.13	7.48	7.81	Flow [L/s]	0.34	0.38	0.42	0.45	0.48							
Diam. at 1.5' ht. [ft.]	78	82	85	88	91	94	96	Diam. at 0.5m ht. [m]	23.5	25.2	26.5	27.9	29.0							
#13 Nozzle - White [13/64"]								#13 Nozzle - White [5.16mm]												
Flow [gpm]	6.50	7.02	7.49	7.95	8.38	8.80	9.19	Flow [L/s]	0.40	0.45	0.49	0.53	0.57							
Diam. at 1.5' ht. [ft.]	80	84	87	90	93	96	98	Diam. at 0.5m ht. [m]	24.1	25.8	27.2	28.5	29.8							
#14 Nozzle - Blue [7/32"]								#14 Nozzle - Blue [5.56mm]												
Flow [gpm]	7.49	8.09	8.63	9.17	9.66	10.1	10.6	Flow [L/s]	0.46	0.52	0.57	0.61	0.66							
Diam. at 1.5' ht. [ft.]	82	86	89	93	96	99	101	Diam. at 0.5m ht. [m]	24.7	26.4	28.0	29.4	30.5							

Sprinkler performance may vary with actual field conditions. Diameters shown are for standard straight bore nozzles and stream straightening vanes. Other nozzles and/or vane combinations are available; Consult factory for specific performance data. Stream heights range from 6.5-10.0 ft. (2.0-3.1m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m).

Impacts]40series

4023-1-3/4" M

U.S. Data								Metric Data					
Sprinkler Base Press. [psi]	30	35	40	45	50	55	60	[bar]	2.0	2.5	3.0	3.5	4.0
								[psi]	29.00	36.25	43.50	50.75	58.00
#10 Nozzle - Turquoise [5/32"]								#10 Nozzle - Turquoise [3.97mm]					
Flow [gpm]	3.82	4.13	4.41	4.68	4.93	5.17	5.40	Flow [L/s]	0.24	0.26	0.29	0.31	0.33
Diam. at 1.5' ht. [ft.]	86	89	91	93	95	96	97	Diam. at 0.5m ht. [m]	26.0	27.3	28.2	29.0	29.4
Diam. at 6.0' ht. [ft.]	92	94	96	97	98	99	100	Diam. at 2.0m ht. [m]	27.9	28.8	29.5	29.9	30.4
#11 Nozzle - Yellow [11/64"]								#11 Nozzle - Yellow [4.37mm]					
Flow [gpm]	4.63	5.00	5.34	5.67	5.98	6.27	6.55	Flow [L/s]	0.29	0.32	0.35	0.38	0.41
Diam. at 1.5' ht. [ft.]	89	92	94	96	98	99	100	Diam. at 0.5m ht. [m]	26.9	28.2	29.1	29.9	30.4
Diam. at 6.0' ht. [ft.]	94	96	98	100	102	103	104	Diam. at 2.0m ht. [m]	28.5	29.4	30.3	31.1	31.6
#12 Nozzle - Red [3/16"]								#12 Nozzle - Red [4.76mm]					
Flow [gpm]	5.52	5.97	6.37	6.76	7.13	7.48	7.81	Flow [L/s]	0.34	0.38	0.42	0.45	0.48
Diam. at 1.5' ht. [ft.]	92	95	97	99	101	102	103	Diam. at 0.5m ht. [m]	27.9	29.1	30.0	30.8	31.3
Diam. at 6.0' ht. [ft.]	97	99	101	103	105	107	108	Diam. at 2.0m ht. [m]	29.4	30.3	31.2	32.1	32.8
#13 Nozzle - White [13/64"]								#13 Nozzle - White [5.16mm]					
Flow [gpm]	6.50	7.02	7.49	7.95	8.38	8.80	9.19	Flow [L/s]	0.40	0.45	0.49	0.53	0.57
Diam. at 1.5' ht. [ft.]	94	97	99	101	103	104	105	Diam. at 0.5m ht. [m]	28.5	29.7	30.6	31.4	31.9
Diam. at 6.0' ht. [ft.]	100	103	106	109	112	115	117	Diam. at 2.0m ht. [m]	30.2	31.6	32.9	34.3	35.4
#14 Nozzle - Blue [7/32"]								#14 Nozzle - Blue [5.56mm]					
Flow [gpm]	7.49	8.09	8.63	9.17	9.66	10.1	10.6	Flow [L/s]	0.46	0.52	0.57	0.61	0.66
Diam. at 1.5' ht. [ft.]	96	99	101	103	105	106	107	Diam. at 0.5m ht. [m]	29.1	30.3	31.2	32.0	32.5
Diam. at 6.0' ht. [ft.]	102	106	110	114	118	122	125	Diam. at 2.0m ht. [m]	30.8	32.6	34.4	36.1	37.7

4023-2-3/4" M

U.S. Data								Metric Data					
Sprinkler Base Press. [psi]	30	35	40	45	50	55	60	[bar]	2.0	2.5	3.0	3.5	4.0
								[psi]	29.00	36.25	43.50	50.75	58.00
10x6 #10 Nozzle - Turquoise [5/32"] x #6 Spreader Nozzle [3/32"]								10x6 #10 Nozzle - Turquoise [3.97mm] x #6 Nozzle [2.38mm]					
Flow [gpm]	5.25	5.67	6.07	6.43	6.78	7.11	7.43	Flow [L/s]	0.33	0.36	0.40	0.43	0.46
Diam. at 1.5' ht. [ft.]	86	89	91	93	95	96	97	Diam. at 0.5m ht. [m]	26.0	27.3	28.2	29.0	29.4
Diam. at 6.0' ht. [ft.]	92	94	96	97	98	99	100	Diam. at 2.0m ht. [m]	27.9	28.8	29.5	29.9	30.4
11x6 #11 Nozzle - Yellow [11/64"] x #6 Spreader Nozzle [3/32"]								11x6 #11 Nozzle - Yellow [4.37mm] x #6 Nozzle [2.38mm]					
Flow [gpm]	6.10	6.59	7.05	7.47	7.88	8.26	8.63	Flow [L/s]	0.38	0.42	0.46	0.50	0.53
Diam. at 1.5' ht. [ft.]	89	92	94	96	98	99	100	Diam. at 0.5m ht. [m]	26.9	28.2	29.1	29.9	30.4
Diam. at 6.0' ht. [ft.]	94	96	98	100	102	103	104	Diam. at 2.0m ht. [m]	28.5	29.4	30.3	31.1	31.6
12x6 #10 Nozzle - Red [3/16"] x #6 Spreader Nozzle [3/32"]								12x6 #12 Nozzle - Red [4.76mm] x #6 Nozzle [2.38mm]					
Flow [gpm]	6.89	7.54	8.07	8.55	9.02	9.46	9.88	Flow [L/s]	0.43	0.48	0.53	0.57	0.61
Diam. at 1.5' ht. [ft.]	92	95	97	99	101	102	103	Diam. at 0.5m ht. [m]	27.9	29.1	30.0	30.8	31.3
Diam. at 6.0' ht. [ft.]	97	99	101	103	105	107	108	Diam. at 2.0m ht. [m]	29.4	30.3	31.2	32.1	32.8
13x6 #13 Nozzle - White [13/64"] x #6 Spreader Nozzle [3/32"]								13x6 #13 Nozzle - White [5.16mm] x #6 Nozzle [2.38mm]					
Flow [gpm]	7.93	8.57	9.16	9.72	10.2	10.7	11.2	Flow [L/s]	0.49	0.55	0.60	0.65	0.69
Diam. at 1.5' ht. [ft.]	94	97	99	101	103	104	105	Diam. at 0.5m ht. [m]	28.5	29.7	30.6	31.4	31.9
Diam. at 6.0' ht. [ft.]	100	103	106	109	112	115	117	Diam. at 2.0m ht. [m]	30.2	31.6	32.9	34.3	35.4
14x6 #14 Nozzle - Blue [7/32"] x #6 Spreader Nozzle [3/32"]								14x6 #14 Nozzle - Blue [5.56mm] x #6 Nozzle [2.38mm]					
Flow [gpm]	8.90	9.62	10.3	10.9	11.5	12.1	12.6	Flow [L/s]	0.55	0.62	0.67	0.73	0.78
Diam. at 1.5' ht. [ft.]	96	99	101	103	105	106	107	Diam. at 0.5m ht. [m]	29.1	30.3	31.2	32.0	32.5
Diam. at 6.0' ht. [ft.]	102	106	110	114	118	122	125	Diam. at 2.0m ht. [m]	30.8	32.6	34.4	36.1	37.7

Sprinkler performance may vary with actual field conditions. Diameters shown are for standard straight bore nozzles and stream straightening vanes. Other nozzles and/or vane combinations are available; Consult factory for specific performance data. Stream heights range from 6.5-10.0 ft. (2.0-3.1m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m).

50series[Impacts

The 50 Series full-circle impacts handle the highest flow rates for Senninger's 3/4" sprinklers. High application rates and large diameter of coverage make these sprinklers suitable for a variety of applications.

FEATURES:

- Single and double nozzle designs available. Double nozzle only available in 23° model.
- Two trajectories available:
12° - ideal for undertree irrigation
23° - for maximum throw on overhead systems
- Wide range of nozzle and vane combinations for excellent distribution at all pressures
- Built-in hex wrench for easy in-the-field maintenance
- Standard lower bearing pipe thread:
3/4" M NPT (female also available)
- Flow rates: 6.5 to 20.1 gpm [0.4 to 1.27 L/s]
- Color-coded nozzles for easy size identification / warranted to maintain correct orifice size for five years
- Two-year warranty on materials, workmanship AND performance



5012-1-3/4" M

U.S. Data									Metric Data						
Spklr Base Press. [psi]	30	35	40	45	50	55	60	65	[bar]	2.0	2.5	3.0	3.5	4.0	4.5
									[psi]	29.00	36.25	43.50	50.75	58.00	65.25
#13 Nozzle - White [13/64"]									#13 Nozzle - White [5.16mm]						
Flow [gpm]	6.50	7.02	7.49	7.95	8.36	8.80	9.19	9.55	Flow [L/s]	0.40	0.45	0.49	0.53	0.57	0.60
Diam. at 1.5' ht. [ft.]	77	83	89	93	97	100	103	105	Diam. at 0.5m ht. [m]	23.0	25.8	29.2	29.7	31.0	32.0
#14 Nozzle - Blue [7/32"]									#14 Nozzle - Blue [5.56mm]						
Flow [gpm]	7.49	8.09	8.63	9.17	9.66	10.1	10.6	11.0	Flow [L/s]	0.46	0.52	0.57	0.61	0.66	0.70
Diam. at 1.5' ht. [ft.]	79	85	91	95	99	102	105	107	Diam. at 0.5m ht. [m]	23.7	26.4	29.8	30.3	31.6	32.6
#15 Nozzle - Dark Brown [15/64"]									#15 Nozzle - Dark Brown [5.95mm]						
Flow [gpm]	8.51	9.19	9.81	10.4	11.0	11.5	12.0	12.5	Flow [L/s]	0.53	0.59	0.64	0.70	0.74	0.79
Diam. at 1.5' ht. [ft.]	81	87	93	97	101	104	107	109	Diam. at 0.5m ht. [m]	24.3	27.0	30.4	30.9	32.2	33.3
#16 Nozzle - Orange [1/4"]									#16 Nozzle - Orange [6.35mm]						
Flow [gpm]	9.63	10.4	11.1	11.8	12.4	13.0	13.6	14.2	Flow [L/s]	0.60	0.67	0.73	0.79	0.84	0.89
Diam. at 1.5' ht. [ft.]	83	89	95	99	103	106	109	111	Diam. at 0.5m ht. [m]	24.9	27.6	31.0	31.5	32.9	33.8
#17 Nozzle - Dark Green [17/64"]									#17 Nozzle - Dark Green [6.75mm]						
Flow [gpm]	10.7	11.6	12.3	13.1	13.8	14.5	15.1	15.7	Flow [L/s]	0.66	0.74	0.81	0.88	0.94	0.99
Diam. at 1.5' ht. [ft.]	85	91	96	100	105	108	111	113	Diam. at 0.5m ht. [m]	25.5	28.1	31.3	32.1	33.5	34.4
#18 Nozzle - Purple [9/32"]									#18 Nozzle - Purple [7.14mm]						
Flow [gpm]	11.9	12.9	13.7	14.6	15.4	16.1	16.8	17.5	Flow [L/s]	0.74	0.82	0.90	0.98	1.04	1.11
Diam. at 1.5' ht. [ft.]	87	92	97	101	107	110	113	114	Diam. at 0.5m ht. [m]	26.1	28.4	31.6	32.7	34.1	34.7

Sprinkler performance may vary with actual field conditions. Diameters shown are for standard straight bore nozzles and stream straightening vanes. Other nozzles and/or vane combinations are available; Consult factory for specific performance data. Stream heights range from 3.5-6.0 ft. (1.1-1.8m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m).

5023-1-3/4" M

U.S. Data									Metric Data						
SpkIr Base Press. [psi]	30	35	40	45	50	55	60	65	[bar]	2.0	2.5	3.0	3.5	4.0	4.5
	30	35	40	45	50	55	60	65	[psi]	29.00	36.25	43.50	50.75	58.00	65.25
#13 Nozzle - White [13/64"]									#13 Nozzle - White [5.16mm]						
Flow [gpm]	6.50	7.02	7.49	7.95	8.38	8.80	9.19	9.55	Flow [L/s]	0.40	0.45	0.49	0.53	0.57	0.60
Diam. at 1.5' ht. [ft.]	92	95	98	100	102	103	104	105	Diam. at 0.5m ht. [m]	27.8	29.2	30.3	31.1	31.6	32.0
Diam. at 6.0' ht. [ft.]	99	102	104	106	108	110	112	114	Diam. at 2.0m ht. [m]	30.0	31.2	32.1	33.0	33.9	34.8
#14 Nozzle - Blue [7/32"]									#14 Nozzle - Blue [5.56mm]						
Flow [gpm]	7.49	8.09	8.63	9.17	9.66	10.1	10.6	11.0	Flow [L/s]	0.46	0.52	0.57	0.61	0.66	0.70
Diam. at 1.5' ht. [ft.]	94	98	101	103	105	106	107	108	Diam. at 0.5m ht. [m]	28.4	30.1	31.2	32.1	32.5	32.9
Diam. at 6.0' ht. [ft.]	101	104	107	110	112	114	116	118	Diam. at 2.0m ht. [m]	30.5	31.9	33.3	34.2	35.1	36.0
#15 Nozzle - Dark Brown [15/64"]									#15 Nozzle - Dark Brown [5.95mm]						
Flow [gpm]	8.51	9.19	9.81	10.4	11.0	11.5	12.0	12.5	Flow [L/s]	0.53	0.59	0.64	0.70	0.74	0.79
Diam. at 1.5' ht. [ft.]	96	100	103	106	107	108	109	110	Diam. at 0.5m ht. [m]	29.0	30.7	32.0	32.7	33.1	33.5
Diam. at 6.0' ht. [ft.]	102	106	109	112	114	116	118	120	Diam. at 2.0m ht. [m]	30.8	32.5	33.9	34.8	35.7	36.6
#16 Nozzle - Orange 1/4"									#16 Nozzle - Orange [6.35mm]						
Flow [gpm]	9.63	10.4	11.1	11.8	12.4	13.0	13.6	14.2	Flow [L/s]	0.60	0.67	0.73	0.79	0.84	0.89
Diam. at 1.5' ht. [ft.]	98	102	105	108	109	110	111	112	Diam. at 0.5m ht. [m]	29.5	31.3	32.6	33.3	33.7	34.2
Diam. at 6.0' ht. [ft.]	103	107	111	114	116	118	120	122	Diam. at 2.0m ht. [m]	31.2	32.9	34.5	35.5	36.3	37.2
#17 Nozzle - Dark Green [17/64"]									#17 Nozzle - Dark Green [6.75mm]						
Flow [gpm]	10.7	11.6	12.3	13.1	13.8	14.5	15.1	15.7	Flow [L/s]	0.66	0.74	0.81	0.88	0.94	0.99
Diam. at 1.5' ht. [ft.]	99	104	107	110	111	112	113	114	Diam. at 0.5m ht. [m]	29.8	31.9	33.3	33.9	34.3	34.8
Diam. at 6.0' ht. [ft.]	104	108	112	115	118	120	122	124	Diam. at 2.0m ht. [m]	31.5	33.2	34.8	36.1	36.9	37.8
#18 Nozzle - Purple [9/32"]									#18 Nozzle - Purple [7.14mm]						
Flow [gpm]	11.9	12.9	13.7	14.6	15.4	16.1	16.8	17.5	Flow [L/s]	0.74	0.82	0.90	0.98	1.04	1.11
Diam. at 1.5' ht. [ft.]	100	105	109	112	113	114	115	116	Diam. at 0.5m ht. [m]	30.1	32.3	33.9	34.5	34.9	35.4
Diam. at 6.0' ht. [ft.]	105	109	113	116	119	122	124	126	Diam. at 2.0m ht. [m]	31.8	33.5	35.1	36.4	37.6	38.4

5023-2-3/4" M

U.S. Data									Metric Data						
SpkIr Base Press. [psi]	30	35	40	45	50	55	60	65	[bar]	2.0	2.5	3.0	3.5	4.0	4.5
	30	35	40	45	50	55	60	65	[psi]	29.00	36.25	43.50	50.75	58.00	65.25
13x8 #13 Nozzle - White 13/64" x #8 Spreader Nozzle 1/8"									13x8 #13 Nozzle - White 5.16mm x #8 Nozzle 3.18mm						
Flow [gpm]	8.23	8.88	9.50	10.1	10.6	11.1	11.6	12.1	Flow [L/s]	0.51	0.57	0.62	0.67	0.72	0.76
Diam. at 1.5' ht. [ft.]	92	95	98	100	102	103	104	105	Diam. at 0.5m ht. [m]	27.8	29.2	30.3	31.1	31.6	32.0
Diam. at 6.0' ht. [ft.]	99	102	104	106	108	110	112	114	Diam. at 2.0m ht. [m]	30.0	31.2	32.1	33.0	33.9	34.8
14x8 #14 Nozzle - Blue 7/32" x #8 Spreader Nozzle 1/8"									14x8 #14 Nozzle - Blue 5.56mm x #8 Nozzle 3.18mm						
Flow [gpm]	9.35	10.1	10.8	11.5	12.1	12.7	13.2	13.8	Flow [L/s]	0.58	0.65	0.71	0.77	0.82	0.87
Diam. at 1.5' ht. [ft.]	94	98	101	103	105	106	107	108	Diam. at 0.5m ht. [m]	28.4	30.1	31.2	32.0	32.5	32.9
Diam. at 6.0' ht. [ft.]	101	104	107	110	112	114	116	118	Diam. at 2.0m ht. [m]	30.5	31.9	33.3	34.2	35.1	36.0
15x8 #15 Nozzle - Dark Brown 15/64" x #8 Spreader Nozzle 1/8"									15x8 #15 Nozzle - Dark Brown 5.95mm x #8 Nozzle 3.18mm						
Flow [gpm]	10.3	11.2	11.9	12.7	13.4	14.0	14.6	15.2	Flow [L/s]	0.64	0.72	0.78	0.85	0.91	0.96
Diam. at 1.5' ht. [ft.]	96	100	103	106	107	108	109	110	Diam. at 0.5m ht. [m]	29.0	30.7	32.0	32.7	33.1	33.5
Diam. at 6.0' ht. [ft.]	102	106	109	112	114	116	118	120	Diam. at 2.0m ht. [m]	30.8	32.5	33.9	34.8	35.7	36.6
16x8 #16 Nozzle - Orange 1/4" x #8 Spreader Nozzle 1/8"									16x8 #16 Nozzle - Orange 6.35mm x #8 Nozzle 3.18mm						
Flow [gpm]	11.5	12.4	13.3	14.1	14.8	15.5	16.2	16.9	Flow [L/s]	0.71	0.79	0.87	0.94	1.01	1.07
Diam. at 1.5' ht. [ft.]	98	102	105	108	109	110	111	112	Diam. at 0.5m ht. [m]	29.5	31.3	32.6	33.3	33.7	34.2
Diam. at 6.0' ht. [ft.]	103	107	111	114	116	118	120	122	Diam. at 2.0m ht. [m]	31.2	32.9	34.5	35.4	36.3	37.2
17x8 #17 Nozzle - Dark Green 17/64" x #8 Spreader Nozzle 1/8"									17x8 #17 Nozzle - Dark Green 6.75mm x #8 Nozzle 3.18mm						
Flow [gpm]	12.5	13.5	14.4	15.3	16.1	16.9	17.7	18.4	Flow [L/s]	0.77	0.86	0.95	1.02	1.09	1.16
Diam. at 1.5' ht. [ft.]	99	104	107	110	111	112	113	114	Diam. at 0.5m ht. [m]	29.8	31.9	33.3	33.9	34.3	34.8
Diam. at 6.0' ht. [ft.]	104	108	112	115	118	120	122	124	Diam. at 2.0m ht. [m]	31.5	33.2	34.8	36.1	36.9	37.8
18x8 #18 Nozzle - Purple 9/32" x #8 Spreader Nozzle 1/8"									18x8 #13 Nozzle - Purple 7.14mm x #8 Nozzle 3.18mm						
Flow [gpm]	13.7	14.8	15.8	16.7	17.6	18.5	19.3	20.1	Flow [L/s]	0.85	0.95	1.04	1.12	1.20	1.27
Diam. at 1.5' ht. [ft.]	100	105	109	112	113	114	115	116	Diam. at 0.5m ht. [m]	30.1	32.3	33.9	34.5	34.9	35.4
Diam. at 6.0' ht. [ft.]	105	109	113	116	119	122	124	126	Diam. at 2.0m ht. [m]	31.8	33.5	35.1	36.4	37.5	38.4

Stream heights range from 7.0-11.5 ft. (2.1-3.5m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m)

Part-Circle[Impacts]



Senninger's Part-Circle sprinklers are designed specifically for use where a directional impact sprinkler is required. Designed to deliver maximum efficiency at low to moderate flow rates for agriculture, nursery, effluent disposal, dust suppression, and industrial applications.

FEATURES:

- Distributes water in a 60° - 360° pattern at 5° increments
- 23° nozzle trajectory for maximum radius of throw
- Wide range of nozzle and vane combinations for excellent distribution at all pressures
- Standard lower bearing pipe thread 3/4" M NPT
- Flow range: 2.42 to 16.8 gpm [0.15 to 1.04 L/s]
- Color-coded nozzles for easy size identification warranted to maintain correct orifice size for five years
- Two-year warranty on materials, workmanship AND performance

Part-circle impact sprinklers can be adjusted to match the desired area of coverage.

3123-I-PC-3/4" M

U.S. Data								Metric	[bar]	2.0	2.5	3.0	3.5	4.0
Sprklr Base Press. [psi]	30	35	40	45	50	55	60	Data	[psi]	29.00	36.25	43.50	50.75	58.00
#8 Nozzle - Lavender [1/8"]								#8 Nozzle - Lavender [3.18mm]						
Flow [gpm]	2.42	2.62	2.79	2.97	3.12	3.28	3.42	Flow [L/s]		0.15	0.17	0.18	0.20	0.21
Radius at 1.5' ht. [ft.]	38	39	40	41	42	42	43	Radius at 0.5m ht. [m]		11.5	12.0	12.4	12.7	12.9
Radius at 3.0' ht. [ft.]	40	41	42	42	43	43	44	Radius at 2.0m ht. [m]		12.1	12.5	12.8	13.0	13.2
#9 Nozzle - Grey [9/64"]								#9 Nozzle - Grey [3.57mm]						
Flow [gpm]	3.08	3.33	3.56	3.78	3.98	4.18	4.36	Flow [L/s]		0.19	0.21	0.23	0.25	0.27
Radius at 1.5' ht. [ft.]	40	41	42	43	43	44	44	Radius at 0.5m ht. [m]		12.1	12.6	13.0	13.3	13.5
Radius at 3.0' ht. [ft.]	41	43	44	44	45	45	46	Radius at 2.0m ht. [m]		12.2	13.1	13.4	13.6	13.8
#10 Nozzle - Turquoise [5/32"]								#10 Nozzle - Turquoise [3.97mm]						
Flow [gpm]	3.82	4.13	4.41	4.68	4.93	5.17	5.40	Flow [L/s]		0.24	0.26	0.29	0.31	0.33
Radius at 1.5' ht. [ft.]	41	43	44	45	45	46	47	Radius at 0.5m ht. [m]		12.2	13.2	13.6	13.9	14.1
Radius at 3.0' ht. [ft.]	41	44	45	46	46	47	47	Radius at 2.0m ht. [m]		12.3	13.5	13.8	14.0	14.3

Sprinkler performance may vary with actual field conditions. Radius shown is for standard straight bore nozzles and stream straightening vanes. Other nozzles and/or vane combinations are available; Consult factory for specific performance data. Stream heights range from 6.0-10.0 ft. (1.8-3.1m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m).

Impacts] Part-Circle

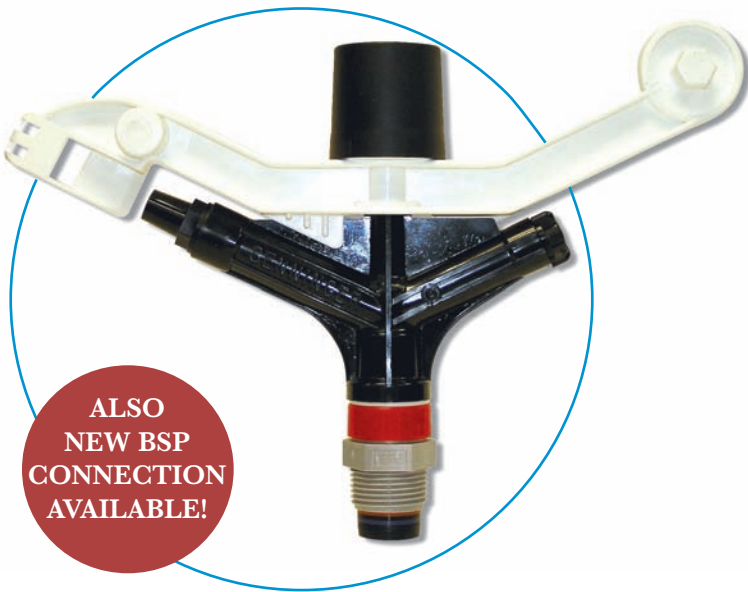
4123-I-PC-3/4" M

U.S. Data								Metric Data						
Sprklr Base Press. [psi]	30	35	40	45	50	55	60	[bar]	2.0	2.5	3.0	3.5	4.0	
								[psi]	29.00	36.25	43.50	50.75	58.00	
#10 Nozzle - Turquoise [5/32"]								#10 Nozzle - Turquoise [3.97mm]						
Flow [gpm]	3.82	4.13	4.41	4.68	4.93	5.17	5.40	Flow [L/s]	0.24	0.26	0.29	0.31	0.33	
Radius at 1.5' ht. [ft.]	42.0	43.0	44.0	45.0	45.0	46.0	46.5	Radius at 0.5m ht. [m]	12.7	13.2	13.6	13.9	14.1	
Radius at 3.0' ht. [ft.]	43.0	44.5	45.5	46.0	46.5	47.0	47.5	Radius at 2.0m ht. [m]	13.0	13.6	14.0	14.2	14.4	
#11 Noz.-Yellow [11/64"]								#11 Nozzle - Yellow [4.37mm]						
Flow [gpm]	4.63	5.00	5.34	5.67	5.98	6.27	6.55	Flow [L/s]	0.29	0.32	0.35	0.38	0.41	
Radius at 1.5' ht. [ft.]	43.5	45.0	46.0	47.0	47.5	48.0	48.5	Radius at 0.5m ht. [m]	13.2	13.8	14.2	14.5	14.7	
Radius at 3.0' ht. [ft.]	44.5	45.0	47.0	48.0	48.5	49.0	49.5	Radius at 2.0m ht. [m]	13.5	13.9	14.5	14.8	15.0	
#12 Nozzle- Red [3/16"]								#12 Nozzle - Red [4.76mm]						
Flow [gpm]	5.52	5.97	6.37	6.76	7.13	7.48	7.81	Flow [L/s]	0.34	0.38	0.42	0.45	0.48	
Radius at 1.5' ht. [ft.]	44.5	46.0	47.5	49.0	50.0	50.5	51.0	Radius at 0.5m ht. [m]	13.5	14.1	14.8	15.3	15.5	
Radius at 3.0' ht. [ft.]	45.5	47.0	48.5	49.5	50.5	51.0	51.5	Radius at 2.0m ht. [m]	13.8	14.4	15.0	15.4	15.6	
#13 Nozzle-White [13/64"]								#13 Nozzle - White [5.16mm]						
Flow [gpm]	6.50	7.02	7.49	7.95	8.38	8.80	9.19	Flow [L/s]	0.40	0.45	0.49	0.53	0.57	
Radius at 1.5' ht. [ft.]	45.0	46.5	48.0	49.5	50.5	51.0	51.5	Radius at 0.5m ht. [m]	13.6	14.3	15.0	15.4	15.6	
Radius at 3.0' ht. [ft.]	46.0	47.5	49.0	50.0	51.0	51.5	52.0	Radius at 2.0m ht. [m]	13.9	14.6	15.1	15.6	15.8	

5123-I-PC-3/4" M

U.S. Data								Metric Data						
Sprklr Base Press. [psi]	30	35	40	45	50	55	60	[bar]	2.0	2.5	3.0	3.5	4.0	
								[psi]	29.00	36.25	43.50	50.75	58.00	
#13 Nozzle - White [13/64"]								#13 Nozzle - White [5.16mm]						
Flow [gpm]	6.50	7.02	7.49	7.95	8.36	8.80	9.19	Flow [L/s]	0.40	0.45	0.49	0.53	0.57	
Radius at 1.5' ht. [ft.]	45	47	48	50	51	51	52	Radius at 0.5m ht. [m]	13.6	14.3	15.0	15.4	15.6	
Radius at 3.0' ht. [ft.]	46	48	49	50	51	52	52	Radius at 2.0m ht. [m]	13.9	14.6	15.1	15.6	15.8	
#14 Nozzle - Blue [7/32"]								#14 Nozzle - Blue [5.56mm]						
Flow [gpm]	7.49	8.09	8.63	9.17	9.66	10.1	10.6	Flow [L/s]	0.46	0.52	0.57	0.61	0.66	
Radius at 1.5' ht. [ft.]	46	47	49	50	51	52	53	Radius at 0.5m ht. [m]	13.8	14.4	15.1	15.6	15.9	
Radius at 3.0' ht. [ft.]	47	49	51	52	53	54	54	Radius at 2.0m ht. [m]	14.1	14.9	15.6	16.0	16.4	
#15 Nozzle - Dark Brown [15/64"]								#15 Nozzle - Dark Brown [5.95mm]						
Flow [gpm]	8.51	9.19	9.81	10.4	11.0	11.5	12.0	Flow [L/s]	0.53	0.59	0.64	0.70	0.74	
Radius at 1.5' ht. [ft.]	46	48	50	51	52	53	54	Radius at 0.5m ht. [m]	13.9	14.7	15.4	15.9	16.3	
Radius at 3.0' ht. [ft.]	48	50	52	53	54	56	56	Radius at 2.0m ht. [m]	14.4	15.2	16.0	16.5	17.0	
#16 Nozzle - Orange [1/4"]								#16 Nozzle - Orange [6.35mm]						
Flow [gpm]	9.63	10.4	11.1	11.8	12.4	13.0	13.6	Flow [L/s]	0.60	0.67	0.73	0.79	0.84	
Radius at 1.5' ht. [ft.]	47	50	51	53	54	55	56	Radius at 0.5m ht. [m]	14.0	15.2	16.0	16.5	16.9	
Radius at 3.0' ht. [ft.]	48	51	53	55	56	57	58	Radius at 2.0m ht. [m]	14.5	15.5	16.4	17.0	17.5	
#17 Nozzle - Dark Green [17/64"]								#17 Nozzle - Blue [6.75mm]						
Flow [gpm]	10.7	11.6	12.3	13.1	13.8	14.5	15.1	Flow [L/s]	0.66	0.74	0.81	0.88	0.94	
Radius at 1.5' ht. [ft.]	47	50	52	54	55	56	57	Radius at 0.5m ht. [m]	14.1	15.4	16.3	16.8	17.3	
Radius at 3.0' ht. [ft.]	49	51	54	56	57	58	59	Radius at 2.0m ht. [m]	14.6	15.7	16.7	17.3	17.8	
#18 Nozzle - Purple [9/32"]								#17 Nozzle - Purple [7.14mm]						
Flow [gpm]	11.9	12.9	13.7	14.6	15.4	16.1	16.8	Flow [L/s]	0.74	0.82	0.90	0.98	1.04	
Radius at 1.5' ht. [ft.]	47	50	53	55	56	57	58	Radius at 0.5m ht. [m]	14.1	15.4	16.4	17.1	17.6	
Radius at 3.0' ht. [ft.]	49	52	54	56	58	59	60	Radius at 2.0m ht. [m]	14.6	15.9	16.9	17.6	18.1	

70series[Impacts



The 70 Series full-circle impacts distribute water over a large diameter for higher volume systems.

FEATURES:

- Single and double nozzle designs available.
- Outlasts and costs less than brass sprinklers
- Built-in hex wrench for easy in-the-field maintenance
- Lower bearing pipe thread:
1" M NPT, 1" F NPT; 1" M BSP also available
- Flow rates: 8.11 to 39.1 gpm [0.52 to 2.5 L/s]
- Color-coded nozzles for easy size identification /warranted to maintain correct orifice size for five years
- Two-year warranty on materials, workmanship AND performance

7025RD-1-1" M

U.S. Data									Metric Data						
Spklr Base Press. [psi]	30	35	40	45	50	55	60	65	[bar]	2.0	2.5	3.0	3.5	4.0	4.5
									[psi]	29.00	36.25	43.50	50.75	58.00	65.25
#14 Nozzle [7/32"]									#14 Nozzle [5.56mm]						
Flow [gpm]	8.11	8.66	9.20	9.69	10.2	10.6	11.0	11.5	Flow [L/s]	0.52	0.57	0.61	0.66	0.70	0.73
Diam. at 1.5' ht. [ft.]	106	111	113	115	117	119	121	123	Diam. at 0.5m ht. [m]	32.7	34.3	35.1	36.0	36.9	37.8
Diam. at 6.0' ht. [ft.]	114	118	121	124	126	128	129	130	Diam. at 2.0m ht. [m]	35.1	36.6	37.9	38.8	39.3	39.8
#16 Nozzle [1/4"]									#16 Nozzle [6.35mm]						
Flow [gpm]	10.7	11.4	12.1	12.8	13.4	14.0	14.6	15.1	Flow [L/s]	0.69	0.75	0.81	0.87	0.92	0.97
Diam. at 1.5' ht. [ft.]	111	117	120	123	126	129	131	133	Diam. at 0.5m ht. [m]	34.3	36.3	37.6	39.0	40.0	41.0
Diam. at 6.0' ht. [ft.]	122	126	129	131	134	136	137	138	Diam. at 2.0m ht. [m]	37.5	39.0	40.1	41.2	41.8	42.2
#18 Nozzle [7/32"]									#18 Nozzle [7.14mm]						
Flow [gpm]	13.3	14.2	15.0	15.9	16.6	17.4	18.1	18.8	Flow [L/s]	0.85	0.94	1.01	1.08	1.15	1.21
Diam. at 1.5' ht. [ft.]	118	124	127	129	134	139	142	144	Diam. at 0.5m ht. [m]	36.4	38.4	39.6	41.8	43.3	44.5
Diam. at 6.0' ht. [ft.]	128	132	135	137	141	144	146	147	Diam. at 2.0m ht. [m]	39.3	40.9	41.9	43.5	44.5	45.0
#20 Nozzle [5/16"]									#20 Nozzle [7.14mm]						
Flow [gpm]	16.0	17.1	18.2	19.2	20.1	21.0	21.8	22.7	Flow [L/s]	1.02	1.12	1.21	1.29	1.37	1.45
Diam. at 1.5' ht. [ft.]	124	130	134	137	142	146	150	153	Diam. at 0.5m ht. [m]	38.3	40.5	42.0	44.0	45.8	47.1
Diam. at 6.0' ht. [ft.]	133	137	140	143	147	151	154	155	Diam. at 2.0m ht. [m]	40.8	42.4	43.8	45.5	47.0	47.4
#22 Nozzle [1 1/32"]									#22 Nozzle [8.73mm]						
Flow [gpm]	19.3	20.5	21.8	22.9	24.1	25.1	26.1	27.1	Flow [L/s]	1.23	1.34	1.45	1.55	1.65	1.73
Diam. at 1.5' ht. [ft.]	126	133	141	148	153	157	160	162	Diam. at 0.5m ht. [m]	38.9	42.2	45.3	47.4	48.8	49.8
Diam. at 6.0' ht. [ft.]	136	141	146	150	155	159	162	164	Diam. at 2.0m ht. [m]	41.8	44.0	46.0	48.0	49.4	50.1
#24 Nozzle [3/8"]									#24 Nozzle [7.14mm]						
Flow [gpm]	22.4	23.9	25.3	26.7	28.0	29.3	30.4	31.6	Flow [L/s]	1.43	1.56	1.69	1.80	1.91	2.02
Diam. at 1.5' ht. [ft.]	130	138	145	151	156	160	166	169	Diam. at 0.5m ht. [m]	40.2	43.6	46.3	48.3	50.7	52.4
Diam. at 6.0' ht. [ft.]	138	145	150	155	160	164	167	170	Diam. at 2.0m ht. [m]	42.6	45.3	47.5	49.5	50.9	52.4

Sprinkler performance may vary with actual field conditions. Diameters shown are for standard straight bore nozzles and stream straightening vanes. Other nozzles and/or vane combinations are available; Consult factory for specific performance data. Stream heights range from 8.5-15.5 ft. (2.6-4.7m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m).

7025RD-2-1" M

U.S. Data									Metric Data						
Spklr Base Press. [psi]	30	35	40	45	50	55	60	65	[bar]	2.0	2.5	3.0	3.5	4.0	4.5
									[psi]	29.00	36.25	43.50	50.75	58.00	65.25
14x8 - #14 Range Noz. [7/32"] x #8 Spreader Noz.- Lavender [1/8"]									14x8 - #14 Nozzle [5.56 mm] x #8 Lavender [3.18 mm]						
Flow [gpm]	10.7	11.4	12.1	12.7	13.3	13.9	14.5	15.1	Flow [L/s]	0.68	0.75	0.81	0.86	0.92	0.97
Diam. at 1.5' ht. [ft.]	106	111	113	115	117	119	121	123	Diam. at 0.5m ht. [m]	32.7	34.3	35.1	36.0	36.9	37.8
Diam. at 6.0' ht. [ft.]	114	118	121	124	126	128	129	130	Diam. at 2.0m ht. [m]	35.1	36.6	37.9	38.8	39.3	39.8
16x8 - #16 Range Noz. [1/4"] x #8 Spreader Noz.- Lavender [1/8"]									16x8 - #16 Nozzle [6.35 mm] x #8 Lavender [3.18 mm]						
Flow [gpm]	13.4	14.3	15.2	16.0	16.8	17.5	18.2	18.9	Flow [L/s]	0.86	0.94	1.01	1.08	1.15	1.21
Diam. at 1.5' ht. [ft.]	111	117	120	123	126	129	131	133	Diam. at 0.5m ht. [m]	34.3	36.3	37.6	39.0	40.0	41.0
Diam. at 6.0' ht. [ft.]	122	126	129	131	134	136	137	138	Diam. at 2.0m ht. [m]	37.5	39.0	40.1	41.2	41.8	42.2
18x8 - #18 Range Noz. [9/32"] x #8 Spreader Noz.- Lavender [1/8"]									18x8 - #18 Nozzle [7.14 mm] x #8 Lavender [3.18 mm]						
Flow [gpm]	15.9	17.0	18.0	19.0	19.9	20.8	21.6	22.5	Flow [L/s]	1.02	1.12	1.20	1.29	1.37	1.44
Diam. at 1.5' ht. [ft.]	118	124	127	129	134	139	142	144	Diam. at 0.5m ht. [m]	36.4	38.4	39.5	41.8	43.3	44.5
Diam. at 6.0' ht. [ft.]	128	132	135	137	141	144	146	147	Diam. at 2.0m ht. [m]	39.3	40.9	41.9	43.5	44.5	45.0
18x10 - #18 Range Noz. [9/32"] x #10 Spreader Noz.- Turquoise [5/32"]									18x10 - #18 Nozzle [7.14 mm] x #10 Turquoise [3.97 mm]						
Flow [gpm]	17.0	18.2	19.3	20.3	21.3	22.3	23.1	24.0	Flow [L/s]	1.09	1.19	1.29	1.38	1.46	1.54
Diam. at 1.5' ht. [ft.]	118	124	127	129	134	139	142	144	Diam. at 0.5m ht. [m]	36.4	38.4	39.5	41.8	43.3	44.5
Diam. at 6.0' ht. [ft.]	128	132	135	137	141	144	146	147	Diam. at 2.0m ht. [m]	39.3	40.9	41.9	43.5	44.5	45.0
20x10 - #20 Range Noz. [5/16"] x #10 Spreader Noz.- Turquoise [5/32"]									20x10 - #20 Nozzle [7.94 mm] x #10 Turquoise [3.97 mm]						
Flow [gpm]	19.6	20.9	22.2	23.4	24.6	25.7	26.7	27.7	Flow [L/s]	1.26	1.38	1.49	1.59	1.69	1.78
Diam. at 1.5' ht. [ft.]	124	130	134	137	142	146	150	153	Diam. at 0.5m ht. [m]	38.3	40.5	42.0	44.0	45.8	47.1
Diam. at 6.0' ht. [ft.]	133	137	140	143	147	151	154	155	Diam. at 2.0m ht. [m]	40.8	42.4	43.8	45.5	47.0	47.4
20x12 - #20 Range Noz. [5/16"] x #12 Spreader Noz.- Red [3/16"]									20x12 - #20 Nozzle [7.94 mm] x #12 Red [4.76 mm]						
Flow [gpm]	21.3	22.8	24.2	25.5	26.8	27.9	29.1	30.2	Flow [L/s]	1.37	1.50	1.62	1.73	1.83	1.93
Diam. at 1.5' ht. [ft.]	124	130	134	137	142	146	150	153	Diam. at 0.5m ht. [m]	38.3	40.5	42.0	44.0	45.8	47.1
Diam. at 6.0' ht. [ft.]	133	137	140	143	147	151	154	155	Diam. at 2.0m ht. [m]	40.8	42.4	43.8	45.5	47.0	47.4
22x10 - #22 Range Noz. [11/32"] x #10 Spreader Noz.- Turquoise [5/32"]									22x10 - #22 Nozzle [8.73 mm] x #10 Turquoise [3.97 mm]						
Flow [gpm]	22.9	24.5	26.0	27.4	28.7	30.0	31.2	32.4	Flow [L/s]	1.45	1.59	1.72	1.84	1.95	2.05
Diam. at 1.5' ht. [ft.]	126	133	141	148	153	157	160	162	Diam. at 0.5m ht. [m]	38.9	42.2	45.3	47.4	48.8	49.8
Diam. at 6.0' ht. [ft.]	136	141	146	150	155	159	162	164	Diam. at 2.0m ht. [m]	41.8	44.0	46.0	48.0	49.4	50.1
22x12 - #22 Range Noz. [11/32"] x #12 Spreader Noz.- Red [3/16"]									22x12 - #22 Nozzle [8.73 mm] x #12 Red [4.76 mm]						
Flow [gpm]	24.6	26.3	27.9	29.4	30.9	33.6	32.3	34.8	Flow [L/s]	1.58	1.73	1.87	2.00	2.12	2.23
Diam. at 1.5' ht. [ft.]	126	133	141	148	153	157	160	162	Diam. at 0.5m ht. [m]	38.9	42.2	45.3	47.4	48.8	49.8
Diam. at 6.0' ht. [ft.]	136	141	146	150	155	159	162	164	Diam. at 2.0m ht. [m]	41.8	44.0	46.0	48.0	49.4	50.1
24x12 - #24 Range Noz. [3/8"] x #12 Spreader Noz.- Red [3/16"]									24x12 - #24 Nozzle [9.53 mm] x #12 Red [4.76 mm]						
Flow [gpm]	27.6	29.5	31.3	33.0	34.6	36.2	37.6	39.1	Flow [L/s]	1.77	1.94	2.09	2.24	2.38	2.50
Diam. at 1.5' ht. [ft.]	130	138	145	151	156	160	166	169	Diam. at 0.5m ht. [m]	40.2	43.6	46.3	48.3	50.7	52.4
Diam. at 6.0' ht. [ft.]	138	145	150	155	160	164	167	170	Diam. at 2.0m ht. [m]	42.6	45.3	47.5	49.5	50.9	52.4

Sprinkler performance may vary with actual field conditions. Diameters shown are for standard straight bore nozzles and stream straightening vanes. Other nozzles and/or vane combinations are available; Consult factory for specific performance data. Stream heights range from 8.5-15.5 ft. (2.6-4.7m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m).

80series[Impacts]



The 80 Series are Senninger's largest impact sprinklers. Designed for maximum efficiency at high flow rates.

FEATURES:

- Single and double nozzle designs available. Double nozzle available in range drive (HR) or spreader drive (SD)
- Outlasts and costs less than brass sprinklers
- Lower bearing pipe thread: 1/4" M NPT, 1/4" F NPT; 1/2" M NPT, 1/4" M BSP
- Flow rates: 23.6 to 106.8 gpm [1.51 to 6.62 L/s]
- Built-in hex wrench for easy in-the-field maintenance

8025HR-1-1/4" M

U.S. Data	Sprinkler Base Pressure [psi]										Metric Data	[bar]	2.5	3.0	3.5	4.0	4.5	5.0	
	35	40	45	50	55	60	65	70	75		[psi]	36.25	43.50	50.75	58.00	65.25	72.50		
#24 Nozzle [3/8"]											#24 Nozzle [9.53mm]								
Flow [gpm]	23.6	25.2	26.7	28.2	29.6	30.9	32.1	33.3	34.5		Flow [L/s]	1.51	1.66	1.79	1.91	2.03	2.14		
Diam. at 1.5' ht. [ft.]	128	134	139	144	149	154	157	159	160		Diam. at 0.5m ht. [m]	39.5	41.9	44.1	46.3	47.9	48.6		
Diam. at 6.0' ht. [ft.]	147	152	156	159	162	164	166	168	170		Diam. at 2.0m ht. [m]	45.2	47.2	48.6	49.7	50.6	51.5		
#26 Nozzle [13/32"]											#26 Nozzle [10.32mm]								
Flow [gpm]	24.4	29.3	31.0	32.7	34.3	35.9	37.3	38.7	40.1		Flow [L/s]	1.76	1.92	2.08	2.22	2.36	2.48		
Diam. at 1.5' ht. [ft.]	136	142	147	152	157	161	164	166	168		Diam. at 0.5m ht. [m]	41.9	44.4	46.6	48.6	50.0	50.9		
Diam. at 6.0' ht. [ft.]	152	157	161	164	167	169	171	173	175		Diam. at 2.0m ht. [m]	46.7	48.7	50.1	51.3	52.2	53.0		
#28 Nozzle [7/16"]											#28 Nozzle [11.11mm]								
Flow [gpm]	31.8	33.9	36.0	38.0	39.8	41.6	43.3	44.9	46.5		Flow [L/s]	2.04	2.23	2.41	2.58	2.73	2.88		
Diam. at 1.5' ht. [ft.]	142	148	153	157	161	166	169	171	173		Diam. at 0.5m ht. [m]	43.7	46.2	48.0	50.0	51.5	52.4		
Diam. at 6.0' ht. [ft.]	156	161	165	168	171	173	175	177	179		Diam. at 2.0m ht. [m]	47.9	49.9	51.3	52.5	53.4	54.3		
#30 Nozzle [15/32"]											#30 Nozzle [11.91mm]								
Flow [gpm]	36.1	38.6	40.9	43.1	45.2	47.2	49.2	51.0	52.8		Flow [L/s]	2.31	2.53	2.74	2.93	3.10	3.27		
Diam. at 1.5' ht. [ft.]	147	153	158	162	166	170	173	175	178		Diam. at 0.5m ht. [m]	45.3	47.7	49.6	51.3	52.8	53.8		
Diam. at 6.0' ht. [ft.]	160	165	169	172	175	177	179	181	183		Diam. at 2.0m ht. [m]	49.2	51.1	52.6	53.7	54.6	55.5		
#32 Nozzle [1/2"]											#32 Nozzle [12.7mm]								
Flow [gpm]	41.0	43.9	46.5	49.0	51.4	53.7	55.9	58.0	60.1		Flow [L/s]	2.63	2.88	3.11	3.33	3.53	3.72		
Diam. at 1.5' ht. [ft.]	150	156	161	165	169	173	176	179	183		Diam. at 0.5m ht. [m]	46.2	48.6	50.5	52.2	53.7	55.2		
Diam. at 6.0' ht. [ft.]	164	169	173	176	179	181	183	185	187		Diam. at 2.0m ht. [m]	50.4	52.4	53.8	54.9	55.8	56.7		
#34 Nozzle [17/32"]											#34 Nozzle [13.49mm]								
Flow [gpm]	46.3	49.5	52.5	55.4	58.1	60.7	63.1	65.5	67.8		Flow [L/s]	2.97	3.25	3.51	3.76	3.99	4.20		
Diam. at 1.5' ht. [ft.]	153	159	164	168	172	176	180	183	186		Diam. at 0.5m ht. [m]	47.1	49.5	51.4	53.2	54.9	56.2		
Diam. at 6.0' ht. [ft.]	167	172	176	179	182	184	186	188	190		Diam. at 2.0m ht. [m]	51.3	53.3	54.7	55.8	56.7	57.6		
#36 Nozzle [9/16"]											#36 Nozzle [14.29mm]								
Flow [gpm]	51.9	55.5	58.9	62.1	65.1	68.0	70.8	73.5	76.0		Flow [L/s]	3.33	3.65	3.94	4.21	4.47	4.71		
Diam. at 1.5' ht. [ft.]	155	161	166	170	174	178	183	187	190		Diam. at 0.5m ht. [m]	47.7	50.1	52.0	53.8	55.8	57.5		
Diam. at 6.0' ht. [ft.]	170	175	179	182	185	187	189	191	193		Diam. at 2.0m ht. [m]	52.2	54.2	55.6	56.8	57.6	58.5		
#38 Nozzle [19/32"]											#38 Nozzle [15.08mm]								
Flow [gpm]	56.0	59.9	63.5	66.9	70.2	73.3	76.3	79.2	82.0		Flow [L/s]	3.59	3.93	4.25	4.54	4.82	5.08		
Diam. at 1.5' ht. [ft.]	157	163	168	172	176	180	185	190	192		Diam. at 0.5m ht. [m]	48.3	50.8	52.6	54.4	56.5	58.2		
Diam. at 6.0' ht. [ft.]	173	178	182	185	188	190	192	194	196		Diam. at 2.0m ht. [m]	53.1	55.1	56.5	57.7	58.6	59.4		
#40 Nozzle [5/8"]											#40 Nozzle [15.88mm]								
Flow [gpm]	-	67.1	71.1	75.0	78.7	82.1	85.5	88.7	91.8		Flow [L/s]	-	4.41	4.76	5.09	5.40	5.69		
Diam. at 1.5' ht. [ft.]	-	165	170	174	178	182	187	192	194		Diam. at 0.5m ht. [m]	-	51.4	53.2	55.0	57.1	58.8		
Diam. at 6.0' ht. [ft.]	-	180	184	187	190	192	194	196	198		Diam. at 2.0m ht. [m]	-	55.7	57.1	58.3	59.2	60.0		

Sprinkler performance may vary with actual field conditions. Diameters shown are for standard straight bore nozzles and stream straightening vanes. Other nozzles and/or vane combinations are available; Consult factory for specific performance data. Stream heights range from 12.5-28.0 ft. (3.8-8.5m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m).

Impacts]80series

FEATURES: continued...

- Color-coded nozzles for easy size identification /warranted to maintain correct orifice size for five years
- Two-year warranty on materials, workmanship AND performance



8025-SD The Booster Tube provides an increased radius of throw over standard range and spreader drive models by approximately 5 to 10%. Consult factory for specific performance data. Available only on **8025 Spreader Drive** double nozzle models.

8025HR-2-1 1/4" M

U.S. Data	Sprinkler Base Pressure [psi]									Metric Data	[bar] [psi]	2.5 36.25	3.0 43.50	3.5 50.75	4.0 58.00	4.5 65.25	5.0 72.50
	35	40	45	50	55	60	65	70	75								
24x12 - #24 Range Nozzle [3/8"] x #12 Spreader Noz.- Red [3/16"]										24x12 - #24 Nozzle [9.53 mm] x #12 Red [4.76 mm]							
Flow [gpm]	28.9	30.8	32.7	34.5	36.2	37.8	39.3	40.8	42.2	Flow [L/s]	1.85	2.03	2.19	2.34	2.48	2.62	
Diam. at 1.5' ht. [ft.]	128	134	139	144	149	154	157	159	160	Diam. at 0.5m ht. [m]	39.5	41.9	44.1	46.3	47.9	48.6	
Diam. at 6.0' ht. [ft.]	147	152	156	159	162	164	166	168	170	Diam. at 2.0m ht. [m]	45.2	47.2	48.6	49.7	50.6	51.5	
26x14 - #26 Range Noz. [13/32"] x #14 Spreader Noz.- Blue [7/32"]										26x14 - #26 Nozzle [10.32 mm] x #14 Blue [5.56 mm]							
Flow [gpm]	36.8	39.4	41.8	44.0	46.2	48.2	50.2	52.1	53.9	Flow [L/s]	2.36	2.59	2.79	2.99	3.17	3.34	
Diam. at 1.5' ht. [ft.]	136	142	147	152	157	161	164	166	168	Diam. at 0.5m ht. [m]	41.9	44.4	46.6	48.6	50.0	50.9	
Diam. at 6.0' ht. [ft.]	152	157	161	164	167	169	171	173	175	Diam. at 2.0m ht. [m]	46.7	48.7	50.1	51.3	52.2	53.0	
28x14 - #28 Range Noz. [7/16"] x #14 Spreader Noz.- Blue [7/32"]										28x14 - #128 Nozzle [1.11 mm] x #14 #14 Blue [5.56 mm]							
Flow [gpm]	39.3	42.0	44.5	46.9	49.3	51.4	53.5	55.6	57.5	Flow [L/s]	2.52	2.76	2.98	3.19	3.38	3.56	
Diam. at 1.5' ht. [ft.]	142	148	153	157	161	166	169	171	173	Diam. at 0.5m ht. [m]	43.7	46.2	48.0	50.0	51.5	52.4	
Diam. at 6.0' ht. [ft.]	156	161	165	168	171	173	175	177	179	Diam. at 2.0m ht. [m]	47.9	49.9	51.3	52.5	53.4	54.3	
30x14 - #30 Range Noz. [15/32"] x #14 Spreader Noz.- Blue [7/32"]										30x14 - #30 Nozzle [11.91 mm] x #14 Blue [5.56 mm]							
Flow [gpm]	43.0	45.9	48.7	51.4	53.9	56.3	58.6	60.8	62.9	Flow [L/s]	2.76	3.02	3.26	3.49	3.70	3.90	
Diam. at 1.5' ht. [ft.]	147	153	158	162	166	170	173	175	178	Diam. at 0.5m ht. [m]	45.3	47.7	49.6	51.3	52.8	53.8	
Diam. at 6.0' ht. [ft.]	160	165	169	172	175	177	179	181	183	Diam. at 2.0m ht. [m]	49.2	51.1	52.6	53.7	54.6	55.5	
32x16 - #32 Range Noz. [1/2"] x #16 Spreader Noz.- Orange [1/4"]										32x16 - #32 Nozzle [12.7 mm] x #16 Orange [6.35 mm]							
Flow [gpm]	50.2	53.7	56.9	60.0	63.0	65.8	68.4	71.0	73.5	Flow [L/s]	3.22	3.53	3.81	4.07	4.32	4.55	
Diam. at 1.5' ht. [ft.]	150	156	161	165	169	173	176	179	183	Diam. at 0.5m ht. [m]	46.2	48.6	50.5	52.2	53.7	55.2	
Diam. at 6.0' ht. [ft.]	164	169	173	176	179	181	183	185	187	Diam. at 2.0m ht. [m]	50.4	52.4	53.8	54.9	55.8	56.7	
34x16 - #34 Range Noz. [17/32"] x #16 Spreader Noz.- Orange [1/4"]										34x16 - #34 Nozzle [13.49 mm] x #16 Orange [6.35 mm]							
Flow [gpm]	55.4	59.2	62.8	66.2	69.4	72.5	75.4	78.3	81.1	Flow [L/s]	3.55	3.89	4.20	4.49	4.76	5.02	
Diam. at 1.5' ht. [ft.]	153	159	164	168	172	176	180	183	186	Diam. at 0.5m ht. [m]	47.1	49.5	51.4	53.2	54.9	56.2	
Diam. at 6.0' ht. [ft.]	167	172	176	179	182	184	186	188	190	Diam. at 2.0m ht. [m]	51.3	53.3	54.7	55.8	56.7	57.6	
36x16 - #36 Range Noz. [9/16"] x #16 Spreader Noz.- Orange [1/4"]										36x16 - #36 Nozzle [14.29 mm] x #16 Orange [6.35 mm]							
Flow [gpm]	60.9	65.1	69.0	72.7	76.3	79.7	82.9	86.1	89.1	Flow [L/s]	3.90	4.27	4.62	4.94	5.24	5.52	
Diam. at 1.5' ht. [ft.]	155	161	166	170	174	178	183	187	190	Diam. at 0.5m ht. [m]	47.7	50.1	52.0	53.8	55.8	57.5	
Diam. at 6.0' ht. [ft.]	170	175	179	182	185	187	189	191	193	Diam. at 2.0m ht. [m]	52.2	54.2	55.6	56.8	57.6	58.5	
38x16 - #38 Range Noz. [9/32"] x #18 Spreader Noz.- Purple [9/32"]										38x18 - #38 Nozzle [15.08 mm] x #18 Purple [7.14 mm]							
Flow [gpm]	67.0	71.7	76.0	80.1	84.1	87.8	91.3	94.9	98.1	Flow [L/s]	4.30	4.71	5.09	5.44	5.77	6.08	
Diam. at 1.5' ht. [ft.]	157	163	168	172	176	180	185	190	192	Diam. at 0.5m ht. [m]	48.3	50.8	52.6	54.4	56.5	58.2	
Diam. at 6.0' ht. [ft.]	173	178	182	185	188	190	192	194	196	Diam. at 2.0m ht. [m]	53.1	55.1	56.5	57.7	58.6	59.4	
40x18 - #40 Range Noz. [5/8"] x #18 Spreader Noz.- Purple [9/32"]										40x18 - #40 Nozzle [15.88 mm] x #18 Purple [7.14 mm]							
Flow [gpm]	-	78.0	82.8	87.2	91.5	95.6	99.4	103.2	106.8	Flow [L/s]	4.68	5.12	5.53	5.92	6.28	6.62	
Diam. at 1.5' ht. [ft.]	-	165	170	174	178	182	187	192	194	Diam. at 0.5m ht. [m]	48.9	51.4	53.2	55.0	57.1	58.8	
Diam. at 6.0' ht. [ft.]	-	180	184	187	190	192	194	196	198	Diam. at 2.0m ht. [m]	53.7	55.7	57.1	58.3	59.2	60.0	

Sprinkler performance may vary with actual field conditions. Diameters shown are for standard straight bore nozzles and stream straightening vanes. Other nozzles and/or vane combinations are available; Consult factory for specific performance data. Stream heights range from 12.5 - 28.0 ft (3.8 - 8.5 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46m).

PRLG[Regulators



AVAILABLE
IN NPT OR
HOSE THREAD
OPTIONS!



The Senninger Landscape Grade Pressure Regulator is ideal for installations requiring lower flows [0.1 - 7.0 gpm] including low-volume and sprinkler irrigation systems connected to outdoor hose bibb faucets or other lawn and landscape applications.

FEATURES:

- Maintains a constant preset outlet pressure while handling varying inlet pressures
- Prevents wasteful misting when using small nozzles
- Tamper-proof housing
- Very low hysteresis and friction losses
- Maximum flow path resists plugging
- 100% water-tested for accuracy (no adjustments ever needed)
- Two-year warranty on materials, workmanship AND performance

CAUTION:

Always install downstream from all shut off valves.



PRLG - Pressure Regulator Landscape Grade

Model Number	Preset Operating Pressure		Maximum Inlet Pressure		Flow Range		Inlet Sizes	Outlet Sizes
	psi	[bar]	psi	[bar]	gpm	[L/hr]		
PRLG-10	10	0.69	80	5.52	0.1 - 7	22.7 - 1587.6	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT
PRLG-15	15	1.04	90	6.21	0.1 - 7	22.7 - 1587.6	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT
PRLG-20	20	1.38	100	6.90	0.1 - 7	22.7 - 1587.6	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT
PRLG-25	25	1.73	120	8.28	0.1 - 7	22.7 - 1587.6	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT
PRLG-30	30	2.07	120	8.28	0.1 - 7	22.7 - 1587.6	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT
PRLG-35	35	2.42	120	8.28	0.1 - 7	22.7 - 1587.6	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT
PRLG-40	40	2.76	120	8.28	0.1 - 7	22.7 - 1587.6	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT

Regulated pressure is 1/2 psi (0.03 bar) higher with increasing inlet pressure than with decreasing inlet pressure

Regulators]PMR-LF

The low flow Pressure-Master Regulator® is ideal for installations requiring lower flows [0.1 - 8.0 gpm] including solid-set, drip or other low-volume irrigation systems as well as center pivot and other mechanical-move irrigation systems.

FEATURES:

- Maintains a constant preset outlet pressure while handling varying inlet pressures
- Very low hysteresis and friction losses
- Maximum flow path resists plugging
- 100% water-tested for accuracy (no adjustments ever needed)
- Two-year warranty on materials, workmanship AND performance
- Can be installed above or below ground.



PMR-LF CMS models are designed specifically for mining applications where pH solutions are less than or equal to 4.0

PMR-LF EFF models (lavender top) are designed specifically for wastewater applications.



PMR-LF - Pressure-Master Regulator® Low Flow

Model Number	Preset Operating Pressure [bar]		Maximum Inlet Pressure [bar]		Flow Range [L/hr]		Inlet Sizes	Outlet Sizes
PMR-6 LF	6	0.41	100	6.90	0.5 - 5	113.4 - 1134.0	3/4" F NPT	3/4" F NPT
PMR-10 LF	10	0.69	120	8.28	0.5 - 5	113.4 - 1134.0	3/4" F NPT	3/4" F NPT
PMR-12 LF	12	0.83	135	9.31	0.1 - 8	22.7 - 1814.4	3/4" F NPT	3/4" F NPT
PMR-15 LF	15	1.04	150	10.35	0.1 - 8	22.7 - 1814.4	3/4" F NPT	3/4" F NPT
PMR-20 LF	20	1.38	150	10.35	0.1 - 8	22.7 - 1814.4	3/4" F NPT	3/4" F NPT
PMR-25 LF	25	1.73	150	10.35	0.1 - 8	22.7 - 1814.4	3/4" F NPT	3/4" F NPT
PMR-30 LF	30	2.07	150	10.35	0.1 - 8	22.7 - 1814.4	3/4" F NPT	3/4" F NPT
PMR-35 LF	35	2.42	150	10.35	0.1 - 8	22.7 - 1814.4	3/4" F NPT	3/4" F NPT
PMR-40 LF	40	2.76	150	10.35	0.1 - 8	22.7 - 1814.4	3/4" F NPT	3/4" F NPT

Regulated pressure is 1/2 psi (0.03 bar) higher with increasing inlet pressure than with decreasing inlet pressure

PMR-MF[Regulators



**NEW
1" BSP
MODEL
AVAILABLE!**

The medium flow Pressure-Master Regulator® is ideal for installations requiring mid-range flows [2 - 20 gpm] including solid-set, drip or other low-volume irrigation systems as well as center pivot and other mechanical-move irrigation systems.

FEATURES:

- Maintains a constant preset outlet pressure while handling varying inlet pressures
- Very low hysteresis and friction losses
- Maximum flow path resists plugging
- 100% water-tested for accuracy (no adjustments ever needed)
- Two-year warranty on materials, workmanship AND performance
- Can be installed above or below ground.



PMR-MF CMS models are designed specifically for mining applications where pH solutions are less than or equal to 4.0
PMR-MF EFF models (lavender top) are designed specifically for wastewater applications.

CAUTION:
Always install downstream from all shut off valves.



PMR-MF – Pressure-Master Regulator® Medium-Flow

Model Number	Preset Oper. Press. psi [bar]	Maximum Inlet Press. psi [bar]	Flow Range gpm [L/hr]	Inlet Sizes	Outlet Sizes	
PMR-6 MF	6	0.41	100 6.90	4 - 16 907.2 -3628.8	3/4" F NPT, 1" F NPT, 1" M NPT, 1" F BSP	3/4" F NPT, 1" F NPT, 1" F BSP
PMR-10 MF	10	0.69	120 8.28	4 - 16 907.2 -3628.8	3/4" F NPT, 1" F NPT, 1" M NPT, 1" F BSP	3/4" F NPT, 1" F NPT, 1" F BSP
PMR-12 MF	12	0.83	135 9.31	2-20 453.6-4536.0	3/4" F NPT, 1" FNPT, 1" M NPT, 1" F BSP	3/4" F NPT, 1" F NPT, 1" F BSP
PMR-15 MF	15	1.04	150 10.35	2-20 453.6-4536.0	3/4" F NPT, 1" F NPT, 1" M NPT, 1" F BSP	3/4" F NPT, 1" F NPT, 1" F BSP
PMR-20 MF	20	1.38	150 10.35	2-20 453.6-4536.0	3/4" F NPT, 1" FNPT, 1" M NPT, 1" F BSP	3/4" F NPT, 1" F NPT, 1" F BSP
PMR-25 MF	25	1.73	150 10.35	2-20 453.6-4536.0	3/4" F NPT, 1" F NPT, 1" M NPT, 1" F BSP	3/4" F NPT, 1" F NPT, 1" F BSP
PMR-30 MF	30	2.07	150 10.35	2-20 453.6-4536.0	3/4" F NPT, 1" F NPT, 1" M NPT, 1" F BSP	3/4" F NPT, 1" F NPT, 1" F BSP
PMR-35 MF	35	2.42	150 10.35	2-20 453.6-4536.0	3/4" F NPT, 1" F NPT, 1" M NPT, 1" F BSP	3/4" F NPT, 1" F NPT, 1" F BSP
PMR-40 MF	40	2.76	150 10.35	2-20 453.6-4536.0	3/4" F NPT, 1" F NPT, 1" M NPT, 1" F BSP	3/4" F NPT, 1" F NPT, 1" F BSP
PMR-50 MF	50	3.45	150 10.35	2-20 453.6-4536.0	3/4" F NPT, 1" F NPT, 1" M NPT, 1" F BSP	3/4" F NPT, 1" F NPT, 1" F BSP
PMR-60 MF	60	4.14	150 10.35	2-20 453.6-4536.0	3/4" F NPT, 1" F NPT, 1" M NPT, 1" F BSP	3/4" F NPT, 1" F NPT, 1" F BSP

¹ Regulated pressure is 1/2 psi (0.03 bar) higher with increasing inlet pressure than with decreasing inlet pressure

Regulators]PR-HF

The high flow Pressure Regulator is ideal for installations requiring higher flows [10 - 32 gpm] including solid-set sprinkler, low-volume, manifolds and mechanical-move irrigation systems.

FEATURES:

- Maintains a constant preset outlet pressure while handling varying inlet pressures
- Very low hysteresis and friction losses
- Maximum flow path resists plugging
- 100% water-tested for accuracy (no adjustments ever needed)
- Two-year warranty on materials, workmanship AND performance



Pressure regulators are recommended if there is a 10% pressure and/or 5% flow variation. The lower a system's design pressure, the more critical it is to accurately control its pressure.

Design Pressure	PRESSURE VARIATIONS				
	1 psi [0.069 bar]	2 psi [0.138 bar]	3 psi [0.207 bar]	4 psi [0.276 bar]	5 psi [0.345 bar]
6 psi [0.41 bar]	8.3	16.7	25.0	33.3	41.7
10 psi [0.69 bar]	5.0	10.0	15.0	20.0	25.0
15 psi [1.03 bar]	3.3	6.7	10.0	13.3	16.7
20 psi [1.38 bar]	2.5	5.0	7.5	10.0	12.5



All Senninger pressure regulators are constructed of durable high-impact engineering-grade thermoplastics with a high quality stainless steel compression spring and securing screws. This durable construction coupled with their outstanding design and precision parts make them suitable for a variety of different applications.

PR-HF - Pressure Regulator High-Flow

Model Number	Preset Operating Pressure psi	Preset Operating Pressure [bar]	Maximum Inlet Pressure psi	Maximum Inlet Pressure [bar]	Flow Range gpm	Flow Range [m ³ /hr]	Inlet Sizes	Outlet Sizes
PR-10 HF	10	0.69	60	4.14	10 - 32	2.27 - 7.26	1/4" F NPT	1" F, 1/4" F NPT
PR-15 HF	15	1.04	80	5.52	10 - 32	2.27 - 7.26	1/4" F NPT	1" F, 1/4" F NPT
PR-20 HF	20	1.38	100	6.90	10 - 32	2.27 - 7.26	1/4" F NPT	1" F, 1/4" F NPT
PR-25 HF	25	1.73	100	6.90	10 - 32	2.27 - 7.26	1/4" F NPT	1" F, 1/4" F NPT
PR-30 HF	30	2.07	100	6.90	10 - 32	2.27 - 7.26	1/4" F NPT	1" F, 1/4" F NPT
PR-40 HF	40	2.76	100	6.90	10 - 32	2.27 - 7.26	1/4" F NPT	1" F, 1/4" F NPT
PR-50 HF	50	3.45	100	6.90	10 - 32	2.27 - 7.26	1/4" F NPT	1" F, 1/4" F NPT

Regulated pressure is 1/2 psi (0.03 bar) higher with increasing inlet pressure than with decreasing inlet pressure

PRXF[Regulators



The Extended Flow Pressure Regulator is designed to handle flows up to 100 gpm. Ideal for installation requiring accurate zone pressure regulation.

FEATURES:

- Maintains a constant preset outlet pressure while handling varying inlet pressures
- Inlet / outlet configuration is 3" ID solvent weld socket x socket.
- Very low hysteresis and friction losses
- Maximum flow path resists plugging
- 100% water-tested for accuracy (no adjustments ever needed)
- Two-year warranty on materials, workmanship AND performance

INSTALLATION GUIDELINES:

- Never allow solvent or cement to drip into regulator.
- Make sure the flow arrows on the regulator match the direction of the system flow.
- Installation of a union is recommended for easy removal of PRXF.

CAUTION:
Always install downstream from all shut off valves.



PRXF - Pressure Regulator Extended-Flow™

Model Number	Preset Operating Pressure		Maximum Inlet Pressure		Flow Range		Inlet Sizes	Outlet Size
	psi	[bar]	psi	[bar]	gpm	[m ³ /hr]		
PRXF-10	10	0.69	80	5.52	20 - 80	4.54 - 18.16	3" F	3" F
PRXF-15	15	1.04	85	5.87	20 - 85	4.54 - 19.30	3" F	3" F
PRXF-20	20	1.38	90	6.21	20 - 90	4.54 - 20.43	3" F	3" F
PRXF-25	25	1.73	95	6.56	20 - 95	4.54 - 21.57	3" F	3" F
PRXF-30	30	2.07	100	6.90	20 - 100	4.54 - 22.7	3" F	3" F
PRXF-35	35	2.42	110	7.59	20 - 100	4.54 - 22.7	3" F	3" F
PRXF-40	40	2.76	125	8.63	20 - 100	4.54 - 22.7	3" F	3" F
PRXF-50	50	3.45	125	8.63	20 - 100	4.54 - 22.7	3" F	3" F
PRXF-60	60	4.14	125	8.63	20 - 100	4.54 - 22.7	3" F	3" F

Regulated pressure is 1/2 psi (0.03 bar) higher with increasing inlet pressure than with decreasing inlet pressure

Regulators]PRLV

The Pressure Regulating Limit Valve™ is used in place of standard pressure regulators to limit static [no flow] water pressure when a shut-off valve is used downstream of regulation point. Limits downstream pressure and protects downstream components.

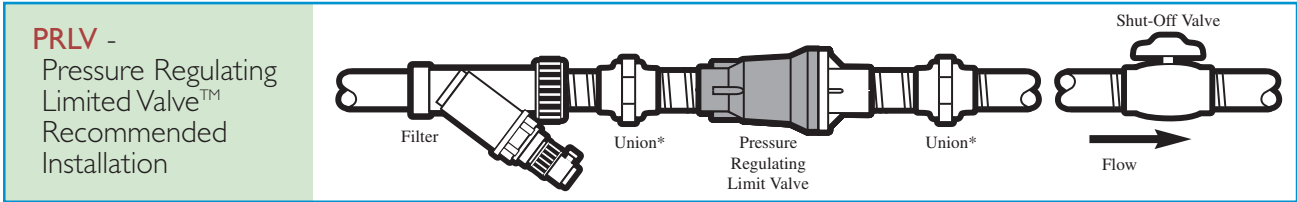
FEATURES:

- Maintains a constant preset outlet pressure while handling varying inlet pressures
- Limits downstream pressure to no more than 15 psi above regulated pressure rating during static (no flow) conditions
- Very low hysteresis and friction losses
- Maximum flow path resists plugging
- 100% water-tested for accuracy (no adjustments ever needed)
- One-year warranty on materials, workmanship AND performance



The PRLV Goes Where Other Regulators Can't!

CAUTION:
Recommended for outdoor use only.



*Unions recommended for ease of maintenance

PRLV - Pressure Regulating Limited Valve™

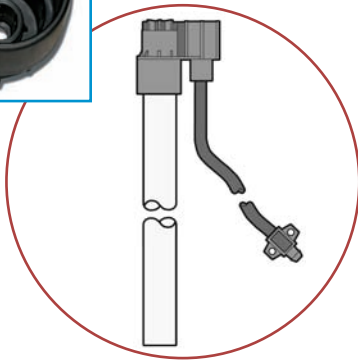
Model Number	Preset Operating Pressure [psi]	Preset Operating Pressure [bar]	Maximum Inlet Pressure [psi]	Maximum Inlet Pressure [bar]	Flow Range [gpm]	Flow Range [L/hr]	Inlet Sizes	Outlet Sizes
PRLV-30	30	2.07	150	10.35	0.5 - 15	113.4 - 3402.0	3/4" F, 1" F NPT	3/4" F, 1" F NPT
PRLV-40	40	2.76	150	10.35	0.5 - 15	113.4 - 3402.0	3/4" F, 1" F NPT	3/4" F, 1" F NPT
PRLV-50	50	3.45	150	10.35	0.5 - 15	113.4 - 3402.0	3/4" F, 1" F NPT	3/4" F, 1" F NPT

Regulated pressure is 1/2 psi (0.03 bar) higher with increasing inlet pressure than with decreasing inlet pressure

Riser Adapter [Accessories]



Interior View



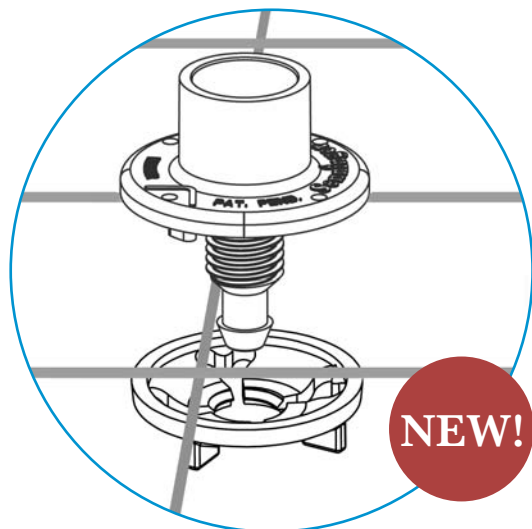
The Riser Adapter's installation versatility makes it ideal for temporary portable systems.

FEATURES:

- Allows sprinklers and sprays with 1/2" M NPT connection to be mounted securely on to either a 1/2" or 3/4" PVC or 5/16" steel rod stakes and connected to low pressure polyethylene laterals
- Allows for easy installation in hard-to-reach places such as side slopes
- No gluing or fusing required
- Two models available: for 0.270" ID tubing or 0.345" ID tubing
- Available as individual components or as an assembly. (Assembly includes: Riser Adapter, three feet of tubing, and connection adapter.)
- Friction loss through the assembly (using 0.345" tubing) is 1.25 psi at 1.5 gpm [0.1 bar at 0.1 L/s]



NurseryWire Adapter ^{Patent Pending} [Accessories]



NEW!

The Nursery Wire Adapter provides easy installation for Misters or other non-impact applicators.

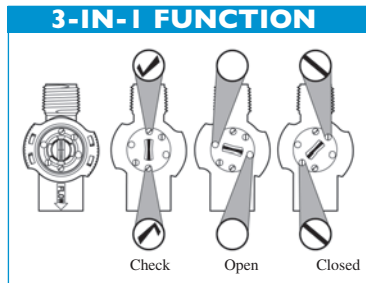
FEATURES:

- Easy installation on wire mesh plant beds
- Fits up to 10 gauge wire
- Locks into corner of wire
- Multiple installation options
- Minimum 1" mesh
- Specifications: 1/2" F slip/
3/4" M slip; Barb fits 0.345" ID tubing



Accessories] DrainStopPlus™

Senninger's new Drain Stop Plus is specifically designed for overhead irrigation to prevent draining from applicators when system is shut down. This protects plants beneath applicators from damage and over-watering. The Drain Stop Plus allows lines to remain full to help expedite system start-up time and maximize initial zone coverage.



The multiple functions of Senninger's new Drain Stop Plus make it an excellent choice for overhead irrigation.



FEATURES:

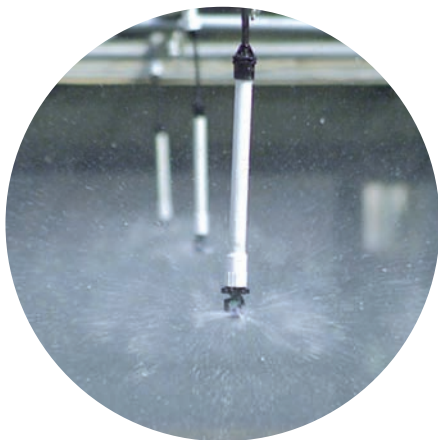
- Unique 3-mode design – open, check, and closed
- Easy clean feature – device and applicator remain in place, a simple twist releases bonnet for debris removal
- Two models available: 1/2" M NPT inlet x 1/2" F NPT outlet; 3/4" M barb inlet x 1/2" F NPT outlet
- Can be used directly on any 1/2" M NPT base applicator
- Low friction loss – less than 4.25 psi total loss through device at 5 gpm [0.29 bar at 19 L/m]
- Minimum opening pressure: 13.5 psi [0.93 bar]
Minimum closing pressure: 3.5 psi [0.24 bar]
- Maximum operating pressure: 50 psi [3.45 bar]
- Flow: 0.25 to 5 gpm [1 to 19 L/m]
- Two-year warranty on materials, workmanship AND performance

Accessories] DropAdapter

The Senninger Drop Adapter offers simple, fast and economical installation of drops.

FEATURES:

- Available as an assembly or as individual components (assembly includes: Two super barb connectors, One 1/2" slip x NPT connector, 12 inches of 0.345" tubing, 12 inches of 1/2" PVC)
- Available with either a 1/2" F slip, 3/4" M slip, or 1/2" M NPT outlet connection
- Friction loss through the assembly (24" length) is 0.67 psi at 1.5 gpm [less than 0.05 bar at 0.1 L/s]



WinSIPP2™ [Software

Use WinSIPP software by Senninger to calculate the precipitation rate of your irrigation system.

NEW!

FEATURES:

- Aids in the selection and application of best irrigation products
- Tests the application uniformity of sprinkler layouts before the system is installed
- Compares different spacings, sprinkler models, nozzle sizes, and operating pressures to determine which would be best for your specific application

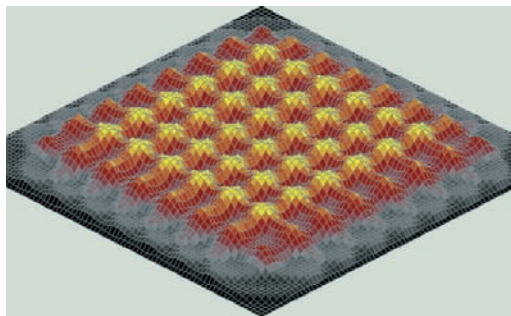
Ask for this program by contacting the Senninger Technical Support Department.

DISTRIBUTION PROFILES

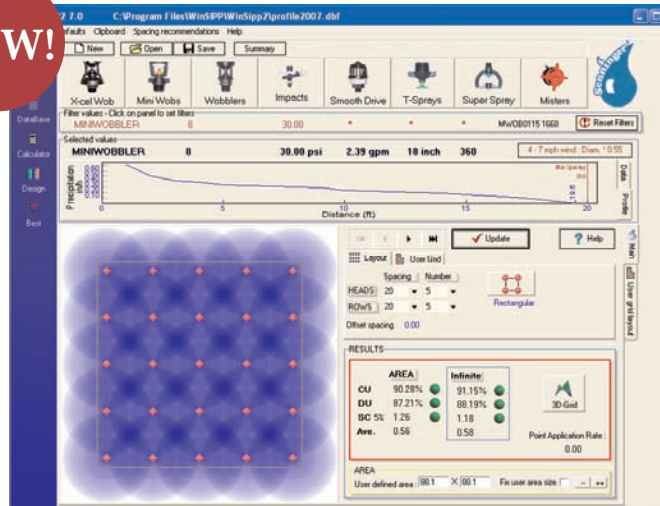
A distribution profile is the illustration of results from “catch can” tests performed in accordance with the American Society of Agricultural Engineers (ASAE) standard S398.1. This data shows how uniformly a device distributes water within its diameter of throw. WinSIPP utilizes the numerous distribution profiles available for Senninger products.

DENSOGRAMS

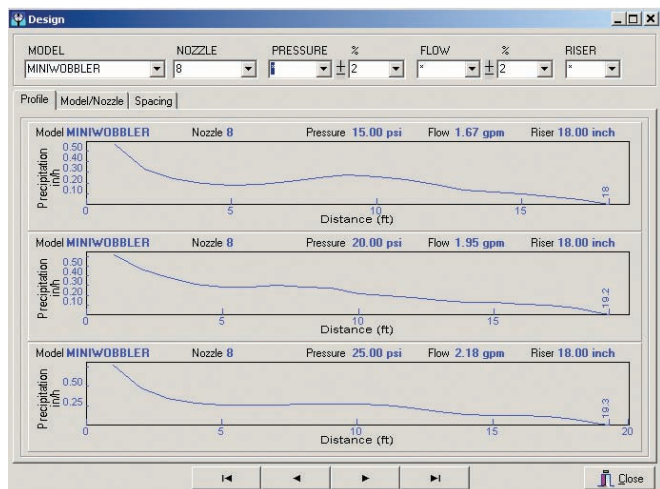
Data from distribution profiles is used to create densograms based on spacing dimensions, layout, and riser height. Densograms are useful in illustrating the uniformity in which water is distributed by multiple overlapping devices.



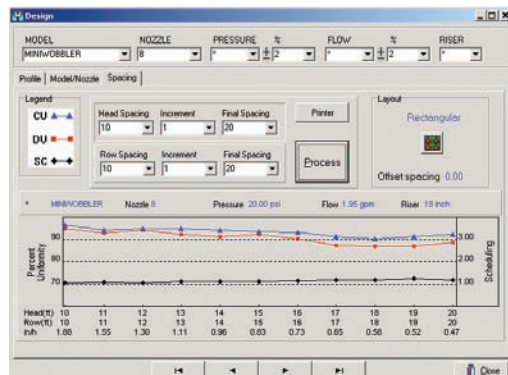
Graphics illustrate the water application pattern in 3-D format.



Densograms illustrate the uniformity of a given profile to show water distribution of multiple overlapping devices in graphic form.



Sprinkler profile takes specific data and illustrates the amount of water that would be delivered at various intervals as well as the exact radius.

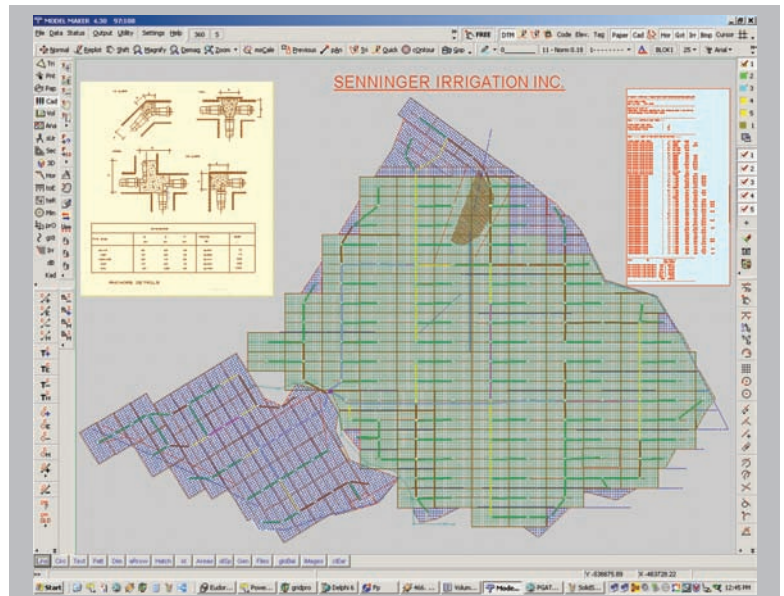


The WinSIPP program provides profiles illustrating the coefficient of uniformity, distribution uniformity, and the scheduling coefficient to determine which spacing would be optimum.

Senninger's Irri-Maker™ software evaluates installation alternatives in advance, surveys any terrain, produces a contour plan, draws the details, and applies the irrigation design.

FEATURES:

- Optimizes irrigation system design by combining survey, Digital Terrain Modeling (DTM) and Computer Aided Design (CAD), with many hydraulic analysis functions
- Allows importation of information from many other programs
- Saves time at repeatable routines



Survey Data Manipulation (DTM)

Irri-Maker's flexible structure and user-friendly layout makes converting survey data into a computerized DTM format quick and easy. It is no longer necessary to manually calculate coordinates, reduce survey field books, or do manual plotting of the proposed terrain. Irri-Maker can produce a contour plan from virtually any type of survey data.

CAD Advantages

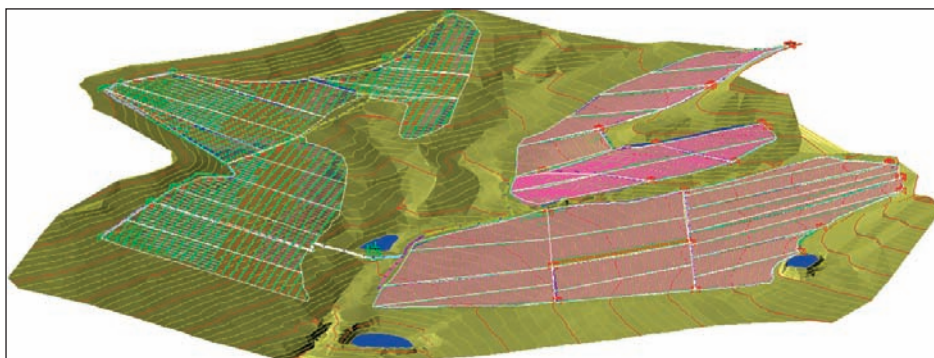
The built-in CAD module allows you to add specific details to the contour plan, including text and bitmap images. Details like roads, fences, boundaries, rivers, and trees can also be incorporated. Irri-Maker employs various modules working together with the same set of commands. There is no need to learn different programs or menu layouts to add CAD elements and irrigation designs to your contour plan. Everything can be plotted independently or in combination.

Flexible Irrigation Designs

Irri-Maker can be used for everything from simple irrigation designs to complex systems. Each element of the design can be controlled, whether it's defining block areas, adding emitters and pipes, sizing the pipes, or calculating the hydraulics. A comprehensive list of materials along with detailed hydraulic reports can be produced as well.

Other Applications

Irri-Maker operates within the larger Model Maker™ environment. This means any of the other Model Maker modules can be added to your software package. With this, civil earthwork calculation tasks can be performed for various applications including dams, canals, drainage, and roads.



The program provides a three-dimensional model for your specific application.

U.S. [Precipitation Rates inches per/hour

SPACING (feet)	FLOW																					
	(gpm) 0.30	0.50	0.75	1.00	1.50	2.00	3.00	4.00	5.00	6.00	8.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00		
5 x 5	1.16	1.93	2.89	3.85	5.78	7.70	11.55															◀ T-Spray
6 x 6	0.80	1.34	2.01	2.67	4.01	5.35	8.02															
7 x 7	0.59	0.98	1.47	1.96	2.95	3.93	5.89															◀ Super-Spray
8 x 8	0.45	0.75	1.13	1.50	2.26	3.01	4.51	6.02														
9 x 9	0.36	0.59	0.89	1.19	1.78	2.38	3.56	4.75	5.94													
10 x 10	0.29	0.48	0.72	0.96	1.44	1.93	2.89	3.85	4.81	5.78												◀ i-mini-Wobbler
12 x 12	0.20	0.33	0.50	0.67	1.00	1.34	2.01	2.67	3.34	4.01	5.35	6.68										
15 x 15	0.13	0.21	0.32	0.43	0.64	0.86	1.28	1.71	2.14	2.57	3.42	4.28	6.42									◀ Xcel-Wob HA, MA, SA, LA
20 x 20		0.12	0.18	0.24	0.36	0.48	0.72	0.96	1.20	1.44	1.93	2.41	3.61	4.81	6.02							Wobbler
25 x 25			0.12	0.15	0.23	0.31	0.46	0.62	0.77	0.92	1.23	1.54	2.31	3.08	3.85							mini-Wobbler
30 x 30				0.11	0.16	0.21	0.32	0.43	0.53	0.64	0.86	1.07	1.60	2.14	2.67							
35 x 35					0.12	0.16	0.24	0.31	0.39	0.47	0.63	0.79	1.18	1.57	1.96							◀ Impact Sprinklers
40 x 40						0.12	0.18	0.24	0.30	0.36	0.48	0.60	0.90	1.20	1.50	1.80	2.11	2.41				
40 x 50						0.10	0.14	0.19	0.24	0.29	0.39	0.48	0.72	0.96	1.20	1.44	1.68	1.93	2.17			
40 x 60							0.12	0.16	0.20	0.24	0.32	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.01		
40 x 80							0.09	0.12	0.15	0.18	0.24	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50		
45 x 45							0.14	0.19	0.24	0.29	0.38	0.48	0.71	0.95	1.19	1.43	1.66	1.90	2.14	2.38		
50 x 50							0.11	0.15	0.19	0.23	0.31	0.39	0.58	0.77	0.96	1.16	1.35	1.54	1.73	1.93		
50 x 60								0.13	0.16	0.19	0.26	0.32	0.48	0.64	0.80	0.96	1.12	1.28	1.44	1.60		
50 x 70								0.11	0.14	0.17	0.22	0.28	0.41	0.55	0.69	0.83	0.96	1.10	1.24	1.38		
50 x 80								0.10	0.12	0.14	0.19	0.24	0.36	0.48	0.60	0.72	0.84	0.96	1.08	1.20		
55 x 55								0.13	0.16	0.19	0.25	0.32	0.48	0.64	0.80	0.95	1.11	1.27	1.43	1.59		
60 x 60								0.11	0.13	0.16	0.21	0.27	0.40	0.53	0.67	0.80	0.94	1.07	1.20	1.34		
60 x 70								0.11	0.14	0.18	0.23	0.34	0.46	0.57	0.69	0.80	0.92	1.03	1.15			
60 x 80								0.10	0.12	0.16	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00			
70 x 70								0.10	0.12	0.16	0.20	0.29	0.39	0.49	0.59	0.69	0.79	0.88	0.98			
70 x 80									0.10	0.14	0.17	0.26	0.34	0.43	0.52	0.60	0.69	0.77	0.86			
70 x 90										0.12	0.15	0.23	0.31	0.38	0.46	0.53	0.61	0.69	0.76			
80 x 80										0.12	0.15	0.23	0.30	0.38	0.45	0.53	0.60	0.68	0.75			
80 x 90										0.11	0.13	0.20	0.27	0.33	0.40	0.47	0.53	0.60	0.67			
80 x 100										0.10	0.12	0.18	0.24	0.30	0.36	0.42	0.48	0.54	0.60			
100 x 100										0.10	0.14	0.19	0.24	0.29	0.34	0.39	0.43	0.48				

PRODUCT	PATTERN SPACINGS*
T-Spray	up to 6 feet
Super-Spray	up to 12 feet
Xcel Wob HA	up to 30 feet
Xcel Wob MA	up to 25 feet
Wobbler SA	up to 30 feet
Wobbler LA	up to 25 feet
mini-Wobbler	up to 20 feet
i-mini-Wobbler	up to 12 feet
Smooth Drive	up to 40 feet
20 Series Impact	up to 40 feet
30 Series Impact	up to 60 feet
40 Series Impact	up to 65 feet
50 Series Impact	up to 70 feet
70 Series Impact	up to 90 feet
80 Series Impact	up to 100 feet

* Distance between sprinklers and rows in square or triangular patterns.

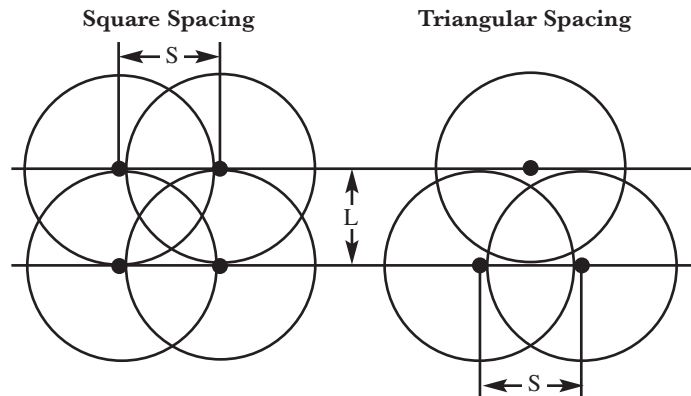
Precipitation Rate Formula

$$\text{Application Rate} = \frac{\text{GPM} \times 96.3}{S \times L}$$

(inches per hour)

GPM = flow per sprinkler
 S = spacing of sprinklers along the lateral (in feet)
 L = spacing between laterals (in feet)

(This applies to square, rectangular, or triangular spacing)



Maximum Precipitation Rates for Level Ground

Soil	in/hr
Coarse Sands	0.75 in. - 1.00 in./hr
Fine Sands	0.50 in. - 0.75 in./hr
Fine Sandy Loams	0.35 in. - 0.50 in./hr
Silt Loams	0.25 in. - 0.40 in./hr
Clay Loams	0.10 in. - 0.30 in./hr

Maximum Sprinkler Spacings

Wind Speed	Spacing
5 mph or less	60% of wetted diameter
5-10 mph	50% of wetted diameter
over 10 mph	25-30% of wetted diameter

(Consult factory for specific information on uniformity based on your particular application)

millimeters per/hour Precipitation Rates]Metric

SPACING (meters)	FLOW																						
	(m ³ /hr)	0.07	0.11	0.18	0.36	0.56	0.72	0.90	1.08	1.44	1.80	2.16	2.52	2.88	3.24	3.60	3.96	4.32	5.40	6.40	7.20		
	(L/s)	0.02	0.03	0.05	0.10	0.15	0.20	0.25	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.50	1.80	2.00		
1.5 x 1.5	32.0	48.0	80.0	160.0	240.0	320.0																◀ T-Spray	
2 x 2	18.0	27.0	45.0	90.0	135.0	180.0																	
2.5 x 2.5	11.5	17.3	28.8	57.6	86.4	115.2	144.0																◀ Super-Spray
3 x 3	8.0	12.0	20.0	40.0	60.0	80.0	100.0	120.0	160.0														
3.5 x 3.5	5.9	8.8	14.7	29.4	44.1	58.8	73.5	88.2	117.6	146.9	176.3												
4 x 4	4.5	6.8	11.3	22.5	33.8	45.0	56.3	67.5	90.0	112.5	135.0											◀ i-mini-Wobbler	
5 x 5	2.9	4.3	7.2	14.4	21.6	28.8	36.0	43.2	57.6	72.0	86.4												
6 x 6	2.0	3.0	5.0	10.0	15.0	20.0	25.0	30.0	40.0	50.0	60.0											◀ Xcel-Wobbler	
6 x 9			3.3	6.6	10.0	13.3	16.6	20.0	26.6	33.3	40.0	46.6	53.0									Wobbler	
6 x 12			2.5	5.0	7.5	10.0	12.5	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0							mini-Wobbler	
8 x 8			2.8	5.6	8.4	11.2	14.0	16.9	22.5	28.1	33.7	39.4	45.0	50.0									
9 x 9			2.2	4.4	6.6	8.9	11.1	13.3	17.8	22.2	26.6	31.1	35.5	40.0	44.4	48.8	53.3					◀ Impact Sprinklers	
9 x 12			1.6	3.3	5.0	6.6	8.3	10.0	13.3	16.6	20.0	23.3	26.6	30.0	33.3	36.6	40.0	50.0	59.2				
9 x 14			1.4	2.8	4.3	5.7	7.1	8.6	11.4	14.3	17.1	20.0	22.8	25.7	28.5	31.4	34.3	42.8	50.8				
9 x 15			1.3	2.7	4.0	5.3	6.6	8.0	10.6	13.3	16.0	18.6	21.3	24.0	26.6	29.4	32.0	40.0	47.4				
9 x 18			2.2	3.3	4.4	5.5	6.6	8.9	11.1	13.3	15.5	17.8	20.0	22.2	24.4	26.6	33.3	39.5	44.4				
12 x 12			2.5	3.7	5.0	6.2	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0	27.5	30.0	37.5	44.4	50.0				
12 x 15			2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	30.0	35.5	40.0				
12 x 18			1.6	2.5	3.3	4.2	5.0	6.6	8.3	10.0	11.6	13.3	15.0	16.6	18.3	20.0	25.0	29.6	33.3				
15 x 18			3.2	4.0	4.8	6.4	8.0	9.6	11.2	12.8	14.4	16.0	17.6	19.2	24.0	28.4	32.0						
15 x 50			2.6	3.3	4.0	5.3	6.6	8.0	9.3	10.6	12.0	13.3	14.6	16.0	20.0	23.7	26.6						
15 x 21			2.3	2.8	3.4	4.6	5.7	6.8	8.0	9.1	10.3	11.4	12.6	13.7	17.1	20.3	22.8						
18 x 18					3.3	4.4	5.5	6.6	7.8	8.9	10.0	11.1	12.2	13.3	16.6	20.0	22.2						
18 x 21					2.8	3.8	4.7	5.7	6.6	7.6	8.6	9.5	10.5	11.4	14.3	16.9	19.0						
18 x 24					2.5	3.3	4.2	5.0	5.8	6.6	7.5	8.3	9.1	10.0	12.5	14.8	16.6						
21 x 21					2.4	3.2	4.1	4.9	5.7	6.5	7.3	8.1	8.9	9.8	12.2	14.5	16.3						
21 x 24					2.8	3.6	4.3	5.0	5.7	6.4	7.1	7.8	8.6	10.7	12.7	14.3							
21 x 27					2.5	3.2	3.8	4.4	5.1	5.7	6.3	7.0	7.6	9.5	11.3	12.7							
24 x 24						3.1	3.7	4.3	5.0	5.6	6.2	6.9	7.5	9.4	11.1	12.5							
24 x 30						2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.5	8.9	10.0							
28 x 33								2.3	2.7	3.1	3.5	3.9	4.3	4.7	5.8	6.9	7.8						
30 x 30								2.4	2.8	3.2	3.9	4.0	4.4	4.8	6.0	7.1	8.0						

PRODUCT	PATTERN SPACINGS*
T-Spray	up to 2.0 meters
Super-Spray	up to 3.5 meters
Xcel Wob HA	up to 9.2 meters
Xcel Wob MA	up to 7.5 meters
Wobbler SA	up to 9.2 meters
Wobbler LA	up to 7.5 meters
mini-Wobbler	up to 6.0 meters
i-mini-Wobbler	up to 3.5 meters
Smooth Drive	up to 9.3 meters
20 Series Impact	up to 12.0 meters
30 Series Impact	up to 18.5 meters
40 Series Impact	up to 20.0 meters
50 Series Impact	up to 21.5 meters
70 Series Impact	up to 27.5 meters
80 Series Impact	up to 30.5 meters

* Distance between sprinklers and rows in square or triangular patterns.

Precipitation Rate Formula

$$\text{Application Rate} = \frac{\text{LPS} \times 3600}{S \times L}$$

(mm per hour)

LPS = flow per sprinkler

S = spacing of sprinklers along the lateral (in meters)

L = spacing between laterals (in meters)

(This applies to square, rectangular, or triangular spacing)

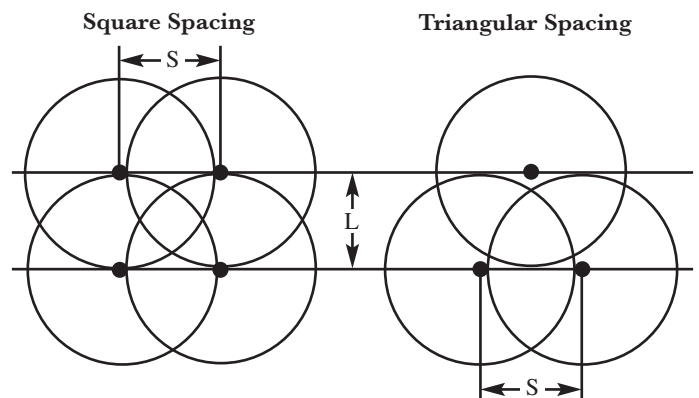
Maximum Precipitation Rates for Level Ground

Soil	mm/hr
Coarse Sands	19.0 mm - 25.4 mm/hr
Fine Sands	12.7 mm - 19.0 mm/hr
Fine Sandy Loams	8.9 mm - 12.7 mm/hr
Silt Loams	6.3 mm - 10.2 mm/hr
Clay Loams	2.5 mm - 7.6 mm/hr

Maximum Sprinkler Spacings

Wind Speed	Spacing
8 kph or less	60% of wetted diameter
8-16 kph	50% of wetted diameter
over 16 kph	25-30% of wetted diameter

(Consult factory for specific information on uniformity based on your particular application)



Factors [Conversion

FLOW

TO CONVERT	INTO	MULTIPLY BY
Acre-Inch/hr.	Gallons/Min (gpm)	452.6
Acre-Inch	Gallons	27,154.0
Cubic Feet	Gallons (US)	7.481
Cubic Feet/Second	Gallons/Min (gpm)	448.831
Cubic Meters	Gallons (US)	264.2
Cubic Meters/hr.	Gallons/Min (gpm)	4.403
Cubic Meters/hr.	Liters/Sec (L/s)	0.278
Gallons	Liters	3.785
Gallons/Min. (gpm)	Cubic Meter/hr (m ³ /hr)	0.227
Gallons/Min. (gpm)	Liters/Sec (L/s)	0.063
Liters	Gallons (US)	0.264
Liters/Second	Gallons/Min (gpm)	15.852
Liters/Second	Cubic Meters/hr (m ³ /hr)	3.600

PRESSURE

TO CONVERT	INTO	MULTIPLY BY
Atmospheres	Kilograms/Sq. Cm	1.033
Atmospheres	Pounds/Sq. In. (psi)	14.70
Bar	Pounds/Sq. In. (psi)	14.50
Feet of Water	Pounds/Sq. In. (psi)	0.434
Gallons of Water	Pounds	8.33
Kilograms/Sq. Cm	Pounds/Sq. In. (psi)	14.22
KiloPascals (kPa)	Pounds/Sq. In. (psi)	0.145
Pounds/Sq. In. (psi)	Atmospheres	0.068
Pounds/Sq. In. (psi)	Bar	0.069
Pounds/Sq. In. (psi)	Feet of Water	2.307
Pounds/Sq. In. (psi)	KiloPascals (kPa)	6.895

AREA & LINEAR

TO CONVERT	INTO	MULTIPLY BY
Acres	Hectares	0.405
Acres	Square Feet	43,560.0
Centimeters	Inches	0.394
Feet	Meters	0.305
Hectares	Acres	2.471
Inches	Millimeters	25.40
Meters	Feet	3.281
Miles	Kilometers	1.609
Miles	Feet	5,280.0
Millimeters	Inches	0.0394

POWER

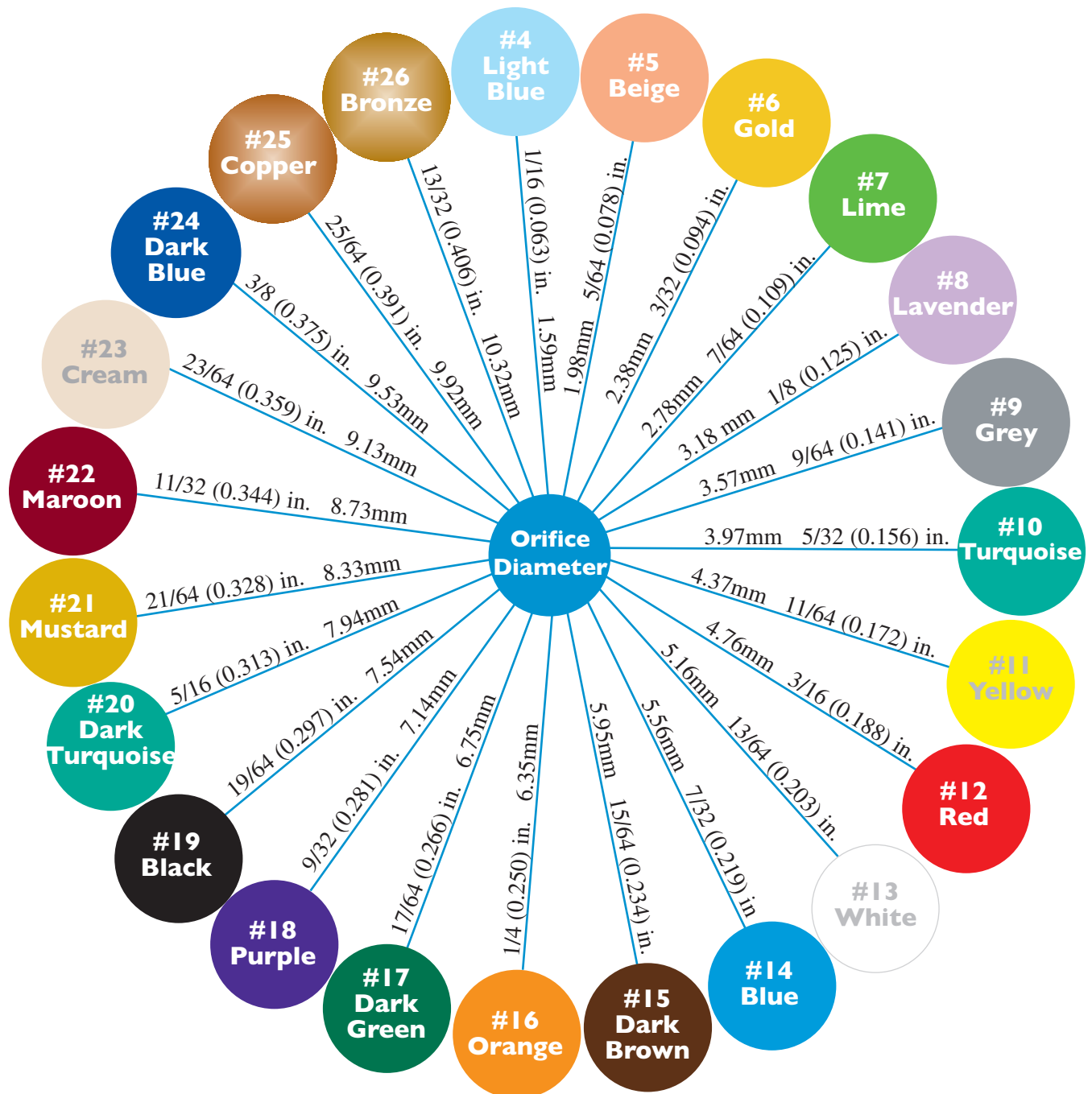
TO CONVERT	INTO	MULTIPLY BY
Horsepower	Kilowatts	0.746
Kilowatts	Horsepower	1.341

Nozzles

Nozzle and vane combinations are a critical factor in how a sprinkler performs. Senninger offers a wide range of nozzle and vane options to customize sprinklers for peak performance. For more information see our website.

FEATURES:

- Color-coded for easy size identification
- Excellent durability
- Warranted to maintain correct orifice size for five years



NOTE: Half sizes (1/128th inch increments) are also available in some models. Range nozzles for 70 and 80 series sprinklers are not color-coded. Consult factory for more information.

Formulas [Estimation

Inside Diameters for PVC (IPSmm)

Size	125 [SDR-32.5]		160 [SDR-26]		200 [SDR-21]	
3/4"	—	—	—	—	0.950 in.	24.13 mm
1"	—	—	1.195 in.	30.35 mm	1.190 in.	30.22 mm
1-1/4"	—	—	1.532 in.	38.91 mm	1.502 in.	38.15 mm
1-1/2"	1.783 in.	45.29 mm	1.754 in.	44.55 mm	1.719 in.	43.66 mm
2"	2.229 in.	56.61 mm	2.193 in.	55.70 mm	2.149 in.	54.58 mm
2-1/2"	2.698 in.	68.53 mm	2.655 in.	67.44 mm	2.601 in.	66.07 mm
3"	3.284 in.	83.41 mm	3.230 in.	82.04 mm	3.166 in.	80.42 mm
4"	4.224 in.	107.29 mm	4.154 in.	105.51 mm	4.072 in.	103.43 mm
6"	6.217 in.	157.91 mm	6.115 in.	155.32 mm	5.993 in.	152.22 mm
8"	8.095 in.	205.61 mm	7.961 in.	202.21 mm	7.805 in.	198.25 mm
10"	10.088 in.	256.23 mm	9.924 in.	252.07 mm	9.726 in.	247.05 mm
12"	11.966 in.	303.93 mm	11.770 in.	298.95 mm	11.536 in.	293.01 mm

Calculating Friction Loss of Pipe [Hazen - Williams]

$H_f = 1045 \frac{(GPM \div C)^{1.852}}{ID^{4.857}}$		$H_f = 1.22 \times 10^{12} \frac{(LPS \div C)^{1.852}}{ID^{4.857}}$	
Hf	= Friction Loss in Feet of Water (head) per 100 Feet of Pipe	Hf	= Friction Loss in Meters of Water (head) per 100 Meters of Pipe
GPM	= Flow (gallons/minute)	LPS	= Flow (liters/second)
C	= Pipe Coefficient (PVC = 150; Aluminum w/couplers = 120; Galv.Steel/Asb. - Cement = 140; Cast Iron = 100)	C	= Pipe Coefficient (PVC = 150; Aluminum w/couplers = 120; Galv.Steel/Asb. - Cement = 140; Cast Iron = 100)
ID	= Pipe Inside Diameter (inches)	ID	= Pipe Inside Diameter (millimeters)

Estimating System Pumping Requirements

$GPM = \frac{IN \times ACRES \times 452.6}{DAYS \times HRS \times EFF}$		$LPS = \frac{CM \times HA \times 27.8}{DAYS \times HRS \times EFF}$	
GPM	= Total flow required to operate system (gallons/minute)	LPS	= Total flow required to operate system (liters/second)
IN	= Net application depth per irrigation event (inches) *	CM	= Net application depth per irrigation event (centimeters)
ACRES	= Area to be irrigated per irrigation event (acres)	HA	= Area to be irrigated per irrigation event (hectares)
DAYS	= Number of irrigation days per irrigation event	DAYS	= Number of irrigation days per irrigation event
HRS	= Number of irrigation hours per day of irrigation event	HRS	= Number of irrigation hours per day of irrigation event
EFF	= System efficiency (see table below)	EFF	= System efficiency (see table below)

Estimating Irrigation System Efficiencies:

Arid Regions	65%
Semi-Arid Regions	70%
Semi-Humid Regions	75%
Humid Regions	80%

Estimating Brake Horse Power Required

$BHP = \frac{GPM \times TDH}{3960 \times EFF}$		$BHP = \frac{LPS \times TDH}{102 \times EFF}$	
BHP	= Brake horse power required	BHP	= Brake horse power required
GPM	= Flow required (gallons/minute)	LPS	= Flow required (liters/second)
TDH	= Total dynamic head (in feet)	TDH	= Total dynamic head (in meters)
EFF	= Pump efficiency stated as a decimal	EFF	= Pump efficiency stated as a decimal

Expressly Limited Product Warranty and Disclaimer] **Warranty**

Warning – Disclaimer

This warranty is the full and complete product warranty and is expressly in lieu of any and all representations or warranties, expressed or implied, including any implied warranties of merchantability or fitness for particular purpose, whether arising from statute, common law, custom, course of dealing, usage of trade, or otherwise. No person has the authority to incur or assume for Senninger any other liability as to products manufactured by Senninger.

This warranty shall not apply to any product which shall have been repaired or altered in any way outside the Senninger factory so as to affect its use or operation as determined by Senninger, nor shall it apply to any such product which has been subject to misuse, negligence or accident, or has been operated contrary to Senninger's printed instructions.

Senninger shall not be liable for any consequential and incidental damages resulting from the use of said products or caused by any defects, failure or malfunction, whether a claim for such damages is based on warranty, product design, system engineering, contract negligence or otherwise. Senninger makes no warranty whatsoever with respect to products manufactured by others to which Senninger's products may be attached, whether or not warranted by such other manufacturers.

Materials & Workmanship

Products manufactured by Senninger Irrigation Inc. are warranted for a period of two years from date of original shipment to be free of any defects in material or workmanship, with the exception of PRLV and mining models, which are warranted for one year.

Performance

Products manufactured by Senninger and used for ag, turf and nursery irrigation are warranted to maintain their original nozzle orifice size for a period of five years. Senninger also warrants these products to maintain their original performance for a period of two years from date of original shipment when installed and operated in accordance with Senninger's written specifications and used for their ordinary purpose.

Repair or Replacement

If a product is suspected of failure under terms of the above provisions, it must first be reported in writing to the attention of the Material Review Engineer at the company's Clermont, Florida office. An authorization may then be issued to return the product(s), shipping charges prepaid, to Clermont for

inspection. If in the opinion of the Material Review Engineer the product has failed, a repair or replacement will be authorized as required.

Senninger's obligation with respect to the above provisions concerning material, workmanship and performance is limited to the repair or replacement of the particular product involved. Senninger is not obligated to pay for repairs or replacements made by anyone other than itself.

No labor allowances will be made for removal or replacement of said parts nor for any travel to and from the product to make said repairs or replacement without prior written authorization from an officer of Senninger Irrigation.

Suitability

There is positively no warranty relating to the fitness of the product(s) for any particular purpose or use. It is the sole responsibility of the purchaser to consider and analyze the product and its design to be suitable for specific applications.

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