



Solid Set/Nursery & Greenhouse Irrigation

Low Pressure - High Performance

AGRICULTURAL IRRIGATION



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PARTNERING **TOGETHER**

“Guaranteed Performance”

Since 1963, Senninger has maintained a commitment to innovating and manufacturing quality sprinklers, spray nozzles, and pressure regulators to improve your crop yield. Our goal is to ensure that all products and enhancements are designed to make it easier and more profitable for you to produce crops for a growing population.

Senninger is focused on conservation. Our high performance product line of sprinklers and spray nozzles are designed to operate at very low pressures. Water usage and energy costs are reduced which benefit growers and the planet.

As always, Senninger's products are backed by a two-year warranty on materials, workmanship, and performance. Nozzles are warranted to retain their orifice size for five years. Our in field staff, technical support and customer service are second-to-none. We set the bar high because we know that you need more than a high-quality manufacturer, you need a partner.



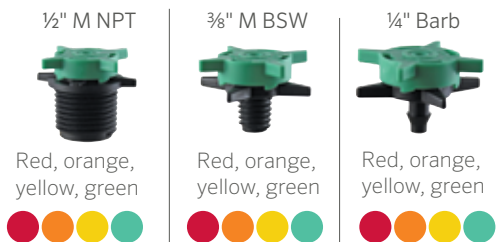
Mister™ Upright

The Senninger Mister is designed for propagation and other low volume misting applications. It provides consistent system start-up – delivering an instantaneous, highly uniform distribution ideal for short-cycle applications.



FOUR NOZZLE SIZES

(See chart below)



FEATURES

- Outstanding uniformity
- Flow rates: 6.8 to 23.4 gph (25.7 to 88.6 L/hr)
- Operating pressures: 30 to 50 psi (2 to 3.4 bar)
- Bridgeless design for an uninterrupted 360° distribution pattern
- Easy clean nozzle with tool-free disassembly
- Multiple connection options: 1/2" NPT male, 3/8" BSW male, 1/4" barb, also available as 1/4" press fit
- 140 mesh filtration required
- Color-coded nozzles for easy size identification. Warranted to maintain correct orifice size for five years
- Two-year warranty on materials, workmanship and performance

ADDITIONAL CONNECTION OPTIONS



3/8" M BSW

1/4" M press fit

The 1/4" Press Fit Double Nipple MR250DN, fits inside the 3/8" BSW base for easy retrofitting into existing connections.

The Mister can be mounted on the Riser Stake for installation versatility. (see pg.19)



UPRIGHT RECOMMENDED SPACING AT 12 INCH (31 CM) HEIGHT ABOVE CROP

Pressure	30 - 50 psi	2 - 3.4 bar
Red - MR 08	6.8 - 8.6 gph	25.7 - 32.6 L/hr
Head Spacing	2 - 4 ft	0.61 - 1.22 m
Lateral Spacing	2 - 4 ft	0.61 - 1.22 m
Single Row Spacing	2 - 3.5 ft	0.61 - 1.07 m
Orange - MR 12	10.8 - 14.0 gph	40.9 - 53.0 L/hr
Head Spacing	2 - 4 ft	0.61 - 1.22 m
Lateral Spacing	2 - 4 ft	0.61 - 1.22 m
Single Row Spacing	2 - 3 ft	0.61 - 0.91 m
Yellow - MR 16	14.1 - 18.3 gph	53.4 - 69.3 L/hr
Head Spacing	2 - 4 ft	0.61 - 1.22 m
Lateral Spacing	2 - 4 ft	0.61 - 1.22 m
Single Row Spacing	2 - 3 ft	0.61 - 0.91 m
Green - MR 20	17.8 - 23.4 gph	67.4 - 88.6 L/hr
Head Spacing	2 - 4 ft	0.61 - 1.22 m
Lateral Spacing	2 - 4 ft	0.61 - 1.22 m
Single Row Spacing	2 - 3 ft	0.61 - 0.91 m

Other spacing options may produce higher uniformities and lower scheduling co-efficiencies. Check valve option available with different spacing recommendations. Consult factory for details. Consider friction loss through tubing when designing for optimum performance.

Inverted Mister™

ADDITIONAL CONNECTION OPTIONS

Drop Assembly
(see pg.20)

0.250" Barb Fitting,
0.25 Tubing (24"),
Slip-over Weight
Shown with Mister.



The Inverted Mister is designed for propagation and other low volume misting applications. Its built-in check valve prevents draining immediately following each irrigation session. It also provides consistent system start-up - delivering an instantaneous, highly uniform distribution, ideal for short-cycle applications.

FEATURES

- Outstanding uniformity
- Flow rates: 7.5 to 23.4 gph (28.4 to 88.6 L/hr)
- Operating pressures: 30 to 50 psi (2 to 3.4 bar)
- Bridgeless design for an uninterrupted 360° distribution pattern
- Easy clean nozzle with tool-free disassembly
- Multiple connection options: 1/2" NPT male, 3/8" BSW male, 1/4" barb, also available as 1/4" press fit
- 140 mesh filtration required
- Color-coded nozzles for easy size identification
Warranted to maintain correct orifice size for five years
- Two-year warranty on materials, workmanship and performance



MICRO

FOUR NOZZLE SIZES

(See chart below)

1/2" M NPT	3/8" M BSW	1/4" Barb
		
Light Blue, Blue, Purple, Black	Light Blue, Blue, Purple, Black	Light Blue, Blue, Purple, Black
		

INVERTED RECOMMENDED SPACING AT 24 INCH (61 CM) HEIGHT ABOVE CROP

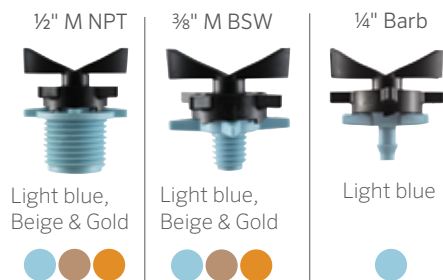
Pressure	30 - 50 psi	2 - 3.4 bar
Light Blue - MRI 08	7.5 - 9.7 gph	28.4 - 36.7 L/hr
Head Spacing	2 - 4 ft	0.61 - 1.22 m
Lateral Spacing	2.5 - 3.5 ft	0.76 - 1.07 m
Single Row Spacing	N/A	N/A
Blue - MRI 12	12.5 - 16.2 gph	47.3 - 61.3 L/hr
Head Spacing	2 - 3.5 ft	0.61 - 1.07 m
Lateral Spacing	2 - 3.5 ft	0.61 - 1.07 m
Single Row Spacing	N/A	N/A
Purple - MRI 16	15.9 - 20.5 gph	60.2 - 77.6 L/hr
Head Spacing	2 - 3 ft	0.61 - 0.91 m
Lateral Spacing	2 - 2.5 ft	0.61 - 0.76 m
Single Row Spacing	2 - 2.5 ft	0.61 - 0.76 m
Black - MRI 20	17.8 - 23.4 gph	67.4 - 88.6 L/hr
Head Spacing	2 - 2.5 ft	0.61 - 0.76 m
Lateral Spacing	2 - 3 ft	0.61 - 0.91 m
Single Row Spacing	2 - 2.5 ft	0.61 - 0.76 m

Other spacing options may produce higher uniformities and lower scheduling co-efficiencies. Consult factory for details. Consider friction loss through tubing when designing for optimum performance.

Micro-Sprinkler Upright



NOZZLE SIZES (See chart below)

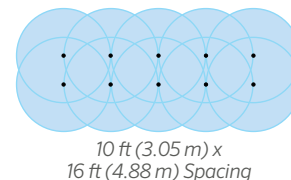
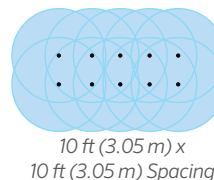
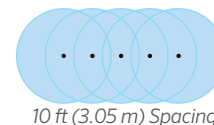


TWO-STAGE TABBED DEFLECTOR

The upright Micro-Sprinkler is designed to grow with your plants. It is available with an optional two-stage tabbed deflector ideal for irrigating young plants with small root zones. The tabbed deflector allows the sprinkler to be placed closer to the plant by greatly reducing the stream height and diameter of coverage, which concentrates water distribution over developing roots. As plants mature, the tabs can be easily removed to increase the upright Micro-Sprinkler's diameter of coverage from 6 ft to 32 ft (1.8 to 9.8 m), which better suits mature plants with expanded root systems.

UPRIGHT MICRO-SPRINKLER

32 ft (9.75 m) Diameters



UPRIGHT MICRO SPRINKLER- TABBED



Available Tabbed Versions:

#4 Light Blue: 1/2" M NPT, 3/8" M BSW

#5 Beige: 1/2" M NPT, 3/8" M BSW

#6 Gold: 1/2" M NPT, 3/8" M BSW

UPRIGHT MICRO-SPRINKLER (NO TABS) -

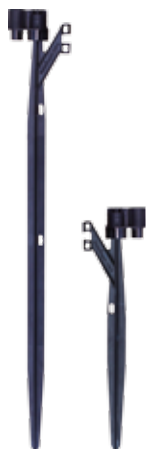
Precipitation & Uniformities at 30 psi (2.07 bar) at 1.5ft (0.46 m) height

Nozzle Number & Color	Flow Rate		7 x 7 ft (2 x 2 m)		10 x 10 ft (3 x 3 m)			
	gph	L/hr	in/hr	mm/hr	CU	in/hr	mm/hr	CU
#4 - Light Blue	36.6	138.5	1.20	30.5	96%	0.59	15.0	94%
#5 - Beige	57.0	215.8	1.87	47.5	94%	0.91	23.1	92%
#6 - Gold	81.6	308.9	2.67	67.8	96%	1.31	33.3	96%

Uniformities calculated with WinSipp2 Software.

Other spacing options available on WinSIPP2 or by consulting factory.

The Micro-Sprinkler can be mounted on the Riser Stake for installation versatility. (see pg.19)



SPRINKLER BASE PRESSURE-US

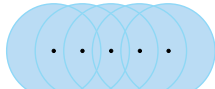
	psi		SPRINKLER BASE PRESSURE-METRIC	bar	
	20	30		1.38	2.07
#4 Nozzle - Light Blue (1/16")			#4 Nozzle - Light Blue (1.59 mm)		
Flow (gph)	30.0	36.6	Flow (L/hr)	113.6	138.5
(No-tabs) Diameter at 1.5 ft ht (ft)	25	26	(No tabs) Diameter at 0.46 m ht (m)	7.6	7.9
(Tabs) Diameter at 1.5 ft ht (ft)	6	8	(Tabs) Diameter at 0.46 m ht (m)	1.8	2.4
#5 Nozzle - Beige (5/64")			#5 Nozzle - Beige (1.98 mm)		
Flow (gph)	46.2	57.0	Flow (L/hr)	174.9	215.8
(No-tabs) Diameter at 1.5 ft ht (ft)	27	28	(No tabs) Diameter at 0.46 m ht (m)	8.2	8.5
(Tabs) Diameter at 1.5 ft ht (ft)	7	9	(Tabs) Diameter at 0.46 m ht (m)	2.1	2.7
#6 Nozzle - Gold (3/32")			#6 Nozzle - Gold (2.38 mm)		
Flow (gph)	66.6	81.6	Flow (L/hr)	252.1	308.9
(No-tabs) Diameter at 1.5 ft ht (ft)	30	32	(No tabs) Diameter at 0.46 m ht (m)	9.1	9.8
(Tabs) Diameter at 1.5 ft ht (ft)	7	9	(Tabs) Diameter at 0.46 m ht (m)	2.1	2.7

Consider friction loss through tubing when designing for optimum performance.

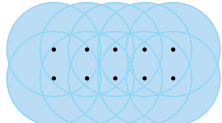
Inverted **Micro-Sprinkler**

INVERTED MICRO-SPRINKLER

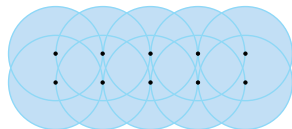
33 ft (10.06 m) Diameters



10 ft (3.05 m) Spacing



10 ft (3.05 m) x
10 ft (3.05 m) Spacing



10 ft (3.05 m) x
16 ft (4.88 m) Spacing

Inverted Micro-Sprinkler location should be at least 18" below obstructions to help prevent drippage off overhead structure.

Senninger Micro-Sprinklers are designed for irrigation in greenhouses and hoop houses. They provide exceptional uniformity and distribution even in single row installations, and their bridgeless design helps minimize drippage.

FEATURES

- Flow rates: 16.8 to 81.6 gph (63.6 to 308.9 L/hr)
- Operating pressures: 20 to 30 psi (1.38 to 2.07 bar)
- Multiple connection options: 1/2" NPT male, 3/8" BSW male, 1/4" barb, also available as 1/4" press fit
- Easy disassembly and replacement of individual parts
- 80 mesh filtration required
- Color-coded nozzle bases provide easy size identification. Warranted to maintain correct orifice size for five years
- Two year warranty on materials, workmanship and performance



NOZZLE SIZES (See chart below)

1/2" M NPT



Ice, Light blue, Beige & Gold



3/8" M BSW



Ice, Light blue, Beige & Gold



1/4" Barb



Ice, Light blue



INVERTED MICRO-SPRINKLER-

Precipitation & Uniformities at 30 psi (2.07 bar) at 6 ft (1.8 m) height

Nozzle Number & Color	Flow Rate		10 x 10 ft (3 x 3 m)			10 x 16 ft (3 x 5 m)		
	gph	L/hr	in/hr	mm/hr	CU	in/hr	mm/hr	CU
#3 - Ice	20.4	77.2	0.33	8.6	94%	0.21	5.2	93%
#4 - Light Blue	36.6	138.5	0.58	15.3	95%	0.36	9.2	93%
#5 - Beige	57.0	215.8	0.91	23.9	98%	0.57	14.3	93%
#6 - Gold	81.6	308.9	1.31	34.4	95%	0.82	20.6	94%

Uniformities calculated with WinSipp2 Software.

Other spacing options available on WinSIPP2 or by consulting factory.

SPRINKLER BASE PRESSURE-US	psi		SPRINKLER BASE PRESSURE-METRIC	bar	
	20	30		1.38	2.07
#3 Nozzle - Ice (3/64")			#3 Nozzle - Ice (1.19 mm)		
Flow (gph)	16.8	20.4	Flow (L/hr)	63.6	77.2
Diameter at 6.0 ft ht (ft)	30	32	Diameter at 1.83 m ht (m)	9.0	9.6
#4 Nozzle - Light Blue (1/16")			#4 Nozzle - Light Blue (1.59 mm)		
Flow (gph)	30.0	36.6	Flow (L/hr)	113.6	138.5
Diameter at 6.0 ft ht (ft)	33	36	Diameter at 1.83 m ht (m)	9.9	11.0
#5 Nozzle - Beige (5/64")			#5 Nozzle - Beige (1.98 mm)		
Flow (gph)	46.2	57.0	Flow (L/hr)	174.9	215.8
Diameter at 6.0 ft ht (ft)	38	40	Diameter at 1.83 m ht (m)	11.7	12.0
#6 Nozzle - Gold (3/32")			#6 Nozzle - Gold (2.38 mm)		
Flow (gph)	66.6	81.6	Flow (L/hr)	252.1	308.9
Diameter at 6.0 ft ht (ft)	39	40	Diameter at 1.83 m ht (m)	11.9	12.2

Consider friction loss through tubing when designing for optimum performance.

MICRO

Fogger

Senninger Foggers reduce greenhouse temperatures and increase humidity levels in greenhouses. They create the ideal conditions for plant propagation by distributing extremely fine droplets with excellent pattern uniformity.



MICRO

NOZZLE

1/2" M NPT



White

3/8" M BSW



White

1/4" Barb



White

RECOMMENDED INSTALLATION:

Cooling and Humidity Control

Four Way Adapter		
Minimum Installation Height*	3 to 6 ft	(0.9 to 1.8 m)
Head Spacing	3 to 10 ft	(0.9 to 3 m)
Lateral Spacing	5 to 15 ft	(1.5 to 4.6 m)

*Mount Foggers as high as possible. Install drops perpendicular to the lateral line.

Avoid spraying against roof or greenhouse structure.

FEATURES:

- Uniform blanket of droplets for propagation and chemical applications
- Built-in check valve provides instantaneous shutoff and prevents leakage
- Simple, tool-free assembly and disassembly for cleaning and servicing
- Average flow rate per nozzle: 1.6 gph (6.05 L/hr)
- Operating pressures: 45 to 60 psi (3.10 to 4.1 bar)
- Multiple connection options: 1/2" NPT male, 3/8" BSW male, 1/4" barb, also available as 1/4" press fit
- 140 mesh filtration required
- Two year warranty on materials, workmanship and performance; nozzles are warranted to maintain correct orifice size for five years

RECOMMENDED INSTALLATION:

Propagation

Four Way Adapter		
Minimum Installation Height*	1.5 to 2.5 ft	(0.5 to 0.8 m)
Head Spacing	3 ft	0.9 m

*Above the plant

For wide benches up to 8 ft (2.4 m) in width, install two lines of Foggers equally distanced from the center of the bench to achieve a more uniform application. Do not install Fogger lines more than one foot (0.3 m) from the edge of a bench.

INSTALLATION:

Mount the Fogger on the drop adapter. 0.25" Double barb connector, 0.25" Tubing (24"), 1 oz. slip-over weight, 0.25" nipple x barb connector, 4-way cross adapter, 4 Foggers with 3/8" BSW connection (See Senninger's Price List)



WHAT IS THE DIFFERENCE BETWEEN FOGGERS AND MISTERS?

	Fogger	Mister
Ideal for plants susceptible to root disease	YES	NO
Recommended for propagation of seeds and non-rooted cuttings	YES	NO
Recommended for propagation of rooted cuttings	NO	YES
Cooling & Humidity Control	YES	NO

ORDINARY DEVICES

Shadow created by fixed bracket legs



SMOOTH DRIVE

Walking diffuser eliminates leg shadow



Ordinary rotating sprinklers have stationary legs that block water and create leg shadows. The Smooth Drive's walking diffuser eliminates bracket leg shadows resulting in unobstructed, uniform distribution.

Senninger's Smooth Drive is designed for under-tree, open-field and nursery irrigation. Its unique "walking diffuser" helps deliver an extremely uniform pattern that prevents dry areas caused by distortion from bracket legs.

FEATURES

- Low Angle model ideal for under-tree (white base)
- High Angle model ideal for open-field (black base)
- Precision-contoured deflector provides greater throw and enhanced distribution
- Advanced braking mechanism for smooth, consistent rotation speed and minimal riser stress
- No tools required for accessing nozzle
- Flow rates: 1.34 to 2.79 gpm (304 to 634 L/hr)
- Operating pressures: 25 to 40 psi (1.72 to 2.76 bar)
- Connections: 1/2" NPT male
1/2" socket x 3/4" socket x 1" spigot
20 mm socket x 25 mm socket
- 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



TWO MODELS

LA model (White)



HA model (Black)



See Inlet connection options in features

SPRINKLER BASE PRESSURE-US	psi				SPRINKLER BASE PRESSURE-METRIC	bar			
	25	30	35	40		1.72	2.07	2.41	2.76
#6 Nozzle - Gold (3/32")					#6 Nozzle - Gold (2.38 mm)				
Flow (gpm)	-	1.34	1.45	1.55	Flow (L/hr)	-	304	329	352
LA Diameter at 1.5 ft ht (ft)	-	65	67	68	LA Diameter at 0.46 m ht (m)	-	19.8	20.4	20.7
HA Diameter at 1.5 ft ht (ft)	-	68	70	72	HA Diameter at 0.46 m ht (m)	-	20.8	21.4	22.0
#7 Nozzle - Lime (7/64")					#7 Nozzle - Lime (2.78 mm)				
Flow (gpm)	1.68	1.84	1.99	2.12	Flow (L/hr)	382	418	452	482
LA Diameter at 1.5 ft ht (ft)	63	67	68	69	LA Diameter at 0.46 m ht (m)	19.3	20.4	20.6	20.9
HA Diameter at 1.5 ft ht (ft)	67	72	74	77	HA Diameter at 0.46 m ht (m)	20.4	22.1	22.4	23.3
#8 Nozzle - Lavender (1/8")					#8 Nozzle - Lavender (3.18 mm)				
Flow (gpm)	2.21	2.42	2.62	2.79	Flow (L/hr)	502	550	595	634
LA Diameter at 1.5 ft ht (ft)	65	68	69	71	LA Diameter at 0.46 m ht (m)	19.7	20.7	20.9	21.5
HA Diameter at 1.5 ft ht (ft)	70	74	77	78	HA Diameter at 0.46 m ht (m)	21.5	22.6	23.3	23.8

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

NON-IMPACT

mini-Wobbler® Upright

The mini-Wobbler uses Senninger's off-center rotary-action wobbler technology. It provides extremely uniform coverage over a large diameter at low pressures.

INSTALLATION

The mini-Wobbler can be mounted on the Riser Stake for installation versatility. (see pg. 19)



FEATURES

- Low evaporative loss
- Multi-level throw: 10°
- Flow rates: 0.42 to 2.18 gpm (95 to 495 L/hr)
- Operating pressures: 15 to 25 psi (1.03 to 1.72 bar)
- Connection: 1/2" NPT male
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification. Warranted to maintain correct orifice size for five years

WOBBLERS



SPRINKLER BASE PRESSURE-US

	psi		
	15	20	25

SPRINKLER BASE PRESSURE-METRIC

	bar		
	1.03	1.38	1.72

#4 Nozzle - Light Blue (1/16")				#4 Nozzle - Light Blue (1.59 mm)			
Flow (gpm)	0.42	0.50	0.56	Flow (L/hr)	95	114	127
Diameter at 1.5 ft ht (ft)	26.5	28.0	28.0	Diameter at 0.46 m ht (m)	8.1	8.5	8.8
Diameter at 3.0 ft ht (ft)	31.0	32.0	34.0	Diameter at 0.91 m ht (m)	9.5	9.8	10.1
#5 Nozzle - Beige (5/64")				#5 Nozzle - Beige (1.98 mm)			
Flow (gpm)	0.64	0.75	0.84	Flow (L/hr)	145	170	191
Diameter at 1.5 ft ht (ft)	31.0	33.5	35.0	Diameter at 0.46 m ht (m)	9.5	10.2	10.7
Diameter at 3.0 ft ht (ft)	36.5	39.0	39.5	Diameter at 0.91 m ht (m)	11.1	11.9	12.0
#6 Nozzle - Gold (3/32")				#6 Nozzle - Gold (2.38 mm)			
Flow (gpm)	0.95	1.10	1.25	Flow (L/hr)	216	250	284
Diameter at 1.5 ft ht (ft)	33.0	36.0	37.0	Diameter at 0.46 m ht (m)	10.1	11.0	11.3
Diameter at 3.0 ft ht (ft)	39.5	42.0	42.0	Diameter at 0.91 m ht (m)	12.0	12.8	12.8
#7 Nozzle - Lime (7/64")				#7 Nozzle - Lime (2.78 mm)			
Flow (gpm)	1.30	1.51	1.69	Flow (L/hr)	295	343	384
Diameter at 1.5 ft ht (ft)	35.0	37.5	38.5	Diameter at 0.46 m ht (m)	10.7	11.4	11.7
Diameter at 3.0 ft ht (ft)	41.0	43.0	43.0	Diameter at 0.91 m ht (m)	12.5	13.1	13.1
#8 Nozzle - Lavender (1/8")				#8 Nozzle - Lavender (3.18 mm)			
Flow (gpm)	1.67	1.95	2.18	Flow (L/hr)	379	443	495
Diameter at 1.5 ft ht (ft)	35.5	38.5	38.0	Diameter at 0.46 m ht (m)	10.8	11.7	11.9
Diameter at 3.0 ft ht (ft)	41.5	43.0	43.0	Diameter at 0.91 m ht (m)	12.7	13.1	13.3

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 to 3.0 ft (0.46 to 0.91 m) above the nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

Inverted i-mini-Wobbler®

INSTALLATION

Mount the Inverted mini-Wobbler on the Drop Adapter. (see pg. 21)



Use Senninger's Drain Stop Plus with the i-mini-Wobbler. It is specifically designed for overhead irrigation to prevent drainage from applicators when the system is shut down. (see pg. 21)



The i-mini-Wobbler uses Senninger's off-center rotary-action wobbler technology. It is designed for inverted installations in greenhouses and it produces a broad rain-like application.

FEATURES

- Low evaporative loss
- Multi-level throw: 0°
- Flow rates: 0.75 to 2.18 gpm (170 to 495 L/hr)
- Operating pressures: 20 to 25 psi (1.38 to 1.72 bar)
- Connection: 1/2" NPT male
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification. Warranted to maintain correct orifice size for five years



SPRINKLER BASE PRESSURE-US	psi		SPRINKLER BASE PRESSURE-METRIC	bar	
	20	25		1.38	1.72
#5 Nozzle - Beige (5/64")			#5 Nozzle - Beige (1.98 mm)		
Flow (gpm)	0.75	0.84	Flow (L/hr)	170	191
Diameter at 3.0 ft ht (ft)	30.0	31.0	Diameter at 0.91 m ht (m)	9.2	9.5
Diameter at 6.0 ft ht (ft)	32.0	32.5	Diameter at 1.83 m ht (m)	9.8	9.9
#6 Nozzle - Gold (3/32")			#6 Nozzle - Gold (2.38 mm)		
Flow (gpm)	1.10	1.25	Flow (L/hr)	250	284
Diameter at 3.0 ft ht (ft)	31.0	31.4	Diameter at 0.91 m ht (m)	9.5	9.6
Diameter at 6.0 ft ht (ft)	34.0	34.5	Diameter at 1.83 m ht (m)	10.4	10.5
#7 Nozzle - Lime (7/64")			#7 Nozzle - Lime (2.78 mm)		
Flow (gpm)	1.51	1.69	Flow (L/hr)	343	384
Diameter at 3.0 ft ht (ft)	31.0	32.0	Diameter at 0.91 m ht (m)	9.5	9.8
Diameter at 6.0 ft ht (ft)	35.0	35.5	Diameter at 1.83 m ht (m)	10.7	10.8
#8 Nozzle - Lavender (1/8")			#8 Nozzle - Lavender (3.18 mm)		
Flow (gpm)	1.95	2.18	Flow (L/hr)	443	495
Diameter at 3.0 ft ht (ft)	31.5	32.0	Diameter at 0.91 m ht (m)	9.6	9.8
Diameter at 6.0 ft ht (ft)	35.5	36.0	Diameter at 1.83 m ht (m)	10.8	11.0



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

WOBBLERS

Wobbler® Standard & Low Angle

Wobblers use Senninger's off-center rotary-action technology, which provides extremely uniform coverage over a large diameter at low pressures. These produce droplets that resist wind-drift and are applied in a gentle rain-like pattern.

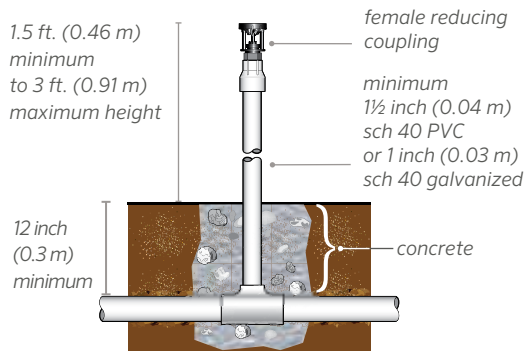


FEATURES

- Only one moving part – which translates to longer life
- Flow rates: 0.78 to 7.64 gpm (177 to 1735 L/hr)
- Operating pressures: 10 to 30 psi (0.69 to 2.07 bar)
- Low evaporative loss
- Connections: 3/4" and 1/2" NPT male
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification. Warranted to maintain correct orifice size for five years.

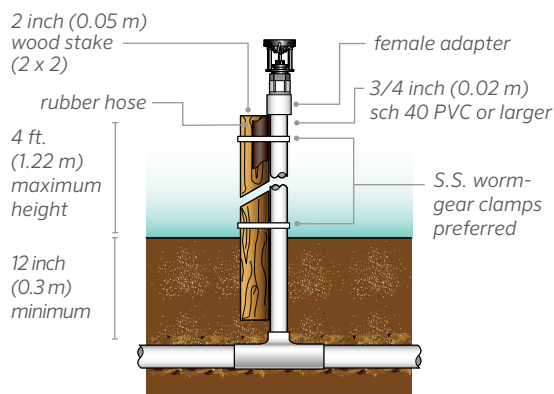


WOBBLER ON RISER WITH CONCRETE



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

WOBBLER ON RISER SUPPORTED WITH STAKE



Standard & Low Angle **Wobbler**[®]

SPRINKLER BASE PRESSURE-US	psi					SPRINKLER BASE PRESSURE-METRIC	bar				
	10	15	20	25	30		0.69	1.03	1.38	1.72	2.07
#6 Nozzle - Gold (3/32")						#6 Nozzle - Gold (2.38 mm)					
Flow (gpm)	0.78	0.95	1.10	1.23	1.35	Flow (L/hr)	177	216	250	279	307
SA Diameter at 1.5 ft ht (ft)	34.0	39.0	41.5	43.5	44.0	SA Diameter at 0.46 m ht (m)	10.4	11.9	12.7	13.3	13.4
LA Diameter at 1.5 ft ht (ft)	29.0	34.5	38.0	40.5	41.0	LA Diameter at 0.46 m ht (m)	8.8	10.5	11.6	12.4	12.5
#7 Nozzle - Lime (7/64")						#7 Nozzle - Lime (2.78 mm)					
Flow (gpm)	1.06	1.30	1.50	1.68	1.84	Flow (L/hr)	241	295	341	382	418
SA Diameter at 1.5 ft ht (ft)	36.5	41.5	43.5	45.0	45.5	SA Diameter at 0.46 m ht (m)	11.1	12.7	13.3	13.7	13.9
LA Diameter at 1.5 ft ht (ft)	31.5	37.0	40.0	41.5	42.0	LA Diameter at 0.46 m ht (m)	9.6	11.3	12.2	12.7	12.8
#8 Nozzle - Lavender (1/8")						#8 Nozzle - Lavender (3.18 mm)					
Flow (gpm)	1.40	1.71	1.98	2.21	2.42	Flow (L/hr)	318	388	450	502	550
SA Diameter at 1.5 ft ht (ft)	38.5	43.5	45.0	46.5	47.0	SA Diameter at 0.46 m ht (m)	11.7	13.3	13.7	14.2	14.3
LA Diameter at 1.5 ft ht (ft)	34.0	39.0	41.5	42.5	43.0	LA Diameter at 0.46 m ht (m)	10.4	11.9	12.7	13.0	13.1
#9 Nozzle - Grey (9/64")						#9 Nozzle - Grey (3.57 mm)					
Flow (gpm)	1.80	2.20	2.54	2.84	3.11	Flow (L/hr)	409	500	577	645	706
SA Diameter at 1.5 ft ht (ft)	40.5	45.5	46.5	47.5	48.0	SA Diameter at 0.46 m ht (m)	12.4	13.9	14.2	14.5	14.6
LA Diameter at 1.5 ft ht (ft)	35.5	40.5	42.5	43.5	44.0	LA Diameter at 0.46 m ht (m)	10.8	12.4	13.0	13.3	13.4
#10 Nozzle - Turquoise (5/32")						#10 Nozzle - Turquoise (3.97 mm)					
Flow (gpm)	2.22	2.72	3.14	3.51	3.85	Flow (L/hr)	504	618	713	797	874
SA Diameter at 1.5 ft ht (ft)	42.0	47.0	48.0	48.5	49.0	SA Diameter at 0.46 m ht (m)	12.8	14.3	14.6	14.8	14.9
LA Diameter at 1.5 ft ht (ft)	36.0	41.0	43.0	44.0	44.5	LA Diameter at 0.46 m ht (m)	11.0	12.5	13.1	13.4	13.6
#11 Nozzle - Yellow (11/64")						#11 Nozzle - Yellow (4.37 mm)					
Flow (gpm)	2.69	3.30	3.81	4.26	4.67	Flow (L/hr)	611	749	865	968	1061
SA Diameter at 1.5 ft ht (ft)	43.0	48.0	49.0	49.5	50.0	SA Diameter at 0.46 m ht (m)	13.1	14.6	14.9	15.1	15.3
LA Diameter at 1.5 ft ht (ft)	36.5	42.0	43.5	44.5	45.0	LA Diameter at 0.46 m ht (m)	11.1	12.8	13.3	13.6	13.7
#12 Nozzle - Red (3/16")						#12 Nozzle - Red (4.76 mm)					
Flow (gpm)	3.23	3.96	4.57	5.11	5.60	Flow (L/hr)	734	899	1038	1161	1272
SA Diameter at 1.5 ft ht (ft)	44.0	49.0	50.0	50.5	51.0	SA Diameter at 0.46 m ht (m)	13.4	14.9	15.3	15.4	15.6
LA Diameter at 1.5 ft ht (ft)	37.0	42.5	44.0	45.0	45.5	LA Diameter at 0.46 m ht (m)	11.3	13.0	13.4	13.7	13.9
#13 Nozzle - White (13/64")						#13 Nozzle - White (5.16 mm)					
Flow (gpm)	3.80	4.65	5.38	6.01	6.59	Flow (L/hr)	863	1056	1222	1365	1497
SA Diameter at 1.5 ft ht (ft)	44.5	49.5	50.5	51.0	51.5	SA Diameter at 0.46 m ht (m)	13.6	15.1	15.4	15.6	15.7
LA Diameter at 1.5 ft ht (ft)	37.5	43.0	44.5	45.5	46.0	LA Diameter at 0.46 m ht (m)	11.4	13.1	13.6	13.9	14.0
#14 Nozzle - Blue (7/32")						#14 Nozzle - Blue (5.56 mm)					
Flow (gpm)	4.40	5.39	6.23	6.97	7.64	Flow (L/hr)	999	1224	1415	1583	1735
SA Diameter at 1.5 ft ht (ft)	45.0	50.0	51.0	51.5	52.0	SA Diameter at 0.46 m ht (m)	13.7	15.3	15.6	15.7	15.9
LA Diameter at 1.5 ft ht (ft)	38.0	43.5	45.0	46.0	46.5	LA Diameter at 0.46 m ht (m)	11.6	13.3	13.7	14.0	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 to 5.5 ft (0.8 to 1.7 m) above the nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

WOBBLERS

Xcel-Wobbler® Mid & High Angle

The Xcel-Wobbler uses Senninger's off-center rotary-action technology. It provides an extremely uniform and instantaneous application pattern over a large area at lower pressures, and with very low evaporative loss.

OVERHEAD COMPARISON OF SPRINKLER DISTRIBUTION PATTERNS



The Xcel-Wobbler's larger area of instantaneous application minimizes the impact on the soil structure, helping to maintain infiltration capability.



MID-ANGLE



HIGH-ANGLE

FEATURES

- Counter-balance reduces vibration for a smooth, stable performance
- Only one moving part - which translates to longer life
- Connections: 3/4" or 1/2" NPT male
- Flow rates: 0.78 to 6.97 gpm (177 to 1583 L/hr)
- Operating pressures: 10 to 25 psi (0.69 to 1.72 bar)
- 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

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

Mid & High Angle **Xcel-Wobbler**[®]

SPRINKLER BASE PRESSURE-US	psi				SPRINKLER BASE PRESSURE-METRIC	bar			
	10	15	20	25		0.69	1.03	1.38	1.72
#6 Nozzle - Gold (3/32")					#6 Nozzle - Gold (2.38 mm)				
Flow (gpm)	0.78	0.95	1.10	1.23	Flow (L/hr)	177	216	250	279
MA Diameter at 1.5 ft ht (ft)	32.0	35.0	38.5	41.0	MA Diameter at 0.46 m ht (m)	9.8	10.7	11.7	12.5
HA Diameter at 1.5 ft ht (ft)	36.5	41.0	45.0	46.0	HA Diameter at 0.46 m ht (m)	11.1	12.5	13.7	14.0
#7 Nozzle - Lime (7/64")					#7 Nozzle - Lime (2.78 mm)				
Flow (gpm)	1.06	1.30	1.50	1.68	Flow (L/hr)	241	295	341	382
MA Diameter at 1.5 ft ht (ft)	33.0	36.5	40.5	41.0	MA Diameter at 0.46 m ht (m)	10.1	11.1	12.4	12.5
HA Diameter at 1.5 ft ht (ft)	40.0	46.5	47.0	50.5	HA Diameter at 0.46 m ht (m)	12.2	14.2	14.3	15.4
#8 Nozzle - Lavender (1/8")					#8 Nozzle - Lavender (3.18 mm)				
Flow (gpm)	1.40	1.71	1.98	2.21	Flow (L/hr)	318	388	450	502
MA Diameter at 1.5 ft ht (ft)	34.0	38.5	41.0	42.5	MA Diameter at 0.46 m ht (m)	10.4	11.7	12.5	13.0
HA Diameter at 1.5 ft ht (ft)	42.0	46.5	47.0	51.5	HA Diameter at 0.46 m ht (m)	12.8	14.2	14.3	15.7
#9 Nozzle - Grey (9/64")					#9 Nozzle - Grey (3.57 mm)				
Flow (gpm)	1.80	2.20	2.54	2.84	Flow (L/hr)	409	500	577	645
MA Diameter at 1.5 ft ht (ft)	34.5	40.5	42.0	43.0	MA Diameter at 0.46 m ht (m)	10.5	12.4	12.8	13.1
HA Diameter at 1.5 ft ht (ft)	44.0	47.0	50.5	52.5	HA Diameter at 0.46 m ht (m)	13.4	14.3	15.4	16.0
#10 Nozzle - Turquoise (5/32")					#10 Nozzle - Turquoise (3.97 mm)				
Flow (gpm)	2.22	2.72	3.14	3.51	Flow (L/hr)	504	618	713	797
MA Diameter at 1.5 ft ht (ft)	36.0	41.0	42.5	44.0	MA Diameter at 0.46 m ht (m)	11.0	12.5	13.0	13.4
HA Diameter at 1.5 ft ht (ft)	44.5	49.0	50.5	53.5	HA Diameter at 0.46 m ht (m)	13.6	14.9	15.4	16.3
#11 Nozzle - Yellow (11/64")					#11 Nozzle - Yellow (4.37 mm)				
Flow (gpm)	2.69	3.30	3.81	4.26	Flow (L/hr)	611	749	865	968
MA Diameter at 1.5 ft ht (ft)	36.0	41.5	43.0	44.0	MA Diameter at 0.46 m ht (m)	11.0	12.7	13.1	13.4
HA Diameter at 1.5 ft ht (ft)	44.5	50.5	51.5	54.0	HA Diameter at 0.46 m ht (m)	13.6	15.4	15.7	16.5
#12 Nozzle - Red (3/16")					#12 Nozzle - Red (4.76 mm)				
Flow (gpm)	3.23	3.96	4.57	5.11	Flow (L/hr)	734	899	1038	1161
MA Diameter at 1.5 ft ht (ft)	36.5	41.5	44.5	44.5	MA Diameter at 0.46 m ht (m)	11.1	12.7	13.6	13.6
HA Diameter at 1.5 ft ht (ft)	46.0	50.5	52.0	54.5	HA Diameter at 0.46 m ht (m)	14.0	15.4	15.9	16.6
#13 Nozzle - White (13/64")					#13 Nozzle - White (5.16 mm)				
Flow (gpm)	3.80	4.65	5.38	6.01	Flow (L/hr)	863	1056	1222	1365
MA Diameter at 1.5 ft ht (ft)	36.5	41.5	44.5	45.0	MA Diameter at 0.46 m ht (m)	11.1	12.7	13.6	13.7
HA Diameter at 1.5 ft ht (ft)	46.5	51.0	52.5	55.5	HA Diameter at 0.46 m ht (m)	14.2	15.6	16.0	16.9
#14 Nozzle - Blue (7/32")					#14 Nozzle - Blue (5.56 mm)				
Flow (gpm)	4.40	5.39	6.23	6.97	Flow (L/hr)	999	1224	1415	1583
MA Diameter at 1.5 ft ht (ft)	37.0	42.5	45.0	46.5	MA Diameter at 0.46 m ht (m)	11.3	13.0	13.7	14.2
HA Diameter at 1.5 ft ht (ft)	47.0	51.0	53.0	55.5	HA Diameter at 0.46 m ht (m)	14.3	15.6	16.2	16.9

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 to 5.5 ft (0.8 to 1.7 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

WOBBLERS

Spray Stakes



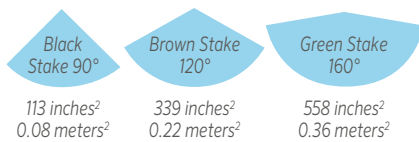
Senninger Spray Stakes are available in three patterns to correspond to various container sizes. The patterns wet the soil surface avoiding over-spray to save water, energy and fertilizer costs.

FEATURES

- Flow rates: 4 to 12 gph (15.1 to 45.4 L/hr)
- Operating Pressure: 20 psi (1.38 bar)
- Directional indicator for easy positioning
- Easy to remove for cleaning and maintenance
- Shut-off feature
- Three color-coded flow rates to match application requirements
- Two-year warranty on materials, workmanship and performance



AREA OF COVERAGE



(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 in (0.31 cm)	black	4 gph (15.1 L/hr)	90 Degrees
15 gallon	18 in (0.46 cm)	brown	8 gph (30.3 L/hr)	120 Degrees
30 gallon	20 in (0.51 cm)	green	12 gph (45.4 L/hr)	160 Degrees

Consider friction loss through the tubing when designing for optimum performance.



INSTALLATION VERSATILITY:

The Senninger Triad can also be installed on Smooth Drive bases for a quick and economic conversion to Smooth Drive sprinklers once plants mature. (see pg. 9 for Smooth Drive base options)



The Senninger Triad is a unique, three-stream sprinkler for orchard irrigation that's ideal for irrigating small root zones associated with young trees. It requires less filtration than traditional micro-irrigation.

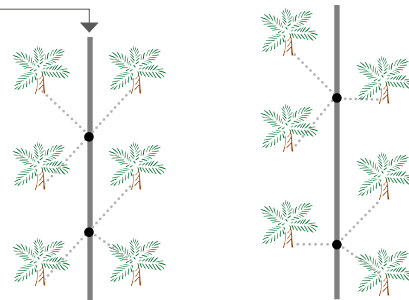
FEATURES

- Ideal for oil palms, pecans, coconuts, mangos, citrus, walnut and other fruit trees
- Fewer laterals allow greater access to trees for harvesting and orchard maintenance
- Three adjustable nozzles for precise direction and trajectory control
- Flow rates: 0.94 to 1.82 gpm (213 to 413 L/hr)
- Operating pressures: 10 to 35 psi (0.69 to 2.41 bar)
- 3/4" slip F and 25 mm base
- Solvent welds directly to PVC riser - no need for a connecting fitting
- Reduces the number of laterals required by 50% compared to micro sprinklers



TRIANGULAR PLANTING RECTANGULAR PLANTING

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



SPRINKLER BASE PRESSURE-US

	psi					
	10	15	20	25	30	35
0 Degree Trajectory						
Flow* (gpm)	0.94	1.16	1.36	1.52	1.68	1.82
Radius Min. throw 1.5 ft (ft)	9.5	12.0	13.0	13.0	13.0	13.0
Radius Max. throw 1.5 ft (ft)	10.0	13.5	15.0	16.5	17.0	17.5
30 Degree Trajectory						
Flow* (gpm)	0.94	1.16	1.36	1.52	1.68	1.82
Radius Min. throw 1.5 ft (ft)	17.5	23.5	25.0	25.5	26.0	26.5
Radius Max. throw 1.5 ft (ft)	21.5	29.0	31.5	32.5	33.5	34.5

SPRINKLER BASE PRESSURE-METRIC

	bar					
	0.69	1.03	1.38	1.72	2.07	2.41
0 Degree Trajectory						
Flow* (L/hr)	213	263	309	318	345	413
Radius Min. throw 0.46 m (m)	2.9	3.7	5.5	5.8	6.1	4.0
Radius Max. throw 0.46 m (m)	3.1	4.1	5.9	6.3	6.6	5.3
30 Degree Trajectory						
Flow* (L/hr)	213	263	393	432	466	413
Radius Min. throw 0.46 m (m)	5.3	7.2	5.9	6.3	6.4	8.1
Radius Max. throw 0.46 m (m)	6.6	8.8	6.3	6.6	6.9	10.5

Tree diking is recommended for best water retention. * Flow rate is for all three nozzles combined.

T-Spray™



The Senninger T-Spray delivers a fine 360° spray ideal for delicate stock. Mounting can be either upright or inverted. The T-Spray is also available in a high-angle upright model providing a larger coverage area

SPRAYS

High Angle (Upright)



Dark Purple (See chart below)



Standard Angle (Inverted & Upright)



THREE T-STEMS

Gold, Green & Lavendar (See chart below)



FEATURES

- No moving parts for longer life
- Removable T-stem for easy cleaning
- Flow rates: 0.98 to 2.85 gpm (223 to 647 L/hr)
- Operating pressures: 15 to 40 psi (1.03 to 2.76 bar)
- Connection: 1/2" NPT male
- Two-year warranty on materials, workmanship and performance
- Color-coded stems for easy size identification

SPRINKLER BASE PRESSURE-US

	psi					
	15	20	25	30	35	40
#6 T-Stem - Gold						
Flow (gpm)	0.98	1.14	1.27	1.40	1.52	1.63
Diameter at 1.5 ft ht (ft)	15.5	17.0	18.0	19.0	20.0	21.0
Diameter at 3.0 ft ht (ft)	17.5	18.5	19.5	20.5	21.5	22.0
#7 T-Stem - Lime						
Flow (gpm)	1.34	1.56	1.73	1.90	2.05	2.20
Diameter at 1.5 ft ht (ft)	17.0	18.5	19.5	20.5	21.0	21.5
Diameter at 3.0 ft ht (ft)	18.5	19.5	20.5	21.5	22.5	23.0
#8 T-Stem - Lavender						
Flow (gpm)	1.73	2.01	2.23	2.45	2.65	2.85
Diameter at 1.5 ft ht (ft)	18.0	19.5	20.5	21.0	21.5	22.0
Diameter at 3.0 ft ht (ft)	19.0	20.0	21.0	22.0	23.0	23.5
#8 T-Stem HA - Dark Purple						
Flow (gpm)	1.73	2.01	2.23	2.45	2.65	2.85
Diameter at 1.5 ft ht (ft)	25.5	27.5	29.0	30.0	31.0	32.0

SPRINKLER BASE PRESSURE-METRIC

	bar					
	1.03	1.38	1.72	2.07	2.41	2.76
#6 T-Stem - Gold						
Flow (L/hr)	223	259	288	318	345	370
Diameter at 0.46 m ht (m)	4.7	5.2	5.5	5.8	6.1	6.4
Diameter at 0.91 m ht (m)	5.3	5.6	5.9	6.2	6.6	6.7
#7 T-Stem - Lime						
Flow (L/hr)	304	354	393	432	466	500
Diameter at 0.46 m ht (m)	5.2	5.6	5.9	6.2	6.4	6.6
Diameter at 0.91 m ht (m)	5.6	5.9	6.3	6.6	6.9	7.0
#8 T-Stem - Lavender						
Flow (L/hr)	393	457	506	556	602	647
Diameter at 0.46 m ht (m)	5.5	5.9	6.2	6.4	6.6	6.7
Diameter at 0.91 m ht (m)	5.8	6.1	6.4	6.7	7.0	7.2
#8 T-Stem HA - Dark Purple						
Flow (L/hr)	393	457	506	556	602	647
Diameter at 0.46 m ht (m)	7.8	8.4	8.8	9.1	9.4	9.8

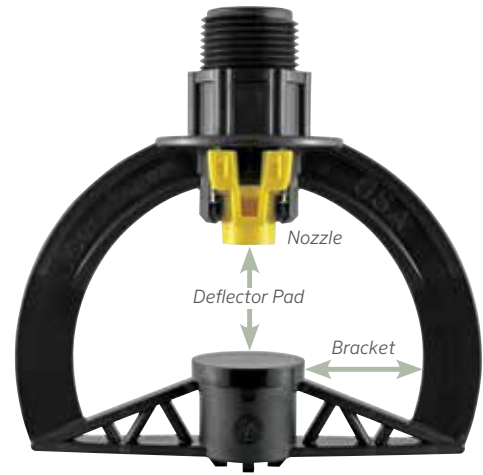
Sprinkler performance may vary with actual field conditions. Minimum recommended riser height is 1.5 ft (0.46 m).

Super Spray®

The Super Spray delivers a 360° spray pattern. With no moving parts and durable construction, the Super Spray is reliable in harsh conditions. Its interchangeable deflector pads allow customization of spray angle and droplet size.

FEATURES

- Easy clean nozzle design: Pinch and pull to remove the nozzle, then place and click to reinstall
- Connections: 3/4" NPT male (1/2" NPT male available with threaded nozzle)
- Flow rates: 0.55 to 6.48 gpm (125 to 1472 L/hr)
- Operating pressures: 10 to 40 psi (0.69 to 2.76 bar)
- Deflector pads available in flat (black), concave (blue), convex (green) and smooth, medium-grooved or deep-grooved surfaces
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification. Warranted to maintain correct orifice size for five years



Ideal for surface water due to the distance between the nozzle and deflector pad and the deflector pad and the bracket.

SPRAYS

SPRINKLER BASE PRESSURE-US	psi							SPRINKLER BASE PRESSURE-METRIC	bar						
	10	15	20	25	30	35	40		0.69	1.04	1.38	1.73	2.07	2.42	2.76
#5 Nozzle - Beige (5/64")								#5 Nozzle - Beige (1.98 mm)							
Flow (gpm)	0.55	0.68	0.78	0.87	0.96	1.04	1.11	Flow (L/hr)	125	154	177	198	218	236	252
Diameter at 3.0 ft ht (ft)	15.0	17.0	18.0	18.5	19.0	19.5	20.0	Diameter at 0.91 m ht (m)	4.6	5.2	5.5	5.6	5.8	5.9	6.1
Diameter at 6.0 ft ht (ft)	15.5	17.5	19.5	21.5	22.5	23.5	24.5	Diameter at 1.83 m ht (m)	4.7	5.3	5.9	6.6	6.9	7.2	7.5
#6 Nozzle - Gold (3/32")								#6 Nozzle - Gold (2.38 mm)							
Flow (gpm)	0.80	0.98	1.13	1.26	1.38	1.50	1.60	Flow (L/hr)	182	223	257	286	313	341	363
Diameter at 3.0 ft ht (ft)	16.0	17.5	18.5	19.5	20.0	20.5	21.0	Diameter at 0.91 m ht (m)	4.9	5.3	5.6	5.9	6.1	6.2	6.4
Diameter at 6.0 ft ht (ft)	17.5	19.5	21.5	23.5	24.5	25.5	26.5	Diameter at 1.83 m ht (m)	5.3	5.9	6.6	7.2	7.5	7.8	8.1
#7 Nozzle - Lime (7/64")								#7 Nozzle - Lime (2.78 mm)							
Flow (gpm)	1.09	1.34	1.54	1.73	1.89	2.04	2.18	Flow (L/hr)	248	304	350	393	429	463	495
Diameter at 3.0 ft ht (ft)	16.5	18.0	19.5	20.5	21.5	22.0	22.5	Diameter at 0.91 m ht (m)	5.0	5.5	5.9	6.2	6.6	6.7	6.9
Diameter at 6.0 ft ht (ft)	19.5	21.5	23.5	25.5	26.5	27.5	28.5	Diameter at 1.83 m ht (m)	5.9	6.6	7.2	7.8	8.1	8.4	8.7
#8 Nozzle - Lav. (1/8")								#8 Nozzle - Lav. (3.18 mm)							
Flow (gpm)	1.43	1.75	2.02	2.26	2.48	2.68	2.86	Flow (L/hr)	325	397	459	513	563	609	650
Diameter at 3.0 ft ht (ft)	17.0	18.5	20.5	22.5	23.5	24.0	24.5	Diameter at 0.91 m ht (m)	5.2	5.6	6.2	6.9	7.2	7.3	7.5
Diameter at 6.0 ft ht (ft)	21.0	23.0	25.0	27.0	28.0	29.0	30.0	Diameter at 1.83 m ht (m)	6.4	7.0	7.6	8.2	8.5	8.8	9.1
#9 Nozzle - Grey (9/64")								#9 Nozzle - Grey (3.57 mm)							
Flow (gpm)	1.81	2.22	2.56	2.87	3.14	3.39	3.63	Flow (L/hr)	411	504	581	652	713	770	824
Diameter at 3.0 ft ht (ft)	17.5	19.5	21.5	23.5	25.0	26.0	26.5	Diameter at 0.91 m ht (m)	5.3	5.9	6.6	7.2	7.6	7.9	8.1
Diameter at 6.0 ft ht (ft)	22.0	25.0	27.0	29.0	30.0	31.0	32.0	Diameter at 1.83 m ht (m)	6.7	7.6	8.2	8.8	9.1	9.4	9.8
#10 Nozzle - Turq. (5/32")								#10 Nozzle - Turq. (3.97 mm)							
Flow (gpm)	2.24	2.75	3.17	3.55	3.88	4.20	4.49	Flow (L/hr)	509	625	720	806	881	954	1020
Diameter at 3.0 ft ht (ft)	18.5	21.0	23.0	25.0	26.5	27.5	28.0	Diameter at 0.91 m ht (m)	5.6	6.4	7.0	7.6	8.1	8.4	8.5
Diameter at 6.0 ft ht (ft)	23.0	26.0	28.0	30.0	31.0	32.0	33.0	Diameter at 1.83 m ht (m)	7.0	7.9	8.5	9.1	9.4	9.8	10.1
#11 Nozzle - Yellow (11/64")								#11 Nozzle - Yellow (4.37 mm)							
Flow (gpm)	2.72	3.33	3.84	4.30	4.71	5.08	5.43	Flow (L/hr)	618	756	872	977	1070	1154	1233
Diameter at 3.0 ft ht (ft)	20.5	23.0	25.0	27.0	28.5	29.5	30.0	Diameter at 0.91 m ht (m)	6.2	7.0	7.6	8.2	8.7	9.0	9.1
Diameter at 6.0 ft ht (ft)	24.0	27.0	29.0	31.0	32.0	33.0	34.0	Diameter at 1.83 m ht (m)	7.3	8.2	8.8	9.4	9.8	10.1	10.4
#12 Nozzle - Red (3/16")								#12 Nozzle - Red (4.76 mm)							
Flow (gpm)	3.24	3.97	4.58	5.12	5.61	6.06	6.48	Flow (L/hr)	736	902	1040	1163	1274	1376	1472
Diameter at 3.0 ft ht (ft)	22.5	25.0	27.0	29.0	30.5	31.5	32.0	Diameter at 0.91 m ht (m)	6.9	7.6	8.2	8.8	9.3	9.6	9.8
Diameter at 6.0 ft ht (ft)	25.0	28.0	30.0	32.0	33.0	34.0	35.0	Diameter at 1.83 m ht (m)	7.6	8.5	9.1	9.8	10.1	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.












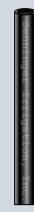










Riser Adapter

Senninger Riser Adapters make irrigating easier in hard to reach places and is ideal for temporary and portable systems. Riser Adapters are connected to the laterals allowing the sprinklers on each to be repositioned as needed.

FEATURES

- No gluing or fusing required
- Suitable for sprinkler or spray nozzles with a 1/2" NPT male base connection
- Components available for 0.345" and 0.270" PE tubing
- Riser adapter suitable for the 14" or 26" Riser Stakes as well as 1/2" PVC, 3/4" PVC, or 5/16" steel rod





COMPONENTS

	LOWER FLOWS (Use with 0.270" tubing)		HIGHER FLOWS (Use with 0.345" tubing)			
Assembly Part #s	RSASM2TC3QCA	RSASM23C3	RSASM24C3QCA2T	RSASM24C3QCA3T	RSASM24C3	RSASM24C4
Riser Adapters	RSAD2T (QUICK CONNECT) 1/2" F x #2 Taper 	RSAD270 1/2" F x 0.270" Tubing 	RSAD345 1/2" F x 0.345" Tubing 	RSAD345 1/2" F x 0.345" Tubing 	RSAD345 1/2" F x 0.345" Tubing 	RSAD345 1/2" F x 0.345" Tubing 
Fitting	FTA1B2T 0.270" Super Barb x #2 Taper 					
PE Tubing	TU1ST3 3 ft (0.9 m) 0.270" I.D. 	TU1ST3 3 ft (0.9 m) 0.270" I.D. 	TU15ST3 3 ft (0.9 m) 0.345" I.D. 	TU15ST3 3 ft (0.9 m) 0.345" I.D. 	TU15ST3 3 ft (0.9 m) 0.345" I.D. 	TU15ST4 4 ft (1.2 m) 0.345" I.D. 
Barb Fittings	FTA1B2T 0.270" Super Barb x #2 Taper* 	FTA1B1B 0.270" Super Barb x Hose Barb Insert Adapter 	FTA15B2T 0.345" Super Barb x #2 Taper* 	FTA15B3T 0.345" Super Barb x #3 Taper** 	FTA15B15B 0.345" Super Barb x Hose Barb Insert Adapter 	FTA15B15B 0.345" Super Barb x Hose Barb Insert Adapter 
Bushings	FTHS2T Winged Hose Barb Bushing #2 Taper 		FTHS2T Winged Hose Barb Bushing #2 Taper 	FTHS3T Winged Hose Barb Bushing #3 Taper 		

Friction loss through the entire assembly: - including 3 ft (0.9 m) of 0.270" ID PE tubing - is 6.3 psi at 2.0 gpm (0.43 bar at 454 L/hr).
 - including 3 ft (0.9 m) of 0.345" ID PE tubing - is 1.7 psi at 2.0 gpm (0.117 bar at 454 L/hr).
 Consult factory for friction loss on flows greater than 2 gpm (454 L/hr) or tubing lengths greater than 3 ft (0.9 m).

The Riser Stake is now available in either 26" or 14" length models to support Senninger's Riser Adapter for use with a 1/2" M NPT connection micro-sprinkler or spray nozzle. It can also be used for direct mounting a barbed base micro-sprinkler into 0.25", 0.270", or 8 mm tubing. For best results, the Riser Stake should be installed at least 1/3 its length into the ground.



	#2 TAPER			#3 TAPER
Additional Options	FT4HSC2T Barb Bushing Clamp for 1" Hose #2 Taper* 	FT1M2T Winged 1/4" M NPT Threaded Bushing #2 Taper* 	FTPLUG2T #2 Taper* (Red) 	FTPLUG3T #3 Taper** (Maroon) 




















TUBING PUNCH TOOLS ALSO AVAILABLE:

- TUPTAP4I** - Tubing Punch Tool (green handle) for use w/ FTA1B1B
- TUPTAP5I** - Tubing Punch Tool (red handle) for use w/ FTA15B15B, FTHS2T, FTHS3T, FT1M2T, FT4HSC2T
- TUPTAP3I** - Tubing Punch Tool (purple handle) for use with 0.125" tubing






























Drop Adapter

The Senninger Drop Assembly is simple, fast and economical to install. It is available as an assembly or individual components.

LOWER FLOWS (Use with 0.270" tubing)					
DROP ASSEMBLY			DROP ADAPTER ASSEMBLY		
Assembly	DRUA1B23S12	DRASM1/23S23S12	DRLA1B2F12	DRADASM1B2F24	DRADASM1/23S2F24
Fittings	FTA1B1B 0.270" Super Barb x Hose Barb 	FTA1B23S 0.270" Super Barb x 1/2"F / 3/4"M Slip 		FTA1B1B 0.270" Super Barb x Hose Barb 	FTA1B23S 0.270" Super Barb x 1/2"F / 3/4"M Slip 
PE Tubing	TU1ST1 0.270" I.D 12" Length 	TU1ST1 0.270" I.D 12" Length 		TU1ST1 0.270" I.D 12" Length 	TU1ST1 0.270" I.D 12" Length 
Fittings	FTA1B23S 0.270" Super Barb x 1/2"F / 3/4"M Slip 	FTA1B23S 0.270" Super Barb x 1/2"F / 3/4"M Slip 	FTA1B23S 0.270" Super Barb x 1/2"F / 3/4"M Slip 	FTA1B23S 0.270" Super Barb x 1/2"F / 3/4"M Slip 	FTA1B23S 0.270" Super Barb x 1/2"F / 3/4"M Slip 
PVC Pipe			RSRP10 1/2" PVC 10" Length 	RSRP10 1/2" PVC 10" Length 	RSRP10 1/2" PVC 10" Length 
Couplings			SM/0435-005 1/2"F Slip x 1/2"F NPT 	SM/0435-005 1/2"F Slip x 1/2"F NPT 	SM/0435-005 1/2"F Slip x 1/2"F NPT 

COMPONENTS

HIGHER FLOWS (Use with 0.345" tubing)							
DROP UPPER ASSEMBLY				DROP ADAPTER ASSEMBLY			
Assembly	DRUA15B23S12	DRASM15/23S23S12	DRASM15/2M23S12	DRLA15B2F12	DRADASM15B2F24	DRADASM15/23S2F24	DRADASM15/2M2F24
Fittings	FTA15B15B 0.345" Super Barb x Hose Barb 	FTA15B23S 0.34 Super Barb x 1/2"F / 3/4"M Slip 	FTA15B2M 0.345" Super Barb x 1/2"M NPT 		FTA15B15B 0.345" Super Barb x Hose Barb 	FTA15B23S 0.345 Super Barb x 1/2"F / 3/4"M Slip 	FTA15B2M 0.345" Super Barb x 1/2"M NPT 
PE Tubing	TU15ST1 0.345" I.D 12" Length 	TU15ST1 0.345" I.D 12" Length 	TU15ST1 0.345" I.D 12" Length 		TU15ST1 0.345" I.D 12" Length 	TU15ST1 0.345" I.D 12" Length 	TU15ST1 0.345" I.D 12" Length 
Fittings	FTA15B23S 0.345 Super Barb x 1/2"F / 3/4"M Slip 	FTA15B23S 0.345 Super Barb x 1/2"F / 3/4"M Slip 	FTA15B23S 0.345 Super Barb x 1/2"F / 3/4"M Slip 	FTA15B23S 0.345 Super Barb x 1/2"F / 3/4"M Slip 	FTA15B23S 0.345 Super Barb x 1/2"F / 3/4"M Slip 	FTA15B23S 0.345 Super Barb x 1/2"F / 3/4"M Slip 	FTA15B23S 0.345 Super Barb x 1/2"F / 3/4"M Slip 
PVC Pipe				RSRP10 1/2" PVC 10" Length 	RSRP10 1/2" PVC 10" Length 	RSRP10 1/2" PVC 10" Length 	RSRP10 1/2" PVC 10" Length 
Couplings				SM/0435-005 1/2"F Slip x 1/2"F NPT 	SM/0435-005 1/2"F Slip x 1/2"F NPT 	SM/0435-005 1/2"F Slip x 1/2"F NPT 	SM/0435-005 1/2"F Slip x 1/2"F NPT 

Consider friction loss through the tubing and components when designing for optimum performance.
Punch Tools Also Available, see pg. 19

Drain Stop Plus



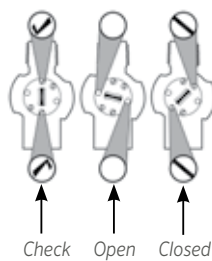
Senninger's Drain Stop Plus helps prevent drainage from overhead irrigation applicators. This keeps supply lines full allowing for faster start-ups and protects plants below.

FEATURES

- Unique 3-mode design – open, check, and closed
- Easy clean feature – device and applicator remain in place and a simple twist releases bonnet for debris removal
- Connection: 1/2" NPT male inlet x 1/2" NPT female outlet
- Can be used directly with any 1/2" NPT male base applicator
- Low friction loss – less than 4.25 psi total loss through device at 5 gpm (0.29 bar at 1136 L/hr)
- Minimum opening pressure: 22 psi (1.52 bar), Minimum closing pressure: 6.5 psi (0.45 bar)
- Maximum operating pressure: 50 psi (3.45 bar)
- Flow: 0.25 to 5 gpm (57 to 1136 L/hr)
- Two-year warranty on materials, workmanship and performance



3-IN-1-Function



COMPONENTS

Fittings & Couplings

Senninger fittings and couplings help facilitate irrigation installations.



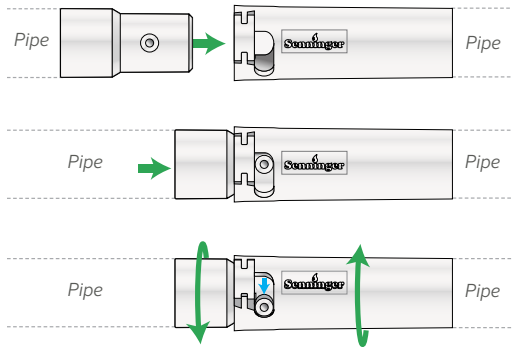
FEATURES

- Over 20 different models (See Senninger's Price List)
- Threaded, slip and quick-connect configurations available
- Constructed using engineering grade thermoplastic

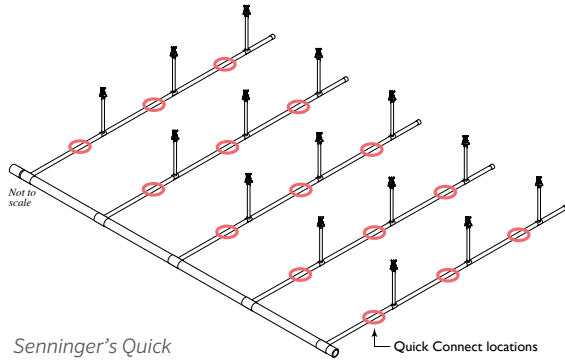
Quick Connect Coupling

INSTALLATION RECOMMENDATIONS

Apply glue to the outside of the pipe before inserting upper or lower housings. Once glue is dry, connect housings together by inserting the button on the lower housing into the tabbed area of the upper housing. Twist to lock.



FIELD INSTALLATION



Senninger's Quick Connect Couplings make it easy to disassemble the system in manageable sections.

DESIGN CRITERIA

Pipe Diameter	Maximum Pressure	Part Number
1 inch	100 psi (7.0 bar)	QCPLASM4
1-1/4 inch	100 psi (7.0 bar)	QCPLASM5
32 mm	100 psi (7.0 bar)	QCPLASM32MM
40 mm	100 psi (7.0 bar)	QCPLASM40MM

Also available as separate components (See Senninger's Price List)

Senninger's Quick-Connect couplings help reduce material costs for irrigation systems. By connecting small diameter pipes, laterals become easier to transport. This is ideal for high rotation crops and field work.



FEATURES:

- Lightweight for easy portability
- Virtually leak-proof connection
- Four Models: 1-inch, 1 1/4-inch, 32 mm and 40 mm
- Constructed out of UV resistant thermoplastics

20 Series

The 20 series full-circle impacts are Senninger’s most economical sprinklers. The 20 Series includes several models available for various overhead and under-tree installations.

IMPACTS



FEATURES

- Three models with different trajectories available:
 2009 - 9° fights wind drift and evaporation
 2014 - 14° ideal for under-tree irrigation
 2023 - 23° 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
- Connections: 1/2" NPT male (female also available)
- Flow rates: 1.34 to 3.98 gpm (304 to 904 L/hr)
- Operating pressures: 30 to 50 psi (2.07 to 3.45 bar)
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification.
 Warranted to maintain correct orifice size for five years



CONVENIENT HAND TIGHT NOZZLES

No tools required with the easy change/easy clean nozzle and vane combination. Square orifice nozzles also available.

2009HS SPRINKLER BASE PRESSURE- US	psi					SPRINKLER BASE PRESSURE-METRIC	bar				
	30	35	40	45	50		2.07	2.41	2.76	3.10	3.45
#6 Nozzle - Gold (3/32")						#6 Nozzle - Gold (2.38 mm)					
Flow (gpm)	1.34	1.45	1.55	1.64	---	Flow (L/hr)	304	329	352	372	---
Diameter at 1.5 ft ht (ft)	58	60	62	64	---	Diameter at 0.46 m ht (m)	17.7	18.3	18.9	19.5	---
#7 Nozzle - Lime (7/64")						#7 Nozzle - Lime (2.78 mm)					
Flow (gpm)	1.84	1.99	2.12	2.25	2.37	Flow (L/hr)	418	452	481	511	538
Diameter at 1.5 ft ht (ft)	60	62	64	66	67	Diameter at 0.46 m ht (m)	18.3	18.9	19.5	20.1	20.4
#8 Nozzle - Lavender (1/8")						#8 Nozzle - Lavender (3.18 mm)					
Flow (gpm)	2.42	2.62	2.79	2.97	3.12	Flow (L/hr)	550	595	634	675	709
Diameter at 1.5 ft ht (ft)	62	64	66	68	69	Diameter at 0.46 m ht (m)	18.9	19.5	20.1	20.7	21.0
#9 Nozzle - Grey (9/64")						#9 Nozzle - Grey (3.57 mm)					
Flow (gpm)	3.08	3.33	3.56	3.78	3.98	Flow (L/hr)	700	756	809	859	904
Diameter at 1.5 ft ht (ft)	64	66	68	70	71	Diameter at 0.46 m ht (m)	19.5	20.1	20.7	21.4	21.7

Sprinkler performance may vary with actual field conditions. Stream heights range from 1.5 to 3.0 ft (0.46 to 0.91 m) above the nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

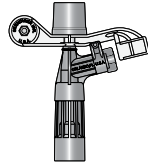
20 Series

MOUNTING OPTIONS

The 20 Series impacts are also available with a 1/2" NPT x 3/4" Vandal-Resistant (VR) slip base and wrench for easy removal from a sprinkler fitting, or a 1/2" NPT Quick-Connect (QC) upper fitting with a 1/2" and 3/4" slip or 20 mm and 25 mm slip coupling to retrofit your 1/2" NPT male sprinklers. 20 Series sprinklers can also be ordered pre-assembled with VR and QC bases.

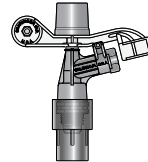
20 SERIES: 9°, 14° OR 23°

Model of sprinkler comes with solvent weld VR connection



Fitting glues to riser making it vandal resistant.

1/2" VANDAL-RESISTANT (VR)



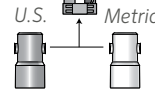
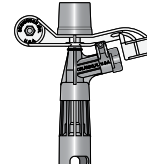
Fitting glues to riser



Vandal-Resistant Wrench required for removing sprinkler from fitting.

20 SERIES: 9°, 14° OR 23°

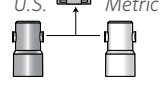
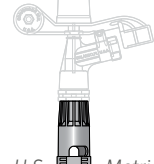
Model of sprinkler comes with quick-connection.



The quick-connect requires one of the lower QC fittings above.

1/2" F NPT

Fitting to convert 1/2" M NPT connection sprinklers



The quick-connect requires an upper fitting and one of the lower QC fittings above.

2014HS SPRINKLER BASE PRESSURE-US

	psi				
	30	35	40	45	50
#6 Nozzle - Gold (3/32")					
Flow (gpm)	1.34	1.45	1.55	1.64	---
Diameter at 1.5 ft ht (ft)	66	68	70	72	---
#7 Nozzle - Lime (7/64")					
Flow (gpm)	1.84	1.99	2.12	2.25	2.37
Diameter at 1.5 ft ht (ft)	68	70	72	74	75
#8 Nozzle - Lavender (1/8")					
Flow (gpm)	2.42	2.62	2.79	2.97	3.12
Diameter at 1.5 ft ht (ft)	70	72	74	76	77
#9 Nozzle - Grey (9/64")					
Flow (gpm)	3.08	3.33	3.56	3.78	3.98
Diameter at 1.5 ft ht (ft)	71	73	75	77	78

SPRINKLER BASE PRESSURE-METRIC

	bar				
	2.07	2.41	2.76	3.10	3.45
#6 Nozzle - Gold (2.38 mm)					
Flow (L/hr)	304	329	352	372	---
Diameter at 0.46 m ht (m)	20.1	20.7	21.4	22.0	---
#7 Nozzle - Lime (2.78 mm)					
Flow (L/hr)	418	452	481	511	538
Diameter at 0.46 m ht (m)	20.7	21.4	22.0	22.6	22.9
#8 Nozzle - Lavender (3.18 mm)					
Flow (L/hr)	550	595	634	675	709
Diameter at 0.46 m ht (m)	21.4	22.0	22.6	23.2	23.5
#9 Nozzle - Grey (3.57 mm)					
Flow (L/hr)	700	756	809	859	904
Diameter at 0.46 m ht (m)	21.7	22.3	22.9	23.5	23.8

Sprinkler performance may vary with actual field conditions. Stream heights range from 3.0 to 5.0 ft (0.91 to 1.5 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

2023HS SPRINKLER BASE PRESSURE-US

	psi				
	30	35	40	45	50
#6 Nozzle - Gold (3/32")					
Flow (gpm)	1.34	1.45	1.55	1.64	---
Diameter at 1.5 ft ht (ft)	74	75	76	77	---
#7 Nozzle - Lime (7/64")					
Flow (gpm)	1.84	1.99	2.12	2.25	2.37
Diameter at 1.5 ft ht (ft)	76	77	78	79	80
#8 Nozzle - Lavender (1/8")					
Flow (gpm)	2.42	2.62	2.79	2.97	3.12
Diameter at 1.5 ft ht (ft)	78	79	80	81	82
#9 Nozzle - Grey (9/64")					
Flow (gpm)	3.08	3.33	3.56	3.78	3.98
Diameter at 1.5 ft ht (ft)	79	80	81	82	83

SPRINKLER BASE PRESSURE-METRIC

	bar				
	2.07	2.41	2.76	3.10	3.45
#6 Nozzle - Gold (2.38 mm)					
Flow (L/hr)	304	329	352	372	---
Diameter at 0.46 m ht (m)	22.6	22.9	23.2	23.5	---
#7 Nozzle - Lime (2.78 mm)					
Flow (L/hr)	418	452	481	511	538
Diameter at 0.46 m ht (m)	23.2	23.5	23.8	24.1	24.4
#8 Nozzle - Lavender (3.18 mm)					
Flow (L/hr)	550	595	634	675	709
Diameter at 0.46 m ht (m)	23.8	24.1	24.4	24.7	25.0
#9 Nozzle - Grey (3.57 mm)					
Flow (L/hr)	700	756	809	859	904
Diameter at 0.46 m ht (m)	24.1	24.4	24.7	25.0	25.3

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

IMPACTS

Compact Impact

The Compact Impact's splasharm diffuser splits the stream, distributing water more uniformly over the wetted area. It emulates dual nozzle performance without the clogging potential often found with smaller secondary nozzles.



VIEWS OF DISTRIBUTION

Stream driven applicators typically provide good throw distance, but their distinct streams place most of the flow in a relatively small area when compared to the Compact Impact. This model wets a larger area with lower instantaneous application intensity, preserving soil structure and infiltration capability.

STANDARD



COMPACT IMPACT



The Compact Impact distributes the same amount of water more uniformly than a single stream driven applicator.

IMPACTS



FEATURES

- 23° trajectory for maximum throw
- Connections: 3/4" NPT male or 3/4" NPT female
- Flow rates: 3.08 to 7.13 gpm (700 to 1619 L/hr)
- Operating pressures: 30 to 50 psi (2.07 to 3.45 bar)
- 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 diffuser distributes some of the flow closer to the sprinkler for better uniformity of application.

3/4" MALE OR FEMALE BASE



CONVENIENT HAND TIGHT NOZZLES!

No tools required with the easy change/easy clean nozzle and vane combination. Square orifice nozzles also available.

COMPACT IMPACT SPRINKLER BASE PRESSURE-US	psi					SPRINKLER BASE PRESSURE-METRIC	bar				
	30	35	40	45	50		2.07	2.41	2.76	3.10	3.45
#9 Nozzle - Grey (9/64")						#9 Nozzle - Grey (3.57 mm)					
Flow (gpm)	3.08	3.33	3.56	3.78	3.98	Flow (L/hr)	700	756	809	859	904
Diameter at 1.5 ft ht (ft)	78	78	82	86	86	Diameter at 0.46 m ht (m)	24	24	25	26	26
Diameter at 3.0 ft ht (ft)	84	86	87	88	90	Diameter at 0.91 m ht (m)	26	26	27	27	27
#10 Nozzle - Turquoise (5/32")						#10 Nozzle - Turquoise (3.97 mm)					
Flow (gpm)	3.82	4.13	4.41	4.68	4.93	Flow (L/hr)	868	938	1002	1063	1120
Diameter at 1.5 ft ht (ft)	80	82	82	86	88	Diameter at 0.46 m ht (m)	24	25	25	26	27
Diameter at 3.0 ft ht (ft)	86	87	89	91	92	Diameter at 0.91 m ht (m)	26	27	27	28	28
#11 Nozzle - Yellow (11/64")						#11 Nozzle - Yellow (4.37 mm)					
Flow (gpm)	4.63	5.00	5.34	5.67	5.98	Flow (L/hr)	1052	1136	1213	1288	1358
Diameter at 1.5 ft ht (ft)	82	82	86	88	90	Diameter at 0.46 m ht (m)	25	25	26	27	27
Diameter at 3.0 ft ht (ft)	88	89	92	94	95	Diameter at 0.91 m ht (m)	27	27	28	29	29
#12 Nozzle - Red (3/16")						#12 Nozzle - Red (4.76 mm)					
Flow (gpm)	5.52	5.97	6.37	6.76	7.13	Flow (L/hr)	1254	1356	1447	1535	1619
Diameter at 1.5 ft ht (ft)	83	87	90	92	96	Diameter at 0.46 m ht (m)	25	27	27	28	29
Diameter at 3.0 ft ht (ft)	89	91	94	97	98	Diameter at 0.91 m ht (m)	27	28	29	30	30

Sprinkler performance may vary with field conditions. Stream heights range from 7.7 to 10.1 ft (2.3 to 3.1 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.5 m).

The 20 series WedgeDrive sprinkler alternately deflects flows in front and behind the splasharm as the wedge diffuser reacts to an incoming water stream. Its square orifice nozzle and rapid 360° rotation speed at low pressures delivers uniform distribution near and away from the sprinkler.



FEATURES

- 14° or 23° model trajectories (9° model also available)
- Flow rates: 0.84 to 3.98 gpm (191 to 904 L/hr)
- Operating pressures: 25 to 50 psi (1.72 to 3.45 bar)
- Connections: 1/2" NPT male
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification.
Warranted to maintain correct orifice size for five years



CONVENIENT HAND TIGHT NOZZLES!

No tools required with the easy change/easy clean nozzle and vane combination. Square orifice nozzles also available.



IMPACTS

WEDGE DRIVE SPRINKLER BASE PRESSURE-US	psi						SPRINKLER BASE PRESSURE-METRIC	bar					
	25	30	35	40	45	50		1.72	2.07	2.41	2.76	3.10	3.45
#5 Nozzle - Beige (5/64")							#5 Nozzle - Beige (1.98 mm)						
Flow (gpm)	0.84	0.92	0.99	1.06	1.13	1.19	Flow (L/hr)	191	209	225	241	257	270
2014 Diameter at 1.5 ft ht (ft)	60	61	65	67	68	69	2014 Diameter at 0.46 m ht (m)	18	19	20	20	21	21
2023 Diameter at 1.5 ft ht (ft)	70	70	70	72	76	75	2023 Diameter at 0.46 m ht (m)	21	21	21	22	23	23
#6 Nozzle - Gold (3/32")							#6 Nozzle - Gold (2.38 mm)						
Flow (gpm)	1.22	1.34	1.45	1.55	1.64	1.73	Flow (L/hr)	277	304	329	352	372	393
2014 Diameter at 1.5 ft ht (ft)	61	64	68	70	72	73	2014 Diameter at 0.46 m ht (m)	19	20	21	21	22	22
2023 Diameter at 1.5 ft ht (ft)	68	70	72	73	78	76	2023 Diameter at 0.46 m ht (m)	21	21	22	22	24	23
#7 Nozzle - Lime (7/64")							#7 Nozzle - Lime (2.78 mm)						
Flow (gpm)	1.68	1.84	1.99	2.12	2.25	2.37	Flow (L/hr)	382	418	452	482	511	538
2014 Diameter at 1.5 ft ht (ft)	64	66	70	74	76	77	2014 Diameter at 0.46 m ht (m)	20	20	21	23	23	23
2023 Diameter at 1.5 ft ht (ft)	72	73	74	76	77	78	2023 Diameter at 0.46 m ht (m)	22	22	23	23	23	24
#8 Nozzle - Lavender (1/8")							#8 Nozzle - Lavender (3.18 mm)						
Flow (gpm)	2.21	2.42	2.62	2.79	2.97	3.12	Flow (L/hr)	502	550	595	634	675	709
2014 Diameter at 1.5 ft ht (ft)	67	70	73	77	79	80	2014 Diameter at 0.46 m ht (m)	20	21	22	23	24	24
2023 Diameter at 1.5 ft ht (ft)	74	76	77	78	79	80	2023 Diameter at 0.46 m ht (m)	23	23	23	24	24	24
#9 Nozzle - Grey (9/64")							#9 Nozzle - Grey (3.57 mm)						
Flow (gpm)	2.81	3.08	3.33	3.56	3.78	3.98	Flow (L/hr)	638	700	756	809	859	904
2014 Diameter at 1.5 ft ht (ft)	68	72	76	78	81	81	2014 Diameter at 0.46 m ht (m)	21	22	23	24	25	25
2023 Diameter at 1.5 ft ht (ft)	78	78	80	81	82	83	2023 Diameter at 0.46 m ht (m)	24	24	24	25	25	25

Sprinkler performance may vary with field conditions. Stream heights range for 2014 from 6.5 to 9.5 ft (2.0 to 3.0 m) above the nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.5 m).

30 Series

IMPACTS



Senninger's 30 Series impact sprinklers deliver lower flows than the 40 or 50 series models.

FEATURES

- Wide range of nozzle and vane combinations for excellent distribution at all pressures
- Built-in hex wrench for easy in-the-field maintenance
- 23° model available with double nozzle
- Two trajectories available:
12° - ideal for under-tree irrigation
23° - maximum throw on over head systems
- Connection: 3/4" NPT male (female also available)
- Flow rates: 1.84 to 6.42 gpm (418 to 1458 L/hr)
- Operating pressures: 30 to 50 psi (2.07 to 3.45 bar)
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification. Warranted to maintain correct orifice size for five years



View of 3023-2 spreader nozzle



CONVENIENT HAND TIGHT NOZZLES!

No tools required with the easy change/easy clean nozzle and vane combination. Square orifice nozzles also available.

3012-1 SPRINKLER BASE PRESSURE-US	psi					SPRINKLER BASE PRESSURE-METRIC	bar				
	30	35	40	45	50		2.07	2.41	2.76	3.10	3.45
#7 Nozzle - Lime (7/64")						#7 Nozzle - Lime (2.78 mm)					
Flow (gpm)	1.84	1.99	2.12	2.25	2.37	Flow (L/hr)	418	452	482	511	538
Diameter at 1.5 ft ht (ft)	71	74	77	80	82	Diameter at 0.46 m ht (m)	21.7	22.6	23.5	24.4	25.0
#8 Nozzle - Lavender (1/8")						#8 Nozzle - Lavender (3.18 mm)					
Flow (gpm)	2.42	2.62	2.79	2.97	3.12	Flow (L/hr)	550	595	634	675	709
Diameter at 1.5 ft ht (ft)	73	76	79	82	84	Diameter at 0.46 m ht (m)	22.3	23.2	24.1	25.0	25.6
#9 Nozzle - Grey (9/64")						#9 Nozzle - Grey (3.57 mm)					
Flow (gpm)	3.08	3.33	3.56	3.78	3.98	Flow (L/hr)	700	756	809	859	904
Diameter at 1.5 ft ht (ft)	75	78	81	84	86	Diameter at 0.46 m ht (m)	22.9	23.8	24.7	25.6	26.2
#10 Nozzle - Turquoise (5/32")						#10 Nozzle - Turquoise (3.97 mm)					
Flow (gpm)	3.82	4.13	4.41	4.68	4.93	Flow (L/hr)	868	938	1002	1063	1120
Diameter at 1.5 ft ht (ft)	76	79	82	85	87	Diameter at 0.46 m ht (m)	23.2	24.1	25.0	25.9	26.5

Sprinkler performance may vary with actual field conditions. Stream heights range from 2.5 to 4.5 ft (0.8 to 1.4 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

30 Series

IMPACTS

3023-1 SPRINKLER BASE PRESSURE-US	psi					SPRINKLER BASE PRESSURE-METRIC	bar				
	30	35	40	45	50		2.07	2.41	2.76	3.10	3.45
#7 Nozzle - Lime (7/64")						#7 Nozzle - Lime (2.78 mm)					
Flow (gpm)	1.84	1.99	2.12	2.25	2.37	Flow (L/hr)	418	452	482	511	538
Diameter at 1.5 ft ht (ft)	80	82	84	86	87	Diameter at 0.46 m ht (m)	24.4	25.0	25.6	26.2	26.5
Diameter at 6.0 ft ht (ft)	83	84	85	86	88	Diameter at 1.83 m ht (m)	25.3	25.6	25.9	26.2	26.8
#8 Nozzle - Lavender (1/8")						#8 Nozzle - Lavender (3.18 mm)					
Flow (gpm)	2.42	2.62	2.79	2.97	3.12	Flow (L/hr)	550	595	634	675	709
Diameter at 1.5 ft ht (ft)	83	85	86	87	88	Diameter at 0.46 m ht (m)	25.3	25.9	26.2	26.5	26.8
Diameter at 6.0 ft ht (ft)	86	87	88	89	90	Diameter at 1.83 m ht (m)	26.2	26.5	26.8	27.1	27.4
#9 Nozzle - Grey (9/64")						#9 Nozzle - Grey (3.57 mm)					
Flow (gpm)	3.08	3.33	3.56	3.78	3.98	Flow (L/hr)	700	756	809	859	904
Diameter at 1.5 ft ht (ft)	85	87	88	90	91	Diameter at 0.46 m ht (m)	25.9	26.5	26.8	27.4	27.7
Diameter at 6.0 ft ht (ft)	87	89	90	91	92	Diameter at 1.83 m ht (m)	26.5	27.1	27.4	27.7	28.0
#10 Nozzle - Turquoise (5/32")						#10 Nozzle - Turquoise (3.97 mm)					
Flow (gpm)	3.82	4.13	4.41	4.68	4.93	Flow (L/hr)	868	938	1002	1063	1120
Diameter at 1.5 ft ht (ft)	87	89	90	91	92	Diameter at 0.46 m ht (m)	26.5	27.1	27.4	27.7	28.0
Diameter at 6.0 ft ht (ft)	88	90	92	93	94	Diameter at 1.83 m ht (m)	26.8	27.4	28.0	28.3	28.7

3023-2 SPRINKLER BASE PRESSURE-US	psi					SPRINKLER BASE PRESSURE-METRIC	bar				
	30	35	40	45	50		2.07	2.41	2.76	3.10	3.45
7x4 #7 Range Nozzle x #4 Spreader Nozzle						7x4 #7 Range Nozzle x #4 Spreader Nozzle					
Flow (gpm)	3.01	3.25	3.48	3.69	3.89	Flow (L/hr)	684	738	790	838	884
Diameter at 1.5 ft ht (ft)	80	82	84	86	87	Diameter at 0.46 m ht (m)	24.4	25.0	25.6	26.2	26.5
Diameter at 6.0 ft ht (ft)	83	84	85	86	88	Diameter at 1.83 m ht (m)	25.3	25.6	25.9	26.2	26.8
8x5 #8 Range Nozzle x #5 Spreader Nozzle						8x5 #8 Range Nozzle x #5 Spreader Nozzle					
Flow (gpm)	3.58	3.86	4.13	4.38	4.62	Flow (L/hr)	813	877	938	995	1049
Diameter at 1.5 ft ht (ft)	83	85	86	87	88	Diameter at 0.46 m ht (m)	25.3	25.9	26.2	26.5	26.8
Diameter at 6.0 ft ht (ft)	86	87	88	89	90	Diameter at 1.83 m ht (m)	26.2	26.5	26.8	27.1	27.4
8x6 #8 Range Nozzle x #6 Spreader Nozzle						8x6 #8 Range Nozzle x #6 Spreader Nozzle					
Flow (gpm)	3.84	4.14	4.43	4.70	4.95	Flow (L/hr)	872	940	1006	1067	1124
Diameter at 1.5 ft ht (ft)	83	85	86	87	88	Diameter at 0.46 m ht (m)	25.3	25.9	26.2	26.5	26.8
Diameter at 6.0 ft ht (ft)	86	87	88	89	90	Diameter at 1.83 m ht (m)	26.2	26.5	26.8	27.1	27.4
9x5 #9 Range Nozzle x #5 Spreader Nozzle						9x5 #9 Range Nozzle x #5 Spreader Nozzle					
Flow (gpm)	4.16	4.50	4.81	5.10	5.38	Flow (L/hr)	945	1022	1092	1158	1222
Diameter at 1.5 ft ht (ft)	85	87	88	90	91	Diameter at 0.46 m ht (m)	25.9	26.5	26.8	27.4	27.7
Diameter at 6.0 ft ht (ft)	87	89	90	91	92	Diameter at 1.83 m ht (m)	26.5	27.1	27.4	27.7	28.0
9x6 #9 Range Nozzle x #6 Spreader Nozzle						9x6 #9 Range Nozzle x #6 Spreader Nozzle					
Flow (gpm)	4.41	4.77	5.10	5.41	5.70	Flow (L/hr)	1002	1083	1158	1229	1295
Diameter at 1.5 ft ht (ft)	85	87	88	90	91	Diameter at 0.46 m ht (m)	25.9	26.5	26.8	27.4	27.7
Diameter at 6.0 ft ht (ft)	87	89	90	91	92	Diameter at 1.83 m ht (m)	26.5	27.1	27.4	27.7	28.0
10x5 #10 Range Nozzle x #5 Spreader Nozzle						10x5 #10 Range Nozzle x #5 Spreader Nozzle					
Flow (gpm)	4.97	5.37	5.74	6.09	6.42	Flow (L/hr)	1129	1220	1304	1383	1458
Diameter at 1.5 ft ht (ft)	87	89	90	91	92	Diameter at 0.46 m ht (m)	26.5	27.1	27.4	27.7	28.0
Diameter at 6.0 ft ht (ft)	88	90	92	93	94	Diameter at 1.83 m ht (m)	26.8	27.4	28.0	28.3	28.7

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

40 Series

Senninger's 40 Series impact sprinklers deliver mid-range flows in comparison to the 30 and 50 series models.



View of 4023-2 spreader nozzle.

FEATURES

- Wide range of nozzle and vane combinations for excellent distribution at all pressures
- Built-in hex wrench for easy in-the-field maintenance
- 23° model available with double nozzle
- Two trajectories available:
12° - ideal for under-tree irrigation
23° - for maximum throw on overhead systems
- Connection: 3/4" NPT male (female also available)
- Flow rates: 3.82 to 12.6 gpm (868 to 2862 L/hr)
- Operating pressures: 30 to 60 psi (2.07 to 4.14 bar)
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification. Warranted to maintain correct orifice size for five years

CONVENIENT HAND TIGHT NOZZLES!

No tools required with the easy change/easy clean nozzle and vane combination. Square orifice nozzles also available.

4012-1 SPRINKLER BASE PRESSURE-US	psi							SPRINKLER BASE PRESSURE-METRIC	bar						
	30	35	40	45	50	55	60		2.07	2.41	2.76	3.10	3.45	3.79	4.14
#10 Nozzle - Turquoise (5/32")								#10 Nozzle - Turquoise (3.97 mm)							
Flow (gpm)	3.82	4.13	4.41	4.68	4.93	5.17	5.40	Flow (L/hr)	868	938	1002	1063	1120	1174	1226
Diameter at 1.5 ft ht (ft)	73	77	80	83	86	89	91	Diameter at 0.46 m ht (m)	22.3	23.5	24.4	25.3	26.2	27.1	27.7
#11 Nozzle - Yellow (11/64")								#11 Nozzle - Yellow (4.37 mm)							
Flow (gpm)	4.63	5.00	5.34	5.67	5.98	6.27	6.55	Flow (L/hr)	1052	1136	1213	1288	1358	1424	1488
Diameter at 1.5 ft ht (ft)	76	80	83	86	89	92	94	Diameter at 0.46 m ht (m)	23.2	24.4	25.3	26.2	27.1	28.0	28.7
#12 Nozzle - Red (3/16")								#12 Nozzle - Red (4.76 mm)							
Flow (gpm)	5.52	5.97	6.37	6.76	7.13	7.48	7.81	Flow (L/hr)	1254	1356	1447	1535	1619	1699	1774
Diameter at 1.5 ft ht (ft)	78	82	85	88	91	94	96	Diameter at 0.46 m ht (m)	23.8	25.0	25.9	26.8	27.7	28.7	29.3
#13 Nozzle - White (13/64")								#13 Nozzle - White (5.16 mm)							
Flow (gpm)	6.50	7.02	7.49	7.95	8.38	8.80	9.19	Flow (L/hr)	1476	1594	1701	1806	1903	1999	2087
Diameter at 1.5 ft ht (ft)	80	84	87	90	93	96	98	Diameter at 0.46 m ht (m)	24.4	25.6	26.5	27.4	28.3	29.3	29.9
#14 Nozzle - Blue (7/32")								#14 Nozzle - Blue (5.56 mm)							
Flow (gpm)	7.49	8.09	8.63	9.17	9.66	10.1	10.6	Flow (L/hr)	1701	1837	1960	2083	2194	2294	2408
Diameter at 1.5 ft ht (ft)	82	86	89	93	96	99	101	Diameter at 0.46 m ht (m)	25.0	26.2	27.1	28.3	29.3	30.2	30.8

Sprinkler performance may vary with actual field conditions. Stream heights range from 3.5 to 5.0 ft (1.1 to 1.5 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

40 Series

IMPACTS

4023-1 SPRINKLER BASE PRESSURE-US

	psi						
	30	35	40	45	50	55	60
#10 Nozzle - Turquoise (5/32")							
Flow (gpm)	3.82	4.13	4.41	4.68	4.93	5.17	5.40
Diameter at 1.5 ft ht (ft)	86	89	91	93	95	96	97
Diameter at 6.0 ft ht (ft)	92	94	96	97	98	99	100
#11 Nozzle - Yellow (11/64")							
Flow (gpm)	4.63	5.00	5.34	5.67	5.98	6.27	6.55
Diameter at 1.5 ft ht (ft)	89	92	94	96	98	99	100
Diameter at 6.0 ft ht (ft)	94	96	98	100	102	103	104
#12 Nozzle - Red (3/16")							
Flow (gpm)	5.52	5.97	6.37	6.76	7.13	7.48	7.81
Diameter at 1.5 ft ht (ft)	92	95	97	99	101	102	103
Diameter at 6.0 ft ht (ft)	97	99	101	103	105	107	108
#13 Nozzle - White (13/64")							
Flow (gpm)	6.50	7.02	7.49	7.95	8.38	8.80	9.19
Diameter at 1.5 ft ht (ft)	94	97	99	101	103	104	105
Diameter at 6.0 ft ht (ft)	100	103	106	109	112	115	117
#14 Nozzle - Blue (7/32")							
Flow (gpm)	7.49	8.09	8.63	9.17	9.66	10.1	10.6
Diameter at 1.5 ft ht (ft)	96	99	101	103	105	106	107
Diameter at 6.0 ft ht (ft)	102	106	110	114	118	122	125

SPRINKLER BASE PRESSURE-METRIC

	bar						
	2.07	2.41	2.76	3.10	3.45	3.79	4.14
#10 Nozzle - Turquoise (3.97 mm)							
Flow (L/hr)	868	938	1002	1063	1120	1174	1226
Diameter at 0.46 m ht (m)	26.2	27.1	27.7	28.3	29.0	29.3	29.6
Diameter at 1.83 m ht (m)	28.0	28.7	29.3	29.6	29.9	30.2	30.5
#11 Nozzle - Yellow (4.37 mm)							
Flow (L/hr)	1052	1136	1213	1288	1358	1424	1488
Diameter at 0.46 m ht (m)	27.1	28.0	28.7	29.3	29.9	30.2	30.5
Diameter at 1.83 m ht (m)	28.7	29.3	29.9	30.5	31.1	31.4	31.7
#12 Nozzle - Red (4.76 mm)							
Flow (L/hr)	1254	1356	1447	1535	1619	1699	1774
Diameter at 0.46 m ht (m)	28.0	29.0	29.6	30.2	30.8	31.1	31.4
Diameter at 1.83 m ht (m)	29.6	30.2	30.8	31.4	32.0	32.6	32.9
#13 Nozzle - White (5.16 mm)							
Flow (L/hr)	1476	1594	1701	1806	1903	1999	2087
Diameter at 0.46 m ht (m)	28.7	29.6	30.2	30.8	31.4	31.7	32.0
Diameter at 1.83 m ht (m)	30.5	31.4	32.3	33.2	34.1	35.1	35.7
#14 Nozzle - Blue (5.56 mm)							
Flow (L/hr)	1701	1837	1960	2083	2194	2294	2408
Diameter at 0.46 m ht (m)	29.3	30.2	30.8	31.4	32.0	32.3	32.6
Diameter at 1.83 m ht (m)	31.1	32.3	33.5	34.7	36.0	37.2	38.1

4023-2 SPRINKLER BASE PRESSURE-US

	psi						
	30	35	40	45	50	55	60
10x6 #10 Range Nozzle x #6 Spreader Nozzle							
Flow (gpm)	5.25	5.67	6.07	6.43	6.78	7.11	7.43
Diameter at 1.5 ft ht (ft)	86	89	91	93	95	96	97
Diameter at 6.0 ft ht (ft)	92	94	96	97	98	99	100
11x6 #11 Range Nozzle x #6 Spreader Nozzle							
Flow (gpm)	6.10	6.59	7.05	7.47	7.88	8.26	8.63
Diameter at 1.5 ft ht (ft)	89	92	94	96	98	99	100
Diameter at 6.0 ft ht (ft)	94	96	98	100	102	103	104
12x6 #12 Range Nozzle x #6 Spreader Nozzle							
Flow (gpm)	6.89	7.54	8.07	8.55	9.02	9.46	9.88
Diameter at 1.5 ft ht (ft)	92	95	97	99	101	102	103
Diameter at 6.0 ft ht (ft)	97	99	101	103	105	107	108
13x6 #13 Range Nozzle x #6 Spreader Nozzle							
Flow (gpm)	7.93	8.57	9.16	9.72	10.2	10.7	11.2
Diameter at 1.5 ft ht (ft)	94	97	99	101	103	104	105
Diameter at 6.0 ft ht (ft)	100	103	106	109	112	115	117
14x6 #14 Range Nozzle x #6 Spreader Nozzle							
Flow (gpm)	8.90	9.62	10.3	10.9	11.5	12.1	12.6
Diameter at 1.5 ft ht (ft)	96	99	101	103	105	106	107
Diameter at 6.0 ft ht (ft)	102	106	110	114	118	122	125

SPRINKLER BASE PRESSURE-METRIC

	bar						
	2.07	2.41	2.76	3.10	3.45	3.79	4.14
10x6 #10 Range Nozzle x #6 Spreader Nozzle							
Flow (L/hr)	1192	1288	1379	1460	1540	1615	1688
Diameter at 0.46 m ht (m)	26.2	27.1	27.7	28.3	29.0	29.3	29.6
Diameter at 1.83 m ht (m)	28.0	28.7	29.3	29.6	29.9	30.2	30.5
11x6 #11 Range Nozzle x #6 Spreader Nozzle							
Flow (L/hr)	1385	1497	1601	1697	1790	1876	1960
Diameter at 0.46 m ht (m)	27.1	28.0	28.7	29.3	29.9	30.2	30.5
Diameter at 1.83 m ht (m)	28.7	29.3	29.9	30.5	31.1	31.4	31.7
12x6 #12 Range Nozzle x #6 Spreader Nozzle							
Flow (L/hr)	1565	1713	1833	1942	2049	2149	2244
Diameter at 0.46 m ht (m)	28.0	29.0	29.6	30.2	30.8	31.1	31.4
Diameter at 1.83 m ht (m)	29.6	30.2	30.8	31.4	32.0	32.6	32.9
13x6 #13 Range Nozzle x #6 Spreader Nozzle							
Flow (L/hr)	1801	1946	2080	2208	2317	2430	2544
Diameter at 0.46 m ht (m)	28.7	29.6	30.2	30.8	31.4	31.7	32.0
Diameter at 1.83 m ht (m)	30.5	31.4	32.3	33.2	34.1	35.1	35.7
14x6 #14 Range Nozzle x #6 Spreader Nozzle							
Flow (L/hr)	2021	2185	2339	2476	2612	2748	2862
Diameter at 0.46 m ht (m)	29.3	30.2	30.8	31.4	32.0	32.3	32.6
Diameter at 1.83 m ht (m)	31.1	32.3	33.5	34.7	36.0	37.2	38.1

Sprinkler performance may vary with actual field conditions. Stream heights range from 6.5 to 10.0 ft (2.0 to 3.1 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m)

50 Series

Senninger's 50 Series impact sprinklers deliver higher flows than the 30 or 40 series models.



View of 5023-2 spreader nozzle

FEATURES

- Wide range of nozzle and vane combinations for excellent distribution at all pressures
- Built-in hex wrench for easy in-the-field maintenance
- 23° model available with double nozzle
- Two trajectories:
 - 12° - ideal for under-tree irrigation
 - 23° - maximum throw on overhead systems
- Connections: 3/4" NPT male (female also available)
- Flow rates: 6.5 to 20.1 gpm (1476 to 4565 L/hr)
- Operating pressures: 30 to 65 psi (2.07 to 4.48 bar)
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification. Warranted to maintain correct orifice size for five years

CONVENIENT HAND TIGHT NOZZLES!

No tools required with the easy change/easy clean nozzle and vane combination. Square orifice nozzles also available.

5012-1 SPRINKLER BASE PRESSURE-US	psi								SPRINKLER BASE PRESSURE-METRIC	bar							
	30	35	40	45	50	55	60	65		2.07	2.41	2.76	3.10	3.45	3.79	4.14	4.48
#13 Nozzle - White (13/64")									#13 Nozzle - White (5.16 mm)								
Flow (gpm)	6.50	7.02	7.49	7.95	8.36	8.80	9.19	9.55	Flow (L/hr)	1476	1594	1701	1806	1899	1999	2087	2169
Diameter at 1.5 ft ht (ft)	77	83	89	93	97	100	103	105	Diameter at 0.46 m ht (m)	23.5	25.3	27.1	28.3	29.6	30.5	31.4	32.0
#14 Nozzle - Blue (7/32")									#14 Nozzle - Blue (5.56 mm)								
Flow (gpm)	7.49	8.09	8.63	9.17	9.66	10.1	10.6	11.0	Flow (L/hr)	1701	1837	1960	2083	2194	2294	2408	2498
Diameter at 1.5' ht. (ft.)	79	85	91	95	99	102	105	107	Diameter at 0.46 m ht (m)	24.1	25.9	27.7	29.0	30.2	31.1	32.0	32.6
#15 Nozzle - Dark Brown (15/64")									#15 Nozzle - Dark Brown (5.95 mm)								
Flow (gpm)	8.51	9.19	9.81	10.4	11.0	11.5	12.0	12.5	Flow (L/hr)	1933	2087	2228	2362	2498	2612	2725	2839
Diameter at 1.5 ft ht (ft)	81	87	93	97	101	104	107	109	Diameter at 0.46 m ht (m)	24.7	26.5	28.3	29.6	30.8	31.7	32.6	33.2
#16 Nozzle - Orange (1/4")									#16 Nozzle - Orange (6.35 mm)								
Flow (gpm)	9.63	10.4	11.1	11.8	12.4	13.0	13.6	14.2	Flow (L/hr)	2187	2362	2521	2680	2816	2953	3089	3225
Diameter at 1.5 ft ht (ft)	83	89	95	99	103	106	109	111	Diameter at 0.46 m ht (m)	25.3	27.1	29.0	30.2	31.4	32.3	33.2	33.8
#17 Nozzle - Dark Green (17/64")									#17 Nozzle - Dark Green (6.75 mm)								
Flow (gpm)	10.7	11.6	12.3	13.1	13.8	14.5	15.1	15.7	Flow (L/hr)	2430	2635	2794	2975	3134	3293	3430	3566
Diameter at 1.5 ft ht (ft)	85	91	96	100	105	108	111	113	Diameter at 0.46 m ht (m)	25.9	27.7	29.3	30.5	32.0	32.9	33.8	34.4
#18 Nozzle - Purple (9/32")									#18 Nozzle - Purple (7.14 mm)								
Flow (gpm)	11.9	12.9	13.7	14.6	15.4	16.1	16.8	17.5	Flow (L/hr)	2703	2930	3112	3316	3498	3657	3816	3975
Diameter at 1.5 ft ht (ft)	87	92	97	101	107	110	113	114	Diameter at 0.46 m ht (m)	26.5	28.0	29.6	30.8	32.6	33.5	34.4	34.7

Sprinkler performance may vary with actual field conditions. Stream heights range from 3.5 to 6.0 ft (1.1 to 1.8 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

50 Series

IMPACTS

5023-1 SPRINKLER BASE PRESSURE-US	psi								SPRINKLER BASE PRESSURE-METRIC	bar							
	30	35	40	45	50	55	60	65		2.07	2.41	2.76	3.10	3.45	3.79	4.14	4.48
#13 Nozzle - White (13/64")									#13 Nozzle - White (5.16 mm)								
Flow (gpm)	6.50	7.02	7.49	7.95	8.38	8.80	9.19	9.55	Flow (L/hr)	1476	1594	1701	1806	1903	1999	2087	2169
Diameter at 1.5 ft ht (ft)	92	95	98	100	102	103	104	105	Diameter at 0.46 m ht (m)	28.0	29.0	29.9	30.5	31.1	31.4	31.7	32.0
Diameter at 6.0 ft ht (ft)	99	102	104	106	108	110	112	114	Diameter at 1.83 m ht (m)	30.2	31.1	31.7	32.3	32.9	33.5	34.1	34.7
#14 Nozzle - Blue (7/32")									#14 Nozzle - Blue (5.56 mm)								
Flow (gpm)	7.49	8.09	8.63	9.17	9.66	10.1	10.6	11.0	Flow (L/hr)	1701	1837	1960	2083	2194	2294	2408	2498
Diameter at 1.5 ft ht (ft)	94	98	101	103	105	106	107	108	Diameter at 0.46 m ht (m)	28.7	29.9	30.8	31.4	32.0	32.3	32.6	32.9
Diameter at 6.0 ft ht (ft)	101	104	107	110	112	114	116	118	Diameter at 1.83 m ht (m)	30.8	31.7	32.6	33.5	34.1	34.7	35.4	36.0
#15 Nozzle - Dark Brown (15/64")									#15 Nozzle - Dark Brown (5.95 mm)								
Flow (gpm)	8.51	9.19	9.81	10.4	11.0	11.5	12.0	12.5	Flow (L/hr)	1933	2087	2228	2362	2498	2612	2725	2839
Diameter at 1.5 ft ht (ft)	96	100	103	106	107	108	109	110	Diameter at 0.46 m ht (m)	29.3	30.5	31.4	32.3	32.6	32.9	33.2	33.5
Diameter at 6.0 ft ht (ft)	102	106	109	112	114	116	118	120	Diameter at 1.83 m ht (m)	31.1	32.3	33.2	34.1	34.7	35.4	36.0	36.6
#16 Nozzle - Orange (1/4")									#16 Nozzle - Orange (6.35 mm)								
Flow (gpm)	9.63	10.4	11.1	11.8	12.4	13.0	13.6	14.2	Flow (L/hr)	2187	2362	2521	2680	2816	2953	3089	3225
Diameter at 1.5 ft ht (ft)	98	102	105	108	109	110	111	112	Diameter at 0.46 m ht (m)	29.9	31.1	32.0	32.9	33.2	33.5	33.8	34.1
Diameter at 6.0 ft ht (ft)	103	107	111	114	116	118	120	122	Diameter at 1.83 m ht (m)	31.4	32.6	33.8	34.7	35.4	36.0	36.6	37.2
#17 Nozzle - Dark Green (17/64")									#17 Nozzle - Dark Green (6.75 mm)								
Flow (gpm)	10.7	11.6	12.3	13.1	13.8	14.5	15.1	15.7	Flow (L/hr)	2430	2635	2794	2975	3134	3293	3430	3566
Diameter at 1.5 ft ht (ft)	99	104	107	110	111	112	113	114	Diameter at 0.46 m ht (m)	30.2	31.7	32.6	33.5	33.8	34.1	34.4	34.7
Diameter at 6.0 ft ht (ft)	104	108	112	115	118	120	122	124	Diameter at 1.83 m ht (m)	31.7	32.9	34.1	35.1	36.0	36.6	37.2	37.8
#18 Nozzle - Purple (9/32")									#18 Nozzle - Purple (7.14 mm)								
Flow (gpm)	11.9	12.9	13.7	14.6	15.4	16.1	16.8	17.5	Flow (L/hr)	2703	2930	3112	3316	3498	3657	3816	3975
Diameter at 1.5 ft ht (ft)	100	105	109	112	113	114	115	116	Diameter at 0.46 m ht (m)	30.5	32.0	33.2	34.1	34.4	34.7	35.1	35.4
Diameter at 6.0 ft ht (ft)	105	109	113	116	119	122	124	126	Diameter at 1.83 m ht (m)	32.0	33.2	34.4	35.4	36.3	37.2	37.8	38.4

5023-2 SPRINKLER BASE PRESSURE-US	psi								SPRINKLER BASE PRESSURE-METRIC	bar							
	30	35	40	45	50	55	60	65		2.07	2.41	2.76	3.10	3.45	3.79	4.14	4.48
13x8 #13 Range Nozzle x #8 Spreader Nozzle									13x8 #13 Range Nozzle x #8 Spreader Nozzle								
Flow (gpm)	8.23	8.88	9.50	10.1	10.6	11.1	11.6	12.1	Flow (L/hr)	1869	2017	2158	2294	2408	2521	2635	2748
Diameter at 1.5 ft ht (ft)	92	95	98	100	102	103	104	105	Diameter at 0.46 m ht (m)	28.0	29.0	29.9	30.5	31.1	31.4	31.7	32.0
Diameter at 6.0 ft ht (ft)	99	102	104	106	108	110	112	114	Diameter at 1.83 m ht (m)	30.2	31.1	31.7	32.3	32.9	33.5	34.1	34.7
14x8 #14 Range Nozzle x #8 Spreader Nozzle									14x8 #14 Range Nozzle x #8 Spreader Nozzle								
Flow (gpm)	9.35	10.1	10.8	11.5	12.1	12.7	13.2	13.8	Flow (L/hr)	2124	2294	2453	2612	2748	2884	2998	3134
Diameter at 1.5 ft ht (ft)	94	98	101	103	105	106	107	108	Diameter at 0.46 m ht (m)	28.7	29.9	30.8	31.4	32.0	32.3	32.6	32.9
Diameter at 6.0 ft ht (ft)	101	104	107	110	112	114	116	118	Diameter at 1.83 m ht (m)	30.8	31.7	32.6	33.5	34.1	34.7	35.4	36.0
15x8 #15 Range Nozzle x #8 Spreader Nozzle									15x8 #15 Range Nozzle x #8 Spreader Nozzle								
Flow (gpm)	10.3	11.2	11.9	12.7	13.4	14.0	14.6	15.2	Flow (L/hr)	2339	2544	2703	2884	3043	3180	3316	3452
Diameter at 1.5 ft ht (ft)	96	100	103	106	107	108	109	110	Diameter at 0.46 m ht (m)	29.3	30.5	31.4	32.3	32.6	32.9	33.2	33.5
Diameter at 6.0 ft ht (ft)	102	106	109	112	114	116	118	120	Diameter at 1.83 m ht (m)	31.1	32.3	33.2	34.1	34.7	35.4	36.0	36.6
16x8 #16 Range Nozzle x #8 Spreader Nozzle									16x8 #16 Range Nozzle x #8 Spreader Nozzle								
Flow (gpm)	11.5	12.4	13.3	14.1	14.8	15.5	16.2	16.9	Flow (L/hr)	2612	2816	3021	3202	3361	3520	3679	3838
Diameter at 1.5 ft ht (ft)	98	102	105	108	109	110	111	112	Diameter at 0.46 m ht (m)	29.9	31.1	32.0	32.9	33.2	33.5	33.8	34.1
Diameter at 6.0 ft ht (ft)	103	107	111	114	116	118	120	122	Diameter at 1.83 m ht (m)	31.4	32.6	33.8	34.7	35.4	36.0	36.6	37.2
17x8 #17 Range Nozzle x #8 Spreader Nozzle									17x8 #17 Range Nozzle x #8 Spreader Nozzle								
Flow (gpm)	12.5	13.5	14.4	15.3	16.1	16.9	17.7	18.4	Flow (L/hr)	2839	3066	3271	3475	3657	3838	4020	4179
Diameter at 1.5 ft ht (ft)	99	104	107	110	111	112	113	114	Diameter at 0.46 m ht (m)	30.2	31.7	32.6	33.5	33.8	34.1	34.4	34.7
Diameter at 6.0 ft ht (ft)	104	108	112	115	118	120	122	124	Diameter at 1.83 m ht (m)	31.7	32.9	34.1	35.1	36.0	36.6	37.2	37.8
18x8 #18 Range Nozzle x #8 Spreader Nozzle									18x8 #13 Range Nozzle x #8 Spreader Nozzle								
Flow (gpm)	13.7	14.8	15.8	16.7	17.6	18.5	19.3	20.1	Flow (L/hr)	3112	3361	3589	3793	3997	4202	4384	4565
Diameter at 1.5 ft ht (ft)	100	105	109	112	113	114	115	116	Diameter at 0.46 m ht (m)	30.5	32.0	33.2	34.1	34.4	34.7	35.1	35.4
Diameter at 6.0 ft ht (ft)	105	109	113	116	119	122	124	126	Diameter at 1.83 m ht (m)	32.0	33.2	34.4	35.4	36.3	37.2	37.8	38.4

Sprinkler performance may vary with actual field conditions. Stream heights range from 7.0-11.5 ft (2.1-3.5 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

Part-Circle

Senninger's Part-Circle impact sprinklers allow adjustments to match the desired area of coverage. They are used in agriculture, nurseries, effluent solution disposal, dust suppression and industrial applications.



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



CONVENIENT HAND TIGHT NOZZLES!

No tools required with the easy change/easy clean nozzle and vane combination. Square orifice nozzles also available.

FEATURES

- Distributes water in a 60° to 360° adjustable pattern in 5° increments, no tools needed
- Easily convertible to full-circle operation
- Covered reversing mechanism
- 23° nozzle trajectory for maximum radius of throw
- Wide range of nozzle and vane combinations for excellent distribution at all pressures
- Connection: 3/4" NPT male
- Flow range: 2.42 to 16.1 gpm (550 to 3657 L/hr)
- Operating pressures: 30 to 55 psi (2.07 to 3.79 bar)
- Two-year warranty on materials and workmanship
- Color-coded nozzles for easy size identification are warranted to maintain correct orifice size for five years

3123PC SPRINKLER BASE PRESSURE-US	psi						SPRINKLER BASE PRESSURE-METRIC	bar					
	30	35	40	45	50	55		2.07	2.41	2.76	3.10	3.45	3.79
#8 Nozzle - Lavender (1/8")							#8 Nozzle - Lavender (3.18 mm)						
Flow (gpm)	2.42	2.62	2.79	2.97	3.12	3.28	Flow (L/hr)	550	595	634	675	709	745
Radius at 1.5 ft ht (ft)	38	39	40	41	42	42	Radius at 0.46 m ht (m)	12	12	12	12	13	13
Radius at 3.0 ft ht (ft)	40	41	42	42	43	43	Radius at 0.91 m ht (m)	12	12	13	13	13	13
#9 Nozzle - Grey (9/64")							#9 Nozzle - Grey (3.57 mm)						
Flow (gpm)	3.08	3.33	3.56	3.78	3.98	4.18	Flow (L/hr)	700	756	809	859	904	949
Radius at 1.5 ft ht (ft)	40	41	42	43	43	44	Radius at 0.46 m ht (m)	12	12	13	13	13	13
Radius at 3.0 ft ht (ft)	41	43	44	44	45	45	Radius at 0.91 m ht (m)	12	13	13	13	14	14
#10 Nozzle - Turquoise (5/32")							#10 Nozzle - Turquoise (3.97 mm)						
Flow (gpm)	3.82	4.13	4.41	4.68	4.93	5.17	Flow (L/hr)	868	938	1002	1063	1120	1174
Radius at 1.5 ft ht (ft)	41	43	44	45	45	46	Radius at 0.46 m ht (m)	12	13	13	14	14	14
Radius at 3.0 ft ht (ft)	41	44	45	46	46	47	Radius at 0.91 m ht (m)	12	13	14	14	14	14

Sprinkler performance may vary with actual field conditions. Stream heights range from 6.0 to 10.0 ft (1.8 to 3.1 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

4123PC SPRINKLER BASE PRESSURE-US	psi						SPRINKLER BASE PRESSURE-METRIC	bar					
	30	35	40	45	50	55		2.07	2.41	2.76	3.10	3.45	3.79
#10 Nozzle - Turquoise (5/32")							#10 Nozzle - Turquoise (3.97 mm)						
Flow (gpm)	3.82	4.13	4.41	4.68	4.93	5.17	Flow (L/hr)	868	938	1002	1063	1120	1174
Radius at 1.5 ft ht (ft)	41	43	44	45	45	46	Radius at 0.46 m ht (m)	12	13	13	14	14	14
Radius at 3.0 ft ht (ft)	41	44	45	46	46	47	Radius at 0.91 m ht (m)	12	13	14	14	14	14
#11 Nozzle - Yellow (11/64")							#11 Nozzle - Yellow (4.37 mm)						
Flow (gpm)	4.63	5.00	5.34	5.67	5.98	6.27	Flow (L/hr)	1052	1136	1213	1288	1358	1424
Radius at 1.5 ft ht (ft)	44	45	46	47	48	48	Radius at 0.46 m ht (m)	13	14	14	14	14	15
Radius at 3.0 ft ht (ft)	45	45	47	48	49	49	Radius at 0.91 m ht (m)	14	14	14	15	15	15
#12 Nozzle - Red (3/16")							#12 Nozzle - Red (4.76 mm)						
Flow (gpm)	5.52	5.97	6.37	6.76	7.13	7.48	Flow (L/hr)	1254	1356	1447	1535	1619	1699
Radius at 1.5 ft ht (ft)	45	46	48	49	50	51	Radius at 0.46 m ht (m)	14	14	14	15	15	15
Radius at 3.0 ft ht (ft)	46	47	49	50	51	51	Radius at 0.91 m ht (m)	14	14	15	15	15	16
#13 Nozzle - White (13/64")							#13 Nozzle - White (5.16 mm)						
Flow (gpm)	6.50	7.02	7.49	7.95	8.38	8.80	Flow (L/hr)	1476	1594	1701	1806	1903	1999
Radius at 1.5 ft ht (ft)	45	47	48	50	51	51	Radius at 0.46 m ht (m)	14	14	15	15	15	16
Radius at 3.0 ft ht (ft)	46	48	49	50	51	52	Radius at 0.91 m ht (m)	14	14	15	15	16	16

5123PC SPRINKLER BASE PRESSURE-US	psi						SPRINKLER BASE PRESSURE-METRIC	bar					
	30	35	40	45	50	55		2.07	2.41	2.76	3.10	3.45	3.79
#13 Nozzle - White (13/64")							#13 Nozzle - White (5.16 mm)						
Flow (gpm)	6.50	7.02	7.49	7.95	8.38	8.80	Flow (L/hr)	1476	1594	1701	1806	1903	1999
Radius at 1.5 ft ht (ft)	45	47	48	50	51	51	Radius at 0.46 m ht (m)	14	14	15	15	15	16
Radius at 3.0 ft ht (ft)	46	48	49	50	51	52	Radius at 0.91 m ht (m)	14	14	15	15	16	16
#14 Nozzle - Blue (7/32")							#14 Nozzle - Blue (5.56 mm)						
Flow (gpm)	7.49	8.09	8.63	9.17	9.66	10.10	Flow (L/hr)	1701	1837	1960	2083	2194	2294
Radius at 1.5 ft ht (ft)	46	47	49	50	51	52	Radius at 0.46 m ht (m)	14	14	15	15	16	16
Radius at 3.0 ft ht (ft)	47	49	51	52	53	54	Radius at 0.91 m ht (m)	14	15	16	16	16	16
#15 Nozzle - Dark Brown (15/64")							#15 Nozzle - Dark Brown (5.95 mm)						
Flow (gpm)	8.51	9.19	9.81	10.4	11.0	11.5	Flow (L/hr)	1933	2087	2228	2362	2498	2612
Radius at 1.5 ft ht (ft)	46	48	50	51	52	53	Radius at 0.46 m ht (m)	14	15	15	16	16	16
Radius at 3.0 ft ht (ft)	48	50	52	53	54	56	Radius at 0.91 m ht (m)	15	15	16	16	16	17
#16 Nozzle - Orange (1/4")							#16 Nozzle - Orange (6.35 mm)						
Flow (gpm)	9.63	10.4	11.1	11.8	12.4	13.0	Flow (L/hr)	2187	2362	2521	2680	2816	2953
Radius at 1.5 ft ht (ft)	47	50	51	53	54	55	Radius at 0.46 m ht (m)	14	15	16	16	16	17
Radius at 3.0 ft ht (ft)	48	51	53	55	56	57	Radius at 0.91 m ht (m)	15	16	16	17	17	17
#17 Nozzle - Dark Green (17/64")							#17 Nozzle - Dark Green (6.75 mm)						
Flow (gpm)	10.7	11.6	12.3	13.1	13.8	14.5	Flow (L/hr)	2430	2635	2794	2975	3134	3293
Radius at 1.5 ft ht (ft)	47	50	52	54	55	56	Radius at 0.46 m ht (m)	14	15	16	16	17	17
Radius at 3.0 ft ht (ft)	49	51	54	56	57	58	Radius at 0.91 m ht (m)	15	16	16	17	17	18
#18 Nozzle - Purple (9/32")							#18 Nozzle - Purple (7.14 mm)						
Flow (gpm)	11.9	12.9	13.7	14.6	15.4	16.1	Flow (L/hr)	2703	2930	3112	3316	3498	3657
Radius at 1.5 ft ht (ft)	47	50	53	55	56	57	Radius at 0.46 m ht (m)	14	15	16	17	17	17
Radius at 3.0 ft ht (ft)	49	52	54	56	58	59	Radius at 0.91 m ht (m)	15	16	16	17	18	18

Sprinkler performance may vary with actual field conditions. Stream heights range from 6.0 to 10.0 ft (1.8 to 3.1 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

70 Series



The 70 Series full-circle impacts distribute water at higher flows over a large diameter.

FEATURES

- Double nozzle and spread drive models available
- Outlasts and costs less than brass sprinklers
- Built-in hex wrench for easy in-the-field maintenance
- Connections: 1" NPT male, 1" BSPT male also available
- Flow rates: 8.66 to 39.1 gpm (1967 to 8881 L/hr)
- Operating pressures: 40 to 70 psi (2.76 to 4.83 bar)
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification. Warranted to maintain correct orifice size for five years



BSPT CONNECTION ALSO AVAILABLE

IMPACTS

7025RD-1 SPRINKLER BASE PRESSURE-US	psi				SPRINKLER BASE PRESSURE-METRIC	bar			
	40	50	60	70		2.76	3.45	4.14	4.83
#14 Nozzle (7/32")					#14 Nozzle (5.56 mm)				
Flow (gpm)	8.66	9.69	10.6	11.5	Flow (L/hr)	1967	2201	2408	2612
Diameter at 1.5 ft ht (ft)	111	115	119	123	Diameter at 0.46 m ht (m)	33.8	35.1	36.3	37.5
Diameter at 6.0 ft ht (ft)	118	124	128	130	Diameter at 1.83 m ht (m)	36.0	37.8	39.0	39.6
#16 Nozzle (1/4")					#16 Nozzle (6.35 mm)				
Flow (gpm)	11.4	12.8	14.0	15.1	Flow (L/hr)	2589	2907	3180	3430
Diameter at 1.5 ft ht (ft)	117	123	129	133	Diameter at 0.46 m ht (m)	35.7	37.5	39.3	40.5
Diameter at 6.0 ft ht (ft)	126	131	136	138	Diameter at 1.83 m ht (m)	38.4	39.9	41.5	42.1
#18 Nozzle (9/32")					#18 Nozzle (7.14 mm)				
Flow (gpm)	14.2	15.9	17.4	18.8	Flow (L/hr)	3225	3611	3952	4270
Diameter at 1.5 ft ht (ft)	124	129	139	144	Diameter at 0.46 m ht (m)	37.8	39.3	42.4	43.9
Diameter at 6.0 ft ht (ft)	132	137	144	147	Diameter at 1.83 m ht (m)	40.2	41.8	43.9	44.8
#20 Nozzle (5/16")					#20 Nozzle (7.94 mm)				
Flow (gpm)	17.1	19.2	21.0	22.7	Flow (L/hr)	3884	4361	4770	5156
Diameter at 1.5 ft ht (ft)	130	137	146	153	Diameter at 0.46 m ht (m)	39.6	41.8	44.5	46.6
Diameter at 6.0 ft ht (ft)	137	143	151	155	Diameter at 1.83 m ht (m)	41.8	43.6	46.0	47.2
#22 Nozzle (11/32")					#22 Nozzle (8.73 mm)				
Flow (gpm)	20.5	22.9	25.1	27.1	Flow (L/hr)	4656	5201	5701	6155
Diameter at 1.5 ft ht (ft)	133	148	157	162	Diameter at 0.46 m ht (m)	40.5	45.1	47.9	49.4
Diameter at 6.0 ft ht (ft)	141	150	159	164	Diameter at 1.83 m ht (m)	43.0	45.7	48.5	50.0
#24 Nozzle (3/8")					#24 Nozzle (9.53 mm)				
Flow (gpm)	23.9	26.7	29.3	31.6	Flow (L/hr)	5428	6064	6655	7177
Diameter at 1.5 ft ht (ft)	138	151	160	169	Diameter at 0.46 m ht (m)	42.1	46.0	48.8	51.5
Diameter at 6.0 ft ht (ft)	145	155	164	170	Diameter at 1.83 m ht (m)	44.2	47.2	50.0	51.8

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 to 15.5 ft (2.6 to 4.7 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

7025RD-2 SPRINKLER BASE PRESSURE-US	psi				SPRINKLER BASE PRESSURE-METRIC	bar			
	40	50	60	70		2.76	3.45	4.14	4.83
14x8 #14 Range Nozzle x #8 Spreader Nozzle					14x8 #14 Range Nozzle x #8 Spreader Nozzle				
Flow (gpm)	11.4	12.7	13.9	15.1	Flow (L/hr)	2589	2884	3157	3430
Diameter at 1.5 ft ht (ft)	111	115	119	123	Diameter at 0.46 m ht (m)	33.8	35.1	36.3	37.5
Diameter at 6.0 ft ht (ft)	118	124	128	130	Diameter at 1.83 m ht (m)	36.0	37.8	39.0	39.6
16x8 #16 Range Nozzle x #8 Spreader Nozzle					16x8 #16 Range Nozzle x #8 Spreader Nozzle				
Flow (gpm)	14.3	16.0	17.5	18.9	Flow (L/hr)	3248	3634	3975	4293
Diameter at 1.5 ft ht (ft)	117	123	129	133	Diameter at 0.46 m ht (m)	35.7	37.5	39.3	40.5
Diameter at 6.0 ft ht (ft)	126	131	136	138	Diameter at 1.83 m ht (m)	38.4	39.9	41.5	42.1
18x8 #18 Range Nozzle x #8 Spreader Nozzle					18x8 #18 Range Nozzle x #8 Spreader Nozzle				
Flow (gpm)	17.0	19.0	20.8	22.5	Flow (L/hr)	3861	4315	4724	5110
Diameter at 1.5 ft ht (ft)	124	129	139	144	Diameter at 0.46 m ht (m)	37.8	39.3	42.4	43.9
Diameter at 6.0 ft ht (ft)	132	137	144	147	Diameter at 1.83 m ht (m)	40.2	41.8	43.9	44.8
18x10 #18 Range Nozzle x #10 Spreader Nozzle					18x10 #18 Range Nozzle x #10 Spreader Nozzle				
Flow (gpm)	18.2	20.3	22.3	24.0	Flow (L/hr)	4134	4611	5065	5451
Diameter at 1.5 ft ht (ft)	124	129	139	144	Diameter at 0.46 m ht (m)	37.8	39.3	42.4	43.9
Diameter at 6.0 ft ht (ft)	132	137	144	147	Diameter at 1.83 m ht (m)	40.2	41.8	43.9	44.8
20x10 #20 Range Nozzle x #10 Spreader Nozzle					20x10 #20 Range Nozzle x #10 Spreader Nozzle				
Flow (gpm)	20.9	23.4	25.7	27.7	Flow (L/hr)	4747	5315	5837	6291
Diameter at 1.5 ft ht (ft)	130	137	146	153	Diameter at 0.46 m ht (m)	39.6	41.8	44.5	46.6
Diameter at 6.0 ft ht (ft)	137	143	151	155	Diameter at 1.83 m ht (m)	41.8	43.6	46.0	47.2
20x12 #20 Range Nozzle x #12 Spreader Nozzle					20x12 #20 Range Nozzle x #12 Spreader Nozzle				
Flow (gpm)	22.8	25.5	27.9	30.2	Flow (L/hr)	5178	5792	6337	6859
Diameter at 1.5 ft ht (ft)	130	137	146	153	Diameter at 0.46 m ht (m)	39.6	41.8	44.5	46.6
Diameter at 6.0 ft ht (ft)	137	143	151	155	Diameter at 1.83 m ht (m)	41.8	43.6	46.0	47.2
22x10 #22 Range Nozzle x #10 Spreader Nozzle					22x10 #22 Range Nozzle x #10 Spreader-Nozzle				
Flow (gpm)	24.5	27.4	30.0	32.4	Flow (L/hr)	5565	6223	6814	7359
Diameter at 1.5 ft ht (ft)	133	148	157	162	Diameter at 0.46 m ht (m)	40.5	45.1	47.9	49.4
Diameter at 6.0 ft ht (ft)	141	150	159	164	Diameter at 1.83 m ht (m)	43.0	45.7	48.5	50.0
22x12 #22 Range Nozzle x #12 Spreader Nozzle					22x12 #22 Range Nozzle x #12 Spreader Nozzle				
Flow (gpm)	26.3	29.4	33.6	34.8	Flow (L/hr)	5973	6677	7631	7904
Diameter at 1.5 ft ht (ft)	133	148	157	162	Diameter at 0.46 m ht (m)	40.5	45.1	47.9	49.4
Diameter at 6.0 ft ht (ft)	141	150	159	164	Diameter at 1.83 m ht (m)	43.0	45.7	48.5	50.0
24x12 #24 Range Nozzle x #12 Spreader Nozzle					24x12 #24 Range Nozzle x #12 Spreader Nozzle				
Flow (gpm)	29.5	33.0	36.2	39.1	Flow (L/hr)	6700	7495	8222	8881
Diameter at 1.5 ft ht (ft)	138	151	160	169	Diameter at 0.46 m ht (m)	42.1	46.0	48.8	51.5
Diameter at 6.0 ft ht (ft)	145	155	164	170	Diameter at 1.83 m ht (m)	44.2	47.2	50.0	51.8

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 to 15.5 ft. (2.6 to 4.7 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft. (0.46 m).

80 Series



**BSPT CONNECTION
ALSO AVAILABLE**

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

IMPACTS

8025HR-1 SPRINKLER BASE PRESSURE-US	psi				SPRINKLER BASE PRESSURE-METRIC	bar			
	40	50	60	70		2.76	3.45	4.14	4.83
#24 Nozzle (3/8")					#24 Nozzle (9.53 mm)				
Flow (gpm)	25.2	28.2	30.9	34.5	Flow (L/hr)	5724	6405	7018	7563
Diameter at 1.5 ft ht (ft)	134	144	154	160	Diameter at 0.46 m ht (m)	40.8	43.9	46.9	48.5
Diameter at 6.0 ft ht (ft)	152	159	164	170	Diameter at 1.83 m ht (m)	46.3	48.5	50.0	51.2
#26 Nozzle (13/32")					#26 Nozzle (10.32 mm)				
Flow (gpm)	29.3	32.7	35.9	38.7	Flow (L/hr)	6655	7427	8154	8790
Diameter at 1.5 ft ht (ft)	142	152	161	166	Diameter at 0.46 m ht (m)	43.3	46.3	49.1	50.6
Diameter at 6.0 ft ht (ft)	157	164	169	173	Diameter at 1.83 m ht (m)	47.9	50.0	51.5	52.7
#28 Nozzle (7/16")					#28 Nozzle (11.11 mm)				
Flow (gpm)	33.9	38.0	41.6	44.9	Flow (L/hr)	7700	8631	9448	10198
Diameter at 1.5 ft ht (ft)	148	157	166	171	Diameter at 0.46 m ht (m)	45.1	47.9	50.6	52.1
Diameter at 6.0 ft ht (ft)	161	168	173	177	Diameter at 1.83 m ht (m)	49.1	51.2	52.7	53.9
#30 Nozzle (15/32")					#30 Nozzle (11.91 mm)				
Flow (gpm)	38.6	43.1	47.2	51.0	Flow (L/hr)	8767	9789	10720	11583
Diameter at 1.5 ft ht (ft)	153	162	170	175	Diameter at 0.46 m ht (m)	46.6	49.4	51.8	53.3
Diameter at 6.0 ft ht (ft)	165	172	177	181	Diameter at 1.83 m ht (m)	50.3	52.4	53.9	55.2
#32 Nozzle (1/2")					#32 Nozzle (12.7 mm)				
Flow (gpm)	43.9	49.0	53.7	58.0	Flow (L/hr)	9971	11129	12197	13173
Diameter at 1.5 ft ht (ft)	156	165	173	179	Diameter at 0.46 m ht (m)	47.5	50.3	52.7	54.6
Diameter at 6.0 ft ht (ft)	169	176	181	185	Diameter at 1.83 m ht (m)	51.5	53.6	55.2	56.4
#34 Nozzle (17/32")					#34 Nozzle (13.49 mm)				
Flow (gpm)	49.5	55.4	60.7	65.5	Flow (L/hr)	11243	12583	13786	14877
Diameter at 1.5 ft ht (ft)	159	168	176	183	Diameter at 0.46 m ht (m)	48.5	51.2	53.6	55.8
Diameter at 6.0 ft ht (ft)	172	179	184	188	Diameter at 1.83 m ht (m)	52.4	54.6	56.1	57.3
#36 Nozzle (9/16")					#36 Nozzle (14.29 mm)				
Flow (gpm)	55.5	62.1	68.0	73.5	Flow (L/hr)	12605	14104	15444	16694
Diameter at 1.5 ft ht (ft)	161	170	178	187	Diameter at 0.46 m ht (m)	49.1	51.8	54.3	57.0
Diameter at 6.0 ft ht (ft)	175	182	187	191	Diameter at 1.83 m ht (m)	53.3	55.5	57.0	58.2
#38 Nozzle (19/32")					#38 Nozzle (15.08 mm)				
Flow (gpm)	59.9	66.9	73.3	79.2	Flow (L/hr)	13605	15195	16648	17988
Diameter at 1.5 ft ht (ft)	163	172	180	190	Diameter at 0.46 m ht (m)	49.7	52.4	54.9	57.9
Diameter at 6.0 ft ht (ft)	178	185	190	194	Diameter at 1.83 m ht (m)	54.3	56.4	57.9	59.1
#40 Nozzle (5/8")					#40 Nozzle (15.88 mm)				
Flow (gpm)	67.1	75.0	82.1	88.7	Flow (L/hr)	15240	17034	18647	20146
Diameter at 1.5 ft ht (ft)	165	174	182	192	Diameter at 0.46 m ht (m)	50.3	53.0	55.5	58.5
Diameter at 6.0 ft ht (ft)	180	187	192	196	Diameter at 1.83 m ht (m)	54.9	57.0	58.5	59.7

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 12.5 to 28.0 ft (3.8 to 8.5 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

80 Series

FEATURES

- Single and double nozzle designs available
- Double nozzle available in range or spreader drive
- Outlasts and costs less than brass sprinklers
- Connections: 1 ¼" NPT male, 1 ½" NPT male, 1 ¼" BSPT male also available
- Flow rates: 25.2 to 103.2 gpm (5724 to 23439 L/hr)
- Operating pressures: 40 to 70 psi (2.76 to 4.83 bar)
- Built-in hex wrench for easy in-the-field maintenance
- Two-year warranty on materials, workmanship and performance
- Nozzles warranted to maintain correct orifice size for five years



8025-SD: The Booster Tube provides a 5 to 10% increased radius of throw over range nozzle performance. Consult factory for specific performance data. Available only on 8025 Spreader Drive double nozzle models.

IMPACTS

8025HR-2 SPRINKLER BASE PRESSURE-US	psi				SPRINKLER BASE PRESSURE-METRIC	bar			
	40	50	60	70		2.76	3.45	4.14	4.83
26X14 #26 Range Nozzle x #14 Spreader Nozzle					26x14 #26 Range Nozzle x #14 Spreader Nozzle				
Flow (gpm)	39.4	44.0	48.2	52.1	Flow (L/hr)	8949	9993	10947	11833
Diameter at 1.5 ft ht (ft)	142	152	161	166	Diameter at 0.46 m ht (m)	43.3	46.3	49.1	50.6
Diameter at 6.0 ft ht (ft)	157	164	169	173	Diameter at 1.83 m ht (m)	47.9	50.0	51.5	52.7
28X14 #28 Range Nozzle x #14 Spreader Nozzle					28x14 #128 Range Nozzle x #14 Spreader Nozzle				
Flow (gpm)	42.0	46.9	51.4	55.6	Flow (L/hr)	9539	10652	11674	12628
Diameter at 1.5 ft ht (ft)	148	157	166	171	Diameter at 0.46 m ht (m)	45.1	47.9	50.6	52.1
Diameter at 6.0 ft ht (ft)	161	168	173	177	Diameter at 1.83 m ht (m)	49.1	51.2	52.7	53.9
30X14 #30 Range Nozzle x #14 Spreader Nozzle					30x14 #30 Range Nozzle x #14 Spreader Nozzle				
Flow (gpm)	45.9	51.4	56.3	60.8	Flow (L/hr)	10425	11674	12787	13809
Diameter at 1.5 ft ht (ft)	153	162	170	175	Diameter at 0.46 m ht (m)	46.6	49.4	51.8	53.3
Diameter at 6.0 ft ht (ft)	165	172	177	181	Diameter at 1.83 m ht (m)	50.3	52.4	53.9	55.2
32X16 #32 Range Nozzle x #16 Spreader Nozzle					32x16 #32 Range Nozzle x #16 Spreader Nozzle				
Flow (gpm)	53.7	60.0	65.8	71.0	Flow (L/hr)	12197	13627	14945	16126
Diameter at 1.5 ft ht (ft)	156	165	173	179	Diameter at 0.46 m ht (m)	47.5	50.3	52.7	54.6
Diameter at 6.0 ft ht (ft)	169	176	181	185	Diameter at 1.83 m ht (m)	51.5	53.6	55.2	56.4
34X16 #34 Range Nozzle x #16 Spreader Nozzle					34x16 #34 Range Nozzle x #16 Spreader Nozzle				
Flow (gpm)	59.2	66.2	72.5	78.3	Flow (L/hr)	13446	15036	16467	17784
Diameter at 1.5 ft ht (ft)	159	168	176	183	Diameter at 0.46 m ht (m)	48.5	51.2	53.6	55.8
Diameter at 6.0 ft ht (ft)	172	179	184	188	Diameter at 1.83 m ht (m)	52.4	54.6	56.1	57.3
36X16 #36 Range Nozzle x #16 Spreader Nozzle					36x16 #36 Range Nozzle x #16 Spreader Nozzle				
Flow (gpm)	65.1	72.7	79.7	86.1	Flow (L/hr)	14786	16512	18102	19555
Diameter at 1.5 ft ht (ft)	161	170	178	187	Diameter at 0.46 m ht (m)	49.1	51.8	54.3	57.0
Diameter at 6.0 ft ht (ft)	175	182	187	191	Diameter at 1.83 m ht (m)	53.3	55.5	57.0	58.2
38X18 #38 Range Nozzle x #18 Spreader Nozzle					38x18 #38 Range Nozzle x #18 Spreader Nozzle				
Flow (gpm)	71.7	80.1	87.8	94.9	Flow (L/hr)	16285	18193	19942	21554
Diameter at 1.5 ft ht (ft)	163	172	180	190	Diameter at 0.46 m ht (m)	49.7	52.4	54.9	57.9
Diameter at 6.0 ft ht (ft)	178	185	190	194	Diameter at 1.83 m ht (m)	54.3	56.4	57.9	59.1
40X18 #40 Range Nozzle #18 Spreader Nozzle					40x18 #40 Range Nozzle x #18 Spreader Nozzle				
Flow (gpm)	78.0	87.2	95.6	103.2	Flow (L/hr)	17716	19805	21713	23439
Diameter at 1.5 ft ht (ft)	165	174	182	192	Diameter at 0.46 m ht (m)	50.3	53.0	55.5	58.5
Diameter at 6.0 ft ht (ft)	180	187	192	196	Diameter at 1.83 m ht (m)	54.9	57.0	58.5	59.7

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 12.5 to 28.0 ft (3.8 to 8.5 m) above nozzle based on pressure and nozzle size. Minimum recommended riser height is 1.5 ft (0.46 m).

Comparisons

Uncontrolled pressure fluctuations in irrigation systems result in unwanted flow deviations and over- and under-watering. These fluctuations occur with activation of different zones, variations in field elevation, or changes in water supply. Proper use of pressure regulators helps maintain the overall efficiency of an irrigation system. Pressure regulators are available in a variety of models to match specific flow and pressure needs.

PRESSURE REGULATORS



	PRLG	PRL	PSR & PSR-2	PMR-MF
Flow Range	0.5 – 7 gpm (114 – 1590 L/hr)	0.5 – 8 gpm (114 – 1817 L/hr)	0.5 – 15 gpm (114 – 3407 L/hr)	2 – 20 gpm (454 – 4543 L/hr)
Preset Operating Pressure	10 – 40 psi (0.69 – 2.76 bar)	6 – 40 psi (0.41 – 2.76 bar)	6 – 50 psi (0.41 – 3.45 bar)	6 – 60 psi (0.41 – 4.14 bar)
Maximum Inlet Pressure	120 psi (8.27 bar)	120 psi (8.27 bar)	130 psi (8.96 bar)	140 psi (9.65 bar)
Inlet Sizes	3/4" F hose, 3/4" F NPT	3/4" F NPT, 3/4" F hose	3/4" F NPT	3/4" F NPT, 1" F NPT, 1" F BSPT
Outlet Sizes	3/4" M hose, 3/4" M NPT	3/4" F NPT	3/4" F NPT	3/4" F NPT, 1" F NPT, 1" F BSPT



	PR-HF	PRXF	PRLV	PRXF-LV
Flow Range	10 – 32 gpm (2271 – 7268 L/hr)	20 – 100 gpm (4543 – 22713 L/hr)	0.5 – 18 gpm (114 – 4088 L/hr)	15 – 75 gpm (3407 – 17034 L/hr)
Preset Operating Pressure	10 – 50 psi (0.69 – 3.45 bar)	10 – 60 psi (0.69 – 4.14 bar)	30 – 60 psi (2.07 – 4.14 bar)	30 – 60 psi (2.07 – 4.14 bar)
Maximum Inlet Pressure	130 psi (8.96 bar)	140 psi (9.65 bar)	125 psi (8.62 bar)	125 psi (8.62 bar)
Inlet Sizes	1 1/4" F NPT, 1 1/4" F BSPT	3" F slip	3/4" F NPT, 1" F NPT	3" F slip
Outlet Sizes	1" F NPT, 1 1/4" F NPT, 1" F BSPT, 1 1/4" F BSPT	3" F slip	3/4" F NPT, 1" F NPT	3" F slip

FEATURES

- Senninger regulators maintain a constant preset outlet pressure with varying inlet pressures, which alleviates pressure differences that can cause an applicator’s area of coverage to change.
- 100% water tested for accuracy at Senninger’s facilities
- Very low hysteresis and friction losses
- Can be installed above or below ground
- Patented tamper-proof design
- No external metal parts for excellent corrosion resistance
- Two-year warranty on materials, workmanship and performance

PRLG (Pressure Regulator Landscape Grade) is ideal for installations requiring lower flows of 0.5 to 7.0 gpm (114 to 1590 L/hr).



**AVAILABLE
IN NPT OR
HOSE THREAD
MODELS**

PRLG DESIGN CRITERIA	Preset Operating Pressure	Maximum Inlet Pressure	Flow Range		Inlet Sizes	Outlet Sizes
			gpm	L/hr		
PRLG10	10 psi (0.69 bar)	90 psi (6.20 bar)	0.5 - 7	114 - 1590	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT
PRLG15	15 psi (1.03 bar)	95 psi (6.55 bar)	0.5 - 7	114 - 1590	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT
PRLG20	20 psi (1.38 bar)	100 psi (6.89 bar)	0.5 - 7	114 - 1590	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT
PRLG25	25 psi (1.72 bar)	105 psi (7.24 bar)	0.5 - 7	114 - 1590	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT
PRLG30	30 psi (2.07 bar)	110 psi (7.58 bar)	0.5 - 7	114 - 1590	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT
PRLG35	35 psi (2.41 bar)	115 psi (7.93 bar)	0.5 - 7	114 - 1590	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT
PRLG40	40 psi (2.76 bar)	120 psi (8.27 bar)	0.5 - 7	114 - 1590	3/4" F hose, 3/4" F NPT	3/4" M hose, 3/4" M NPT

The pressure regulator shall maintain the predetermined operating pressure provided that the inlet pressure is at least 5 psi (0.34 bar) above the expected outlet pressure, but not exceeding the maximum inlet pressure as shown above.

PRL

PRESSURE REGULATORS

The PRL (Pressure Regulator Low Flow) is ideal for installations requiring lower flows of 0.5 to 8.0 gpm (114 to 1817 L/hr). Suggested use in solid-set, drip, other low-volume irrigation systems, as well as center pivot and mechanical-move irrigation systems.



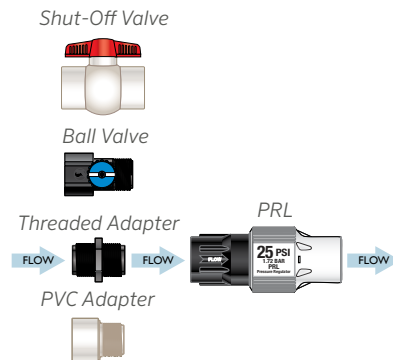
Hose Thread Model of PRL (grey)



**AVAILABLE IN NPT
OR HOSE THREAD
MODELS**

FEATURES

- Senninger regulators maintain a constant preset outlet pressure with varying inlet pressures, which alleviates pressure differences that can cause an applicator's area of coverage to change.
- 100% water tested for accuracy at Senninger's facilities
- Very low hysteresis and friction losses
- Can be installed above or below ground
- Patented tamper-proof design
- No external metal parts for excellent corrosion resistance
- Two-year warranty on materials, workmanship and performance



PRL DESIGN CRITERIA	Preset Operating Pressure	Maximum Inlet Pressure	Flow Range		Inlet Sizes	Outlet Sizes
			gpm	L/hr		
PRL06	6 psi (0.41 bar)	80 psi (5.51 bar)	0.5 - 5	114 - 1136	3/4" F NPT, 3/4" F hose	3/4" F NPT
PRL10	10 psi (0.69 bar)	90 psi (6.20 bar)	0.5 - 8	114 - 1817	3/4" F NPT, 3/4" F hose	3/4" F NPT
PRL12	12 psi (0.83 bar)	90 psi (6.20 bar)	0.5 - 8	114 - 1817	3/4" F NPT, 3/4" F hose	3/4" F NPT
PRL15	15 psi (1.03 bar)	95 psi (6.55 bar)	0.5 - 8	114 - 1817	3/4" F NPT, 3/4" F hose	3/4" F NPT
PRL20	20 psi (1.38 bar)	100 psi (6.89 bar)	0.5 - 8	114 - 1817	3/4" F NPT, 3/4" F hose	3/4" F NPT
PRL25	25 psi (1.72 bar)	105 psi (7.24 bar)	0.5 - 8	114 - 1817	3/4" F NPT, 3/4" F hose	3/4" F NPT
PRL30	30 psi (2.07 bar)	110 psi (7.58 bar)	0.5 - 8	114 - 1817	3/4" F NPT, 3/4" F hose	3/4" F NPT
PRL35	35 psi (2.41 bar)	115 psi (7.93 bar)	0.5 - 8	114 - 1817	3/4" F NPT, 3/4" F hose	3/4" F NPT
PRL40	40 psi (2.76 bar)	120 psi (8.27 bar)	0.5 - 8	114 - 1817	3/4" F NPT, 3/4" F hose	3/4" F NPT

The pressure regulator shall maintain the predetermined operating pressure provided that the inlet pressure is at least 5 psi (0.34 bar) above the expected outlet pressure, but not exceeding the maximum inlet pressure as shown above.

PSR & PSR-2

FEATURES

- Senninger regulators maintain a constant preset outlet pressure with varying inlet pressures, which alleviates pressure differences that can cause an applicator’s area of coverage to change.
- 100% water tested for accuracy at Senninger’s in-house facilities
- Very low hysteresis and friction loss
- Can be installed above or below ground
- Two-year warranty on workmanship, materials and performance

The Senninger PSR and PSR-2 are designed to handle flows from 0.5 to 15 gpm (114 to 3407 L/hr). The PSR is recommended for relatively clean water. The patented PSR-2 is designed for use with surface water.



DESIGN PRESSURE	Pressure Variations			
	1 psi (0.69 bar)	2 psi (1.38 bar)	3 psi (2.07 bar)	5 psi (2.76 bar)
6 psi (0.41 bar)	8.3%	16.7%	25.0%	41.7%
10 psi (0.69 bar)	5.0%	10.0%	15.0%	25.0%
15 psi (1.03 bar)	3.3%	6.7%	10.0%	16.7%
20 psi (1.38 bar)	2.5%	5.0%	7.5%	12.5%
% Flow Variation				

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

PSR & PSR-2 DESIGN CRITERIA		Preset Operating Pressure	Maximum Inlet Pressure	Flow Range		Inlet Sizes	Outlet Sizes
				gpm	L/hr		
PSR06	PSR-2-06	6 psi (0.41 bar)	80 psi (5.51 bar)	0.5 - 15	114 - 3407	3/4" F NPT	3/4" F NPT
PSR10	PSR-2-10	10 psi (0.69 bar)	90 psi (6.20 bar)	0.5 - 15	114 - 3407	3/4" F NPT	3/4" F NPT
PSR12	PSR-2-12	12 psi (0.83 bar)	90 psi (6.20 bar)	0.5 - 15	114 - 3407	3/4" F NPT	3/4" F NPT
PSR15	PSR-2-15	15 psi (1.03 bar)	95 psi (6.55 bar)	0.5 - 15	114 - 3407	3/4" F NPT	3/4" F NPT
PSR20	PSR-2-20	20 psi (1.38 bar)	100 psi (6.89 bar)	0.5 - 15	114 - 3407	3/4" F NPT	3/4" F NPT
PSR25	PSR-2-25	25 psi (1.72 bar)	105 psi (7.24 bar)	0.5 - 15	114 - 3407	3/4" F NPT	3/4" F NPT
PSR30	PSR-2-30	30 psi (2.07 bar)	110 psi (7.58 bar)	0.5 - 15	114 - 3407	3/4" F NPT	3/4" F NPT
PSR35	PSR-2-35	35 psi (2.41 bar)	115 psi (7.93 bar)	0.5 - 15	114 - 3407	3/4" F NPT	3/4" F NPT
PSR40	PSR-2-40	40 psi (2.76 bar)	120 psi (8.27 bar)	0.5 - 15	114 - 3407	3/4" F NPT	3/4" F NPT
PSR50	PSR-2-50	50 psi (3.45 bar)	130 psi (8.96 bar)	0.5 - 15	114 - 3407	3/4" F NPT	3/4" F NPT

The pressure regulator shall maintain the predetermined operating pressure provided that the inlet pressure is at least 5 psi (0.34 bar) above the expected outlet pressure, but not exceeding the maximum inlet pressure as shown above.

PMR-MF

The PMR-MF (Pressure Master Regulator Medium-Flow) is ideal for installations requiring mid-range flows of 2 to 20 gpm (454 to 4542 L/hr), including solid-set, drip and other low-volume irrigation systems.



OTHER MODELS AVAILABLE

PMR-MF EFF
(lavender top)
Designed specifically for wastewater applications.

PMR-MF CMS
Designed specifically for mining applications where pH solutions are less than or equal to 4.0.

BSPT
Designed with a 55° degree internal angle to fit many international connections.



FEATURES

- Senninger regulators maintain a constant preset outlet pressure with varying inlet pressures, which alleviates pressure differences that can cause an applicator's area of coverage to change.
- 100% water tested for accuracy at Senninger's in-house facilities
- Very low hysteresis and friction losses
- Can be installed above or below ground
- Two-year warranty on materials, workmanship and performance

PMR-MF DESIGN CRITERIA	Preset Operating Pressure	Maximum Inlet Pressure	Flow Range		Inlet Sizes	Outlet Sizes
			gpm	L/hr		
PMR06 MF	6 psi (0.41 bar)	80 psi (5.51 bar)	4 - 16	909 - 3634	3/4" F NPT, 1" F NPT, 1" F BSPT	3/4" F NPT, 1" F NPT, 1" F BSPT
PMR10 MF	10 psi (0.69 bar)	90 psi (6.20 bar)	4 - 16	909 - 3634	3/4" F NPT, 1" F NPT, 1" F BSPT	3/4" F NPT, 1" F NPT, 1" F BSPT
PMR12 MF	12 psi (0.83 bar)	90 psi (6.20 bar)	2 - 20	454 - 4543	3/4" F NPT, 1" F NPT, 1" F BSPT	3/4" F NPT, 1" F NPT, 1" F BSPT
PMR15 MF	15 psi (1.03 bar)	95 psi (6.55 bar)	2 - 20	454 - 4543	3/4" F NPT, 1" F NPT, 1" F BSPT	3/4" F NPT, 1" F NPT, 1" F BSPT
PMR20 MF	20 psi (1.38 bar)	100 psi (6.89 bar)	2 - 20	454 - 4543	3/4" F NPT, 1" F NPT, 1" F BSPT	3/4" F NPT, 1" F NPT, 1" F BSPT
PMR25 MF	25 psi (1.72 bar)	105 psi (7.24 bar)	2 - 20	454 - 4543	3/4" F NPT, 1" F NPT, 1" F BSPT	3/4" F NPT, 1" F NPT, 1" F BSPT
PMR30 MF	30 psi (2.07 bar)	110 psi (7.58 bar)	2 - 20	454 - 4543	3/4" F NPT, 1" F NPT, 1" F BSPT	3/4" F NPT, 1" F NPT, 1" F BSPT
PMR35 MF	35 psi (2.41 bar)	115 psi (7.93 bar)	2 - 20	454 - 4543	3/4" F NPT, 1" F NPT, 1" F BSPT	3/4" F NPT, 1" F NPT, 1" F BSPT
PMR40 MF	40 psi (2.76 bar)	120 psi (8.27 bar)	2 - 20	454 - 4543	3/4" F NPT, 1" F NPT, 1" F BSPT	3/4" F NPT, 1" F NPT, 1" F BSPT
PMR50 MF	50 psi (3.45 bar)	130 psi (8.96 bar)	2 - 20	454 - 4543	3/4" F NPT, 1" F NPT, 1" F BSPT	3/4" F NPT, 1" F NPT, 1" F BSPT
PMR60 MF	60 psi (4.14 bar)	140 psi (9.65 bar)	2 - 20	454 - 4543	3/4" F NPT, 1" F NPT, 1" F BSPT	3/4" F NPT, 1" F NPT, 1" F BSPT

The pressure regulator shall maintain the predetermined operating pressure provided that the inlet pressure is at least 5 psi (0.34 bar) above the expected outlet pressure, but not exceeding the maximum inlet pressure as shown above.

PRESSURE REGULATORS



The PR-HF (Pressure Regulator High Flow) is ideal for installations requiring higher flows of 10 to 32 gpm (2271 to 7268 L/hr), including solid-set sprinkler and low volume manifolds.

FEATURES

- Senninger regulators maintain a constant preset outlet pressure with varying inlet pressures, which alleviates pressure differences that can cause an applicator's area of coverage to change.
- 100% water tested for accuracy at Senninger's facilities
- Very low hysteresis and friction losses
- Can be installed above or below ground
- Two-year warranty on materials, workmanship and performance



**BSPT
MODELS
ALSO
AVAILABLE**

PR-HF DESIGN CRITERIA	Preset Operating Pressure	Maximum Inlet Pressure	Flow Range		Inlet Sizes	Outlet Sizes
			gpm	L/hr		
PR10 HF	10 psi (0.69 bar)	90 psi (6.20 bar)	10 - 32	2271 - 7268	1/4" F NPT, 1/4" F BSPT	1" F NPT, 1/4" F NPT, 1" F BSPT, 1/4" F BSPT
PR15 HF	15 psi (1.03 bar)	95 psi (6.55 bar)	10 - 32	2271 - 7268	1/4" F NPT, 1/4" F BSPT	1" F NPT, 1/4" F NPT, 1" F BSPT, 1/4" F BSPT
PR20 HF	20 psi (1.38 bar)	100 psi (6.89 bar)	10 - 32	2271 - 7268	1/4" F NPT, 1/4" F BSPT	1" F NPT, 1/4" F NPT, 1" F BSPT, 1/4" F BSPT
PR25 HF	25 psi (1.72 bar)	105 psi (7.24 bar)	10 - 32	2271 - 7268	1/4" F NPT, 1/4" F BSPT	1" F NPT, 1/4" F NPT, 1" F BSPT, 1/4" F BSPT
PR30 HF	30 psi (2.07 bar)	110 psi (7.58 bar)	10 - 32	2271 - 7268	1/4" F NPT, 1/4" F BSPT	1" F NPT, 1/4" F NPT, 1" F BSPT, 1/4" F BSPT
PR40 HF	40 psi (2.76 bar)	120 psi (8.27 bar)	10 - 32	2271 - 7268	1/4" F NPT, 1/4" F BSPT	1" F NPT, 1/4" F NPT, 1" F BSPT, 1/4" F BSPT
PR50 HF	50 psi (3.45 bar)	130 psi (8.96 bar)	10 - 32	2271 - 7268	1/4" F NPT, 1/4" F BSPT	1" F NPT, 1/4" F NPT, 1" F BSPT, 1/4" F BSPT

The pressure regulator shall maintain the predetermined operating pressure provided that the inlet pressure is at least 5 psi (0.34 bar) above the expected outlet pressure, but not exceeding the maximum inlet pressure as shown above.

PRXF

The PRXF (Extended Flow) is designed to handle flows up to 100 gpm (22713 L/hr). It's ideal for installations requiring accurate zone pressure regulation.



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.



FEATURES

- Senninger regulators maintain a constant preset outlet pressure with varying inlet pressures, which alleviates pressure differences that can cause an applicator's area of coverage to change.
- 100% water tested for accuracy at Senninger's facilities
- Very low hysteresis and friction losses
- Two-year warranty on materials, workmanship and performance

PRXF DESIGN CRITERIA	Preset Operating Pressure	Maximum Inlet Pressure	Flow Range		Inlet Sizes	Outlet Sizes
			gpm	L/hr		
PRXF10	10 psi (0.69 bar)	90 psi (6.20 bar)	20 - 80	4543 - 18170	3" F slip	3" F slip
PRXF15	15 psi (1.03 bar)	95 psi (6.55 bar)	20 - 85	4543 - 19306	3" F slip	3" F slip
PRXF20	20 psi (1.38 bar)	100 psi (6.89 bar)	20 - 90	4543 - 20441	3" F slip	3" F slip
PRXF25	25 psi (1.72 bar)	105 psi (7.24 bar)	20 - 95	4543 - 21577	3" F slip	3" F slip
PRXF30	30 psi (2.07 bar)	110 psi (7.58 bar)	20 - 100	4543 - 22713	3" F slip	3" F slip
PRXF35	35 psi (2.41 bar)	115 psi (7.93 bar)	20 - 100	4543 - 22713	3" F slip	3" F slip
PRXF40	40 psi (2.76 bar)	120 psi (8.27 bar)	20 - 100	4543 - 22713	3" F slip	3" F slip
PRXF50	50 psi (3.45 bar)	130 psi (8.96 bar)	20 - 100	4543 - 22713	3" F slip	3" F slip
PRXF60	60 psi (4.14 bar)	140 psi (9.65 bar)	20 - 100	4543 - 22713	3" F slip	3" F slip

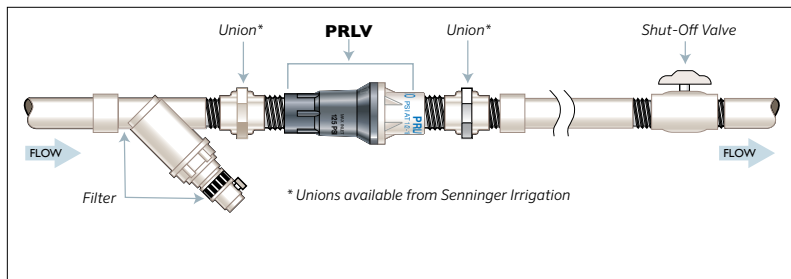
The pressure regulator shall maintain the predetermined operating pressure provided that the inlet pressure is at least 5 psi (0.34 bar) above the expected outlet pressure, but not exceeding the maximum inlet pressure as shown above.

FEATURES

- Senninger regulators maintain a constant preset outlet pressure with varying inlet pressures, which alleviates pressure differences that can cause an applicator’s area of coverage to change.
- Limits downstream pressure to no more than 15 psi (1,03 bar) above regulated pressure rating during static (no flow) conditions
- 100% water tested for accuracy at Senninger’s facilities
- Very low hysteresis and friction losses
- One-year warranty on materials and workmanship

The (Pressure Regulating Limit Valve™) is designed to handle flows from 0.5 to 18 gpm (114 to 4088 L/hr). It is used in place of standard pressure regulators to limit static (no flow) water pressure when a shut-off valve is used downstream from a regulation point. This limits downstream pressure and protects downstream components.

PRLV RECOMMENDED INSTALLATION



PRLV DESIGN CRITERIA LIMIT VALVE	Preset Operating Pressure	Maximum Inlet Pressure	Flow Range		Inlet Sizes	Outlet Sizes
			gpm	L/hr		
PRLV30	30 psi (2.07 bar)	125 psi (8.62 bar)	0.5 - 18	114 - 4088	3/4" F NPT, 1" F NPT	3/4" F NPT, 1" F NPT
PRLV40	40 psi (2.76 bar)	125 psi (8.62 bar)	0.5 - 18	114 - 4088	3/4" F NPT, 1" F NPT	3/4" F NPT, 1" F NPT
PRLV50	50 psi (3.45 bar)	125 psi (8.62 bar)	0.5 - 18	114 - 4088	3/4" F NPT, 1" F NPT	3/4" F NPT, 1" F NPT
PRLV60	60 psi (4.14 bar)	125 psi (8.62 bar)	0.5 - 18	114 - 4088	3/4" F NPT, 1" F NPT	3/4" F NPT, 1" F NPT

The pressure regulator shall maintain the predetermined operating pressure provided that the inlet pressure is at least 5 psi (0.34 bar) above the expected outlet pressure, but not exceeding the maximum inlet pressure as shown above.

PRXF-LV

PRESSURE REGULATORS

The PRXF-LV (Pressure Regulating Extended Flow Limit Valve™) is designed to limit static (no flow) water pressure between a regulation point and a downstream shut-off valve, thus protecting in-line components. It's designed to handle flows up to 75 gpm (17034 L/hr).

FEATURES

- Senninger regulators maintain a constant preset outlet pressure with varying inlet pressures, which alleviates pressure differences that can cause an applicator's area of coverage to change.
- Limits downstream pressure to no more than 15 psi (1.03 bar) above regulated pressure rating during static (no flow) conditions
- 100% water tested for accuracy at Senninger's facilities
- Inlet/Outlet configuration is 3" ID solvent weld socket x socket
- One year warranty on materials and workmanship



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-LV.

CAUTION:

Recommended for outdoor use only.

PRXF-LV DESIGN CRITERIA EXTENDED FLOW LIMIT VALVE	Preset Operating Pressure	Maximum Inlet Pressure	Flow Range		Inlet Sizes	Outlet Sizes
			gpm	L/hr		
PRXF30LV	30 psi (2.07 bar)	125 psi (8.62 bar)	15 - 75	3407 - 17034	3" F slip	3" F slip
PRXF40LV	40 psi (2.76 bar)	125 psi (8.62 bar)	15 - 75	3407 - 17034	3" F slip	3" F slip
PRXF50LV	50 psi (3.45 bar)	125 psi (8.62 bar)	15 - 75	3407 - 17034	3" F slip	3" F slip
PRXF60LV	60 psi (4.14 bar)	125 psi (8.62 bar)	15 - 75	3407 - 17034	3" F slip	3" F slip

The pressure regulator shall maintain the predetermined operating pressure provided that the inlet pressure is at least 5 psi (0.34 bar) above the expected outlet pressure, but not exceeding the maximum inlet pressure as shown above.

Irri-Maker™

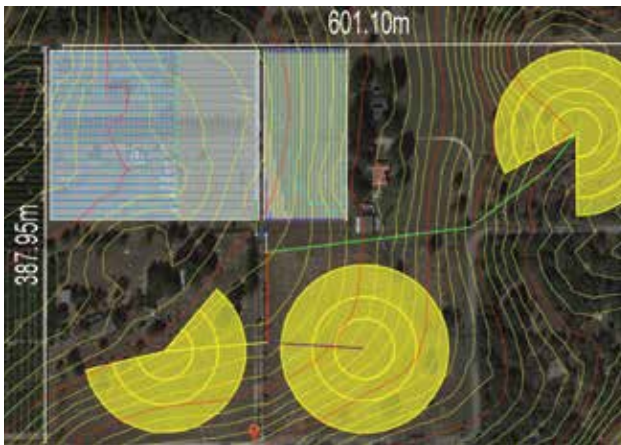


CAD enhanced drawings let you plot specific terrain details that can impact an installation.

IRRI-MAKER is very flexible. It can be used for everything from simple irrigation designs to complex systems and provides full control over irrigation system design. Its built-in CAD module lets you add specific details to the contour plan like roads, fences, boundaries, rivers, and trees, including text and bitmap images. Irri-Maker also operates within the larger Model Maker™ environment. This means any of the other Model Maker modules can be added to your software package.

CALL FOR INFORMATION ON PURCHASING THIS PROGRAM.

IrriExpress™



IRRIEXPRESS is a lighter version of Irri-Maker that is simple enough for beginners yet powerful enough for experts. It seamlessly imports topography data from Google Maps and lets you design over your defined area's elevation points. It includes a familiar user interface and highly intuitive features like copy and paste and undo and redo, which help you navigate through the program with ease.

Irri-Maker and IrriExpress let you design comprehensive irrigation projects ranging from large-scale agricultural designs to small-scale landscape designs. Both programs let users evaluate installation alternatives in advance, survey any terrain, produce a contour plan, draw the details, and apply the irrigation design.

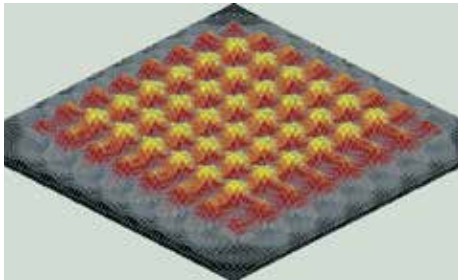
FEATURES

- All in one software package: combines surveyed data, CAD, Digital Terrain Modeling (DTM) and irrigation calculation functions
- Generates contour plans and 3D images illustrating the irrigation design in relation to slopes and elevations
- Calculate hydraulics, pressures, flows and quantities
- Full graphical control over each element of the design, including block areas, sprinklers, and pipes
- Saves time on repeatable routines
- Allows importation of information from many other programs

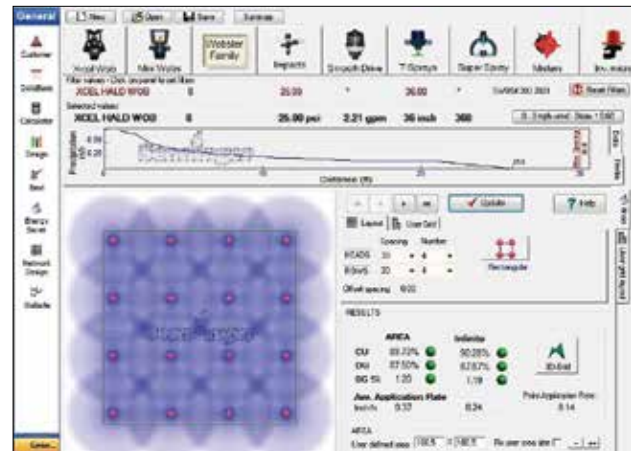
YOU CAN LEARN MORE ABOUT IRRIEXPRESS AND EVEN DOWNLOAD A DEMO ONLINE AT WWW.IRRIEXPRESS.COM

WinSIPP2™

Use WinSIPP2 software by Senninger to calculate the precipitation rate of your irrigation system.



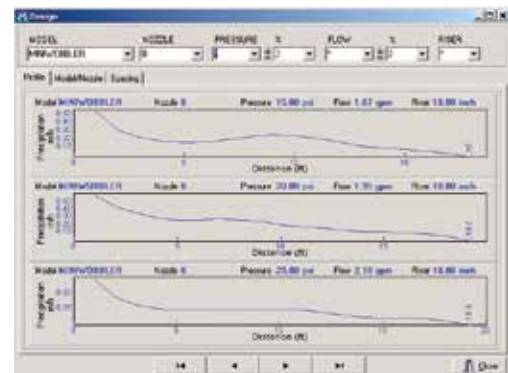
Graphics illustrate the water application pattern in 3-D format.



Densograms illustrate the uniformity, wetted diameter, and application pattern of a given profile.

FEATURES

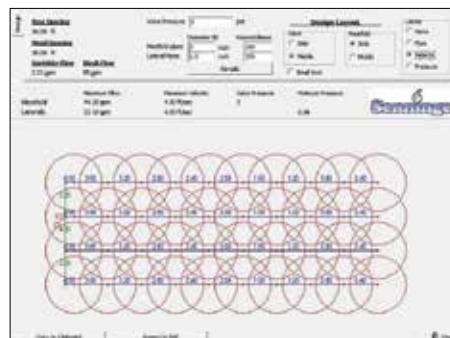
- Aids in the selection of the best irrigation products for each particular soil and installation type.
- Tests the application uniformity of sprinkler layouts before the system is installed
- Compares different spacings, sprinkler models, nozzle sizes, and operating pressures to determine which would be best for your specific application.
- Sprinkler profile uses specific data and illustrates the amount of water that would be delivered at various intervals, the application radius, and the water distribution of multiple overlapping devices.



Sprinkler profiles illustrate the amount of water that would be delivered at various intervals as well as the radius of throw.

DISTRIBUTION PROFILE

A distribution profile is the illustration of the results from "catch can" tests performed in accordance with the American Society of Agricultural and Biological Engineers (ASABE) standard S398.1. This data shows how uniformly a device distributes water within its diameter of throw. WinSIPP2 utilizes the numerous distribution profiles available for Senninger products.



Layout calculator renders sprinkler system designs and provides specifics on flow, velocity and pressures along manifolds in lateral lines.

DENSOGRAM

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

ASK FOR THIS PROGRAM BY CONTACTING THE SENNINGER TECHNICAL SUPPORT DEPARTMENT.

Formulas & Conversions

INSIDE DIAMETERS- FOR PVC (IPSMM)

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

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

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 (gal/minute)	LPS = Flow (liters/second)
C = Pipe Coefficient (PVC = 150, Aluminum w/couplers =120, Galv.Steel/Asb. - Cement = 140 or Cast Iron = 100)	C = Pipe Coefficient (PVC = 150, Aluminum w/couplers =120, Galv.Steel/Asb.-Cement = 140 or Cast Iron = 100)
ID = Pipe Inside Diameter (inches)	ID = Pipe Inside Diameter (mm)

ESTIMATING SYSTEM PUMPING REQUIREMENTS

$GPM = \frac{IN \times Acres \times 452.6}{Days \times HRS \times EFF}$	$LPS = \frac{CM \times HA \times 27.8}{Days \times HRS \times EFF}$
IN= Net application depth per irrigation event (inches)*	CM= Net application depth (centimeters)
Acres= Area to be irrigated (acres)	HA= Area to be irrigated (hectares)
Days= Number of irrigation days	Days= Number of irrigation days
HRS= Number of irrigation hrs per/day	HRS= Number of irrigation hrs per/day
EFF= System efficiency (see table below)	EFF= System efficiency (see table below)

ESTIMATING BRAKE POWER REQUIRED

$BP = \frac{GPM \times TDH}{3960 \times EFF}$	$BP = \frac{LPS \times TDH}{120 \times EFF}$
BP= Brake Power required (horse power)	BP= Brake Power required (kilo)
GPM= Flow required (gal/minute)	LPS= Flow required (liters/second)
TDH= Total dynamic head (in ft)	TDH= Total dynamic head (in meters)
EFF= Pump efficiency stated as a decimal	EFF= Pump efficiency stated as a decimal

FLOW CONVERSION

TO CONVERT	INTO	MULTIPLY BY
Acre-Inch/hr	Gallons/Min (gpm)	452.6
Acre-Inch/hr	Gallons/hr	27.154
Cubic Feet/hr	Gallons/hr (US)	7.481
Cubic Feet/Sec	Gallons/Min (gpm)	448.831
Cubic Meters/hr	Gallons/hr (US)	264.2
Cubic Meters/hr	Gallons/Min (gpm)	4.403
Cubic Meters/hr	Liters/Sec (L/s)	0.278
Gallons/hr	Liters/hr	3.785
Gallons/Min. (gpm)	Cubic Meter/hr (m ³ /hr)	0.227
Gallons/Min. (gpm)	Liters/Sec (L/s)	0.063
Liters/hr	Gallons/hr (US)	0.264
Liters/Second	Gallons/Min (gpm)	15.85
Liters/Second	Cubic Meters/hr (m ³ /hr)	3.600

PRESSURE CONVERSION

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 Head (of Water)	Pounds/Sq. In. (psi)	0.433
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 Head (of Water)	2.307
Pounds/Sq. In. (psi)	Kilopascals (kPa)	6.895

AREA & LINEAR CONVERSION

TO CONVERT	INTO	MULTIPLY BY
Acres	Hectares	0.405
Acres	Square Feet	43.560
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
Millimeters	Inches	0.0394

POWER CONVERSION

TO CONVERT	INTO	MULTIPLY BY
Horsepower	Kilowatts	0.746
Kilowatts	Horsepower	1.341

ESTIMATING IRRIGATION SYSTEMS EFFICIENCIES

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

U.S. Rates

RESOURCES

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	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0
5x5	1.16	1.93	2.89	3.85	5.78	7.70	11.55													
6x6	0.80	1.34	2.01	2.67	4.01	5.35	8.02													
7x7	0.59	0.98	1.47	1.96	2.95	3.93	5.89													
8x8	0.45	0.75	1.13	1.50	2.26	3.01	4.51	6.02												
9x9	0.36	0.59	0.89	1.19	1.78	2.38	3.56	4.75	5.94											
10x10	0.29	0.48	0.72	0.96	1.44	1.93	2.89	3.85	4.81	5.78										
12x12	0.20	0.33	0.50	0.67	1.00	1.34	2.01	2.67	3.34	4.01	5.35	6.68								
15x15	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							
20x20		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					
25x25			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					
30x30				0.11	0.16	0.21	0.32	0.43	0.53	0.64	0.86	1.07	1.60	2.14	2.67					
35x35					0.12	0.16	0.24	0.31	0.39	0.47	0.63	0.79	1.18	1.57	1.96					
40x40						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		
40x50						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	
40x60							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
40x80							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
45x45							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
50x50							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
50x60								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
50x70		Product	Pattern Spacing*					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
50x80		T-Spray	up to 6 feet					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
55x55		Super-Spray	up to 12 feet					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
60x60		Xcel-Wobbler HA	up to 30 feet				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	
60x70		Xcel-Wobbler MA	up to 25 feet					0.11	0.14	0.18	0.23	0.34	0.46	0.57	0.69	0.80	0.92	1.03	1.15	
60x80		Wobbler SA	up to 30 feet					0.10	0.12	0.16	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.0	
70x70		Wobbler LA	up to 25 feet					0.10	0.12	0.16	0.20	0.29	0.39	0.49	0.59	0.69	0.79	0.88	0.98	
70x80		mini-Wobbler	up to 20 feet						0.10	0.14	0.17	0.26	0.34	0.43	0.52	0.60	0.69	0.77	0.86	
70x90		i-mini-Wobbler	up to 12 feet								0.12	0.15	0.23	0.31	0.38	0.46	0.53	0.61	0.69	0.76
80x80		Smooth Drive HA	up to 40 feet								0.12	0.15	0.23	0.30	0.38	0.45	0.53	0.60	0.68	0.75
80x90		Smooth Drive LA	up to 37 feet									0.11	0.13	0.20	0.27	0.33	0.40	0.47	0.53	0.60
80x100		20 Series Impact	up to 40 feet									0.10	0.12	0.18	0.24	0.30	0.36	0.42	0.48	0.54
80x100		30 Series Impact	up to 60 feet										0.10	0.12	0.18	0.24	0.30	0.36	0.42	0.48
100x100		40 Series Impact	up to 65 feet											0.10	0.14	0.19	0.24	0.29	0.34	0.39
		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.

KEY

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)

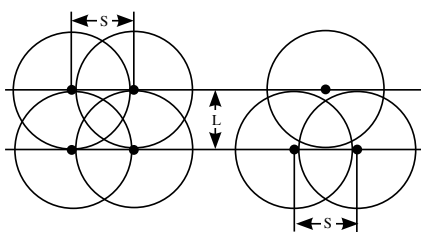
PRECIPITATION RATE FORMULA

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

(inches per hour)

Square Spacing

Triangular Spacing



MAXIMUM PRECIPITATION RATES FOR LEVEL GROUND

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

Metric Rates

Spacing	Flow (m ³ /hr)																			
Meters	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
1.5x1.5	32.0	48.0	80.0	160.0	240.0	320.0														
2x2	18.0	27.0	45.0	90.0	135.0	180.0														
2.5x2.5	11.5	17.3	28.8	57.6	86.4	115.2	144.0													
3x3	8.0	12.0	20.0	40.0	60.0	80.0	100.0	120.0	160.0											
3.5x3.5	5.9	8.8	14.7	29.4	44.1	58.8	73.5	88.2	117.6	146.9	176.3									
4x4	4.5	6.8	11.3	22.5	33.8	45.0	56.3	67.5	90.0	112.5	135.0									
5x5	2.9	4.3	7.2	14.4	21.6	28.8	36.0	43.2	57.6	72.0	86.4									
6x6	2.0	3.0	5.0	10.0	15.0	20.0	25.0	30.0	40.0	50.0	60.0									
6x9			3.3	6.6	10.0	13.3	16.6	20.0	26.6	33.3	40.0	46.6	53.0							
6x12			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					
8x8			2.8	5.6	8.4	11.2	14.0	16.9	22.5	28.1	33.7	39.4	45.0	50.0						
9x9			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			
9x12			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	
9x14			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	
9x15			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	
9x18				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
12x12				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
12x15				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
12x18				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
15x15						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
15x18						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
15x21						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
18x18								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
18x21								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
18x24								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
21x21								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
21x24									2.8	3.6	4.3	5.0	5.7	6.4	7.1	7.8	8.6	10.7	12.7	14.3
21x27									2.5	3.2	3.8	4.4	5.1	5.7	6.3	7.0	7.6	9.5	11.3	12.7
24x24										3.1	3.7	4.3	5.0	5.6	6.2	6.9	7.5	9.4	11.1	12.5
24x30										2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.5	8.9	10.0
28x33											2.3	2.7	3.1	3.5	3.9	4.3	4.7	5.8	6.9	7.8
30x30											2.4	2.8	3.2	3.9	4.0	4.4	4.8	6.0	7.1	8.0

Product	Pattern Spacing*
T-Spray	up to 2.0 meters
Super-Spray	up to 3.5 meters
Xcel-Wobbler HA	up to 9.2 meters
Xcel-Wobbler 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 HA	up to 12.2 meters
Smooth Drive LA	up to 11.3 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.

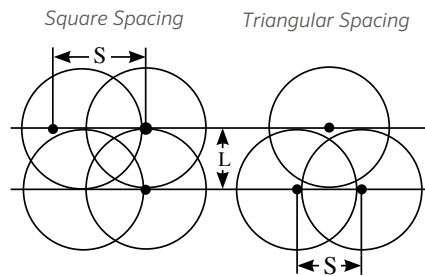
MAXIMUM PRECIPITATION RATES FOR LEVEL GROUND

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

PRECIPITATION RATE FORMULA

$$\text{Application Rate} = \frac{\text{M3/hr} \times 1000}{\text{S} \times \text{L}}$$

(mm per hour)



KEY

- M3/hr** = 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)

RESOURCES

Nozzles

The Hand-Tight nozzle combines the nozzle and vane for impact sprinklers. It eliminates the need for tools during nozzle cleaning or changing. The nozzle and vane combination is simply placed inside the barrel of a Senninger impact sprinkler and installed with a few quick turns. This new concept eliminates the possibility of losing a vane or nozzle retainer and simplifies renozzling.



One piece nozzle replaces the 3-part nozzle assembly for quick and easy in-field renozzling.



FEATURES

- Saves time
- Square orifice nozzles also available for better stream break-up and improved uniformity
- Includes stream-straightening vane for maximum throw distance over a wide range of pressures
- Half size nozzles are easily identified by a colored insert.

ORIFICE DIAMETER

#4 Light Blue	1/16 (0.063) inch	(1.59 mm)
#5 Beige	5/64 (0.078) inch	(1.98 mm)
#6 Gold	3/32 (0.094) inch	(2.38 mm)
#7 Lime	7/64 (0.109) inch	(2.78 mm)
#8 Lavender	1/8 (0.125) inch	(3.18 mm)
#9 Grey	9/64 (0.141) inch	(3.57 mm)
#10 Turquoise	5/32 (0.156) inch	(3.97 mm)
#11 Yellow	11/64 (0.172) inch	(4.37 mm)
#12 Red	3/16 (0.188) inch	(4.76 mm)
#13 White	13/64 (0.203) inch	(5.16 mm)
#14 Blue	7/32 (0.219) inch	(5.56 mm)
#15 Dk. Brown	15/64 (0.234) inch	(5.95 mm)
#16 Orange	1/4 (0.250) inch	(6.35 mm)
#17 Dk. Green	17/64 (0.266) inch	(6.75 mm)
#18 Purple	9/32 (0.281) inch	(7.14 mm)
#19 Black	19/64 (0.297) inch	(7.54 mm)
#20 Dk. Turquoise	5/16 (0.313) inch	(7.94 mm)
#21 Mustard	21/64 (0.328) inch	(8.33 mm)
#22 Maroon	11/32 (0.344) inch	(8.73 mm)
#23 Cream	23/64 (0.359) inch	(9.13 mm)
#24 Dk. Blue	3/8 (0.375) inch	(9.53 mm)
#25 Copper	25/64 (0.391) inch	(9.92 mm)
#26 Bronze	13/32 (0.406) inch	(10.32 mm)

Half sizes (128th inch increments) are also available in some models.

FEATURES

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

IMPACTS	MINIMUM Nozzle Size	MAXIMUM Nozzle Size
20 Series Impacts	#6 Nozzle - Gold 3/32" (2.38 mm)	#9 Nozzle - Grey 9/64" (3.57 mm)
Compact Impact	#9 Nozzle - Grey 9/64" (3.57 mm)	#12 Nozzle - Red 3/16" (4.76 mm)
WedgeDrive	#5 Nozzle - Beige 5/64" (1.98 mm)	#9 Nozzle - Grey 9/64" (3.57 mm)
30 Series Impacts (including Part-Circle 3123)	#7 Nozzle - Lime 7/64" (2.78 mm)	#10 Nozzle - Turquoise 5/32" (3.97 mm)
40 Series Impacts (including Part-Circle 4123)	#10 Nozzle - Turquoise 5/32" (3.97 mm)	#14 Nozzle - Blue 7/32" (5.56 mm)
50 Series Impacts (including Part-Circle 5123)	#13 Nozzle - White 13/64" (5.16 mm)	#18 Nozzle - Purple 9/32" (7.14 mm)

Product 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 AND 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. The End Spray, PRLV regulators and mining models 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. The End Spray, PRLV regulators and mining models are warranted for materials and workmanship only.

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.



We strive to create the best low pressure, high performance agricultural irrigation products in the world while maintaining the highest level of quality and reliability. In every instance we will back our innovations with the unwavering support our customers need to succeed.

A handwritten signature in white ink that reads "James E. Burks". The signature is written in a cursive style with a large, sweeping initial "J".

James E. Burks, President of Senninger Irrigation