



Mechanized Irrigation

Low Pressure - High Performance™

AGRICULTURAL IRRIGATION



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PARTNERING TOGETHER

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 provide food and fiber for a growing population.

Senninger is focused on conservation. Our high-performance sprinklers use low pressure to reduce water usage and energy costs, which is good for the growers and the planet.

The information contained in this catalog is intended to be used as a general guideline only. Your local Senninger dealer will be happy to advise you about packages designed using these products.



UNIVERSAL PIVOT PRODUCTS PLATFORM

The Senninger exclusive UP3 (Universal Pivot Products Platform) product line adds significant benefits to the proven technologies of the i-Wob®2, Xi-Wob™, Dynamic Drive, LDN®, Super Spray® and Xcel-Wobbler™ TOP making nozzle changes just a click away.

Growers may want to renozzle to utilize different flow rates on their sprinkler package. Lower flow rates are often used for germination and chemigation. Some growers experience frequent drops in well capacity or simply want to tailor-manage their resources. The UP3 nozzle design offers a quick solution for easy nozzle changes along with two convenient options for nozzle carriers so your next nozzle is always at hand when you're ready to make the change.



EASY-CLEAN / EASY-CHANGE

UP3 NOZZLE (Patented)



Just pinch and pull to remove the nozzle then place and click to re-install. Cleaning and changing nozzles is easy and convenient. There is no need to disassemble or remove the sprinkler.

The color-coded nozzles are highly visible and easy to identify. The nozzle numbers (corresponding to orifice sizes in 64ths of an inch) are visible on the ears, with half sizes denoted beneath the second digit and the notches on the lower edge of the nozzle.

UP3 DUAL NOZZLE CARRIER (Patented)



To access the secondary nozzle, pinch and pull the nozzle from the applicator, flip the carrier over and click in the secondary nozzle. The carrier is marked to indicate high and low flow nozzles. When installed in the applicator, if HIGH is visible on the carrier, then the lower flow nozzle is in use. If LOW is visible on the carrier, the higher flow nozzle is in use.

UP3 DUAL NOZZLE FITTING



Designed to be used instead of a standard barb x threaded fitting, this device carries two additional UP3 nozzles. Just pinch and pull to remove nozzles and place and click to reinstall. Nozzles are easily identifiable with numbers on the ears. The larger the number, the higher the flow.

i-Wob[®]2



I-WOB2

FOUR DEFLECTORS AVAILABLE!

Grey, Black, Blue or White

Standard Angle 9-Groove shown above

Introducing the i-Wob2, the next generation of wobbler technology. Wear surfaces have been improved and a protective shroud doubles as a nozzle carrier for two extra nozzles. The i-Wob2 is designed for areas where poor water quality may cause higher wear on irrigation componets.

FEATURES

- Uses Wobbler Technology™ – unique rotary action combined with wobbling grooved deflectors
- Outstanding uniformity over a large area for low application intensity.
- Low pressure operation saves money and energy - 6 to 15 psi (0.41 to 1.03 bar)
- Four different models available based on desired trajectory and droplet size
- Exclusive below-the-nozzle weight eliminates the need for heavier, conventional drop weights
- UP3 snap-in nozzle is easy to remove for cleaning or changing. To remove the nozzle simply pinch and pull, then place and click to install.
- Backed by the longest warranty in the industry (3 years) covering materials, workmanship, and performance



Use the Universal Magnum Weight or The One Weight on flexible hose installations.

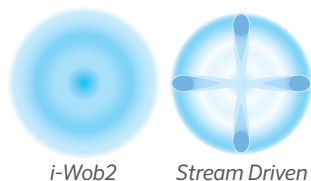
(See pg. 25)

I-WOB2 SYSTEM ASSEMBLY

- The i-Wob2 must be mounted with a minimum of 2 ft (0.6 m) reinforced flexible hose above the applicator because of its off-center rotary action. The hose must always be on outlet end of semi-rigid or rigid drop.
- When using the Universal Magnum Weight or One Weight, never use another weight above the i-Wob2. Always be sure the weight is tightly threaded into the bottom of the i-Wob2 (140 inch-lbs. torque recommended).
- If you are using a conventional weight above the i-Wob2, only use a threaded weight weighing at least 1.5 lbs (0.7 kg), but not exceeding 1 ft (0.31 m) in length. A slipover drop weight is not recommended.

Note: Any modifications or deletions regarding installation requirements will void warranty.

INSTANTANEOUS AREA OF COVERAGE



In this example, the i-Wob2 is spreading the same amount of water over an area five times greater than the area covered by the spray nozzle.





LOW APPLICATION INTENSITY

Stream-driven applicators provide good throw distance, but their distinct streams instantaneously place the entire flow in a relatively small area. This more intense application can negatively impact the soil surface. In contrast, the i-Wob applies water to a larger area of soil surface, reducing the impact of the sprinkler's pattern on the soil structure. Larger instantaneous coverage offers a slower intake rate to help reduce runoff and wheel tracking.

UNMATCHED UNIFORMITY

The unique rotary action combined with the wobbling grooved deflector delivers outstanding uniformity over a large area of coverage. The i-Wob2's droplet size can be tailored to the needs of the soil through the selection of the deflector and the proper operating pressure.

I-WOB®2 SYSTEM DESIGN CRITERIA

				
Nozzle Sizes*	Standard Angle 6 Groove - Grey Small Droplet	Standard Angle 9 Groove - Black Medium Droplet	Low Angle 9 Groove - Blue Medium Droplet	Low Angle 6 Groove - White Large Droplet
at 6 psi (0.41 bar) **	#12 - 26 3/16 - 13/32" (4.76 - 10.32 mm)	#12 - 26 3/16 - 13/32" (4.76 - 10.32 mm)	#12 - 26 3/16 - 13/32" (4.76 - 10.32 mm)	#12 - 26 3/16 - 13/32" (4.76 - 10.32 mm)
at 10 - 15 psi (0.69 - 1.03 bar)	#10 - 26 5/32 - 13/32" (3.97 - 10.32 mm)	#6 - 26 3/32 - 13/32" (2.38 - 10.32 mm)	#6 - 26 3/32 - 13/32" (2.38 - 10.32 mm)	#12 - 26 3/16 - 13/32" (4.76 - 10.32 mm)
Flows				
at 6 psi (0.41 bar) **	2.51 - 11.60 gpm (570 - 2635 L/hr)	2.51 - 11.60 gpm (570 - 2635 L/hr)	2.51 - 11.60 gpm (570 - 2635 L/hr)	2.51 - 11.60 gpm (570 - 2635 L/hr)
at 10 - 15 psi (0.69 - 1.03 bar)	2.24 - 18.35 gpm (509 - 4168 L/hr)	0.8 - 18.35 gpm (182 - 4168 L/hr)	0.8 - 18.35 gpm (182 - 4168 L/hr)	3.24 - 18.35 gpm (736 - 4168 L/hr)
Diameters				
3 feet (0.91 m) height at 6 psi (0.41 bar) **	26 - 30 ft (8.0 - 9.1 m)	30 - 34 ft (9.1 - 10.4 m)	28 - 30 ft (8.5 - 9.1 m)	28 - 32 ft (8.5 - 9.8 m)
3 feet (0.91 m) height at 10 - 15 psi (0.69 - 1.03 bar)	36 - 46 ft (11.0 - 14.0 m)	31 - 53 ft (9.5 - 16.2 m)	31 - 47 ft (9.5 - 14.3 m)	40 - 49 ft (12.2 - 14.9 m)
6 feet (1.83 m) height at 6 psi (0.41 bar) **	30 - 34 ft (9.1 - 10.4 m)	36 - 42 ft (11.0 - 12.8 m)	32 - 35 ft (9.8 - 10.7 m)	32 - 39 ft (9.8 - 11.9 m)
6 feet (1.83 m) height at 10 - 15 psi (0.69 - 1.03 bar)	35 - 50 ft (10.7 - 15.2 m)	34 - 57 ft (10.4 - 17.4 m)	35 - 50 ft (10.7 - 15.2 m)	44 - 53 ft (13.4 - 16.2 m)
9 feet (2.74 m) height at 6 psi (0.41 bar) **	34 - 36 ft (10.4 - 11.0 m)	40 - 46 ft (12.2 - 14.0 m)	36 - 42 ft (11.0 - 12.8 m)	34 - 44 ft (10.4 - 13.4 m)
9 feet (2.74 m) height at 10 - 15 psi (0.69 - 1.03 bar)	36 - 52 ft (11.0 - 15.8 m)	38 - 59 ft (11.6 - 18.0 m)	39 - 55 ft (11.9 - 16.8 m)	49 - 57 ft (14.0 - 17.4 m)
Maximum Spacing***				
at 6 psi (0.41 bar) **	10 ft (3.0 m)	10 ft (3.0 m)	10 ft (3.0 m)	10 ft (3.0 m)
at 10 - 15 psi (0.69 - 1.03 bar)	18 ft (5.5 m)	20 ft (6.1 m)	18 ft (5.5 m)	15 ft (4.6 m)
Pressure at the nozzle				
Minimum	6 psi (0.41 bar)	6 psi (0.41 bar)	6 psi (0.41 bar)	6 psi (0.41 bar)
Maximum	15 psi (1.03 bar)	15 psi (1.03 bar)	15 psi (1.03 bar)	15 psi (1.03 bar)

Four different deflector models based on desired trajectory and droplet size.

* It is recommended that larger nozzle sizes be used only on soils that can handle higher application rates.

** Senninger recommends 10 psi (0.69 bar) for optimum performance. 6 psi (0.41 bar) can be used for nozzles #12 and larger.

*** For optimum performance, Senninger recommends the use of maximum spacing for 1-2 spans only.

Note: Always mount the i-Wob2 on a minimum of 2 ft (0.6 m) reinforced flexible hose. The hose must be on the outlet end of any semi-rigid or rigid drop. Keep i-Wob2s above crop canopy when outlet spacing exceeds 10 ft (3.0 m). This is especially important on high profile crops.

Xi-Wob™



(615 Model shown)



THREE MODELS AVAILABLE!

(610 Model shown above)

The Senninger Xi-Wob provides the same low application intensity and uniform distribution pattern that has made the i-Wob the leading pivot sprinkler on the market. The Xi-Wob's patented counter balance technology makes it ideal for installation on semi-rigid PE drops, steel drops, and flexible hose drops when used with the Magnum Weight.

FEATURES

- Uses Wobbler Technology™ - unique rotary action combined with wobbling grooved deflectors
- Outstanding uniformity over a large area for low application intensity.
- Low pressure operation saves money and energy - 10 to 15 psi (0.69 to 1.03 bar)
- Three different models available based on desired trajectory and droplet size
- UP3 snap-in nozzle is easy to remove for cleaning or changing. To remove the nozzle simply pinch and pull, then place and click to install.

XI-WOB SYSTEM ASSEMBLY

- The Xi-Wob must be mounted no more than 1 ft (0.3 m) below the truss rod on semi-rigid Polyethylene or steel drops. Do not use PVC drops.
- The Xi-Wob can also be mounted on flexible hose drops when used with the Universal Magnum Weight.

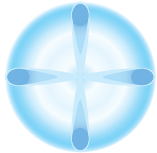


Use the Universal Magnum Weight or The One Weight on flexible hose installations.

(See pg. 25)

**INSTANTANEOUS
AREA OF COVERAGE**

Xi-Wob



Stream Driven

In this example, the Xi-Wob is spreading the same amount of water over an area five times greater than the area covered by the spray nozzle.

LOW APPLICATION INTENSITY

Stream-driven applicators provide good throw distance, but their distinct streams instantaneously place the entire flow in a relatively small area. This more intense application can negatively impact the soil surface. In contrast, the Xi-Wob applies water to a larger area of soil surface, reducing the impact of the sprinkler's pattern on the soil structure. Larger instantaneous coverage offers a slower intake rate to help reduce runoff and wheel tracking.

UNMATCHED UNIFORMITY

The unique rotary action combined with the wobbling grooved deflector delivers outstanding uniformity over a large area of coverage. The Xi-Wob's droplet size can be tailored to the needs of the soil through the selection of the deflector and the proper operating pressure.

**XI-WOB™
DESIGN CRITERIA**

	Model 610 (Blue) 6-Groove 10° Trajectory Medium Droplets	Model 615 (Black) 6-Groove 15° Trajectory Large Droplets	Model 910 (Grey) 9-Groove 10° Trajectory Smaller Droplets
Nozzle sizes			
Minimum	#7 7/64" (2.78 mm)	#10 5/32" (3.97 mm)	#10 5/32" (3.97 mm)
Maximum*	#24 3/8" (9.53 mm)	#24 3/8" (9.53 mm)	#24 3/8" (9.53 mm)
Flows			
Minimum	1.09 gpm (248 L/hr)	2.24 gpm (509 L/hr)	2.24 gpm (509 L/hr)
Maximum	15.78 gpm (3584 L/hr)	15.78 gpm (3584 L/hr)	15.78 gpm (3584 L/hr)
Diameters			
Minimum at 3 ft (0.91 m)	30 ft (9.1 m)	38 ft (11.6 m)	33 ft (10.1 m)
Maximum at 3 ft (0.91 m)	41 ft (12.5 m)	43 ft (13.1 m)	36 ft (11.0 m)
Minimum at 6 ft (1.83 m)	35 ft (10.7 m)	43 ft (13.1 m)	38 ft (11.6 m)
Maximum at 6 ft (1.83 m)	45 ft (13.7 m)	50 ft (15.2 m)	43 ft (13.1 m)
Minimum at 9 ft (2.74 m)	37 ft (11.3 m)	46 ft (14.0 m)	43 ft (13.1 m)
Maximum at 9 ft (2.74 m)	47 ft (14.3 m)	55 ft (16.8 m)	50 ft (15.2 m)
Maximum Spacing**			
at 6 ft (1.8 m) ground clearance	18 ft (5.5 m)	20 ft (6.1 m)	18 ft (5.5 m)
at 9 ft (2.74 m) ground clearance	18 ft (5.5 m)	20 ft (6.1 m)	18 ft (5.5 m)
Pressure at the Nozzle			
Minimum	10 psi (0.69 bar)	10 psi (0.69 bar)	10 psi (0.69 bar)
Maximum	15 psi (1.03 bar)	15 psi (1.03 bar)	15 psi (1.03 bar)

Three different deflector models based on desired trajectory and droplet size.

*It is recommended that larger nozzle sizes be used only on soils that are suited for higher application rates.

**For optimum performance, Senninger recommends the use of maximum spacing for 1-2 spans only.

Note: When outlet spacing exceeds 10 ft (3.0 m), keep Xi-Wobs above crop canopy. This is especially important on high profile crops. Not warranted for rigid installation on offsets or booms larger than 10.5 ft (3.2 m). Longer offsets and booms require a minimum of 2 ft (0.61 m) reinforced flex hose.

Xcel-Wobbler™ TOP

Senninger has expanded their patented Wobbler technology with a new top-of-pipe Xcel-Wobbler employing the innovative UP3 nozzle. This new sprinkler is designed for low pressure to promote energy savings. It produces a wind-resistant larger droplet size. The gentle rain-like application is suitable for all soils and various terrains.



FEATURES

- Uses Wobbler Technology™ – unique rotary action combined with wobbling grooved deflectors
- Outstanding uniformity over a large area for low application intensity.
- More economical than sprinkler packages with crop components
- Low pressure operation saves money and energy - 10 to 15 psi (0.69 to 1.03 bar)
- UP3 snap-in nozzle is easy to remove for cleaning. To remove the nozzle, simply pinch and pull, then place and click to install.

XCEL-WOBBLER TOP DESIGN CRITERIA

	(Blue) 6-groove 5-degrees Large Droplets
Nozzle Sizes	
Minimum	#6 3/32" (2.38 mm)
Maximum*	#26 13/32" (10.32 mm)
Flows	
Minimum	0.80 gpm (182 L/hr)
Maximum	14.98 gpm (3402 L/hr)
Diameters	
Minimum at 12 ft. (3.66 m)	44 ft (13.4 m)
Maximum at 12 ft. (3.66 m)	51 ft (15.5 m)
Maximum Spacing	
at 12 ft (3.66 m) ground clearance	20 ft (6.1 m) up to nozzle #16.5 10 ft (3.0 m) nozzles #17 - 26
Pressure at the Nozzle	
	10 psi (0.69 bar)

* It is recommended that larger nozzle sizes be used only on soils that can handle higher application rates.

XCEL-WOBBLER SYSTEM ASSEMBLY

- The Xcel-Wobbler TOP must employ a 10 psi (0.69 bar) pressure regulator (PSR or PSR-2 recommended).
- Use a ¾" galvanized nipple or Senninger's impact-modified thermoplastic nipple into the mainline (maximum 2 feet length). PVC nipples are not recommended.
- The Xcel-Wobbler UP3 TOP is designed specifically for upright installation on top-of-pipe.
- The Xcel-Wobbler UP3 TOP is not recommended for a manifold installation of two or more units from a single outlet.

Note: Any modifications or deletions regarding installation requirements will void warranty.

Pivot Master®







Senninger's Pivot Master impact sprinklers distribute water in a low 6° trajectory and are designed to resist wind-drift. Their large diameter of throw means fewer sprinklers are needed.

FEATURES

- Color-coded band identifies each model based on flow (see chart below)
- Durable design with an enclosed splasharm spring and bearing for protection from the elements
- ¾" NPT brass connection for use in galvanized steel fittings
- Hand Tight Nozzles eliminate the need for tools during renozzling; simply place and twist to install. Nozzles sizes are easily identified with color-coding. Warranted to maintain their correct orifice size for five years



PIVOT MASTER IMPACT DESIGN CRITERIA

				
	3006 - Orange	4006 - White	5006 - Blue	5006-2 - Blue
Nozzle sizes				
Minimum	#7 7/64" (2.78 mm)	#10 5/32" (3.97 mm)	#13 13/64" (5.16 mm)	#13 x 12 13/64" x 3/16" (5.16 x 4.76 mm)
Maximum*	#9 9/64" (3.57 mm)	#12 3/16" (4.76 mm)	#18 9/32" (7.14 mm)	#18 x 18 9/32" x 9/32" (7.14 x 7.14 mm)
Flows				
Minimum	1.87 gpm (425 L/hr)	3.80 gpm (863 L/hr)	6.20 gpm (1408 L/hr)	11.34 gpm (2576 L/hr)
Maximum	4.35 gpm (988 L/hr)	7.70 gpm (1749 L/hr)	16.0 gpm (3634 L/hr)	36.0 gpm (8177 L/hr)
Diameters				
Minimum at 12 ft (3.66 m)	73 ft (22.3 m)	80 ft (24.4 m)	84 ft (25.6 m)	84 ft (25.6 m)
Maximum at 12 ft (3.66 m)	87 ft (26.5 m)	93 ft (28.3 m)	105 ft (32.0 m)	105 ft (32.0 m)
Pressure at the nozzle				
Minimum	30 psi (2.07 bar)	30 psi (2.07 bar)	30 psi (2.07 bar)	30 psi (2.07 bar)
Maximum	60 psi (4.14 bar)	60 psi (4.14 bar)	60 psi (4.14 bar)	60 psi (4.14 bar)

*It is recommended that larger nozzle sizes be used only on soils that can handle higher application rates. Larger flow models available. Square-orifice nozzles not recommended.

Dynamic Drive

SPRAYS

The LDN Dynamic Drive is an economical solution that doesn't sacrifice performance. Built on the LDN sprinkler platform, the Dynamic Drive features a modular design and easy clean nozzles that make maintenance easier and more efficient. Its advanced brake technology ensures a smooth and consistent movement, offering optimum control for a wide and uniform application.



FEATURES

- Interchangeable parts make maintenance easier and allow for tool-free assembly and disassembly
- One sprinkler model and one pressure regulator model can be installed across the entire machine
- Five models based on installation and pressure

TOP-OF-PIPE SYSTEM ASSEMBLY

- The LDN® Dynamic Drive TOP models are designed specifically for upright installation on the top-of-pipe along a center pivot or other mechanical move system.
- The LDN Dynamic Drive TOP low-pressure model requires a 10 psi (0.69 bar) pressure regulator. Senninger PSR™2 is recommended.
- Install with a ¾" Stainless Steel (FTN33S) or the Senninger impact-modified thermoplastic nipple (FTN33) into the mainline not to exceed 2 ft (0.61 m) length.
- The LDN Dynamic Drive TOP models are not recommended for a manifold installation of two or more units from a single outlet.

NOTE: Any modifications or deletions regarding installation requirements will void product warranty.



TOP-OF-PIPE SYSTEM DESIGN CRITERIA

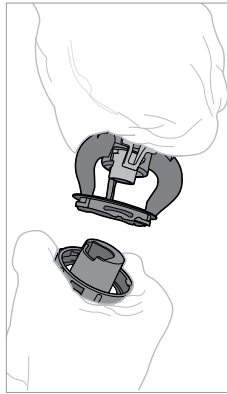
	Low Pressure TOP (White deflector)	High Pressure TOP (Dark blue deflector)
Nozzle Sizes		
Minimum	#6 3/32" (2.38 mm)	#6 3/32" (2.38 mm)
Maximum*	#26 13/32" (10.32 mm)	#26 13/32" (10.32 mm)
Flow Range		
Minimum	0.80 gpm (182 L/hr)	0.98 gpm (223 L/hr)
Maximum	14.98 gpm (3402 L/hr)	33.49 gpm (7606 L/hr)
Diameters		
12 ft (3.66 m) height	36 - 52 ft (11.0 - 15.8 m)	50 - 60 ft (15.2 - 18.3 m)
Maximum Spacing		
12 ft (3.66 m) ground clearance	11 ft (3.4 m)	20 ft (6.1 m)
Pressure at the nozzle		
Minimum and Maximum	10 psi (0.69 bar)	15 - 50 psi (1.03 - 3.45 bar)

* It is recommended that larger nozzle sizes be used only on soils that are suited for higher application rates.

Dynamic Drive

REMOVE ENGINE MODULE

To remove the engine module, grasp the LDN bracket base with one hand and the engine module's extension bracket ring with the other. Then twist in opposite directions.



DROP HOSE AND PART-CIRCLE SYSTEM ASSEMBLY

- The LDN® Dynamic Drive drop models can be mounted on rigid drops or flexible hose drops.
- When using flexible hose, a weight is recommended.
- When using the Senninger Universal Magnum Weight, thread onto the LDN bracket base.
- Conventional slip over weights can be used with the LDN Dynamic Drive drop models.
- Mount the LDN Dynamic Drive drop models no less than 3 ft. (0.91 m) above the ground.
- Mount the LDN Dynamic Drive part-circle model on a semi-rigid or rigid drop to ensure proper distribution.

DROP HOSE SYSTEM DESIGN CRITERIA

	Low Pressure DROP (Green deflector)	High Pressure DROP (Orange deflector)
Nozzle Sizes		
Minimum	#6 3/32" (2.38 mm)	#6 3/32" (2.38 mm)
Maximum*	#26 13/32" (10.32 mm)	#26 13/32" (10.32 mm)
Flow Range		
Minimum	0.80 gpm (182 L/hr)	0.98 gpm (223 L/hr)
Maximum	14.98 gpm (3402 L/hr)	25.94 gpm (5892 L/hr)
Diameters		
3 ft (0.91 m) height	25 - 39 ft (7.6 - 11.9 m)	26 - 47 ft (7.9 - 14.3 m)
6 ft (1.83 m) height	27 - 49 ft (8.2 - 14.9 m)	28 - 59 ft (8.5 - 18 m)
9 ft (2.74 m) height	31 - 51 ft (9.4 - 15.5 m)	38 - 59 ft (11.6 - 18 m)
Maximum Spacing		
9 ft (2.74 m) ground clearance	15 ft (4.6 m)	20 ft (6.1 m)
Pressure at the nozzle		
Minimum and Maximum	10 psi (0.69 bar)	15 - 30 psi (1.03 - 2.07 bar)

* It is recommended that larger nozzle sizes be used only on soils that are suited for higher application rates.

Note: When outlet spacing exceeds 10 ft (3.0 m), keep Dynamic Drive sprinklers above crop canopy. This is especially important on high profile crops.

Not warranted for rigid installation on offsets or booms larger than 10.5 ft (3.2 m).

PART-CIRCLE SYSTEM DESIGN CRITERIA

	Part-Circle (Mustard deflector)
Nozzle Sizes	
Minimum	#8 1/8" (3.18 mm)
Maximum*	#15 15/64" (5.95 mm)
Flow Range	
Minimum	1.43 gpm (325 L/hr)
Maximum	8.79 gpm (1996 L/hr)
Radius	
9 ft (2.74 m) height	21 to 27 ft (6.4 to 8.2 m)
Pressure at the nozzle	
Minimum and Maximum	10 - 30 psi (0.69 - 2.07 bar)

*It is recommended that larger nozzle sizes be used only on soils that are suited for higher application rates.



Close Spacing



Close Spacing is a water-efficient irrigation practice featuring low-pressure LEPA bubblers.

LDN UP3 BUBBLER ASSEMBLY

The bubbler side of the deflector pad gently deposits water onto the soil surface in a bubbling stream. This aerated cascading stream resists the effects of wind and evaporation. It can also be used to prevent wetting row crop foliage.

LDN LEPA SHROUD WITH BUBBLE INSERTS

The Shroud is used in conjunction with deflector pads containing an insert. Growers can choose either the beige bubble pad insert or the red CM1 pad insert opposite a variety of deflectors based on their soil type and crop. The Shroud deflects the water from the bubbler insert down in a gentle dome-shaped pattern providing complete coverage of the field. Due to its less concentrated distribution pattern, the LDN Shroud can be used on fields without furrows and is often used for germination as well as irrigation.

NEW LDN WIDE SPRAY BUBBLER

NEW!

This newest addition to the Senninger LEPA options provides total coverage for wider spacing. It produces a wide gentle aerated pattern suitable for most crops and soils.

FEATURES

- ▶ Prevent wind-drift losses
- ▶ Minimize evaporative loss
- ▶ Avoid wetting plant canopy in row crops
- ▶ Achieve a more uniform root zone coverage
- ▶ Can increase yield using less water

Close Spacing



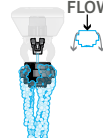
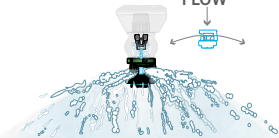
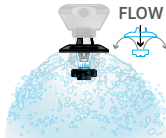
LDN with Shroud and beige bubble insert



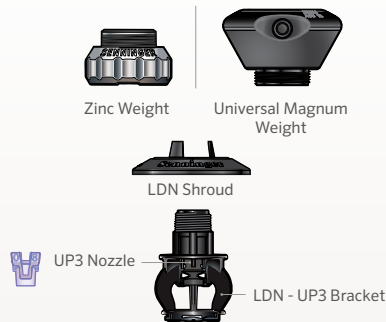
LDN with Wide Spray Bubbler



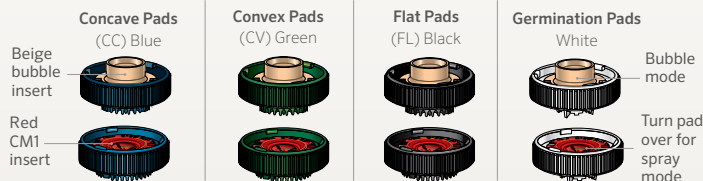
LDN with UP3 Bubbler Pad Assembly



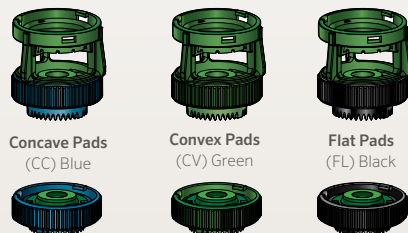
LDN LEPA PAD ASSEMBLY OPTIONS



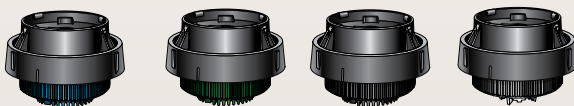
LDN PAD WITH BUBBLE INSERTS (Shroud required)



LDN WIDE SPRAY BUBBLE DEFLECTOR ASSEMBLIES



LDN BUBBLER PAD ASSEMBLIES



Small 12-grooved pads available (Used with UP3 Nozzles #2, #2.5, #3, #3.5, #4, #4.5).
120-Mesh Filtration Recommended.

EASY CONVERSION TO SPRAY IRRIGATION

For spray irrigation with any of the Senninger LEPA options, simply twist and flip the deflector. Deflectors are available with different trajectories - blue (concave) for a slightly upward spray, black (flat), green (convex) for a slightly downward spray, and white for a higher spray. They are available with different surfaces - grooved or smooth.

FOR OPTIMUM RESULTS, INCORPORATE:

Ball Valve - for easy water shut-off when converting between spray, LEPA and chemigation mode

** Ball Valve requires a F x M adapter when installed above The One Weight*

BUBBLE RECOMMENDATIONS

Flow: 0.27 to 18.35 gpm (61 to 4168 L/hr)
Pressure: 6 to 15 psi (0.41 to 1.03 bar)
#4 - 26 Nozzles

LDN® Single

The Senninger LDN (Low Drift Nozzle) was the first spray nozzle providing the option to stack multiple deflector-pads. This widens the wetted footprint of larger flows and produces more uniform droplets that help match the soil's infiltration rate to reduce run-off.



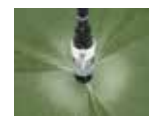
LDN SINGLE PAD
Single Pad Trajectories:



EASY CONVERSION TO AND FROM SPRAY IRRIGATION

For spray irrigation with any of the Senninger LEPA options, simply twist and flip and unlock the deflector pad

The LDN is incredibly versatile thanks to its various deflector pad options. The surfaces of the deflector pads (smooth, grooved, medium groove, or deep groove) each deliver a different spray pattern and droplet size. Each surface is also available in three basic geometries based on the desired trajectory of throw – flat (black), concave (blue) for a slightly upward spray, and convex (green) for a slightly downward spray.



SMOOTH

Fine Droplets
Tighter Soils
Nozzles #2 - 26



MEDIUM 12 GROOVE

Medium Droplets
Medium Soils
Nozzles #2 - 9



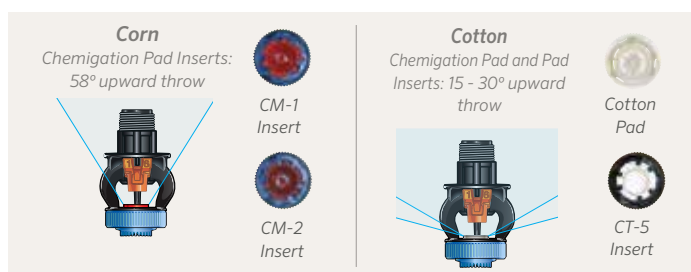
33 GROOVE

Medium Droplets
Medium Soils
Nozzles #4 - 26



24 DEEP GROOVE

Larger Droplets
Looser Soils
Nozzles #4 - #26



CHEMIGATION CONVERSION

The LDN offers chemigation pad inserts for corn or cotton. These are designed to produce an upward spray under the crop canopy to wash the underside of the leaves, where pests might hide. To change from irrigation to chemigation mode, simply twist and unlock the deflector pad. Flip it over and twist to lock it back in place. Any LDN Pad can be backed with a corn chemigation pad or a cotton chemigation pad insert.

LDN DESIGN CRITERIA	Single Mini Pad 12 groove	Single Pad 24 Deep Groove	Single Pad 33 Groove
Nozzle sizes			
Minimum	#4 1/16" (1.59 mm)	#4 1/16" (1.59 mm)	#10 5/32" (3.97 mm)
Maximum*	#9 9/64" (3.57 mm)	#26 13/32" (10.32 mm)	#26 13/32" (10.32 mm)
Flows			
Minimum	0.27 gpm (61 L/hr)	0.27 gpm (61 L/hr)	1.74 gpm (395 L/hr)
Maximum	2.56 gpm (581 L/hr)	21.18 gpm (4811 L/hr)	21.18 gpm (4811 L/hr)
Maximum Spacing at 6 ft (1.8 m) ground clearance			
	10 ft (3.0 m)	10 ft (3.0 m)	10 ft (3.0 m)
Pressure at the Nozzle			
Minimum	6 psi (0.41 bar)	6 psi (0.41 bar)	6 psi (0.41 bar)
Maximum	20 psi (1.38 bar)	20 psi (1.38 bar)	20 psi (1.38 bar)

Double & Triple **LDN**[®]



Use the Universal Magnum Weight or The One Weight on flexible hose installations.

(See pg. 25)

DRAW HOSE ADAPTER

The LDN can be used with a drag hose to apply water directly into the furrow. The drag hose adapter is easy to install, snapping right onto the LDN bracket like the LDN pads.



MULTIPLE PAD OPTIONS

The LDN was the first spray nozzle for pivots to let irrigators stack multiple pads on one applicator. Each additional pad has extra grooves that divide larger flows into multiple streams, allowing the LDN to distribute water more efficiently along the length of the pivot.

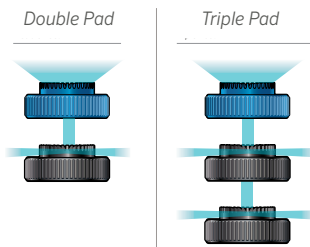
Larger flows can flood a single pad, so the additional streams help eliminate small droplets, reduce wind-drift, and maintain pattern uniformity.

Since the LDN uses multiple pads and deflectors, the diameter of coverage you can achieve with the LDN is incredibly flexible. Each pad has its own trajectory and distance throw, so water isn't concentrating in one place at any time.

Use the chart below to help you determine if you need double or triple pads, based on your nozzle size.

NOZZLE SIZES	SINGLE	STACKED
04 1/16" (1.59 mm)		
05 5/64" (1.98 mm)	mini	
06 3/32" (2.38 mm)		
07 7/64" (2.78 mm)		
08 1/8" (3.18 mm)		
09 9/64" (3.57 mm)		
10 5/32" (3.97 mm)	Single	Single
11 11/64" (4.37 mm)		
12 3/16" (4.76 mm)		
13 13/64" (5.16 mm)		
14 7/32" (5.56 mm)		
15 15/64" (5.95 mm)		
16 1/4" (6.35 mm)		Double
17 17/64" (6.75 mm)		
18 9/32" (7.14 mm)		
19 19/64" (7.54 mm)		
20 5/16" (7.94 mm)		Triple
21 21/64" (8.33 mm)		
22 11/32" (8.73 mm)		
23 23/64" (9.13 mm)		
24 3/8" (9.53 mm)		
25 25/64" (9.92 mm)		
26 13/32" (10.32 mm)		

MULTIPLE PADS



LDN DESIGN CRITERIA	Double Pad 66 Groove	Triple Pad 99 Groove
Nozzle sizes		
Minimum	#15 15/64" (5.95 mm)	#20 5/16" (7.94 mm)
Maximum*	#26 13/32" (10.32 mm)	#26 13/32" (10.32 mm)
Flows		
Minimum	3.93 gpm (893 L/hr)	6.99 gpm (1588 L/hr)
Maximum	21.18 gpm (4811 L/hr)	21.18 gpm (4811 L/hr)
Maximum Spacing at 6 ft (1.8 m) ground clearance		
	10 ft (3.0 m)	10 ft (3.0 m)
Pressure at the Nozzle		
Minimum	6 psi (0.41 bar)	6 psi (0.41 bar)
Maximum	20 psi (1.38 bar)	20 psi (1.38 bar)

See Part-Circle on pg.16

LDN® Part-Circle

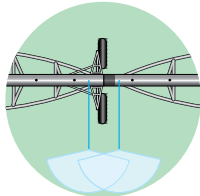
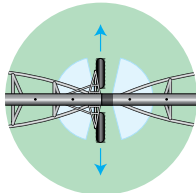


The Senninger Part-Circle LDN is specifically designed to distribute water away from wheel tracks to minimize tracking.

FEATURES

- Can be used in conjunction with standard full circle LDNs or other Senninger sprinklers on the remainder of a pivot
- Distributes water in a 170° pattern with 17 streams at a 10° trajectory for minimum evaporative loss
- Integrated base allows the applicator to be installed directly into a pressure regulator or onto a standard 3/4" NPT female connection with no special threads or fittings required.
- Maximum radius of throw- up to 29 ft (8.8 m)
- UP3 snap-in nozzle is easy to remove for cleaning or changing. To remove the nozzle simply pinch and pull, then place and click to install.

Dual Nozzle Carrier available see pg. 2



THE PART-CIRCLE LDN DISTRIBUTES WATER AWAY FROM WHEEL TRACKS.

For use on rigid drops only. Distribution pattern varies by nozzle size and pressure.

LDN PART-CIRCLE DESIGN CRITERIA	Part-Circle
Nozzle sizes	
Minimum	#6 3/32" (2.38 mm)
Maximum*	#18 9/32" (7.14 mm)
Flows	
Minimum	0.62 gpm (141 L/hr)
Maximum	10.35 gpm (2351 L/hr)
Radius	
Minimum at 3 ft (0.91 m)	9 ft (2.7 m)
Maximum at 3 ft (0.91 m)	25 ft (7.6 m)
Minimum at 6 ft (1.83 m)	11 ft (3.4 m)
Maximum at 6 ft (1.83 m)	28 ft (8.5 m)
Minimum at 9 ft (2.74 m)	13.5 ft (4.1 m)
Maximum at 9 ft (2.74 m)	29 ft (8.8 m)
Pressure at Nozzle	
Minimum	6 psi (0.41 bar)
Maximum	15 psi (1.03 bar)

*It is recommended that larger nozzle sizes be used only on soils that can handle higher application rates.

End Spray

Senninger's low pressure End Spray is designed for use at the end of a machine. It can help irrigate the area between the last sprinkler and the end gun. The low angle design resists the effects of wind and the large orifice resists clogging.

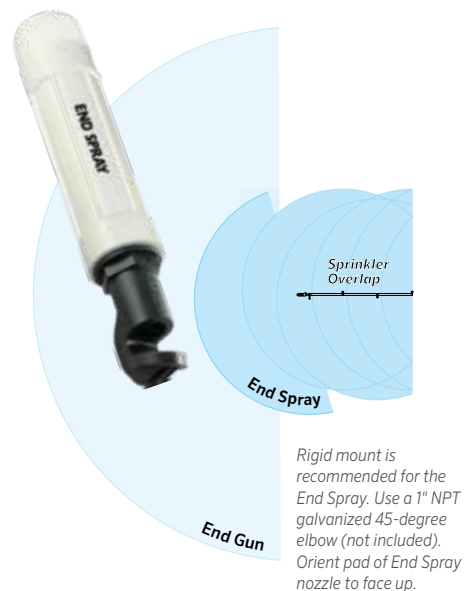


FEATURES

- No moving parts for longer product life
- Provides a 180° distribution with good uniformity over large area to help reduce compaction and run-off
- End Spray must be installed on a 1" F NPT connection
- One-year warranty on materials and workmanship

END SPRAY DESIGN CRITERIA

END SPRAY DESIGN CRITERIA	
Nozzle Sizes	
Minimum	#20 5/16" (7.94 mm)
Maximum	#38 19/32" (15.08 mm)
Flows	
Minimum	8.1 gpm (1840 L/hr)
Maximum	48.9 gpm (11106 L/hr)
Average Radius	
at 7 - 12 ft (2.13 - 3.66 m)	25 - 29 ft (7.6 - 8.8 m)
Pressure at the Nozzle	
Minimum	10 psi (0.69 bar)
Maximum	25 psi (1.72 bar)



Super Spray®



The Senninger Super Spray has interchangeable deflector pad options to meet various droplet size, crop, climatic, and soil requirements. Its design makes it ideal for surface water due to the distance between the nozzle, deflector and bracket legs.

FEATURES

- Twenty-two versatile, easily changeable snap-in pads are available
- No moving parts for longer product life
- Can be mounted on top-of-pipe or on hose drops
- UP3 snap-in nozzle is easy to remove for cleaning or changing. To remove the nozzle simply pinch and pull, then place and click to install.

Dual Nozzle Carrier available see pg. 2



Use the Universal Magnum Weight or The One Weight on flexible hose installations (See pg. 25)



DRAG HOSE ADAPTER

You can apply water directly into the furrow with the Super Spray drag hose adapter and a drag line. The adapter snaps right into the Super Spray, replacing the deflector pad.

SUPER SPRAY DESIGN CRITERIA	Flat, Concave, Convex (black, blue, green)	Mini Smooth (black, blue, green)	Corn Chemigation (red) Cotton Chemigation (white)	Mini Corn Chemigation (red) Mini Cotton Chemigation (white)
Nozzle sizes				
Minimum	#4 1/16" (1.59 mm)	#4 1/16" (1.59 mm)	#10 5/32" (3.97 mm)	#4 1/16" (1.59 mm)
Maximum*	#26 13/32" (10.32 mm)	#9.5 19/128" (3.76 mm)	#26 13/32" (10.32 mm)	#9.5 19/128" (3.76 mm)
Flows				
Minimum	0.27 gpm (61 L/hr)	0.27 gpm (61 L/hr)	1.74 gpm (395 L/hr)	0.27 gpm (61 L/hr)
Maximum	29.96 gpm (6805 L/hr)	2.02 gpm (459 L/hr)	29.96 gpm (6805 L/hr)	2.02 gpm (459 L/hr)
Maximum Spacing				
at 6 ft (1.8 m) ground clearance	10 ft (3.0 m)	10 ft (3.0 m)	10 ft (3.0 m)	10 ft (3.0 m)
at 9 ft (2.74 m) ground clearance	10 ft (3.0 m)	10 ft (3.0 m)	10 ft (3.0 m)	10 ft (3.0 m)
Pressure at the Nozzle				
Minimum	6 psi (0.41 bar)	6 psi (0.41 bar)	6 psi (0.41 bar)	6 psi (0.41 bar)
Maximum	40 psi (2.76 bar)	40 psi (2.76 bar)	40 psi (2.76 bar)	40 psi (2.76 bar)

**It is recommended that larger nozzle sizes be used only on soils that can handle higher application rates.*

Super Spray deflector pads are identified by their shape (flat, concave, or convex) and surface type (smooth, medium-grooved, or deep-grooved). The shape and surface help control spray pattern and droplet size. Chemigation pads are available in high profile (corn) and low profile (cotton) to reach the underside of foliage. These snap-in pads and UP3 nozzles can be easily changed during the season to fit varying field, flow and growing conditions.







Concave-Grooved



Concave-Smooth

CONCAVE	
	24 Deep Groove
	36 Deep-Groove
	48 Deep-Groove
	36 Medium-Groove
	Smooth
	Mini-Smooth

CHEMIGATION	
	Corn Chemigation
	Mini Corn Chemigation
	Cotton Chemigation
	Mini Cotton Chemigation



Flat-Grooved



Flat-Smooth

FLAT	
	24 Deep Groove
	36 Deep-Groove
	48 Deep-Groove
	36 Medium-Groove
	Smooth
	Mini-Smooth



Convex-Grooved



Convex-Smooth

CONVEX	
	24 Deep Groove
	36 Deep-Groove
	48 Deep-Groove
	36 Medium-Groove
	Smooth
	Mini-Smooth

GooseNecks

Senninger gooseNecks are constructed of non-corrosive, UV-resistant thermoplastic materials for long life. This reduces plugging from rust flaking sometimes associated with galvanized gooseNecks.



FEATURES

- Three models available: 180° single, 125° single, and 125° double
- Lightweight for easier handling and installation
- Lower freight costs
- Available with either a 3/4" hose or 3/4" NPT male threaded outlet connection or the 180° single is also available with 19mm barb outlet connection

The Senninger line of 125° gooseNecks and truss rod hose slings allow the conversion of wide-spaced machines to closer drop spacing and reduces or eliminates the need for adding extra outlets.



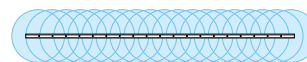
125° DOUBLE
Use only with Truss Rod
Hose Slings



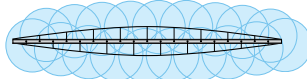
125° SINGLE



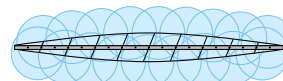
WATER PATTERNS



Conventional Applicators



Single 125° GooseNecks
(with Truss Rod Hose Slings)



Double 125° GooseNecks
(with Truss Rod Hose Slings)

GOOSENECK SYSTEM ASSEMBLY

- Max recommended pressure: 120 psi (8.27 bar).
- Max recommended flow: 20 gpm (4543 L/hr) or 15 gpm per side for the double model.
- Max recommended water temperature: 110° F (43° C).
- Ambient temperatures to 150° F (66° C) will not damage gooseNecks.
- Attaches to mainline using galvanized nipple or Senninger's impact-modified thermoplastic nipple (PVC nipples not recommended)
- Wrench tighten using nipple hex until snug. Overtightening may cause issues.
- If using a sealant, use only Teflon tape.
- When using rigid drops in high profile crops, drop length should not exceed one foot below truss rod.

Note: Any modifications or deletions regarding installation requirements will void warranty.

GooseNecks shown are pre-assembled with Senninger's impact-modified thermoplastic nipple. Use of other plastic nipples is not recommended. Also available without nipple.

Truss Rod Hose Slings

Senninger's single and double 125° goosenecks used with truss rod hose slings provide easy positioning of drops along the span. They help lower application intensity by increasing the wetted area of coverage to promote better soil infiltration.



FEATURES

- Easy to install
- Color coded models for various truss rod sizes:
 $\frac{5}{8}$ " (rust), $\frac{1}{16}$ " (green), $\frac{3}{4}$ " (black),
 $\frac{13}{16}$ " (grey), $\frac{7}{8}$ " (blue)
- Securely fastens $\frac{3}{4}$ " flexible hose to the truss rod to maintain the drop/sprinkler position and allows for easy adjustments
- Supports flexible hose to prevent kinking and abrasive wear
- Used in conjunction with the 125° model goosenecks
- Helps reduce pattern interruption from colliding streams



The Senninger new Filter Regulator helps prevent clogging of the small nozzles on the first few spans of a center pivot. This solution integrates filtration and pressure regulation in one product to provide installation convenience and help ensure optimal system performance



FEATURES

- Field-proven PSR2 internal components
- Durable stainless-steel mesh screens
- Convenient installation above the sprinkler
- Three pressure models: 6, 10, and 15 psi (0.41, 0.69, and 1.03 bar)
- Choice of three stainless steel screen models: 20, 30, and 40 mesh
- Easy access to mesh screens with a twist of the bonnet no tools required; no need to dismantle the drop assembly.
- ¾" M NPT inlet x ¾" F NPT outlet

FILTER REGULATOR DESIGN CRITERIA

	Preset Operating Pressure	Maximum Inlet Pressure	Flow Range
FPSR2063M3F20	6 psi (0.41 bar)	80 psi (5.51 bar)	2.95 - 9.19 gpm (670 - 2087 L/hr)
FPSR2063M3F30	6 psi (0.41 bar)	80 psi (5.51 bar)	0.62 - 2.72 gpm (141 - 618 L/r)
FPSR2063M3F40	6 psi (0.41 bar)	80 psi (5.51 bar)	0.07 - 0.52 gpm (16 - 118 L/hr)
FPSR2103M3F20	10 psi (0.69 bar)	90 psi (6.20 bar)	3.81 - 11.87 gpm (865 - 2696 L/hr)
FPSR2103M3F30	10 psi (0.69 bar)	90 psi (6.20 bar)	0.80 - 3.52 gpm (182 - 799 L/hr)
FPSR2103M3F40	10 psi (0.69 bar)	90 psi (6.20 bar)	0.09 - 0.67 gpm (20 - 152 L/hr)
FPSR2153M3F20	15 psi (1.03 bar)	95 psi (6.55 bar)	4.66 - 14.54 gpm (1058 - 3302 L/hr)
FPSR2153M3F30	15 psi (1.03 bar)	95 psi (6.55 bar)	0.98 - 4.31 gpm (223 - 979 L/hr)
FPSR2153M3F40	15 psi (1.03 bar)	95 psi (6.55 bar)	0.11 - 0.82 gpm (25 - 186 L/hr)

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, with flows up to 11 gpm (2498 L/hr), but not exceeding the maximum inlet pressure as shown above.

Higher flows require additional inlet pressure to engage the regulator. Where flows are greater than 11 gpm (2498 L/hr.), the inlet pressure should be at least 9 psi (0.62 bar) above the expected outlet pressure but not exceeding the maximum inlet pressure as shown above.

20 psi (1.38 bar) model also available.

FILTER SCREENS

- Replacement filter screens also available with color-coded rubber seals to readily identify mesh size.
- Color-coded stickers available for the outer bonnet to assist installers in matching the mesh size to the correct nozzle
- Easy in-field maintenance to exchange installed filter screens for new or cleaned screens; clean screens for reinstallation during the next scheduled maintenance cycle

REPLACEMENT SCREEN PART NUMBERS

Models	Description
FPSR220SCREEN	Filter PSR2, 20 mesh screen, black rings Nozzle #13 - 23
FPSR230SCREEN	Filter PSR2, 30 mesh screen, green rings Nozzle #6 - 12.5
FPSR240SCREEN	Filter PSR2, 40 mesh screen, grey rings Nozzle #2 - 5.5



Senninger pressure regulators maintain a constant preset outlet pressure that can be matched to the applicator design, regardless of variations in inlet pressure. This helps maintain sprinkler pattern integrity and performance.



THE PATENTED PSR-2 IS IDEAL FOR SYSTEMS PUMPING SURFACE WATER.

Senninger introduced the first high-quality in-line pressure regulator to the irrigation industry in 1966.

FEATURES

- Flows: 0.5 to 15 gpm (114 to 3407 L/hr) allows the use of the same model along the entire machine.
- Each regulator maintains a constant preset outlet pressure based on its flow/inlet pressure.
- Outlet pressures: 6 to 50 psi (0.41 to 3.45 bar)
- Tamper-proof housing
- Very low hysteresis and friction losses
- Pressure tested, to ensure quality and performance

PSR-2 DESIGN CRITERIA	Preset Operating Pressure	Maximum Inlet Pressure	Flow Range
PSR-2-06	6 psi (0.41 bar)	80 psi (5.51 bar)	0.5 - 15 gpm 114 - 3407 L/hr
PSR-2-10	10 psi (0.69 bar)	90 psi (6.20 bar)	
PSR-2-12	12 psi (0.83 bar)	90 psi (6.20 bar)	
PSR-2-15	15 psi (1.03 bar)	95 psi (6.55 bar)	
PSR-2-20	20 psi (1.38 bar)	100 psi (6.89 bar)	
PSR-2-25	25 psi (1.72 bar)	105 psi (7.24 bar)	
PSR-2-30	30 psi (2.07 bar)	110 psi (7.58 bar)	
PSR-2-35	35 psi (2.41 bar)	115 psi (7.93 bar)	
PSR-2-40	40 psi (2.76 bar)	120 psi (8.27 bar)	
PSR-2-50	50 psi (3.45 bar)	130 psi (8.96 bar)	

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.

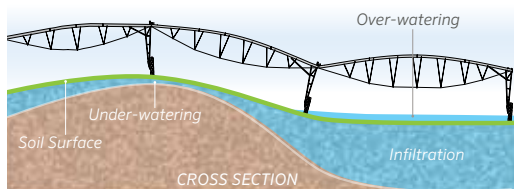
CAUTION: Always install downstream from all shut-off valves. Not NSF certified. Recommended for outdoor use only.

APPLICATION INTENSITY

Uncontrolled pressure fluctuations in irrigation systems result in unwanted flow deviations and over and under-watering. These fluctuations occur with the cycling on/off of an end gun, activation of a corner arm, variations in field elevation or water supply. Proper use of pressure regulators helps maintain the overall efficiency of an irrigation system.

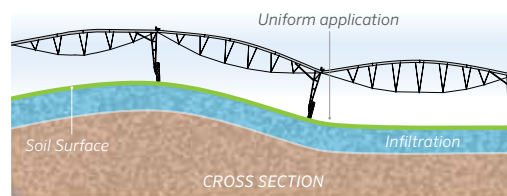
WITHOUT PRESSURE REGULATORS

Many irrigation systems have the potential to experience elevation and pressure changes, which cause flow fluctuations on unregulated systems.



WITH PRESSURE REGULATORS

Distribution remains uniform even as elevation changes.



PRL



**PRL-
LOW FLOW**

FEATURES

- Flows: 0.5 to 8.0 gpm (114 to 1817 L/hr) depending on model
- Each regulator maintains a constant preset outlet pressure based on its flow/inlet pressure.
- Outlet pressures: 6 to 40 psi (0.41 to 2.76 bar)
- Tamper-proof housing
- Very low hysteresis and friction losses
- Pressure tested, to ensure quality and performance

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

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.

CAUTION: Always install downstream from all shut-off valves.
Not NSF certified. Recommended for outdoor use only.

PMR-MF



**PMR-
MEDIUM FLOW**

FEATURES

- Flows: 2.0 to 20 gpm (454 to 4542 L/hr) depending on model
- Each regulator maintains a constant preset outlet pressure based on its flow/inlet pressure.
- Outlet pressures: 6 to 60 psi (0.41 to 4.14 bar)
- Very low hysteresis and friction losses
- Pressure tested, to ensure quality and performance

PMR-MF DESIGN CRITERIA	Preset Operating Pressure	Maximum Inlet Pressure	Flow Range
PMR06 MF	6 psi (0.41 bar)	80 psi (5.51 bar)	4 - 16 gpm 909 - 3634 L/hr
PMR10 MF	10 psi (0.69 bar)	90 psi (6.20 bar)	2 - 20 gpm 454 - 4542 L/hr
PMR12 MF	12 psi (0.83 bar)	90 psi (6.20 bar)	
PMR15 MF	15 psi (1.03 bar)	95 psi (6.55 bar)	
PMR20 MF	20 psi (1.38 bar)	100 psi (6.89 bar)	
PMR25 MF	25 psi (1.72 bar)	105 psi (7.24 bar)	
PMR30 MF	30 psi (2.07 bar)	110 psi (7.58 bar)	
PMR35 MF	35 psi (2.41 bar)	115 psi (7.93 bar)	
PMR40 MF	40 psi (2.76 bar)	120 psi (8.27 bar)	
PMR50 MF	50 psi (3.45 bar)	130 psi (8.96 bar)	
PMR60 MF	60 psi (4.14 bar)	140 psi (9.65 bar)	

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.

CAUTION: Always install downstream from all shut-off valves.
Not NSF certified. Recommended for outdoor use only.

<p>HOSE</p> <ul style="list-style-type: none"> • Durable ¾" reinforced flex hose • Long lasting construction with a UV-resistant PVC cover, polyester reinforcement yarns, and a PVC core tube • Lightweight with good abrasion resistance <p><i>Hose for use with LDN or Super Spray drag hose adapters also available</i></p> 	<p>HOSE CLAMPS/CRIMP TOOLS</p> <ul style="list-style-type: none"> • Hose Clamps: Stainless steel, one-ear design with mechanical interlock • Size range: 0.945" to 1.067" (24 to 27.1 mm) to fit various hose and poly drop sizes • Crimp tools: Specifically designed to be used for one-ear clamps. Available in 8 7/8" or 11 1/8" lengths 
<p>BALL VALVE</p> <p>The dial shut-off knob makes changing or cleaning sprinklers and spray nozzles easy while the system is still operating.</p> <ul style="list-style-type: none"> • Streamlined design reduces snagging and unintentional operation • Smooth-bore design maximizes bi-directional flow efficiency • UV-resistant • 125 psi pressure rating • Available with a ¾" F NPT female x ¾" M NPT male connection 	<p>ADAPTERS & FITTINGS</p> <p>Constructed from non-corrosive UV-resistant thermoplastic for a longer life.</p> <p>(See price list for all models)</p> <ul style="list-style-type: none"> • Models also available for PE tubing (grey): ¾" barb inlet x M NPT male or F NPT female outlets • Variety of thermoplastic pipe couplings, reducing couplings, nipples and plugs also available. • Backed by a two-year warranty 
<p>WEIGHTS</p> <p>Unique fit technology installs on all Senninger pivot sprinklers - i-Wob2, Xi-Wob, LDN, Dynamic Drive, and Super Spray.</p> <ul style="list-style-type: none"> • Design allows weight to remain on applicator during nozzle changes • Easy to install <p>UNIVERSAL MAGNUM WEIGHT</p> <p>UV-resistant thermoplastic construction prevents corrosion and deters metal theft.</p> 	<p>THE ONE WEIGHT</p> <p>Constructed entirely of zinc alloy for strength and resistance to corrosion</p>  <p><i>Note: Always be sure the weight is tightly threaded into the bottom of the i-Wob2 (140 inch-lbs. torque recommended).</i></p>
<p>PRESSURE GAUGES</p> <ul style="list-style-type: none"> • 2.5" Bourdon Tube Gauge is filled with glycerine, comes with a stainless steel case and has a ¼" NPT male connection. It is vibration and shock-resistant. Several models available. • 3.5" Bourdon Tube Industrial Gauge is filled with glycerine, comes with a Zytel nylon case, and has a ¼" NPT male connection. It is corrosion-resistant and impact-resistant. Several pressure models available. • Regular and freeze-proof models available • Backed by a one-year warranty 	<p>PRESSURE DROPS</p> <p>Provides a quick and easy check of end-of-system pressure</p> <ul style="list-style-type: none"> • Includes glycerin-filled 2.5" diameter gauge • Several pressure models available • ¾" F NPT inlet by ¾" F NPT outlet connection • Backed by a one-year warranty 

FEATURES

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

COMPONENTS

Nozzle Number and Nozzle color	Nozzle Orifice Size		6 psi 0.41 bar		10 psi 0.69 bar		15 psi 1.03 bar		20 psi 1.38 bar		25 psi 1.72 bar		30 psi 2.07 bar		35 psi 2.42 bar		40 psi 2.76 bar		50 psi 3.45 bar	
			gpm	(L/hr)	gpm	(L/hr)	gpm	(L/hr)	gpm	(L/hr)	gpm	(L/hr)	gpm	(L/hr)	gpm	(L/hr)	gpm	(L/hr)	gpm	(L/hr)
#2 Pink	1/32"	0.79 mm	0.07	16	0.09	20	0.11	25	0.12	27	0.14	32	0.15	34	0.16	36	0.18	41	0.20	45
#2.5	5/128"	0.99 mm	0.11	25	0.14	32	0.17	39	0.19	43	0.22	50	0.24	55	0.26	59	0.28	64	0.31	70
#3 Ice	3/64"	1.19 mm	0.15	34	0.20	45	0.24	55	0.28	64	0.31	70	0.34	77	0.37	84	0.40	91	0.44	100
#3.5	7/128"	1.4 mm	0.21	48	0.27	61	0.33	75	0.38	86	0.43	98	0.47	107	0.50	114	0.54	123	0.60	136
#4 Light Blue	1/16"	1.59 mm	0.27	61	0.35	79	0.43	98	0.50	114	0.56	127	0.61	139	0.66	150	0.70	159	0.79	179
#4.5	9/128"	1.78 mm	0.35	79	0.45	102	0.55	125	0.63	143	0.71	161	0.77	175	0.84	191	0.89	202	1.00	227
#5 Beige	5/64"	1.98 mm	0.43	98	0.55	125	0.68	154	0.78	177	0.87	198	0.96	218	1.04	236	1.11	252	1.24	282
#5.5	11/128"	2.16 mm	0.52	118	0.67	152	0.82	186	0.95	216	1.06	241	1.16	263	1.26	286	1.34	304	1.50	341
#6 Gold	3/32"	2.38 mm	0.62	141	0.80	182	0.98	223	1.13	257	1.26	286	1.38	313	1.50	341	1.60	363	1.79	407
#6.5	13/128"	2.59 mm	0.73	166	0.94	213	1.15	261	1.33	302	1.49	338	1.63	370	1.76	400	1.88	427	2.10	477
#7 Lime	7/64"	2.78 mm	0.85	193	1.09	248	1.34	304	1.54	350	1.73	393	1.89	429	2.04	463	2.18	495	2.44	554
#7.5	15/128"	2.97 mm	0.97	220	1.26	286	1.54	350	1.77	402	1.98	450	2.17	493	2.35	534	2.51	570	2.81	638
#8 Lavender	1/8"	3.18 mm	1.11	252	1.43	325	1.75	397	2.02	459	2.26	513	2.48	563	2.68	609	2.86	650	3.20	727
#8.5	17/128"	3.38 mm	1.25	284	1.62	368	1.98	450	2.29	520	2.56	581	2.80	636	3.02	686	3.23	734	3.61	820
#9 Grey	9/64"	3.57 mm	1.40	318	1.81	411	2.22	504	2.56	581	2.87	652	3.14	713	3.39	770	3.63	824	4.06	922
#9.5	19/128"	3.76 mm	1.57	357	2.02	459	2.48	563	2.86	650	3.20	727	3.50	795	3.78	859	4.04	918	4.52	1027
#10 Turquoise	5/32"	3.97 mm	1.74	395	2.24	509	2.75	625	3.17	720	3.55	806	3.88	881	4.20	954	4.49	1020	5.01	1138
#10.5	21/128"	4.17 mm	1.92	436	2.47	561	3.03	688	3.50	795	3.91	888	4.29	974	4.63	1052	4.95	1124	5.53	1256
#11 Yellow	11/64"	4.37 mm	2.10	477	2.72	618	3.33	756	3.84	872	4.30	977	4.71	1070	5.08	1154	5.43	1233	6.08	1381
#11.5	23/128"	4.57 mm	2.30	522	2.97	675	3.64	827	4.20	954	4.70	1067	5.15	1170	5.56	1263	5.94	1349	6.65	1510
#12 Red	3/16"	4.76 mm	2.51	570	3.24	736	3.97	902	4.58	1040	5.12	1163	5.61	1274	6.06	1376	6.48	1472	7.24	1644
#12.5	25/128"	4.95 mm	2.72	618	3.52	799	4.31	979	4.97	1129	5.56	1263	6.09	1383	6.58	1494	7.03	1597	7.86	1785
#13 White	13/64"	5.16 mm	2.95	670	3.81	865	4.66	1058	5.38	1222	6.02	1367	6.59	1497	7.12	1617	7.61	1728	8.51	1933
#13.5	27/128"	5.36 mm	3.18	722	4.11	933	5.03	1142	5.81	1320	6.49	1474	7.11	1615	7.68	1744	8.21	1865	9.18	2085
#14 Blue	7/32"	5.56 mm	3.42	777	4.42	1004	5.41	1229	6.25	1420	6.99	1588	7.65	1738	8.27	1878	8.84	2008	9.88	2244
#14.5	29/128"	5.77 mm	3.67	834	4.74	1077	5.81	1320	6.71	1524	7.50	1703	8.21	1865	8.87	2015	9.48	2153	10.60	2408
#15 Dk. Brown	15/64"	5.95 mm	3.93	893	5.08	1154	6.22	1413	7.18	1631	8.03	1824	8.79	1996	9.50	2158	10.15	2305	11.35	2578
#15.5	31/128"	6.15 mm	4.20	954	5.42	1231	6.64	1508	7.67	1742	8.57	1946	9.39	2133	10.14	2303	10.84	2462	12.12	2753
#16 Orange	1/4"	6.35 mm	4.48	1018	5.78	1313	7.08	1608	8.17	1856	9.14	2076	10.01	2274	10.81	2455	11.56	2626	12.92	2934
#16.5	33/128"	6.55 mm	4.76	1081	6.15	1397	7.53	1710	8.69	1974	9.72	2208	10.65	2419	11.50	2612	12.30	2794	13.75	3123
#17 Dk. Green	17/64"	6.75 mm	5.06	1149	6.53	1483	7.99	1815	9.23	2096	10.32	2344	11.31	2569	12.21	2773	13.06	2966	14.60	3316
#17.5	35/128"	6.93 mm	5.36	1217	6.92	1572	8.47	1924	9.78	2221	10.94	2485	11.98	2721	12.94	2939	13.84	3143	15.47	3514
#18 Purple	9/32"	7.14 mm	5.67	1288	7.32	1663	8.96	2035	10.35	2351	11.57	2628	12.68	2880	13.69	3109	14.64	3325	16.37	3718
#18.5	37/128"	7.34 mm	5.99	1360	7.73	1756	9.47	2151	10.93	2482	12.22	2775	13.39	3041	14.46	3284	15.46	3511	17.28	3925
#19 Black	19/64"	7.54 mm	6.31	1433	8.15	1851	9.98	2267	11.53	2619	12.89	2928	14.12	3207	15.25	3464	16.30	3702	18.23	4140
#19.5	39/128"	7.75 mm	6.65	1510	8.58	1949	10.51	2387	12.14	2757	13.57	3082	14.86	3375	16.05	3645	17.16	3897	19.19	4359
#20 Dk. Turquoise	5/16"	7.94 mm	6.99	1588	9.02	2049	11.05	2510	12.76	2898	14.27	3241	15.63	3550	16.88	3834	18.05	4100	20.18	4583
#20.5	41/128"	8.13 mm	7.34	1667	9.47	2151	11.60	2635	13.40	3043	14.98	3402	16.41	3727	17.72	4025	18.95	4304	21.18	4811
#21 Mustard	21/64"	8.33 mm	7.70	1749	9.93	2255	12.17	2764	14.05	3191	15.71	3568	17.21	3909	18.59	4222	19.87	4513	22.21	5044
#21.5	43/128"	8.53 mm	8.06	1831	10.40	2362	12.74	2894	14.71	3341	16.45	3736	18.02	4093	19.46	4420	20.80	4724	23.26	5283
#22 Maroon	11/32"	8.73 mm	8.43	1915	10.88	2471	13.33	3028	15.39	3495	17.20	3907	18.85	4281	20.36	4624	21.76	4942	24.33	5526
#22.5	45/128"	8.94 mm	8.81	2001	11.37	2582	13.92	3162	16.08	3652	17.98	4084	19.69	4472	21.27	4831	22.74	5165	25.42	5774
#23 Cream	23/64"	9.13 mm	9.19	2087	11.87	2696	14.54	3302	16.78	3811	18.77	4263	20.56	4670	22.20	5042	23.74	5392	26.54	6028
#23.5	47/128"	9.32 mm	9.58	2176	12.37	2810	15.15	3441	17.49	3972	19.56	4443	21.43	4867	23.14	5256	24.74	5619	27.66	6282
#24 Dk. Blue	3/8"	9.53 mm	9.98	2267	12.88	2925	15.78	3584	18.22	4138	20.37	4627	22.31	5067	24.10	5474	25.77	5853	28.81	6543
#24.5	49/128"	9.73 mm	10.38	2358	13.40	3043	16.41	3727	18.95	4304	21.18	4811	23.20	5269	25.06	5692	26.79	6085	29.96	6805
#25 Copper	25/64"	9.92 mm	10.78	2448	13.92	3162	17.05	3872	19.69	4472	22.01	4999	24.11	5476	26.04	5914	27.84	6323	31.13	7070
#25.5	51/128"	10.11 mm	11.19	2542	14.45	3282	17.69	4018	20.43	4640	22.84	5188	25.02	5683	27.03	6139	28.89	6562	32.30	7336
#26 Bronze	13/32"	10.32 mm	11.60	2635	14.98	3402	18.35	4168	21.18	4811	23.68	5378	25.94	5892	28.02	6364	29.96	6805	33.49	7606

WARRANTY & DISCLAIMER

This warranty supersedes all other warranties expressed or implied. No person has the authority to incur or assume for Senninger Irrigation, Inc. ("Senninger") any other liability as to the products manufactured by Senninger.

This warranty does not extend to any product or part that has been repaired, altered, or modified in any way outside the Senninger factory, nor shall it apply to any product which has been subject to misuse, negligence or accident, or improper operation contrary to

Senninger's published instructions. Under no circumstances will Senninger be held responsible or liable for any consequential, incidental or punitive damages resulting from the use of Senninger products, or resulting from any product defects, failure or malfunction.

This warranty extends only to the original purchaser of the Senninger product. This warranty does not extend to any product or part manufactured by others.

MATERIALS AND WORKMANSHIP

Products manufactured by Senninger for use in agriculture, turf, or nursery applications are warranted to be free of defects in materials or workmanship under normal use for a period of two (2) years from the date of manufacture. Senninger warrants the i-Wob2 to be free of defects in materials or workmanship under normal use for a period of three (3) years from the date of manufacture.

Senninger warrants the following products to be free of defects in materials or workmanship under normal use for a period of one (1) year from date of manufacture: End Spray, PRLV regulators, mining models. Senninger warrants nozzles to retain their original orifice size under normal use for a period of five (5) years from the date of manufacture.

PERFORMANCE

Products manufactured by Senninger for use in agriculture, turf, or nursery applications are warranted to maintain their original performance for a period of two (2) years from the date of manufacture if installed and operated in accordance with Senninger's published specifications and used as intended for irrigation purposes.

Senninger warrants the i-Wob2 to maintain its original performance under normal use for a period of three (3) years from the date of manufacture. Senninger warrants the following products to maintain their original performance under normal use for a period of one (1) year from date of manufacture: End Spray, PRLV regulators, mining models.

REPAIR OR REPLACEMENT

If a Senninger product is suspected of failure during the applicable warranty period, Senninger will repair or replace, at its option, the product or the defective part. Contact Senninger customer service in Clermont, Florida USA for specific instructions on how to proceed with a warranty claim. If after inspection of the product and documentation the failure is deemed a warranty issue, a replacement or credit will be authorized. 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 warranted parts nor for any travel to and from the product to make said repairs or replacement without prior written authorization from Senninger.

SUITABILITY

There are no other warranties, expressed or implied, including warranties of merchantability and warranties of fitness for a particular purpose. It is the sole responsibility of the purchaser to consider and analyze the product and its design to be suitable for specific applications.



The Senninger commitment to world-class products, local support and technical expertise ensure we provide the most efficient and reliable agricultural irrigation solutions available in the world today.

A handwritten signature in white ink, reading "Steve Abernethy".

Steve Abernethy, President of Senninger Irrigation