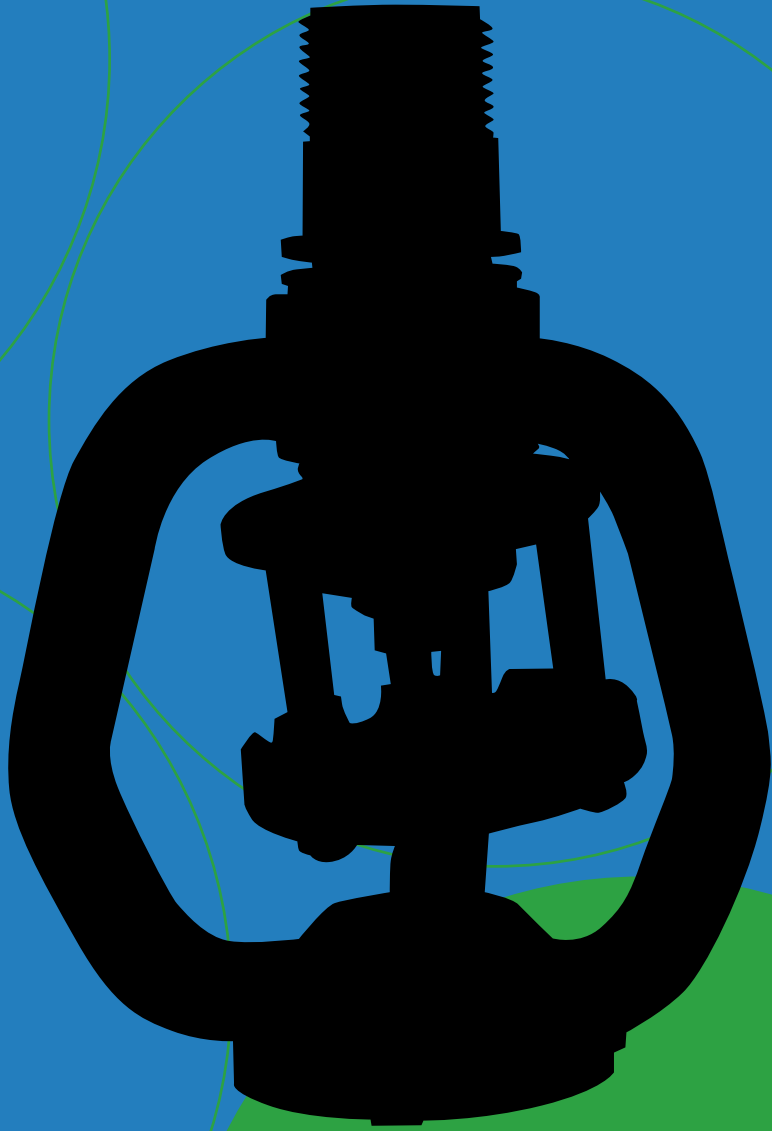


MECHANICAL MOVE



**Senninger**[®]
Irrigation Inc.

Consideration [Pivot



Center pivot irrigators must constantly look for ways to reduce water usage and energy costs while at the same time increasing crop yields. A properly designed sprinkler package using Senninger products will help ensure that these goals are met.

The selection of a sprinkler package should be based on the following factors:

- soil types / potential runoff
- crop type / value
- available water / crop requirements
- field elevation / pressure regulation
- pumping costs / operating hours
- wind / evaporative conditions
- chemigation potential
- machine characteristics
- uniformity of water application
- cost versus benefits of package
- farming practices

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.

Products] Contents



Senninger Irrigation Inc. has maintained a commitment to innovation- responding to changing industry needs. We've been at the forefront in product research and testing, but more importantly, in the field working closely with researchers, government groups, dealers and growers.

We have designed and manufactured long lasting quality sprinklers, spray nozzles and pressure regulators for agriculture, wastewater and nursery irrigation. These products have earned the respect and recognition of industry professionals worldwide, setting the standard for reliability and superior performance. This outstanding reputation has helped us establish an extensive network of knowledgeable dealers and distributors in both domestic and international markets.



3 **i-Wob**
[standard-9 groove,
low angle-9 groove,
low angle 6 groove]



5 **Xi-Wob**
[615-6 groove, 610-6 groove,
910-9 groove,
605-TOP 6-groove]



7 **Xcel-Wobbler**
[mid or high angle]



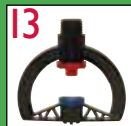
8 **End Spray**



9 **LDN**
[standard, part circle]



12 **Fan Spray**



13 **Super Spray**



15 **Quad Spray**



19 **Impacts**
[20, 30, 40, 50 series]



17 **Goosenecks &
Truss Rod Hose Slings**



21 **Pressure Regulators**
[PSR, PRL-low flow,
PMR-MF-medium flow]

20 **Boom System**

23 **Components:**
Weight, Gauges,
Pressure Drop, Hose,
Clamps, Adapters,
Ball Valve

25 **Nozzles**

26 **Product Warranty**

i-Wob® [Wobblers



The Senninger i-Wob is the most innovative pivot applicator on the market. Its unique rotary action combined with the wobbling action of the grooved deflector delivers a consistent droplet size and outstanding uniformity over a large area of coverage. This prevents wind drift and provides a gentle, rain-like application of water to the soil.

FEATURES:

- Ultra low application intensity to preserve soil integrity
- Low pressure operation saves money and energy
10-20 psi [0.69 to 1.38 bar]
- Exclusive below-the-nozzle weight eliminates the need for heavier, conventional drop weights
- Resilient wear sleeve cushions contact surfaces resulting in a longer wearing, more reliable product
- Standard-angle and two low-angle models available
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification; warranted to maintain correct orifice size for five years

Three Models Available!

The Senninger i-Wob is available with three different deflectors allowing customization of droplet size and trajectory that best suits your installation, soil, and crop needs. The i-Wob is also available with either a threaded or hose barb connection.



i-Wob Data	Standard-Angle 9-Groove Medium Droplets	Low-Angle 9-Groove Medium Droplets	Low-Angle 6-Groove Large Droplets
Nozzle sizes			
Minimum	#6 3/32" [2.38 mm]	#6 3/32" [2.38 mm]	#12 3/16" [4.76 mm]
Maximum*	#26 13/32" [10.32 mm]	#26 13/32" [10.32 mm]	#26 13/32" [10.32 mm]
Flows			
Minimum	0.82 gpm [186 L/hr]	0.82 gpm [186 L/hr]	3.16 gpm [718 L/hr]
Maximum	20.5 gpm [4656 L/hr]	20.5 gpm [4656 L/hr]	20.5 gpm [4656 L/hr]
Maximum Spacing**			
at 6 ft [1.8 m] ground clearance	20 ft [6.1 m]	18 ft [5.5 m]	15 ft [4.6 m]
Operating Press. at the noz.			
Minimum	10 psi [0.69 bar]	10 psi [0.69 bar]	10 psi [0.69 bar]
Maximum	20 psi [1.38 bar]	20 psi [1.38 bar]	20 psi [1.38 bar]

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

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

Maintenance note: Keep i-Wobs above crop canopy when outlet spacing exceeds 10 ft [3 m].
This is especially important on high profile crops.

Unmatched Uniformity

Uniformity is an important consideration in lowering application intensity. Some stream-driven applicators deliver water in a more concentrated ring along the outer diameter of the coverage area negatively impacting the soil surface. The i-Wob offers a gentle, more uniform delivery.



Large Area of Coverage

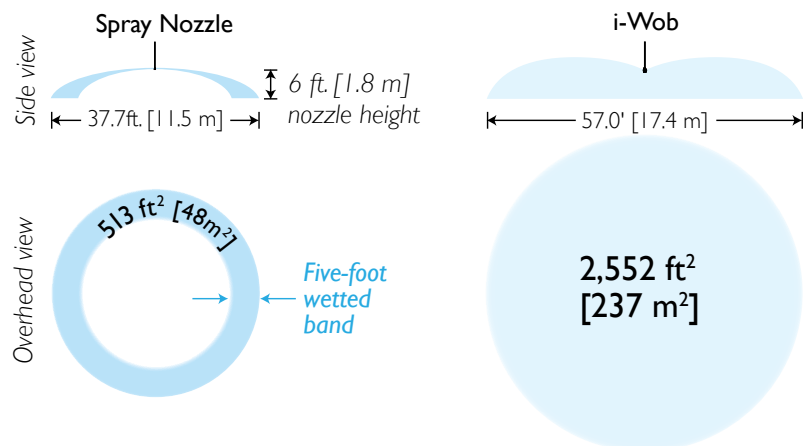
The i-Wob provides the largest area of instantaneous coverage at a lower pressure than any other applicator on the market. This minimizes the impact on the soil surface and crop preserving the soil's ability to absorb water. Larger instantaneous coverage area also reduces the rate at which the soil is required to take in water. Preservation of intake rate and increased soak times greatly reduce the potential for irrigation water run-off and wheel rutting.

Weight for Flexible Hose Drops



“The One” weight is all that is needed to provide stability on drops for a number of pivot applicators. The design includes unique “fit technology” that allows the weight to fit securely onto the i-Wob, LDN and Super Spray and even some other manufacturer’s applicators. The weight’s easy-to-install design allows the weight to remain on the applicator for nozzle changes. The aerodynamic design resists uplift forces of high wind. “The One” weight is constructed entirely of a zinc alloy for strength and resistance to corrosion. 0.85 lbs.

Excellent Distance of Throw



In this example, the i-Wob is spreading the same amount of water over an area five times greater than the area covered by the spray nozzle. (Nozzles are at 20 psi [1.38 bar], at 6 ft. [1.83m] height, using an 11/32 in. [8.73 mm] nozzle, with a flow of 14.27 gpm [324 l/hr] in no wind conditions.)

Notes

1. Because of its off-center rotary action, it is necessary that the i-Wob be mounted with a minimum of two feet [0.6 m] reinforced flexible hose above the applicator.
2. When using The One weight, never use another weight above the i-Wob.
3. If you are using a conventional weight above the i-Wob, only use a threaded weight weighing at least 1.5 lbs. [0.7 kg] but not exceeding 1 ft. [0.31m] in length. Please note that using a slip-over drop weight is prohibited as it may cause premature failure of the drop assembly.

Xi-Wob® [Wobblers



The Senninger Xi-Wob® provides the same ultra-low application intensity that has made the Senninger i-Wob® the leading pivot sprinkler on the market. The Xi-Wob uses patented counter-balance technology eliminating the need for flexible hose drops.

FEATURES:

- Designed specifically for use on semi-rigid or rigid PE or steel drops
- Ultra-low application intensity to preserve soil integrity
- Three different groove geometries provide application flexibility
- Low pressure operation saves money and energy
10-15 psi [0.69-1.03 bar]
- Utilizes Senninger i-Wob technology proven for excellent performance and durability
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification; warranted to maintain correct orifice size for five years

Three Models Available!



Xi-Wob Data

	610 (Blue) 6-Groove 10-degrees Medium Droplets	615 (Black) 6-groove 15-degrees Large Droplets	910 (Grey) 9-groove 10-degrees Small 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	1.12 gpm [254 L/hr]	2.25 gpm [511 L/hr]	2.25 gpm [511 L/hr]
Maximum	14.4 gpm [3271 L/hr]	14.4 gpm [3271 L/hr]	14.4 gpm [3271 L/hr]
Maximum Spacing**			
at 6 ft [1.8 m] ground clearance	18 ft [5.49 m]	20 ft [6.10 m]	18 ft [5.49 m]
Operating Press. at the noz.			
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]

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

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

Maintenance note: Keep Xi-Wobs above crop canopy when outlet spacing exceeds 10 ft [3 m]. This is especially important on high profile crops.

Not warranted for rigid installation on offsets or booms longer than 10.5 ft. [3.2 m]. Longer offsets and booms require a minimum 2 ft. [0.61 m] reinforced flex hose.

Wobblers] Xi-WobTop®

The Senninger Xi-Wob® 605-TOP literally turns the popular Xi-Wob® upside down. It is ideal for reducing over-watering by allowing wide spacing (up to 20 feet) and providing a wind-resistant pattern with extremely uniform coverage. The Xi-Wob 605-TOP is a low pressure 10 psi sprinkler that is mounted on the top of pipe along the length of a center pivot or other mechanical-move system.



FEATURES:

- Balanced design produces smooth, stable performance
- Only one moving part for longer life
- Low-angle trajectory for better wind-resistance
- Built for strength and durability using high-impact engineering-grade thermoplastics
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification; warranted to maintain correct orifice size for five years

INSTALLATION GUIDELINES:

- For use with steel nipples only into the mainline, maximum length 2"
- All Xi-Wob 605-TOPs must employ a 10 psi [0.69 bar] pressure regulator. PSR recommended.
- Maximum nozzle size: **#24** 3/8" or [9.53 mm]
Minimum nozzle size: **#10** 5/32" or [3.97 mm]
- For smaller nozzles, use Xcel-Wobbler (see pg. 7)
- Upright, top-of-pipe mounting only
- 3/4" M NPT base
- Manifolding two or more Xi-Wob 605-TOPs from a single outlet is not recommended

Any modifications or deletions regarding installation requirements will void warranty. Xi-Wob 605TOP is the only Xi-Wob model recommended for top-of-pipe installations.



Xi-Wob Data

	605 (White) 6-groove 5-degrees Medium Droplets
Nozzle sizes	
Minimum*	#10 5/32" [3.97 mm]
Maximum**	#24 3/8" [9.53 mm]
Flows	
Minimum	2.25 gpm [511 L/hr]
Maximum	12.06 gpm [2739 L/hr]
Maximum Spacing**	
at 12 ft [3.66 m] ground clearance	20 ft. [6.10 m]
Operating Press. at the noz.	
Minimum	10 psi [0.69 bar]
Maximum	10 psi [0.69 bar]

* For smaller nozzles, use Xcel-Wobbler (see pg. 7).

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

Xcel-Wobbler® [Top of Pipe

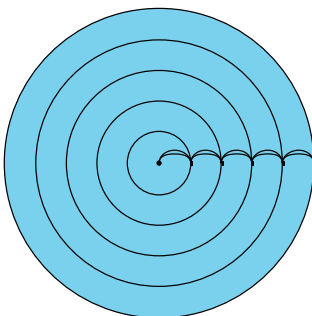
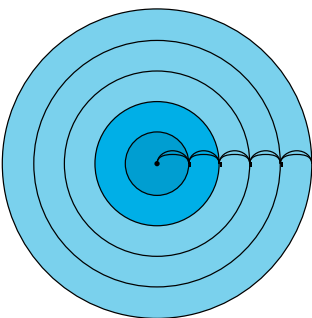


Two Models Available!

Senninger's Xcel-Wobbler is ideal for reducing over watering by allowing wide spacing (up to 20 feet) and providing a wind-resistant pattern with extremely uniform coverage. The Xcel-Wobbler is a low pressure 10 psi sprinkler that is mounted on the top of the pipe along the first two spans of a center pivot or other mechanical-move system.

FEATURES:

- Balanced design produces smooth, stable performance
- Only one moving part for longer life
- Mid-angle (white deflector) lower trajectory for better wind-resistance; High-angle (black deflector) model also available
- Built for strength and durability using high-impact engineering-grade thermoplastics, no metal parts
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification; warranted to maintain correct orifice size for five years



Over watering of first two spans versus uniform application

INSTALLATION GUIDELINES:

- Center pivot applications, maximum length of installation is the first two spans (or length consistent with maximum flow of 4.4 gpm at 10 psi [1044 L/hr at 0.75 bar])
- Attach to mainline using a galvanized nipple or Senninger's impact modified thermoplastic nipple (PVC nipples not recommended)
- All Xcel-Wobblers must employ a 10 psi pressure regulator
- Maximum nozzle size: #14 7/32" [5.56 mm] or 4.4 gpm [1044 L/hr]
Minimum nozzle size: #6 3/32" [2.38 mm] or 0.78 gpm [180 L/hr]
- For larger nozzles on other spans, use Xi-Wobs (see pg. 6)
- Maximum operating pressure: 10 psi [0.75 bar]
- Upright, top-of-pipe mounting only
- 3/4" M NPT base model
- Manifolding two or more Xcel-Wobblers from a single outlet is not recommended

Any modifications or deletions regarding installation requirements will void warranty.

Sprinkler] EndSpray®

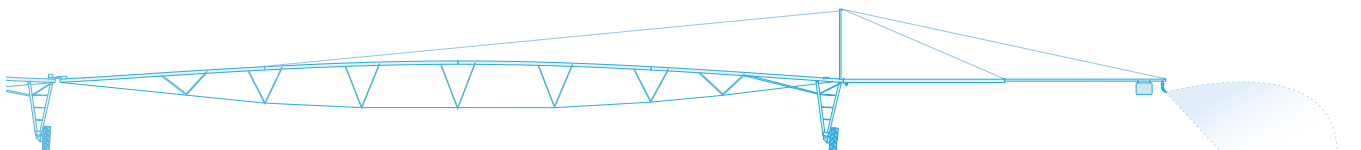
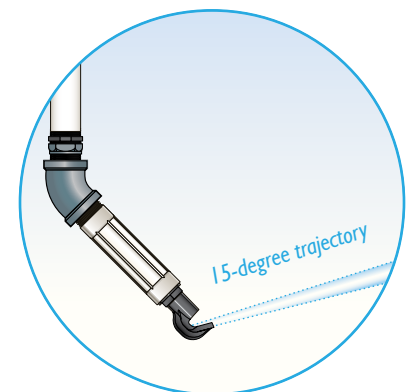
The low pressure End Spray is an excellent device to distribute flush water at the end of a machine. It can also be used to balance the close-in areas under end guns. The low-angle design combats the effects of wind. The large orifice resists clogging.

FEATURES:

- No moving parts for longer life
- Super-tough wear-resistant material for long term durability
- No vibration
- No adjustments ever needed
- Booster Tube™ technology for increased radius of throw
- 180° distribution with good uniformity over large area to help reduce compaction and run-off
- Flow rates: 8.1 to 48.9 gpm [1840 to 11106 L/hr]
- Radius from 20 to 30 ft. [6.10 – 9.14 m]
- Operating pressures: 10 to 25 psi [0.69 to 1.72 bar]
- Connection: 1" M NPT
- Two-year warranty on materials, workmanship and performance



Rigid mount is recommended for the End Spray. Use a 1" NPT galvanized 45-degree elbow (not included). Orient pad of End Spray nozzle to face up.



LDN[®] [Low Drift Nozzle



Introduced in 1990 the Senninger LDN[®] was the first spray nozzle with multiple deflector pads. This produces uniform sized droplets through the wide range of nozzle flows found on center pivots. The result is extremely efficient water application with minimized losses to wind drift, evaporation and run-off.

FEATURES:

- Controlled droplet size for greater efficiency
- Low application intensity to preserve soil integrity
- Low pressure operation saves money and energy: 6 to 20 psi [0.41 to 1.38 bar]
- Chemigation pads & inserts available:
Corn (58° upward throw),
Cotton (15° - 30° multi-level upward throw)
- Hose barb adapter available for direct furrow water application
- 3/4" NPT male thread or hose barb base
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification; warranted to maintain correct orifice size for five years

Multi-pad Design

The grooves in the pads direct water and control droplet size. As the flow and nozzle size increase along the length of the pivot, multiple deflector pads can be used to divide larger flows into more streams.

Single: 33 Streams 0.24 - 6.09 gpm [55-1383 L/hr]	Double: 66 Streams 3.91 - 11.1 gpm [888 - 2517 L/hr]	Triple: 99 Streams 6.78 - 20.5 gpm [1540 - 4654 L/hr]



LDN Data	Mini Pad	Single Pad	Double Pad	Triple Pad	Part-Circle Pad	Bubbler Pad
Nozzle sizes						
Minimum	#4 1/16" [1.59 mm]	#10 5/32" [3.97 mm]	#15 15/64" [5.95 mm]	#20 5/16" [7.94 mm]	#6 3/32" [2.38 mm]	#4 1/16" [1.59 mm]
Maximum*	#9 9/64" [3.57 mm]	#14 7/32" [5.56 mm]	#19 19/64" [7.54 mm]	#26 13/32" [10.32 mm]	#18 9/32" [7.14 mm]	#26 13/32" [10.32 mm]
Flows						
Minimum	0.24 gpm [55 L/hr]	1.74 gpm [395 L/hr]	3.91 gpm [888 L/hr]	6.78 gpm [1540 L/hr]	0.64 gpm [145 L/hr]	0.24 gpm [55 L/hr]
Maximum	2.52 gpm [572 L/hr]	6.09 gpm [1383 L/hr]	11.1 gpm [2517 L/hr]	20.5 gpm [4656 L/hr]	10.04 gpm [2280 L/hr]	20.5 gpm [4656 L/hr]
Maximum Spacing**						
at 6 ft [1.8 m] ground clearance	7 ft [2.13 m]	7 ft [2.13 m]	7 ft [2.13 m]	7 ft [2.13 m]	N/A [N/A]	Every Other Furrow
Operating Pressure at noz.						
Minimum	6 psi [0.41 bar]	6 psi [0.41 bar]	6 psi [0.41 bar]	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]	20 psi [1.38 bar]	20 psi [1.38 bar]	20 psi [1.38 bar]

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

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

Pads available in concave (blue), convex (green) and flat (black) in smooth, medium groove, and deep groove based on desired trajectory and throw.

Low Drift Nozzle] LDN®

Pad Combinations

The surfaces of the LDN pads are specially designed to deliver different spray patterns and droplet sizes. Each surface is available in three basic geometries – flat, concave and convex – based on the desired trajectory of throw. Multiple pads are used to bind water into discreet streams that are resistant to wind drift and evaporation. As nozzle flow increases, small droplets are virtually eliminated sending more water to the root zone.

LEPA Bubbler

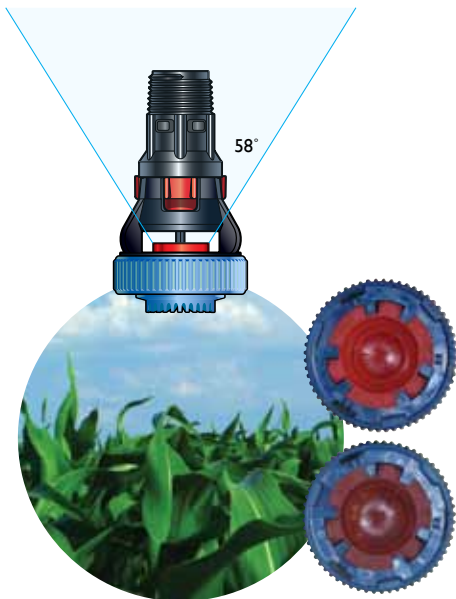
The LDN converts easily with just a pad change to provide LEPA application.

Use The One Weight on flexible hose installations.

SEE
PAGE
#23



Corn Chemigation Pad Inserts: 58° upward throw



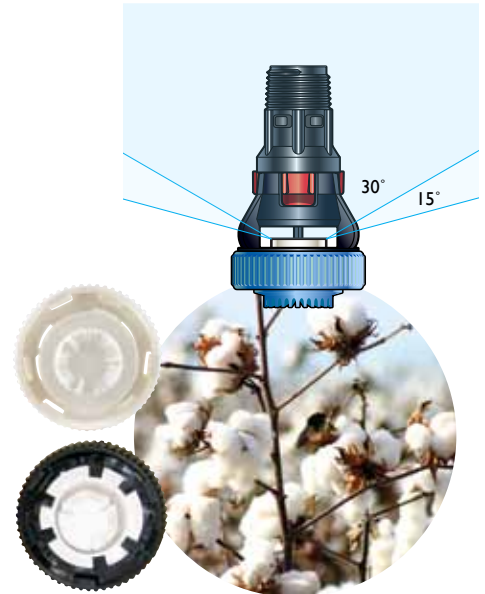
Chemigation Options

Any LDN Pad (single, double or triple) can be backed with a corn chemigation pad (58° upward throw) or a cotton chemigation pad (15° - 30° multi-level upward throw).

For nozzles #4 through #9.5

For nozzles #10 through #26

Cotton Chemigation Pad Inserts: 15 - 30° upward throw



Easy Change Pads

The LDN design makes it easy to change modes from irrigation to chemigation. Simply twist and unlock the deflector pad, flip it over, twist and lock it back on.

Note: The LDN is not recommended for surface water or effluent applications.

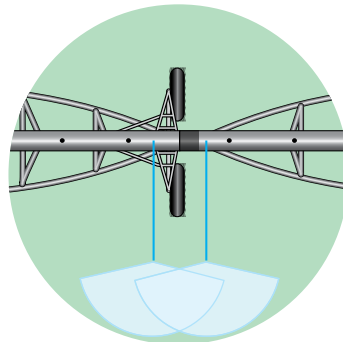
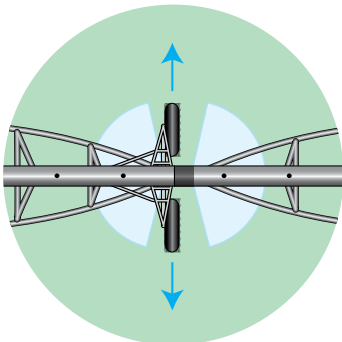
Part-CircleLDN® [Low Drift Nozzle



The Part-Circle LDN is specifically designed to help center pivot operators manage the difficult-to-irrigate areas near towers. The Part-Circle LDN distributes water away from wheel tracks and minimizes rutting. Part-Circle LDNs can be used in conjunction with standard full circle LDNs or other Senninger sprinklers on the remainder of the machine.

FEATURES:

- Flows: 0.64 to 8.65 [145 to 1965 L/hr]
- Pressure: 6-15 psi [0.41 to 1.03 bar]
- Distributes water in a 170-degree pattern
- Binds water into 17 discreet streams for minimum evaporative loss
- Base Options; 3/4" M NPT
- Hosebarb Adapter (used with a drag hose) snaps right onto the LDN allow water to be applied directly into the furrow
- Maximum radius of throw
- 10-degree trajectory
- Fits on standard LDN base, nozzle and cage
- 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 Part-Circle LDN distributes water away from wheel tracks.

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

Sprinkler] FanSpray

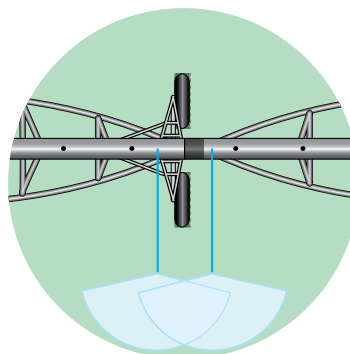
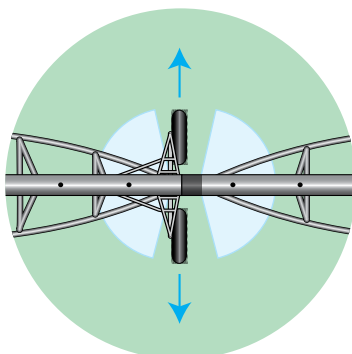
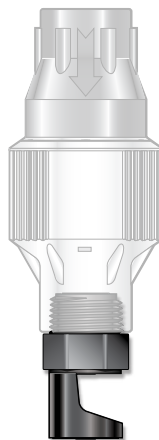
The Senninger Fan Spray, with its directional spray pattern, is ideal for distributing water away from wheel tracks. The design is extremely durable, with no moving parts.

FEATURES:

- Flows: 0.55 - 16.7 gpm [125 - 3793 L/hr]
- Low pressure operation saves money and energy: 10-20 psi [0.69-1.38 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 Fan Spray can be mounted upright or inverted.



The Fan Spray distributes water away from wheel tracks at towers and on booms.

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




SuperSpray® [Sprinkler



Field-proven for more than 30 years, the Super Spray provides more versatility than any other spray nozzle on the market. Its design makes it ideal for surface water due to the large distance between the nozzle and deflector and the deflector bracket. The Senninger Super Spray has a wide variety of interchangeable deflector pad options to meet specific crop, climatic and soil requirements.

FEATURES:

- Durable engineering-grade thermoplastic construction with no moving parts
- Extremely versatile, easily changeable snap-in pads
- Chemigation pads available for corn and cotton
- Drag hose option available
- Can be mounted upright or inverted
- Inlet sizes: 3/4" or 1/2" M NPT
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification; warranted to maintain correct orifice size for five years

	 Flat (black)	 Concave (blue)	 Convex (green)
Super Spray			
Nozzle sizes			
Minimum	#4 1/16" [1.59 mm]	#4 1/16" [1.59 mm]	#4 1/16" [1.59 mm]
Maximum*	#26 11/32" [10.32 mm]	#26 11/32" [10.32 mm]	#26 11/32" [10.32 mm]
Flows			
Minimum	0.24 gpm [55 L/hr]	0.24 gpm [55 L/hr]	0.24 gpm [55 L/hr]
Maximum	27.7 gpm [6300 L/hr]	27.7 gpm [6300 L/hr]	27.7 gpm [6300 L/hr]
Maximum Spacing**			
at 6 ft [1.8 m] ground clearance	11 ft [3.4 m]	11 ft [3.4 m]	10 ft [3.05 m]
Operating Press. at the noz.			
Minimum	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]

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

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

Use The One Weight on flexible hose installations.



Drag Hose Adapter

With the Super Spray hosebarb adapter and a drag sock, you can apply water directly into the furrow. The adapter snaps right into the Super Spray, replacing the deflector pad.



Deflector Pads

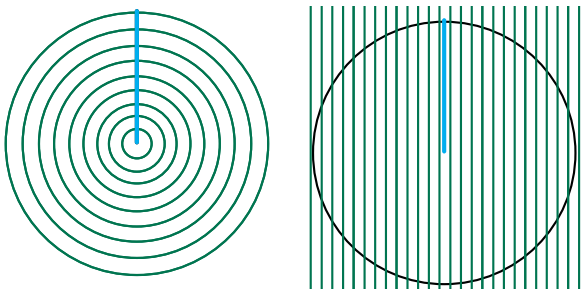
Identified by shape (flat, concave, or convex) and type of surface (smooth, medium-grooved, or deep-grooved). The shape and surface help control spray pattern and droplet size. Chemigation pads are available in high profile (corn) and low profile (cotton) to reach the underside of the foliage. These snap-in pads can be easily changed during the season to fit varying field and growing conditions. The drag hose adapter option allows easy conversion for direct furrow water application.

	Flat	Concave	Convex	Chemigation
Deep Groove				
# of grooves	24 36 48	24 36 48	24 36 48	
Medium Groove				
# of grooves	36	36	36	CORN: Noz. #4 - 9.5
Smooth				
	Noz. #4 - 9.5	Noz. #4 - 9.5	Noz. #4 - 9.5	COTTON: Noz. #4 - 9.5

QuadSpray® [Sprinkler]



With LEPA, the plant canopy remains dry and less than one-half of the soil surface is wetted — surface evaporation losses are dramatically reduced.



When crops are planted in a circle, the pivot never dumps all the water into a few furrows as it can when it parallels straight planted rows.

Senninger introduced the Quad-Spray in the mid 1980's specifically for LEPA (Low Energy Precision Application). The demand for LEPA irrigation continues in areas where water is limited it is one of the most efficient irrigation methods available today requiring very little water and energy to operate.

FEATURES:

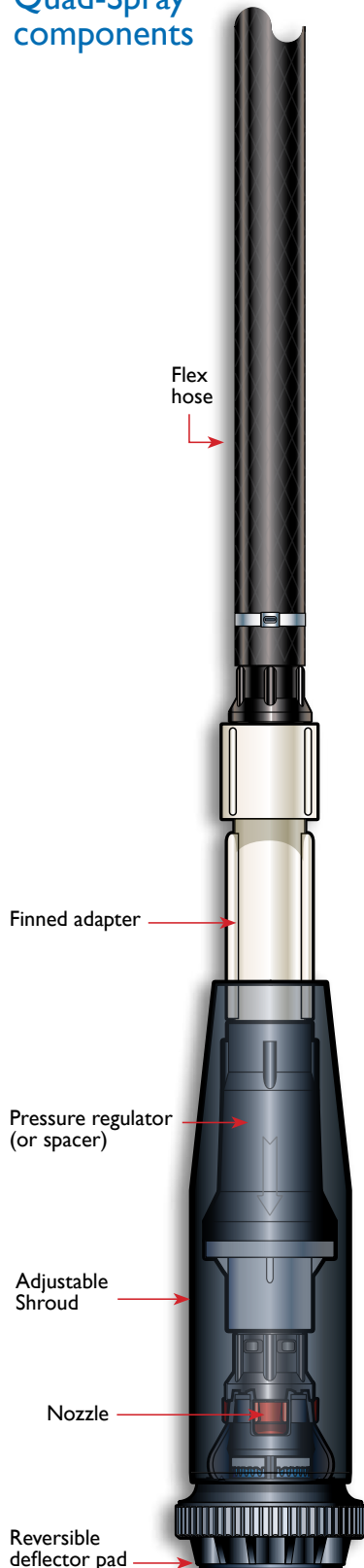
- By watering every other crop row leaving the other rows dry, this application wets less than 50% of soil surface saving precious water. This also helps retain the heat on the dry soil surfaces.
- By applying water into the furrow between the rows of plants, the plant canopy stays dry, helping to prevent foliage damage due to water quality.
- Discharging water very near to, or on the soil surface minimizes evaporation and eliminates wind-drift which results in high water loss and uneven water distribution. This helps increase yields.
- Low pressure operation 6-10 psi [0.41-0.69 bar] saves energy, reduces fuel consumption and operating costs.
- One device with varying applications reduces labor costs by eliminating the need to carry parts in and out of the field.
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification; warranted to maintain correct orifice size for five years



Furrow diking creates water storage basins. These basins hold irrigation and rain water, to prevent runoff.

Sprinkler] QuadSpray®

Quad-Spray components



LEPA 1 & 2 Bubble & Aerated Bubble Modes:

Gently deposits water directly into the furrow basins preventing erosion of rows and keeps the crop canopy dry. Pre-watering, pre-planted bare ground is recommended.



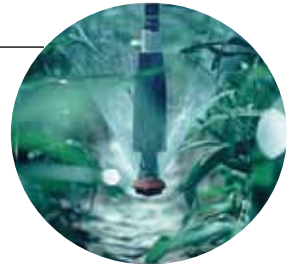
Spray Irrigate Mode:

Wets the entire soil surface. This is ideal for crop germination, for irrigating close-seeded crops, and select chemical applications.



Chemigate Mode:

Provides an upward spray that is very effective at washing away insects from the underside of the crop canopy.



Two models available:

corn pad: 58° upward throw

cotton pad: 15 - 30° multi-level upward throw

RECOMMENDATIONS FOR EFFICIENT LEPA IRRIGATION:

Level Fields - LEPA is primarily for use on relatively flat land. The maximum recommended slope is one percent.

Deep Chiseling or Ripping - Used to loosen soil and improve infiltration.

Furrow Diking - This creates small storage basins to hold water until it can infiltrate the soil.

Soil Moisture Monitoring - Scheduling irrigation using soil moisture monitoring devices helps reduce deep percolation losses and avoid plant stress.

Soft Middles - Because a LEPA applicator is located in every other furrow, it is recommended that these furrows be left as uncompacted as possible.

Crop Residue - This increases surface storage capacity and helps prevent soil redistribution.

Circle Planting - This is necessary to keep the applicator head centered in the furrow. Circular rows also play an important role in reducing runoff.

Single | 80° [Goosenecks



Lower Application Intensity

The Senninger single and double 125° goosenecks combined with truss rod hose slings lower application intensity by increasing the area of coverage. Applying a given amount of water over a larger area (*see diagram of water patterns*) can help allow the soil to absorb it at the rate it needs. This reduces soil compaction, soil sealing and runoff.

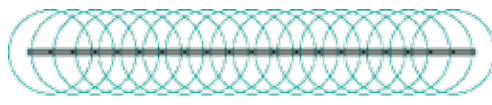
Senninger goosenecks are constructed of non-corrosive, UV-resistant thermoplastic for long life and reduced plugging. Goosenecks allow placement of the applicators closer to the crop to minimize wind drift.

FEATURES:

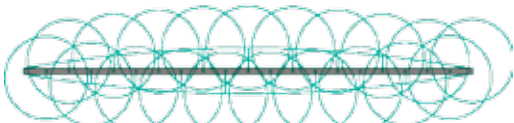
- Non-corrosive UV-resistant thermoplastic construction for long life and reduced plugging, costs less than standard steel models
- Models: 180-degree single, 125-degree single, and 125-degree double
- 3/4" barb and 3/4" NPT threaded outlet connections
- Maximum recommended pressure: 120 psi [8.27 bar]
- Maximum recommended flow:
Single models 20 gpm [4542 L/hr],
Double models 30 gpm [6814 L/hr]
- Maximum recommended water temperature: 110°F [43°C]
- Ambient temperatures up to 150°F [66°C] will not damage goosenecks
- Two-year warranty on materials, workmanship and performance

Goosenecks] 125° Single & 125° Double*

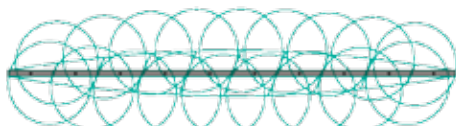
Water Patterns



Conventional Applicators



Single 125° Goosenecks



Double 125° Goosenecks



* Use only in conjunction with Truss Rod Hose Slings

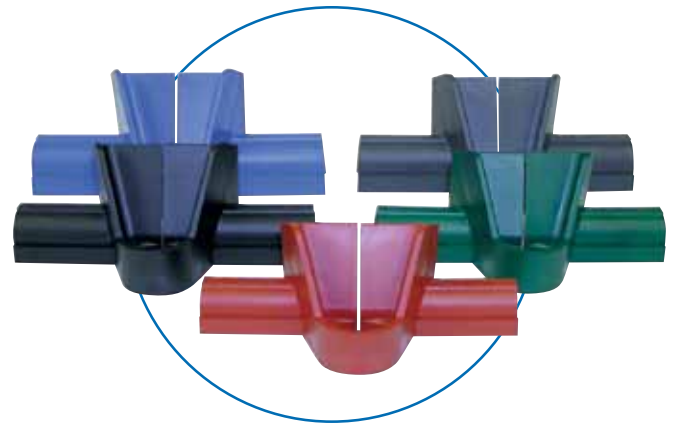
Goosenecks shown pre-assembled with Senninger's impact-modified thermoplastic nipple. Use of other plastic nipples is not recommended. Also available without nipple.

Truss Rod] HoseSlings

The Senninger system of 125-degree goosenecks and truss rod hose slings allows conversion of wide spacing machines to closer drop spacing, reducing or eliminating the need for welding in extra outlets. The truss rod hose slings securely fasten 3/4" flexible hose to the truss rod maintaining the drop/sprinkler position and allowing easy adjustment without kinking the hose. This helps reduce pattern interruption from colliding streams.

FEATURES:

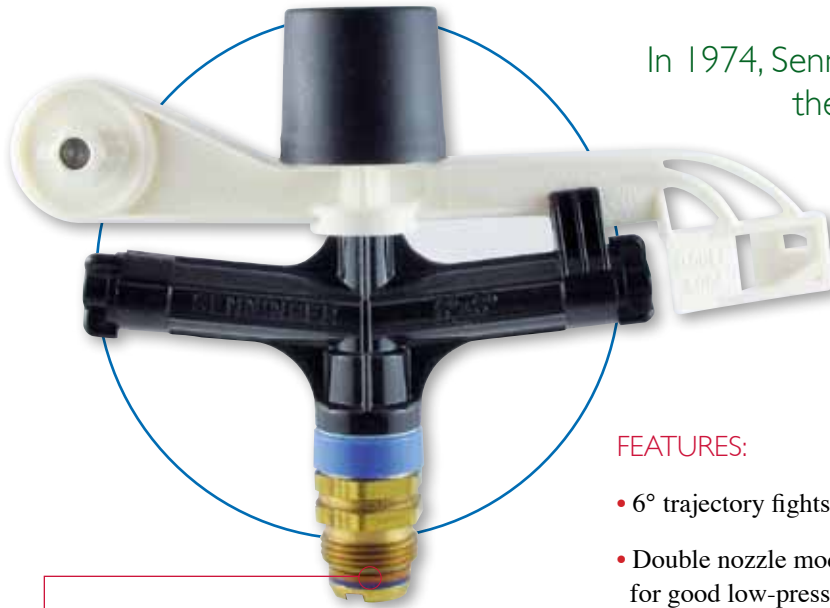
- Easy to install
- Securely fastens 3/4" flexible hose to the truss rod
- Color coded models for various truss rod sizes: 5/8" (rust), 11/16" (green), 3/4" (black), 13/16" (grey), 7/8" (blue)
- Maintains the drop/sprinkler position and allows for easy adjustments
- Helps reduce pattern interruption from colliding streams
- Supports flexible hose to prevent kinking and abrasive wear
- Non-corrosive, UV-resistant thermoplastic construction for long life
- Two-year warranty on materials, workmanship and performance



- Hose is supported to prevent kinking and abrasive wear
- Used in conjunction with the 125° model goosenecks.
- 5 Models for most truss rod diameters



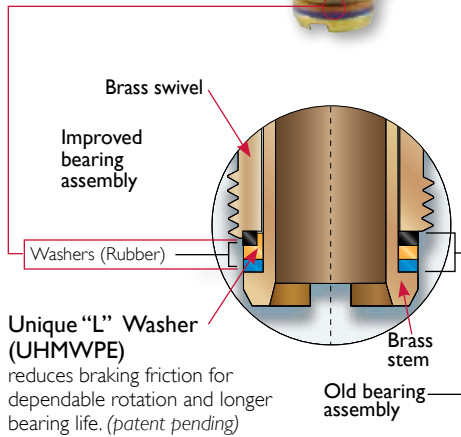
PivotMaster® [Impact Sprinklers



In 1974, Senninger developed the Windfighter™ the first low-angle impact sprinkler ever designed for use on center pivots. Today, after continued product improvements, Senninger is still the most trusted name for high-quality, reliable products.

FEATURES:

- 6° trajectory fights wind drift and evaporation
- Double nozzle models available for good low-pressure performance
- Enclosed splasharm spring and bearing for protection from elements
- 3/4" brass swivel for use in galvanized steel fittings
- Larger flow models also available, consult factory for more information
- Two-year warranty on materials, workmanship and performance
- Color-coded nozzles for easy size identification; warranted to maintain correct orifice size for five years



Pivot Master® Impacts

	Single Nozzle 3006-I Orange Spring Cover	Single Nozzle 4006-I White Spring Cover	Single Nozzle 5006-I Blue Spring Cover	2014*** 20 Series
Nozzle sizes				
Minimum	#8 1/8" [3.18 mm]	#10 5/32" [3.97 mm]	#13 13/64" [5.16 mm]	#7 7/64" [2.78 mm]
Maximum*	#9 9/64" [3.57 mm]	#12 3/16" [4.76 mm]	#18 9/32" [7.14 mm]	#7 7/64" [2.78 mm]
Flows				
Minimum	2.21 gpm [545 L/hr]	3.51 gpm [863 L/hr]	6.0 gpm [1408 L/hr]	1.68 gpm [382 L/hr]
Maximum	4.35 gpm [988 L/hr]	7.70 gpm [1749 L/hr]	16.00 gpm [3634 L/hr]	1.99 gpm [452 L/hr]
Operating Press. at the noz.				
Minimum	25 psi [1.72 bar]	25 psi [1.72 bar]	25 psi [1.72 bar]	25 psi [1.72 bar]
Maximum	60 psi [4.12 bar]	60 psi [4.12 bar]	60 psi [4.12 bar]	30 psi [2.07 bar]

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

** Larger flow models also available, consult factory for more information.

***For optimum performance Senninger 2014 recommended for use on first two spans only.

Pivot] BoomSystem

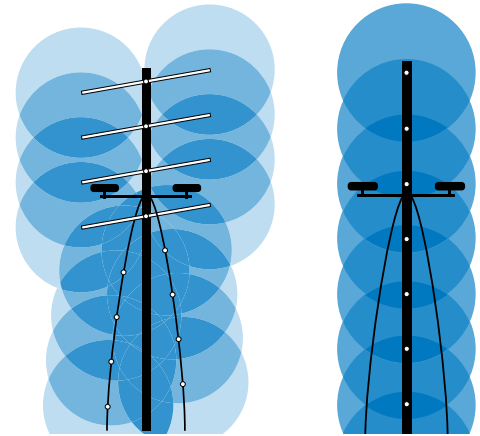
The Senninger Boom System is ideal for lowering application intensity on overhangs and towers by widening the wetted area. This allows more time for water to infiltrate the soil, reducing wheel tracking, runoff and surface soil compaction.



FEATURES:

- **Simple, Effective Design** - The 24 ft overall boom length utilizes existing outlets to apply the same amount of water over a wider application area.
- **High Profile Clearance** - Complete boom is level with the top of the mainline, keeping the structure clear of high profile crops like corn and sugar cane.
- **Strength & Durability** - Constructed of strong structural aluminum extruded channel coupled with 1.5" diameter aluminum tubing, cast aluminum saddle with galvanized and stainless steel hardware.
- **Light-weight Design** - Heavy duty construction in a light-weight package, weighs 23 lbs (boom and hardware).
- **Quick and Easy Installation** - Components are pre-cut, pre-drilled and packaged with step-by-step instructions. Installs using readily available tools.
- **Mounting Options** - Boom assembly is compatible with various diameter mainlines. Locking pins allow adjustment of boom angle. Designed specifically for use on overhangs and towers.
- **Uniquely Designed Components** - Galvanized, stainless steel and aluminum hardware and components combat corrosion.

SENNINGER BOOMS CONVENTIONAL



The Boom System widens the area on overhangs or at towers. The number of Boom Systems needed on the overhang will vary based on overhang length.



The Senninger Hinged Hose Holder clasps around the flexible hose and snaps into the aluminum tubing to protect it from kinking and wear.



The Senninger Double Barb Gooseneck attaches to the 3/4" x 4" galvanized nipple through a pre-drilled hole in the aluminum channel into an existing outlet.

Boom Package Components Qty.

10 ft. [3.1m] Aluminum Channel	(1)
10 ft. [3.1m] Section 1.5" Aluminum Tubing	(2)
Aluminum Saddle (various pipe sizes)	(1)
Galvanized Steel U-Strap (various pipe sizes)	(1)
3/4" X 4" Nipple, galvanized	(1)
125-Degree Double Barb Gooseneck, thermoplastic	(1)
Hinged Hose Holder, thermoplastic	(2)
<i>Plus hardware (screws, washers, nuts, pins, clamps)</i>	

PSR [Pivot Special Regulator]TM



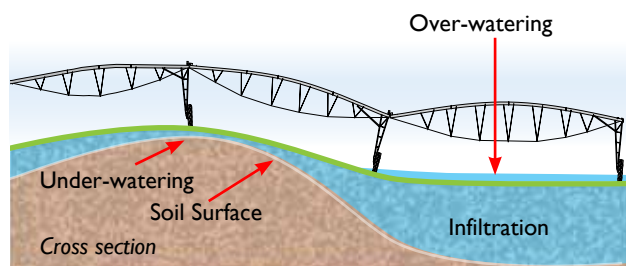
Senninger introduced the first high-quality in-line pressure regulator to the irrigation industry in 1966. They are recognized world-wide for their reliability. Senninger pressure regulators maintain a constant preset outlet pressure that can be matched to the applicator design, regardless of variations in inlet pressure. This helps maintain sprinkler pattern integrity and performance.

FEATURES:

- Maintains a constant preset outlet pressure while handling varying inlet pressures
- Outlet pressures: 6, 10, 12, 15, 20, 25, 30, 35, 40, 50 psi [0.41, 0.69, 0.83, 1.03, 1.38, 1.72, 2.07, 2.41, 2.76, 3.45 bar]
- Flows: 0.5 to 15 gpm [114 to 3407 L/hr]
- Tamper-proof housing
- Very low hysteresis and friction losses
- Patented design
- 100% water-tested for accuracy (no adjustments ever needed)
- Two-year warranty on materials, workmanship and performance

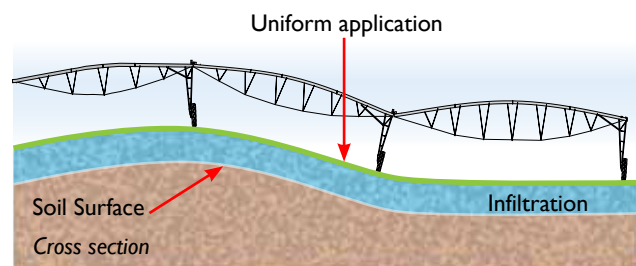
Application Intensity

Uncontrolled pressure fluctuations in irrigation systems result in unwanted flow deviations and over or under watering. Proper use of pressure regulators prevents these fluctuations due to elevation changes, changes in system demand, and water supply and helps to maintain overall efficiency of an irrigation system.



Without Pressure Regulators

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



With Pressure Regulators

Application remains uniform even as elevation changes.

Regulators] PRL-Low Flow

FEATURES:

- Maintains a constant preset outlet pressure while handling varying inlet pressures
- Outlet pressures: 6, 10, 12, 15, 20, 25, 30, 35, 40 psi [0.41, 0.69, 0.83, 1.03, 1.38, 1.72, 2.07, 2.41, 2.76 bar]
- Flows: 0.1 to 8.0 gpm [23 to 1817 L/hr]
- Tamper-proof housing
- Very low hysteresis and friction losses
- Patented design
- 100% water-tested for accuracy (no adjustments ever needed)
- Two-year warranty on materials, workmanship and performance



Regulators] PMR-Medium Flow

FEATURES:

- Maintains a constant preset outlet pressure while handling varying inlet pressures
- Outlet pressures: 6, 10, 12, 15, 20, 25, 30, 35, 40, 50, 60 psi [0.41, 0.69, 0.83, 1.03, 1.38, 1.72, 2.07, 2.41, 2.76, 3.45, 4.14 bar]
- Flows: 2.0 to 20 gpm [454 to 4543 L/hr]
- Very low hysteresis and friction losses
- Patented design
- 100% water-tested for accuracy (no adjustments ever needed)
- Two-year warranty on materials, workmanship and performance



OneWeight [Components]

NEW!



“The One” weight is all that is needed to provide stability on drops for a number of pivot applicators.

- Unique "fit technology" allows weight to fit securely on all Senninger applicators used on flexible drops and even some other manufacturer's applicators.
- Constructed entirely of zinc alloy for strength and resistance to corrosion.

PressureGauges [Components]



Pressure gauges accurately monitor system pressure.

- **2.5" Bourdon Tube Gauge** is glycerine filled with a stainless steel case and has a 1/4" M NPT connection. It is vibration and shock-resistant. Available in 0 - 30 psi, 0 - 60 psi, 0 - 100 psi [0 - 700 kpa, and 0 - 1400 kpa] models.
- **3.5" Bourdon Tube Industrial Gauge** is glycerine filled with a Zytel nylon case and has a 1/4" M NPT connection. It is corrosion-resistant and impact-resistant. Available in 0 - 30 psi, 0 - 60 psi, 0 - 100 psi models.

PressureDrop [Components]



Senninger's Pressure Drop provides a quick and easy check of end-of-system pressure.

- Curved design allows the drop to hang straight
- 3/4" F NPT inlet by 3/4" F NPT outlet
- Standard and Freeze-Proof models available
- Models include either 0-30 psi or 0-60 psi glycerine filled 2.5" diameter gauge
- Backed by a two-year warranty



Components] Adapters

Constructed of non-corrosive UV-resistant thermoplastic for longer life.

- Models for PE tubing (grey): 3/4" barb inlet, available in M NPT and F NPT outlets
- Backed by a two-year warranty
- Variety of thermoplastic pipe couplings, reducing couplings, nipples and plugs.



Components] Ball Valve

The Ball Valve with its dial shut-off knob makes changing or cleaning sprinklers and spray nozzles easy while system is operating.

- Streamlined design reduces snagging and unintentional operation
- Smooth-bore design maximizes flow efficiency
- UV resistant
- 125 psi pressure rating
- 3/4" F NPT x 3/4" M NPT connections

(Do not use downstream from a pressure regulator)



Components] Hose & Clamps

The 3/4" reinforced flex hose is extremely durable.

HOSE:

- Long lasting construction of a UV-resistant PVC cover, polyester reinforcement yarns, PVC core tube
- Lightweight with good abrasion resistance
- 3/4" flex PVC tubing for drag hose applications also available
- Backed by a two-year warranty

HOSE CLAMPS & CRIMP TOOLS:

- **Hose Clamps:** Stainless steel, 1-ear design with mechanical interlock allows use of pre-coated materials. Size range: 0.945 - 1.067" or 24 - 27.1mm
- **Crimp tools:** specifically designed to be used for 1-ear clamps are available in 8-7/8" or 11-1/8" lengths.

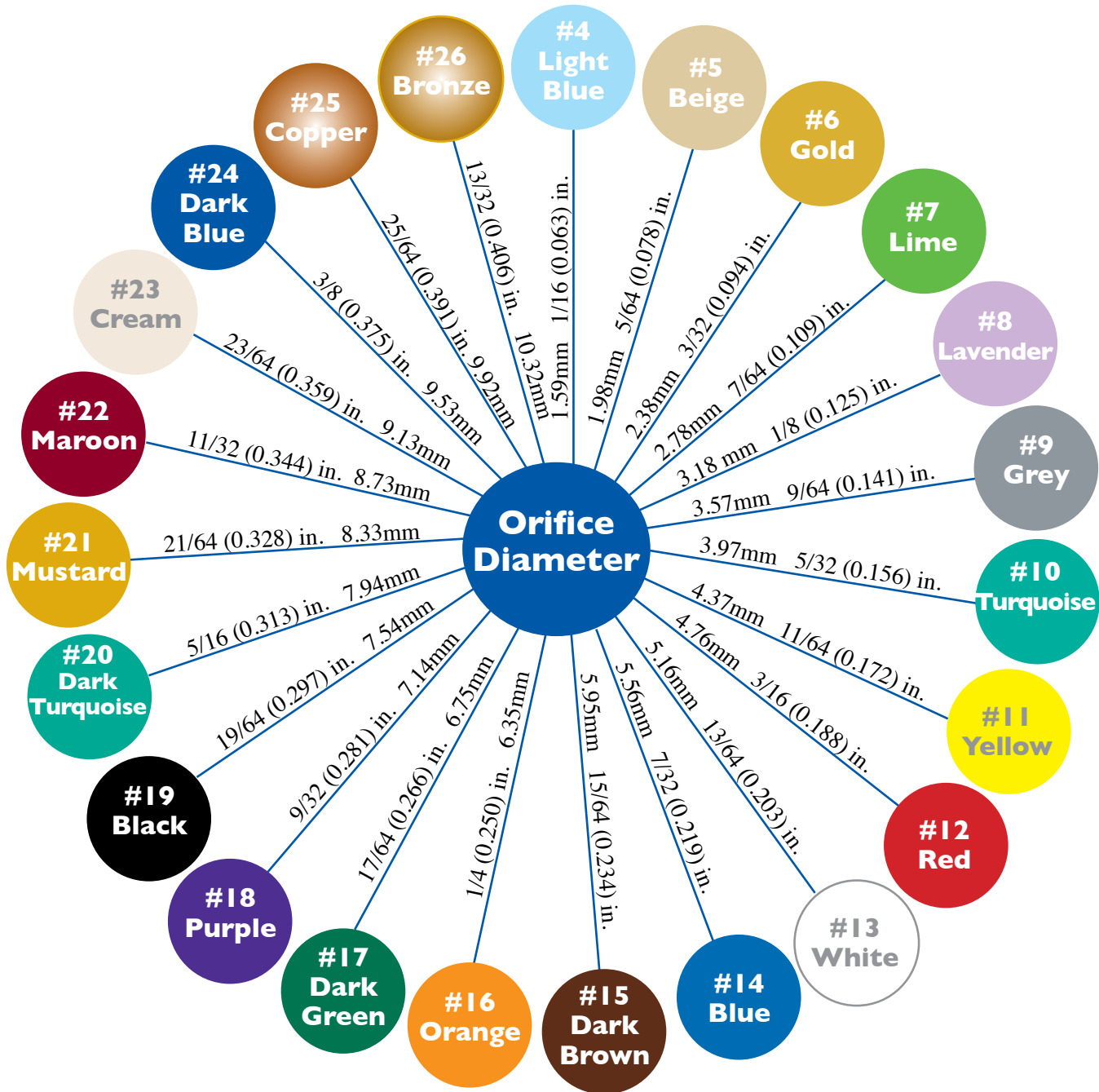


Nozzles

FEATURES:

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

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



NOTE: Half sizes (1/128th inch increments) are also available in some models.

Range nozzles for 70 and 80 series sprinklers are not color-coded. Consult factory for more information.

Warning – Disclaimer

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

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

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

Materials & Workmanship

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

Performance

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

Repair or Replacement

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

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

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

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

Suitability

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



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