LDN® LOW DRIFT NOZZLE

A Versatile Sprinkler with LEPA Bubbler and Spray Deflector Options

AGRICULTURAL IRRIGATION

Low Pressure - High Performance™

OUR MOST VERSATILE SPRAY NOZZLE

The LDN Low Drift Nozzle offers growers multiple ways to irrigate. One applicator can be used for LEPA applications, spray irrigation, and chemigation. With so many options available, growers can get precise control of their sprinklers' droplet size, trajectory, and application pattern. This makes the LDN capable of adapting to various crop, environmental, and soil requirements.

LDN® FEATURES

ULTRA LOW PRESSURE
Low pressure operation saves energy:
6 to 20 psi (0.41 to 1.38 bar)

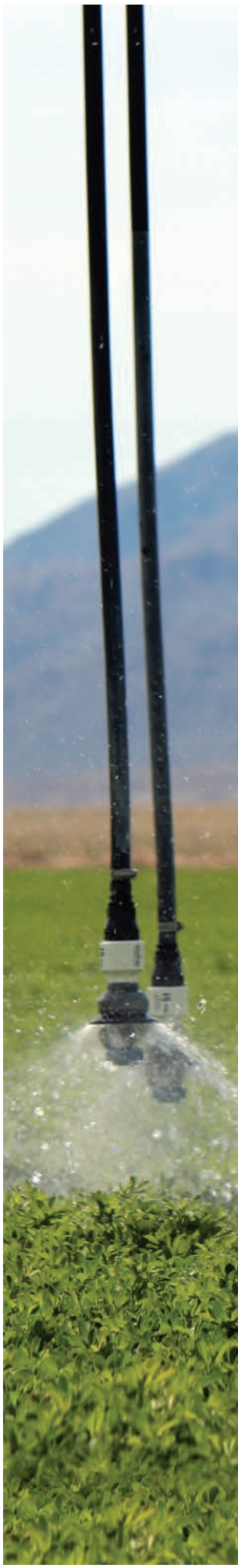
MULTIPLE MODELS

Available with LEPA bubblers, single, double or triple pads, chemigation pads; a part-circle and a drag hose add-on

STREAMLINED DESIGN
Streamlined body and impact resistant materials can handle the
rigors of traveling through tall crops

UP3® NOZZLES
Convenient UP3 nozzles for easy cleaning or changing.
Just pinch and pull, then place and click

TWO-YEAR WARRANTY
Two-year warranty on materials, workmanship and performance



CLOSE SPACING

Maximize the Efficiency of your Irrigation Systems

LEPA (Low Energy Precision Application) Close Spacing is a water-efficient irrigation practice that relies on bubble applicators. LEPA systems gently deliver water from a height of 8 to 18 inches (20 to 46 cm) above the ground, without spraying, to combat wind-drift and prevent evaporation loss. Researchers and growers have found that with LEPA heads, at least 20%* more water reaches the soil than with conventional spray nozzles.

Unlike traditional LEPA systems, where sprinklers are placed 60 to 80 inches (152 to 2013 cm) apart to irrigate every other furrow, the Close Spacing method distributes water over most of the soil surface with 40 inches (1 m) or less between heads. Conservation tillage practices further help prevent evaporation loss, and run-off by holding the water in the rows until the soil can absorb it. As a result, Close Spacing achieves application efficiencies typically exceeding 95%.

**Source: LEPA Conversion and Management by Dr. Guy Flipps and Leon New.*

FEATURES

① Prevents wind-drift and evaporation loss

② Avoids wetting the plant canopy in row crops

③ Achieves a more uniform root zone coverage

④ Applies the water needed in fewer pivot passes

⑤ Can increase yield using less water - 0.27 to 21.18 gpm (61 to 4168 L/hr)

⑥ Low pressures operation of 6 to 20 psi (0.41 to 1.38 bar) can reduce pumping costs

⑦ Ideal for both high and low profile crops

⑧ Qualifies for government funding in select areas

⑨ Reduces the potential rodent damage to crop and equipment over drip systems

FOR OPTIMUM RESULTS, INCORPORATE:

① Tight Spacing - 40 inches (1 m) or less between sprinkler heads

② Sprinkler Height - 8 to 18 inches (20 to 46 cm) above the ground

③ Conservation Tillage - to increase surface storage capacity and improve filtration

④ Level Fields - ideal maximum slope is 1%

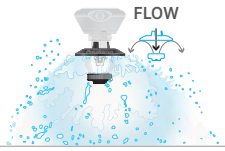
⑤ Filtration - for smaller nozzles**

⑥ Soil Moisture Monitoring - to help reduce deep percolation losses

***See nozzle chart on page 15 for mesh recommendations.*

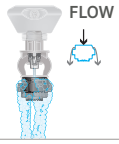
LDN® SHROUD WITH AD INSERTS

The Shroud is used in conjunction with deflector pads containing a bubbler or chem pad insert. The Shroud deflects the water from the insert down in a gentle dome-shaped pattern, providing complete coverage of the field. Due to its less concentrated distribution, it can be used on fields without furrows and is often used for germination as well as irrigation.



LDN® WITH WIDE SPRAY BUBBLE ASSEMBLIES

The Wide Spray Bubble provides a total coverage solution for 30" to 60" spacing. It produces a wide gentle aerated pattern suitable for most crops and soils.



LDN® WITH UP3® BUBBLER PAD ASSEMBLIES

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.

EASY CONVERSION TO AND FROM SPRAY IRRIGATION

By combining a LEPA surface with a deflector pad, each of these allows for easy conversion between LEPA application and spray irrigation. Simply twist and unlock the deflector pad. Flip it over and twist it to lock it back in place. The choice of deflector pads is based on the desired trajectory and spray pattern.

Shroud with Pad Inserts - Part Numbers

LDNSCUP3
LDN Shroud with clips

CONCAVE	FLAT	CONVEX	INSERTS
			
1 **LDNPHDCBB** (above) **C** = Concave (blue) (Standard 33 grooves) **BB** = Bubble Insert (beige) **LDNPHDMCBB** **M** = Mini **C** = Concave (blue) (24 grooves) **BB** = Bubble Insert (beige)	1 **LDNPHDFBB** (above) **F** = Flat (black) (Standard 33 grooves) **BB** = Bubble Insert (beige) **LDNPHDMFBB** **M** = Mini **F** = Flat (black) (24 grooves) **BB** = Bubble Insert (beige)	1 **LDNPHDVBB** (above) **V** = Convex (green) (Standard 33 grooves) **BB** = Bubble Insert (beige) **LDNPHDMVBB** **M** = Mini **V** = Convex (green) (24 grooves) **BB** = Bubble Insert (beige)	1 **LDNPHDB** **B** = Bubble Insert (beige) Nozzles #5 - #24
			
2 **LDNPHDCB11** **C** = Concave (blue) (Standard 33 grooves) **B11** = CM1 Corn Chem Insert (red)	2 **LDNPHDFB11** **F** = Flat (black) (Standard 33 grooves) **B11** = CM1 Corn Chem Insert (red)	2 **LDNPHDVB11** **V** = Convex (green) (Standard 33 grooves) **B11** = CM1 Corn Chem Insert (red)	2 **LDNPHDCM11** **CM11** = CM1 Corn Chem Insert (red) Nozzles #5 - #9
			
3 **LDNPHDCB25** **C** = Concave (blue) (Standard 33 grooves) **B25** = CM2 Corn Chem Insert (maroon)	3 **LDNPHDFB25** **F** = Flat (black) (Standard 33 grooves) **B25** = CM2 Corn Chem Insert (maroon)	3 **LDNPHDVB25** **V** = Convex (green) (Standard 33 grooves) **B25** = CM2 Corn Chem Insert (maroon)	3 **LDNPHDCM25** **CM25** = CM2 Corn Chem Insert (maroon) Nozzles #10 - #26

Nozzle sizes for pads above are based on the recommended range for pad insert on the right.

Wide Spray Bubble Assemblies - Part Numbers

CONCAVE	FLAT	CONVEX
		
1 **LDNDAHDCWSB** (above) **C** = Concave (blue) (33 grooves) **WSB** = Wide Spray Bubble Insert (blue) Nozzles #4.5 - #15	1 **LDNDAHDFWSB** (above) **F** = Flat (black) (33 grooves) **WSB** = Wide Spray Bubble Insert (black) Nozzles #4.5 - #15	1 **LDNDAHDVWSB** (above) **V** = Convex (green) (33 grooves) **WSB** = Wide Spray Bubble Insert (green) Nozzles #4.5 - #15

Other deflector pad options are available with the Wide Spray Bubble Assembly. Consult factory for details.

CONCAVE	FLAT	CONVEX
		
1 **LDNPHDCUP3B** **C** = Concave (blue) (33) **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #10 - #26	1 **LDNPHDFUP3B** **F** = Flat (black) (33) **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #10 - #26	1 **LDNPHDVUP3B** (above) **V** = Convex (green) (33) **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #10 - #26
2 **LDNPHDCMGUP3B** (above) **C** = Concave (blue) **MG** = Medium Groove (33) **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #10 - #26	2 **LDNPHDFMGUP3B** (above) **F** = Flat (black) **MG** = Medium Groove (33) **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #10 - #26	
3 **LDNPHDCDGUP3B** **C** = Concave (blue) **DG** = Deep Groove (24) **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #10 - #26	3 **LDNPHDFDGUP3B** **F** = Flat (black) **DG** = Deep Groove (24) **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #10 - #26	3 **LDNPHDVDGUP3B** **V** = Convex (green) **DG** = Deep Groove (24) **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #10 - #26
4 **LDNPHDMCUP3B** **M** = Mini, **C** = Concave (blue) (24) **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #4 - #9.5	4 **LDNPHDMFUP3B** **M** = Mini, **F** = Flat (black) (24) **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #4 - #9.5	4 **LDNPHDMVUP3B** **M** = Mini, **V** = Convex (green) (24) **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #4 - #9.5
5 **LDNPHDCSUP3B** **C** = Concave (blue) **S** = Smooth **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #4 - #14.5	5 **LDNPHDFSUP3B** **F** = Flat (black) **S** = Smooth **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #4 - #14.5	5 **LDNPHDVSUP3B** **V** = Convex (green) **S** = Smooth **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #4 - #14.5
6 **LDNPHDMC12UP3B** **M** = Mini, **C** = Concave (blue) **12** = 12 grooves **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #2 - #5	6 **LDNPHDMF12UP3B** **M** = Mini, **F** = Flat (black) **12** = 12 grooves **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #2 - #5	6 **LDNPHDMV12UP3B** **M** = Mini, **V** = Convex (green) **12** = 12 grooves **UP3B** = UP3 Bubbler Pad Ass'bly Nozzles #2 - #5

SPRAY IRRIGATION

The LDN® was the first spray nozzle for pivots providing the option to stack multiple deflector pads. Each additional pad has extra grooves that divide larger flows into multiple streams. Widening the wetted footprint of larger flows helps match the soil's infiltration rate to reduce runoff. The additional streams also help eliminate small droplets, reduce wind-drift, and maintain pattern uniformity. The chart shows the typical pad used based on the nozzle.

SINGLE

12, 24 or 33 grooves

DOUBLE

66 grooves

TRIPLE

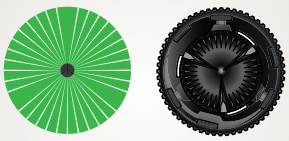
99 grooves

NOZZLE NUMBER & SIZE			PADS
02	1/32"	(0.79 mm)	Mini 12
03	3/64"	(1.19 mm)	
04	1/16"	(1.59 mm)	Mini 24
05	5/64"	(1.98 mm)	
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
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)	Double
16	1/4"	(6.35 mm)	
17	17/64"	(6.75 mm)	
18	9/32"	(7.14 mm)	
19	19/64"	(7.54 mm)	
20	5/16"	(7.94 mm)	
21	21/64"	(8.33 mm)	Triple
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)	

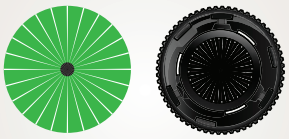
The LDN is incredibly versatile thanks to its various deflector pad options. Each surface is also available in three basic geometries based on the desired trajectory of throw – flat (black), concave (blue) for a slightly upward spray, and convex (green) for a slightly downward spray.

CONCAVE	FLAT	CONVEX
		
1 **LDNPHDC** (above) **C** = Concave (blue) (Standard 33 grooves) Nozzles #10 - #26	1 **LDNPHDF** (above) **F** = Flat (black) (Standard 33 grooves) Nozzles #10 - #26	1 **LDNPHDV** (above) **V** = Convex (green) (Standard 33 grooves) Nozzles #10 - #26
2 **LDNPHDCMG** **C** = Concave (blue) **MG** = Medium Groove (33 grooves) Nozzles #10 - #26	2 **LDNPHDFMG** **F** = Flat (black) **MG** = Medium Groove (33 grooves) Nozzles #10 - #26	
3 **LDNPHDCDG** **C** = Concave (blue) **DG** = Deep Groove (24 grooves) Nozzles #10 - #26	3 **LDNPHDFDG** **F** = Flat (black) **DG** = Deep Groove (24 grooves) Nozzles #10 - #26	3 **LDNPHDVDG** **V** = Convex (green) **DG** = Deep Groove (24 grooves) Nozzles #10 - #26
4 **LDNPHDMC** **M** = Mini **C** = Concave (blue) (24 grooves) Nozzles #4 - #9.5	4 **LDNPHDMF** **M** = Mini **F** = Flat (black) (24 grooves) Nozzles #4 - #9.5	4 **LDNPHDMV** **M** = Mini **V** = Convex (green) (24 grooves) Nozzles #4 - #9.5
5 **LDNPHDCS** **C** = Concave (blue) **S** = Smooth Nozzles #4 - #14.5	5 **LDNPHDFS** **F** = Flat (black) **S** = Smooth Nozzles #4 - #14.5	5 **LDNPHDVS** **V** = Convex (green) **S** = Smooth Nozzles #4 - #14.5
6 **LDNPHDMC12** **M** = Mini **C** = Concave (blue) **12** = 12 grooves Nozzles #2 - #5	6 **LDNPHDMF12** **M** = Mini **F** = Flat (black) **12** = 12 grooves Nozzles #2 - #5	6 **LDNPHDMV12** **M** = Mini **V** = Convex (green) **12** = 12 grooves Nozzles #2 - #5
7 **LDNPHDPCCDG17** **PC** = Part Circle (170°) **C** = Concave (blue) **DG** = Deep Groove **17** = 17 grooves Nozzles #6 - #18	*MAXIMUM SPACING RECOMMENDATIONS:* ***Above crop canopy*** *= 11 ft. (3.4 m) for Concave or Flat,* ***Below crop canopy*** *= 7 ft. (2.1 m) Concave, Flat, or Convex*	

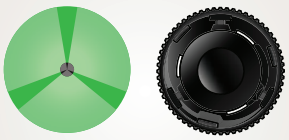
The surfaces of the deflector pads (smooth, grooved, medium groove, or deep groove) each delivers a different spray pattern and droplet size.



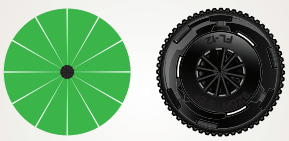
STANDARD 33 GROOVES



DEEP GROOVE 24 GROOVES



SMOOTH



MINI 12 GROOVES

LDN DESIGN CRITERIA	Standard or Medium 33 Groove	24 Deep Groove	Mini 24 Groove	Mini 12 Groove
Nozzle sizes				
Minimum	**#10** 5/32" (3.97 mm)	**#10** 5/32" (3.97 mm)	**#4** 1/16" (1.59 mm)	**#2** 1/32" (0.79 mm)
Maximum*	**#26** 13/32" (10.32 mm)	**#26** 13/32" (10.32 mm)	**#9.5** 19/128" (3.76 mm)	**#5** 5/64" (1.98 mm)
Flows				
Minimum	1.74 gpm (395 L/hr)	1.74 gpm (395 L/hr)	0.27 gpm (61 L/hr)	0.07 gpm (16 L/hr)
Maximum	21.18 gpm (4811 L/hr)	21.18 gpm (4811 L/hr)	2.86 gpm (650 L/hr)	0.78 gpm (177 L/hr)
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	20 psi (1.38 bar)	20 psi (1.38 bar)	20 psi (1.38 bar)	20 psi (1.38 bar)
Maximum Spacing				
Above crop canopy**	11 ft (3.4 bar)	11 ft (3.4 bar)	11 ft (3.4 bar)	7 ft (2.1 bar)
Below crop canopy	7 ft (2.1 bar)	7 ft (2.1 bar)	7 ft (2.1 bar)	7 ft (2.1 bar)

** It is recommended that larger nozzle sizes be used only on soils that can handle higher application rates. The LDN is not recommended for surface water or effluent application.*

*** Maximum spacing for convex pads above crop canopy is 10 ft (3 m)*

6 psi (0.41 bar)

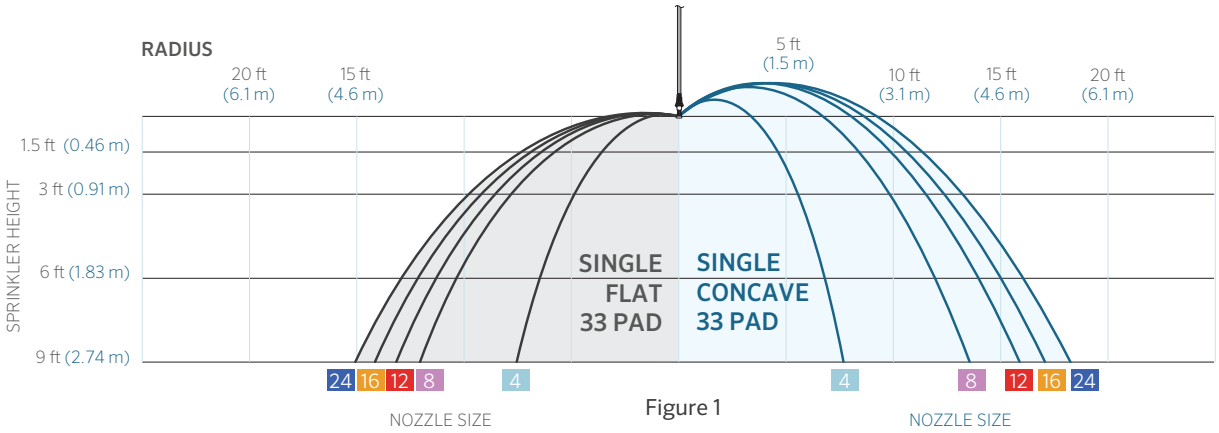


Figure 1

10 psi (0.69 bar)

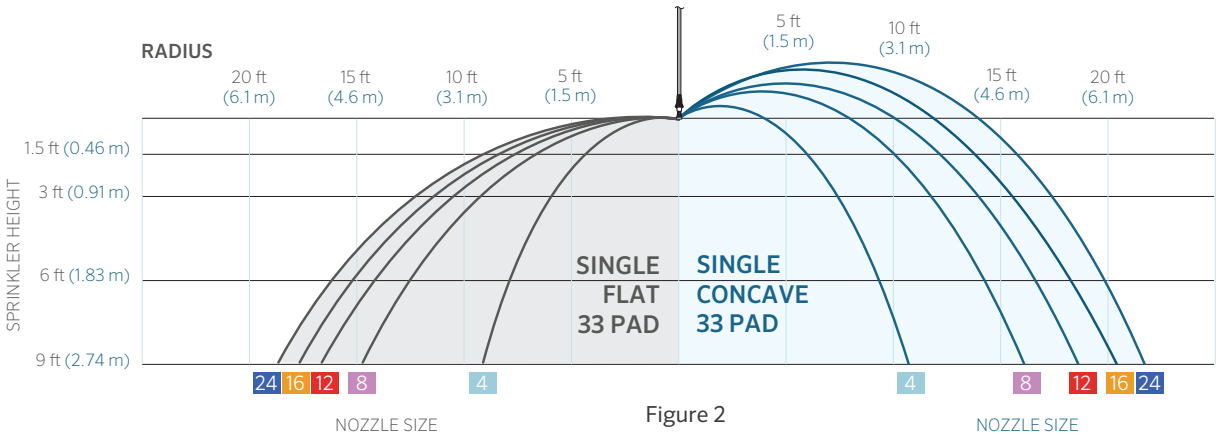


Figure 2

15 psi (1.03 bar)

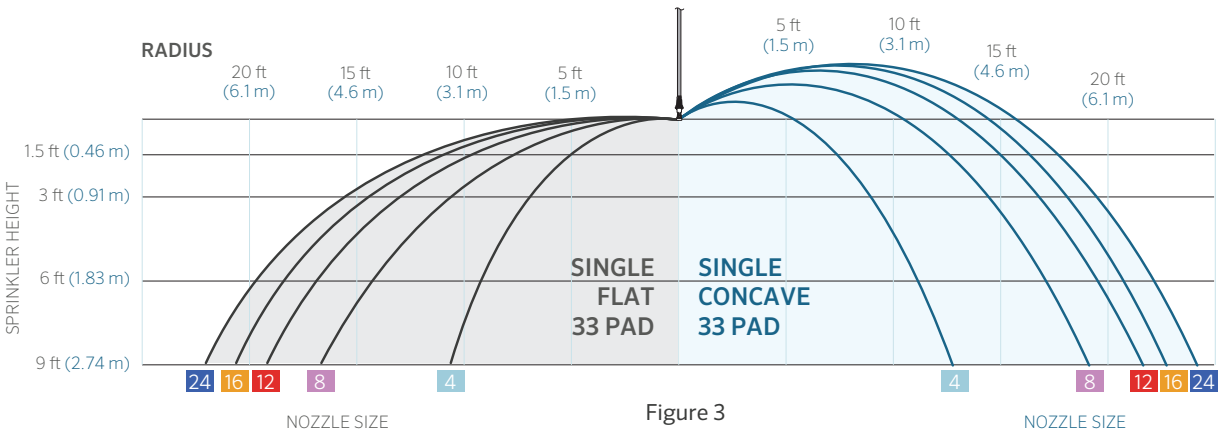
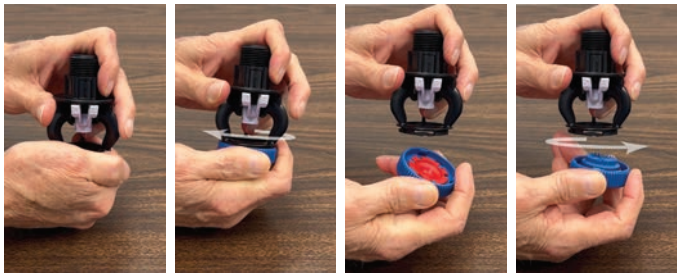
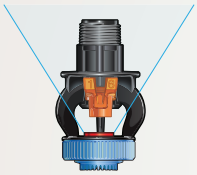
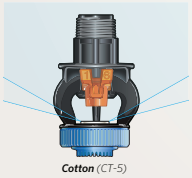


Figure 3

CHEMIGATION

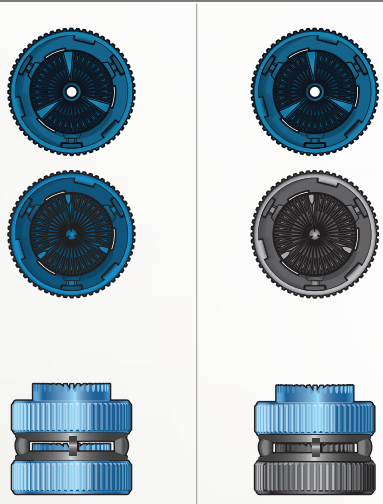


The LDN® offers chemigation pad inserts for corn or cotton. These are designed to produce an upward spray under the crop canopy to wash the underside of the leaves, where pests might hide. To change from irrigation to chemigation mode, simply twist and unlock the deflector pad. Flip it over and twist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

	CONCAVE	FLAT	CONVEX	INSERT
CORN *Chemigation Pad Inserts: 58° upward throw* 	 ❶ **LDNPHDCB11** **C** = Concave (blue) (Standard 33 grooves) **B11** = CM1 Corn Chem Insert (red)	 ❶ **LDNPHDFB11** **F** = Flat (black) (Standard 33 grooves) **B11** = CM1 Corn Chem Insert (red)	 ❶ **LDNPHDVB11** **V** = Convex (green) (Standard 33 grooves) **B11** = CM1 Corn Chem Insert (red)	 ❶ **LDNPHDCM11** **CM11** = CM1 Corn Chem Insert (red) Nozzles #5 - #9
	 ❷ **LDNPHDCB25** **C** = Concave (blue) (Standard 33 grooves) **B25** = CM2 Corn Chem Insert (maroon)	 ❷ **LDNPHDFB25** **F** = Flat (black) (Standard 33 grooves) **B25** = CM2 Corn Chem Insert (maroon)	 ❷ **LDNPHDVB25** **V** = Convex (green) (Standard 33 grooves) **B25** = CM2 Corn Chem Insert (maroon)	 ❷ **LDNPHDCM25** **CM25** = CM2 Corn Chem Insert (maroon) Nozzles #10 - #26
COTTON *Chemigation Pad and Pad Inserts: 15 - 30° upward throw*  ***Cotton** (CT-5)*	 ❸ **LDNPHDCB56** **C** = Concave (blue) (Standard 33 grooves) **B56** = CT56 Cotton Chem Insert (white)	 ❸ **LDNPHDFB56** **F** = Flat (black) (Standard 33 grooves) **B56** = CT56 Cotton Chem Insert (white)		 ❸ **LDNPHDCT56** **CT56** = Cotton Chem Insert (white) Nozzles #5 - #24

Nozzle sizes for the pads above are based on the recommended range for pad insert on the right.

DOUBLE PADS

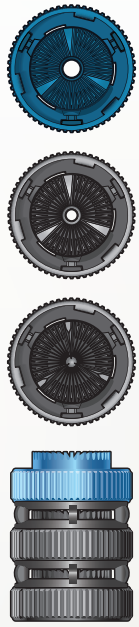


1 **LDNPHD2CC**
2 = Double Pad
C = Concave (blue)
(33 grooves)
with 0.198" hole
C = Concave (blue)
(33 grooves)
Nozzles #15 - #26

2 **LDNPHD2CF**
2 = Double Pad
C = Concave (blue)
(33 grooves)
with 0.198" hole
F = Flat (black)
(33 grooves)
Nozzles #15 - #26

3 **LDNPHD2FF**
2 = Double Pad
F = Flat (black)
(33 grooves)
with 0.198" hole
F = Flat (black)
(33 grooves)
Nozzles #15 - #26

TRIPLE PADS



4 **LDNPHD3CFF**
3 = Triple Pad
C = Concave (blue)
(33 grooves)
with 0.289 hole
F = Flat (black)
(33 grooves)
with 0.198 hole
F = Flat (black)
(33 grooves)
Nozzles #20 - #26

Above pad assemblies also available with LEPA or chemigation inserts.

LDN DESIGN CRITERIA	Double Pad 66 Groove	Triple Pad 99 Groove
Nozzle sizes		
Minimum	**#15** 15⁄16" (5.95 mm)	**#20** 5⁄16" (7.94 mm)
Maximum*	**#19** 19⁄64" (7.54 mm)	**#26** 13⁄32" (10.32 mm)
Flows		
Minimum	3.93 gpm (893 L/hr)	6.99 gpm (1588 L/hr)
Maximum	11.53 gpm (2619 L/hr)	21.18 gpm (4811 L/hr)
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)
Maximum Spacing		
Above crop canopy**	11 ft (3.4 bar)	11 ft (3.4 bar)
Below crop canopy	7 ft (2.1 bar)	7 ft (2.1 bar)

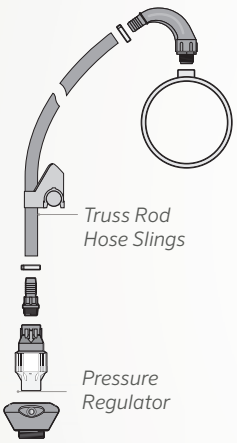
** It is recommended that larger nozzle sizes be used only on soils that can handle higher application rates.*
The LDN is not recommended for surface water or effluent application.
*** Maximum spacing for convex pads above crop canopy is 10 ft (3 m)*

INSTALLATION RECOMMENDATIONS

- The LDN® can be mounted on flexible hose drops or rigid Polyethylene or galvanized steel drops.
- When using flexible hose drops, a weight is recommended.
- When using the Universal Magnum Weight, the LDN base threads into the internal female connection on the bottom of the weight.
- When using The One Weight, use the internal fit technology to nest the weight onto the base of the LDN.
- Conventional slip-over weights can be used with the LDN.
- When using Senninger goosenecks with rigid drops, maximum length should not exceed 1 ft (0.3 m) below truss rod.
- The LDN can be mounted between 1.5 to 9 ft (0.46 to 2.74 m) above the ground.
- Pressure regulators can be installed at the top of the drop, or near the applicator.
- Always follow your customized printout for proper pressure regulator placement.

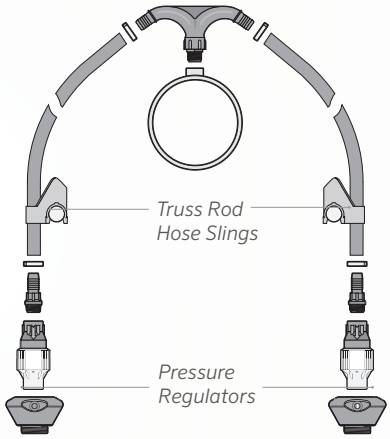
125° SINGLE GOOSENECK

(¾ inch barb)



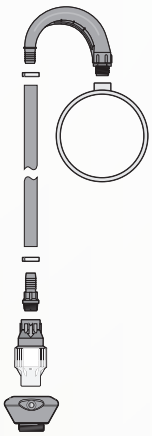
125° DOUBLE GOOSENECK

(¾ inch barb)



180° SINGLE GOOSENECK

(¾ inch barb)



PART-CIRCLE

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

FEATURES

① Can be used in conjunction with standard full circle LDNs or other Senninger sprinklers on the remainder of a pivot

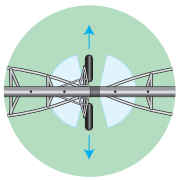
② Distributes water in a 170° pattern with 17 streams at a 10° trajectory for minimum evaporative loss

③ Maximum radius of throw- up to 29 ft (8.8 m)

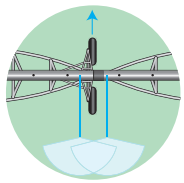
Dual Nozzle Carrier available see pg. 10

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

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



Mount the Part-Circle LDN to spray away from the towers regardless of the direction of the pivot.



Mount the Part-Circle LDN to spray in the opposite direction the pivot is traveling.

LDN 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.*

RIGID DROP

180° Single Gooseneck

NOZZLE FLOWS

EASY-CLEAN / EASY-CHANGE NOZZLE DESIGN *(Patented)*

The Senninger easy change nozzle was introduced in 2008. Just pinch and pull to remove the nozzle then place and click to re-install. There is no need to disassemble or remove the sprinkler for cleaning or changing nozzles.

The nozzle numbers (corresponding to orifice sizes in 64ths of an inch) are visible on the ears. Nozzles are warranted to maintain correct orifice size for five years.

Nozzle # Nozzle color	Nozzle Size		6 psi 0.41 bar		10 psi 0.69 bar		15 psi 1.03 bar		20 psi 1.38 bar	
			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
#2.5	5/128"	0.99 mm	0.11	25	0.14	32	0.17	39	0.19	43
#3 Ice	3/64"	1.19 mm	0.15	34	0.20	45	0.24	55	0.28	64
#3.5	7/128"	1.4 mm	0.21	48	0.27	61	0.33	75	0.38	86
#4 Light Blue	1/16"	1.59 mm	0.27	61	0.35	79	0.43	98	0.50	114
#4.5	9/128"	1.78 mm	0.35	79	0.45	102	0.55	125	0.63	143
#5 Beige	5/64"	1.98 mm	0.43	98	0.55	125	0.68	154	0.78	177
#5.5	11/128"	2.16 mm	0.52	118	0.67	152	0.82	186	0.95	216
#6 Gold	3/32"	2.38 mm	0.62	141	0.80	182	0.98	223	1.13	257
#6.5	13/128"	2.59 mm	0.73	166	0.94	213	1.15	261	1.33	302
#7 Lime	7/64"	2.78 mm	0.85	193	1.09	248	1.34	304	1.54	350
#7.5	15/128"	2.97 mm	0.97	220	1.26	286	1.54	350	1.77	402
#8 Lavender	1/8"	3.18 mm	1.11	252	1.43	325	1.75	397	2.02	459
#8.5	17/128"	3.38 mm	1.25	284	1.62	368	1.98	450	2.29	520
#9 Grey	9/64"	3.57 mm	1.40	318	1.81	411	2.22	504	2.56	581
#9.5	19/128"	3.76 mm	1.57	357	2.02	459	2.48	563	2.86	650
#10 Turquoise	5/32"	3.97 mm	1.74	395	2.24	509	2.75	625	3.17	720
#10.5	21/128"	4.17 mm	1.92	436	2.47	561	3.03	688	3.50	795
#11 Yellow	11/64"	4.37 mm	2.10	477	2.72	618	3.33	756	3.84	872
#11.5	23/128"	4.57 mm	2.30	522	2.97	675	3.64	827	4.20	954
#12 Red	3/16"	4.76 mm	2.51	570	3.24	736	3.97	902	4.58	1040
#12.5	25/128"	4.95 mm	2.72	618	3.52	799	4.31	979	4.97	1129
#13 White	13/64"	5.16 mm	2.95	670	3.81	865	4.66	1058	5.38	1222
#13.5	27/128"	5.36 mm	3.18	722	4.11	933	5.03	1142	5.81	1320
#14 Blue	7/32"	5.56 mm	3.42	777	4.42	1004	5.41	1229	6.25	1420
#14.5	29/128"	5.77 mm	3.67	834	4.74	1077	5.81	1320	6.71	1524
#15 Dk. Brown	15/64"	5.95 mm	3.93	893	5.08	1154	6.22	1413	7.18	1631
#15.5	31/128"	6.15 mm	4.20	954	5.42	1231	6.64	1508	7.67	1742
#16 Orange	1/4"	6.35 mm	4.48	1018	5.78	1313	7.08	1608	8.17	1856
#16.5	33/128"	6.55 mm	4.76	1081	6.15	1397	7.53	1710	8.69	1974
#17 Dk. Green	17/64"	6.75 mm	5.06	1149	6.53	1483	7.99	1815	9.23	2096
#17.5	35/128"	6.93 mm	5.36	1217	6.92	1572	8.47	1924	9.78	2221
#18 Purple	9/32"	7.14 mm	5.67	1288	7.32	1663	8.96	2035	10.35	2351
#18.5	37/128"	7.34 mm	5.99	1360	7.73	1756	9.47	2151	10.93	2482
#19 Black	19/64"	7.54 mm	6.31	1433	8.15	1851	9.98	2267	11.53	2619
#19.5	39/128"	7.75 mm	6.65	1510	8.58	1949	10.51	2387	12.14	2757
#20 Dk. Turquoise	5/16"	7.94 mm	6.99	1588	9.02	2049	11.05	2510	12.76	2898
#20.5	41/128"	8.13 mm	7.34	1667	9.47	2151	11.60	2635	13.40	3043
#21 Mustard	21/64"	8.33 mm	7.70	1749	9.93	2255	12.17	2764	14.05	3191
#21.5	43/128"	8.53 mm	8.06	1831	10.40	2362	12.74	2894	14.71	3341
#22 Maroon	11/32"	8.73 mm	8.43	1915	10.88	2471	13.33	3028	15.39	3495
#22.5	45/128"	8.94 mm	8.81	2001	11.37	2582	13.92	3162	16.08	3652
#23 Cream	23/64"	9.13 mm	9.19	2087	11.87	2696	14.54	3302	16.78	3811
#23.5	47/128"	9.32 mm	9.58	2176	12.37	2810	15.15	3441	17.49	3972
#24 Dk. Blue	3/8"	9.53 mm	9.98	2267	12.88	2925	15.78	3584	18.22	4138
#24.5	49/128"	9.73 mm	10.38	2358	13.40	3043	16.41	3727	18.95	4304
#25 Copper	25/64"	9.92 mm	10.78	2448	13.92	3162	17.05	3872	19.69	4472
#25.5	51/128"	10.11 mm	11.19	2542	14.45	3282	17.69	4018	20.43	4640
#26 Bronze	13/32"	10.32 mm	11.60	2635	14.98	3402	18.35	4168	21.18	4811

120 Mesh Filtration Recommended

SMALL UP3 NOZZLES AND PADS

Small nozzles and mini-deflector pads are designed as an option for the first spans of a machine where overwatering is an issue. These nozzles and pads are ideal for low pressures up to 15 psi (1.03 bar). Due to the small orifice size of nozzles #2 through #4.5, filtration of 120-mesh will be needed.

Senninger®

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.

Steve Abernethy, President of Senninger Irrigation

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