MICRO-SPRINKLERS

NaanDanJain's wide selection of micro-sprinklers enables our teams to tailor highly customized solutions for every application. Offering a high level of accuracy, uniformity and reliability, the micro-sprinkler range includes sprayers, rotors, misters and foggers.

Jain Irrigation Systems Ltd.

NAANDANJAIN Irrigation

NAANDANJAIN
Irrigation

CONTENTS

INTRODUCTION

Micro-sprinkler irrigation is a major pressurized micro-irrigation method.
The advanced plastic molding technology allows for the development and manufacture of water emitters with extreme diversity of flow rates, distribution patterns and droplet sizes.

Micro-sprinkler irrigation has numerous applications, including:

- Undertree irrigation of fruit trees
- Irrigation in greenhouses and nurseries
- Irrigation of landscapes and residential gardens
- Frost protection in orchards and vineyards
- Climate control (cooling and humidification) in greenhouses, poultry houses and livestock areas
- Pesticide spraying in greenhouses and orchards

NaanDanJain is a world leader in the development and marketing of the most advanced micro-sprinkler irrigation technologies. The company offers the widest selection of micro-sprinklers, providing tailor-made solutions for all applications, with a high level of accuracy, uniformity and reliability.

MODULAR GROUP

Complete range of micro-sprinklers and micro-jets

APPLICATIONS

- Irrigation in orchards, vegetables and gardens
- Irrigation in greenhouses and shade houses
- Cooling of poultry and livestock

STRUCTURE AND FEATURES

Broad range of wetted diameters and flow rates

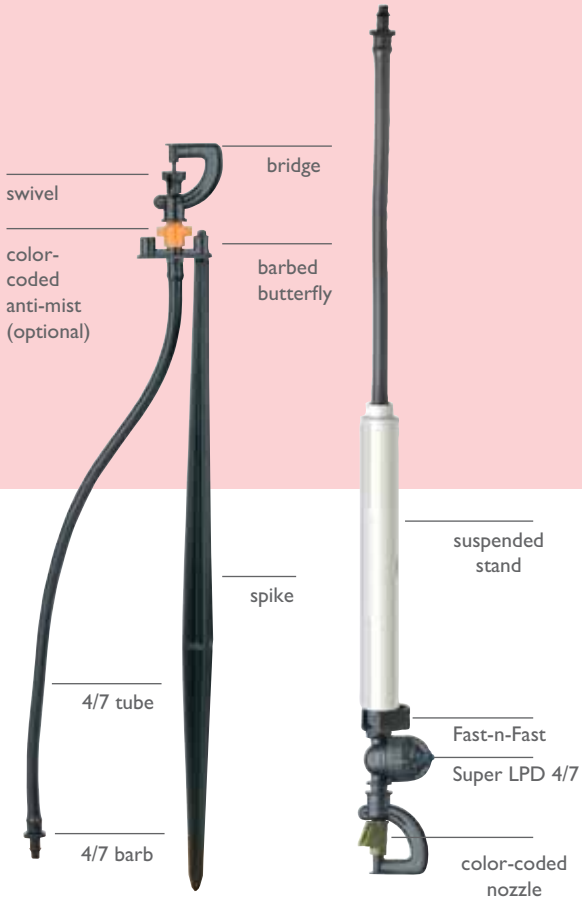
- Full- and part-circle patterns
- Small, medium or large droplets produced by different sprayers, swivels or anti-mist devices

Jardi Modular
with unique mini-valve

NAANDANJAIN Irrigation

TECHNICAL DATA

- Recommended working pressure: 1.5-3.0 bar
- Flow rate: 25-400 l/h
- Wetted diameter: 1-10 m
- Filtration requirement: 130 micron for purple and brown nozzles
  200 micron for other nozzles



MODULAR NOZZLE AND FLOW RATE VS. PRESSURE

Color	Flow rate (l/h)	Nozzle ID (mm)	Pressure (bar)					
			1.0	1.5	2.0	2.5	3.0	3.5
Violet	35	0.82	25	30	35	39	43	46
Brown	43	0.94	32	37	43	50	55	60
Grey	70	1.16	49	60	70	78	86	93
Green	105	1.41	74	90	105	117	129	139
Orange	120	1.50	85	105	120	134	147	159
Yellow	160	1.73	113	140	160	179	196	212
Blue	200	1.92	141	170	200	224	245	265
Ivory	235	2.07	166	204	235	263	288	311
Red	260	2.18	184	225	260	291	318	344
Black	300	2.34	212	260	300	335	367	397

WETTED DIAMETER (m) AT 2.0 BAR AND 0.25 m ABOVE GROUND LEVEL

Anti-mist color (Ø)	Nozzle color	Flow rate (l/h)	Nozzle ID (mm)	Static Spreaders							Swivels						
				90°	180°	Mist sprayer	Strip	Close-range spreader	Flat	12 Jet	Small black	Anti-ant	One sided black	One sided blue	Big orange	Inverted	
													**	**		*	
																Height (m)	
																0.60	1.80
	Violet	35	0.82	1.7	2.2	1.5	3.2	0.9	2.8	3.4	5.5	6.0	6.5			5.0	6.0
	Brown	43	0.94	1.7	2.5	1.8	4.2	0.9	3.4	4.5	5.5	6.0	6.5			5.5	6.5
	Grey	70	1.16	2.5	2.7		8.5	0.9	3.4	5.5	6.0	6.5	7.5			6.5	7.5
	Green	105	1.41	3.5	2.7		9.0	0.9	3.4	6.0	6.0	7.0	7.5		9.0	8.0	8.5
	Orange	120	1.50	4.5	2.7		9.0	0.9	4.0	6.0	6.0	7.0	8.0		9.0	8.0	9.0
	Yellow	160	1.73								6.5	8.0	8.0	8.0	9.0	9.0	9.5
	Blue	200	1.92									8.0	8.5	8.5	9.0	9.0	10.0
	Ivory	235	2.07										8.5	9.0	10.0	9.0	10.5
	Red	260	2.18										8.5	10.0	10.0	9.0	11.0
	Black	300	2.34										9.0	10.5	10.0	9.5	11.0
Green /0.94	Green	40	1.41	2.0	1.2		2.8	0.8	3.5	2.5	4.0					4.5	6.0
Orange /1.16	Orange	70	1.50	2.2	2.2		5.0	0.8	3.5	4.5	5.0					6.0	7.5
Yellow /1.40	Yellow	90	1.73	2.5	2.5		5.5	0.9	4.0	5.0	5.5					6.0	8.0
Blue /1.50	Blue	120	1.92	2.5	2.7		7.0	1.0	4.0	6.0	6.0					6.5	8.0

Tested under laboratory conditions
* Inverted swivel tested at 0.6m and 1.8 m
** Only for upright uses

NAANDANJAIN Irrigation

HADAR 7110

For irrigation, propagation and micro-climate

APPLICATIONS
- Horticulture and viticulture
- Orchards
- Greenhouses and nurseries
- Landscapes

STRUCTURE AND FEATURES
- Bayonet coupling
- Modular construction for simple use and modification
- Wide range of wetted patterns with 9 different inserts
- 11 color-coded nozzles with flow rates from 23-333 l/h
- Excellent water distribution
- Leakage Prevention Device (LPD)

TECHNICAL DATA
- Recommended working pressure: 1.5-3.0 bar
- Wetted diameter: 1.7-11.0 m
- Filtration requirements:
  130 micron (120 mesh) for nozzles 0.8-1.2 mm
  200 micron (80 mesh) for nozzle 1.3 mm and more

WETTED DIAMETER (m) AT 2.0 BAR

Nozzle size (mm)	Nozzle color	Flow rate (l/h)	Mist sprayer	Small sprayer	Extra-range and insect-resistant sprayer	Half-circle (180°) sprayer	Mini-range rotor 40L	Medium-range rotor	Extra-range rotor	Inverted rotor*
0.8	Black	33	2.0	2.2						
0.9	Grey	41	2.1	2.3	2.4		6.0			
1.0	Purple	50	2.3	2.4	3.0			6.6		8.4
1.1	Red	61	2.4	2.6	3.2			7.0		8.5
1.2	Orange	75	2.6	2.8	3.6			7.5		9.0
1.3	Green	87	3.0	2.9	3.6	3.0		8.5		9.5
1.4	Blue	103	3.3	3.1	3.6	3.1			9.4	10.0
1.6	Yellow	128	3.6	3.0	3.7	3.3			9.6	10.2
1.8	Bright Green	166	4.1	3.0	3.8	3.4			10.2	10.6
2.0	White	199	4.4	3.2	3.9	3.5			10.4	11.0
2.3	Brown	265	5.4		4.2	3.7			10.6	

*Tested under laboratory conditions at 2.0 above ground

7110
Inverted rotor with LPD

Leakage Prevention Device (Super LPD)

7110 mist sprayer
4.0 mm inserted base

PERFORMANCE TABLE 7110 INVERTED ROTOR AT 2 BAR PRESSURE

Nozzle (mm)	Nozzle color	Flow rate (l/h)	Diameter (m)	Precipitation (mm/h) Spacing (m)								
				3x3	3x4	3x5	4x4	4x5	4x6	5x5	5x6	6x6
1.3	Green	87	9.5	8.9	6.7	5.3	5.0	4.0		3.2		
1.4	Blue	103	10.0	6.4	5.1	4.9	4.3	4.1		3.6		
1.6	Yellow	128	10.2	7.4	6.0	5.7	5.0	4.8	5.0	4.3	4.0	3.3
1.8	Bright Green	166	10.6	9.0	7.2	6.9	6.0	5.8	6.0	5.1	4.8	4.0
2.0	White	199	11.0	10.5	8.4	8.0	7.0	6.7	7.0	6.0	5.6	4.7

*Tested under laboratory conditions at 2.0 above ground

Color code distribution uniformity	CU>92%	CU=89-92%	CU=85-88%	CU<85%

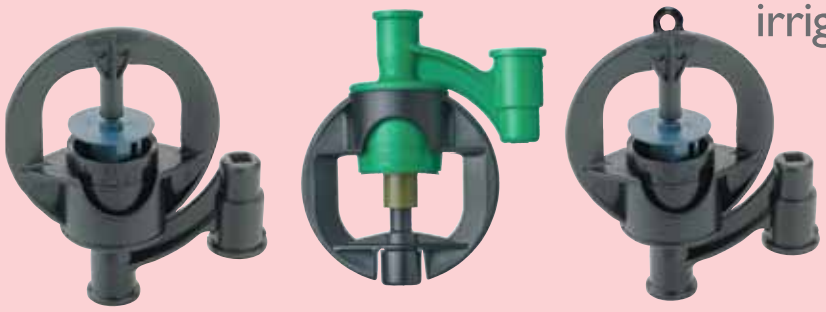
MIST SPRAYER FOR PROPAGATION

- Spacing on line: 1.0 m
- Spacing between laterals: two laterals for 1.4-1.6 m table width
  single lateral for 1.2 m table width
- Recommended working pressure: 2.5-4.0 bar

NAANDANJAIN Irrigation

AQUAMASTER 2005

Economical solution for undertree and greenhouse and overhead irrigation



APPLICATIONS

- For widely-spaced plantations such as walnut, almond, avocado and mango
- For overhead irrigation of vegetables and nurseries
- IrriStand systems (up to 6 x 6 m spacing)

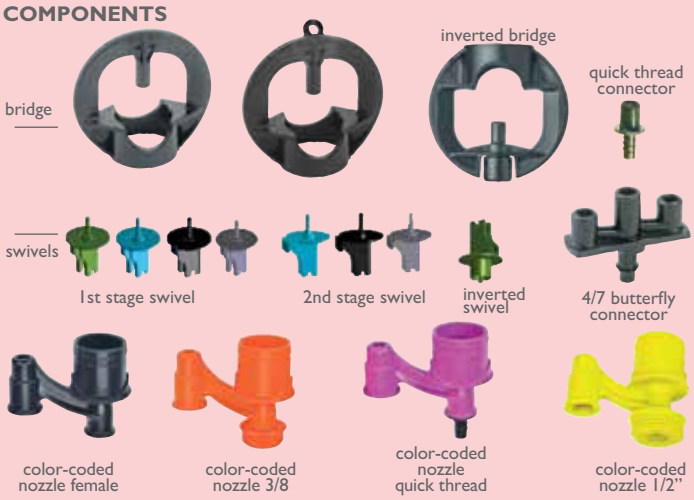
STRUCTURE AND FEATURES

- Extra-long range
- Simple, user-friendly structure
- Uniform coverage over a wide range of spacings, flow rates and pressures
- Insect-resistant nozzle
- Large droplets
- Innovative spike
- Inverted version available for tunnels and greenhouses

TECHNICAL DATA

- Recommended working pressure: 1.5-3.0 bar
- Recommended working pressure (inverted version): 2.0-3.0 bar
- Flow rate: 30-365 l/h
- Wetted diameter: 5.5-12.5
- Filtration requirements: purple and brown nozzles -130 microns
  other nozzles -200 microns

COMPONENTS



FLOW RATE (l/h) VS. PRESSURE (bar)

Nozzle Color	Nozzle Ø mm	Pressure (bar)		
		1.5	2.0	2.5
Violet	0.80	30	35	39
Brown	0.94	43	50	56
Grey	1.14	61	70	78
Turquoise	1.34	78	90	101
Green	1.40	91	105	117
Orange	1.50	104	120	134
Black	1.74	139	160	179
Blue	1.94	173	200	224
Yellow	2.16	215	250	305
Red	2.36	260	300	335

FLOW RATES AND WETTED DIAMETER (m) AT 2.0 BAR

Swivels - Wetted diameter (m)								
Nozzle color	Flow rate (l/h)	Black		Blue		Grey		Green
		1st stage	Regular (2nd stage)	1st stage	Regular (2nd stage)	1st stage	Regular (2nd stage)	
Violet	35	2.0	5.5					
Brown	50	2.0	6.5					
Grey	70			2.5	7.0			
Turquoise	90			2.5	9.0			
Green	105			3.0	9.0			
Orange	120					2.0	5.5	9.5
Black	160					2.5	6.0	10.0
Blue	200					2.5	6.0	10.5
Yellow	250					3.0	6.0	11.5
Red	300					3.0	7.0	12.5

*Tested under laboratory conditions at 0.25 m height

PERFORMANCE TABLE FOR IRRISTAND APPLICATION

Precipitation rate (mm/h) Spacing (m)							
Swivel Color	Nozzle Color	Flow Rate (l/h)	D (m)	3x3	4x4	5x5	6x6
Blue	Grey	70	7.0	7.8	4.4		
	Turquoise	90	9.0	10	5.6		
	Green	105	9.0	11.6	6.5		
Green	Orange	120	9.5	13.3	7.5	4.8	3.3
	Black	160	10.0	17.8	10	6.4	4.5
	Blue	200	10.5	22.3	12.6	8	5.6
	Yellow	250	11.5	27.8	15.7	10	7
	Red	300	12.5	32.9	18.5	11.8	8.2

*Tested under laboratory conditions at 0.6 m height and 2.0 bar

INVERTED MODEL - FLOW RATES AND WETTED DIAMETERS AT PRESSURE 2.0 BAR

Swivel color	Nozzle color	Flow rate (l/h)	D (m)
Green inverted	Violet	35	6.5
	Brown	50	7.5
	Grey	70	9.0
	Turquoise	90	10.0
	Green	105	10.0
	Orange	120	10.5
	Black	160	11.0
	Blue	200	11.5

*Tested under laboratory conditions at 1.8 m height

PERFORMANCE TABLE FOR INVERTED APPLICATION

Precipitation rate (mm/h) Spacing (m)					
Nozzle color	Flow rate (l/h)	3x3	4x4	4x6	5x5
Grey	70	7.7	4.4	2.9	2.8
Turquoise	90	10	5.6	3.8	3.6
Green	105	11.7	6.6	4.4	4.2
Orange	120	14.0	7.9	5.3	5.1
Black	160	17.5	9.9	6.6	6.3

*Tested under laboratory conditions at 1.8 m height and 2.0 bar

Color code distribution uniformity	CU>92%	CU=89-92%	CU=85-88%	CU<85%

HEAD LOSS (m) 1.0m Tube Length

		3/8" thread, 1/2" thread & female connections			Quick thread connection
Nozzle color	Flow rate (l/h)	4/7 PVC tube	5/8 PE tube	7/10 PVC tube	4/7 PES tube
Violet	35	0.8	0		0.9
Brown	50	1.2	0.1		1.1
Grey	70	1.3	0.5		1.7
Turquoise	90	1.5	0.7		2.6
Green	105	1.7	0.9		3.7
Orange	120	2.6	1.4		4.5
Black	160	4.6	2.4		
Blue	200			1.2	
Yellow	250			1.3	
Red	300			1.6	

NAANDANJAIN Irrigation

AQUASMART 2002

Flow-regulating micro-sprinkler

APPLICATIONS

- For optimal undertree irrigation

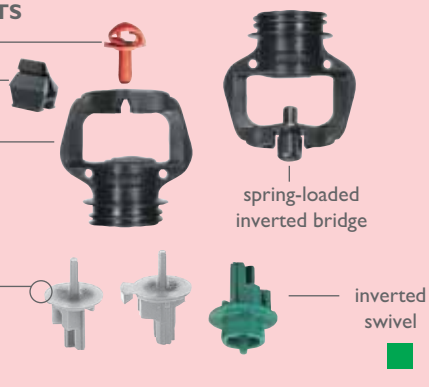
STRUCTURE AND FEATURES

- Constant flow between 1.5-4.0 bar pressure
- Uniform irrigation and fertigation in all topographical conditions
- Wide range of flow rates and distribution patterns
- Insect-proof nozzle
- Sturdy and solid structure
- Easy to dismantle and assemble
- Innovative spike with locking clip and water-stop aid
- Deflector helps prevent wetting of tree trunks
- Special swivel (green) for inverted operation
- Two-stage wetted diameter control
- Clog resistant even at lowest flow rates

TECHNICAL DATA

- Recommended working pressure: 1.5-4.0 bar
- Flow rate: 20-95 l/h
- Wetted diameter: 3.0-7.5 m

COMPONENTS

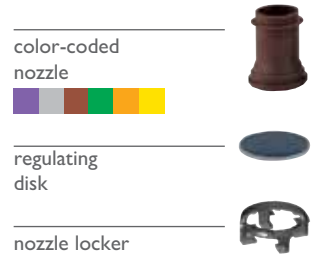


* 1st stage: with diameter limiter, for young trees
** Regular (2nd stage): break off the diameter limiter, for mature trees

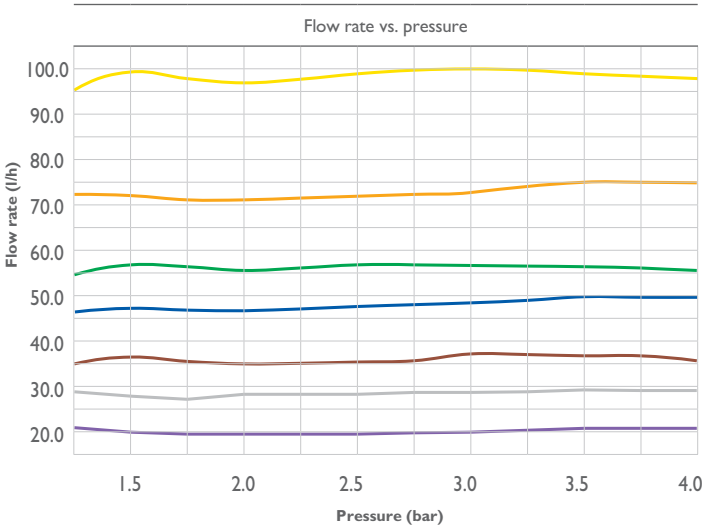
SWIVELS - WETTED DIAMETER (m)

			Orange* (close range)	Black Swivel (medium range)		Blue Swivel (large range)		Green (inverted)**
				1st stage	Regular (2nd stage)	1st stage	Regular (2nd stage)	
Nozzle color	Flow rate (l/h)	Nozzle (mm)						
Violet	20	0.84	3.0	1.5	3.5			
Grey	28	1.00	3.0	2.0	4.0	1.5	4.5	5.0
Brown	35	1.10	3.5	2.5	4.0	2.0	5.0	5.0
Blue	47	1.25	3.5	2.5	4.5	2.0	5.5	5.0
Green	55	1.33	3.5	2.5	4.5	2.0	6.0	5.0
Orange	70	1.48		2.5	5.0	2.5	7.0	5.0
Yellow	95	1.75		3.0	5.5	3.0	7.5	5.0

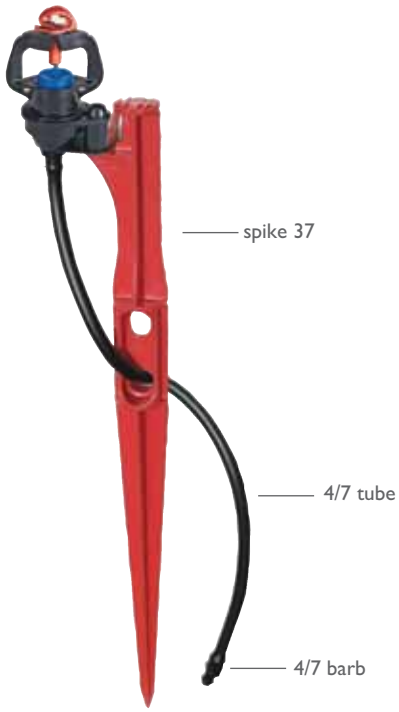
All swivels tested under laboratory conditions at 0.25 m above ground
* One stage only (no diameter limiter)
** Green swivel tested at 0.6 m above ground



Housings



STANDARD ASSEMBLIES



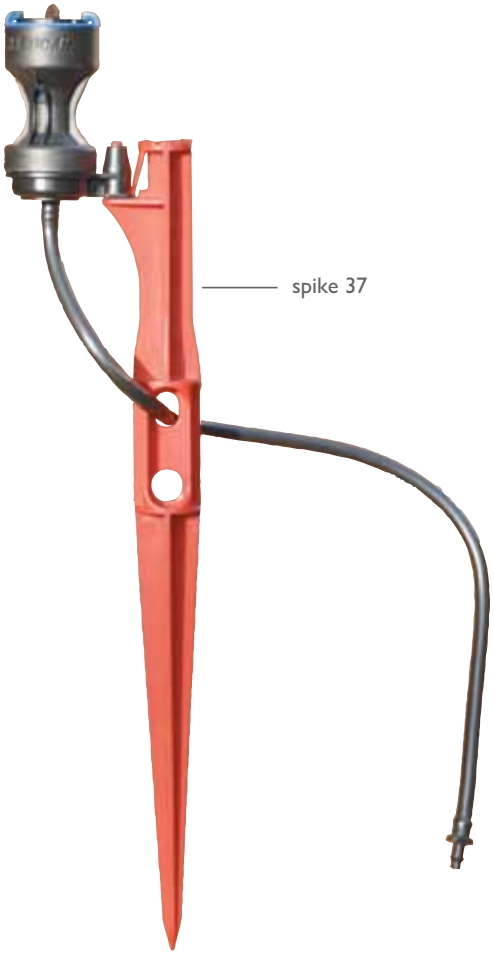
NAANDANJAIN Irrigation

ELIMINATOR

Insect-proof flow regulating micro-sprinkler for undertree irrigation

STRUCTURE AND FEATURES

- Prevents intrusion of all insects, including ants, snails, earwigs, spiders and Fuller's rose weevil
- Resistant to dust, sand, weeds and other external elements
- Flow-regulating for water saving and optimal efficiency
- Reliable, maintenance-free performance
- Wide range of flow rates and distribution patterns



TECHNICAL DATA

- Recommended working pressure: 1.5-4.0 bar
- Flow rate: 20-95 l/h
- Diameter coverage: 4.0-7.0 m
- Two-stage wetted diameter control

1st stage: with diameter limiter, for young trees

2nd stage: break off the diameter limiter, for mature trees

Special pop-up nozzle locks between irrigation cycles

PERFORMANCE TABLE

Regulator & nozzle bridge color	Flow rate (l/h)	Swivel color	Wetted diameter (m)
Purple	20	Black	4.0
Grey	28	Black	5.0
Brown	35	Black	5.5
Black	40	Black	5.5
Blue	47	Black	6.0
Green	55	Black	6.0
Orange	70	Black	7.0
Yellow	95	Black	7.0

Tested under laboratory conditions.
For 2 stages Eliminator:
- 1 st stage: wetted diameter is: 3-4m.
- 2nd stage: wetted diameter is according to the table.

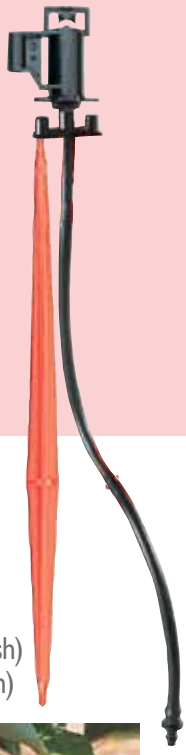
HOUSINGS

NAANDANJAIN Irrigation

DAN-JET PC

CONNECTORS

4/7 barb | parallel | quick thread



Flow-regulating micro-jet

APPLICATIONS

- For undertree, vineyard and landscape irrigation

STRUCTURE AND FEATURES

- Low maintenance static ray-jet
- Pressure compensating-constant flow rate over wide pressure range
- Diverse distribution patterns and wetted diameters
- High resistance to clogging
- Floating regulation membrane allows spacious water pathways
- Large number of spreader and nozzle combinations

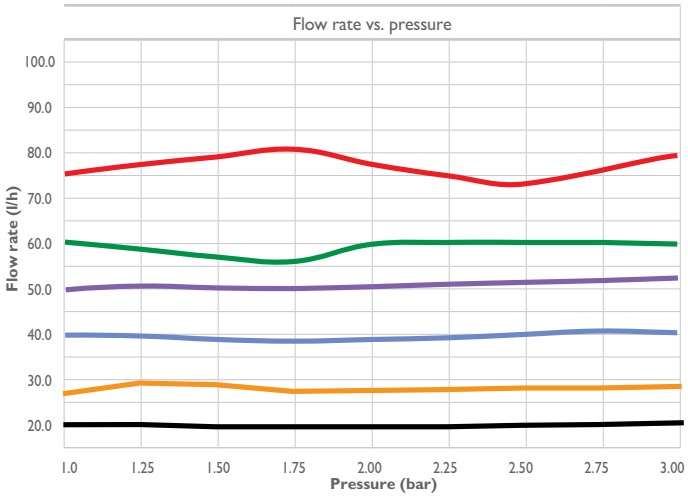
TECHNICAL DATA

- Recommended working pressure: 1.0-3.0 bar
- Flow rate: 19-76 l/h
- Filtration requirements:

black, orange and blue nozzles -130 microns (120 mesh)
violet, green and red nozzles -200 microns (80 mesh)

PERFORMANCE TABLE

Nozzle color	Flow rate (l/h)	Nozzle diameter (mm)
Black	19	0.89
Orange	28	1.17
Blue	38	1.30
Violet	47	1.55
Green	57	1.65
Red	76	1.93



DISTRIBUTION PATTERNS AND DIAMETERS (m)
TESTED AT 2.0 bar, 0.25 m HEIGHT

Nozzle color	Static Spreaders								
	Strip	300°	12 jets	16 jets	20 jets	180° (radius)	Inverted*	Flat (no jets)	Strip flat (no jets)
									
Black	2.4	3.0	3.2	3.0	2.4	1.5	2.5	2.4	2.0
Orange	2.6	3.2	3.6	3.2	2.8	1.7	3.3	2.6	2.2
Blue	3.2	4.0	4.4	4.6	3.6	2.2	3.8	3.0	
Violet	3.8	4.4	4.8	4.8	4.0	2.4	4.0	3.1	
Green	4.8	4.8	5.0	5.0	4.6	2.7	4.3	3.4	
Red	5.0	5.6	5.4	5.4	5.2	2.8	4.8	3.6	

Tested under laboratory conditions
* tested at 0.6m above ground

TURBO-JET

CONNECTORS

4/7 barb

parallel

quick thread

Low-maintenance micro-jet

APPLICATIONS

- For orchard, vineyard and landscape irrigation

STRUCTURE AND FEATURES

- Low maintenance emitter
- High resistance to clogging
- Diverse distribution patterns and wetted diameters
- Easy to open and clean
- Unique nozzle structure creates turbulent flow and wide water pathways
- Large number of nozzle and spreader combinations

TECHNICAL DATA

- Recommended working pressure: 1.0-3.5 bar
- Flow rate: 16-110 l/h
- Filtration requirements:
  black, orange and blue nozzles -130 microns (120 mesh)
  violet, green and red nozzles -200 microns (80 mesh)

FLOW RATES BY NOZZLE (l/h)

Pressure (bar)	Nozzle color/diameter (mm)					
	Black 0.80	Orange 1.00	Blue 1.15	Violet 1.30	Green 1.40	Red 1.65
1.0	16	23	31	40	48	62
1.4	19	28	37	47	57	76
2.0	23	33	43	56	69	88
2.5	25	36	47	63	75	98
3.0	27	38	50	69	80	105
3.5	29	41	53	74	85	111

DISTRIBUTION PATTERNS AND DIAMETERS (m)
TESTED AT 1.4 & 2.0 bar, 0.25 m HEIGHT

Nozzle color	Static Spreaders																	
	Strip		300°		12 jets		16 jets		20 jets		180° (radius)		Inverted*		Flat (no jets)		Strip flat (no jets)	
																		
	1.4 bar	2.0 bar	1.4 bar	2.0 bar	1.4 bar	2.0 bar	1.4 bar	2.0 bar	1.4 bar	2.0 bar	1.4 bar	2.0 bar	1.4 bar	2.0 bar	1.4 bar	2.0 bar	1.4 bar	2.0 bar
Black	2.7	3.0	3.2	3.8	3.4	4.1	3.1	4.2	3.4	3.2	1.5	2.2	2.8	3.0	2.2	2.2	2.3	2.4
Orange	3.0	3.7	4.0	4.4	4.3	4.7	4.0	5.6	3.6	4.0	1.8	2.3	3.2	3.8	2.3	2.4	2.4	2.5
Blue	3.7	4.2	4.8	5.6	4.6	4.9	4.2	6.0	3.8	4.4	2.2	2.4	3.8	4.8	2.4	2.6		
Violet	4.2	5.4	5.0	5.8	4.8	5.2	4.3	6.0	4.0	5.0	2.2	2.5	4.6	5.2	2.6	3.0		
Green	4.2	5.4	5.4	6.0	5.2	5.9	4.5	6.2	4.2	5.4	2.3	2.7	4.9	5.4	2.8	3.2		
Red	4.8	6.1	6.6	7.6	5.6	6.6	5.4	7.2	5.0	6.2	2.4	2.8	5.2	5.8	3.0	3.4		

Tested under laboratory conditions
* tested at 0.6m above ground

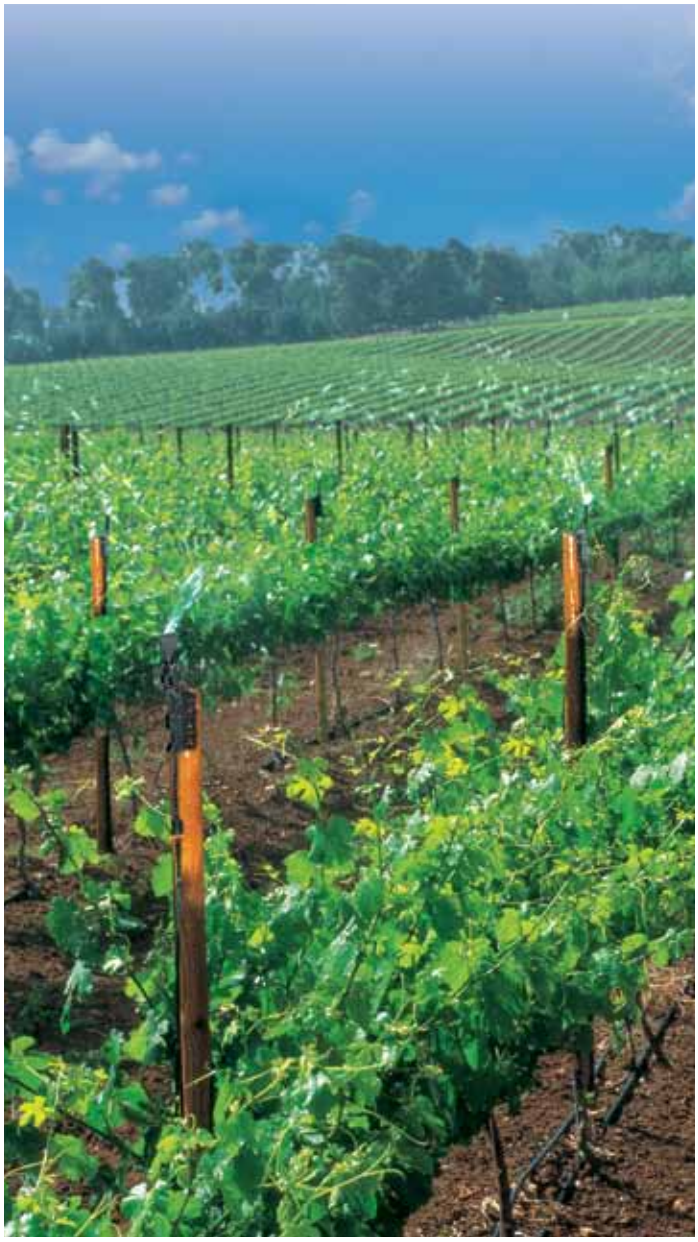
NAANDANJAIN
Irrigation

FLIPPER

The most economical frost protection for vineyards

STRUCTURE AND FEATURES

- Spreads water in a very long and narrow strip, targeting the vine rows only
- Saves up to 70% of water compared to conventional overhead systems
- Large droplets minimize the cooling effect when starting the system
- Safe operation under frost conditions
- Optional flow regulator for hilly terrain or long rows
- Low installation and pumping costs
- Dry pathways reduce waterlogging and facilitate access for workers and equipment soon after operation



COMPONENTS

Flipper

Optional protecting box

Stabilizer

Flow Regulators

25 l/h 35 l/h 43 l/h

TECHNICAL DATA

- Recommended working pressure: 2.0-3.0 bar
- Flow rate: 25-45 l/h
- Filtration requirements: 130 microns (120 mesh)

TIPS FOR INSTALATION & OPERATION

- Ensure that the water stream is in line with the vine rows.
- Anchor the Flipper firmly to the post.
- Start the system before the critical damaging temperature is reached.
- To decide on a suitable start-up temperature, consider the dew points (see chart below).
- Stop the system only when the outside temperature is constant above 1°C.

PERFORMANCE TABLE

Nozzle color	Flipper color	Flow rate (l/h) (at 2 bar)	Maximal recommended spacing (m) between flippers**
Black	Black	25*	6.0
Violet	Black	35*	7.0
Brown	Brown	43*	9.0

* For regulated unit: 2.5-4.0 bar
** When Flippers mounted 1.0 m above the target

AMOUNT OF WATER (m^3/ha/hr) REQUIRED BY FLIPPER FROST PROTECTION SYSTEM* AND WATER SAVING COMPARED TO CONVENTIONAL 40 m^3/ha/hr SYSTEM

Nozzle color	Vineyard with 3.0 m row spacing	% of water saving	Vineyard with 2.5 m row spacing	% of water saving
Black	14.0	65	16.0	58
Violet	16.6	58	20.0	50
Brown	16.0	60	19.0	52

* When Flippers are at maximal spacing, at 2 bar pressure

RECOMMENDED START-UP TEMPERATURES FOR FROST PROTECTION AT VARIOUS DEW POINTS

Dew point temp. (°C)	-9.5	-9.0	-8.5	-8.0	-7.5	-6.5	-6.0	-5.5	-5.0	-4.5	-4.0	-3.5	-3.0	-2.0	-1.5
Start-up temp. (°C)	+4.0	+4.0	+3.5	+3.5	+3.0	+3.0	+3.0	+2.0	+2.0	+1.5	+1.5	+1.0	+1.0	+0.5	+0.5

NAANDANJAIN Irrigation

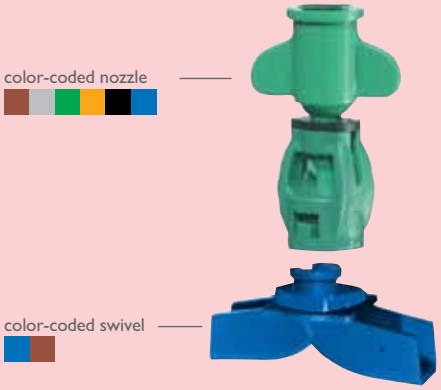
GREEN SPIN

Non-drip inverted micro sprinkler
Ideal for overhead irrigation in greenhouses

STRUCTURE AND FEATURES

- Bridgeless-no dripping during operation
- No deflection or "dead corners"
- Low trajectory, no water above nozzle level
- Superior uniformity over a wide range of spacings
- Connections to PE or PVC pipes
- Optional Leakage Prevention Device (LPD) prevents drainage after shut-off
- Patent pending
- Tapered or bayonet connection

COMPONENTS



TECHNICAL DATA

- Recommended working pressure: 2.0-3.0 bar
- Flow rate: 43-200 l/h
- Filtration requirements:
  brown and grey nozzles -130 microns
  green, orange, black and blue nozzles -200 microns

FLOW RATES (l/h) AND WETTED DIAMETER (m) AT 2.0 BAR

Swivel color	Nozzle color	Flow rate (l/h)	Wetted diameter* (m)
Brown	Brown	43	5.5
Blue	Grey	70	6.0
	Green	105	7.5
	Orange	120	8.0
	Black	160	8.5
	Blue	200	8.5

*Tested under laboratory conditions at 1.8m above ground

PERFORMANCE TABLE GREEN SPIN AT 2 BAR PRESSURE

Precipitation rates (mm/h) and uniformity (CU) at various spacings (m)											
Distance between laterals (m)			3					4				
Distance between heads (m)			1.0	1.5	2.0	2.5	3.0	1.0	1.5	2.0	2.5	3.0
Brown swivel	Brown	43 LPH	14.3	9.5	7.2	5.7	4.8					
Blue swivel	Grey	70 LPH	23.1	15.4	11.5	9.2	7.7	17.3	11.5	8.7	6.9	5.8
	Green	105 LPH	34.8	23.2	17.4	13.9	11.6	26.1	17.4	13.1	10.4	8.7
	Orange	120 LPH	39.8	26.5	19.9	15.9	13.3	29.9	19.9	14.9	11.9	10.0
	Black	160 LPH	53.3	35.5	26.7	21.3	17.8	40.0	26.7	20.0	16.0	13.3
	Blue	200 LPH	66.7	44.5	33.3	26.7	22.2	50.0	33.3	25.0	20.0	16.7

Tested under laboratory conditions at 1.8m above ground

Color code distribution uniformity	CU>92%	CU=89-92%	CU=85-88%	CU<85%

NAANDANJAIN
Irrigation

GREEN MIST

LPD

Green Mist nozzle

Double-purpose emitter for misting and irrigation over propagation benches

STRUCTURE AND FEATURES

- Uniform coverage
- Ideal droplet size prevents drift of fine mist
- No dripping during operation
- Symmetrical water distribution with no deflection or "dead corners"
- Low pressure Leakage Prevention Device (LPD) for perfect pulsed operation
- Low cost

TECHNICAL DATA

- Recommended working pressure: 2.0-3.5 bar
- Flow rate: 30-40 l/h
- Filtration requirements: 130 microns (120 mesh)
- Wetted diameter: 1.2 m

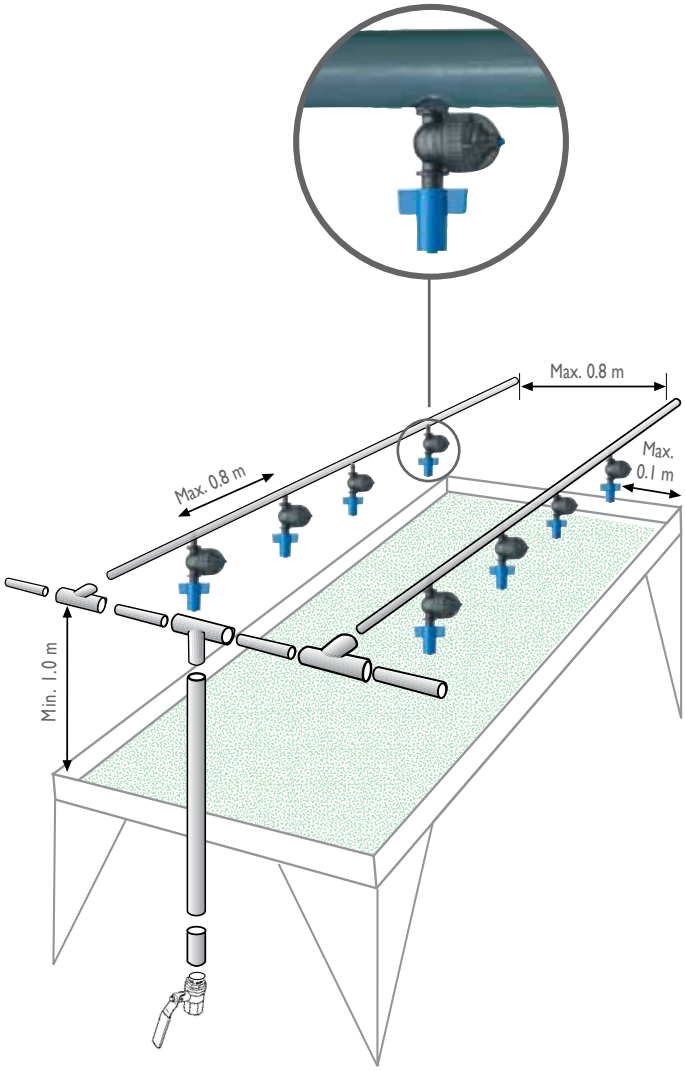
INSTALLATION INSTRUCTIONS

- Height of units above bench: 1.0-1.2 m
- Max. spacing between units on lateral: 0.8 m
- Max. spacing between laterals: 0.8 m
- Max. distance of lateral from bench edge: 0.1 m

FLOW RATE VS. PRESSURE

Pressure (bar)	2.0	2.5	3.0	3.5
Flow (l/h)	30	34	37	40

SCHEMATIC LAYOUT OF PVC INSTALLATION



NAANDANJAIN Irrigation

FOGGER

Super LPD
(high pressure)

For optimal cooling or humidifying of greenhouses

Super LPD
(medium pressure)

OPTIONAL NOZZLES FLOW RATE (l/h)

Nozzle Color	Violet	Blue	Orange	Red	Black
3.0 bar	4.5	6.0	12.0	18.0	24.0
4.0 bar	5.3	7.0	14.0	21.0	28.0

FEATURES

- Extra fine droplet size (55 microns @ 4.0 bar)
- Range of flow rates for different precipitation rates
- High water distribution uniformity and coverage
- Chemical resistant raw materials
- PE and PVC connections
- Easy installation and service
- Filtration requirements: 130 microns (120 mesh)
- LPD (Leakage Prevention Device)
for simultaneous startup and shut-down of the system
- High pressure LPD and Medium pressure LPD are available

APPLICATIONS

- Reduces greenhouse temperature
- Increases greenhouse humidity
- Provides perfect conditions for plant propagation
- Fogger on T assembly used for pesticide application

- **For cooling and humidifying only:**
(4 foggers on cross or 2 foggers on T)
3.0-4.0 m between laterals
2.0-3.0 m between heads

- **For cooling, humidifying and spraying:**
(2 foggers on T only)
2.0-3.0 m between laterals
1.5 m between heads

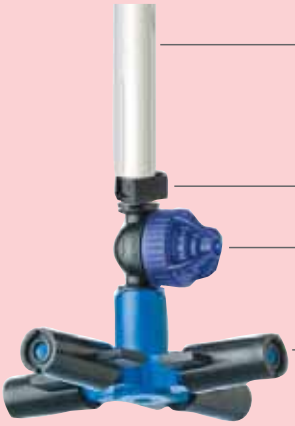
Please double check the final installation details with local NDJ representative.

PROPAGATION SYSTEMS

TECHNICAL DATA

High pressure Super LPD

- Recommended working pressure: 4.0 bar
- Droplet size average - 55 micron (at 4.0 bar)
- Filtration requirements: 130 microns (120 mesh)
- Minimum height above crop: 1.0 m
- Max. spacing between units on laterals: 1.2 m
- Max. spacing between lateral: 1.2 m
- Max. distance of lateral from bench edge: 0.2 m

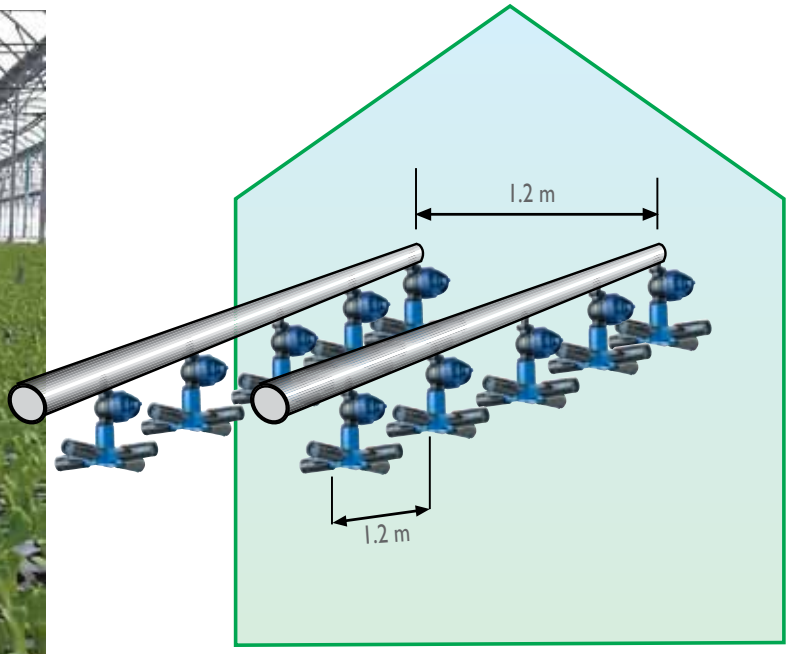


Medium pressure Super LPD

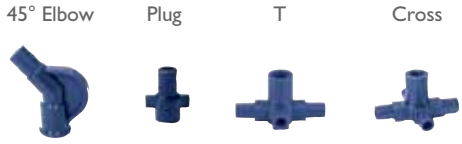
- Opening pressure 3.0 bar
- Closing pressure - 1.5 bar
- Droplet size average - 69 micron at 3.0 bar

FOGGER FLOW RATE ON CROSS (l/h)

Nozzle Color	Violet	Blue	Orange	Red	Black
3.0 bar	18.0	24.0	48.0	72.0	96.0
4.0 bar	21.2	28.0	56.0	84.0	112.0



Fogger Accessories



Please double check the final installation details with local NDJ representative.

NAANDANJAIN Irrigation

JAIN Jain Irrigation Systems Ltd.

SUPER FOGGER

Super Fogger x 2 **Super Fogger x 4**

Green cover: Medium pressure
Blue cover: High pressure

Optimal and economical solution for cooling, humidifying and pesticide spraying in greenhouses

Super Fogger x 2

Super Fogger x 4

STRUCTURE AND FEATURES

- Two and four outlets are available
  - Super Fogger X2 (two outlets)
  - Super Fogger X4 (four outlets)
- Built-in LPD (Leakage Prevention Device)
  - High pressure (blue cover)
  - Medium pressure (green cover)
- Very small droplets for minimal foliage wetting during pulsed operation
- Excellent coverage when used for pesticide application
- Easy installation and service
- Chemical-resistant raw materials
- Connections for PE & PVC pipes
- Low cost
- Recommended working pressure:
  High pressure: 4.0 bar
  Medium pressure: 3.0 bar
- Recommended filtration: 130 micron (120 mash)

TECHNICAL DATA

Model	Medium pressure* (green cover)				High pressure (blue cover)			
	Flow Rate (l/h) at 3.0 bar	Opening Pressure (bar)*	Closing Pressure (bar)	Average Droplet Size (micron)	Flow Rate (l/h) at 4.0 bar	Opening Pressure (bar)	Closing Pressure (bar)	Average Droplet Size (micron)
Super Fogger x2	11.2	3.0	1.5	69	13	4.0	2.4	55
Super Fogger x4	20.8	3.0	1.5		24	4.0	2.4	

*Medium pressure model, maximal operation pressuere 3.5 bar.

Applications & recommended spacing*:

Model	For climate control (cooling & humidifying)	For pesticide spraying	For propagation
Super Fogger X 2	1.5 X 3.0 m 2.0 X 4.0 m	1.5 X 3.0 m	n/a
Super Fogger X 4	3.0 X 3.0 m 2.0 X 4.0 m	n/a	1.0 x 1.0 m at 1.0 m height above table/plants

*Distance between heads X distance between laterals

Models & connections:

Model	Connections	Item no.
Super Fogger X 2 - medium pressure	Female	197802
	4/7 barb	197202
	3/8" thread	197402
Super Fogger X 2 - high pressure	Female	197808
	4/7 barb	197208
	3/8" thread	197408
Super Fogger X 4 - medium pressure	Female	197842
	4/7 barb	197242
Super Fogger X 4 - high pressure	Female	197848
	4/7 barb	197248

General guidelines

- The system of climate control is common for vegetables, flowers and herbs in greenhouse.
- Best results are under hot and dry conditions.
- Special attention should be given to water quality.

HURRICANE

Reliable, low-maintenance micro-jet

Hurricane 4/7 barb

Hurricane quick thread

APPLICATIONS

- For dense orchards and plantations

STRUCTURE AND FEATURES

- Static ray-jet
- Vortex technology facilitates wide water passages and high resistance to clogging
- Low flow rate
- Large droplets-suitable for irrigation in windy conditions
- Full-circle spray pattern facilitates excellent water distribution
- Two kinds of connectors available:
  - Barbed connector (4/7) for PVC tube 4/7
  - Quick-threaded connector for PES tube 4/7

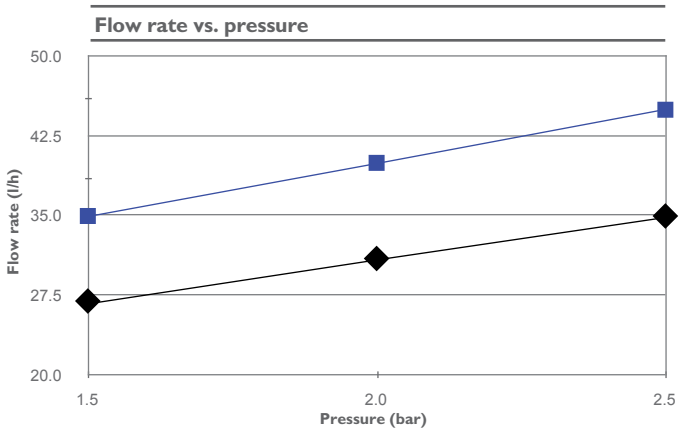
TECHNICAL DATA

- Recommended working pressure: 1.5-2.5 bar

FLOW RATE

Nozzle color	Flow rate* (l/h)	Wetted diameter* (m)
Black	27	2.8
Blue	35	3.2

* Tested under laboratory conditions at 0.25 m above ground and 1.5 bar



SUPER LPD

Low pressure

Barb 4/7 | Female | Thread 3/8"

Super LPD low-pressure bayonet for GreenSpin and Hadar 7110

Bayonet x Bayonet | Thread 3/8" | Barb 4/7

Medium pressure

Barb 4/7 | Female | Thread 3/8"

High pressure

Barb 4/7 | Female | Thread 3/8"

STRUCTURE AND FEATURES

- Prevents drainage through emitters
- High and low opening and closing pressure
- Keeps system filled with water under pressure, enabling immediate start-up
- Allows all units to start-up or shut-down simultaneously
- Modular-fits all NaanDan Jain micro-sprinklers
- **Tapered or bayonet connection (bayonet available only with black low-pressure LPD)**
- Minimal pressure loss, even with high flow rates
- One-stage opening-Super LPD is either completely opened or completely closed
- Easily dismantled for cleaning and maintenance
- PE and PVC connections

Three types of Super LPD are available:

- Black: Low-pressure Super LPD for micro-sprinklers
- Green: Medium-pressure Super LPD for foggers
- Blue: High-pressure Super LPD for foggers

OPERATING PRESSURE (bar)

	Opening	Closure
Low-Pressure Super LPD	1.4	0.6
Medium-Pressure Super LPD	3.0	1.5
High-Pressure Super LPD	4.0	2.4

APPLICATION EXAMPLES

Modular inverted green swivel
with low-pressure Super LPD female

Hadar 7110 mist sprayer
with Super LPD bayonet

Green Mist with
Super LPD 3/8"

4 Foggers on X
with high-pressure Super LPD 3/8"

NAANDANJAIN Irrigation

ACCESSORIES

Item #	
897030	Butterfly 3/8" x 4/7
897028	Butterfly 3/8" x 7/10
897010	Butterfly barb 4/7, black
897016	Butterfly 3/8"
897019	Butterfly barb 4/7, grey
897017	Butterfly quick thread
897012	Butterfly 1/4" thread
897013	Butterfly parallel
897011	Butterfly 7/10
897002	Head 3/8" BSP
897001	Head 1/2" BSP
790308	Low-pressure Super LPD, female (black)
790328	Low-pressure Super LPD, 4/7 (black)
790348	Low-pressure Super LPD, 3/8" (black)
790302	Medium-pressure Super LPD, female (green)
790322	Medium-pressure Super LPD, 4/7 (green)
790342	Medium-pressure Super LPD, 3/8" (green)
790303	High-pressure Super LPD, female (blue)
790323	High-pressure Super LPD, 4/7 (blue)
790343	High-pressure Super LPD, 3/8" (blue)
790228	Low-pressure Super LPD bayonet, 4/7 (black)
790248	Low-pressure Super LPD bayonet, 3/8" (black)
790258	Super LPD bayonet / bayonet
J67202J1000	Stabilizer 13 cm for suspended stand

ACCESSORIES

Item #		
897032	Barb 4/7 x 4/7	
897042	Parallel barb 4/7	
897065	Plug for barb 5/8 (male)	
897055	Fast-n-Fast plug	
790100	Fast-n-Fast connector	
897272	Socket 1/2" BSPT	
897270	Nipple 1/2" x 1/2"	
890300	Filter for Super LPD	

HADAR 7110, 2005 ACCESSORIES

Item #		
484921	1/2" bayonet base	
484931	3/8" bayonet base for rigid pipes	
497051	Bayonet female base	
497041	Bayonet male	
497031	Bayonet plug	

ACCESSORIES

BUTTERFLY STANDS

Item #	Standard lengths
797006	60 cm
797008	75 cm
797010	100 cm
797012	120 cm
797015	150 cm

SUSPENDED STANDS with stabilizer 13 cm and barb 4/7

	Item #	
1	797124	Suspended stand 30 cm and Fast-n-Fast
1	797129	Suspended stand 60 cm with Fast-n-Fast
2	797403	Suspended stand 30 cm for 7110 Hadar
2	797405	Suspended stand 60 cm for 7110 Hadar
3	797340	Suspended stand 30 cm with mini-valve for Modular
3	797343	Suspended stand 60 cm with mini-valve for Modular
4	797140	Suspended stand 30 cm with butterfly
4	797143	Suspended stand 60 cm with butterfly
5	797443	Suspended stand 30 cm + Super LPD (black for Modular)
5	797446	Suspended stand 60 cm + Super LPD (black for Modular)
6	797453	Suspended stand 30 cm + Super LPD (blue for Fogger)
6	797456	Suspended stand 60 cm + Super LPD (blue for Fogger)
7	797463	Suspended stand 30 cm + bayonet Super LPD (black)
7	797466	Suspended stand 60 cm + bayonet Super LPD (black)

SPIKES

	Item #	
1	897908	Spike 31 black
2	897947	Spike 37 red
3	897917	Spike 34 red
4	897938	Spike 36 black
5	496601	Spike for Hadar 7110

ACCESSORIES

Item #		
897285	3.2 mm Punch	
6130210426	4 mm Punch	
6130210420	Punch drill 8 mm (other sizes available)	
820015	Wrench for Turbo-Jet	

© NAANDANJAIN Ltd. 11/2013 P116001

Jain Irrigation Systems Ltd.

NAANDANJAIN Irrigation

NaanDanJain Irrigation Ltd.
Post Naan 7682900, Israel. T:+972-8-9442180, F:+972-8-9442190
E: mkt@naandanjain.com www.naandanjain.com

THE STANDARDS INSTITUTION OF ISRAEL

THE STANDARDS INSTITUTION OF ISRAEL