



FINE SPRAY NOZZLES

GAS COOLING · LIGHT MISTING
HUMIDIFYING · FOGGING
DUST CONTROL · MOISTENING
EVAPORATIVE COOLING
FIRE SUPPRESSION · AERATING
CHEMICAL PROCESSING



FINE SPRAY NOZZLES INTRODUCTION

FULL RANGE OF HYDRAULIC ATOMIZING NOZZLES – SMALL DROPS WITHOUT COMPRESSED AIR

Styles:

- Conventional

Spray patterns:

- Standard
- Narrow
- Wide angle

Spray angles: 30° to 165°

Flow rate range: 49.2 to 8,160 gph (186 to 30,948 lph)

Operating pressure range: up to 1000 psi (69 bar)

Connections:

- 1/4" to 1-1/2" pipe sizes
- Female and male NPT and BSPT

Materials:

- Brass
- 303 stainless steel
- 316 stainless steel
- Polyvinyl chloride
- Other specialty materials available

See Trademark Registration and Ownership, page i-1.

OPTIMIZE THE PERFORMANCE OF FINE SPRAY NOZZLES:

Use a **high-pressure strainer** to protect fine spray nozzles from contaminants. Maximum operating pressure of 2000 psi at 150°F (138 bar at 66°C) and 5000 psi at 150°F (345 bar at 66°C).

See page F5



Regulate liquid pressure from 5 to 125 psi (0.3 to 8.5 bar) with our durable diaphragm-type non-relieving **liquid regulators**. Choose from brass, brass-plated zinc or stainless steel.

See page F36



CV check valves minimize pressure drop and ensure positive drip-free shut off. Choose from a wide range of inlet and outlet options and opening pressure of 5, 10 or 20 psi (0.35, 0.7 or 1.5 bar).

See page F26



FINE SPRAY NOZZLES TABLE OF CONTENTS

HYDRAULIC ATOMIZING NOZZLES: STANDARD AND WIDE ANGLE SPRAYS

| | PAGE |
|------------------------------|-----------|
| LN nozzles | E4 |
| LNN nozzles | E4 |
| LND nozzles | E4 |
| LNND nozzles | E4 |
| N nozzles | E4 |
| NN nozzles | E4 |
| M nozzles | E4 |
| Quick Reference Guide | E5 |

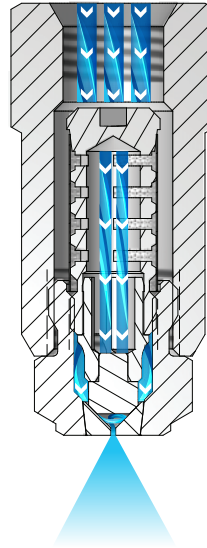
FOGJET® NOZZLES: WIDE AND NARROW ANGLE SPRAYS

| | PAGE |
|------------------------------|-----------|
| 7G nozzles | E8 |
| 7N nozzles | E8 |
| FF nozzles | E8 |
| Quick Reference Guide | E9 |



OVERVIEW: HYDRAULIC ATOMIZING

- Finely atomized, hollow cone spray without compressed air
- Very small drops often achieving misting performance
- Ideal for use in dust control and humidification applications
- Wall-mount options for installation on room walls, vessel bulkheads or pipeline
- Orifice inserts, cores and strainers are easily removed for inspection or cleaning
- Most models can be supplied with an internal strainer
- Spray angles: Standard – 43° to 94°, Wide – 112° to 120°
- Uniform spray distribution from .82 to 130 gph (3.1 to 492 lph)
- Operating pressures from 20 to 1000 psi (1.5 to 69 bar)



Hydraulic Atomizing Nozzles

The liquid passes through slots in the core component. The slots make the liquid spin in a circle at a very high speed. The energy from the spinning action causes the liquid to break up into very small droplets and form a hollow cone pattern as it exits the orifice.

HYDRAULIC ATOMIZING OPTIONS



**RELATIVE DROP SIZE
IN MICRONS**



Drop size will vary based on flow rate and pressure.

ORDERING INFORMATION

HYDRAULIC ATOMIZING LN, LND, N AND M

| | | | | | |
|-------------|-------------|---|---------------|---------------|----------------------|
| Inlet Conn. | Nozzle Type | — | Material Code | Capacity Size | Example |
| | | | | | 1/4 LN — SS 8 |

BSPT connections require the addition of a "B" prior to the inlet connection.
To order M with strainer, use ML as Nozzle Type.

HYDRAULIC ATOMIZING LN AND N

| | | | | | |
|-------------|-------------|---|---------------|---------------|-----------------------|
| Inlet Conn. | Nozzle Type | — | Material Code | Capacity Size | Example |
| | | | | | 1/4 LN — SS 8W |

BSPT connections require the addition of a "B" prior to the inlet connection.

QUICK REFERENCE GUIDE

| Model | Connection/Type | Connection Size (in.) | Materials | Page Number | |
|--------------|-----------------|-----------------------|---|------------------|------------------------|
| | | | | Performance Data | Dimensions and Weights |
| LN | F | 1/4 | Brass, 303 stainless steel (SS), 316 stainless steel (316SS) | E6 | E7 |
| LNN | M | 1/4 | | | |
| LND | F, Wall-mount | 1/4 | Brass, 303 stainless steel (SS) | | |
| LNND | M, Wall-mount | 1/4 | | | |
| N | F | 1/4 | Brass, 303 stainless steel (SS), 316 stainless steel (316SS), Polyvinyl chloride (PVC) | | |
| NN | M | 1/4 | Brass, 303 stainless steel (SS), 316 stainless steel (316SS) | | |
| M | M | 1/4 | Brass, 303 stainless steel (SS), 316 stainless steel (316SS), Polyvinyl chloride (PVC) | | |
| LN-W | F | 1/4 | Brass, 303 stainless steel (SS), 316 stainless steel (316SS) | E7 | |
| LNN-W | M | 1/4 | | | |
| N-W | F | 1/4 | | | |
| NN-W | M | 1/4 | | | |

F = female thread; M = male thread. There is no material code for brass. Leave material code blank when ordering. Other materials available upon request.
For more dimensions and sizes, contact your sales engineer.





S PERFORMANCE DATA:
STANDARD ANGLE SPRAY

| Inlet Conn. (in.) | Nozzle Type | | | | | | | Capacity Size | Orifice Dia. Nom. (in.) | Core No. | Flow Rate Capacity (gallons per hour) | | | | | | | | | | Spray Angle (°) | | |
|-------------------|-------------|-----|-----|------|---|----|----|---------------|-------------------------|----------|---------------------------------------|--------|--------|---------|---------|---------|---------|---------|----------|--------|-----------------|---------|--|
| | LN | LNN | LND | LNND | N | NN | M | | | | 30 psi | 40 psi | 60 psi | 100 psi | 200 psi | 300 psi | 500 psi | 700 psi | 1000 psi | 40 psi | 80 psi | 300 psi | |
| 1/4 | • | • | | | | | | .30 | .016 | 106 | – | – | – | – | – | .82 | 1.1 | 1.3 | 1.5 | – | – | 51 | |
| | • | • | | | | | | .40 | .016 | 108 | – | – | – | – | – | 1.1 | 1.4 | 1.7 | 2.0 | – | – | 58 | |
| | • | | | | | | | .50 | .016 | 109 | – | – | – | – | 1.1 | 1.4 | 1.8 | 2.1 | 2.5 | – | – | 63 | |
| | • | • | • | • | • | • | • | .60 | .016 | 206 | – | – | – | .95 | 1.3 | 1.6 | 2.1 | 2.5 | 3.0 | – | 35 | 65 | |
| | • | • | • | • | • | • | • | 1 | .020 | 210 | – | 1.0 | 1.2 | 1.6 | 2.2 | 2.7 | 3.5 | 4.2 | 5.0 | 45 | 62 | 72 | |
| | • | • | • | • | • | • | • | 1.5 | .020 | 216 | 1.3 | 1.5 | 1.8 | 2.4 | 3.4 | 4.1 | 5.3 | 6.3 | 7.5 | 65 | 70 | 72 | |
| | • | • | • | • | • | • | • | 2 | .028 | 216 | 1.7 | 2.0 | 2.4 | 3.2 | 4.5 | 5.5 | 7.1 | 8.4 | 10.0 | 70 | 75 | 77 | |
| | • | • | • | • | • | • | • | 3 | .028 | 220 | 2.6 | 3.0 | 3.7 | 4.7 | 6.7 | 8.2 | 10.6 | 12.5 | 15.0 | 65 | 70 | 73 | |
| | • | • | • | • | • | • | • | 4 | .042 | 220 | 3.5 | 4.0 | 4.9 | 6.3 | 8.9 | 11.0 | 14.1 | 16.7 | 20 | 72 | 81 | 84 | |
| | • | • | • | • | • | • | • | 6 | .042 | 225 | 5.2 | 6.0 | 7.3 | 9.5 | 13.4 | 16.4 | 21 | 25 | 30 | 73 | 79 | 81 | |
| | • | • | • | • | • | • | • | 8 | .060 | 225 | 6.9 | 8.0 | 9.8 | 12.6 | 17.9 | 22 | 28 | 33 | 40 | 85 | 89 | 91 | |
| | • | • | • | • | • | • | • | 10 | .064 | 420 | 8.7 | 10.0 | 12.2 | 15.8 | 22 | 27 | 35 | 42 | 50 | 82 | 84 | 86 | |
| | • | • | • | • | • | • | • | 12 | .076 | 420 | 10.4 | 12.0 | 14.7 | 19.0 | 27 | 33 | 42 | 50 | 60 | 78 | 82 | 85 | |
| | • | • | • | • | • | • | • | 14 | .076 | 421 | 12.1 | 14.0 | 17.1 | 22 | 31 | 38 | 49 | 59 | 70 | 85 | 88 | 90 | |
| | | | | | • | • | | 16 | .086 | 421 | 13.9 | 16.0 | 19.6 | 25 | 36 | 44 | 57 | 67 | 80 | 83 | 86 | 88 | |
| | • | • | • | • | • | • | • | 18 | .076 | 422 | 15.6 | 18.0 | 22 | 28 | 40 | 49 | 64 | 75 | 90 | 81 | 84 | 86 | |
| | • | | | | | | • | 20 | .081 | 422 | 17.3 | 20 | 24 | 32 | 45 | 55 | 71 | 84 | 100 | 75 | 78 | 80 | |
| | • | • | • | • | • | • | • | 22 | .076 | 625 | 19.1 | 22 | 27 | 35 | 49 | 60 | 78 | 92 | 110 | 70 | 72 | 75 | |
| • | • | • | • | • | • | • | 26 | .086 | 625 | 23 | 26 | 32 | 41 | 58 | 71 | 92 | 109 | 130 | 73 | 74 | 77 | | |

Maximum operating pressure depends on material and application. Contact your sales engineer for details.

Highlighted column shows the rated pressure.



W

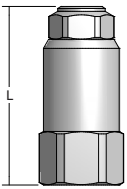
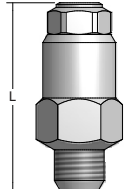
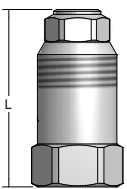
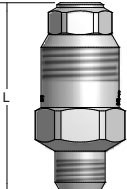
PERFORMANCE DATA: WIDE ANGLE SPRAY



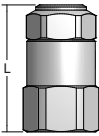
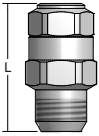
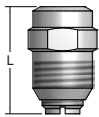
| Inlet Conn. (in.) | Nozzle Type | | | | Capacity Size | Orifice Dia. Nom. (in.) | Core No. | Flow Rate Capacity (gallons per hour) | | | | Spray Angle (°) | |
|-------------------|-------------|-------|-----|------|---------------|-------------------------|----------|---------------------------------------|--------|--------|--------|-----------------|--------|
| | LN-W | LNN-W | N-W | NN-W | | | | 20 psi | 30 psi | 40 psi | 80 psi | 40 psi | 80 psi |
| 1/4 | ● | ● | ● | ● | 2W | .039 | 210 | – | 1.7 | 2.0 | 2.8 | 165 | 158 |
| | ● | ● | ● | ● | 3W | .039 | 216 | 2.1 | 2.6 | 3.0 | 4.2 | 157 | 152 |
| | ● | ● | ● | ● | 4W | .060 | 220 | 2.8 | 3.5 | 4.0 | 5.7 | 156 | 155 |
| | ● | ● | ● | ● | 8W | .060 | 225 | 5.7 | 6.9 | 8.0 | 11.3 | 152 | 153 |

Highlighted column shows the rated pressure.

DIMENSIONS AND WEIGHTS

| Nozzle | Nozzle Type | Inlet Conn. (in.) | L (in.) | Body Hex. (in.) | Cap Hex. (in.) | Net Weight (oz.) |
|---|------------------------------|-------------------|---------|-----------------|----------------|------------------|
|  | LN (F) LN-W (F) | 1/4 | 1.935 | 13/16 | 5/8 | 3.6 |
|  | LNN (M) LNN-W (M) | 1/4 | 2.092 | 13/16 | 5/8 | 3.3 |
|  | LND (F) | 1/4 | 1.875 | 7/8 dia. | 5/8 | 3.2 |
|  | LNND (M) | 1/4 | 2.031 | 7/8 dia. | 5/8 | 3.2 |

Based on the largest/heaviest version of each type.

| Nozzle | Nozzle Type | Inlet Conn. (in.) | L (in.) | Body Hex. (in.) | Cap Hex. (in.) | Net Weight (oz.) |
|---|----------------------------|-------------------|---------|-----------------|----------------|------------------|
|  | N (F) N-W (F) | 1/4 | 1.313 | 11/16 | 5/8 | 1.9 |
|  | NN (M) NN-W (M) | 1/4 | 1.404 | 11/16 | 5/8 | 1.8 |
|  | M (M) | 1/4 | 0.844 | 9/16 | – | 0.7 |

Based on the largest/heaviest version of each type.

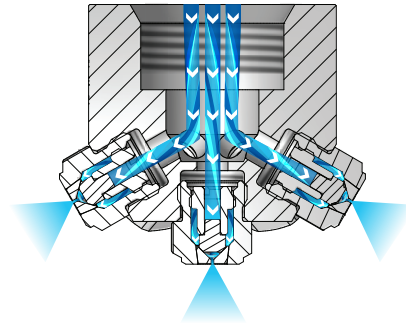


OVERVIEW: FOGJET

- Finely atomized sprays without use of compressed air; ideal for fogging a larger area with a single nozzle
 - 7N and 7G nozzles produce a shower-like full cone wide angle spray pattern
 - FF nozzles produce a dense, narrow, hollow cone spray pattern
- 7N and 7G assemblies include a nozzle body and seven removable caps. Each cap has an internal core or vane which is easily removed for cleaning
- Widely used in fire protection, dust control and rain simulation applications
- Uniform spray distribution from .11 to 136 gpm (.42 to 505 lpm)
- Operating pressures from 20 to 150 psi (1.5 to 10 bar)

FogJet Nozzles

The liquid passes through slots in the core component in each individual nozzle cap. The slots make the liquid spin in a circle at a very high speed. The energy from the spinning action causes the liquid to break up into very small droplets and form a hollow cone pattern as it exits the orifice.



FOGJET OPTIONS



7G
 3/4" to 1-1/2" female conn.
 Optional TWD strainer



7N
 1" female conn.
 Optional TWD strainer



FF
 3/4" to 1-1/4" female conn.
 One-piece

ORDERING INFORMATION

FOGJET 7G AND 7N

| | | | | | | |
|---|---|-------------|---|---------------|--|---------------|
| Inlet Conn. | – | Nozzle Type | – | Material Code | | Capacity Size |
| <p>Example 1-1/2 – 7G – SS 30</p> | | | | | | |

BSPT connections require the addition of a "B" prior to the inlet connection.

FOGJET FF

| | | | | | |
|--|-------------|---|---------------|--|---------------|
| Inlet Conn. | Nozzle Type | – | Material Code | | Capacity Size |
| <p>Example 3/4 FF – SS 4.8</p> | | | | | |

BSPT connections require the addition of a "B" prior to the inlet connection.

**RELATIVE DROP SIZE
IN MICRONS**



Drop size will vary based on flow rate and pressure.

QUICK REFERENCE GUIDE

| Model | Connection | Connection Size (in.) | Materials | Page Number | |
|-------|------------|-----------------------|---|------------------|------------------------|
| | | | | Performance Data | Dimensions and Weights |
| 7N | F | 1 | Brass, 303 stainless steel (SS), 316 stainless steel (316SS) | E9 | E12 |
| 7G | F | 3/4 to 1-1/2 | | E10 | |
| FF | F | 3/4 to 1-1/4 | Brass, 303 stainless steel (SS) | E11–E12 | |

F = female thread. There is no material code for brass. Leave material code blank when ordering. Other materials available upon request.
For more dimensions and sizes, contact your sales engineer.

W PERFORMANCE DATA:
WIDE ANGLE SPRAY

| Inlet Conn. (in.) | Nozzle Type | Capacity Size | Dimensions | | | Flow Rate Capacity (gallons per minute) | | | | | | |
|-------------------|-------------|---------------|------------|-------------|------------|---|--------|--------|--------|---------|---------|---------|
| | 7N | | A (ft.) | B (ft.) | C (ft.) | 20 psi | 40 psi | 60 psi | 80 psi | 100 psi | 125 psi | 150 psi |
| 1 | ● | .60 | 3* | 3-1/2 | 1-1/2 | – | – | – | – | .11 | .12 | .14 |
| | ● | 1 | 3* | 4 | 2 | – | .12 | .14 | .16 | .18 | .21 | .23 |
| | ● | 1.5 | 3* | 4-1/2 | 2-1/2 | – | .17 | .21 | .25 | .28 | .31 | .34 |
| | ● | 2 | 3* | 4-1/2 | 2-1/2 | – | .23 | .29 | .33 | .37 | .41 | .45 |
| | ● | 3 | 3* | 5-1/2 | 3-1/2 | .25 | .35 | .43 | .50 | .55 | .62 | .68 |
| | ● | 4 | 3* | 5-1/2 | 3-1/2 | .33 | .47 | .57 | .66 | .74 | .83 | .90 |
| | ● | 6 | 3* | 6 | 4 | .50 | .70 | .86 | .98 | 1.1 | 1.2 | 1.4 |
| | ● | 8 | 3* | 6 | 4 | .66 | .93 | 1.1 | 1.3 | 1.5 | 1.7 | 1.8 |
| | ● | 10 | 3* | 7 | 4-1/2 | .83 | 1.2 | 1.4 | 1.7 | 1.8 | 2.1 | 2.3 |
| | ● | 12 | 3* | 8 | 4-1/2 | 1.0 | 1.4 | 1.7 | 2.0 | 2.2 | 2.5 | 2.7 |
| | ● | 14 | 3 | 8 | 4-1/2 | 1.2 | 1.6 | 2.0 | 2.3 | 2.6 | 2.9 | 3.2 |
| | ● | 16 | 3 7* | 8 7-1/2 | 5 5-1/2 | 1.3 | 1.9 | 2.3 | 2.6 | 3.0 | 3.3 | 3.6 |
| | ● | 18 | 3 7* | 8 9 | 5 6 | 1.5 | 2.1 | 2.6 | 3.0 | 3.3 | 3.7 | 4.1 |
| | ● | 22 | 3 7* | 9-1/2 11 | 5-1/2 7 | 1.8 | 2.6 | 3.2 | 3.6 | 4.1 | 4.5 | 5.0 |
| | ● | 26 | 3 7* | 10 12 | 6 8 | 2.1 | 3.0 | 3.7 | 4.3 | 4.8 | 5.4 | 5.9 |

*And higher.

Highlighted column shows the rated pressure.





W PERFORMANCE DATA:
WIDE ANGLE SPRAY

| Inlet Conn. (in.) | Nozzle Type | Capacity Size | Dimensions | | | Flow Rate Capacity (gallons per minute) | | | | | | |
|-------------------|-------------|---------------|-------------------|----------------------------------|----------------------------------|---|--------|--------|--------|---------|---------|---------|
| | | | A (ft.) | B (ft.) | C (ft.) | 20 psi | 40 psi | 60 psi | 80 psi | 100 psi | 125 psi | 150 psi |
| 3/4 | ● | 1 | 3 5 8 11 | 5 6-1/2 7-1/2 8 | 3-1/4 4-1/4 4-3/4 5-1/4 | .98 | 1.3 | 1.6 | 1.8 | 2.1 | 2.3 | 2.5 |
| | ● | 1.5 | 3 5 8 11 | 8 9 10 10-1/2 | 5-1/2 6-1/2 7-1/2 7-3/4 | 1.5 | 2.0 | 2.4 | 2.8 | 3.1 | 3.4 | 3.7 |
| | ● | 3 | 3 5 8 11 | 8-1/2 10 11 11-1/2 | 5-1/2 6-1/2 7 7-1/2 | 2.9 | 4.0 | 4.8 | 5.5 | 6.2 | 6.8 | 7.4 |
| | ● | 5 | 3 5 8 11 | 9-1/2 11 12 12-1/2 | 6-1/4 7 7-3/4 8 | 4.8 | 6.7 | 8.1 | 9.2 | 10.3 | 11.3 | 12.4 |
| 1 | ● | 6.5 | 3 5 8 11 | 10 11-1/2 13 13-1/2 | 9 9-1/4 10 11-1/2 | 6.2 | 9.1 | 10.5 | 11.9 | 13.3 | 14.5 | 16.1 |
| | ● | 10 | 3 5 8 11 | 11 12-1/2 13-1/2 14 | 9-1/2 10 11 12 | 9.8 | 13.5 | 16.4 | 18.9 | 21 | 23 | 25 |
| | ● | 12.5 | 3 5 8 11 | 12 13-1/4 14 14-1/2 | 10 11 12 12-1/2 | 12.0 | 17.0 | 20 | 23 | 25 | 28 | 30 |
| | ● | 16 | 3 5 8 11 | 12-1/2 13-3/4 14-1/2 15 | 10-1/2 12 13 13-1/4 | 15.4 | 22 | 26 | 30 | 33 | 37 | 40 |
| 1, 1-1/2 | ● | 25 | 3 5 8 11 | 13-3/4 16 17 17-1/2 | 9 10-1/2 11 11-1/2 | 24 | 34 | 41 | 47 | 52 | 57 | 62 |
| | ● | 30 | 3 5 8 11 | 13-3/4 16 17 17-1/2 | 9 10-1/2 11 11-1/2 | 29 | 40 | 48 | 55 | 62 | 68 | 74 |
| | ● | 32 | 3 5 8 11 | 13-3/4 16 17 17-1/2 | 9 10-1/2 11 11-1/2 | 31 | 43 | 52 | 59 | 66 | 74 | 79 |
| | ● | 40 | 3 5 8 11 | 13-3/4 16 17 17-1/2 | 9 10-1/2 11 11-1/2 | 39 | 53 | 64 | 74 | 83 | 92 | 100 |
| 1-1/2 | ● | 45 | 3 5 8 11 | 14 16-1/2 17-1/2 18 | 9-1/2 11 12 12-1/2 | 44 | 60 | 72 | 82 | 91 | 100 | 110 |
| | ● | 50 | 3 5 8 11 | 14-1/2 17 18 19 | 10-1/2 12 13-1/2 14 | 48 | 67 | 81 | 92 | 103 | 113 | 124 |

Highlighted column shows the rated pressure.





PERFORMANCE DATA:
NARROW ANGLE SPRAY

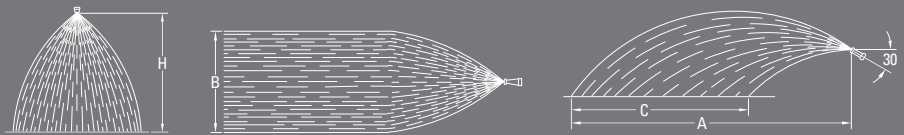


| Inlet Conn. (in.) | Nozzle Type | Capacity Size | Flow Rate Capacity (gallons per minute) | | | | | |
|-------------------|-------------|---------------|---|--------|--------|--------|---------|---------|
| | FF | | 20 psi | 40 psi | 60 psi | 80 psi | 100 psi | 150 psi |
| 3/4 | ● | 4.8 | 3.4 | 4.8 | 5.9 | 6.8 | 7.6 | 9.3 |
| | ● | 9 | 6.4 | 9.0 | 11.0 | 12.7 | 14.2 | 17.4 |
| | ● | 12 | 8.5 | 12.0 | 14.7 | 17.0 | 19.0 | 23 |
| | ● | 18 | 12.7 | 18.0 | 22 | 25 | 28 | 35 |
| 1 | ● | 25 | 17.7 | 25 | 31 | 35 | 40 | 48 |
| | ● | 35 | 25 | 35 | 43 | 49 | 55 | 68 |
| 1-1/4 | ● | 50 | 35 | 50 | 61 | 71 | 79 | 97 |
| | ● | 70 | 49 | 70 | 86 | 99 | 111 | 136 |

Highlighted column shows the rated pressure.



PERFORMANCE DATA:
NARROW ANGLE SPRAY

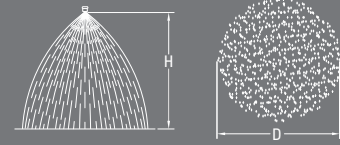


| Nozzle Type | Capacity Size | "H" Height Above Floor (ft.) | Spray Dimensions and Coverage (ft.) | | | | | |
|-------------|---------------|------------------------------|-------------------------------------|----|----|---------|-----|----|
| | | | 40 psi | | | 100 psi | | |
| | | | A | B* | C | A | B* | C |
| ● | 4.8 | 3 | 17 | 7 | 13 | 25 | 5 | 20 |
| ● | 9 | 3 | 23 | 8 | 17 | 31 | 5.5 | 24 |
| ● | 12 | 3 | 25 | 8 | 18 | 33 | 5.5 | 25 |
| ● | 18 | 3 | 29 | 8 | 19 | 36 | 5.5 | 26 |
| ● | 25 | 3 | 32 | 8 | 24 | 42 | 5.5 | 32 |
| ● | 35 | 3 | 36 | 8 | 28 | 55 | 6 | 45 |
| ● | 50 | 3 | 37 | 8 | 28 | 60 | 6 | 50 |
| ● | 70 | 3 | 46 | 8 | 36 | 72 | 6 | 60 |

*B dimension is taken at widest portion of A.

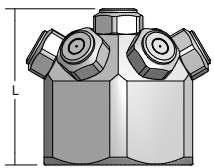
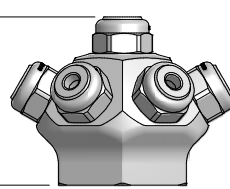


N PERFORMANCE DATA:
NARROW ANGLE SPRAY

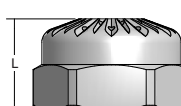


| Nozzle Type | Capacity Size | "H" Height Above Floor (ft.) | Spray Coverage "D" at Various Pressures (ft.) | | | |
|-------------|---------------|------------------------------|---|--------|---------|---------|
| | | | 40 psi | 60 psi | 100 psi | 150 psi |
| FF | | | | | | |
| • | 4.8, 9, 12 | 3 | 2 | 2 | 2 | 2 |
| • | | 5 | 3 | 3 | 3 | 2-1/2 |
| • | | 7 | 4 | 4 | 3-1/2 | 3 |
| • | | 10 | 5 | 4-1/2 | 4 | 3-1/2 |
| • | 18, 25 | 3 | 2 | 2 | 2 | 2 |
| • | | 5 | 3 | 3 | 3 | 2-1/2 |
| • | | 7 | 4 | 4 | 3-1/2 | 3 |
| • | | 10 | 5-1/2 | 5 | 4-1/4 | 4 |
| • | 35, 50, 70 | 3 | 2-1/2 | 2-1/2 | 2-1/2 | 2 |
| • | | 5 | 4 | 4 | 3-1/2 | 3 |
| • | | 7 | 5 | 5 | 4-1/2 | 4 |
| • | | 10 | 6-1/2 | 6 | 5-1/2 | 5 |

DIMENSIONS AND WEIGHTS

| Nozzle | Nozzle Type | Inlet Conn. (in.) | L (in.) | D (Dia.) (in.) | Net Weight (oz.) |
|---|---------------|-------------------|---------|----------------|------------------|
|  | 7N (F) | 1 | 2.094 | 2.500 | 18.3 |
|  | 7G (F) | 3/4 | 1.820 | 2.125 | 10.0 |
| | | 1 | 3.313 | 4.063 | 43.3 |
| | | 1-1/2 | 3.188 | 4.250 | 34.4 |

Based on the largest/heaviest version of each type.

| Nozzle | Nozzle Type | Inlet Conn. (in.) | L (in.) | D (Dia.) (in.) | Net Weight (oz.) |
|--|---------------|-------------------|---------|----------------|------------------|
|  | FF (F) | 3/4 | 1.000 | 1.375 | 3.0 |
| | | 1 | 1.156 | 1.656 | 5.0 |
| | | 1-1/4 | 1.218 | 2.094 | 7.0 |

Based on the largest/heaviest version of each type.