



# HOLLOW CONE NOZZLES

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QUICK REFERENCE GUIDE

Model	Connection/Type	Connection Size in.	Flow Rate Range gpm (lpm)	Max. Operating Pressure psi (bar)	Spray Angle	Materials
<b>S</b> STANDARD ANGLE SPRAY <b>W</b> WIDE ANGLE SPRAY						
<b>WhirlJet Nozzles</b>						
<b>AX</b>	F	1/8 to 3/4	.05 to 38 gpm (.19 to 145 lpm)	100 psi (7 bar)	43° to 91° at 10 psi (.7 bar)	Brass, mild steel, 303 stainless steel, 316 stainless steel
<b>BX</b>	M	1/8 to 3/4				
<b>AX-W</b>	F	1/8 to 1/2	.05 to 14.2 gpm (.19 to 54 lpm)		112° to 120° at 10 psi (.7 bar)	
<b>BX-W</b>	M	1/8 to 1/2				
<b>BD</b>	M	3/8 to 1-1/2	.11 to 38 gpm (.41 to 143 lpm)	500 psi (34.5)	30° to 91° at 10 psi (.7 bar)	Brass, 303 stainless steel
<b>BDM</b>	M	3/8	.16 to 9.5 gpm (.61 to 36 lpm)		Nylon, brass cap	
<b>CX</b>	F, Cast	1 to 2-1/2	2.0 to 2362 gpm (7.3 to 9010 lpm)	100 psi (7 bar)	43° to 91° at 7 psi (.5 bar)	Brass, 316 stainless steel
<b>CF</b>	Flange, Cast	4 to 6				
<b>CRC</b>	F, Cast	1-1/4 to 4				
<b>D</b>	M, Cast	1/2 to 3/4				
<b>AP</b>	F	1/4 to 3/8	.14 to 18.9 gpm (.20 to 15.9 lpm)		43° to 91° at 10 psi (.7 bar)	Polypropylene
<b>LAP</b>	F	3/8 to 1/2				
<b>LBP</b>	M	3/8	.20 to 5.4 gpm (.75 to 20 lpm)		112° to 120° at 10 psi (.7 bar)	
<b>AP-W</b>	F	1/4 to 3/8				
<b>LAP-W</b>	F	3/8 to 1/2	.90 to 15.9 gpm (3.4 to 60 lpm)			
<b>LBP-W</b>	M	3/8				
<b>S</b> STANDARD ANGLE SPRAY						
<b>SpiralJet Nozzles</b>						
<b>BSJ</b>	M, Hex	1/4 to 4	.49 to 3320 gpm (.20 to 11967 lpm)	400 psi (25 bar)	50° to 180° at 10 psi (.7 bar)	Brass, 316 stainless steel

FOR DETAILED NOZZLE PERFORMANCE DATA, SEE [spray.com/papercatalog/performance](http://spray.com/papercatalog/performance)

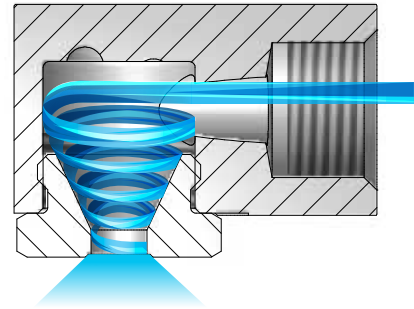
**OVERVIEW: WHIRLJET NOZZLES**

**Ideal for: headboxes, foam knockdown and pollution abatement scrubbers**

- Hollow cone spray pattern with a circular impact area
- Large, unobstructed flow passages minimize clogging
- Good atomization of liquids at lower pressures
- Removable caps for easy inspection and cleaning on some models
- Slope-bottom design models reduce the drilling effect of the fluid vortex in the fluid chamber and premature wear
- AX and BX nozzles form smaller drops
- CX, CRC and D nozzles feature higher flow rates
- AP, LAP and LBP nozzles are constructed of polypropylene and feature excellent corrosion resistance at temperatures up to 160°F (71°C); patented center post design provides extended wear life of the nozzle
- BD and BDM nozzles are in-line versions; liquid passes through a hole on the inlet side of the nozzle
- Standard and wide spray angles

**WhirlJet Nozzles**

As liquid enters the nozzle, it passes into a whirlchamber and begins to spin in a circle at high speed. The rotation forces the liquid away from the center toward the edges of the whirlchamber. This causes the liquid to exit the orifice in a hollow cone pattern. Some WhirlJet nozzles have a slope bottom in the whirlchamber that helps extend wear life.



**WHIRLJET AX, AX-W, CX, BX, BX-W, CF, CRC AND D NOZZLES**

- Spray angles: Standard – 43° to 91° , Wide – 112° to 120°
- Uniform spray distribution:
  - AX and BX nozzles – from .05 to 38 gpm (.19 to 145 lpm)
  - CF, CRC, CX and D nozzles – from 2.0 to 2362 gpm (7.3 to 9010 lpm)
  - AX-W and BX-W nozzles – from .05 to 14.2 gpm (.19 to 54 lpm)
- Operating pressures from 3.0 to 100 psi (.2 to 7 bar)

Contact your local sales engineer for information about junction boxes.



**AX and AX-W**  
Standard angle: 1/8" to 3/4"  
Wide Angle: 1/8" to 1/2"  
female conn.  
Slope-bottom design  
Removable cap



**CX**  
1" to 2-1/2" female conn.  
Slope-bottom design  
One-piece cast-type

**WHIRLJET OPTIONS**



**BX and BX-W**  
Standard angle: 1/8" to 3/4"  
Wide angle: 1/8" to 1/2" male conn.  
Slope-bottom design  
Removable cap



**CF**  
4" to 6" flange conn.  
Two-piece cast-type



**CRC**  
1-1/4" to 4" female conn.  
Two-piece cast-type



**D**  
1/2" to 3/4" male conn.  
One-piece cast-type

**WHIRLJET AP, AP-W, BD, BDM, LAP, LAP-W, LBP AND LBP-W NOZZLES**

- Spray angles: Standard - 43° to 91°, Wide - 112° to 120°
- Uniform spray distribution:
  - AP, LAP and LBP nozzles – from .14 to 18.9 gpm (.20 to 15.9 lpm)
  - AP-W nozzles – from .20 to 5.4 gpm (.75 to 20 lpm)
  - LAP-W and LBP-W nozzles – from .90 to 15.9 gpm (3.4 to 60 lpm)
  - BD nozzles – from .11 to 38 gpm (.41 to 143 lpm)
  - BDM nozzles – from .16 to 9.5 gpm (.61 to 36 lpm), maximum operating pressure 500 psi (34.5 bar)
- Typical operating pressures from 3.0 to 100 psi (.2 to 7.0 bar)



**AP and AP-W**  
1/4" to 3/8" female conn.

**WHIRLJET OPTIONS**



**BD**  
3/8" to 1-1/2" male conn.  
Removable cap



**BDM**  
3/8" to 1-1/2" male conn.  
Nylon body



**LAP and LAP-W**  
3/8" to 1/2" female conn.



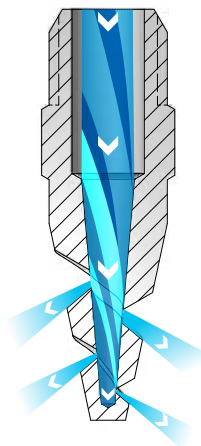
**LBP and LBP-W**  
3/8" male conn.

**OVERVIEW: SPIRALJET**

**Ideal for: washing, rinsing and cooling**

- Hollow cone spray pattern with a circular impact area
- Minimal clogging – maximum flow through passages of any nozzle of comparable size
- Precision impact blade angles distribute drops and provide excellent coverage
- Compact size

**Other sizes and materials available. See Industrial Hydraulic Spray Products, Catalog 75A.**



**SpiralJet BSJ Nozzles**

The liquid entering the nozzle passes through the orifice and exits the voids in the spiral. As it exits, the fluid deflects off the spiral surfaces to form the hollow cone pattern.

**SPIRALJET BSJ NOZZLES**

- Spray angles: Standard – 50° to 180°
- Uniform spray distribution from .49 to 1126 gpm (2.0 to 4262 lpm)
- Operating pressures up to 400 psi (25 bar)



**BSJ** – 1/4" to 2" male conn.  
Threaded/Hex. body style/brass