



# FLAT SPRAY 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>VeeJet® Nozzles</b>						
<b>H-DT nozzle</b>	F	1/8 to 1/4	.012 to 5.3 gpm (.047 to 20.06 lpm)	500 psi (35 bar)	0° to 110° at 40 psi (3 bar)	Brass, 303 stainless steel
<b>H-DU nozzle</b>	F	1/8 to 1/4	.07 to 1237 gpm (.26 to 4720 lpm)			Brass, 303 stainless steel, polyvinyl chloride
<b>H-VV nozzle</b>	M	1/8 to 1/4	.012 to 5.3 gpm (.047 to 20.06 lpm)			Brass, mild steel, 303 stainless steel, 316 stainless steel
<b>H-VVL nozzle</b>	M	1/8 to 1/4				Brass, 303 stainless steel, 316 stainless steel
<b>U nozzle</b>	M	1 to 2	17.7 to 1237 gpm (67 to 4720 lpm)			Brass, mild steel, 303 stainless steel
<b>Quick-Change QuickJet® Nozzles</b>						
<b>QUA spray tip</b>	Use with QJA or QJJA bodies	NA	.11 to 22 gpm (.42 to 83.28 lpm)	300 psi (20 bar)	0° to 95° at 40 psi (3 bar)  0° to 110° at 40 psi (3 bar)	Brass, 303 stainless steel
<b>QVVA spray tip</b>	Use with QJA or QJJA bodies	NA	.003 to 41 gpm (.01 to 155.2 lpm)			
<b>58106 spray tip</b>	Use with QJA or QJJA bodies	NA	.003 to 2.2 gpm (.01 to 8.33 lpm)			303 stainless steel, 316 stainless steel
<b>QJA body</b>	F	1/8 to 1/2	NA	NA	NA	Brass, 303 stainless steel
<b>QJJA body</b>	M	1/8 to 1/2	NA	NA	NA	
<b>Quick-Change UniJet® Nozzles</b>						
<b>TPU spray tip</b>	Use with T or TT bodies	NA	.003 to 25 gpm (.01 to 94 lpm)	500 psi (35 bar)	0° to 110° at 40 psi (3 bar)	Brass, stainless steel
<b>13802 spray tip</b>	Use with 14234 bodies	NA				Brass, 303 stainless steel, 316 stainless steel
<b>58102 spray tip</b>	Dovetail tip; threaded and weld body options	NA	.012 to 2.8 gpm (.05 to 10.6 lpm)		15° to 110° at 40 psi (3 bar)	Brass, stainless steel, 316 stainless steel
<b>49803 spray tip</b>	Dovetail tip; threaded and weld body options	NA	.35 to 25 gpm (1.3 to 94 lpm)			Brass, stainless steel, hardened stainless steel
<b>T body/cap</b>	F	1/8 to 1/2	NA	NA	NA	Brass, 303 stainless steel
<b>TT body/cap</b>	M	1/8 to 1/2	NA	NA	NA	
<b>14234 body</b>	F	1/8 to 1/2	NA	NA	NA	
<b>Black Liquor Nozzles</b>						
<b>45824</b>	M	1-1/4 or 1-1/2	60 to 150 gpm (227 to 568 lpm)	10 psi (.7 bar)	130° at 10 psi (.7 bar)	309 stainless steel
<b>U</b>	M	1-1/4	17.7 to 354 gpm (67 to 1340 lpm)	500 psi (35 bar)	15° to 65° at 40 psi (3 bar)	310 stainless steel





QUICK REFERENCE GUIDE

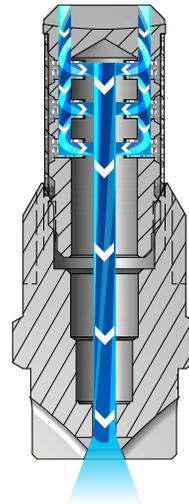
Model	Connection/Type	Connection Size in.	Flow Rate Range gpm (lpm)	Max. Operating Pressure psi (bar)	Spray Angle	Materials
<b>W WIDE ANGLE SPRAY</b>						
Quick-Change QuickJet® Nozzles						
<b>QTKA spray tip</b>	Use with QJA or QJJA bodies	NA	.01 to 14.7 gpm (.037 to 55 lpm)	60 psi (4 bar)	73° to 153° at 10 psi (.7 bar)	Brass, 303 stainless steel
<b>QSTK spray tip</b>	Use with QJJS body	NA				
<b>QJA body</b>	F	1/8 to 1/2	NA	NA	NA	
<b>QJJS body</b>	M	1/8 to 1/4	NA	NA	NA	
<b>QJJA body</b>	M	1/8 to 1/2	NA	NA	NA	
Quick-Change UniJet® Nozzles						
<b>TK spray tip</b>	Use with T or TT bodies	NA	.06 to 12.2 gpm (.28 to 46 lpm)	60 psi (4 bar)	73° to 153° at 10 psi (.7 bar)	Brass, 303 stainless steel
<b>T body/cap</b>	F	1/8 to 1/2	NA	NA	NA	
<b>TT body/cap</b>	M	1/8 to 1/2	NA	NA	NA	
FloodJet® Nozzles						
<b>K nozzle</b>	M	1/8 to 1	.04 to 110 gpm (.14 to 410 lpm)	60 psi (4 bar)	73° to 153° at 10 psi (.7 bar)	Brass, 303 stainless steel, 316 stainless steel, polyvinyl chloride
<b>11499 nozzle</b>	M	1/8	.17 to 4.4 gpm (.64 to 16.66 lpm)		98° to 133° at 10 psi (.7 bar)	316 stainless steel
<b>13063 nozzle</b>	M	1/8	.17 to 2.4 gpm (.64 to 9.1 lpm)			
<b>N NARROW ANGLE SPRAY</b>						
FlatJet® Standard Nozzles						
<b>P nozzle</b>	M	1/8 to 3/4	.24 to 39 gpm (.91 to 144 lpm)	150 psi (10 bar)	15° to 50° at 40 psi (3 bar)	Brass, mild steel, 303 stainless steel, 316 stainless steel
<b>RotoClean 115220 nozzle</b>	M	3/8	1.2 to 7.7 gpm (4.54 to 29.15 lpm)	100 psi (7 bar)	35° or 50° at 40 psi (3 bar)	316 stainless steel
Quick-Change QuickJet Nozzles						
<b>QLPA spray tip</b>	Use with QJLA or QJJLA bodies	NA	3.7 to 59 gpm (14.01 to 223 lpm)	100 psi (7 bar)	25° to 60° at 40 psi (3 bar)	Brass, 303 stainless steel, 316 stainless steel
<b>QJLA body</b>	F	3/8 to 1/2	NA	NA	NA	
<b>QJJLA body</b>	M	3/8 to 1/2	NA	NA	NA	



**OVERVIEW: VEEJET NOZZLES**

**Ideal for: roll lubrication, chemical shower and edge deckles**

- Widely used in showers, flat spray nozzles provide a fan-type, tapered-edge pattern to ensure even coverage when multiple nozzles are used in a series
- Solid stream (0° spray angle) versions achieve the highest impact of any nozzle type
- Consistent performance over a large range of flow rates and pressures
- Uniform spray distribution with flow rates from .012 to 1237 gpm (.047 to 4720 lpm)
- Operating pressures up to 500 psi (35 bar)



**VeeJet Nozzles**

As the liquid exits through the sharp V shape cut of the orifice, it forms into a flat spray pattern. The distribution is tapered from the center of the spray.

**VEEJET NOZZLE OPTIONS**

**S**



**H-VV**

1/8" to 1/4" male conn.  
Flow rates below 1 gpm at 40 psi  
(3.8 lpm at 2.8 bar)

**S**



**H-DT**

1/8" to 1/4" female conn.  
Flow rates below 1 gpm at 40 psi  
(3.8 lpm at 2.8 bar)

**S**



**H-DU**

1/8" to 1/4" female conn.  
Flow rates of 1 gpm and greater at 40 psi  
(3.8 lpm and greater at 2.8 bar)

**S**



**H-VVL**

1/8" to 1/4" male conn.  
Flow rates below 1 gpm at 40 psi  
(3.8 lpm at 2.8 bar)  
H-VVL includes integral strainer

**S**



**U**

1" to 2" male conn.  
Flow rates of 50 gpm and greater at 40 psi  
(189.3 lpm and greater at 2.8 bar)

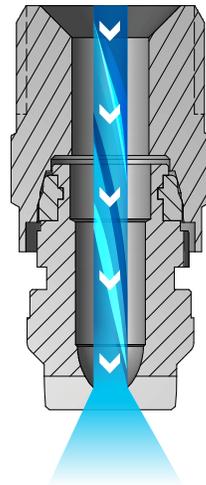
FOR DETAILED NOZZLE PERFORMANCE DATA, SEE [spray.com/papercatalog/performance](http://spray.com/papercatalog/performance)



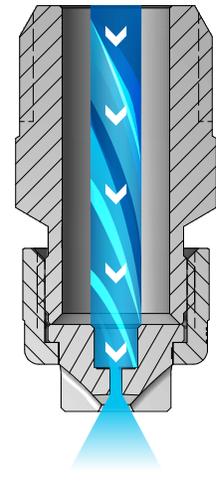
**OVERVIEW: QUICK-CHANGE NOZZLES: QUICKJET AND UNIJET STYLES**

**Ideal for: yankee chemical showers and critical alignment locations**

- Perfect for high-maintenance operations – bodies remain on pipe/header
- Flat fan type, tapered edge spray pattern
- Tips compatible with either male or female body
- Spray angles from 0° to 110°
- Quick VeeJet® nozzles allow:
  - Quick quarter-turn removes/installs spray tips in seconds
  - Uniform spray distribution with flow rates from .003 to 22 gpm
  - Operating pressures up to 300 psi (20 bar)
- 58106 features Quick VeeJet connection with roll pin for extra leverage upon installation or removal
- UniJet nozzles allow:
  - Easy tip change out in place – remove tips by unscrewing retainer
  - Uniform spray distribution with flow rates from .003 to 25 gpm
  - Operating pressures up to 500 psi (35 bar)



Quick VeeJet Nozzles



UniJet Nozzles

**Quick VeeJet and UniJet Nozzles**

As the liquid exits through the sharp V shape cut of the orifice, it forms into a flat spray pattern. The distribution is tapered from the center of the spray.

**QUICK-CHANGE QUICKJET NOZZLE OPTIONS**

S



**QUA Spray Tip + QJA or QJJA Bodies**  
Flow rates of 1 to 8 gpm at 40 psi  
(3.9 to 32 lpm at 2.8 bar)

S



**QVVA Spray Tip**  
Flow rates below 1 gpm at 40 psi  
(3.9 lpm at 2.8 bar)  
Use with QJA or QJJA bodies

S



**58106 Spray Tip**  
Flow rates below 1 gpm at 40 psi  
(3.9 lpm at 2.8 bar)  
Use with any QuickJet body

S



**QJA Body**  
1/8" to 1/2" female conn.

S



**QJJA Body**  
1/8" to 1/2" male conn.

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



UNIJET NOZZLE OPTIONS



**TPU Spray Tip + T Body**  
 Flow rates from .009 to 7.0 gpm at 40 psi  
 (.03 to 26.5 lpm at 2.8 bar)  
 Use with screen strainer  
 and tip retainer



**13802 Spray Tip + 14234 Body**  
 1/8" to 1/2" female conn.  
 Flow rates from .009 to 7.0 gpm at  
 40 psi (.03 to 26.5 lpm at 2.8 bar)  
 Self-aligning tip with wrench flats on top of  
 tip: straight alignment flats connection



**58102 Spray Tip**  
 Flow rates below 1 gpm  
 at 40 psi (3.9 lpm at 2.8 bar)  
 Self-aligning tip with wrench flats on  
 top of tip and dovetail connection;  
 spray is offset 5° from dovetail



**49803 Spray Tip**  
 Flow rates from .017 to 7.0 gpm at  
 40 psi (.064 to 26.5 lpm at 2.8 bar)  
 Self-aligning tip with round top  
 and dovetail connection:  
 spray flow is 5° from offset



**TT Body/Cap**  
 1/8" to 1/2" male conn.  
 Use with TPU spray tip

Dovetail spray tips can be used on a variety of body types.  
 Please contact your sales engineer for body options and dimensions.

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

**OVERVIEW: BLACK LIQUOR NOZZLES**

**Ideal for: recovery boilers**

- Excellent heat and corrosion resistance
- 45824 Splash Plate Series provide uniform spray distribution from 60 to 150 gpm (227 to 568 lpm)
- VeeJet® U Series provide uniform spray distribution from 17.7 to 354 gpm (67 to 1340 lpm)

**BLACK LIQUOR NOZZLE OPTIONS**

**45824 Splash Plate Series**

- Splash plate design has a large exit orifice for maximum flow passage
- Cast from 309 stainless steel
- Uniform spray distribution from 60 to 150 gpm (227 to 568 lpm)
- Operating pressures up to 10 psi (.7 bar)



**VeeJet U Series**

- VeeJet design provides a flat fan spray pattern
- 50° spray angle at 40 psi (2.8 bar)
- Constructed of 310 stainless steel
- Uniform spray distribution from 17.7 to 354 gpm (67 to 1340 lpm)
- Operating pressures up to 500 psi (35 bar)



**QUICK REFERENCE GUIDE**

Model	Connection/Type	Connection Size in.	Capacity gpm (lpm) at 10 psi (.7 bar)*	Material
45824*	M	1-1/4 or 1-1/2	60-150 (227 - 568)	309 stainless steel
U	M	1-1/4	25-50 (95-189)	310 stainless steel

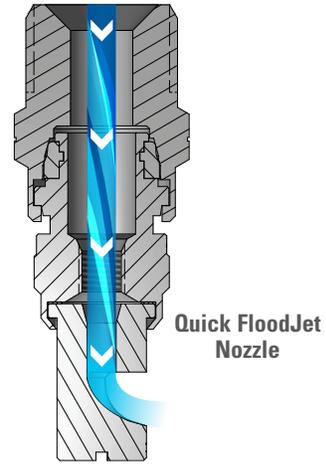
\*Field studies indicate black liquor flow rates are approx. 50% of water flow rates

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

**OVERVIEW: QUICK-CHANGE NOZZLES: QUICKJET STYLES**

**Ideal for: uhle box, roll lubrication and chemical showers**

- Perfect for high-maintenance operations – bodies remain on pipe/header
- Wide angle, deflected type flat fan spray pattern
- Quick FloodJet nozzles allow quick quarter-turn removes/installs spray tips in seconds
- Spray angles for 73° to 153°
- Uniform spray distribution from .01 to 14.7 gpm (.037 to 55 lpm)
- Operating pressures up to 60 psi (4 bar)



**Quick FloodJet® Nozzles**

The deflector surface enables the formation of very wide spray angles compared to other flat spray nozzles. As liquid passes through the nozzle, it hits the deflector surface and spreads out to form a flat spray pattern. The distribution is even from the center of the spray.

**QUICK-CHANGE QUICKJET OPTIONS**



**Quick FloodJet Nozzle  
QTKA Spray Tip + QJA Body**

1/8" to 1/2" female conn.  
Flow rates from .075 to 6.0 gpm at 10 psi  
(.28 to 22.71 lpm at .69 bar)  
Use with QJA or QJJA body



**QSTK Spray Tip**  
Miniature version  
Flow rates below 1 gpm at 40 psi  
(3.9 lpm at 2.8 bar)  
Use with seal and QJJS body



**QJJA Body**  
1/8" to 1/2" male conn.



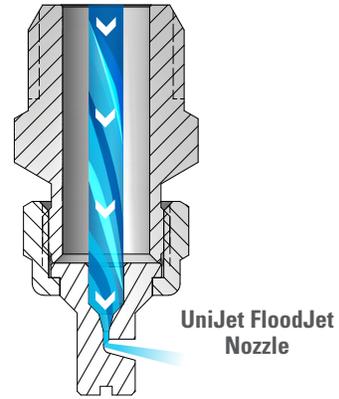
**QJJS Body**  
Miniature version  
1/8" to 1/4" male conn.

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

**OVERVIEW: QUICK-CHANGE NOZZLES: UNIJET STYLES**

**Ideal for: uhle box, roll lubrication and chemical showers**

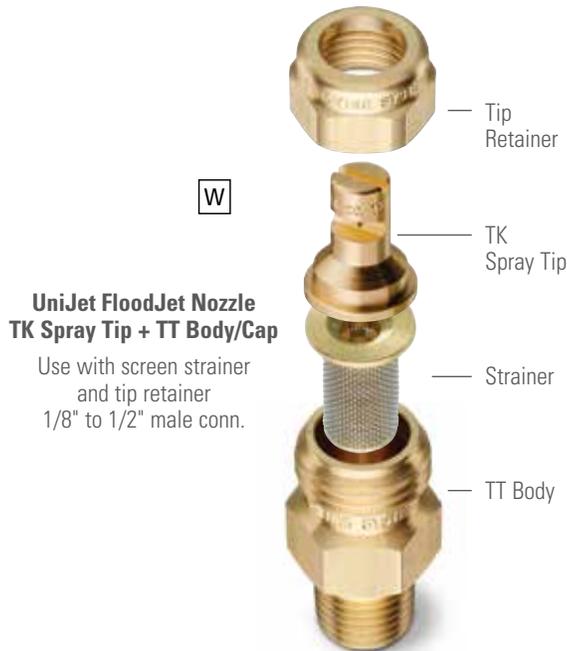
- Perfect for high-maintenance operations – bodies remain on pipe/header
- Wide angle, deflected type flat fan spray pattern
- UniJet FloodJet nozzle design allows easy tip change out in place – remove tips by simply unscrewing retainer
- Spray angles for 73° to 153°
- Uniform spray distribution from .06 to 12.2 gpm (.28 to 46 lpm)
- Operating pressures up to 60 psi (4 bar)



**UniJet FloodJet® Nozzles**

The deflector surface enables the formation of very wide spray angles compared to other flat spray nozzles. As liquid passes through the nozzle, it hits the deflector surface and spreads out to form a flat spray pattern. The distribution is even from the center of the spray.

**QUICK-CHANGE UNIJET OPTIONS**



**UniJet FloodJet Nozzle  
TK Spray Tip + TT Body/Cap**

Use with screen strainer and tip retainer  
1/8" to 1/2" male conn.



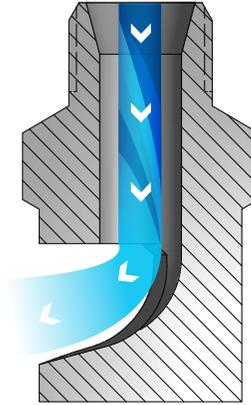
**T Body/Cap**  
1/8" to 1/2" female conn.  
Use with TK spray tip

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

**OVERVIEW: FLOODJET NOZZLES**

**Ideal for: operations requiring wide coverage, uhle box, roll lubrication and chemical showers**

- Wide angle, deflected type flat fan spray pattern
- Use where nozzles can be mounted horizontally
- Orifice is protected from damage and is designed to minimize clogging
- Alternate nozzle stand off distance to prevent interference, or use longer nozzle series
- Spray angles from 73° to 153°
- Uniform spray distribution from .04 to 110 gpm (.14 to 410 lpm)
- Operating pressures up to 60 psi (4 bar)



**FloodJet Nozzles**

As liquid passes through the nozzle, it hits the deflector surface and spreads out to form a flat spray pattern. The distribution is even from the center of the spray. The deflector surface enables the formation of very wide spray angles compared to other flat spray nozzles.

**FLOODJET NOZZLE OPTIONS**

**W**



**K**  
1/8" to 1" male conn.  
Flow rates below 110 gpm at 60 psi  
(410 lpm at 4.1 bar)

**W**



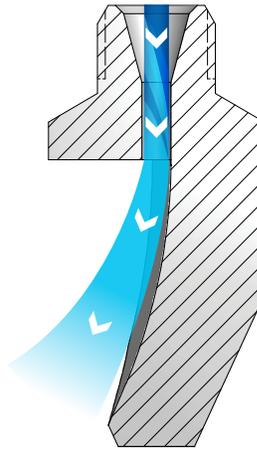
**11499 & 13063**  
1/8" male conn.  
Flow rates below 4.4 gpm at 60 psi  
(16.7 lpm at 4.1 bar)

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

**OVERVIEW: FLATJET NOZZLES**

**Ideal for: edge decks, doctor blade cleaning, save all filter mat peeling and flooded nip showers**

- Provides higher impact than other narrow angle nozzles
- Deflected type flat fan spray pattern
- 115220 can be quickly rotated to flush out plugs or debris from orifice and return to a optimal spray pattern
- Spray angles from 15° to 50°
- Uniform spray distribution from .24 to 39 gpm (.91 to 144 lpm)
- Operating pressures up to 150 psi (10 bar)



**FlatJet Nozzles**

As liquid passes through the nozzle, it hits the deflector surface and spreads out to form a flat spray pattern. The distribution is even from the center of the spray. The combination of medium- to large-flow rates and narrow spray angles produce a high impact spray.

**FLATJET NOZZLE OPTIONS**

**N**



**P**

3/8" to 3/4" male conn.  
Flow rate from .24 to 39 gpm  
(.91 to 144 lpm)

**N**



**P**

1/8" to 1/4" male conn.  
Flow rate from .24 to 39 gpm  
(.91 to 144 lpm)

**N**



**115220 RotoClean®  
Clean-out Nozzle**

3/8" male conn.  
Flow rate below 7.7 gpm at 150 psi  
(29.15 lpm at 10 bar)

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



**OVERVIEW: QUICK-CHANGE NOZZLES: QUICKJET**

**Ideal for: uhle box, roll lubrication and chemical showers**

- High-impact flat spray pattern with narrow spray angle, sharply defined edges and uniform spray pattern
- Quick FlatJet® nozzles feature a one-piece spray tip with the convenience of a quick-connect 1/4 turn installation and automatic spray alignment without the use of tools
- Medium-sized drops
- Large unobstructed flow passage minimizes clogging
- Uniform spray distribution from 3.7 to 59 gpm (14 to 223 lpm)
- Operating pressures up to 150 psi (10 bar)

QUICK-CHANGE QUICKJET NOZZLES OPTIONS



**OLPA Spray Tip + QJLA Body**  
 3/8" to 1/2" female conn.  
 Flow rates below 16 gpm at 150 psi  
 (61 lpm at 10.3 bar)  
 Use with QJLA or QJJLA bodies



**QJJLA Body**  
 3/8 to 1/2" male conn.

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