

Spray Nozzles

Global Product Guide

**We have the
nozzles to meet
your industrial
application
needs.**

Bob McCarthy
Engineering Manager

Precision Tested.
People Trusted.

DELAVALAN[®]
SPRAY TECHNOLOGIES



We deliver nozzles you can depend on.

Michelle Hambleton
Director of Finance, Administration, & Logistics



Delavan® Spray Technologies Continually Meet Your Manufacturing Challenges.

Delavan® Spray Technologies, part of R.W. Beckett Corporation, is a world leader in the design and manufacture of high quality spray nozzles and fluid handling systems. Since the company was founded back in 1935, the Delavan® name has always stood for quality, flexibility, and reliability.

Our specialist design teams can provide bespoke design, manufacture, and installation of everything from a single nozzle to a complete fluid handling system. Whichever nozzle you choose, Delavan®'s incoming materials and outgoing orders are routinely checked to ensure they meet rigorous quality standards. We can also adapt our manufacturing processes to meet the precise demands of recognized standards in many other industries around the world.

This brochure has been designed as an overview and features the majority of our most commonly used industrial products. Further information is available on our website or by contacting the office.



We have the nozzle you need, and we're here to help you find it.

Daniel Williams
Production Operative

Choosing your nozzle will depend on several key factors.

- | | | |
|-------------------------|---------------------------|----------------------------|
| 1. Flow rate (capacity) | 4. Spray angle | 7. Material of manufacture |
| 2. Operating pressure | 5. Liquid to be sprayed | |
| 3. Spray pattern | 6. Quality of atomization | |

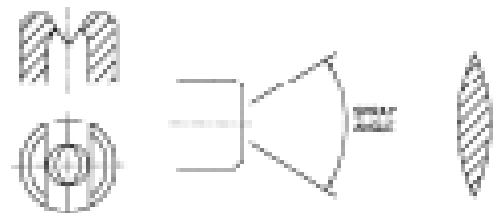
***In addition, there are variations on these
sprays for specific applications.***

A Selection of Typical Spray Patterns:

1. Flat Spray: An elliptical orifice formed by the intersection of a 'V' groove with a hemispherical cavity.
2. Hollow Cone: A circular exit orifice which is preceded by a swirl chamber with a tangential inlet.
3. Solid Cone: A circular exit orifice which is preceded by a swirl chamber with a multi-slotted in-line distributor and central line.
4. Air Atomizing: These are produced by using air as the atomizing agent and sprays are generally of the external (siphon or pressure) and internal (pressure) mix design.

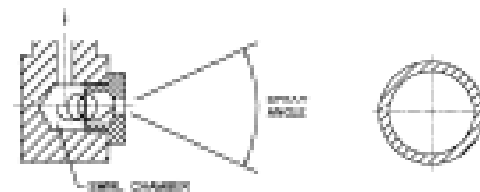
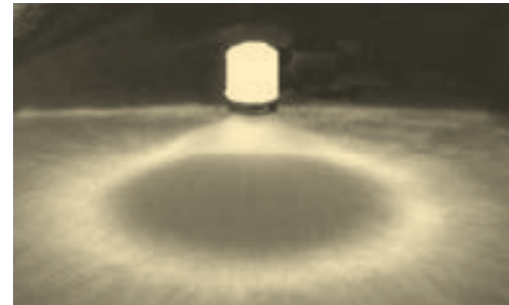
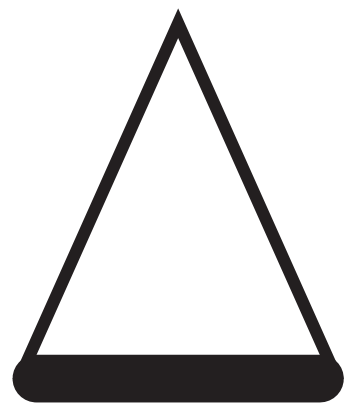
To help you with your choice of spray nozzle, each of the above key factors is discussed in detail on **www.delavan.com**.

A Selection of Typical Spray Patterns



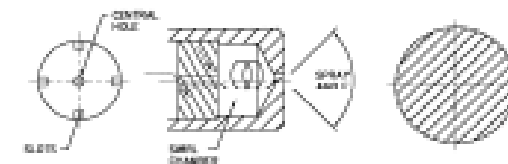
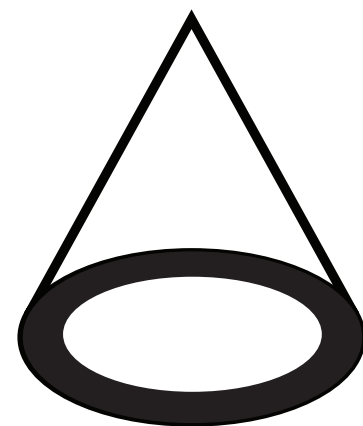
Flat Spray

An elliptical orifice formed by the intersection of a 'V' groove with a hemispherical cavity.



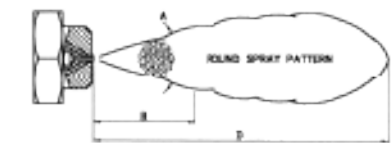
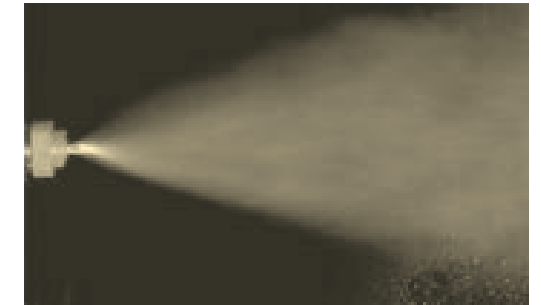
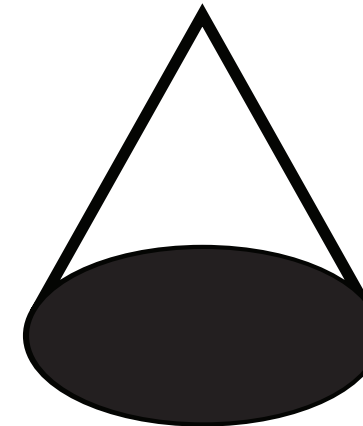
Hollow Cone

A circular exit orifice which is preceded by a swirl chamber with a tangential inlet.



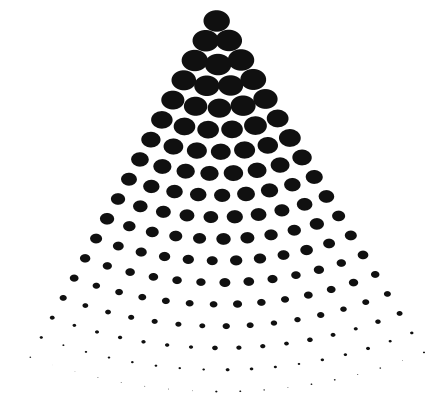
Solid Cone

A circular exit orifice which is preceded by a swirl chamber with a multi-slotted in-line distributor and central line.



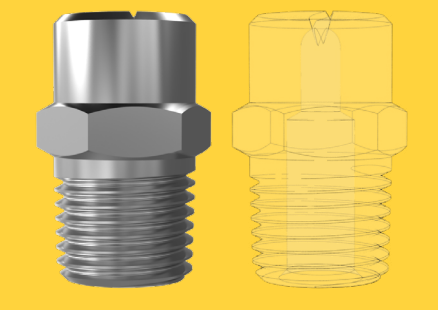
Air Atomizing

These are produced by using air as the atomizing agent and sprays are generally of the external (siphon or pressure) and internal (pressure) mix design.



Flat Spray Nozzles

AC TYPE NOZZLE

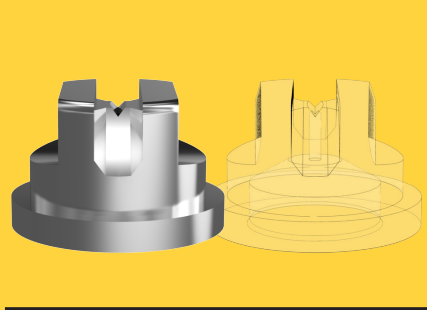


One-piece male pipe thread design. Available in BSPT and NPT threads.

Material: Stainless Steel, Brass
Thread: Male, BSPT, NPT
Thread Size: 1/8-1"
Flow Rate:
0.46-432.80 Liters/Min at 1-10 Bar G
0.12-115.25 Gal/Min at 15-145 PSIG



LF TYPE NOZZLE

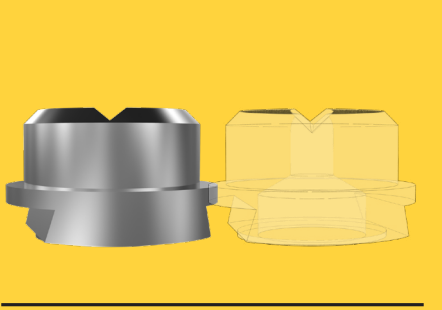


Flanged tip design for use with standard threaded bodies and caps.

Material: Stainless Steel, Brass
Thread: Male
Thread Size: 1/8-3/8"
Flow Rate:
0.46-36.16 Liters/Min at 1-10 Bar G
0.12-9.61 Gal/Min at 15-145 PSIG



AD TYPE NOZZLE

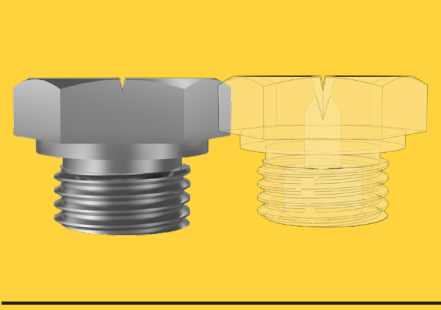


Large dovetailed tip provides positive alignment. Orifice is offset 15° to axis of dovetail plus welded body in Stainless Steel.

Material: Stainless Steel, Brass
Thread: Male
Thread Size: 1/2-3/4"
Flow Rate:
2.27-143.80 Liters/Min at 1-10 Bar G
0.60-38.29 Gal/Min at 15-145 PSIG



CAC TYPE NOZZLE

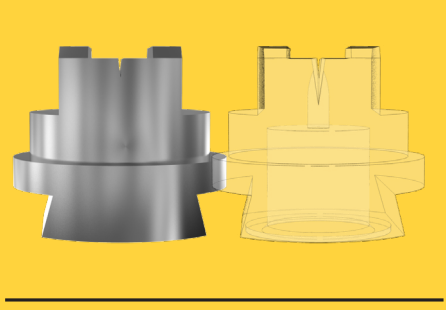


Compact, one-piece male pipe thread design.

Material: Stainless Steel, Brass
Thread: Male, BSPP, NPT
Thread Size: 1/16-3/4"
Flow Rate:
0.46-215.60 Liters/Min at 1-10 Bar G
0.12-57.52 Gal/Min at 15-145 PSIG

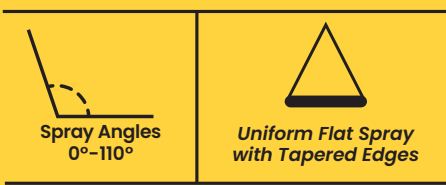


LD TYPE NOZZLE



Dovetailed tip design provides positive alignment. Orifice is offset 5° to axis of dovetail plus welded body in Stainless Steel.

Material: Stainless Steel, Brass
Thread: Male
Thread Size: 1/8-3/8"
Flow Rate:
0.46-36.16 Liters/Min at 1-10 Bar G
0.12-9.61 Gal/Min at 15-145 PSIG



Flat Spray Pattern

Producing a uniform flat fan shaped pattern with tapering edges

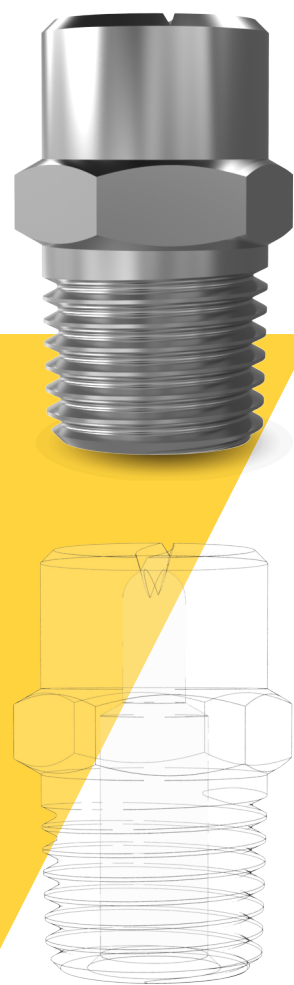


Typical Applications

- Asphalt or Tar Laying
- Bottle Washing
- Coal & Gravel Washing
- Degreasing
- Dishwashing
- Foam Control
- Industrial Washers
- Metal Cleaning, Rinsing, & Washing
- Spray Coating
- Vehicle Washing
- Water Misting
- Water Fountains

Flat Spray Nozzles

AC Type Nozzle



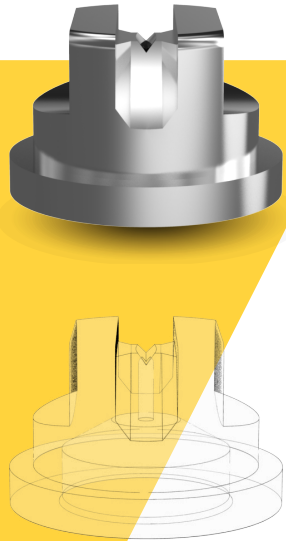
One-piece male pipe thread design available in flow sizes from 2 – 600 with spray angles of 0°, 25°, 40°, 50°, 65°, 80°, 90°, 100°, 110°. Available in BSPT and NPT threads.

AC Type Nozzle																
Thread Sizes - Male Only							Available Spray Angles									
Nozzle Number	M 1/8	M 1/4	M 3/8	M 1/2	M 3/4	M1	0°	15°	25°	40°	50°	65°	80°	90°	100°	110°
2	x	x	-	-	-	-	x	x	x	x	x	x	x	x	x	x
3	x	x	-	-	-	-	x	x	x	x	x	x	x	x	x	x
4	x	x	-	-	-	-	x	x	x	x	x	x	x	x	x	x
5	x	x	-	-	-	-	x	x	x	x	x	x	x	x	x	x
6	x	x	-	-	-	-	x	x	x	x	x	x	x	x	x	x
7	x	x	-	-	-	-	x	x	x	x	x	x	x	x	x	x
8	x	x	-	-	-	-	x	x	x	x	x	x	x	x	x	x
10	x	x	-	-	-	-	x	x	x	x	x	x	x	x	x	x
15	x	x	-	-	-	-	x	x	x	x	x	x	x	x	x	x
20	x	x	-	-	-	-	x	x	x	x	x	x	x	x	x	x
25	-	x	-	-	-	-	x	x	x	x	x	x	x	x	x	x
30	-	x	x	-	-	-	x	x	x	x	x	x	x	x	x	x
40	-	x	x	-	-	-	x	x	x	x	x	x	x	x	x	x
50	-	x	x	-	-	-	x	x	x	x	x	x	x	x	x	x
60	-	x	x	-	-	-	x	x	x	x	x	x	x	x	x	x
70	-	x	x	-	-	-	x	x	x	x	x	x	x	x	x	x
80	-	-	x	x	-	-	x	x	x	x	x	x	x	x	x	x
100	-	-	x	x	x	-	x	x	x	x	x	x	x	x	x	x
125	-	-	x	x	x	-	x	x	x	x	x	x	x	x	x	x
150	-	-	-	x	x	-	x	x	x	x	x	x	x	x	x	x
200	-	-	-	x	x	-	x	x	x	x	x	x	x	x	x	x
250	-	-	-	-	x	-	x	x	x	x	x	x	x	x	x	x
300	-	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x
400	-	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x
500	-	-	-	-	-	x	x	x	x	x	x	x	x	x	x	x
600	-	-	-	-	-	x	x	x	x	x	x	x	x	x	x	x

Flow Rate-AC Type Nozzle															
Flow Rate in Liters / Min at Bar G								Flow Rate in GAL / Min at PSIG							
Nozzle Number	1	2	3	4	5	7	10	Nozzle Number	15	30	40	60	80	100	145
2	0.46	0.65	0.80	0.89	0.99	1.24	1.43	2	0.12	0.17	0.20	0.24	0.26	0.33	0.40
3	0.68	0.97	1.18	1.36	1.53	1.81	2.23	3	0.18	0.26	0.30	0.36	0.40	0.48	0.58
4	0.90	1.27	1.56	1.83	2.03	2.36	2.86	4	0.24	0.34	0.40	0.48	0.54	0.63	0.76
5	1.15	1.62	1.99	2.28	2.55	3.02	3.62	5	0.30	0.43	0.50	0.60	0.67	0.80	0.96
6	1.37	1.94	2.37	2.72	3.07	3.61	4.46	6	0.36	0.51	0.60	0.72	0.81	0.95	1.14
7	1.59	2.25	2.75	3.21	3.54	4.21	5.36	7	0.42	0.59	0.70	0.85	0.94	1.11	1.34
8	1.83	2.59	3.17	3.66	3.98	5.03	5.80	8	0.48	0.68	0.80	0.97	1.05	1.33	1.60
10	2.27	3.21	3.93	4.46	5.19	5.95	7.14	10	0.60	0.85	1.00	1.18	1.37	1.57	1.89
15	3.44	4.21	6.16	6.70	7.78	9.15	10.71	15	0.91	1.11	1.50	1.77	2.06	2.42	2.92
20	4.46	6.25	8.05	9.37	9.94	12.35	14.73	20	1.18	1.65	2.00	2.48	2.63	3.26	3.93
25	5.80	8.03	9.94	11.38	12.75	15.09	18.08	25	1.53	2.12	2.50	3.01	3.37	3.99	4.81
30	6.70	9.82	11.84	13.84	15.13	17.84	21.43	30	1.77	2.59	3.00	3.66	4.00	4.71	5.67
40	9.37	12.05	15.62	18.30	20.57	24.25	28.57	40	2.48	3.18	4.00	4.83	5.43	6.41	7.72
50	11.61	16.07	19.89	22.77	25.50	30.19	36.16	50	3.07	4.25	5.00	6.02	6.74	7.98	9.61
60	13.84	19.20	23.67	27.23	30.69	36.14	43.30	60	3.66	5.07	6.00	7.19	8.11	9.55	11.51
70	16.07	22.77	27.46	32.14	35.88	42.54	50.45	70	4.25	6.02	7.00	8.49	9.48	11.24	13.54
80	18.75	25.45	31.72	36.61	41.06	48.03	57.14	80	4.95	6.72	8.00	9.67	10.85	12.69	15.29
100	22.77	31.70	39.30	45.53	51.00	60.38	72.32	100	6.02	8.37	10.00	12.03	13.47	15.95	19.22
125	28.46	39.62	49.12	56.91	63.75	75.48	90.40	125	7.52	7.83	12.50	15.03	16.84	19.94	24.02
150	34.37	48.21	59.19	68.31	76.50	90.10	108.00	150	9.08	12.74	15.00	18.04	20.21	23.81	28.69
200	45.53	64.28	79.07	91.10	102.00	120.30	143.80	200	12.03	16.98	20.00	24.06	26.95	31.78	38.29
250	58.84	80.36	98.50	113.40	127.50	150.00	179.90	250	15.54	21.23	25.00	29.96	33.68	39.63	47.75
300	68.30	96.87	118.40	136.60	152.60	180.70	215.60	300	18.04	25.59	30.00	36.09	40.31	47.74	57.52
400	90.60	128.60	157.70	182.10	204.00	241.10	287.90	400	23.94	33.97	40.00	48.12	53.89	63.69	76.73
500	114.00	161.30	197.50	228.00	254.90	301.60	360.50	500	30.12	42.61	50.00	60.23	67.34	79.68	96.00
600	136.80	193.50	237.00	273.70	306.00	362.10	432.80	600	36.14	51.12	60.00	72.31	80.84	95.66	115.25

Flat Spray Nozzles

LF Type Nozzle



Flanged tip design for use with standard threaded bodies and caps, available in flow sizes from 2 – 50 with spray angles of 0, 25, 40, 50, 65, 80, 90, 100 and 110°. Body thread sizes 1/8", 1/4" & 3/8". See Accessories section.

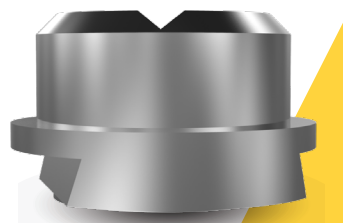
LF Type Nozzle												
Thread Sizes				Available Spray Angles								
Nozzle Number	M 1/8	M 1/4	M 3/8	0°	15°	25°	40°	50°	65°	80°	90°	110°
2	x	x	x	x	x	x	x	x	x	x	x	x
3	x	x	x	x	x	x	x	x	x	x	x	x
4	x	x	x	x	x	x	x	x	x	x	x	x
5	x	x	x	x	x	x	x	x	x	x	x	x
6	x	x	x	x	x	x	x	x	x	x	x	x
8	x	x	x	x	x	x	x	x	x	x	x	x
10	x	x	x	x	x	x	x	x	x	x	x	x
15	x	x	x	x	x	x	x	x	x	x	x	x
20	x	x	x	x	x	x	x	x	x	x	x	x
25	x	x	x	x	x	x	x	x	x	x	x	x
30	x	x	x	x	x	x	x	x	x	x	x	x
40	x	x	x	x	x	x	x	x	x	x	x	x
50	x	x	x	x	x	x	x	x	x	x	x	x

Flow Rate-LF Type Nozzle

Flow Rate in Liters / Min at BARG								Flow Rate in GAL / Min at PSIG							
Nozzle Number	1	2	3	4	5	7	10	Nozzle Number	15	30	40	60	80	100	145
2	0.46	0.65	0.80	0.89	0.99	1.24	1.43	2	0.12	0.17	0.20	0.24	0.26	0.33	0.40
3	0.68	0.97	1.18	1.36	1.53	1.81	2.23	3	0.18	0.26	0.30	0.36	0.40	0.48	0.58
4	0.90	1.27	1.56	1.83	2.03	2.36	2.86	4	0.24	0.34	0.40	0.48	0.54	0.63	0.76
5	1.15	1.62	1.99	2.28	2.55	3.02	3.62	5	0.30	0.43	0.50	0.60	0.67	0.80	0.96
6	1.37	1.94	2.37	2.72	3.07	3.61	4.46	6	0.36	0.51	0.60	0.72	0.81	0.95	1.14
7	1.59	2.25	2.75	3.21	3.54	4.21	5.36	7	0.42	0.59	0.70	0.85	0.94	1.11	1.34
8	1.83	2.59	3.17	3.66	3.98	5.03	5.80	8	0.48	0.68	0.80	0.97	1.05	1.33	1.60
10	2.27	3.21	3.93	4.46	5.19	5.95	7.14	10	0.60	0.85	1.00	1.18	1.37	1.57	1.89
15	3.44	4.21	6.16	6.70	7.78	9.15	10.71	15	0.91	1.11	1.50	1.77	2.06	2.42	2.92
20	4.46	6.25	8.05	9.37	9.94	12.35	14.73	20	1.18	1.65	2.00	2.48	2.63	3.26	3.93
25	5.80	8.03	9.94	11.38	12.75	15.09	18.08	25	1.53	2.12	2.50	3.01	3.37	3.99	4.81
30	6.70	9.82	11.84	13.84	15.13	17.84	21.43	30	1.77	2.59	3.00	3.66	4.00	4.71	5.67
40	9.37	12.05	15.62	18.30	20.57	24.25	28.57	40	2.48	3.18	4.00	4.83	5.43	6.41	7.72
50	11.61	16.07	19.89	22.77	25.50	30.19	36.16	50	3.07	4.25	5.00	6.02	6.74	7.98	9.61

Large dovetailed tip design for use with special threaded/welded bodies and caps, providing positive alignment. Available in flow sizes from 10 – 200 with spray angles of 0, 25, 40, 50, 65, 80, 90°. Orifice is offset 15° to axis of dovetail plus welded body in Stainless Steel. See Accessories section.

AD Type Nozzle



AD Type Nozzle								
Thread Sizes			Available Spray Angles					
Nozzle Number	M 1/2	M 3/4	0°	25°	50°	65°	80°	90°
10	x	x	x	x	x	x	x	x
15	x	x	x	x	x	x	x	x
20	x	x	x	x	x	x	x	x
25	x	x	x	x	x	x	x	x
30	x	x	x	x	x	x	x	x
40	x	x	x	x	x	x	x	x
50	x	x	x	x	x	x	x	x
60	x	x	x	x	x	x	x	x
70	x	x	x	x	x	x	x	x
80	x	x	x	x	x	x	x	x
100	x	x	x	x	x	x	x	x
120	x	x	x	x	x	x	x	x
150	x	x	x	x	x	x	x	x
200	x	x	x	x	x	x	x	x

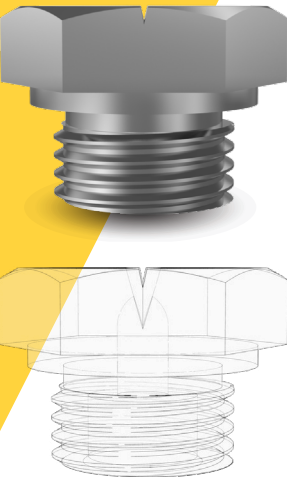
Flow Rate-AD Type Nozzle

Flow Rate in Liters / Min at BAR G								Flow Rate in GAL / Min at PSIG							
Nozzle Number	1	2	3	4	5	7	10	Nozzle Number	15	30	40	60	80	100	145
10	2.27	3.21	3.93	4.46	5.19	5.95	7.14	10	0.60	0.85	1.00	1.18	1.37	1.57	1.89
15	3.44	4.21	6.16	6.70	7.78	9.15	10.71	15	0.91	1.11	1.50	1.77	2.06	2.42	2.92
20	4.46	6.25	8.05	9.37	9.94	12.35	14.73	20	1.18	1.65	2.00	2.48	2.63	3.26	3.93
25	5.80	8.03	9.94	11.38	12.75	15.09	18.08	25	1.53	2.12	2.50	3.01	3.37	3.99	4.81
30	6.70	9.82	11.84	13.84	15.13	17.84	21.43	30	1.77	2.59	3.00	3.66	4.00	4.71	5.67
40	9.37	12.05	15.62	18.30	20.57	24.25	28.57	40	2.48	3.18	4.00	4.83	5.43	6.41	7.72
50	11.61	16.07	19.89	22.77	25.50	30.19	36.16	50	3.07	4.25	5.00	6.02	6.74	7.98	9.61
60	13.84	19.20	23.67	27.23	30.69	36.14	43.30	60	3.66	5.07	6.00	7.19	8.11	9.55	11.51
70	16.07	22.77	27.46	32.14	35.88	42.54	50.45	70	4.25	6.02	7.00	8.49	9.48	11.24	13.54
80	18.75	25.45	31.72	36.61	41.06	48.03	57.14	80	4.95	6.72	8.00	9.67	10.85	12.69	15.29
100	22.77	31.70	39.30	45.53	51.00	60.38	72.32	100	6.02	8.37	10.00	12.03	13.47	15.95	19.22
120	27.30	38.90	47.40	54.73	61.10	72.40	86.30	120	7.35	10.39	12.00	14.70	17.00	19.00	22.88
150	34.37	48.21	59.19	68.31	76.50	90.10	108.00	150	9.08	12.74	15.00	18.04	20.21	23.81	28.69
200	45.53	64.28	79.07	91.10	102.00	120.30	143.80	200	12.03	16.98	20.00	24.06	26.95	31.78	38.29

Flat Spray Nozzles

CAC Type Nozzle

Compact, one-piece male pipe thread design available in flow sizes from 2 – 300 with spray angles of 0, 25, 40, 50, 65, 80, 90°. See chart for thread sizes (1/16" size is NPT only).



CAC Type Nozzle																
Thread Sizes - Male Only							Available Spray Angles									
Nozzle Number	1/16" NPT	1/8" BSPP	M 1/4	M 3/8	M 1/2	M 3/4	0°	15°	25°	40°	50°	65°	80°	90°	100°	110°
2	x	x	x				x	x	x	x	x	x	x	x	x	x
3	x	x	x				x	x	x	x	x	x	x	x	x	x
4	x	x	x				x	x	x	x	x	x	x	x	x	x
5	x	x	x				x	x	x	x	x	x	x	x	x	x
6	x	x	x				x	x	x	x	x	x	x	x	x	x
7	x	x	x				x	x	x	x	x	x	x	x	x	x
8	x	x	x				x	x	x	x	x	x	x	x	x	x
10	x	x	x				x	x	x	x	x	x	x	x	x	x
15	x	x	x				x	x	x	x	x	x	x	x	x	x
20	x	x	x				x	x	x	x	x	x	x	x	x	x
25			x				x	x	x	x	x	x	x	x	x	x
30			x	x			x	x	x	x	x	x	x	x	x	x
40			x	x			x	x	x	x	x	x	x	x	x	x
50			x	x			x	x	x	x	x	x	x	x	x	x
60			x	x			x	x	x	x	x	x	x	x	x	x
70			x	x			x	x	x	x	x	x	x	x	x	x
80				x	x		x	x	x	x	x	x	x	x	x	x
100				x	x	x	x	x	x	x	x	x	x	x	x	x
125				x	x	x	x	x	x	x	x	x	x	x	x	x
150					x	x	x	x	x	x	x	x	x	x	x	x
200					x	x	x	x	x	x	x	x	x	x	x	x
250						x	x	x	x	x	x	x	x	x	x	x
300						x	x	x	x	x	x	x	x	x	x	x

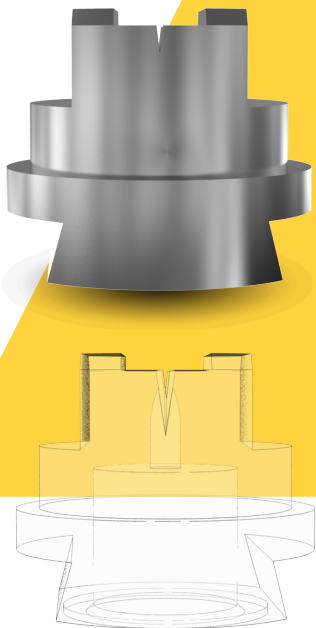
Flow Rate-CAC Type Nozzle															
Flow Rate in Liters / Min at BAR G								Flow Rate in GAL / Min at PSIG							
Nozzle Number	1	2	3	4	5	7	10	Nozzle Number	15	30	40	60	80	100	145
2	0.46	0.65	0.80	0.89	0.99	1.24	1.43	2	0.12	0.17	0.20	0.24	0.26	0.33	0.40
3	0.68	0.97	1.18	1.36	1.53	1.81	2.23	3	0.18	0.26	0.30	0.36	0.40	0.48	0.58
4	0.90	1.27	1.56	1.83	2.03	2.36	2.86	4	0.24	0.34	0.40	0.48	0.54	0.63	0.76
5	1.15	1.62	1.99	2.28	2.55	3.02	3.62	5	0.30	0.43	0.50	0.60	0.67	0.80	0.96
6	1.37	1.94	2.37	2.72	3.07	3.61	4.46	6	0.36	0.51	0.60	0.72	0.81	0.95	1.14
7	1.59	2.25	2.75	3.21	3.54	4.21	5.36	7	0.42	0.59	0.70	0.85	0.94	1.11	1.34
8	1.83	2.59	3.17	3.66	3.98	5.03	5.80	8	0.48	0.68	0.80	0.97	1.05	1.33	1.60
10	2.27	3.21	3.93	4.46	5.19	5.95	7.14	10	0.60	0.85	1.00	1.18	1.37	1.57	1.89
15	3.44	4.21	6.16	6.70	7.78	9.15	10.71	15	0.91	1.11	1.50	1.77	2.06	2.42	2.92
20	4.46	6.25	8.05	9.37	9.94	12.35	14.73	20	1.18	1.65	2.00	2.48	2.63	3.26	3.93
25	5.80	8.03	9.94	11.38	12.75	15.09	18.08	25	1.53	2.12	2.50	3.01	3.37	3.99	4.81
30	6.70	9.82	11.84	13.84	15.13	17.84	21.43	30	1.77	2.59	3.00	3.66	4.00	4.71	5.67
40	9.37	12.05	15.62	18.30	20.57	24.25	28.57	40	2.48	3.18	4.00	4.83	5.43	6.41	7.72
50	11.61	16.07	19.89	22.77	25.50	30.19	36.16	50	3.07	4.25	5.00	6.02	6.74	7.98	9.61
60	13.84	19.20	23.67	27.23	30.69	36.14	43.30	60	3.66	5.07	6.00	7.19	8.11	9.55	11.51
70	16.07	22.77	27.46	32.14	35.88	42.54	50.45	70	4.25	6.02	7.00	8.49	9.48	11.24	13.54
80	18.75	25.45	31.72	36.61	41.06	48.03	57.14	80	4.95	6.72	8.00	9.67	10.85	12.69	15.29
100	22.77	31.70	39.30	45.53	51.00	60.38	72.32	100	6.02	8.37	10.00	12.03	13.47	15.95	19.22
125	28.46	39.62	49.12	56.91	63.75	75.48	90.40	125	7.52	7.83	12.50	15.03	16.84	19.94	24.02
150	34.37	48.21	59.19	68.31	76.50	90.10	108.00	150	9.08	12.74	15.00	18.04	20.21	23.81	28.69
200	45.53	64.28	79.07	91.10	102.00	120.30	143.80	200	12.03	16.98	20.00	24.06	26.95	31.78	38.29
250	58.84	80.36	98.50	113.40	127.50	150.00	179.90	250	15.54	21.23	25.00	29.96	33.68	39.63	47.75
300	68.30	96.87	118.40	136.60	152.60	180.70	215.60	300	18.04	25.59	30.00	36.09	40.31	47.74	57.52

Dovetailed tip design for use with special threaded/welded bodies and caps, providing positive alignment. Available in flow sizes from 2 – 50 with spray angles of 0, 25, 40, 50, 65, 80, 90°. Orifice is offset 5° to axis of dovetail plus welded body in Stainless Steel. See Accessories section.

LD Type Nozzle												
Nozzle Number	Thread Sizes			Available Spray Angles								
	M 1/8	M 1/4	M 3/8	0°	25°	40°	50°	65°	80°	90°	100°	110°
2	x	x	x	x	x	x	x	x	x	x	x	x
4	x	x	x	x	x	x	x	x	x	x	x	x
6	x	x	x	x	x	x	x	x	x	x	x	x
8	x	x	x	x	x	x	x	x	x	x	x	x
10	x	x	x	x	x	x	x	x	x	x	x	x
15	x	x	x	x	x	x	x	x	x	x	x	x
20	x	x	x	x	x	x	x	x	x	x	x	x
25	x	x	x	x	x	x	x	x	x	x	x	x
40	x	x	x	x	x	x	x	x	x	x	x	x
50	x	x	x	x	x	x	x	x	x	x	x	x

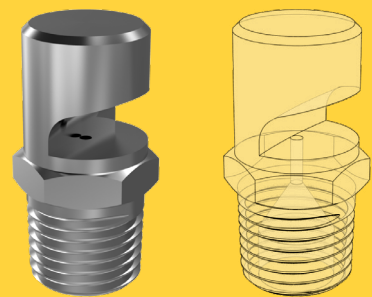
Flow Rate-LD Type Nozzle																
Nozzle Number	Flow Rate in Liters / Min at BAR G							Flow Rate in GAL / Min at PSIG								
	1	2	3	4	5	7	10	Nozzle Number	15	30	40	60	80	100	145	
2	0.46	0.65	0.80	0.89	0.99	1.24	1.43	2	0.12	0.17	0.20	0.24	0.26	0.33	0.40	
3	0.68	0.97	1.18	1.36	1.53	1.81	2.23	3	0.18	0.26	0.30	0.36	0.40	0.48	0.58	
4	0.90	1.27	1.56	1.83	2.03	2.36	2.86	4	0.24	0.34	0.40	0.48	0.54	0.63	0.76	
5	1.15	1.62	1.99	2.28	2.55	3.02	3.62	5	0.30	0.43	0.50	0.60	0.67	0.80	0.96	
6	1.37	1.94	2.37	2.72	3.07	3.61	4.46	6	0.36	0.51	0.60	0.72	0.81	0.95	1.14	
7	1.59	2.25	2.75	3.21	3.54	4.21	5.36	7	0.42	0.59	0.70	0.85	0.94	1.11	1.34	
8	1.83	2.59	3.17	3.66	3.98	5.03	5.80	8	0.48	0.68	0.80	0.97	1.05	1.33	1.60	
10	2.27	3.21	3.93	4.46	5.19	5.95	7.14	10	0.60	0.85	1.00	1.18	1.37	1.57	1.89	
15	3.44	4.21	6.16	6.70	7.78	9.15	10.71	15	0.91	1.11	1.50	1.77	2.06	2.42	2.92	
20	4.46	6.25	8.05	9.37	9.94	12.35	14.73	20	1.18	1.65	2.00	2.48	2.63	3.26	3.93	
25	5.80	8.03	9.94	11.38	12.75	15.09	18.08	25	1.53	2.12	2.50	3.01	3.37	3.99	4.81	
40	9.37	12.05	15.62	18.30	20.57	24.25	28.57	40	2.48	3.18	4.00	4.83	5.43	6.41	7.72	
50	11.61	16.07	19.89	22.77	25.50	30.19	36.16	50	3.07	4.25	5.00	6.02	6.74	7.98	9.61	

LD Type Nozzle



Flat Spray Flooding Nozzles

AN TYPE NOZZLE



AN Type Flat Spray Pattern

Material: Stainless Steel, Brass
Thread: Male, BSPT, NPT
Thread Size: 1/8-1"
Flow Rate: 0.38-270.00 Liters/Min at 0.5-4 Bar G
Flow Rate: 0.10-71.28 Gal/Min at 7-60 PSIG

Deflector type design
producing a wide flat
spray pattern at low
pressures

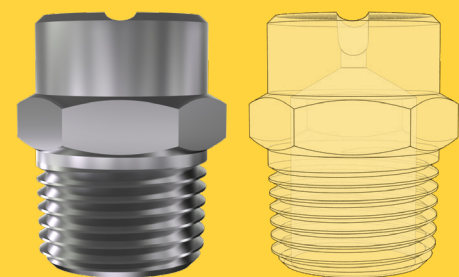


AN Type Nozzle														
Thread Sizes (BSPT) - Male Only							Spray Angle at 1.5-bar	Thread Sizes (BSPT) - Male Only						
Nozzle Number	M 1/8	M 1/4	M 3/8	M 1/2	M 3/4	M 1		Nozzle Number	M 1/8	M 1/4	M 3/8	M 1/2	M 3/4	M 1
1	x						110	120				x	x	
1.5	x						115	150					x	x
2	x						115	180					x	x
2.5	x	x					115	200					x	x
3	x	x					120	210					x	x
5	x	x					130	250						x
7.5	x	x					140	300						x
10	x	x					145							
15	x	x					125							
18	x	x					140							
20	x	x	x	x			140							
25		x	x	x			140							
30		x	x	x			130							
35		x	x	x			135							
40			x	x			140							
45			x	x			140							
50			x	x	x		140							
60			x	x	x		140							
70			x	x	x		140							
75			x	x	x		140							
80			x	x	x		140							
90				x	x		140							
100				x	x		145							
108				x	x		140							

Flow Rate-AN Type Nozzle															
Flow Rate in Liters / Min at BAR G								Flow Rate in GAL / Min at PSIG							
Nozzle Number	0.5	0.7	1	1.5	2	3	4	Nozzle Number	7	10	15	20	30	40	60
1	-	0.38	0.46	0.56	0.65	0.79	0.91	1	-	0.10	0.12	0.14	0.17	0.20	0.25
1.5	0.48	0.57	0.68	0.84	0.97	1.18	1.37	1.5	0.12	0.15	0.18	0.21	0.26	0.30	0.37
2	0.65	0.76	0.91	1.12	1.29	1.57	1.82	2	0.17	0.20	0.24	0.28	0.35	0.40	0.49
2.5	0.81	0.95	1.14	1.40	1.61	1.96	2.28	2.5	0.20	0.25	0.30	0.35	0.43	0.50	0.61
3	0.97	1.14	1.38	1.66	1.92	2.37	2.72	3	0.25	0.30	0.37	0.42	0.52	0.60	0.74
5	1.61	1.92	2.28	2.79	3.21	3.94	4.42	5	0.42	0.50	0.61	0.71	0.87	1.00	1.23
7.5	2.40	2.84	3.39	4.36	4.91	5.92	6.70	7.5	0.63	0.75	0.92	1.10	1.30	1.50	1.84
10	3.23	3.81	4.46	5.49	6.29	7.91	9.38	10	0.84	1.00	1.20	1.40	1.70	2.00	2.45
15	4.99	5.67	6.70	8.24	9.64	11.80	13.80	15	1.30	1.50	1.80	2.10	2.60	3.00	3.68
18	5.70	6.86	8.17	9.94	11.60	14.20	16.40	18	1.50	1.80	2.20	2.50	3.10	3.60	4.41
20	6.56	7.59	8.93	11.00	13.00	15.70	18.30	20	1.70	2.00	2.40	2.80	3.50	4.00	4.90
25	8.09	9.61	11.60	13.80	16.10	19.73	22.80	25	2.10	2.50	3.10	3.50	4.30	5.00	6.13
30	9.70	11.40	13.80	16.60	19.00	23.70	27.20	30	2.50	3.00	3.70	4.20	5.10	6.00	7.35
35	16.60	13.30	15.60	19.40	22.70	27.50	32.10	35	3.00	3.50	4.20	4.90	6.10	7.00	8.58
40	12.70	15.20	18.30	22.40	25.70	31.50	36.40	40	3.30	4.00	4.90	5.70	6.90	8.00	9.80
45	14.50	17.10	20.40	25.00	28.90	35.40	40.90	45	3.83	4.51	5.39	6.60	7.63	9.35	10.80
50	16.20	19.00	22.70	28.00	32.00	39.40	46.40	50	4.20	5.00	6.10	7.10	8.60	10.00	12.25
60	19.20	22.90	27.20	33.60	38.70	47.30	54.60	60	5.00	6.00	7.30	8.50	10.40	12.00	14.71
70	22.60	26.70	31.90	39.10	45.10	55.30	63.80	70	5.97	7.05	8.42	10.32	11.91	14.60	16.84
75	24.20	28.60	34.20	41.80	48.30	59.20	68.40	75	6.30	7.50	9.20	10.60	13.00	15.00	18.38
80	25.90	30.50	36.40	44.60	51.30	63.10	72.90	80	6.70	8.00	9.80	11.30	13.80	16.00	19.61
90	29.00	34.30	41.00	50.20	58.00	71.00	82.00	90	7.66	9.05	10.82	13.25	15.31	18.74	21.65
100	32.30	38.10	45.40	55.60	64.30	78.90	91.10	100	8.40	10.00	12.20	14.10	17.30	20.00	24.51
108	34.80	41.20	49.20	60.30	69.60	85.30	98.50	108	9.19	10.88	12.99	15.92	18.37	22.52	26.00
120	38.50	45.70	54.60	67.00	77.30	94.70	109.00	120	10.00	12.00	14.70	17.00	20.80	24.00	29.41
150	48.50	57.20	68.40	83.60	96.70	118.00	137.00	150	12.60	15.00	18.40	21.20	26.00	30.00	36.76
180	58.10	68.70	82.10	101.00	116.00	142.00	164.00	180	15.34	18.14	21.67	26.66	30.62	37.49	43.29
200	64.70	76.20	90.70	111.00	129.00	158.00	182.00	200	16.80	20.00	24.40	28.20	34.60	40.00	49.02
210	67.30	80.10	95.60	117.00	135.00	166.00	191.00	210	17.50	21.00	25.70	29.60	36.30	42.00	51.47
250	79.40	94.00	112.00	138.00	159.00	195.00	225.00	250	20.96	24.82	29.57	36.43	41.97	51.48	59.40
300	95.30	113.00	135.00	165.00	191.00	234.00	270.00	300	25.16	29.83	35.64	43.56	50.42	61.77	71.28

Flat Spray Pressure Wash Nozzles

AZ TYPE NOZZLE



One-piece male pipe thread design.

Material: Stainless Steel, Brass
Thread: Male, BSPT, NPT
Thread Size: 1/8-1/4"
Flow Rate:
3.50-95.40 Liters/Min at 15-70 Bar G
0.92-25.20 Gal/Min at 200-1,000 PSIG



AZ Type Spray Pattern

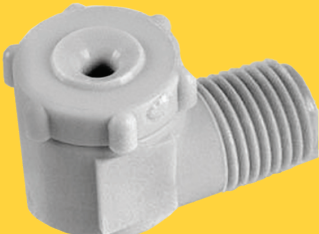
Producing a uniform flat fan pattern with high impact

AZ Type Nozzle								
Nozzle Number	Orifice Dia mm	Thread Sizes		Available Spray Angles				
		M 1/8	M 1/4	0°	15°	25°	40°	50°
4	1.25	x	x	x	x	x	x	x
4.5	1.30	x	x	x	x	x	x	x
5	1.40	x	x	x	x	x	x	x
5.5	1.45	x	x	x	x	x	x	x
6	1.50	x	x	x	x	x	x	x
6.5	1.60	x	x	x	x	x	x	x
7	1.65	x	x	x	x	x	x	x
7.5	1.70	x	x	x	x	x	x	x
8	1.75	x	x	x	x	x	x	x
8.5	1.80	x	x	x	x	x	x	x
9	1.90	x	x	x	x	x	x	x
10	2.00	x	x	x	x	x	x	x
15	2.40	x	x	x	x	x	x	x
20	2.80	x	x	x	x	x	x	x
30	3.60	x	x	x	x	x	x	x
40	4.00		x	x	x	x	x	x
50	4.40		x	x	x	x	x	x

Flow Rate-AZ Type Nozzle								
Flow Rate in Liters / Min at Bar G								
Nozzle Number	15	20	25	35	40	50	60	70
4	3.50	4.10	4.60	5.40	5.80	6.50	7.10	7.60
4.5	4.00	4.60	5.10	6.10	6.50	7.30	8.00	8.60
5	4.40	5.10	5.70	6.70	7.20	8.10	8.80	9.50
5.5	4.90	5.60	6.30	7.40	7.90	8.90	9.70	10.50
6	5.30	6.10	6.80	8.10	8.70	9.70	10.60	11.40
6.5	5.70	6.60	7.40	8.80	9.40	10.50	11.50	12.40
7	6.20	7.10	8.00	9.40	10.10	11.30	12.40	13.40
7.5	6.60	7.60	8.60	10.10	10.80	12.10	13.20	14.30
8	7.10	8.20	9.10	10.80	11.50	12.90	14.10	15.30
8.5	7.50	8.70	9.70	11.50	12.30	13.70	15.00	16.20
9	8.00	9.20	10.30	12.10	13.00	14.50	16.00	17.20
10	8.80	10.20	11.40	13.50	14.40	16.10	17.70	19.10
15	13.20	15.30	17.10	20.20	21.60	24.20	26.50	28.60
20	17.70	20.40	22.80	27.00	28.80	32.20	35.30	38.10
30	24.50	30.60	34.20	40.50	43.30	48.40	53.00	57.20
40	35.30	40.80	45.60	54.00	57.70	64.50	70.60	76.30
50	44.10	51.00	57.00	67.40	72.00	80.60	88.30	95.40

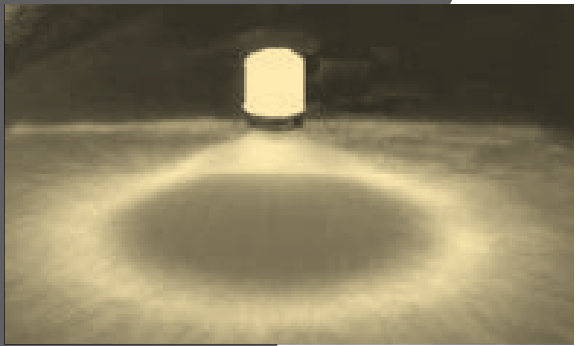
Flow Rate-AZ Type Nozzle								
Flow Rate in GAL / Min at PSIG								
Nozzle Number	200	300	400	500	600	700	800	1000
4	0.92	1.08	1.22	1.43	1.53	1.72	1.88	2.01
4.5	1.06	1.22	1.35	1.61	1.72	1.93	2.11	2.27
5	1.16	1.35	1.51	1.77	1.90	2.14	2.32	2.51
5.5	1.29	1.48	1.66	1.95	2.09	2.35	2.56	2.77
6	1.40	1.61	1.80	2.14	2.30	2.56	2.80	3.01
6.5	1.51	1.74	1.95	2.32	2.48	2.77	3.04	3.28
7	1.64	1.88	2.11	2.48	2.67	2.99	3.28	3.54
7.5	1.74	2.01	2.27	2.67	2.85	3.20	3.49	3.78
8	1.88	2.17	2.40	2.85	3.04	3.41	3.72	4.04
8.5	1.98	2.30	2.56	3.04	3.25	3.62	3.96	4.28
9	2.11	2.43	2.72	3.20	3.43	3.83	4.23	4.54
10	2.32	2.69	3.01	3.57	3.80	4.25	4.68	5.05
15	3.49	4.04	4.52	5.34	5.71	6.39	7.00	7.56
20	4.68	5.39	6.02	7.13	7.61	8.51	9.33	10.07
30	6.47	8.08	9.03	10.70	11.44	12.79	14.00	15.11
40	9.33	10.78	12.05	14.27	15.24	17.04	18.65	20.17
50	11.65	13.47	15.06	17.81	19.02	21.29	23.33	25.20

Hollow Cone Nozzles

WDA TYPE NOZZLE	WM TYPE NOZZLE	WRW TYPE NOZZLE	RA TYPE NOZZLE	AE TYPE NOZZLE	AF TYPE NOZZLE	WS TYPE NOZZLE	BE TYPE NOZZLE
							
Small Hollow Cone Nozzle. Consists of five parts: body, orifice disc, distributor, retainer, and strainer.	Small Hollow Cone Nozzle	Two-piece design with no internal vanes. Right angle configuration. Nylon only.	Two-piece right angle design with no internal vanes. Patented dual swirl chamber produces "Raindrop" spray. Nylon only.	Two-piece right angle design (body and cap) with no internal vanes.	Two-piece right angle design (body and cap) with no internal vanes.	Three-part construction: body, core, and adaptor.	Large Hollow Cone Nozzle. One-piece body in a right angle design. Stainless Steel standard.
Thread: Male, Female, UNEF Thread Size: 1/8-1/4" Flow Rate: 1.45-267.00 Liters/Min at 2-35 Bar G 0.39-70.00 Gal/Min at 40-500 PSIG	Thread: Male, BSPT, NPT Thread Size: 1/4" Flow Rate: 3.08-49.10 Liters/Min at 1.5-8 Bar G 0.80-13.00 Gal/Min at 30-115 PSIG	Thread: Male, NPT Thread Size: 1/4" Flow Rate: 0.46-3.60 Liters/Min at 1-7 Bar G 0.12-0.95 Gal/Min at 15-100 PSIG	Thread: Male, NPT Thread Size: 1/4-3/4" Flow Rate: 0.45-121.00 Liters/Min at 1-7 Bar G 0.12-32.00 Gal/Min at 15-100 PSIG	Thread: Male Thread Size: 1/8-1" Flow Rate: 0.46-211.00 Liters/Min at 1-7 Bar G 0.12-55.70 Gal/Min at 15-100 PSIG	Thread: Male, NPT Thread Size: 1/8-1" Flow Rate: 0.46-121.00 Liters/Min at 1-7 Bar G 0.12-32.00 Gal/Min at 15-100 PSIG	Thread: Male, NPT Thread Size: 1/8-3/4" Flow Rate: 0.46-60.3 Liters/Min at 1-7 Bar G 0.12-15.9 Gal/Min at 15-100 PSIG	Thread: Female Thread Size: 1 1/4-2" Flow Rate: 33.20-938.00 Liters/Min at 0.15-4.0 Bar G 12.30-252.00 Gal/Min at 5-60 PSIG
 Spray Angles 30°-90°	 Spray Angle 80°	 Spray Angles 110°-115°	 Spray Angles 120°-140°	 Spray Angles 65°-95°	 Spray Angles 100°-120°	 Spray Angle 75°	 Spray Angles 62°-87°
 Hollow Cone Fine Atomization with no Central Distribution	 Hollow Cone Fine Atomization with no Central Distribution	 Hollow Cone Fine Atomization with no Central Distribution	 Hollow Cone Raindrop with no Central Distribution	 Hollow Cone Fine Atomization with no Central Distribution	 Hollow Cone Fine Atomization with no Central Distribution	 Hollow Cone Fine Atomization with no Central Distribution	 Hollow Cone Fine Atomization with no Central Distribution

Typical Applications

- Aerating Water
 - Brine Sprays
 - Chemical Processing
 - Coil Defrosting
 - Dust Control
 - Evaporative Condensers
- Evaporative Coolers
 - Industrial Washers
 - Roof Cooling
 - Spray Coating
 - Gas Scrubbing & Washing
 - Cooling Towers
- Coal Washing
 - Degreasing
 - Gravel Washing
 - Dishwashing
 - Foam Control
 - Industrial Washing
 - Water Fountains



Hollow Cone Spray Pattern
 Produces a fine atomization with no central distribution

Small Hollow Cone Nozzles



WDA Type Nozzle

Basic nozzle thread 9/16 " – 24 UNEF, with optional adaptors providing 1/8" and 1/4" pipe threads. Flow sizes from 0.5 to 35 with spray angles of 30°, 45°, 60°, 70°, 80° and 90°. Nozzle consists of five parts: body, orifice disc, distributor, retainer, and strainer.

WDA Type Nozzle									
Nozzle Number	Thread Sizes			Available Spray Angles					
	F 1/8	M 1/8	F 1/4	30°	45°	60°	70°	80°	90°
0.5	x	x	x			x	x	x	x
0.75	x	x	x			x	x	x	x
1	x	x	x	x	x	x	x	x	x
1.5	x	x	x	x	x	x	x	x	x
2	x	x	x	x	x	x	x	x	x
2.5	x	x	x	x	x	x	x	x	x
3	x	x	x	x	x	x	x	x	x
4	x	x	x	x	x	x	x	x	x
5	x	x	x	x	x	x	x	x	x
6	x	x	x	x	x	x	x	x	x
8	x	x	x	x	x	x	x	x	x
10	x	x	x	x	x	x	x	x	x
12	x	x	x	x	x	x	x	x	x
14	x	x	x	x	x	x	x	x	x
16	x	x	x	x	x	x	x	x	x
18	x	x	x	x	x	x	x	x	x
20	x	x	x	x	x	x	x	x	x
24	x	x	x	x	x	x	x	x	x
30	x	x	x	x	x	x	x	x	x
35	x	x	x	x	x	x	x	x	x

Flow Rate-WDA Type Nozzle																
Flow Rate in Liters / Hour at Bar G									Flow Rate in GAL / Hour at PSIG							
Nozzle Number	2	3	5	7	10	15	20	35	Nozzle Number	40	75	100	125	150	300	500
0.5	-	-	1.45	1.72	2.05	2.51	2.87	3.82	0.5	-	0.39	0.45	0.50	0.55	0.77	1.00
0.75	-	-	2.16	2.56	3.05	3.74	4.32	5.72	0.75	-	0.58	0.67	0.75	0.82	1.16	1.50
1	-	-	2.87	3.40	4.10	5.02	5.77	7.63	1	-	0.77	0.89	1.00	1.10	1.55	2.00
1.5	-	-	4.32	5.11	6.15	7.53	8.64	11.40	1.5	-	1.16	1.34	1.50	1.65	2.32	3.00
2	-	-	5.77	6.83	8.19	10.00	11.60	15.30	2	-	1.55	1.79	2.00	2.20	3.10	4.00
2.5	-	-	7.19	8.55	10.20	12.50	14.50	19.10	2.5	-	1.93	2.24	2.50	2.74	3.88	5.00
3	-	-	8.64	10.20	12.30	15.10	17.30	22.90	3	-	2.32	2.68	3.00	3.30	4.65	6.00
4	-	8.69	11.50	13.70	16.40	20.10	23.10	30.50	4	2.20	3.10	3.60	4.00	4.40	6.20	8.00
5	-	11.10	14.50	17.20	20.50	25.10	28.70	38.20	5	2.80	3.90	4.50	5.00	5.50	7.70	10.00
6	-	14.20	17.50	20.60	24.60	30.10	34.60	45.80	6	3.60	4.70	5.40	6.00	6.60	9.30	12.00
8	-	17.80	23.10	27.50	33.10	40.60	46.20	61.10	8	4.50	6.20	7.20	8.00	8.90	12.40	16.00
10	17.90	22.10	28.70	34.00	41.00	50.20	57.70	76.30	10	5.60	7.70	8.90	10.00	11.00	15.50	20.00
12	21.60	26.90	34.60	40.80	49.20	60.20	69.30	91.60	12	6.80	9.30	10.70	12.00	13.20	18.60	24.00
14	25.30	31.20	40.20	47.70	57.00	69.80	80.80	107.00	14	7.90	10.80	12.50	14.00	15.30	21.70	28.00
16	29.01	35.60	46.20	54.60	65.20	79.80	92.40	122.00	16	9.00	12.40	14.30	16.00	17.50	24.80	32.00
18	32.80	39.90	51.80	61.40	73.40	89.90	104.00	137.00	18	10.10	13.90	16.10	18.00	19.70	27.90	36.00
20	32.80	44.60	57.80	68.30	81.60	99.90	115.00	153.00	20	11.30	15.50	17.90	20.00	21.90	31.00	40.00
24	45.80	53.30	69.30	82.10	98.00	120.00	139.00	183.00	24	13.50	18.60	21.50	24.00	26.30	37.20	48.00
30	54.40	66.80	86.40	102.00	123.00	150.00	173.00	229.00	30	16.90	23.20	25.80	30.00	32.90	46.50	60.00
35	54.40	78.20	101.00	120.00	143.00	175.00	202.00	267.00	35	19.80	27.20	31.40	35.00	38.40	54.30	70.00

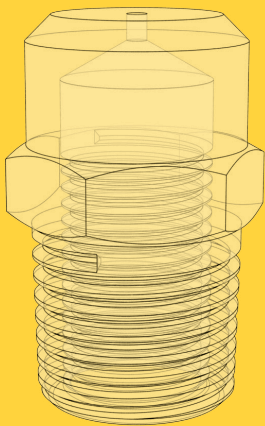
Small Hollow Cone Nozzles

Hollow Cone Nozzles



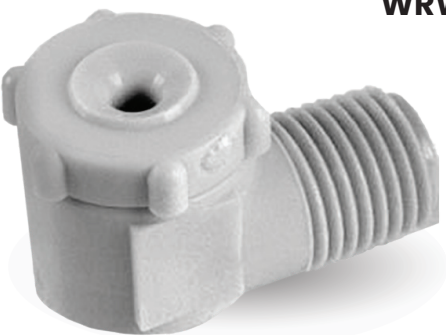
WM Type Nozzle

Male threaded nozzle only available in 1/4" BSPT or NPT as standard. See chart for available flow sizes. Standard spray angles of 80°.



WM Type Nozzle		
Nozzle Number	Thread Sizes	Spray Angle
	BSPT or NPT 1/4	
WM 108	x	80°
WM 208	x	80°
WM 308	x	80°
WM 508	x	80°
WM 1008	x	80°

Flow Rate-WM Type Nozzle														
Nozzle Number	Flow Rate in Liters / Hour at Bar G							Nozzle Number	Flow Rate in GAL / Hour at PSIG					
	1.5	2	3	4	6	7	8		30	40	60	90	100	115
WM 108	-	-	3.08	3.53	4.36	4.57	5.04	WM 108	-	0.80	0.90	1.10	1.20	1.30
WM 208	4.73	5.36	6.39	7.37	8.76	9.15	9.37	WM 208	1.40	1.70	2.00	2.30	2.40	2.50
WM 308	6.87	8.04	9.47	10.60	12.80	13.70	14.40	WM 308	2.10	2.50	2.80	3.40	3.60	3.80
WM 508	10.89	12.70	15.20	17.40	21.10	22.90	24.50	WM 508	3.40	4.00	4.60	5.60	6.10	6.50
WM 1008	21.31	24.60	30.10	34.60	42.60	45.70	49.10	WM 1008	6.50	8.00	9.10	11.30	12.10	13.00



WRW Type Nozzle

WRW 2, 4, and 6 available. Two-piece design (body and cap) with no internal vanes. Right angle configuration. Available in Nylon only.

WRW Type Nozzle		
Nozzle Number	Thread Sizes (NPT) - Male Only	Spray angle (°) at 3 - bar
	M 1/4	
2	x	115
4	x	115
6	x	110

Flow Rate-WRW Type Nozzle															
Flow Rate in Liters / Min at Bar G								Flow Rate in GAL / Min at PSIG							
Nozzle Number	1	2	3	4	5	6	7	Nozzle Number	15	30	40	60	70	90	100
2	0.46	0.64	0.79	0.91	1.00	1.10	1.20	2	0.12	0.17	0.21	0.24	0.26	0.29	0.32
4	0.92	1.30	1.60	1.80	2.00	2.20	2.40	4	0.24	0.34	0.42	0.49	0.53	0.60	0.63
6	1.30	1.90	2.40	2.70	3.10	3.40	3.60	6	0.34	0.50	0.63	0.71	0.82	0.90	0.95

RA Type Nozzle			
Nozzle Number	Thread Sizes (NPT) - Male Only		Spray Angle (°) at 3-bar
	M 1/4	M 3/4	
2	x		120
4	x		120
5	x		120
6	x		120
8	x		120
10	x		120
15	x		120
50		x	140
80		x	140
100		x	140
200		x	140

RA Type Nozzle

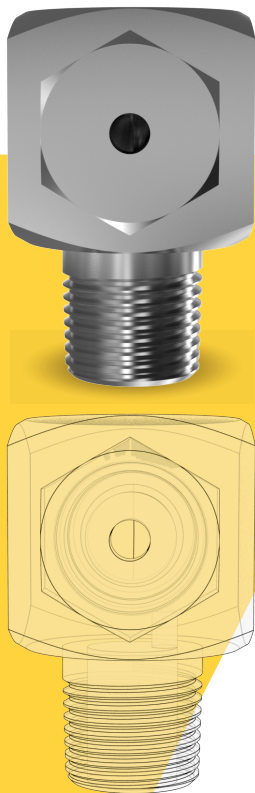
Two-piece right angle design (body and cap) with no internal vanes. Patented dual swirl chamber produces "Raindrop" type spray. Available in Nylon only.



Flow Rate-RA Type Nozzle															
Flow Rate in Liters / Min at Bar G								Flow Rate in GAL / Min at PSIG							
Nozzle Number	1	2	3	4	5	6	7	Nozzle Number	15	30	40	60	70	90	100
2	0.45	0.64	0.79	0.91	1.00	1.10	1.20	2	0.12	0.17	0.20	0.24	0.26	0.29	0.31
4	0.92	1.30	1.60	1.80	2.00	2.20	2.40	4	0.24	0.35	0.40	0.48	0.52	0.59	0.63
5	1.13	1.60	2.00	2.30	2.50	2.80	3.00	5	0.31	0.43	0.50	0.61	0.66	0.75	0.79
6	1.34	1.90	2.40	2.70	3.10	3.40	3.60	6	0.37	0.52	0.60	0.73	0.79	0.89	0.95
8	1.84	2.60	3.20	3.60	4.10	4.50	4.80	8	0.49	0.69	0.80	0.98	1.06	1.20	1.26
10	2.26	3.20	3.90	4.60	5.10	5.60	6.00	10	0.61	0.87	1.00	1.20	1.30	1.47	1.60
15	3.39	4.80	5.85	6.90	7.65	8.40	9.00	15	0.92	1.30	1.50	1.84	1.98	2.25	2.37
50	11.40	16.10	19.70	22.80	25.50	27.90	30.20	50	3.00	4.30	5.20	6.00	6.70	7.40	8.00
80	18.20	25.80	31.60	36.50	40.80	44.70	48.20	80	4.80	6.80	8.40	9.70	10.80	11.80	12.70
100	22.80	32.20	39.50	45.60	51.00	55.80	60.30	100	6.00	8.50	9.80	12.00	12.96	14.70	15.90
200	45.60	64.50	79.00	91.20	102.00	112.00	121.00	200	12.10	17.00	20.90	24.10	27.00	29.60	32.00

Hollow Cone Nozzles

AE Type Nozzle



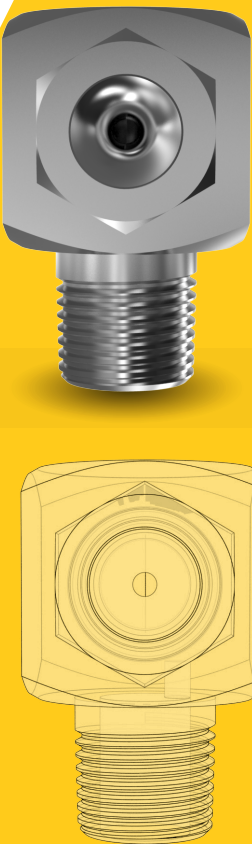
Two-piece right angle design (body and cap) with no internal vanes. Available in flow sizes from 2 – 350 with a nominal spray angle of 70° – 90° depending on flow size and pressure.

AE Type Nozzle							
Nozzle Number	Thread Sizes - Male Only						Spray Angle (°) at 1.5 bar
	M 1/8	M 1/4	M 3/8	M 1/2	M 3/4	M 1	
2	x	x					70
4	x	x					70
6	x	x					70
10	x	x	x				70
15	x	x	x				70
20	x	x	x				70
25		x	x				70
30		x	x				70
40				x			65
50				x			75
60				x			75
80				x	x		65
100				x	x		75
125				x	x		85
150					x	x	95
200					x	x	80
250						x	70
300						x	75
350						x	80

Flow Rate-AE Type Nozzle

Flow Rate in Liters / Min at Bar G								Flow Rate in GAL / Min at PSIG							
Nozzle Number	1	2	3	4	5	6	7	Nozzle Number	15	30	40	60	70	90	100
2	0.46	0.64	0.79	0.91	1.00	1.10	1.20	2	0.12	0.17	0.21	0.24	0.26	0.29	0.32
4	0.92	1.30	1.60	1.80	2.00	2.20	2.40	4	0.24	0.34	0.42	0.48	0.53	0.58	0.63
6	1.30	1.90	2.40	2.70	3.10	3.40	3.60	6	0.34	0.50	0.63	0.71	0.82	0.90	0.95
10	2.30	3.20	3.90	4.60	5.10	5.60	6.00	10	0.61	0.85	1.03	1.22	1.35	1.48	1.59
15	3.40	4.80	5.90	6.80	7.60	8.40	9.00	15	0.90	1.27	1.56	1.80	2.01	2.22	2.38
20	4.50	6.40	7.90	9.10	10.20	11.20	12.10	20	1.19	1.69	2.09	2.40	2.69	2.96	3.20
25	5.70	8.10	9.90	11.40	12.70	14.00	15.10	25	1.51	2.14	2.62	3.01	3.36	3.70	3.99
30	6.90	9.70	11.80	13.70	15.30	16.80	18.10	30	1.82	2.56	3.12	3.62	4.04	4.44	4.78
40	9.10	12.90	15.80	18.20	20.40	22.30	24.10	40	2.40	3.40	4.20	4.80	5.40	5.90	6.40
50	11.40	16.10	19.70	22.80	25.50	27.90	30.20	50	3.00	4.30	5.20	6.00	6.70	7.40	8.00
60	13.60	19.30	23.70	27.30	30.60	33.50	36.20	60	3.60	5.10	6.30	7.20	8.10	8.90	9.60
80	18.20	25.80	31.60	36.50	40.80	44.70	48.20	80	4.80	6.80	8.40	9.70	10.80	11.80	12.70
100	22.80	32.20	39.50	45.60	50.90	55.80	60.30	100	6.00	8.50	9.80	12.00	12.96	14.70	15.90
125	28.50	40.30	49.40	57.00	63.70	69.80	75.40	125	7.50	10.70	13.10	15.10	16.80	18.40	19.90
150	34.20	48.30	59.20	68.40	76.40	83.70	90.50	150	9.00	12.80	15.60	18.10	20.20	22.10	23.90
200	45.60	64.50	79.00	91.20	102.00	112.00	121.00	200	12.10	17.00	20.90	24.10	27.00	29.60	32.00
250	57.00	80.70	98.80	114.10	128.00	140.00	151.00	250	15.10	21.30	26.14	30.10	33.80	37.00	39.90
300	68.40	96.80	119.00	137.00	153.00	168.00	181.00	300	18.10	25.60	31.40	36.20	40.40	44.40	47.80
350	79.80	113.00	138.00	160.00	179.00	196.00	211.00	350	21.10	29.90	36.50	42.30	47.30	51.80	55.70

AF Type Nozzle



Two-piece right angle design (body and cap) with no internal vanes. Available in flow sizes from 2 – 250 with a nominal spray angle of 100° – 120° depending on flow size and pressure.

AF Type Nozzle							
Nozzle Number	Thread Sizes (NPT) - Male Only						Spray Angle (°) at 3-bar
	M 1/8	M 1/4	M 3/8	M 1/2	M 3/4	M 1	
2	X	X					100
4	X	X					100
6	X	X					100
10	X	X					100
15	X	X	X				100
20			X				100
25			X				110
30			X				110
50			X	X			115
80				X			115
100				X	X		115
150					X	X	115
200						X	120
250						X	120

Flow Rate-AF Type Nozzle

Flow Rate in Liters / Min at Bar G								Flow Rate in GAL / Min at PSIG							
Nozzle Number	1	2	3	4	5	6	7	Nozzle Number	15	30	40	60	70	90	100
2	0.46	0.64	0.79	0.91	1.00	1.10	1.20	2	0.12	0.17	0.21	0.24	0.26	0.29	0.32
4	0.92	1.30	1.60	1.80	2.00	2.20	2.40	4	0.24	0.34	0.42	0.48	0.53	0.58	0.63
6	1.30	1.90	2.40	2.70	3.10	3.40	3.60	6	0.34	0.50	0.63	0.71	0.82	0.90	0.95
10	2.30	3.20	3.90	4.60	5.10	5.60	6.00	10	0.61	0.85	1.03	1.22	1.35	1.48	1.59
15	3.40	4.80	5.90	6.80	7.60	8.40	9.00	15	0.90	1.27	1.56	1.80	2.01	2.22	2.38
20	4.50	6.40	7.90	9.10	10.20	11.20	12.10	20	1.19	1.69	2.09	2.40	2.69	2.96	3.20
25	5.70	8.10	9.90	11.40	12.70	14.00	15.10	25	1.51	2.14	2.62	3.01	3.36	3.70	3.99
30	6.90	9.70	11.80	13.70	15.30	16.80	18.10	30	1.82	2.56	3.12	3.62	4.04	4.44	4.78
50	11.40	16.10	19.70	22.80	25.50	27.90	30.20	50	3.00	4.30	5.20	6.00	6.70	7.40	8.00
80	18.20	25.80	31.60	36.50	40.80	44.70	48.20	80	4.80	6.80	8.40	9.70	10.80	11.80	12.70
100	22.80	32.20	39.50	45.60	50.90	55.80	60.30	100	6.00	8.50	9.80	12.00	12.96	14.70	15.90
150	34.20	48.30	59.20	68.40	76.40	83.70	90.50	150	9.00	12.80	15.60	18.10	20.20	22.10	23.90
200	45.60	64.50	79.00	91.20	102.00	112.00	121.00	200	12.10	17.00	20.90	24.10	27.00	29.60	32.00

Hollow Cone Nozzles



WS Type Nozzle

Three-part construction: body, core, and adaptor. Available in flow sizes from 2 – 100. Nominal spray angle 75°. Available in NPT male or female thread only.

WS Type Nozzle						
Nozzle Number	Thread Sizes (NPT) - Male Only					Spray Angle (°) at 3-bar
	M 1/8	M 1/4	M 3/8	M 1/2	M 3/4	
2	x					75
4	x	x				75
6	x	x	x			75
8		x	x			75
10		x	x			75
15			x	x		75
20			x	x		75
30				x		75
40				x		75
50				x	x	75
60				x	x	75
80					x	75
100					x	75

Flow Rate-WS Type Nozzle															
Flow Rate in Liters / Min at Bar G								Flow Rate in GAL / Min at PSIG							
Nozzle Number	1	2	3	4	5	6	7	Nozzle Number	15	30	40	60	70	90	100
2	0.46	0.64	0.79	0.91	1.00	1.10	1.2	2	0.12	0.17	0.21	0.24	0.26	0.29	0.32
4	0.92	1.30	1.60	1.80	2.00	2.20	2.4	4	0.24	0.34	0.42	0.48	0.53	0.85	0.93
6	1.30	1.90	2.40	2.70	3.10	3.40	3.6	6	0.34	0.50	0.63	0.71	0.82	0.90	0.95
8	1.88	2.60	3.20	3.60	4.10	4.50	4.8	8	0.50	0.69	0.84	0.95	1.08	1.19	1.27
10	2.30	3.20	3.90	4.60	5.10	5.60	6	10	0.61	0.85	1.03	1.22	1.50	1.48	1.59
15	3.40	4.80	5.90	6.80	7.60	8.40	9	15	0.90	1.27	1.56	1.80	2.01	2.22	2.38
20	4.50	6.40	7.96	9.10	10.20	11.20	12.1	20	1.19	1.69	2.09	2.40	2.69	2.96	3.20
30	6.90	9.70	11.80	13.70	15.30	16.80	18.1	30	1.82	2.56	3.12	3.62	4.04	4.44	4.78
40	9.10	12.90	15.80	18.20	20.40	22.30	24.1	40	2.40	3.40	4.20	4.80	5.40	5.90	6.40
50	11.40	16.10	19.70	22.80	25.50	27.90	30.2	50	3.00	4.30	5.20	6.00	6.70	7.40	8.00
60	13.60	19.30	23.70	27.30	30.60	33.50	36.2	60	3.60	5.10	6.30	7.20	8.10	8.90	9.60
80	18.20	25.80	31.60	36.50	40.80	44.70	48.2	80	4.80	6.80	8.40	9.70	10.80	11.80	12.70
100	22.8	32.2	39.5	45.6	51	55.8	60.3	100	6	8.5	9.8	12	12.96	14.7	15.9

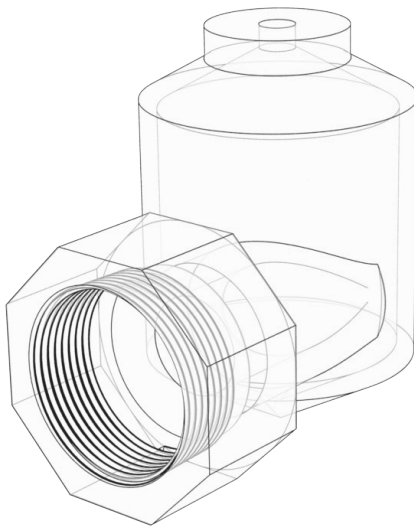
Large Hollow Cone Nozzles



BE Type Nozzle

One-piece body in a right angle design. Nominal spray angle of 55° to 90° dependant upon flow size and pressure. (See chart for details.) Materials are Stainless Steel as standard.

BE Type Nozzle				
Nozzle Number	Thread Sizes			Spray Angle (°) at 0.7-bar
	F 1 1/4"	F 1 1/2"	F 2"	
23	x	x		62
28	x	x		65
36	x	x		70
43	x	x		78
49	x	x		80
54	x	x		87
63			x	70
75			x	80
88			x	80
100			x	80
112			x	80
122			x	80
144			x	85



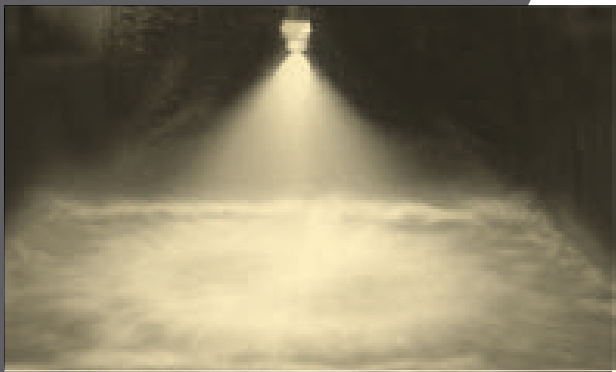
Flow Rate-BE Type Nozzle																	
Flow Rate in Liters / Min at Bar G										Flow Rate in GAL / Min at PSIG							
Nozzle Number	0.15	0.3	0.5	0.7	1	1.5	2	3	4.0	Nozzle Number	5	10	15	20	30	40	60
23	33.20	45.00	56.00	64.00	77.00	92.30	107.00	130.00	150.00	23	12.30	16.80	20.70	23.40	28.80	33.00	40.20
28	37.90	52.10	65.60	75.50	91.50	109.00	128.00	152.00	175.00	28	14.40	19.80	24.60	27.60	33.60	38.40	47.20
36	50.90	66.30	84.80	98.40	118.00	142.00	163.00	198.00	228.00	36	18.60	25.80	31.80	36.00	43.80	50.10	47.20
43	59.20	79.50	101.00	117.00	140.00	168.00	192.00	237.00	268.00	43	22.20	30.60	37.50	42.60	51.60	60.00	72.00
49	68.70	90.00	116.00	135.00	160.00	193.00	223.00	272.00	321.00	49	25.50	35.40	42.90	48.90	60.00	69.00	86.40
54	75.80	102.00	128.00	149.00	180.00	213.00	254.00	313.00	353.00	54	28.20	39.00	48.30	54.00	68.40	79.20	94.80
63	91.20	123.00	159.00	188.00	210.00	249.00	281.00	341.00	402.00	63	34.80	49.20	56.40	63.00	75.60	86.40	108.00
75	104.00	152.00	200.00	226.00	243.00	296.00	339.00	417.00	504.00	75	43.80	59.40	65.40	75.00	91.20	106.00	136.00
88	123.00	180.00	230.00	256.00	283.00	346.00	393.00	492.00	598.00	88	50.40	67.20	76.20	87.60	106.00	125.00	161.00
100	156.00	208.00	262.00	274.00	324.00	393.00	442.00	549.00	661.00	100	57.60	72.00	87.00	99.60	119.00	139.00	178.00
112	180.00	227.00	284.00	306.00	362.00	440.00	473.00	587.00	705.00	112	62.40	80.40	97.20	112.00	127.00	149.00	190.00
122	199.00	246.00	306.00	332.00	402.00	483.00	554.00	682.00	813.00	122	67.20	87.00	108.00	122.00	149.00	173.00	218.00
144	208.00	256.00	317.00	371.00	442.00	568.00	665.00	814.00	938.00	144	69.60	97.20	119.00	144.00	179.00	206.00	252.00

Solid Cone Nozzles

WDB TYPE NOZZLE	BF TYPE NOZZLE	BI TYPE NOZZLE	BQ TYPE NOZZLE	BN TYPE NOZZLE	BT TYPE NOZZLE	CM TYPE NOZZLE	BY TYPE NOZZLE	MCN TYPE NOZZLE
								
Small Solid Cone Basic nozzle thread 9/16" – 24 UNEF with optional adaptors providing 1/8" & 1/4" pipe threads.	Small Solid Cone with flanged tip design for use with standard bodies and caps.	One-piece body with pressed in cross-milled core.	One-piece body with pressed in cross-milled core. Produces a square pattern.	One-piece body with pressed in cross-milled core.	One-piece body with pressed in cross-milled core.	Large Solid Cone Nozzle. One-piece body with removable vane type core.	Large Solid Cone Nozzle. One-piece body with removable vane type core.	The type MCN is a cone spray nozzle. This compact nozzle permits the maximum liquid throughput for a given pipe size with the large free passageway minimizing clogging. Larger sizes available upon request.
Thread: Male, Female, UNEF Thread Size: 1/8-1/4" Flow Rate: 1.45-267.00 Liters/Min at 2-35 Bar G 0.39-70.00 Gal/Min at 40-500 PSIG	Thread: Male Thread Size: 1/8-3/8" Flow Rate: 0.80-18.16 Liters/Min at 0.35-7.0 Bar G 0.35-4.80 Gal/Min at 15-100 PSIG	Thread: Male, BSPT, NPT Thread Size: 1/8-1" Flow Rate: 0.88-128.27 Liters/Min at 0.35-7.0 Bar G 0.23-33.00 Gal/Min at 5-100 PSIG	Thread: Male, BSPT, NPT Thread Size: 1/8-1" Flow Rate: 0.88-128.27 Liters/Min at 0.35-7.0 Bar G 0.23-33.00 Gal/Min at 5-100 PSIG	Thread: Male, BSPT, NPT Thread Size: 1/8-1" Flow Rate: 0.88-130.29 Liters/Min at 0.35-7.0 Bar G 0.23-33.60 Gal/Min at 5-100 PSIG	Thread: Male, BSPT, NPT Thread Size: 1/8-1" Flow Rate: 0.88-130.29 Liters/Min at 0.35-7.0 Bar G 0.23-33.60 Gal/Min at 5-100 PSIG	Thread: Female Thread Size: 1 1/4-2" Flow Rate: 25.90-781.00 Liters/Min at 0.2-6.0 Bar G 8.74-219.00 Gal/Min at 5-100 PSIG	Thread: Female Thread Size: 1 1/4-2" Flow Rate: 38.30-515.00 Liters/Min at 0.2-6.0 Bar G 13.04-130.35 Gal/Min at 5-100 PSIG	Thread: Male, BSPT, NPT Thread Size: 1/8-1" Flow Rate: 2.26-484.00 Liters/Min at 0.5-5 Bar G 0.50-106.00 Gal/Min at 5-50 PSIG
 Spray Angles 30°-90°	 Spray Angles 60°-90°	 Spray Angles 10°-97°	 Spray Angles 47°-100°	 Spray Angles 100°-128°	 Spray Angles 100°-128°	 Spray Angles 60°-94°	 Spray Angles 105°-120°	 Spray Angles 60°-120°
 Solid Cone Producing uniform distribution across a wide pressure range	 Solid Cone Producing uniform distribution across a wide pressure range	 Solid Cone Producing uniform distribution across a wide pressure range	 Solid Cone Producing uniform distribution across a wide pressure range	 Solid Cone Producing uniform distribution across a wide pressure range	 Solid Cone Producing uniform distribution across a wide pressure range	 Solid Cone Producing uniform distribution across a wide pressure range	 Solid Cone Producing uniform distribution across a wide pressure range	 Solid Cone Producing uniform distribution across a wide pressure range

Typical Applications

- Aerating Water
- Brine Sprays
- Chemical Processing
- Coil Defrosting
- Dust Control
- Evaporative Condensers
- Evaporative Coolers
- Industrial Washers
- Roof Cooling
- Spray Coating
- Gas Scrubbing & Washing
- Cooling Towers
- Coal Washing
- Degreasing
- Gravel Washing
- Dishwashing
- Foam Control
- Industrial Washing
- Water Fountains



Solid Cone Spray Pattern

Produces uniform distribution across a wide pressure range

Small Solid Cone Nozzles

Solid Cone Nozzles

WDB Type Nozzle



Basic nozzle thread 9/16" – 24 UNEF, with optional adaptors providing 1/8" and 1/4" pipe threads. Flow sizes from 0.5 to 20 with spray angles of 30°, 45°, 60°, 70°, 80°, and 90°.

WDB Type Nozzle									
Nozzle Number	Thread Sizes			Available Spray Angles					
	F 1/8	M 1/4	F 1/4	30°	45°	60°	70°	80°	90°
0.5	x	x	x			x	x	x	x
0.75	x	x	x	x	x	x	x	x	x
1	x	x	x	x	x	x	x	x	x
1.5	x	x	x	x	x	x	x	x	x
2	x	x	x	x	x	x	x	x	x
2.5	x	x	x	x	x	x	x	x	x
3	x	x	x	x	x	x	x	x	x
4	x	x	x	x	x	x	x	x	x
5	x	x	x	x	x	x	x	x	x
6	x	x	x	x	x	x	x	x	x
8	x	x	x	x	x	x	x	x	x
10	x	x	x	x	x	x	x	x	x
12	x	x	x	x	x	x	x	x	x
14	x	x	x	x	x	x	x	x	x
16	x	x	x	x	x	x	x	x	x
18	x	x	x	x	x	x	x	x	x
20	x	x	x	x	x	x	x	x	x
24	x	x	x	x	x	x	x	x	x
30	x	x	x	x	x	x	x	x	x
35	x	x	x	x	x	x	x	x	x

Flow Rate-WDB Type Nozzle																
Flow Rate in Liters / Hour at Bar G									Flow Rate in GAL / Hour at PSIG							
Nozzle Number	2	3	5	7	10	15	20	35	Nozzle Number	40	75	100	125	150	300	500
0.5	-	-	1.45	1.72	2.05	2.51	2.87	3.82	0.5	-	0.39	0.45	0.50	0.55	0.77	1.00
0.75	-	-	2.16	2.56	3.05	3.74	4.32	5.72	0.75	-	0.58	0.67	0.75	0.82	1.16	1.50
1	-	-	2.87	3.40	4.10	5.02	5.77	7.63	1	-	0.77	0.89	1.00	1.10	1.55	2.00
1.5	-	-	4.32	5.11	6.15	7.53	8.64	11.40	1.5	-	1.16	1.34	1.50	1.65	2.32	3.00
2	-	-	5.77	6.83	8.19	10.00	11.60	15.30	2	-	1.55	1.79	2.00	2.20	3.10	4.00
2.5	-	-	7.19	8.55	10.20	12.50	14.50	19.10	2.5	-	1.93	2.24	2.50	2.74	3.88	5.00
3	-	-	8.64	10.20	12.30	15.10	17.30	22.90	3	-	2.32	2.68	3.00	3.30	4.65	6.00
4	-	8.69	11.50	13.70	16.40	20.10	23.10	30.50	4	2.20	3.10	3.60	4.00	4.40	6.20	8.00
5	-	11.10	14.50	17.20	20.50	25.10	28.70	38.20	5	2.80	3.90	4.50	5.00	5.50	7.70	10.00
6	-	14.20	17.50	20.60	24.60	30.10	34.60	45.80	6	3.60	4.70	5.40	6.00	6.60	9.30	12.00
8	-	17.80	23.10	27.50	33.10	40.60	46.20	61.10	8	4.50	6.20	7.20	8.00	8.90	12.40	16.00
10	17.90	22.10	28.70	34.00	41.00	50.20	57.70	76.30	10	5.60	7.70	8.90	10.00	11.00	15.50	20.00
12	21.60	26.90	34.60	40.80	49.20	60.20	69.30	91.60	12	6.80	9.30	10.70	12.00	13.20	18.60	24.00
14	25.30	31.20	40.20	47.70	57.00	69.80	80.80	107.00	14	7.90	10.80	12.50	14.00	15.30	21.70	28.00
16	29.01	35.60	46.20	54.60	65.20	79.80	92.40	122.00	16	9.00	12.40	14.30	16.00	17.50	24.80	32.00
18	32.80	39.90	51.80	61.40	73.40	89.90	104.00	137.00	18	10.10	13.90	16.10	18.00	19.70	27.90	36.00
20	32.80	44.60	57.80	68.30	81.60	99.90	115.00	153.00	20	11.30	15.50	17.90	20.00	21.90	31.00	40.00
24	45.80	53.30	69.30	82.10	98.00	120.00	139.00	183.00	24	13.50	18.60	21.50	24.00	26.30	37.20	48.00
30	54.40	66.80	86.40	102.00	123.00	150.00	173.00	229.00	30	16.90	23.20	25.80	30.00	32.90	46.50	60.00
35	54.40	78.20	101.00	120.00	143.00	175.00	202.00	267.00	35	19.80	27.20	31.40	35.00	38.40	54.30	70.00

BF Type Nozzle

Flanged tip design for use with standard bodies and caps in sizes from 3 – 16. Spray angles of 60° and 90°.

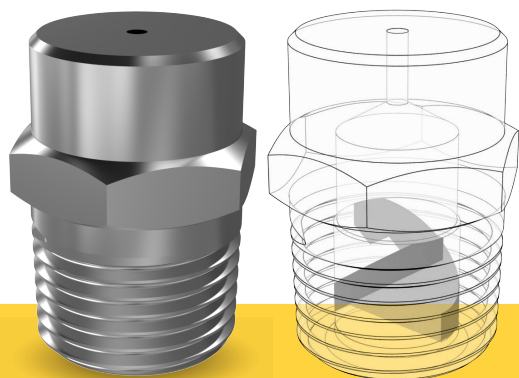


BF Type Nozzle					
Nozzle Number	Thread Sizes			Available Spray Angles	
	M 1/8	M 1/4	M 3/8	60°	90°
3	x	x	x	x	x
4	x	x	x	x	x
5	x	x	x	x	x
6	x	x	x	x	x
8	x	x	x	x	x
10	x	x	x	x	x
12	x	x	x	x	x
16	x	x	x	x	x

Flow Rate-BF Type Nozzle																	
Flow Rate in Liters / Min at Bar G									Flow Rate in GAL / Min at PSIG								
Nozzle Number	0.35	0.7	1	1.5	2	3	4	5	7.0	Nozzle Number	15	20	30	45	60	70	100
3	0.80	1.14	1.34	1.67	1.90	2.32	2.57	2.81	3.41	3	0.35	0.44	0.50	0.61	0.68	0.74	0.90
4	1.07	1.52	1.79	2.22	2.53	3.10	3.42	3.75	4.54	4	0.47	0.59	0.67	0.82	0.90	0.99	1.20
5	1.33	1.90	2.23	2.78	3.15	3.86	4.28	4.68	5.68	5	0.59	0.73	0.83	1.02	1.13	1.24	1.50
6	1.60	2.29	2.68	3.34	3.79	4.64	5.13	5.62	6.81	6	0.71	0.88	1.00	1.23	1.36	1.48	1.80
8	2.13	3.05	3.57	4.44	5.28	6.18	6.84	7.49	9.08	8	0.94	1.17	1.66	1.63	1.81	1.98	2.40
10	2.67	3.81	4.40	5.56	6.31	7.72	8.56	9.36	11.35	10	0.94	1.47	1.67	2.04	2.26	2.47	3.00
12	3.20	4.57	5.36	6.67	7.58	9.28	10.27	11.24	13.62	12	1.42	1.76	2.00	2.45	2.71	2.97	3.60
16	4.27	6.10	7.14	8.90	10.10	12.37	13.73	14.98	18.16	16	1.89	2.35	2.67	3.27	3.63	3.69	4.80

Solid Cone Nozzles

BI Type Nozzle

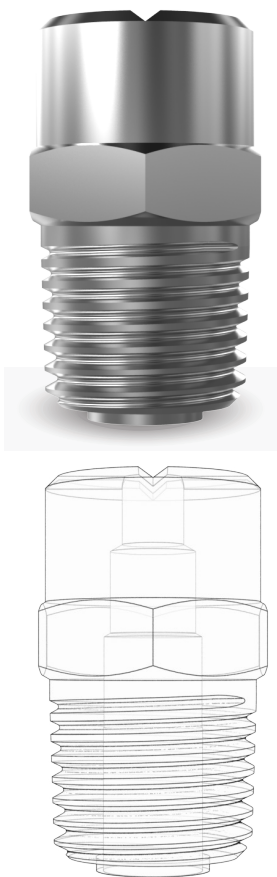


BI 6 – 193 available. One-piece body with pressed in cross-milled core. Spray angles from 35° to 100° dependent upon flow size and pressure. See chart for available thread sizes.

BI Type Nozzle							
Nozzle Number	Thread Sizes BSPT or NPT - Male Only						Spray Angle (°) at 2-bar
	M 1/8	M 1/4	M 3/8	M 1/2	M 3/4	M1	
6	x	x					47
8	x	x					56
11	x	x					64
12	x	x	x				70
16		x	x				60
20		x	x				73
22		x	x				80
27			x	x			53
32			x	x			70
42				x	x		76
49				x	x		86
63				x	x		80
77					x		73
89					x		85
102					x		97
105						x	57
123						x	73
162						x	86
193						x	10

Flow Rate-BI Type Nozzle															
Flow Rate in Liters / Min at Bar G								Flow Rate in GAL / Min at PSIG							
Nozzle Number	0.35	1	1.5	2	3	4	7.0	Nozzle Number	5	15	20	30	40	60	100
6	0.88	1.50	1.88	2.18	2.65	2.87	3.54	6	0.23	0.40	0.47	0.58	0.66	0.76	0.91
8	1.30	2.28	2.84	3.23	4.00	4.55	5.72	8	0.34	0.60	0.71	0.85	1.00	1.20	1.48
11	1.63	2.87	3.62	4.05	4.87	5.36	6.74	11	0.42	0.76	0.90	1.07	1.21	1.42	1.74
12	2.09	3.41	4.09	4.55	5.30	5.91	7.58	12	0.54	0.90	1.02	1.20	1.32	1.56	1.96
16	2.50	4.41	5.30	6.14	7.27	8.00	10.04	16	0.65	1.16	1.32	1.62	1.81	2.11	2.59
20	3.11	5.46	6.50	7.54	9.06	10.00	12.63	20	0.80	1.44	1.62	1.99	2.26	2.64	3.25
22	3.58	6.24	7.51	8.32	9.78	10.91	14.24	22	0.92	1.64	1.87	2.20	2.44	2.88	3.67
27	4.23	7.42	9.01	10.10	12.32	13.64	17.47	27	1.09	1.96	2.24	2.68	3.07	3.60	4.50
32	5.81	8.88	10.81	12.32	14.44	15.96	20.40	32	1.50	2.34	2.70	3.24	3.59	4.20	5.28
42	6.74	11.82	14.44	15.96	19.29	21.41	27.37	42	1.74	3.12	3.60	4.20	4.80	5.64	7.08
49	8.17	14.24	16.36	18.69	23.13	25.05	32.52	49	2.11	3.76	4.08	4.92	5.76	6.60	8.40
63	10.20	17.07	20.50	23.84	28.89	32.22	41.31	63	2.64	4.50	5.16	6.30	7.20	8.53	10.70
77	12.32	20.50	23.94	29.09	34.95	36.68	49.29	77	3.18	5.40	6.36	7.69	8.70	10.20	12.70
89	13.94	23.74	29.39	33.63	40.00	44.54	56.26	89	3.60	5.24	7.32	8.88	9.96	11.80	14.50
102	14.95	27.37	33.73	36.68	46.26	50.00	64.54	102	3.84	7.20	8.40	10.20	11.50	13.20	16.70
105	16.26	27.78	33.73	39.79	48.18	52.32	67.37	105	4.20	7.32	8.40	10.50	12.00	13.80	17.40
123	19.49	34.64	42.32	46.56	57.77	63.63	80.40	123	5.04	9.12	10.60	12.30	14.40	16.80	20.80
162	25.55	44.64	53.03	61.41	72.22	79.08	101.00	162	6.60	11.80	13.20	16.20	18.00	21.00	26.20
193	28.79	50.10	60.70	73.23	87.57	99.08	128.27	193	7.44	13.20	15.10	19.30	22.60	26.20	33.00

BQ Type Nozzle



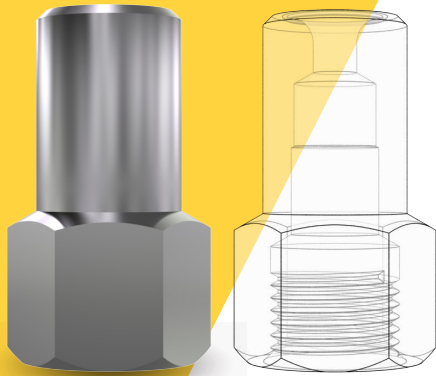
BQ 6 – 193 available. One-piece body with pressed in cross-milled core. Spray angles from 35° to 100° dependent upon flow size and pressure. See chart for available thread sizes. Produces a square pattern.

BQ Type Nozzle							
Nozzle Number	Thread Sizes BSPT or NPT						Spray Angle (°) at 2-bar
	M 1/8	M 1/4	M 3/8	M 1/2	M 3/4	M1	
6	x	x					47
8	x	x					56
11	x	x					64
12	x	x	x				70
16		x	x				60
20		x	x				73
22		x	x				80
27			x	x			53
32			x	x			70
42				x			76
49				x			86
63				x	x		80
77					x		73
89					x		85
102					x		97
105						x	57
123						x	73
162						x	86
193						x	100

Flow Rate-BQ Type Nozzle															
Flow Rate in Liters / Min at Bar G								Flow Rate in GAL / Min at PSIG							
Nozzle Number	0.35	1	1.5	2	3	4	7.0	Nozzle Number	5	15	20	30	40	60	100
6	0.88	1.50	1.88	2.18	2.65	2.87	3.54	6	0.23	0.40	0.47	0.58	0.66	0.76	0.91
8	1.30	2.28	2.84	3.23	4.00	4.55	5.72	8	0.34	0.60	0.71	0.85	1.00	1.20	1.48
11	1.63	2.87	3.62	4.05	4.87	5.36	6.74	11	0.42	0.76	0.90	1.07	1.21	1.42	1.74
12	2.09	3.41	4.09	4.55	5.30	5.91	7.58	12	0.54	0.90	1.02	1.20	1.32	1.56	1.96
16	2.50	4.41	5.30	6.14	7.27	8.00	10.04	16	0.65	1.16	1.32	1.62	1.81	2.11	2.59
20	3.11	5.46	6.50	7.54	9.06	10.00	12.63	20	0.80	1.44	1.62	1.99	2.26	2.64	3.25
22	3.58	6.24	7.51	8.32	9.78	10.91	14.24	22	0.92	1.64	1.87	2.20	2.44	2.88	3.67
27	4.23	7.42	9.01	10.10	12.32	13.64	17.47	27	1.09	1.96	2.24	2.68	3.07	3.60	4.50
32	5.81	8.88	10.81	12.32	14.44	15.96	20.40	32	1.50	2.34	2.70	3.24	3.59	4.20	5.28
42	6.74	11.82	14.44	15.96	19.29	21.41	27.37	42	1.74	3.12	3.60	4.20	4.80	5.64	7.08
49	8.17	14.24	16.36	18.69	23.13	25.05	32.52	49	2.11	3.76	4.08	4.92	5.76	6.60	8.40
63	10.20	17.07	20.50	23.84	28.89	32.22	41.31	63	2.64	4.50	5.16	6.30	7.20	8.53	10.70
77	12.32	20.50	23.94	29.09	34.95	36.68	49.29	77	3.18	5.40	6.36	7.69	8.70	10.20	12.70
89	13.94	23.74	29.39	33.63	40.00	44.54	56.26	89	3.60	5.24	7.32	8.88	9.96	11.80	14.50
102	14.95	27.37	33.73	36.68	46.26	50.00	64.54	102	3.84	7.20	8.40	10.20	11.50	13.20	16.70
105	16.26	27.78	33.73	39.79	48.18	52.32	67.37	105	4.20	7.32	8.40	10.50	12.00	13.80	17.40
123	19.49	34.64	42.32	46.56	57.77	63.63	80.40	123	5.04	9.12	10.60	12.30	14.40	16.80	20.80
162	25.55	44.64	53.03	61.41	72.22	79.08	101.00	162	6.60	11.80	13.20	16.20	18.00	21.00	26.20
193	28.79	50.10	60.70	73.23	87.57	99.08	128.27	193	7.44	13.20	15.10	19.30	22.60	26.20	33.00

Solid Cone Nozzles

BN Type Nozzle



BN 6 – 200 available. One-piece body with pressed in cross-milled core. Spray angles from 85° to 135° dependent upon flow size and pressure. See chart for available thread sizes.

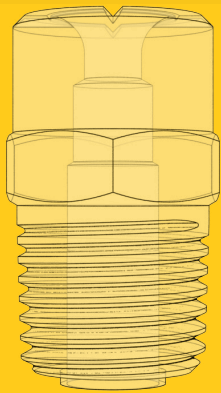
BN Type Nozzle							
Nozzle Number	Thread Sizes BSPT or NPT						Spray Angle (°) at 2-bar
	M 1/8	M 1/4	M 3/8	M 1/2	M 3/4	M 1	
6	x	x					100
8	x	x					120
11	x	x					120
15		x					110
18		x					120
22		x	x				110
25			x				120
32			x				112
39			x				120
46			x	x			112
48			x	x			120
59				x			128
65				x			110
73				x			120
82					x		112
94					x		120
98					x		120
136						x	115
153						x	120
200						x	125

Flow Rate-BN Type Nozzle

Flow Rate in Liters / Min at Bar G								Flow Rate in GAL / Min at PSIG							
Nozzle Number	0.35	1	1.5	2	3	4	7.0	Nozzle Number	5	15	20	30	40	60	100
6	0.88	1.50	1.88	2.18	2.65	2.87	3.54	6	0.23	0.40	0.50	0.58	0.70	0.76	0.93
8	1.30	2.28	2.84	3.23	4.00	4.55	5.72	8	0.34	0.60	0.75	0.85	1.06	1.20	1.51
11	1.86	3.23	3.86	4.31	5.15	5.45	7.43	11	0.48	0.85	0.96	1.14	1.28	1.44	1.92
15	2.60	4.50	5.26	5.59	6.64	7.24	9.16	15	0.69	1.19	1.39	1.48	1.75	1.91	2.42
18	3.10	5.39	6.30	6.70	7.96	8.68	10.98	18	0.82	1.42	1.66	1.77	2.10	2.29	2.90
22	3.95	6.84	8.00	8.50	10.10	11.01	13.94	22	1.02	1.80	1.99	2.24	2.52	2.93	3.60
25	4.27	7.24	8.43	9.32	11.01	12.32	15.76	25	1.10	1.91	2.10	2.46	2.76	3.24	4.08
32	5.90	9.15	10.80	11.92	14.30	15.78	19.90	32	1.56	2.42	2.85	3.15	3.78	4.17	5.25
39	7.20	11.15	13.14	14.52	17.40	19.20	24.25	39	1.90	2.94	3.47	3.83	4.59	5.07	6.40
46	8.13	13.64	15.86	17.27	19.29	22.32	27.88	46	2.10	3.60	3.96	4.56	4.80	5.88	7.20
48	8.33	15.25	16.87	18.18	23.13	24.54	32.52	48	2.28	4.02	4.20	4.80	5.76	6.48	8.40
59	9.29	15.96	19.29	22.32	26.06	28.18	37.67	59	2.40	4.20	4.80	5.88	6.48	7.44	9.72
65	12.00	18.60	21.92	24.21	29.00	32.05	40.40	65	3.17	4.91	5.79	6.39	7.66	8.46	10.67
73	13.50	20.88	24.50	27.19	32.60	36.00	45.40	73	3.56	5.51	6.47	7.18	8.61	9.50	11.99
82	15.35	23.74	27.98	30.91	37.07	40.91	51.61	82	3.96	6.24	6.96	8.16	9.24	10.80	13.30
94	16.77	26.87	32.72	35.45	41.92	45.96	59.89	94	4.32	7.08	8.16	9.36	10.40	12.10	15.50
98	18.08	27.78	34.24	37.27	44.34	50.00	64.54	98	4.68	7.32	8.52	9.84	11.00	13.20	16.70
136	24.14	42.32	48.18	51.41	60.20	67.77	86.86	136	6.24	11.20	12.00	13.60	15.00	17.90	22.40
153	27.88	46.97	53.93	57.97	67.47	76.36	98.07	153	7.20	12.40	13.40	15.30	16.80	20.20	25.30
200	29.69	51.41	62.62	75.95	88.68	99.59	130.29	200	7.68	13.60	15.60	20.00	22.10	26.30	33.60

BT 6 – 200 available. One-piece body with pressed in cross-milled core. Spray angles from 85° to 135° dependent upon flow size and pressure. See chart for available thread sizes.

BT Type Nozzle



BT Type Nozzle							
Nozzle Number	Thread Sizes BSPT or NPT						Spray Angle (°) at 2-bar
	M 1/8	M 1/4	M 3/8	M 1/2	M 3/4	M 1	
6	x	x					100
8	x	x					120
11	x	x					120
15		x					110
18		x					120
22		x	x				110
25			x				120
32			x				110
39			x				120
46			x	x			112
48			x	x			120
59				x			128
65				x			110
73				x			120
82					x		112
94					x		120
98					x		120
136						x	115
153						x	120
200						x	125

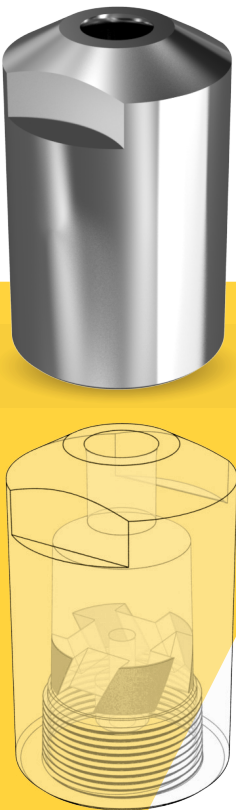
Flow Rate-BT Type Nozzle

Flow Rate in Liters / Min at Bar G								Flow Rate in GAL / Min at PSIG							
Nozzle Number	0.35	1	1.5	2	3	4	7.0	Nozzle Number	5	15	20	30	40	60	100
6	0.88	1.50	1.88	2.18	2.65	2.87	3.54	6	0.23	0.40	0.50	0.58	0.70	0.76	0.93
8	1.30	2.28	2.84	3.23	4.00	4.55	5.72	8	0.34	0.60	0.75	0.85	1.06	1.20	1.51
11	1.86	3.23	3.86	4.31	5.15	5.45	7.43	11	0.48	0.85	0.96	1.14	1.28	1.44	1.92
15	2.60	4.50	5.26	5.59	6.64	7.24	9.16	15	0.69	1.19	1.39	1.48	1.75	1.91	2.42
18	3.10	5.39	6.30	6.70	7.96	8.68	10.98	18	0.82	1.42	1.66	1.77	2.10	2.29	2.90
22	3.95	6.84	8.00	8.50	10.10	11.01	13.94	22	1.02	1.80	1.99	2.24	2.52	2.93	3.60
25	4.27	7.24	8.43	9.32	11.01	12.32	15.76	25	1.10	1.91	2.10	2.46	2.76	3.24	4.08
32	5.90	9.15	10.80	11.92	14.30	15.78	19.90	32	1.56	2.42	2.85	3.15	3.78	4.17	5.25
39	7.20	11.15	13.14	14.52	17.40	19.20	24.25	39	1.90	2.94	3.47	3.83	4.59	5.07	6.40
46	8.13	13.64	15.86	17.27	19.29	22.32	27.88	46	2.10	3.60	3.96	4.56	4.80	5.88	7.20
48	8.33	15.25	16.87	18.18	23.13	24.54	32.52	48	2.28	4.02	4.20	4.80	5.76	6.48	8.40
59	9.29	15.96	19.29	22.32	26.06	28.18	37.67	59	2.40	4.20	4.80	5.88	6.48	7.44	9.72
65	12.00	18.60	21.92	24.21	29.00	32.05	40.40	65	3.17	4.91	5.79	6.39	7.66	8.46	10.67
73	13.50	20.88	24.50	27.19	32.60	36.00	45.40	73	3.56	5.51	6.47	7.18	8.61	9.50	11.99
82	15.35	23.74	27.98	30.91	37.07	40.91	51.61	82	3.96	6.24	6.96	8.16	9.24	10.80	13.30
94	16.77	26.87	32.72	35.45	41.92	45.96	59.89	94	4.32	7.08	8.16	9.36	10.40	12.10	15.50
98	18.08	27.78	34.24	37.27	44.34	50.00	64.54	98	4.68	7.32	8.52	9.84	11.00	13.20	16.70
136	24.14	42.32	48.18	51.41	60.20	67.77	86.86	136	6.24	11.20	12.00	13.60	15.00	17.90	22.40
153	27.88	46.97	53.93	57.97	67.47	76.36	98.07	153	7.20	12.40	13.40	15.30	16.80	20.20	25.30
200	29.69	51.41	62.62	75.95	88.68	99.59	130.29	200	7.68	13.60	15.60	20.00	22.10	26.30	33.60

Large Solid Cone Nozzles

CM Type Nozzle

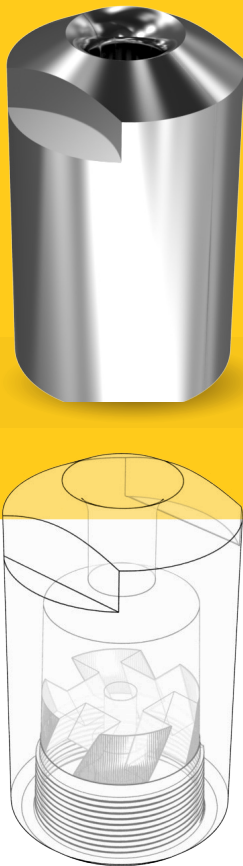
CM 16 – 105 available. One-piece body with removable vane type core. Spray angles of 45° to 110° dependent upon flow size and pressure. See chart for available thread sizes.



CM Type Nozzle				
Nozzle Number	Thread Sizes - Female Only			Spray Angle (°) at 0.7 bar
	F 1 1/4"	F 1 1/2"	F 2"	
16	x			60
22	x			70
27	x			70
33	x			70
29		x		60
35		x		60
42		x		70
48		x		75
54		x		85
64			x	73
71			x	77
81			x	75
90			x	85
98			x	88
105			x	94

BY Type Nozzle

BY 23 – 96 available. One-piece body with removable vane type core. Spray angles of 70° to 130° dependent upon flow size and pressure. See chart for available thread sizes.



BY Type Nozzle				
Nozzle Number	Thread Sizes - Female Only			Spray Angle (°) at 0.7 bar
	F 1 1/4"	F 1 1/2"	F 2"	
23	x			112
28	x			108
35	x			105
37		x		116
42		x		115
47		x		110
52		x		117
66			x	105
73			x	120
78			x	120
89			x	110
96			x	105

Flow Rate-CM Type Nozzle

Flow Rate in Liters / Min at Bar G											Flow Rate in GAL / Min at PSIG							
Nozzle Number	0.2	0.35	0.7	1	1.5	2	3	4	5.0	6.0	Nozzle Number	5	10	15	30	40	80	100
16	25.90	33.30	45.70	53.60	64.40	72.30	87.60	99.60	110.00	119.00	16	8.74	12.00	14.40	19.50	22.20	30.50	33.40
22	34.20	44.00	59.90	70.10	84.30	96.40	115.00	131.00	145.00	153.00	22	11.60	15.70	18.00	25.90	29.20	40.40	44.20
27	43.40	55.80	76.40	89.30	106.00	121.00	146.00	166.00	184.00	200.00	27	14.70	20.00	24.00	32.50	37.10	51.00	55.80
33	52.20	67.70	91.90	108.00	129.00	146.00	177.00	202.00	222.00	243.00	33	17.80	24.10	29.10	39.40	44.80	61.60	68.10
29	45.10	57.60	79.60	94.20	112.00	128.00	154.00	177.00	197.00	212.00	29	15.10	20.90	25.30	34.50	39.20	54.60	60.20
35	36.20	70.00	96.50	114.00	137.00	156.00	187.00	216.00	238.00	259.00	35	18.40	25.30	30.60	42.00	47.60	66.20	72.90
42	66.10	86.00	117.00	137.00	168.00	191.00	229.00	261.00	289.00	317.00	42	22.60	30.70	36.90	51.30	58.10	80.20	89.00
48	74.10	96.50	133.00	158.00	188.00	216.00	259.00	298.00	326.00	355.00	48	25.30	34.90	42.40	58.10	66.60	90.60	99.90
54	83.50	108.00	148.00	175.00	211.00	241.00	288.00	330.00	367.00	398.00	54	28.30	38.90	47.00	64.90	73.10	102.00	112.00
64	96.90	126.00	175.00	206.00	248.00	284.00	341.00	389.00	437.00	503.00	64	33.10	45.90	55.40	76.40	86.50	121.00	132.00
71	109.00	142.00	195.00	231.00	279.00	321.00	335.00	440.00	488.00	536.00	71	37.30	51.20	62.20	86.30	97.80	136.00	150.00
81	123.00	161.00	222.00	261.00	316.00	362.00	436.00	504.00	553.00	603.00	81	42.10	58.20	70.30	97.40	111.00	154.00	171.00
90	137.00	181.00	250.00	294.00	353.00	408.00	492.00	558.00	618.00	679.00	90	47.40	65.70	79.00	110.00	125.00	172.00	190.00
98	149.00	195.00	207.00	316.00	385.00	451.00	526.00	607.00	670.00	728.00	98	51.20	71.00	84.90	121.00	133.00	186.00	205.00
105	160.00	209.00	288.00	339.00	413.00	473.00	568.00	625.00	718.00	781.00	105	54.90	75.80	91.10	127.00	144.00	199.00	219.00

Flow Rate-BY Type Nozzle

Flow Rate in Liters / Min at Bar G										Flow Rate in GAL / Min at PSIG								
Nozzle Number	0.2	0.35	0.7	1	1.5	2	3	4	5.0	6.0	Nozzle Number	5	10	15	30	40	80	100
23	38.30	49.40	64.00	75.40	90.00	103.00	117.00	138.00	147.00	160.00	23	13.04	16.90	19.90	27.19	29.61	38.81	45.67
28	46.40	59.50	78.20	91.50	108.00	118.00	145.00	163.00	179.00	192.00	28	15.71	20.64	24.16	31.15	36.70	47.25	54.38
35	58.90	75.90	101.10	115.00	133.00	137.00	179.00	206.00	225.00	258.00	35	20.04	26.69	30.36	36.17	45.31	59.40	72.33
37	62.90	80.50	106.00	125.00	146.00	166.00	199.00	216.00	252.00	274.00	37	21.25	27.98	33.00	43.82	50.37	66.53	77.61
42	69.60	89.20	119.00	138.00	164.00	187.00	218.00	248.00	275.00	302.00	42	23.55	31.41	36.43	49.37	55.18	72.60	85.27
47	76.30	98.80	133.00	154.00	184.00	210.00	254.00	292.00	319.00	348.00	47	26.08	35.11	40.65	55.44	64.29	84.21	98.47
52	86.60	110.00	146.00	170.00	203.00	227.00	277.00	318.00	353.00	-	52	29.04	38.54	44.88	59.93	70.11	93.19	-
66	105.00	137.00	188.00	219.00	259.00	294.00	355.00	401.00	-	-	66	36.17	49.63	57.81	77.61	89.85	-	-
73	116.00	149.00	204.00	240.00	286.00	325.00	390.00	452.00	-	-	73	39.33	53.85	63.36	85.80	98.71	-	-
78	125.00	161.00	220.00	256.00	306.00	347.00	420.00	-	-	-	78	42.50	58.08	67.58	91.61	106.30	-	-
89	141.00	183.00	247.00	291.00	344.00	403.00	486.00	-	-	-	89	48.31	65.21	76.82	106.39	123.01	-	-
96	152.00	197.00	270.00	313.00	375.00	441.00	515.00	-	-	-	96	52.01	71.28	82.63	116.42	130.35	-	-

Large Solid Cone Nozzles

MCN Type Nozzle

The type MCN is a cone spray nozzle available in spray angles from 60° - 120°. This compact nozzle permits the maximum liquid throughput for a given pipe size, with the large free passageway minimizing clogging. Nozzles available in thread sizes of 1/8" to 1" BSPT or NPT. Larger sizes available upon request.



MCN Type Nozzle							
Nozzle Number	Thread Sizes (BSPT or NPT) - Male Only						Spray Angle (°)
	M 1/8	M 1/4	M 3/8	M 1/2	M 3/4	M 1	
6	x						60-90-120
8	x						60-90-120
6		x					60-90-120
8		x					60-90-120
10		x					60-90-120
6			x				60-90-120
8			x				60-90-120
10			x				60-90-120
12			x				60-90-120
14			x				60-90-120
16			x				60-90-120
20			x				60-90-120
24				x			60-90-120
28				x			60-90-120
32					x		60-90-120
40						x	60-90-120
48						x	60-90-120

Flow Rate-MCN Type Nozzle													
Flow Rate in Liters / Min at Bar G							Flow Rate in GAL / Min at PSIG						
Nozzle Number	0.5	0.7	1	2	3	5	Nozzle Number	5	10	20	30	40	50
6	2.26	2.67	3.19	4.50	5.50	7.10	6	0.50	0.70	0.99	1.21	1.40	1.57
8	4.19	4.96	5.93	8.40	10.30	13.20	8	0.92	1.30	1.84	2.25	2.60	2.91
10	6.45	7.63	9.12	12.90	15.80	20.40	10	1.41	2.00	2.83	3.46	4.00	4.47
12	9.67	11.40	13.70	19.30	23.70	30.60	12	2.12	3.00	4.24	5.20	6.00	6.71
14	31.10	15.40	18.50	26.10	32.00	41.30	14	2.86	4.05	5.73	7.01	8.10	9.06
16	17.10	20.20	24.20	34.20	41.80	54.00	16	3.75	5.30	7.50	9.18	10.60	11.90
20	26.60	31.50	37.60	53.20	65.10	84.10	20	5.83	8.25	11.70	14.30	16.50	18.40
24	38.80	46.00	54.90	77.70	95.10	123.00	24	8.52	12.10	17.00	20.90	24.10	26.90
28	53.20	62.90	75.20	106.00	130.00	168.00	28	11.70	16.50	23.30	28.60	33.00	36.90
32	67.70	80.10	95.70	135.00	166.00	214.00	32	14.80	21.00	29.70	36.40	42.00	47.00
40	108.00	128.00	153.00	216.00	264.00	341.00	40	23.70	33.50	47.40	58.00	67.00	74.90
48	153.00	181.00	216.00	306.00	375.00	484.00	48	33.60	47.50	67.20	82.30	95.00	106.00

Accessories

Standard Threaded Nozzle Bodies and Caps

These are designed to accept any standard flanged tip from the standard nozzle range.



Standard Threaded Nozzle Bodies Selection Chart - BSP Threads					
Thread Size BSP	Material	Male	Female	Cap Thread Size	Cap Number
M or F 1/8	Brass	A320110016	A320120015	3/8" BSPP	A292830013
M or F 1/8	Stainless steel 303	A320110024	A320120023	3/8" BSPP	A292830021
M or F 1/4	Brass	A320130014	A320140013	3/8" BSPP	A292830013
M or F 1/4	Stainless steel 303	A320130022	A320140021	3/8" BSPP	A292830021
M or F 3/8	Brass	A320160011	A320170010	3/8" BSPP	A292830013
M or F 3/8	Stainless steel 303	A320160029	A320170028	3/8" BSPP	A292830021

Standard Threaded Nozzle Bodies Selection Chart - BSP Threads					
Thread Size NPT	Material	Male	Female	Cap Thread Size	Cap Number
M 1/8	Brass	A011710019	-	11/16" - 16 UN	A011650015
M 1/8	Stainless steel 303	A011710033	-	11/16" - 16 UN	A011650031
M or F 1/4	Brass	A011670013	A011690011	11/16" - 16 UN	A011650015
M or F 1/4	Stainless steel 303	A011670039	A011690037	11/16" - 16 UN	A011650031
M or F 3/8	Brass	A507010013	A507020012	11/16" - 16 UN	A011650015
M or F 3/8	Stainless steel 303	A507010021	A507020020	11/16" - 16 UN	A011650031
M 1/4	Nylon	A084740016	-	11/16" - 16 UN	A084750015

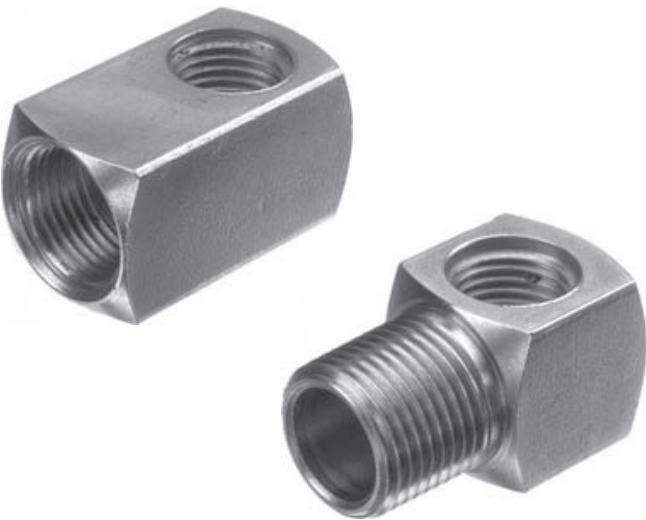
Dovetail Nozzle Bodies

- 1/8", 1/4", & 3/8" Dovetail bodies for use with LD Tip
- 3/4" & 1/2" Dovetail bodies for use with AD Tip
- High pressure caps available for all bodies in LD range

Please note: Welding Body version available if required.

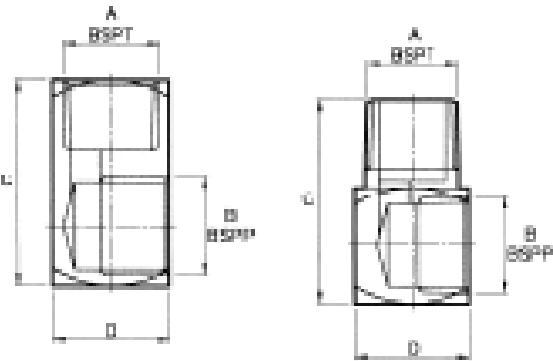
Dovetail Nozzle Bodies				
Type	Brass	Use Brass Cap No	Stainless Steel	Use S/S Cap No
1/4" BSP LDM Body	x	W00105-2	x	W00105-1
1/4" NPT LDMX Body	x	W00105-2	x	W00105-1
3/8" BSP LDM Body	x	W00105-2	x	W00105-1
3/8" NPT LDMX Body	x	W00105-2	x	W00105-1
1/2" BSP ADM Body	x	W06248-1	x	W06248-3X
1/2" NPT ADMX Body	x	W06248-1	x	W06248-3
3/4" BSP ADM Body	x	W06248-1	x	W06248-3
3/4" NPT ADMX Body	x	W06248-1	x	W06248-3
LDW Welding Nipple Body	x		x	W00105-1
ADW Welding Nipple Body			x	W06248-3

Accessories

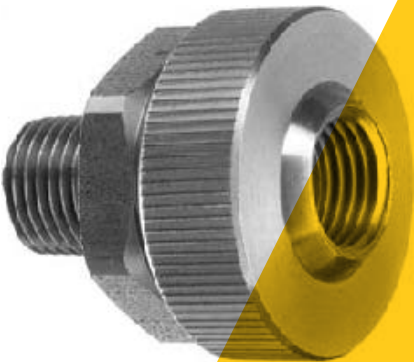


Adaptors

- 90° adaptor for positioning of nozzles
- Available in Brass and Stainless Steel – other materials available to special order



Adaptors Selection Chart					
Part Number Male Adaptor	Part Number Male Adaptor	Thread Size A	Thread Size B	Part Number Fe- male Adaptor	Part Number Female Adaptor
Brass	Stainless			Brass	Stainless
W137130024	W137130016	1/8"	1/8"	W067851011	W067853033
W000811015	W000812021	1/4"	1/8"	W002162029	W002161013
W003180020	W003180012	1/4"	1/4"	W004640022	W004640014
W000822020	W000821014	3/8"	1/4"	W002172028	W002171012
W003190029	W003190011	3/8"	3/8"	W004630023	W004630015
W000832029	W000831013	1/2"	3/8"	W002182027	W002181011
W003200026	W003200034	1/2"	1/2"	W004620024	W004620016
W000842028	W000841012	3/4"	1/2"	W002190020	W002191010
W001940029	W001940037	3/4"	3/4"	W001960027	W001960019
W000852027	W000851011	1"	3/4"	W002202023	W002201017
W004681026	W004681018	1"	1"	W004700024	W004700016



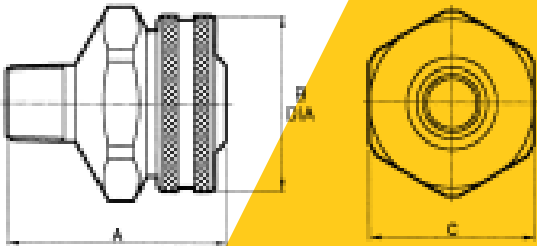
Adjustable Joint

Features and Positioning:

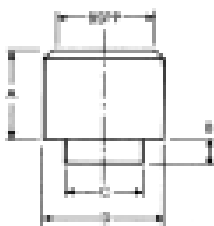
- Facilitates finger-tight nozzle adjustment without disturbing piping system
- Complete 360° radial adjustment and 50° angular adjustment

Construction and Materials:

- Available with male inlet connections and female outlets in BSP or NPT threads
- Available in Brass and Stainless Steel
- Positive O-ring seal handles pressures up to 35 Bar G



Adjustable Joint Selection Chart						
Part Number	Material	Inlet Thread BSP	Outlet Thread BSP	A	B	C
W091111010	Brass	1/8"	1/8"	28.60	25.40	20.80
W091113016	Stainless	1/8"	1/8"	28.60	25.40	20.80
W091111028	Brass	1/4"	1/8"	28.60	25.40	20.80
W091113024	Stainless	1/4"	1/8"	28.60	25.40	20.80
W091111036	Brass	1/4"	1/4"	34.90	31.80	25.70
W130601120	Poly	1/4"	1/4"			
W091113032	Stainless	1/4"	1/4"	34.90	31.80	25.70
W091111044	Brass	3/8"	1/4"	34.90	31.80	25.70
W130603126	Poly	3/8"	1/4"			
W091113040	Stainless	3/8"	1/4"	34.90	31.80	25.70
W091111051	Brass	3/8"	3/8"	44.50	38.10	31.80
W130604124	Poly	3/8"	3/8"			
W091113057	Stainless	3/8"	3/8"	44.50	38.10	31.80
W091111069	Brass	1/2"	1/2"	55.60	44.50	31.80
W130607127	Poly	1/2"	1/2"			
W091113065	Stainless	1/2"	1/2"	55.60	44.50	31.80
W091111077	Brass	3/4"	3/4"	61.10	50.80	38.00
W091113073	Stainless	3/4"	3/4"	61.10	50.80	38.00
W091111085	Brass	1"	1"	75.00	70.00	60.00
W091113081	Stainless	1"	1"	75.00	70.00	60.00



Nozzle Sockets

Used for welding or brazing to spray pipe/manifold assemblies to enable male threaded nozzles to be fitted.

- Available with female BSPP threads only
- Available in Brass, Stainless Steel, and Mild Steel
- Refer to chart for pipe drilled hole size

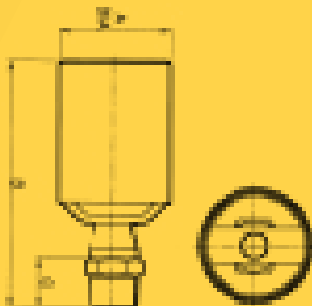
Nozzle Sockets Selection Chart							
HNS Number	Thread Size	Material	Part Number	A	B	C	D
125	1/8"	Brass	W003510010	12,7	3,2	9,1	14,3
125	1/8"	Stainless	W003510036	12,7	3,2	9,1	14,3
250	1/4"	Brass	W003520019	15,9	3,2	15,1	19,1
250	1/4"	Stainless	W003520035	15,9	3,2	15,1	19,1
375	3/8"	Brass	W003530018	19,1	3,2	15,1	25,4
375	3/8"	Stainless	W003530034	19,1	3,2	15,1	25,4
500	1/2"	Brass	W003540017	22,3	4,8	21,8	31,8
500	1/2"	Stainless	W003540033	22,3	4,8	21,8	31,8
750	3/4"	Brass	W003550016	22,3	4,8	21,8	31,8
750	3/4"	Stainless	W003550032	22,3	4,8	21,8	31,8
1000	1"	Brass	W003560031	25,4	6,4	31,4	38,1
1000	1"	Stainless	W003560031	25,4	6,4	31,4	38,1

Tip Filters

- Standard Flanges – for use with standard flanged nozzles
- Ball Check – for use with standard flanged nozzles to help stop dripping after pressure shut off
- Threaded – for use with nozzle range



Tip Filters Selection Chart					
Mesh Size	Material	Flange	Ball Check Strainer	Threaded (SC)	Flange (FC)
24	Brass	-	A352880064	-	-
24	Stainless	-	-	-	-
40	Brass	-	-	W000891017	-
40	Stainless	-	-	W000893013	-
50	Brass	A281750032	A352880015	-	-
50	Stainless	A281750016	-	-	-
80	Brass	-	-	W000891025	-
80	Stainless	-	-	W000893021	-
100	Brass	A281750040	A352880023	-	-
100	Stainless	A281750024	A352880080	-	-
150	Brass	-	-	-	-
150	Stainless	-	-	-	-
200	Brass	A281750073	-	W000891033	-
200	Stainless	A281750107	-	W000893039	-
60	Poly	-	-	-	W184360011
100	Poly	-	-	-	W184360029



Type BB Eductor

- One-piece design with no internal components. Available with 3/8, 1/2, and 3/4 BSP male threads.
- Maximum Design Pressure: Stainless Steel – 500 psi (35 bar).
- Maximum Design Temperature: Stainless Steel – 900°F (500°C).

Thread Sizes (BSPT) Male Only				
Nozzle Number	3/8	1/2	3/4	Approx Orifice Size in mm
50	x			4.4
75	x	x		5.4
100	x	x	x	6.4
125		x	x	7.1
150		x	x	7.8
175		x	x	8.4
200		x	x	8.8
250			x	9.8
300			x	11
350			x	11.9
400			x	12.7

Flow Rate per Nozzle							
Flow Rate in Liters / Min at Bar G							
Nozzle Number	0.7	1	1.5	2	3	4	5.0
50	9.61	11.61	14.2	16.4	20	23.1	25.8
75	14.42	17.42	21.3	24.6	30	34.8	38.9
100	19.1	22.8	27.94	32.24	40	45.6	51
125	24	29	35.5	40.25	50	58	63.75
150	28.8	34.4	41.67	48.6	60	68.8	76.5
175	33.4	39.9	48.9	56.48	69	79.8	89.25
200	38	45.5	55.7	64.3	78.8	91	102
250	47.6	57	69.6	80.4	98.75	114	128
300	57.2	68.3	83.33	96.9	118.3	136.6	153
350	66.5	79.63	97.5	112.53	138	159.28	178
400	76	90.6	111.96	129	157	181.2	202.5

Flow Rate per Nozzle								
Flow Rate in GAL / Min at PSIG								
Nozzle Number	0.7	1	1.5	2	3	4	5.0	Over Ratio
50	2.5	4.3	5.3	6.1	6.8	7.98	8.5	3.1
75	3.8	6.5	7.9	9.2	10.3	11.9	12.8	3.1
100	5	8.5	10.6	12	13.5	15.9	17	3.1
125	6.3	10.6	13.2	15.3	16.8	19.9	21.3	3.1
150	7.6	13.16	15.9	18.2	20.2	23.8	25.5	3.1
175	8.8	14.9	18.2	21.1	23.6	27.9	29.3	3.1
200	10	16	20.8	24	27	31.7	34	3.1
250	12.6	21.2	26.1	30.1	33.8	39.6	42.5	3.1
300	15.1	25.6	31.3	36.1	40.4	47.7	52.3	3.1
350	17.6	29.7	36.5	42.1	47	55.6	59.4	3.1
400	20.1	34.1	41.5	47.9	53.5	63.7	68.2	3.1

Nozzle Application Enquiry Form

Name		E-Mail	
Company		Telephone Number	
Address		Fax Number	

To specify any type of nozzle it is essential to provide several pieces of information:	
Flow Rate:	
which can be given in a variety of units such as:	• Litres per minute • M³/hour • Gallons per minute (specify US or Imp) • Kg per hour (density will be required if different from water)

Operating Pressure:	
which can be given in a variety of units such as:	• Bar.G. • Kg/cm² • Head in Metres or Feet • P.S.I.G. • kPa (Kilo Pascals)

Spray Angle:	
Type of Spray Pattern:	• Flat • Hollow Cone • Solid Cone/Circular or Square • Air Atomizing

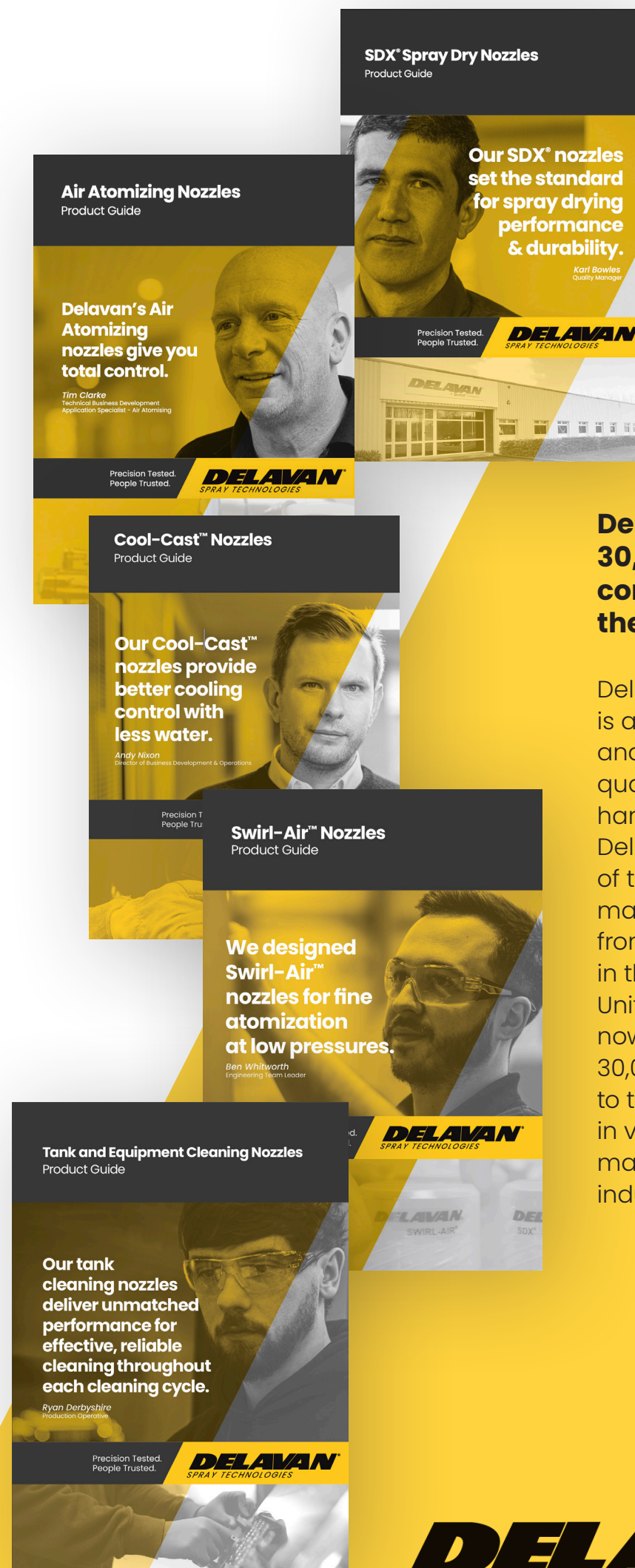
Liquid Being Sprayed:	
If different from water the following are required:	• Density:
	• Surface Tension:
	• Viscosity:
	• Solids Content:

Application or Purpose of Nozzle (not always necessary) e.g.	• Washing/Rinsing • Gas Scrubbing • Aeration of Liquids • Gas Cooling - Separate Enquiry Sheet Required • Spray Drying - Separate Enquiry Sheet Required • Cleaning in Place • Quenching • De-Scaling • Humidification
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