

# Swirl-Air® Nozzles

Product Guide

We designed  
Swirl-Air®  
nozzles for fine  
atomization  
at low pressures.

*Ben Whitworth*  
Engineering Team Leader

Precision Tested.  
People Trusted.

**DELAVAN**®  
SPRAY TECHNOLOGIES

DELAVAN  
SWIRL-AIR®

DELAVAN  
SDX®



**Our nozzles  
come with  
technical  
expertise  
& training.**

*John Tilley*  
Production Operative



## **Delavan Spray Technologies Continually Meeting the Challenges of New Industries and Markets.**

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.

## **We Don't Just Supply the Nozzles...**

Delavan's extensive experience goes beyond just the nozzle with a full range of engineered support for spray lances. Delavan offers a variety of production services to best meet your needs. For new systems, we will handle each stage of development from preliminary design to servicing the product. Delavan can also enhance current designs or simply manufacture products from existing designs. We can provide cooled or heated lances, support special mounting flanges, and bypass or purge systems to meet every industry standard.

# Our Swirl-Air<sup>®</sup> nozzles require less power to get the job done.

*Nigel Howden*

Shipping and Receiving Team Leader

## Construction & Materials.

The nozzles have a two piece construction; the nozzle body, plus an integral deflector ring and cap that is easily removable without disturbing pipe connections. There are no external struts or supports to interfere with spray patterns. Standard configurations are available in 316L Stainless Steel and 440 Stainless Steel. Other materials such as Hastelloy C276 and Inconel 600 are available – please contact the Sales & Marketing Team or your local distributor for further details.

- Large fluid passages to easily accommodate coarse particles.
- No external struts to interfere with the spray pattern.
- Variations in spray angle via interchangeable nozzle caps – produces wider spray patterns than most two-fluid atomizers.
- Nozzle design provides vortex mixing, primary impingement, fluid distribution, and external impact for fine atomization.
- Air consumption and power requirements are relatively low, permitting specification of smaller air compressors.
- Good atomization over wide range of turn-down ratios.
- Droplet size control provided by applying only minor changes in air/liquid pressure.

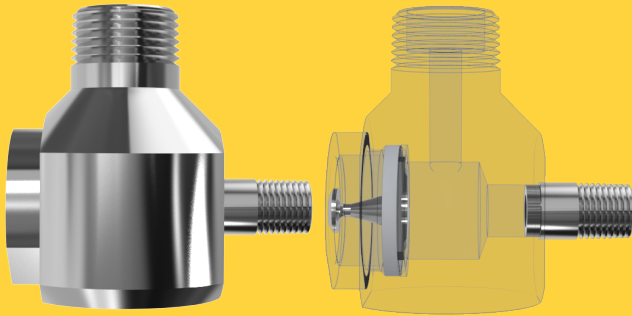


## Applications

- Gas Cooling/  
Conditioning
- Humidification
- Coating  
Applications
- Furnace  
Temperature  
Control
- Spray Drying
- Waste Acid  
Incinerator Sprays
- Dust Suppression
- Odor Control
- Spray Sanitation/  
Fumigation of Food  
Production Areas
- Special Effects (e.g.  
Fog Production on  
Film Sets)
- Low Volume/High  
Pressure, Fine  
Atomization for Fire  
Protection System
- Fume Scrubbing
- Steam  
Desuperheating
- Mold Cooling
- Oven Humidity  
Control
- SNCR Sprays

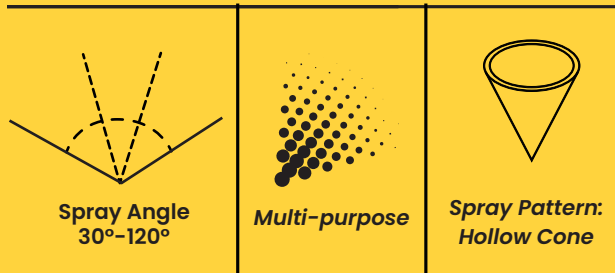
# Swirl-Air® Product Line

## RIGHT ANGLE VERSION



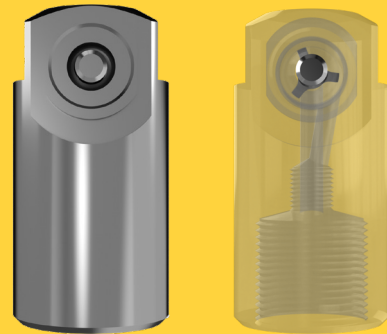
Materials: Stainless Steel 316L/310  
• 440 HSS • Hastelloy • Inconel • Titanium

Flow Rate: 0.2-40 GPM



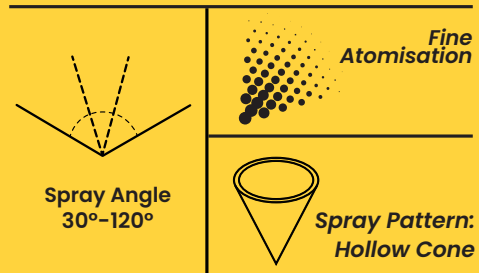
VARIOUS LANCE CONFIGURATIONS AVAILABLE

## RIGHT ANGLE CONCENTRIC INLET



Materials: Stainless Steel 316L/310  
• 440 HSS • Hastelloy • Inconel  
• Titanium

Flow Rate: 0.2-40 GPM



VARIOUS LANCE CONFIGURATIONS AVAILABLE

## With the Swirl-Air®, We Mastered Finely Atomized Spray at Low Pressures.

The Delavan Swirl-Air® range of spray nozzles, based on aerospace technology and developed within our Gas Turbine Division, was designed to maximize hydraulic and pneumatic energy to atomise liquids at relatively low pressures. Originally designed for use in evaporative cooling, spray drying, and combustion, they have since been used in many other industrial applications from food to steel production. Different spray angles are available. Flow rates can be changed by adjusting air and liquid pressure and the degree of atomization controlled by changes in the air-to-liquid volume ratio.

### INLINE VERSION



Materials: Stainless Steel 316L/310  
• 440 HSS • Hastelloy • Inconel  
• Titanium

Flow Rate: 0.2-40 GPM



Spray Angle  
30°-120°



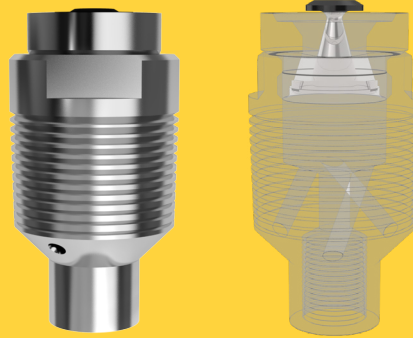
Multi-purpose



Spray Pattern:  
Hollow Cone

VARIOUS LANCE CONFIGURATIONS AVAILABLE

### CARBIDE LINED VERSION



Materials: Stainless Steel 316L/310  
• 440 HSS • Hastelloy • Inconel  
• Titanium

Flow Rate: 0.2-40 GPM



Spray Angle  
30°-120°



Multi-purpose



Spray Pattern:  
Hollow Cone

VARIOUS LANCE CONFIGURATIONS AVAILABLE

## Multiple Configurations.

Two installation configurations are available. In the right angle nozzle, atomizing air enters the side and the liquid enters axially in the back. With the in-line nozzle, concentric piping is used with the liquid in the center and atomizing air entering around the outside. Concentric pipe adapter assemblies are optional and are not included with the nozzle assembly as standard. Our specialist design team can also provide customized designs for your own applications.

# Swirl-Air<sup>®</sup> Spray Characteristics

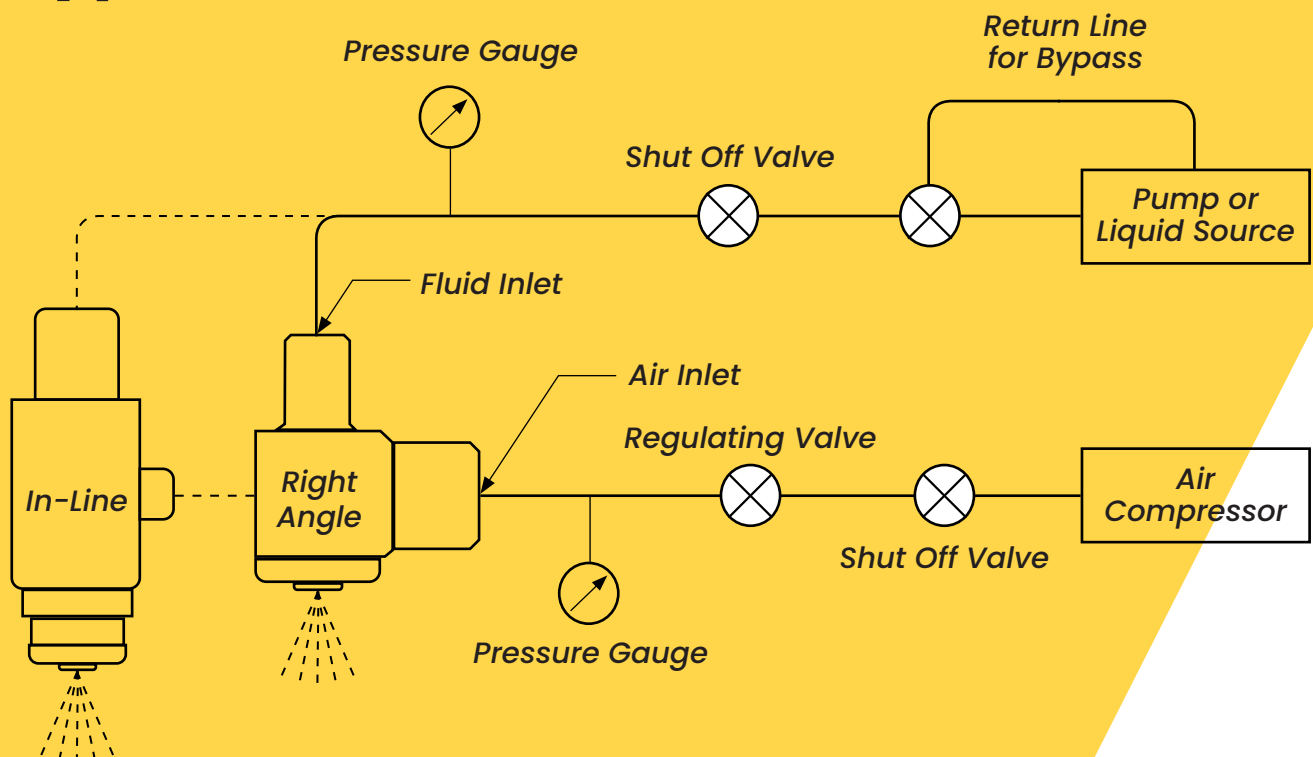
Eight sizes of nozzle are available, covering flow rates from 1-2400 GPH. Nominal spray angles of 50°, 75°, and 100° can be attained by the specification of interchangeable nozzle caps. Contact the factory for special spray angles from 25° up to 160°.

The nozzle has demonstrated the capability of achieving mean droplet diameters in the 50-100 micron range at low air pressures and flows. When using dry steam instead of air, the steam pressure should be approximately four times greater than air pressure to achieve the same spray characteristics. Comparable

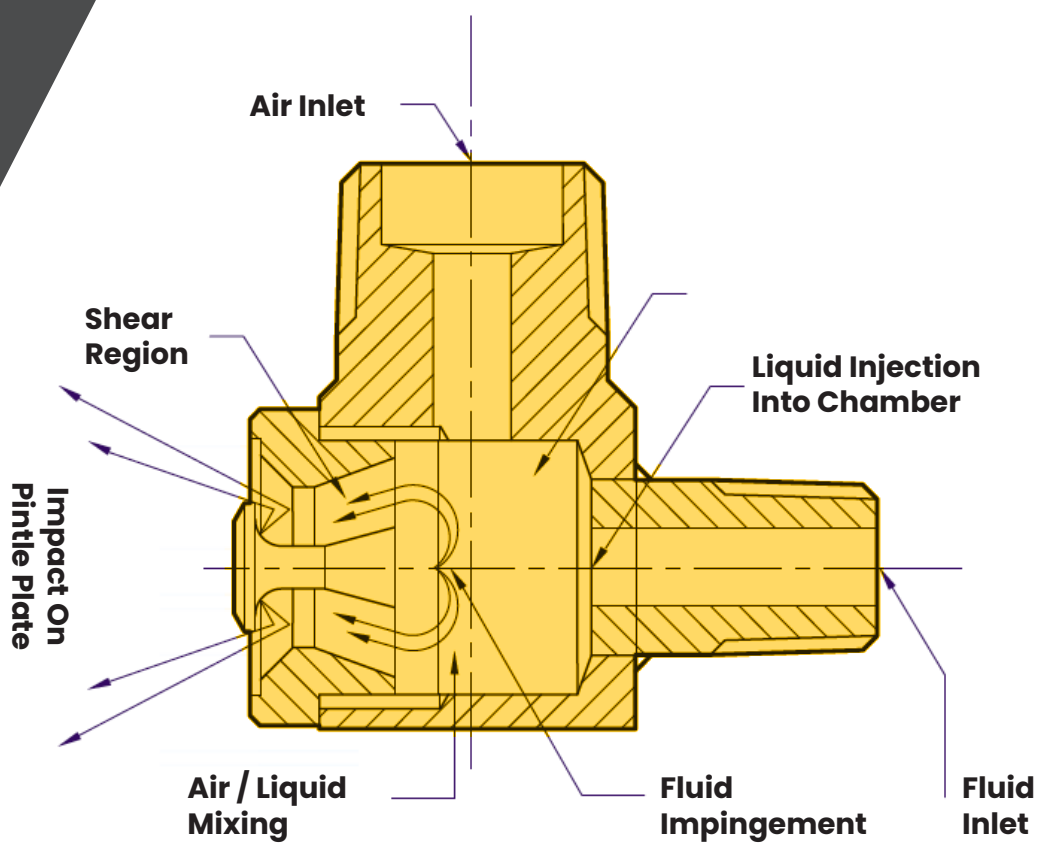
atomization in a hydraulic nozzle would usually require very high pressures. Degree of atomization is also variable by controlling the volume ratio of air to liquid.

Droplet size may be affected by minor changes in air pressure. However, if air pressure is set initially and it is necessary to modulate the liquid flow, the air differential pressure and flow rate will automatically respond in such a way that the quality of atomization remains nearly constant. In some applications, this can result in a saving through the elimination of air valving and controls.

## Typical Nozzle Installations





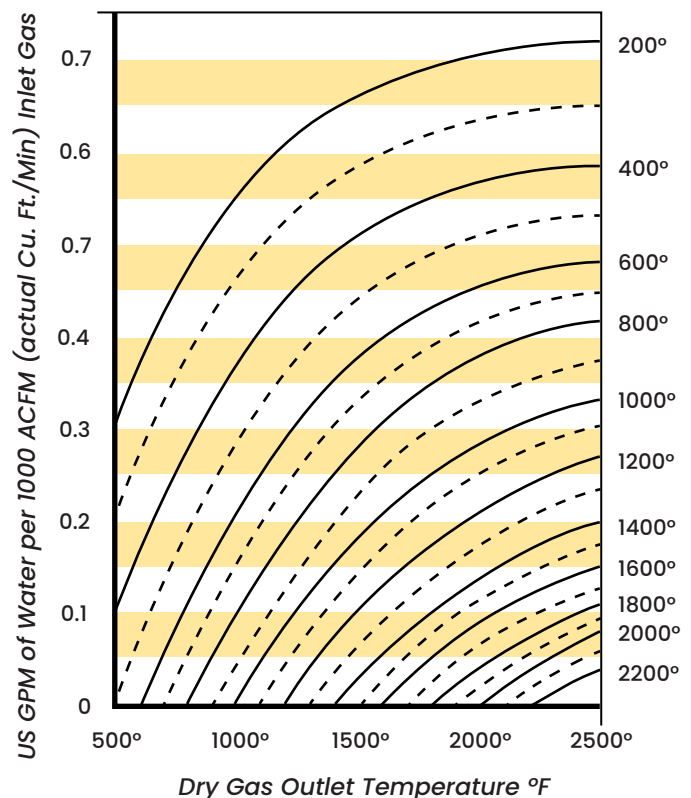


## With the Swirl-Air<sup>®</sup>, We Mastered Finely Atomized Spray at Low Pressures.

Liquid enters the nozzle axially, coming in contact with a tangentially introduced stream of air/gas or steam in the nozzle mixing chamber. The liquid impinges on the pintle plate and the interaction of gas and liquid creates extreme turbulence in the chamber. The swirling liquid, seeking an exit, impinges against the walls and distributor plate and then flows through the venturi-shaped orifice, where the droplets are exposed to extreme shear forces before impinging against a circular deflector ring, which serves a dual purpose: close control of spray angle and break up of the spray into even finer droplets (secondary atomization).

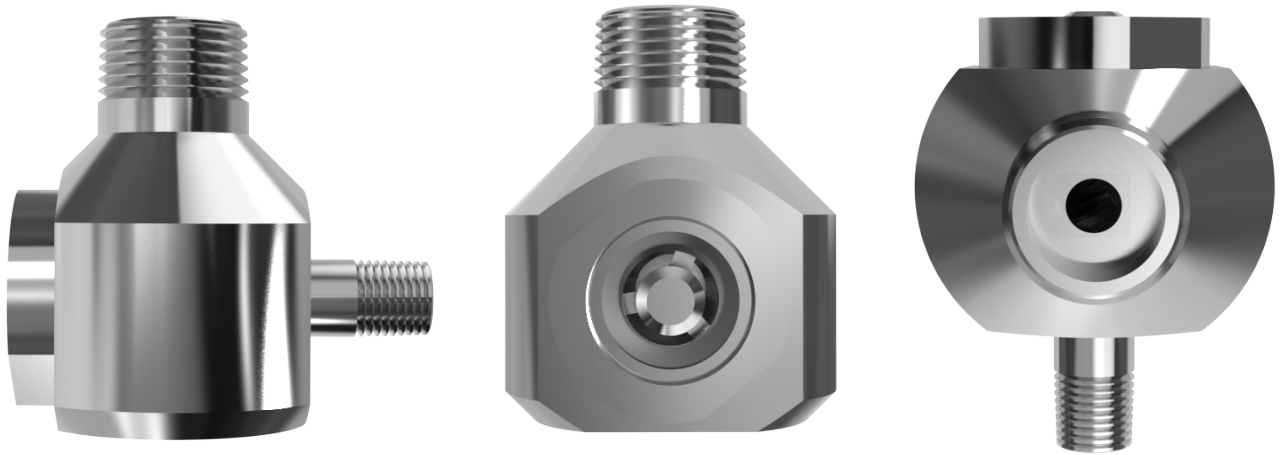
The deflector ring is held in position by a cone projecting from the distributor plate. This method eliminates struts that could interfere with the spray pattern. The progressive application of shear and inertial forces within the nozzle provide for a relatively high efficiency.

*Evaporative Cooling Water Injection Rates vs Gas Inlet/Outlet Temperatures*



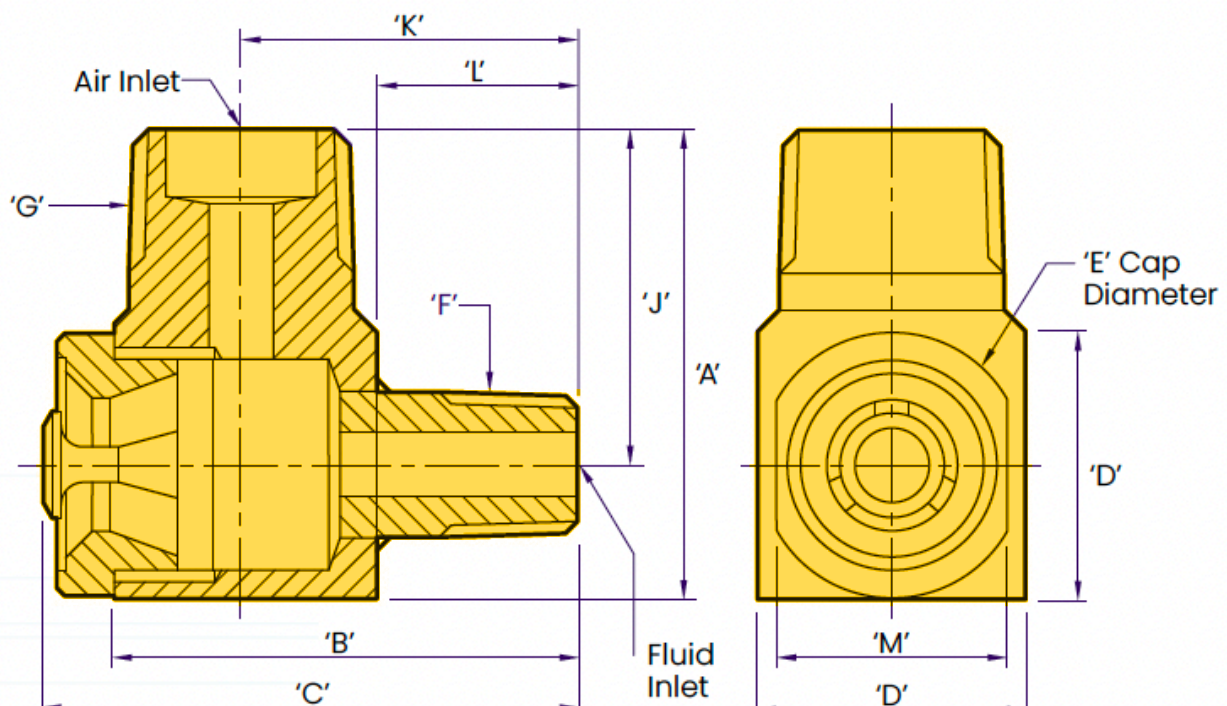
**Example:** 1700°F dry inlet gas to be cooled to 800°F outlet temperature requires 0.32 US GPM water injection per 1000 CFM of inlet gas.

# Right Angle Version



## Construction and Materials

- The nozzles have a two piece construction; the nozzle body, plus an integral deflector ring and cap that is easily removable without disturbing pipe connections.
- There are no external struts or supports to interfere with spray patterns.
- Standard configurations are available in 316L Stainless Steel and 440 Stainless Steel. Other materials such as Hastelloy C276 and Inconel 600 are available.



## Right Angle Nozzle Assembly Dimensions (inches/mm)

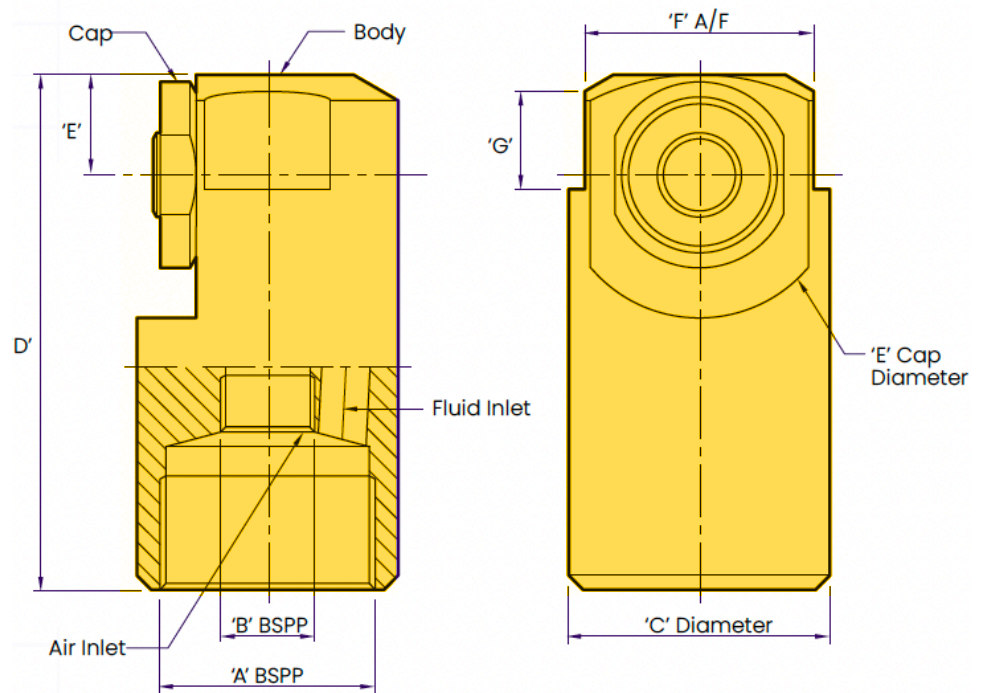
Dimension	45506	31618	31325	31693	31694	32163
A	2.63/66.7	2.13/54	1.75/44.5	1.37/34.9	1.13/28.6	1.13/28.6
B	2.22/56.4	2.04/51.8	1.83/46.4	1.5/38.1	1.37/34.9	1.37/34.9
C	2.54/64.6	2.33/59.2	2.11/53.7	1.67/42.3	1.52/38.5	1.52/38.5
D	1.5/38.1	1.25/31.8	1/25.4	0.75/19	0.63/15.9	0.63/15.9
E	1.63/41.3	1.37/34.7	1.11/28.3	0.87/22	0.74/18.8	0.74/18.8
F (NPT)	– 3/8"-18	– 1/4"-18	– 1/4"-18	– 1/8"-27	– 1/8"-27	– 1/8"-27
G (NPT)	– 3/4"-14	– 3/4"-14	– 1/2"-14	– 3/8"-18	– 1/4"-18	– 1/4"-18
J	1.87/47.6	1.5/38.1	1.25/31.8	1/25.4	20.6	20.6
K	1.5/38.1	1.41/35.9	1.33/33.7	1.13/28.6	1.06/27	1.06/27
L	0.75/19	0.79/20	0.83/21	0.75/19.1	0.75/19.1	0.75/19.1
M	1.44/36.5	1.25/31.8	1/25.4	0.75/19.1	0.63/15.9	0.63/15.9

## Right Angle Nozzle Sizing Chart

Nominal Flow USGPM/LPM	Nozzle Assembly Reference Number	Dash Numbers For Material and Nominal Spray Angle				Cap Assembly	
		316 SS	440 HSS	Angle (°)	Min. Passage (inches/mm)	316 SS	440 HSS
25/94	45506	-2	–	50 (40-60)	0.24/6.1	707-97	–
		-1	–	75 (65-85)	0.19/4.8	707-96	–
		-3	–	100 (90-110)	0.15/3.8	707-98	–
15/56	31618	-2	-5	50 (40-60)	0.240/6.1	707-11	707-26
		-1	-4	75 (65-85)	0.14/3.6	707-10	707-25
		-3	-6	100 (90-100)	0.11/2.8	707-12	707-27
10/37	31325	-2	-5	50 (40-60)	0.09/2.5	707-8	707-23
		-1	-4	75 (65-85)	0.08/2.1	707-7	707-22
		-3	-6	100 (90-100)	0.06/1.6	707-9	707-24
4/15	31693	-2	-5	50 (40-60)	0.07/1.7	707-5	707-20
		-1	-4	75 (65-85)	0.07/1.7	707-4	707-19
		-3	-6	100 (90-100)	0.07/1.7	707-6	707-21
2.5/9.5	31694	-2	-5	50 (40-60)	0.05/1.3	707-2	707-17
		-1	-4	75 (65-85)	0.05/1.3	707-1	707-16
		-3	-6	100 (90-100)	0.05/1.3	707-3	707-18
1/3.8	32163	-11	–	50 (40-60)	0.03/0.64	707-93	–
		-2	–	75 (65-85)	0.03/0.64	707-13	–
		-7	–	100 (90-100)	0.03/0.64	707-29	–
0.2/0.8	32163	-10	–	50 (40-60)	0.03/0.64	707-93	–
		-1	–	75 (65-85)	0.03/0.64	707-13	–
		-8	–	100 (90-100)	0.03/0.64	707-29	–

Higher flow rates can be achieved by increasing pressure.

# Concentric Inlet Version



## Product Application

The version of the Swirl-Air® Nozzle with concentric inlets would typically be used in vessels containing hazardous environments, where the spray cone needs to be located at right angles to the feed pipe.

*(The standard thread for the Swirl-Air® Nozzle is NPT, however BSPT is available on request.)*

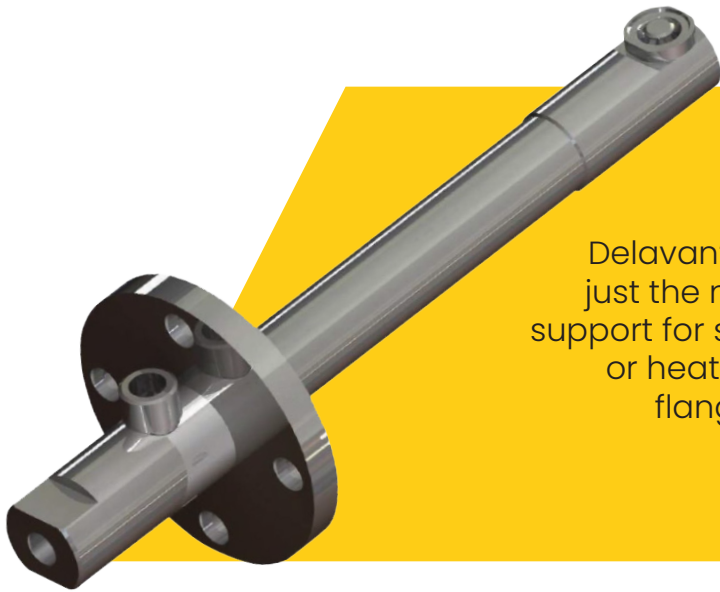
### Concentric Inlet Nozzle Assembly Dimensions (inches/mm)

Dimensions	W12216	W12217	W12218
A	1" BSPP	1 1/2" BSPP	2" BSPP
B	1/4" BSPP	1/2" BSPP	3/4" BSPP
C	1.77/44.4	2.28/58	2.76/70
D	3.88/98.5	4.5/114.5	5.63/143
E	0.75/19	0.87/22	1/25.5
F (A/F)	1.5/38	2/51	2.38/60.5
G	0.87/22	1/25.5	1.25/32
Equivalent Nozzle	31618	45506	Special

### Right Angle Concentric Inlet Nozzle Sizing Chart

Nominal Flow USGPM/LPM	Nozzle Assembly Ref Number	316 SS	Angle (°)	Cap Assy 316 SS
42/159	W12218	-3	100 (90-110)	W12133
		-1	50 (40-60)	707-097
		-2	75 (65-85)	707-096
25/94	W12217	-3	100 (90-110)	707-098
		-2	50 (40-60)	707-11
		-1	75 (65-85)	707-10
15/56	W12216	-3	100 (90-110)	707-12
		-2	50 (40-60)	707-11
		-1	75 (65-85)	707-10
10/38	W21057	-3	100 (90-110)	707-9
		-1	75 (65-85)	707-7
		-2	50 (40-60)	707-8
4/15	W20890	-3	100 (90-110)	707-6
		-1	75 (65-85)	707-4
		-2	50 (40-60)	707-5

\* Higher flow rates can be achieved by increasing pressure.



## Lance Assembly

Delavan's extensive experience goes beyond just the nozzle with a full range of engineered support for spray lances. We can provide cooled or heated lances, support special mounting flanges, and bypass or purge systems to meet every industry standard.

## Right Angle Nozzles

### Concentric Inlet Nozzle P/N W12218 42 USGPM/159 LPM Max Flow

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	20 PSI		40 PSI		60 PSI		80 PSI		100 PSI			1.4 BAR		2.8 BAR		4.1 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
9	20	95	35	183	45	313	57	438	68	—	34	1.38	2.69	2.41	5.17	3.10	8.85	3.93	12.39	4.69	—
12	22	93	39	175	51	283	64	380	77	—	45	1.52	2.63	2.69	4.96	3.52	8	4.41	10.76	5.31	—
18	37	75	51	150	61	263	74	358	93	475	68	2.55	2.12	3.52	4.25	4.21	7.43	5.10	10.12	6.41	13.45
24	54	63	67	125	85	218	96	283	112	398	91	3.72	1.77	4.62	3.54	5.86	6.16	6.62	8.00	7.72	11.26
30	73	50	90	100	106	183	120	223	133	333	114	5.03	1.42	6.21	2.83	7.31	5.17	8.28	6.30	9.17	9.42
36	96	38	115	83	132	158	157	168	160	280	136	6.62	1.06	7.93	2.34	9.10	4.46	10.83	4.74	11.03	7.93
42	123	25	147	75	163	130	—	—	—	—	159	8.48	0.71	10.14	2.12	11.24	3.68	—	—	—	—

### Right Angle Nozzle P/N 45506 25 USGPM/94 LPM Max Flow

### Concentric Inlet Version P/N W12217

Liquid Flow	Liquid Pressure (PSI) / Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	30 PSI		40 PSI		50 PSI		80 PSI		100 PSI			2 BAR		2.8 BAR		3.5 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
5	20	116	26	149	32	183	50	283	62	—	19	1.38	3.29	1.79	4.22	2.21	5.18	3.45	8.01	4.28	0.00
10	27	91	34	121	41	150	62	240	75	—	37	1.86	2.58	2.34	3.43	2.83	4.25	4.28	6.80	5.17	0.00
15	32	68	43	93	51	120	75	197	90	250	56	2.41	1.93	2.97	2.63	3.52	3.40	5.17	5.58	6.21	7.08
20	43	52	51	72	60	93	85	154	102	195	76	2.97	1.47	3.52	2.04	4.14	2.63	5.86	4.36	7.03	5.52
25	54	35	63	53	72	73	99	128	117	166	94	3.72	0.99	4.34	1.50	4.97	2.07	6.83	3.63	8.07	4.70
30	62	17	72	34	82	51	112	102	132	136	114	4.28	0.48	4.97	0.96	5.66	1.44	7.72	2.89	9.10	3.85

**Right Angle Nozzle P/N 31618**  
**15 USGPM/56 LPM Max Flow**

**Concentric Inlet Version P/N W12216**

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	30 PSI		40 PSI		50 PSI		80 PSI		100 PSI			2 BAR		2.8 BAR		3.5 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
5	19	48	24	63	29	78	42	123	51	153	19	1.31	1.36	1.66	1.78	2.00	2.21	2.90	3.48	3.52	4.33
6	23	45	28	60	33	74	48	118	58	147	23	1.59	1.27	1.93	1.70	2.28	2.10	3.31	3.34	4.00	4.16
7	26	42	32	55	37	70	54	114	65	143	26	1.79	1.19	2.21	1.56	2.55	1.98	3.72	3.23	4.48	4.05
8	29	38	35	52	41	67	59	109	70	137	30	2.00	1.08	2.41	1.47	2.83	1.90	4.07	3.09	4.83	3.88
9	32	36	39	49	45	62	64	102	76	129	34	2.21	1.02	2.69	1.39	3.10	1.76	4.41	2.89	5.24	3.65
10	35	32	42	45	49	58	68	95	81	121	37	2.41	0.91	2.90	1.27	3.38	1.64	4.69	2.69	5.59	3.43
11	39	29	46	42	53	54	73	90	86	114	42	2.69	0.82	3.17	1.19	3.66	1.53	5.03	2.55	5.93	3.23
12	43	27	50	39	57	50	77	85	91	108	45	2.97	0.76	3.45	1.10	3.93	1.42	5.31	2.41	6.28	3.06
13	47	25	55	36	61	47	83	82	97	104	50	3.24	0.71	3.79	1.02	4.21	1.33	5.72	2.32	6.69	2.95
14	51	22	59	34	66	45	88	78	103	101	53	3.52	0.62	4.07	0.96	4.55	1.27	6.07	2.21	7.10	2.86
15	56	20	64	31	71	42	94	73	109	94	56	3.86	0.57	4.41	0.88	4.90	1.19	6.48	2.07	7.52	2.66

**Right Angle Nozzle P/N 31325**  
**10 USGPM/37 LPM Max Flow**

**Concentric Inlet Version P/ N W21057**

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	30 PSI		40 PSI		50 PSI		80 PSI		100 PSI			2 BAR		2.8 BAR		3.5 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
2	15	31	19	39	23	47	36	74	44	91	8	1.03	0.88	1.31	1.10	1.59	1.33	2.48	2.10	3.03	2.58
3	20	28	25	37	30	45	44	71	54	88	11	1.38	0.79	1.72	1.05	2.07	1.27	3.03	2.01	3.72	2.49
4	25	25	31	34	37	42	53	65	64	84	15	1.72	0.71	2.14	0.96	2.55	1.19	3.66	1.84	4.41	2.38
5	31	21	37	30	43	38	61	63	72	80	19	2.14	0.59	2.55	0.85	2.97	1.08	4.21	1.78	4.97	2.27
6	37	19	44	26	50	34	69	58	82	73	23	2.55	0.54	3.03	0.74	3.45	0.96	4.76	1.64	5.66	2.07
7	43	16	51	24	57	31	77	53	91	68	27	2.97	0.45	3.52	0.68	3.93	0.88	5.31	1.50	6.28	1.93
8	50	14	58	21	65	28	87	49	102	64	30	3.45	0.40	4.00	0.59	4.48	0.79	6.00	1.39	7.03	1.81
9	57	11	65	18	73	25	96	46	112	61	34	3.93	0.31	4.48	0.51	5.03	0.71	6.62	1.30	7.72	1.73
10	65	9	73	15	81	22	105	42	121	55	37	4.48	0.25	5.03	0.42	5.59	0.62	7.24	1.19	8.34	1.56

**Right Angle Nozzle P/N 31693**  
**4 USGPM/15 LPM Max Flow**

**Concentric Inlet Version P/N W20890**

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	30 PSI		40 PSI		50 PSI		80 PSI		100 PSI			2 BAR		2.8 BAR		3.5 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
0.33	15	16	21	20	26	24	43	36	55	44	1	1.03	0.45	1.45	0.57	1.79	0.68	2.97	1.02	3.79	1.25
0.50	16	15	23	19	29	23	47	35	59	43	2	1.10	0.42	1.59	0.54	2.00	0.65	3.24	0.99	4.07	1.22
0.66	18	14	25	18	31	22	50	34	63	42	3	1.24	0.40	1.72	0.51	2.14	0.62	3.45	0.96	4.34	1.19
1	21	13	28	16	35	20	56	32	69	40	4	1.45	0.37	1.93	0.45	2.41	0.57	3.86	0.91	4.76	1.13
2	28	8	36	11	45	15	68	26	85	33	8	1.93	0.23	2.48	0.31	3.10	0.42	4.69	0.74	5.86	0.93
3	33	5	42	7	51	10	78	19	95	24	11	2.28	0.14	2.90	0.20	3.52	0.28	5.38	0.54	6.55	0.68
3.5	36	3	45	6	54	8	81	16	99	22	13	2.48	0.08	3.10	0.17	3.72	0.23	5.59	0.45	6.83	0.62
4	39	2	48	5	57	7	84	14	103	19	15	2.69	0.06	3.31	0.14	3.93	0.20	5.79	0.40	7.10	0.54

**Right Angle Nozzle P/N 31694**  
**2.5 USGPM/9.5 LPM Max Flow**

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	30 PSI		40 PSI		50 PSI		80 PSI		100 PSI			2 BAR		2.8 BAR		3.5 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
0.33	18	9.0	25	11.5	31	14	51	21.5	59	26.5	1	1.24	0.25	1.72	0.33	2.14	0.40	3.52	0.61	4.07	0.75
0.5	20	8.0	27	10.5	34	13	54	20.5	65	25.5	2	1.38	0.23	1.86	0.30	2.34	0.37	3.72	0.58	4.48	0.72
0.66	22	7.5	29	10	36	12.5	57	20	69	25	3	1.52	0.21	2	0.28	2.48	0.35	3.93	0.57	4.76	0.71
1	24	6.5	32	8.5	40	11	63	18	76	22.5	4	1.66	0.18	2.21	0.24	2.76	0.31	4.34	0.51	5.24	0.64
1.5	28	4.5	36	6.3	44	9	69	15	86	19.5	6	1.93	0.13	2.48	0.18	3.03	0.25	4.76	0.42	5.93	0.55
2	30	5	39	4	48	6	75	12	92	16	8	2.07	0.14	2.69	0.11	3.31	0.17	5.17	0.34	6.34	0.45
2.5	32	1.5	41	3	50	4.5	78	9	97	12	9.5	2.21	0.04	2.83	0.08	3.45	0.13	5.38	0.25	6.69	0.34

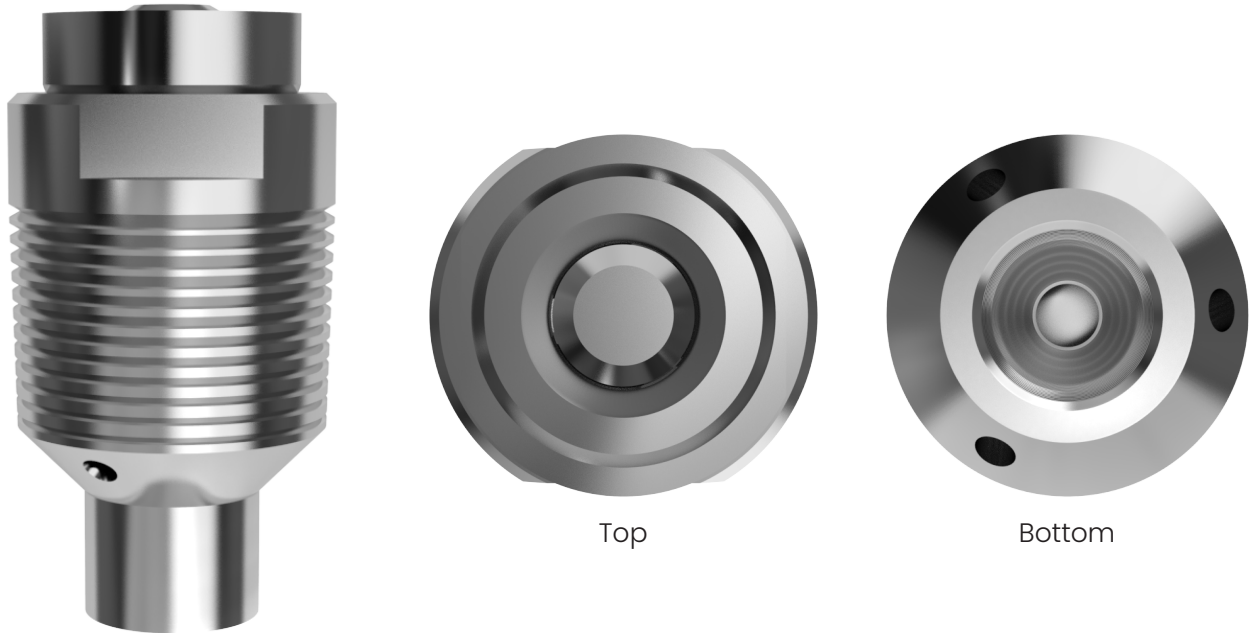
**Right Angle Nozzle P/N 32163**  
**1 USGPM/3.8 LPM Max Flow**

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	30 PSI		40 PSI		50 PSI		80 PSI		100 PSI			2 BAR		2.8 BAR		3.5 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
0.2	26.8	4	36	5	45.2	6	73	9	90.8	11.5	0.76	1.85	0.11	2.48	0.14	3.12	0.17	5.03	0.25	6.26	0.33
0.3	27.2	3	36.8	4.5	45.6	5.5	74	8.5	93	10.5	1.14	1.88	0.08	2.54	0.13	3.14	0.16	5.10	0.24	6.41	0.30
0.4	27.8	2.8	37.2	4	46.6	4.5	75.4	7.5	94.6	9.5	1.52	1.92	0.08	2.57	0.11	3.21	0.13	5.20	0.21	6.52	0.27
0.5	28	2.5	37.8	3	47.4	4	76	7	95.2	8.5	1.89	1.93	0.07	2.61	0.08	3.27	0.11	5.24	0.20	6.57	0.24
0.6	28.6	2	38	2.5	47.8	3.5	77.2	6	97	7.5	2.27	1.97	0.06	2.62	0.07	3.30	0.10	5.32	0.17	6.69	0.21
0.7	28.8	1.5	38.4	2	48.2	3	78	5	97.2	7	2.65	1.99	0.04	2.65	0.06	3.32	0.08	5.38	0.14	6.70	0.20
0.8	29	1.2	38.6	1.8	48.6	2.5	78.6	4.5	98	6	3.03	2	0.03	2.66	0.05	3.35	0.07	5.42	0.13	6.76	0.17
0.9	29.2	1	39	1.5	48.8	2	79	4	98.6	5.5	3.41	2.01	0.03	2.69	0.04	3.37	0.06	5.45	0.11	6.8	0.16
1	29.4	-	39.2	1.2	49	1.8	79.2	3.5	99.2	5	3.79	2.03	0	2.7	0.03	3.38	0.05	5.46	0.10	6.84	0.14

**Right Angle Nozzle P/N 32163**  
**0.2 USGPM/0.8 LPM Max Flow**

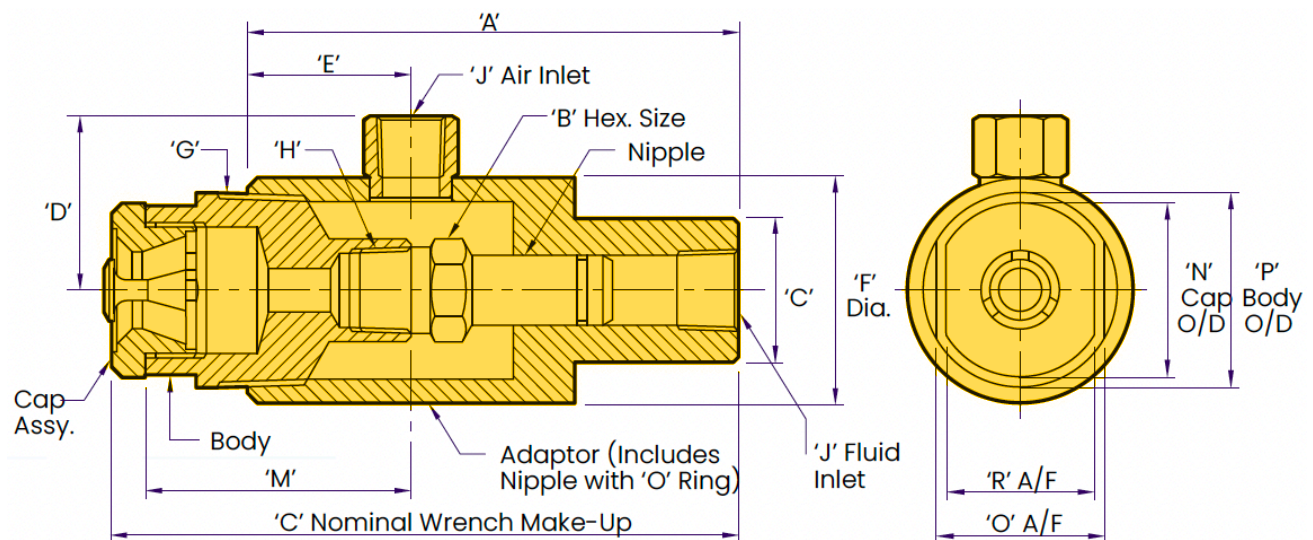
Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	50 PSI		60 PSI		70 PSI		80 PSI		100 PSI			3 BAR		4 BAR		5 BAR		6 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
0.02	7.5	3	9.5	3.5	11.5	4	13.5	4.5	17.5	5.5	0.08	0.52	0.08	0.66	0.10	0.79	0.11	0.93	0.13	1.21	0.16
0.05	9	3	11.5	3.5	13.5	4	15.5	4.5	19.5	5.5	0.19	0.62	0.08	0.79	0.10	0.93	0.11	1.07	0.13	1.34	0.16
0.1	13	3	16	3.5	19	4	21.5	4.5	27	5.5	0.38	0.9	0.08	1.1	0.10	1.31	0.11	1.48	0.13	1.86	0.16
0.15	16.5	3	20	3.5	23.5	4	27	4.5	33.5	5	0.57	1.14	0.08	1.38	0.10	1.62	0.11	1.86	0.13	2.31	0.14
0.2	20.5	3	24.5	3.5	28.5	3.8	32.5	4	40.5	5	0.76	1.41	0.08	1.69	0.10	1.97	0.11	2.24	0.11	2.79	0.14
0.3	25	3	29.5	3.3	34	3.5	38.5	4	47.5	4.5	1.14	1.72	0.08	2.03	0.09	2.34	0.10	2.66	0.11	3.28	0.13
0.5	33	3	39	3	44.5	3.5	50.5	3.8	62	4.5	1.89	2.28	0.08	2.69	0.08	3.07	0.10	3.48	0.11	4.28	0.13
0.7	39	2.5	46.5	3	54	3.5	61	3.8	75	4.5	2.65	2.69	0.07	3.21	0.08	3.72	0.10	4.21	0.11	5.17	0.13
0.9	47	2.5	56	2.8	64	3	72	3.5	89	4	3.41	3.24	0.07	3.86	0.08	4.41	0.08	4.97	0.10	6.14	0.11
1	51	2.3	60	2.5	69	3	78	3.2	96	4	3.79	3.52	0.07	4.14	0.07	4.76	0.08	5.38	0.09	6.62	0.11

# Inline Version

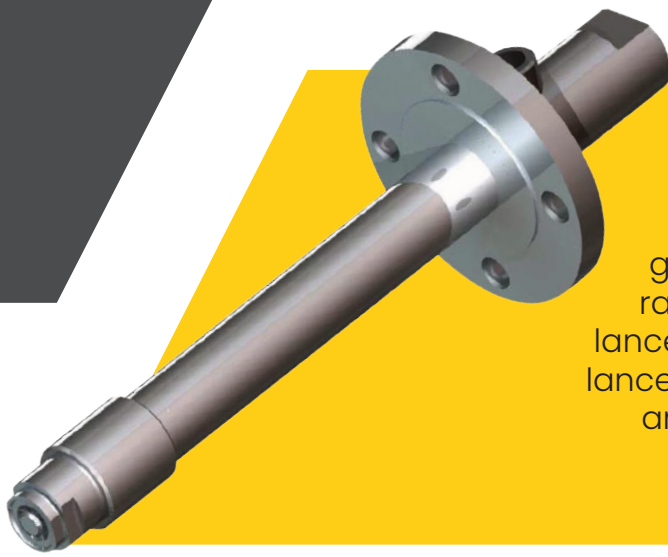


## Construction and Materials

- The nozzles have a two piece construction; the nozzle body, plus an integral deflector ring and cap that is easily removable without disturbing pipe connections.
- There are no external struts or supports to interfere with spray patterns.
- Standard configurations are available in 316L Stainless Steel and 440 Stainless Steel. Other materials such as Hastelloy C276 and Inconel 600 are available.







## Lance Assembly

Delavan's extensive experience goes beyond just the nozzle with a full range of engineered support for spray lances. We can provide cooled or heated lances, support special mounting flanges, and bypass or purge systems to meet every industry standard.

### In-Line Nozzle Sizing Chart

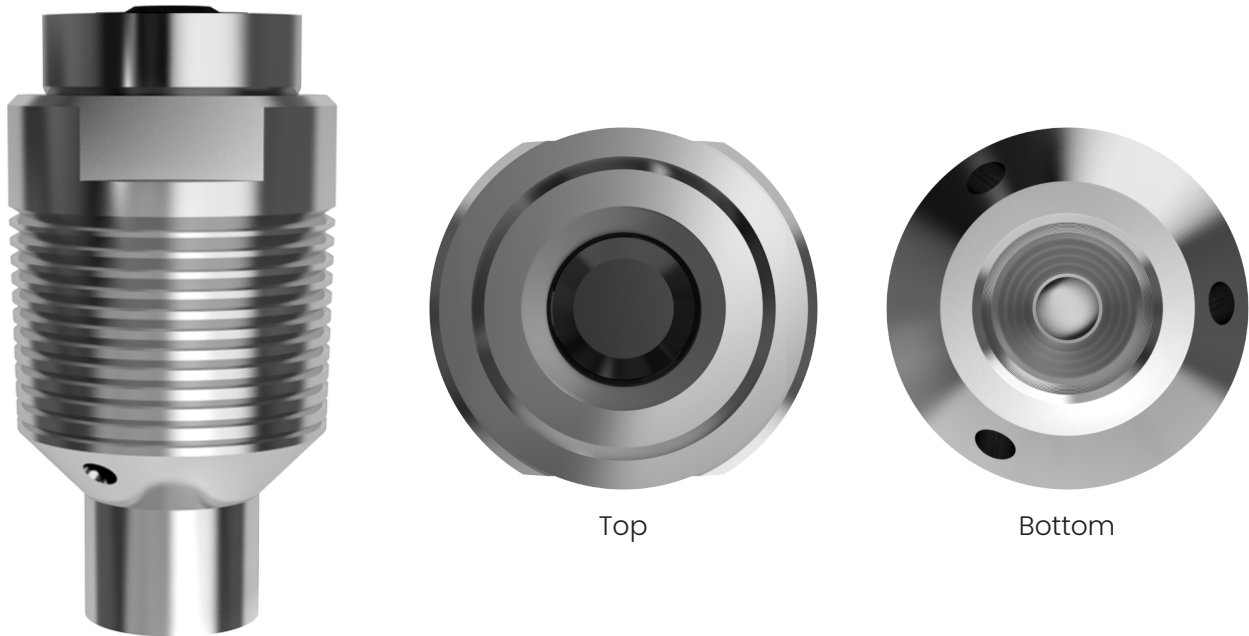
Nominal Flow USGPM/LPM	Nozzle Assembly Reference Number	Dash Numbers For Material and Nominal Spray Angle			Cap Assembly		Optional Adaptor
		316 SS	Angle (°)	Min. Passage (inches/mm)	316 SS	440 HSS	
42/159	W17875	-1	100 (90-110)	0.22/5.6	17877	—	21122
25/94	W19868	-2	50 (40-60)	0.24/6.1	707-97	—	19268
		-1	75 (65-85)	0.19/4.8	707-96	—	
		-3	100 (90-110)	0.15/3.8	707-98	—	
15/56	32555	-2	50 (40-60)	0.24/6.1	707-11	707-26	32614
		-1	75 (65-85)	0.14/3.6	707-10	707-25	
		-3	100 (90-110)	0.11/2.8	707-12	707-27	
10/37	32554	-2	50 (40-60)	0.09/2.5	707-8	707-23	32618
		-1	75 (65-85)	0.08/2.1	707-7	707-22	
		-3	100 (90-100)	0.06/1.6	707-9	707-24	
4/15	32668	-2	50 (40-60)	0.07/1.7	707-5	707-20	32695
		-1	75 (65-85)	0.07/1.7	707-4	707-19	
		-3	100 (90-100)	0.07/1.7	707-6	707-21	
2.5/9.5	32740	-2	50 (40-60)	0.05/1.3	707-2	707-17	32742
		-1	75 (65-85)	0.05/1.3	707-1	707-16	
		-3	100 (90-100)	0.05/1.3	707-3	707-18	
1/3.8	32740	-13	50 (40-60)	0.02/0.64	707-93	—	32742
		-4	75 (65-85)	0.02/0.64	707-13	—	
		-5	100 (90-100)	0.02/0.64	707-29	—	
0.2/0.8	W19488	-1	75 (65-85)	0.02/0.64	707-13	—	32742
		-3	100 (90-110)	0.02/0.64	707-29	—	
		-2	50 (40-60)	0.02/0.64	707-93	—	

### In-Line Nozzle/Adaptor Assembly Dimensions (inches/mm)

Dimension	W17875	W19868	32555	32554	32668	32740	W19488
	W21122 Adaptor	19268 Adaptor	32614 Adaptor	32618 Adaptor	32695 Adaptor	32742 Adaptor	32742 Adaptor
A	—	5.25/133.35	5/127	4.75/120.7	4.75/120.7	3.55/90.2	3.55/90.2
B	—	—	0.87/22.2	0.63/15.9	0.63/15.9	0.5/12.7	0.5/12.7
C	—	—	6/152.4	5.75/146.1	5.62/142.8	4.25/108	4.25/108
D	—	1.88/47.63	1.75/44.5	1.56/39.6	1.56/39.6	1.28/32.6	1.28/32.6
E	—	2/50.8	1.75/44.5	2.29/58.4	2.29/58.4	1.5/38.1	1.5/38.1
F	—	2.5/63.5	2/50.8	1.63/41.3	1.63/41.3	1.13/28.6	1.13/28.6
L	—	—	1.5/38.1	1.25/31.8	1.25/31.8	0.75/19.1	0.75/19.1
M	3.25/82.55	2.75/69.88	2.35/59.7	2.12/53.9	2.13/54	1.5/38.1	1.5/38.1
N	2.13/53.98	1.63/41.28	1.37/34.7	1.11/28.3	0.87/22	0.74/18.8	0.74/18.8
O	1.81/46.02	1.44/36.49	1.25/31.8	1/25.4	0.75/19	0.63/15.9	0.88/22.4
P	2.38/60.33	1.9/48.26	1.66/42.2	1.31/33.4	1.05/26.7	0.84/21.3	1/25.4
R	2.06/52.37	1.63/41.28	1.37/34.9	1.13/28.6	0.87/22.2	0.75/19	0.63/16
G (NPTM)	2"	1 1/2"	1 1/4"-11 1/2"	1"-11 1/2"	3/4"-14	1/2"-14	1/2"
H (NPTF)	3/4"	1/2"	1/2"-14	1/4"-18	1/4"-18	1/8"-27	1/8"
J (NPTF)	1"	3/4"	1/2"-14	1/2"-14	1/2"-14	1/4"-18	1/4"
NIPPLE	—	—	32163	32617	32617	32743	32743

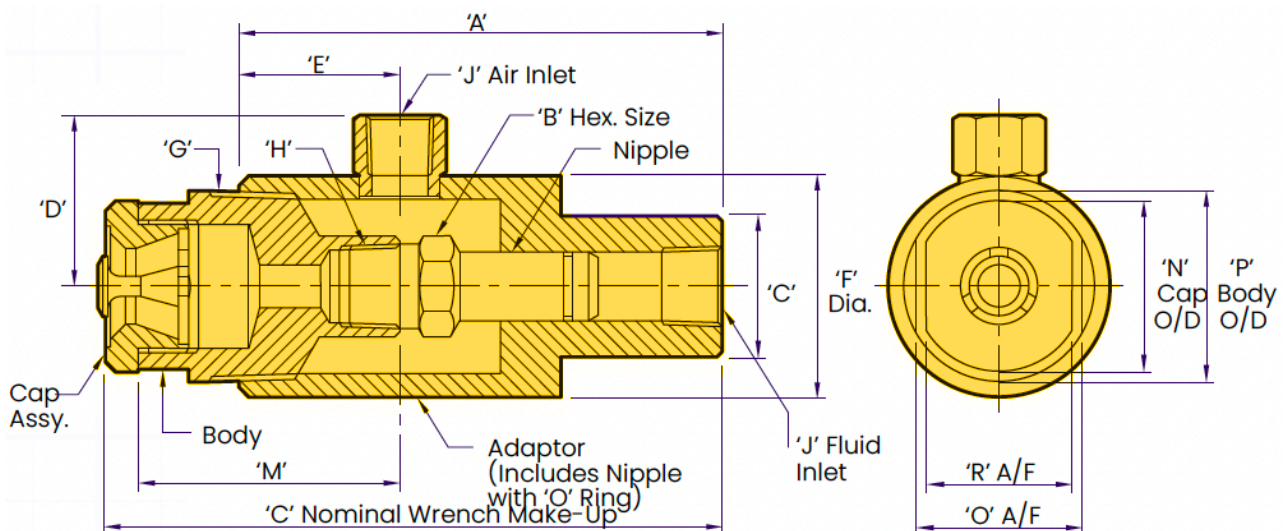
\* Higher flow rates can be achieved by increasing pressure.

# Carbide Lined Version



## Construction and Materials

- The nozzles have a two piece construction; the nozzle body, plus an integral deflector ring and cap that is easily removable without disturbing pipe connections.
- There are no external struts or supports to interfere with spray patterns.
- Standard configurations are available in 316L Stainless Steel and 440 Stainless Steel. Other materials such as Hastelloy C276 and Inconel 600 are available.



## Carbide Lined In-Line Nozzle Sizing Chart

Nominal Flow USGPM/LPM	Nozzle Assembly Reference Number	Pintle & Sleeve		Nominal Spray Angle	Min. Passage (inches/mm)	Cap Assembly		Optional Adaptor
		Tungsten	Nickel			Tungsten	Nickle	
15/56	39144	-2	-5	50 (40-60)	0.17/4.3	39138-1	39138-2	32614
		-1	-4	75 (65-85)	0.14/3.6			
		-3	-6	100 (90-110)	0.11/2.8			
10/37	39185	-2	-5	50 (40-60)	0.09/2.5	39184-1	39184-2	32618
		-1	-4	75 (65-85)	0.08/2.1			
		-3	-6	100 (90-100)	0.06/1.6			
4/15	39195	-2	-5	50 (40-60)	0.07/1.7	39197-1	39197-2	32695
		-1	-4	75 (65-85)	0.07/1.7			
		-3	-6	100 (90-100)	0.07/1.7			
2.5/9.5	39225	-2	-5	50 (40-60)	0.05/1.3	39226-1	39226-2	32742
		-1	-4	75 (65-85)	0.05/1.3			
		-3	-6	100 (90-100)	0.05/1.3			

## Carbide Lined In-Line Nozzle/Adaptor Assembly Dimensions (inches/mm)

Dimension	39144 - All No's	39185 - All No's	39195 - All No's	39225 - All No's
	32614 Adaptor	32618 Adaptor	32695 Adaptor	32695 Adaptor
A	5/127	4.75/120.7	4.75/120.7	4.75/120.7
B	0.87/22.2	0.63/15.9	0.63/15.9	0.5/12.7
C	6/152.4	5.9/150	5.9/150	0.76/109.2
D	1.75/44.5	1.56/39.6	1.56/39.6	1.28/32.6
E	1.75/44.5	2.3/58.4	2.3/58.4	1.5/38.1
F	2/50.8	1.63/41.3	1.63/41.3	1.13/28.6
L	1.5/38.1	1.25/31.8	1.25/31.8	0.75/19.1
M	2.35/59.7	2.12/53.9	2.12/53.9	1.5/38.1
N	1.56/39.5	1.25/31.8	1.02/25.8	0.8/20.3
O	1.37/34.9	1.13/28.6	0.87/22.2	0.72/18.3
P	1.87/47.4	1.49/37.9	1.18/30	0.93/23.6
R	1.37/34.9	1.13/28.6	0.87/22.2	0.72/18.3
G (NPTM)	1 1/4"-11 1/2	1"-11 1/2	3/4"-14	1/2"-14
H (NPTF)	1/2"-14	1/4"-18	1/4"-18	1/8"-27
J (NPTF)	1/2"-14	1/2"-14	1/2"-14	1/4"-18

\* Higher flow rates can be achieved by increasing pressure.  
The standard thread for the Swirl-Air® Nozzle is NPT, however BSPT is available on request.

# Product Technical Data

## In-Line Nozzle P/N 17875 42 USGPM/159 LPM Max Flow

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	20 PSI		40 PSI		60 PSI		80 PSI		100 PSI			1.4 BAR		2.8 BAR		4.1 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
9	20	95	35	183	45	313	57	438	68	—	34	1.38	2.69	2.41	5.17	3.10	8.85	3.93	12.39	4.69	—
12	22	93	39	175	51	283	64	380	77	—	45	1.52	2.63	2.69	4.96	3.52	8	4.41	10.76	5.31	—
18	37	75	51	150	61	263	74	358	93	475	68	2.55	2.12	3.52	4.25	4.21	7.43	5.10	10.12	6.41	13.45
24	54	63	67	125	85	218	96	283	112	398	91	3.72	1.77	4.62	3.54	5.86	6.16	6.62	8.00	7.72	11.26
30	73	50	90	100	106	183	120	223	133	333	114	5.03	1.42	6.21	2.83	7.31	5.17	8.28	6.30	9.17	9.42
36	96	38	115	83	132	158	157	168	160	280	136	6.62	1.06	7.93	2.34	9.10	4.46	10.83	4.74	11.03	7.93
42	123	25	147	75	163	130	—	—	—	—	159	8.48	0.71	10.14	2.12	11.24	3.68	—	—	—	—

## In-Line Nozzle P/N W19868 25 USGPM/94 LPM Max Flow

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	30 PSI		40 PSI		50 PSI		80 PSI		100 PSI			2 BAR		2.8 BAR		3.5 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
5	20	116	26	149	32	183	50	283	62	—	19	1.38	3.29	1.79	4.22	2.21	5.18	3.45	8.01	4.24.6	—
10	27	91	34	121	41	150	62	240	75	—	37	1.86	2.58	2.34	3.43	2.83	4.25	4.28	6.80	5.17	—
15	32	68	43	93	51	120	75	197	90	250	56	2.41	1.93	2.97	2.63	3.52	3.40	5.17	5.58	6.21	7.08
20	43	52	51	72	60	93	85	154	102	195	76	2.97	1.47	3.52	2.04	4.14	2.63	5.86	4.36	7.03	5.52
25	54	35	63	53	72	73	99	128	117	166	94	3.72	0.99	4.34	1.50	4.97	2.07	6.83	3.63	8.07	4.70
30	62	17	72	34	82	51	112	102	132	136	114	4.28	0.48	4.97	0.96	5.66	1.44	7.72	2.89	9.10	3.85

## In-Line Nozzle P/N 32555 15 USGPM/56 LPM Max Flow

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	20 PSI		40 PSI		60 PSI		80 PSI		100 PSI			1.4 BAR		2.8 BAR		4.1 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
5	19	50	24	65	28	80	42	126	51	156	19	1.31	1.42	1.66	1.84	1.93	2.27	2.9	3.57	3.52	4.42
6	23	48	28	63	32	78	46	123	55	154	23	1.59	1.36	1.93	1.78	2.21	2.21	3.17	3.48	3.79	4.36
7	27	44	32	58	37	74	52	120	62	151	27	1.86	1.25	2.21	1.64	2.55	2.10	3.59	3.40	4.28	4.28
8	30	41	36	55	41	70	58	114	68	143	30	2.07	1.16	2.48	1.56	2.83	1.98	4	3.23	4.69	4.05
9	33	38	40	52	46	66	63	108	75	137	34	2.28	1.08	2.76	1.47	3.17	1.87	4.34	3.06	5.17	3.88
10	37	34	44	48	50	62	67	103	80	130	37	2.55	0.96	3.03	1.36	3.45	1.76	4.62	2.92	5.52	3.68
11	41	32	48	45	54	58	73	98	86	124	42	2.83	0.91	3.31	1.27	3.72	1.64	5.03	2.78	5.93	3.51
12	45	29	52	42	59	55	82	93	96	118	45	3.1	0.82	3.59	1.19	4.07	1.56	5.66	2.63	6.62	3.34
13	48	27	56	39	63	51	85	88	100	112	49	3.31	0.76	3.86	1.10	4.34	1.44	5.86	2.49	6.90	3.17
14	52	24	60	36	68	48	91	84	106	107	53	3.59	0.68	4.14	1.02	4.69	1.36	6.28	2.38	7.31	3.03
15	56	22	65	34	73	45	98	79	114	102	56	3.86	0.62	4.48	0.96	5.03	1.27	6.76	2.24	7.86	2.89

**In-Line Nozzle P/N 32554-1**  
**10 USGPM/38 LPM Max Flow**

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	30 PSI		40 PSI		50 PSI		80 PSI		100 PSI			2 BAR		2.8 BAR		3.5 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
2	14	31	18	40	22	48	33	72	41	87	8	0.97	0.88	1.24	1.13	1.52	1.36	2.28	2.04	2.83	2.46
3	20	29	25	38	29	46	42	70	51	86	11	1.38	0.82	1.72	1.08	2	1.3	2.9	1.98	3.52	2.44
4	26	26	31	36	36	44	52	68	63	85	15	1.79	0.74	2.14	1.02	2.48	1.25	3.59	1.93	4.34	2.41
5	31	24	38	33	44	41	61	66	70	83	19	2.14	0.68	2.62	0.93	3.03	1.16	4.21	1.87	4.83	2.35
6	38	21	45	29	51	38	69	63	82	80	23	2.62	0.59	3.1	0.82	3.52	1.08	4.76	1.78	5.66	2.27
7	44	18	51	26	59	34	78	58	92	74	27	3.03	0.51	3.52	0.74	4.07	0.96	5.38	1.64	6.34	2.1
8	51	16	59	23	67	30	87	54	102	70	30	3.52	0.45	4.07	0.65	4.62	0.85	6	1.53	7.03	1.98
9	59	13	68	20	75	27	99	50	114	65	34	4.07	0.37	4.69	0.57	5.17	0.76	6.83	1.42	7.86	1.84
10	68	11	76	18	85	25	107	46	123	60	38	4.69	-	5.24	-	5.86	-	7.38	-	8.48	-

**In-Line Nozzle P/N 32668-1**  
**4 USGPM/15 LPM Max Flow**

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	30 PSI		40 PSI		50 PSI		80 PSI		100 PSI			2 BAR		2.8 BAR		3.5 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
0.33	15	16	21	21	27	25	45	38	57	47	1	1.03	0.45	1.45	0.59	1.86	0.71	3.10	1.08	3.93	1.33
0.5	18	16	24	20	30	24	49	37	61	46	2	1.24	0.44	1.66	0.57	2.07	0.68	3.38	1.05	4.21	1.30
0.66	19	15	25	19	32	23	51	36	64	45	3	1.31	0.41	1.72	0.54	2.21	0.65	3.52	1.02	4.41	1.27
1	24	13	32	17	38	21	59	34	73	42	4	1.66	0.37	2.21	0.48	2.62	0.59	4.07	0.96	5.03	1.19
2	36	8	45	11	53	15	77	26	93	33	8	2.48	0.23	3.10	0.31	3.66	0.42	5.31	0.74	6.41	0.93
3	50	5	60	7	69	10	95	19	113	25	11	3.45	0.14	4.14	0.20	4.76	0.28	6.55	0.54	7.79	0.71
3.5	60	3	69	6	78	8	105	16	124	22	13	4.14	0.08	4.76	0.17	5.38	0.23	7.24	0.45	8.55	0.62
4	70	1	79	5	88	7	116	14	135	20	15	4.83	0.03	5.45	0.14	6.07	0.20	8	0.40	9.31	0.57

**In-Line Nozzle P/N 32740-1**  
**2.5 USGPM/9.5 LPM Max Flow**

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	30 PSI		40 PSI		50 PSI		80 PSI		100 PSI			2 BAR		2.8 BAR		3.5 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
0.33	17	8.5	23	11	29	13	47	20.5	59	25	1	1.17	0.24	1.59	0.31	2	0.37	3.24	0.58	4.07	0.71
0.5	19	7.5	26	10	33	12.5	50	19.5	65	24	2	1.31	0.21	1.79	0.28	2.28	0.35	3.45	0.55	4.48	0.68
0.66	20	7	27	9.5	35	11.5	53	19	69	23	3	1.38	0.20	1.86	0.27	2.41	0.33	3.66	0.54	4.76	0.65
1	24	5.5	32	7.5	39	10	61	17	76	21	4	1.66	0.16	2.21	0.21	2.69	0.28	4.21	0.48	5.24	0.59
1.5	28	-	36	5.5	45	7.5	70	14	86	18	6	1.93	-	2.48	0.16	3.10	0.21	4.83	0.40	5.93	0.51
2	30	-	39	-	48	5.5	75	11	92	15	8	2.07	-	2.69	-	3.31	0.16	5.17	0.31	6.34	0.42
2.5	32	-	42	-	51	-	79	8	97	12	9.5	2.21	-	2.90	-	3.52	-	5.45	0.23	6.69	0.34

# Product Technical Data

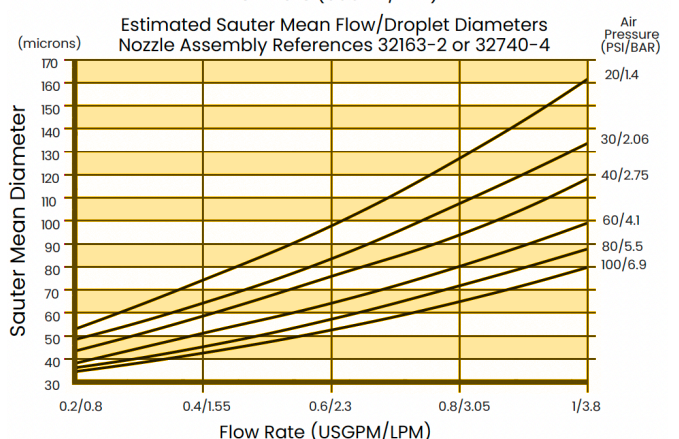
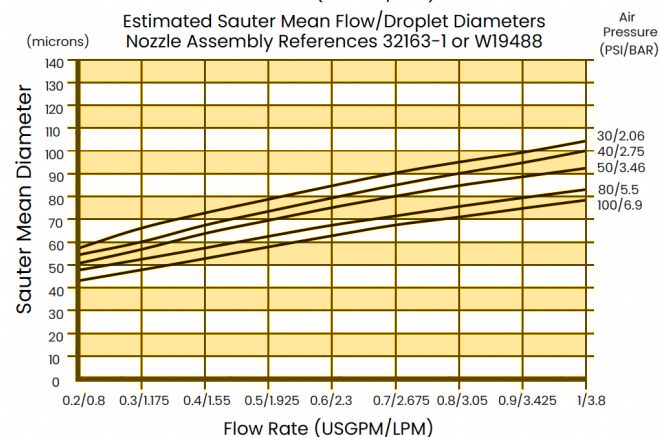
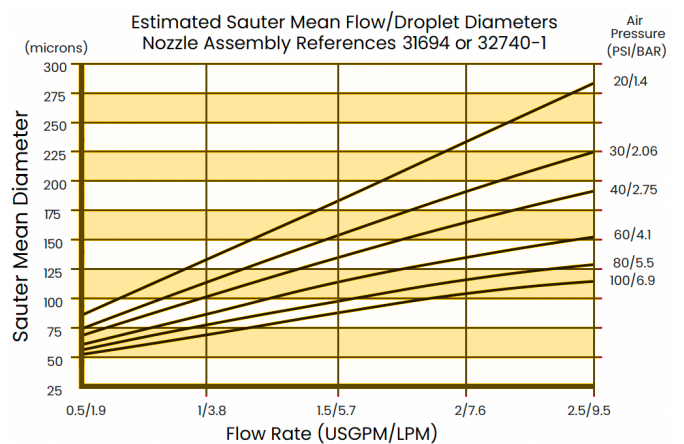
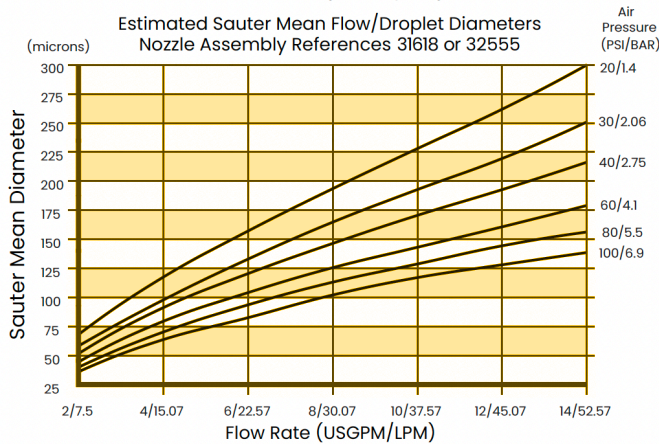
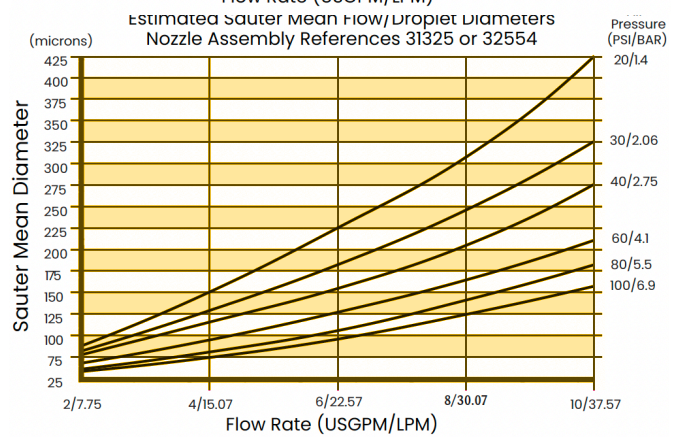
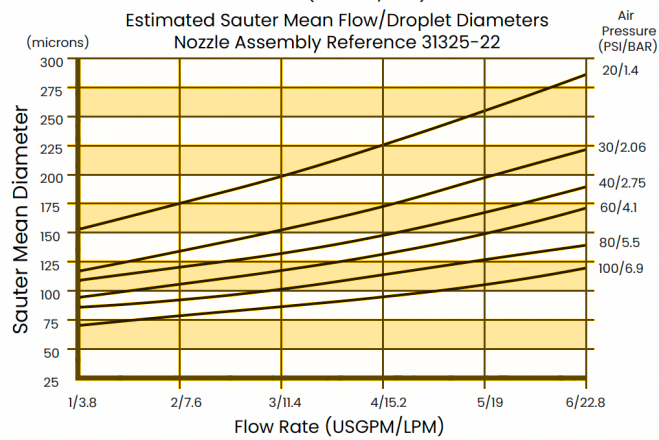
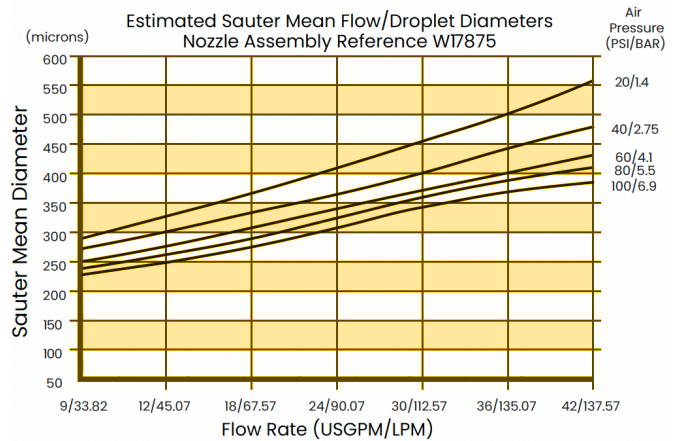
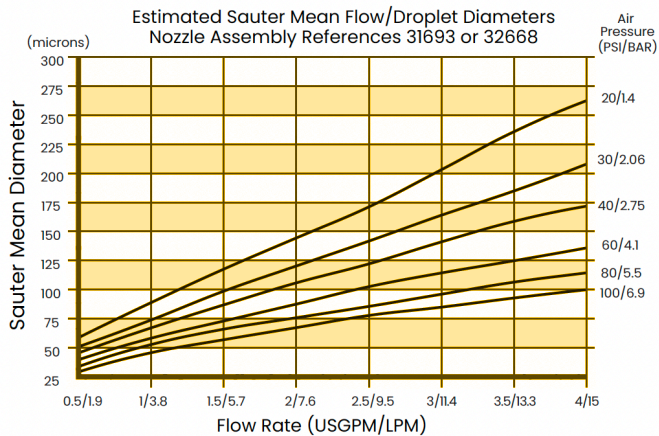
## In-Line Nozzle P/N 32740-4 1 USGPM/3.8 LPM Max Flow

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	30 PSI		40 PSI		50 PSI		80 PSI		100 PSI			2 BAR		2.8 BAR		3.5 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
0.2	27	3.5	36.5	4.6	46	5.5	74	8.5	92	10.5	0.8	1.86	0.10	2.52	0.13	3.17	0.16	5.10	0.24	6.34	0.30
0.3	27.5	3.0	37.5	3.5	47	4.5	75.8	7.5	95.5	9	1.1	1.90	0.08	2.59	0.10	3.24	0.13	5.23	0.21	6.59	0.25
0.4	28	2.5	38	3	47.6	4	76.5	6.5	96	8	1.5	1.93	0.07	2.62	0.08	3.28	0.11	5.28	0.18	6.62	0.23
0.5	28.5	2.0	38.5	2.5	48	3.5	77.5	5.5	97	7	1.9	1.97	0.06	2.66	0.07	3.31	0.10	5.34	0.16	6.69	0.20
0.6	29	1.5	39	2.0	48.5	3.0	78	5	97.5	6.8	2.3	2	0.04	2.69	0.06	3.34	0.08	5.38	0.14	6.72	0.19
0.7	29.2	1.2	39.2	1.8	48.8	2.5	78.5	4.5	98	5.5	2.7	2.01	0.03	2.70	0.05	3.37	0.07	5.41	0.13	6.76	0.16
0.8	29.4	1	39.4	1.5	49	2.2	79	4	98.4	5	3	2.03	0.03	2.72	0.04	3.38	0.06	5.45	0.11	6.79	0.14
0.9	29.6	-	39.8	1.2	49.2	2	79.2	3.5	98.6	4.5	3.4	2.04	-	2.74	0.03	3.39	0.06	5.46	0.10	6.80	0.13
1	29.8	-	40	1	49.4	1.5	79.4	3	99	4	3.8	2.06	-	2.76	0.03	3.41	0.04	5.48	0.08	6.83	0.11

## In-Line Nozzle P/N 19488 0.2 USGPM/0.8 LPM Max Flow

Liquid Flow	Liquid Pressure (PSI)/Air Consumption (SCFM) at these Air Pressures (PSI)										Liquid Flow	Liquid Pressure (BAR)/Air Consumption (M3/MIN) at these Air Pressures (BAR)									
	50 PSI		60 PSI		70 PSI		80 PSI		100 PSI			3 BAR		4 BAR		5 BAR		5.5 BAR		7 BAR	
USGPM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	PSI	SCFM	LPM	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN	BAR	M3/MIN
0.02	7.5	3	9.5	3.5	11.5	4	13.5	4.5	17.5	5.5	0.08	0.52	0.08	0.66	0.10	0.79	0.11	0.93	0.13	1.21	0.16
0.05	9	3	11.5	3.5	13.5	4	15.5	4.5	19.5	5.5	0.19	0.62	0.08	0.79	0.10	0.93	0.11	1.07	0.13	1.34	0.16
0.1	13	3	16	3.5	19	4	21.5	4.5	27	5.5	0.38	0.90	0.08	1.10	0.10	1.31	0.11	1.48	0.13	1.86	0.16
0.15	16.5	3	20	3.5	23.5	4	27	4.5	33.5	5	0.57	1.14	0.08	1.38	0.10	1.62	0.11	1.86	0.13	2.31	0.14
0.2	20.5	3	24.5	3.5	28.5	3.8	32.5	4	40.5	5	0.76	1.41	0.08	1.69	0.10	1.97	0.11	2.24	0.11	2.79	0.14
0.3	25	3	29.5	3.3	34	3.5	38.5	4	47.5	4.5	1.14	1.72	0.08	2.03	0.09	2.34	0.10	2.66	0.11	3.28	0.13
0.5	33	3	39	3	44.5	3.5	50.5	3.8	62	4.5	1.89	2.28	0.08	2.69	0.08	3.07	0.10	3.48	0.11	4.28	0.13
0.7	39	2.5	46.5	3	54	3.5	61	3.8	75	4.5	2.65	2.69	0.07	3.21	0.08	3.72	0.10	4.21	0.11	5.17	0.13
0.9	47	2.5	56	2.8	64	3	72	3.5	89	4	3.41	3.24	0.07	3.86	0.08	4.41	0.08	4.97	0.10	6.14	0.11
1	51	2.3	60	2.5	69	3	78	3.2	96	4	3.79	3.52	0.07	4.14	0.07	4.76	0.08	5.38	0.09	6.62	0.11

# Mean Flow / Droplet Diameters



Delavan, part of R.W. Beckett, is a world leader in the design and manufacture of high quality spray nozzles and fluid handling systems. Since 1935, we have grown to be one of the leading spray nozzle manufacturers. Operating from dedicated manufacturing facilities, Delavan now supplies more than 30,000 different components to thousands of customers in virtually every manufacturing and processing industry. Our success has been driven by our outstanding service, our manufacturing flexibility, and our technical application expertise to ensure our customers obtain the maximum benefit from the solutions they choose.

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