

- Two Swirl-Air nozzle versions are available: the right angle nozzle (atomising air enters the side, the liquid enters axially in back); and the in-line nozzle (concentric piping is used with the liquid in the centre and atomising air around the outside). Concentric pipe adaptors are optional and not included with the nozzle assembly.

## FEATURES

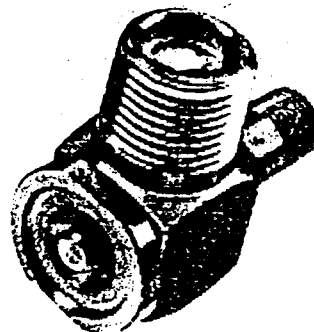
- Large internal passages with no vanes or cores assure unrestricted flow with little chance for clogging.
- No external struts or supports to interfere with spray pattern.
- Nozzle design provides for vortex mixing, primary impingement, fluid distortion and external impact for fine atomisation and relatively high nozzle efficiency.
- Spray angle can be adjusted through interchangeable nozzle cap assemblies. This feature permits much wider spray patterns than are possible with most types of two fluid atomisers.
- Air flow ( $M^3/min$ ) and power requirements are relatively low, permitting specification of smaller air compressors.
- Good atomisation over wide turn-down ratios.
- Droplet size is controlled by minor changes in air pressure.

## SPRAY CHARACTERISTICS

- Air is introduced tangentially into the nozzle chamber in low pressure region of the swirling liquid, creating extreme turbulence and primary atomisation. As liquid leaves the orifice, it impinges against the deflector ring which serves a dual purpose: close control of spray angle and breakup of the spray into even finer droplets (secondary atomisation).
- Nominal spray angles of  $50^\circ$ ,  $75^\circ$ ,  $100^\circ$  can be attained by specification of interchangeable nozzle caps. Contact Delavan's Customer Service Team for special spray angles up to  $180^\circ$ .
- Mean droplet diameters in the 50 to 100 micrometres range at modest air pressures and flow rates.
- Degree of atomisation is also variable by controlling the ratio of air to liquid.
- If air pressure is set initially, and it is necessary to modulate the liquid flow, the air pressure and flow rates will automatically respond in such a way that the quality of atomisation remains nearly constant. In some applications, this can result in savings through the elimination of air valving and controls.

## CONSTRUCTION AND MATERIALS

- Two piece construction, the nozzle body plus integral deflector ring and cap, easily removable without disturbing pipe connection.
- For in-line nozzles the user can alter "C" dimension to any extended length by providing two concentric pipes with a coupling on one end of each. Both made up pipe/coupling lengths should be equal. The length is then the desired addition to "C" dimension.
- No external struts or supports to interfere with spray pattern.
- Both in-line and right angle versions are available in 316L Stainless Steel and 440 Stainless Steel. Other materials such as Hastelloy C276, Inconel 600, Carpenter 20, Titanium and Carbide lined are available by special order. For other materials, contact Delavan's Customer Service Team.
- Large internal passages with no vanes or cores assure unrestricted flow with little chance for clogging.



Right Angle  
Nozzle Assembly

### Nozzle -

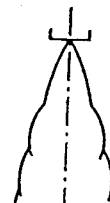
Max. Design Pressure: 14 Bar.G.  
Max. Design Temperature:  $540^\circ C$ .

### Adaptor -

Max. Design Pressure: 14 Bar.G.  
Max. Design Temperature:  $150^\circ C$ .



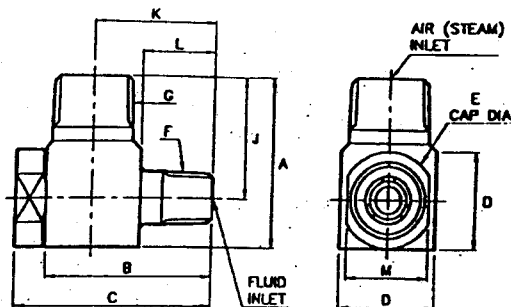
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Web: www.delavan.co.uk



AIR ATOMISING SWIRL-AIR®

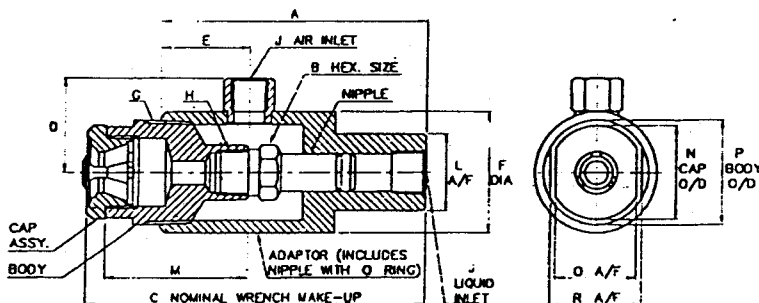
**SWIRL-AIR®**

AIR ATOMISING



**RIGHT ANGLE SWIRL-AIR NOZZLE ASSEMBLY DIMENSIONS (mm)**

DIMENSION	RIGHT ANGLE NOZZLE ASSEMBLY DIMENSIONS (mm)					
	45506	31618	31325	31693	31694	32163
A	66,7	54,0	44,5	34,9	28,6	28,6
B	56,4	51,8	46,4	38,1	34,9	34,9
C	64,6	59,2	53,7	42,3	38,5	38,5
D	38,1	31,8	25,4	19,0	15,9	15,9
E	41,3	34,7	28,3	22,0	18,8	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	47,6	38,1	31,8	25,4	20,6	20,6
K	38,1	35,9	33,7	28,6	27,0	27,0
L	19,0	20,0	21,0	19,1	19,1	19,1
M	36,5	31,8	25,4	19,1	15,9	15,9
Approx. weight (g)	430	270	170	77	51	51



**IN-LINE SWIRL-AIR NOZZLE ASSEMBLY DIMENSIONS (mm)**

DIMENSION	IN-LINE NOZZLE/ADAPTOR DEMENSIONS (mm)			
	32555/32614	32554/32618	32668/32695	32740/32742
A	127,0	120,7	120,7	90,2
B	22,2	15,9	15,9	12,7
C	152,4	146,1	142,8	108,0
D	44,5	39,6	39,6	32,6
E	44,5	58,4	58,4	38,1
F	50,8	41,3	41,3	28,6
L	38,1	31,8	31,8	19,1
M	59,7	53,9	54,0	38,1
N	34,7	28,3	22,0	18,8
O	31,8	25,4	19,0	15,9
P	42,2	33,4	26,7	21,3
R	34,9	28,6	22,2	19,0
G (NPTM)	1 1/4" - 1 1/2"	1" - 1 1/2"	3/4" - 1"	1/2" - 1"
H (NPTF)	1/2" - 1"	1/4" - 1/2"	1/4" - 1/2"	1/8" - 1/4"
J (NPTF)	1/2" - 1"	1/2" - 1"	1/2" - 1"	1/4" - 1/2"
Approx. weight (g)	1248	1120	1177	462

Contact our Helpline for any special requirements:  
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Web: www.delavan.co.uk



Cotec Industries



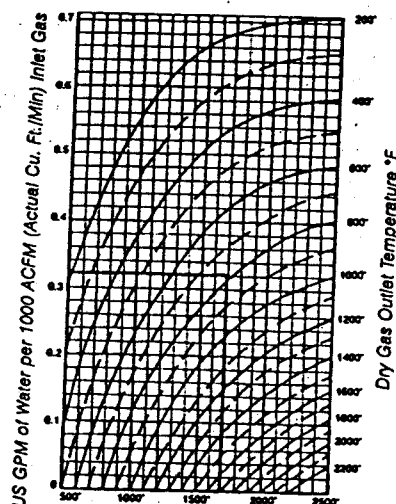
# NOZZLE SIZING CHARTS

**DEHAVAN**  
Spray Technologies

NOMINAL FLOW (LITRES/MIN)	RIGHT ANGLE NOZZLE ASSEMBLY NUMBER	RIGHT ANGLE NOZZLES				CAP ASSEMBLY	
		DASH NUMBERS FOR MATERIAL AND NOMINAL SPRAY ANGLE					
		316 SS	440 HSS	ANGLE (°)	MIN. PASSAGE (mm)	316 SS	440 HSS
93	45506	-2	-	50 (40-60)	6,1	707-97	-
		-1	-	75 (65-85)	4,8	707-96	-
		-3	-	100 (90-110)	3,8	707-98	-
56	31618	-2	-5	50 (40-60)	4,3	707-11	707-26
		-1	-4	75 (65-85)	3,6	707-10	707-25
		-3	-6	100 (90-110)	2,8	707-12	707-27
37	31325	-2	-5	50 (40-60)	2,5	707-8	707-23
		-1	-4	75 (65-85)	2,1	707-7	707-22
		-3	-6	100 (90-110)	1,6	707-9	707-24
15	31693	-2	-5	50 (40-60)	1,7	707-5	707-20
		-1	-4	75 (65-85)	1,7	707-4	707-19
		-3	-6	100 (90-110)	1,7	707-6	707-21
9,5	31694	-2	-5	50 (40-60)	1,3	707-2	707-17
		-1	-4	75 (65-85)	1,3	707-1	707-16
		-3	-6	100 (90-110)	1,3	707-3	707-18
3,8	32163	-11	-	50 (40-60)	0,64	707-93	-
		-2	-	75 (65-85)	0,64	707-13	-
		-7	-	100 (90-110)	0,64	707-29	-
,8	32163	-10	-	50 (40-60)	0,64	707-93	-
		-1	-	75 (65-85)	0,64	707-13	-
		-8	-	100 (90-110)	0,64	707-29	-

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

EVAPORATIVE COOLING WATER INJECTION RATES VS. GAS INLET-OUTLET TEMPERATURES

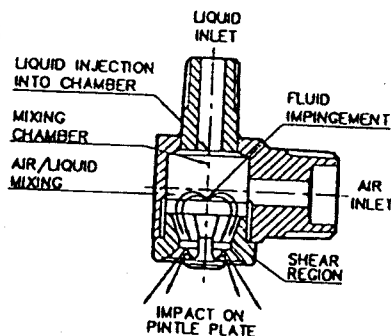


Dry Gas Outlet Temperature. °F  
EXAMPLE: 1700°F dry inlet gas to be cooled to 800°F outlet temperature requires 0,32 US GPM water injection per 1000 CFM of inlet gas.

IN-LINE NOZZLES							
NOMINAL FLOW (LITRES/ MIN)	NOZZLE ASSEM. NUMBER	DASH NUMBERS FOR MATERIAL AND NOMINAL SPRAY ANGLE			CAP ASSEMBLY		OPTIONAL ADAPTOR
		316 SS	ANGLE (°)	MIN. PASSAGE (mm)	316 SS	440 HSS	
56	32555	-2	50 (40-60)	4,3	707-11	707-26	32614
		-1	75 (65-85)	3,6	707-10	707-25	
		-3	100 (90-110)	2,8	707-12	707-27	
37	32554	-2	50 (40-60)	2,5	707-8	707-23	32618
		-1	75 (65-85)	2,1	707-7	707-22	
		-3	100 (90-110)	1,6	707-9	707-24	
15	32668	-2	50 (40-60)	1,7	707-5	707-20	32695
		-1	75 (65-85)	1,7	707-4	707-19	
		-3	100 (90-110)	1,7	707-6	707-21	
9,5	32740	-2	50 (40-60)	1,3	707-2	707-17	32742
		-1	75 (65-85)	1,3	707-1	707-16	
		-3	100 (90-110)	1,3	707-3	707-18	
3,8	32740	-13	50 (40-60)	0,64	707-93	-	32742
		-4	75 (65-85)	0,64	707-13	-	
		-5	100 (90-110)	0,64	707-29	-	

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

Maximum Recommended Pressure: 100 Bar.G.



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