

Product & Information Catalogue



ULTRASONIC NOZZLES & AIR ATOMISERS

DUST SUPPRESSION - HUMIDIFICATION - ATOMISING - FOGGING



Spraying System Solutions for a World of Industry

J D UltraSonics Limited are leading European Agents for the unique range of sonicom™ ultrasonic humidifiers, atomising and fogging nozzles.



Based in the UK, the company is ideally placed to interlink facilities across the country to draw on a wealth of experience and technologies operating as a completely unified entity, from research & development to worldwide service.

A Brief History

J D UltraSonics traces its heritage from the 1960's when our partners in the USA first established the manufacture of nozzles for scrubber technology used for particulate and acid gas emission control as well as spray nozzle system applications, including evaporative cooling of process gases, combustion, spray drying and gas conditioning cooling towers. The company also traces its history through Lucas Industries before establishing itself as an independent player and an integral part of the spray technology industry.

Applications & Expertise

Proven applications include dust suppression, humidity control, cooling, odour control, disinfection, recycling, food, steel, chemical, quarrying, mining and automotive industries.

Our creative engineers are constantly designing and installing systems within many industrial and commercial sectors who demand the highest degree of controls for their processes. Customers derive cost benefits from decreased water usage and energy efficiencies through well designed specifications.

In-House Capabilities

Our partnerships with selected engineering service providers allow us to offer total solutions, integrating our spraying products into both new and existing processes.

Extensive engineering design includes fluidics, mechanical, electrical and installation. These specialties are offered to customers as a complete package, ensuring the best solution is supplied for any given project.

Product Support

J D Ultrasonics Ltd has built a strong reputation over 25 years for service, quality and reliability. Supplying clients throughout the world who rely on dependable spraying technology is assured, through years of in-house design and manufacturing by experienced staff and field engineers.



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1 | Conversion Charts

AREA		
MULTIPLY	BY	TO OBTAIN
mm ²	0.00155	inch ²
mm ²	0.000010764	ft ²
cm ²	0.1550003	inch ²
cm ²	0.0010764	ft ²
m ²	1550.003	inch ²
m ²	10.7639	ft ²
m ²	1.19599	yard ²
m ²	0.000247	acre
m ²	0.0001	hectare
inch ²	645.16	mm ²
inch ²	6.4516	cm ²
inch ²	0.0006452	m ²
ft ²	92903.04	mm ²
ft ²	929.0304	cm ²
ft ²	0.09290304	m ²
yard ²	0.8361274	m ²
yard ²	0.0002066	acre
acre	0.40469	hectare
mile ²	2.59	km ²

PRESSURE		
MULTIPLY	BY	TO OBTAIN
bar	14.504	psi
bar	1.02	Kgf/cm ²
bar	100,000.0	N/m ² (Pa)
bar	100.0	kPa
bar	750.1	mm Hg
bar	29.53	inch Hg
bar	0.987	atm
psi	0.0689	bar
psi	0.07031	Kgf/cm ²
psi	6894.757	N/m ² (Pa)
psi	6.89476	kPa
psi	51.71	mm Hg
psi	2.036	inch Hg
psi	0.068	atm

FLOW		
MULTIPLY	BY	TO OBTAIN
lt/sec	0.22	Imp gal/sec
lt/sec	0.2642	US gal/sec
lt/sec	0.035315	ft ³ /sec
lt/sec	2.119	ft ³ /min
lt/sec	0.001	m ³ /sec
lt/sec	0.06	m ³ /min
lt/min	0.003666	Imp gal/sec
lt/min	0.004403	US gal/sec
lt/min	0.035315	ft ³ /min
lt/min	0.0000167	m ³ /sec
lt/min	0.001	m ³ /min
m ³ /sec	35.31	ft ³ /sec
m ³ /sec	2118.9	ft ³ /min
m ³ /sec	13198.15	Imp gal/min
m ³ /sec	15850.32	US gal/min
in ³ /min	0.00027312	lt/sec
in ³ /min	0.01639	lt/min
in ³ /min	0.98322	lt/hr
ft ³ /min	0.000472	m ³ /sec
ft ³ /min	0.0283	m ³ /min
ft ³ /min	1.699	m ³ /hr
ft ³ /min	0.4719	lt/sec
ft ³ /min	28.317	lt/min
ft ³ /min	1699	lt/hr
ft ³ /min	0.4719	dm ³ /sec
yd ³ /min	0.012743	m ³ /sec
yd ³ /min	0.764555	m ³ /min
yd ³ /min	45.8733	m ³ /hr
yd ³ /min	12.74258	lt/sec
yd ³ /min	764.5549	lt/min
Nm ³ /hr	0.622	ft ³ /min

TEMPERATURE		
MULTIPLY	BY	TO OBTAIN
°C	x1.8 + 32	°F
°F	-32 ÷ 1.8	°C

LENGTH		
MULTIPLY	BY	TO OBTAIN
micron	0.00004	inch
micron	0.001	mm
mm	0.0394	inch
mm	0.00328	ft
mm	0.0010936	yd
mtr	39.37	inch
mtr	3.2808	ft
mtr	1.0936	yd
mtr	0.000621	mile
km	3280.84	ft
km	1093.613	yd
km	0.6214	mile
inch	25.4	mm
inch	0.0254	mtr
inch	0.0000254	km
ft	304.8	mm
ft	0.3048	mtr
ft	0.0003048	km
yd	914.4	mm
yd	0.9144	mtr
yd	0.000914	km
inch	0.25	hand
inch	0.01389	fathom
inch	0.00126	chain
yd	0.5	fathom
yd	0.04545	chain
yd	0.0004934	nautical mile
mile	0.868	nautical mile

POWER		
MULTIPLY	BY	TO OBTAIN
horsepower	746	watt
foot pounds/min	0.0226	watt
BTU/min	17.584	watt
joule/sec	1	watt
newton mtr/sec	1	watt

VOLUME		
MULTIPLY	BY	TO OBTAIN
mm ³	0.000061	inch ³
cm ³	0.061023	inch ³
m ³	61023.4	inch ³
m ³	35.3147	ft ³
m ³	1.308	yd ³
m ³	219.969	Imp gal
m ³	264.172	US gal
m ³	1000	ltr
ltr	61.0234	inch ³
ltr	0.035315	ft ³
ltr	0.001308	yd ³
ltr	0.22	Imp gal
ltr	0.264	US gal
ltr	0.001	m ³
inch ³	16387.06	mm ³
inch ³	16.38706	cm ³
inch ³	0.0000164	m ³
ft ³	28.317	ltr
ft ³	0.028317	m ³
Imp pint	0.5683	ltr
Imp pint	0.0005683	m ³
Imp pint	0.020068	ft ³
Imp pint	0.15	US gal
Imp gal	4.546	ltr
Imp gal	0.004546	m ³
Imp gal	0.16054	ft ³
Imp gal	1.2	US gal

WEIGHT		
MULTIPLY	BY	TO OBTAIN
gm	0.035274	oz
kg	35.274	oz
kg	2.205	lb
kg	9.807	newton
lb	4.448	newton
ton	1.016	tonne

1 | Conversion Charts

inch	mm	dec	inch	mm	dec	inch	mm	dec	inch	mm	dec	inch	mm	dec	inch	mm	dec
	0.20	0.0079		1.70	0.0669		4.70	0.1850		8.70	0.3425	1/2	12.70	0.5000		19.25	0.7579
	0.22	0.0087		1.75	0.0689	3/16		0.1875	11/32		0.3438		12.80	0.5039	49/64		0.7656
	0.25	0.0099		1.80	0.0709		4.80	0.1890		8.80	0.3465		12.90	0.5079		19.50	0.7677
	0.28	0.0110		1.85	0.0728		4.90	0.1929		8.90	0.3504		13.00	0.5118		19.75	0.7776
	0.30	0.0118		1.90	0.0748		5.00	0.1968		9.00	0.3543	33/64		0.5156	25/32		0.7812
	0.32	0.0126		1.95	0.0768		5.10	0.2008		9.10	0.3583		13.10	0.5157		20.00	0.7874
	0.35	0.0138	5/64		0.0781	13/64		0.2031	23/64		0.3594		13.20	0.5197	51/64		0.7969
	0.38	0.0150		2.00	0.0787		5.20	0.2047		9.20	0.3622		13.30	0.5236		20.25	0.7972
1/64		0.0156		2.05	0.0807		5.30	0.2087		9.30	0.3661		13.40	0.5276		20.50	0.8071
	0.40	0.0157		2.10	0.0827		5.40	0.2126		9.40	0.3701	17/32		0.5312	13/16		0.8125
	0.42	0.0165		2.15	0.0846		5.50	0.2165		9.50	0.3740		13.50	0.5315		20.75	0.8169
	0.45	0.0177		2.20	0.0866	7/32		0.2188	3/8		0.3750		13.60	0.5354		21.00	0.8268
	0.48	0.0189		2.25	0.0886		5.60	0.2205		9.60	0.3780		13.70	0.5394	53/64		0.8281
	0.50	0.0197		2.30	0.0906		5.70	0.2244		9.70	0.3819		13.80	0.5433		21.25	0.8366
	0.52	0.0205		2.35	0.0925		5.80	0.2283		9.80	0.3858	35/64		0.5469	27/32		0.8438
	0.55	0.0217	3/32		0.0938		5.90	0.2323		9.90	0.3898		13.90	0.5472		21.50	0.8465
	0.58	0.0228		2.40	0.0945	15/64		0.2344	25/64		0.3906		14.00	0.5512		21.75	0.8563
	0.60	0.0236		2.45	0.0965		6.00	0.2362		10.00	0.3937		14.25	0.5610	55/64		0.8594
	0.62	0.0244		2.50	0.0984		6.10	0.2402		10.10	0.3976	9/16		0.5625		22.00	0.8661
	0.65	0.0256		2.55	0.1004		6.20	0.2441		10.20	0.4016		14.50	0.5709	7/8		0.8750
	0.68	0.0268		2.60	0.1024		6.30	0.2480		10.30	0.4055	37/64		0.5781		22.25	0.8760
	0.70	0.0276		2.65	0.1043	1/4	6.35	0.2500	13/32		0.4062		14.75	0.5807		22.50	0.8858
	0.72	0.0283		2.70	0.1063		6.40	0.2520		10.40	0.4094		15.00	0.5906	57/64		0.8906
	0.75	0.0295		2.75	0.1083		6.50	0.2559		10.50	0.4134	19/32		0.5938		22.75	0.8957
	0.78	0.0307	7/64		0.1094		6.60	0.2598		10.60	0.4173		15.25	0.6004		23.00	0.9055
1/32		0.0312		2.80	0.1102		6.70	0.2638		10.70	0.4213	39/64		0.6094	29/32		0.9062
	0.80	0.0315		2.85	0.1122	17/64		0.2656	27/64		0.4219		15.50	0.6102		23.25	0.9154
	0.82	0.0323		2.90	0.1142		6.80	0.2677		10.80	0.4252		15.75	0.6201	59/64		0.9219
	0.85	0.0335		2.95	0.1161		6.90	0.2717		10.90	0.4291	5/8		0.6250		23.50	0.9252
	0.88	0.0346		3.00	0.1181		7.00	0.2756		11.00	0.4331		16.00	0.6299		23.75	0.9350
	0.90	0.0354		3.10	0.1220		7.10	0.2795		11.10	0.4370		16.25	0.6398	15/16		0.9375
	0.92	0.0362	1/8		0.1250	9/32		0.2812	7/16		0.4375	41/64		0.6406		24.00	0.9449
	0.95	0.0374		3.20	0.1260		7.20	0.2835		11.20	0.4409		16.50	0.6496	61/64		0.9531
	0.98	0.0386		3.30	0.1299		7.30	0.2874		11.30	0.4449	21/32		0.6562		24.25	0.9547
	1.00	0.0394		3.40	0.1339		7.40	0.2913		11.40	0.4488		16.75	0.6594		24.50	0.9646
	1.05	0.0413		3.50	0.1378		7.50	0.2953		11.50	0.4528		17.00	0.6693	31/32		0.9688
	1.10	0.0433	9/64		0.1406	19/64		0.2969	29/64		0.4531	43/64		0.6719		24.75	0.9744
	1.15	0.0453		3.60	0.1417		7.60	0.2992		11.60	0.4567		17.25	0.6791		25.00	0.9843
3/64		0.0469		3.70	0.1457		7.70	0.3032		11.70	0.4606	11/16		0.6875	63/64		0.9844
	1.20	0.0472		3.80	0.1496		7.80	0.3071		11.80	0.4646		17.50	0.6890		25.25	
	1.25	0.0492		3.90	0.1535		7.90	0.3110		11.90	0.4685		17.75	0.6988	1	25.40	1.0000
	1.30	0.0512	5/32		0.1562	5/16		0.3125	15/32		0.4688	45/64		0.7031		25.50	1.0039
	1.35	0.0532		4.00	0.1575		8.00	0.3150		12.00	0.4724		18.00	0.7087		25.75	1.0138
	1.40	0.0551		4.10	0.1614		8.10	0.3189		12.10	0.4764		18.25	0.7185		26.00	1.0236
	1.45	0.0571		4.20	0.1654		8.20	0.3228		12.20	0.4803	23/32		0.7188		27.00	1.0630
	1.50	0.0591		4.30	0.1693		8.30	0.3268		12.30	0.4843		18.50	0.7283		28.00	1.1024
	1.55	0.0610	11/64		0.1719	21/64		0.3281	31/64		0.4844	47/64		0.7344		29.00	1.1417
1/16		0.0625		4.40	0.1732		8.40	0.3307		12.40	0.4882		18.75	0.7382		30.00	1.1811
	1.60	0.0630		4.50	0.1772		8.50	0.3346		12.50	0.4921		19.00	0.7480		31.00	1.2205
	1.65	0.0650		4.60	0.1811		8.60	0.3386		12.60	0.4961	3/4	19.05	0.7500	1 1/4	31.75	1.2500

BRITISH STANDARD PIPE THREADS		
SIZE	OUTSIDE DIA	T.P.I.
1/8"	0.383	28
1/4"	0.518	19
3/8"	0.656	19
1/2"	0.825	14
5/8"	0.902	14
3/4"	1.041	14
7/8"	1.189	14
1"	1.309	11
1 1/4"	1.650	11
1 1/2"	1.882	11
1 3/4"	2.116	11
2"	2.347	11

AMERICAN NATIONAL PIPE THREADS (TAPER)		
SIZE	OUTSIDE DIA	T.P.I.
1/8"	0.405	27
1/4"	0.540	18
3/8"	0.675	18
1/2"	0.840	14
3/4"	1.050	14
1"	1.315	11 1/2
1 1/4"	1.660	11 1/2
1 1/2"	1.900	11 1/2
2"	2.375	11 1/2

THEORETICAL AIR FLOW (l/s OF FREE AIR THROUGH NYLON TUBING FOR AN AIR VELOCITY OF 30m/s)										
OD mm	1 BAR	2 BAR	3 BAR	4 BAR	5 BAR	6 BAR	7 BAR	8 BAR	9 BAR	10 BAR
4	0.293	0.438	0.583	0.729	0.874	1.02	1.16	1.31	1.46	1.60
5	0.510	0.760	1.02	1.27	1.52	1.78	2.03	2.28	2.54	2.79
6	0.749	1.12	1.49	1.87	2.24	2.61	2.98	3.35	3.73	4.10
8	1.65	2.35	3.05	3.88	4.61	5.42	6.10	6.85	7.64	8.28
10	2.29	3.43	4.57	5.71	6.85	7.99	9.13	10.30	11.40	12.30
12	3.87	5.83	7.69	9.60	11.51	13.42	15.33	17.24	19.12	21.02

THEORETICAL AIR FLOW (scfm OF FREE AIR THROUGH ANSI STANDARD WEIGHT SCHEDULE 40 METAL PIPE OF 100 ft LENGTH)										
ID inch	5 PSI	10 PSI	20 PSI	40 PSI	60 PSI	80 PSI	100 PSI	150 PSI	200 PSI	250 PSI
1/8"	0.5	0.8	1.3	2.5	3.5	4.7	5.8	8.6	11.5	14.5
1/4"	1.2	1.7	3.0	5.50	8.0	10.5	13.0	20.0	26.0	33.0
3/8"	2.7	3.9	6.6	12.0	18.0	23.0	29.0	41.0	58.0	73.0
1/2"	4.9	7.7	13.0	23.0	34.0	44.0	54.0	80.0	108.0	135.0
3/4"	6.6	11.0	18.5	34.0	50.0	65.0	80.0	115.0	155.0	200.0
1"	13	21	35	62	93	120	150	220	290	370
1 1/4"	27	44	75	135	195	255	315	460	620	770
1 1/2"	40	64	110	200	290	380	470	680	910	1150
2"	80	125	215	385	560	720	900	1350	1750	2200
2 1/2"	135	200	350	640	900	1200	1450	2200	2800	3500
3"	240	370	600	1100	1600	2100	2600	3900	5000	6100

2 | Ultrasonic Nozzles



DESCRIPTION

Sonicom ultrasonic nozzles are activated by pressurised gas; either compressed air or steam. Air passes through the nozzle's inner bore through a convergent/divergent section at high velocities and expands into a resonator cavity where it is reflected back to complement and amplify the primary shock wave. The result is an intensified field of sonic energy focused between the nozzle body and the resonator cap.

Any liquid capable of being pumped into the shock wave is vigorously sheared into fine droplets by the acoustic field. Air bypassing the resonator carries the atomised droplets downstream in a soft plume shaped spray. The droplets have low mass and low forward velocity with low impingement characteristics. Fine atomisation ensures uniform distribution of the liquid with minimum over spray and waste.

Sonicom atomising nozzles operate at very low liquid pressures and have large orifices. The large orifices and low pressure virtually eliminate orifice wear and prevent deterioration of the quality of atomisation while significantly extending nozzle life.

The great advantage of sonicom atomising nozzles is their ability to provide a consistent quality of atomisation over a wide flow range. Turndown ratios of 50 to 1 are possible. By varying air pressure, atomisation quality can be varied from coarse (50 to 300 microns) to an ultra-fine fog (1 to 10 microns).

APPLICATIONS

- Dust Suppression
- Humidification
- Atomisation
- Fogging
- Cooling

FEATURES

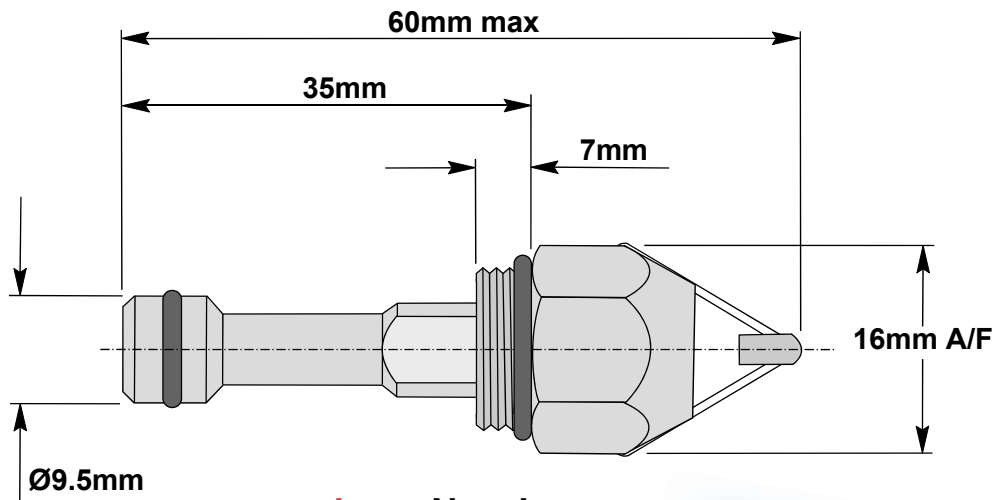
- Long Life
- Large Liquid Ports
- Easy to Clean

DATA

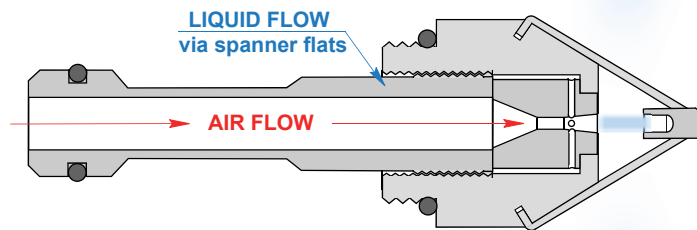
- Body: 303 Stainless Steel
- Resonator Wire: 302 S/Steel
- Seals: Viton Standard
- Seals: Silicone Optional
- Weight: 30 gms

ORDERING EXAMPLE

- 052H-N 052H Nozzle
- SEAL-01V Housing O-Ring
- SEAL-02V Stem O-Ring



sonicom Nozzle

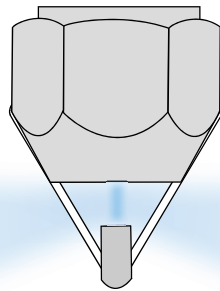


MODEL	WATER FLOW litres/hour	WATER PRESSURE bar	AIR PRESSURE bar	AIR FLOW litres/sec (cfm)	DROPLET SIZE micron
035H	nom 3 (0.4 - 8)	1.0	4.0/5.0	0.8 (1.7)	1 - 5
052H	nom 8 (1 - 20)	1.0	5.0	1.84 (3.9)	3 - 8
086H	nom 20 (2 - 26)	1.0	5.0	4.72 (10.0)	5 - 20
125H	nom 40 (4 - 55)	1.0	5.0	7.08 (15.0)	25 - 65
ST52	nom 8 (1 - 20)	1.0	5.0	1.84 (3.9)	3 - 10
ST47	nom 18 (2 - 30)	1.0	5.0	3.76 (8.0)	5 - 20
ST33	nom 40 (8 - 55)	1.0	5.0	7.08 (15.0)	25 - 65

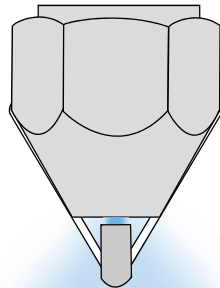
2 | Ultrasonic Nozzles

MODEL	SPRAY ANGLE	FLOW RATES	DROPLET SIZE	ORIFICE SIZE x number
035H-N 	Wide	LIQUID - @ 1 bar nom 3 lts/hr (0.4 - 8 lts/hr ratio) AIR - @ 5 bar 0.8 lts/sec (1.7 cfm)	1 - 5 µm	0.5mm x 4
052H-N 	Wide	LIQUID - @ 1 bar nom 8 lts/hr (1 - 20 lts/hr ratio) AIR - @ 5 bar 1.84 lts/sec (3.9 cfm)	3 - 8 µm	0.8mm x 4
086H-N 	Wide	LIQUID - @ 1 bar nom 20 lts/hr (2 - 26 lts/hr ratio) AIR - @ 5 bar 4.72 lts/sec (10.0 cfm)	5 - 20 µm	0.8mm x 4
125H-N 	Wide	LIQUID - @ 1 bar nom 40 lts/hr (4 - 55 lts/hr ratio) AIR - @ 5 bar 7.08 lts/sec (15.0 cfm)	25 - 65 µm	1.10mm x 4
ST52-N 	Narrow	LIQUID - @ 1 bar nom 8 lts/hr (1 - 20 lts/hr ratio) AIR - @ 5 bar 1.84 lts/sec (3.9 cfm)	3 - 10 µm	0.8mm x 4
ST47-N 	Narrow	LIQUID - @ 1 bar nom 18 lts/hr (2 - 30 lts/hr ratio) AIR - @ 5 bar 3.76 lts/sec (8.0 cfm)	5 - 20 µm	0.7mm x 6
ST33-N 	Narrow	LIQUID - @ 1 bar nom 40 lts/hr (8 - 55 lts/hr ratio) AIR - @ 5 bar 7.08 lts/sec (15.0 cfm)	25 - 65 µm	0.8mm x 8
JDU-04 	A stainless steel blanking plug is available to allow a nozzle to be removed from it's water valve or adaptor without the necessity to shut down a system completely.			

WIDE SPRAY ANGLE - 035H, 052H, 086H, 125H



NARROW SPRAY ANGLE - ST52, ST47, ST33



2 | Non-Drip Ultrasonic Nozzle Assembly



Designed and developed in the UK by J D UltraSonics Ltd, the sonicom non-drip water valve assembly ensures optimum performance from the standard range of sonicom nozzles with significant improvements and advantages.

The ultrasonic nozzle assembly is completely non-drip, self cleaning (by utilising air to purge the nozzle before and after every operation) and reduces control requirements to a simple on/off air supply. The same air supply is used to control the non-drip valve and activate the nozzle atomisation.

Manufactured in stainless steel with stainless springs and viton seals, the assembly will operate up to temperatures of 180°C (350°F). The valve can be complemented with fittings to match temperature and body material if required with a choice of push-in or compression types. Both air and liquid inlet ports are female 1/8" BSP parallel and will facilitate swivel elbows, male stud straights or other similar adaptors.

Two Ø5mm clear through holes within the main body of the valve provide a solid mounting platform for direct mounting or onto the standard stainless steel swivel bracket available as a recommended option.

Nominal operating pressures are only 5 bar air and 1 bar water at the nozzle to deliver an optimum atomisation and spray pattern. These pressures can be adjusted to achieve conditions more ideally suited to customer applications if required.

APPLICATIONS

- Dust Suppression
- Humidification Control
- Atomisation
- Fogging
- Cooling

FEATURES

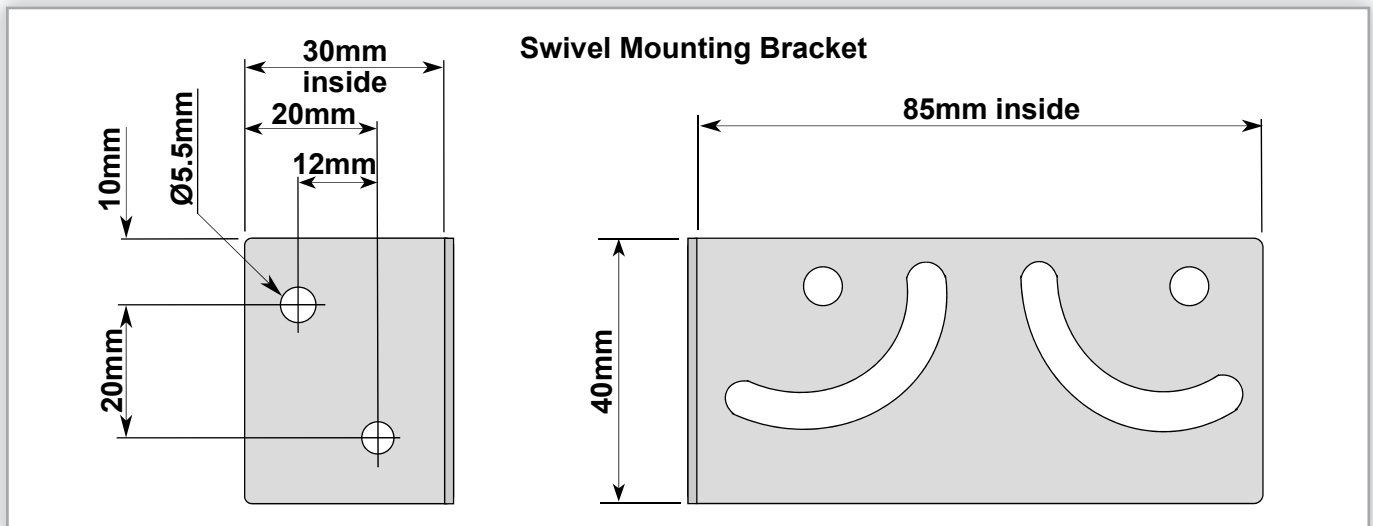
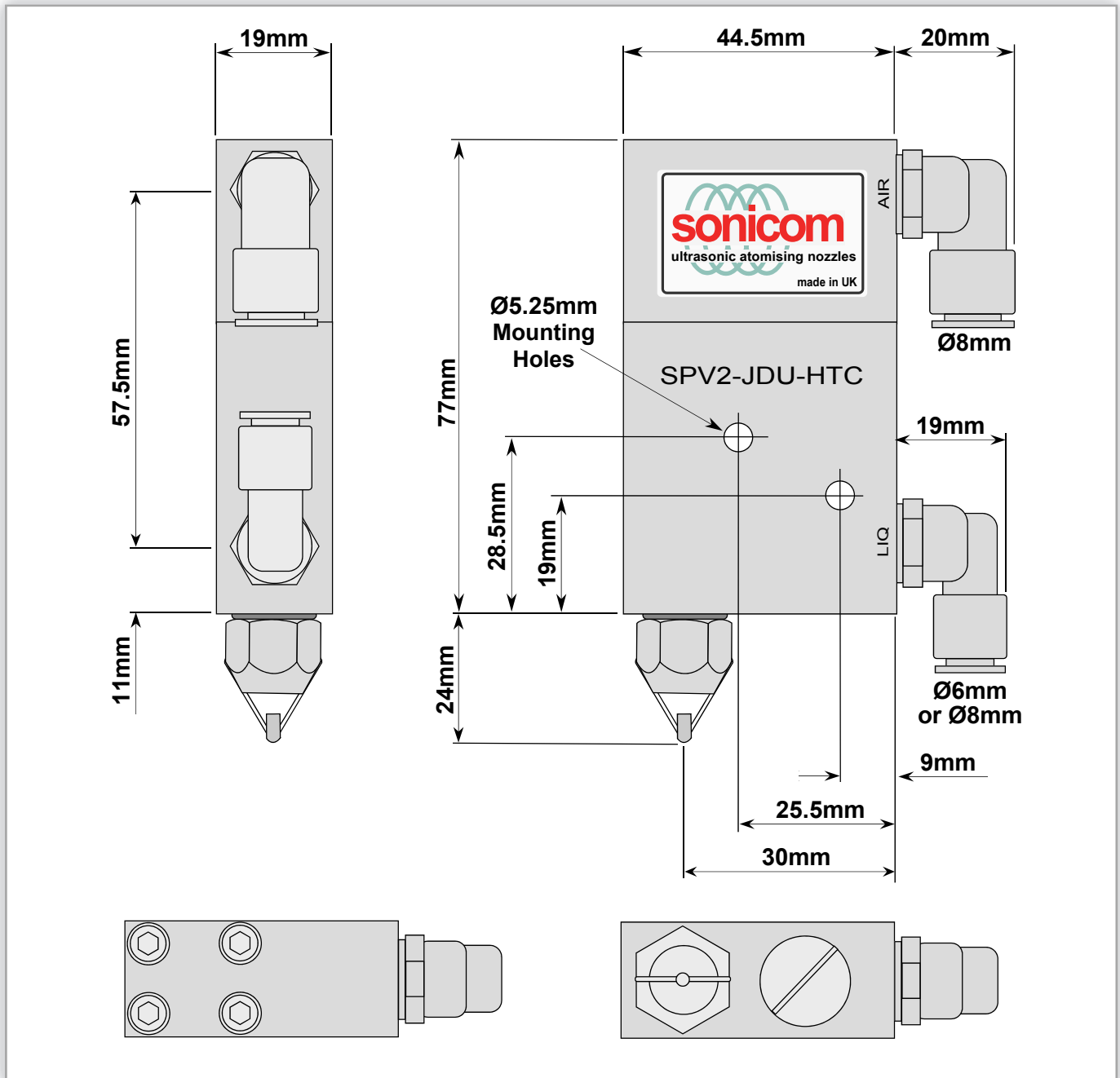
- Easy to Operate
- Self-Cleaning Every Cycle
- Non-Drip
- Low Pressures
- Simple to Install

DATA

- Body: 316 Stainless Steel
- Nozzle: 303 Stainless Steel
- Fittings: Push-In/Compression Elbows or Straights
- Seals: Viton
- Temp Range: -20° to +180°C
- Weight: 495 gms

ORDERING EXAMPLE

- 052H-A2-HTC Assembly
- JDU-03 Mounting Bracket



2 | Non-Drip Valve



DESCRIPTION

The unique sonicom non-drip liquid valve has been designed, developed and manufactured in the UK by J D UltraSonics Ltd to improve the performance and life of the general range of sonicom nozzles.

The principle purpose of the valve is to simplify control by utilising the back pressure created from a single compressed air supply which is common with the atomising air. The air causes a piston arrangement in the head of the valve to advance and push an internal spindle down through the main body. This in turn lifts a poppet assembly at the base of the valve off its seat and liquid is allowed to flow through to the nozzle cavity.

When the air signal is removed at source the pressure falls and as it decays below a nominal 2.5 bar, the three internal springs close the poppet, lift the spindle, return the piston and interrupt the liquid flow.

All engineered components are manufactured from stainless steel with stainless springs and viton seals, the valve will operate over a temperature range of -20° to 180°C.

Air and liquid ports are female 1/8" BSP parallel to accept various types of fittings. Two Ø5mm clear through holes within the main body of the valve provide a solid mounting platform for direct mounting or onto the standard stainless steel swivel bracket available as an option.

A repair kit featuring internal springs and seals is available.

APPLICATIONS

- Use with sonicom Nozzles
- Dust Suppression
- Humidification
- Atomisation
- Fogging

FEATURES

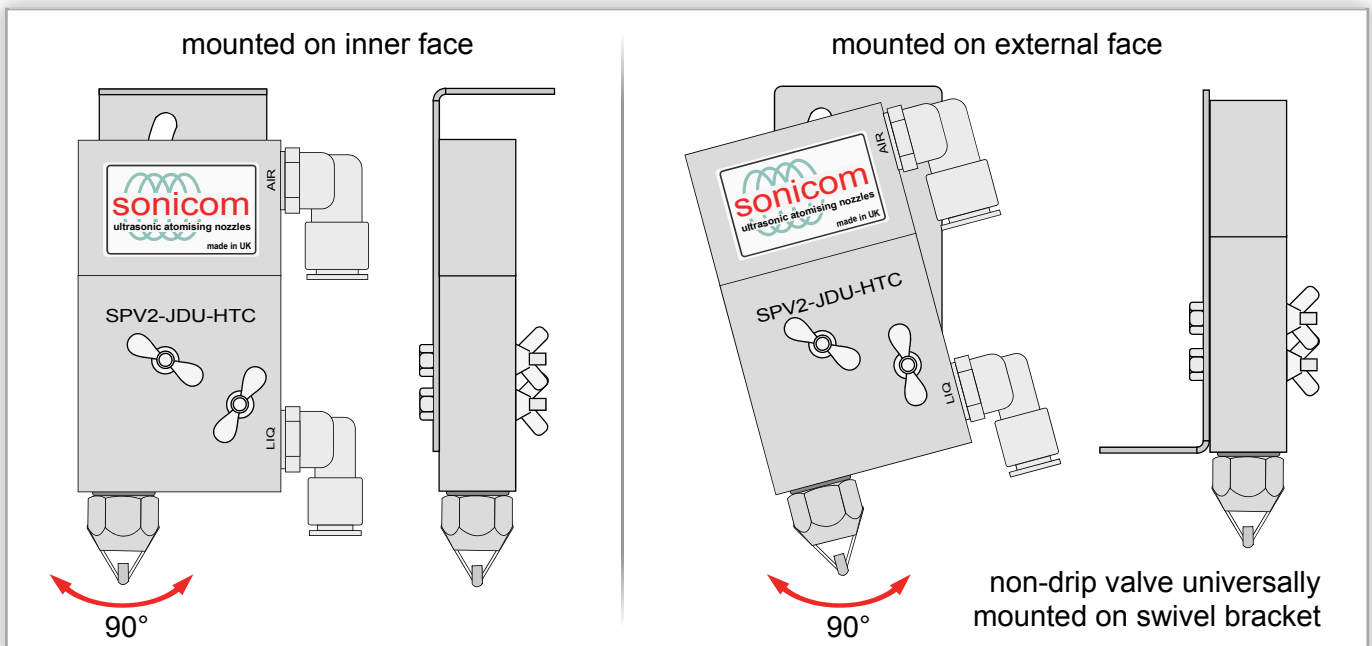
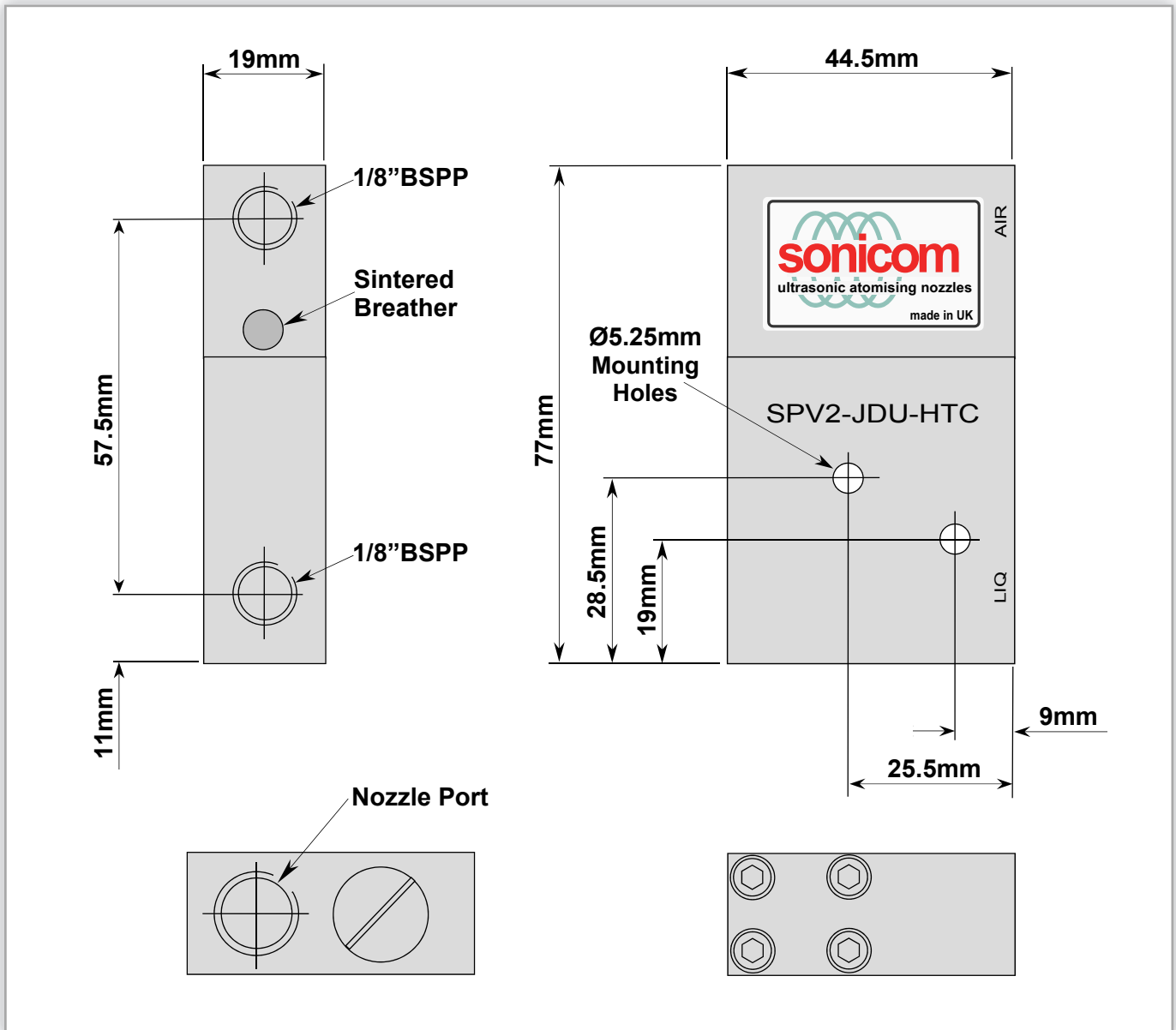
- Stainless Steel Construction
- Simple Geometric Shape
- Reliably Engineered
- Easy to Mount
- Ø5mm Clear Through Holes
- Common to Nozzle Range
- Long Life
- Repair Kit Available
- Range of Liquid Tolerance

DATA

- Parts: 316 Stainless Steel
- Seals: Viton
- Temp Range: -20° to +180°C
- Weight: 425 gms

ORDERING EXAMPLE

- SPV2 Non-Drip Valve
- KV20 Repair Kit



2 | Nozzle Adaptors



DESCRIPTION

A wide variety of sonicom nozzle adaptor styles are available to provide an economical solution for atomiser fixing and positioning. Special designs and configurations can also be produced to meet customer specific requirements.

Manufactured from stainless steel, adaptors offer an alternative platform to the standard non-drip water valve for atomiser securing and operation.

When using adaptors it is necessary to use control valves for both air and water supplies and ideally activate the two fluids in a timed sequence to ensure the nozzles do not drip during shut-off.

The main advantage for utilising an adaptor is that the air pressure used to operate the nozzle can be lower than 3 bar. In specific applications this may produce a desired spray pattern and droplet size which ideally meet the conditions required.

Certain adaptor designs are used for lance assemblies when the non-drip valve is too large or heavy to mount within ducting or other similar chambers. They also prove ideal when the design envelope is limited for space or feed pipes are restricted.

Mounting brackets can also be incorporated within the design specification to complement certain adaptor styles.

APPLICATIONS

- Dust Suppression
- Humidity
- Atomisation
- Fogging
- Cooling
- Decontamination

FEATURES

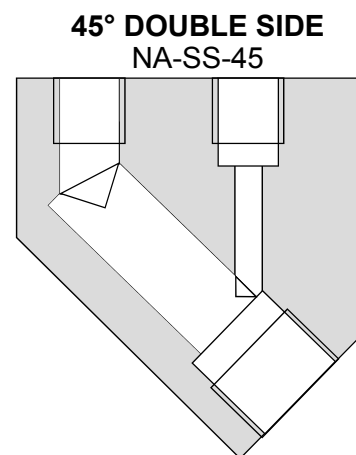
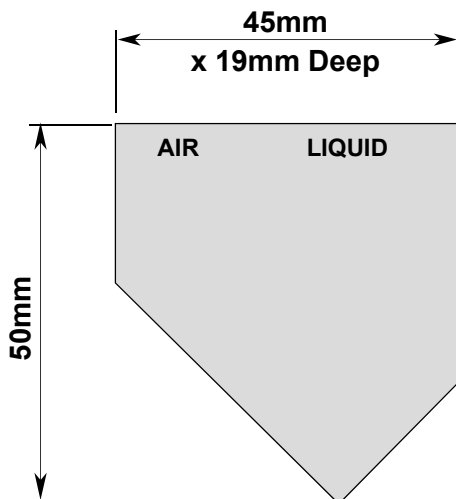
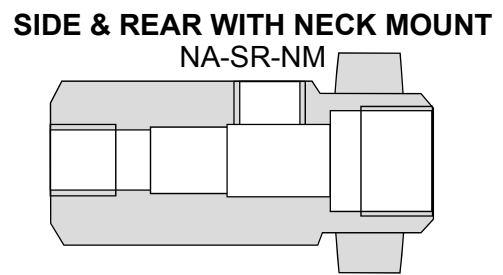
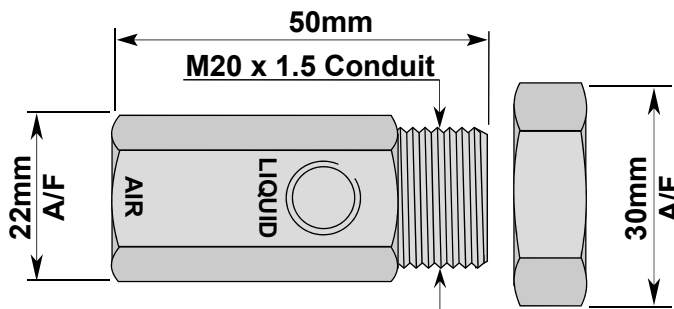
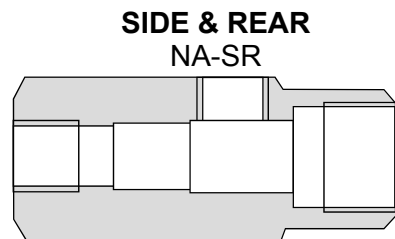
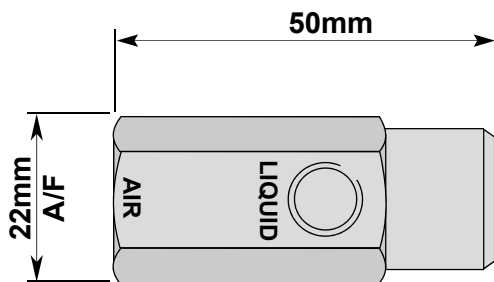
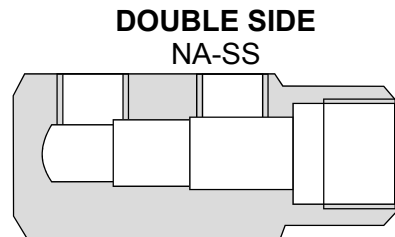
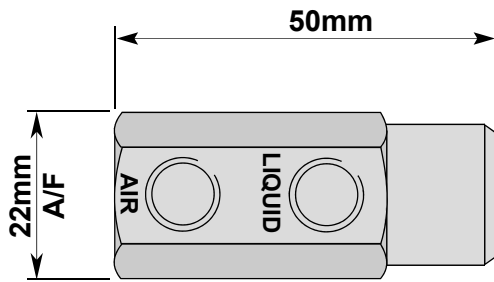
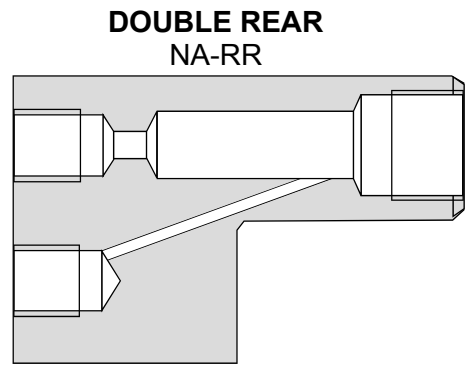
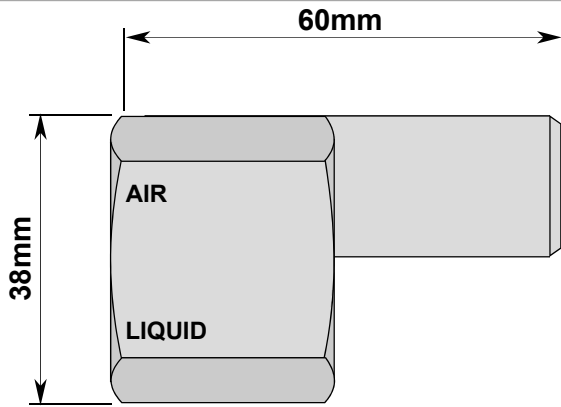
- Variety of Designs
- Operate over Full Pressure Ranges
- Custom Designs Available
- Versatile Uses

DATA

- Body: 316 Stainless Steel
- Weight: nom 100 to 250 gms

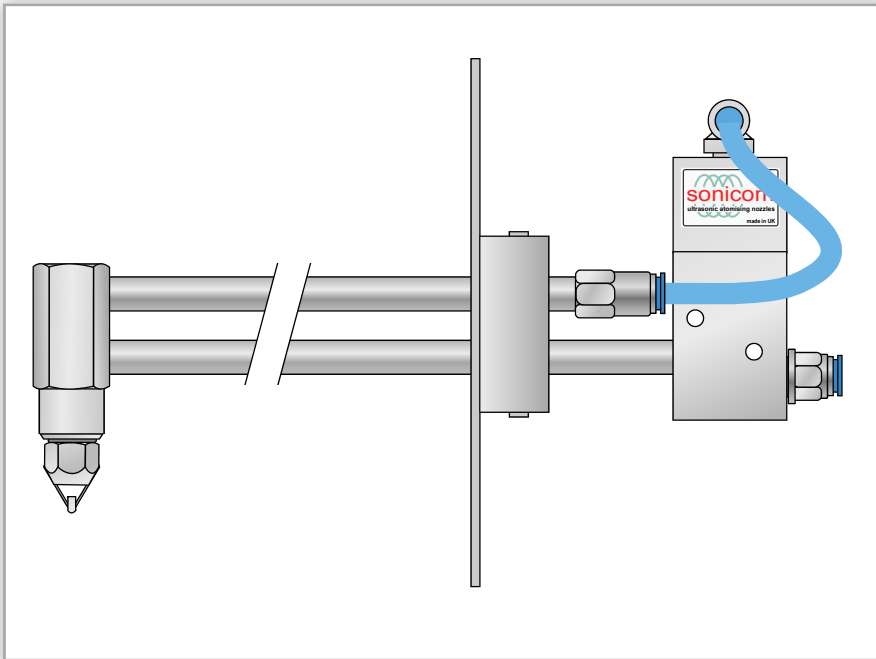
ORDERING EXAMPLE

- NA-SR Side & Rear Entry
- JDU-08 Mounting Bracket to suit NA-SR-NM



All Air and Liquid
Ports are 1/8"BSPP

2 | Lance Assemblies



DESCRIPTION

Nozzle lance assemblies are designed and manufactured to individual customer requirements.

Each ultrasonic nozzle is mounted on an adjustable flange assembly specifically made to suit the desired central position within a duct, curing oven or similar chamber. The lance can be supplied with or without a liquid valve which, on a single nozzle lance, provides a non-drip operation at the end of each spraying cycle.

A standard 150mm square flange with four Ø10mm holes at each corner provides a substantial fixing to the outside of the ductwork. This leaves the valve, air and liquid connections exposed for easy assembly and maintenance and away from any contaminates within the duct.

Custom built lances can be manufactured to adapt specifically to unique installations including curved flanges, larger mounting holes, etc. A 90° assembly is also available to project the nozzle tip forward into the duct ahead of the entrance point.

Wherever possible stainless steel parts are used to avoid corrosion and contamination within the air stream and each assembly can be colour coded for identification purposes if required.

A repair kit offering internal springs and seals is available for the liquid valve.

APPLICATIONS

- Use with sonicom Nozzles
- Mounts within Ductwork
- Dust Suppression
- Humidification
- Odour Control

FEATURES

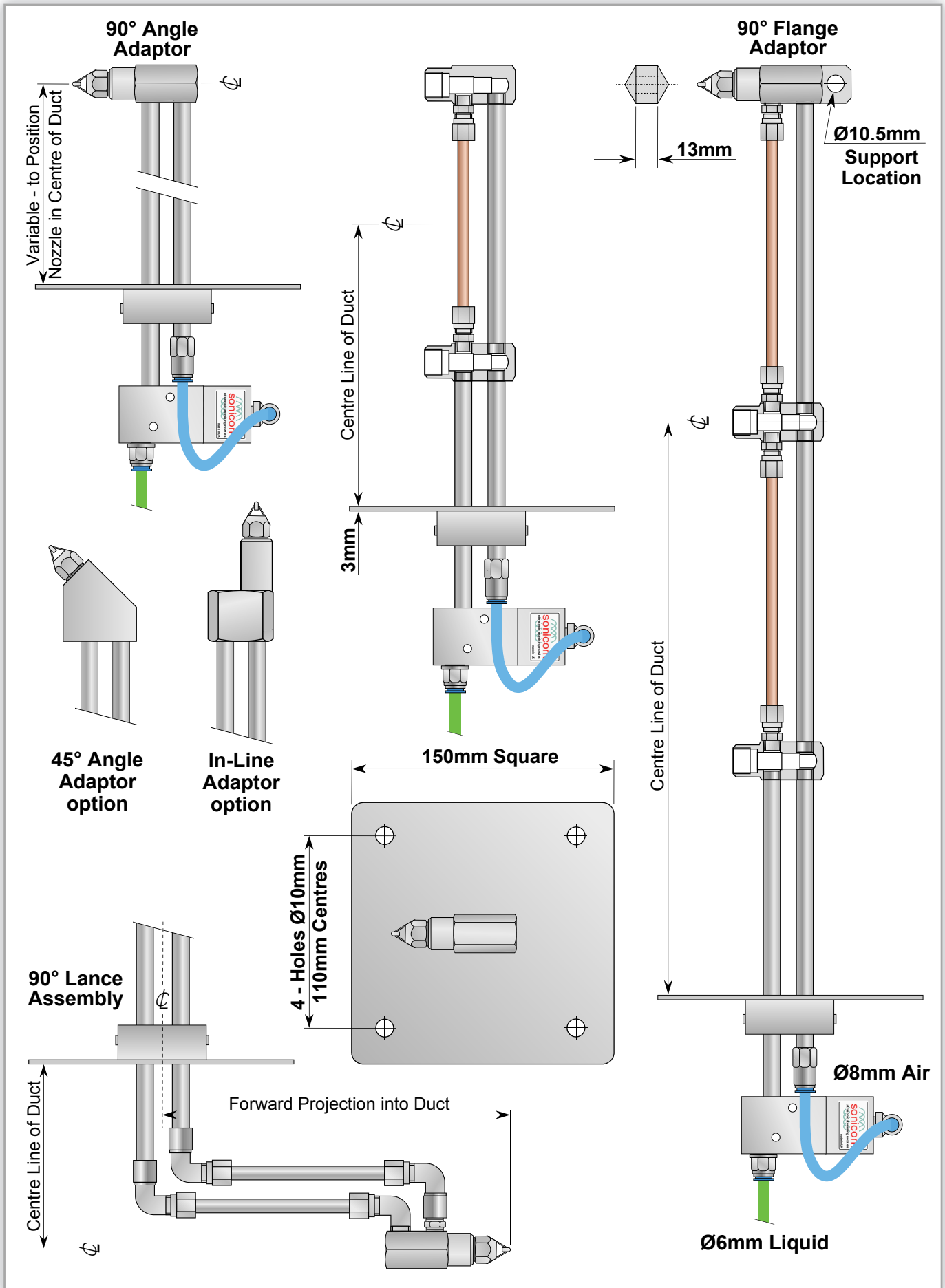
- Stainless Steel Construction
- Square Flange Mounting
- Non-Drip Valve Available
- Single, Double & Triple Heads
- Reliably Engineered
- Easy to Mount
- Common to Nozzle Range
- Long Life
- Range of Liquid Tolerance

DATA

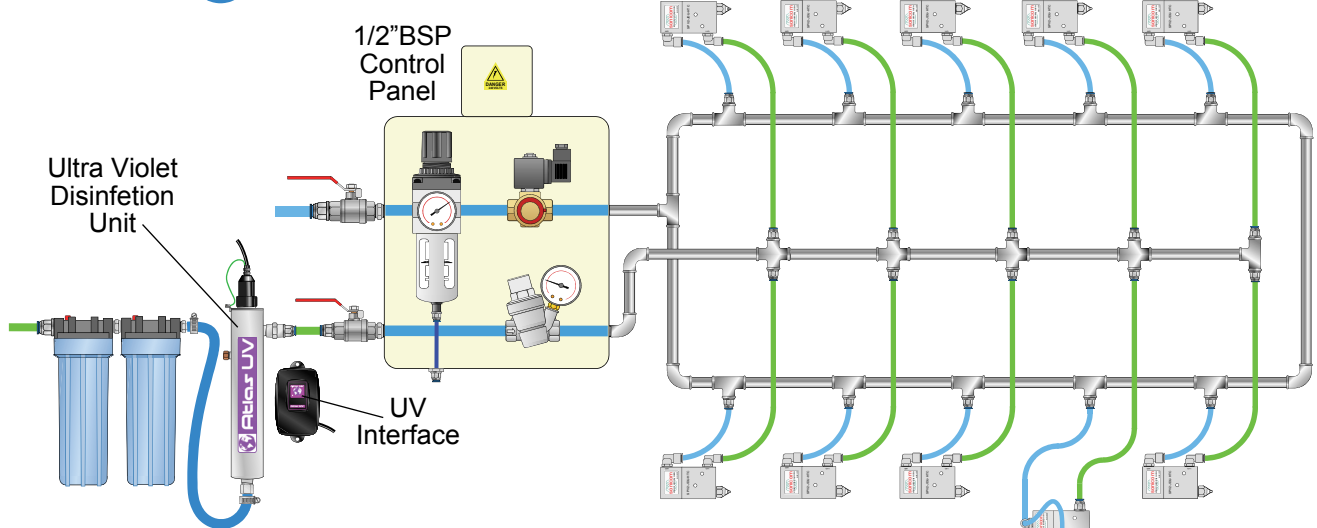
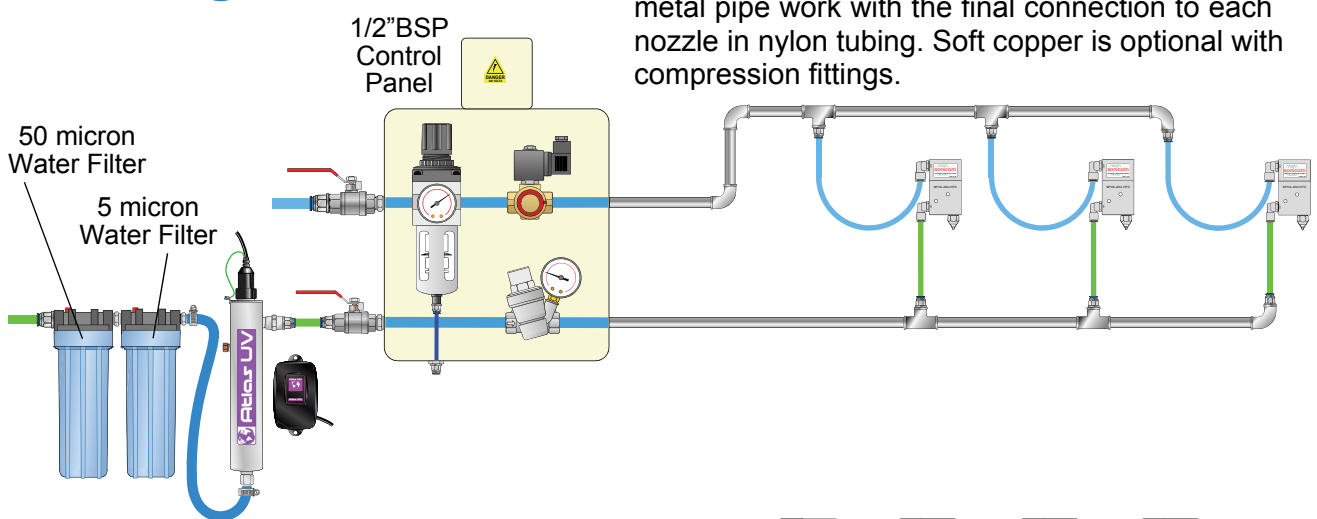
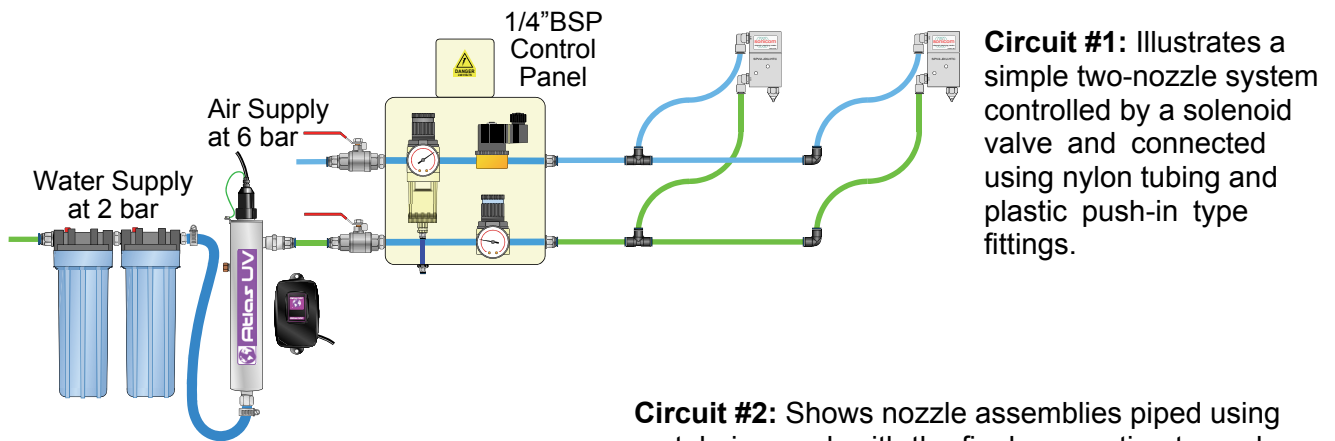
- Parts: 316 Stainless Steel
- Seals: Viton
- Temp Range: -20° to +180°C

ORDERING EXAMPLE

- 052H-ALx250x350x350
Triple Lance Assembly c/w
Liquid Valve and type 052H
Nozzles (qty 3)
- KV30 Repair Kit

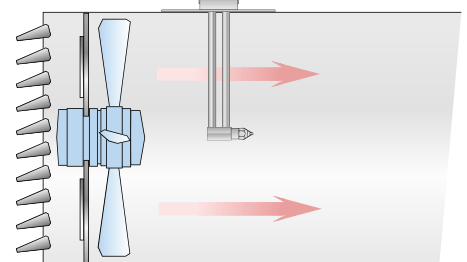


2 | Schematic Circuits

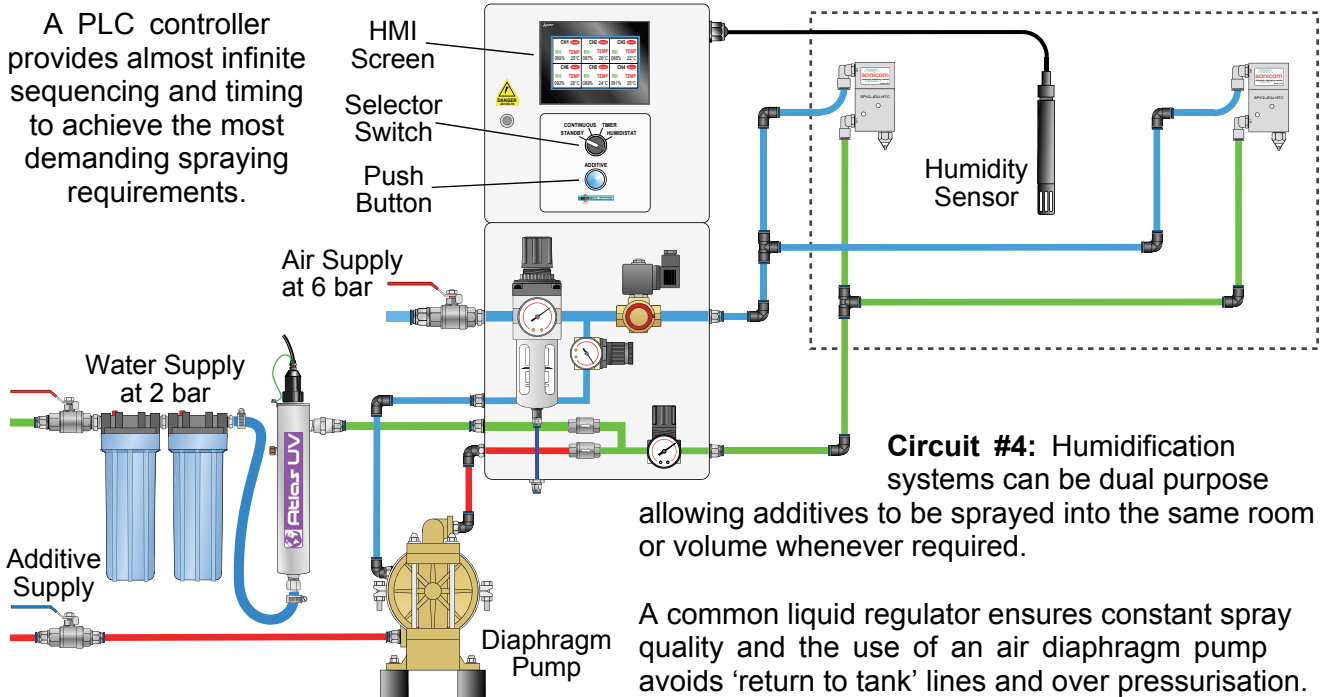


Circuit #3: When piping up a number of nozzles it can be advantageous to create a ring main allowing the air to distribute more evenly and avoid starvation to nozzles furthest away from the control panel or source. It is not usually necessary to create a ring for the liquid supply.

In this circuit, a lance mounted in a duct has been connected to the same bank of nozzles to save having an additional control system.

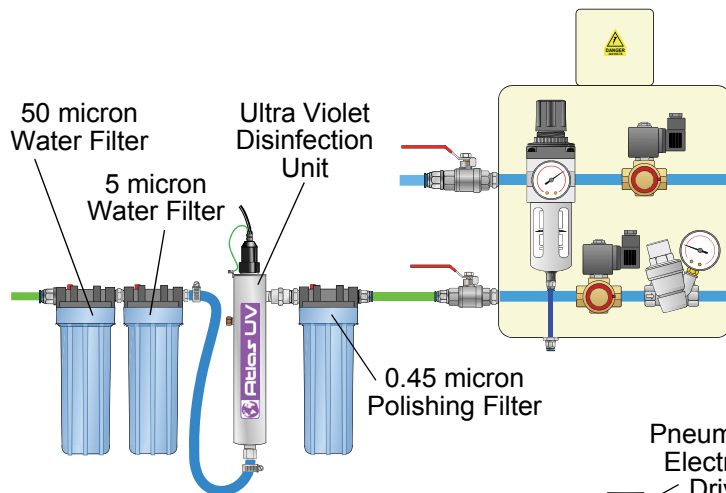


A PLC controller provides almost infinite sequencing and timing to achieve the most demanding spraying requirements.



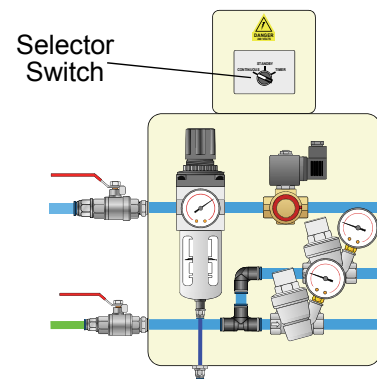
Circuit #4: Humidification systems can be dual purpose allowing additives to be sprayed into the same room or volume whenever required.

A common liquid regulator ensures constant spray quality and the use of an air diaphragm pump avoids 'return to tank' lines and over pressurisation.

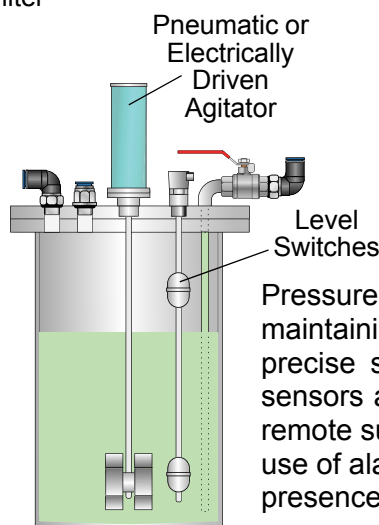


Circuit #5: When the water supply contains a higher than usual degree of particulates, using a 'polishing' filter after the UV unit will ensure that the water being presented to the nozzles is 96% clean and free from contaminants, prolonging nozzle life and reducing downtime.

Two solenoid valves are used when nozzles are mounted in adaptors to stop the water flow when the atomising air is turned off or to allow a timed delay between the two.



Circuit #6: Multi liquid pressure regulators are used when sets of nozzles are mounted at high and low levels and require their own specific pressure settings for optimum spraying results.



Pressure tanks are available for maintaining liquids at an even pressure for precise spraying applications. Level sensors allow for automatic filling from remote supply vessels and facilitate the use of alarm conditions to monitor material presence.

When it is necessary to keep material mixed, a pneumatic or electric motor is fitted to the tank with a submersed agitator head.

3 | Air Atomising Nozzles



Air Atomising Nozzles are twin fluid type spray nozzles usually using compressed air and a liquid to create an atomised droplet. Available spray patterns within this range include flat fan, full cone and hollow cone. The nozzles are available in pressure design or gravity fed. The air atomising nozzle is suitable for spraying viscous liquids by using the energy in compressed air to shear the liquid and produce highly atomised sprays with relatively low flow rates.

There are numerous interchangeable components that can be assembled to achieve a variety of spraying patterns. A combination of the air cap and fluid cap together with setting pressures determine the resultant spray type.

In many installations the nozzle is supported by the rigid metal pipe that supplies air or liquid. There are several components which can provide support for the atomiser bodies when it isn't appropriate to suspend the nozzle from piping: for example, when the nozzle will spray through the wall of a tank or duct, or when the air and liquid will be supplied through flexible tubing.

Air atomising nozzles are popular on continuous production lines where coating or moistening of a product is required on a repeatable basis. This is achieved using automatic clean out needles and shut-off valves built into the nozzle design, this ensures nozzle maintenance is kept to a minimum.

APPLICATIONS

- Dust Suppression
- Odour Control
- Gas Scrubbing
- Humidification
- Lubrication
- Cooling

FEATURES

- Internal & External Mix Option
- Fine Atomisation
- Cone, Flat Fan, Narrow and Wide Angle Spray Patterns
- Forward Projection
- Automatic Clean-Out and Shut-Off Valve Options

DATA

- Nickel Plated Brass
- 303 / 316 Stainless Steel
- Fittings: Push-In Elbows or Straights 1/4"BSPP
- Bonded Seal Washers
- Temperature -20° to +180°C
- Weight: 185 gms

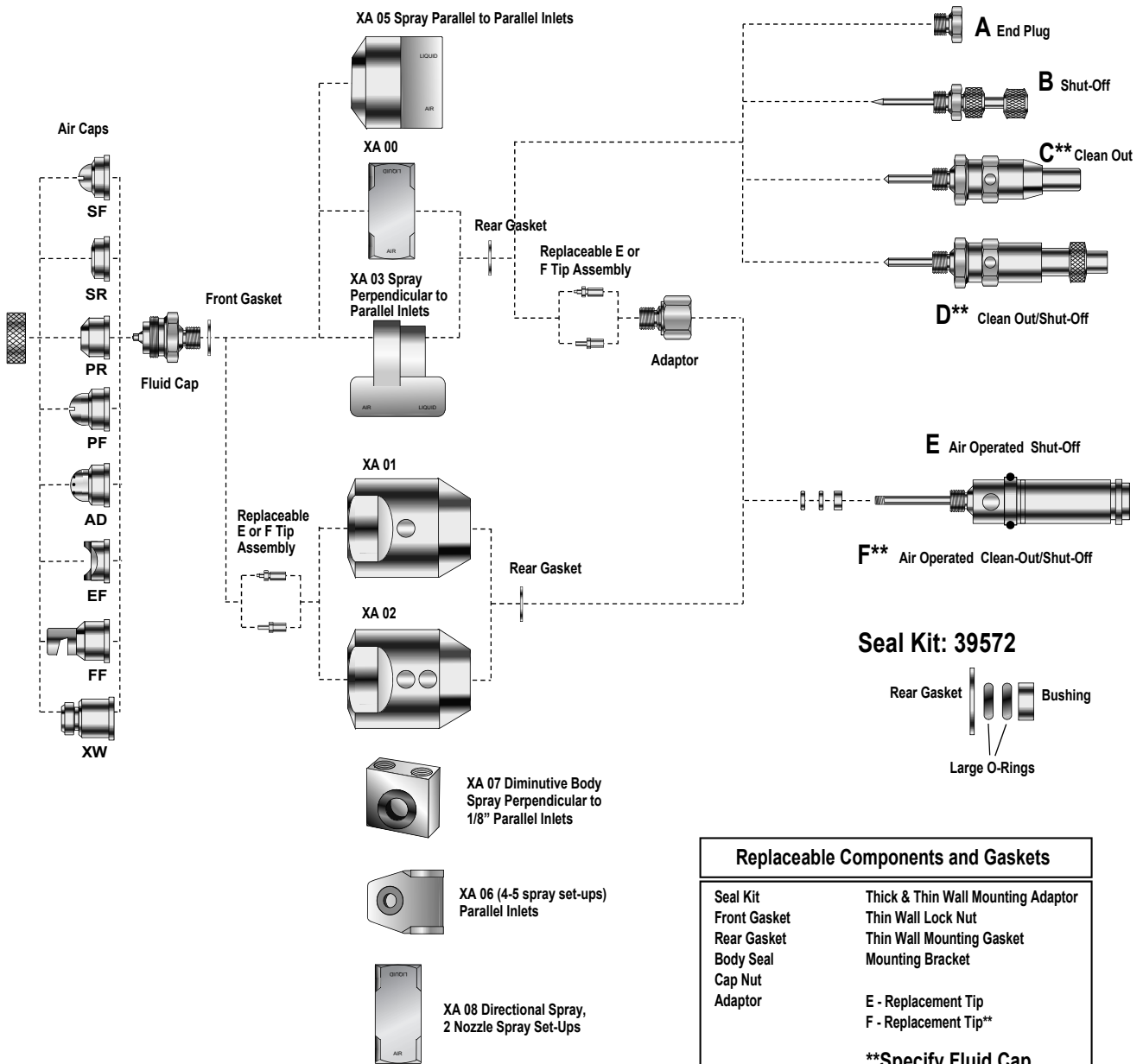
ORDERING EXAMPLE

- XA-150-SS S/Steel Nozzle
- JDU-09 Mounting Bracket

Spray Set-Up

Body Styles and Seals

Hardware Assemblies



TO ORDER

specify pipe size, body style, spray set-up number, hardware & mounting assemblies and material

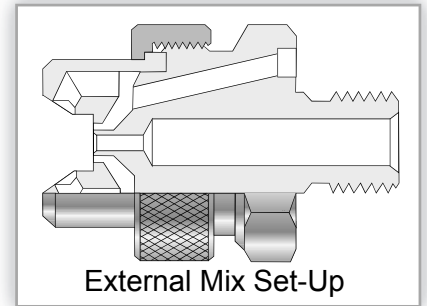
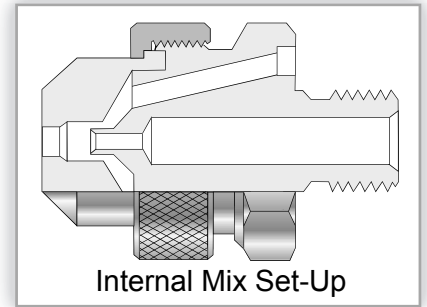
Spray Set-Up Number

1/4 XA 01 PR 250 E 01 12

Sizes and Series	
1/8" B, 1/4" B, 1/2" B-BSP	1/8", 1/4", 1/2" - NPT
Body Styles	
00	01 02 03 05
Air Cap Style	
SF	SR PR PF AD EF FF XW

Extension Size	
12"	
Mounting Hardware	
01	02 03
Hardware Assemblies	
A	B C D E F
Combination Number	
050	100 150 200 250 300 350 400

3 | Air Atomising Nozzles



OPTIMISATION TIPS

- Evaluate your specific spraying application and implement a regular nozzle maintenance plan
- Use a nozzle strainer or in-line filters to reduce nozzle blockage
- Use split eyelet connectors on both the air and fluid lines for easy nozzle connection
- When spraying viscous liquids use a heated pressure tank to keep the material warm and transferable
- Use air atomising nozzles with clean-out needles to eliminate clogging and ensure optimum performance
- For optimal control of your air atomising spray system, the use of an automated control package helps conserve liquid usage and reduces waste by monitoring and automatically adjusting spray coverage, flow rate, droplet size, liquid and air pressures

APPLICATIONS

- Coating
- Lubrication
- Cooling

FEATURES

- External Mix allows Spraying of Viscous Materials
- Variable Atomisation
- Precise Metering of Liquid
- Fine Atomisation
- Flat Fan with Moderate Spray Angles: 60° to 90°
- Low Forward Projection
- Manual Clean-Out Needle and Shut-Off Valve Options

DATA

- Nickel Plated Brass
- 316 Stainless Steel

ORDERING EXAMPLE

- Siphon Fed Flat Fan 1/4" Stainless Steel 050

LOW FLOW AIR ATOMISING

The XA nozzle system uses the energy in compressed air to produce highly atomised sprays at low flow rates. There are many interchangeable components that can be assembled to achieve a variety of spraying objectives.

SPRAY SET-UPS

XA nozzles produce eight distinctly different types of sprays, depending on which interchangeable air and fluid caps are selected. The spray type and flow rate are determined by the "set-up" - a specific combination of one air cap and one fluid cap.

INTERNAL MIX SET-UPS

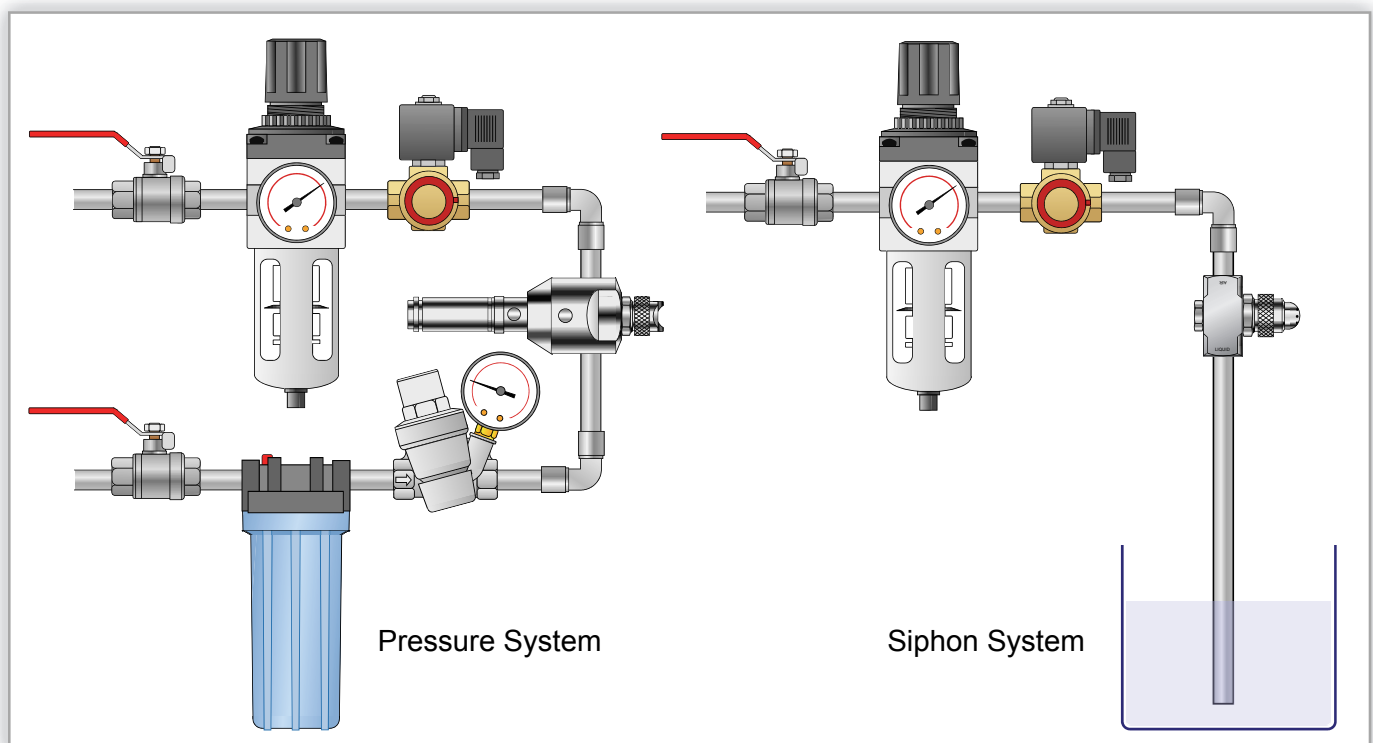
Liquid and air streams meet within the nozzle and are mixed together and expelled through the same orifice(s). This internal mixing means the streams are not independent; a change in air flow will affect the liquid flow. This makes precise metering of the liquid more difficult than with an External Mix Set-Up. Internal Mix Set-Ups are able to produce the finest atomisation of any of the XA set-ups, but they are generally not suitable for use with liquids which have a viscosity above 200 centipoise.

EXTERNAL MIX SET-UPS

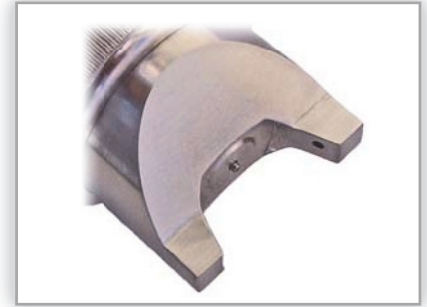
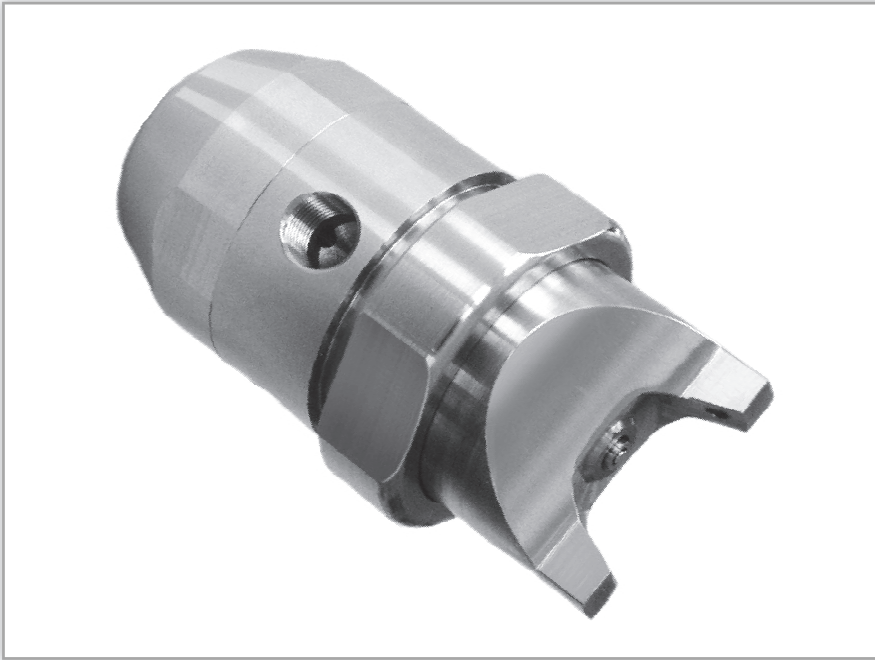
The air and liquid streams exit the nozzle independently and are combined and mixed outside of the nozzle. Because there is no connection between the air and liquid lines within the nozzle, the air and liquid flow rates can be controlled independently, allowing precise metering of the liquid. The atomisation can be controlled by adjusting the air flow rate, more air produces finer atomisation. In most cases these set-ups do not atomise as finely as Internal Mix Set-Ups. External Mix Set-Ups may be used with liquids having a viscosity above 200 centipoise and for abrasive suspensions.

SIPHON SET-UPS

Internal and External Mix Set-Ups require the liquid to be supplied to the nozzle under pressure from a municipal water supply, pump or pressure pot. Siphon Set-Ups use the flow of compressed air within the nozzle to siphon liquid from a container. Siphon Set-Ups are frequently used for spraying additives from a container without the use of a pump. They provide the lowest flow rates available in the XA series (as low as 0.38 lts/hr). They are generally not suitable for use with liquids having a viscosity above 200 centipoise.



4 | ViscoMist Nozzles



The ViscoMist 176 Series offers independent regulation of both atomising air and fan air, which provides the user with infinite control over the viscous fluid's spray pattern and droplet size. The ViscoMist nozzle features a standard 'Liquid Shut-Off / Clean-Out Needle' function. This design element activates and deactivates the liquid supply, while simultaneously removing excess fluid from the Fluid Nozzle preventing clogging. This feature is especially vital when the viscous liquids are being applied in continuous process environments.

The modular design of the ViscoMist allows maximum flexibility to meet exact spray requirements. Interchangeable air caps and various flow capacities are available to suit virtually any spraying application needs.

Increased hygienic requirements led to an improved smooth external nozzle design. The new design reduces cleaning time for the body of the nozzle.

SPRAY CHARACTERISTICS

- Solid stream
 - Full Cone
 - Flat Fan
- Independent regulation of liquid, atomising air and fan air
- Fluid circulation possible (Nozzle body with 5 connections)

ATOMISING AIR / FAN AIR / SIGNAL AIR

The atomising air causes the liquid to atomise at the nozzle orifice. The spray characteristic can be adjusted with the fan air to suit the application. The signal air activates the nozzle.

APPLICATIONS

- Coating
- Moisturising
- Lubrication
- Glazing
- Sanitising
- Humidification
- Spraying Viscous Liquids

FEATURES

- Automatic Clean-Out
- Flexible Configurations
- Variable Droplet Size and Spray Pattern

DATA

- 316 Stainless Steel
- 1.5 - 3 bar Signal Air Pressure
- 180 Cycles Per Minute
- Ports: 1/8" NPT or BSPP
- Temperature: 0° - 120°C
- Weight: 550 gms

ORDERING EXAMPLE

- 176-X-YY-ZZ
- X = Nozzle body config (3,4,5)
- YY = Nozzle size (01 - 09)
- ZZ = Ports **01** NPT or **11** BSPP

INLET PORTS AND THEIR SYMBOLS

The ViscoMist has three Nozzle Body styles available. For all styles, stamped next to each inlet port on the nozzle is one or more letters representing the spray aspect(s) that particular port controls. These spray aspects and the letter representing each are as follows:

ATOMISING AIR (A)

The Atomising Air Port influences the atomisation of the liquid into either small or large droplet sizes, simultaneously affecting spray distribution in the center of the spray pattern. To achieve finer liquid atomisation, increase the atomising air pressure.

FAN AIR (F)

The Fan Air Port flattens the atomised liquid giving it a flat fan spray distribution. With the appropriate nozzle body configuration, this distribution can be adjusted independently to

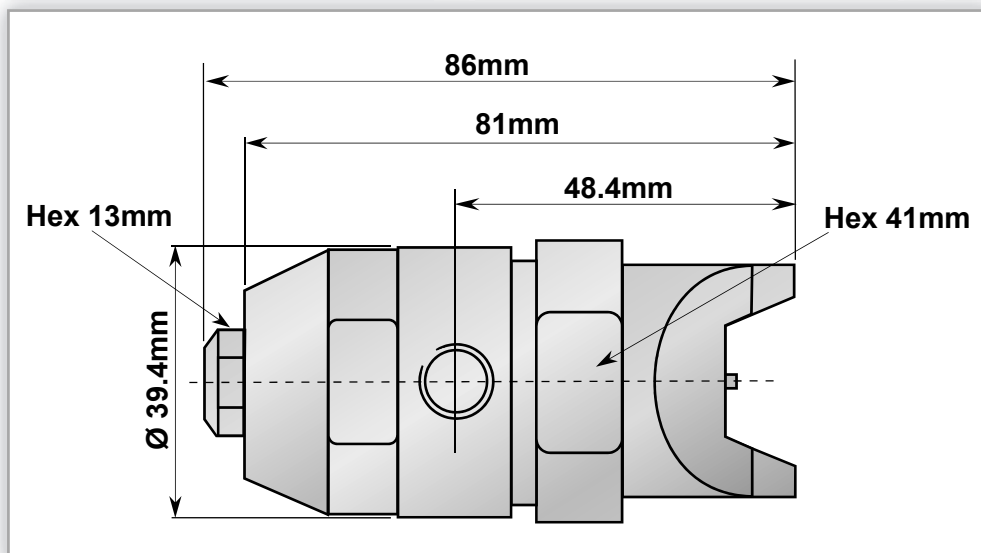
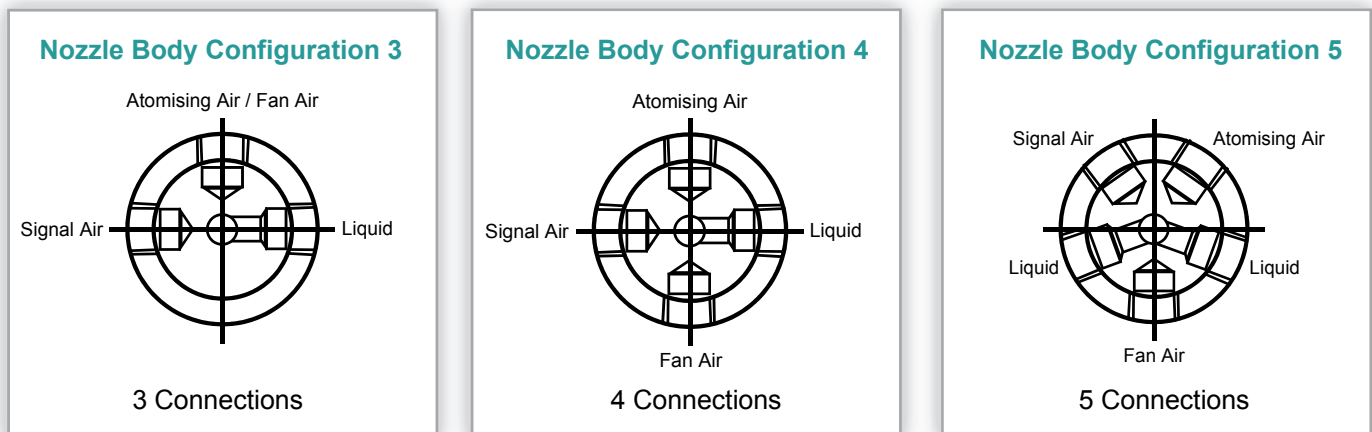
control the liquid spray width. To achieve a wider spray distribution, increase the fan air pressure.

LIQUID (M)

The liquid flow rate is directly proportional to the liquid pressure rate. Subsequently, the higher the liquid pressure rate, the higher the liquid flow rate will be. The liquid "On" or "Off" cycle is dependent on the piston controlled Signal Air supply.

SIGNAL AIR (P)

Air supplied to this port actuates a piston located within the nozzle to retract or extend the Clean-Out/Liquid Shut-Off Needle. Retracting the needle allows the liquid to flow from the nozzle. A minimum of 40 psi air pressure to this port is required to operate the nozzle.



FLUID CAP OPTIONS

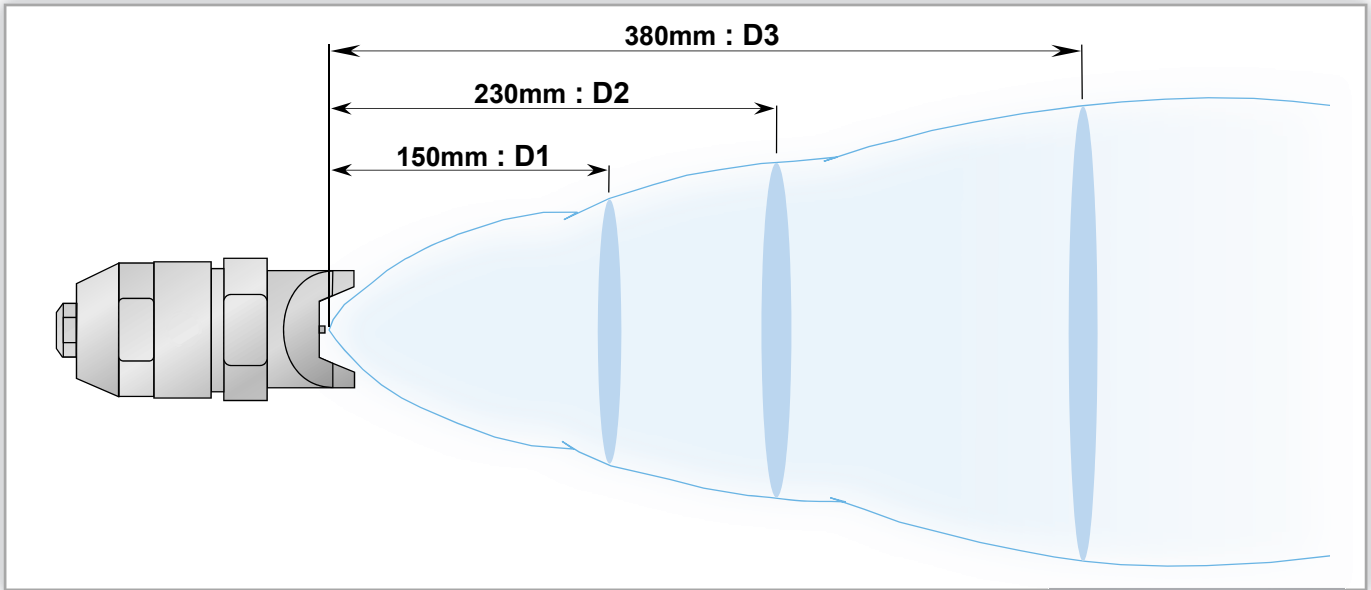
Nozzle Sizes (mm)

- 01 = Ø0.38 Orifice
- 02 = Ø0.58 Orifice
- 03 = Ø0.79 Orifice
- 04 = Ø1.07 Orifice
- 05 = Ø1.32 Orifice
- 06 = Ø1.70 Orifice
- 07 = Ø2.06 Orifice
- 08 = Ø2.36 Orifice
- 09 = Ø2.54 Orifice

VALVE POSITION

Normally closed - fail-safe with loss of air

4 | ViscoMist Nozzles



PART NUMBER	Liq Capacity		Air Capacity			Spray Coverage in mm at Indicated Distance from Nozzle													
	Inlet Pres psi	Liq Flow lt/hr	Inlet Pres psi	Atom Air scfm	Fan Air scfm	Atom Air psi	Liq Flow psi	Fan Air Pressure (psi)											
								0			5			10			20		
								D1	D2	D3	D1	D2	D3	D1	D2	D3	D1	D2	D3
176-X-01-ZZ Ø0.38mm Orifice	2.5	2.3	2.5	0.47	0.6	10	5	50	75	100	125	150	175	150	175	250	200	250	325
	5	3.6	5	0.67	0.9		10	50	75	100	100	125	175	150	200	250	225	275	350
	10	5.5	10	0.96	1.3		20	-	-	-	125	175	200	175	250	350	250	325	425
	20	15	6.8	15	1.20	1.7	5	50	75	100	75	100	150	100	125	175	150	200	250
		20	7.7	20	1.40	2.0	10	50	75	100	50	100	125	100	125	175	150	200	250
		30	9.5	30	1.80	2.7	20	-	-	-	75	100	150	125	175	200	175	250	325
	40	40	10.9	40	2.30	3.3	5	50	50	100	50	50	100	50	100	125	175	150	175
		50	12.3	50	2.70	4.0	10	50	75	125	50	75	125	75	100	125	125	175	200
		60	13.6	60	3.10	4.5	20	25	50	75	50	75	125	75	100	150	125	175	225

PART NUMBER	Liq Capacity		Air Capacity			Spray Coverage in mm at Indicated Distance from Nozzle													
	Inlet Pres psi	Liq Flow lt/hr	Inlet Pres psi	Atom Air scfm	Fan Air scfm	Atom Air psi	Liq Flow psi	Fan Air Pressure (psi)											
								0			5			10			20		
								D1	D2	D3	D1	D2	D3	D1	D2	D3	D1	D2	D3
176-X-02-ZZ Ø0.58mm Orifice	2.5	5.0	2.5	0.49	0.6	10	5	50	75	100	100	150	175	125	175	225	175	225	250
	5	7.7	5	0.69	0.9		10	50	50	100	125	175	200	150	175	250	250	275	350
	10	11.4	10	0.98	1.3		20	-	-	-	-	-	-	175	225	300	275	325	400
	20	15	13.6	15	1.20	1.7	5	50	75	100	75	100	100	125	150	200	125	175	225
		20	15.9	20	1.40	2.0	10	50	50	75	100	125	175	125	150	200	175	200	275
		30	19.5	30	1.90	2.7	20	-	-	-	100	125	200	125	175	225	200	225	325
	40	40	23.2	40	2.30	3.3	5	50	50	75	50	75	100	75	100	125	125	150	175
		50	25.9	50	2.70	4.0	10	25	50	100	50	75	100	100	100	125	125	150	200
		60	28.1	60	3.10	4.5	20	50	75	100	75	100	150	100	125	175	150	200	300

PART NUMBER	Liq Capacity		Air Capacity			Spray Coverage in mm at Indicated Distance from Nozzle														
	Inlet Pres psi	Liq Flow lt/hr	Inlet Pres psi	Atom Air scfm	Fan Air scfm	Atom Air psi	Liq Flow psi	Fan Air Pressure (psi)												
								0			5			10			20			
								D1	D2	D3	D1	D2	D3	D1	D2	D3	D1	D2	D3	
176-X-03-ZZ Ø0.79mm Orifice	2.5	11.3	2.5	0.28	0.59	10	5	25	50	75	150	200	275	275	350	450	300	375	475	
	5	15.9	5	0.46	0.91		10	-	-	-	175	225	325	275	350	450	375	450	575	
	10	23.2	10	0.68	1.30		20	-	-	-	-	-	-	275	325	450	350	450	575	
	20	15	28.6	15	0.86	1.70	5	50	50	75	125	150	200	175	225	250	225	275	325	
		20	33.1	20	0.97	2.00	10	-	-	-	125	175	250	175	225	300	250	300	350	
		30	40.9	30	1.30	2.70	20	-	-	-	-	-	-	225	275	400	300	350	500	
		40	47.2	40	1.60	3.30	40	5	50	50	100	100	125	175	150	175	225	200	225	300
		50	53.1	50	1.90	4.00		10	-	-	-	125	150	200	150	200	250	225	275	375
		60	57.7	60	2.20	4.50		20	-	-	-	-	-	-	175	225	325	225	300	400

PART NUMBER	Liq Capacity		Air Capacity			Spray Coverage in mm at Indicated Distance from Nozzle														
	Inlet Pres psi	Liq Flow lt/hr	Inlet Pres psi	Atom Air scfm	Fan Air scfm	Atom Air psi	Liq Flow psi	Fan Air Pressure (psi)												
								0			5			10			20			
								D1	D2	D3	D1	D2	D3	D1	D2	D3	D1	D2	D3	
176-X-04-ZZ Ø1.07mm Orifice	2.5	21.8	2.5	1.4	1.2	10	5	-	-	-	125	175	250	200	250	325	275	325	425	
	5	31.3	5	2.2	1.9		10	-	-	-	125	150	225	200	250	375	325	400	500	
	10	44.9	10	3.3	2.7		20	-	-	-	-	-	-	175	225	325	300	375	575	
	20	15	54.9	15	4.3	3.4	5	50	75	100	100	125	175	125	175	225	200	250	325	
		20	63.5	20	5.2	4.1	10	-	-	-	100	125	175	125	175	225	225	275	375	
		30	78.1	30	6.8	5.3	20	-	-	-	100	125	175	150	200	275	200	275	400	
		40	90.8	40	8.4	6.6	40	5	50	75	100	75	100	150	100	125	175	150	175	250
		50	101.7	50	10.1	7.8		10	50	75	100	75	100	150	100	125	175	150	200	250
		60	109.9	60	11.5	8.9		20	-	-	-	75	100	150	100	125	175	150	200	300

PART NUMBER	Liq Capacity		Air Capacity			Spray Coverage in mm at Indicated Distance from Nozzle														
	Inlet Pres psi	Liq Flow lt/hr	Inlet Pres psi	Atom Air scfm	Fan Air scfm	Atom Air psi	Liq Flow psi	Fan Air Pressure (psi)												
								0			5			10			20			
								D1	D2	D3	D1	D2	D3	D1	D2	D3	D1	D2	D3	
176-X-05-ZZ Ø1.32mm Orifice	2.5	29.5	2.5	1.3	1.2	10	5	-	-	-	150	225	325	225	325	450	325	400	525	
	5	45.4	5	2.0	1.9		10	-	-	-	-	-	-	250	300	475	350	450	600	
	10	65.4	10	3.0	2.7		20	-	-	-	-	-	-	225	325	425	325	450	675	
	20	15	80.4	15	4.0	3.4	5	-	-	-	100	150	200	150	200	275	225	275	375	
		20	91.7	20	4.7	4.1	10	-	-	-	100	150	200	150	200	300	225	300	375	
		30	113.5	30	6.1	5.3	20	-	-	-	-	-	-	125	200	275	225	300	425	
		40	131.7	40	7.5	6.6	40	5	50	75	100	75	100	150	100	125	200	150	175	275
		50	149.8	50	8.9	7.8		10	-	-	-	75	100	150	100	125	200	150	200	300
		60	158.9	60	10.1	8.9		20	-	-	-	75	100	150	100	125	200	150	200	300

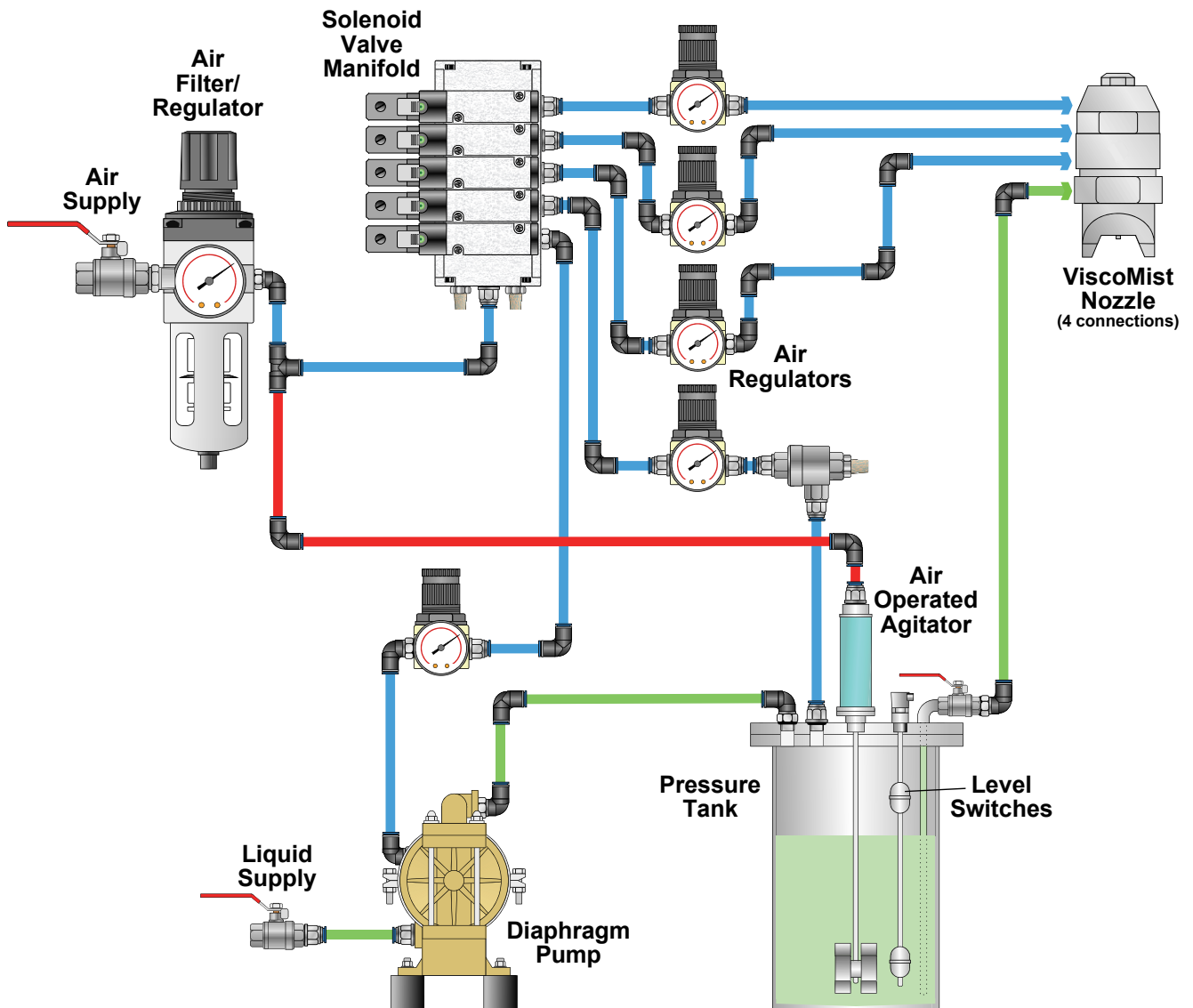
4 | ViscoMist Nozzles

PART NUMBER	Liq Capacity		Air Capacity			Spray Coverage in mm at Indicated Distance from Nozzle													
	Inlet Pres psi	Liq Flow lt/hr	Inlet Pres psi	Atom Air scfm	Fan Air scfm	Atom Air psi	Liq Flow psi	Fan Air Pressure (psi)											
								0			5			10			20		
								D1	D2	D3	D1	D2	D3	D1	D2	D3	D1	D2	D3
176-X-06-ZZ Ø1.70mm Orifice	2.5	50	2.5	0.9	1.2	30	5	150	225	325	200	275	400	225	300	450	250	325	425
	5	76	5	1.4	1.9		10	175	225	300	200	250	375	225	300	450	275	350	500
	10	109	10	2.0	2.7		20	150	225	325	175	250	350	225	275	425	275	350	500
	15	136	15	2.6	3.4	40	5	150	175	275	175	225	300	175	250	350	200	275	425
	20	154	20	3.0	4.1		10	150	200	300	175	225	325	175	250	375	225	300	400
	30	190	30	4.0	5.3		20	125	175	250	150	200	325	175	250	375	225	325	475
	40	218	40	4.9	6.6	50	5	150	200	300	175	200	325	175	250	350	200	275	400
	50	245	50	5.8	7.8		10	125	175	250	150	200	325	175	225	350	200	275	425
	60	263	60	6.6	8.9		20	125	175	275	150	200	300	175	225	350	225	275	425

PART NUMBER	Liq Capacity		Air Capacity			Spray Coverage in mm at Indicated Distance from Nozzle													
	Inlet Pres psi	Liq Flow lt/hr	Inlet Pres psi	Atom Air scfm	Fan Air scfm	Atom Air psi	Liq Flow psi	Fan Air Pressure (psi)											
								0			5			10			20		
								D1	D2	D3	D1	D2	D3	D1	D2	D3	D1	D2	D3
176-X-07-ZZ Ø2.06mm Orifice	2.5	71	2.5	2.1	2.0	30	5	100	150	225	150	200	275	175	225	350	250	325	475
	5	109	5	3.4	3.1		10	100	150	225	150	200	275	175	250	375	250	325	475
	10	154	10	5.0	4.6		20	-	-	-	-	-	-	150	225	325	225	300	425
	15	190	15	6.4	5.9	40	5	100	125	175	125	175	250	150	200	300	200	275	375
	20	222	20	7.6	7.2		10	100	125	200	125	175	250	150	200	300	200	275	400
	30	272	30	10.0	9.4		20	100	125	200	125	150	250	150	200	300	200	275	375
	40	313	40	12.3	11.6	50	5	100	125	150	125	150	225	150	200	250	175	250	400
	50	354	50	14.6	13.7		10	100	125	175	100	150	225	125	200	300	175	250	350
	60	381	60	16.4	15.5		20	75	125	200	100	150	225	125	175	250	175	250	350

PART NUMBER	Liq Capacity		Air Capacity			Spray Coverage in mm at Indicated Distance from Nozzle													
	Inlet Pres psi	Liq Flow lt/hr	Inlet Pres psi	Atom Air scfm	Fan Air scfm	Atom Air psi	Liq Flow psi	Fan Air Pressure (psi)											
								0			5			10			20		
								D1	D2	D3	D1	D2	D3	D1	D2	D3	D1	D2	D3
176-X-08-ZZ Ø2.36mm Orifice	2.5	91	2.5	1.6	2.0	30	5	125	200	300	175	250	350	200	275	400	275	450	550
	5	136	5	2.7	3.1		10	125	175	250	175	225	350	225	275	400	275	375	525
	10	195	10	4.0	4.6		20	-	-	-	150	200	325	200	275	375	275	375	550
	15	240	15	5.1	5.9	40	5	125	175	225	150	200	275	175	250	350	250	350	450
	20	277	20	6.0	7.2		10	100	150	225	150	200	300	175	250	350	225	325	475
	30	336	30	7.9	9.4		20	100	125	200	125	175	275	150	225	350	225	325	450
	40	390	40	9.6	11.6	50	5	100	150	175	125	175	225	150	200	275	200	300	425
	50	431	50	11.3	13.7		10	100	125	175	125	175	250	150	200	300	200	275	450
	60	467	60	12.8	15.5		20	75	125	200	125	150	225	150	200	325	200	300	450

PART NUMBER	Liq Capacity		Air Capacity			Spray Coverage in mm at Indicated Distance from Nozzle														
	Inlet Pres psi	Liq Flow lt/hr	Inlet Pres psi	Atom Air scfm	Fan Air scfm	Atom Air psi	Liq Flow psi	Fan Air Pressure (psi)												
								0			5			10			20			
								D1	D2	D3	D1	D2	D3	D1	D2	D3	D1	D2	D3	
176-X-09-ZZ Ø2.54mm Orifice	2.5	104	2.5	1.1	2.0	30	5	125	200	300	175	250	375	200	275	450	275	350	550	
	5	154	5	2.4	3.1		10	125	175	275	175	225	350	200	275	450	275	375	600	
	10	218	10	3.9	4.6		20	-	-	-	-	-	-	200	250	425	250	375	550	
	40	15	263	15	5.0	5.9	5	100	150	225	150	200	325	175	225	400	250	350	500	
		20	309	20	6.0	7.2	10	100	150	225	150	200	300	175	250	400	225	350	550	
		30	377	30	7.7	9.4	20	100	150	200	150	200	300	175	250	400	225	325	500	
		40	436	40	9.6	11.6	50	5	100	150	225	125	175	275	150	200	325	225	300	450
		50	486	50	11.3	13.7		10	100	150	225	150	200	300	150	200	350	225	300	425
		60	522	60	12.9	15.6		20	100	125	200	125	175	250	150	200	325	225	300	450



5 | Control Components

Air Regulators & Filter/Regulators



Air regulators provide controlled consistent air pressure as required for specific pneumatic equipment connected to the air system.

Air Filter/Regulators have the same features as regulators with the addition of a 25 micron filter to clean the air supply. They are supplied with automatic/semi automatic drains which allows any excess water in the bowl to drain away.

Standard units are generally of alloy or plastic construction with the addition of a stainless steel option should an application demand it necessary.

PART No.	DESCRIPTION	MAX FLOW	PRESSURE RANGE	MAX TEMP
5207003	1/4" BSP Air Regulator	20 SCFM	0 - 8 bar	50°C
5205008	1/4" BSP Air Filter/Regulator - Semi Automatic Drain	20 SCFM	0 - 8 bar	50°C
R08-C4-F000	1/2" BSP Air Regulator	120 SCFM	0 - 8 bar	60°C
FR08-C4-FG00	1/2" BSP Air Filter/Regulator - Automatic Drain	120 SCFM	0 - 8 bar	60°C
R16-C8-F000	1" BSP Air Regulator	240 SCFM	0 - 10 bar	60°C
FR16-C8-FG00	1" BSP Air Filter/Regulator - Automatic Drain	240 SCFM	0 - 10 bar	60°C

Liquid Regulators



Generally liquid pressure regulators (reducing valves) are used on water systems to stabilise the incoming flow pressure and maintain it at a constant lower outgoing pressure. These regulators are manufactured from either brass or plastic and can reduce incoming pressures as low as 0.5 bar.

There are exceptions when the liquid being used is corrosive and may require a stainless steel regulator to provide a longer service life than standard units.

It is important to ensure the associated pressure gauge is also constructed from suitable materials to match with the liquid being applied.

PART No.	DESCRIPTION	PRESSURE RANGE	MAX TEMP
5208001	1/4" BSP Water Regulator	0.0 - 2 bar	40°C
11342	1/2" BSP Water Regulator	0.5 - 6 bar	40°C
21373	1" BSP Water Regulator	0.5 - 5 bar	40°C
SR1-C2-XA00	1/4" BSP Stainless Steel Liquid Regulator	0.0 - 4 bar	65°C
D06FI-15-A	1/2" BSP Stainless Steel Liquid Regulator - note Male Connections only	1.5 - 6 bar	70°C

Pressure Gauges



MATERIAL

Case: Steel
Window: Acrylic
Connection: Brass
Filling: Dry

TEMPERATURE RATING

-40° to +60°C

ACCURACY

±2.5% FSD

SIZE

50mm (2") Diameter

OPTIONS

Direct Mount
Panel Mount
Neck Mount
Stainless Steel Versions
Glycerine Fill

PART No.	DESCRIPTION
996K21D	0 - 4 Bar 1/8"BSP Centre Back Connection Pressure Gauge
996K22D	0 - 7 Bar 1/8"BSP Centre Back Connection Pressure Gauge
996L21D	0 - 4 Bar 1/4"BSP Centre Back Connection Pressure Gauge
996L22D	0 - 7 Bar 1/4"BSP Centre Back Connection Pressure Gauge
938K21D	0 - 4 Bar 1/8"BSP Centre Back Connection Panel Mount Pressure Gauge with Chrome Bezel
938K22D	0 - 7 Bar 1/8"BSP Centre Back Connection Panel Mount Pressure Gauge with Chrome Bezel
336K21D	0 - 4 Bar 1/8"BSP Centre Back Connection Panel Mount Stainless Steel Pressure Gauge with Stainless Bezel
991L21D	0 - 4 Bar 1/4"BSP Neck Mount / Bottom Connection Pressure Gauge
991L22D	0 - 7 Bar 1/4"BSP Neck Mount / Bottom Connection Pressure Gauge

DIN Style Timers



MATERIAL

Polyamide

TEMPERATURE RANGE

0° to 60°C

PROTECTION

IP65

This simple Plug-On Timer provides the user with the ability to programme the desired on/off cycle times via built-in DIP switches and internal potentiometers. Eight time ranges are available ranging from 0.5 seconds to 10 hours and are proportional from one setting to another.

On-delay, on-pulse, asymmetrical recycler pause/pulse start timer functions are possible providing total versatility from the single unit which can be positioned through 360° in 90° increments.

PART No.	VOLTAGE RANGE
060 647	12 - 24vDC
060 621	24 - 48vAC 50/60 Hz and DC
060 620	110 - 230vAC 50/60 Hz

Two red LED's indicate the status of the timing function during operation and the status of supply.

5 | Control Components

Solenoid Valves

PILOT OPERATED



Pilot operated 2/2 Solenoid Valves are ideally suited to control air and liquids with high flow applications.

Pilot operated valves require a minimum pressure of 0.3 bar differential.

Size ranges from 1/4" to 2" BSP are available and are generally supplied with dual frequency voltage coils and DIN plug connector.

Models available with manual override.

MATERIAL

Brass

OPERATING PRESSURE

0.3 - 10 bar

FLUID TEMPERATURE

-10° to 100°C

SEAT SEAL

NBR / FKM

OPTIONS

Dual Frequency
3/2 Configuration
Stainless Steel

VALVE No.	PORT SIZE
321K4506	1/2"
321K4556*	1/2"
321K4706	1"
321K4756*	1"
321K5006	2"

* denotes with Manual Override

COIL No.	VOLTAGE CODE	VOLTAGE
1865	C2	24vDC
3510	P0	24vAC 50/60 Hz
3510	S5	110vAC 50/60 Hz
3510	S6	240vAC 50/60 Hz

PART No.
Valve No. + Coil No. + Voltage Code
ORDERING EXAMPLE: 321K4506-3510-S6

DIRECT OPERATED



Compact solenoid valves suitable for most gas and fluid handling applications are direct acting with 2/2 configuration.

The solenoid assembly and media chamber are divided from one another by a separating diaphragm system.

The valves are fast acting and have a long service life.

MATERIAL

Brass

OPERATING PRESSURE

0 - 6 bar

FLUID TEMPERATURE

-10° to 55°C

SEAT SEAL

FKM

PART No.	PORT SIZE	VOLTAGE	DESCRIPTION
125301	1/4"	24vDC	1/4" BSP 2/2 Solenoid Valve - 24vDC
125302	1/4"	24vAC 50 Hz	1/4" BSP 2/2 Solenoid Valve - 24vAC
125303	1/4"	110vAC 50 Hz	1/4" BSP 2/2 Solenoid Valve - 110vAC
125304	1/4"	240vAC 50 Hz	1/4" BSP 2/2 Solenoid Valve - 240vAC

DIN PLUG



Protection: IP 65
4x 90° Orientable

PART No.	SIZE
6586	32mm Square

Air Operated Diaphragm Pumps



BODY MATERIAL

Polypropylene
Aluminium
Cast Stainless Steel
Polished Stainless Steel

ELASTOMER MATERIAL

E = EPDM
N = Nitrile
T = PTFE

TEMPERATURE RANGE

-25° to +130°C (Stainless)

Modular in design and technically developed for use in harsh industrial applications, our diaphragm pump range includes over 20 products, of which specific units can withstand temperatures from -25° to +130°C whilst providing high resistance to abrasive and corrosive materials, low flow resistance, minimal downtimes and increased durability.

PART No.	DESCRIPTION
DL15-PM-EET	1/2"BSP Polypropylene Diaphragm Pump with EPDM Diaphragm / EPDM Valve Seat / PTFE Valve Balls
DL25-PM-EET	1"BSP Polypropylene Diaphragm Pump with EPDM Diaphragm / EPDM Valve Seat / PTFE Valve Balls
DH15-FA-EET	1/2"BSP Aluminium Diaphragm Pump with EPDM Diaphragm / EPDM Valve Seat / PTFE Valve Balls
DH25-FA-EET	1"BSP Aluminium Diaphragm Pump with EPDM Diaphragm / EPDM Valve Seat / PTFE Valve Balls
DL15-SA-TTT	1/2"BSP Cast Stainless Steel with Diaphragm Pump PTFE Diaphragm / PTFE Valve Seat / PTFE Valve Balls
DL25-SA-TTT	1"BSP Cast Stainless Steel with Diaphragm Pump PTFE Diaphragm / PTFE Valve Seat / PTFE Valve Balls
DL15-SF-TTT	1/2"BSP Polished Stainless Steel with Diaphragm Pump PTFE Diaphragm / PTFE Valve Seat / PTFE Valve Balls
DL25-SF-TTT	1"BSP Polished Stainless Steel with Diaphragm Pump PTFE Diaphragm / PTFE Valve Seat / PTFE Valve Balls

Material Pressure Tanks



Material pressure tanks meet the highest demands in terms of quality and product safety. The conformity assessment procedure ensures that special customer requests are met with a high level of flexibility.

Tank Liners protect the inner walls of the tank against soiling. They are made of thin but strong polypropylene and can be used

for all common water-based and solvent-based materials.

Double walled tanks use a heating or cooling medium to ensure optimum processing temperatures. The optional agitator blends for constant temperature distribution throughout the material.

Level and temperature measurement can be integrated for process monitoring purposes. Tanks with heating jackets are also available.

TANK MATERIAL

Stainless Steel
Galvanised

TYPES & CAPACITY

Small: 1.1 to 6.4 lts
Lightweight: 3.5 to 19 lts
Standard: 11.8 to 248 lts

AGITATOR OPTIONS

Manual
Pneumatic
Electric

IMPELLER TYPES

Blade (standard)
Pitched Blade
Cup
Grid Blade

6 | Water Filtration

Polypropylene Housing



Polypropylene Water Filter Housings are constructed for long life, durability and ease of use. The housings have excellent chemical resistance and are ideal for many residential, commercial and industrial applications.

The reinforced polypropylene cap features a pressure-relief button on the inlet side to relieve pressure inside the housing when changing filter cartridges.

MATERIAL

Polypropylene

O-RING SEAL

Buna-N®

TEMPERATURE RATING

4° to 52°C (40°-125°F)

MAXIMUM PRESSURE

8.5 Bar (125 psi)

FLOW RATE

1/2" BSP - up to 15 lts/min

1" BSP - up to 20 lts/min

PART No.	DESCRIPTION
F103-12-50	1/2" BSP Water Filter Housing with 50 micron Element & Mounting Bracket
F103-12-5	1/2" BSP Water Filter Housing with 5 micron Element & Mounting Bracket
F103-12-0.45	1/2" BSP Water Filter Housing with 0.45 micron Element & Mounting Bracket
F103-12	1/2" BSP Water Filter Housing
SL1	1/2" Filter Mounting Bracket with Screws
F103-100-50	1" BSP Water Filter Housing with 50 micron Element & Mounting Bracket
F103-100-5	1" BSP Water Filter Housing with 5 micron Element & Mounting Bracket
F103-100	1" BSP Water Filter Housing
MC1	1" Filter Mounting Bracket with Screws
SWC50M-10A	50 micron Wound Element
SWC5M-10A	5 micron Wound Element
PPP-0.45-10-AAS	0.45 micron Pleated Element
SW1	1/2" BSP Tightening Spanner
SW2	1" BSP Tightening Spanner

Stainless Steel Housing



Stainless Steel Water Filter Housings are easy to install, operate and maintain. The housings are constructed from 316 Stainless Steel with a polycoat finish.

The housing features a 1/8" BSP drain at the base of the sump which allows for liquids to be easily drained. Only minimal ground clearance required for cartridge change-outs.

MATERIAL

316 Stainless Steel

O-RING

Buna-N®

TEMPERATURE RATING

4° to 93°C (40°-200°F)

MAXIMUM PRESSURE

21 Bar (300 psi)

FLOW RATE

1/2" BSP - up to 15 lts/min

PART No.	DESCRIPTION
SS103-12-50	1/2" BSP Stainless Steel Water Filter Housing with 50 micron Element & Mounting Bracket
SS103-12-5	1/2" BSP Stainless Steel Water Filter Housing with 5 micron Element & Mounting Bracket
SS103-12-0.45	1/2" BSP Stainless Steel Water Filter Housing with 0.45 micron Element & Mounting Bracket
SS103-12	1/2" BSP Stainless Steel Water Filter Housing c/w Mounting Bracket
SFH	Mounting Bracket with Screws
PPP-50-10-AAS	50 micron Pleated Element
PPP-5-10-AAS	5 micron Pleated Element
PPP-0.45-10-AAS	0.45 micron Pleated Element

Ultra Violet Disinfection Units



Ultra Violet Disinfection is considered an essential part of modern water treatment when applied to atomised spray systems.

UV is considered to be the primary mechanism for the inactivation / destruction of pathogenic organisms to prevent the spread of waterborne diseases to downstream users and the environment.

A UV disinfection system transfers electromagnetic energy from a mercury arc lamp to an organism's genetic material (DNA and RNA). When UV radiation penetrates the cell wall of an organism, it destroys the cell's ability to reproduce, rendering them dormant.

MATERIAL

304 Stainless Steel

TEMPERATURE RATING

2° to 40°C (36-104°F)

OPERATING PRESSURE

Up to 10 bar

FLOW RATE

11 to 80 lts/min

FEATURES

Twist & Turn Lamp Change
Colour User Interface
Audio & Visual Alarm for Lamp Change / Failure

PART No.	FLOW RATE	THREAD SIZE	LAMP WATTS	UNIT POWER	VOLTAGE	LAMP REF.	QUARTZ REF.
UV-15W	11 lpm	1/2"	15	20	100-250vAC 50/60 Hz	RL-15	RQ-15
UV-22W	22 lpm	3/4"	22	30	100-250vAC 50/60 Hz	RL-22	RQ-22
UV-39W	41 lpm	3/4"	39	49	100-250vAC 50/60 Hz	RL-39	RQ-39
UV-42W	79 lpm	1"	42	51	100-250vAC 50/60 Hz	RL-42	RQ-42



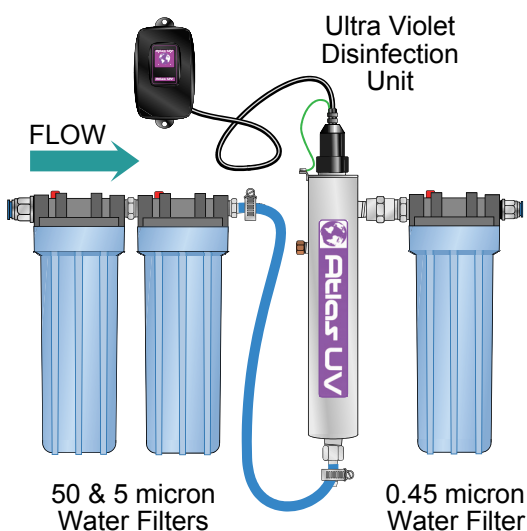
The unique, highly efficient ballast controller interface features a user friendly colour LCD display which provides meaningful user feedback messages, including remaining lamp life and total days of operation.

The unit is supplied with a 1.2 metre cable for local installation and has two convenient mounting holes extending from the backplate.

FEATURES

Multi-Voltage (90 - 265vAC)
Dual Frequency (50 / 60 Hz)
Full Colour LCD Display

IDEAL CONFIGURATION



UV systems must be installed with pre-filtration down to 5 micron using a two stage filter arrangement. This prevents a shadowing effect where micro organisms can hide behind particulates in the water as they flow through the UV chamber.

It is essential to maintain the UV unit in good order. Renewing the lamp and cleaning or replacing the quartz sleeve every 2000 to 4000 hours is recommended to ensure radiation penetrates efficiently through the water.

Where superior quality results are required, the addition of a 0.45 micron water filter (polishing filter) will remove virtually all further particulates ensuring clean, bacteria free water with a 96% contaminate purity.

7 | Fittings & Tubing

High quality Push-In Fittings in composite materials, nickel plated brass or stainless steel. 100% leak tested during production, these fittings are suitable for both pneumatic and vacuum applications.

The composite fittings incorporate a wide range of sizes. All the popular variants with an extended range of combinations of tube to thread size, reduces the requirement for adaptors keeping cost and installation time to a minimum.

FEATURES

- Simple and quick to install
- Flexible space-saving design
- Wide range to suit all applications
- Tubing can be freely rotated, even after installation
- All taper threads are pre-coated with PTFE on Polymer Range

POLYMER PUSH-IN FITTINGS RANGE



TECHNICAL DATA

Tube Sizes	4 - 16mm
Threads	M5 - 1/2", Taper and Parallel
Taper Threads	PTFE sealant pre-applied

MATERIALS

Body	PBT/Nickel Plated Brass
Seal	Nitrile Rubber (NBR)
Grab Ring	Stainless Steel
Release Sleeve	POM (polyoxymethylene)

METAL PUSH-IN FITTINGS RANGE



TECHNICAL DATA

Tube Sizes	4 - 12mm
Threads	M5 - 1/2", Taper and Parallel

MATERIALS

Body	Nickel Plated Brass
Seal	Nitrile Rubber (NBR)
Grab Ring	Stainless Steel
Release Sleeve	POM

STAINLESS STEEL PUSH-IN FITTINGS RANGE



TECHNICAL DATA

Tube Sizes	4 - 12mm
Threads	1/8" - 1/2", Taper only

MATERIALS

Body	Stainless Steel AISI 316
Seal	Viton (FPM)
Grab Ring	Stainless Steel
Release Sleeve	Stainless Steel AISI 316

MALE STUD STRAIGHT PARALLEL



PART No.	TUBE O.D.	THREAD
ZH-045MP	4	M5
ZH-041P	4	1/8"
ZH-042P	4	1/4"
ZH-065MP	6	M5
ZH-061P	6	1/8"
ZH-062P	6	1/4"
ZH-063P	6	3/8"
ZH-064P	6	1/2"
ZH-081P	8	1/8"
ZH-082P	8	1/4"
ZH-083P	8	3/8"
ZH-084P	8	1/2"
ZH-102P	10	1/4"
ZH-103P	10	3/8"
ZH-104P	10	1/2"
ZH-122P	12	1/4"
ZH-123P	12	3/8"
ZH-124P	12	1/2"
ZH-163P	16	3/8"
ZH-164P	16	1/2"

MALE STUD STRAIGHT TAPER



PART No.	TUBE O.D.	THREAD
ZH-041	4	1/8"
ZH-042	4	1/4"
ZH-061	6	1/8"
ZH-062	6	1/4"
ZH-063	6	3/8"
ZH-064	6	1/2"
ZH-081	8	1/8"
ZH-082	8	1/4"
ZH-083	8	3/8"
ZH-084	8	1/2"
ZH-102	10	1/4"
ZH-103	10	3/8"
ZH-104	10	1/2"
ZH-122	12	1/4"
ZH-123	12	3/8"
ZH-124	12	1/2"
ZH-163	16	3/8"
ZH-164	16	1/2"

MALE SWIVEL ELBOW PARALLEL



PART No.	TUBE O.D.	THREAD
ZL-045MP	4	M5
ZL-041P	4	1/8"
ZL-042P	4	1/4"
ZL-065MP	6	M5
ZL-061P	6	1/8"
ZL-062P	6	1/4"
ZL-063P	6	3/8"
ZL-064P	6	1/2"
ZL-081P	8	1/8"
ZL-082P	8	1/4"
ZL-083P	8	3/8"
ZL-084P	8	1/2"
ZL-102P	10	1/4"
ZL-103P	10	3/8"
ZL-104P	10	1/2"
ZL-122P	12	1/4"
ZL-123P	12	3/8"
ZL-124P	12	1/2"
ZL-163P	16	3/8"
ZL-164P	16	1/2"

MALE SWIVEL ELBOW TAPER



PART No.	TUBE O.D.	THREAD
ZL-041	4	1/8"
ZL-042	4	1/4"
ZL-061	6	1/8"
ZL-062	6	1/4"
ZL-063	6	3/8"
ZL-064	6	1/2"
ZL-081	8	1/8"
ZL-082	8	1/4"
ZL-083	8	3/8"
ZL-084	8	1/2"
ZL-102	10	1/4"
ZL-103	10	3/8"
ZL-104	10	1/2"
ZL-122	12	1/4"
ZL-123	12	3/8"
ZL-124	12	1/2"
ZL-163	16	3/8"
ZL-164	16	1/2"

MALE SWIVEL TEE PARALLEL



PART No.	TUBE O.D.	THREAD
ZC-045MP	4	M5
ZC-041P	4	1/8"
ZC-042P	4	1/4"
ZC-065MP	6	M5
ZC-061P	6	1/8"
ZC-062P	6	1/4"
ZC-063P	6	3/8"
ZC-064P	6	1/2"
ZC-081P	8	1/8"
ZC-082P	8	1/4"
ZC-083P	8	3/8"
ZC-084P	8	1/2"
ZC-102P	10	1/4"
ZC-103P	10	3/8"
ZC-104P	10	1/2"
ZC-122P	12	1/4"
ZC-123P	12	3/8"
ZC-124P	12	1/2"

MALE SWIVEL TEE TAPER



PART No.	TUBE O.D.	THREAD
ZC-041	4	1/8"
ZC-042	4	1/4"
ZC-061	6	1/8"
ZC-062	6	1/4"
ZC-063	6	3/8"
ZC-064	6	1/2"
ZC-081	8	1/8"
ZC-082	8	1/4"
ZC-083	8	3/8"
ZC-084	8	1/2"
ZC-102	10	1/4"
ZC-103	10	3/8"
ZC-104	10	1/2"
ZC-122	12	1/4"
ZC-123	12	3/8"
ZC-124	12	1/2"

7 | Polymer Fittings

MALE Y CONNECTOR PARALLEL



PART No.	TUBE O.D.	THREAD
ZY-045MNP	4	M5
ZY-041NP	4	1/8"
ZY-042NP	4	1/4"
ZY-065MNP	6	M5
ZY-061NP	6	1/8"
ZY-062NP	6	1/4"
ZY-063NP	6	3/8"
ZY-064NP	6	1/2"
ZY-081NP	8	1/8"
ZY-082NP	8	1/4"
ZY-083NP	8	3/8"
ZY-084NP	8	1/2"
ZY-102NP	10	1/4"
ZY-103NP	10	3/8"
ZY-104NP	10	1/2"
ZY-122NP	12	1/4"
ZY-123NP	12	3/8"
ZY-124NP	12	1/2"

MALE Y CONNECTOR TAPER



PART No.	TUBE O.D.	THREAD
ZY-041N	4	1/8"
ZY-042N	4	1/4"
ZY-061N	6	1/8"
ZY-062N	6	1/4"
ZY-063N	6	3/8"
ZY-064N	6	1/2"
ZY-081N	8	1/8"
ZY-082N	8	1/4"
ZY-083N	8	3/8"
ZY-084N	8	1/2"
ZY-102N	10	1/4"
ZY-103N	10	3/8"
ZY-104N	10	1/2"
ZY-122N	12	1/4"
ZY-123N	12	3/8"
ZY-124N	12	1/2"

FEMALE STUD PARALLEL



PART No.	TUBE O.D.	THREAD
ZH-041F	4	1/8"
ZH-042F	4	1/4"
ZH-061F	6	1/8"
ZH-062F	6	1/4"
ZH-063F	6	3/8"
ZH-064F	6	1/2"
ZH-081F	8	1/8"
ZH-082F	8	1/4"
ZH-083F	8	3/8"
ZH-084F	8	1/2"
ZH-102F	10	1/4"
ZH-103F	10	3/8"
ZH-104F	10	1/2"
ZH-122F	12	1/4"
ZH-123F	12	3/8"
ZH-124F	12	1/2"

BANJO MALE ELBOW PARALLEL



PART No.	TUBE O.D.	THREAD
ZL-045MR	4	M5
ZL-041R	4	1/8"
ZL-042R	4	1/4"
ZL-065MR	6	M5
ZL-061R	6	1/8"
ZL-062R	6	1/4"
ZL-063R	6	3/8"
ZL-064R	6	1/2"
ZL-081R	8	1/8"
ZL-082R	8	1/4"
ZL-083R	8	3/8"
ZL-084R	8	1/2"
ZL-102R	10	1/4"
ZL-103R	10	3/8"
ZL-104R	10	1/2"
ZL-122R	12	1/4"
ZL-123R	12	3/8"
ZL-124R	12	1/2"

EQUAL STRAIGHT CONNECTOR



PART No.	TUBE O.D.
ZS-040	4
ZS-060	6
ZS-080	8
ZS-100	10
ZS-120	12
ZS-160	16

UNEQUAL STRAIGHT CONNECTOR



PART No.	TUBE 1	TUBE 2
ZS-0604	6	4
ZS-0806	8	6
ZS-1008	10	8
ZS-1210	12	10
ZS-1612	16	12

EQUAL ELBOW CONNECTOR



PART No.	TUBE O.D.
ZF-040	4
ZF-060	6
ZF-080	8
ZF-100	10
ZF-120	12
ZF-160	16

EQUAL TEE CONNECTOR



PART No.	TUBE O.D.
ZT-040	4
ZT-060	6
ZT-080	8
ZT-100	10
ZT-120	12
ZT-160	16

UNEQUAL TEE CONNECTOR



PART No.	TUBE 1	TUBE 2
ZT-0406	4	6
ZT-0604	6	4
ZT-0608	6	8
ZT-0806	8	6
ZT-0810	8	10
ZT-1008	10	8
ZT-1012	10	12
ZT-1210	12	10
ZT-1612	16	12

EQUAL CROSS CONNECTOR



PART No.	TUBE O.D.
ZCR-040	4
ZCR-060	6
ZCR-080	8
ZCR-010	10
ZCR-012	12

STEM REDUCER



PART No.	TUBE O.D.	STEM
ZR-0604	6	4
ZR-0804	8	4
ZR-0806	8	6
ZR-1006	10	6
ZR-1008	10	8
ZR-1206	12	6
ZR-1208	12	8
ZR-1210	12	10

BULKHEAD CONNECTOR



PART No.	TUBE O.D.
ZX-040	4
ZX-060	6
ZX-080	8
ZX-100	10
ZX-120	12
ZX-160	16

EQUAL Y CONNECTOR



PART No.	TUBE O.D.
ZY-040	4
ZY-060	6
ZY-080	8
ZY-100	10
ZY-120	12
ZY-160	16

STEM Y ADAPTOR



PART No.	TUBE O.D.
ZY-0404	4
ZY-0606	6
ZY-0808	8
ZY-1010	10
ZY-1212	12

BLANKING PLUG



PART No.	TUBE O.D.
ZB-040	4
ZB-060	6
ZB-080	8
ZB-100	10
ZB-120	12

FEMALE BULKHEAD CONNECTOR



PART No.	TUBE O.D.	THREAD
ZK-041	4	1/8"
ZK-061	6	1/8"
ZK-062	6	1/4"
ZK-081	8	1/8"
ZK-082	8	1/4"
ZK-102	10	1/4"
ZK-103	10	3/8"
ZK-122	12	1/4"
ZK-123	12	3/8"
ZK-124	12	1/2"

UNEQUAL Y CONNECTOR



PART No.	TUBE 1	TUBE 2
ZY-0604	6	4
ZY-0806	8	6
ZY-1008	10	8
ZY-1210	12	10

STEM ELBOW ADAPTOR



PART No.	TUBE O.D.
ZL-0404	4
ZL-0606	6
ZL-0808	8
ZL-1010	10
ZL-1212	12

INLINE FLOW REGULATOR



PART No.	TUBE O.D.
ZI-040	4
ZI-060	6
ZI-080	8
ZI-100	10
ZI-120	12
ZI-160	16

BANJO FLOW CONTROL TAPER

Metering Out



PART No.	TUBE O.D.	THREAD
ZJ-041	4	1/8"
ZJ-061	6	1/8"
ZJ-062	6	1/4"
ZJ-081	8	1/8"
ZJ-082	8	1/4"
ZJ-083	8	3/8"
ZJ-084	8	1/2"
ZJ-102	10	1/4"
ZJ-103	10	3/8"
ZJ-104	10	1/2"
ZJ-122	12	1/4"
ZJ-123	12	3/8"
ZJ-124	12	1/2"

7 | Polymer Fittings

BANJO FLOW CONTROL PARALLEL

Metering Out



PART No.	TUBE O.D.	THREAD
ZJ-045MP	4	M5"
ZJ-041P	4	1/8"
ZJ-065MP	6	M5
ZJ-061P	6	1/8"
ZJ-062P	6	1/4"
ZJ-081P	8	1/8"
ZJ-082P	8	1/4"
ZJ-083P	8	3/8"
ZJ-084P	8	1/2"
ZJ-102P	10	1/4"
ZJ-103P	10	3/8"
ZJ-104P	10	1/2"
ZJ-122P	12	1/4"
ZJ-123P	12	3/8"
ZJ-124P	12	1/2"

HAND VALVE PUSH-IN



PART No.	TUBE O.D.
ZHV-060	6
ZHV-080	8
ZHV-100	10
ZHV-120	12

HAND VALVE TAPER



PART No.	THREAD
ZHV-001	1/8"
ZHV-002	1/4"
ZHV-003	3/8"
ZHV-004	1/2"

HAND VALVE TAPER & PUSH IN



PART No.	TUBE O.D.	THREAD
ZHV-061	6	1/8"
ZHV-062	6	1/4"
ZHV-082	8	1/4"
ZHV-083	8	3/8"
ZHV-102	10	1/4"
ZHV-103	10	3/8"
ZHV-104	10	1/2"
ZHV-124	12	1/2"

Metal Fittings

MALE STUD STRAIGHT PARALLEL



PART No.	TUBE O.D.	THREAD
MH-045MP	4	M5
MH-041P	4	1/8"
MH-042P	4	1/4"
MH-065MP	6	M5
MH-061P	6	1/8"
MH-062P	6	1/4"
MH-081P	8	1/8"
MH-082P	8	1/4"
MH-083P	8	3/8"
MH-102P	10	1/4"
MH-103P	10	3/8"
MH-104P	10	1/2"
MH-122P	12	1/4"
MH-123P	12	3/8"
MH-124P	12	1/2"

MALE STUD STRAIGHT TAPER



PART No.	TUBE O.D.	THREAD
MH-041	4	1/8"
MH-042	4	1/4"
MH-061	6	1/8"
MH-062	6	1/4"
MH-081	8	1/8"
MH-082	8	1/4"
MH-083	8	3/8"
MH-102	10	1/4"
MH-103	10	3/8"
MH-104	10	1/2"
MH-122	12	1/4"
MH-123	12	3/8"
MH-124	12	1/2"

MALE SWIVEL ELBOW PARALLEL



PART No.	TUBE O.D.	THREAD
ML-045P	4	M5
ML-041P	4	1/8"
ML-042P	4	1/4"
ML-065P	6	M5
ML-061P	6	1/8"
ML-062P	6	1/4"
ML-081P	8	1/8"
ML-082P	8	1/4"
ML-083P	8	3/8"
ML-102P	10	1/4"
ML-103P	10	3/8"
ML-104P	10	1/2"
ML-122P	12	1/4"
ML-123P	12	3/8"
ML-124P	12	1/2"

MALE SWIVEL ELBOW TAPER



PART No.	TUBE O.D.	THREAD
ML-041	4	1/8"
ML-042	4	1/4"
ML-061	6	1/8"
ML-062	6	1/4"
ML-081	8	1/8"
ML-082	8	1/4"
ML-102	10	1/4"
ML-103	10	3/8"
ML-123	12	3/8"
ML-124	12	1/2"

MALE SWIVEL TEE PARALLEL



PART No.	TUBE O.D.	THREAD
MC-041P	4	1/8"
MC-042P	4	1/4"
MC-061P	6	1/8"
MC-062P	6	1/4"
MC-081P	8	1/8"
MC-082P	8	1/4"
MC-083P	8	3/8"
MC-102P	10	1/4"
MC-103P	10	3/8"
MC-123P	12	3/8"
MC-124P	12	1/2"

MALE RUN TEE PARALLEL



PART No.	TUBE O.D.	THREAD
MD-041P	4	1/8"
MD-042P	4	1/4"
MD-061P	6	1/8"
MD-062P	6	1/4"
MD-081P	8	1/8"
MD-082P	8	1/4"
MD-102P	10	1/4"
MD-103P	10	3/8"
MD-123P	12	3/8"
MD-124P	12	1/2"

FEMALE STRAIGHT PARALLEL



PART No.	TUBE O.D.	THREAD
MH-041F	4	1/8"
MH-061F	6	1/8"
MH-062F	6	1/4"
MH-081F	8	1/8"
MH-082F	8	1/4"
MH-102F	10	1/4"
MH-103F	10	3/8"

STRAIGHT CONNECTOR



PART No.	TUBE O.D.
MS-040	4
MS-060	6
MS-080	8
MS-100	10
MS-120	12

EQUAL ELBOW



PART No.	TUBE O.D.
MF-040	4
MF-060	6
MF-080	8
MF-100	10
MF-120	12

EQUAL TEE



PART No.	TUBE O.D.
MT-040	4
MT-060	6
MT-080	8
MT-100	10
MT-120	12

7 | Stainless Steel Fittings

MALE STUD STRAIGHT TAPER



PART No.	TUBE O.D.	THREAD
SSH-041	4	1/8"
SSH-042	4	1/4"
SSH-061	6	1/8"
SSH-062	6	1/4"
SSH-081	8	1/8"
SSH-082	8	1/4"
SSH-102	10	1/4"
SSH-103	10	3/8"
SSH-123	12	3/8"
SSH-124	12	1/2"

MALE SWIVEL TEE TAPER



PART No.	TUBE O.D.	THREAD
SSC-041	4	1/8"
SSC-061	6	1/8"
SSC-062	6	1/4"
SSC-081	8	1/8"
SSC-082	8	1/4"
SSC-102	10	1/4"
SSC-103	10	3/8"

MALE SWIVEL ELBOW TAPER



PART No.	TUBE O.D.	THREAD
SSL-041	4	1/8"
SSL-061	6	1/8"
SSL-062	6	1/4"
SSL-081	8	1/8"
SSL-082	8	1/4"
SSL-102	10	1/4"
SSL-103	10	3/8"
SSL-123	12	3/8"
SSL-124	12	1/2"

HOSETAIL TAPER



PART No.	THREAD	HOSE I.D.
SSMH1814	1/8"	1/4"
SSMH14	1/4"	1/4"
SSMH1438	1/4"	3/8"
SSMH1412	1/4"	1/2"
SSMH38	3/8"	3/8"
SSMH3812	3/8"	1/2"
SSMH12	1/2"	1/2"
SSMH1234	1/2"	3/4"
SSMH34	3/4"	3/4"
SSMH341	3/4"	1"
SSMH1	1"	1"
SSMH112	1.1/2"	1.1/2"
SSMH2	2"	2"
SSMH212	2.1/2"	2.1/2"
SSMH3	3"	3"
SSMH4	4"	4"

REDUCING BUSH



PART No.	THREAD	THREAD
SSRB1418	1/4"	1/8"
SSRB3818	3/8"	1/8"
SSRB3814	3/8"	1/4"
SSRB1218	1/2"	1/8"
SSRB1214	1/2"	1/4"
SSRB1238	1/2"	3/8"
SSRB3414	3/4"	1/4"
SSRB3438	3/4"	3/8"
SSRB3412	3/4"	1/2"
SSRB114	1"	1/4"
SSRB138	1"	3/8"
SSRB112	1"	1/2"
SSRB134	1"	3/4"
SSRB11412	1.1/4"	1/2"
SSRB11434	1.1/4"	3/4"
SSRB1141	1.1/4"	1"
SSRB11212	1.1/2"	1/2"
SSRB11234	1.1/2"	3/4"
SSRB1121	1.1/2"	1"
SSRB112114	1.1/2"	1.1/4"
SSRB234	2"	3/4"
SSRB21	2"	1"
SSRB2114	2"	1.1/4"
SSRB2112	2"	1.1/2"
SSRB212112	2.1/2"	1.1/2"
SSRB2122	2.1/2"	2"
SSRB3112	3"	1.1/2"
SSRB32	3"	2"
SSRB3212	3"	2.1/2"
SSRB42	4"	2"
SSRB4212	4"	2.1/2"
SSRB43	4"	3"

EQUAL ELBOW



PART No.	TUBE O.D.
SSF-040	4
SSF-060	6
SSF-080	8
SSF-100	10
SSF-120	12

EQUAL TEE



PART No.	TUBE O.D.
SST-040	4
SST-060	6
SST-080	8
SST-100	10
SST-120	12

EQUAL NIPPLE



PART No.	THREAD
SSHN18	1/8"
SSHN14	1/4"
SSHN12	1/2"
SSHN34	3/4"
SSHN1	1"
SSHN114	1.1/4"
SSHN112	1.1/2"
SSHN2	2"
SSHN212	2.1/2"
SSHN3	3"
SSHN4	4"

STRAIGHT CONNECTOR



PART No.	TUBE O.D.
SSS-040	4
SSS-060	6
SSS-080	8
SSS-100	10
SSS-120	12



APPLICATION

Pneumatic and Hydraulic Systems

THREADS

Tapered Gas - ISO 7 - DIN 2999 - BS 21
Cylindrical (Parallel) Gas - ISO 228

MATERIALS

Brass UNI EN 12164 CW 614N
Brass UNI EN 12165 CW 617N
Surface Treatment - Nickel Plating

SPECIFICATIONS

Max Pressure - 60 bar

Nickel Plated Brass threaded fittings and Brass hose tails are designed to assist with the assembly of fluid power components, systems and complement a selection of push-in fittings.

With threads from 1/8" to 1" BSP in a variety of

different forms, the optimum connection solution can be sourced from this range.

Suitable for all fluids compatible with the materials, these fittings can be used in general industry applications and harsh environments.

ELBOW ADAPTOR MALE / MALE



PART No.	THREAD
914-10-10	1/8"
914-13-13	1/4"
914-13-10	1/4" - 1/8"
914-17-17	3/8"
914-21-21	1/2"
914-27-27	3/4"
914-34-34	1"

ELBOW ADAPTOR MALE / FEMALE



PART No.	THREAD
921-10-10	1/8"
921-13-13	1/4"
921-13-10	1/4" - 1/8"
921-17-17	3/8"
921-21-21	1/2"
921-27-27	3/4"
921-34-34	1"

ELBOW ADAPTOR FEMALE / FEMALE



PART No.	THREAD
912-10-10	1/8"
912-13-13	1/4"
912-17-17	3/8"
912-21-21	1/2"
912-27-27	3/4"
912-34-34	1"

TEE ADAPTOR MALE / MALE / MALE



PART No.	THREAD
927-10-10	1/8"
927-13-13	1/4"
927-17-17	3/8"
927-21-21	1/2"
927-27-27	3/4"
927-34-34	1"

TEE ADAPTOR FEMALE / MALE / FEMALE



PART No.	THREAD
916-10-10	1/8"
916-13-13	1/4"
916-17-17	3/8"
916-21-21	1/2"
916-27-27	3/4"
916-34-34	1"

TEE ADAPTOR FEMALE / FEMALE / FEMALE



PART No.	THREAD
915-10-10	1/8"
915-13-13	1/4"
915-17-17	3/8"
915-21-21	1/2"
915-27-27	3/4"
915-34-34	1"

7 | Threaded Fittings

Y ADAPTOR FEMALE / MALE / FEMALE



PART No.	THREAD
911-10-10	1/8"
911-13-13	1/4"
911-17-17	3/8"
911-21-21	1/2"

Y ADAPTOR FEMALE / FEMALE FEMALE



PART No.	THREAD
910-10-10	1/8"
910-13-13	1/4"
910-17-17	3/8"
910-21-21	1/2"

CROSS ADAPTOR MALE / FEMALE / FEMALE / FEMALE



PART No.	THREAD
909-10-10	1/8"
909-13-13	1/4"
909-17-17	3/8"
909-21-21	1/2"

CROSS ADAPTOR FEMALE / FEMALE / FEMALE / FEMALE



PART No.	THREAD
908-10-10	1/8"
908-13-13	1/4"
908-17-17	3/8"
908-21-21	1/2"

NIPPLE CONNECTOR TAPER



PART No.	THREAD
905-10-10	1/8"
905-13-13	1/4"
905-17-17	3/8"
905-21-21	1/2"
905-27-27	3/4"
905-34-34	1"

NIPPLE CONNECTOR PARALLEL



PART No.	THREAD
901-10-10	1/8"
901-13-13	1/4"
901-17-17	3/8"
901-21-21	1/2"
901-27-27	3/4"
901-34-34	1"

NIPPLE REDUCER TAPER



PART No.	THREAD	THREAD
900-13-10	1/4"	1/8"
900-17-10	3/8"	1/8"
900-17-13	3/8"	1/4"
900-21-13	1/2"	1/4"
900-21-17	1/2"	3/8"
900-27-21	3/4"	1/2"
900-34-27	1"	3/4"

NIPPLE REDUCER PARALLEL



PART No.	THREAD	THREAD
903-13-10	1/4"	1/8"
903-17-10	3/8"	1/8"
903-17-13	3/8"	1/4"
903-21-13	1/2"	1/4"
903-21-17	1/2"	3/8"
903-27-21	3/4"	1/2"
903-34-27	1"	3/4"

REDUCING BUSH TAPER



PART No.	THREAD	THREAD
904-13-10	1/4"	1/8"
904-17-10	3/8"	1/8"
904-17-13	3/8"	1/4"
904-21-10	1/2"	1/8"
904-21-13	1/2"	1/4"
904-21-17	1/2"	3/8"
904-27-17	3/4"	3/8"
904-27-21	3/4"	1/2"
904-34-21	1"	1/2"

SLEEVE FEMALE / FEMALE



PART No.	THREAD
902-10-10	1/8"
902-13-13	1/4"
902-17-17	3/8"
902-21-21	1/2"
902-27-27	3/4"
902-34-34	1"

SLEEVE REDUCER



PART No.	THREAD	THREAD
902-13-10	1/4"	1/8"
902-17-10	3/8"	1/8"
902-17-13	3/8"	1/4"
902-21-10	1/2"	1/8"
902-21-13	1/2"	1/4"
902-21-17	1/2"	3/8"
902-27-21	3/4"	1/2"

BULKHEAD FEMALE / FEMALE



PART No.	THREAD
920-10-00	1/8" - M16 x 1.5
920-13-00	1/4" - M20 x 1.5
920-17-00	3/8" - M26 x 1.5
920-21-00	1/2" - M28 x 1.5

PLUG PARALLEL MALE



PART No.	THREAD
220-10-00	1/8"
220-13-00	1/4"
220-17-00	3/8"
220-21-00	1/2"

PLUG HEX SOCKET WITH O-RING



PART No.	THREAD
222-10-00	1/8"
222-13-00	1/4"
222-17-00	3/8"
222-21-00	1/2"

MALE HOSETAIL TAPER



PART No.	THREAD	HOSE I.D. (mm)
MH02-02	1/8"	1/8" (3)
MH02-03	1/8"	3/16" (5)
MH02-04	1/8"	1/4" (6)
MH02-05	1/8"	5/16" (8)
MH02-06	1/8"	3/8" (10)
MH04-02	1/4"	1/8" (3)
MH04-03	1/4"	3/16" (5)
MH04-04	1/4"	1/4" (6)
MH04-05	1/4"	5/16" (8)
MH04-06	1/4"	3/8" (10)
MH04-08	1/4"	1/2" (12)
MH04-12	1/4"	3/4" (19)
MH06-03	3/8"	3/16" (5)
MH06-04	3/8"	1/4" (6)
MH06-05	3/8"	5/16" (8)
MH06-06	3/8"	3/8" (10)
MH06-08	3/8"	1/2" (12)
MH06-10	3/8"	5/8" (16)
MH06-12	3/8"	3/4" (19)
MH08-03	1/2"	3/16" (5)
MH08-04	1/2"	1/4" (6)
MH08-05	1/2"	5/16" (8)
MH08-06	1/2"	3/8" (10)
MH08-08	1/2"	1/2" (12)
MH08-10	1/2"	5/8" (16)
MH08-12	1/2"	3/4" (19)
MH08-16	1/2"	1" (25)
MH12-04	3/4"	1/4" (6)
MH12-05	3/4"	5/16" (8)
MH12-06	3/4"	3/8" (10)
MH12-08	3/4"	1/2" (12)
MH12-10	3/4"	5/8" (16)
MH12-12	3/4"	3/4" (19)
MH12-16	3/4"	1" (25)
MH12-20	3/4"	1.1/4" (32)
MH16-08	1"	1/2" (12)
MH16-12	1"	3/4" (19)
MH16-16	1"	1" (25)
MH16-20	1"	1.1/4" (32)
MH16-24	1"	1.1/2" (38)
MH20-12	1.1/4"	3/4" (19)
MH20-16	1.1/4"	1" (25)
MH20-20	1.1/4"	1.1/4" (32)
MH24-20	1.1/2"	1.1/4" (32)
MH24-24	1.1/2"	1.1/2" (38)
MH24-32	1.1/2"	2" (50)
MH32-24	2"	1.1/2" (38)
MH32-32	2"	2" (50)

PLUG TAPER MALE



PART No.	THREAD
205-10-00	1/8"
205-13-00	1/4"
205-17-00	3/8"
205-21-00	1/2"

PLUG FEMALE



PART No.	THREAD
204-10-00	1/8"
204-13-00	1/4"
204-17-00	3/8"
204-21-00	1/2"

JUBILEE WORM DRIVE HOSE CLIP



PART No.	SIZE MIN	SIZE MAX
JUB-000	9.5	12
JUB-MOO	11	16
JUB-OO	13	20
JUB-O	16	22
JUB-OX	17	25
JUB-1A	22	30
JUB-1	25	35
JUB-1X	30	40
JUB-1M	35	45
JUB-2A	35	50
JUB-2	40	55
JUB-2X	45	60
JUB-3	55	70
JUB-3X	60	80
JUB-4	70	90
JUB-4X	80	100
JUB-5	90	120
JUB-6	110	140
JUB-6X	120	150
JUB-7	135	165
JUB-7-1/2	158	190
JUB-8-1/2	185	216
JUB-9-1/2	210	242
JUB-10-1/2	235	267
JUB-11-1/2	260	292
JUB-12-1/2	286	318

FEMALE HOSETAIL PARALLEL



PART No.	THREAD	HOSE I.D. (mm)
FH02-03	1/8"	3/16" (5)
FH02-04	1/8"	1/4" (6)
FH02-05	1/8"	5/16" (8)
FH02-06	1/8"	3/8" (10)
FH04-03	1/4"	3/16" (5)
FH04-04	1/4"	1/4" (6)
FH04-05	1/4"	5/16" (8)
FH04-06	1/4"	3/8" (10)
FH04-08	1/4"	1/2" (12)
FH06-04	3/8"	1/4" (6)
FH06-05	3/8"	5/16" (8)
FH06-06	3/8"	3/8" (10)
FH06-08	3/8"	1/2" (12)
FH08-04	1/2"	1/4" (6)
FH08-05	1/2"	5/16" (8)
FH08-06	1/2"	3/8" (10)
FH08-08	1/2"	1/2" (12)
FH08-10	1/2"	5/8" (16)
FH08-12	1/2"	3/4" (19)
FH08-16	1/2"	1" (25)

7 | Nylon Tubing



TECHNICAL DETAILS

O.D. / I.D. WALL THICKNESS - mm	WORKING PRESSURE - BAR	BURST PRESSURE - BAR	BEND RADIUS - mm
4 x 2.5 x 0.75	38	152	8
6 x 4 x 1	31	127	13
8 x 6 x 1	21	84	32
10 x 8 x 1	15	63	50
12 x 9 x 1.5	21	84	45
16 x 12 x 2	21	84	85

SPECIFICATIONS

Coil Length: 30 metres
 Temperature Rating: -40° to + 80°C
 Tolerances: ID +/- 0.1mm
 OD + 0.0 / - 0.1mm

Pressure ratings are for use in ambient temperatures of 20°C
 % Pressure rating with temperature increase

TEMP	20°	30°	50°	60°	80°
PRESSURE %	100	83	62	56	50

Tube Cutter



PART No.	SIZE (O.D. X I.D.)	COLOUR
MNF4/2.5BLK	4 x 2.5	Black
MNF4/2.5BLU	4 x 2.5	Blue
MNF4/2.5GRN	4 x 2.5	Green
MNF4/2.5NAT	4 x 2.5	Natural
MNF4/2.5RED	4 x 2.5	Red
MNF4/2.5YEL	4 x 2.5	Yellow

MNF6/4BLK	6 x 4	Black
MNF6/4BLU	6 x 4	Blue
MNF6/4GRN	6 x 4	Green
MNF6/4NAT	6 x 4	Natural
MNF6/4RED	6 x 4	Red
MNF6/4YEL	6 x 4	Yellow

MNF8/6BLK	8 x 6	Black
MNF8/6BLU	8 x 6	Blue
MNF8/6GRN	8 x 6	Green
MNF8/6NAT	8 x 6	Natural
MNF8/6RED	8 x 6	Red
MNF8/6YEL	8 x 6	Yellow

MNF10/7BLK	10 x 7	Black
MNF10/7BLU	10 x 7	Blue
MNF10/7GRN	10 x 7	Green
MNF10/7NAT	10 x 7	Natural
MNF10/7RED	10 x 7	Red
MNF10/7YEL	10 x 7	Yellow

MNF10/8BLK	10 x 8	Black
MNF10/8BLU	10 x 8	Blue
MNF10/8GRN	10 x 8	Green
MNF10/8NAT	10 x 8	Natural
MNF10/8RED	10 x 8	Red
MNF10/8YEL	10 x 8	Yellow

MNF12/9BLK	12 x 9	Black
MNF12/9BLU	12 x 9	Blue
MNF12/9GRN	12 x 9	Green
MNF12/9NAT	12 x 9	Natural
MNF12/9RED	12 x 9	Red
MNF12/9YEL	12 x 9	Yellow

MNF16/12BLK	16 x 12	Black
MNF16/12NAT	16 x 12	Natural

PART No.
AZ-1200



PART No.	SIZE (O.D. X I.D.)	COLOUR
MPU4/2.5BLK	4 x 2.5	Black
MPU4/2.5BLU	4 x 2.5	Blue
MPU4/2.5GRN	4 x 2.5	Green
MPU4/2.5NAT	4 x 2.5	Natural
MPU4/2.5RED	4 x 2.5	Red
MPU4/2.5YEL	4 x 2.5	Yellow

MPU6/4BLK	6 x 4	Black
MPU6/4BLU	6 x 4	Blue
MPU6/4GRN	6 x 4	Green
MPU6/4NAT	6 x 4	Natural
MPU6/4RED	6 x 4	Red
MPU6/4YEL	6 x 4	Yellow

MPU8/5.5BLK	8 x 5.5	Black
MPU8/5.5BLU	8 x 5.5	Blue
MPU8/5.5GRN	8 x 5.5	Green
MPU8/5.5NAT	8 x 5.5	Natural
MPU8/5.5RED	8 x 5.5	Red
MPU8/5.5YEL	8 x 5.5	Yellow

MPU10/6.5BLK	10 x 6.5	Black
MPU10/6.5BLU	10 x 6.5	Blue
MPU10/6.5GRN	10 x 6.5	Green
MPU10/6.5NAT	10 x 6.5	Natural
MPU10/6.5RED	10 x 6.5	Red
MPU10/6.5YEL	10 x 6.5	Yellow

MPU12/8BLK	12 x 8	Black
MPU12/8BLU	12 x 8	Blue
MPU12/8GRN	12 x 8	Green
MPU12/8NAT	12 x 8	Natural
MPU12/8RED	12 x 8	Red
MPU12/8YEL	12 x 8	Yellow

TECHNICAL DETAILS

O.D. / I.D. WALL THICKNESS - mm	WORKING PRESSURE - BAR	BURST PRESSURE - BAR	BEND RADIUS - mm
4 x 2.5 x 0.75	38	152	8
6 x 4 x 1	31	127	13
8 x 5.5 x 1.25	21	84	32
10 x 6.5 x 1.75	27	109	32
12 x 8 x 2	15	63	50

SPECIFICATIONS

Coil Length: 25 metres
 Temperature Rating: -40° to + 50°C
 Tolerances: ID +/- 0.1mm
 OD + 0.0 / - 0.1mm

Worm Clip Driver



PART No.

AZ-1300

8 | Control Panels & Systems



A wide and various range of control panels and systems can be designed and manufactured to offer complete control solutions to suit customer requirements and specifications.

These systems include water filtration, humidity measurement with control devices and all additional components, fixtures and fittings. Control options range from single basic pneumatic equipment to sophisticated PLC electrical systems. The ability to integrate with existing plant and machinery is also part of our range of supply.

Enclosures are manufactured to industry standards and can be of stainless steel, plastic or painted steel construction. All systems are fully tested prior to leaving our manufacturing facility. We also offer on-site commissioning and programming ensuring any additional functions are fully catered for.

Customer's own logo can be included on the door label - ideal for OEM clients who prefer systems to look consistent with their own equipment.

All systems are designed and manufactured to achieve customer's exacting needs ensuring every aspect of control is taken into account. Our design package aims to improve production, reduce installation time and be a cost effective solution for all types of industrial applications.

APPLICATIONS

- Coating
- Moisturising
- Lubrication
- Glazing
- Sanitising
- Humidification
- Dust Control
- Spraying Viscous Liquids

FEATURES

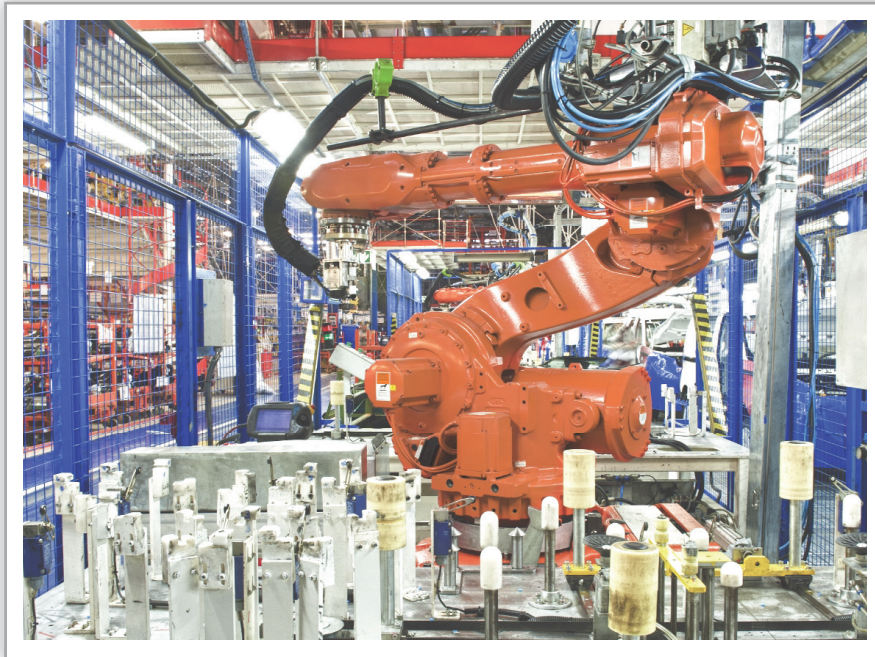
- Industry Standard Construction
- Custom Design/Manufacture
- Stand Alone Systems
- Cost Effective Installation
- Integration with Existing Plant
- Drawings and Manuals Supplied
- On-Site Aftercare

DATA

- Painted Steel, Stainless Steel or Plastic Enclosure(s)
- PLC to Clients Preference: Mitsubishi as standard
- Voltage to Clients Preference

ORDERING EXAMPLE

- Consult Sales Office



Automated Variable Spraying Systems provide an advanced, self-contained unit capable of accurate and consistent control for the spraying of liquids and other viscous solutions in many spray applications.

The system is supplied with precision spray nozzles selected specifically for each application and fluid delivery. The variable spray controller unit complete with an HMI touch screen panel is supplied fully programmed.

Each system is available with pre-set spraying software allowing for easy, error free operator use and complete automation which can be linked to the production process machinery or software.

Every enquiry and application is treated on an individual basis to tailor the system to meet customer's processes in applications such as coating, cooling, filling and cleaning while gaining quick payback for little investment.

Various mounting configurations are available for ease of integration and installation into existing production layouts.

The AVSS is available either as a two panel system mounted on a robust wheeled trolley for ease of moving and positioning or as a single panel which can be machine or wall mounted.

The mobile unit can be custom designed to cater for specific requirements while the machine/wall mounted panel offers an all in one control system with only the fluid delivery system mounted on a stand alone platform.

APPLICATIONS

- Coating
- Cooling
- Liquid Addition
- Spraying Viscous Liquids

FEATURES

- Mobile Mounted System
- Machine / Wall Mountable
- Integrated Fluid Delivery
- Pre-Set Pressures for Rapid, Accurate Production Changes
- Ease of Use - Touch Screen
- Simple Pressure Modification or Addition
- Low Level Alarm
- Automatic Filling
- Less Product Waste
- Tailored Design

DATA

- Stainless Steel Enclosure(s)
- Stainless Steel Trolley
- Stainless Steel Pressure Tank

ORDERING EXAMPLE

- Consult Sales Office

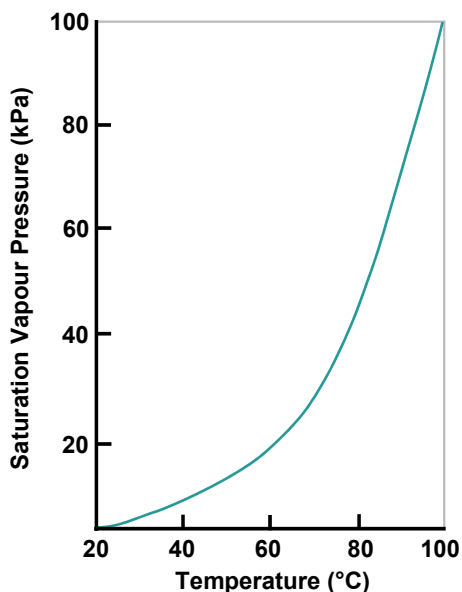
9 | Humidity & Humidification



HUMIDITY

Humidity denotes the presence of water vapour in air or other gas. Water vapour is the gaseous form of water and can be thought of much like any other kind of gas. It is normally transparent and makes up about one hundredth (or one percent) of the air around us.

Air has a given capacity to absorb water vapour and this capacity depends mainly on temperature. Generally, the hotter the air, the more water vapour it can hold.



At any particular temperature, air that contains its full capacity of water vapour is classed as saturated. The 'relative humidity' of the air expresses how fully saturated the air is with water vapour.

There are three main measurements of humidity: relative, absolute and specific.

Absolute humidity (units are grams of water vapour per cubic meter volume of air) is a measure of the actual amount of water vapour in the air, regardless of the air's temperature. The higher the amount of water vapour, the higher the absolute humidity. For example, a maximum of about 30 grams of water vapour can exist in a cubic meter volume of air with a temperature in the region of 30°C.

Relative humidity expressed as a percent, is a measure of the amount of water vapour that air is holding compared to the amount it can hold at a specific temperature. Warm air can possess more water vapour (moisture) than cold air, so with the same amount of absolute/specific humidity, air will have a higher relative humidity. A relative humidity of 50% means the air on that day (specific temperature) holds 50% of water needed for the air to be saturated. Saturated air has a relative humidity of 100%.

The relative humidity of an air-water mixture is also defined as the ratio of the partial pressure of water vapour in the mixture to the saturated vapour pressure of water at a given temperature. Therefore, the relative humidity of air is a function of both water content and temperature.

Specific humidity refers to the weight of water vapour contained in a unit weight (or amount) of air (expressed as grams of water vapour per kilogram of air). Absolute and specific humidity are quite similar in concept.

HUMIDIFICATION

Humidification is the artificial regulation of humidity in environments. When the atmosphere becomes too dry, moisture is drawn from surrounding materials within the area such as furniture, paper, textiles, fruit, animals and even people. Low relative humidity is not only uncomfortable, it can be damaging to equipment and materials. It also causes static electricity to generate which in turn produces unpleasant effects in many cases.

The sonicom fogging nozzle is ideal for increasing the level of relative humidity within a room by introducing moisture back into the air without causing wet areas or excessive water drop out.

Ultra fine fogs down to only 1 micron (0.001mm) are possible therefore ensuring the soft plume of water droplets remain in suspension until evaporation takes place. When complemented with our special water valve assembly, the unit becomes a highly efficient self cleaning atomiser.

The heavy duty stainless steel water valve is controlled by the same compressed air supply used to activate the nozzle. A simple on/off signal is required to activate the system and when the signal is removed, the water valve self cleans the nozzle every time by blowing excess water away, significantly reducing lime, salts and chalk build-up.

In large industrial applications, nozzles can be mounted in the roof space to raise humidity levels without over fogging. Significant advantages may be achieved without reducing visibility and safety. Factories where inflated humidification is needed can be economically improved. The dry fog nozzles are strategically located to give an even humidity level. Mains water can be used incorporating a water purifier (ultra violet disinfection unit) and due to the unique self-cleaning nozzle design, there is no risk of blocked nozzles.

ADVANTAGES

- Close humidity control
- Low energy consumption
- Low running costs
- Low maintenance
- Significant cooling effect
- Less than 5 micron droplets
- No pump required
- Can be duct mounted
- Saves up to 90% on steam energy
- Self-cleaning nozzles
- Non-drip system

RECOMMENDED HUMIDITY LEVELS

Art & Antiques	45-55%rH
Botanical Gardens	70-90%rH
Car Paint Preparation Areas	60-80%rH
Computer Rooms & Offices	45-55%rH
Cold Stores	95-97%rH
Electronics & PCB	50-55%rH
Fruit & Vegetables Storage	75-98%rH
Hospitals	50-60%rH
Printing & Paper Storage	50-60%rH
Textiles (Wool & Cotton)	65-75%rH
Timber & Woodworking	45-65%rH
Tobacco Processing	55-70%rH

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DESCRIPTION

Dust control systems are an important factor in meeting both environmental and health & safety requirements while also protecting employees and reducing site emissions. We offer complete solutions for the control of dust in all material handling processes.

Our Dry Fog Dust Suppression System controls airborne dust without wetting the product by adding very little moisture (usually less than 0.1% moisture addition). Our systems are fully installed and integrated into all processes and control dust without the need for expensive extraction systems or chemical additives.

DUST SUPPRESSION THEORY & APPLICATION

Dry fog fugitive dust suppression works like a combination of a wet scrubber and fabric filter. The generated ultra-fine fogging blanket acts like a fabric filter in that a dust particle cannot pass through it without colliding with a droplet. Since the droplet consists of water, the dust

particle does become somewhat wet as in a true flooded scrubber. This phenomenon can be called agglomeration.

Solving fugitive dust emission problems using ultra-fine water droplet atomisation begins with the theory of agglomeration. Agglomeration can be defined as the gathering of mass into a larger mass or cluster.

Agglomeration probability is greatly increased between bodies of similar size. The agglomeration of these bodies produces a large enough mass to cause settling. For example, a dust particle of 5 microns will continue to follow the air stream around a water droplet of 200 microns, therefore, avoiding collision. With the dust particle and a water droplet of similar size, the air stream is not as great and collision occurs, causing agglomeration.

The diagram below shows the aerodynamics of what can happen when the water droplets are larger than the dust particle.

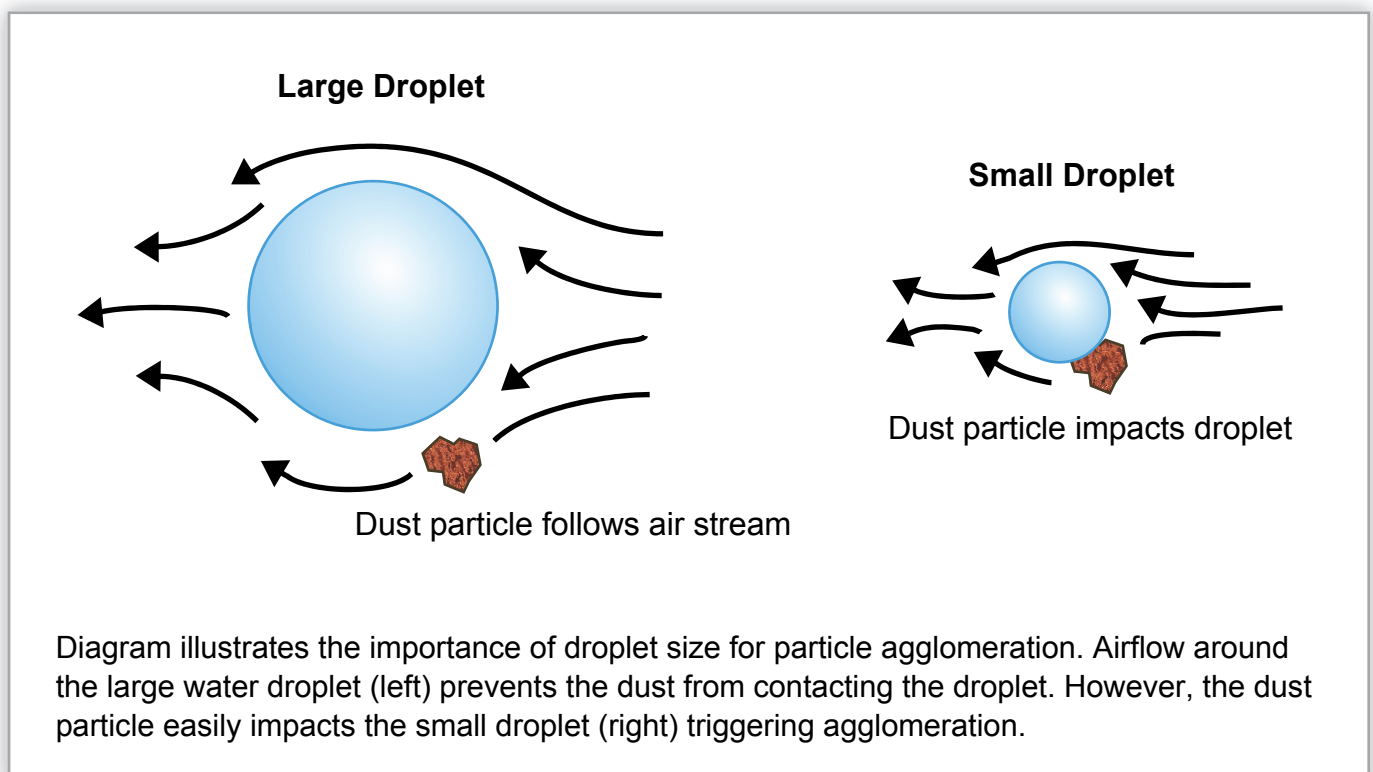


Diagram illustrates the importance of droplet size for particle agglomeration. Airflow around the large water droplet (left) prevents the dust from contacting the droplet. However, the dust particle easily impacts the small droplet (right) triggering agglomeration.

Fog suppression is one method to optimise the application of water to dusty materials. These systems use special ultrasonic nozzles to produce extremely small water droplets (10 microns or less) in a dispersed mist. These droplets mix and agglomerate with dust particles of similar size/mass, with the resulting larger combined particles falling back to the material body.

Dry Fog Dust Suppression Systems control virtually all types of less than 5 micron breathable as well as larger size fugitive dust up to 600 microns. Control is accomplished through agglomeration of ultrasonically produced water droplets equal or close to the size of the dust particles. These include silica sand, dried clay, dry sand, limestone, aggregate, road stone, phosphate, coal, quartz, fibreglass and many others. The Dry Fog System suppresses visible emissions from primary and secondary crushing, screening, transfer and loading/unloading facilities such as hoppers, feeders, bins, docks, silos, terminals and vehicles.

The sonicom atomising nozzle along with a compressed air supply and simple on/off controls will suppress respirable dust as small as 0.1 to 3 microns as well as larger size particles. The initial cost, operation and maintenance of a dry fog system is much lower than a ventilation type control arrangement. In contrast to the use of large ducts and related equipment, the sonicom system operates with smaller diameter tubing on as little as 5% of the total energy of conventional systems. Dry Fog Systems can be installed for as little as 40% of the installation cost of a conventional bag filter type system.

sonicom nozzles offer the following advantages:

- water consumption averages 18 litres per hour per nozzle
- nozzles operate on low air and water pressures to eliminate need for pumping systems
- air consumption is approximately 3.75 lt/sec (8 scfm) per nozzle

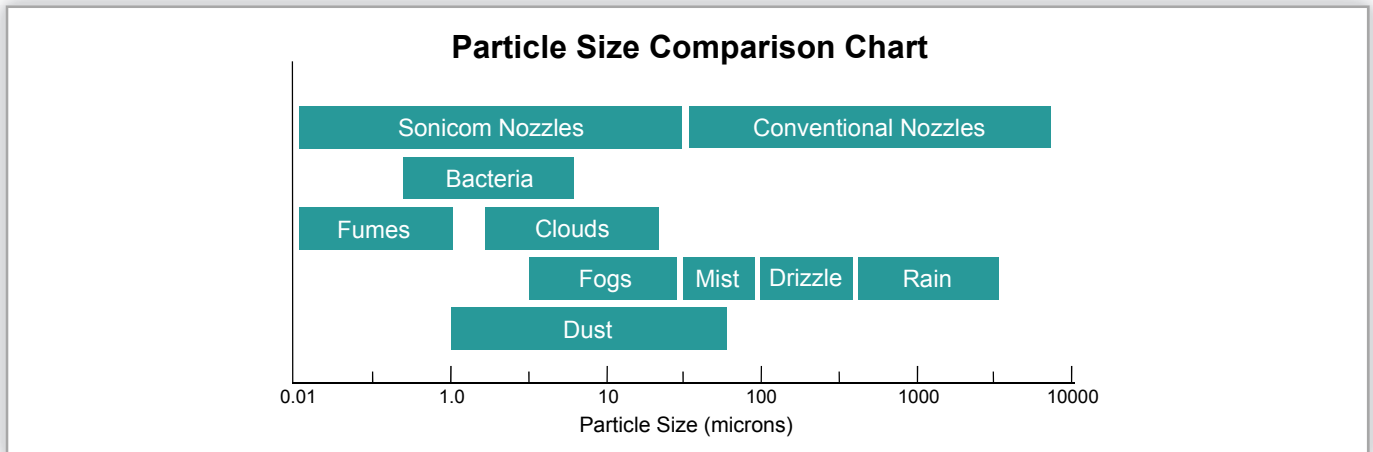
- water addition to process, less than 0.1%
- costly wetting agents and their controls eliminated
- water source and disposal problems eliminated
- requires no significant modifications to existing plant for installation
- low maintenance
- nozzles are self-cleaning
- airborne water freezing avoided by producing same size droplets found in clouds

Basic research in the development of the sonicom Dry Fog Dust Suppression System showed that if a sufficient number of water droplets of approximately the same size as the dust particles could be produced, the possibility of collision between the two would be extremely high. It was also determined that if the droplet exceeded the size of the dust particle, there was little probability of impact and the desired precipitation. Instead, the dust particle would move around the droplet.

The sonicom nozzle assembly is ideally suited for generating a dense fog of ultra fine droplets to envelop and bring down the dust particles at their source. By controlling air pressure, atomisation quality can be varied from a coarse 200 microns to an ultra-fine fog of 1 to 10 microns. When the nozzle is complemented with our special non-drip water valve assembly, the unit becomes a highly efficient self cleaning atomiser.

The heavy duty stainless steel water valve is controlled by the same compressed air supply used to activate the nozzle. A simple on/off signal is required to activate the system and when the signal is removed, the water valve self cleans the nozzle every time by blowing excess water away, significantly reducing lime, salts and chalk build-up.

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The Dry Fog Dust Suppression System controls respirable particulates down to the 0.1 to 3 microns fines which are considered to be the principal source of dust clouds, haze and accompanying low levels of visibility. In most applications where respirable dust particles can be settled out of the atmosphere quickly, the sonicom system makes it unnecessary to add a tension additive product to the water.

Total water consumption is extremely low - only 0.1% of production at each point of concern (less than 0.5% of that consumed by conventional sprays) ensuring that conveyor belt wetting and other accompanying tracking problems are avoided. Control of water output is achieved by simple pressure control. The volume of water can be modified in relation to the humidity content of the pulverised silica. The sonicom system provides the following benefits:

- less product wetting than conventional water spray systems (less than 0.5%)
- micron size water droplets multiply surface area while decreasing total water needed
- costly wetting agents and their controls eliminated
- no conveyor belt wetting or accompanying tracking problems
- less conveyor downtime and fewer conveyor belt replacement parts
- agglomeration of dust helps improve performance of precipitators, bag houses and collectors

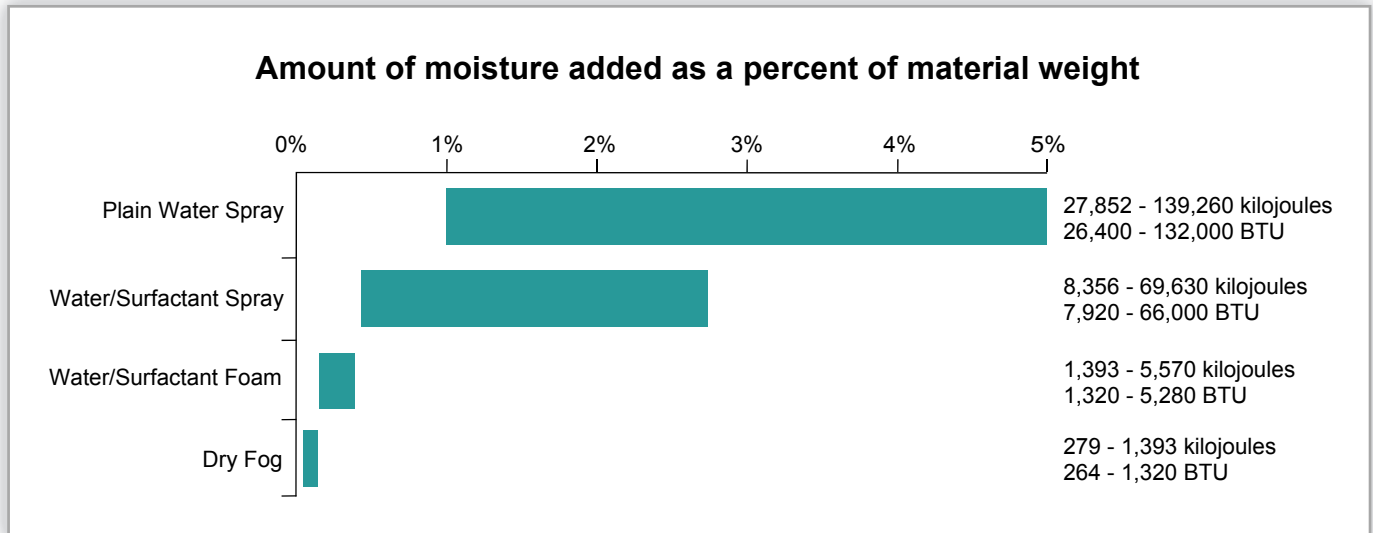
- nozzles operate on low pressure air and water eliminating the need for expensive pumping systems
- improved working conditions enables compliance with applicable health & safety regulations
- cleaning and maintenance costs reduced
- permits recovery of spilled materials

THE THERMAL PENALTY FOR ADDED MOISTURE

There is a substantial performance penalty added to combustion and other thermal processes when the water content of the fuel is increased. In applications like coal-fired power plants and cement plants, water added to the material going into the thermal process must be “burned off” by the process. This can dramatically reduce the process efficiency and increase fuel costs.

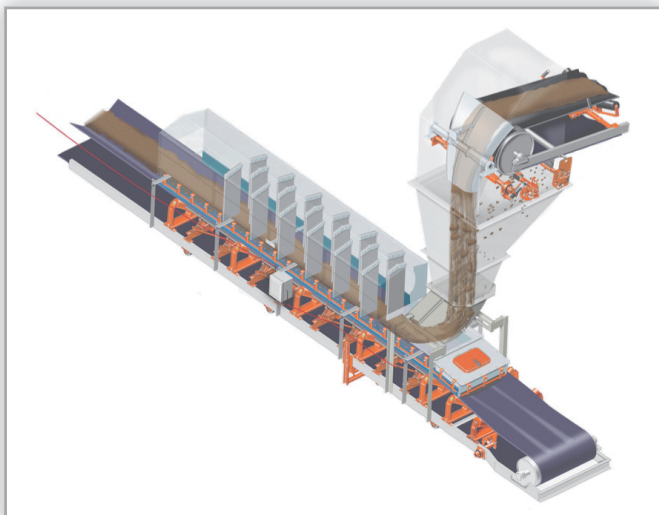
It requires 3,064 kilojoules per litre (1,320 BTU per pound) to raise water from 21°C (70°F) to its vapourisation temperature of 149°C (300°F). It only takes 9.1 kg or 9.1 litres (20 pounds) of water to increase the moisture content of one tonne of material by one percent. As a gallon of water weighs approximately 4.5 kg (10 pounds), the addition of less than 9.1 litres (2.0 gallons) of water to a tonne of material will raise the moisture content of the material by 1 percent. Vaporising this modest amount of water produces a heat loss of 27,850 kilojoules (26,400 BTU).

The thermal penalty typically created by the various dust suppression methods is displayed below.



Because a “plain” water spray requires the highest volume of moisture for effective dust suppression, this method extracts the highest thermal penalty. While the use of a simple water spray for dust suppression may be a lower cost because the water is readily available and there is less “out-of-pocket” expense, the penalty for the addition of surplus moisture can be very costly.

Conveyor Transfer Chutes



The placement of the dry fog nozzles is the most important aspect to achieving effective dust suppression and ensuring no wetting of material. The dry fog spray should be generated and contained in a well designed shrouding. For

example, a conveyor chute which eliminates dissipation due to wind and also ensures treatment time necessary to suppress and control airborne dust.

The dry fog spray is generated above the dust problem area and not directly onto the material. As the airborne dust is generated within the conveyor transfer chute, the dry fog suppresses the dust through particle agglomeration ensuring the dust is controlled within the transfer chute itself.

GENERAL CONSIDERATIONS

There are several factors to consider when specifying the number of nozzles required at a given problem area:

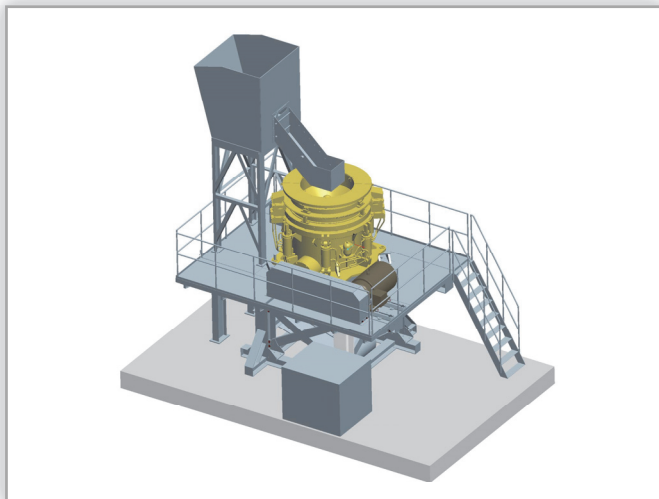
- tonnage per hour
- type of material being conveyed
- condition of material
- future use of the material
- belt width
- height of fall
- convenience of mounting space / maintenance access

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A general rule of thumb is that the height of the conveyor cover be approximately 1 metre above the product level on the belt and the cover length 3 times the belt speed (m/s). The basic principles involved for location of the nozzles are as follows:

- nozzle spray pattern should not directly impinge upon any surface or structure
- nozzles should be mounted in order to maximise the ability to fill the shrouding
- the fog should avoid direct contact with the material being suppressed
- nozzles must be protected or shielded to avoid damage from falling material
- nozzles should be mounted to minimise exposure to a heavy-laden dust air stream. This will avoid erosion of the nozzle components
- spray pattern of nozzles should be generated so that all the fugitive dust emissions are forced to pass through the blanket of fog

Crushers



The placement of the dry fog nozzles is the most important aspect to producing effective results with no wetting of material. Ideally the fog should be generated at three points and contained in properly designed shrouding. This eliminates dissipation due to wind and also provides the treatment time necessary to

suppress the dust. With crushing machines the fog is generated at the loading point allowing the droplets to be “taken in” to the crusher body. If possible, a second set of nozzles should be mounted at the tail end of the receiving conveyor spraying in the direction of the belt travel. Ensure any falling material cannot cause nozzle damage. As the airborne dust enters the confine, dry fog agglomeration occurs and the dust is suppressed in situ returning to the conveying material.

GENERAL CONSIDERATIONS

There are several factors to consider when specifying the number of nozzles required at a given problem area:

- tonnage per hour
- type of material being crushed
- condition of material
- future use of the material
- crusher size / capacity
- convenience of mounting space/maintenance

The height of the receiving conveyor cover should ideally be 1m above the material on the belt and the cover length 3 times the belt speed (m/s). Locating nozzles at the loading point, tail end of the receiving conveyor and along the take off length is the ideal setup solution. Consider the following:

- nozzle spray pattern should not directly impinge upon any surface or structure
- nozzles should be mounted in order to maximize the ability to fill the shrouding
- where possible the fog should avoid direct contact with the material being suppressed
- nozzles must be protected or shielded to avoid damage from falling material
- spray pattern of nozzles should be generated so that all the fugitive dust emissions are forced to pass through the blanket of fog

Screens



Because the water consumption of an ultrasonic dry fog nozzle is extremely low and droplet size is reduced to less than 5 microns, such nozzles can be utilised above screens and in the roof areas of screen houses without concern for over wetting and build-up of clogged fines in the mesh of the screen itself.

By raising the humidity level of the air in a screen house, airborne fines will be suppressed down to ground level thus avoiding health & safety concerns for employees.

Nozzles mounted above or around the screen areas will suppress dust clouds created due to the particulates being encouraged to be become airborne through vibration and natural fall of the conveying bulk. Truly effective suppression is difficult to achieve above a screen due to the openness of such equipment and general air movement. However, the use of additional nozzles in the roof area will help with suppression.

The spray pattern of nozzles should be generated so that all fugitive dust emissions are forced to pass through the blanket of fog.

Hoppers



The unloading process from wagons, trucks and dumper trucks generates a large dust cloud very quickly due to the speed and volume of material flow. The finer and dryer the material the more airborne dust is generated.

The dry fog dust suppression system is very effective at suppressing and controlling the airborne dust, even with materials that cannot accept a large percentage of moisture. For example, limestone, gypsum, etc.

Mounting dry fog or air atomising nozzles around the receiving hopper or area where material is to be unloaded creates a blanket of fog and mist that controls the uplift of fugitive airborne dust. Over time a noticeable reduction in wasted material will be realised by the conditions of the surrounding buildings and equipment.



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