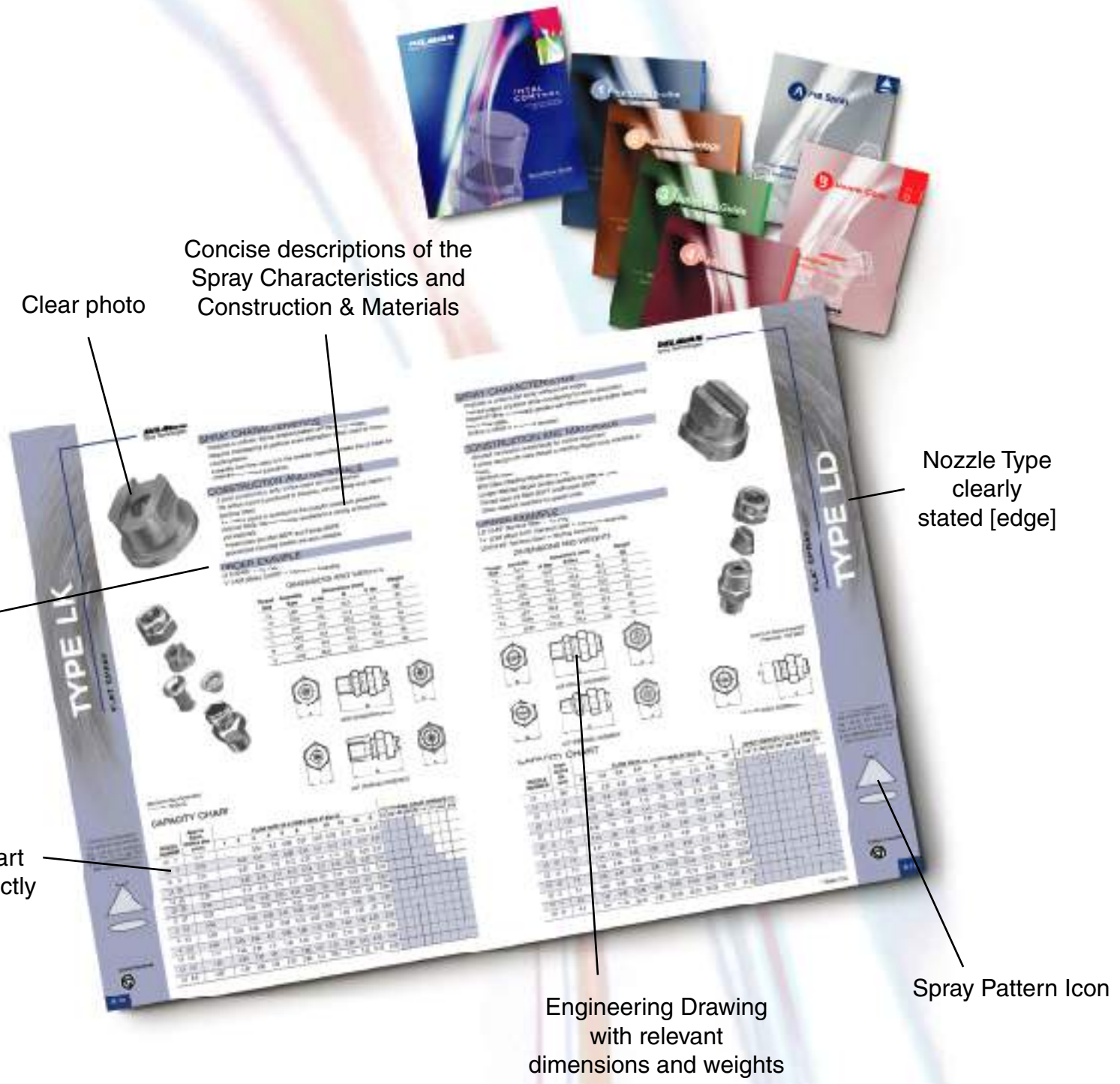
DELAVAN®
Spray Technologies

TOTAL CONTROL

INDUSTRIAL NOZZLES
AND ACCESSORIES

Specifiers Guide

CONTENTS


Clear photo
Concise descriptions of the Spray Characteristics and Construction & Materials
Nozzle Type clearly stated [edge]
Order example
Clear Capacity chart to help you find exactly the right nozzle
Engineering Drawing with relevant dimensions and weights
Spray Pattern Icon

Meeting the challenges of new industries and *NEW markets.*

Since the company was founded in 1935, the Delavan name has always stood for quality, flexibility and reliability. Today, Delavan Spray Technologies is a world leader in the design and manufacture of high quality nozzles and fluid handling systems.

Operating from dedicated manufacturing and design facilities in the UK and the USA, Delavan supplies more than 30,000 components to thousands of customers in virtually every imaginable manufacturing and processing industry. With distributors in more than 60 countries around the world, Delavan products, expertise and quality are all available globally.

Specialist design teams can also provide bespoke design, manufacture and installation of everything from a single nozzle to a complete fluid handling system. From metal finishing to paper production, from the chemical industry to food processing, from brewing to the mining, steel, automotive, oil heating and water industries ... the name on the world's finest nozzles and fluid handling systems is Delavan.

With over **30,000** types of spray nozzles

Delavan has become the *UK's market leader.*

The flexibility and versatility of Delavan is reflected in the range of materials available. Our nozzles are available in any material that can be machined, cast or moulded. Brass, stainless steel and thermoplastics are the most common choices with others including carbon steel, cast iron, gunmetal, lead, graphite, carbides and ceramics. We can supply nozzles for use with corrosive and abrasive liquids, suspensions and in hot and hazardous environments.

You can also stipulate specific spray characteristics to suit the needs of any application. Nozzles can be designed and manufactured to produce air atomising sprays, flat jet sprays, solid stream sprays and hollow or full cone sprays.

Whichever nozzle you choose, you can be sure of its quality. Delavan's quality control procedures ensure that both incoming materials and outgoing orders are routinely checked to ensure they meet rigorous quality standards. We can also adapt our manufacturing processes to meet the precise demands of recognised standards in many other industries around the world.

Delavan **nozzles** are used in every conceivable application from *metal finishing, food brewing, mining,* through to the utility industries.

You will find Delavan nozzles and fluid handling systems everywhere.

Thanks to our technology, sheep are successfully showered with pesticide in Australia. On the other side of the world, our nozzles and pipework form the humidity and dust control system at London's Royal Opera House. Our fire prevention sprinklers protect all kinds of ships. Special Delavan nozzles work in a range of harsh applications, including the treatment of sulphuric acid waste. Cleaning systems inside breweries and distilleries ensure high levels of hygiene in inaccessible or hostile environments.

The expert knowledge of our sales engineers has been built up over many years of experience in many different industries. What is more, all of our sales engineers are qualified engineers. So they understand precisely how to ensure that you receive the most efficient, cost-effective and reliable service out of our nozzles and fluid handling systems.

Whether you need an off-the-shelf product or a specially designed system, Delavan has the versatility, expertise and experience to provide quality products, expert advice and innovative solutions.

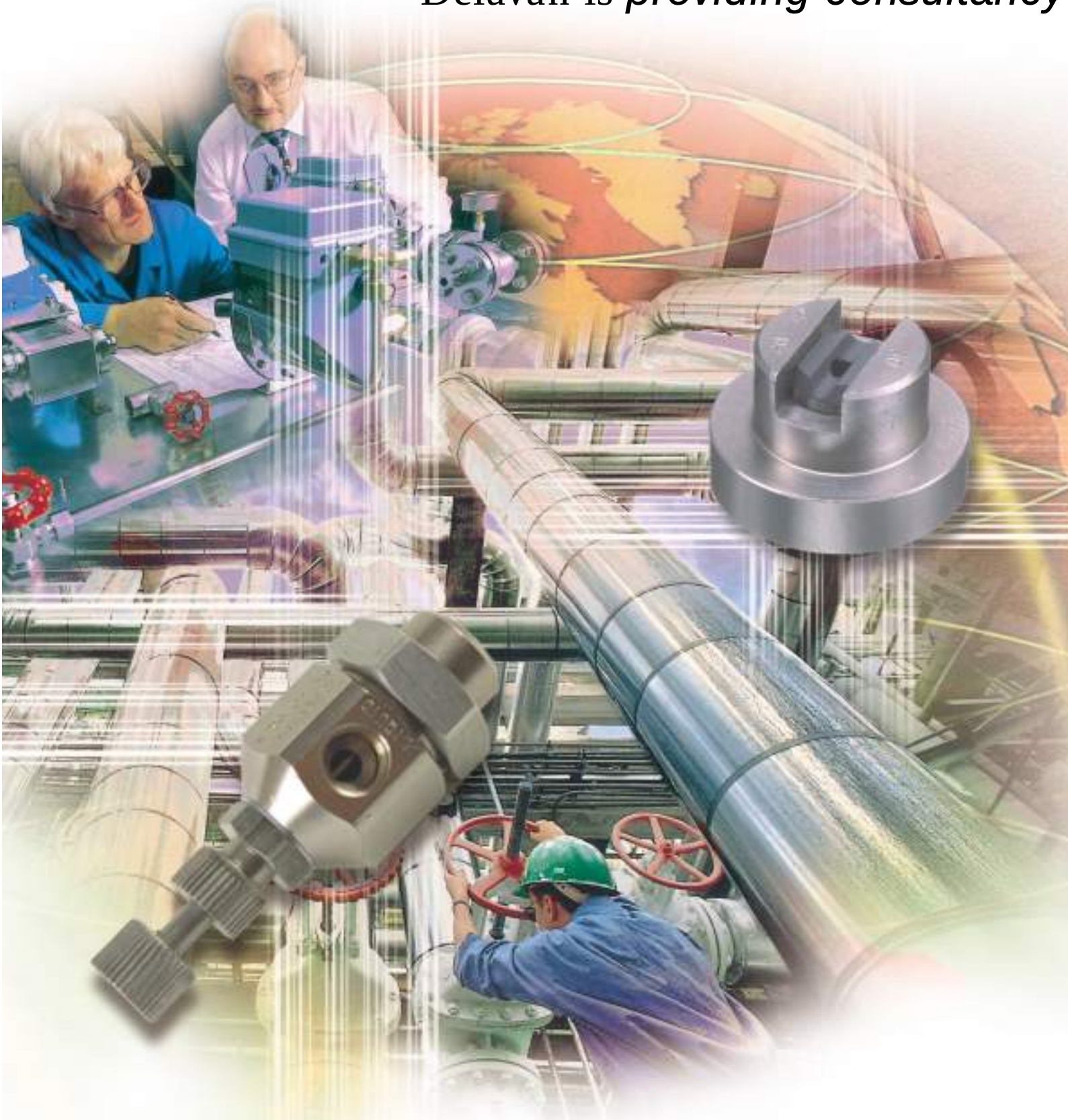
processing,
automotive

FROM DESIGN TO INSTALLATION

With **skilled** engineers and

project managers

Delavan is *providing consultancy*



and *support services* to
customers worldwide.

You can count on Delavan to handle any project, large or small.

Our specialist team of designers use advanced computer technology to create bespoke nozzles or complete systems for a limitless range of applications.

We can simply provide design, tooling and manufacturing facilities. Or we can manage an entire project from initial technical analysis of the task in hand to final installation and commissioning of the whole system.

We will advise on every aspect of your project, from the choice of materials to spray patterns and the design of the pipework to the testing of key components and whole systems.

We will work to pre-agreed performance parameters to ensure that your system or nozzle design is installed to specification, on time and on budget - anywhere in the world.

We are equally flexible about the way we deliver our products and systems to you. Whether you choose a standard or a bespoke design, we will schedule our delivery system to meet your needs. So, if you need a just-in-time, stockholding or any other type of delivery service, Delavan is the answer.

THE TECHNOLOGICAL EDGE

As a **world** expert on spray technology, Delavan is at the *forefront* of excellence and innovation.

Nozzle technology is, in many ways, mature and highly developed. Many of the technical aspects of spray control and delivery have been known for decades. Nevertheless, Delavan is at the forefront of research and development in new materials, delivery systems and designs to handle new challenges across a vast range of industries.

Our own research engineers, designers, materials experts, manufacturing teams and consultants are supported by links with universities and other centres of excellence constantly looking for new and improved designs and materials to improve performance and reduce cost.

The results speak for themselves. An unrivalled range of nozzles and fluid handling systems. A commitment to high performance at every stage from initial design to final delivery or installation. An ability to understand your needs and provide optimum solutions quickly and cost-effectively and a flexible approach that makes Delavan the best choice for any fluid handling application, anywhere in the world.

This brochure is only a brief introduction to some of the key advantages of working with Delavan. We would be happy to talk in more detail about your needs or problems and how we could help you get the most out of our spray nozzles and systems.

2 Nozzle Technology

SPECIFIERS GUIDE

WELCOME TO DELAVAN

Meeting the **challenges** of new industries and *NEW markets*

DELAVAN®
Spray Technologies

SECTION INDEX

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INTRODUCTION

To help you to make the best use of Delavan products and services we have produced a guide to spray nozzle technology. This is designed to take you through the fundamentals of spray nozzle technology step by step. In addition, in the Nozzle Technology and Application Guide sections you will find useful advice on how to choose the best type of nozzle for your application.

BASIC PRINCIPLES

Although the requirements of each spray nozzle may vary considerably from one application to another, the basic functions of a nozzle are:

1) *Control of liquid flow*
2) *Atomisation of liquid into droplets*
3) *Dispersal of droplets in a specific pattern*
4) *Generation of hydraulic momentum or impact.*

To break up any liquid into droplets energy is required and in fluid handling this energy is usually provided by pressure from a pump. This pressure must be converted into velocity energy by forcing the liquid through restrictive passages in the nozzle. The resulting energy change is then utilised to atomise the liquid into droplets and disperse them into a specific spray pattern.

TYPES OF NOZZLE

There are several different basic types of nozzle which can be categorised by the type of spray that they produce. These are:

a) *Flat sprays*
b) *Hollow cone sprays*
c) *Solid cone sprays*
d) *Air atomising sprays*

In addition there are variations on these sprays for specific applications. Refer to the Application Guide section.

Delavan produces a vast range of spray nozzles with many variations on each basic type. Your choice of nozzle will depend on several key factors. These are:

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

To help you with your choice of spray nozzle, each of the above key factors is discussed in detail on the following pages.

WE ARE HERE TO HELP

If you need more detailed information or advice then Delavan sales engineers and technical staff are always available to answer your questions.

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NOZZLE TECHNOLOGY

1. Flow rate (capacity)

All the nozzle capacity charts in this catalogue are based on water with a tolerance of ± 5% on rated flows. However, the actual flow rate through the nozzle can be affected by factors such as pressure, specific gravity and viscosity.

a) ***Pressure*** *– theoretically, the flow rate is proportional to the square root of the pressure ratio and is expressed as follows:*

$$Q_1 = Q_2 \sqrt{\frac{P_1}{P_2}}$$

where Q_1 is the calculated flow rate at the desired operating pressure P_1

Q_2 and P_2 are the known flow rate and pressure taken from the charts given for each nozzle type.

This relationship is generally acceptable for most industrial nozzle applications but is not correct for all nozzle types.

b) ***Specific gravity (density)*** *– this is the ratio of the mass of a given volume of liquid to the mass of the same volume of water. For liquids other than water the flow will vary inversely to the square root of the specific gravity of that liquid. The formula that can be used to determine the flow rate is as follows:*

$$\text{Liquid Flow Rate} = \text{Water Flow Rate} \times \frac{1}{\sqrt{\text{Specific Gravity}}}$$

This relationship can be approximated with a conversion factor from the following table.

Specific Gravity	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8
Conversion Factor	1.2	1.12	1.05	1.0	.95	.91	.88	.85	.82	.79	.77	.75

c) ***Viscosity*** *– this is probably the most significant of all liquid properties since it can vary over a wide range of values and is somewhat complex in spraying applications. Generally with higher viscosities there is a reduction in flow through the nozzle. Viscosity also affects the spray pattern and spray quality.*

2. Operating pressure

This is the major factor that affects the flow rate through a nozzle. To determine the operating pressure to achieve a specified flow that is not indicated in the capacity charts, the previous formula can be re-written as follows:

$$P_1 = P_2 \left(\frac{Q_1}{Q_2}\right)^2$$

where P_1 is the calculated pressure for the desired flow rate Q_1

P_2 and Q_2 are the known pressure and flow rate.

Again this relationship is acceptable for most industrial nozzle applications but is not correct for all nozzle types.

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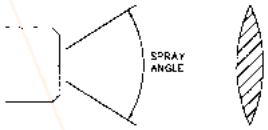
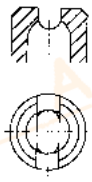
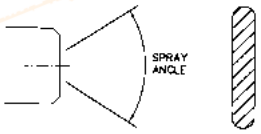
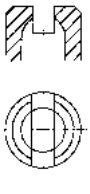
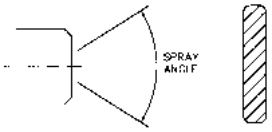
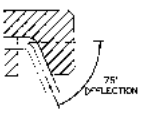
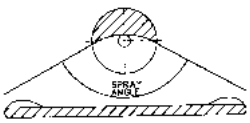
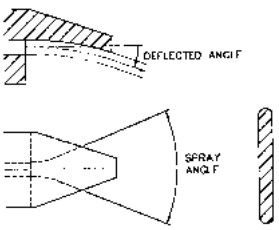
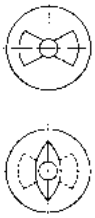
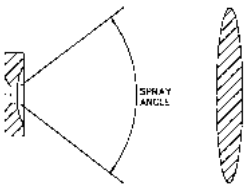
3. Spray pattern

In general a minimum pressure of 0.7–1.0 Bar is required to generate a well developed spray but this pressure needs increasing where the restrictive passages of the nozzle are very small. There are a number of basic types of spray patterns and each can be achieved in a variety of ways, some of which are as follows:

a) ***Flat spray*** *– this is a narrow elliptical/oval or rectangular orfice shape which can be produced by the following methods:*

Description	Nozzle Diagram	Spray Diagram	Typical Nozzle
i) An elliptical orifice formed by the intersection of a 'V' groove with a hemispherical cavity.			
ii) An oval orifice formed by the intersection of a 'U' groove with a hemispherical cavity.			
iii) A rectangular orifice formed by the intersection of a slot in a hemispherical cavity or cylindrical tube.			
iv) A circular orifice which is deflected through 75° to the nozzle axis. This produces a wide angle spray at low pressures.			
v) A circular orifice which has a 'spoon' shaped deflecting surface. This produces a narrow angled 'even' impacting spray.			
vi) Two converging jets prior to a circular orifice and profiled with a 'V' grooved slot.			

NOZZLE TECHNOLOGY

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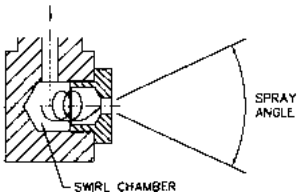
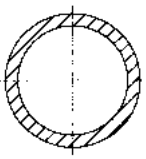
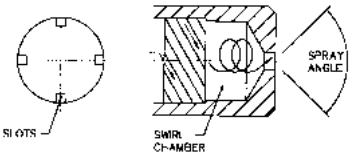
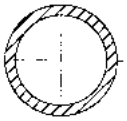
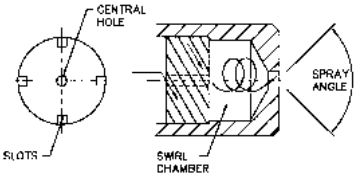
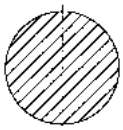
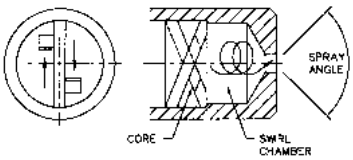
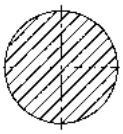
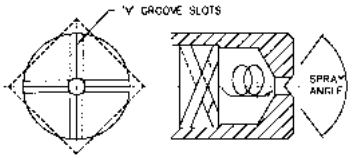
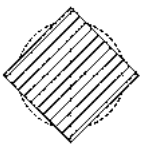
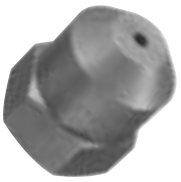
NOZZLE TECHNOLOGY

3. Spray pattern (continued)

b) ***Hollow cone*** – *this is a ring of spray which can be produced by the following methods:*

Description	Nozzle Diagram	Spray Diagram	Typical Nozzle
i) A circular exit orifice which is preceded by a swirl chamber with a tangential inlet.			
ii) A circular exit orifice which is preceded by a swirl chamber with a multi-slotted, in-line distributor.			
iii) Delavan have variations on the tangential inlet design which have been designed with hard wearing internal metering parts for use in the Spray Drying Industry.			

c) ***Solid cone*** – *this is a solid area of spray which can be circular or square shaped. It can be produced by the following methods:*

i) A circular exit orifice which is preceded by a swirl chamber with a multi-slotted in-line distributor and central hole.			
ii) A circular exit orifice which is preceded by a swirl chamber with a special cross-milled core.			
iii) With the addition of two machined 'V' grooves to (ii) a 'square' patterned spray can be formed.			
iv) Delavan have a variation of the multi-slotted distributor design which utilises the unique 'starslot' profile and is used for concast cooling in the steel industry.			

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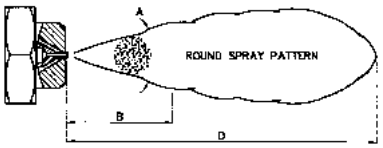
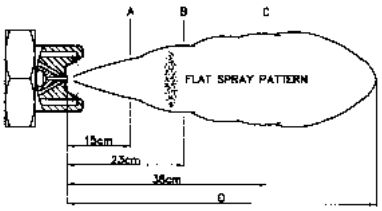
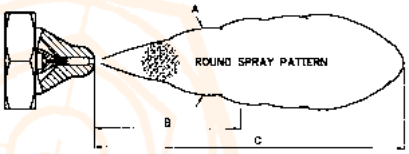
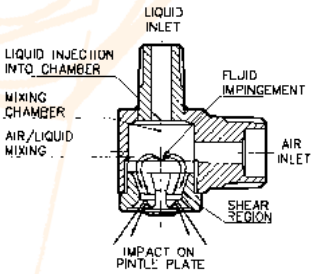
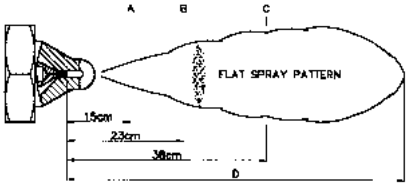
3. Spray pattern (continued)

d) ***Air atomising sprays*** *– these are produced by using air as the atomising agent and sprays are generally of the external (siphon or pressure) and internal (pressure) mix design. Some of these types are as follows:*

Description	Spray Diagram	Typical Nozzle
i) *External mix – Cone spray.*		
ii) *External mix – Flat spray.*		
iii) *Internal mix – Cone spray.*		
		
iv) *Internal mix – Flat spray.*		

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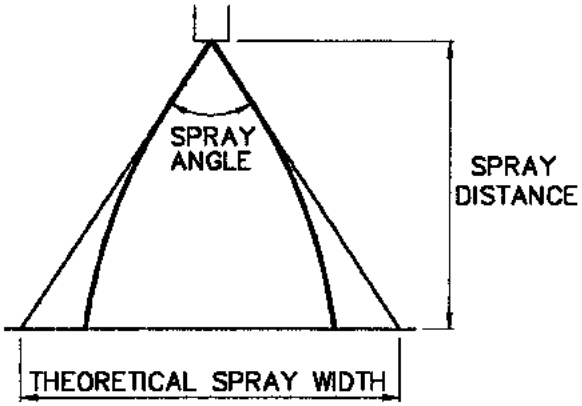
Spray Technologies

4. Spray angle

The spray angle is typically measured at close proximity to the nozzle orifice with a tolerance of 5° on tested spray angles. As the spray distance increases the droplets are affected by gravity and gas friction which reduces the spray angle. The diagram below shows this effect.
All the capacity charts are based on the theoretical spray width.



THEORETICAL SPRAY WIDTH CHART

Spray angle (degrees)	Theoretical spray width at various distances (in cm) from nozzle orifice													
	5	10	15	20	25	30	40	50	60	70	80	100	125	150
10	0,9	1,8	2,6	3,5	4,4	5,3	7,0	8,8	10,5	12,3	14,0	17,5	21,9	26,2
15	1,3	2,6	4,0	5,3	6,6	7,9	10,5	13,2	15,8	18,4	21,1	26,3	32,9	39,5
20	1,8	3,5	5,3	7,1	8,8	10,6	14,1	17,6	21,2	24,7	28,2	35,3	44,1	52,9
25	2,2	4,4	6,7	8,9	11,1	13,3	17,7	22,2	26,6	31,0	35,5	44,3	55,4	66,5
30	2,7	5,4	8,0	10,7	13,4	16,1	21,4	26,8	32,2	37,5	42,9	53,6	67.0	80,4
35	3,2	6,3	9,5	12,6	15,8	18,9	25,2	31,5	37,8	44,1	50,5	63,1	78.8	94,6
40	3,6	7,3	10,9	14,6	18,2	21,8	29,1	36,4	43,7	51,0	58,2	72,8	91,0	109
45	4,1	8,3	12,4	16,6	20,7	24,9	33,1	41,4	49,7	58,0	66,3	82,8	104	124
50	4,7	9,3	14,0	18,7	23,3	28,0	37,3	46,6	56,0	65,3	74,6	93,3	117	140
55	5,2	10,4	15,6	20,8	26,0	31,2	41,7	52,1	62,5	72,9	83,3	104	130	156
60	5,8	11,6	17,3	23,1	28,9	34,6	46,2	57,7	69,3	80,8	92,4	115	144	173
65	6,4	12,7	19,1	25,5	31,9	38,2	51,0	63,7	76,5	89,2	102	127	159	191
70	7,0	14,0	21,0	28,0	35,0	42,0	56,0	70,0	84,0	98,0	112	140	175	210
75	7,7	15,4	23,0	30,7	38,4	46,0	61,4	76,7	92,1	107	123	153	192	230
80	8,4	16,8	25,2	33,6	42,0	50,4	67,1	83,9	101	118	134	168	210	252
85	9,2	18,3	27,5	36,7	45,8	55,0	73,3	91,6	110	128	147	183	229	275
90	10,0	20,0	30,0	40,0	50,0	60,0	80,0	100	120	140	160	200	250	300
95	10,9	21,8	32,7	43,7	54,6	65,5	87,3	109	131	153	175	218	273	
100	11,9	23,8	35,8	47,7	59,6	71,5	95,3	119	143	167	191	238	298	
110	14,3	28,6	42,9	57,1	71,4	85,7	114	143	171	200	229	286		
120	17,3	34,6	52,0	69,3	86,6	104	139	173	208	243				
130	21,5	42,9	64,3	85,8	107	129	172	215	257					
140	27,5	55,0	82,4	110	137	165	220	275						
150	37,3	74,6	112	149	187	224	299							

NOTE:
Liquids more viscous than water will form smaller spray angles. In some cases the nozzle will generate a solid stream depending on the size of the restrictive passages of the nozzle, the degree of viscosity and the operating pressure. Liquid surface tension also has an effect on the spray angle; lower values than water (73 dynes/cm) will increase the spray angle.

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4. Spray angle (continued)

IMPACT

As well as the operating pressure and flow rate the spray angle also affects the amount of impact that is created on the surface being sprayed. For a straight stream nozzle the impact (kg/cm²) can be determined by the formula 1.9 x operating pressure (kg/cm²). For other nozzles it is necessary to first determine the theoretical total impact by the formula (based on water):

$$\text{Theoretical Total Impact } (kg/cm^2) = 0.0324 \times \text{Flow Rate (l/min)} \times \sqrt{\text{pressure } (kg/cm^2)}$$

However in practice, due to the different nozzle designs, there is an efficiency loss through the nozzle which must also be considered. With the variations in spray angles the area of coverage changes with a reduced percentage impact as the spray angle increases.

The following table will assist in calculating the actual impact in kg/cm² based on a distance of 30cm from the nozzle.

IMPACT CHART

Nozzle type	***Nozzle spray angle***	***Total Impact Efficiency 30cm from nozzle***	***Per cent impact of the theoretical total impact 30cm from nozzle***
STRAIGHT STREAM Has high impact efficiency with only slight losses due to friction. No value is given for the per cent impact per cm² since the impact per cm² remains constant for all capacities, the pressure being constant.	0˚	96% to 99%	See the above formula for impact percentage of any straight nozzle.
FLAT SPRAY (AC) Impact Efficiency is high. Narrow spray angles have higher Total Impact Efficiency.	15˚ 25˚ 40˚ 50˚ 65˚ 80˚	95% to 90%	30% 18% 12% 10% 7% 5%
DEFLECTED FLAT SPRAY (TJ) The Total Impact Efficiency is not as high as the FLAT SPRAY because of friction losses due to the deflector surface. However, the spray is more concentrated and the per cent impact per cm² is as high as the FLAT SPRAY.	15˚ 35˚ 40˚ 50˚	80% to 75%	30% 13% 12% 10%
SOLID CONE (BI) Impact Efficiency varies with the spray angle for this type of nozzle.	15˚ 30˚ 50˚ 65˚ 80˚ 100˚	85% 81% 77% 70% 61% 50%	11% 2.5% 1.0% 0.4% 0.2% 0.1%
HOLLOW CONE (AE) Has the lowest Total Impact Efficiency but because of its concentration, the impact per cm² will be slightly higher than the SOLID CONE. The 60˚ to 80˚ spray angle range is given which covers most standard HOLLOW CONE nozzles.	60˚ to 80˚	50%	2% to 1%

A typical problem would be solved as follows:

Example *Find the total impact and the impact per cm² at a distance of 30cm from the nozzle ½" BIM42 operating at a pressure of 3 Bar spraying water.*

$$\text{Theoretical Total Impact} = 0.0324 \times 19.29 \times \sqrt{3 \times 1.02}$$

(1 Bar = 1.02 kg/cm²)

Theoretical Total Impact = 1.0933 kg/cm²

Since the ½" BIM 42 (Solid Cone) has an approx. spray angle of 80˚ at 3 Bar the Total Impact Efficiency is 61% from the above table.

Therefore – Actual Total Impact = 0.61 x 1.0933 = 0.667 kg/cm²

From the same chart we can see that the percentage impact per cm² of the Theoretical Total Impact is 0.2%.

Therefore – Impact per cm² = 0.002 x 0.667 = 0.0013kg.

NOZZLE TECHNOLOGY

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5. Liquid to be sprayed

With a liquid different from water there are a number of factors that can affect the nozzle type to be used, the required operating pressure and the optimum material of manufacture. These are as follows:

a) Specific gravity (density)
b) Viscosity
c) Surface tension
d) Temperature

The following chart shows the various effects that changes to the above have on the performance of a spray nozzle.

PERFORMANCE CHART

	Increase in pressure	***Increase in specific gravity***	***Increase in viscosity***	***Increase in liquid temperature***	***Increase in surface tension***
Spray pattern quality	Improves	Negligible effect	Deteriorates	Improves	Negligible effect
Flow rate	Increases	Decreases	*	* *	No effect
Spray angle	Increase/Decrease	Negligible effect	Decreases	Increases	Decreases
Droplet size	Decreases	Negligible effect	Increases	Decreases	Increases
Velocity	Increases	Decreases	Decreases	Increases	Negligible effect
Impact	Increases	Negligible effect	Decreases	Increases	Negligible effect
Wear	Increases	Negligible effect	Decreases	* *	No effect

** Flat Spray decreases, Hollow Cone and Solid Cone increases.*
*** Depends on the nozzle type and liquid to be sprayed.*

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6. Quality of atomisation

All of the variables previously mentioned influence the degree of atomisation; that is, the size of the droplets produced by a nozzle. In general, spray nozzles do not generate droplets of equal size. Liquid break-up is caused by the collapse of unstable fluid sheets, jets or ligaments, or by the shearing action of air. These mechanisms produce a broad spectrum of droplet sizes; often submicron up to several hundred microns in the same spray.

A perspective of droplet diameters can be gained by realising that there are 1000 microns per mm, and by considering the following approximate ranges for atmospheric precipitation:

Type of precipitation	***Size range (Microns)***
Fog	*1-30*
Mist	*30-100*
Drizzle	*100-300*
Light rain	*300-1000*
Heavy rain	*1000-5000*

In most instances, larger droplets may be expected as nozzle capacity increases. This is because as the fluid metering passages are enlarged to allow greater throughput, coarser droplets generally result. In air atomisers, finer atomisation may be achieved by increasing the liquid tangential velocity. This also tends to widen the spray angle, and explains why coarse atomisation is often associated with narrow angles and straight streams.

Droplet size may vary within the pattern of a given spray. For example, because of their greater momentum, the larger drops in a cone spray are typically found near the outside of the pattern. Induced air pushes the small droplets toward the centre. Variations may also occur as droplets move away from the nozzle; but the net change is difficult to predict, due to the offsetting effects of coalescence and evaporation.

Although droplet size is affected by nozzle type, most pressure atomisers give similar results if the flow rate, pressure and spray angle are the same. Droplets may be somewhat larger for flat spray nozzles, particularly at the edges of the pattern.

For a given nozzle, the quality of atomisation may be improved by increasing pressure. As an approximate rule of thumb, droplet diameters for hydraulic nozzles may be assumed to vary as the -0.3 power of pressure. However, the exact effect depends on the nozzle design and operating conditions. At very high pressures, a further increase often has a negligible effect on atomisation.

Two-fluid nozzles are often recommended for extremely fine atomisation (e.g. below 50 microns). With this type of atomiser, droplet size is a function of air pressure (or relative air velocity) as well as the air-liquid ratio.

The two most important liquid properties that affect atomisation are viscosity and surface tension. As viscosity increases, larger viscous forces must be overcome by the energy supplied to the nozzle. This reduces the energy available for droplet break up, resulting in coarser atomisation. With very viscous liquids, satisfactory atomisation may become difficult and two-fluid nozzles should be considered. In addition to viscous forces, surface tension must also be overcome in creating droplets. Liquids having high surface tension are more difficult to atomise.

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NOZZLE TECHNOLOGY

6. Quality of atomisation (continued)

REPRESENTATION OF DROPLET SIZE

The complete characterisation of spray quality requires information on the frequency of all droplet diameters. This may be expressed as the number of droplets or their corresponding volume in specified size ranges. Though complete distribution data is needed for certain applications, spray quality or the consistency of droplet size is frequently described by a single parameter, such as the mean or median droplet diameter.

If the cumulative percentage volume is plotted as a function of droplet diameter, the 50% point corresponds to the volume median diameter, DVO.5. This divides the spray into two equal portions by volume. For processes involving evaporation, reactions or combustion, the Sauter mean diameter, D32 is commonly used. This is a hypothetical droplet whose ratio of volume to surface area is equal to that of the entire spray.

RESEARCH

Delavan has been producing spray nozzles since 1946 and has developed specialist nozzles for applications such as oil heating and specialised injectors for gas turbine engines. These have now been built into successful, specialist businesses in their own right within the Coltec Group and help provide Delavan with a wealth of knowledge and expertise to draw upon.

Delavan is a major supplier of spray nozzles and accessories for agricultural and industrial applications worldwide. Thousands of nozzle designs have been developed and research and development is constantly undertaken to optimise flow, spray pattern and droplet size of nozzles for new applications.

Operating conditions cover wide ranges – flow rates from 0.1 GPH to 60000 GPH, and pressures as high as 7000 psi. Delavan nozzles must also be designed for many types of liquids: light and heavy oils, abrasive and corrosive chemicals, and formulations containing suspended solids.

Optimum performance can be achieved only through intensive spray research involving fluid dynamic theory, thorough testing and data analysis. This research not only aids product design, but is also essential for the proper application of spray equipment and for the technical support of Delavan's customers.

The work is carried out by an experienced staff of research engineers and technicians using modern laboratory facilities. The facilities include instrumented test stands designed for the accurate measurement of flow and spray patterns when atomising fuel, water or other liquids. Test equipment is available for special studies of nozzle endurance, vibration analysis and fuel spray combustion. The laboratory also contains equipment for Schlieren and high-resolution photography.

Delavan's research capabilities are further enhanced by the ANSYS finite-element modelling program for analysis of stress, vibration and heat transfer, the FLUENT code for flowfield modelling, and other proprietary codes for predicting flow parameters, spray structure and particle size.

Of particular interest are Delavan's unique systems for determining spray droplet size. For many years laboratory data has been accumulated using a technique involving droplet collection, photomicrography and high-speed image analysis. In 1982 Delavan augmented its research facilities by procuring laser spectrometer probes and custom software from Particle Measuring Systems Inc. Also, the PMS light-scattering and imaging probes, used with a dedicated computer, permit rapid spray analysis for a broad spectrum of particle diameters.

The laboratory is now equipped with still another diagnostic tool, the Aerometrics Phase Doppler Particle Analyser which is capable of measuring not only the size distribution of droplets, but also their velocity, flux and concentration within the spray sampling volume. This non-intrusive instrument may be operated with a computer-controlled nozzle traversing mechanism to provide global data or statistical information at designated locations within a three-dimensional region.

Interest in spray analysis has grown steadily in recent years, and many organisations are utilising droplet size information to improve their processes and products. If you would like to have additional information about droplet size, please contact our Customer Service Team.

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6. Quality of atomisation (continued)

DROPLET SIZE MEASUREMENT

Accurate sizing of spray droplets is difficult, and no single method is completely satisfactory. However, by recognising the limitations of various instruments and experimental techniques, useful and significant data can be obtained.

Delavan's research laboratory is equipped with spectrometer probes for droplet size measurement. Small droplets are detected by scattered light from a laser beam passing through the spray, whereas the larger droplets are sized by an imaging system.

These research tools are a great asset in nozzle development and in supplying useful data to Delavan's customers.

TYPICAL DROPLET ANALYSIS

DROPLET ANALYSIS	:	841106.BLW	DATE		
FSSP INPUT FILE	:	841106.BLW	OAP INPUT FILE	:	841106.BLW
TEST REFERENCE	:	LO-AIR NOZZLE	ATOMISER	:	38977-8
TEST LIQUID	:	WATER	LIQUID PRESSURE	:	24 PSIG
LIQUID FLOW	:	3 GPH	ATOMISING GAS	:	AIR
GAS PRESSURE	:	30 PSIG	GAS FLOW RATE	:	5.32 SCFM
FSSP PERIOD	:	60 SEC	OAP PERIOD	:	60 SEC
OVERLAP REGION	:	20 TO 80 UM	MERGE DIAMETER	:	50 UM

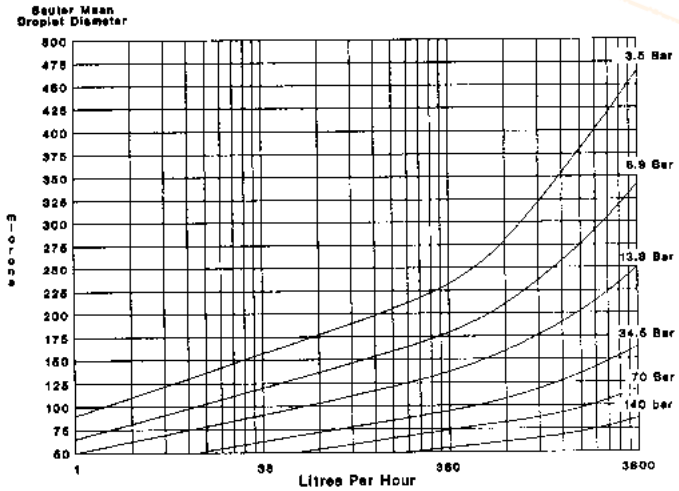
FSSP SAMPLING LOCATION: 12" HORIZONTAL TRAVERSE
OAP SAMPLING LOCATION: 12" HORIZONTAL TRAVERSE
SUPPLEMENTAL INFORMATION: 10 MM DEPTH OF FIELD
TEST ENGRS. SC & DT

• DISTRIBUTION PARAMETERS •

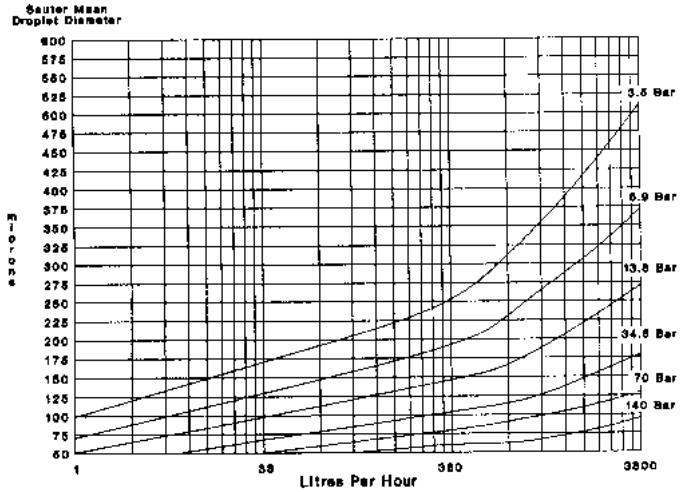
LENGTH MEAN DIAMETER	(D10):	21.11	UM	NUMBER MEDIAN DIAM.	(DN.5):	14.65	UM
AREA MEAN DIAMETER	(D20):	30.25	UM	VOLUME MEDIAN DIAM.	(DV.5):	119.37	UM
VOLUME MEAN DIAMETER	(D30):	42.43	UM	10% – VOLUME DIAMETER	(DV.1):	42.70	UM
SAUTER MEAN DIAMETER	(D32):	83.48	UM	90% – VOLUME DIAMETER	(DV.9):	200.07	UM
STANDARD DEVIATION	(VOL):	59.20	UM	MAXIMUM DIAMETER	:	305.00	UM
COEFF. OF VARIATION	(VOL):	0.483		UNIFORMITY INDEX (VOLUME)	:	0.401_	

The following charts show the estimated Sauter mean diameter of droplets for various flow rates of typical 80˚ hollow and solid cone spray patterns based on water.

80° Hollow Cone pressure atomisers spraying water



80° Solid Cone pressure atomisers spraying water



NOZZLE TECHNOLOGY

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7. Material of manufacture

Delavan manufactures spray nozzles and accessories in a wide range of materials to meet the various demands of all types of spraying applications. Each nozzle type is manufactured in a range of standard materials for their specific applications but can also be manufactured from a range of other materials on request.

During the last 50 years of manufacturing spray nozzles Delavan has had experience of many diverse applications which have involved corrosive and abrasive liquids in both hot and corrosive environments. Our sales engineers and technical staff would be pleased to discuss your specific application. The following is a list of some of the materials from which we have manufactured spray nozzles and accessories.

Aluminium	GRP	Polypropylene
Aluminium Bronze	Gunmetal (LG2)	Polyurethane
Brass	Hard Rubber (Ebonite)	PVC
Carbon Steel	Hardened Stainless Steel	PVDF (Kynar)
Cast Iron	Hastelloy	Silicon Carbide (Nitride Bonded)
Ceramic	Incoloy	Silver
Chrome Carbide	Inconel	Stainless Steel (All grades)
Copper	Lead	317L Stainless Steel
cPVC	Monel 400	Titanium
Cupro Nickel	Naval Brass	Tungsten Carbide
Delrin (Acetal)	Nylon	Ultimet
Duralimin	Platinum	Viton
Graphite	Polyethylene	Zirconium

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8. Conversion factors

LIQUID PRESSURE EQUIVALENTS CHART

LIQUID PRESSURE	Lb/In² (psi)	Ft WATER	Kg/Cm²	ATMOSPHERE	BAR	INCH MERCURY	kPa (KILOPASCAL)
Lb/In² (psi)	*	2,31	0,070	0,068	0,069	2,04	6,895
Ft Water	0,433	*	0,030	0,029	0,030	0,882	2,99
Kg/Cm²	14,2	32,8	*	0,968	0,981	29,0	98
Atmosphere	14,7	33,9	1,03	*	1,01	29,9	101
Bar	14,5	33,5	1,02	0,987	*	29,5	100
Inch Mercury	0,491	1,13	0,035	0,033	0,034	*	3,4
kPa (Kilopascal)	0,145	0,335	0,01	0,009	0,01	0,296	*

VOLUMETRIC UNITS EQUIVALENTS CHART

VOLUMETRIC UNIT	CUBIC CENTIMETRE	FLUID OUNCE	POUND OF WATER	LITRE	IMPERIAL GALLON	CUBIC FOOT	CUBIC METRE
Cubic Centimetre	*	0,034	$2,2x10^{-3}$	0,001	$2,2x10^{-4}$	$3,53x10^{-5}$	$1,0x10^{-6}$
Fluid Ounce	29,4	*	0,065	0,030	$6,51x10^{-3}$	$1,04x10^{-3}$	$2,96x10^{-5}$
Pound of Water	454	15,4	*	0,454	0,10	0,016	$4,54x10^{-4}$
Litre	1000	33,8	2,2	*	0,22	0,035	0,001
Imperial Gallon	4546	154	10,0	4,546	*	0,161	$4,55x10^{-3}$
Cubic Foot	28320	958	62,4	28,3	6,23	*	0,028
Cubic Metre	$1,0x10^{6}$	$3,38x10^{4}$	2202	1000	220	35,3	*

LINEAR UNITS EQUIVALENTS CHART

LINEAR UNIT	MICRON	MIL	MILLIMETRE	CENTIMETRE	INCH	FOOT	METRE
Micron	*	0,039	0,001	$1,0x10^{-4}$	$3,94x10^{-5}$		
Mil	25,4	*	$2,54x10^{-2}$	$2,54x10^{-3}$	0,001	$8,33x10^{-5}$	
Millimetre	1000	39,4	*	0,10	0,0394	$3,28x10^{-3}$	0,001
Centimetre	10000	394	10	*	0,394	0,033	0,01
Inch	$2,54x10^{4}$	1000	25,4	2,54	*	0,083	0,0254
Foot	$3,05x10^{5}$	$1,2x10^{4}$	305	30,5	12	*	0,305
Metre	$1,0x10^{6}$	$3,94x10^{4}$	1000	100	39,4	3,28	*

EQUIVALENTS CHART

UNIT	EQUIVALENT
Ounce	28,35 gr.
Pound	0,4536 Kg.
Horse-Power	0,746 KW.
B T U	0,2520 K Cal.
Square Inch	6,452 Sq. Cm.
Square Foot	0,09290 Sq. M.
Acre	0,4047 Hectare
Acre	43,560 Sq. Ft.

FORMULAE CHART

UNIT	FORMULA
Fahrenheit (F°)	= 9/5 C° +32
Celcius (C°)	= 5/9 (F°-32)
Circumference of a Circle	= 3,1416 x Diameter
Area of a Circle	= ,7854 x Square of the Diameter
Volume of a Sphere	= ,5236 x Cube of the Diameter
Area of a Sphere	= 3,1416 x Square of the Diameter

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NOZZLE TECHNOLOGY

PRESSURE LOSS TABLE

FLOW OF WATER THROUGH SCHEDULE 40 STEEL PIPE

FLOW IN L/MIN	PRESSURE DROP IN BAR FOR VARIOUS PIPE SIZES (IN 10M LENGTH)															
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	5"	6"	8"
1	0,07															
1.5	0,16	0,04														
2	0,26	0,06														
2.5	0,40	0,08														
3	0,56	0,12	0,03													
4	0,96	0,21	0,05	0,02												
6	2,0	0,45	0,10	0,03												
8	3,5	0,74	0,17	0,05	0,01											
10		1,2	0,25	0,08	0,02											
12		1,7	0,35	0,11	0,03											
15		2,6	0,54	0,17	0,04	0,01										
20			0,92	0,28	0,07	0,02										
25			1,2	0,45	0,11	0,03										
30			2,1	0,62	0,15	0,04	0,01									
40				1,1	0,25	0,08	0,02									
60					0,54	0,16	0,04	0,02	0,006							
80					0,93	0,28	0,07	0,03	0,009							
100						0,43	0,12	0,05	0,010							
115						0,58	0,14	0,06	0,015							
130						0,72	0,18	0,08	0,02	0,010						
150							0,23	0,10	0,03	0,012						
170							0,29	0,13	0,04	0,016						
190							0,36	0,16	0,05	0,02						
230							0,50	0,23	0,07	0,03	0,009					
260								0,32	0,09	0,04	0,01					
300								0,38	0,11	0,04	0,02	0,007				
340								0,50	0,14	0,06	0,02	0,009				
380								0,61	0,18	0,07	0,03	0,01				
470									0,28	0,11	0,04	0,02	0,009			
570									0,39	0,15	0,05	0,03	0,01			
750									0,64	0,26	0,09	0,04	0,02	0,007		
950											0,14	0,06	0,03	0,01		
1150											0,19	0,09	0,05	0,02		
1500												0,16	0,08	0,03	0,01	
1900													0,13	0,04	0,02	
2800														0,09	0,03	0,009
3800														0,16	0,06	0,02
7500															0,23	0,06

Recommended flow rate ranges are shown shaded.

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FRICTION LOSS TABLE

APPROXIMATE FRICTION LOSS IN PIPE FITTINGS IN EQUIVALENT FEET OF STRAIGHT PIPE

PIPE SIZE STD. SCH.	ACTUAL PIPE BORE (mm)	GATE VALVE FULLY OPEN	GLOBE VALVE FULLY OPEN	45° ELBOW	RUN OF STD. TEE	STD. ELBOW OR RUN OF TEE REDUCED ½	STD. TEE THROUGH SIDE OUTLET
1/8" N.B.	6,8	0,05	2,4	0,11	0,12	0,23	0,43
1/4" N.B.	9,2	0,06	3,4	0,15	0,20	0,34	0,67
3/8" N.B.	12.5	0,08	4,4	0,19	0,26	0,42	0,80
1/2" N.B.	15,8	0,11	5,7	0,24	0,34	0,52	1,0
3/4" N.B.	21	0,13	7,0	0,30	0,43	0,64	1,3
1" N.B.	27	0,17	9,0	0,37	0,55	0,79	1,6
1 1/4" N.B.	35	0,23	11,8	0,49	0,70	1,1	2,1
1 1/2" N.B.	41	0,26	13,8	0,58	0,82	1,2	2,5
2" N.B.	53	0,34	17,7	0,73	1,1	1,6	3,2
2 1/2" N.B.	63	0,40	21	0,88	1,3	1,9	3,8
3" N.B.	78	0,49	26	1,1	1,6	2,3	4,7
4" N.B.	102	0,64	34	1,4	2,1	3,1	6,2
5" N.B.	128	0,82	43	1,8	2,6	3,9	7,7
6" N.B.	154	0,98	52	2,2	3,1	4,7	9,4

MESH SIZES

US AND ASTM STD. SIEVE NO.	INCHES	MICRONS
10	,0787	2000
12	,0661	1680
14	,0555	1410
16	,0469	1190
18	,0394	1000
20	,0331	840
25	,0280	710
30	,0232	590
35	,0197	500
40	,0165	420
45	,0138	350
50	,0117	297
60	,0098	250
70	,0083	210
80	,0070	177
100	,0059	149
120	,0049	125
140	,0041	105
170	,0035	88
200	,0029	74

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10. Other literature

1) Spray Droplet Technology #678C:

This booklet was prepared to help clarify spray droplet technology and answer questions often asked by our customers. It also describes Delavan's spray droplet analysis system and explains the test data that can be provided.

2) Spray Drying Technology #1875:

This booklet describes the spray drying process and the nozzles designed for this industry. It is intended as a guide for proper nozzle selection. Also included is an enquiry sheet requesting information needed for Delavan to make a nozzle recommendation for a specific application.

3) Spraying Droplets to Order:

This article explains the different types of nozzles and their spray patterns. The author was Richard K. Cox. It is reprinted from Automation *magazine.*

4) Sprays and Spraying for Process Use:

This two-part article by Dr. Roger W. Tate is reprinted from Chemical Engineering. *It discusses atomiser types and principles, and describes the selection of nozzles for specific industrial applications.*

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3 Application Guide

SPECIFIERS GUIDE

WELCOME TO DELAVAN

Meeting the **challenges** of new industries and *NEW markets*

DELAVAN®
Spray Technologies

SECTION INDEX

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SPRAYING APPLICATIONS

With more than 60 years of nozzle application experience Delavan has listed some of the more common spray nozzle applications in the table below. Please use the Nozzle Technology section to calculate the desired flow rate, spray angle, operating pressure and material and then use the tables in this section to find the nozzle you need.

The first table groups applications by industry and the second lists the nozzle types suggested for each application. Certain installation sites will often present unique design constraints but the most common nozzles for particular applications are presented in the next table on page 3.6.

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If you need more detailed information or advice then Delavan sales engineers and technical staff are always available to answer your questions.

INDUSTRY APPLICATIONS

INDUSTRY	APPLICATION	SEE APPLICATION TYPES
Agriculture/Horticulture/Livestock	Plant Protection / Watering / Irrigation	Application 3 – Dust Suppression – Roads
	Stubble Burning	Application 26 – Oil Burning
	Aerial Spraying	Application 25 – Oil Pollution Control
	Livestock Showering / Cooling	Application 37 – Livestock Cooling
Automotive Industry	Component or Body Washing Machines	Application 15 – Component Washing
	De-burring	Application 16 – De-burring
	Dip Tank Agitation	Application 17 – Liquid Agitation
	Leak Test	Application 20 – Leak Testing
	Foam Breaking	Application 6 – Foam Breaking
Bottling and Canning Industries	Conveyor Lubrication	Application 7 – Roll Lubrication
	Bottle & Can Cooling	Application 15 – Component Washing
	Washing – Trays etc.	Application 10 – Phosphate Spraying
	Drying	Application 13 – Air Drying
	Foam Breaking	Application 6 – Foam Breaking
Brewing Industry	Vessel Clean In Place Systems	Application 30 – Cleaning In Place
	Mash Tun Cleaning	Application 30 – Cleaning In Place
	Foam Breaking	Application 6 – Foam Breaking
	Bottle Washing	Application 15 – Component Washing
	Keg Washing	Application 30 – Cleaning In Place
	Conveyor Lubrication	Application 7 – Roll Lubrication
	Drying	Application 13 – Air Drying
	Trub Dispersal	Application 14 – Coke / Slag Quenching
Carpet Industry	Application of Stain Repellent Chemicals	Application 7 – Roll Lubrication

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INDUSTRY APPLICATIONS

INDUSTRY	APPLICATION	SEE APPLICATION TYPES
CHEMICAL & PETROCHEMICAL Manufacturing	Dust Suppression	Application 2 – Dust Suppression – Transfer Points
	Storage Tank Cooling	Application 23 – Fire Protection
	Leaching	Application 15 – Component Washing
	Odour Control	Application 22 – Odour Control
	Vessel Clean In Place Systems	Application 30 – Cleaning In Place
	Container Washing – Internal	Application 30 – Cleaning In Place
	Container Washing – External	Application 15 – Component Washing
	Keg Washing	Application 30 – Cleaning In Place
	IBC Washing – Internal	Application 30 – Cleaning In Place
	IBC Washing – External	Application 15 – Component Washing
	Conveyor Washing	Application 21 – Vehicle Washing
	Conveyor Lubrication	Application 7 – Roll Lubrication
	Foam Breaking	Application 6 – Foam Breaking
	Oil Slick – Detergent Spraying	Application 25 – Oil Pollution Control
	Gas Scrubbing	Application 35 – Gas Scrubbing
	Steam Conditioning	Application 36 – Steam Conditioning
	Liquid Waste Incineration	Application 26 – Oil Burning
	Fire Protection	Application 23 – Fire Protection
	Safety Showers & Eye Baths	Application 44 – Safety Showers
	Coke or Slag Quenching	Application 14 – Coke / Slag Quenching
Civil Engineering	Dust Suppression	Application 3 – Dust Suppression – Roads
	Building Cleaning	Application 9 – Descaling
	Decorative Water Features	Application 45 – Decorative Water Features
	Wood Preservation	Application 18 – Paint Spraying
	Roof Cooling	Application 23 – Fire Protection
Electronics Industry	Etch and Wash Chemical Spraying	Application 40 – Etch And Wash Chemical Spraying – Electronics
	Dip Tank Agitation	Application 17 – Liquid Agitation
	Drying	Application 13 – Air Drying
	Foam Breaking	Application 6 – Foam Breaking
Environmental	Dust Control – Roads	Application 3 – Dust Suppression – Roads
	Pollution Control – Oil Slick Spraying	Application 25 – Oil Pollution Control
	Effluent Treatment	Application 28 – Effluent Treatment
	Spray Ponds	Application 29 – Spray Ponds
	Odour Control	Application 22 – Odour Control
	Dust Suppression	Application 2 – Dust Suppression – Transfer Points Application 3 – Dust Suppression – Roads
	Wheel Wash	Application 5 – Wheel Wash
	Road Sweeping	Application 24 – Weed Control

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INDUSTRY APPLICATIONS

INDUSTRY	APPLICATION	SEE APPLICATION TYPES
Environmental (continued)	Weed Control	Application 24 – Weed Control
	Liquid Waste Incineration	Application 26 – Oil Burning
	Weir Wall Washing	Application 16 – Oil De-burring
Food Processing Industry	Container Washing - External	Application 15 – Component Washing
	Container Washing – Internal	Application 30 – Cleaning In Place
	Conveyor Washing	Application 21 – Vehicle Washing
	Drying	Application 13 – Air Drying
	Leaching	Application 15 – Component Washing
	Foam Breaking	Application 6 – Foam Breaking
	Fruit/Vegetable Washing	Application 15 – Component Washing
	Fruit/Vegetable Coating	Application 7 – Roll Lubrication
	Mould Cooling	Application 31 – Mould Cooling
	Release Agent Spraying	Application 7 – Roll Lubrication
	Disinfection – Spraying or Fogging	Application 27 – Humidification
	Spray Drying	Application 32 – Spray Drying
	Oven Humidity Control	Application 27 – Humidification
HVAC	Heating – Oil Burning	Application 26 – Oil Burning
	Humidification	Application 27 – Humidification
	Fogging	Application 27 – Humidification
	Fume Scrubbing	Application 19 – Fume Scrubbing
Meat Processing	Abattoir Cleaning	Application 15 – Component Washing
	Disinfection – Spraying or Fogging	Application 27 – Humidification
	Conveyor Washing	Application 21 – Vehicle Washing
	Foam Breaking	Application 6 – Foam Breaking
Mechanical Engineering	Tool Cooling	Application 4 – Cutter Cooling
	Mould Release Spraying	Application 7 – Roll Lubrication
	Lubricant & Grease Spraying	Application 7 – Roll Lubrication
Metal Finishing	Static, Rotary or Conveyor Component Washing Machines	Application 15 – Component Washing
	De-burring	Application 16 – De-burring
	Grinding Dust Removal	Application 5 – Wheel Wash
	Electroplating – Tank Agitation	Application 17 – Liquid Agitation
	Electroplating – Product Washing	Application 10 – Phosphate Spraying
	Pre-treatment Wash	Application 15 – Component Washing
	Pre-treatment Plating Iron or Zinc Phosphate	Application 10 – Phosphate Spraying
	Protective Coating Spraying	Application 7 – Roll Lubrication
	Paint Spraying	Application 18 – Paint Spraying
	Drying	Application 13 – Air Drying
	Dip Tank Agitation	Application 17 – Liquid Agitation

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INDUSTRY APPLICATIONS

INDUSTRY	APPLICATION	SEE APPLICATION TYPES
Metal Finishing (continued)	Foam Breaking	Application 6 – Foam Breaking
	Safety Showers & Eyebaths	Application 44 – Safety Showers
	Fume Scrubbing	Application 19 – Fume Scrubbing
Metal Heat Treatment	Billet Quenching	Application 11 – Continuous Casting Cooling
	Strip Cooling	Application 8 – Cooling Mill Rolls
Metal Production Industry	Roll Lubrication	Application 7 – Roll Lubrication
	Roll Cooling	Application 8 – Cooling Mill Rolls
	Descaling	Application 9 – Descaling
	Dust Control – at Descaling Points	Application 2 – Dust Suppression – Transfer Points
	Pickling	Application 10 – Phosphate Spraying
	Continuous Casting – Cooling	Application 11 – Continuous Casting
	Wire Die Lubrication / Cooling	Application 12 – Wire Die Lubrication
	Sheet Washing	Application 10 – Phosphate Spraying
	Drying	Application 13 – Air Drying
	Sheet Oiling	Application 7 – Roll Lubrication
	Coke or Slag Quenching	Application 14 – Coke Quenching
Mineral Extraction & Processing	Gravel or Coal Washing	Application 1 – Gravel / Coal Washing
	Dust Control – Transfer Points	Application 2 – Dust Suppression – Transfer Points
	Dust Control – Roads	Application 3 – Dust Suppression – Roads
	Cutter Cooling	Application 4 – Cutter Cooling
	Wheel Wash	Application 5 – Wheel Wash
	Foam Breaking	Application 6 – Foam Breaking
Paper Making Industry	Bark Removal	Application 16 – De-burring
	Edge Trimming	Application 42 – Edge Trimming
	Pulp – Water Addition	Application 43 – Pulp – Water Addition
	Foam Breaking	Application 6 – Foam Breaking
	Filter / Screen Washing	Application 11 – Continuous Casting Cooling
Pharmaceutical Industry	Vessel Clean In Place Systems	Application 30 – Cleaning In Place
	Tablet Coating	Application 33 – Tablet Coating
	Bottle Washing	Application 15 – Component Washing
	Drying	Application 13 – Air Drying
	Conveyor Lubrication	Application 7 – Roll Lubrication
	Dust Suppression	Application 2 – Dust Suppression – Transfer Points
	Fume Scrubbing	Application 19 – Fume Scrubbing
	Centrifuge Cake Washing	Application 34 – Centrifuge Cake Washing
Photographic Industry	Film Processing	Application 40 – Etch And Wash Chemical Spraying – Electronics
	Dip Tank Agitation	Application 17 – Agitation
	Drying	Application 13 – Air Drying

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INDUSTRY APPLICATIONS

INDUSTRY	APPLICATION	SEE APPLICATION TYPES
Power Industry	Flue Gas De-Sulphurisation	Application 35 – Gas Scrubbing
	Steam Conditioning	Application 36 – Steam Conditioning
	De-Superheating	Application 36 – Steam Conditioning
	Spray Ponds	Application 29 – Spray Ponds
	Cooling Towers	Application 29 – Spray Ponds
	Gravel / Coal Washing	Application 1 – Gravel / Coal Washing
	Dust Control – Transfer Points	Application 2 – Dust Suppression – Transfer Points
	Dust Control – Roads	Application 3 – Dust Suppression – Roads
	Flask Decontamination – Nuclear	Application 38 – Flask Decontamination – Nuclear
	Magnox Extinguishing	Application 39 – Magnox Extinguishing – Nuclear
	Safety Showers & Eyebaths	Application 44 – Safety Showers
	Pollution Control – Oil Slick Spraying	Application 25 – Oil Pollution Control
	Wheel Wash	Application 5 – Wheel Wash
	Insulator Washing	Application 5 – Wheel Wash
	Transformer Fire Protection	Application 23 – Fire Protection
	Coke or Slag Quenching	Application 14 – Coke / Slag Quenching
Rubber Processing Industry	Conveyor Lubrication	Application 7 – Roll Lubrication
	Belt Cooling	Application 41 – Belt Cooling
	Mould Release Agent Spraying	Application 7 – Roll Lubrication
	Foam Breaking	Application 6 – Foam Breaking
Textile Industry	Moistening of cloth or yarn	Application 27 – Humidification
	Spraying of Stain Repellent Chemicals	Application 7 – Roll Lubrication
Transport Industry	Vehicle Washing	Application 21 – Vehicle Wash
	Wheel Wash	Application 5 – Wheel Wash
	Odour Control – Ships	Application 22 – Odour Control
	Fire Protection – Ships	Application 23 – Fire Protection
	Weed Control – Railway Lines, Runways & Pavements	Application 24 – Weed Control
	Oil Slick Detergent Spraying	Application 25 – Oil Pollution Control

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Having found the application number from the previous table, use this table to determine the nozzle you require.

The various fitting options are:

One piece threaded – *This type of nozzle screws onto or into a mating part.*

Tip Type – *A flanged nozzle which requires a body and cap assembly.*

Delafit – *A quick release system which allows tool free replacement.*

WE ARE HERE TO HELP

If you need more detailed information or advice then Delavan sales engineers and technical staff are always available to answer your questions.

APPLICATION 1 – GRAVEL/COAL WASHING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC, TJ, AN		DFAC, DFTJ, DFAN		Eyelets, HNS
Hollow Cone Spray	AE, AF, AH, AG		DFAE, DFAF		
Solid Cone Spray	BI, BN		DFBI, DFBN		
Other Nozzles					

Use Hollow Cone sprays when the wash water is re-circulated and is likely to contain debris.

APPLICATION 2 – DUST SUPPRESSION – TRANSFER POINTS

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					Eyelets, HNS, Swivels
Hollow Cone Spray	AE, AF, WR, WRW	DC	DFAE, DFAF		
Solid Cone Spray	BI, BN,BK,BL	WL	DFBI, DFBN		
Other Nozzles					

APPLICATION 3 – DUST SUPPRESSION – ROADS

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC, AN				Eyelets, HNS
Hollow Cone Spray					
Solid Cone Spray	BI, CJ				
Other Nozzles				Sector Sprays	

APPLICATION 4 – CUTTER COOLING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC(0°)				HNS
Hollow Cone Spray	WM				
Solid Cone Spray	BL				
Other Nozzles					

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APPLICATION 5 – WHEEL WASH

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC, TJ	AD			HNS
Hollow Cone Spray					
Solid Cone Spray					
Other Nozzles					

APPLICATION 6 – FOAM BREAKING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AN	D Tip			Eyelets, HNS
Hollow Cone Spray	RA				
Solid Cone Spray	BN, BY				
Other Nozzles					

Due to the complex nature and variation of different chemical foams please contact Delavan's Customer Service Team for advice on this application.

APPLICATION 7 – ROLL LUBRICATION

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray		LF, LK, D Tip		AL15, AL60, Lo-Air	HNS, Swivels
Hollow Cone Spray					
Solid Cone Spray					
Other Nozzles					

APPLICATION 8 – COOLING MILL ROLLS

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC, CAC	LF	DFAC	LD, AD	HNS
Hollow Cone Spray					
Solid Cone Spray					
Other Nozzles					

APPLICATION 9 – DESCALING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AZ, BZ, 343, 344	DE, DQ, DD, LQ			HNS
Hollow Cone Spray					
Solid Cone Spray					
Other Nozzles					

APPLICATION 10 – PHOSPHATE SPRAYING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC, TJ, AN		DFAC, DFTJ, DFAN	LD, AD	Eyelets, Ball Swivel Eyelets, HNS, Adjustable Joints
Hollow Cone Spray	AE, AF		DFAE, DFAF		
Solid Cone Spray	BI, BN		DFBI, DFBN		
Other Nozzles					

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APPLICATION 11 – CONTINUOUS CASTING COOLING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC	LF	DFAC, FB Cap & Body	LD, AD	HNS
Hollow Cone Spray					
Solid Cone Spray	BI, BN, BQ, BT		DFBI, DFBN, DFBQ, DFBT		
Other Nozzles					

APPLICATION 12 – WIRE DIE LUBRICATION (AND COOLING)

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					HNS
Hollow Cone Spray	WM				
Solid Cone Spray				AL, AL45	
Other Nozzles					

APPLICATION 13 – AIR DRYING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC, DJ	LF, SL, Blow Off	DFAC, FB Cap & Body		HNS, Swivels, Adjustable Joints
Hollow Cone Spray					
Solid Cone Spray					
Other Nozzles					

APPLICATION 14 – COKE QUENCHING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					HNS
Hollow Cone Spray	AE, AF, BE		DFAE, DFAF		
Solid Cone Spray	BI, BN, CM, BY		DFBI, DFBN		
Other Nozzles					

APPLICATION 15 – COMPONENT WASHING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC, CAC, TJ		DFAC, DFTJ		HNS, Ball Swivel Eyelets
Hollow Cone Spray	AE		DFAE		
Solid Cone Spray	BI		BFBI		
Other Nozzles					

APPLICATION 16 – DE-BURRING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AQ, AZ	LQ			HNS
Hollow Cone Spray					
Solid Cone Spray					
Other Nozzles					

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APPLICATION 17 – LIQUID AGITATION

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC				HNS, Ball Swivel Eyelets, Adjustable Joints
Hollow Cone Spray					
Solid Cone Spray					
Other Nozzles				BB Eductor	

APPLICATION 18 – PAINT SPRAYING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray		LK, LQ		Airless Tips	Turnaflo
Hollow Cone Spray					
Solid Cone Spray					
Other Nozzles					

APPLICATION 19 – FUME SCRUBBING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					HNS, Ball Swivel Eyelets
Hollow Cone Spray	AE, AF, PJ		DFAE, DFAF		
Solid Cone Spray	BN		DFBN	AL30	
Other Nozzles					

APPLICATION 20 – LEAK TESTING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					HNS, Ball Swivel Eyelets
Hollow Cone Spray					
Solid Cone Spray	BN, BI, CJ		DFBN, DFBI		
Other Nozzles					

APPLICATION 21 – VECHICLE WASHING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC, CAC, AN, TJ, AZ	LF	DFAC, DFTJ, DFAN, FB Cap & Body		HNS, Ball Swivel Eyelets, Swivels
Hollow Cone Spray					
Solid Cone Spray					
Other Nozzles					

APPLICATION 22 – ODOUR CONTROL

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray				AL60	HNS
Hollow Cone Spray	WM	WG	FB Cap & Body		
Solid Cone Spray				GA, GC, AL, AL45	
Other Nozzles					

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APPLICATION 23 – FIRE PROTECTION

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AN				HNS
Hollow Cone Spray					
Solid Cone Spray	BI, BN,CM, BY			CL7	
Other Nozzles					

APPLICATION 24 – WEED CONTROL

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AN	LF	FB Cap & Body		HNS, Swivels
Hollow Cone Spray	RA				
Solid Cone Spray	BL	WL	FB Cap & Body		
Other Nozzles					

APPLICATION 25 – OIL POLLUTION CONTROL

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC			QLD, FLD	HNS, Swivels, Quick Couplers
Hollow Cone Spray	RA				
Solid Cone Spray					
Other Nozzles					

Note:- QLD and FLD are not featured in this catalogue. Please contact Delavan's Customer Service Team for further details.

APPLICATION 26 – OIL BURNING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC	LF			Protek
Hollow Cone Spray		WDA		Swirl-Air	
Solid Cone Spray		WDB		SNA, AIRO.	
Other Nozzles					

Please contact Delavan's Customer Service Team for further details of oil burning nozzles and our Oil Burner leaflet.

APPLICATION 27 – HUMIDIFICATION

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray				AL60	
Hollow Cone Spray	WM	WG	FB Cap & Body	Swirl-Air	
Solid Cone Spray				AL, AL30, AL45, SNA	
Other Nozzles					

APPLICATION 28 – EFFLUENT TREATMENT

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AN				HNS, Quick Couplers
Hollow Cone Spray	BE,WRA,WRA-RD				
Solid Cone Spray	CM				
Other Nozzles					

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APPLICATION 29 – SPRAY PONDS

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					HNS, Quick Couplers
Hollow Cone Spray	BE, RA, WRA				
Solid Cone Spray					
Other Nozzles					

APPLICATION 30 – CLEAN IN PLACE

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					HNS
Hollow Cone Spray	PU, PJ				
Solid Cone Spray	BI, BN, CLFD 13			ClP21, DWN19, KN9	
Other Nozzles					

Note:- As vessels vary widely in shape and size, please contact Delavan's Customer Service Team for advice on Clean In Place Systems.

APPLICATION 31 – MOULD COOLING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					HNS, Swivels, Adjustable Joints
Hollow Cone Spray					
Solid Cone Spray	BI, BN, BL	WL	DFBI, DFBN, FB Cap & Body		
Other Nozzles					

APPLICATION 32 – SPRAY DRYING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					Assembly Tools, Kwik-Chek Orifice Gauge
Hollow Cone Spray				Mini SDX, SDX, SDX III, Swirl-Air	
Solid Cone Spray					
Other Nozzles					

Delavan produce a complete range of Spray Drying nozzles and accessories. Please contact Delavan's Customer Service Team for full details and a copy of our Spray Drying literature.

APPLICATION 33 – TABLET COATING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray				AL15, AL60, AFAL, Airless Tip	
Hollow Cone Spray					
Solid Cone Spray					
Other Nozzles					

Note:- AFAL is a variable fan width, air atomising nozzle specifically designed for batch tablet coating and is not featured in this catalogue. Please contact Delavan's Customer Service Team for further details.

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APPLICATION 34 – CENTRIFUGE CAKE WASHING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC, TJ	LF	DFAC, DFTJ, FB Cap & Body		HNS
Hollow Cone Spray					
Solid Cone Spray					
Other Nozzles					

APPLICATION 35 – GAS SCRUBBING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					HNS
Hollow Cone Spray	AF, BE, AE, UC				
Solid Cone Spray	BI,BN,CM,BY,CJ				
Other Nozzles					

Due to the complex nature and variation of the different chemicals and gas scrubber designs please contact Delavan's Customer Service Team for advice on this application.

APPLICATION 36 – STEAM CONDITIONING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					HNS
Hollow Cone Spray	AE				
Solid Cone Spray	BI, CJ				
Other Nozzles					

APPLICATION 37 – LIVESTOCK COOLING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					HNS, Swivels
Hollow Cone Spray	WA, WR, WRW	WG			
Solid Cone Spray	BL, BI, BN	WL			
Other Nozzles					

APPLICATION 38 – FLASK DE-CONTAMINATION – NUCLEAR

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AZ, AQ	LQ			HNS
Hollow Cone Spray					
Solid Cone Spray					
Other Nozzles					

APPLICATION 39 – MAGNOX EXTINGUISHING – NUCLEAR

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					HNS
Hollow Cone Spray					
Solid Cone Spray	CJ				
Other Nozzles					

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Web:www.delavan.co.uk

APPLICATION 40 – ETCH AND WASH CHEMICAL SPRAYING – ELECTRONICS

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	CAC	LF, LD, LE			HNS, Swivels, Adjustable Joints
Hollow Cone Spray	WM	WG			
Solid Cone Spray	BL	WL			
Other Nozzles					

APPLICATION 41 – BELT COOLING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC				HNS
Hollow Cone Spray					
Solid Cone Spray	BT, BQ				
Other Nozzles					

APPLICATION 42 – EDGE TRIMMING

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC(0°), AQ(0°)				HNS
Hollow Cone Spray					
Solid Cone Spray					
Other Nozzles					

Note:- Delavan have manufactured many types of edge trimming nozzles for a wide range of industries. Please call Delavan's Customer Service Team for further details.

APPLICATION 43 – WATER ADDITION

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray					HNS
Hollow Cone Spray	AE, WR, RA				
Solid Cone Spray					
Other Nozzles					

APPLICATION 44 – SAFETY SHOWERS AND EYEBATHS

Delavan produce a wide range of safety showers, Eyebaths and custom designed units for all applications. Please contact Delavan's Customer Service Team for further advice and a copy of the Safety Showers literature.

APPLICATION 45 – DECORATIVE WATER FEATURES

SPRAY TYPE	ONE PIECE THREADED	TIP TYPE	DELA-FIT	OTHER	ACCESSORIES
Flat Spray	AC, AN, TJ				
Hollow Cone Spray	BE, WRA, WRS				
Solid Cone Spray	CM, BY				
Other Nozzles					

HNS = Header Nozzle Socket

WE ARE HERE TO HELP

If you need more detailed information or advice then Delavan sales engineers and technical staff are always available to answer your questions.

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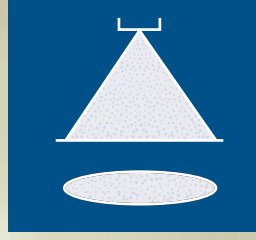
4 Nozzles

SPECIFIERS GUIDE

WELCOME TO DELAVAN

Meeting the **challenges** of new industries and *NEW markets*

DELAVAN®
Spray Technologies



A Flat Spray

WELCOME TO DELAVAN

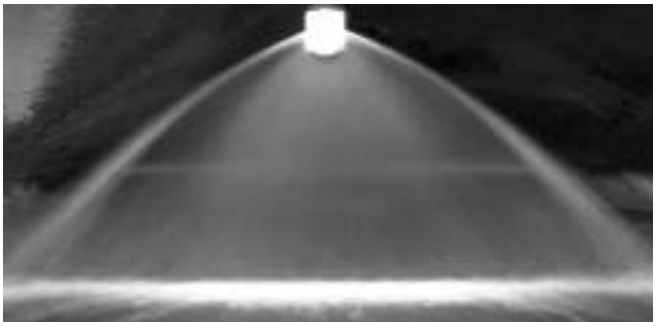
Meeting the **challenges** of new industries and *NEW markets*

DELAVAN®
Spray Technologies

DELAVAN
Spray Technologies

TYPE AC SPRAY PATTERN

TYPE AN SPRAY PATTERN



TYPICAL APPLICATIONS

Asphalt or tar laying, bottle washing, coal and gravel washing, degreasing, dishwashing, foam control, industrial washers, metal cleaning-rinsing and washing, spray coating, vehicle washing, water misting and water fountains.

	Nozzle Type	Spray Characteristics	Spray Angles	Basic Features	Flow Range. L/Min @ 3 Bar.G.	Page No.
FLAT SPRAY	AC	Uniform spray pattern with tapered edges.	0° – 110°	1/8"-1" Male BSPT thread, 1/4" and 3/8" Female BSPP thread.	0,80 – 237	A.1
	CAC	Uniform spray pattern with tapered edges.	0° – 110°	1/16" NPT, 1/4" to 3/4" BSPP Male thread. More compact than AC type.	0,40 – 118,4	A.2
	ACS	Uniform spray pattern with tapered edges.	0° – 110°	1/8" and 1/4" Male BSPT thread. Supplied with optional strainer.	0,80 – 3,93	A.3
	LF	Uniform spray pattern with tapered edges.	0° – 110°	Flanged tip design for use with standard threaded bodies and caps.	0,16 – 19,7	A.4
	LA	Uniform spray pattern with tapered edges.	0° – 110°	Large flanged tip design for use with threaded/welded bodies and cap.	3,93 – 79,07	A.5
	LC	Relatively evenly distributed spray for concast cooling applications.	0° – 110°	Robust flanged tip design for use with standard threaded bodies and caps.	1,0 – 20,0	A.6
	LE	Evenly distributed spray pattern.	80° and 110°	Flanged tip design for use with standard threaded bodies and caps.	0,39 – 5,9	A.7
	LX	Asymmetric spray pattern with heavy leading edge.	70° offset	Flanged tip design for use with standard threaded bodies and caps.	0,79 – 6,32	A.8
	WJ	Asymmetric spray pattern with heavy leading edge.	70° offset	1/4"-1" Male BSPT thread.	8,05 – 118	A.9
	LK	Uniform spray pattern with tapered edges.	15° – 110°	Flanged tip design for use with standard threaded bodies and caps, ceramic orifice insert.	0,04 – 2,30	A.10
	LD	Uniform spray pattern with tapered edges.	0° – 110°	Flanged tip design with dovetail connection. Uses special bodies for positive alignment.	0,39 – 19,9	A.11
	AD	Uniform spray pattern with tapered edges.	0° – 110°	Flanged tip design with dovetail connection. Uses special bodies for positive alignment.	3,93 – 79,1	A.12
	ED	Uniform spray pattern with tapered edges.	45° – 90°	Flat disc with 5/8" UNF thread for direct fitting into pipe walls.	1,2 – 19,9	A.13
	EF	Uniform spray pattern with tapered edges.	45° – 90°	Flat disc as ED, but for use with standard bodies and caps.	1,2 – 19,9	A.14
	D	Wide angle deflected spray pattern with relatively uniform distribution.	90° – 160°	Flanged tip design for use with standard threaded bodies and caps.	0,39 – 23,6	A.15
	AN	Wide angle deflected spray pattern with relatively uniform distribution.	90° – 160°	1/8"-1" Male BSPT thread.	0,39 – 23,4	A.16
	TJ	Evenly distributed deflected spray pattern for low pressure impact cleaning.	15° – 50°	1/4"-1/2" Male BSPT thread.	1,6 – 79	A.17
SPECIAL PURPOSE	Blow-off	Wide angle, thin sheet of air or steam at low pressures.	55° – 100°	Flanged tip design for use with standard threaded bodies and caps.	SEE CHARTS	A.18
	SL	Wide angle, thin sheet of air, steam or water at low pressures.	80° – 115°	Flanged tip design for use with standard threaded bodies and caps.	2,1 – 26	A.19
	DJ	Wide angle, thin sheet of air, steam or water at low pressures.	80° – 115°	1/4"-1/2" Male BSPT thread.	2,1 – 26	A.20

	Nozzle Type	Spray Characteristics	Spray Angles	Basic Features	Flow Range. L/Min @ 70 Bar.G.	Page No.
HIGH PRESSURE	AZ	Uniform spray with hard hitting edges for high pressure cleaning.	0° – 50°	1/8"-1/4" Male BSPT thread.	7,6 – 95,4	A.21
	BZ	Uniform spray with hard hitting edges for high pressure cleaning.	30°	1/4"-1/2" Male BSPT thread.	5,5 – 129,3	A.22
	343	Uniform spray with hard hitting edges for high pressure cleaning/descaling.	25° and 32°	3/8" Male NPT thread.	19 – 114	A.23
	344	Uniform spray with tapered edges for high pressure cleaning/descaling.	25° and 32°	3/8" Male NPT thread.	38,2 – 114	A.24
	DD	Uniform spray with hard hitting edges for high pressure cleaning/descaling.	25° and 32°	3/4" and 1" Male NPT thread and welding bodies. Dovetail connection for positive alignment of orifice.	11,5 – 114	A.25
	AQ	Uniform spray with tapered edges for high pressure cleaning.	25° – 95°	1/4" Male BSPT thread. Tungsten Carbide orifice insert.	0,94 – 21,6	A.26
	LQ	Uniform spray with tapered edges for high pressure cleaning.	25° – 95°	Flanged tip design with dovetail connection. Uses special bodies for positive alignment.	0,94 – 21,6	A.27
	DQ	Uniform spray pattern with hard hitting edges for descaling purposes.	25° and 32°	3/4" and 1" Male NPT thread and welding bodies. Dovetail connection for positive alignment of orifice. Tungsten Carbide orifice insert.	11,5 – 132	A.28
	DE	Uniform spray pattern with hard hitting edges for descaling purposes.	25° and 32°	3/4" and 1" Male NPT thread. Unique connection for positive alignment of orifice. Tungsten Carbide orifice insert.	38 – 132	A.29

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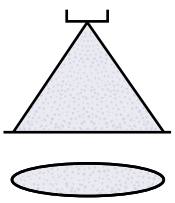


TYPE AC

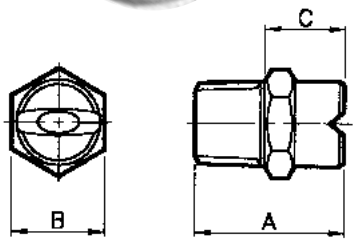
FLAT SPRAY

SPRAY CHARACTERISTICS

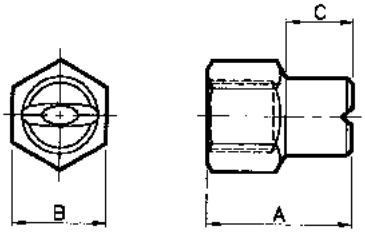
- *Produces a uniform, flat spray pattern without hard edges at pressure of 0.5 bar and up.*
- *Tapered edges of pattern allow overlapping for even distribution.*
- *Impact of spray is generally greater with narrower spray angles assuming equal flow rates.*
- *Available spray angles of 0°,15°,25°,40°,50°,65°,80°,90°,100° and 110°.*

CONSTRUCTION AND MATERIALS

- *One piece Male BSPT thread design (¼" and ⅜" Female BSPP threaded body available to order).*
- *Hexagon body with wrench flats avoid distortion when tightening.*
- *Tapered inlet reduces wear and resists clogging.*
- *Brass, Stainless Steel and Hardened Stainless Steel.*
- *PVC, PVDF (⅛ ACM 6 and larger only).*
- *Other materials available to special order.*



MALE



FEMALE

ORDER EXAMPLE

¼" ACM (Male) 6.5-15° Brass.

⅜" ACF (Female) 60-80° Stainless Steel.

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A	B Hex	C	Weight (g)
1/8	ACM	17,5	11,3	9,5	12
1/8	ACF	24,5	15,3	12,6	20
1/4	ACM	24,5	15,3	13,0	23
1/4	ACF	25,5	18,0	12,7	30
3/8	ACM	25,5	18,0	14,0	35
3/8	ACF	39,0	20,8	21,0	55
1/2	ACM	32,0	25,7	16,0	68
3/4	ACM	36,0	28,0	19,0	100
1	ACM	50,0	38,0	28,6	240

CAPACITY CHART

Maximum Recommended Pressure: 100 Bar.G. (Metal) 7 Bar.G. (Plastic).

NOZZLE NUMBER	BSPT THREAD SIZE 1/8	1/4	3/8	1/2	3/4	1	EQUIV. ORIFICE DIA.(mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 0,7	1,0	2	3	4	5	7	10	SPRAY ANGLES (°) @ 2.8 Bar.G. 0	15	25	40	50	65	80	90	100	110
2,0							0,9	0,38	0,46	0,65	0,80	0,89	0,99	1,24	1,43									*	*
3,0							1,10	0,57	0,68	0,97	1,18	1,36	1,53	1,81	2,23									*	*
4,0							1,25	0,75	0,90	1,27	1,56	1,83	2,03	2,38	2,86										*
4,5							1,3	0,85	1,01	1,43	1,75	2,05	2,29	2,70	3,21										
5,0							1,4	0,96	1,15	1,62	1,99	2,28	2,55	3,02	3,62										
5,5							1,45	1,05	1,26	1,78	2,18	2,50	2,81	3,29	4,11										
6,0							1,5	1,15	1,37	1,94	2,37	2,72	3,07	3,61	4,46										
6,5							1,6	1,24	1,48	2,09	2,56	3,00	3,33	3,80	4,91										
7,0							1,65	1,33	1,59	2,25	2,75	3,21	3,54	4,21	5,36										
8,0							1,75	1,53	1,83	2,59	3,17	3,66	3,98	5,03	5,80										
8,5							1,8	1,62	1,94	2,74	3,36	3,88	4,32	5,03	5,80										
9,0							1,9	1,72	2,05	2,90	3,55	4,11	4,75	5,50	6,25										
10							2,0	1,90	2,27	3,21	3,93	4,46	5,19	5,95	7,14										
12,5							2,2	2,40	2,90	4,02	4,97	5,69	6,38	7,55	9,04										
15							2,4	2,84	3,44	4,21	6,16	6,70	7,78	9,15	10,71										
20							2,8	3,80	4,46	6,25	8,05	9,37	9,94	12,35	14,73										
25							3,1	4,80	5,80	8,03	9,94	11,38	12,75	15,09	18,08										
30							3,6	5,95	6,70	9,82	11,84	13,84	15,13	17,84	21,43										
40							4,0	7,78	9,37	12,05	15,62	18,30	20,57	24,25	28,57										
50							4,4	9,61	11,61	16,07	19,89	22,77	25,50	30,19	36,16										
60							4,8	11,44	13,84	19,20	23,67	27,23	30,69	36,14	43,30										
70							5,2	13,27	16,07	22,77	27,46	32,14	35,88	42,54	50,45										
80							5,6	15,10	18,75	25,45	31,72	36,61	41,06	48,03	57,14										
100							6,4	19,21	22,77	31,70	39,30	45,53	51,00	60,38	72,32										
125							7,0	24,01	28,46	39,62	49,12	56,91	63,75	75,48	90,40										
150							7,5	28,82	34,37	48,21	59,19	68,31	76,50	90,10	108,0										
200							8,8	37,96	45,53	64,28	79,07	91,10	102,0	120,3	143,8										
250							9,8	45,57	58,84	80,36	98,50	113,4	127,5	150,0	179,9										
300							10,8	57,18	68,30	96,87	118,4	136,6	152,6	180,7	215,6										
400							12,5	76,39	90,60	128,6	157,7	182,1	204,0	241,1	287,9										
500							14,0	95,40	114,0	161,3	197,5	228,0	254,9	301,6	360,5										
600							15,0	114,4	136,8	193,5	237,0	273,7	306,0	362,1	432,8										

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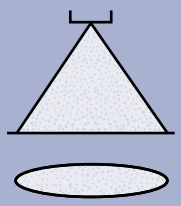


TYPE CAC

FLAT SPRAY

SPRAY CHARACTERISTICS

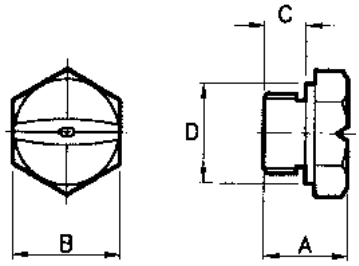
- *Produces a uniform, flat spray pattern without hard edges at pressure of 0.5 bar and up.*
- *Tapered edges of pattern allow overlapping for even distribution.*
- *Impact of spray is generally greater with narrower spray angles assuming equal flow rates.*
- *Available spray angles of 0°,15°,25°,40°,50°,65°,80°,90°,100° and 110°.*

CONSTRUCTION AND MATERIALS

- *One piece Male BSPP thread design (1/16" size is NPT only).*
- *Hexagon body with wrench flats avoid distortion when tightening.*
- *Tapered inlet reduces wear and resists clogging.*
- *Brass, Stainless Steel and Hardened Stainless Steel.*
- *PVC, PVDF (1/8 CAC 6 and larger only).*
- *Other materials available to special order.*

ORDER EXAMPLE

1/4" CAC 10-50° Brass.



DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A	B Hex	C	D Dia	Weight (g)
1/16	CAC	9,5	10,0	3,2	-	3
1/8	CAC	9,1	11,3	4,4	11,0	6
1/4	CAC	14,0	18,0	7,0	16,5	17
3/8	CAC	17,0	20,8	10,0	20,0	28
1/2	CAC	22,2	25,7	12,7	24,9	50
3/4	CAC	23,0	31,8	12,7	31,0	110

Maximum Recommended Pressure: 70 Bar.G. (Metal) 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER	THREAD SIZE (BSPP except 1/16 which is NPT) 1/16	1/8	1/4	3/8	1/2	3/4	EQUIV. ORIFICE DIA.(mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 0,7	1,0	2	3	4	5	7	10	SPRAY ANGLES (°) @ 2.8 Bar.G. 0	15	25	40	50	65	80	90	100	110
1,0							0,66	0,19	0,23	0,32	0,40	0,45	0,50	0,62	0,71			*	*	*	*	*	*	*	
1,5							0,76	0,28	0,34	0,49	0,59	0,68	0,76	0,90	1,12			*	*	*	*	*	*	*	
2,0							0,9	0,38	0,46	0,65	0,80	0,89	0,99	1,24	1,43									*	*
3,0							1,10	0,57	0,68	0,97	1,18	1,36	1,53	1,81	2,23									*	*
4,0							1,25	0,75	0,90	1,27	1,56	1,83	2,03	2,38	2,86										*
4,5							1,3	0,85	1,01	1,43	1,75	2,05	2,29	2,70	3,21										
5,0							1,4	0,96	1,15	1,62	1,99	2,28	2,55	3,02	3,62										
5,5							1,45	1,05	1,26	1,78	2,18	2,50	2,81	3,29	4,11										
6,0							1,5	1,15	1,37	1,94	2,37	2,72	3,07	3,61	4,46										
6,5							1,6	1,24	1,48	2,09	2,56	3,00	3,33	3,80	4,91										
7,0							1,65	1,33	1,59	2,25	2,75	3,21	3,54	4,21	5,36										
8,0							1,75	1,53	1,83	2,59	3,17	3,66	3,98	5,03	5,80										
8,5							1,8	1,62	1,94	2,74	3,36	3,88	4,32	5,03	5,80										
9,0							1,9	1,72	2,05	2,90	3,55	4,11	4,75	5,50	6,25										
10							2,0	1,90	2,27	3,21	3,93	4,46	5,19	5,95	7,14										
12,5							2,2	2,40	2,90	4,02	4,97	5,69	6,38	7,55	9,04										
15							2,4	2,84	3,44	4,21	6,16	6,70	7,78	9,15	10,71										
20							2,8	3,80	4,46	6,25	8,05	9,37	9,94	12,35	14,73										
25							3,1	4,80	5,80	8,03	9,94	11,38	12,75	15,09	18,08										
30							3,6	5,95	6,70	9,82	11,84	13,84	15,13	17,84	21,43										
40							4,0	7,78	9,37	12,05	15,62	18,30	20,57	24,25	28,57										
50							4,4	9,61	11,61	16,07	19,89	22,77	25,50	30,19	36,16										
60							4,8	11,44	13,84	19,20	23,67	27,23	30,69	36,14	43,30										
70							5,2	13,27	16,07	22,77	27,46	32,14	35,88	42,54	50,45										
80							5,6	15,10	18,75	25,45	31,72	36,61	41,06	48,03	57,14										
100							6,4	19,21	22,77	31,70	39,30	45,53	51,00	60,38	72,32										
125							7,0	24,01	28,46	39,62	49,12	56,91	63,75	75,48	90,40										
150							7,5	28,82	34,37	48,21	59,19	68,31	76,50	90,10	108,0										
200							8,8	37,96	45,53	64,28	79,07	91,10	102,0	120,3	143,8										
250							9,8	45,57	58,84	80,36	98,50	113,4	127,5	150,0	179,9										
300							10,8	57,18	68,30	96,87	118,4	136,6	152,6	180,7	215,6										

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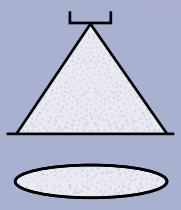


TYPE ACS

FLAT SPRAY

SPRAY CHARACTERISTICS

- *Produces a uniform, flat spray pattern without hard edges at pressure of 0.5 bar and up.*
- *Tapered edges of pattern allow overlapping for even distribution.*
- *Impact of spray is generally greater with narrower spray angles assuming equal flow rates.*
- *Available spray angles of 0°,15°,25°,40°,50°,65°,80°,90°,100° and 110°.*

CONSTRUCTION AND MATERIALS

- *One piece Male BSPT thread design.*
- *Hexagon body with wrench flats avoid distortion when tightening.*
- *Tapered inlet reduces wear and resists clogging.*
- *Will accept optional strainer (see chart).*
- *Brass, Stainless Steel and Hardened Stainless Steel.*
- *Other materials available to special order.*

ORDER EXAMPLE

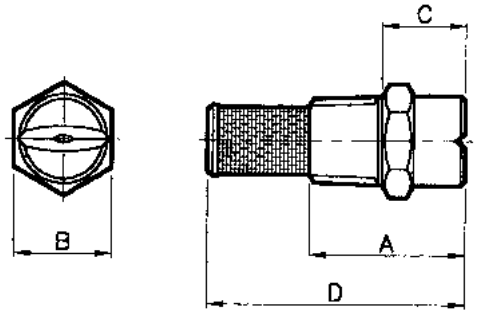
¼" ACS 10-65° Stainless Steel.

OPTIONAL, STRAINER

Nozzle Size & Material	Suggested Mesh Sizes ACS 2 TO ACS 4 200's	ACS 5 TO ACS 7 100's	ACS 8 TO ACS 10 50's
1/8 Brass	W11464-105	W11464-104	W11464-102
1/8 St. St.	W11464-305	W11464-304	W11464-302
1/4 Brass	W00089-103	W00089-102	W00089-101
1/4 St. St.	W00089-303	W00089-302	W00089-301

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A	B Hex	C	D	Weight (g)
1/8	ACS	17,5	11,3	9,5	27,0	14
1/4	ACS	24,5	15,3	13,0	40,5	27



CAPACITY CHART

Maximum Recommended Pressure: 100 Bar.G.

NOZZLE NUMBER	BSPT THREAD SIZE 1/8	1/4	EQUIV. ORIFICE DIA. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 0,7	1,0	2	3	4	5	7	10	SPRAY ANGLES (°) @ 2.8 Bar.G. 0	15	25	40	50	65	80	90	100	110
2,0			0,9	0,38	0,46	0,65	0,80	0,89	0,99	1,24	1,43									*	*
3,0			1,10	0,57	0,68	0,97	1,18	1,36	1,53	1,81	2,23									*	*
4,0			1,25	0,75	0,90	1,27	1,56	1,83	2,03	2,38	2,86										*
4,5			1,3	0,85	1,01	1,43	1,75	2,05	2,29	2,70	3,21										
5,0			1,4	0,96	1,15	1,62	1,99	2,28	2,55	3,02	3,62										
5,5			1,45	1,05	1,26	1,78	2,18	2,50	2,81	3,29	4,11										
6,0			1,5	1,15	1,37	1,94	2,37	2,72	3,07	3,61	4,46										
6,5			1,6	1,24	1,48	2,09	2,56	3,00	3,33	3,80	4,91										
7,0			1,65	1,33	1,59	2,25	2,75	3,21	3,54	4,21	5,36										
8,0			1,75	1,53	1,83	2,59	3,17	3,66	3,98	5,03	5,80										
8,5			1,8	1,62	1,94	2,74	3,36	3,88	4,32	5,03	5,80										
9,0			1,9	1,72	2,05	2,90	3,55	4,11	4,75	5,50	6,25										
10			2,0	1,90	2,27	3,21	3,93	4,46	5,19	5,95	7,14										

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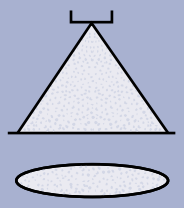


TYPE LF

FLAT SPRAY

SPRAY CHARACTERISTICS

- *Produces a uniform flat, fan shaped pattern with tapering edges.*
- *Requires overlapping for even distribution.*

CONSTRUCTION AND MATERIALS

Four part design is available in the following materials:

- *Nozzle cap - Brass and Stainless Steel.*
- *Nozzle strainers - Brass and Stainless Steel.*
- *Nozzle body - Brass and Stainless Steel.*
- *Nozzle tip - Brass and Stainless Steel.*
- *Other materials available to special order.*
- *Thread sizes are Male BSPT and Female BSPP.*

ORDER EXAMPLE

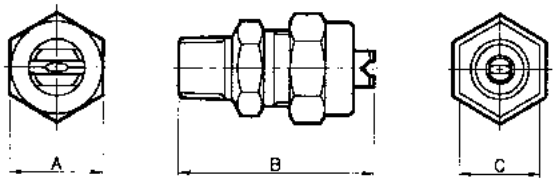
LF 1.5-80° Brass = Tip Only.

¼" LFM (Male) 1.5-80° Brass = Complete Assembly.

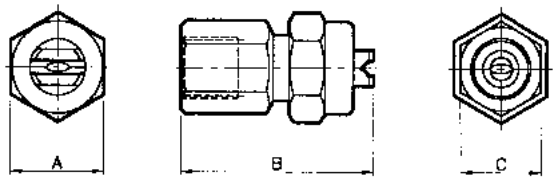
Maximum Recommended Pressure:
70 Bar.G. (Metal) 7 Bar.G. (Plastic).

DIMENSIONS AND WEIGHTS

Thread Size	Assembly Type	Dimensions (mm) A Hex	B	C Hex	Weight (g)
1/8	LFF	20,8	43,0	18	65
1/8	LFM	20,8	41,3	18	55
1/4	LFF	20,8	43,0	18	64
1/4	LFM	20,8	43,0	18	57
3/8	LFF	20,8	43,0	20,8	65
3/8	LFM	20,8	43,0	18	59



LFM (MALE) ASSEMBLY



LFF (FEMALE) ASSEMBLY

CAPACITY CHART

NOZZLE NUMBER	Max Mesh Size	Equiv Orifice Dia (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 0,7	1,0	2	3	4	5	7	10	20	35	SPRAY ANGLES (°) @ 2.8 Bar.G. 0	15	25	40	50	65	80	90	110
LF 0,4	200	0,41	0,08	0,09	0,13	0,16	0,18	0,20	0,24	0,29	0,41	0,54		*	*	*					
LF 0,5	200	0,46	0,10	0,11	0,16	0,20	0,23	0,25	0,30	0,36	0,51	0,67		*	*	*					
LF 0,67	100	0,53	0,13	0,16	0,22	0,27	0,31	0,35	0,41	0,49	0,69	0,91		*	*	*					
LF 1,0	100	0,66	0,19	0,23	0,32	0,39	0,45	0,51	0,60	0,72	1,0	1,3									
LF 1,5	100	0,76	0,29	0,34	0,48	0,59	0,68	0,76	0,9	1,1	1,6	2,1									
LF 2,0	50	0,9	0,38	0,46	0,64	0,78	0,9	1,0	1,2	1,4	2,0	2,6									
LF 3,0	50	1,10	0,57	0,68	0,97	1,2	1,4	1,5	1,8	2,2	3,1	4,1									
LF 4,0	50	1,25	0,76	0,91	1,3	1,6	1,8	2,0	2,4	2,9	4,1	5,4									
LF 5,0	50	1,4	0,95	1,1	1,6	2,0	2,3	2,5	3,0	3,6	5,1	6,7									
LF 6,0	50	1,5	1,1	1,4	1,9	2,3	2,7	3,1	3,7	4,3	6,1	8,1									
LF 8,0	50	1,75	1,5	1,8	2,6	3,2	3,7	4,1	4,9	5,8	8,2	10,8									
LF 10	50	2,0	1,9	2,3	3,2	3,9	4,5	5,1	6,0	7,2	10,2	13,5									
LF 15		2,4	2,9	3,4	4,8	5,9	6,8	7,6	9,0	10,8	15,3	20,2									
LF 20		2,8	3,8	4,6	6,4	7,8	9,0	10,2	12,1	14,4	20,4	27,0									
LF 25		3,1	4,8	5,7	8,1	9,9	11,4	12,7	15,0	18,0	25,5	33,7									
LF 30		3,6	5,7	6,8	9,7	11,9	13,7	15,3	18,1	21,6	30,5	40,3									
LF 40		4,0	7,6	9,1	12,9	15,8	18,2	20,4	24,1	28,8	40,7	53,9									
LF 50		4,4	9,5	11,4	16,1	19,7	22,7	25,4	30,0	35,9	50,8	67,2									

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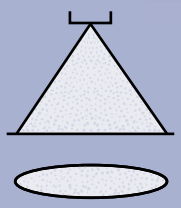


SPRAY CHARACTERISTICS

- *Produces a uniform, flat spray without hard edges.*
- *Tapered edges of pattern allow overlapping for even distribution.*
- *Impact of spray is generally greater with narrower spray angles assuming equal flow rates.*

CONSTRUCTION AND MATERIALS

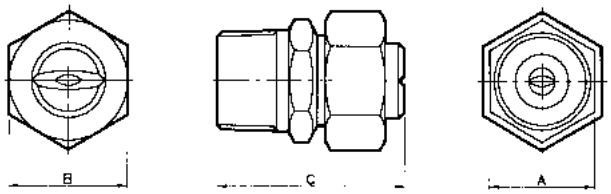
- *3 piece design with Male BSPT thread or Welding Nipple body, available in:*
- *Brass.*
- *Stainless Steel.*
- *Mild Steel (Welding Nipple body only).*
- *Other materials available to special order.*

ORDER EXAMPLE

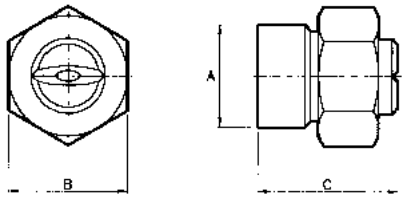
LA 80-65° Stainless Steel = Tip Only.
½" LAM 60-80° Brass = Complete Assembly.
LAW 100-90° Stainless Steel = Welding Assembly.

DIMENSIONS AND WEIGHTS

Assembly Type	Dimensions (mm) A Hex	B Hex	C	Weight (g)
1/2" LAM	28,0	31,8	50,3	150
3/4" LAM	28,0	31,8	50,3	180
LAW	27,0 dia.	31,8	37,6	130



LAM (MALE) ASSEMBLY



LAW WELDING ASSEMBLY

Maximum Recommended Pressure: 100 Bar.G. (Metal) 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER	Equiv Orifice Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 0,7	1,0	2,0	3,0	5	7	10	15	20	SPRAY ANGLES (°) @ 2.8 Bar.G. 0	15	25	40	50	65	80	90	100	110
LA 10	2,0	1,92	2,28	3,22	3,93	5,1	6,0	7,2	8,84	10,2										
LA 12.5	2,2	2,30	2,90	4,00	4,97	6,5	7,55	9,15	11,15	12,8										
LA 15	2,4	2,84	3,44	4,92	6,16	7,9	9,2	10,7	13,20	15,2									*	
LA 20	2,8	3,80	4,47	6,26	8,05	10,2	12,4	14,7	17,70	20,4										*
LA 25	3,1	4,60	5,80	8,00	9,94	13,0	15,1	18,3	22,30	25,5										
LA 30	3,6	6,00	6,70	9,80	11,84	15,3	17,9	21,4	26,50	30,4										
LA 40	4,0	7,80	9,40	13,00	15,62	20,8	24,3	28,6	35,40	41,1										
LA 50	4,4	9,60	11,60	16,10	19,89	25,4	30,2	36,2	44,10	51,0										
LA 60	4,8	11,40	13,90	19,20	23,67	30,5	36,2	43,4	52,90	61,2										
LA 70	5,2	13,30	16,10	22,80	27,46	36,1	42,6	50,5	61,80	71,5										
LA 80	5,6	15,10	18,80	25,50	31,72	41,2	48,1	57,2	70,60	81,3										
LA 100	6,4	19,20	22,80	31,70	39,30	50,9	60,5	72,4	88,40	102										
LA 120	7,1	22,90	27,30	38,90	47,40	61,1	72,4	86,3	106	122										
LA 150	7,5	28,80	34,40	48,30	59,19	76,8	90,2	108	132	153										
LA 200	8,8	38,00	48,70	64,40	79,07	102	120	144	175	204										

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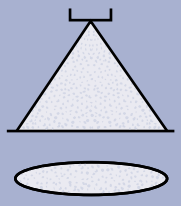
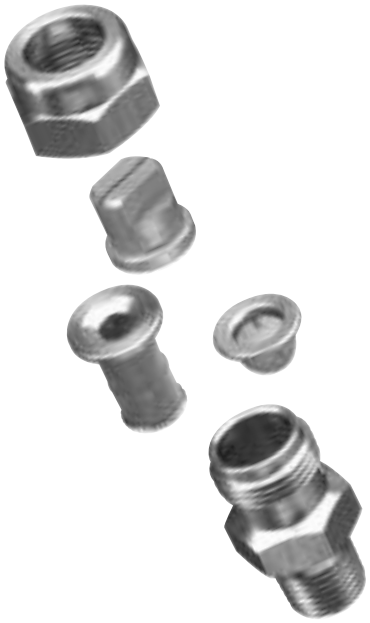


TYPE LC

FLAT SPRAY



SPRAY CHARACTERISTICS

- *Produces a flat fan shaped pattern.*
- *Requires minimal overlapping to produce even distribution when used in multiple nozzle systems.*
- *Purpose designed for continuous casting duties.*

CONSTRUCTION AND MATERIALS

- *3 piece construction. Body, tip and cap nut.*
- *The tip carries two flats to facilitate alignment.*
- *The orifice has been designed to provide a more even spray distribution than conventional tips.*
- *Manufactured in Brass and Stainless Steel as standard. Contact the factory for other materials.*
- *Optional body, cap and strainer available in a variety of thread sizes and materials. Specialised bodies are also available.*
- *Thread sizes are Male BSPT and Female BSPP.*

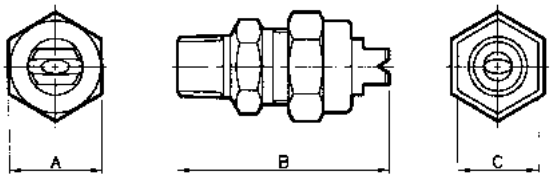
ORDER EXAMPLE

LC 50-60° Brass = Tip Only.

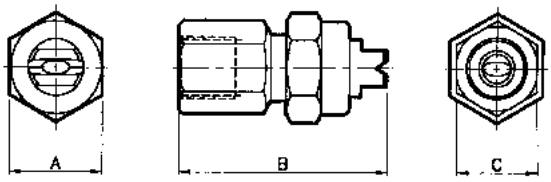
⅜" LCM (Male) 40-50° Brass = Complete Assembly.

DIMENSIONS AND WEIGHTS

Thread Size	Assembly Type	Dimensions (mm) A Hex	B	C Hex	Weight (g)
1/8	LCF	20,8	47,9	18,0	69
1/8	LCM	20,8	46,2	18,0	59
1/4	LCF	20,8	47,9	18,0	68
1/4	LCM	20,8	47,9	18,0	61
3/8	LCF	20,8	47,9	20,8	69
3/8	LCM	20,8	47,9	18,0	63



LCM (MALE) ASSEMBLY



LCF (FEMALE) ASSEMBLY

Maximum Recommended Pressure: 70 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	Equiv Orifice Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 1	2	3	4	5	6	7	10	15	20	35	SPRAY ANGLES (°) @ 2.8 Bar.G. 0	15	25	40	50	65	80	90	110
LC 10	1,00	0,58	0,82	1,00	1,15	1,29	1,40	1,80	2,14	2,23	2,55	3,35									
LC 15	1,30	0,87	1,23	1,50	1,72	1,93	2,11	2,69	3,20	3,34	3,78	5,02									
LC 20	1,50	1,10	1,60	2,00	2,30	2,58	2,80	3,58	4,26	4,46	5,04	6,70									
LC 25	1,60	1,44	2,04	2,50	2,87	3,22	3,52	4,49	5,34	5,57	6,30	8,37									
LC 30	1,75	1,73	2,45	3,00	3,45	3,87	4,24	5,48	6,52	6,68	7,56	10,0									
LC 40	2,00	2,20	3,20	4,00	4,60	5,16	5,63	7,19	8,55	8,92	10,0	13,4									
LC 50	2,20	2,89	4,08	5,00	5,75	6,45	7,05	8,99	10,6	11,1	12,6	16,7									
LC 60	2,40	3,46	4,90	6,00	6,90	7,74	8,44	10,7	12,7	13,3	15,1	20,1									
LC 80	2,80	4,62	6,40	8,00	9,20	10,3	11,3	14,4	17,1	17,8	20,1	26,8									
LC 100	3,20	5,70	8,10	10,0	11,4	12,7	14,1	15,0	18,0	22,3	25,5	33,7									
LC 125	3,60	7,22	10,2	12,5	14,3	16,1	17,6	22,4	26,6	27,8	31,5	41,9									
LC 150	3,95	8,66	12,2	15,0	17,2	19,3	21,2	26,9	32,0	33,5	37,8	50,2									
LC 200	4,45	11,4	16,2	20,0	22,9	25,5	28,2	30,2	35,9	44,7	50,9	67,3									

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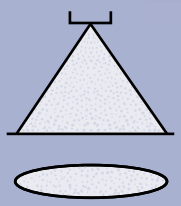


SPRAY CHARACTERISTICS

- *Produces a flat, fan shaped pattern with uniform distribution across the entire spray width.*
- *80° spray angle only.*

CONSTRUCTION AND MATERIALS

Four part design is available in the following materials:

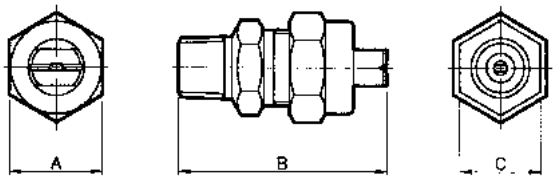
- *Nozzle cap - Brass and Stainless Steel.*
- *Nozzle strainers - Brass and Stainless Steel.*
- *Nozzle body - Brass and Stainless Steel.*
- *Nozzle tip - Brass and Stainless Steel.*
- *Thread sizes are Male BSPT and Female BSPP.*

ORDER EXAMPLE

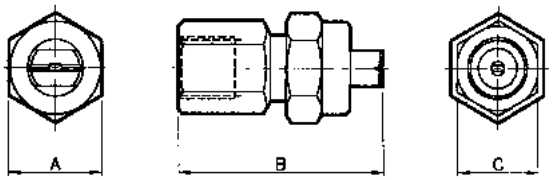
LE 1.5-80° Brass = Tip Only.
¼" LEM (Male) 1.5-80° Brass = Complete Assembly.

DIMENSIONS AND WEIGHTS

Thread Size	Assembly Type	Dimensions (mm) A Hex	B	C Hex	Weight (g)
1/8	LEF	20,8	47,9	18,0	69
1/8	LEM	20,8	46,2	18,0	59
1/4	LEF	20,8	47,9	18,0	68
1/4	LEM	20,8	47,9	18,0	61
3/8	LEF	20,8	47,9	20,8	69
3/8	LEM	20,8	47,9	18,0	63



LEM (MALE) ASSEMBLY



LEF (FEMALE) ASSEMBLY

CAPACITY CHART

Maximum Recommended Pressure: 70 Bar.G.

NOZZLE NUMBER	Equiv Orifice Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 0,7	1,0	2	3	4	5	7	10	20	35
LE 1,0	0,66	0,19	0,23	0,32	0,39	0,45	0,51	0,60	0,72	1,0	1,3
LE 1,5	0,76	0,29	0,34	0,48	0,59	0,68	0,76	0,9	1,1	1,6	2,1
LE 2,0	0,9	0,38	0,46	0,64	0,78	0,9	1,0	1,2	1,4	2,0	2,6
LE 3,0	1,1	0,57	0,68	0,97	1,2	1,4	1,5	1,8	2,2	3,1	4,1
LE 4,0	1,25	0,76	0,91	1,3	1,6	1,8	2,0	2,4	2,9	4,1	5,4
LE 5,0	1,4	0,95	1,1	1,6	2,0	2,3	2,5	3,0	3,6	5,1	6,7
LE 6,0	1,5	1,1	1,4	1,9	2,3	2,7	3,1	3,7	4,3	6,1	8,1
LE 8,0	1,75	1,5	1,8	2,6	3,2	3,7	4,1	4,9	5,8	8,2	10,8
LE 10	2,0	1,9	2,3	3,2	3,9	4,5	5,1	6,0	7,2	10,2	13,5
LE 15	2,4	2,9	3,4	4,8	5,9	6,8	7,6	9,0	10,8	15,3	20,2

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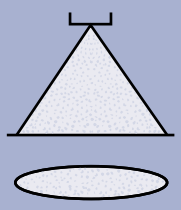


TYPE LX

FLAT SPRAY

SPRAY CHARACTERISTICS

- *Asymmetric flat spray pattern with spray projected to the side.*
- *Spray density decreasing from heavy upper edge to give uniform ground contact.*

CONSTRUCTION AND MATERIALS

- *Type LX is of 3 piece construction.*
- *Straight through eliptical orifice with no internal vanes or cores.*
- *Optional body, cap and strainer available in a variety of thread sizes.*
- *Thread sizes are Male BSPT and Female BSPP.*
- *Specialised bodies are also available.*
- *Available in Brass and Stainless Steel.*

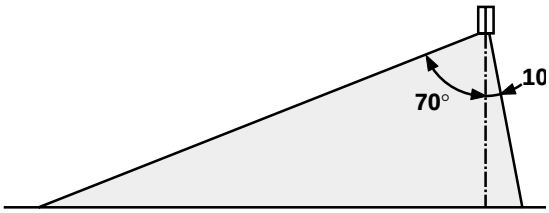
ORDER EXAMPLE

LX 12 Brass = Tip Only.

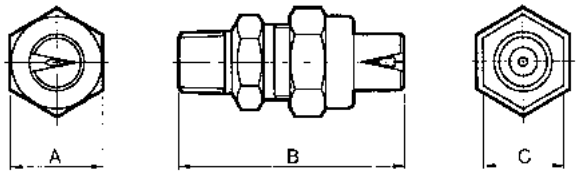
⅜" LXF (Female) 10 Brass = Complete Assembly.

DIMENSIONS AND WEIGHTS

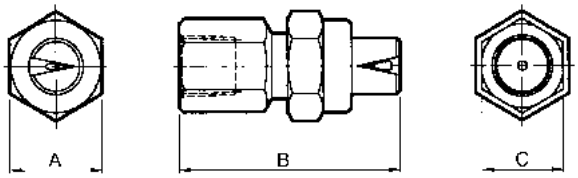
Thread Size	Assembly Type	Dimensions (mm) A Hex	B	C Hex	Weight (g)
1/4	LXM	20,8	46,0	18,0	68
1/4	LXF	20,8	46,0	18,0	61
3/8	LXM	20,8	46,0	18,0	69
3/8	LXF	20,8	46,0	20,8	63



TYPICAL SPRAY PATTERN @ 2.8 Bar.G.



LXM (MALE) ASSEMBLY



LXF (FEMALE) ASSEMBLY

Maximum Recommended Pressure: 70 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	RECOMMENDED THREAD SIZE 1/4	3/8	Equiv Orifice Dia. (mm)	FLOW CAPACITY IN LITRES/MIN AT Bar.G. 1	2	3	4	5	7
LX 2			0,9	0,46	0,64	0,79	0,91	1,02	1,21
LX 3			1,1	0,69	0,97	1,18	1,37	1,52	1,80
LX 4			1,25	0,91	1,29	1,58	1,82	2,04	2,41
LX 6			1,5	1,37	1,93	2,37	2,73	3,06	3,62
LX 8			1,75	1,83	2,58	3,16	3,65	4,08	4,83
LX 12			2,15	2,74	3,87	4,74	5,47	6,12	7,24
LX 16			2,5	3,65	5,16	6,32	7,29	8,16	9,65

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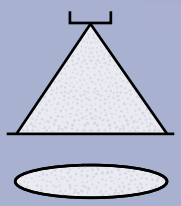


SPRAY CHARACTERISTICS

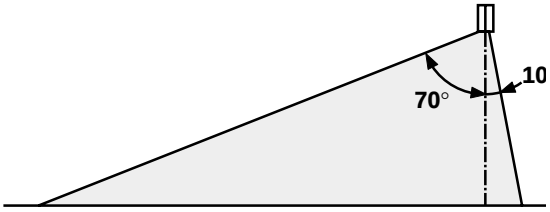
- *Asymmetric flat spray pattern with spray projected to the side.*
- *Spray density decreasing from heavy upper edge to give uniform ground contact.*

CONSTRUCTION AND MATERIALS

- *One piece construction with Male BSPT thread only.*
- *Straight through eliptical orifice with no internal vanes or cores.*
- *Brass and Stainless Steel standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

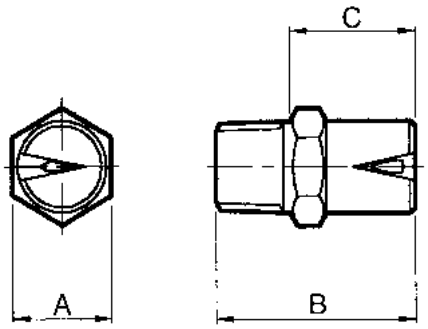
¼" WJ 20 Brass.



TYPICAL SPRAY PATTERN @ 2.8 Bar.G.

DIMENSIONS AND WEIGHTS

Thread Size	*Nozzle Type*	*Dimensions (mm)* A Hex	B	C	*Weight (g)*
1/4	WJ	15,3	30,2	19,0	43
3/8	WJ	18,0	40,0	25,4	85
1/2	WJ	25,7	46,0	31,8	114
3/4	WJ	28,0	50,0	29,3	170
1	WJ	38,0	62,7	39,7	380



Maximum Recommended Pressure: 100 Bar.G.

CAPACITY CHART

NOZZLE	*BSPT THREAD SIZE*					*Equiv. Orifice*	*FLOW CAPACITY IN LITRES/MIN AT Bar.G.*						
NUMBER	*1/4*	*3/8*	*1/2*	*3/4*	*1*	*Dia. (mm)*	*0,7*	*1,5*	*2*	*3*	*4*	*5*	*7*
WJ 20	■					2,8	3,80	5,41	6,25	8,05	9,37	9,94	12,4
WJ 30	■	■				3,6	5,95	8,50	9,82	11,8	13,8	15,1	17,8
WJ 40	■	■				4,0	7,78	10,5	12,1	15,6	18,3	20,6	24,3
WJ 50	■	■	■			4,4	9,61	13,9	16,1	19,9	22,8	25,5	30,2
WJ 60		■	■			4,8	11,4	16,6	19,2	23,7	27,2	30,7	36,1
WJ 70		■	■			5,2	13,3	19,7	22,8	27,5	32,1	35,9	42,5
WJ 80		■	■			5,6	15,1	22,1	25,5	31,7	36,6	41,1	48,0
WJ 100			■	■		6,4	19,2	27,5	31,7	39,3	45,5	51,0	60,4
WJ 125			■	■		7,0	22,9	33,5	38,7	47,4	54,7	61,2	72,4
WJ 150				■	■	7,5	28,8	41,7	48,2	59,2	68,3	76,5	90,1
WJ 200					■	8,8	38,0	55,7	64,3	79,1	91,1	102	120
WJ 250					■	9,8	47,6	69,6	80,4	98,5	113	128	150
WJ 300					■	10,8	57,2	83,9	96,9	118	137	153	181

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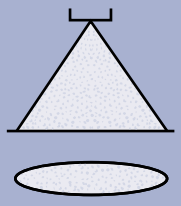


TYPE LK

FLAT SPRAY

SPRAY CHARACTERISTICS

- *Produces a uniform, flat fan shaped pattern with tapering edges.*
- *Requires overlapping to produce even distribution when used in multiple nozzle systems.*
- *Extremely low flow rates from the smaller capacities make the LK ideal for chain and conveyor lubrication.*

CONSTRUCTION AND MATERIALS

- *3 piece construction, body, orifice insert and insert retainer.*
- *The orifice insert is produced in Ceramic, with the body and retainer in Stainless Steel.*
- *The orifice insert is recessed in the body for maximum protection.*
- *Optional body, cap and strainer available in a variety of thread sizes and materials.*
- *Thread sizes are Male BSPT and Female BSPP.*
- *Specialised mounting bodies are also available.*

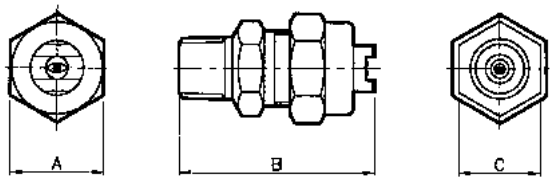
ORDER EXAMPLE

LK 0.33-65° = Tip Only.
¼" LKM (Male) 0,67-65° = Complete Assembly.

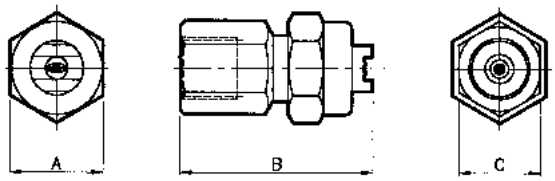
Maximum Recommended Pressure: 70 Bar.G.

DIMENSIONS AND WEIGHTS

Thread Size	Assembly Type	Dimensions (mm) A Hex	B	C Hex	Weight (g)
1/8	LKF	20,8	43,0	18,0	65
1/8	LKM	20,8	41,3	18,0	55
1/4	LKF	20,8	43,0	18,0	64
1/4	LKM	20,8	43,0	18,0	57
3/8	LKF	20,8	43,0	20,8	65
3/8	LKM	20,8	43,0	18,0	59



LKM (MALE) ASSEMBLY



LKF (FEMALE) ASSEMBLY

CAPACITY CHART

NOZZLE NUMBER	Approx Equiv. Orifice Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 1	2	3	4	5	6	7	10	15	20	35	STANDARD SPRAY ANGLES (°) 15	25	40	50	65	73	80	95	110
LK ,11	0,23	-	-	0,04	0,05	0,06	0,07	0,075	0,08	0,10	0,12	0,15									
LK ,17	0,28	-	0,05	0,07	0,08	0,09	0,10	0,11	0,12	0,15	0,17	0,23									
LK ,23	0,31	-	0,07	0,09	0,10	0,12	0,13	0,14	0,16	0,20	0,23	0,31									
LK ,25	0,33	-	0,08	0,10	0,11	0,13	0,14	0,15	0,18	0,22	0,25	0,33									
LK ,33	0,38	-	0,11	0,13	0,15	0,17	0,18	0,20	0,24	0,29	0,34	0,44									
LK ,50	0,46	-	0,16	0,20	0,23	0,25	0,28	0,30	0,36	0,44	0,51	0,67									
LK ,67	0,53	-	0,21	0,26	0,30	0,34	0,37	0,40	0,48	0,59	0,68	0,90									
LK 1,0	0,66	-	0,32	0,39	0,45	0,50	0,55	0,60	0,71	0,88	1,00	1,30									
LK 1,5	0,80	0,34	0,48	0,59	0,68	0,76	0,83	0,90	1,00	1,30	1,50	2,00									
LK 2,9	0,90	0,45	0,64	0,78	0,90	1,00	1,10	1,20	1,40	1,80	2,00	2,70									
LK 3,0	1,10	0,68	0,96	1,20	1,40	1,50	1,70	1,80	2,10	2,60	3,00	4,00									
LK 4,0	1,30	0,90	1,30	1,60	1,80	2,00	2,20	2,40	2,90	3,50	4,00	5,30									
LK 6,0	1,60	1,40	1,90	2,30	2,70	3,00	3,30	3,60	4,30	5,30	6,10	8,00									

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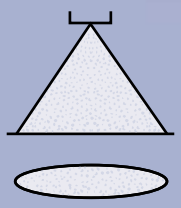


SPRAY CHARACTERISTICS

- *Produces a uniform, flat spray without hard edges.*
- *Tapered edges of pattern allow overlapping for even distribution.*
- *Impact of spray is generally greater with narrower spray angles assuming equal flow rates.*
- *Orifice is offset 5° to axis of dovetail.*

CONSTRUCTION AND MATERIALS

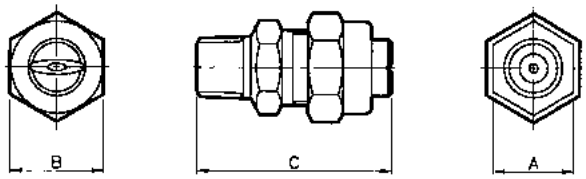
- *Dovetail connection nozzle/body for positive alignment.*
- *3 piece design with male thread or Welding Nipple body, available in:*
- *Brass.*
- *Stainless Steel.*
- *Mild Steel (Welding Nipple body only).*
- *Longer Welding Nipple bodies available to special order.*
- *Thread sizes are Male BSPT and Female BSPP.*
- *Other materials available to special order.*

ORDER EXAMPLE

LD 15-65° Stainless Steel = Tip Only.
¼" LDM (Male) 6-65° Stainless Steel = Complete Assembly.
LDW 6-65° Stainless Steel = Welding Assembly.

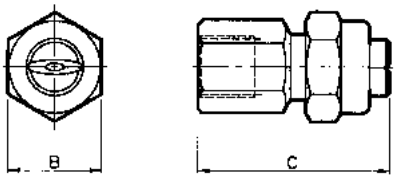
DIMENSIONS AND WEIGHTS

Thread Size	Assembly Type	Dimensions (mm) A Hex	B Hex	C	Weight (g)
1/8	LDF	18,0	20,8	43,0	65
1/8	LDM	18,0	20,8	41,3	55
1/4	LDF	18,0	20,8	43,0	64
1/4	LDM	18,0	20,8	43,0	57
3/8	LDF	20,8	20,8	43,0	65
3/8	LDM	18,0	20,8	43,0	59
-	LDW	17,5 dia.	20,8	29,2	46

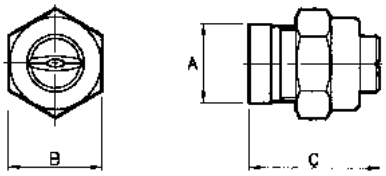


LDM (MALE) ASSEMBLY

Maximum Recommended Pressure: 100 Bar.G.



LDF (FEMALE) ASSEMBLY



LDW WELDING ASSEMBLY

CAPACITY CHART

NOZZLE NUMBER	Equiv Orifice Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 0,7	1,0	2,0	3,0	5	7	10	15	20	SPRAY ANGLES (°) @ 2.8 Bar.G. 0	15	25	40	50	65	80	90	100	110
LD 1	0,66	0,19	0,23	0,32	0,39	0,51	0,60	0,72	0,88	1,02		*	*	*	*	*	*	*	*	
LD 2	0,9	0,38	0,45	0,63	0,80	1,02	1,24	1,47	1,77	1,51						*	*	*	*	*
LD 3	1,1	0,60	0,67	0,98	1,18	1,53	1,79	2,14	2,65	2,04							*	*	*	*
LD 4	1,25	0,78	0,94	1,30	1,56	2,08	2,43	2,86	3,54	4,11									*	*
LD 5	1,4	0,96	1,16	1,61	1,99	2,54	3,02	3,62	4,41	5,10										*
LD 6	1,5	1,14	1,39	1,92	2,37	3,05	3,62	4,34	5,29	6,12										*
LD 8	1,75	1,51	1,88	2,55	3,17	4,12	4,81	5,72	7,06	8,13										*
LD 10	2,0	1,92	2,28	3,22	3,93	5,10	6,05	7,24	8,84	10,20										*
LD 15	2,4	2,84	3,44	4,92	6,16	7,90	9,20	10,70	13,20	15,20										*
LD 20	2,8	3,80	4,47	6,26	8,05	10,20	12,40	14,70	17,70	20,40										*
LD 25	3,1	4,60	5,80	8,00	9,94	13,00	15,10	18,30	22,30	25,50										*
LD 40	4,0	7,80	9,40	13,00	15,62	20,80	24,30	28,60	35,40	41,10										*
LD 50	4,4	9,60	11,60	16,10	19,89	25,40	30,20	36,20	44,10	51,00										*

** Brass Only*

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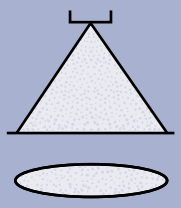


TYPE AD

FLAT SPRAY

SPRAY CHARACTERISTICS

- *Produces a uniform, flat spray without hard edges.*
- *Tapered edges of pattern allow overlapping for even distribution.*
- *Impact of spray is generally greater with narrower spray angles assuming equal flow rates.*
- *Orifice is offset 15° to axis of dovetail.*

CONSTRUCTION AND MATERIALS

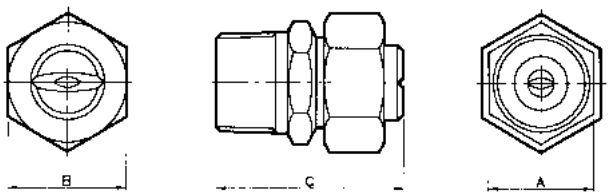
- *Dovetail connection nozzle/body for positive alignment.*
- *3 piece design with Male BSPT thread or Welding Nipple body, available in:*
- *Brass.*
- *Stainless Steel.*
- *Mild Steel (Welding Nipple body only).*
- *Longer Welding Nipple bodies available to special order.*
- *Other materials available to special order.*

ORDER EXAMPLE

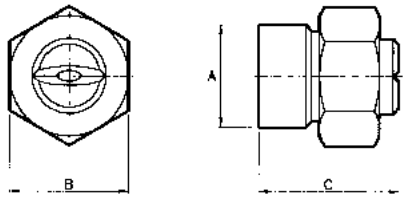
AD 80-65° Stainless Steel = Tip Only.
½" ADM (Male) 60-80° Brass = Complete Assembly.
ADW 100-90° Stainless Steel = Welding Assembly.

DIMENSIONS AND WEIGHTS

Assembly Type	Dimensions (mm) A Hex	B Hex	C	Weight (g)
1/2" ADM	28,0	31,8	50,3	150
3/4" ADM	28,0	31,8	50,3	180
ADW	27,0 dia.	31,8	37,6	130



ADM (MALE) ASSEMBLY



WELDING ASSEMBLY

Maximum Recommended Pressure:
100 Bar.G. (Metal) 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER	Equiv Orifice Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 0,7	1,0	2,0	3,0	5	7	10	15	20	SPRAY ANGLES (°) @ 2.8 Bar.G. 0	15	25	40	50	65	80	90	100	110
AD 10	2,0	1,92	2,28	3,22	3,93	5,1	6,0	7,2	8,84	10,2										
AD 12.5	2,2	2,30	2,90	4,00	4,97	6,5	7,55	9,15	11,15	12,8										
AD 15	2,4	2,84	3,44	4,92	6,16	7,9	9,2	10,7	13,20	15,2									*	
AD 20	2,8	3,80	4,47	6,26	8,05	10,2	12,4	14,7	17,70	20,4										*
AD 25	3,1	4,60	5,80	8,00	9,94	13,0	15,1	18,3	22,30	25,5										
AD 30	3,6	6,00	6,70	9,80	11,84	15,3	17,9	21,4	26,50	30,4										
AD 40	4,0	7,80	9,40	13,00	15,62	20,8	24,3	28,6	35,40	41,1										
AD 50	4,4	9,60	11,60	16,10	19,89	25,4	30,2	36,2	44,10	51,0										
AD 60	4,8	11,40	13,90	19,20	23,67	30,5	36,2	43,4	52,90	61,2										
AD 70	5,2	13,30	16,10	22,80	27,46	36,1	42,6	50,5	61,80	71,5										
AD 80	5,6	15,10	18,80	25,50	31,72	41,2	48,1	57,2	70,60	81,3										
AD 100	6,4	19,20	22,80	31,70	39,30	50,9	60,5	72,4	88,40	102										
AD 120	7,1	22,90	27,30	38,90	47,40	61,1	72,4	86,3	106	122										
AD 150	7,5	28,80	34,40	48,30	59,19	76,8	90,2	108	132	153										
AD 200	8,8	38,00	48,70	64,40	79,07	102	120	144	175	204										

** Brass Only*

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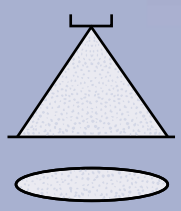


SPRAY CHARACTERISTICS

- *Self cleaning action assures constant spray force to kill foam in headbox and moulds, to clean wires, cylinder moulds, rotary screens and to wash felts, clean grinding stones, etc.*
- *Produces a uniform flat, fan shaped pattern with tapering edges.*
- *Requires overlapping for even distribution.*

FRONT VIEW

CONSTRUCTION AND MATERIALS

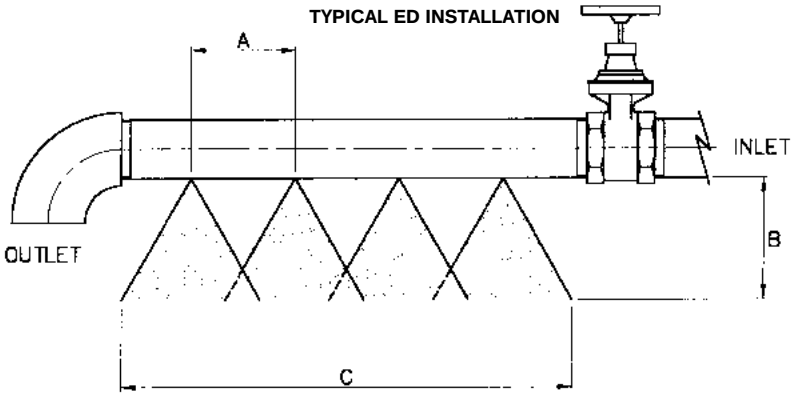
- *Inner surface of nozzle is grooved to give concentrated, fan shaped spray.*
- *These sprays should overlap sufficiently to cover the entire sprayed surface, but without reducing each other's impact.*
- *Spray nozzle patterns should be offset by 15° to allow overlap without impingement.*
- *Stainless Steel and Brass.*
- *Standard spray angles are 45°, 60° and 90° @ 2.8 Bar.G.*
- *Other materials available to special order.*
- *Connecting thread is ⅝" UNF.*

REAR VIEW

ORDER EXAMPLE

ED 4-60° Stainless Steel.

TYPICAL ED INSTALLATION



Note: *To assist in determining the correct nozzle for the application please specify dimensions A, B and C together with the total flow rate requirement and operating pressure*

CAPACITY CHART

Maximum Recommended Pressure: 35 Bar.G.

NOZZLE NUMBER	Approx. Orifice Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G						
		0,7	1,5	2	3	4	5	7
ED 1	1,2	0,44	0,73	0,96	1,2	1,4	1,5	1,7
ED 2	1,6	0,78	1,3	1,7	2,1	2,5	2,7	3,1
ED 3	2,0	1,7	2,5	3,0	3,7	4,4	4,9	5,8
ED 4	2,4	2,4	3,5	4,3	5,3	6,3	6,9	8,2
ED 5	2,8	3,3	4,9	5,8	7,2	8,4	9,5	11,1
ED 6	3,2	4,3	6,5	7,6	9,5	11,1	12,5	14,6
ED 7	3,6	4,9	7,5	9,1	11,2	13,2	14,9	16,4
ED 8	4,0	6,0	9,2	11,2	13,7	16,2	18,2	20,1
ED 9	4,4	8,1	11,8	14,0	16,8	19,3	21,9	26,7
ED 10	4,8	9,6	13,9	16,5	19,9	22,8	25,9	31,6

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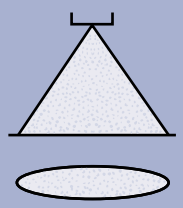


TYPE EF

FLAT SPRAY

FRONT VIEW

REAR VIEW

SPRAY CHARACTERISTICS

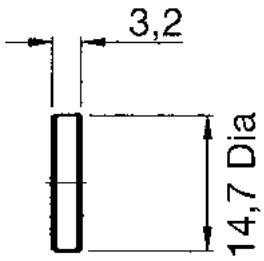
- *Self cleaning action assures constant spray force to kill foam in headbox and moulds, to clean wires, cylinder moulds, rotary screens and to wash felts, clean grinding stones, etc.*
- *Produces a uniform flat, fan shaped pattern with tapering edges.*
- *Requires overlapping for even distribution.*

CONSTRUCTION AND MATERIALS

- *Inner surface of nozzle is grooved to give concentrated, fan shaped spray.*
- *These sprays should overlap sufficiently to cover the entire sprayed surface, but without reducing each other's impact.*
- *Spray nozzle patterns should be offset by 15° to allow overlap without impingement.*
- *Stainless Steel and Brass.*
- *Standard spray angles are 45°, 60° and 90° @ 2.8 Bar.G.*
- *Other materials available to special order.*
- *Nozzle will fit into standard nozzle bodies and cap.*
- *Thread sizes are Male BSPT and Female BSPT.*

ORDER EXAMPLE

EF 4-60° Stainless Steel.



Maximum Recommended Pressure: 35 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	Approx. Orifice Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G						
		0,7	1,5	2	3	4	5	7
EF 1	1,2	0,44	0,73	0,96	1,2	1,4	1,5	1,7
EF 2	1,6	0,78	1,3	1,7	2,1	2,5	2,7	3,1
EF 3	2,0	1,7	2,5	3,0	3,7	4,4	4,9	5,8
EF 4	2,4	2,4	3,5	4,3	5,3	6,3	6,9	8,2
EF 5	2,8	3,3	4,9	5,8	7,2	8,4	9,5	11,1
EF 6	3,2	4,3	6,5	7,6	9,5	11,1	12,5	14,6
EF 7	3,6	4,9	7,5	9,1	11,2	13,2	14,9	16,4
EF 8	4,0	6,0	9,2	11,2	13,7	16,2	18,2	20,1
EF 9	4,4	8,1	11,8	14,0	16,8	19,3	21,9	26,7
EF 10	4,8	9,6	13,9	16,5	19,9	22,8	25,9	31,6

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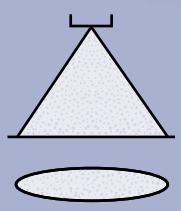


SPRAY CHARACTERISTICS

- *Produces a wide, flat spray pattern with uniform distribution.*
- *Low impact spray with low atomization at lower pressures.*
- *120° nominal spray angle or more depending on size.*

CONSTRUCTION AND MATERIALS

- *Simple deflector-type design producing spray at 75° spray angle from inlet orifice. Wide angle coverage at low pressures.*
- *Tips are interchangeable and replaceable.*
- *Available in Brass and Stainless Steel.*
- *Other materials available to special order.*
- *Nozzle will fit into standard nozzle bodies and cap.*
- *Thread sizes are Male BSPT and Female BSPT.*

ORDER EXAMPLE

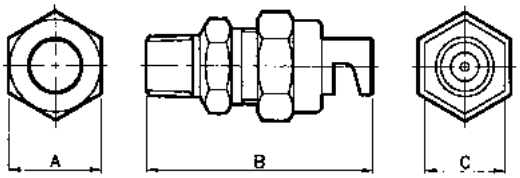
D 10 Stainless Steel = Tip Only.

3/8" Female D 20 Brass = Complete Assembly.

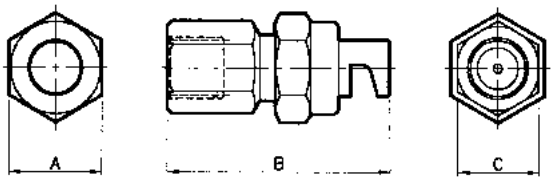
FLAT SPRAY TYPE D

DIMENSIONS AND WEIGHTS

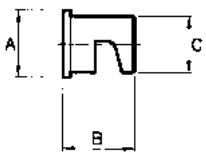
Assembly Type	Dimensions (mm) A Hex	B	C Hex	Weight (g)
1/8" Female	20,8	50,0	18,0	74
1/4" Male	20,8	50,0	18,0	66
1/4" Female	20,8	50,0	18,0	72
3/8" Male	20,8	50,0	18,0	68
3/8" Female	20,8	50,0	20,8	74
Tip	14,7 dia.	15,9	12,4 dia.	10



D (MALE) ASSEMBLY



D (FEMALE) ASSEMBLY



D TIP

Maximum Recommended Pressure: 35 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	Appox. Orifice Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 0,5	0,7	1,0	1,5	2,0	3,0	4,0	Spray Angle (°) At 1.5 Bar. G.
D 0,5	0,7	0,16	0,19	0,23	0,28	0,32	0,39	0,46	90
D 0,75	0,8	0,24	0,29	0,34	0,42	0,48	0,59	0,68	105
D 1	0,9	0,32	0,38	0,46	0,56	0,65	0,79	0,91	110
D 1,5	1,1	0,48	0,57	0,68	0,84	0,97	1,18	1,37	115
D 2	1,2	0,65	0,76	0,91	1,12	1,29	1,57	1,82	115
D 2,5	1,3	0,81	0,95	1,14	1,40	1,61	1,96	2,28	115
D 3	1,5	0,97	1,14	1,37	1,68	1,93	2,36	2,74	120
D 4	1,8	1,29	1,53	1,82	2,23	2,59	3,14	3,65	120
D 5	2,0	1,61	1,91	2,28	2,79	3,22	3,93	4,56	130
D 6	2,2	1,93	2,29	2,74	3,35	3,87	4,71	5,47	130
D 7,5	2,4	2,42	2,86	3,42	4,19	4,84	5,89	6,84	140
D 10	2,7	3,22	3,81	4,56	5,58	6,45	7,85	9,12	145
D 15	3,3	4,83	5,72	6,84	8,37	9,67	11,78	13,68	125
D 18	3,6	5,80	6,97	8,21	10,05	11,60	14,14	16,41	140
D 20	3,8	6,45	7,63	9,12	11,17	12,89	15,71	18,23	140
D 25	4,2	8,06	9,54	11,40	13,96	16,12	19,63	22,79	125
D 30	4,6	9,67	11,44	13,68	16,75	19,34	23,56	27,35	130

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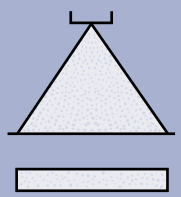


TYPE AN

FLAT SPRAY

SPRAY CHARACTERISTICS

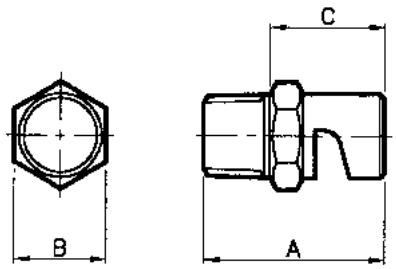
- *Produces a wide, flat spray pattern with uniform distribution.*
- *Low impact spray with low atomization at low pressures.*
- *120° nominal spray angle or more depending on size.*

CONSTRUCTION AND MATERIALS

- *Simple deflector-type design producing spray at 75° spray angle from inlet orifice. Wide angle coverage at low pressures.*
- *One piece Male BSPT thread design.*
- *Resistant to clogging due to tapered inlet and circular orifice.*
- *Hexagon body with wrench flats avoid distortion when tightening.*
- *Stainless Steel and Brass.*
- *Other materials available to special order.*

ORDER EXAMPLE

½" AN 40 Stainless Steel.



Maximum Recommended Pressure:
35 Bar.G. (Metal) 7 Bar.G. (Plastic).

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A	B Hex	C	Weight (g)
1/8	AN 0,5 to AN 7,5	25,4	11,3	16,0	14
1/8	AN 10 to AN 20	28,5	15,3	19,0	29
1/4	AN 2,5 to AN 20	29,9	15,3	19,0	30
1/4	AN 25 to AN 35	34,0	18,0	25,4	45
3/8	AN 20 to AN 35	40,0	18,0	25,4	55
3/8	AN 40 to AN 80	36,0	25,7	31,9	96
1/2	AN 20 to AN 80	46,1	25,7	31,9	114
1/2	AN 90 to AN 120	44,5	28,0	29,7	154
3/4	AN 100 to AN 120	50,0	28,0	29,7	170
3/4	AN 150 to AN 210	58,7	38,0	39,7	340
1	AN 150 to AN 300	62,7	38,0	39,7	380

CAPACITY CHART

NOZZLE NUMBER	Appox. Orifice Dia. (mm)	BSPT THREAD SIZE 1/8	1/4	3/8	1/2	3/4	1	FLOW RATE IN LITRES/MIN AT Bar.G. 0,35	0,5	0,7	1,0	1,5	2,0	3,0	4,0	SPRAY ANGLES (°) AT Bar.G. 0,5	1,5	4
AN 0,5	0,66	■						-	-	-	0,23	0,28	0,32	0,39	0,46		90	120
AN 0,75	0,81	■						-	-	0,29	0,34	0,42	0,48	0,59	0,68		105	125
AN 1	0,91	■						-	-	0,38	0,46	0,56	0,65	0,79	0,91		110	130
AN 1,5	1,1	■						-	0,48	0,57	0,68	0,84	0,97	1,18	1,37	85	115	135
AN 2	1,2	■						-	0,65	0,76	0,91	1,12	1,29	1,57	1,82	90	115	135
AN 2,5	1,3	■	■					-	0,81	0,95	1,14	1,40	1,61	1,96	2,28	90	115	135
AN 3	1,5	■	■					0,80	0,97	1,14	1,38	1,66	1,92	2,37	2,72	95	120	135
AN 5	2,0	■	■					1,33	1,61	1,92	2,28	2,79	3,21	3,94	4,42	115	130	150
AN 7,5	2,4	■	■					2,01	2,40	2,84	3,39	4,36	4,91	5,92	6,70	130	140	160
AN 10	2,7	■	■					2,70	3,23	3,81	4,46	5,49	6,29	7,91	9,38	135	145	160
AN 15	3,3	■	■					4,16	4,99	5,67	6,70	8,24	9,64	11,8	13,8	110	125	140
AN 18	3,6	■	■					5,03	5,70	6,86	8,17	9,94	11,6	14,2	16,4	130	140	160
AN 20	3,8	■	■	■	■			5,35	6,56	7,59	8,93	11,0	13,0	15,7	18,3	130	140	160
AN 25	4,2		■	■	■			6,86	8,09	9,61	11,6	13,8	16,1	16,1	22,8	115	140	140
AN 30	4,6		■	■	■			8,00	9,70	11,4	13,8	16,6	19,0	23,7	27,2	120	130	145
AN 35	5,0		■	■	■			9,60	16,6	13,3	15,6	19,4	22,7	27,5	32,1	125	135	150
AN 40	5,3			■	■			10,6	12,7	15,2	18,3	22,4	25,7	31,5	36,4	130	140	160
AN 45	5,6			■	■			12,1	14,5	17,1	20,4	25,0	28,9	35,4	40,9	130	140	150
AN 50	5,9			■	■	■		13,3	16,2	19,0	22,7	28,0	32,0	39,4	46,4	130	140	150
AN 60	6,5			■	■	■		16,0	19,2	22,9	27,2	33,6	38,7	47,3	54,6	130	140	160
AN 70	7,1			■	■	■		18,9	22,6	26,7	31,9	39,1	45,1	55,3	63,8	120	140	150
AN 75	7,4			■	■	■		20,2	24,2	28,6	34,2	41,8	48,3	59,2	68,4	130	140	150
AN 80	7,7			■	■	■		21,3	25,9	30,5	36,4	44,6	51,3	63,1	72,9	130	140	150
AN 90	8,1			■	■	■		24,3	29,0	34,3	41,0	50,2	58,0	71,0	82,0	120	140	150
AN 100	8,4				■	■		27,0	32,3	38,1	45,4	55,6	64,3	78,9	91,1	135	145	155
AN 108	8,7				■	■		29,1	34,8	41,2	49,2	60,3	69,6	85,3	98,5	130	140	150
AN 120	9,3				■	■		32,5	38,5	45,7	54,6	67,0	77,3	94,7	109	120	130	145
AN 150	10,5					■	■	40,4	48,5	57,2	68,4	83,6	96,7	118	137	125	135	145
AN 180	11,3					■	■	48,6	58,1	68,7	82,1	101	116	142	164	145	150	160
AN 200	11,9					■	■	54,1	64,7	76,2	90,7	111	129	158	182	125	140	160
AN 210	12,7					■	■	56,4	67,3	80,1	95,6	117	135	166	191	125	140	160
AN 250	13,3						■	66,5	79,4	94,0	112	138	159	195	225	130	145	160
AN 300	14,6						■	79,8	95,3	113	135	165	191	234	270	135	150	160

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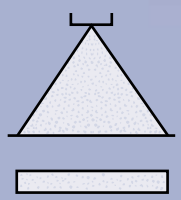


SPRAY CHARACTERISTICS

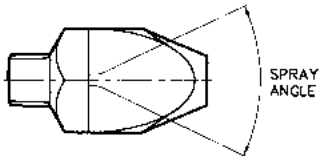
- *Flat, high impact spray pattern with thin minor axis.*
- *Maximum impact and velocity for any given pressure.*
- *Impact is higher with narrow spray angles for any given pressure.*
- *Spray angles are at 2.8 Bar.G.*

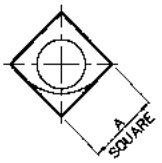
CONSTRUCTION AND MATERIALS

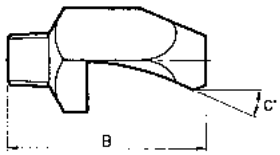
- *One piece body design, Male BSPT thread.*
- *Circular orifice with tapered inlet reduces wear and resists clogging.*
- *Manufactured in Brass and Stainless Steel as standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

¼" TJ 10-40° Stainless Steel.







Maximum Recommended Pressure: 35 Bar.G.

CAPACITY CHART

SPRAY ANGLES	NOZZLE NUMBER	Appox. Orifice Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G.								Dimensions			Approx. Weight (g)
			0,7	1,0	2,0	3,0	4,0	5,0	6,0	7,0	A	B	C (°)	
	1/4" TJ 10	2,0	1,9	2,3	3,2	3,9	4,6	5,1	5,6	6,0	15,9	34,9	60	35
	1/4" TJ 25	2,8	4,7	5,7	8,1	9,9	11,4	12,7	14,0	15,1	19,0	44,0	50	100
	3/8" TJ 25	2,8	4,7	5,7	8,1	9,9	11,4	12,7	14,0	15,1	19,0	46,0	50	105
	3/8" TJ 30	3,2	5,7	6,9	9,7	11,8	13,7	15,3	16,8	18,1	19,0	47,0	48	110
	1/4" TJ 40	3,6	7,6	9,1	12,9	15,8	18,2	20,4	22,3	24,1	19,0	45,0	45	100
50°	3/8" TJ 40	3,6	7,6	9,1	12,9	15,8	18,2	20,4	22,3	24,1	19,0	47,0	45	105
	3/8" TJ 60	4,8	11,4	13,6	19,3	23,9	27,3	30,6	33,5	36,2	19,0	45,0	35	160
	1/2" TJ 80	5,2	15,2	18,2	25,8	31,6	36,5	40,8	44,7	48,2	25,4	74,0	35	260
	3/8" TJ 100	6,0	19,1	22,8	32,2	39,5	45,6	51,0	55,8	60,3	31,8	74,0	40	370
	1/2' TJ 100	6,0	19,1	22,8	32,2	39,5	45,6	51,0	55,8	60,3	31,8	76,0	40	390
	3/8" TJ 200	8,3	38,2	45,6	64,5	79,0	91,2	102,0	112,0	122,0	31,8	74,0	30	330
	1/2" TJ 200	8,3	38,2	45,6	64,5	79,0	91,2	102,0	112,0	122,0	31,8	76,0	30	350
	1/4" TJ 10	2,0	1,9	2,3	3,2	3,9	4,6	5,1	5,6	6,0	19,0	42,0	35	140
	3/8" TJ 40	3,6	7,6	9,1	12,9	15,8	18,2	20,4	22,3	24,1	22,0	60,0	33	160
40°	3/8" TJ 50	4,0	9,5	11,4	16,1	19,7	22,8	25,5	27,9	30,2	25,4	65,0	33	230
	3/8" TJ 60	4,4	11,4	13,6	19,3	23,9	27,3	30,6	33,5	36,2	25,4	72,0	30	260
	3/8" TJ 90	5,6	17,1	20,4	29,0	35,9	41,0	45,9	50,3	54,3	25,4	78,0	28	260
	3/8" TJ 100	6,0	19,1	22,8	32,2	39,5	45,6	51,0	55,8	60,3	25,4	90,0	28	295
	1/8" TJ 4	1,2	0,8	0,9	1,3	1,6	1,8	2,0	2,2	2,4	15,9	34,5	37	12
	1/8" TJ 10	2,0	1,9	2,3	3,2	3,9	4,6	5,1	5,6	6,0	15,9	38,0	35	65
	1/4" TJ 10	2,0	1,9	2,3	3,2	3,9	4,6	5,1	5,6	6,0	15,9	39,4	35	70
	1/4" TJ 20	2,8	3,8	4,5	6,4	7,9	9,1	10,2	11,2	12,1	19,0	47,6	30	70
	1/4" TJ 25	2,8	4,7	5,7	8,1	9,9	11,4	12,7	14,0	15,1	19,0	47,6	28	95
	3/8" TJ 30	3,2	5,7	6,9	9,7	11,8	13,7	15,3	16,8	18,1	19,0	52,0	28	110
	1/4" TJ 33	3,3	6,3	7,6	10,7	12,9	15,1	16,8	18,5	19,9	22,0	58,7	26	125
35°	1/4" TJ 40	3,6	7,6	9,1	12,9	15,8	18,2	20,4	22,3	24,1	22,0	58,7	23	125
	3/8" TJ 40	3,6	7,6	9,1	12,9	15,8	18,2	20,4	22,3	24,1	22,0	60,0	22	160
	1/2" TJ 50	4,0	9,5	11,4	16,1	19,7	22,8	25,5	27,9	30,2	25,4	73,8	23	230
	3/8" TJ 60	4,4	11,4	13,6	19,3	23,9	27,3	30,6	33,5	36,2	25,4	72,0	28	230
	1/2" TJ 80	5,2	15,2	18,2	25,8	31,6	36,5	40,8	44,7	48,2	25,4	82,0	25	295
	1/2" TJ 100	6,0	19,1	22,8	32,2	39,5	45,6	51,0	55,8	60,3	25,4	90,0	20	300
	3/8" TJ 125	6,6	23,8	28,5	40,3	49,4	57,0	63,7	69,8	75,4	25,4	95,0	25	300
	1/2" TJ 200	8,3	38,2	45,6	64,5	79,0	91,2	102,0	112,0	122,0	31,8	125,0	23	650
	1/4" TJ 10	2,0	1,9	2,3	3,2	3,9	4,6	5,1	5,6	6,0	15,9	50,8	22	80
25°	1/4" TJ 20	2,8	3,8	4,5	6,4	7,9	9,1	10,2	11,2	12,1	19,0	65,0	22	100
	1/4" TJ 40	3,6	7,6	9,1	12,9	15,8	18,2	20,4	22,3	24,1	19,0	68,0	25	125

FLAT SPRAY

TYPE TJ

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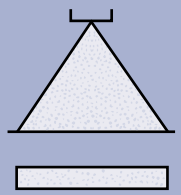


DELAVAN
Spray Technologies

SPRAY CHARACTERISTICS

- *Directs compressed air or steam in a wide, thin air sheet.*
- *Designed with a relatively large slotted orifice.*

CONSTRUCTION AND MATERIALS

- *Available in Brass and Stainless Steel (recommended for steam applications).*
- *3 piece construction, body, tip and cap.*
- *The tip has two flats to facilitate alignment.*
- *Optional body is available in a variety of threads.*
- *Thread sizes are Male BSPT and Female BSPP.*
- *Other materials available to special order.*

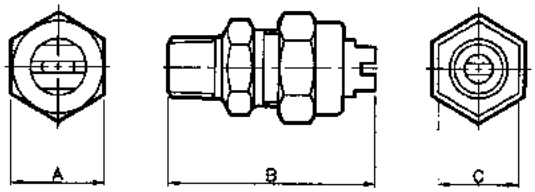
ORDER EXAMPLE

No. 4 Blow-Off Brass = Tip Only.
¼" Male No. 3 Blow-Off Stainless Steel = Complete Assembly.

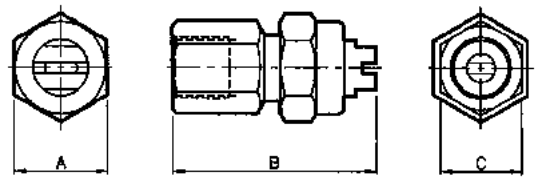
Maximum Recommended Pressure: 14 Bar.G.

DIMENSIONS AND WEIGHTS

Thread Type	*Assembly Type*	*Dimensions (mm)*			*Weight (g)*
		A Hex	*B*	*C Hex*	
1/8	Female	20,8	46,0	18,0	69
1/4	Male	20,8	46,0	18,0	61
1/4	Female	20,8	46,0	18,0	68
3/8	Male	20,8	46,0	18,0	63
3/8	Female	20,8	46,0	20,8	69



BLOW-OFF (MALE) ASSEMBLY



BLOW-OFF (FEMALE) ASSEMBLY

AIR CAPACITY CHART

NOZZLE NUMBER	*AIR FLOW IN M³/HOUR AT Bar.G.*				*APPROX. SPRAY ANGLES (°)*
	0,7	*2*	*4*	*7*	
No. 1	1,1	2,4	4	6,4	75°
No. 2	2,1	4,6	7,5	11,6	55°
No. 3	6,2	12,2	19,5	28,4	60°
No. 4	10,0	20,1	32,3	47,6	100°
No. 5	22,4	46,7	72,2	105,5	60°

STEAM CAPACITY CHART

NOZZLE NUMBER	*STEAM FLOW IN Kg/HOUR AT Bar.G.*				*APPROX. SPRAY ANGLES (°)*
	0,7	*2*	*4*	*7*	
No. 1	0,54	1,27	2,08	3,72	75°
No. 2	1,27	2,35	4,08	7,26	55°
No. 3	3,5	6,12	10,3	17,2	60°
No. 4	5,76	10,2	17,2	29,3	100°
No. 5	12,7	22,9	38,6	64,9	60°

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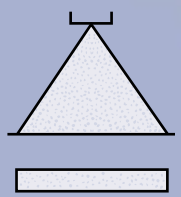


SPRAY CHARACTERISTICS

- *Wide flat spray of liquid with even distribution except for the edges which have heavier deposit.*
- *Wide spray angles with water, at low pressure.*
- *Useful with steam or air for blow-off application.*

CONSTRUCTION AND MATERIALS

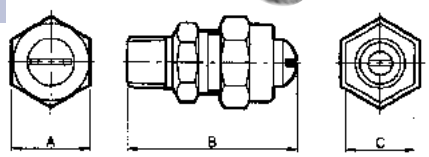
- *Straight through slot shaped orifice.*
- *3 piece construction, body, tip and cap nut.*
- *The tip has two flats to facilitate alignment.*
- *Optional body is available in a variety of threads.*
- *Thread sizes are Male BSPT and Female BSPP.*
- *Brass and Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

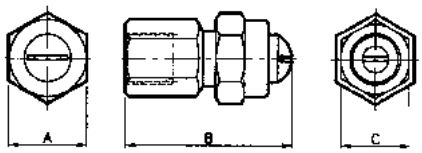
SL 40 Stainless Steel = Tip Only.
¼" SLF (Female) 18 Brass = Complete Assembly.

DIMENSIONS AND WEIGHTS

Thread Size	Assembly Type	Dimensions (mm) A Hex	B	C Hex	Weight (g)
1/8	SLF	20,8	46,0	18,0	69
1/4	SLM	20,8	46,0	18,0	61
1/4	SLF	20,8	46,0	18,0	68
3/8	SLM	20,8	46,0	18,0	63
3/8	SLF	20,8	46,0	20,8	69



SL (MALE) ASSEMBLY



SL (FEMALE) ASSEMBLY

Maximum Recommended Pressure: 70 Bar.G.

WATER CAPACITY CHART

NOZZLE NUMBER	APPROX SLOT WIDTH (mm)	RECOMMENDED THREAD SIZE 1/8	1/4	3/8	FLOW RATE IN LITRE/MIN AT Bar.G. 0,7	1	2	3	4	5	7	SPRAY ANGLES (°) AT Bar.G. 1	3	7
SL 10	0,25				1,1	1,4	1,7	2,1	2,4	2,7	3,2	85	100	105
SL 14	0,35				1,2	1,5	2,0	2,3	2,6	3,0	3,5	85	100	105
SL 18	0,45				1,6	1,9	2,6	3,0	3,4	3,8	4,5	75	90	95
SL 24	0,60				2,1	2,5	3,5	4,0	4,6	5,1	6,0	90	90	100
SL 31	0,80				2,7	3,2	4,5	5,2	5,9	6,6	7,8	80	90	100
SL 40	1,00				3,7	4,3	6,0	8,8	10,1	11,3	13,3	90	95	110
SL 46	1,20				4,2	5,0	6,9	10,1	11,6	13,0	15,3	95	110	115
SL 93	2,40				12,4	14,9	20	26	31	35	41	80	85	90

AIR CAPACITY CHART

NOZZLE NUMBER	APPROX SLOT WIDTH (mm)	RECOMMENDED THREAD SIZE 1/8	1/4	3/8	FLOW RATE IN LITRE/MIN AT Bar.G. 0,7	1	2	3	4	5	7	SPRAY ANGLES (°) AT Bar.G. 1	3	7
SL 10	0,25				35	46	56	69	78	88	105	80	95	100
SL 14	0,35				39	49	65	75	85	98	114	80	95	100
SL 18	0,45				52	62	85	98	111	124	147	70	85	90
SL 24	0,60				69	82	114	131	150	167	196	75	85	95
SL 31	0,80				88	105	147	170	193	216	255	75	85	100
SL 40	1,00				121	141	196	288	330	370	435	85	90	105
SL 46	1,20				137	164	226	330	379	425	500	90	105	110
SL 93	2,40				405	487	654	850	101	1145	1341	75	80	85

STEAM CAPACITY CHART

NOZZLE NUMBER	APPROX SLOT WIDTH (mm)	RECOMMENDED THREAD SIZE 1/8	1/4	3/8	FLOW RATE IN Kg/HOUR AT Bar.G. 0,7	1	2	3	4	5	7	SPRAY ANGLES (°) AT Bar.G. 1	3	7
SL 10	0,25				1,3	1,7	2,0	2,5	2,9	3,2	3,8	80	95	100
SL 14	0,35				1,4	1,8	2,4	2,8	3,1	3,6	4,2	80	95	100
SL 18	0,45				1,9	2,3	3,1	3,6	4,1	4,6	5,4	70	85	90
SL 24	0,60				2,5	3,0	4,2	4,8	5,5	6,1	7,2	75	85	95
SL 31	0,80				3,2	3,8	5,4	6,2	7,1	7,9	9,3	75	85	100
SL 40	1,00				4,4	5,2	7,2	10,5	12,1	13,5	15,9	85	90	115
SL 46	1,20				5,0	6,0	8,3	12,1	13,9	15,6	18,3	90	105	110
SL 93	2,40				14,9	17,8	24,0	31,0	37,0	42,0	49,0	75	80	85

SPECIAL PURPOSE

TYPE SL

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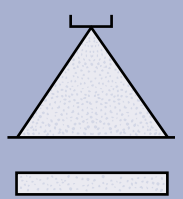


TYPE DJ

SPECIAL PURPOSE

SPRAY CHARACTERISTICS

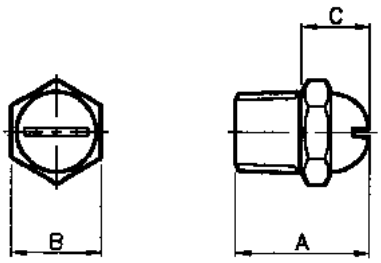
- *Wide flat spray of liquid with even distribution except for the edges which have heavier deposit.*
- *Wide spray angles, on water, for low pressure.*
- *Useful with steam or air for blow-off application.*

CONSTRUCTION AND MATERIALS

- *Straight through slot shaped orifice.*
- *One piece Male BSPT thread only.*
- *Hexagon body with wrench flats avoid distortion when tightening.*
- *Larger thread sizes are available on request.*
- *Brass and Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

¼" DJ 24 Brass.



DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A	B Hex	C	Weight (g)
1/4	30,0	15,3	10,3	28
3/8	35,0	18,0	14,3	45

Maximum Recommended Pressure:
70 Bar.G. (Metal) 7 Bar.G. (Plastic)

WATER CAPACITY CHART

NOZZLE NUMBER MALE	APPROX SLOT WIDTH (mm)	BSPT THREAD SIZE 1/4	3/8	FLOW RATE IN LITRE/MIN AT Bar.G. 0,7	1	2	3	4	5	7	SPRAY ANGLES (°) AT Bar.G. 1	3	7
DJ 10	0,25			1,1	1,4	1,7	2,1	2,4	2,7	3,2	85	100	105
DJ 14	0,35			1,2	1,5	2,0	2,3	2,6	3,0	3,5	85	100	105
DJ 18	0,45			1,6	1,9	2,6	3,0	3,4	3,8	4,5	75	90	95
DJ 24	0,60			2,1	2,5	3,5	4,0	4,6	5,1	6,0	90	90	100
DJ 31	0,80			2,7	3,2	4,5	5,2	5,9	6,6	7,8	80	90	100
DJ 40	1,00			3,7	4,3	6,0	8,8	10,1	11,3	13,3	90	95	110
DJ 46	1,20			4,2	5,0	6,9	10,1	11,6	13,0	15,3	95	110	115
DJ 93	2,40			12,4	14,9	20	26	31	35	41	80	85	90

AIR CAPACITY CHART

NOZZLE NUMBER MALE	APPROX SLOT WIDTH (mm)	BSPT THREAD SIZE 1/4	3/8	FLOW RATE IN LITRE/MIN AT Bar.G. 0,7	1	2	3	4	5	7	SPRAY ANGLES (°) AT Bar.G. 1	3	7
DJ 10	0,25			35	46	56	69	78	88	105	80	95	100
DJ 14	0,35			39	49	65	75	85	98	114	80	95	100
DJ 18	0,45			52	62	85	98	111	124	147	70	85	90
DJ 24	0,60			69	82	114	131	150	167	196	75	85	95
DJ 31	0,80			88	105	147	170	193	216	255	75	85	100
DJ 40	1,00			121	141	196	288	330	370	435	85	90	105
DJ 46	1,20			137	164	226	330	379	425	500	90	105	110
DJM 93	2,40			405	487	654	850	101	1145	1341	75	80	85

STEAM CAPACITY CHART

NOZZLE NUMBER MALE	APPROX SLOT WIDTH (mm)	BSPT THREAD SIZE 1/4	3/8	FLOW RATE IN Kg/HOUR AT Bar.G. 0,7	1	2	3	4	5	7	SPRAY ANGLES (°) AT Bar.G. 1	3	7
DJ 10	0,25			1,3	1,7	2,0	2,5	2,9	3,2	3,8	80	95	100
DJ 14	0,35			1,4	1,8	2,4	2,8	3,1	3,6	4,2	80	95	100
DJ 18	0,45			1,9	2,3	3,1	3,6	4,1	4,6	5,4	70	85	90
DJ 24	0,60			2,5	3,0	4,2	4,8	5,5	6,1	7,2	75	85	95
DJ 31	0,80			3,2	3,8	5,4	6,2	7,1	7,9	9,3	75	85	100
DJ 40	1,00			4,4	5,2	7,2	10,5	12,1	13,5	15,9	85	90	115
DJ 46	1,20			5,0	6,0	8,3	12,1	13,9	15,6	18,3	90	105	110
DJ 93	2,40			14,9	17,8	24,0	31,0	37,0	42,0	49,0	75	80	85

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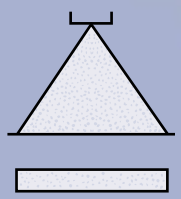


SPRAY CHARACTERISTICS

- *Uniform distribution of hard hitting flat spray with a minimum of atomization.*
- *No soft edges - no need for overlapping.*
- *Minimum flow deviation at varying pressures.*
- *Available spray angles of 0°, 15°, 25°, 40° and 50° @ 10 Bar.G.*

CONSTRUCTION AND MATERIALS

- *One piece construction with no internal shoulders or ledges causing unwanted liquid turbulence.*
- *Available with Male BSPT pipe thread design only.*
- *Hexagon body with wrench flats avoid distortion when tightening.*
- *Circular shaped orifice reduces wear, no feather edges*
- *Nozzle filter is not needed, orifice will pass small amounts of foreign matter.*
- *Manufactured in Stainless Steel and Hardened Stainless Steel as standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

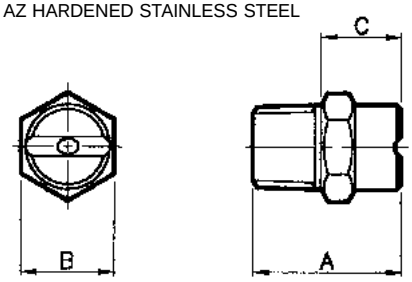
¼" AZ 6-15° Stainless Steel.

AZ STAINLESS STEEL

AZ HARDENED STAINLESS STEEL

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A	B Hex	C	Weight (g)
1/8	AZ	17,5	11,3	9,5	12
1/4	AZ	24,5	15,3	13,0	23
1/4	AZ (HSS)	22,2	15,3	12,0	19



Maximum Recommended Pressure: 150 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	EQUIV ORIFICE DIA. (mm)	BSPT THREAD SIZE 1/8	1/4	FLOW RATE IN LITRES/MIN AT Bar.G. 15	20	25	35	40	50	60	70
AZ 4	1,25			3,5	4,1	4,6	5,4	5,8	6,5	7,1	7,6
AZ 4,5	1,30			4,0	4,6	5,1	6,1	6,5	7,3	8,0	8,6
AZ 5	1,40			4,4	5,1	5,7	6,7	7,2	8,1	8,8	9,5
AZ 5,5	1,45			4,9	5,6	6,3	7,4	7,9	8,9	9,7	10,5
AZ 6	1,50			5,3	6,1	6,8	8,1	8,7	9,7	10,6	11,4
AZ 6,5	1,60			5,7	6,6	7,4	8,8	9,4	10,5	11,5	12,4
AZ 7	1,65			6,2	7,1	8,0	9,4	10,1	11,3	12,4	13,4
AZ 7,5	1,70			6,6	7,6	8,6	10,1	10,8	12,1	13,2	14,3
AZ 8	1,75			7,1	8,2	9,1	10,8	11,5	12,9	14,1	15,3
AZ 8,5	1,8			7,5	8,7	9,7	11,5	12,3	13,7	15,0	16,2
AZ 9	1,9			8,0	9,2	10,3	12,1	13,0	14,5	16,0	17,2
AZ 10	2,0			8,8	10,2	11,4	13,5	14,4	16,1	17,7	19,1
AZ 15	2,4			13,2	15,3	17,1	20,2	21,6	24,2	26,5	28,6
AZ 20	2,8			17,7	20,4	22,8	27,0	28,8	32,2	35,3	38,1
AZ 30	3,6			24,5	30,6	34,2	40,5	43,3	48,4	53,0	57,2
AZ 40	4,0			35,3	40,8	45,6	54,0	57,7	64,5	70,6	76,3
AZ 50	4,4			44,1	51,0	57,0	67,4	72,0	80,6	88,3	95,4

HIGH PRESSURE

TYPE AZ

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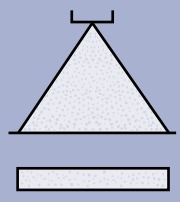


TYPE BZ

HIGH PRESSURE

SPRAY CHARACTERISTICS

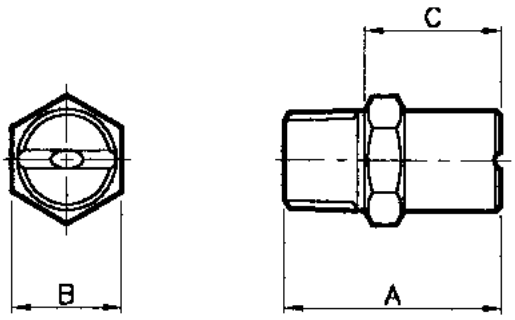
- *Uniform distribution of hard hitting flat spray with a minimum of atomization.*
- *No soft edges - no need for overlapping.*
- *Minimum flow deviation at varying pressures.*
- *Available only in 30° spray angle measured @ 10 Bar.G.*

CONSTRUCTION AND MATERIALS

- *One piece construction with no internal shoulders or ledges causing unwanted liquid turbulence.*
- *Available as a Male BSPT pipe thread design only.*
- *Hexagon body with wrench flats avoid distortion when tightening.*
- *Circular shaped orifice reduces wear, no feather edges.*
- *Nozzle filter is not needed, orifice will pass small amounts of foreign matter.*
- *Manufactured in Stainless Steel and Hardened Stainless Steel as standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

⅜" BZ 15 Hardened Stainless Steel.



DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A	B Hex	C	Weight (g)
1/4	29,9	15,3	19	35
3/8	40,0	18,0	25,4	65
1/2	46,1	25,7	31,9	120

Maximum Recommended Pressure: 200 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	EQUIV ORIFICE DIA. (mm)	BSPT THREAD SIZE 1/4	3/8	1/2	FLOW RATE IN LITRES/MIN AT Bar.G. 20	25	30	35	40	50	60	70	80	90	100	110
BZ 5	1,2	■			2,97	3,30	3,61	3,88	4,16	4,69	5,14	5,50	5,88	6,24	6,57	6,93
BZ 8	1,45	■			5,14	5,74	6,24	6,75	7,21	8,08	8,81	8,54	10,20	10,81	11,31	11,92
BZ 13	1,85	■			8,12	9,04	9,87	10,61	11,41	12,83	14,04	15,15	16,16	17,17	18,08	18,99
BZ 15	2,0		■		9,74	10,91	11,82	12,73	13,64	15,25	16,67	18,08	19,29	20,40	21,61	22,62
BZ 20	2,3	■			12,93	14,44	15,76	16,97	18,18	20,30	22,32	24,04	25,76	27,17	28,79	30,20
BZ 25	2,5		■		16,36	18,28	19,90	21,41	22,93	25,65	27,98	30,30	32,32	34,24	36,26	38,08
BZ 36	3,0		■		23,63	26,36,	28,68	30,91	33,03	37,07	40,40	43,83	46,86	49,09	52,32	54,64
BZ 38	3,1			■	24,85	26,97	30,50	33,03	35,25	40,00	43,63	47,27	50,50	53,73	56,46	59,69
BZ 51	3,7			■	34,54	38,58	42,22	45,35	48,68	54,24	59,19	64,24	68,38	72,52	76,66	80,30
BZ 54	3,75		■		35,05	39.09	42,72	45,96	49,09	55,05	60,60	65,25	69,79	73,93	77,57	81,71
BZ 78	4,4			■	51,41	56,96	62,42	67,47	72,11	80,80	89,03	96,35	103,02	109,08	115,14	120,19
BZ 106	5,0			■	69,29	77,16	84,44	91,30	97,77	109,08	120,19	129,28	138,37	146,45	154,53	162,61

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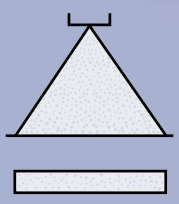


SPRAY CHARACTERISTICS

- *Highly uniform and stable distribution across the complete spray pattern with a knife-like cutting edge.*
- *Maximum impinging force produced with a minimum loss of energy resulting in higher efficiency.*
- *Spray patterns do not require overlapping.*
- *Nominal spray angles of 25° and 32°.*

CONSTRUCTION AND MATERIALS

- *Available in type 440 Hardened Stainless Steel.*
- *One piece constructionand with ⅜" Male NPT thread*

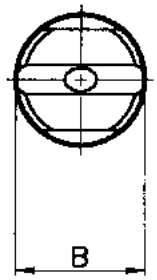
ORDER EXAMPLE

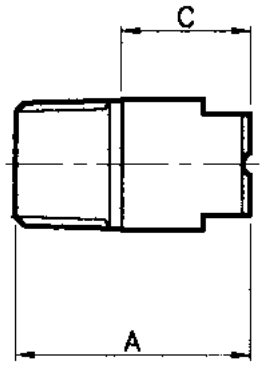
Nozzle Number 343-15.

DIMENSIONS AND WEIGHTS

Nozzle	Dimensions (mm) A	B	C	Weight (g)
343	31,8	17,5	17,4	35

Nozzle Height (mm)	Coverage (mm) at 70 Bar.G. 25°	32°
200	127	152
225	146	165
250	156	181
275	168	194
300	181	210
325	188	222
350	200	238
400	222	264
450	245	289
500	260	305
550	273	318
600	286	324





Maximum Recommended Pressure: 275 Bar.G.

CAPACITY CHART

NOZZLE NUMBER SPRAY ANGLE 25°	32°	Equiv. Orif. Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 40	55	70	85	100	110	125	140	150	165	180	195	210	240	275
343-1	343-10	2,0	14,5	17,0	19,0	21,0	22,7	23,8	25,5	27,0	27,9	29,0	30,7	32,0	33,2	35,5	37,8
343-3	343-12	2,8	28,7	33,7	38,2	42,2	45,5	47,7	51,0	53,8	55,7	58,6	61,0	63,6	66,0	70,6	75,6
343-5	343-14	3,6	43,2	50,7	57,2	63,0	68,2	71,9	76,0	80,0	82,9	87,0	91,0	95,2	99,2	106	113
343-6	343-15	4,0	57,7	67,8	76,3	84,5	92,5	94,6	103	107	113	117	121	126	134	140	151
343-7	343-16	4,4	72,3	83,2	95,4	104	116	121	129	134	139	148	152	160	164	178	189
343-8	343-17	4,8	85,7	102	114	127	135	144	152	160	166	174	182	190	198	212	227

HIGH PRESSURE

TYPE 343

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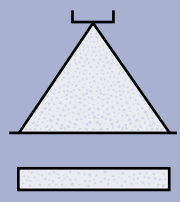


TYPE 344

HIGH PRESSURE

SPRAY CHARACTERISTICS

- *Highly uniform and stable distribution across the complete spray pattern with a knife-like cutting edge.*
- *Maximum impinging force produced with a minimum loss of energy resulting in higher efficiency.*
- *Tapered ends of the spray pattern make this the best suited to systems set up for overlapping spray patterns.*
- *Nominal spray angles of 25° and 32°.*

CONSTRUCTION AND MATERIALS

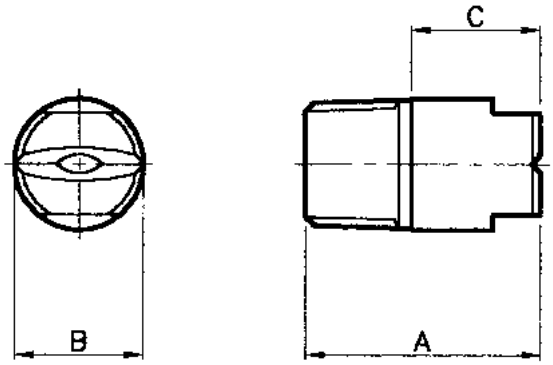
- *Available in type 440 Hardened Stainless Steel.*
- *One piece construction and with ⅜" Male NPT thread*

ORDER EXAMPLE

Nozzle Number 344 - 6.

DIMENSIONS AND WEIGHTS

Nozzle	Dimensions (mm) A	B	C	Weight (g)
344	31,8	17,5	17,4	35



Maximum Recommended Pressure: 275 Bar.G.

Nozzle Height (mm)	Coverage (mm) at 70 Bar.G. 25°	32°
200	76	99
225	89	111
250	102	124
275	114	137
300	127	149
325	133	159
350	143	172
400	162	191
450	175	213
500	191	232
550	207	251
600	222	270

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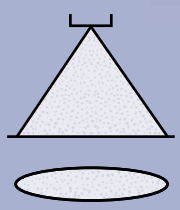


CAPACITY CHART

NOZZLE NUMBER SPRAY ANGLE 25°	32°	Equiv. Orif. Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 40	55	70	85	100	110	125	140	150	165	180	190	200	245	275
344-3	344-12	2,8	28,7	33,7	38,2	42,2	45,5	47,7	51,0	53,8	55,7	58,6	61,0	63,6	66,0	70,6	75,6
344-5	344-14	3,6	43,2	50,7	57,2	63,0	68,2	71,9	76,0	80,0	82,9	87,0	91,0	95,2	99,2	106	113
344-6	344-15	4,0	57,7	67,8	76,3	84,5	92,5	94,6	103	107	113	117	121	126	134	140	151
344-7	344-16	4,4	72,3	83,2	95,4	104	116	121	129	134	139	148	152	160	164	178	189
344-8	344-17	4,8	85,7	102	114	127	135	144	152	160	166	174	182	190	198	212	227

SPRAY CHARACTERISTICS

- *Produces highly uniform flat spray at high pressures.*
- *Maximum impinging force is produced with a minimum loss of energy resulting in higher efficiency.*
- *Spray pattern has a knife-like cutting edge.*
- *Normal spray angles of 25° and 32°.*
- *Orifice is offset 15° to axis of dovetail.*

CONSTRUCTION AND MATERIALS

- *Dovetail connection nozzle/body for positive alignment.*
- *3 piece design with Male BSPT thread or Welding Nipple body, available in:*
- *Stainless Steel bodies and cap.*
- *Mild Steel (Welding Nipple body only.)*
- *Longer welding nipple bodies available to special order.*
- *Nozzle is 416 Hardened Stainless Steel.*
- *Tips, bodies and cap can be ordered separately in different materials.*
- *Threaded bodies are ¾" or 1" Male BSPT only.*
- *Other materials available to special order.*

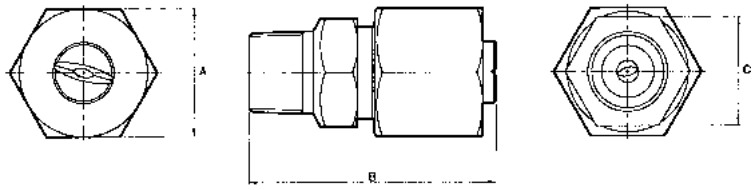
ORDER EXAMPLE

DD 20-32° Hardened Stainless Steel = Tip Only.
¾" DDM (Male) 40-25° Stainless Steel = Complete Assembly.
DDW 60-32° Stainless Steel = Welding Assembly.

DIMENSIONS AND WEIGHTS

Assembly Type	Dimensions (mm) A Hex	B	C Hex	Weight (g)
3/4" DDM	41,3	79,2	38,0	494
1" DDM	41,3	79,2	38,0	551
DDW	41,3	70,0	35,0 dia.	410

Nozzle Height (mm)	Coverage (mm) at 70 Bar.G. 25°	32°
200	125	150
225	135	165
250	155	180
275	165	190
300	180	205
325	185	220
350	195	235
400	220	250
450	240	285
500	255	300
550	270	315
600	280	320



Maximum Recommended Pressure: 275 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	Equiv. Orifice Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. - FOR BOTH 25° AND 32° 40	55	70	85	100	110	125	140	150	165	180	195	210	240	275
DD 6	1,5	8,7	10,2	11,5	12,6	13,7	14,4	15,3	16,2	16,8	17,6	18,4	19	20	21	23
DD 10	2,0	15	17	19	21	23	24	26	27	28	30	31	32	33	35	38
DD 12,5	2,2	18	21	24	26	29	30	32	34	35	37	38	40	41	44	47
DD 15	2,4	22	25	28	31	34	36	39	40	42	44	46	48	49	53	57
DD 20	2,8	29	34	38	42	45	48	51	54	56	59	61	64	66	71	76
DD 25	3,2	36	43	48	53	57	60	64	68	70	74	77	80	83	88	94
DD 30	3,6	43	51	57	63	68	72	78	81	84	88	92	95	99	106	113
DD 40	4,0	57	68	76	84	91	96	102	109	112	117	122	27	133	141	151
DD 50	4,4	72	85	95	105	114	119	127	135	140	147	153	159	166	177	189
DD 60	4,8	86	102	114	127	135	142	152	160	166	174	182	190	198	212	227

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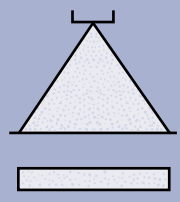


TYPE AQ

HIGH PRESSURE

SPRAY CHARACTERISTICS

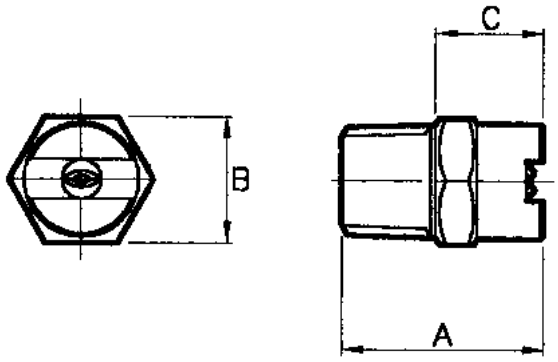
- *Produces a uniform flat fan shaped pattern.*
- *Requires minimal overlapping to produce an even distribution when used in multiple nozzle system.*
- *High pressure body design with replaceable insert.*
- *A wide range of flow rates and spray angles.*
- *0° nozzle sizes available on request.*

CONSTRUCTION AND MATERIALS

- *3 piece construction. Body, insert and retaining screw.*
- *The orifice insert is manufactured in Tungsten Carbide for maximum wear resistance at higher pressures.*
- *The insert is recessed for protection.*
- *The high pressure body and retaining screw are manufactured in Stainless Steel as standard.*
- *Standard thread is ¼" Male BSPT.*
- *Special bodies can be made to order.*

ORDER EXAMPLE

¼" AQ 4-65°.



DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A	B	C	Weight (g)
1/4"	24,5	15,3	13,0	26

Maximum Recommended Pressure: 350 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	Equiv. orifice size (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 35	50	70	100	140	210	280	350	SPRAY ANGLES (°) @ 70 Bar.G. 25	40	50	65	80	95
AQ 0,5	0,45	0,68	0,81	0,94	1,14	1,36	1,66	1,92	2,15						
AQ 0,6	0,51	0,75	0,89	1,06	1,26	1,51	1,84	2,13	2,38						
AQ 0,7	0,53	0,90	1,07	1,25	1,52	1,78	2,18	2,51	2,81						
AQ 0,8	0,61	1,14	1,36	1,59	1,92	2,27	2,78	3,21	3,59						
AQ 1,0	0,66	1,32	1,57	1,89	2,23	2,63	3,22	3,71	4,15						
AQ 1,25	0,74	1,70	2,03	2,38	2,87	3,39	4,15	4,79	5,36						
AQ 1,5	0,79	2,00	2,39	2,83	3,38	3,97	4,86	5,61	6,27						
AQ 2,0	0,91	2,68	3,20	3,78	4,53	5,29	6,47	7,48	8,36						
AQ 2,5	1,04	3,33	3,98	4,54	5,62	6,62	8,10	9,36	10,4						
AQ 3,0	1,09	4,16	4,97	5,67	7,03	7,94	9,72	11,2	12,5						
AQ 3,5	1,22	4,54	5,42	6,44	7,67	9,46	11,5	13,3	14,9						
AQ 4,0	1,32	5,30	6,33	7,57	8,95	10,5	12,8	14,8	16,6						
AQ 6,0	1,57	7,95	9,50	11,3	13,4	15,8	19,3	22,3	24,9						
AQ 8,0	1,83	10,6	12,6	15,1	17,9	21,1	25,8	36,4	33,3						
AQ 11,5	2,16	15,5	18,5	21,6	26,2	30,6	37,4	43,2	48,3						

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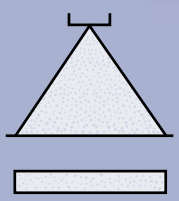


SPRAY CHARACTERISTICS

- *Produces a uniform flat fan shaped pattern.*
- *Requires minimal overlapping to produce an even distribution when used in multiple nozzle system.*
- *High pressure body design with replaceable insert.*
- *A wide range of flow rates and spray angles.*
- *0° nozzle sizes available on request.*
- *Orifice offset -5° to axis of dovetail.*

CONSTRUCTION AND MATERIALS

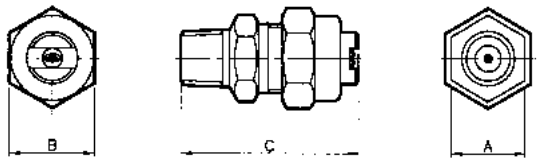
- *Dovetail connection nozzle/body for positive alignment.*
- *3 piece construction. Body, tip and cap.*
- *The tip is dovetailed for self alignment.*
- *The orifice insert is manufactured in Tungsten Carbide for maximum wear resistance at higher pressures.*
- *The high pressure body, cap and orifice housing are manufactured in Stainless Steel as standard.*
- *Standard Male and Female thread bodies are available and also an optional welding body.*

ORDER EXAMPLE

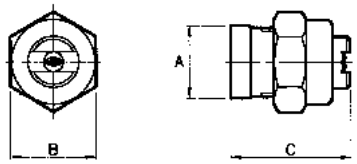
LQ 4 - 65° = Tip Only.
¼" LQM (Male) 8 - 40° = Complete Assembly.
LQW 2 - 65° = Welding Assembly.

DIMENSIONS AND WEIGHTS

Thread Size	Assembly Type	Dimensions (mm) A Hex	B Hex	C	Weight (g)
1/8	LQF	18,0	20,8	43,0	65
1/4	LQF	18,0	20,8	43,0	64
1/4	LQM	18,0	20,8	43,0	57
3/8	LQF	20,8	20,8	43,0	65
3/8	LQM	18,0	20,8	43,0	59
-	LQW	17,5 dia.	20,8	29,2	46



LQ (MALE) ASSEMBLY



LQ (WELDING) ASSEMBLY *Maximum Recommended Pressure: 350 Bar.G.*

CAPACITY CHART

NOZZLE NUMBER	Equiv. orifice size (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 35	50	70	100	140	210	280	350	SPRAY ANGLES (°) @ 70 Bar.G. 25	40	50	65	80	95
LQ 0,5	0,45	0,68	0,81	0,94	1,14	1,36	1,66	1,92	2,15						
LQ 0,6	0,51	0,75	0,89	1,06	1,26	1,51	1,84	2,13	2,38						
LQ 0,7	0,53	0,90	1,07	1,25	1,52	1,78	2,18	2,51	2,81						
LQ 0,8	0,61	1,14	1,36	1,59	1,92	2,27	2,78	3,21	3,59						
LQ 1,0	0,66	1,32	1,57	1,89	2,23	2,63	3,22	3,71	4,15						
LQ 1,25	0,74	1,70	2,03	2,38	2,87	3,39	4,15	4,79	5,36						
LQ 1,5	0,79	2,00	2,39	2,83	3,38	3,97	4,86	5,61	6,27						
LQ 2,0	0,91	2,68	3,20	3,78	4,53	5,29	6,47	7,48	8,36						
LQ 2,5	1,04	3,33	3,98	4,54	5,62	6,62	8,10	9,36	10,4						
LQ 3,0	1,09	4,16	4,97	5,67	7,03	7,94	9,72	11,2	12,5						
LQ 3,5	1,22	4,54	5,42	6,44	7,67	9,46	11,5	13,3	14,9						
LQ 4,0	1,32	5,30	6,33	7,57	8,95	10,5	12,8	14,8	16,6						
LQ 6,0	1,57	7,95	9,50	11,3	13,4	15,8	19,3	22,3	24,9						
LQ 8,0	1,83	10,6	12,6	15,1	17,9	21,1	25,8	36,4	33,3						
LQ 11,5	2,16	15,5	18,5	21,6	26,2	30,6	37,4	43,2	48,3						

HIGH PRESSURE

TYPE LQ

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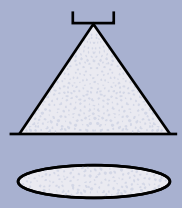


TYPE DQ

HIGH PRESSURE

SPRAY CHARACTERISTICS

- *Produces highly uniform flat spray at high pressures.*
- *Maximum impinging force is produced with a minimum loss of energy resulting in higher efficiency.*
- *Spray pattern has knife-like cutting edge.*
- *Normal spray angles of 25° and 32°.*
- *Orifice insert is offset 15° to axis of dovetail.*

CONSTRUCTION AND MATERIALS

- *Dovetail connection nozzle/body for positive alignment.*
- *3 piece design with Male NPT thread or Welding Nipple body, available in:*
- *Stainless Steel bodies and cap.*
- *Mild Steel (Welding Nipple body only.)*
- *Longer Welding Nipple bodies available to special order.*
- *Nozzle is Stainless Steel with Tungsten Carbide orifice insert.*
- *Tips, bodies and cap can be ordered separately in different materials.*
- *Threaded bodies are ¾" or 1" Male NPT only.*
- *Other materials available to special order.*

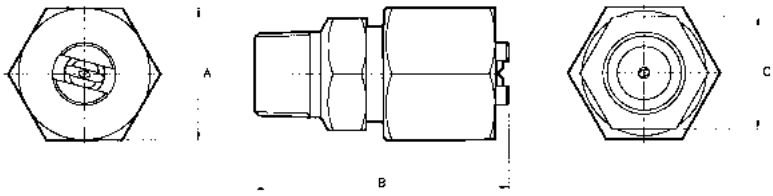
ORDER EXAMPLE

DQ 20-32° = Tip Only.
¾" DQM 40-25° Stainless Steel = Complete Assembly.
DQW 60-32° Stainless Steel = Welding Assembly.

Note:- *This nozzle type is also available as the DE type design with strainer and flow stabiliser.*

DIMENSIONS AND WEIGHTS

Assembly Type	Dimensions (mm) A Hex	B	C Hex	Weight (g)
¾" DQM	41,3	79,2	38,0	504
1" DQM	41,3	79,2	38,0	561
DQW	41,3	70,0	35,0 dia.	420



Nozzle Height (mm)	Coverage (mm) at 70 Bar.G. 25°	32°
200	125	150
225	135	165
250	155	180
275	165	190
300	180	205
325	185	220
350	195	235
400	220	250
450	240	285
500	255	300
550	270	315
600	280	320

Maximum Recommended Pressure: 275 Bar.G.

CAPACITY CHART

Nozzle Number	Equiva. Orifice Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. - FOR BOTH 25° AND 32° 40	55	70	85	100	110	125	140	150	165	180	195	210	240	275
DQ 6	1,5	8,7	10,2	11,5	12,6	13,7	14,4	15,3	16,2	16,8	17,6	18,4	19	20	21	23
DQ 10	2,0	15	17	19	21	23	24	26	27	28	30	31	32	33	35	38
DQ 12,5	2,2	18	21	24	26	29	30	32	34	35	37	38	40	41	44	47
DQ 15	2,4	22	25	28	31	34	36	39	40	42	44	46	48	49	53	57
DQ 20	2,8	29	34	38	42	45	48	51	54	56	59	61	64	66	71	76
DQ 30	3,6	43	51	57	63	68	72	78	81	84	88	92	95	99	106	113
DQ 40	4,0	57	68	76	84	91	96	102	109	112	117	122	127	133	141	151
DQ 50	4,4	72	85	95	105	114	119	127	135	140	147	153	159	166	177	189
DQ 60	4,8	86	102	114	127	135	142	152	160	166	174	182	190	198	212	227
DQ 70	5,2	102	117	132	144	155	167	178	189	197	204	212	219	231	246	265

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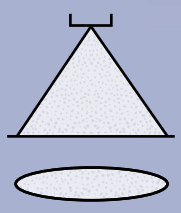


SPRAY CHARACTERISTICS

- *Produces highly uniform flat spray at pressures up to 4000 PSIG (275 Bar.G.).*
- *Maximum impinging force is produced with a minimum loss of energy resulting in higher efficiency.*
- *Spray pattern has knife-like cutting edge.*
- *Available spray angles of 25° and 32°.*

CONSTRUCTION AND MATERIALS

- *Unique connection nozzle/body for positive alignment.*
- *Cap, mild steel.*
- *Orifice assembly, tungsten carbide orifice for maximum wear resistance.*
- *Strainer available in several styles.*
- *Body, mild steel with ¾" - 14 NPTM threads and 1" - 11 - ½" NPTM threads or welding nipple type.*
- *Cap and body also available in 303 Stainless Steel by special order.*

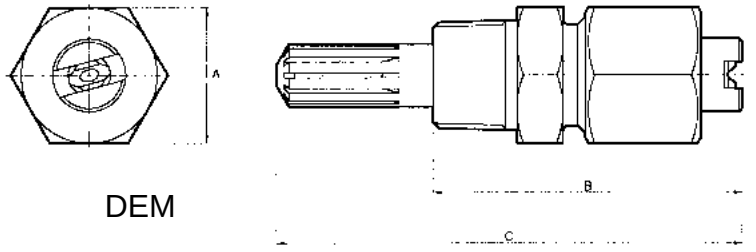
ORDER EXAMPLE

DE 30-32° = Tip and Strainer Assembly Only.
1" DEM 60-25° Stainless Steel = Complete Assembly.
DEW 40-32° Stainless Steel = Welding Assembly

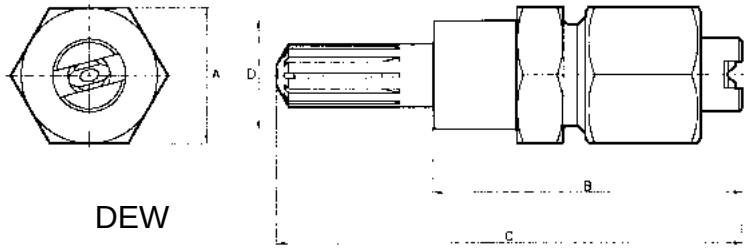
DIMENSIONS AND WEIGHTS

Assembly Type	Dimensions (mm) A Hex	B	C	D dia	Weight (g)
3/4" DEM	41,3	79,2	114,3	-	553
1" DEM	41,3	79,2	114,3	-	624
DEW	41,3	79,2	114,3	33,4	624

Nozzle Height (mm)	Coverage (mm) at 70 Bar.G. 25°	32°
200	125	150
225	135	165
250	155	180
275	165	190
300	180	205
325	185	220
350	195	235
400	220	250
450	240	285
500	255	300
550	270	315
600	280	320



DEM



DEW

Maximum Recommended Pressure: 275 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	Equiv. Orifice Dia. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. - FOR BOTH 25° AND 32° 40	55	70	85	100	110	125	140	150	165	180	195	210	240	275
DE 20	2,8	29	34	38	42	45	48	51	54	56	59	61	64	66	71	76
DE 30	3,6	43	51	57	63	68	72	78	81	84	88	92	95	99	106	113
DE 40	4,0	57	68	76	84	91	96	102	109	112	117	122	27	133	141	151
DE 50	4,4	72	85	95	105	114	119	127	135	140	147	153	159	166	177	189
DE 60	4,8	86	102	114	127	135	142	152	160	166	174	182	190	198	212	227
DE 70	5,2	102	117	132	144	155	167	178	189	197	204	212	219	231	246	265

HIGH PRESSURE

TYPE DE

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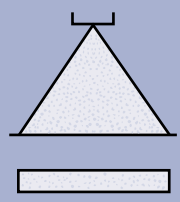

NOTES

HIGH PRESSURE

NOTES

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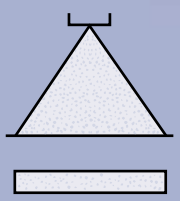


B Hollow Cone

WELCOME TO DELAVAN

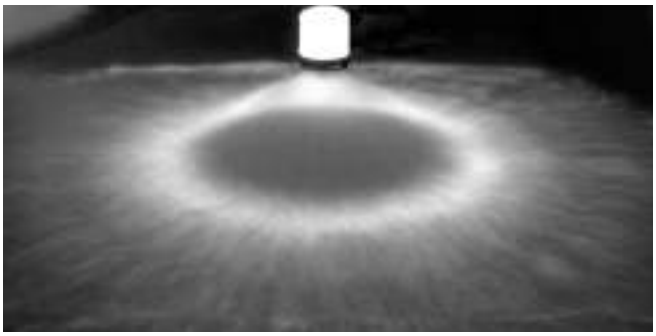
Meeting the **challenges** of new industries and *NEW markets*

DELAVAN®
Spray Technologies

SECTION INDEX

DELAVAN
Spray Technologies

TYPICAL SPRAY PATTERN



TYPICAL APPLICATIONS

Aerating water, brine sprays, chemical processing, coil defrosting, dust control, evaporative condensers, evaporative coolers, industrial washers, roof cooling, spray ponds, spray coating, gas scrubbing and washing, humidification, gas cooling, cooling towers, coal washing, degreasing, gravel washing, dishwashing, foam control, industrial washing and water fountains.

HOLLOW CONE

Nozzle Type	Spray Characteristics	Spray Angles	Basic Features	Flow Range. L/Min @ 3 Bar.G.	Page No.
WM	Uniform distribution with very fine atomisation.	40°,60°,80°	1/4" BSPT Male thread.	0,04 – 1,97	B.1
WG	Uniform distribution with very fine atomisation.	40°,60°,80°	Flanged tip design for use with standard bodies and caps.	0,04 – 1,97	B.2
WA	Uniform distribution with very fine atomisation.	40°,60°,80°	9/16" UNEF thread for use with special Male and Female BSP threaded adaptors.	0,04 – 1,97	B.3
WDA	Uniform distribution with very fine atomisation.	30°,45°,60°, 70°,80°,90°	9/16" UNEF thread for use with special Male and Female BSP threaded adaptors.	0,019 – 1,3	B.4
HC	Uniform distribution with very fine atomisation.	45°,70°,80°	Flanged tip design for use with standard bodies and caps.	0,066 – 1,72	B.5
BJ	Uniform distribution with fine to coarse atomisation.	44° – 98°	1/8"-1" BSPT Male and BSPP Female threads.	0,94 – 46,86	B.6
DC	Uniform distribution with fine to medium atomisation.	20° – 110°	Two piece nozzle design for use with standard bodies and caps.	0,32 – 9,86	B.7
AG	Uniform distribution with fine to coarse atomisation.	65° – 75°	3/8"-3/4" BSPT Male thread.	1,6 – 39,5	B.8
AH	Uniform distribution with fine to coarse atomisation.	100° – 115°	3/8"-3/4" BSPT Male thread.	1,6 – 39,5	B.9
WS	Uniform distribution with fine to coarse atomisation.	65°,70°,75°	1/8"-3/4" NPT Male and Female threads.	0,8 – 39,5	B.10
CBJ	Uniform distribution with fine to coarse atomisation.	44° – 98°	1/8"-1" BSPP Male threads. More compact than BJ type.	0,94 – 46,86	B.11
PJ	Relatively uniform distribution with fine to coarse atomisation.	90°,120°,150°, 180°,210°	1/4"-3/4" BSPT Male threads.	8,05 – 59,19	B.12
AE	Uniform distribution with fine to coarse atomisation.	65° – 95°	1/8"-1" BSPT Male and BSPP Female threads.	0,79 – 138	B.13
AF	Uniform distribution with fine to coarse atomisation.	100°,110°, 115°,120°	1/8"-1" BSPT Male and BSPP Female threads.	0,79 – 98,8	B.14
WR	Uniform distribution with fine to coarse atomisation.	45° – 155°	3/8" NPT Male and Female threads.	4,7 – 39,5	B.15
WRW	Uniform distribution with fine to coarse atomisation.	110°,115°, 140°	1/4" and 3/4" NPT Male threads.	0,79 – 94,7	B.16
RA	Uniform distribution of a 'Raindrop' type spray.	120° – 140°	1/4" and 3/4" NPT Male threads.	0,79 – 111,0	B.17
BE	Uniform distribution with coarse atomisation.	55° – 90°	1 1/4"-4" BSPT Female threads.	130 – 3500	B.18
* WRA-WRS	Uniform distribution with coarse atomisation.	50° – 100°	1 1/2" BSPT Male thread or Quick Coupler Adaptor connection.	62 – 501*	B.19
WRA-RD WRS-RD	Uniform distribution of a 'Raindrop' type spray.	100° – 135°	1 1/2" BSPT Male thread or Quick Coupler Adaptor connection.	65 – 414	B.20

* Flow quoted at 2 Bar.G.

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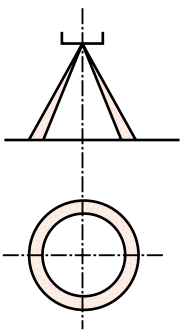


HOLLOW CONE SPRAY

TYPE WM

SPRAY CHARACTERISTICS

- *Uniform distribution with finest possible atomisation using direct liquid pressure alone.*
- *The standard spray angles of 40°, 60° or 80° are the nominal angles close to the nozzle orifice.*
- *For small capacity tips up to say 8 litres/hour the angle falls off rapidly a few inches from the tip. The larger the tip size the further the nominal angle projects before the spray begins to fall away.*
- *The nozzles produce a hollow cone spray but with the small capacity tips the spray rapidly merges into a "Solid" cone type.*

CONSTRUCTION AND MATERIALS

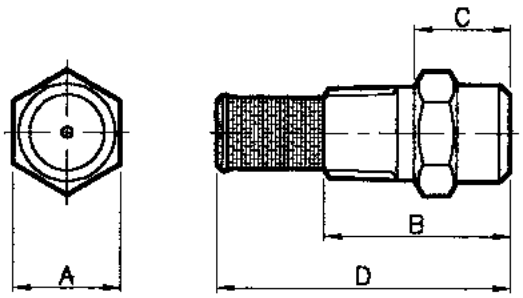
- *Nozzle tips precision machined to ensure most perfect spray available at low throughputs.*
- *Internal distributor, screw pin and strainers are renewable in most sizes.*
- *Available in Brass and 316 Stainless Steel as standard.*
- *Nozzle has ¼" Male BSPT thread as standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

WM 1408 Brass.

DIMENSIONS AND WEIGHTS

Dimensions (mm)				Weight
A Hex	B	C	D	(g)
15,9	27,8	16,7	44,5	14



CAPACITY CHART

Maximum Recommended Pressure: 35 Bar.G.

NOZZLE NUMBERS SPRAY ANGLES AT 7 Bar.G.			MAX MESH SIZE	FLOW RATE IN LITRES/HOUR AT Bar.G.							
40°	60°	80°		1,5	2	3	3,5	4	6	7	8
WM 054	WM 056	WM 058	200	-	-	-	-	1,47	2,04	2,29	2,46
WM 074	WM 076	WM 078	200	-	-	2,22	2,42	2,59	3,12	3,20	3,48
WM 104	WM 106	WM 108	200	-	-	3,08	3,25	3,53	4,36	4,57	5,04
WM 124	WM 126	WM 128	200	-	-	3,74	4,03	4,20	5,21	5,49	5,80
WM 154	WM 156	WM 158	200	-	-	4,97	5,03	5,36	6,39	6,86	7,23
WM 204	WM 206	WM 208	80	4,73	5,36	6,39	6,86	7,37	8,76	9,15	9,37
WM 254	WM 256	WM 258	80	5,92	6,47	7,91	8,32	8,93	10,7	11,4	12,1
WM 304	WM 306	WM 308	80	6,87	8,04	9,47	10,1	10,6	12,8	13,7	14,4
WM 354	WM 356	WM 358	80	8,05	9,15	10,9	11,5	12,3	14,9	16,0	17,0
WM 404	WM 406	WM 408	80	9,00	10,0	12,3	13,1	14,1	17,0	18,3	19,4
WM 454	WM 456	WM 458	80	10,27	11,5	13,7	14,6	15,6	18,9	20,6	21,9
WM 504	WM 506	WM 508	80	10,89	12,7	15,2	16,1	17,4	21,1	22,9	24,5
WM 554	WM 556	WM 558	80	12,31	13,8	16,8	17,8	19,2	23,2	25,2	26,9
WM 604	WM 606	WM 608	80	13,26	15,1	18,0	19,2	21,0	25,6	27,4	29,2
WM 704	WM 706	WM 708	80	15,62	17,9	21,3	22,8	24,6	29,8	32,0	34,4
WM 804	WM 806	WM 808	80	17,52	20,1	26,0	26,5	27,7	34,3	36,6	39,7
WM 1004	WM 1006	WM 1008	80	21,31	24,6	30,1	32,5	34,6	42,6	45,7	49,1
WM 1054	WM 1056	WM 1058	80	22,49	25,4	31,2	33,8	36,4	45,0	48,0	51,3
WM 1154	WM 1156	WM 1158	40	25,1	29,5	35,0	38,0	41,1	49,2	52,6	55,8
WM 1404	WM 1406	WM 1408	40	28,4	33,5	41,2	44,6	47,5	59,7	64,0	67,9
WM 1704	WM 1706	WM 1708	40	33,6	39,7	49,2	52,6	56,2	69,8	77,8	85,3
WM 2004	WM 2006	WM 2008	40	43,6	49,1	59,2	64,0	69,2	85,2	91,5	97,3
WM 2504	WM 2506	WM 2508	40	52,1	60,3	73,4	78,2	84,8	104,2	114,3	122,8
WM 3004	WM 3006	WM 3008	40	66,3	74,1	90,0	94,2	101,3	125,0	137,2	150,4
WM 3504	WM 3506	WM 3508	40	75,8	86,6	104,2	109,8	117,2	144,9	160,1	175,0
WM 4004	WM 4006	WM 4008	40	85,2	99,3	118,4	125,8	133,9	165,7	183,0	200,9

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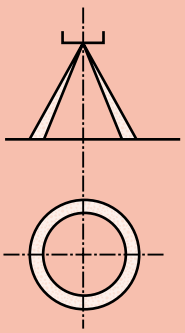


TYPE WG

HOLLOW CONE SPRAY

SPRAY CHARACTERISTICS

- *Uniform distribution with finest possible atomisation using direct liquid pressure alone.*
- *The standard spray angles of 40°, 60° or 80° are the nominal angles close to the nozzle orifice.*
- *For small capacity tips up to say 8 litres/hour the angle falls off rapidly a few inches from the tip. The larger the tip size the further the nominal angle projects before the spray begins to fall away.*
- *The nozzles produce a hollow cone spray but with the small capacity tips the spray rapidly merges into a "Solid" cone type.*

CONSTRUCTION AND MATERIALS

- *Nozzle tips precision machined to ensure most perfect spray available at low throughputs.*
- *Internal distributor, screw pin and strainers are renewable in most sizes.*
- *Available in Brass and 316 Stainless Steel as standard.*
- *Used with standard bodies and caps.*
- *Body thread sizes are Male BSPT and Female BSPP.*
- *Other materials available to special order.*

ORDER EXAMPLE

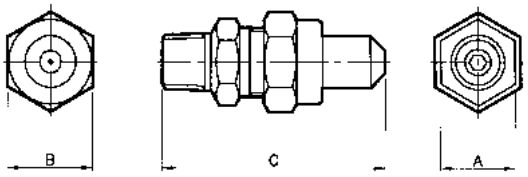
WG 154 Brass = Tip Only.

⅛" WGF 2008 (Female) Brass = Complete Assembly.

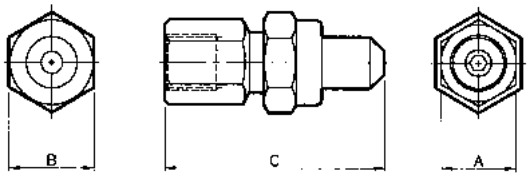
Maximum Recommended Pressure: 35 Bar.G.

DIMENSIONS AND WEIGHTS

Assembly Type	Dimensions (mm) A Hex	B Hex	C	Weight in (g)
1/8 WGF	18	20,8	54	70
1/8 WGM	18	20,8	52.4	60
1/4 WGF	18	20,8	54	70
1/4 WGM	18	20,8	54	62



WGM (MALE) ASSEMBLY



WGF (FEMALE) ASSEMBLY

CAPACITY CHART

NOZZLE NUMBERS SPRAY ANGLES AT 7 Bar.G.			MAX MESH SIZE	FLOW RATE IN LITRES/HOUR AT Bar.G.							
40°	60°	80°		1,5	2	3	3,5	4	6	7	8
WG 054	WG 056	WG 058	200	-	-	-	-	1,47	2,04	2,29	2,46
WG 074	WG 076	WG 078	200	-	-	2,22	2,42	2,59	3,12	3,20	3,48
WG 104	WG 106	WG 108	200	-	-	3,08	3,25	3,53	4,36	4,57	5,04
WG 124	WG 126	WG 128	200	-	-	3,74	4,03	4,20	5,21	5,49	5,80
WG 154	WG 156	WG 158	200	-	-	4,97	5,03	5,36	6,39	6,86	7,23
WG 204	WG 206	WG 208	80	4,73	5,36	6,39	6,86	7,37	8,76	9,15	9,37
WG 254	WG 256	WG 258	80	5,92	6,47	7,91	8,32	8,93	10,7	11,4	12,1
WG 304	WG 306	WG 308	80	6,87	8,04	9,47	10,1	10,6	12,8	13,7	14,4
WG 354	WG 356	WG 358	80	8,05	9,15	10,9	11,5	12,3	14,9	16,0	17,0
WG 404	WG 406	WG 408	80	9,00	10,0	12,3	13,1	14,1	17,0	18,3	19,4
WG 454	WG 456	WG 458	80	10,27	11,5	13,7	14,6	15,6	18,9	20,6	21,9
WG 504	WG 506	WG 508	80	10,89	12,7	15,2	16,1	17,4	21,1	22,9	24,5
WG 554	WG 556	WG 558	80	12,31	13,8	16,8	17,8	19,2	23,2	25,2	26,9
WG 604	WG 606	WG 608	80	13,26	15,1	18,0	19,2	21,0	25,6	27,4	29,2
WG 704	WG 706	WG 708	80	15,62	17,9	21,3	22,8	24,6	29,8	32,0	34,4
WG 804	WG 806	WG 808	80	17,52	20,1	26,0	26,5	27,7	34,3	36,6	39,7
WG 1004	WG 1006	WG 1008	80	21,31	24,6	30,1	32,5	34,6	42,6	45,7	49,1
WG 1054	WG 1056	WG 1058	80	22,49	25,4	31,2	33,8	36,4	45,0	48,0	51,3
WG 1154	WG 1156	WG 1158	40	25,1	29,5	35,0	38,0	41,1	49,2	52,6	55,8
WG 1404	WG 1406	WG 1408	40	28,4	33,5	41,2	44,6	47,5	59,7	64,0	67,9
WG 1704	WG 1706	WG 1708	40	33,6	39,7	49,2	52,6	56,2	69,8	77,8	85,3
WG 2004	WG 2006	WG 2008	40	43,6	49,1	59,2	64,0	69,2	85,2	91,5	97,3
WG 2504	WG 2506	WG 2508	40	52,1	60,3	73,4	78,2	84,8	104,2	114,3	122,8
WG 3004	WG 3006	WG 3008	40	66,3	74,1	90,0	94,2	101,3	125,0	137,2	150,4
WG 3504	WG 3506	WG 3508	40	75,8	86,6	104,2	109,8	117,2	144,9	160,1	175,0
WG 4004	WG 4006	WG 4008	40	85,2	99,3	118,4	125,8	133,9	165,7	183,0	200,9

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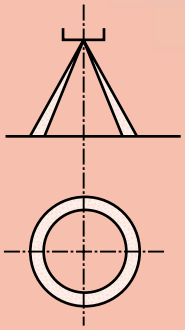


TYPE WA

HOLLOW CONE SPRAY

SPRAY CHARACTERISTICS

- *Uniform distribution with finest possible atomisation using direct liquid pressure alone.*
- *The standard spray angles of 40°, 60° or 80° are the nominal angles close to the nozzle orifice.*
- *For small capacity tips up to say 8 litres/hour the angle falls off rapidly a few inches from the tip. The larger the tip size the further the nominal angle projects before the spray begins to fall away.*
- *The nozzles produce a hollow cone spray but with the small capacity tips the spray rapidly merges into a "Solid" cone type.*

CONSTRUCTION AND MATERIALS

- *Nozzle tips precision machined to ensure most perfect spray available at low throughputs.*
- *Internal distributor, screw pin and strainers are renewable in most sizes.*
- *Available in Brass and 316 Stainless Steel as standard.*
- *Nozzle thread is 9/16" - 24 UNEF.*
- *Adaptors are available with ¼" Male BSPT and ⅛"/¼" Female BSPP and can be ordered separately.*
- *Other materials available to special order.*

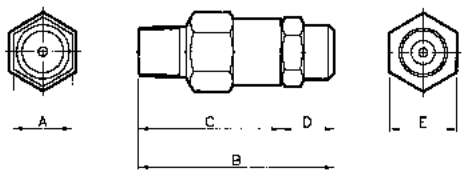
ORDER EXAMPLE

WA 1408 Stainless Steel = Tip Only.
¼" Male WA 808 Brass = Complete Assembly.

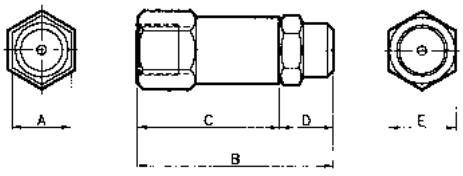
DIMENSIONS AND WEIGHTS

Assembly Type	Dimensions (mm) A Hex	B	C	D	E Hex	Weight (g)
1/8 Female	15,9	52,4	38,1	14,3	18,0	82
1/4 Male	15,9	52,4	38,1	14,3	18,0	78
1/4 Female	15,9	52,4	38,1	14,3	18,0	69

Maximum Recommended Pressure: 35 Bar.G.



WA (MALE) ASSEMBLY



WA (FEMALE) ASSEMBLY

CAPACITY CHART

NOZZLE NUMBERS SPRAY ANGLES AT 7 Bar.G. 40°	60°	80°	MAX MESH SIZE	FLOW RATE IN LITRES/HOUR AT Bar.G. 1,5	2	3	3,5	4	6	7	8
WA 054	WA 056	WA 058	200	-	-	-	-	1,47	2,04	2,29	2,46
WA 074	WA 076	WA 078	200	-	-	2,22	2,42	2,59	3,12	3,20	3,48
WA 104	WA 106	WA 108	200	-	-	3,08	3,25	3,53	4,36	4,57	5,04
WA 124	WA 126	WA 128	200	-	-	3,74	4,03	4,20	5,21	5,49	5,80
WA 154	WA 156	WA 158	200	-	-	4,97	5,03	5,36	6,39	6,86	7,23
WA 204	WA 206	WA 208	80	4,73	5,36	6,39	6,86	7,37	8,76	9,15	9,37
WA 254	WA 256	WA 258	80	5,92	6,47	7,91	8,32	8,93	10,7	11,4	12,1
WA 304	WA 306	WA 308	80	6,87	8,04	9,47	10,1	10,6	12,8	13,7	14,4
WA 354	WA 356	WA 358	80	8,05	9,15	10,9	11,5	12,3	14,9	16,0	17,0
WA 404	WA 406	WA 408	80	9,00	10,0	12,3	13,1	14,1	17,0	18,3	19,4
WA 454	WA 456	WA 458	80	10,27	11,5	13,7	14,6	15,6	18,9	20,6	21,9
WA 504	WA 506	WA 508	80	10,89	12,7	15,2	16,1	17,4	21,1	22,9	24,5
WA 554	WA 556	WA 558	80	12,31	13,8	16,8	17,8	19,2	23,2	25,2	26,9
WA 604	WA 606	WA 608	80	13,26	15,1	18,0	19,2	21,0	25,6	27,4	29,2
WA 704	WA 706	WA 708	80	15,62	17,9	21,3	22,8	24,6	29,8	32,0	34,4
WA 804	WA 806	WA 808	80	17,52	20,1	26,0	26,5	27,7	34,3	36,6	39,7
WA 1004	WA 1006	WA 1008	80	21,31	24,6	30,1	32,5	34,6	42,6	45,7	49,1
WA 1054	WA 1056	WA 1058	80	22,49	25,4	31,2	33,8	36,4	45,0	48,0	51,3
WA 1154	WA 1156	WA 1158	40	25,1	29,5	35,0	38,0	41,1	49,2	52,6	55,8
WA 1404	WA 1406	WA 1408	40	28,4	33,5	41,2	44,6	47,5	59,7	64,0	67,9
WA 1704	WA 1706	WA 1708	40	33,6	39,7	49,2	52,6	56,2	69,8	77,8	85,3
WA 2004	WA 2006	WA 2008	40	43,6	49,1	59,2	64,0	69,2	85,2	91,5	97,3
WA 2504	WA 2506	WA 2508	40	52,1	60,3	73,4	78,2	84,8	104,2	114,3	122,8
WA 3004	WA 3006	WA 3008	40	66,3	74,1	90,0	94,2	101,3	125,0	137,2	150,4
WA 3504	WA 3506	WA 3508	40	75,8	86,6	104,2	109,8	117,2	144,9	160,1	175,0
WA 4004	WA 4006	WA 4008	40	85,2	99,3	118,4	125,8	133,9	165,7	183,0	200,9

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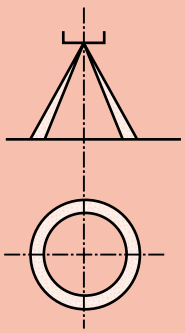


TYPE WDA

HOLLOW CONE SPRAY

SPRAY CHARACTERISTICS

- *Finely atomised hollow cone spray pattern.*
- *Available spray angles of 30°, 45°, 60°, 70°, 80° and 90° at 8,6 Bar.G. pressure.*

CONSTRUCTION AND MATERIALS

Nozzle consists of five basic parts:

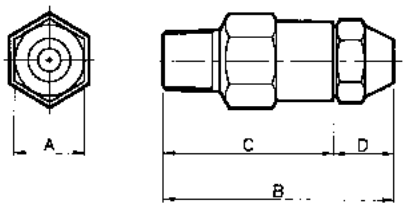
- *Nozzle body - Brass or 416 Stainless Steel.*
- *Orifice Disc - 416 Stainless Steel.*
- *Distributor - 416 Stainless Steel.*
- *Retainer - Brass or 416 Stainless Steel.*
- *Strainer - (used up to WDA 14).*
- *Nozzle thread is 9⁄16" - 24 UNEF.*
- *Adaptors are available with ¼" Male BSPT and ⅛"/¼" Female BSPP and can be ordered separately.*

ORDER EXAMPLE

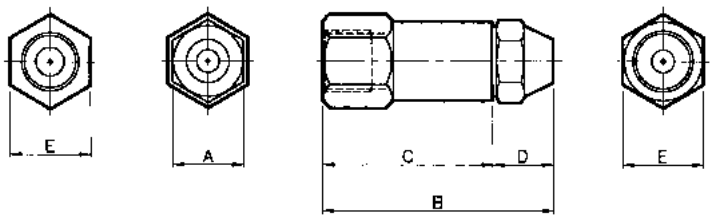
WDA 8,0-70° Stainless Steel = Tip Only.
¼" Female WDA 12,0-70° Brass = Complete Assembly.

DIMENSIONS AND WEIGHTS

Assembly Type	Dimensions (mm) A Hex	B	C	D	E Hex	Weight (g)
1/8 Female	15,9	52,4	38,1	14,3	18,0	82
1/4 Male	15,9	52,4	38,1	14,3	18,0	78
1/4 Female	15,9	52,4	38,1	14,3	18,0	69



WDA (MALE) ASSEMBLY



WDA (FEMALE) ASSEMBLY

CAPACITY CHART

Maximum Recommended Pressure: 35 Bar.G.

NOZZLE NUMBER	APPROX. ORIFICE DIA. (mm)	FLOW RATE IN LITRES/HOUR AT Bar.G. 2	3	5	7	10	15	20	35
0,5 x	0,21	-	-	1,45	1,72	2,05	2,51	2,87	3,82
0,75 x	0,23	-	-	2,16	2,56	3,05	3,74	4,32	5,72
1,0	0,28	-	-	2,87	3,40	4,10	5,02	5,77	7,63
1,5	0,33	-	-	4,32	5,11	6,15	7,53	8,64	11,4
2,0	0,38	-	-	5,77	6,83	8,19	10,0	11,6	15,3
2,5	0,41	-	-	7,19	8,55	10,2	12,5	14,5	19,1
3,0	0,46	-	-	8,64	10,2	12,3	15,1	17,3	22,9
4,0	0,64	-	8,69	11,5	13,7	16,4	20,1	23,1	30,5
5,0	0,64	-	11,1	14,5	17,2	20,5	25,1	28,7	38,2
6,0	0,74	-	14,2	17,5	20,6	24,6	30,1	34,6	45,8
8,0	0,81	-	17,8	23,1	27,5	33,1	40,6	46,2	61,1
10,0	0,89	17,9	22,1	28,7	34,0	41,0	50,2	57,7	76,3
12,0	1,02	21,6	26,9	34,6	40,8	49,2	60,2	69,3	91,6
14,0	1,02	25,3	31,2	40,2	47,7	57,0	69,8	80,8	107
16,0*	1,17	29,1	35,6	46,2	54,6	65,2	79,8	92,4	122
18,0*	1,32	32,8	39,9	51,8	61,4	73,4	89,9	104	137
20,0*	1,40	36,5	44,6	57,8	68,3	81,6	99,9	115	153
24,0*	1,52	45,8	53,3	69,3	82,1	98,0	120	139	183
30,0*	1,70	54,4	66,8	86,4	102	123	150	173	229
35,0*	1,78	64,1	78,2	101	120	143	175	202	267

x Not available in 30° or 45°.
* These sizes are supplied without strainers.

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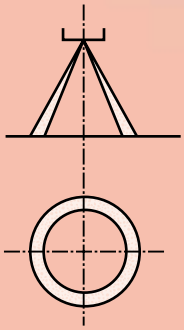


SPRAY CHARACTERISTICS

- *Finely atomised hollow cone spray pattern.*
- *Nominal spray angle of 70° (45° and 80° to special order).*

CONSTRUCTION AND MATERIALS

- *Four part design - nozzle body, strainer, tip and cap.*
- *Tip consists of body with orifice insert, distributor and screw pin.*
- *Tips are interchangeable and replaceable.*
- *Body thread sizes are Male BSPT and Female BSPP.*
- *100 - mesh Stainless Steel strainers supplied on request.*
- *Brass with 416 Stainless Steel metering parts.*

ORDER EXAMPLE

HC 5 = Tip Only.
¼" HC 5 (Male) = Complete Assembly.
¼" HC 10 (Female) = Complete Assembly.

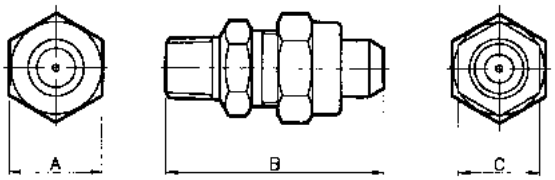
HC TYPE

HOLLOW CONE SPRAY

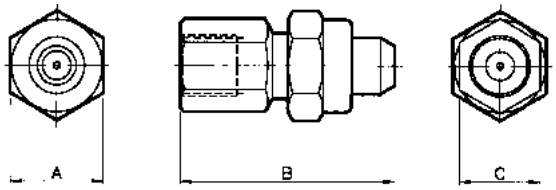
TYPE HC

DIMENSIONS AND WEIGHTS

Assembly Type	*Dimensions (mm)* A Hex	B	C Hex	*Weight (g)*
⅛ Female	20,8	47,7	18,0	70
⅛ Male	20,8	46,0	18,0	60
¼ Female	20,8	47,7	18,0	70
¼ Male	20,8	47,7	18,0	62



HC (MALE) ASSEMBLY



HC (FEMALE) ASSEMBLY

CAPACITY CHART

Maximum Recommended Pressure: 35 Bar.G.

NOZZLE NUMBER	*FLOW RATE IN LITRES/HOUR AT Bar.G.* 2	3	4	5	6	7
HC 1,0	3,23	3,95	4,56	5,10	5,58	6,03
HC 1,25	4,03	4,93	5,70	6,37	6,98	7,54
HC 1,50	4,84	5,92	6,84	7,64	8,37	9,04
HC 2,0	6,45	7,89	9,12	10,2	11,2	12,1
HC 2,5	8,05	9,57	11,4	12,7	14,0	15,1
HC 3,0	9,65	11,8	13,7	15,3	16,7	18,0
HC 4,0	12,9	15,8	18,2	20,4	22,3	24,1
HC 5,0	16,1	19,7	22,8	25,5	27,9	30,1
HC 6,0	19,3	23,7	27,3	30,6	33,5	36,2
HC 8,0	25,8	31,6	36,5	40,8	44,7	48,3
HC 10,0	32,2	39,5	45,6	51,0	55,8	60,3
HC 12,0	38,6	47,4	54,7	61,1	67,0	72,4
HC 14,0	45,1	55,3	63,8	71,3	78,1	84,4
HC 18,0	58,0	71,0	82,0	91,7	100	108
HC 22,0	71,0	86,8	100	112	123	133
HC 26,0	84,0	103	119	132	145	157

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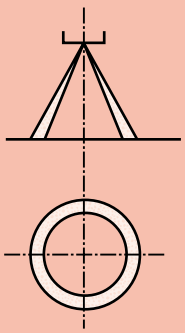
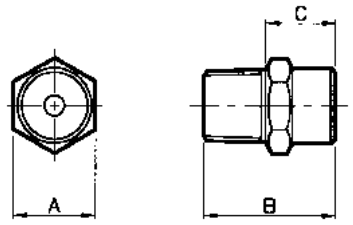


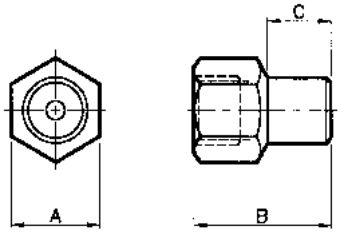
DELAVAN
Spray Technologies

TYPE BJ

HOLLOW CONE SPRAY



BJM (MALE)



BJF (FEMALE)

SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a hollow cone spray pattern.*
- *For nozzles of the same capacity, the droplet size of hollow cone type nozzles are smaller than droplets produced by solid cone nozzles.*

CONSTRUCTION AND MATERIALS

- *One-piece body with removable spiral-type core.*
- *Hexagon body for easy installation, eliminates distortion of orifice during installation.*
- *Available with Male BSPT or Female BSPP threads.*
- *Brass and 316 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

⅜" BJM 6 (Male) Brass.
1" BJF 60 (Female) Stainless Steel.

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A Hex	B	C	Weight (g)
1/8	BJM	11,3	17,5	9,6	10
1/8	BJF	15,3	25,4	13,5	21
1/4	BJM	15,3	24,5	13,0	24
1/4	BJF	18,0	27,8	12,7	35
3/8	BJM	18,0	25,5	14,0	35
3/8	BJF	20,8	38,9	21,1	58
1/2	BJM	25,6	32,0	16,1	75
1/2	BJF	25,6	50,0	28,3	118
3/4	BJM	28,0	36,0	19,0	115
3/4	BJF	31,8	62,7	31,5	215
1	BJM	38,0	50,0	28,5	290
1	BJF	38,0	81,0	51,0	330

CAPACITY CHART

Maximum Recommended Pressure: 35 Bar.G.

NOZZLE NUMBER	APPROX. ORIFICE DIA. (mm)	BSPT THREAD SIZE 1/8	1/4	3/8	1/2	3/4	1	FLOW RATE IN LITRES/MIN AT Bar.G. ,7	1	1,5	2	3	4	5	6	7	8	SPRAY ANGLE (°) AT Bar.G. ,7	2	5
BJ 1	1,6							,45	,53	,65	,76	,94	1,09	1,22	1,33	1,46	1,57	44	65	70
BJ 2	2,0							,62	,74	,87	1,00	1,20	1,37	1,53	1,67	1,80	1,93	60	70	75
BJ 3	2,4							,69	,84	,98	1,12	1,36	1,57	1,73	1,88	2,03	2,16	66	80	85
BJ 3	2,8							,74	,86	1,04	1,19	1,44	1,66	1,84	1,99	2,16	2,29	62	65	70
BJ 4	2,4							,90	1,07	1,29	1,47	1,79	2,04	2,27	2,46	2,67	2,85	62	66	80
BJ 5	2,8							1,02	1,21	1,47	1,70	2,09	2,40	2,70	2,93	3,21	3,39	74	83	83
BJ 6	3,2							1,21	1,45	1,77	2,04	2,51	2,89	3,23	3,52	3,83	4,09	75	84	86
BJ 7	3,6							1,36	1,62	1,99	2,30	2,84	3,31	3,68	4,02	4,36	4,69	75	90	95
BJ 7	3,2							1,70	2,00	2,44	2,82	3,42	3,95	4,40	4,83	5,24	5,57	64	68	76
BJ 8	3,6							1,84	2,17	2,66	3,06	3,73	4,47	4,78	5,24	5,70	6,06	72	85	84
BJ 9	4,0							2,16	2,55	3,08	3,54	4,29	4,92	5,46	5,98	6,48	6,89	84	90	88
BJ 11	4,7							2,39	2,87	3,52	4,14	5,10	5,93	6,62	7,26	7,95	8,50	86	90	90
BJ 13	5,5							2,85	3,41	4,21	4,92	6,06	7,26	7,91	8,69	9,51	10,10	87	97	98
BJ 18	4,7							3,88	4,60	5,61	6,43	7,91	9,10	10,20	11,21	12,12	13,03	67	73	74
BJ 20	5,5							4,69	5,57	6,80	7,86	9,65	11,21	12,52	13,64	14,85	15,86	74	75	80
BJ 26	6,4							5,46	6,58	8,13	9,46	11,72	13,64	15,35	16,97	18,58	19,90	80	84	80
BJ 29	7,1							6,34	7,63	9,42	10,91	13,43	15,76	17,68	19,39	21,11	22,62	88	88	87
BJ 33	7,9							6,99	8,36	10,50	12,22	15,15	17,88	20,10	22,22	24,24	26,06	95	95	92
BJ 28	4,7							-	7,08	8,83	10,20	12,63	14,85	16,67	18,38	20,10	21,61	-	50	45
BJ 39	5,9							-	10,06	12,52	14,65	18,08	21,11	23,94	26,26	28,68	30,81	-	60	55
BJ 53	7,1							10,61	12,83	15,86	18,58	22,83	26,66	30,10	33,07	36,26	38,58	65	60	62
BJ 60	7,9							12,63	15,15	18,69	21,61	26,56	31,01	34,74	38,18	41,31	44,14	70	65	67
BJ 66	8,7							14,34	17,17	21,01	24,24	29,59	34,14	38,18	41,81	45,45	48,28	70	65	65
BJ 75	9,5							15,96	18,99	23,43	27,07	33,13	38,58	43,23	47,37	51,51	52,82	73	70	70
BJ 102	12,3							23,03	27,27	33,33	38,48	46,86	53,73	59,79	65,25	70,80	75,35	80	83	83

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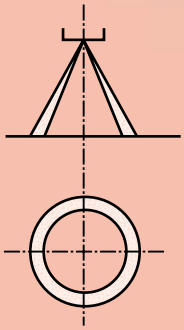


SPRAY CHARACTERISTICS

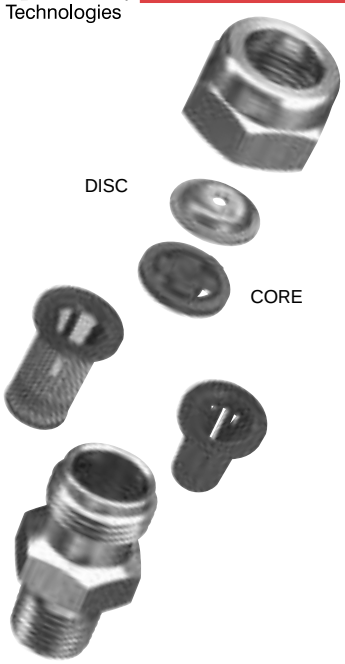
- *Hollow cone spray pattern with relatively large droplets at lower pressures.*
- *As pressure increases, the atomisation becomes finer.*

CONSTRUCTION AND MATERIALS

- *Made up of five parts and available in these materials:*
- *Body - Brass and 316 Stainless Steel.*
- *Flanged Strainer - Brass, 316 Stainless Steel and Nylon.*
- *Core - Nylon only (5 different sizes).*
- *Disc - 302 Stainless Steel (12 different sizes).*
- *Cap - Brass and 316 Stainless Steel.*
- *Body thread sizes are Male BSPT and Female BSPP.*

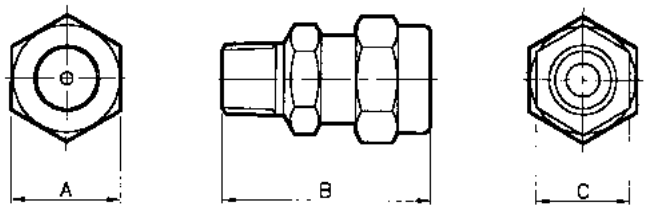
ORDER EXAMPLE

1/4" DCF (Female) 7-25 Brass.
1/8" DCM (Male) 6-23 Stainless Steel.
No. 8 Disc, No. 45 Core (can be ordered separately).



DIMENSIONS AND WEIGHTS

Assembly Type	Dimensions (mm) A Hex	B	C Hex	Weight (g)
⅛ DCF	20,8	40,0	18,0	65
⅛ DCM	20,8	38,4	18,0	55
¼ DCF	20,8	40,0	18,0	64
¼ DCM	20,8	40,0	18,0	55



DCM (MALE) ASSEMBLY

CAPACITY CHART

Maximum Recommended Pressure: 35 Bar.G.

NOZZLE NUMBER TYPE	DISC-CORE	FLOW RATE IN LITRES/MIN AT Bar.G. 2,8	5	7	10	15	25	SPRAY ANGLE (°) AT 2,8 Bar.G.
DC	2-13	0,31	0,41	0,48	0,58	0,71	0,91	70
DC	3-13	0,34	0,46	0,54	0,65	0,79	1,03	70
DC	2-23	0,38	0,51	0,60	0,72	0,88	1,14	65
DC	3-23	0,46	0,61	0,72	0,86	1,06	1,37	70
DC	4-13	0,46	0,61	0,72	0,86	1,06	1,37	80
DC	2-25	0,61	0,82	0,96	1,15	1,41	1,82	50
DC	5-23	0,69	0,92	1,09	1,30	1,59	2,05	90
DC	3-25	0,72	0,97	1,15	1,37	1,68	2,17	65
DC	6-23	0,80	1,07	1,27	1,51	1,85	2,39	95
DC	3-45	0,88	1,17	1,39	1,66	2,03	2,62	60
DC	4-25	1,11	1,48	1,75	2,09	2,56	3,30	75
DC	3-46	1,22	1,63	1,93	2,30	2,82	3,65	20
DC	5-25	1,33	1,78	2,11	2,52	3,09	3,99	80
DC	6-25	1,68	2,24	2,65	3,17	3,88	5,01	85
DC	5-45	1,72	2,29	2,71	3,24	3,97	5,13	75
DC	7-25	1,98	2,65	3,14	3,75	4,59	5,93	90
DC	6-45	2,21	2,96	3,50	4,18	5,12	6,61	80
DC	8-25	2,33	3,11	3,68	4,40	5,38	6,95	95
DC	7-45	2,59	3,47	4,10	4,90	6,00	7,75	85
DC	5-46	2,94	3,92	4,64	5,55	6,80	8,77	40
DC	8-45	3,05	4,28	5,07	6,05	7,41	9,57	90
DC	12-25	3,55	4,74	5,61	6,70	8,21	10,6	110
DC	14-25	3,81	5,10	6,03	7,21	8,83	11,4	110
DC	6-46	4,20	5,61	6,63	7,93	9,71	12,5	50
DC	10-45	4,20	5,61	6,63	7,93	9,71	12,5	90
DC	7-46	5,34	7,13	8,44	10,1	12,4	16,0	55
DC	12-45	5,34	7,13	8,44	10,1	12,4	16,0	100
DC	14-45	5,72	7,64	9,04	10,8	13,2	17,1	105
DC	8-46	6,86	9,17	10,9	13,0	15,9	20,5	60
DC	10-46	9,53	12,7	15,1	18,0	22,1	28,5	65

HOLLOW CONE SPRAY

TYPE DC

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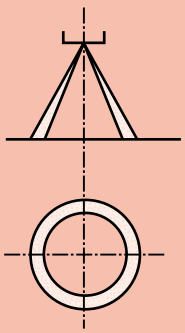


TYPE AG

HOLLOW CONE SPRAY

SPRAY CHARACTERISTICS

- *Hollow cone spray pattern with uniform distribution of finely atomised droplets.*
- *Smaller droplets in spray pattern than full cone nozzles of the same capacity at similar pressures.*

CONSTRUCTION AND MATERIALS

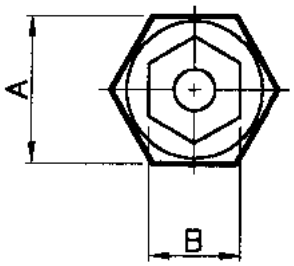
- *One piece in-line body with removable orifice cap.*
- *No internal vanes or cores for clog resistant performance.*
- *Available with Male BSPT thread only.*
- *Brass and Stainless Steel are standard.*
- *Other materials available to special order.*

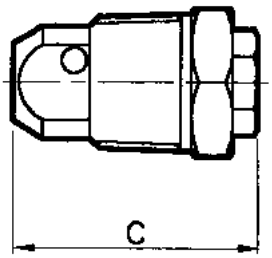
ORDER EXAMPLE

⅜" AG 20 Brass.

DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A Hex	B Hex	C	Weight (g)
⅜	18,0	11,3	32,0	60
½	25,6	15,3	37,0	90
¾	28,0	18,0	44,5	140





Maximum Recommended Pressure:
14 Bar.G. (Metal), 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER	BSPT THREAD SIZE 3/8	1/2	3/4	APPROX. ORIFICE SIZE (mm) Outlet	Inlet	FLOW RATE IN LITRES/MIN AT Bar.G. 1	2	3	4	5	6	7	SPRAY ANGLE (°) AT 3 Bar.G.
AG 4				2,0	2,4	0,92	1,3	1,6	1,8	2,0	2,2	2,4	65
AG 6				2,4	2,4	1,3	1,9	2,4	2,7	3,1	3,4	3,6	68
AG 10				3,2	2,8	2,3	3,2	3,9	4,6	5,1	5,6	6,0	70
AG 15				3,6	4,0	3,4	4,8	5,9	6,8	7,6	8,4	9,0	72
AG 20				4,4	4,0	4,5	6,4	7,9	9,1	10,2	11,2	12,1	75
AG 25				4,8	5,6	5,7	8,1	9,9	11,4	12,7	14,0	15,1	75
AG 15				4,0	4,0	3,4	4,8	5,9	6,8	7,6	8,4	9,0	65
AG 20				4,4	4,4	4,5	6,4	7,9	9,1	10,2	11,2	12,1	67
AG 25				4,8	4,4	5,7	8,1	9,9	11,4	12,7	14,0	15,1	70
AG 30				5,2	6,2	6,9	9,7	11,8	13,7	15,3	16,8	18,1	70
AG 40				6,0	6,8	9,1	12,9	15,8	18,2	20,4	22,3	24,1	73
AG 50				7,2	7,4	11,4	16,1	19,7	22,8	25,5	27,9	30,2	75
AG 30				5,6	6,4	6,9	9,7	11,8	13,7	15,3	16,8	18,1	65
AG 40				6,4	7,2	9,1	12,9	15,8	18,2	20,4	22,3	24,1	68
AG 50				7,5	7,2	11,4	16,1	19,7	22,8	25,5	27,9	30,2	70
AG 60				8,0	7,2	13,6	19,3	23,7	27,3	30,6	33,5	36,2	70
AG 80				8,8	10,0	18,2	25,8	31,6	36,5	40,8	44,7	48,2	72
AG 100				9,5	10,0	22,8	32,2	39,5	45,6	51,0	55,8	60,3	75

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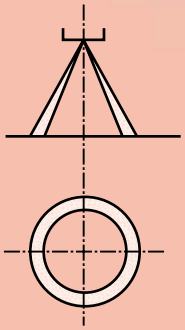


SPRAY CHARACTERISTICS

- *Hollow cone wide angle spray pattern with uniform distribution of finely atomised droplets.*
- *Smaller droplets in spray pattern than full cone nozzles of the same capacity at similar pressures.*

CONSTRUCTION AND MATERIALS

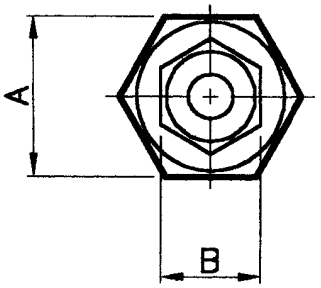
- *One piece in-line body with removable orifice cap.*
- *No internal vanes or cores for clog resistant performance.*
- *Available with Male BSPT thread only.*
- *Brass and Stainless Steel are standard.*
- *Other materials available to special order.*

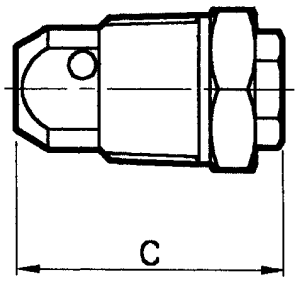
ORDER EXAMPLE

½" AH 30 Stainless Steel.

DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A Hex	B Hex	C	Weight (g)
⅜	18,0	11,3	32,0	60
½	25,6	15,3	37,0	90
¾	28,0	18,0	44,5	140





Maximum Recommended Pressure: 14 Bar.G. (Metal), 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER	BSPT THREAD SIZE 3/8	1/2	3/4	APPROX. ORIFICE SIZE (mm) Outlet	Inlet	FLOW RATE IN LITRES/MIN AT Bar.G. 1	2	3	4	5	6	7	SPRAY ANGLE (°) AT 3 Bar.G.
AH 4				2,0	2,4	0,92	1,3	1,6	1,8	2,0	2,2	2,4	100
AH 5				2,4	2,4	1,1	1,6	2,0	2,3	2,5	2,8	3,0	100
AH 6				2,8	2,4	1,3	1,9	2,4	2,7	3,1	3,4	3,6	105
AH 10				3,6	2,8	2,3	3,2	3,9	4,6	5,1	5,6	6,0	105
AH 15				4,0	4,0	3,4	4,8	5,9	6,8	7,6	8,4	9,0	105
AH 15				4,4	4,0	3,4	4,8	5,9	6,8	7,6	8,4	9,0	110
AH 20				4,8	4,4	4,5	6,4	7,9	9,1	10,2	11,2	12,1	110
AH 25				5,2	4,4	5,7	8,1	9,9	11,4	12,7	14,0	15,1	110
AH 30				6,0	6,0	6,9	9,7	11,8	13,7	15,3	16,8	18,1	110
AH 50				8,0	7,2	11,4	16,1	19,7	22,8	26,5	27,9	30,2	115
AH 80				9,5	10,0	18,2	25,8	31,6	36,5	40,8	44,7	48,2	115
AH 100				10,0	10,0	22,8	32,2	39,5	45,6	51,0	55,8	60,3	115

HOLLOW CONE SPRAY

TYPE AH

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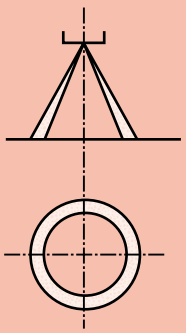


TYPE WS

HOLLOW CONE SPRAY

SPRAY CHARACTERISTICS

- *Nominal spray angle of 75° as standard (measured at 3 Bar.G.).*
- *Hollow cone spray pattern with fine atomisation.*
- *Three piece construction with a removable internal distributor for ease of cleaning.*

CONSTRUCTION AND MATERIALS

- *Three part construction - nozzle body, core and nozzle adaptor.*
- *Threads are NPT Male or Female.*
- *Core imparts swirling motion to liquid producing a hollow cone pattern.*
- *Resistant to clogging, but can be disassembled for easy cleaning.*
- *Brass and 303 Stainless Steel are standard.*
- *Other materials available to special order.*

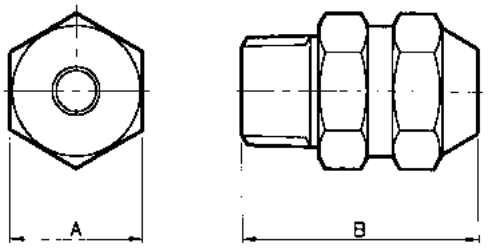
ORDER EXAMPLE

½" WSF (Female) 40 Stainless Steel.
⅜" WSM (Male) 10 Brass.

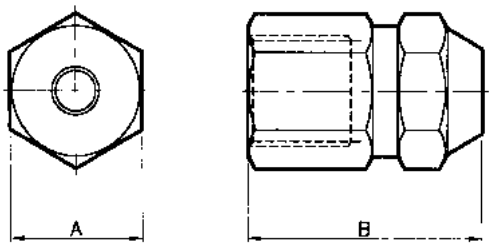
DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A Hex	B	Weight (g)
1/8	WSF	15,9	27,8	28,4
1/8	WSM	15,9	31,0	28,4
1/4	WSF	15,9	29,4	28,4
1/4	WSM	15,9	32,5	28,4
3/8	WSF	19,0	34,1	57,0
3/8	WSM	19,0	34,1	57,0
1/2	WSF	25,4	43,7	113,0
1/2	WSM	25,4	45,2	113,0
3/4	WSF	31,8	57,9	255,0
3/4	WSM	31,8	58,7	255,0

Maximum Recommended Pressure: 34 Bar.G.



WSM (MALE) ASSEMBLY



WSF (FEMALE) ASSEMBLY

CAPACITY CHART

NOZZLE NUMBER	APPROX. ORIFICE DIA. (mm)	MAXIMUM PASSAGE SIZE (mm)	NPT THREAD SIZE					FLOW RATE IN LITRES/MIN AT Bar.G.							SPRAY ANGLE (°) AT Bar.G.		
			1/8	1/4	3/8	1/2	3/4	0,35	0,7	1,5	3	4	7	10	0,35	3	6
WS 2	1,4	0,8						-	0,4	0,6	0,8	0,9	1,2	1,5	65	75	75
WS 4	2,8	0,8						0,5	0,8	1,1	1,6	1,8	2,4	2,9	65	75	75
WS 6	2,6	1,3						0,8	1,1	1,7	2,4	2,8	3,6	4,5	65	75	75
WS 8	3,0	1,6						1,1	1,5	2,2	3,2	3,6	4,8	6,0	65	75	75
WS 10	3,3	1,6						1,3	1,9	2,8	4,0	4,5	6,1	7,1	65	75	7
WS 12	3,5	1,6						1,6	2,3	3,3	4,7	5,6	7,3	8,9	65	75	75
WS 15	4,0	1,6						2,0	2,9	4,1	5,9	6,9	9,0	10,8	65	75	75
WS 20	4,7	2,0						2,7	3,8	5,5	7,9	8,9	12,2	14,5	70	75	75
WS 30	5,7	2,4						4,2	5,7	8,3	11,9	13,8	17,9	21,6	70	75	75
WS 40	6,9	3,2						5,3	7,6	11,1	15,8	17,9	24,4	29,0	70	75	75
WS 50	7,7	3,2						6,9	9,5	13,8	19,8	22,7	30,1	36,1	70	75	75
WS 60	8,2	3,2						8,4	11,4	16,6	23,7	27,6	35,9	43,2	70	75	75
WS 80	9,6	4,0						10,7	15,3	22,5	31,6	36,5	48,5	57,7	70	75	75
WS 100	10,5	4,0						13,7	19,1	27,7	39,5	45,4	60,3	72,3	70	75	75

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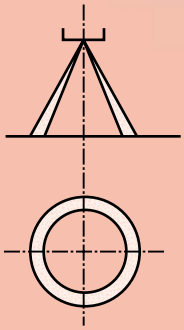


TYPE CBJ

HOLLOW CONE SPRAY

SPRAY CHARACTERISTICS

- *Uniform distribution of spray droplets in a hollow cone shaped pattern.*
- *For nozzles of the same capacity, the droplet size of hollow cone type nozzles are smaller than droplets produced by solid cone nozzles.*

CONSTRUCTION AND MATERIALS

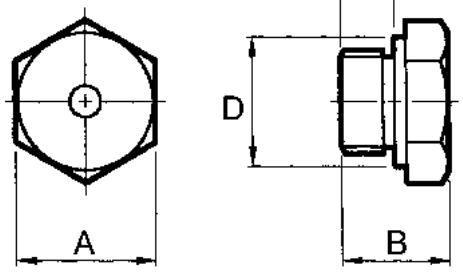
- *One piece body with removable spiral type core.*
- *Hex body for easy installation, eliminates distortion of orifice during installation.*
- *Available in Male BSPP thread design only.*
- *Brass and 316 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

3⁄8" CBJ 7 Stainless Steel.

DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A Hex	B	C	D (Dia)	Weight (g)
1/8	14,0	10,7	6,4	12,7	10
1/4	18,0	14,0	7,0	16,5	20
3/8	20,8	20,0	10,0	20,0	32
1/2	25,7	25,4	12,7	24,9	63
3/4	31,8	33,3	15,9	31,0	105
1	38,0	47,6	19,1	38,0	210



Maximum Recommended Pressure: 35 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	APPROX. ORIFICE DIA. (mm)	BSPP THREAD SIZE 1/8	1/4	3/8	1/2	3/4	1	FLOW RATE IN LITRES/MIN AT Bar.G. ,7	1	1,5	2	3	4	5	6	7	8	SPRAY ANGLE (°) AT Bar.G. ,7	2	5
CBJ 1	1,6							,45	,53	,65	,76	,94	1,09	1,22	1,33	1,46	1,57	44	65	70
CBJ 2	2,0							,62	,74	,87	1,00	1,20	1,37	1,53	1,67	1,80	1,93	60	70	75
CBJ 3	2,4							,69	,84	,98	1,12	1,36	1,57	1,73	1,88	2,03	2,16	66	80	85
CBJ 3	2,8							,74	,86	1,04	1,19	1,44	1,66	1,84	1,99	2,16	2,29	62	65	70
CBJ 4	2,4							,90	1,07	1,29	1,47	1,79	2,04	2,27	2,46	2,67	2,85	62	66	80
CBJ 5	2,8							1,02	1,21	1,47	1,70	2,09	2,40	2,70	2,93	3,21	3,39	74	83	83
CBJ 6	3,2							1,21	1,45	1,77	2,04	2,51	2,89	3,23	3,52	3,83	4,09	75	84	86
CBJ 7	3,6							1,36	1,62	1,99	2,30	2,84	3,31	3,68	4,02	4,36	4,69	75	90	95
CBJ 7	3,2							1,70	2,00	2,44	2,82	3,42	3,95	4,40	4,83	5,24	5,57	64	68	76
CBJ 8	3,6							1,84	2,17	2,66	3,06	3,73	4,47	4,78	5,24	5,70	6,06	72	85	84
CBJ 9	4,0							2,16	2,55	3,08	3,54	4,29	4,92	5,46	5,98	6,48	6,89	84	90	88
CBJ 11	4,7							2,39	2,87	3,52	4,14	5,10	5,93	6,62	7,26	7,95	8,50	86	90	90
CBJ 13	5,5							2,85	3,41	4,21	4,92	6,06	7,26	7,91	8,69	9,51	10,10	87	97	98
CBJ 18	4,7							3,88	4,60	5,61	6,43	7,91	9,10	10,20	11,21	12,12	13,03	67	73	74
CBJ 20	5,5							4,69	5,57	6,80	7,86	9,65	11,21	12,52	13,64	14,85	15,86	74	75	80
CBJ 26	6,4							5,46	6,58	8,13	9,46	11,72	13,64	15,35	16,97	18,58	19,90	80	84	80
CBJ 29	7,1							6,34	7,63	9,42	10,91	13,43	15,76	17,68	19,39	21,11	22,62	88	88	87
CBJ 33	7,9							6,99	8,36	10,50	12,22	15,15	17,88	20,10	22,22	24,24	26,06	95	95	92
CBJ 28	4,7							-	7,08	8,83	10,20	12,63	14,85	16,67	18,38	20,10	21,61	-	50	45
CBJ 39	5,9							-	10,06	12,52	14,65	18,08	21,11	23,94	26,26	28,68	30,81	-	60	55
CBJ 53	7,1							10,61	12,83	15,86	18,58	22,83	26,66	30,10	33,07	36,26	38,58	65	60	62
CBJ 60	7,9							12,63	15,15	18,69	21,61	26,56	31,01	34,74	38,18	41,31	44,14	70	65	67
CBJ 66	8,7							14,34	17,17	21,01	24,24	29,59	34,14	38,18	41,81	45,45	48,28	70	65	65
CBJ 75	9,5							15,96	18,99	23,43	27,07	33,13	38,58	43,23	47,37	51,51	52,82	73	70	70
CBJ 102	12,3							23,03	27,27	33,33	38,48	46,86	53,73	59,79	65,25	70,80	75,35	80	83	83

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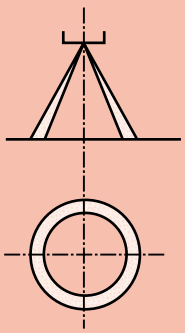


TYPE PJ

HOLLOW CONE SPRAY

SPRAY CHARACTERISTICS

- *Produces a hollow cone spray pattern using an external 'pintle' deflector.*
- *Relatively uniform distribution at low pressures.*
- *Produces coarser droplets than a normal hollow cone spray.*
- *Available in spray angles of 90°, 120°, 150°, 180° and 210°.*

CONSTRUCTION AND MATERIALS

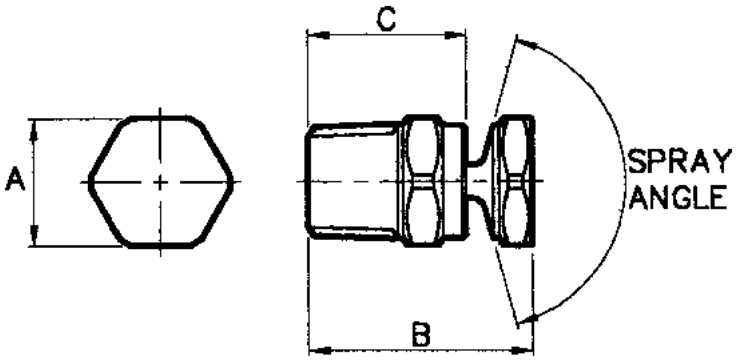
- *In-line design, manufactured in Male BSPT thread only.*
- *The pintle design can be varied to allow for different spray angles.*
- *Available in Brass and 316 Stainless Steel as standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

3/8" PJ 70-120° Stainless Steel.

DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A Hex	B	C	Weight (g)
1/4	15,3	33,3	19,0	30
3/8	18,0	37,3	21,4	80
1/2	25,7	46,0	28,6	100
3/4	28,0	58,7	33,3	125
1	38,0	63,5	38,1	180



Maximum Recommended Pressure:
14 Bar.G. (Metal) 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER	BSPT THREAD SIZE 1/4	3/8	1/2	3/4	1	FLOW RATE IN LITRES/MIN AT Bar.G. 0,7	1,0	2,0	3,0	4,0	5,0	6,0	7,0
PJ 20						3,80	4,46	6,25	8,05	9,37	9,94	10,88	12,35
PJ 30						5,95	6,70	9,82	11,84	13,84	15,13	16,57	17,84
PJ 40						7,78	9,37	12,05	15,62	18,30	20,57	22,53	24,25
PJ 50						9,61	11,61	16,07	19,89	22,77	25,50	27,93	30,19
PJ 60						11,44	13,84	19,20	23,67	27,23	30,69	33,61	36,14
PJ 70						13,27	16,07	22,77	27,46	32,14	35,88	39,30	42,54
PJ 80						15,10	18,75	25,45	31,72	36,61	41,06	44,98	48,03
PJ 90						16,73	20,00	28,95	35,10	40,95	45,02	50,01	54,00
PJ 100						19,21	22,77	31,70	39,30	45,53	51,00	55,87	60,38
PJ 125						24,01	28,46	39,62	49,12	56,91	63,75	69,83	75,48
PJ 150						28,82	34,37	48,21	59,19	68,30	76,51	83,81	90,12
PJ 175						33,39	39,91	56,44	69,13	79,82	89,25	97,76	105,6
PJ 200						38,16	45,61	64,45	79,00	91,22	102,0	111,7	120,7
PJ 225						42,93	51,31	72,57	88,88	102,6	114,7	125,7	135,8
PJ 250						47,71	57,02	80,64	98,76	114,0	127,5	139,7	150,9

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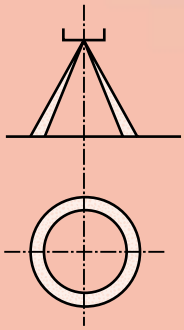


HOLLOW CONE SPRAY

TYPE AE

SPRAY CHARACTERISTICS

- *Uniform hollow cone spray pattern.*
- *Atomisation becomes finer at higher pressure and wider spray angles.*

CONSTRUCTION AND MATERIALS

- *Right angle configuration.*
- *Two piece design (body and cap) with no internal vanes.*
- *Swirl chamber designed with counterbore for improved spray quality.*
- *Thread sizes are Male BSPT and Female BSPP.*
- *Brass and 316 Stainless Steel are standard.*
- *Other materials available to special order.*

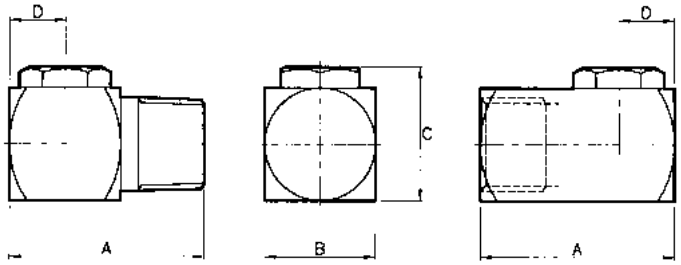
ORDER EXAMPLE

½" AEM (Male) 80 Stainless Steel.
¾" AEF (Female) 150 Brass.

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A	B Sq	C	D	Weight (g)
⅛	AEF	25,4	15,9	16,2	8,0	25
⅛	AEM	25,4	15,9	16,2	8,0	24
¼	AEF	28,6	15,9	20,8	8,0	50
¼	AEM	28,6	15,9	20,8	8,0	44
⅜	AEF	34,9	19,0	23,8	9,5	83
⅜	AEM	34,9	19,0	23,8	9,5	75
½	AEF	44,5	25,4	31,4	12,7	164
½	AEM	44,5	25,4	31,4	12,7	152
¾	AEF	57,2	31,8	38,4	15,9	302
¾	AEM	57,2	31,8	38,4	15,9	292
1	AEF	76,0	38,1	46,6	19,0	590
1	AEM	76,0	38,1	46,6	19,0	575

Maximum Recommended Pressure:
14 Bar.G. (Metal), 7 Bar.G. (Plastic).



MALE FEMALE

CAPACITY CHART

NOZZLE NUMBER	APPROX.ORIFICE DIA. (mm) Outlet	Inlet	BSPT THREAD SIZE 1/8	1/4	3/8	1/2	3/4	1	FLOW RATE IN LITRES/MIN AT Bar.G. 1	2	3	4	5	6	7	SPRAY ANGLE (°) AT 3 Bar.G.
AE 2	1,7	1,6							0,46	0,64	0,79	0,91	1,0	1,1	1,2	70
AE 4	2,4	2,2							0,92	1,3	1,6	1,8	2,0	2,2	2,4	70
AE 6	2,9	2,6							1,3	1,9	2,4	2,7	3,1	3,4	3,6	70
AE 10	3,6	3,3							2,3	3,2	3,9	4,6	5,1	5,6	6,0	70
AE 15	4,3	3,9							3,4	4,8	5,9	6,8	7,6	8,4	9,0	70
AE 20	5,0	4,4							4,5	6,4	7,9	9,1	10,2	11,2	12,1	70
AE 25	5,6	4,9							5,7	8,1	9,9	11,4	12,7	14,0	15,1	70
AE 30	5,9	5,2							6,9	9,7	11,8	13,7	15,3	16,8	18,1	70
AE 40	5,6	9,1							9,1	12,9	15,8	18,2	20,4	22,3	24,1	65
AE 50	6,4	9,1							11,4	16,1	19,7	22,8	25,5	27,9	30,2	75
AE 60	7,5	9,1							13,6	19,3	23,7	27,3	30,6	33,5	36,2	75
AE 80	7,1	13,5							18,2	25,8	31,6	36,5	40,8	44,7	48,2	65
AE 100	8,3	13,5							22,8	32,2	39,5	45,6	41,0	55,8	60,3	75
AE 125	9,9	13,5							28,5	40,3	49,4	57,0	63,7	69,8	75,4	85
AE 150	11,5	13,5							34,2	48,3	59,2	68,4	76,4	83,7	90,5	95
AE 200	14,3	13,5							45,6	64,5	79,0	91,2	102	112	121	80
AE 250	15,5	17,5							57,0	80,7	98,8	114,1	128	140	151	70
AE 300	17,1	17,5							68,4	96,8	119	137	153	168	181	75
AE 350	20,0	17,5							79,8	113	138	160	179	196	211	80

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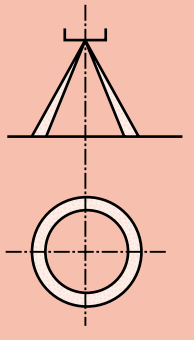


TYPE AF

HOLLOW CONE SPRAY

SPRAY CHARACTERISTICS

- *Uniform hollow cone wide angle spray pattern.*
- *Atomisation becomes finer at higher pressure and wider spray angles.*

CONSTRUCTION AND MATERIALS

- *Right angle configuration.*
- *Two piece design (body and cap) with no internal vanes.*
- *Swirl chamber designed with counterbore for improved spray quality.*
- *Thread sizes are Male BSPT and Female BSPP.*
- *Brass and 316 Stainless Steel are standard.*
- *Other materials available to special order.*

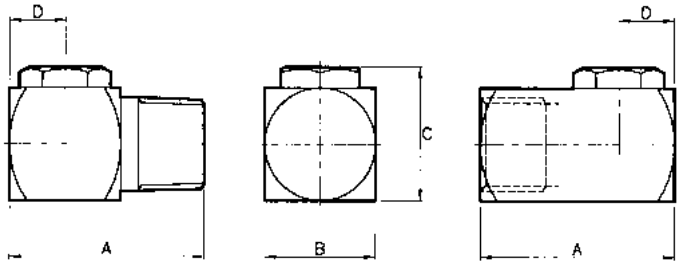
ORDER EXAMPLE

⅜" AFM (Male) 30 Stainless Steel.
¼" AFF (Female) 10 Brass.

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A	B Sq	C	D	Weight (g)
⅛	AFF	25,4	15,9	16,2	8,0	25
⅛	AFM	25,4	15,9	16,2	8,0	24
¼	AFF	28,6	15,9	20,8	8,0	50
¼	AFM	28,6	15,9	20,8	8,0	44
⅜	AFF	34,9	19,0	23,8	9,5	83
⅜	AFM	34,9	19,0	23,8	9,5	75
½	AFF	44,5	25,4	31,4	12,7	164
½	AFM	44,5	25,4	31,4	12,7	152
¾	AFF	57,2	31,8	38,4	15,9	302
¾	AFM	57,2	31,8	38,4	15,9	292
1	AFF	76,0	38,1	56,0	19,0	615
1	AFM	76,0	38,1	56,0	19,0	600

Maximum Recommended Pressure:
14 Bar.G. (Metal), 7 Bar.G. (Plastic).



MALE FEMALE

CAPACITY CHART

NOZZLE NUMBER	APPROX. ORIFICE DIA. (mm) Outlet	Inlet	BSPT THREAD SIZE ⅛	¼	⅜	½	¾	1	FLOW RATE IN LITRES/MIN AT Bar.G. 1	2	3	4	5	6	7	SPRAY ANGLE (°) AT 3 Bar.G.
AF 2	1,7	1,6							0,46	0,64	0,79	0,91	1,0	1,1	1,2	100
AF 4	2,5	2,2							0,92	1,3	1,6	1,8	2,0	2,2	2,4	100
AF 5	2,5	2,6							1,1	1,6	2,0	2,3	2,5	2,8	3,0	100
AF 6	2,5	3,1							1,3	1,9	2,4	2,7	3,1	3,4	3,6	100
AF 10	3,4	3,8							2,3	3,2	3,9	4,6	5,1	5,6	6,0	100
AF 15	5,6	3,5							3,4	4,8	5,9	6,8	7,6	8,4	9,0	100
AF 20	6,4	4,3							4,5	6,4	7,9	9,1	10,2	11,2	12,1	100
AF 25	6,9	4,7							5,7	8,1	9,9	11,4	12,7	14,0	15,1	110
AF 30	7,5	5,1							6,9	9,7	11,8	13,7	15,3	16,8	18,1	110
AF 50	7,5	6,5							9,0	16,1	19,7	22,8	26,5	27,9	30,2	115
AF 80	9,9	7,5							18,2	25,8	31,6	36,5	40,8	44,7	48,2	115
AF 100	11,1	8,4							22,8	32,2	39,5	45,6	51,0	55,8	60,3	115
AF 150	14,3	10,5							34,2	48,3	59,2	68,4	76,4	83,7	90,5	115
AF 200	18,0	11,0							45,6	64,5	79,0	91,2	102	112	121	120
AF 250	19,5	14,0							57,0	80,7	98,8	114,1	128	140	151	120

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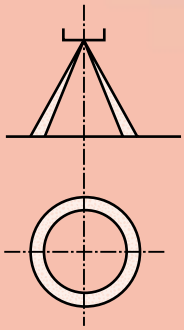


SPRAY CHARACTERISTICS

- *Uniform hollow-cone spray pattern.*
- *Atomisation becomes finer at higher pressure and wider spray angles.*

CONSTRUCTION AND MATERIALS

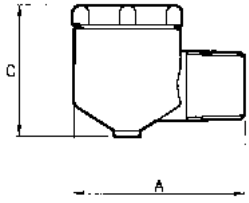
- *Right angle configuration.*
- *Two piece design (body and cap) with no internal vanes.*
- *Swirl chamber designed with counterbore for improved spray quality.*
- *Available in Polypropylene and Nylon.*
- *⅜" NPT Male and Female only.*
- *Tolerance on flow rates is ± 10%.*

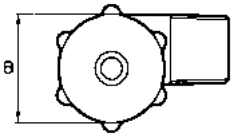
ORDER EXAMPLE

29203-4 ⅜" WRM Polypropylene.

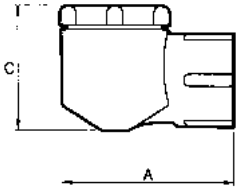
DIMENSIONS AND WEIGHTS

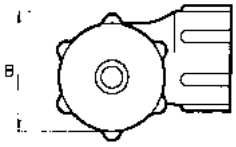
Thread Size	Nozzle Type	Dimensions (mm) A	B (Dia)	C	Weight (g)
⅜ NPT	WRM or WRF	41,7	29,8	26,2	28,4





WRM (MALE)





WRF (FEMALE)

Maximum Recommended Pressure: 7 Bar.G.
Maximum Recommended Temp.: 50°C (Nylon)
Maximum Recommended Temp.: 80°C (Poly)

CAPACITY CHART

NOZZLE PART NUMBERS				APPROX. ORIFICE DIA.		FLOW RATE IN LITRES/MIN AT Bar.G.							SPRAY ANGLE (°) AT Bar.G.	
Polypropylene		Nylon												
Male	Female	Male	Female	Outlet	Inlet	0,7	1,5	3	4	5	6	7	0,7	3,0
29203-25	29204-25	29203-46	29204-46	3,5	3,7	2,3	3,4	4,7	5,5	6,1	6,7	7,3	70	75
29203-37	29204-37	29203-59	29204-59	3,5	4,9	2,7	3,9	5,5	6,4	7,1	7,8	8,5	75	80
29203-26	29204-26	29203-47	29204-47	5,3	3,7	3,1	4,3	6,3	7,3	8,2	9,0	9,7	85	90
29203-27	29204-27	29203-48	29204-48	3,5	8,3	3,8	5,5	7,6	9,5	10,2	11,2	12,1	65	70
292031-1	29204-1	29203-13	29204-12	5,3	4,9	4,6	6,7	9,5	10,9	12,2	13,4	14,5	90	95
29203-2	29204-2	29203-14	29204-13	5,3	6,7	5,7	8,3	11,8	13,7	15,3	16,8	18,1	85	90
29203-34	29204-34	29203-49	29204-49	12,3	3,7	5,7	8,3	11,8	13,7	15,3	16,8	18,1	155	155
29203-28	29204-28	29203-50	29204-50	8,7	4,9	6,5	9,5	13,8	16,0	17,8	19,6	21,1	100	105
29203-3	29204-3	29203-15	29204-14	5,3	8,3	6,9	9,9	14,2	16,4	18,3	20,1	21,7	80	85
29203-29	29204-29	29203-51	29204-51	5,5	9,3	7,6	11,1	15,2	19,0	21,4	22,4	24,2	55	60
29203-4	29204-4	29203-16	29204-15	7,1	6,7	8,4	12,2	17,4	20,1	22,4	24,6	26,5	70	80
29203-5	29204-5	29203-17	29204-16	10,3	4,9	8,4	12,2	17,4	20,1	22,4	24,6	26,5	85	95
29203-6	29204-6	29203-18	29204-17	7,1	8,3	9,5	13,8	19,7	22,8	25,7	24,9	30,2	65	70
29203-7	29204-7	29203-19	29204-18	12,3	4,9	9,5	13,8	19,7	22,8	25,5	27,9	30,2	140	130
29203-44	29204-44	29203-52	29204-52	7,0	9,3	10,7	15,4	22,0	25,5	28,6	31,2	33,8	45	50
29203-30	29204-30	29203-53	29204-53	8,7	6,7	11,1	15,8	22,5	26,0	29,0	31,8	34,4	85	90
29203-31	29204-31	29203-54	29204-54	7,1	9,3	11,4	16,6	23,6	27,4	30,6	33,5	36,2	60	60
29203-40	29204-40	None	None	5,5	11,9	11,4	16,6	23,6	27,4	30,6	33,5	36,2	45	45
29203-32	29204-32	29203-55	29204-55	10,3	6,7	13,4	19,8	27,6	31,9	35,7	39,1	42,2	65	65
29203-8	29204-8	29203-20	29204-19	10,3	6,7	13,4	19,8	27,6	31,9	35,7	39,1	42,2	80	90
29203-33	29204-33	29203-56	29204-56	8,7	9,3	14,5	20,9	29,6	34,2	38,3	47,9	45,2	80	85
29203-9	29204-9	29203-21	29204-20	10,3	8,3	15,3	22,5	31,6	36,5	40,8	44,7	48,2	75	85
29203-10	29204-10	29203-22	29204-46	12,3	6,7	15,3	22,5	31,6	36,5	40,8	44,7	48,2	135	125
29203-35	29204-35	29203-57	29204-57	10,3	8,3	17,2	25,3	35,6	41,0	45,9	50,2	27,3	60	60
29203-45	29204-45	29203-58	29204-58	10,3	9,3	19,1	28,0	39,5	45,6	51,0	55,8	60,3	45	50
29203-12	29204-24	29203-24	29204-23	11,1	9,3	19,1	28,0	39,5	45,6	51,0	55,8	60,3	65	70
29203-11	29204-11	29203-23	29204-22	12,3	8,3	19,1	28,0	39,5	45,6	51,0	55,8	60,3	130	115

HOLLOW CONE SPRAY

TYPE WR

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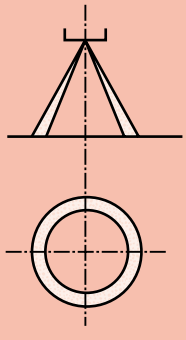


TYPE WRW

HOLLOW CONE SPRAY

SPRAY CHARACTERISTICS

- *Uniform hollow-cone wide angle spray pattern.*
- *Atomisation becomes finer at higher pressure and wider spray angles.*

CONSTRUCTION AND MATERIALS

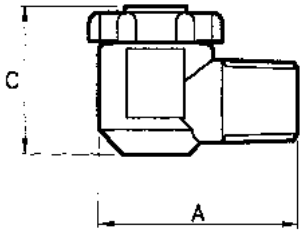
- *Right angle configuration.*
- *Two piece design (body and cap) with no internal vanes.*
- *Swirl chamber designed with counterbore for improved spray quality.*
- *Available in Nylon only.*
- *Available in ¼" and ¾" Male NPT thread only.*
- *Tolerance on flow rates is ± 10%.*

ORDER EXAMPLE

¼" WRW 10.
¾" WRW 200.

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A	B (Dia)	C	Weight (g)
¼ NPT	WRW	33,3	19,1	24,6	6,5
¾ NPT	WRW	69,1	40,0	47,2	70,0



Maximum Recommended Pressure: 7 Bar.G.
Maximum Recommended Temperature: 50°C.

CAPACITY CHART

NOZZLE NUMBER	APPROX. ORIFICE DIA. (mm) Outlet	Inlet	NPT THREAD SIZE 1/4	3/4	FLOW RATE IN LITRES/MIN AT Bar.G. 1	2	3	4	5	6	7	SPRAY ANGLE (°) AT 3 Bar.G.
WRW 2	1,6	1,6			0,45	0,64	0,79	0,91	1,0	1,1	1,2	115
WRW 4	2,5	2,1			0,92	1,3	1,6	1,8	2,0	2,2	2,4	115
WRW 5	2,5	2,6			1,1	1,6	2,0	2,3	2,5	2,8	3,0	110
WRW 6	2,5	3,1			1,3	1,9	2,4	2,7	3,1	3,4	3,6	110
WRW 10	3,5	3,5			2,3	3,2	3,9	4,6	5,1	5,6	6,0	110
WRW 15	4,0	3,9			3,4	4,8	5,9	6,8	7,6	8,4	9,0	110
WRW 20	5,6	3,9			4,5	6,4	7,9	9,1	10,2	11,2	12,1	110
WRW 20	8,3	3,8			4,56	6,45	7,9	9,12	10,2	11,2	12,1	140
WRW 30	9,3	4,9			6,84	9,67	11,8	13,7	15,3	16,7	18,1	140
WRW 40	9,3	6,2			9,12	12,9	15,8	18,2	20,4	22,4	24,1	140
WRW 60	10,3	7,9			13,7	19,3	23,7	27,4	30,6	33,4	36,2	140
WRW 80	15,9	7,1			18,2	25,8	31,5	36,5	40,8	44,6	48,3	140
WRW 100	15,9	8,2			22,8	32,2	39,5	45,6	51,0	55,8	60,3	140
WRW 120	17,4	8,6			27,3	38,7	47,4	54,7	61,2	67,0	72,4	140
WRW 160	20,6	9,6			36,5	51,6	63,2	73,0	81,6	89,4	96,5	140
WRW 200	20,6	10,7			45,6	64,5	79,0	91,2	102	112	121	140
WRW 240	20,6	12,1			54,7	77,4	94,7	109	122	134	145	140

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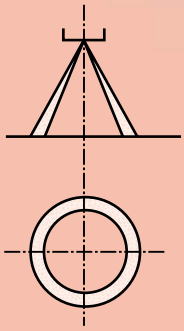


SPRAY CHARACTERISTICS

- *Hollow cone spray producing uniform spray distribution.*
- *Coarse atomisation with the elimination of finer droplets.*
- *Nominal spray angle of 120°-140°.*

CONSTRUCTION AND MATERIALS

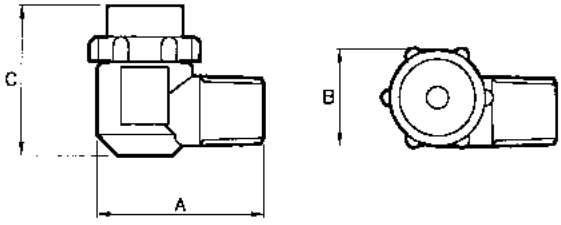
- *Right angle configuration.*
- *Two piece design (body and cap) with no internal vanes.*
- *Patented dual swirl chamber to produce "RAINDROP" type spray.*
- *Aerated droplets for the cleaning and purification of water.*
- *Wide open passages for reduced clogging.*
- *Available in ¼" and ¾" NPT Male thread only.*
- *Available in Nylon and Stainless Steel only.*

ORDER EXAMPLE

¾" RA 80 Nylon.

DIMENSIONS AND WEIGHTS - STAINLESS STEEL

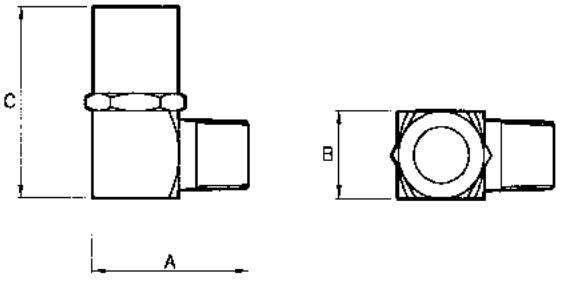
Thread Size	Nozzle Number	Dimensions (mm) A	B	C	Weight (g)
¼	2	29	16	21	43
¼	4, 5, 6	29	16	26	45
¼	8, 10	29	16	33	45
¾	20	54	32	63	332
¾	30	54	32	60	329
¾	50	54	32	69	335
¾	80, 100	54	32	85	690
¾	160, 200, 280	54	38	107	850



1/4" RA

DIMENSIONS AND WEIGHTS - NYLON

Thread Size	Nozzle Number	Dimensions (mm) A	B	C	Weight (g)
¼	2	33	19	25	7
¼	4, 5, 6	33	19	30	7
¼	8, 10	33	19	38	7
¾	20	69	42	70	70
¾	30	69	42	70	70
¾	50	69	42	70	70
¾	80, 100	69	42	79	70
¾	160, 200, 280	69	42	92	70



3/4" RA

Maximum Recommended Pressure: 14 Bar.G. (Metal), 7 Bar.G. (Nylon). Maximum Recommended Temperature: 50°C (Nylon).

CAPACITY CHART

NOZZLE NUMBER	APPROX. ORIFICE DIA. (mm) Outlet	Inlet	NPT THREAD SIZE 1/4	3/4	FLOW RATE IN LITRES/MIN AT Bar.G. 1,5	2	3	4	5	6	7	SPRAY ANGLE (°) AT 3 Bar.G.
RA 2	1,2	2,0			0,55	0,64	0,79	0,91	1,0	1,1	1,2	120
RA 4	2,4	2,0			1,1	1,3	1,6	1,8	2,0	2,2	2,4	120
RA 5	2,4	2,8			1,4	1,6	2,0	2,3	2,5	2,8	3,0	120
RA 6	2,4	3,2			1,7	1,9	2,4	2,7	3,1	3,4	3,6	120
RA 8	4,0	2,4			2,3	2,6	3,2	3,6	4,1	4,5	4,8	120
RA 10	4,0	3,2			2,8	3,2	3,9	4,6	5,1	5,6	6,0	120
RA 20	6,0	5,6			5,5	6,4	7,9	9,1	10,2	11,2	12,1	140
RA 30	9,1	5,6			8,3	9,7	11,8	13,7	15,3	16,8	18,1	140
RA 50	10,3	7,1			13,8	16,1	19,7	22,8	25,5	27,9	30,2	140
RA 80	15,9	7,5			22,5	25,8	31,6	36,5	40,8	44,7	48,2	140
RA 100	15,9	8,3			28,0	32,2	39,5	45,6	51,0	55,8	60,3	140
RA 160	20,7	10,3			44,6	51,6	63,2	72,9	81,5	89,3	96,5	140
RA 200	20,7	11,5			55,7	64,5	79,0	91,2	102	112	121	140
RA 280	21,0	13,5			78,2	90,3	111	128	143	156	169	140

NOTE: There are many other nozzle sizes between the 3/4" RA 20 and the 3/4" 280 and information is available from the factory.

HOLLOW CONE SPRAY

TYPE RA

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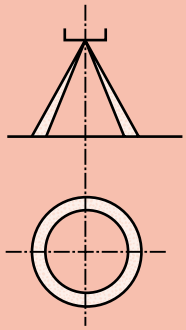


TYPE BE

HOLLOW CONE SPRAY

SPRAY CHARACTERISTICS

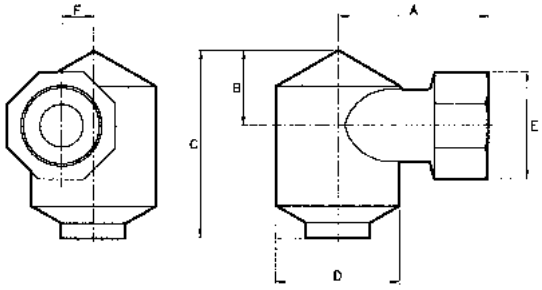
- *Uniform distribution of spray droplets in hollow cone pattern.*
- *Droplet size is smaller than in full cone nozzles of equal capacity.*
- *Low pressure down to 0,15 Bar applications.*

CONSTRUCTION AND MATERIALS

- *One piece, cast body.*
- *No internal vanes or cores.*
- *One large, single inlet to swirl chamber allows excellent flow characteristics.*
- *Octagonal body inlet connection for easy installation eliminates distortion of orifice during installation.*
- *Thread sizes are Female BSPT.*
- *Cast Iron, Gunmetal and 316 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

2" BE 112 Cast Iron.



DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A	B	C	D	E	F	Weight (kg)
1¼-1½	88,9	44,5	111	73,0	64	19,0	1,7
2	98,4	60,3	140	88,9	76	19,0	3,4
3	127	88,9	222	146	102	38,1	9,8
4	152	121	279	178	133	38,1	20,0

Maximum Recommended Pressure: 14 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	APPROX. OUTLET ORIFICE DIA. (mm)	BSPT THREAD SIZE 1¼	1½	2	3	4	FLOW RATE IN LITRES/MIN AT Bar.G. ,15	,3	,5	,7	1	1,5	2	3	4	SPRAY ANGLE (°) AT Bar.G. ,15	,7	2
BE 23	16						33,2	45,0	56,0	64,0	77,0	92,3	107	130	150	55	62	65
BE 28	19						37,9	52,1	65,6	75,5	91,5	109	128	152	175	60	65	70
BE 36	22						50,9	66,3	84,8	98,4	118	142	163	198	228	70	70	75
BE 43	25						59,2	79,5	101	117	140	168	192	237	268	75	78	83
BE 49	29						68,7	90,0	116	135	160	193	223	272	321	75	80	85
BE 54	32						75,8	102	128	149	180	213	254	313	353	75	87	90
BE 63	25						91,2	123	159	188	210	249	281	341	402	60	70	70
BE 75	29						104	152	200	226	243	296	339	417	504	75	80	82
BE 88	32						123	180	230	256	283	346	393	492	598	75	80	85
BE 100	35						156	208	262	274	324	393	442	549	661	80	80	85
BE 112	38						180	227	284	306	362	440	473	587	705	80	80	87
BE 122	41						199	246	306	332	402	483	554	682	813	80	80	80
BE 144	44						208	256	317	371	442	568	665	814	938	85	85	90
BE 109	38						161	213	268	302	357	431	513	-	-	75	80	85
BE 140	44						199	260	334	384	455	554	625	-	-	80	85	87
BE 169	51						232	308	394	462	558	672	768	-	-	80	85	90
BE 186	56						256	336	437	512	607	734	848	-	-	80	90	90
BE 228	51						308	421	547	650	759	900	991	-	-	65	75	80
BE 276	57						365	502	634	755	875	1089	1259	-	-	70	77	82
BE 326	64						426	582	749	878	1036	1288	1518	-	-	77	82	85
BE 384	70						483	668	853	1002	1205	1515	1830	-	-	75	85	87
BE 438	76						540	758	962	1144	1384	1728	2098	-	-	77	85	87
BE 493	83						597	843	1061	1281	1545	1941	2366	-	-	77	87	90
BE 540	89						672	919	1176	1423	1714	2131	2545	-	-	80	90	90
BE 613	95						734	1027	1334	1578	1920	2415	2857	-	-	83	90	90

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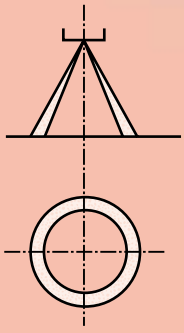


TYPE WRA-WRS
WHIRLRAIN
HOLLOW CONE SPRAY

SPRAY CHARACTERISTICS

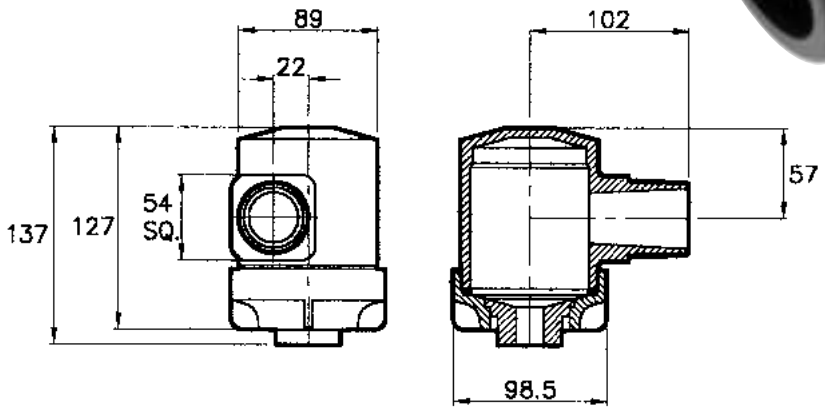
- *Produces a hollow cone spray pattern with uniform distribution and excellent atomisation.*
- *Will operate at very low differential pressures.*
- *Spray angles widen as the spray pressure increases.*
- *Has a narrower droplet spectrum than full cone nozzles of the same capacity.*

CONSTRUCTION AND MATERIALS

- *Moulded in Glass filled Polypropylene.*
- *Clog resistant design with no internal vanes or cores.*
- *Incorporates a removable screwed cap, with 'O' ring seal for ease of cleaning of the swirl chamber and orifice assembly.*
- *1½" WRA has an adaptor inlet to suit quick couplers.*
- *1½" WRS has a 1½" Male BSPT thread inlet.*
- *Pressed in orifice can be changed to alter the flow capacity.*

ORDER EXAMPLE

1½" WRA 49 (Adaptor Inlet).
1½" WRS 88 (Threaded Inlet).



Maximum Recommended Pressure: 7 Bar.G.

CAPACITY CHART

NOZZLE NUMBERS		APPROX OUTLET ORIFICE	FLOW RATE IN LITRES/MIN AT Bar.G.							NOMINAL SPRAY ANGLE (°)
ADAPTOR	THREADED	SIZE (mm)	0,2	0,3	0,5	0,7	1,0	1,5	2,0	AT 0,7 Bar.G.
WRA 14	WRS 14	10,0	20	25	32	38	45	55	62	50
WRA 18	WRS 18	11,9	26	32	41	48	57	69	80	50
WRA 21	WRS 21	13,1	30	37	47	56	66	80	92	60
WRA 23	WRS 23	14,3	34	41	53	62	74	90	103	60
WRA 28	WRS 28	15,9	40	49	63	74	88	107	122	65
WRA 36	WRS 36	19,0	51	63	81	96	114	139	160	70
WRA 43	WRS 43	22,2	61	75	96	114	136	166	190	80
WRA 49	WRS 49	25,4	70	86	111	131	156	191	219	80
WRA 54	WRS 54	27,0	78	95	122	144	172	210	241	85
WRA 63	WRS 63	30,2	90	110	142	168	200	244	281	85
WRA 75	WRS 75	35,0	108	132	170	201	240	293	338	90
WRA 88	WRS 88	41,3	126	154	198	234	279	340	392	95
WRA 100	WRS 100	46,0	142	174	225	266	317	388	447	95
WRA 112	WRS 112	50,8	161	197	253	299	357	437	501	100

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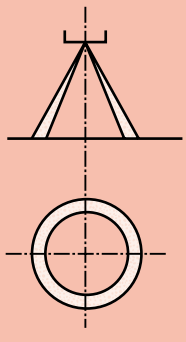


TYPE WRA-WRS
RAINDROP
HOLLOW CONE SPRAY

SPRAY CHARACTERISTICS

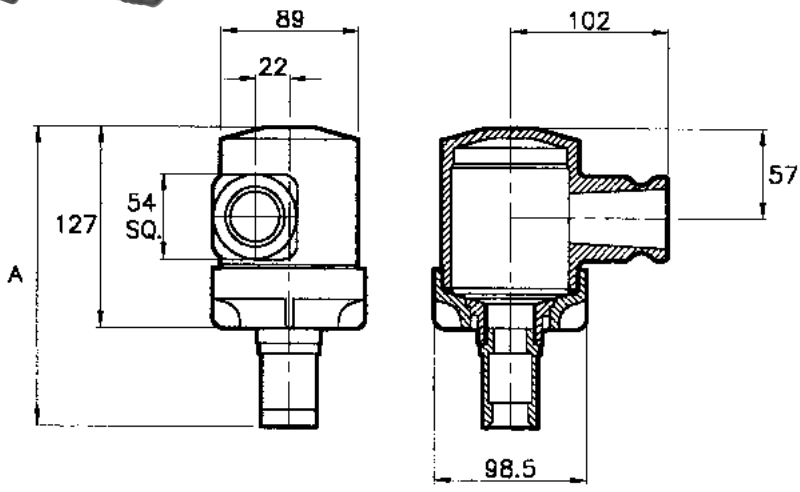
- *Produces a a wide hollow cone spray pattern with uniform distribution of large aerated droplets.*
- *The "Raindrop" feature significantly reduces the amount of driftable "fines" (under 100 microns).*
- *Will operate at low differential pressures.*
- *Spray angles widen as the spray pressure increases.*

CONSTRUCTION AND MATERIALS

- *Moulded in Glass filled Polypropylene.*
- *Clog resistant design with no internal vanes or cores.*
- *Incorporates a removable screwed cap, with 'O' ring seal for ease of cleaning of the swirl chamber and orifice assembly.*
- *1½" WRA has an adaptor inlet to suit quick couplers.*
- *1½" WRS has a 1½" Male BSPT thread inlet.*
- *Pressed in orifice and "Raindrop" cap can be changed to alter the flow capacity.*

ORDER EXAMPLE

1½" WRS 30-RD (Threaded Inlet).
1½" WRD 75-RD (Adaptor Inlet).



Maximum Recommended Pressure: 7 Bar.G.

CAPACITY CHART

NOZZLE NUMBERS		MINIMUM ORIFICE	"A"	FLOW RATE IN LITRES/MIN AT Bar.G.							NOMINAL SPRAY ANGLE (°)
ADAPTOR	THREADED	SIZE (mm)	(mm)	0,5	0,7	1,0	1,5	2,0	2,5	3,0	AT 1,5 Bar.G.
WRA 12-RD	WRS 12-RD	6,4	168	28	33	39	47	53	60	65	120
WRA 14-RD	WRS 14-RD	9,1	168	32	38	45	55	62	71	77	125
WRA 16-RD	WRS 16-RD	10,3	167	36	43	51	63	72	81	88	130
WRA 30-RD	WRS 30-RD	15,9	177	68	81	96	118	136	152	166	130
WRA 32-RD	WRS 32-RD	19,0	177	72	86	102	126	145	162	177	135
WRA 40-RD	WRS 40-RD	20,7	190	91	108	129	158	182	203	222	135
WRA 49-RD	WRS 49-RD	24,0	175	112	132	158	194	224	250	274	110
WRA 63-RD	WRS 63-RD	26,0	175	144	170	203	249	287	321	352	110
WRA 75-RD	WRS 75-RD	33,3	193	169	201	240	293	338	378	414	100

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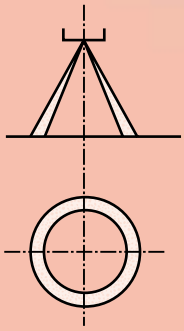

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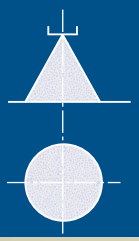

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Spray Technologies

DELAVAN
Spray Technologies

SECTION INDEX

TYPICAL SPRAY PATTERN

TYPICAL APPLICATIONS

Aerating water, brine sprays, chemical processing, coil defrosting, dust control, evaporative condensers, evaporative coolers, industrial washers, roof cooling, spray coating, gas scrubbing and washing, cooling towers, coal washing, degreasing, gravel washing, dishwashing, foam control, industrial washing and water fountains.

SOLID CONE

Nozzle Type	Spray Characteristics	Spray Angles	Basic Features	Flow Range. L/Min @ 3 Bar.G.	Page No.
WDB	Uniform distribution with very fine atomisation.	30°,45°,60°, 70°,80°,90°	9/16" UNEF thread for use with special Male and Female BSP threaded adaptors.	0,02 – 1,30	C.1
BL	Uniform distribution with fine atomisation.	45°,60°,90°	1/8" BSPT Male thread.	0,24 – 2,37	C.2
BP	Uniform distribution with fine atomisation.	45°,60°,90°	1/8" BSPT Male thread.	0,24 – 2,37	C.3
WL	Uniform distribution with fine atomisation.	45°,60°,90°	Flanged tip design for use with standard bodies and caps.	0,24 – 2,37	C.4
BF	Uniform distribution with fine to medium atomisation.	30°,60°, 90°,120°	Flanged tip design for use with standard bodies and caps.	0,78 – 12,37	C.5
BI	Uniform distribution with fine to coarse atomisation.	35° – 100°	1/8"-1" BSPT Male and BSPP Female threads.	2,65 – 87,57	C.6
BN	Uniform distribution with fine to coarse atomisation.	85° – 130°	1/8"-1" BSPT Male and BSPP Female threads.	2,65 – 88,68	C.7
CT	Uniform distribution with fine to coarse atomisation.	45° – 90°	1/8"-1/2" NPT Male and Female threads.	1,58 – 30,00	C.8
CU	Uniform distribution with fine to coarse atomisation.	45° – 80°	1/4"-3/8" NPT Male threads.	5,14 – 16,60	C.9
BK	Uniform distribution with fine to coarse atomisation.	20° – 105°	1/8"-1" BSPT Male and BSPP Female threads.	2,34 – 111,10	C.10
CJM	Uniform distribution with medium to coarse atomisation.	30°	1/8"-2" BSPT Male threads.	1,18 – 158	C.11
CJF	Uniform distribution with medium to coarse atomisation.	30°	1/8"-1" BSPP Female and 1 1/4"-4" BSPT Female threads.	1,18 – 987	C.12
CM	Uniform distribution with coarse atomisation.	45° – 110°	1 1/4"-8" BSPT Female threads.	87,6 – 8040	C.13
BY	Uniform distribution with coarse atomisation.	70° – 130°	1 1/4"-3" BSPT Female threads.	90 – 1037*	C.14
CA	Uniform distribution with coarse atomisation.	45° – 98°	1"-4" BSPT Female threads.	65,7 – 2495*	C.15
CB	Uniform distribution with coarse atomisation.	45° – 95°	1"-3" NB welded connection.	53,73 – 1040,3**	C.16
BC	Uniform distribution with medium to coarse atomisation.	50°,65°, 80°,90°,120°	3/8" BSPP Female thread.	4,0 – 16,0	C.17
BX	Uniform distribution with medium to coarse atomisation.	50°,65°, 80°,90°,120°	3/8" BSPP Female thread.	4,0 – 16,0	C.18
BQ	Uniform distribution with fine to coarse atomisation.	35° – 100°	1/8"-1" BSPT Male and BSPP Female threads.	2,65 – 87,57	C.19
BT	Uniform distribution with fine to coarse atomisation.	85° – 130°	1/8"-1" BSPT Male and BSPP Female threads.	2,65 – 88,68	C.20
CU/SQ	Uniform distribution with fine to coarse atomisation.	60° – 65°	1/4"-1/2" NPT Male threads.	7,51 – 22,91	C.21
CBI	Uniform distribution with fine to coarse atomisation.	35° – 100°	1/8"-1" BSPP Male threads. More compact than BI type.	2,65 – 87,57	C.22
CBN	Uniform distribution with fine to coarse atomisation.	85° – 130°	1/8"-1" BSPP Male threads. More compact than BN type.	2,65 – 88,68	C.23
CBQ	Uniform distribution with fine to coarse atomisation.	35° – 100°	1/8"-1" BSPP Male threads. More compact than BQ type.	2,65 – 87,57	C.24
CBT	Uniform distribution with fine to coarse atomisation.	85° – 130°	1/8"-1" BSPP Male threads. More compact than BT type.	2,65 – 88,68	C.25
RBI	Uniform distribution with fine to coarse atomisation.	35° – 100°	1/8"-1" BSPT Male and BSPP Female threads. Right angle design.	2,65 – 87,57	C.26
RBN	Uniform distribution with fine to coarse atomisation.	85° – 130°	1/8"-1" BSPT Male and BSPP Female threads. Right angle design.	2,65 – 88,68	C.27
NBI	Uniform distribution with fine to coarse atomisation.	41° – 100°	1/8"-1" BSPT Male and BSPP Female threads. Right angle design.	4,87 – 87,57	C.28
NBN	Uniform distribution with fine to coarse atomisation.	110° – 128°	1/8"-1" BSPT Male and BSPP Female threads. Right angle design.	5,15 – 88,68	C.29
QI/QN/ QQ/QT	Uniform distribution with medium to coarse atomisation.	42° – 120°	Quick attach connection to 1 1/4" and 1 1/2" NB eyelets.	21,11 – 46,26	C.30

** Flow quoted at 1.5 Bar.G. ** Flow quoted at 2 Bar.G.*

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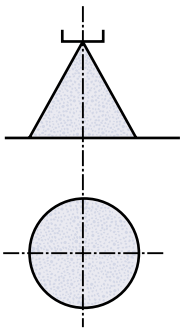


SPRAY CHARACTERISTICS

- *Finely atomised solid cone spray pattern.*
- *Available spray angles of 30°, 45°, 60°, 70°, 80° and 90°.*

CONSTRUCTION AND MATERIALS

Nozzle consists of 5 basic parts:

- *Nozzle Body - Brass or 416 Stainless Steel.*
- *Orifice Disc - 416 Stainless Steel.*
- *Distributor - 416 Stainless Steel.*
- *Retainer - Brass or 416 Stainless Steel.*
- *Strainer - (used up to WDB 14).*
- *Nozzle thread is 9⁄16" - 24 UNEF.*
- *Adaptors are available with 1⁄4" Male BSPT and 1⁄8"/1⁄4" Female BSPP and can be ordered separately.*

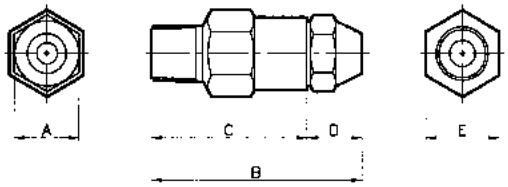
ORDER EXAMPLE

WDB 6.0-80° Stainless Steel = Tip Only.

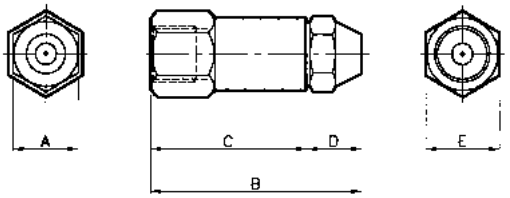
1⁄4" Female WDB 12,0-60° Stainless Steel = Complete Assembly.

DIMENSIONS AND WEIGHTS

Assembly Type	Dimensions (mm) A Hex	B	C	D	E Hex	Weight (g)
1/8" Female	15,9	52,4	38,1	14,3	18,0	82
1/4" Male	15,9	52,4	38,1	14,3	18,0	78
1/4" Female	15,9	52,4	38,1	14,3	18,0	69



WDB (MALE) ASSEMBLY



WDB (FEMALE) ASSEMBLY

Maximum Recommended Pressure: 35 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	APPROX. ORIFICE DIA. (mm)	FLOW RATE IN LITRES/HOUR AT Bar.G. 2	3	5	7	10	15	20	35
0,5 x	0,21	-	-	1,45	1,72	2,05	2,51	2,87	3,82
0,75 x	0,23	-	-	2,16	2,56	3,05	3,74	4,32	5,72
1,0	0,28	-	-	2,87	3,40	4,10	5,02	5,77	7,63
1,5	0,33	-	-	4,32	5,11	6,15	7,53	8,64	11,4
2,0	0,38	-	-	5,77	6,83	8,19	10,0	11,6	15,3
2,5	0,41	-	-	7,19	8,55	10,2	12,5	14,5	19,1
3,0	0,46	-	-	8,64	10,2	12,3	15,1	17,3	22,9
4,0	0,64	-	8,69	11,5	13,7	16,4	20,1	23,1	30,5
5,0	0,64	-	11,1	14,5	17,2	20,5	25,1	28,7	38,2
6,0	0,74	-	14,2	17,5	20,6	24,6	30,1	34,6	45,8
8,0	0,81	-	17,8	23,1	27,5	33,1	40,6	46,2	61,1
10,0	0,89	17,9	22,1	28,7	34,0	41,0	50,2	57,7	76,3
12,0	1,02	21,6	26,9	34,6	40,8	49,2	60,2	69,3	91,6
14,0	1,02	25,3	31,2	40,2	47,7	57,0	69,8	80,8	107
16,0 *	1,17	29,1	35,6	46,2	54,6	65,2	79,8	92,4	122
18,0 *	1,32	32,8	39,9	51,8	61,4	73,4	89,9	104	137
20,0 *	1,40	36,5	44,6	57,8	68,3	81,6	99,9	115	153
24,0 *	1,52	45,8	53,3	69,3	82,1	98,0	120	139	183
30,0 *	1,70	54,4	66,8	86,4	102	123	150	173	229
35,0 *	1,78	64,1	78,2	101	120	143	175	202	267

x Not available in 30° or 45°.

* These sizes are supplied without strainers.

SOLID CONE SPRAY

TYPE WDB

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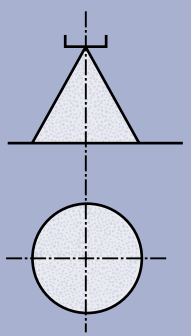


TYPE BL

SOLID CONE SPRAY

SPRAY CHARACTERISTICS

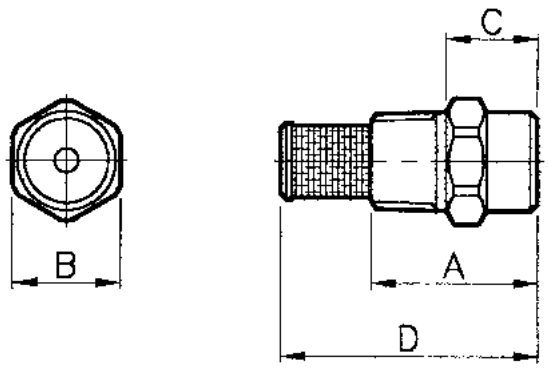
- *Precision, low capacity nozzle with uniform distribution in a solid cone spray pattern.*
- *Uniform distribution of finely atomised droplets.*

CONSTRUCTION AND MATERIALS

- *One piece body with removable screwed core, using allen key.*
- *Core is multi-slotted for uniform distribution.*
- *Available only with ⅛" Male BSPT thread.*
- *Standard spray angles are 45°,60° and 90°.*
- *Other angles available to special order.*
- *Threaded strainer is optional (see chart for mesh size).*
- *Available in Brass or Stainless Steel as standard.*
- *Other materials available on a special order.*

ORDER EXAMPLE

⅛" BL 4-90° Brass.



DIMENSIONS AND WEIGHTS

Dimensions (mm)				Weight
A	B Hex	C	D	(g)
17,5	11,3	9,5	27,0	9

Maximum Recommended Pressure: 35 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	MESH SIZE	FLOW RATE IN LITRES/HOUR AT Bar.G.							
		0,7	1	1,5	2	3	4	6	7
3	200	7,4	8,7	10,4	11,9	14,2	16,2	18,9	20,7
4	200	9,9	11,6	13,9	16,0	19,0	21,7	25,3	27,7
5	200	12,3	14,4	17,3	19,9	23,7	27,0	31,5	34,6
6	100	14,8	17,3	20,7	23,9	28,4	32,4	37,8	41,5
7	100	17,3	20,3	24,2	27,9	33,2	37,8	44,2	48,5
8	100	19,7	23,1	27,7	31,8	37,9	43,2	50,4	55,3
9	100	22,2	26,0	31,2	35,9	42,7	48,7	56,8	62,3
10	100	24,6	28,9	34,6	39,8	47,4	54,0	63,0	69,2
12	100	29,6	34,7	41,5	47,8	56,9	64,9	75,7	83,1
14	100	34,5	40,5	48,5	55,8	66,4	75,7	88,3	97,0
16	50	39,5	46,3	55,4	63,8	75,9	86,5	101,0	111,0
18	50	44,4	52,0	62,3	71,7	85,3	97,2	113,4	125,0
20	50	49,3	57,8	69,2	79,6	94,8	108,0	126,0	138,0
25	50	61,9	72,6	86,9	100,0	119,0	136,0	158,0	174,0
30	50	73,8	86,6	104,0	119,0	142,0	162,0	189,0	207,0

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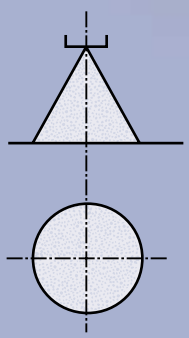


SPRAY CHARACTERISTICS

- *Precision, low capacity nozzle with uniform distribution in a solid cone spray pattern.*
- *Uniform distribution of finely atomised droplets.*

CONSTRUCTION AND MATERIALS

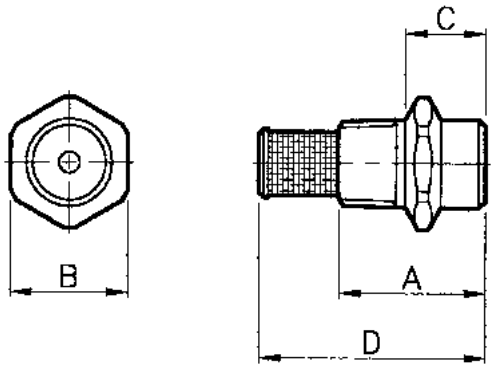
- *One piece body with removable screwed core, using allen key.*
- *Core is multi-slotted for uniform distribution.*
- *Available only with ⅛" Male BSPT thread.*
- *Standard spray angles are 45°,60° and 90°. Contact factory for special angles.*
- *Threaded strainer is optional (see chart for mesh size).*
- *Available in Brass or Stainless Steel as standard.*
- *Other materials available on a special order.*

ORDER EXAMPLE

⅛" BP 4-90° Brass.

DIMENSIONS AND WEIGHTS

Dimensions (mm)				Weight
A	B Hex	C	D	(g)
17,5	14,0	9,5	27,0	9



CAPACITY CHART

Maximum Recommended Pressure: 35 Bar.G.

NOZZLE NUMBER	MESH SIZE	FLOW RATE IN LITRES/HOUR AT Bar.G.							
		0,7	1	1,5	2	3	4	6	7
3	200	7,4	8,7	10,4	11,9	14,2	16,2	18,9	20,7
4	200	9,9	11,6	13,9	16,0	19,0	21,7	25,3	27,7
5	200	12,3	14,4	17,3	19,9	23,7	27,0	31,5	34,6
6	100	14,8	17,3	20,7	23,9	28,4	32,4	37,8	41,5
7	100	17,3	20,3	24,2	27,9	33,2	37,8	44,2	48,5
8	100	19,7	23,1	27,7	31,8	37,9	43,2	50,4	55,3
9	100	22,2	26,0	31,2	35,9	42,7	48,7	56,8	62,3
10	100	24,6	28,9	34,6	39,8	47,4	54,0	63,0	69,2
12	100	29,6	34,7	41,5	47,8	56,9	64,9	75,7	83,1
14	100	34,5	40,5	48,5	55,8	66,4	75,7	88,3	97,0
16	50	39,5	46,3	55,4	63,8	75,9	86,5	101,0	111,0
18	50	44,4	52,0	62,3	71,7	85,3	97,2	113,4	125,0
20	50	49,3	57,8	69,2	79,6	94,8	108,0	126,0	138,0
25	50	61,9	72,6	86,9	100,0	119,0	136,0	158,0	174,0
30	50	73,8	86,6	104,0	119,0	142,0	162,0	189,0	207,0

SOLID CONE SPRAY

TYPE BP

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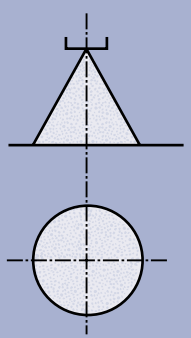


TYPE WL

SOLID CONE SPRAY

SPRAY CHARACTERISTICS

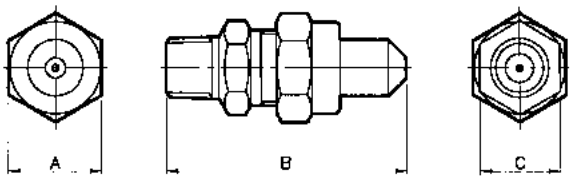
- *Precision, low capacity nozzle with uniform distribution in a solid cone shaped pattern.*
- *Uniform distribution of finely atomised droplets.*

CONSTRUCTION AND MATERIALS

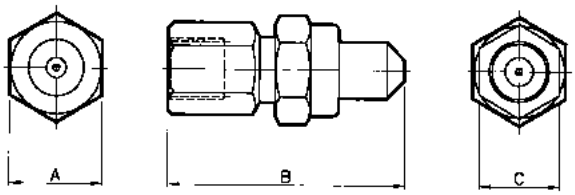
- *Used with standard bodies and caps.*
- *Core is multi-slotted for uniform distribution.*
- *Body thread sizes are Male BSPT and Female BSPP.*
- *Standard spray angles are 45°,60° and 90°.*
- *Other angles available to special order.*
- *Threaded strainer is optional (see chart for mesh size).*
- *Available in Brass or Stainless Steel as standard.*
- *Other materials available on a special order.*

ORDER EXAMPLE

WL 6-45° Brass = Tip Only.
¼" WLM (Male) 12-60° Stainless Steel = Complete Assembly.



WLM (MALE) ASSEMBLY



WLF (FEMALE) ASSEMBLY

Maximum Recommended Pressure: 35 Bar.G.

DIMENSIONS AND WEIGHTS

Assembly Type	Dimensions (mm) A Hex	B	C Hex	Weight (g)
1/8" WLF	20,8	54,0	18,0	70
1/8" WLM	20,8	52,4	18,0	60
1/4" WLF	20,8	54,0	18,0	70
1/4" WLM	20,8	54,0	18,0	62
3/8" WLF	20,8	54,0	20,8	70
3/8" WLM	20,8	54,0	18,0	64

CAPACITY CHART

NOZZLE NUMBER	MESH SIZE	FLOW RATE IN LITRES/HOUR AT Bar.G. 0,7	1	1,5	2	3	4	6	7
3	200	7,4	8,7	10,4	11,9	14,2	16,2	18,9	20,7
4	200	9,9	11,6	13,9	16,0	19,0	21,7	25,3	27,7
5	200	12,3	14,4	17,3	19,9	23,7	27,0	31,5	34,6
6	100	14,8	17,3	20,7	23,9	28,4	32,4	37,8	41,5
7	100	17,3	20,3	24,2	27,9	33,2	37,8	44,2	48,5
8	100	19,7	23,1	27,7	31,8	37,9	43,2	50,4	55,3
9	100	22,2	26,0	31,2	35,9	42,7	48,7	56,8	62,3
10	100	24,6	28,9	34,6	39,8	47,4	54,0	63,0	69,2
12	100	29,6	34,7	41,5	47,8	56,9	64,9	75,7	83,1
14	100	34,5	40,5	48,5	55,8	66,4	75,7	88,3	97,0
16	50	39,5	46,3	55,4	63,8	75,9	86,5	101,0	111,0
18	50	44,4	52,0	62,3	71,7	85,3	97,2	113,4	125,0
20	50	49,3	57,8	69,2	79,6	94,8	108,0	126,0	138,0
25	50	61,9	72,6	86,9	100,0	119,0	136,0	158,0	174,0
30	50	73,8	86,6	104,0	119,0	142,0	162,0	189,0	207,0

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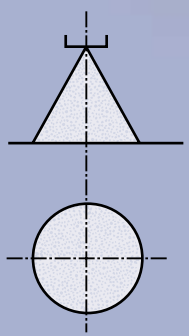


SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a solid cone spray pattern.*
- *Droplet size is larger than most hollow cone nozzles of equal capacity.*
- *Impact of spray is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

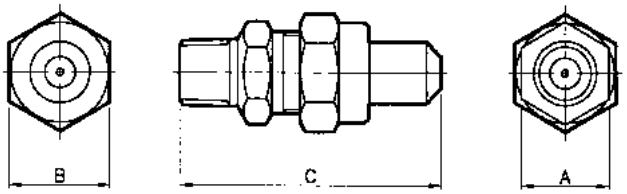
- *One piece body with pressed in cross-milled core which is removable.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Available in 30,° 60°, 90°, and 120° spray angles (see chart).*
- *Flanged design for use with standard bodies and caps.*
- *Body thread sizes are Male BSPT and Female BSPP.*
- *Standard flanged filters can be used.*
- *Available in Brass or Stainless Steel as standard.*
- *Other materials available on a special order.*

ORDER EXAMPLE

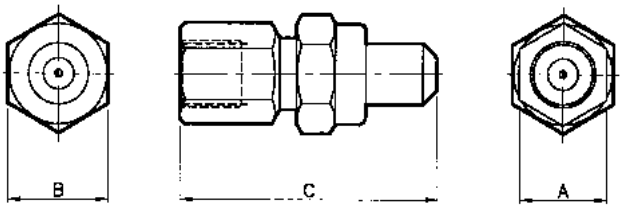
BF 4-120° Brass = Tip Only.
¼" BFM (Male) 12-60° Stainless Steel = Complete Assembly.

DIMENSIONS AND WEIGHTS

Nozzle Thread	Dimensions (mm) A	B	C	Weight (g)
1/8 BFF	18,0	20,8	54,0	70
1/8 BFM	18,0	20,8	52,4	60
1/4 BFF	18,0	20,8	54,0	70
1/4 BFM	18,0	20,8	54,0	62
3/8 BFF	20,8	20,8	54,0	70
3/8 BFM	18,0	20,8	54,0	64



BFM (MALE) ASSEMBLY



BFF (FEMALE) ASSEMBLY

Maximum Recommended Pressure: 35 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	FLOW RATE IN LITRES/MIN AT Bar.G. 0,35	0,7	1,0	1,5	2	3	4	5	7	AVAILABLE SPRAY ANGLES (°) 30	60	90	120
BF 1	-	0,38	0,45	0,56	0,64	0,78	0,86	0,94	1,14				
BF 2	-	0,76	0,89	1,11	1,26	1,54	1,71	1,87	2,27				
BF 3	0,8	1,14	1,34	1,67	1,90	2,32	2,57	2,81	3,41				
BF 4	1,07	1,52	1,79	2,22	2,53	3,10	3,42	3,75	4,54	*			
BF 5	1,33	1,90	2,23	2,78	3,15	3,86	4,28	4,68	5,68	*			
BF 6	1,6	2,29	2,68	3,34	3,79	4,64	5,13	5,62	6,81	*			
BF 8	2,13	3,05	3,57	4,44	6,28	6,18	6,84	7,49	9,08	*			
BF 10	2,67	3,81	4,40	5,56	6,31	7,72	8,56	9,36	11,35	*			
BF 12	3,20	4,57	5,36	6,67	7,58	9,28	10,27	11,24	13,62	*			
BF 16	4,27	6,10	7,14	8,90	10,10	12,37	13,73	14,98	18,16	*			

** Brass Only.*

SOLID CONE SPRAY

TYPE BF

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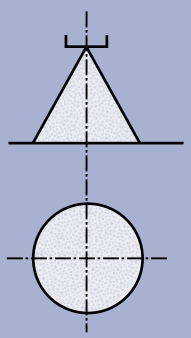
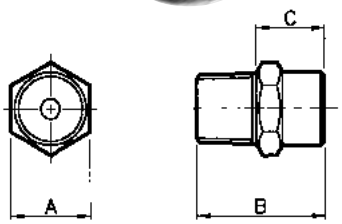
Web:www.delavan.co.uk

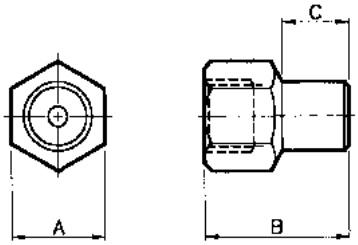


TYPE BI

SOLID CONE SPRAY



BIM (MALE)



BIF (FEMALE)

Maximum Recommended Pressure:
70 Bar.G. (Metal), 7 Bar.G. (Plastic).

SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

- *One piece body with pressed in cross-milled core which is removable.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Hexagon body for easy installation, eliminates distortion of orifice during installation.*
- *Available with Male BSPT and Female BSPP threads.*
- *Brass and 316 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

¼" BIM (Male) 22 Brass.
½" BIF (Female) 49 Stainless Steel.

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A Hex	B	C	Weight (g)
1/8"	BIM	11,3	17,5	9,6	10
1/8"	BIF	15,3	25,4	13,5	21
1/4"	BIM	15,3	24,5	13,0	24
1/4"	BIF	18,0	27,8	12,7	35
3/8"	BIM	18,0	25,5	14,0	35
3/8"	BIF	20,8	38,9	21,1	58
1/2"	BIM	25,6	32,0	16,1	75
1/2"	BIF	25,6	50,0	28,3	118
3/4"	BIM	28,0	36,0	19,0	115
3/4"	BIF	31,8	62,7	31,5	215
1"	BIM	38,0	50,0	28,5	290
1"	BIF	38,0	81,0	51,0	330

CAPACITY CHART

NOZZLE NUMBER		BSPT THREAD SIZE						FLOW RATE IN LITRES/MIN AT Bar.G.										SPRAY ANGLES (°) AT Bar.G.		
Female	Male	1/8	1/4	3/8	1/2	3/4	1	,35	,7	1	1,5	2	3	4	6	7	8	,7	2	6
BIF 6	BIM 6	■	■					0,88	1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	3,76	40	47	40
BIF 8	BIM 8	■	■					1,30	1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	5,97	44	56	53
BIF 11	BIM 11	■	■					1,63	2,32	2,87	3,62	4,05	4,87	5,36	6,30	6,74	7,06	52	64	58
BIF 12	BIM 12	■	■					2,09	2,79	3,41	4,09	4,55	5,30	5,91	7,02	7,58	8,01	62	70	58
BIF 16	BIM 16		■					2,50	3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	10,61	57	60	55
BIF 20	BIM 20		■					3,11	4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	13,43	62	73	58
BIF 22	BIM 22		■					3,58	5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	14,95	70	80	62
BIF 12	BIM 12			■				2,00	2,79	3,32	4,19	4,73	5,83	6,60	7,79	8,17	8,65	36	45	39
BIF 16	BIM 16			■				2,50	3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	10,61	57	60	55
BIF 20	BIM 20			■				3,11	4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	13,43	61	73	58
BIF 22	BIM 22			■				3,58	5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	14,95	70	80	62
BIF 27	BIM 27			■				4,23	6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	18,08	44	53	51
BIF 32	BIM 32			■				5,81	7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	22,12	60	70	61
BIF 27	BIM 27				■			4,23	6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	18,08	44	53	51
BIF 32	BIM 32				■			5,81	7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	22,12	60	70	61
BIF 42	BIM 42				■			6,74	9,67	11,82	14,44	15,96	19,29	21,41	24,95	27,37	28,48	70	76	64
BIF 49	BIM 49				■			8,17	11,62	14,24	16,36	18,69	23,13	25,05	29,29	32,52	33,94	79	86	72
BIF 63	BIM 63				■			10,20	14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	43,94	70	80	70
BIF 47	BIM 47					■		7,48	10,61	13,03	14,95	17,78	21,11	26,63	28,48	30,20	31,71	43	57	42
BIF 63	BIM 63					■		10,20	14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	43,94	60	69	53
BIF 77	BIM 77					■		12,32	17,68	20,50	23,94	29,09	34,95	38,68	45,65	49,29	52,02	70	73	60
BIF 89	BIM 89					■		13,94	20,00	23,74	29,39	33,63	40,00	44,54	52,92	56,26	59,29	82	85	67
BIF 102	BIM 102					■		14,85	20,91	27,37	33,73	38,68	46,26	50,00	60,10	64,54	67,87	85	97	74
BIF 73	BIM 73						■	11,92	16,26	20,00	22,62	27,78	34,24	38,68	45,65	50,00	52,02	35	41	44
BIF 105	BIM 105						■	16,26	23,23	27,78	33,73	39,79	48,18	52,32	62,42	67,37	71,51	51	57	49
BIF 123	BIM 123						■	19,49	28,38	34,64	42,32	46,56	57,77	63,63	75,95	80,40	85,55	66	73	57
BIF 140	BIM 140						■	22,73	32,02	38,18	45,25	53,23	62,12	68,18	80,80	85,95	90,90	75	81	52
BIF 162	BIM 162						■	25,55	36,26	44,64	53,03	61,41	72,22	79,08	95,14	101,00	108,07	74	86	63
BIF 193	BIM 193						■	28,79	41,81	50,10	60,70	73,23	87,57	99,08	119,18	128,27	135,34	82	100	80

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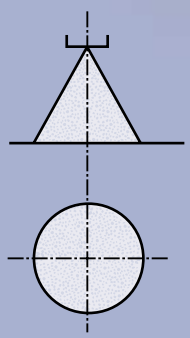


SPRAY CHARACTERISTICS

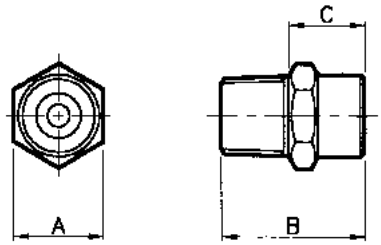
- *Uniform distribution of droplets in a wide angle solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally lower than narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

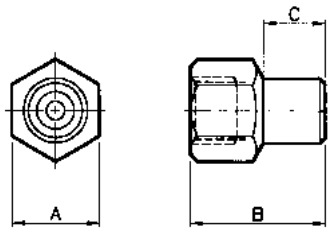
- *One piece body with pressed in cross-milled core which is removable.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Hexagon body for easy installation, eliminates distortion of orifice during installation.*
- *Brass and Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

⅜" BNM (Male) 22 Brass.
½" BNF (Female) 59 Stainless Steel.



BNM (MALE)



BNF (FEMALE)

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A Hex	B	C	Weight (g)
1/8"	BNM	11,3	17,5	9,6	10
1/8"	BNF	15,3	25,4	13,5	21
1/4"	BNM	15,3	24,5	13,0	24
1/4"	BNF	18,0	27,8	12,7	35
3/8"	BNM	18,0	25,5	14,0	35
3/8"	BNF	20,8	38,9	21,1	58
1/2"	BNM	25,6	32,0	16,1	75
1/2"	BNF	25,6	50,0	28,3	118
3/4"	BNM	28,0	36,0	19,0	115
3/4"	BNF	31,8	62,7	31,5	215
1"	BNM	38,0	50,0	28,5	290
1"	BNF	38,0	81,0	51,0	330

Maximum Recommended Pressure: 35 Bar.G. (Metal), 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER		BSPT THREAD SIZE						FLOW RATE IN LITRES/MIN AT Bar.G.										SPRAY ANGLES (°) AT Bar.G.		
Female	Male	1/8	1/4	3/8	1/2	3/4	1	,35	,7	1	1,5	2	3	4	6	7	8	,7	2	6
BNF 6	BNM 6	■	■					0,88	1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	3,76	110	100	90
BNF 8	BNM 8	■	■					1,30	1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	5,97	125	120	100
BNF 11	BNM 11	■	■					1,86	2,79	3,23	3,86	4,31	5,15	5,45	6,73	7,43	7,70	115	120	95
BNF 15	BNM 15		■					2,60	3,67	4,50	5,26	5,59	6,64	7,24	8,70	9,16	9,70	115	110	90
BNF 18	BNM 18		■					3,10	4,40	5,39	6,30	6,70	7,96	8,68	10,43	10,98	11,63	120	120	95
BNF 22	BNM 22		■	■				3,95	5,58	6,84	8,0	8,50	10,10	11,01	13,23	13,94	14,75	113	110	90
BNF 25	BNM 25			■				4,27	6,04	7,24	8,43	9,32	11,01	12,32	14,65	15,76	16,26	120	120	100
BNF 32	BNM 32			■				5,90	7,70	9,15	10,80	11,92	14,30	15,78	18,90	19,90	21,26	115	110	85
BNF 39	BNM 39			■				7,20	9,40	11,15	13,14	14,52	17,40	19,20	23,00	24,25	25,90	120	120	90
BNF 46	BNM 46			■	■			8,13	11,62	13,64	15,86	17,27	19,29	22,32	25,45	27,88	29,39	125	112	90
BNF 48	BNM 48			■	■			8,33	12,52	15,25	16,87	18,18	23,13	24,54	29,80	32,52	34,34	125	120	90
BNF 59	BNM 59				■			9,29	13,23	15,96	19,29	22,32	26,06	28,18	34,64	37,67	40,70	130	128	100
BNF 65	BNM 65				■			12,00	15,65	18,60	21,92	24,21	29,00	32,05	38,37	40,40	43,20	115	110	85
BNF 73	BNM 73				■			13,50	17,60	20,88	24,50	27,19	32,60	36,00	43,10	45,40	48,50	115	120	90
BNF 82	BNM 82					■		15,35	20,0	23,74	27,98	30,91	37,07	40,91	48,99	51,61	55,15	115	112	90
BNF 94	BNM 94					■		16,77	22,32	26,87	32,72	35,45	41,92	45,96	56,26	59,89	63,33	119	120	91
BNF 98	BNM 98					■		18,08	23,23	27,78	34,24	37,27	44,34	50,00	59,59	64,54	67,87	112	120	90
BNF 136	BNM 136						■	24,14	35,25	42,32	48,18	51,41	60,20	67,77	81,20	86,86	91,41	118	115	75
BNF 153	BNM 153						■	27,88	38,08	46,97	53,93	57,97	67,47	76,36	91,30	98,07	108,07	125	120	85
BNF 200	BNM 200						■	29,69	42,32	51,41	62,62	75,95	88,68	99,59	120,19	130,29	139,38	118	125	90

SOLID CONE SPRAY

TYPE BN

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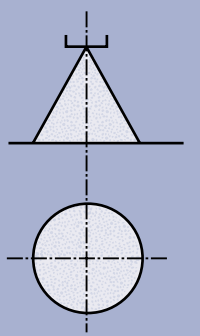


TYPE CT

SOLID CONE SPRAY

SPRAY CHARACTERISTICS

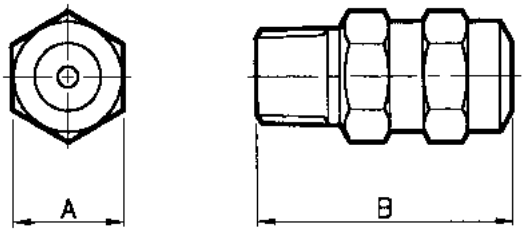
- *Uniform distribution of droplets in a solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally lower than narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

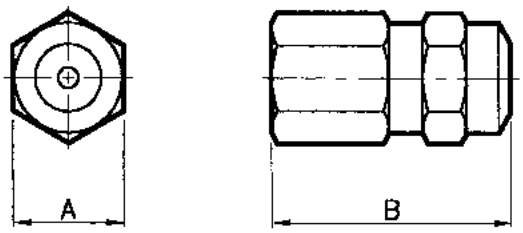
- *Manufactured with a two piece body design and removable core.*
- *Core inparts the necessary swirl to produce a solid cone spray pattern.*
- *Threads are Male and Female NPT.*
- *Manufactured with a two piece body design.*
- *Brass and 303 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

⅛" CTM (Male) 4 Brass.
½" CTF (Female) 25 Brass.



CTM (MALE) ASSEMBLY



CTF (FEMALE) ASSEMBLY

DIMENSIONS AND WEIGHTS

Type	*Thread Size*	*Dimensions (mm) A Hex*	*B*	*Weight (g)*
CTF (Female)	1/8	14,3	31,8	28
	1/4	15,9	34,2	43
	3/8	19,0	39,0	65
	1/2	25,4	46,9	128
CTM (Male)	1/8	14,3	28,6	28
	1/4	15,9	36,5	43
	3/8	19,0	38,9	65
	1/2	25,4	48,4	128

CAPACITY CHART

Maximum Recommended Pressure: 35 Bar.G.

NOZZLE NUMBER		*APPROX. ORIFICE*	*NPT THREAD SIZES*				*FLOW RATE IN LITRES/MIN AT Bar.G.*						*SPRAY ANGLES (°)*
FEMALE	*MALE*	*DIA. (mm)*	*1/8*	*1/4*	*3/8*	*1/2*	*0,35*	*0,7*	*1,5*	*3*	*5*	*7*	*AT 0,7 Bar.G.*
CTF 2	CTM 2	1,2	■				0,53	0,76	1,10	1,58	1,98	2,29	45°
CTF 3	CTM 3	1,5	■				0,84	1,14	1,70	2,37	2,88	3,43	55°
CTF 3.5	CTM 3.5	1,6	■				0,95	1,34	1,98	2,69	3,32	3,82	45°
CTF 4	CTM 4	1,7	■				1,07	1,53	2,21	3,16	3,97	4,77	50°
CTF 5	CTM 5	2,0	■				1,37	1,91	2,77	3,75	4,69	5,72	55°
CTF 6.5	CTM 6.5	2,25		■			1,79	2,48	3,56	5,14	6,13	7,25	45° *
CTF 6.5	CTM 6.5	2,4	■	■			1,79	2,48	3,56	5,14	6,13	7,25	60° *
CTF 9.5	CTM 9.5	2,7			■		2,63	3,63	5,14	7,11	9,02	10,69	45°
CTF 10	CTM 10	2,8		■			2,78	3,82	5,53	7,50	9,74	11,45	60°
CTF 15	CTM 15	3,5			■		4,20	5,72	8,30	11,45	14,42	16,79	65°
CTF 16	CTM 16	3,6				■	4,60	6,10	8,69	12,25	15,50	17,94	50°
CTF 22	CTM 22	4,6			■		6,10	8,40	11,85	16,60	20,92	24,42	80°
CTF 25	CTM 25	4,8				■	6,87	9,54	13,83	18,96	24,16	28,24	65°
CTF 32	CTM 32	5,2				■	8,78	12,20	17,38	24,10	30,65	35,87	75°
CTF 40	CTM 40	6,4				■	11,07	15,26	21,73	30,00	38,22	45,03	90°

** Specify either 45° or 60° spray angle for CT 6.5 nozzle when ordering.*

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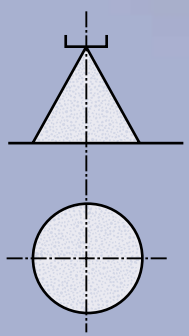


SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally lower than narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

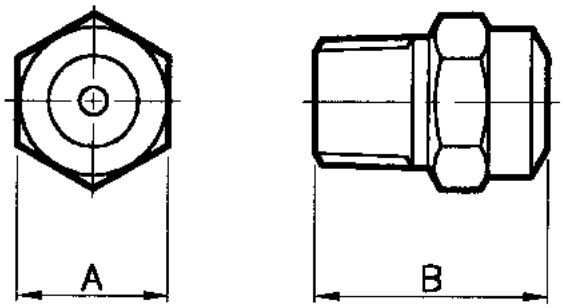
- *One piece body design with cross-milled core pressed into place which is removable.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Hexagon body for easy installation, eliminates distortion of orifice during installation.*
- *Brass and 303 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

⅜" CUM 22 Brass.

DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A Hex	B	Weight (g)
1/4"	14,3	24,5	23
3/8"	17,5	25,5	28



CUM

SOLID CONE SPRAY

TYPE CU

CAPACITY CHART

Maximum Recommended Pressure: 35 Bar.G.

NOZZLE NUMBER	APPROX. ORIFICE DIA. (mm)	NPT THREAD SIZES 1/4	NPT THREAD SIZES 3/8	FLOW RATE IN LITRES/MIN AT Bar.G. 0,35	0,7	1,5	3	5	7	SPRAY ANGLES AT 0,7 Bar.G.
CUM 6,5	2,25			1,79	2,48	3,56	5,14	6,13	7,25	45°
CUM 7,5	2,5			2,02	2,86	4,35	5,93	7,57	9,16	70°
CUM 9,5	2,7			2,63	3,63	5,14	7,11	9,02	10,69	45°
CUM 10	2,8			2,78	3,82	5,53	7,50	9,74	11,45	60°
CUM 15	3,5			4,20	5,72	8,30	11,45	14,42	16,79	65°
CUM 22	4,6			6,10	8,40	11,85	16,60	20,92	24,42	80°

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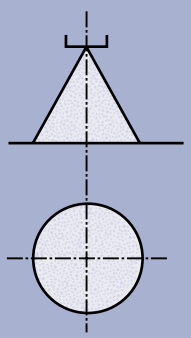
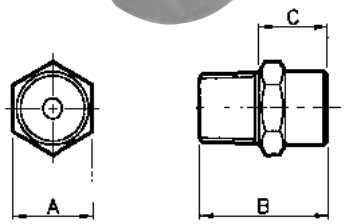
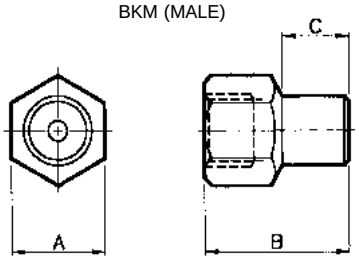


TYPE BK

SOLID CONE SPRAY



BKM (MALE)



BKF (FEMALE)

SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a solid cone spray pattern.*
- *Impact of spray is greater with narrower spray angles, assuming the same flow rate. Pressure increases spray angle which affects impact.*

CONSTRUCTION AND MATERIALS

- *One piece body with removable spiral-type core.*
- *Hexagon body for easy installation eliminates distortion of orifice during installation.*
- *Available with Male BSPT and Female BSPP threads.*
- *Brass and Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

⅛" BKM (Male) 5 Brass.
⅜" BKF (Female) 30 Stainless Steel.

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A Hex	B	C	Weight (g)
1/8"	BKM	11,3	17,5	9,6	10
1/8"	BKF	15,3	25,4	13,5	21
1/4"	BKM	15,3	24,5	13,0	24
1/4"	BKF	18,0	27,8	12,7	35
3/8"	BKM	18,0	25,5	14,0	35
3/8"	BKF	20,8	38,9	21,1	58
1/2"	BKM	25,6	32,0	16,1	75
1/2"	BKF	25,6	50,0	28,3	118
3/4"	BKM	28,0	36,0	19,0	115
3/4"	BKF	31,8	62,7	31,5	215
1"	BKM	38,0	50,0	28,5	290
1"	BKF	38,0	81,0	51,0	330

Maximum Recommended Pressure: 70 Bar.G. (Metal), 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER		Approx. Orifice Dia. (mm)	BSPT THREAD SIZE						FLOW RATE IN LITRES/MIN AT Bar.G.										SPRAY ANGLES (°) AT Bar.G.		
Female	Male		1/8	1/4	3/8	1/2	3/4	1	0,7	1	1,5	2	3	4	5	6	7	8	0,7	2	6
BKF 5	BKM 5	1,6	■	■					1,18	1,40	1,73	2,01	2,34	2,62	2,85	3,05	3,26	3,46	25	30	30
BKF 7	BKM 7	2,0	■	■					1,55	1,88	2,35	2,76	3,28	3,64	3,96	4,24	4,50	4,73	30	45	45
BKF 10	BKM 10	2,8	■	■					2,09	2,51	3,11	3,62	4,25	4,82	5,28	5,70	6,15	6,47	55	65	68
BKF 10	BKM 10	2,4			■				2,27	2,71	3,33	3,87	4,58	5,14	5,70	6,15	6,57	6,98	20	32	36
BKF 13	BKM 13	2,8		■	■				2,91	3,48	4,31	5,01	6,06	6,80	7,43	8,04	8,54	9,00	23	45	47
BKF 16	BKM 16	3,2		■	■				3,39	4,04	4,96	5,79	7,12	7,99	8,73	9,41	9,96	10,61	28	49	56
BKF 19	BKM 19	4,0		■	■				4,22	4,96	6,11	7,03	8,59	9,92	10,91	11,82	12,73	13,53	46	70	78
BKF 25	BKM 25	4,3		■	■				6,33	6,93	8,54	9,92	12,12	14,14	15,86	17,37	18,79	20,20	24	50	47
BKF 30	BKM 30	4,8			■	■			6,57	7,85	9,55	11,01	13,53	15,66	17,47	19,09	20,71	22,02	55	72	65
BKF 53	BKM 53	6,4			■	■			12,52	14,54	17,37	19,70	23,43	26,66	29,39	31,71	33,94	35,86	48	53	78
BKF 86	BKM 86	7,1					■		18,08	21,82	27,27	31,92	38,99	44,04	48,18	51,91	56,06	58,78	50	64	51
BKF 105	BKM 105	7,9					■		22,73	27,17	33,43	38,58	47,27	53,23	58,78	62,92	67,47	71,21	48	65	50
BKF 120	BKM 120	9,5					■		27,57	32,12	38,48	43,63	51,91	58,78	65,25	70,30	75,35	79,89	60	75	98
BKF 144	BKM 144	10,3					■		33,03	38,58	45,96	52,32	62,42	70,70	78,07	84,44	90,50	96,46	67	83	100
BKF 162	BKM 162	9,5						■	37,17	43,53	52,32	59,19	71,21	80,80	89,49	96,86	104,03	110,09	75	86	66
BKF 179	BKM 179	10,3						■	39,29	45,96	55,55	62,92	75,75	84,44	96,46	104,03	112,11	119,18	77	90	70
BKF 204	BKM 204	11,1						■	45,96	53,23	63,83	72,52	86,76	98,68	109,08	118,17	126,25	134,33	78	93	70
BKF 217	BKM 217	11,9						■	50,50	58,78	70,30	79,39	95,04	108,07	119,18	129,28	139,38	146,45	90	95	77
BKF 252	BKM 252	12,7						■	58,28	68,38	81,71	93,22	111,10	126,25	139,38	151,50	162,61	172,71	90	105	85

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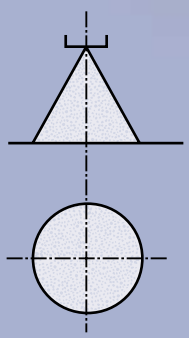


SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a solid cone spray pattern.*
- *Standard spray angle is 30°.*
- *Relatively coarse spray droplets with velocity and unit impact higher than standard solid cone sprays, which have wider spray angles at the same flow and pressure.*

CONSTRUCTION AND MATERIALS

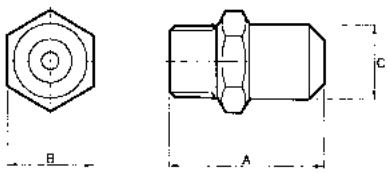
- *One piece body with cross-milled or multi slotted core pressed into place which is removable.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Hexagon body for easy installation eliminates distortion of orifice during installation.*
- *Brass and Stainless Steel are standard.*
- *Other materials to special order.*
- *Threads are Male BSPT.*

ORDER EXAMPLE

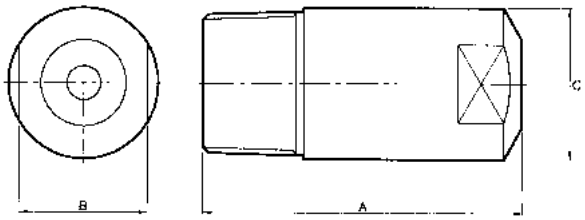
¾" CJM 50 Brass.

DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A	B Hex	C Dia	Weight (g)
1/8"	25,4	11,3	11,0	14
1/4"	29,9	15,3	14,0	30
3/8"	40,0	18,0	16,5	55
1/2"	46,1	25,7	22,0	114
3/4"	50,0	28,0	27	170
1"	76,2	38,0	33,5	280
1 1/4"	90	45 Dia	38 A/F	600
1 1/2"	100	50 Dia	43 A/F	870
2"	125	65 Dia	56 A/F	1550



⅛"-1"CJM



1¼"-2"CJM

CAPACITY CHART

Maximum Recommended Pressure: 70 Bar.G. (Metal), 7 Bar.G. (Plastic).

NOZZLE NUMBER	BSPT THREAD SIZE 1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	FLOW RATE IN LITRES/MIN AT Bar.G. 1	2	3	5	7	10	15	SPRAY ANGLES (°) AT Bar.G. 1	3	7
CJM 3	■	■								0,67	0,97	1,18	1,5	1,8	2,2	2,6	17	30	32
CJM 7,5	■	■								1,71	2,42	2,96	3,8	4,5	5,4	6,6	23	30	30
CJM 15			■							3,42	4,84	5,92	7,6	9,0	11	13	25	30	30
CJM 30				■						6,9	9,7	11,8	15	18	22	27	26	30	31
CJM 50					■					11,4	16,1	19,7	25	30	36	44	26	30	31
CJM 70						■				16,0	22,6	27,6	36	42	50	62	27	30	30
CJM 100						■				23	32	39	51	60	72	88	27	30	30
CJM 150							■			34	48	59	76	90	108	132	27	30	30
CJM 200							■	■		45	64	79	102	121	144	177	27	30	30
CJM 250								■		57	81	99	127	151	180	221	27	30	30
CJM 300								■	■	69	97	118	153	181	216	265	27	30	30
CJM 300									■	80	113	138	178	211	252	309	28	30	30
CJM 400									■	91	129	158	204	241	288	353	28	30	30

SOLID CONE SPRAY

TYPE CJM

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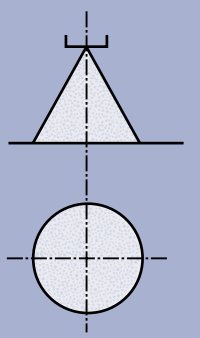


TYPE CJF

SOLID CONE SPRAY

SPRAY CHARACTERISTICS

- *Uniform distribution of spray droplets in a solid cone spray pattern.*
- *30° is the standard spray angle.*
- *Relatively coarse spray droplets with velocity and unit impact higher than standard solid cone sprays, which have wider spray angles at the same flow and pressure.*

CONSTRUCTION AND MATERIALS

- *One piece body with cross-milled or vane type core pressed into place which is removable.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Hexagon body for easy installation eliminates distortion of orifice during installation.*
- *Threads up to 1" are BSPP and above are BSPT.*
- *1¼" and larger are generally cast and are available in Gunmetal, Stainless Steel and Cast Iron.*
- *Brass and Stainless Steel are standard for hexagon barstock sizes.*
- *Other materials to special order.*

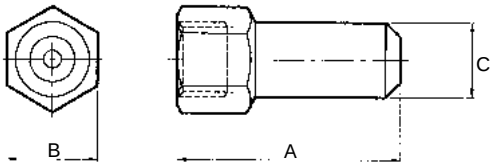
ORDER EXAMPLE

1¼" CJF 150 Gunmetal.

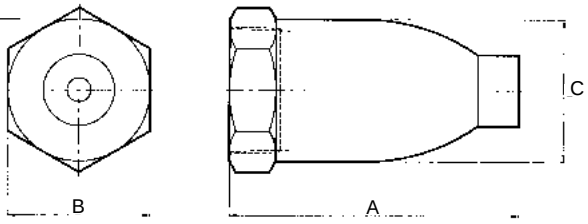
DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A	B Hex	C	Weight (g)
1/8"	33.3	15.3	10.7	20
1/4"	42.8	18.0	13.8	31
3/8"	50.8	20.8	17.0	72
1/2"	63.5	25.7	21.0	140
3/4"	82.6	31.8	26.5	260
1"	101.6	38.0	36.5	395

Thread Size	Dimensions (mm) A	B Hex	C	Weight (kg)
1 1/4"	95	48	48	0,6
1 1/2"	108	56	54	0,7
2"	136	73	67	1,6
3"	200	98	98	5,9
4"	250	127	121	7,5



⅛" - 1"CJF



1¼" - 4"CJF

Maximum Recommended Pressure: 35 Bar.G. (Metal) 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER	BSPT THREAD SIZE 1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	3	4	FLOW RATE IN LITRES/MIN AT Bar.G. 1	2	3	5	7	10	15	SPRAY ANGLES (°) AT Bar.G. 1	3	7
CJF 3	■	■										0,67	0,97	1,18	1,5	1,8	2,2	2,6	17	30	32
CJF 7,5	■	■										1,71	2,42	2,96	3,8	4,5	5,4	6,6	23	30	30
CJF 15			■									3,42	4,84	5,92	7,6	9,0	11	13	25	30	30
CJF 30				■								6,9	9,7	11,8	15	18	22	27	26	30	31
CJF 50					■							11,4	16,1	19,7	25	30	36	44	26	30	31
CJF 70						■						16,0	22,6	27,6	36	42	50	62	27	30	30
CJF 100							■	■				23	32	39	51	60	72	88	27	30	30
CJF 150							■					34	48	59	76	90	108	132	27	30	30
CJF 200							■	■				45	64	79	102	121	144	177	27	30	30
CJF 250								■				57	81	99	127	151	180	221	27	30	30
CJF 300								■	■			69	97	118	153	181	216	265	27	30	30
CJF 350									■			80	113	138	178	211	252	309	28	30	30
CJF 400									■			91	129	158	204	241	288	353	28	30	30
CJF 500										■		114	161	197	255	302	360	442	28	30	30
CJF 750										■		171	242	296	382	452	541	662	28	30	30
CJF 1000										■		228	322	395	510	603	721	883	28	30	30
CJF 1500											■	342	484	592	765	905	1082	1325	28	30	30
CJF 2000											■	456	645	790	1020	1206	1442	1766	28	30	30
CJF 2500											■	570	806	987	1275	1508	1803	2208	28	30	30

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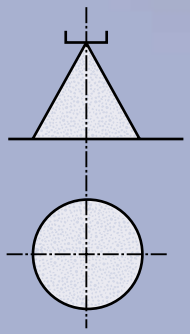


SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Spray droplet size increases as flow increases at the same pressure.*

CONSTRUCTION AND MATERIALS

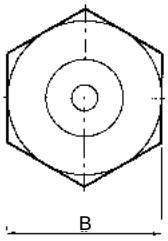
- *One piece, cast body with removable vane type core.*
- *Core imparts the necessary swirl to produce a solid spray pattern.*
- *Hexagon body for easy installation eliminates distortion of orifice during installation.*
- *Available in Cast Iron, Stainless Steel and Gunmetal as standard.*
- *Threads are Female BSPT.*
- *Other materials to special order.*

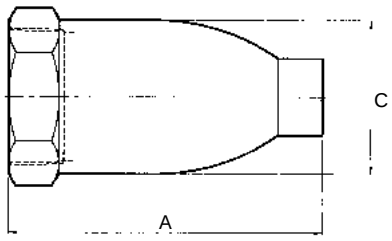
ORDER EXAMPLE

2" CM 105 Gunmetal.

DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A Hex	B	C	Weight (Kg)
1¼"	95	48	48	0,6
1½"	108	56	54	0,7
2"	136	73	67	1,6
3"	200	98	98	5,9
4"	178	127	121	7,5
5"	191	165	152	11,6
6"	276	197	184	20,0
8"	318	241(Oct)	235	35,0





Maximum Recommended Pressure: 14 Bar.G. (Metal), 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER	BSPT THREAD SIZE 1¼	1½	2	3	4	5	6	8	FLOW RATE IN LITRES/MIN AT BAR.G 0,2	0,35	0,7	1	1,5	2	3	4	5	6	7	SPRAY ANGLES (°) AT BAR.G ,35	,7	1,5	6
CM 16	■								25,9	33,3	45,7	53,6	64,4	72,3	87,6	99,6	110	119	127	55	60	65	45
CM 22	■								34,2	44,0	59,9	70,1	84,3	96,4	115	131	145	153	168	65	70	75	48
CM 27	■								43,4	55,8	76,4	89,3	106	121	146	166	184	200	213	65	70	75	50
CM 33	■								52,2	67,7	91,9	108	129	146	177	202	222	243	259	65	70	80	52
CM 29		■							45,1	57,6	79,6	94,2	112	128	154	177	197	212	229	55	60	60	50
CM 35		■							36,2	70,0	96,5	114	137	156	187	216	238	259	278	60	60	60	55
CM 42		■							66,1	86,0	117	137	168	191	229	261	289	317	339	70	70	70	60
CM 48		■							74,1	96,5	133	158	188	216	259	298	326	355	381	75	75	70	65
CM 54		■							83,5	108	148	175	211	241	288	330	367	398	427	80	85	80	70
CM 64			■						96,9	126	175	206	248	284	341	389	437	473	503	70	73	75	-
CM 71			■						109	142	195	231	279	321	335	440	488	536	572	71	77	79	-
CM 81			■						123	161	222	261	316	362	436	504	553	603	650	70	75	75	-
CM 90			■						137	181	250	294	353	408	492	558	618	679	723	85	85	85	-
CM 98			■						149	195	270	316	385	451	526	607	670	728	782	88	88	89	-
CM 105			■						160	209	288	339	413	473	568	652	718	781	833	94	94	94	-
CM 119				■					187	240	330	396	473	509	650	746	822	894	954	70	73	75	-
CM 155				■					245	306	430	518	573	594	788	905	996	1083	1155	80	83	85	-
CM 193				■					299	386	535	638	767	881	1055	1210	1333	1450	1547	85	87	90	-
CM 232				■					361	462	636	772	923	987	1269	1457	1604	1745	1861	90	93	95	-
CM 242				■					379	485	686	821	966	1040	1328	1525	1679	1826	1948	95	95	95	-
CM 156					■				254	311	424	513	620	719	853	979	1078	1172	1250	45	47	50	-
CM 230					■				361	467	631	768	919	1098	1264	1451	1598	1738	1852	50	55	55	-
CM 318					■				500	631	846	1040	1264	1491	1738	1995	2197	2390	2549	60	65	67	-
CM 432					■				661	832	1144	1388	1714	2080	2357	2706	2980	3241	3457	75	80	83	-
CM 628					■				924	1181	1633	2009	2500	2863	3438	3946	4346	4727	5042	90	95	96	-
CM 534						■			780	996	1378	1695	2110	2416	2901	3330	3668	3989	4255	70	73	75	-
CM 643						■			938	1199	1659	2040	2540	2908	3493	4008	4416	4802	5122	75	80	85	-
CM 720						■			1057	1350	1868	2298	2860	3275	3933	4514	4972	5407	5768	80	90	95	-
CM 815							■		1190	1520	2103	2587	3220	3687	4428	5082	5598	6087	6494	75	78	80	-
CM 960							■		1401	1790	2477	3047	3793	4343	5216	5986	6594	7170	7650	84	86	88	-
CM 1150								■	1679	2145	2968	3651	4544	5203	6248	7172	7900	8590	9164	90	92	95	-
CM 1480								■	2161	2762	3819	4698	5847	6695	8040	9228	10164	11054	11792	100	106	110	-

SOLID CONE SPRAY

TYPE CM

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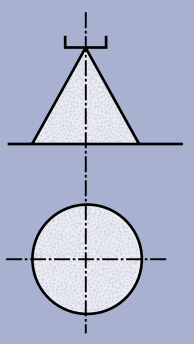


TYPE BY

SOLID CONE SPRAY

SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a wide angle solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Spray droplet size increases as flow increases at the same pressure.*

CONSTRUCTION AND MATERIALS

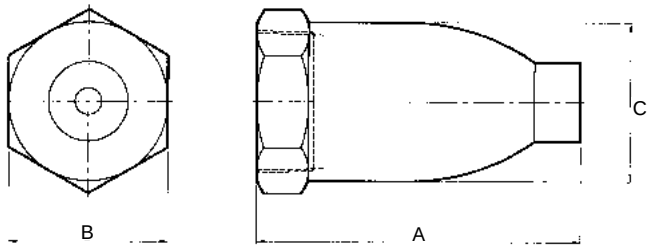
- *One piece, cast body with removable vane type core.*
- *Core imparts the necessary swirl to produce a solid spray pattern.*
- *Hexagon body for easy installation eliminates distortion of orifice during installation.*
- *Available in Cast Iron, Stainless Steel and Gunmetal as standard.*
- *Threads are Female BSPT.*
- *Other materials to special order.*

ORDER EXAMPLE

1½" BY 52 Cast Iron.

DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A Hex	B	C	Weight (Kg)
1¼"	95	48	48	0,6
1½"	108	56	54	0,7
2"	136	73	67	1,6
3"	200	98	98	5,9



Maximum Recommended Pressure:
14 Bar.G. (Metal) 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER	BSPT THREAD SIZE 1¼	1½	2	3	FLOW RATE IN LITRES/MIN AT Bar.G. 0,2	0,35	0,7	1,0	1,5	2	3	4	5	6	7	SPRAY ANGLES (°) AT Bar.G. ,35	,7	1,5	6
BY 23					38,3	49,4	64,0	75,4	90	103	117	138	147	160	173	108	112	112	75
BY 28					46,4	59,5	78,2	91,5	108	118	145	163	179	192	206	100	108	105	75
BY 35					58,9	75,9	101,1	115	133	137	179	206	225	258	274	102	105	112	70
BY 37					62,9	80,5	106	125	146	166	199	216	252	274	294	116	116	120	70
BY 42					69,6	89,2	119	138	164	187	218	248	275	302	323	110	115	120	75
BY 47					76,3	98,8	133	154	184	210	254	292	319	348	373	107	110	110	70
BY 52					86,6	110	146	170	203	227	277	318	353	-	-	112	117	120	-
BY 66					105	137	188	219	259	294	355	401	-	-	-	100	105	103	-
BY 73					116	149	204	240	286	325	390	452	-	-	-	110	120	130	-
BY 78					125	161	220	256	306	347	420	-	-	-	-	110	120	120	-
BY 89					141	183	247	291	344	403	486	-	-	-	-	115	110	110	-
BY 96					152	197	270	313	375	441	515	-	-	-	-	105	105	110	-
BY 156					272	353	489	625	720	-	-	-	-	-	-	110	112	112	-
BY 198					344	446	613	795	919	-	-	-	-	-	-	105	110	105	-
BY 224					370	480	654	902	1037	-	-	-	-	-	-	100	105	105	-

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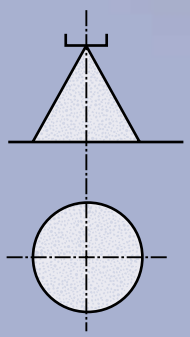


SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Spray droplet size increases as flow increases at the same pressure.*

CONSTRUCTION AND MATERIALS

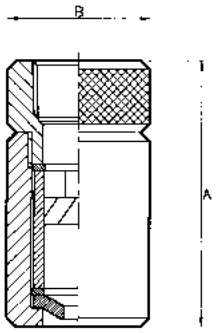
- *Body housing and cap support the internal ceramic parts.*
- *Ceramic internals are lining, orifice plate and multi-slotted core. The ceramic resists corrosive and abrasive suspensions.*
- *Body and cap are supplied in Stainless Steel as standard.*
- *Cap is threaded Female BSPT.*
- *Other materials are available on a special order.*

ORDER EXAMPLE

3" CA 140 Stainless Steel.

DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A	B Dia.	Weight (kg)
1"	93,7	50,8	0,9
1¼"	93,7	50,8	0,9
1½"	104,8	63,5	2,4
2"	127,0	76,2	4,3
3"	158,8	114,3	6,2
4"	244,5	149,2	9,0



CAPACITY CHART

Maximum Recommended Pressure: 14 Bar.G.

NOZZLE NUMBER	BSPT THREAD SIZE 1	1¼	1½	2	3	4	FLOW RATE IN LITRES/MIN AT Bar.G. 0,2	0,35	0,7	1	1,5	2	3	4	5,6	7	SPRAY ANGLES (°) AT Bar.G. ,35	,7	1,5	5,6
CA 12	■	■					24,0	35,5	4,7	54,6	65,7	74,8	86,9	94,8	106	115	55	60	65	45
CA 16	■	■					33,9	43,6	56,7	71,6	85,9	96,0	110	122	143	161	65	70	75	80
CA 20	■	■					43,6	56,1	78,1	96,4	113	126	145	162	188	213	65	70	75	50
CA 26	■	■					57,2	71,2	98,7	119,2	142	161	184	205	238	262	65	70	80	52
CA 22			■				46,0	59,7	83,8	102	123	138	162	178	207	225	55	60	60	50
CA 27			■				59,7	74,6	103	127	152	172	201	228	262	285	60	60	60	55
CA 32			■				71,9	89,5	124	150	180	202	228	260	294	319	70	70	70	60
CA 38			■				85,9	104	145	176	205	225	257	285	326	359	75	75	70	65
CA 43			■				91,8	115	166	200	232	255	291	330	373	404	80	85	80	70
CA 48				■			99,7	133	184	222	263	294	348	399	-	-	70	73	75	-
CA 58				■			121	161	222	258	307	344	400	449	-	-	71	77	79	-
CA 67				■			134	175	255	301	354	393	451	497	-	-	70	75	75	-
CA 76				■			157	204	289	343	409	458	526	574	-	-	85	85	85	-
CA 86				■			181	291	330	389	465	566	595	631	-	-	88	88	89	-
CA 91				■			193	253	348	418	501	567	654	718	-	-	94	94	94	-
CA 86					■		191	241	330	397	468	510	-	-	-	-	70	73	75	-
CA 113					■		247	310	431	512	593	605	-	-	-	-	80	83	85	-
CA 140					■		304	386	537	618	737	788	-	-	-	-	85	87	90	-
CA 167					■		368	464	638	758	895	974	-	-	-	-	90	93	95	-
CA 180					■		390	487	689	826	941	1030	-	-	-	-	95	95	95	-
CA 111						■	255	312	425	527	621	707	-	-	-	-	45	47	50	-
CA 166						■	368	469	633	758	919	1091	-	-	-	-	55	55	55	-
CA 222						■	501	633	849	1040	1263	1535	-	-	-	-	65	67	70	-
CA 300						■	675	835	1151	1364	1717	2020	-	-	-	-	80	83	85	-
CA 430						■	927	1182	1646	2030	2495	2969	-	-	-	-	95	96	98	-

SOLID CONE SPRAY

TYPE CA

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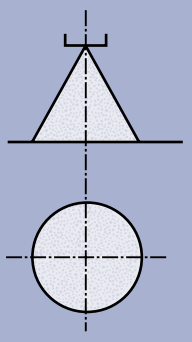


TYPE CB

SOLID CONE SPRAY

SPRAY CHARACTERISTICS

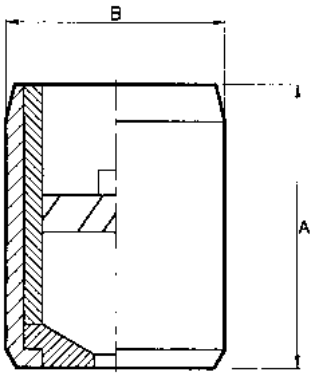
- *Uniform distribution of droplets in solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Spray droplet size increases as flow increases at the same pressure.*

CONSTRUCTION AND MATERIALS

- *Support body is cast around the internal ceramic parts.*
- *Ceramic internals are lining, orifice plate and multi-slotted core. The ceramic resists corrosive and abrasive suspensions.*
- *Support body is a hard antimony lead material.*
- *Supply line should be welded to the outer lead casing when being installed.*

ORDER EXAMPLE

3" CB 141.



DIMENSIONS AND WEIGHTS

Nozzle Size	Dimensions (mm) A	B Dia.	Weight (Kg)
1"	76	47,6	0,9
1 1/4"	76	54,0	1,25
1 1/2"	76	63,5	2,3
2"	102	76,2	4,1
3"	146	114,3	5,9

Maximum Recommended Pressure: 14 Bar.G.

CAPACITY CHART

NOZZLE	INLET SIZE (N.B.)					FLOW RATE IN LITRES/MIN AT Bar.G.										SPRAY ANGLE (°) AT Bar.G.			
NUMBER	1	1 1/4	1 1/2	2	3	0,2	0,5	0,7	1	1,5	2	3	4	6	8	,35	,7	1,5	6
CB 8	■					-	27,88	32,06	38,68	47,27	53,73	65,15	77,16	85,45	96,46	-	80	85	88
CB 10	■					-	30,81	36,18	43,83	53,73	62,42	74,84	84,03	99,18	112,11	-	73	85	56
CB 11	■					-	34,24	41,22	48,68	60,10	70,20	84,03	94,54	112,11	127,26	-	76	89	62
CB 13	■					-	41,11	49,23	58,28	72,11	84,03	100,09	113,12	133,32	150,49	-	77	88	60
CB 14	■					-	45,65	53,81	64,74	79,39	91,91	111,10	124,23	146,45	165,64	-	73	84	60
CB 12		■				25,96	38,28	44,65	51,41	61,51	68,88	82,21	93,22	110,09	125,24	55	60	65	45
CB 16		■				34,85	51,91	59,54	70,30	84,03	95,04	114,13	129,28	153,52	175,74	65	70	75	48
CB 20		■				45,25	67,06	77,86	90,70	109,08	122,21	146,45	166,65	196,95	223,21	65	70	75	50
CB 26		■				57,87	85,45	98,47	115,14	137,36	153,52	183,82	208,06	246,44	279,77	65	70	80	52
CB 22			■			46,86	71,21	83,58	98,27	119,18	136,35	160,59	178,77	208,06	233,31	55	60	60	50
CB 27			■			56,96	89,49	103,05	124,23	151,50	173,72	205,03	228,26	267,65	296,94	60	60	60	55
CB 32			■			68,38	106,05	123,66	147,46	179,78	198,97	232,30	357,55	297,95	333,30	70	70	60	60
CB 38			■			81,71	125,24	145,18	172,71	202,00	224,22	261,59	288,86	335,32	371,68	75	75	70	65
CB 43			■			92,72	141,40	164,88	192,91	229,27	254,52	295,93	328,25	379,76	422,18	80	85	80	70
CB 48				■		104,03	157,56	183,20	216,14	260,58	297,95	352,49	390,87	-	-	70	73	75	-
CB 58				■		119,18	183,82	222,13	252,50	305,02	348,45	406,02	448,44	-	-	71	77	79	-
CB 67				■		135,34	208,06	154,19	287,85	348,45	399,96	457,53	505,00	-	-	70	75	75	-
CB 76				■		156,55	240,38	258,54	333,30	406,02	468,64	523,18	569,64	-	-	85	85	85	-
CB 86				■		130,79	275,73	329,76	376,73	456,52	519,14	587,82	633,27	-	-	88	88	89	-
CB 91				■		197,96	301,99	348,08	415,11	500,96	569,64	638,21	688,82	-	-	94	94	94	-
CB 86					■	186,35	289,82	329,76	394,91	468,64	510,05	-	-	-	-	70	73	75	-
CB 113					■	239,37	368,65	430,52	514,09	606,00	661,55	-	-	-	-	80	83	85	-
CB 141					■	300,98	456,52	535,86	629,23	743,36	813,05	-	-	-	-	85	87	90	-
CB 167					■	364,61	550,45	636,62	762,55	904,96	986,77	-	-	-	-	90	93	95	-
CB 180					■	379,76	587,82	687,0	813,05	964,55	1040,30	-	-	-	-	95	95	95	-

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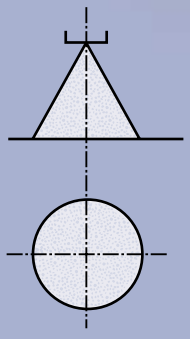


SPRAY CHARACTERISTICS

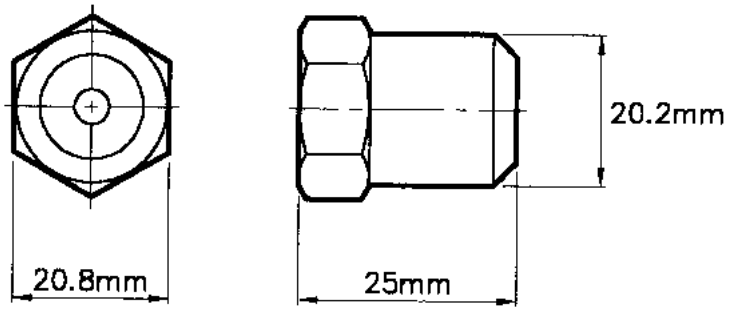
- *Uniform distribution of droplets in a solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Purpose designed for continuous casting applications.*
- *Available spray angles of 50°, 65°, 80°, 90° and 120°.*

CONSTRUCTION AND MATERIALS

- *The nozzle uses a multi-slotted core incorporating Delavan's 'Star Slot' swirl chamber bottom.*
- *The core is a drive fit into the body and is not suitable for replacement.*
- *Inlet thread is ⅜" BSPP Female.*
- *Brass and Stainless Steel are standard.*
- *Other materials are available on a special order.*

ORDER EXAMPLE

⅜" BC 55-65°, Brass.



SOLID CONE SPRAY

TYPE BC

Maximum Recommended Pressure: 35 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	FLOW RATE IN LITRES/MIN AT Bar.G.								
	1,0	1,5	2,0	2,5	3,0	4,0	5,0	6,0	7,0
BC 40	2,31	2,38	3,27	3,65	4,0	4,62	5,10	5,62	6,11
BC 45	2,60	3,18	3,67	4,11	4,5	5,20	5,74	6,31	6,86
BC 50	2,89	3,54	4,08	4,56	5,0	5,77	6,37	7,05	7,61
BC 55	3,18	3,89	4,49	5,02	5,5	6,35	7,01	7,75	8,38
BC 60	3,46	4,24	4,90	5,48	6,0	6,93	7,65	8,46	9,15
BC 65	3,75	4,67	5,31	5,93	6,5	7,51	8,29	9,16	9,91
BC 70	4,04	4,95	5,71	6,93	7,0	8,08	8,92	9,87	10,66
BC 80	4,62	5,66	6,53	7,30	8,0	9,24	10,20	11,28	12,19
BC 90	5,20	6,36	7,35	8,22	9,0	10,39	11,47	12,69	13,71
BC 100	5,77	7,07	8,16	9,13	10,0	11,55	12,75	14,10	15,25
BC 110	6,35	7,80	8,98	10,04	11,0	12,70	14,02	15,51	16,78
BC 120	6,93	8,49	9,80	10,95	12,0	13,86	15,30	16,92	18,31
BC 140	8,08	9,90	11,42	12,78	14,0	16,16	17,84	19,74	21,32
BC 160	9,24	11,32	13,06	14,60	16,0	18,48	20,40	22,56	24,38

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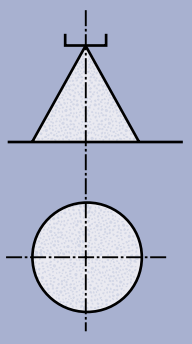


TYPE BX

SOLID CONE SPRAY

SPRAY CHARACTERISTICS

- *Uniform distribution of spray droplets in a solid cone pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Purpose designed for continuous casting applications.*
- *Available spray angles of 50°, 65°, 80°, 90° and 120°.*

CONSTRUCTION AND MATERIALS

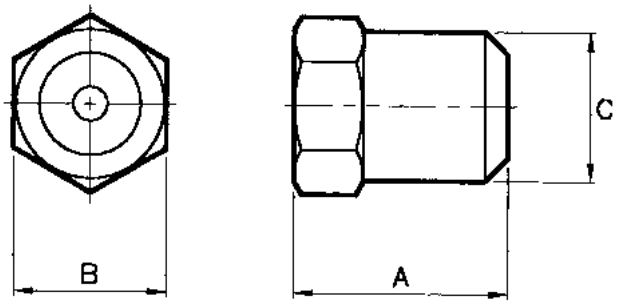
- *The nozzle uses a standard cross-milled core design.*
- *The cross-milled core is pressed into place and is removable.*
- *Inlet thread is ⅜" BSPP Female.*
- *Brass and Stainless Steel are standard.*
- *Other materials are available on a special order.*

ORDER EXAMPLE

⅜" BX 40-80°, Stainless Steel.

DIMENSIONS AND WEIGHTS

Nozzle Number	Dimensions (mm) A	B Hex	C	Weight (g)
BX40 - BX90	24,0	20,8	20,2	40
BX100 - BX160	35,0	20,8	20,2	55



Maximum Recommended Pressure: 35 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	FLOW RATE IN LITRES/MIN AT Bar.G.								
	1,0	1,5	2,0	2,5	3,0	4,0	5,0	6,0	7,0
BX 40	2,31	2,38	3,27	3,65	4,0	4,62	5,10	5,62	6,11
BX 45	2,60	3,18	3,67	4,11	4,5	5,20	5,74	6,31	6,86
BX 50	2,89	3,54	4,08	4,56	5,0	5,77	6,37	7,05	7,61
BX 55	3,18	3,89	4,49	5,02	5,5	6,35	7,01	7,75	8,38
BX 60	3,46	4,24	4,90	5,48	6,0	6,93	7,65	8,46	9,15
BX 65	3,75	4,670	5,31	5,93	6,5	7,51	8,29	9,16	9,91
BX 70	4,04	4,95	5,71	6,93	7,0	8,08	8,92	9,87	10,66
BX 80	4,62	5,66	6,53	7,30	8,0	9,24	10,20	11,28	12,19
BX 90	5,20	6,36	7,35	8,22	9,0	10,39	11,47	12,69	13,71
BX 100	5,77	7,07	8,16	9,13	10,0	11,55	12,75	14,10	15,25
BX 110	6,35	7,80	8,98	10,04	11,0	12,70	14,02	15,51	16,78
BX 120	6,93	8,49	9,80	10,95	12,0	13,86	15,30	16,92	18,31
BX 140	8,08	9,90	11,42	12,78	14,0	16,16	17,84	19,74	21,32
BX 160	9,24	11,32	13,06	14,60	16,0	18,48	20,40	22,56	24,38

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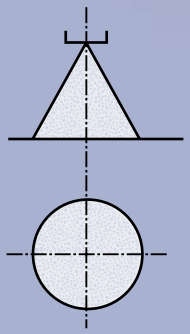


SPRAY CHARACTERISTICS

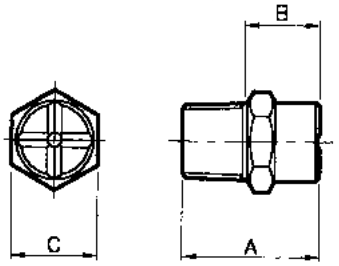
- *Uniform distribution of droplets in a solid cone square shaped spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

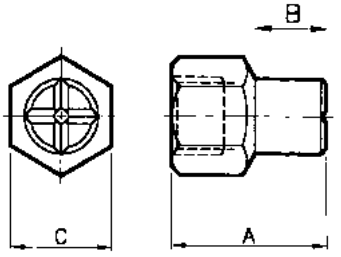
- *One piece body with pressed-in, cross-milled core which is removable.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Hexagon body for easy installation eliminates distortion of orifice during installation.*
- *Available with Male BSPT and Female BSPP threads.*
- *Brass and 316 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

¾" BQM (Male) 89 Brass.
½" BQF (Female) 49 Stainless Steel.



BQM (MALE)



BQF (FEMALE)

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A	B	C Hex	Weight (g)
1/8"	BQM	17,5	9,6	11,3	10
1/8"	BQF	25,4	13,5	15,3	21
1/4"	BQM	24,5	13,0	15,3	24
1/4"	BQF	27,8	12,7	18,0	35
3/8"	BQM	25,5	14,0	18,0	35
3/8"	BQF	38,9	21,1	20,8	58
1/2"	BQM	32,0	16,1	25,6	75
1/2"	BQF	50,0	28,3	25,6	118
3/4"	BQM	36,0	19,0	28,0	115
3/4"	BQF	62,7	31,5	31,8	215
1"	BQM	50,0	28,5	38,0	290
1"	BQF	81,0	51,0	38,0	330

CAPACITY CHART

Maximum Recommended Pressure: 35 Bar.G.

NOZZLE NUMBER		BSPT THREAD SIZE						FLOW RATE IN LITRES/MIN AT Bar.G.										SPRAY ANGLES (°) AT Bar.G.		
Female	Male	1/8	1/4	3/8	1/2	3/4	1	,35	,7	1	1,5	2	3	4	6	7	8	,7	2	6
BQF 6	BQM 6	■	■					,88	1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	3,76	40	47	40
BQF 8	BQM 8	■	■					1,30	1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	5,97	44	56	53
BQF 11	BQM 11	■	■					1,63	2,32	2,87	3,62	4,05	4,87	5,36	6,30	6,74	7,06	52	64	58
BQF 12	BQM 12	■	■					2,09	2,79	3,41	4,09	4,55	5,30	5,91	7,02	7,58	8,01	62	70	58
BQF 16	BQM 16		■					2,50	3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	10,61	62	70	58
BQF 20	BQM 20		■					3,11	4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	13,43	62	73	58
BQF 22	BQM 22		■					3,58	5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	14,95	70	80	62
BQF 12	BQM 12			■				2,00	2,79	3,32	4,19	4,73	5,83	6,60	7,79	8,17	8,65	36	45	39
BQF 16	BQM 16			■				2,50	3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	10,61	57	60	55
BQF 20	BQM 20			■				3,11	4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	13,43	61	73	58
BQF 22	BQM 22			■				3,58	5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	14,95	70	80	62
BQF 27	BQM 27			■				4,23	6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	18,08	70	80	62
BQF 32	BQM 32			■				5,81	7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	22,12	70	80	62
BQF 27	BQM 27				■			4,23	6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	18,08	44	53	51
BQF 32	BQM 32				■			5,81	7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	22,12	60	70	61
BQF 42	BQM 42				■			6,74	9,67	11,82	14,44	15,96	19,29	21,41	24,95	27,37	28,48	70	76	64
BQF 49	BQM 49				■			8,17	11,62	14,24	16,36	18,69	23,13	25,05	29,29	32,52	33,94	79	86	72
BQF 63	BQM 63				■			10,20	14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	43,94	80	86	70
BQF 47	BQM 47					■		7,48	10,61	13,03	14,95	17,78	21,11	26,63	28,48	30,20	31,71	43	57	42
BQF 63	BQM 63					■		10,20	14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	43,94	60	69	53
BQF 77	BQM 77					■		12,32	17,68	20,50	23,94	29,09	34,95	38,68	45,65	49,29	52,02	70	73	60
BQF 89	BQM 89					■		13,94	20,00	23,74	29,39	33,63	40,00	44,54	52,92	56,26	59,29	82	85	67
BQF 102	BQM 102					■		14,85	20,91	27,37	33,73	38,68	46,26	50,00	60,10	64,54	67,87	85	97	74
BQF 73	BQM 73						■	11,92	16,26	20,00	22,62	27,78	34,24	38,68	45,65	50,00	52,02	35	41	44
BQF 105	BQM 105						■	16,26	23,23	27,78	33,73	39,79	48,18	52,32	62,42	67,37	71,51	51	57	49
BQF 123	BQM 123						■	19,49	28,38	34,64	42,32	46,56	57,77	63,63	75,95	80,40	85,55	66	73	57
BQF 140	BQM 140						■	22,73	32,02	38,18	45,25	53,23	62,12	68,18	80,80	85,95	90,90	75	81	52
BQF 162	BQM 162						■	25,55	36,26	44,64	53,03	61,41	72,22	79,08	95,14	101,00	108,07	74	86	63
BQF 193	BQM 193						■	28,79	41,81	50,10	60,70	73,23	87,57	99,08	119,18	128,27	135,34	82	100	80

SOLID CONE SPRAY

TYPE BQ

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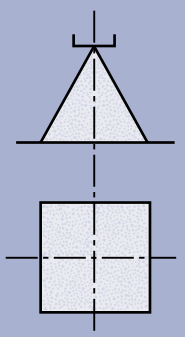
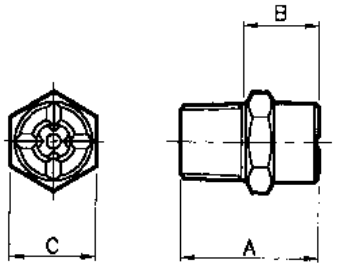
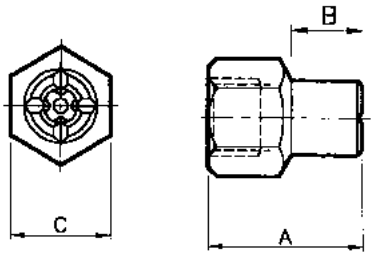


TYPE BT

SOLID CONE SPRAY



BTM (MALE)



BTF (FEMALE)

SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a wide angle solid cone square shaped pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

- *One piece body with pressed-in, cross-milled core which is removable.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Hexagon body for easy installation eliminates distortion of orifice during installation.*
- *Brass and Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

½" BTF (Female) 59 Brass.
¾" BTM (Male) 98 Stainless Steel.

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A	B	C Hex	Weight (g)
1/8"	BTM	17,5	9,6	11,3	10
1/8"	BTF	25,4	13,5	15,3	21
1/4"	BTM	24,5	13,0	15,3	24
1/4"	BTF	27,8	12,7	18,0	35
3/8"	BTM	25,5	14,0	18,0	35
3/8"	BTF	38,9	21,1	20,8	58
1/2"	BTM	32,0	16,1	25,6	75
1/2"	BTF	50,0	28,3	25,6	118
3/4"	BTM	36,0	19,0	28,0	115
3/4"	BTF	62,7	31,5	31,8	215
1"	BTM	50,0	28,5	38,0	290
1"	BTF	81,0	51,0	38,0	330

CAPACITY CHART

Maximum Recommended Pressure: 35 Bar.G.

NOZZLE NUMBER		BSPT THREAD SIZE						FLOW RATE IN LITRES/MIN AT Bar.G.										SPRAY ANGLES (°) AT Bar.G.		
Female	Male	1/8	1/4	3/8	1/2	3/4	1	0,35	0,7	1	1,5	2	3	4	6	7	8	,7	2	6
BTF 6	BTM 6	■	■					0,88	1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	3,76	110	100	90
BTF 8	BTM 8	■	■					1,30	1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	5,97	125	120	100
BTF 11	BTM 11	■	■					1,86	2,79	3,23	3,86	4,31	5,15	5,45	6,73	7,43	7,70	115	120	95
BTF 15	BTM 15		■					2,60	3,67	4,50	5,26	5,59	6,64	7,24	8,70	9,16	9,70	115	110	90
BTF 18	BTM 18		■					3,10	4,40	5,39	6,30	6,70	7,96	8,68	10,43	10,98	11,63	120	120	95
BTF 22	BTM 22		■	■				3,95	5,58	6,84	8,0	8,50	10,10	11,01	13,23	13,94	14,75	113	110	90
BTF 25	BTM 25			■				4,27	6,04	7,24	8,43	9,32	11,01	12,32	14,65	15,76	16,26	120	120	100
BTF 32	BTM 32			■				5,90	7,70	9,15	10,80	11,92	14,30	15,78	18,90	19,90	21,26	115	110	85
BTF 39	BTM 39			■				7,20	9,40	11,15	13,14	14,52	17,40	19,20	23,00	24,25	25,90	120	120	90
BTF 46	BTM 46			■	■			8,13	11,62	13,64	15,86	17,27	19,29	22,32	25,45	27,88	29,39	125	112	90
BTF 48	BTM 48			■	■			8,33	12,52	15,25	16,87	18,18	23,13	24,54	29,80	32,52	34,34	125	120	90
BTF 59	BTM 59				■			9,29	13,23	15,96	19,29	22,32	26,06	28,18	34,64	37,67	40,70	130	128	100
BTF 65	BTM 65				■			12,00	15,65	18,60	21,92	24,21	29,00	32,05	38,37	40,40	43,20	115	110	85
BTF 73	BTM 73				■			13,50	17,60	20,88	24,50	27,19	32,60	36,00	43,10	45,40	48,50	115	120	90
BTF 82	BTM 82					■		15,35	20,0	23,74	27,98	30,91	37,07	40,91	48,99	51,61	55,15	115	112	90
BTF 94	BTM 94					■		16,77	22,32	26,87	32,72	35,45	41,92	45,96	56,26	59,89	63,33	119	120	91
BTF 98	BTM 98					■		18,08	23,23	27,78	34,24	37,27	44,34	50,00	59,59	64,54	67,87	112	120	90
BTF 136	BTM 136						■	24,14	35,25	42,32	48,18	51,41	60,20	67,77	81,20	86,86	91,41	118	115	75
BTF 153	BTM 153						■	27,88	38,08	46,97	53,93	57,97	67,47	76,36	91,30	98,07	108,07	125	120	85
BTF 200	BTM 200						■	29,69	42,32	51,41	62,62	75,95	88,68	99,59	120,19	130,29	139,38	118	125	90

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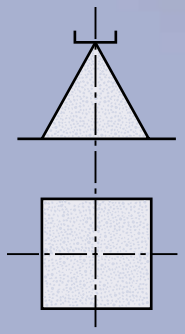


SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a solid cone square shaped spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

- *One piece body with pressed-in, cross-milled core which is removable.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Hexagon body for easy installation eliminates distortion of orifice during installation.*
- *Available with Male NPT threads only.*
- *Brass and 303 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

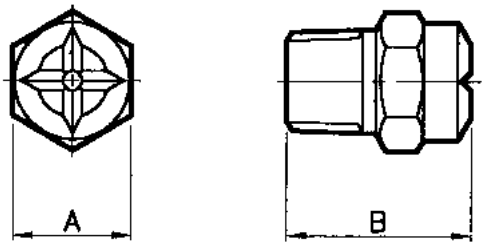
½" CU/SQ 29 Brass.

SOLID CONE SPRAY

TYPE CU/SQ

DIMENSIONS AND WEIGHTS

Thread Size	*Dimensions (mm)* A Hex	B	*Weight (g)*
1/4"	14,3	24,5	23
3/8"	17,5	25,5	28
1/2"	25,6	32,0	75



SQ (MALE)

Maximum Recommended Pressure: 35 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	*Approx. Orifice Dia. (mm)*	*NPT THREAD SIZE* 1/4	3/8	1/2	*FLOW RATE IN LITRES/MIN AT BAR.G.* 0,35	0,7	1,5	3	5	7	*AVAILABLE SPRAY ANGLES (°) AT 0,7 BAR.G.*
CU/SQ-10	2,2				2,79	3,82	5,53	7,51	9,74	11,45	60°
CU/SQ-18	3,9				4,69	6,87	9,88	14,22	18,39	21,75	65°
CU/SQ-29	5,3				8,01	11,07	16,20	22,91	29,57	35,11	65°

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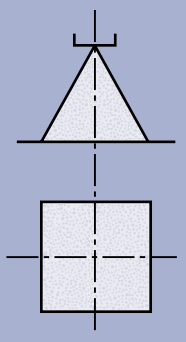


TYPE CBI

SOLID CONE SPRAY

SPRAY CHARACTERISTICS

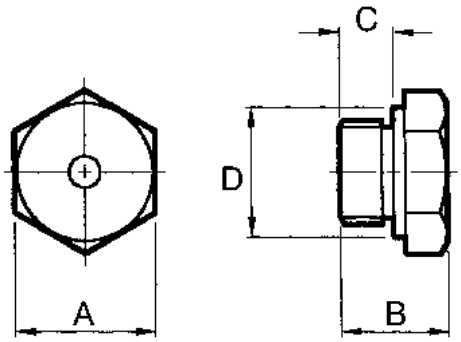
- *Uniform distribution of droplets in a solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

- *One piece body with pressed-in, cross-milled core which is removable.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Hexagon body for easy installation eliminates distortion of orifice during installation.*
- *Supplied with Male BSPP thread only.*
- *Brass and 316 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

½" CBI 42 Brass.



DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A Hex	B	C	D Dia	Weight (g)
1/8"	14,0	10,7	6,4	12,7	10
1/4"	18,0	14,0	7,0	16,5	20
3/8"	20,8	20,0	10,0	20,0	32
1/2"	25,7	25,4	12,7	24,9	63
3/4"	31,8	33,3	15,9	31,0	105
1"	38,0	47,6	19,1	38,0	210

Maximum Recommended Pressure: 35 Bar.G. (Metal), 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER	BSPP THREAD SIZE 1/8	1/4	3/8	1/2	3/4	1	FLOW RATE IN LITRES/MIN AT Bar.G. 0,35	0,7	1	1,5	2	3	4	ANGLES (°) 6	7	8	SPRAY AT Bar.G. ,7	2	6
CBI 6	■	■					0,88	1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	3,76	40	47	40
CBI 8	■	■					1,30	1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	5,97	44	56	53
CBI 11	■	■					1,63	2,32	2,87	3,62	4,05	4,87	5,36	6,30	6,74	7,06	52	64	58
CBI 12	■	■					2,09	2,79	3,41	4,09	4,55	5,30	5,91	7,02	7,58	8,01	62	70	58
CBI 16		■					2,50	3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	10,61	57	60	55
CBI 20		■					3,11	4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	13,43	62	73	58
CBI 22		■					3,58	5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	14,95	70	80	62
CBI 12			■				2,00	2,79	3,32	4,19	4,73	5,83	6,60	7,79	8,17	8,65	36	45	39
CBI 16			■				2,50	3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	10,61	57	60	55
CBI 20			■				3,11	4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	13,43	61	73	58
CBI 22			■				3,58	5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	14,95	70	80	62
CBI 27			■				4,23	6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	18,08	44	53	51
CBI 32			■				5,81	7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	22,12	60	70	61
CBI 27				■			4,23	6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	18,08	44	53	51
CBI 32				■			5,81	7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	22,12	60	70	61
CBI 42				■			6,74	9,67	11,82	14,44	15,96	19,29	21,41	24,95	27,37	28,48	70	76	64
CBI 49				■			8,17	11,62	14,24	16,36	18,69	23,13	15,05	29,29	32,52	33,94	79	86	72
CBI 63				■			10,20	14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	43,94	80	86	70
CBI 47					■		7,48	10,61	13,03	14,95	17,78	21,11	26,63	28,48	30,20	31,71	43	57	42
CBI 63					■		10,20	14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	43,94	60	69	53
CBI 77					■		12,32	17,68	20,50	23,94	29,09	34,95	38,68	45,65	49,29	52,02	70	73	60
CBI 89					■		13,94	20,00	23,74	29,39	33,63	40,00	44,54	52,92	56,26	59,29	82	85	67
CBI 102					■		14,85	20,91	27,37	33,73	38,68	46,26	50,00	60,10	64,54	67,87	85	97	74
CBI 73						■	11,92	16,26	20,00	22,62	27,78	34,24	38,68	45,65	50,00	52,02	35	41	44
CBI 105						■	16,26	23,23	27,78	33,73	39,79	48,18	52,32	62,42	67,37	71,51	51	57	49
CBI 123						■	19,49	28,38	34,64	42,32	46,56	57,77	63,63	75,95	80,40	85,55	66	73	57
CBI 140						■	22,73	32,02	38,18	45,25	53,23	62,12	68,18	80,80	85,95	90,90	75	81	52
CBI 162						■	25,55	36,26	44,64	53,03	61,41	72,22	79,08	95,14	101,00	108,07	74	86	63
CBI 193						■	28,79	41,81	50,10	60,70	73,23	87,57	99,08	119,18	128,27	135,34	82	100	80

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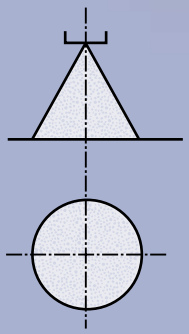


SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a solid cone wide angle spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

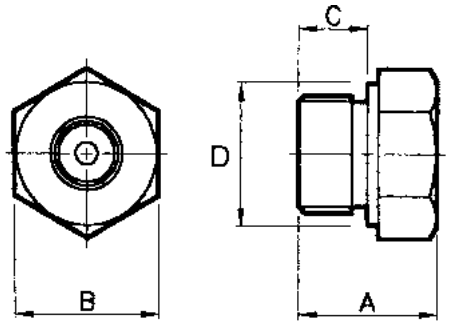
- *One piece body with pressed-in, cross-milled core which is removable.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Hexagon body for easy installation eliminates distortion of orience during installation.*
- *Supplied with Male BSPP thread only.*
- *Brass and 316 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

⅜" CBN 22 Stainless Steel.

DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A	B Hex	C	D	Weight (g)
1/8"	10,7	14,0	6,4	12,7	10
1/4"	14,0	18,0	7,0	16,5	20
3/8"	20,0	20,8	10,0	20,0	32
1/2"	25,4	25,7	12,7	24,9	63
3/4"	33,3	31,8	15,9	31,0	105
1"	47,6	38,0	19,1	38,0	210



Maximum Recommended Pressure:
35 Bar.G. (Metal), 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER	BSPP THREAD SIZE 1/8	1/4	3/8	1/2	3/4	1	FLOW RATE IN LITRES/MIN AT Bar.G. 0,35	0,7	1	1,5	2	3	4	6	7	8	SPRAY ANGLES (°) AT Bar.G. ,7	2	6
CBN 6	■	■					0,88	1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	3,76	110	100	90
CBN 8	■	■					1,30	1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	5,97	125	120	100
CBN 11	■	■					1,86	2,79	3,23	3,86	4,31	5,15	5,45	6,73	7,43	7,70	115	120	95
CBN 15		■					2,60	3,67	4,50	5,26	5,59	6,64	7,24	8,70	9,16	9,70	115	110	90
CBN 18		■					3,10	4,40	5,39	6,30	6,70	7,96	8,68	10,43	10,98	11,63	120	120	95
CBN 22		■	■				3,95	5,58	6,84	8,0	8,50	10,10	11,01	13,23	13,94	14,75	113	110	90
CBN 25			■				4,27	6,04	7,24	8,43	9,32	11,01	12,32	14,65	15,76	16,26	120	120	100
CBN 32			■				5,90	7,70	9,15	10,80	11,92	14,30	15,78	18,90	19,90	21,26	115	110	85
CBN 39			■				7,20	9,40	11,15	13,14	14,52	17,40	19,20	23,00	24,25	25,90	120	120	90
CBN 46			■	■			8,13	11,62	13,64	15,86	17,27	19,29	22,32	25,45	27,88	29,39	125	112	90
CBN 48			■	■			8,33	12,52	15,25	16,87	18,18	23,13	24,54	29,80	32,52	34,34	125	120	90
CBN 59				■			9,29	13,23	15,96	19,29	22,32	26,06	28,18	34,64	37,67	40,70	130	128	100
CBN 65				■			12,00	15,65	18,60	21,92	24,21	29,00	32,05	38,37	40,40	43,20	115	110	85
CBN 73				■			13,50	17,60	20,88	24,50	27,19	32,60	36,00	43,10	45,40	48,50	115	120	90
CBN 82					■		15,35	20,0	23,74	27,98	30,91	37,07	40,91	48,99	51,61	55,15	115	112	90
CBN 94					■		16,77	22,32	26,87	32,72	35,45	41,92	45,96	56,26	59,89	63,33	119	120	91
CBN 98					■		18,08	23,23	27,78	34,24	37,27	44,34	50,00	59,59	64,54	67,87	112	120	90
CBN 136						■	24,14	35,25	42,32	48,18	51,41	60,20	67,77	81,20	86,86	91,41	118	115	75
CBN 153						■	27,88	38,08	46,97	53,93	57,97	67,47	76,36	91,30	98,07	108,07	125	120	85
CBN 200						■	29,69	42,32	51,41	62,62	75,95	88,68	99,59	120,19	130,29	139,38	118	125	90

SOLID CONE SPRAY

TYPE CBN

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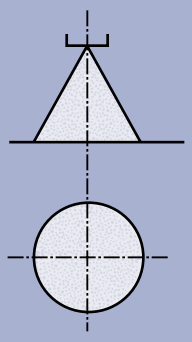


TYPE CBQ

SOLID CONE SPRAY

SPRAY CHARACTERISTICS

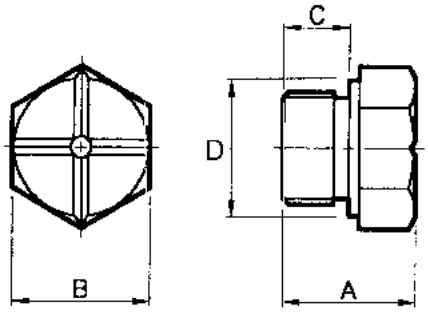
- *Uniform distribution of droplets in a solid cone square shaped spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

- *One piece body with pressed-in, cross-milled core which is removable.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Hexagon body for easy installation eliminates distortion of orifice during installation.*
- *Supplied in Male BSPP thread only.*
- *Brass and 316 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

¾" CBQ 89 Brass.



DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A	B Hex	C	D Dia	Weight (g)
1/8"	10,7	14,0	6,4	12,7	10
1/4"	14,0	18,0	7,0	16,5	20
3/8"	20,0	20,8	10,0	20,0	32
1/2"	25,4	25,7	12,7	24,9	63
3/4"	33,3	31,8	15,9	31,0	105
1"	47,6	38,0	19,1	38,0	210

Maximum Recommended Pressure: 35 Bar.G. (Metal), 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER	BSPP THREAD SIZE						FLOW RATE IN LITRES/MIN AT Bar.G.										SPRAY ANGLES (°) AT Bar.G.		
	1/8	1/4	3/8	1/2	3/4	1	0,35	0,7	1	1,5	2	3	4	6	7	8	,7	2	6
CBQ 6	■	■					0,88	1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	3,76	40	47	40
CBQ 8	■	■					1,30	1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	5,97	44	56	53
CBQ 11	■	■					1,63	2,32	2,87	3,62	4,05	4,87	5,36	6,30	6,74	7,06	52	64	58
CBQ 12	■	■					2,09	2,79	3,41	4,09	4,55	5,30	5,91	7,02	7,58	8,01	62	70	58
CBQ 16		■					2,50	3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	10,61	62	70	58
CBQ 20		■					3,11	4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	13,43	62	73	58
CBQ 22		■					3,58	5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	14,95	70	80	62
CBQ 12			■				2,00	2,79	3,32	4,19	4,73	5,83	6,60	7,79	8,17	8,65	36	45	39
CBQ 16			■				2,50	3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	10,61	57	60	55
CBQ 20			■				3,11	4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	13,43	61	73	58
CBQ 22			■				3,58	5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	14,95	70	80	62
CBQ 27			■				4,23	6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	18,08	70	80	62
CBQ 32			■				5,81	7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	22,12	70	80	62
CBQ 27				■			4,23	6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	18,08	44	53	51
CBQ 32				■			5,81	7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	22,12	60	70	61
CBQ 42				■			6,74	9,67	11,82	14,44	15,96	19,29	21,41	24,95	27,37	28,48	70	76	64
CBQ 49				■			8,17	11,62	14,24	16,36	18,69	23,13	25,05	29,29	32,52	33,94	79	86	72
CBQ 63				■			10,20	14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	43,94	80	86	70
CBQ 47					■		7,48	10,61	13,03	14,95	17,78	21,11	26,63	28,48	30,20	31,71	43	57	42
BQF 63					■		10,20	14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	43,94	60	69	53
CBQ 77					■		12,32	17,68	20,50	23,94	29,09	34,95	38,68	45,65	49,29	52,02	70	73	60
CBQ 89					■		13,94	20,00	23,74	29,39	33,63	40,00	44,54	52,92	56,26	59,29	82	85	67
CBQ 102					■		14,85	20,91	27,37	33,73	38,68	46,26	50,00	60,10	64,54	67,87	85	97	74
CBQ 73						■	11,92	16,26	20,00	22,62	27,78	34,24	38,68	45,65	50,00	52,02	35	41	44
CBQ 105						■	16,26	23,23	27,78	33,73	39,79	48,18	52,32	62,42	67,37	71,51	51	57	49
CBQ 123						■	19,49	28,38	34,64	42,32	46,56	57,77	63,63	75,95	80,40	85,55	66	73	57
CBQ 140						■	22,73	32,02	38,18	45,25	53,23	62,12	68,18	80,80	85,95	90,90	75	81	52
CBQ 162						■	25,55	36,26	44,64	53,03	61,41	72,22	79,08	95,14	101,00	108,07	74	86	63
CBQ 193						■	28,79	41,81	50,10	60,70	73,23	87,57	99,08	119,18	128,27	135,34	82	100	80

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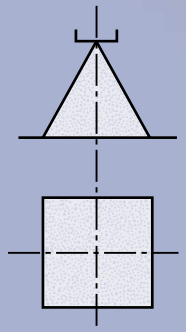


SPRAY CHARACTERISTICS

- *Uniform distribution of spray droplets in a wide angle solid cone sqare shaped pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

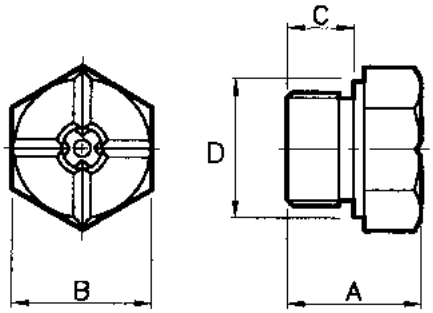
- *One piece body with pressed-in, cross-milled core which is removable.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Hexagon body for easy installation eliminates distortion of orifice during installation.*
- *Supplied in Male BSPP thread only.*
- *Brass and 316 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

½" CBT 59 Brass.

DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A	B Hex	C	D	Weight (g)
1/8"	10,7	14,0	6,4	12,7	10
1/4"	14,0	18,0	7,0	16,5	20
3/8"	20,0	20,8	10,0	20,0	32
1/2"	25,4	25,7	12,7	24,9	63
3/4"	33,3	31,8	15,9	31,0	105
1"	47,6	38,0	19,1	38,0	210



Maximum Recommended Pressure:
35 Bar.G. (Metal), 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER	BSPP THREAD SIZE 1/8	1/4	3/8	1/2	3/4	1	FLOW RATE IN LITRES/MIN AT Bar.G. 0,35	0,7	1	1,5	2	3	4	6	7	8	SPRAY ANGLES (°) AT Bar.G. ,7	2	6
CBT 6	■	■					0,88	1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	3,76	110	100	90
CBT 8	■	■					1,30	1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	5,97	125	120	100
CBT 11	■	■					1,86	2,79	3,23	3,86	4,31	5,15	5,45	6,73	7,43	7,70	115	120	95
CBT 15		■					2,60	3,67	4,50	5,26	5,59	6,64	7,24	8,70	9,16	9,70	115	110	90
CBT 18		■					3,10	4,40	5,39	6,30	6,70	7,96	8,68	10,43	10,98	11,63	120	120	95
CBT 22		■	■				3,95	5,58	6,84	8,0	8,50	10,10	11,01	13,23	13,94	14,75	113	110	90
CBT 25			■				4,27	6,04	7,24	8,43	9,32	11,01	12,32	14,65	15,76	16,26	120	120	100
CBT 32			■				5,90	7,70	9,15	10,80	11,92	14,30	15,78	18,90	19,90	21,26	115	110	85
CBT 39			■				7,20	9,40	11,15	13,14	14,52	17,40	19,20	23,00	24,25	25,90	120	120	90
CBT 46			■	■			8,13	11,62	13,64	15,86	17,27	19,29	22,32	25,45	27,88	29,39	125	112	90
CBT 48			■	■			8,33	12,52	15,25	16,87	18,18	23,13	24,54	29,80	32,52	34,34	125	120	90
CBT 59				■			9,29	13,23	15,96	19,29	22,32	26,06	28,18	34,64	37,67	40,70	130	128	100
CBT 65				■			12,00	15,65	18,60	21,92	24,21	29,00	32,05	38,37	40,40	43,20	115	110	85
CBT 73				■			13,50	17,60	20,88	24,50	27,19	32,60	36,00	43,10	45,40	48,50	115	120	90
CBT 82					■		15,35	20,0	23,74	27,98	30,91	37,07	40,91	48,99	51,61	55,15	115	112	90
CBT 94					■		16,77	22,32	26,87	32,72	35,45	41,92	45,96	56,26	59,89	63,33	119	120	91
CBT 98					■		18,08	23,23	27,78	34,24	37,27	44,34	50,00	59,59	64,54	67,87	112	120	90
CBT 136						■	24,14	35,25	42,32	48,18	51,41	60,20	67,77	81,20	86,86	91,41	118	115	75
CBT 153						■	27,88	38,08	46,97	53,93	57,97	67,47	76,36	91,30	98,07	108,07	125	120	85
CBT 200						■	29,69	42,32	51,41	62,62	75,95	88,68	99,59	120,19	130,29	139,38	118	125	90

SOLID CONE SPRAY

TYPE CBT

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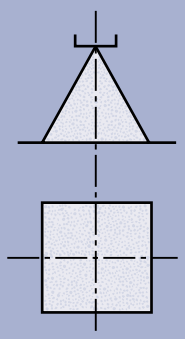
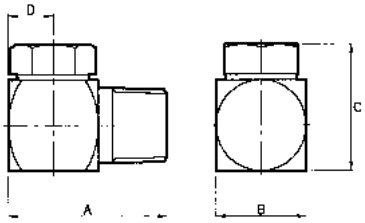
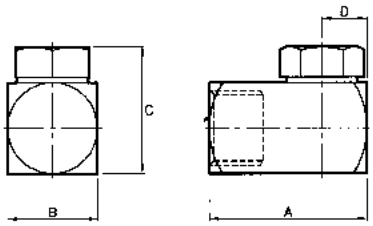


TYPE RBI

SOLID CONE SPRAY



RBIM (MALE)



RBIF (FEMALE)

SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

- *One piece body with pressed-in, crossed-milled core, fitted into a 90° adaptor.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Available with Male BSPT and Female BSPP threads.*
- *Brass and 316 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

½" RBIF (Female) 32 Brass.
¼" RBIM (Male) 11 Stainless Steel.

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A	B Sq	C	D	Weight (g)
1/8"	RBIM	25,4	15,9	22,3	8,0	47
1/8"	RBIF	25,4	15,9	22,3	8,0	60
1/4"	RBIM	28,5	15,9	21,0	8,0	53
1/4"	RBIF	28,5	15,9	21,0	8,0	66
3/8"	RBIM	35,0	19,0	26,0	9,5	89
3/8"	RBIF	35,0	19,0	26,0	9,5	100
1/2"	RBIM	44,5	25,4	35,5	12,7	184
1/2"	RBIF	44,5	25,4	35,5	12,7	200
3/4"	RBIM	57,0	31,8	43,0	16,0	350
3/4"	RBIF	57,0	31,8	43,0	16,0	370
1"	RBIM	76,0	38,1	50,0	19,0	695
1"	RBIF	76,0	38,1	50,0	19,0	715

CAPACITY CHART

Maximum Recommended Pressure: 35 Bar.G. (Metal) 7 Bar.G. (Plastic).

NOZZLE NUMBER		BSPT THREAD SIZE						FLOW RATE IN LITRES/MIN AT Bar.G.										SPRAY ANGLE (°) AT Bar.G.		
Female	Male	1/8	1/4	3/8	1/2	3/4	1	0,35	,7	1	1,5	2	3	4	6	7	8	,7	2	6
RBIF 6	RBIM 6	■	■					0,88	1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	3,76	40	47	40
RBIF 8	RBIM 8	■	■					1,30	1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	5,97	44	56	53
RBIF 11	RBIM 11	■	■					1,63	2,32	2,87	3,62	4,05	4,87	5,36	6,30	6,74	7,06	52	64	58
RBIF 12	RBIM 12	■	■					2,09	2,79	3,41	4,09	4,55	5,30	5,91	7,02	7,58	8,01	62	70	58
RBIF 16	RBIM 16		■					2,50	3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	10,61	57	60	55
RBIF 20	RBIM 20		■					3,11	4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	13,43	62	73	58
RBIF 22	RBIM 22		■					3,58	5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	14,95	70	80	62
RBIF 12	RBIM 12			■				2,00	2,79	3,32	4,19	4,73	5,83	6,60	7,79	8,17	8,65	36	45	39
RBIF 16	RBIM 16			■				2,50	3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	10,61	57	60	55
RBIF 20	RBIM 20			■				3,11	4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	13,43	61	73	58
RBIF 22	RBIM 22			■				3,58	5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	14,95	70	80	62
RBIF 27	RBIM 27			■				4,23	6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	18,08	70	80	62
RBIF 32	RBIM 32			■				5,81	7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	22,12	70	80	62
RBIF 27	RBIM 27				■			4,23	6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	18,08	44	53	51
RBIF 32	RBIM 32				■			5,81	7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	22,12	60	70	61
RBIF 42	RBIM 42				■			6,74	9,67	11,82	14,44	15,96	19,29	21,41	24,95	27,37	28,48	70	76	64
RBIF 49	RBIM 49				■			8,17	11,62	14,24	16,36	18,69	23,13	25,05	29,29	32,52	33,94	79	86	72
RBIF 63	RBIM 63				■			10,20	14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	43,94	80	86	70
RBIF 47	RBIM 47					■		7,48	10,61	13,03	14,95	17,78	21,11	26,63	28,48	30,20	31,71	43	57	42
RBIF 63	RBIM 63					■		10,20	14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	43,94	60	69	53
RBIF 77	RBIM 77					■		12,32	17,68	20,50	23,94	29,09	34,95	38,68	45,65	49,29	52,02	70	73	60
RBIF 89	RBIM 89					■		13,94	20,00	23,74	29,39	33,63	40,00	44,54	52,92	56,26	59,29	82	85	67
RBIF 102	RBIM 102					■		14,85	20,91	27,37	33,73	38,68	46,26	50,00	60,10	64,54	67,87	85	97	74
RBIF 73	RBIM 73						■	11,92	16,26	20,00	22,62	27,78	34,24	38,68	45,65	50,00	52,02	35	41	44
RBIF 105	RBIM 105						■	16,26	23,23	27,78	33,73	39,79	48,18	52,32	62,42	67,37	71,51	51	57	49
RBIF 123	RBIM 123						■	19,49	28,38	34,64	42,32	46,56	57,77	63,63	75,95	80,40	85,55	66	73	57
RBIF 140	RBIM 140						■	22,73	32,02	38,18	45,25	53,23	62,12	68,18	80,80	85,95	90,90	75	81	52
RBIF 162	RBIM 162						■	25,55	36,26	44,64	53,03	61,41	72,22	79,08	95,14	101,00	108,07	74	86	63
RBIF 193	RBIM 193						■	28,79	41,81	50,10	60,70	73,23	87,57	99,08	119,18	128,27	135,34	82	100	80

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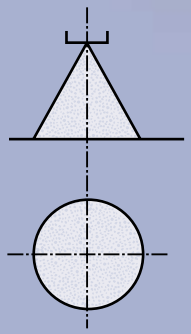


SPRAY CHARACTERISTICS

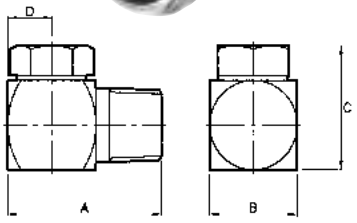
- *Uniform distribution of droplets in a wide angle solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally lower than narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

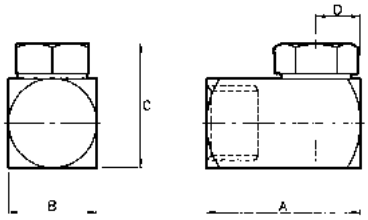
- *One piece body with pressed-in, crossed-milled fitted into a 90° adaptor.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Available with Male BSPT and Female BSPP threads.*
- *Brass and 316 Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

¾" RBNM (Male) 94 Stainless Steel.
½" RBNF (Female) 59 Brass.



RBNM (MALE)



RBNF (FEMALE)

DIMENSIONS AND WEIGHTS

Thread Size	Nozzle Type	Dimensions (mm) A	B Sq	C	D	Weight (g)
1/8"	RBNM	25,4	15,9	22,3	8,0	47
1/8"	RBNF	25,4	15,9	22,3	8,0	60
1/4"	RBNM	28,5	15,9	21,0	8,0	53
1/4"	RBNF	28,5	15,9	21,0	8,0	66
3/8"	RBNM	35,0	19,0	26,0	9,5	89
3/8"	RBNF	35,0	19,0	26,0	9,5	100
1/2"	RBNM	44,5	25,4	35,5	12,7	184
1/2"	RBNF	44,5	25,4	35,5	12,7	200
3/4"	RBNM	57,0	31,8	43,0	16,0	350
3/4"	RBNF	57,0	31,8	43,0	16,0	370
1"	RBNM	76,0	38,1	50,0	19,0	695
1"	RBNF	76,0	38,1	50,0	19,0	715

Maximum Recommended Pressure: 35 Bar.G. (Metal), 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER		BSPT THREAD SIZE						FLOW RATE IN LITRES/MIN AT Bar.G.										SPRAY ANGLES (°) AT Bar.G.		
Female	Male	1/8	1/4	3/8	1/2	3/4	1	0,35	0,7	1	1,5	2	3	4	6	7	8	,7	2	6
RBNF 6	RBNM 6	■	■					0,88	1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	3,76	110	100	90
RBNF 8	RBNM 8	■	■					1,30	1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	5,97	125	120	100
RBNF 11	RBNM 11	■	■					1,86	2,79	3,23	3,86	4,31	5,15	5,45	6,73	7,43	7,70	115	120	95
RBNF 15	RBNM 15	■	■					2,60	3,67	4,50	5,26	5,59	6,64	7,24	8,70	9,16	9,70	115	110	90
RBNF 18	RBNM 18		■					3,10	4,40	5,39	6,30	6,70	7,96	8,68	10,43	10,98	11,63	120	120	95
RBNF 22	RBNM 22		■	■				3,95	5,58	6,84	8,0	8,50	10,10	11,01	13,23	13,94	14,75	113	110	90
RBNF 25	RBNM 25			■				4,27	6,04	7,24	8,43	9,32	11,01	12,32	14,65	15,76	16,26	120	120	100
RBNF 32	RBNM 32			■				5,90	7,70	9,15	10,80	11,92	14,30	15,78	18,90	19,90	21,26	115	110	85
RBNF 39	RBNM 39			■				7,20	9,40	11,15	13,14	14,52	17,40	19,20	23,00	24,25	25,90	120	120	90
RBNF 46	RBNM 46			■	■			8,13	11,62	13,64	15,86	17,27	19,29	22,32	25,45	27,88	29,39	125	112	90
RBNF 48	RBNM 48			■	■			8,33	12,52	15,25	16,87	18,18	23,13	24,54	29,80	32,52	34,34	125	120	90
RBNF 59	RBNM 59				■			9,29	13,23	15,96	19,29	22,32	26,06	28,18	34,64	37,67	40,70	130	128	100
RBNF 65	RBNM 65				■			12,00	15,65	18,60	21,92	24,21	29,00	32,05	38,37	40,40	43,20	115	110	85
RBNF 73	RBNM 73				■			13,50	17,60	20,88	24,50	27,19	32,60	36,00	43,10	45,40	48,50	115	120	90
RBNF 82	RBNM 82					■		15,35	20,0	23,74	27,98	30,91	37,07	40,91	48,99	51,61	55,15	115	112	90
RBNF 94	RBNM 94					■		16,77	22,32	26,87	32,72	35,45	41,92	45,96	56,26	59,89	63,33	119	120	91
RBNF 98	RBNM 98					■		18,08	23,23	27,78	34,24	37,27	44,34	50,00	59,59	64,54	67,87	112	120	90
RBNF 136	RBNM 136						■	24,14	35,25	42,32	48,18	51,41	60,20	67,77	81,20	86,86	91,41	118	115	75
RBNF 153	RBNM 153						■	27,88	38,08	46,97	53,93	57,97	67,47	76,36	91,30	98,07	108,07	125	120	85
RBNF 200	RBNM 200						■	29,69	42,32	51,41	62,62	75,95	88,68	99,59	120,19	130,29	139,38	118	125	90

SOLID CONE SPRAY

TYPE RBN

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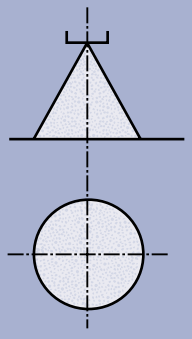


TYPE NBI

SOLID CONE SPRAY

SPRAY CHARACTERISTICS

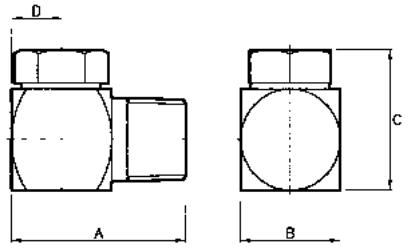
- *Coarse solid cone spray pattern with a relatively uniform distribution.*
- *Droplet sizes are generally larger than solid cone sprays with internal cores.*
- *Impact of spray is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

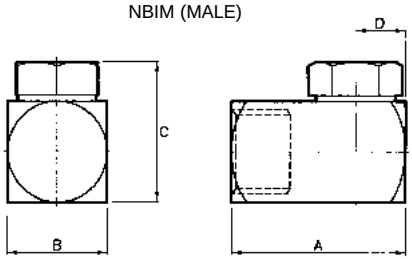
- *Two piece assembly with no internal core.*
- *Unrestricted internal flow passages for resistance to clogging.*
- *Spray is projected at an axis of 90° from the nozzle inlet axis.*
- *Available with Male BSPT thread or Female BSPP thread.*
- *Brass and Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

¼" NBIM (Male) 11 Brass.
½" NBIF (Female) 63 Stainless Steel.



NBIM (MALE)



NBIF (FEMALE)

DIMENSIONS AND WEIGHTS

Nozzle Size	Dimensions (mm) A	B Sq	C	D	Weight (g)
1/4" M	28,5	15,9	19,0	8,0	50
1/4" F	28,5	15,9	19,0	8,0	63
3/8" M	35,0	19,0	24,0	9,5	85
3/8" F	35,0	19,0	24,0	9,5	95
1/2" M	44,5	25,4	30,5	12,7	175
1/2" F	44,5	25,4	30,5	12,7	190
3/4" M	57,0	31,8	38,0	16,0	335
3/4" F	57,0	31,8	38,0	16,0	350
1" M	76,0	38,1	46,0	19,0	660
1" F	76,0	38,1	46,0	19,0	680

Maximum Recommended Pressure:
35 Bar.G. (Metal), 7 Bar.G. (Plastic).

CAPACITY CHART

NOZZLE NUMBER		BSPT THREAD SIZE					FLOW RATE IN LITRES/MIN AT Bar.G.										SPRAY ANGLES (°) AT 2 Bar.G.
Female	Male	1/4	3/8	1/2	3/4	1	0,35	0,7	1	1,5	2	3	4	6	7	8	
NBIF 11	NBIM 11	■					1,63	2,32	2,87	3,62	4,05	4,87	5,36	6,30	6,74	7,06	64
NBIF 12	NBIM 12	■					2,09	2,79	3,41	4,09	4,55	5,30	5,91	7,02	7,58	8,01	70
NBIF 16	NBIM 16	■					2,50	3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	10,61	60
NBIF 20	NBIM 20	■					3,11	4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	13,43	73
NBIF 22	NBIM 22	■					3,58	5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	14,95	80
NBIF 12	NBIM 12		■				2,00	2,79	3,32	4,19	4,73	5,83	6,60	7,79	8,17	8,65	45
NBIF 16	NBIM 16		■				2,50	3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	10,61	60
NBIF 20	NBIM 20		■				3,11	4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	13,43	73
NBIF 22	NBIM 22		■				3,58	5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	14,95	80
NBIF 27	NBIM 27		■				4,23	6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	18,08	53
NBIF 32	NBIM 32		■				5,81	7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	22,12	70
NBIF 27	NBIM 27			■			4,23	6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	18,08	53
NBIF 32	NBIM 32			■			5,81	7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	22,12	70
NBIF 42	NBIM 42			■			6,74	9,67	11,82	14,44	15,96	19,29	21,41	24,95	27,37	28,48	76
NBIF 49	NBIM 49			■			8,17	11,62	14,24	16,36	18,69	23,13	25,05	29,29	32,52	33,94	86
NBIF 63	NBIM 63			■			10,20	14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	43,94	80
NBIF 47	NBIM 47				■		7,48	10,61	13,03	14,95	17,78	21,11	26,63	28,48	30,20	31,71	57
NBIF 63	NBIM 63				■		10,20	14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	43,94	69
NBIF 77	NBIM 77				■		12,32	17,68	20,50	23,94	29,09	34,95	38,68	45,65	49,29	52,02	73
NBIF 89	NBIM 89				■		13,94	20,00	23,74	29,39	33,63	40,00	44,54	52,92	56,26	59,29	85
NBIF 102	NBIM 102				■		14,85	20,91	27,37	33,73	38,68	46,26	50,00	60,10	64,54	67,87	97
NBIF 73	NBIM 73					■	11,92	16,26	20,00	22,62	27,78	34,24	38,68	45,65	50,00	52,02	41
NBIF 105	NBIM 105					■	16,26	23,23	27,78	33,73	39,79	48,18	52,32	62,42	67,37	71,51	57
NBIF 123	NBIM 123					■	19,49	28,38	34,64	42,32	46,56	57,77	63,63	75,95	80,40	85,55	73
NBIF 140	NBIM 140					■	22,73	32,02	38,18	45,25	53,23	62,12	68,18	80,80	85,95	90,90	81
NBIF 162	NBIM 162					■	25,55	36,26	44,64	53,03	61,41	72,22	79,08	95,14	101,00	108,07	86
NBIF 193	NBIM 193					■	28,79	41,81	50,10	60,70	73,23	87,57	99,08	119,18	128,27	135,34	100

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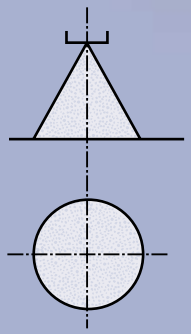


SPRAY CHARACTERISTICS

- *Coarse, solid cone, wide angle spray pattern with a relatively uniform distribution.*
- *Droplet sizes are generally larger than solid cone sprays with internal cores.*
- *Impact of spray is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

CONSTRUCTION AND MATERIALS

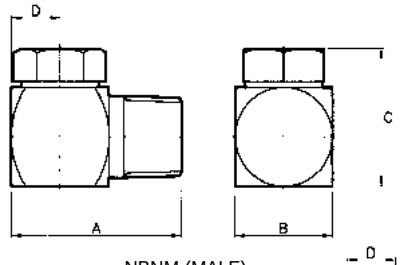
- *Two piece assembly with no internal core.*
- *Unrestricted internal flow passages for resistance to clogging.*
- *Spray is projected at an axis of 90° from the nozzle inlet axis.*
- *Available with Male BSPT thread or Female BSPP thread.*
- *Brass and Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

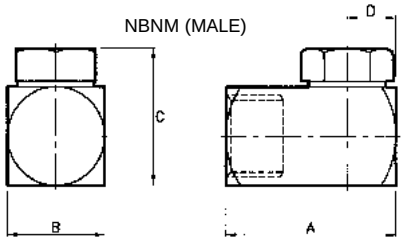
⅜" NBNM (Male) 25 Brass.
½" NBNF (Female) 82 Stainless Steel.

DIMENSIONS AND WEIGHTS

Nozzle Size	Dimensions (mm) A	B Sq	C	D	Weight (g)
1/4" M	28,5	15,9	19,0	8,0	50
1/4" F	28,5	15,9	19,0	8,0	63
3/8" M	35,0	19,0	24,0	9,5	85
3/8" F	35,0	19,0	24,0	9,5	95
1/2" M	44,5	25,4	30,5	12,7	175
1/2" F	44,5	25,4	30,5	12,7	190
3/4" M	57,0	31,8	38,0	16,0	335
3/4" F	57,0	31,8	38,0	16,0	350
1" M	76,0	38,1	46,0	19,0	660
1" F	76,0	38,1	46,0	19,0	680



NBNM (MALE)



NBNF (FEMALE)

Maximum Recommended Pressure: 35 Bar.G. (Metal), 7 Bar.G. (Plastic)

CAPACITY CHART

NOZZLE NUMBER Female	Male	BSPT THREAD SIZE 1/4	3/8	1/2	3/4	1	FLOW RATE IN LITRES/MIN AT Bar.G. 0,35	0,7	1	1,5	2	3	4	6	7	8	SPRAY ANGLES (°) AT 2 Bar.G.
NBNF 11	NBNM 11	■					1,86	2,79	3,23	3,86	4,31	5,15	5,45	6,73	7,43	7,70	120
NBNF 15	NBNM 15	■					2,60	3,67	4,50	5,26	5,59	6,64	7,24	8,70	9,16	9,70	110
NBNF 18	NBNM 18	■					3,10	4,40	5,39	6,30	6,70	7,96	8,68	10,43	10,98	11,63	120
NBNF 22	NBNM 22		■				3,95	5,58	6,84	8,0	8,50	10,10	11,01	13,23	13,94	14,75	110
NBNF 25	NBNM 25		■				4,27	6,04	7,24	8,43	9,32	11,01	12,32	14,65	15,76	16,26	120
NBNF 32	NBNM 32			■			5,90	7,70	9,15	10,80	11,92	14,30	15,78	18,90	19,90	21,26	110
NBNF 39	NBNM 39			■			7,20	9,40	11,15	13,14	14,52	17,40	19,20	23,00	24,25	25,90	120
NBNF 46	NBNM 46			■			8,13	11,62	13,64	15,86	17,27	19,29	22,32	25,45	27,88	29,39	112
NBNF 48	NBNM 48			■			8,33	12,52	15,25	16,87	18,18	23,13	24,54	29,80	32,52	34,34	120
NBNF 59	NBNM 59			■			9,29	13,23	15,96	19,29	22,32	26,06	28,18	34,64	37,67	40,70	128
NBNF 65	NBNM 65			■			12,00	15,65	18,60	21,92	24,21	29,00	32,05	38,37	40,40	43,20	110
NBNF 73	NBNM 73			■			13,50	17,60	20,88	24,50	27,19	32,60	36,00	43,10	45,40	48,50	120
NBNF 82	NBNM 82			■			15,35	20,0	23,74	27,98	30,91	37,07	40,91	48,99	51,61	55,15	112
NBNF 94	NBNM 94				■		16,77	22,32	26,87	32,72	35,45	41,92	45,96	56,26	59,89	63,33	120
NBNF 98	NBNM 98				■		18,08	23,23	27,78	34,24	37,27	44,34	50,00	59,59	64,54	67,87	120
NBNF 136	NBNM 136					■	24,14	35,25	42,32	48,18	51,41	60,20	67,77	81,20	86,86	91,41	115
NBNF 153	NBNM 153					■	27,88	38,08	46,97	53,93	57,97	67,47	76,36	91,30	98,07	108,07	120
NBNF 200	NBNM 200					■	29,69	42,32	51,41	62,62	75,95	88,68	99,59	120,19	130,29	139,38	125

SOLID CONE SPRAY

TYPE NBN

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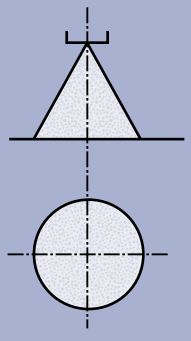


TYPE QI/QN/QQ/QT

SOLID CONE SPRAY

SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in solid cone or square shaped spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact of spray is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angle.*

$1^{1}/_{4}$" NB QA EYELET

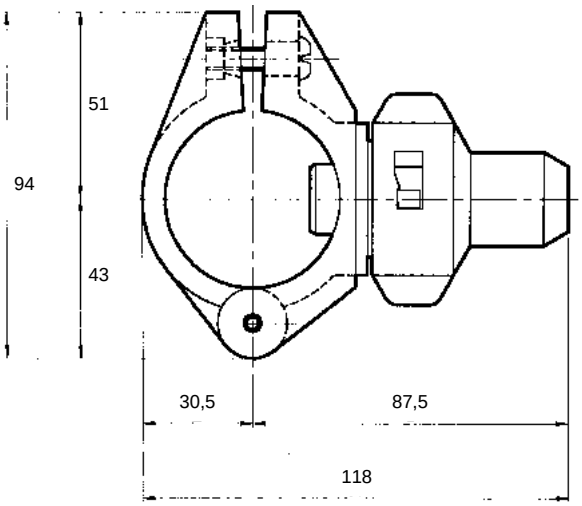
QI NOZZLE

CONSTRUCTION AND MATERIALS

- *The nozzles are designed to fit the QA eyelet which is available to suit 1¼" NB pipe (W12838) and 1½" NB pipe (W12837).*
- *No tools are required to change spray nozzles. Only a quarter turn is needed to attach or remove the nozzles for ease of maintenance.*
- *Large inlet connection allows high flow capacity with minimum pressure drop. To fit the eyelet a 20mm diameter hole is required in the pipe.*
- *Eyelets and nozzles are produced in glass filled polypropylene with other parts being in Stainless Steel with Nitrile 'O' rings.*

ORDER EXAMPLE

QN 94 - Nozzle only.
1¼" NB QA Eyelet.



Maximum Recommended Pressure: 7 Bar.G.

CAPACITY CHART

NOZZLE TYPE		FLOW RATE IN LITRES/MIN AT Bar.G.										SPRAY ANGLES (°) AT Bar.G.		
SPRAY PATTERN														
Round	Squared	,35	,7	1	1,5	2	3	4	5	6	7	,7	2	6
QI 47	QQ 47	7,48	10,61	13,03	14,95	17,78	21,11	26,63	27,77	28,38	30,20	43	57	42
QI 63	QQ 63	10,20	14,44	17,07	20,50	23,84	28,89	32,22	34,05	38,48	41,31	60	69	53
QI 77	QQ 77	12,32	17,68	20,50	23,94	29,09	34,95	38,68	41,66	45,65	49,29	70	73	60
QI 89	QQ 89	13,94	20,00	23,74	29,39	33,63	40,00	44,54	48,02	52,92	56,26	82	85	67
QI 102	QQ 102	14,85	20,91	27,37	33,73	38,68	46,26	50,00	55,02	60,10	64,54	85	97	74

CAPACITY CHART

NOZZLE TYPE		FLOW RATE IN LITRES/MIN AT Bar.G.										SPRAY ANGLES (°) AT Bar.G.		
SPRAY PATTERN														
Round	Squared	,35	,7	1	1,5	2	3	4	5	6	7	,7	2	6
QN 82	QT 82	15,35	20,00	23,74	27,98	30,91	37,07	40,91	44,72	48,99	51,61	115	112	90
QN 94	QT 94	16,77	22,32	26,87	32,72	35,45	41,92	45,96	49,91	56,26	59,89	119	120	91
QN 98	QT 98	18,08	23,23	27,78	34,24	37,27	44,34	50,00	55,64	59,59	64,54	112	120	90

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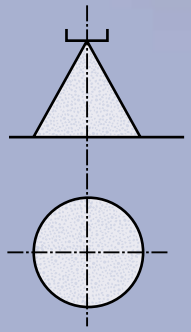

D Air Atomising

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Spray Technologies

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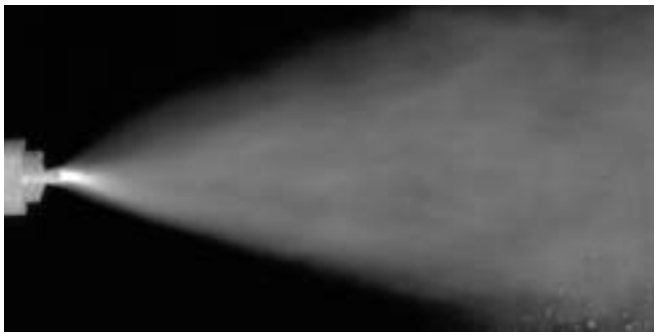
TYPICAL SPRAY PATTERN



TYPICAL APPLICATIONS

Chemical processing, continuous casting, cooling castings and moulds, curing concrete products, evaporative coolers, foam control, incineration, quenching, spray coating, spray drying, flue gas desulfurisation.

AIR ATOMISING

Nozzle Type	Spray Characteristics and Features	Type of Spray	Flow Range. L/Hour	Page No.
SWIRL-AIR	Internal mix design with a range of flow and spray angles. High turn down ratio. Variation on degree of atomisation.	Narrow – Wide angle hollow cone.	1,0 – 6720	D.1-16
GA	Siphon/gravity fed design with external mixing of air and liquid.	Narrow angle cone spray.	0,82 – 47,7	D.17
GC	Pressure fed design with external mixing of air and liquid.	Narrow angle cone spray.	26 – 148	D.18
AIRO	Pressure fed design with internal mixing of air and liquid.	Narrow angle cone spray.	18,9 – 604,8	D.19
AL	Constructional options.	–	–	D.20-23
AL	Siphon/gravity fed design with external mixing of air and liquid.	Narrow angle cone spray.	1,36 – 315	D.24-25
AL15	Siphon/pressure fed design with external mixing of air and liquid.	Medium angle flat spray.	1,36 – 280	D.26-27
AL 30	Pressure fed design with internal mixing of air and liquid.	Wide angle cone spray.	1,7 – 93	D.28
AL 45	Pressure fed design with internal mixing of air and liquid.	Narrow angle cone spray.	1,4 – 250	D.29
AL 60	Pressure fed design with internal mixing of air and liquid.	Wide angle flat spray.	0,95 – 140	D.30
AL 75	Pressure fed design with internal mixing of air and liquid.	Deflected flat spray.	5,7 – 26	D.31
AL 90	Siphon/gravity fed design with internal mixing of air and liquid.	Narrow angle cone spray.	0,49 – 7,6	D.31
SN	Siphon/gravity fed design with internal mixing of air and liquid.	Narrow angle cone spray.	0,1 – 10,3	D.32-33
LO-AIR	Pressure fed design with internal mixing of air and liquid.	Wide angle flat spray.	11,4 – 113,6	D.34-35
INTERNAL MIX	Pressure fed design with internal mixing of air and liquid.	Narrow angle cone spray.	113,6 – 2273	D.36-37
EXTERNAL MIX	Pressure fed design with external mixing of air and liquid.	Wide angle cone spray.	193 – 1410	D.38-39

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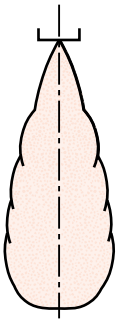


- *Two Swirl-Air nozzle versions are available: the right angle nozzle (atomising air enters the side, the liquid enters axially in back): and the in-line nozzle (concentric piping is used with the liquid in the centre and atomising air around the outside). Concentric pipe adaptors are optional and not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

FEATURES

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

SPRAY CHARACTERISTICS

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

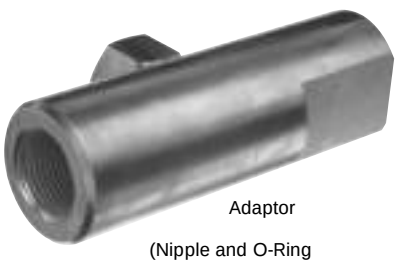
Right Angle
Nozzle Assembly

CONSTRUCTION AND MATERIALS

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

Nozzle -
Max. Design Pressure: 14 Bar.G.
Max. Design Temperature: 540ºC.

Adaptor -
Max. Design Pressure: 14 Bar.G.
Max. Design Temperature: 150ºC.



Adaptor

(Nipple and O-Ring
included with Adaptor)

In-Line
Nozzle

AIR ATOMISING

SWIRL-AIR®

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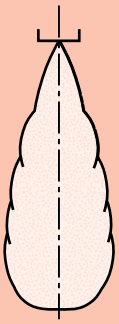
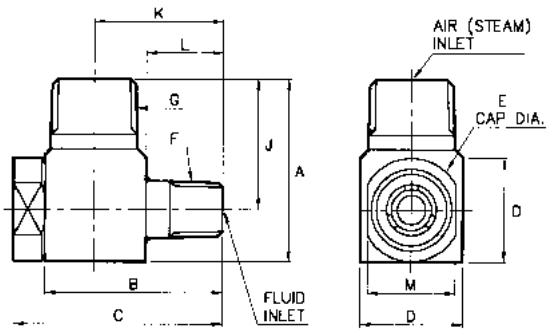


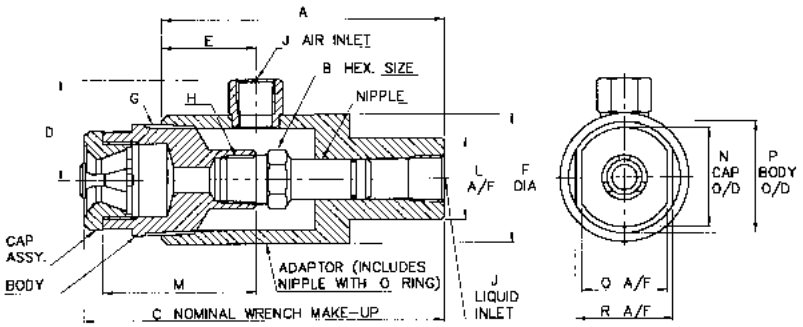
SWIRL-AIR®

AIR ATOMISING



RIGHT ANGLE SWIRL-AIR NOZZLE ASSEMBLY DIMENSIONS (mm)

DIMENSION	RIGHT ANGLE NOZZLE ASSEMBLY DEMENSIONS (mm)					
	45506	31618	31325	31693	31694	32163
A	66,7	54,0	44,5	34,9	28,6	28,6
B	56,4	51,8	46,4	38,1	34,9	34,9
C	64,6	59,2	53,7	42,3	38,5	38,5
D	38,1	31,8	25,4	19,0	15,9	15,9
E	41,3	34,7	28,3	22,0	18,8	18,8
F (NPT)	3/8-18	1/4-18	1/4-18	1/8-27	1/8-27	1/8-27
G (NPT)	3/4-14	3/4-14	1/2-14	3/8-18	1/4-18	1/4-18
J	47,6	38,1	31,8	25,4	20,6	20,6
K	38,1	35,9	33,7	28,6	27,0	27,0
L	19,0	20,0	21,0	19,1	19,1	19,1
M	36,5	31,8	25,4	19,1	15,9	15,9
Approx. weight (g)	430	270	170	77	51	51



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

DIMENSION	IN-LINE NOZZLE/ADAPTOR DEMENSIONS (mm)			
	32555/32614	32554/32618	32668/32695	32740/32742
A	127,0	120,7	120,7	90,2
B	22,2	15,9	15,9	12,7
C	152,4	146,1	142,8	108,0
D	44,5	39,6	39,6	32,6
E	44,5	58,4	58,4	38,1
F	50,8	41,3	41,3	28,6
L	38,1	31,8	31,8	19,1
M	59,7	53,9	54,0	38,1
N	34,7	28,3	22,0	18,8
O	31,8	25,4	19,0	15,9
P	42,2	33,4	26,7	21,3
R	34,9	28,6	22,2	19,0
G (NPTM)	1 1/4" - 11 1/2	1" - 11 1/2	3/4" - 14	1/2" - 14
H (NPTF)	1/2" - 14	1/4" - 18	1/4" - 18	1/8" - 27
J (NPTF)	1/2" - 14	1/2" - 14	1/2" - 14	1/4" - 18
Approx. weight (g)	1248	1120	1177	462

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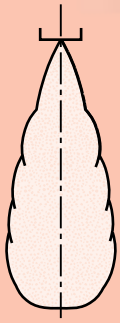


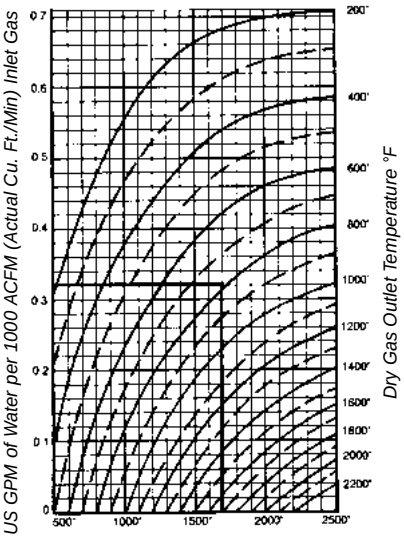
NOZZLE SIZING CHARTS

RIGHT ANGLE NOZZLES

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

* Higher flow rates can be achieved by increasing pressure.

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



Dry Gas Outlet Temperature. °F

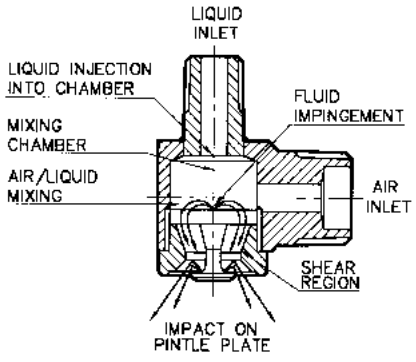
EXAMPLE: 1700°F dry inlet gas to be cooled to 800°F outlet temperature requires 0,32 US GPM water injection per 1000 CFM of inlet gas.

IN-LINE NOZZLES

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

* Higher flow rates can be achieved by increasing pressure.

Maximum Recommended Pressure: 100 Bar.G.



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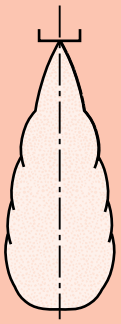
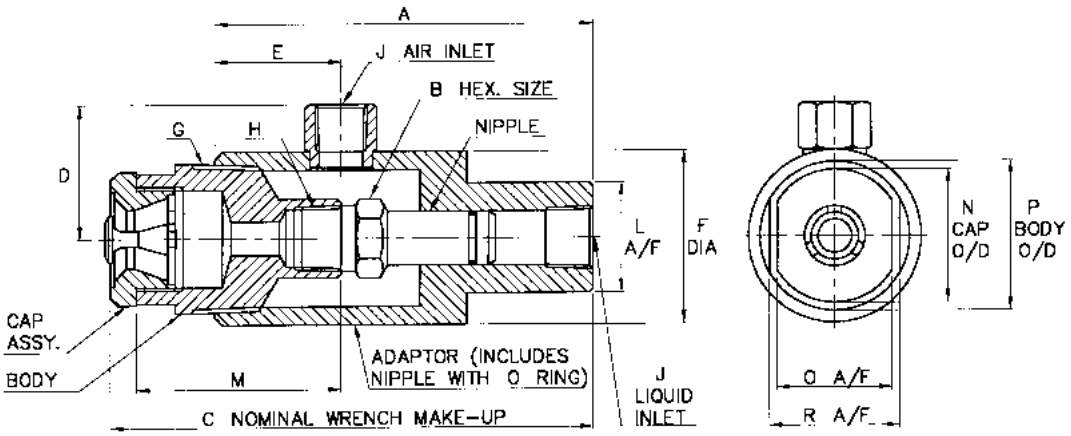


SWIRL-AIR®

AIR ATOMISING

CARBIDE-LINED IN-LINE SWIRL-AIR NOZZLES



NOTE: Nozzle consists of body and cap assembly. Adaptor with nipple must be ordered seperately.

NOZZLE ASSEMBLY DIMENSIONS (mm)

Dimension	In-Line Swirl-Air Nozzle/Adaptor (mm)						
	56 LPM 39144 -1 thru -6	56 LPM 39144 -7	37 LPM 39185 -1 thru -6	37 LPM 39185 -8, -9 & -10	15 LPM 39195 -1 thru -6	15 LPM 39195 -7	9,5 LPM 39225 All dash Nos.
	32614 Adaptor	32614 Adaptor	32618 Adaptor	32618 Adaptor	32695 Adaptor	32695 Adaptor	32742 Adaptor
A	127,0	127,0	120,7	120,7	120,7	120,7	120,7
B	22,2	22,2	15,9	15,9	15,9	15,9	12,7
C	152,4	152,4	150,0	150,0	150,0	150,0	109,2
D	44,5	44,5	39,6	39,6	39,6	39,6	32,6
E	44,5	44,5	58,4	58,4	58,4	58,4	38,1
F	50,8	50,8	41,3	41,3	41,3	41,3	28,6
L	38,1	38,1	31,8	31,8	31,8	31,8	19,1
M	59,7	59,7	53,9	53,9	53,9	53,9	38,1
N	39,5	39,5	31,8	31,8	25,8	25,8	20,3
O	34,9	34,9	28,6	28,6	22,2	22,2	18,3
P	47,4	47,4	37,9	37,9	30,0	30,0	23,6
R	42,1	42,1	33,3	33,3	27,0	27,0	21,4
G (NPTM)	1 1/4" - 11 1/2	1 1/4" - 11 1/2	1" - 11 1/2	1" - 11 1/2	3/4" - 14	3/4" - 14	1/2" - 14
H (NPTF)	1/2" - 14	1/2" - 14	1/4" - 18	1/4" - 18	1/4" - 18	1/4" - 18	1/8" - 27
J (NPTF)	1/2" - 14	1/2" - 14	1/2" - 14	1/2" - 14	1/2" - 14	1/2" - 14	1/4" - 18
Approx. Weight (g)	1304		1134		1106		454

NOZZLE SIZING CHART

Nominal Flow (Litres/Min)	Nozzle Asembly No.	Pintle & Sleeve		Nominal Spray Angle(°)	Min. Passage (mm)	Cap Assembly		Optional Adaptor Part No.
		Tungsten Carbide	Nickel Carbide			Tungsten Carbide	Nickel Carbide	
56	39144	-2	-5	50 (40-60)	4,3	39138-1	39138-2	32614
		-1	-4	75 (65-85)	3,6			
		-3	-6	100 (90-110)	2,8			
37	39185	-2	-5	50 (40-60)	2,5	39184-1	39184-2	32618
		-1	-4	75 (65-85)	2,1			
		-3	-6	100 (90-110)	1,6			
15	39195	-2	-5	50 (40-60)	1,7	39197-1	39197-2	32695
		-1	-4	75 (65-85)	1,7			
		-3	-6	100 (90-110)	1,7			
9,5	39225	-2	-5	50 (40-60)	1,3	39226-1	39226-2	32742
		-1	-4	75 (65-85)	1,3			
		-3	-6	100 (90-110)	1,3			

IN-LINE NOZZLES

* Higher flow rates can be achieved by increasing pressure.

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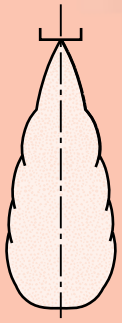
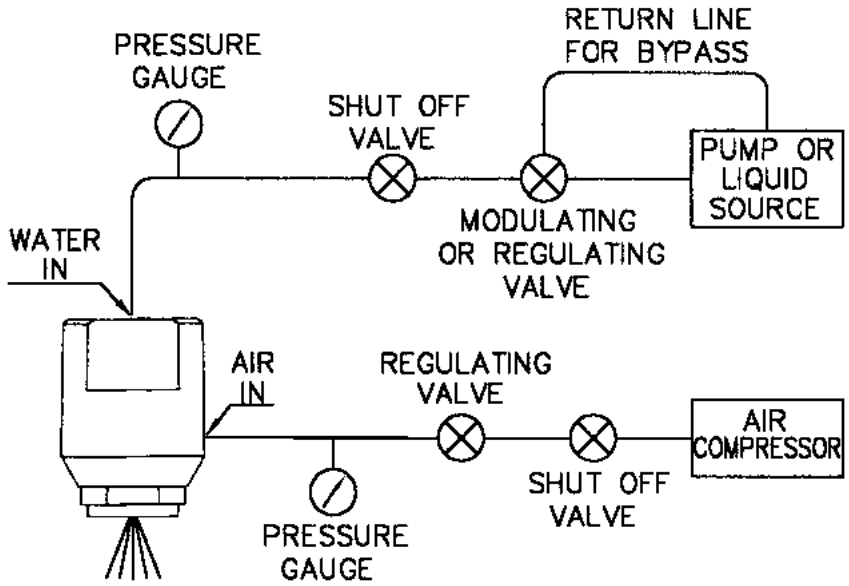
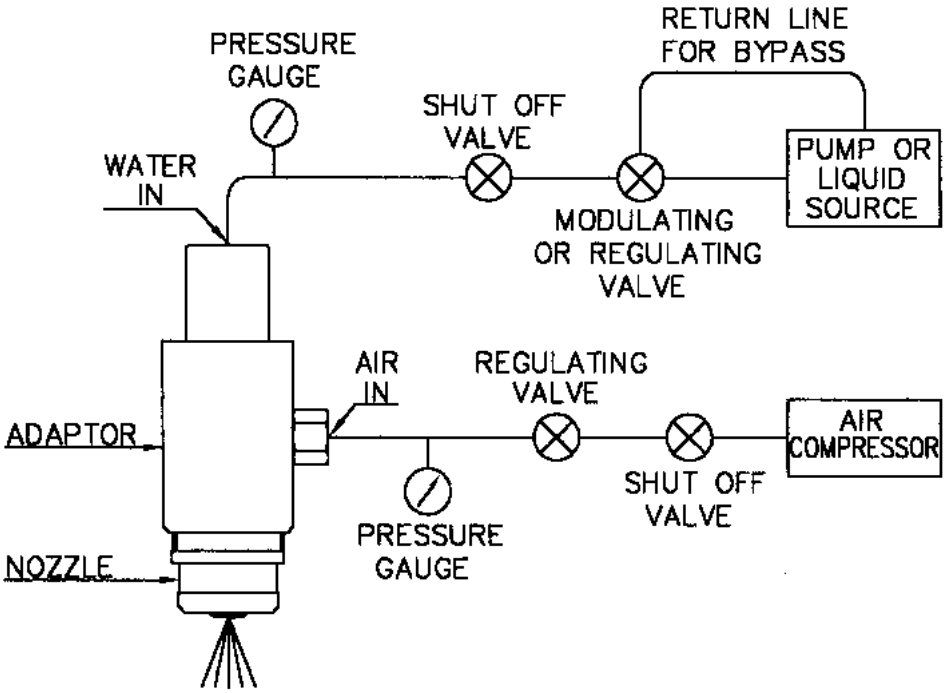


TYPICAL NOZZLE INSTALLATIONS

RIGHT ANGLE SWIRL-AIR NOZZLE



IN-LINE SWIRL-AIR NOZZLE



1. *Install nozzle as shown in schematic drawing above. Make certain both pressure gauges are located as close to the nozzle as practical. Allow for pressure losses between gauges and nozzle when establishing settings. Shut-off valves are included for convenience, allowing nozzle removal without shutting down system.*
2. *Always start air flow first, then liquid flow. On shut-down, stop liquid flow first, then air flow. Adjust air and liquid pressures simultaneously; each affects the other. Check liquid flow rate after system reaches equilibrium.*
3. *In-Line Version: The adaptor shown may be purchased from Delavan. It is not part of the nozzle.*
4. *In-Line Version: Concentric piping can be used between adaptor and nozzle, making it possible to position the adaptor in an ambient temperature area and the nozzle within the walls of a high temperature chamber. Contact Delavan for installation drawing SK6072.*

NOTE: For gas cooling applications, it is recommended that the air flow continues through nozzles after liquid flow is stopped.

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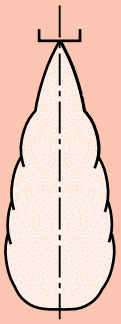


SWIRL-AIR®

AIR ATOMISING

DROPLET SIZE DATA

The generation of small droplets by Swirl-Air nozzles is due to the efficient utilisation of pneumatic energy. Although the spectrum of droplet diameters typically covers a rather wide range, the Sauter mean diameter ($\bar{D}_{32}$) is commonly used to compare and select nozzles for specific industrial processes such as evaporative cooling and spray drying.

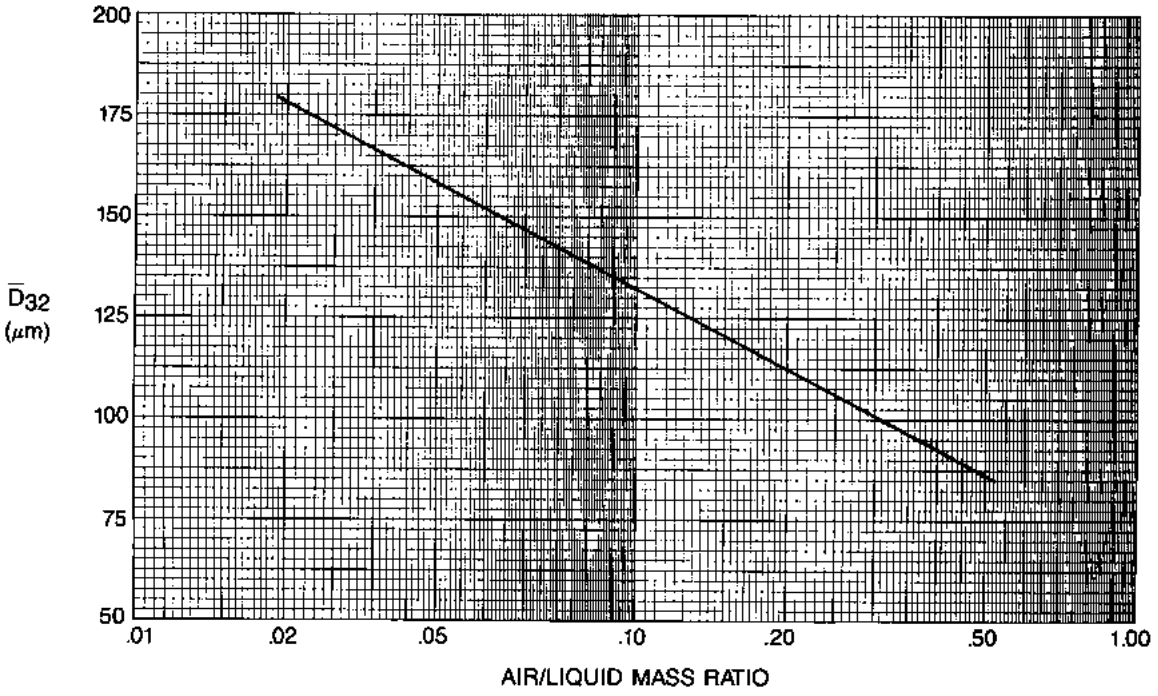
In the graph $\bar{D}_{32}$ is shown as a function of the air/liquid mass ratio for a Swirl-Air nozzle tested at air pressure between 3 and 7 Bar.G. and water rates in the range of 0,37 to 3,7 litres per minute.

This correlation can alternatively be expressed as:

$$\bar{D}_{32} = 200 - 66 \text{ LOG (SCFM/GPM)}$$

Similar correlations have been developed for other Swirl-Air nozzles and, in certain instances, include additional terms for air pressure or velocity. The magnitude of $\bar{D}_{32}$ also depends on nozzle size and the liquid properties.

Another important consideration is the droplet-sizing instrument and sampling technique. A number of sophisticated optical systems have been developed in recent years. Unfortunately, there may be serious discrepancies between different types of instruments. Therefore droplet size data should be treated as approximate when specifying nozzles and their operating conditions. Please contact Delavan's Customer Service Team for further information about specific nozzles.



CAPACITY CHARTS

93 LPM	LIQUID FLOW		LIQUID PRESSURE (Bar.G.) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	19	1140	0,96	1,37	1,79	2,20	2,61	3,00	3,50	3,85	4,26
Right	37	2220	1,37	1,86	2,34	2,82	3,30	3,78	4,25	4,68	5,16
Angle	56	3360	1,86	2,41	2,96	3,51	4,06	4,61	5,16	5,71	6,19
	78	4680	2,33	2,96	3,51	4,13	4,68	5,30	5,85	6,46	7,02
P/N 45506-1	93	5580	3,16	3,71	4,33	4,95	5,51	6,20	6,80	7,50	8,05
	112	6720	3,58	4,26	4,96	5,64	6,33	7,00	7,70	8,40	9,08

93 LPM	LIQUID FLOW		*AIR FLOW (M³ PER MIN) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	19	1140	2,32	3,28	4,22	5,18	6,12	7,08	8,00	9,00	-
Right	37	2220	1,76	2,57	3,43	4,25	5,10	5,95	6,80	7,60	-
Angle	56	3360	1,19	1,93	2,63	3,40	4,10	4,84	5,60	6,30	7,10
	78	4680	0,88	1,47	2,04	2,63	3,34	3,77	4,40	4,93	5,50
P/N 45506-1	93	5580	0,45	0,99	1,50	2,07	2,60	3,11	3,62	4,20	4,70
	112	6720	-	0,48	0,96	1,44	1,93	2,40	2,90	3,34	3,90

* Air flow rates are estimates only.

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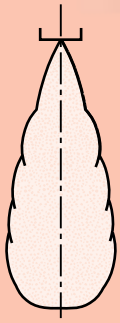

CAPACITY CHARTS (CONT.)

56 LPM	LIQUID FLOW		LIQUID PRESSURE (Bar.G.) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	19	1140	1,0	1,31	1,65	1,99	2,27	2,61	2,89	3,23	3,51
	22	1320	1,24	1,58	1,93	2,27	2,61	2,96	3,30	3,65	3,99
	26	1560	1,40	1,79	2,20	2,54	2,89	3,30	3,71	4,06	4,47
Right	30	1800	1,58	2,00	2,41	2,82	3,23	3,65	4,06	4,47	4,81
Angle	34	2040	1,72	2,20	2,68	3,09	3,51	3,92	4,40	4,81	5,23
	37	2220	2,00	2,41	2,89	3,37	3,78	4,27	4,68	5,16	5,57
P/N 31618-1	41	2460	2,2	2,68	3,16	3,64	4,13	4,54	5,02	5,43	5,91
	45	2700	2,48	2,96	3,44	3,92	4,40	4,81	5,30	5,78	6,26
	49	2940	2,75	3,23	3,78	4,19	4,68	5,23	5,71	6,19	6,67
	53	3180	3,03	3,51	4,06	4,54	5,02	5,57	6,05	6,60	7,08
	56	3360	3,30	3,85	4,40	4,88	5,43	6,05	6,50	7,02	7,50

56 LPM	LIQUID FLOW		AIR FLOW (M^3 PER MIN) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	19	1140	0,93	1,36	1,78	2,21	2,63	3,06	3,48	3,91	4,33
	22	1320	0,85	1,27	1,70	2,10	2,52	2,92	3,34	3,77	4,16
	26	1560	0,76	1,19	1,56	1,98	2,41	2,83	3,23	3,65	4,05
Right	30	1800	0,68	1,08	1,47	1,90	2,29	2,69	3,09	3,48	3,88
Angle	34	2040	0,59	1,12	1,39	1,76	2,12	2,52	2,89	3,28	3,65
	37	2220	0,54	0,91	1,27	1,64	1,98	2,35	2,69	3,06	3,43
P/N 31618-1	41	2460	0,48	0,82	1,19	1,53	1,87	2,21	2,55	2,89	3,23
	45	2700	0,42	0,76	1,10	1,42	1,76	2,07	2,41	2,75	3,06
	49	2940	0,37	0,71	1,02	1,33	1,67	1,98	2,32	2,63	2,94
	53	3180	0,31	0,63	0,96	1,27	1,56	1,90	2,21	2,52	2,86
	56	3360	0,25	0,57	0,88	1,19	1,47	1,76	2,07	2,38	2,66

56 LPM	LIQUID FLOW		LIQUID PRESSURE (Bar.G.) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	19	1140	1,03	1,31	1,65	1,93	2,27	2,54	2,89	3,16	3,51
	22	1320	1,24	1,58	1,93	2,20	2,54	2,82	3,16	3,51	3,78
	26	1560	1,44	1,86	2,20	2,54	2,89	3,16	3,58	3,92	4,76
	30	1800	1,65	2,07	2,48	2,82	3,23	3,51	3,99	4,33	4,68
In-Line	34	2040	1,86	2,27	2,75	3,16	3,51	3,85	4,33	4,68	5,16
	37	2220	1,99	2,54	3,03	3,44	3,85	4,26	4,61	5,09	5,50
P/N 32555-1	41	2460	2,27	2,82	3,30	3,71	4,19	4,61	5,02	5,50	5,91
	45	2700	2,48	3,09	3,58	4,06	4,54	4,95	5,64	6,12	6,6
	49	2940	2,75	3,30	3,85	4,33	4,81	5,30	5,85	6,40	7,0
	53	3180	3,03	3,58	4,13	4,68	5,16	5,64	6,26	6,74	7,30
	56	3360	3,30	3,85	4,47	5,02	5,64	6,18	6,74	7,29	7,84

56 LPM	LIQUID FLOW		AIR FLOW (M^3 PER MIN) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	19	1140	0,99	1,42	1,84	2,27	2,72	3,14	3,57	3,99	4,42
	22	1320	0,91	1,36	1,78	2,21	2,66	3,11	3,48	3,94	4,36
	26	1560	0,82	1,25	1,64	2,09	2,55	2,97	3,40	3,82	4,28
	30	1800	0,74	1,16	1,56	1,98	2,41	2,80	3,23	3,62	4,05
In-Line	34	2040	0,65	1,08	1,47	1,87	2,27	2,66	3,06	3,45	3,88
	37	2220	0,59	0,96	1,36	1,76	2,15	2,52	2,92	3,31	3,68
P/N 32555-1	41	2460	0,54	0,91	1,27	1,64	2,04	2,41	2,76	3,14	3,51
	45	2700	0,48	0,82	1,19	1,56	1,90	2,27	2,63	2,97	3,34
	49	2940	0,42	0,76	1,10	1,44	1,78	2,15	2,49	2,83	3,17
	53	3180	0,37	0,68	1,02	1,36	1,70	2,04	2,38	2,69	2,03
	56	3360	0,31	0,62	0,92	1,27	1,59	1,93	2,24	2,58	2,89

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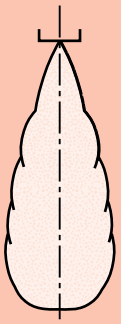

CAPACITY CHARTS (CONT.)

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37 LPM	LIQUID FLOW		LIQUID PRESSURE (Bar.G.) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	7,6	454	,70	1,0	1,3	1,6	1,9	2,1	2,5	2,8	3,0
	11,3	681	1,0	1,4	1,7	2,0	2,4	2,7	3,0	3,4	3,7
	15	900	1,3	1,7	2,1	2,5	2,9	3,2	3,6	4,0	4,4
Right	19	1140	1,65	2,1	2,5	3,0	3,4	3,8	4,2	4,6	5,0
Angle	22	1320	2,0	2,5	3,0	3,5	3,9	4,3	4,7	5,2	5,6
	26	1560	2,4	3,0	3,5	4,0	4,4	4,8	5,3	5,8	6,3
P/N 31325-1	30	1800	2,9	3,5	4,0	4,5	5,0	5,4	6,0	6,5	7,0
	34	2040	3,4	3,9	4,5	5,0	5,6	6,1	6,6	7,2	7,7
	37	2220	3,9	4,5	5,0	5,6	6,1	6,7	7,2	7,8	8,3

37 LPM	LIQUID FLOW		AIR FLOW (M^3 PER MIN) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	7,6	454	0,62	0,88	1,1	1,3	1,6	1.8	2,1	2,3	2,6
	11,3	681	0,54	0,79	1,1	1,3	1,5	1.8	2,0	2,2	2,4
	15	900	0,45	0,70	0,96	1,2	1,4	1.6	1,8	2,1	2,3
Right	19	1140	0,40	0,59	0,85	1,1	1,3	1.5	1,8	2,0	2,3
Angle	22	1320	0,31	0,54	0,74	0,96	1,2	1,4	1,6	1,9	2,1
	26	1560	0,25	0,45	0,68	0,88	1,1	1,3	1,5	1,7	1,9
P/N 31325-1	30	1800	0,20	0,40	0,59	0,79	0,99	1,2	1,4	1,6	1,8
	34	2040	0,14	0,31	0,51	0,71	0,91	1,1	1,3	1,5	1,7
	37	2220	0,06	0,25	0,42	0,62	0,79	1,0	1,2	1,4	1,6

37 LPM	LIQUID FLOW		LIQUID PRESSURE (Bar.G.) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	7,6	454	0,7	0,97	1,2	1,5	1,8	2,0	2,3	2,5	2,8
	11,3	681	1,0	1,4	1,7	2,0	2,3	2,6	2,9	3,2	3,5
	15	900	1,4	1,8	2,1	2,5	2,9	3,2	3,6	4,0	4,3
	19	1140	1,7	2,1	2,6	3,0	3,4	3,7	4,2	4,5	4,8
In-Line	22	1320	2,0	2,6	3,1	3,5	3,9	4,3	4,7	5,2	5,6
	26	1560	2,5	3,0	3,5	4,1	4,5	4,9	5,4	5,8	6,3
P/N 32554-1	30	1800	3,0	3,5	4,1	4,6	5,1	5,5	6,0	6,5	7,0
	34	2040	3,5	4,1	4,7	5,2	5,7	6,2	6,8	7,3	7,8
	37	2220	4,0	4,7	5,2	5,8	6,3	6,8	7,4	7,9	8,5

37 LPM	LIQUID FLOW		AIR FLOW (M^3 PER MIN) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	7,6	454	0,65	0,88	1,1	1,4	1,6	1,8	2,0	2,3	2,5
	11,3	681	0,57	0,82	1,1	1,3	1,5	1,8	2,0	2,2	2,4
	15	900	0,51	0,74	1,0	1,3	1,5	1,7	1,9	2,2	2,4
	19	1140	0,42	0,68	0,93	1,2	1,4	1,6	1,9	2,1	2,4
In-Line	22	1320	0,37	0,59	0,82	1,1	1,3	1,5	1,8	2,0	2,3
	26	1560	0,28	0,51	0,74	0,96	1,2	1,4	1,6	1,9	2,1
P/N 32554-1	30	1800	0,23	0,45	0,65	0,85	1,1	1,3	1,5	1,8	2,0
	34	2040	0,17	0,37	0,57	0,76	0,99	1,2	1,4	1,6	1,8
	37	2220	0,09	0,31	0,51	0,71	0,91	1,1	1,3	1,5	1,7

15 LPM	LIQUID FLOW		LIQUID PRESSURE (Bar.G.) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	1,25	75	0,6	1,0	1,4	1,8	2,2	2,5	3,0	3,4	3,8
	1,93	114	0,7	1,1	1,6	2,0	2,4	2,8	3,2	3,7	4,1
Right	2,5	150	0,8	1,2	1,7	2,1	2,6	3,0	3,4	3,9	4,3
Angle	3,8	228	1,0	1,4	1,9	2,4	2,9	3,4	3,9	4,3	4,8
	7,6	454	1,4	1,9	2,5	3,1	3,7	4,1	4,7	5,3	5,9
P/N 31693-1	11,3	681	1,7	2,3	2,9	3,5	4,1	4,7	5,4	6,0	6,5
	13,25	795	1,9	2,5	3,1	3,7	4,3	5,0	5,6	6,2	6,8
	15	900	2,0	2,7	3,3	3,9	4,6	5,2	5,8	6,5	7,1

15 LPM	LIQUID FLOW		AIR FLOW (M^3 PER MIN) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	1,25	75	0,33	0,45	0,57	0,68	0,79	0,91	1,0	1,1	1,3
	1,93	114	0,31	0,42	0,54	0,65	0,76	0,88	0,99	1,1	1,2
Right	2,5	150	0,28	0,40	0,51	0,62	0,74	0,85	0,96	1,1	1,2
Angle	3,8	228	0,24	0,37	0,45	0,57	0,68	0,80	0,91	1,0	1,1
	7,6	454	0,14	0,23	0,31	0,42	0,51	0,62	0,74	0,82	0,93
P/N 31693-1	11,3	681	0,03	0,14	0,20	0,28	0,37	0,45	0,54	0,62	0,63
	13,25	795	-	0,09	0,17	0,23	0,31	0,40	0,45	0,54	0,62
	15	900	-	0,06	0,14	0,20	0,25	0,34	0,40	0,48	0,54

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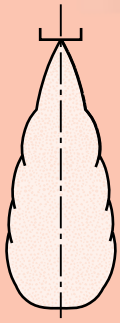

CAPACITY CHARTS (CONT.)

15 LPM	LIQUID FLOW		LIQUID PRESSURE (Bar.G.) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	1,25	45	0,65	1,00	1,44	1,86	2,20	2,61	3,09	3,50	3,92
	1,89	113	0,79	1,24	1,65	2,06	2,48	2,89	3,37	3,78	4,20
	2,50	150	0,89	1,30	1,72	2,20	2,61	3,09	3,51	3,99	4,40
In-Line	3,78	227	1,17	1,65	2,20	2,61	3,09	3,68	4,06	4,54	5,02
	7,57	455	1,92	2,48	3,09	3,65	4,20	4,75	5,30	5,84	6,40
P/N 32668-1	11,35	681	2,89	3,50	4,10	4,75	5,36	5,91	6,53	7,15	7,77
	13,24	795	3,50	4,10	4,75	5,40	5,98	6,60	7,22	7,91	8,53
	15,13	908	4,10	4,80	5,43	6,05	6,67	7,29	7,98	8,60	9,28

15 LPM	LIQUID FLOW		AIR FLOW (M^3 PER MIN) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	1,25	75	0,34	0,45	0,59	0,71	0,82	0,96	1,08	1,19	1,33
	1,89	113	0,31	0,44	0,57	0,68	0,79	0,93	1,05	1,16	1,30
	2,50	150	0,30	0,41	0,54	0,65	0,76	0,91	1,02	1,13	1,27
In-Line	3,78	227	0,25	0,37	0,48	0,59	0,71	0,85	0,96	1,08	1,19
	7,57	455	0,14	0,23	0,31	0,42	0,54	0,62	0,74	0,85	0,93
P/N 32668-1	11,35	681	0,028	0,14	0,20	0,28	0,37	0,45	0,54	0,62	0,71
	13,24	795	-	0,085	0,17	0,23	0,31	0,40	0,45	0,54	0,62
	15,13	908	-	0,028	0,14	0,20	0,25	0,34	0,40	0,48	0,57

9,5 LPM	LIQUID FLOW		LIQUID PRESSURE (Bar.G.) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	1,25	75	,76	1,24	1,72	2,13	2,61	3,03	3,50	3,99	4,47
	1,89	113	,89	1,38	1,86	2,34	2,82	3,30	3,71	4,20	4,68
Right	2,50	150	,96	1,51	1,99	2,48	2,96	3,44	3,92	4,40	5,09
Angle	3,78	227	1,10	1,65	2,20	2,75	3,30	3,78	4,33	4,88	5,43
	5,67	340	1,24	1,93	2,48	3,03	3,58	4,10	4,75	5,30	5,91
P/N 31694-1	7,57	455	1,38	2,06	2,68	3,30	3,92	4,47	5,16	5,78	6,4
	9,46	568	1,51	2,20	2,82	3,50	4,13	4,75	5,36	6,05	6,67

9,5 LPM	LIQUID FLOW		AIR FLOW (M^3 PER MIN) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	1,25	75	,18	,25	,33	,40	,47	,54	,61	,68	,75
	1,89	113	,17	,23	,30	,37	,44	,52	,58	,65	,72
Right	2,50	150	,14	,21	,28	,35	,42	,50	,57	,64	,71
Angle	3,78	227	,11	,18	,24	,31	,37	,44	,51	,57	,64
	5,67	340	,07	,13	,18	,25	,31	,37	,42	,50	,55
P/N 31694-1	7,57	455	-	,057	,11	,17	,23	,28	,33	,40	,45
	9,46	568	-	,042	,085	,13	,17	,20	,25	,31	,34

9,5 LPM	LIQUID FLOW		LIQUID PRESSURE (Bar.G.) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	1,25	75	,69	1,17	1,58	1,99	2,40	2,82	3,23	3,65	4,06
	1,89	113	,83	1,31	1,79	2,27	2,68	3,09	3,44	4,06	4,47
	2,50	150	,96	1,38	1,86	2,41	2,89	3,30	3,65	4,26	4,75
In-Line	3,78	227	1,10	1,65	2,70	2,68	3,23	3,71	4,19	4,75	5,23
	5,67	340	1,31	1,93	2,48	3,09	3,65	4,13	4,8	5,36	5,92
P/N 32740-1	7,57	455	1,44	2,06	2,68	3,30	3,92	4,54	5,16	5,71	6,33
	9,46	568	1,58	2,20	2,89	3,50	4,13	4,8	5,43	6,05	6,67

9,5 LPM	LIQUID FLOW		AIR FLOW (M^3 PER MIN) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	1,25	75	,17	,24	,31	,37	,44	,51	,58	,65	,71
	1,89	113	,14	,21	,28	,35	,42	,48	,55	,62	,68
	2,50	150	,13	,20	,27	,33	,40	,47	,54	,59	,65
In-Line	3,78	227	-	,16	,21	,28	,35	,41	,48	,54	,59
	5,67	340	-	-	,16	,21	,28	,33	,40	,45	,51
P/N 32740-1	7,57	455	-	-	-	,16	,21	,27	,31	,37	,42
	9,46	568	-	-	-	-	,16	,21	,23	,28	,34

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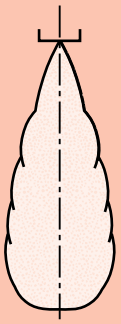

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AIR ATOMISING

CAPACITY CHARTS (CONT.)

3,8 LPM	LIQUID FLOW		LIQUID PRESSURE (Bar.G.) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	,76	46	1,17	1,84	2,48	3,11	3,71	4,35	5,02	5,64	6,24
	1,13	68	1,24	1,87	2,53	3,14	3,80	4,46	5,09	5,75	6,39
	1,51	90	1,25	1,91	2,56	3,20	3,87	4,54	5,19	5,86	6,51
Right	1,89	113	1,27	1,93	2,60	3,26	3,92	4,57	5,23	5,90	6,55
Angle	2,27	136	1,28	1,97	2,61	3,29	3,98	4,62	5,31	5,98	6,67
	2,65	159	1,29	1,98	2,64	3,31	3,99	4,68	5,36	6,02	6,68
P/N 32163-2	3,03	182	1,31	1,99	2,65	3,34	4,04	4,72	5,40	6,05	6,74
	3,40	204	1,32	2,00	2,68	3,36	4,06	4,74	5,43	6,09	6,78
	3,78	227	1,33	2,02	2,70	3,37	4,07	4,77	5,45	6,12	6,82

3,8 LPM	LIQUID FLOW		AIR FLOW (M^3 PER MIN) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	,76	46	,085	,113	,140	,170	,198	,230	,255	,300	,330
	1,13	68	,070	,085	,127	,156	,184	,212	,240	,270	,300
	1,51	90	,057	,080	,113	,127	,156	,184	,212	,240	,270
Right	1,89	113	,042	,070	,085	,113	,140	,170	,198	,212	,240
Angle	2,27	136	,028	,057	,070	,099	,127	,140	,170	,198	,212
	2,65	159	-	,042	,057	,085	,113	,127	,140	,170	,198
P/N 32163-2	3,03	182	-	,034	,051	,070	,085	,113	,127	,140	,170
	3,40	204	-	,028	,042	,057	,079	,099	,113	,127	,156
	3,78	227	-	-	,034	,051	,070	,085	,099	,113	,140

3,8 LPM	LIQUID FLOW		LIQUID PRESSURE (Bar.G.) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	,76	46	1,17	1,86	2,51	3,16	3,78	4,42	5,09	5,71	6,33
	1,13	68	1,20	1,89	2,58	3,23	3,89	4,57	5,21	5,81	6,57
	1,51	90	1,24	1,93	2,61	3,27	3,92	4,59	5,26	5,91	6,60
	1,89	113	1,27	1,96	2,65	3,30	3,99	4,66	5,33	5,98	6,67
In-Line	2,27	136	1,31	1,99	2,68	3,34	4,00	4,68	5,36	6,02	6,71
	2,65	159	1,32	2,00	2,70	3,36	4,02	4,71	5,40	6,07	6,74
P/N 32740-4	3,03	182	1,33	2,02	2,71	3,37	4,03	4,73	5,43	6,08	6,77
	3,40	204	1,35	2,04	2,74	3,38	4,06	4,75	5,45	6,09	6,78
	3,78	227	1,36	2,05	2,75	3,40	4,09	4,76	5,46	6,12	6,81

3,8 LPM	LIQUID FLOW		AIR FLOW (M^3 PER MIN) at these Air Pressures (Bar.G.)								
	LPM	LPH	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
	,76	46	,085	,099	,130	,155	,169	,212	,240	,270	,297
	1,13	68	,070	,085	,099	,127	,155	,184	,212	,230	,250
	1,51	90	,057	,070	,085	,113	,142	,155	,184	,198	,230
	1,89	113	,028	,057	,070	,097	,113	,142	,155	,184	,198
In-Line	2,27	136	,022	,042	,057	.085	,097	,127	,142	,169	,192
	2,65	159	-	,033	,051	,070	,091	,113	,127	,142	,155
P/N 32740-4	3,03	182	-	,028	,042	,062	,085	,097	,113	,127	,142
	3,40	204	-	-	,033	,057	,070	,085	,097	,113	,127
	3,78	227	-	-	,028	,042	,057	,070	,085	,097	,113

0,8 LPM	LIQUID FLOW		LIQUID PRESSURE (Bar.G.) at these Air Pressures (Bar.G.)						AIR FLOW (M^3 PER MIN) at these Air Pressures (Bar.G.)					
	LPM	LPH	3,5	4,1	4,9	5,5	6,2	7,0	3,5	4,1	4,9	5,5	6,2	7,0
	,063	3,8	,52	,65	,79	,93	1,07	1,20	,085	,099	,113	,127	,142	,155
	,19	11	,62	,79	,93	1,07	1,20	1,34	,085	,099	,113	,127	,142	,155
	,38	23	,89	1,10	1,31	1,48	1,65	1,86	,085	,099	,113	,127	,142	,155
Right	,57	34	1,13	1,38	1,62	1,86	2,06	2,30	,085	,099	,113	,127	,142	,142
Angle	,76	46	1,41	1,69	1,96	2,24	2,51	2,79	,085	,099	,107	,113	,127	,142
	1,14	68	1,72	2,03	2,34	2,65	2,96	3,27	,085	,093	,099	,113	,127	,127
P/N 32163-1	1,89	113	2,27	2,68	3,06	3,47	3,88	4,26	,085	,085	,099	,102	,113	,127
	2,65	159	2,68	3,20	3,71	4,20	4,68	5,16	,070	,085	,099	,102	,113	,127
	3,40	204	3,23	3,85	4,40	4,95	5,50	6,12	,070	,079	,085	,099	,102	,113
	3,78	227	3,51	4,13	4,75	5,36	5,98	6,60	,065	,070	,085	,091	,099	,113

---------- *Maximum Recommended Flow*

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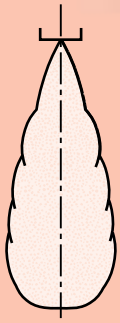
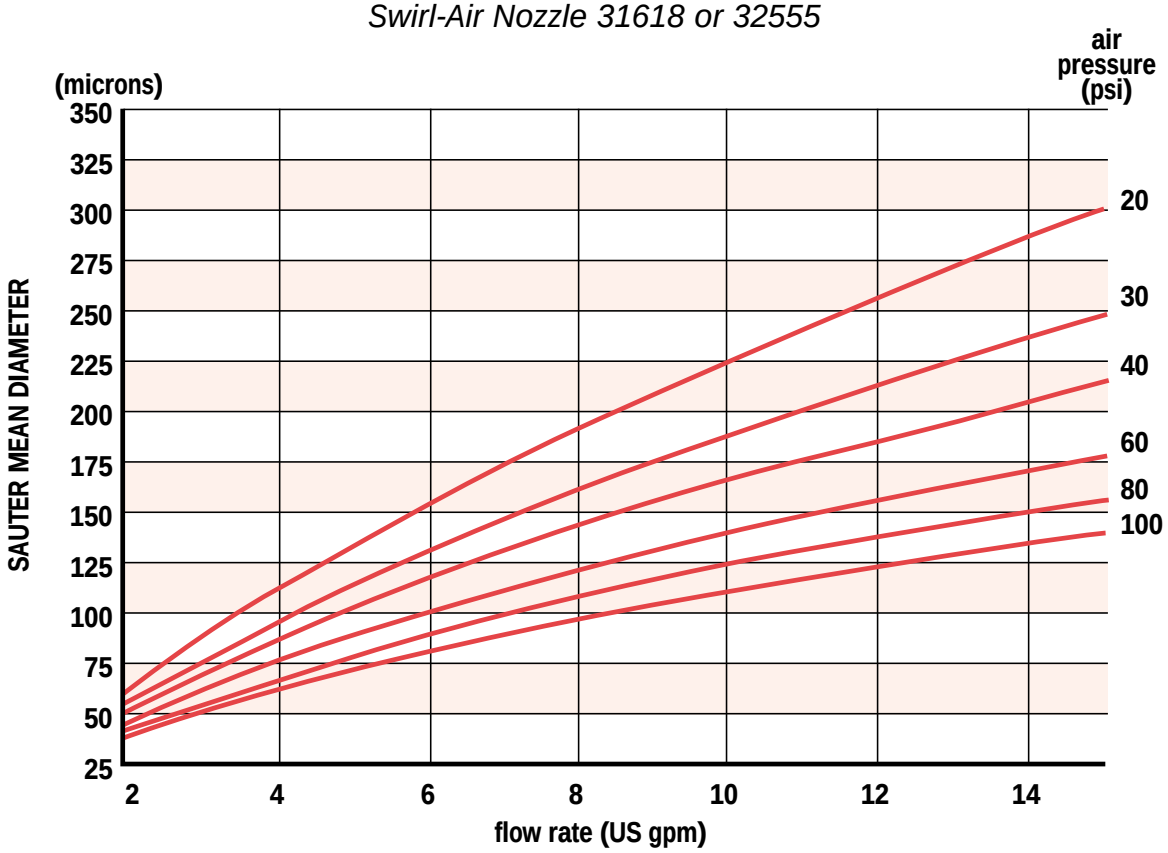
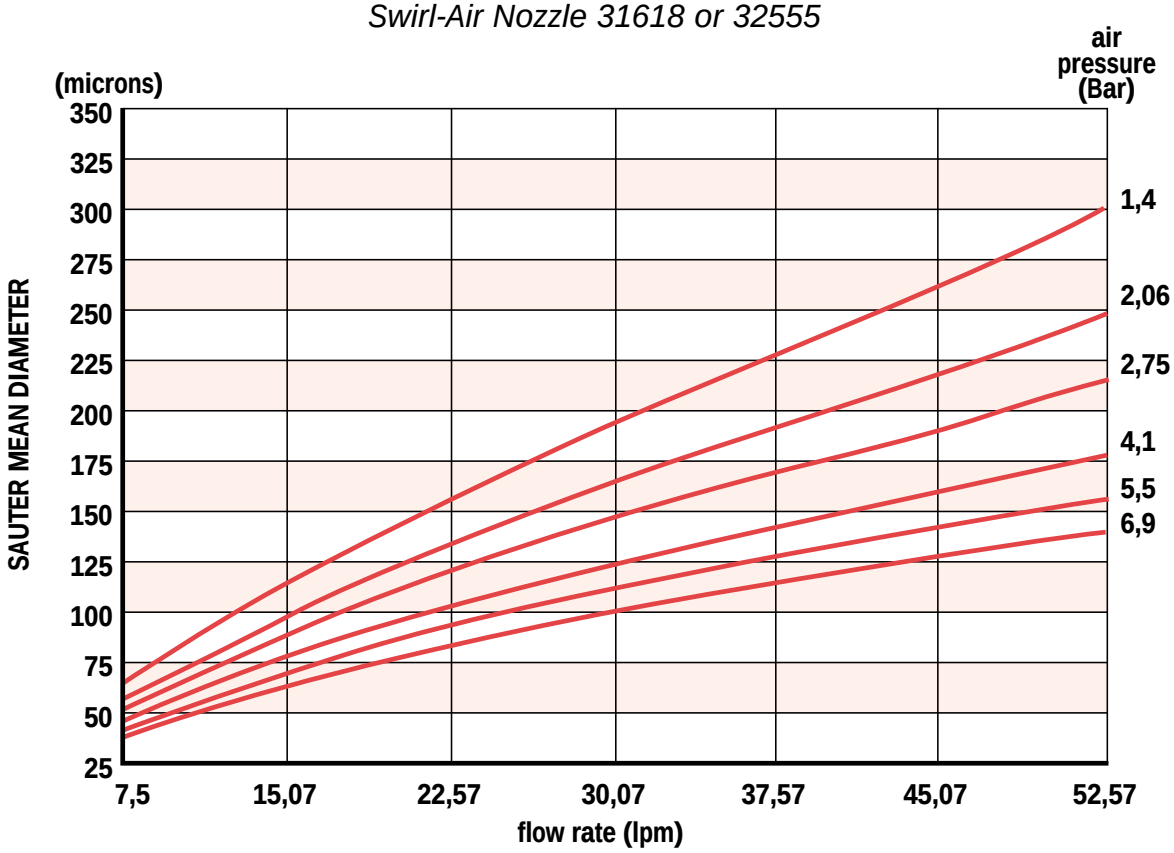


Estimated Sauter Mean Droplet Diameters
Flow/Droplet Diameters - US Measures
Swirl-Air Nozzle 31618 or 32555



Estimated Sauter Mean Droplet Diameters
Flow/Droplet Diameters - Metric Measures
Swirl-Air Nozzle 31618 or 32555



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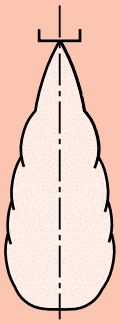

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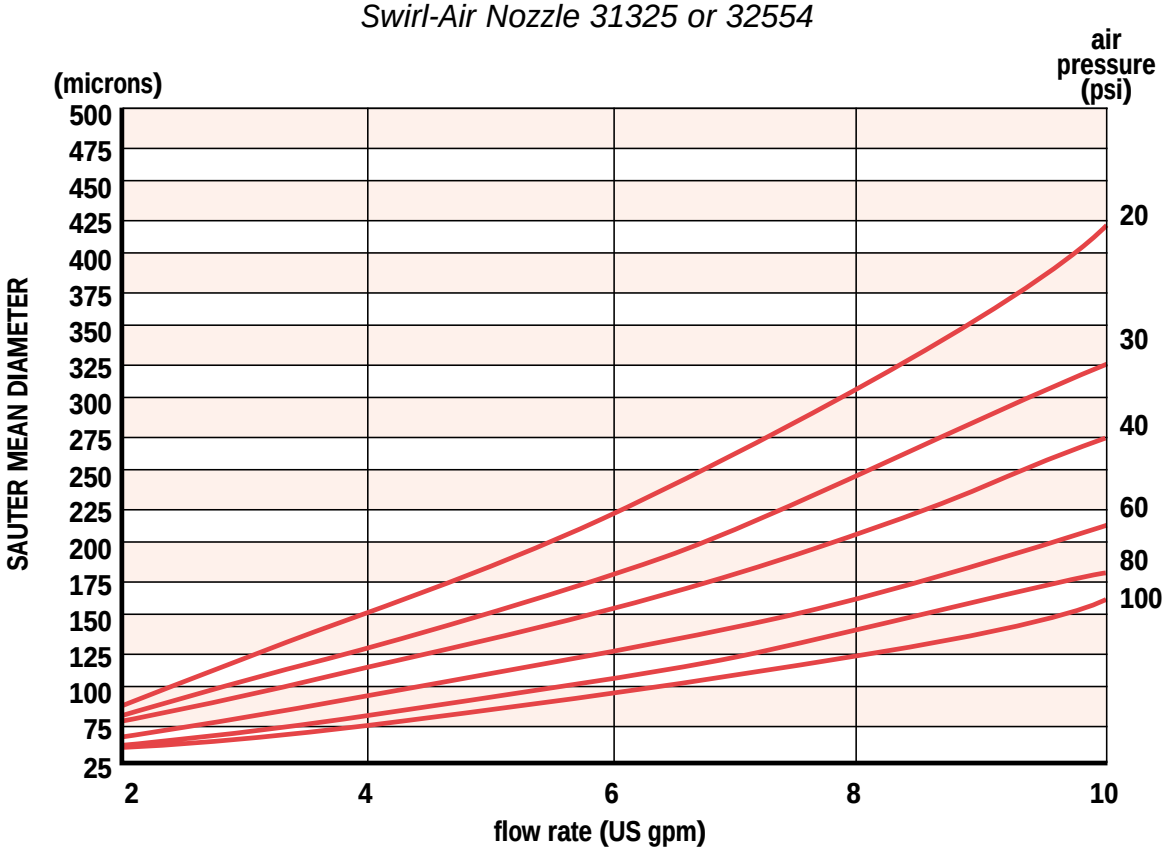
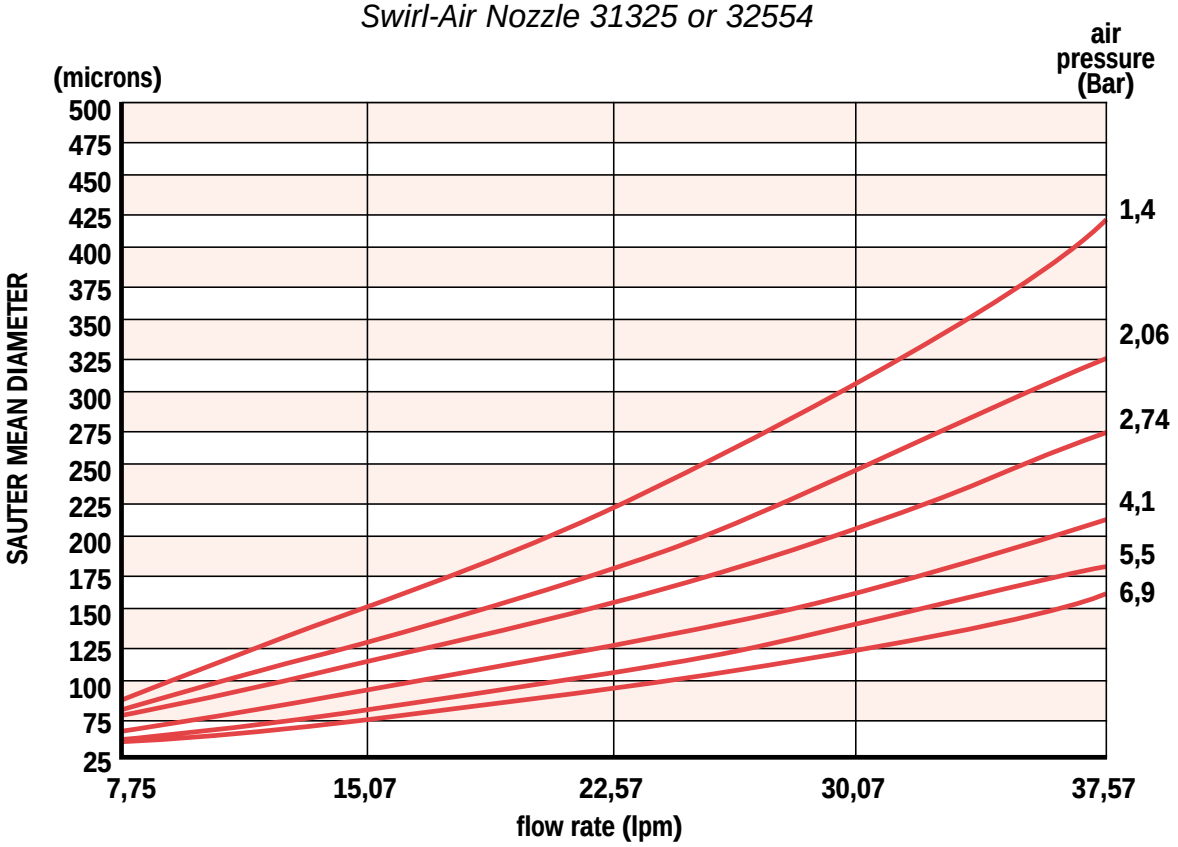
AIR ATOMISING

Estimated Sauter Mean Droplet Diameters
Flow/Droplet Diameters - US Measures
Swirl-Air Nozzle 31325 or 32554



Estimated Sauter Mean Droplet Diameters
Flow/Droplet Diameters - Metric Measures
Swirl-Air Nozzle 31325 or 32554



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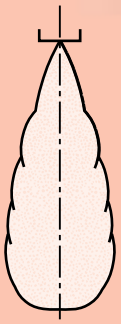
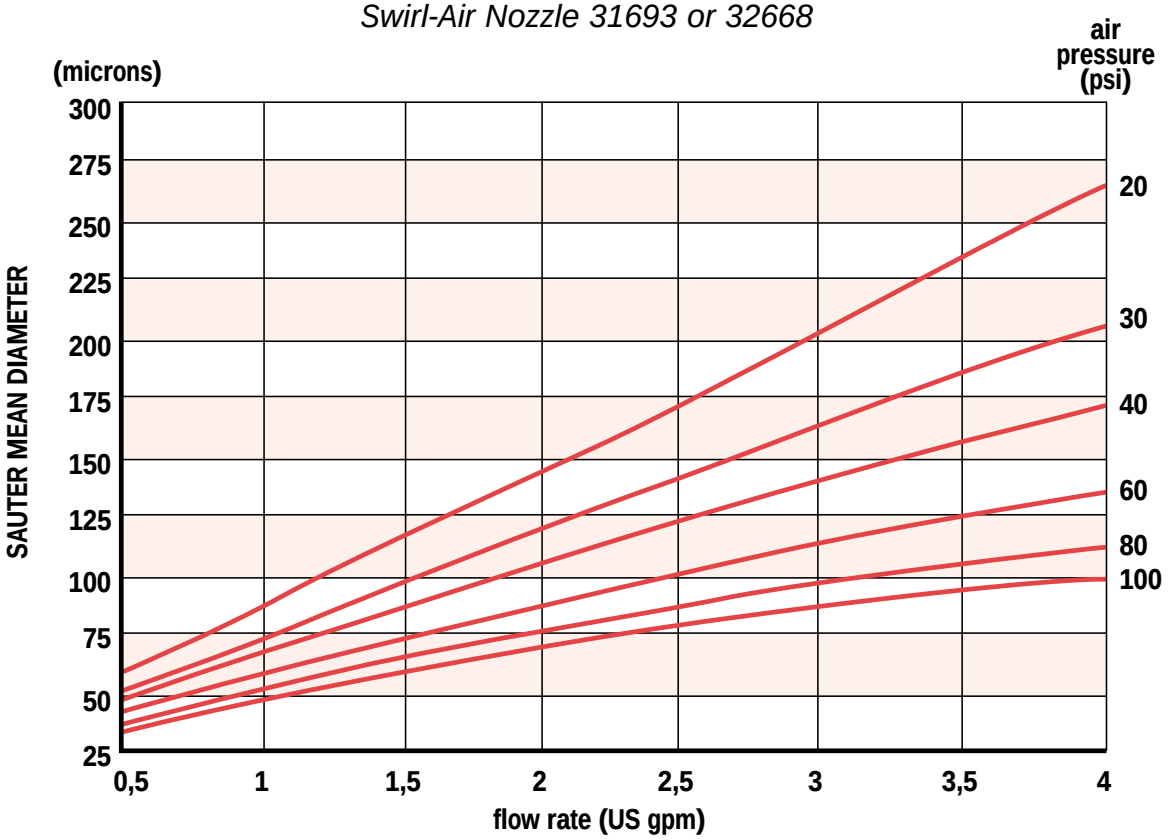
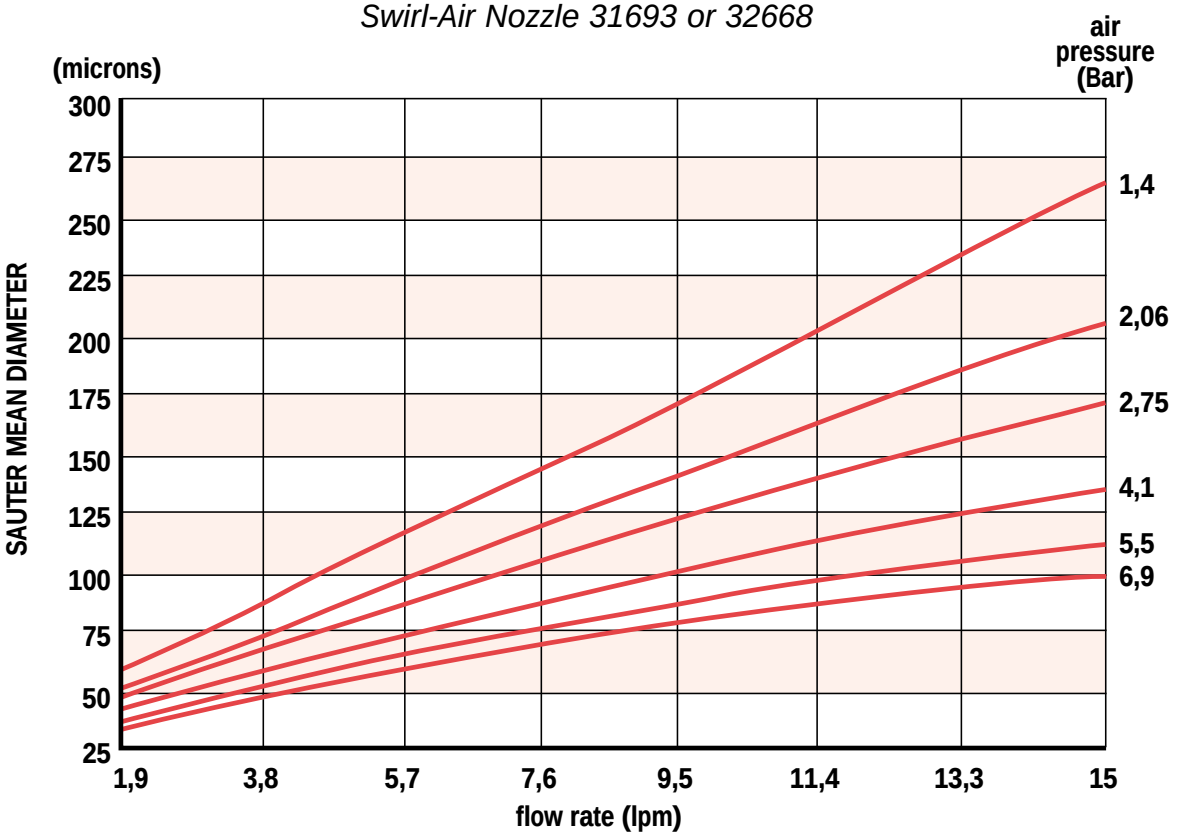


Estimated Sauter Mean Droplet Diameters
Flow/Droplet Diameters - US Measures
Swirl-Air Nozzle 31693 or 32668



Estimated Sauter Mean Droplet Diameters
Flow/Droplet Diameters - Metric Measures
Swirl-Air Nozzle 31693 or 32668



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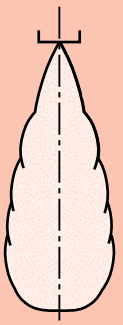

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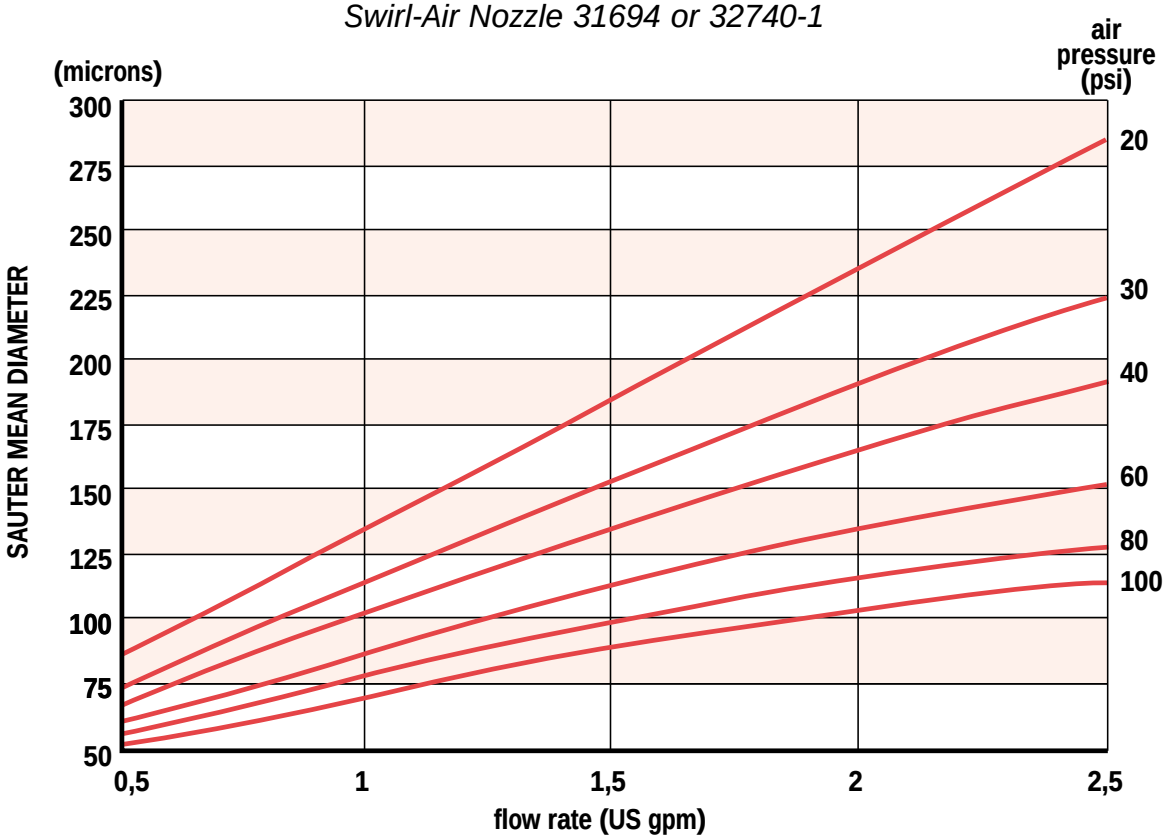
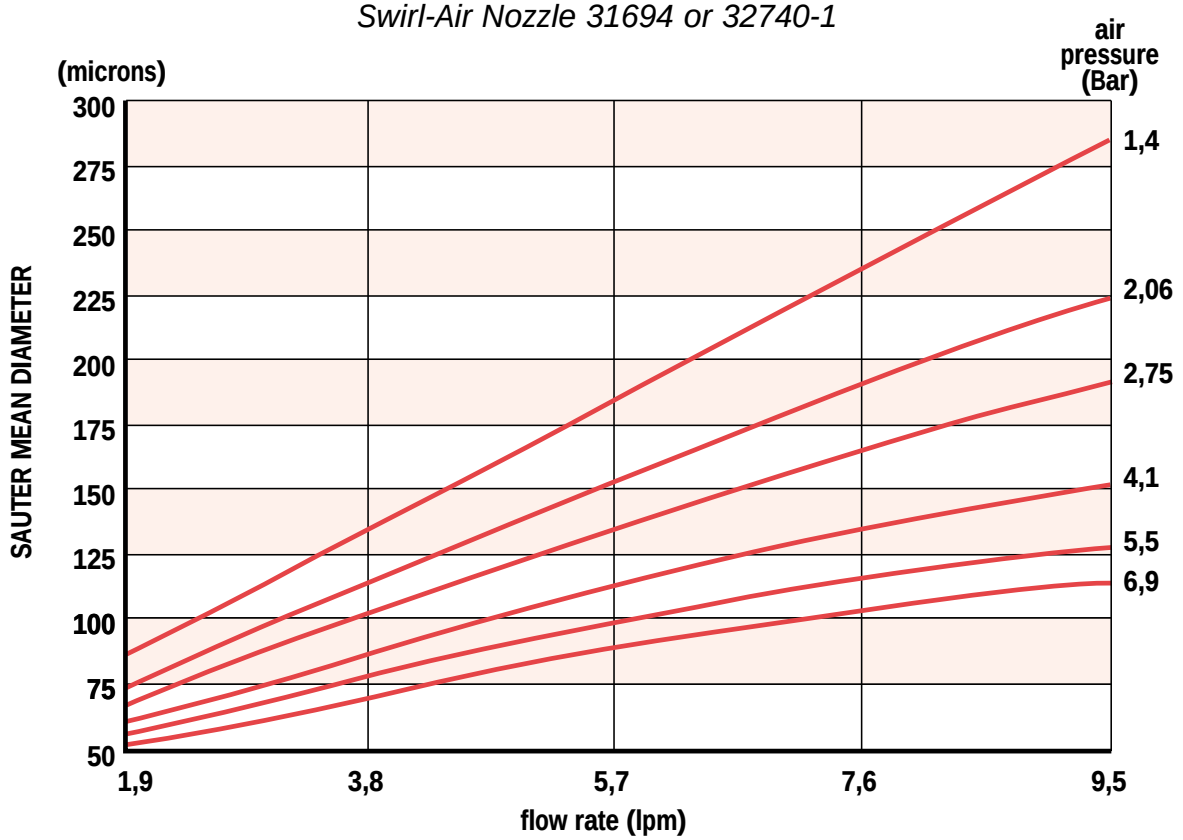
AIR ATOMISING

Estimated Sauter Mean Droplet Diameters
Flow/Droplet Diameters - US Measures
Swirl-Air Nozzle 31694 or 32740-1



Estimated Sauter Mean Droplet Diameters
Flow/Droplet Diameters - Metric Measures
Swirl-Air Nozzle 31694 or 32740-1



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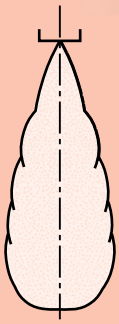
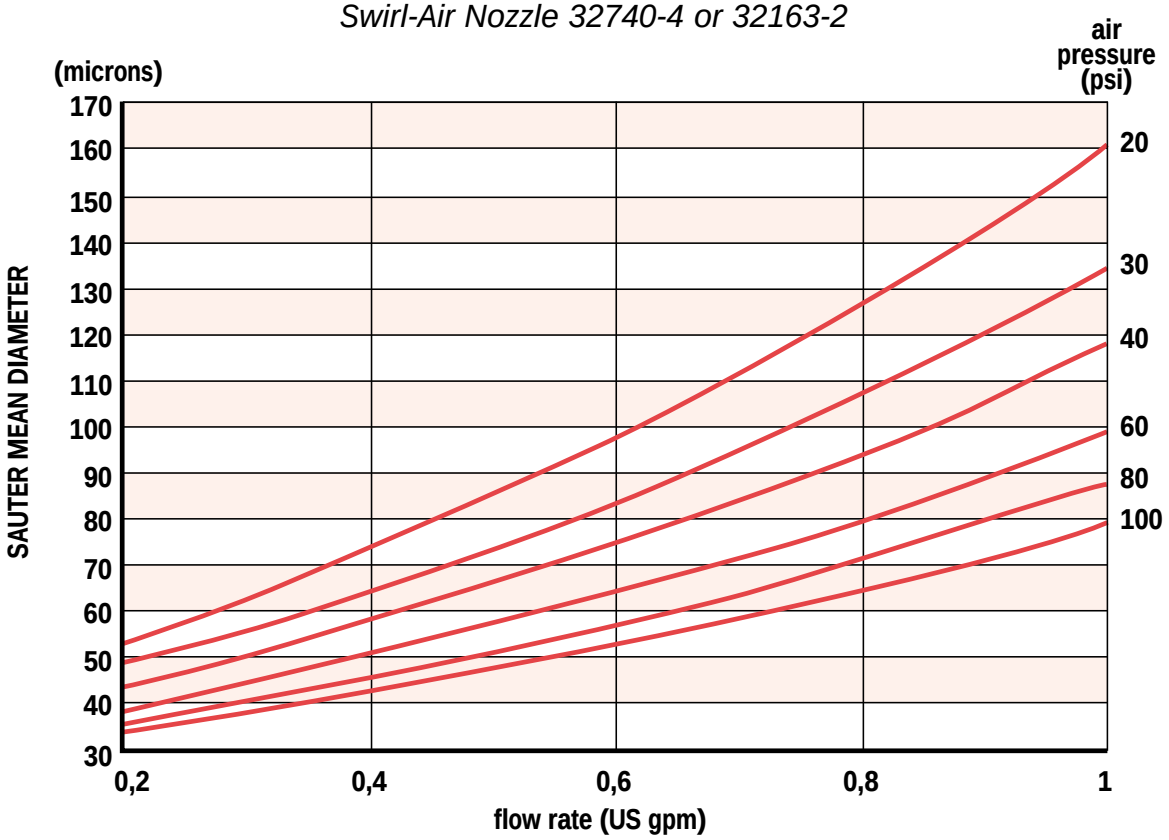
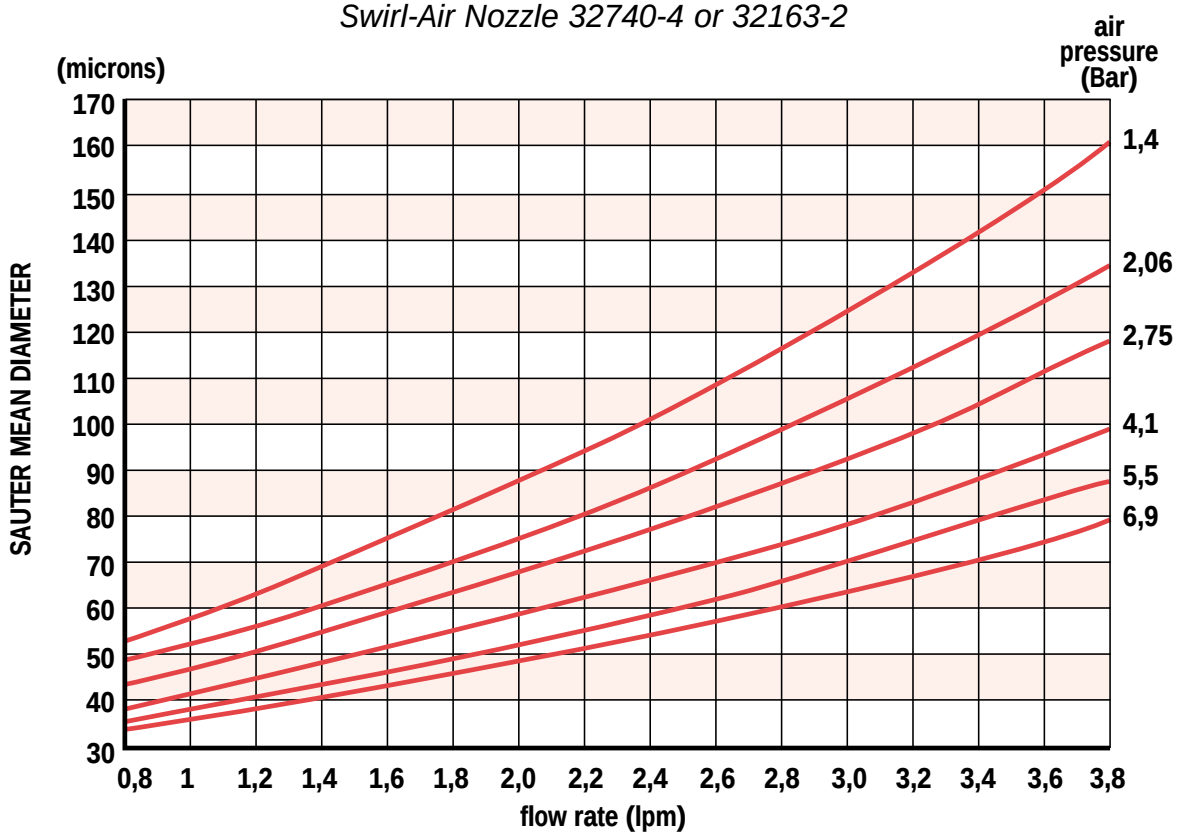


Estimated Sauter Mean Droplet Diameters
Flow/Droplet Diameters - US Measures
Swirl-Air Nozzle 32740-4 or 32163-2



Estimated Sauter Mean Droplet Diameters
Flow/Droplet Diameters - Metric Measures
Swirl-Air Nozzle 32740-4 or 32163-2



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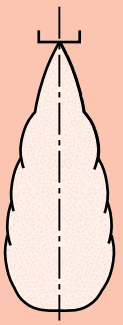

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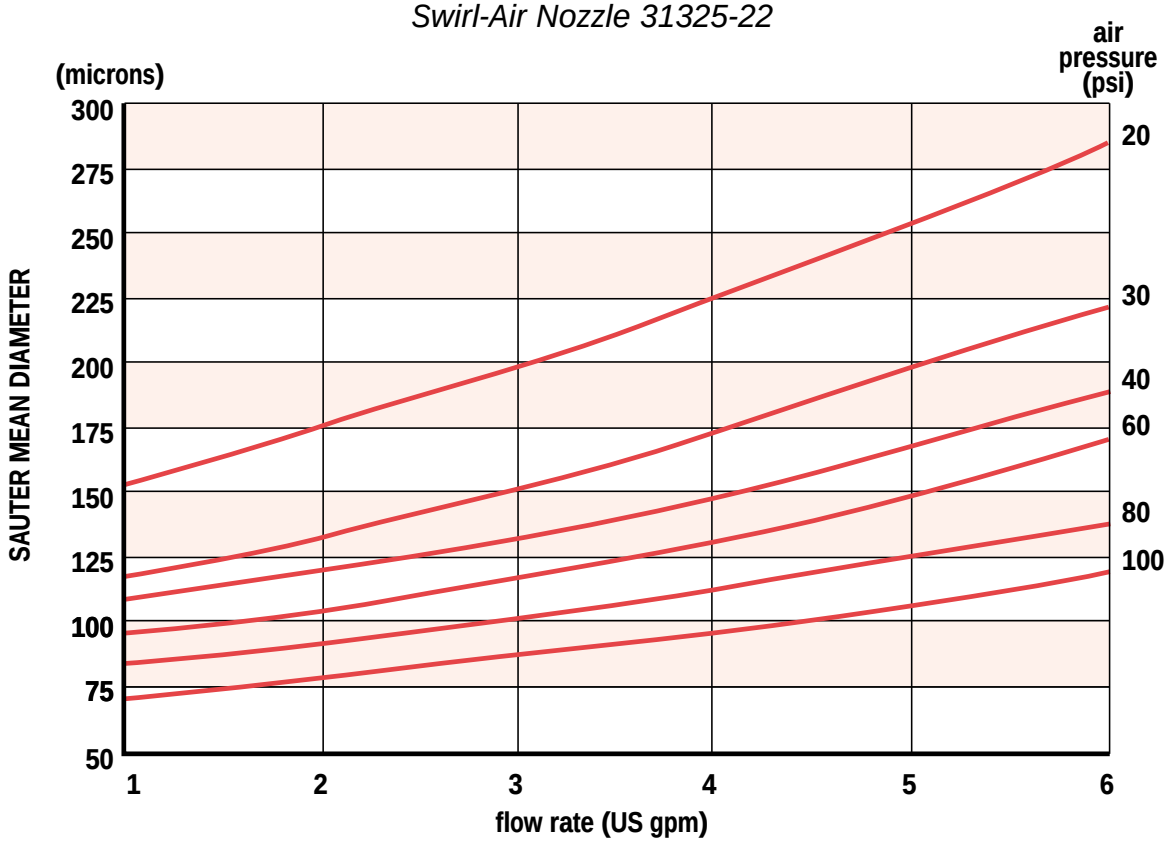
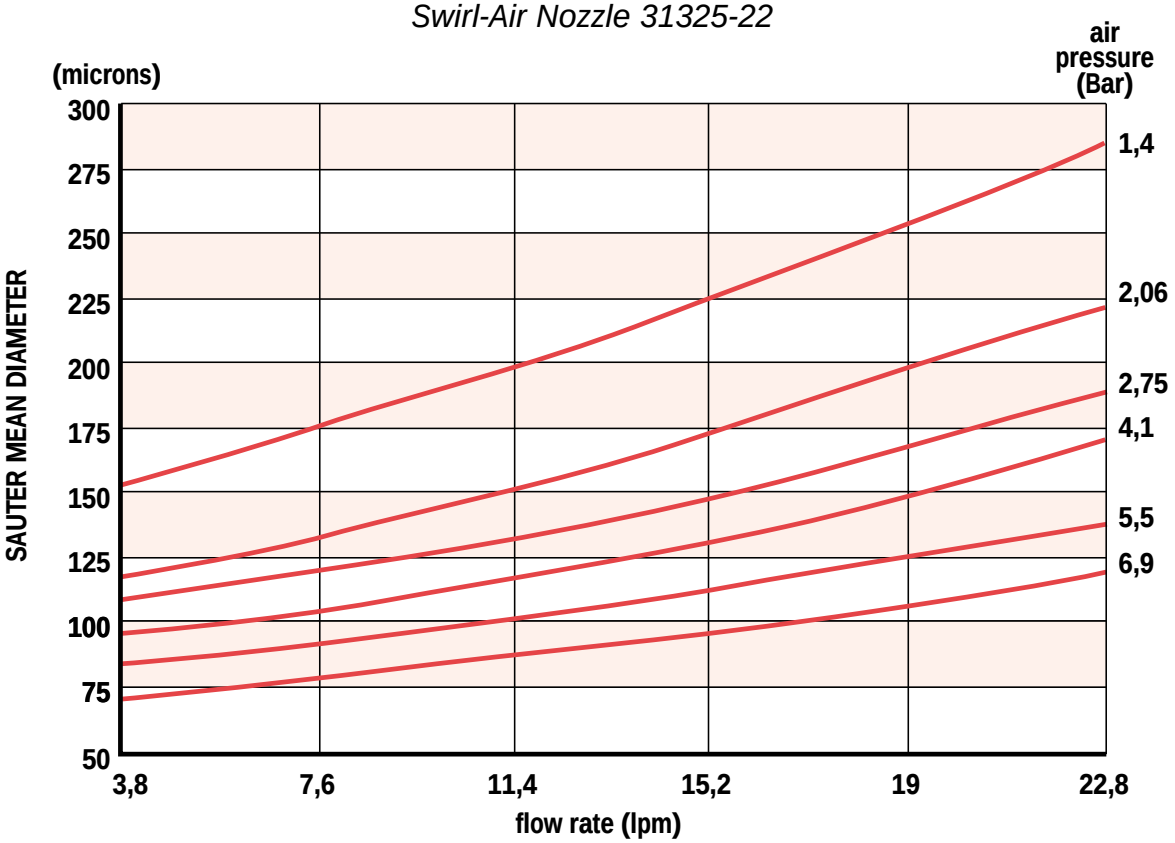
AIR ATOMISING

Estimated Sauter Mean Droplet Diameters
Flow/Droplet Diameters - US Measures
Swirl-Air Nozzle 31325-22



Estimated Sauter Mean Droplet Diameters
Flow/Droplet Diameters - Metric Measures
Swirl-Air Nozzle 31325-22



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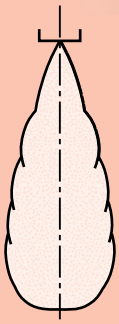


SPRAY CHARACTERISTICS

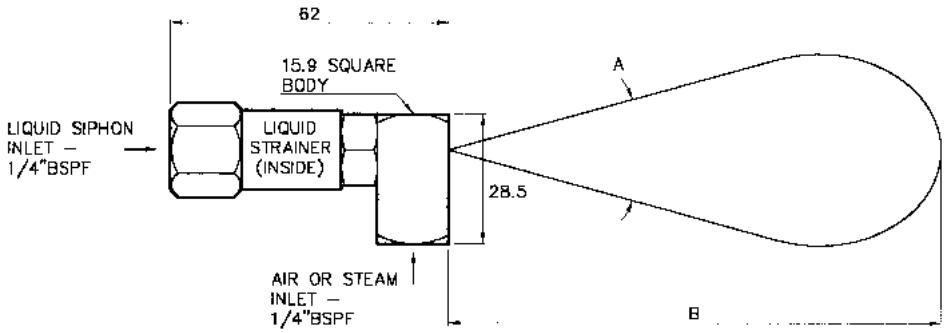
- *Generally a long narrow cloud of finely atomised mist or fog. Will atomise most liquids which can be made to flow under gravity head.*
- *External mixing of air and liquid.*
- *Full cone spray pattern.*

CONSTRUCTION AND MATERIALS

- *This nozzle is precision made to ensure best possible atomisation using compressed air or other gas or steam as the atomising medium. The nozzle is a siphon type, i.e. the gas pressure exerts a negative pressure on the liquid orifice drawing up the liquid to be atomised. Liquid can also be supplied under slight pressure if required.*
- *Larger flowrates available to special order.*
- *Brass and Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

GA 1 - Brass.



CAPACITY CHART

NOZZLE NUMBER		WATER FLOW RATE IN LITRES/HOUR AT Bar.G. / AIR FLOW RATE IN M³/MIN (Free air)									
		0,35	0,7	1,0	1,4	1,7	2,1	2,8	4,2	5,5	6,9
GA 1	L/Hr	0,82	1,9	2,3	2,7	3,2	3,3	3,7	3,8	3,9	4,1
	m³ Air	0,010	0,016	0,019	0,021	0,023	0,025	0,027	0,033	0,037	0,039
	A (º)	40	35	30	28	25	22	22	18	18	18
	B (Mtr.)	1,8	1,8	1,8	1,8	1,8	1,8	2,1	2,1	2,1	2,7
GA 2	L/Hr	4,1	6,4	8,2	9,1	11,4	12,0	13,6	15,9	17,7	18,6
	m³ Air	0,022	0,033	0,040	0,045	0,048	0,052	0,057	0,068	0,076	0,084
	A (º)	40	30	28	28	25	20	20	18	18	18
	B (Mtr.)	1,8	1,8	1,8	1,8	1,8	1,8	2,1	2,1	2,4	2,7
GA 3	L/Hr	5,0	9,1	13,6	14,5	17,3	19,1	20,9	25,9	28,2	29,5
	m³ Air	0,028	0,045	0,052	0,057	0,063	0,065	0,073	0,086	0,097	0,110
	A (º)	40	35	30	30	25	20	20	20	18	18
	B (Mtr.)	1,8	1,8	1,8	1,8	2,1	2,1	2,4	2,7	3,7	3,7
GA 4	L/Hr	7,7	14,8	19,3	21,1	25,9	26,3	30,0	38,6	40,0	41,8
	m³ Air	0,032	0,052	0,057	0,063	0,070	0,076	0,086	0,104	0,131	0,136
	A (º)	50	50	45	40	37	35	30	28	26	26
	B (Mtr.)	2,1	2,1	2,1	2,4	2,4	2,4	2,7	3,4	3,7	4,0
GA 5	L/Hr	8,2	17,3	22,7	26,3	30,0	32,7	36,3	45,4	46,5	47,7
	m³ Air	0,052	0,060	0,065	0,070	0,076	0,081	0,089	0,115	0,128	0,141
	A (º)	50	50	45	40	37	35	30	28	26	26
	B (Mtr.)	2,1	2,1	2,1	2,4	2,4	2,4	2,7	3,4	3,7	4,0

AIR ATOMISING

TYPE GA

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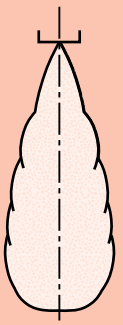


TYPE GC

AIR ATOMISING

SPRAY CHARACTERISTICS

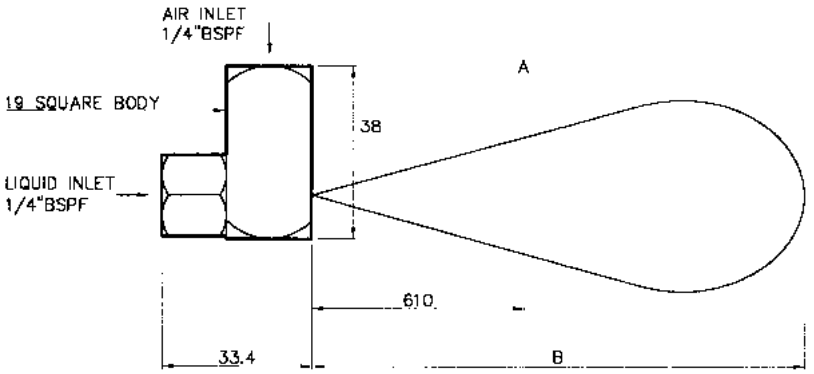
- *Generally a long narrow cloud of finely atomised mist or fog. Will atomise most liquids which can be made to flow under gravity head.*
- *External mixing of air and liquid.*
- *Full cone spray pattern.*

CONSTRUCTION AND MATERIALS

- *This nozzle is precision made to ensure best possible atomisation using compressed air or other gas or steam as the atomising medium.*
- *The GC nozzle is designed for atomising larger volumes of liquid.*
- *Larger flowrates available to special order.*
- *Brass and Stainless Steel are standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

GC 3 - Stainless Steel.



CAPACITY CHART

NOZZLE NUMBER		WATER FLOW RATE IN LITRES/HOUR AT Bar.G. AIR FLOW RATE IN M^3/MIN (Free air)					
		0,7	1,0	1,4	2,1	2,8	4,1
GC 1	L/Hr	26	39	46	56	63	79
	m^3 Air	0,09	0,12	0,13	0,15	0,17	0,20
	A (mm)	280	280	250	250	250	250
	B (Mtr)	2,4	2,4	2,7	3,1	3,7	4,3
GC 2	L/Hr	39	48	55	63	74	89
	m^3 Air	0,10	0,12	0,14	0,16	0,18	0,20
	A (mm)	200	200	200	200	230	250
	B (Mtr)	2,7	2,7	3,1	3,1	3,7	4,3
GC 3	L/Hr	48	56	63	77	89	125
	m^3 Air	0,11	0,13	0,15	0,18	0,21	0,24
	A (mm)	200	200	230	230	250	250
	B (Mtr)	3,1	3,4	3,7	4,0	4,3	4,3
GC 4	L/Hr	63	80	86	103	114	148
	m^3 Air	0,13	0,16	0,19	0,23	0,27	0,32
	A (mm)	180	190	200	230	240	250
	B (Mtr)	3,1	3,4	3,7	4,0	4,3	4,3

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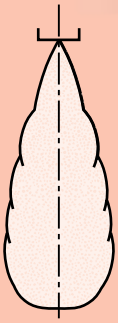
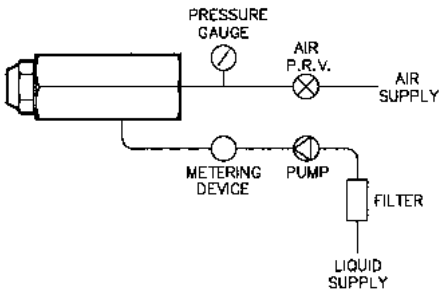


SPRAY CHARACTERISTICS

- *Fine atomisation of many liquids that cannot be atomised by hydraulic pressure alone.*
- *Uniform solid cone. Spray angle varies with air pressure and flow. Separate metering device, such as orifice, metering pump or valve required.*
- *Large flow passages greatly reduce clogging.*

CONSTRUCTION AND MATERIALS

- *Three part construction:*
- *Nozzle body - Brass or 303 Stainless Steel. Thread sizes:3/4"-20 UNEF on No. 30615 and 1 1/8"-18 UNEF on No. 30616.*
- *Distributor - Brass or 303 Stainless Steel.*
- *Screw pin - Brass or 303 Stainless Steel.*
- *Adaptors are available (refer to chart).*

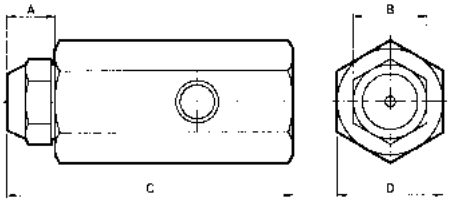


ORDER EXAMPLE

30615-15 Brass (nozzle).
23034-1 Brass (Adaptor).

DIMENSIONS (mm)

Nozzle Type	Material Type	Dimensions A	B Hex	C	D Hex	Inlet Sizes Air	Liquid
30615 with 23034-1 Adap.	Brass	15,5	22,2	76	32	1/4" NPT	1/8" NPT
30615 with 23034-2 Adap.	Stainless Steel	16,0	22,2	76	32	1/4" NPT	1/8" NPT
30616 with 30678-2 Adap.	Stainless Steel	20,0	31,8	93	32	1/2" NPT	1/4" NPT



CAPACITY CHART

Maximum Recommended Pressure: 7 Bar.G.
Maximum Recommended Temperature: 82°C.

NOZZLE NUMBER 30615 - BRASS	SS	FLOW RATE LITRES/ HOUR	AIR FLOWRATE (M³/MIN) AND SPRAY ANGLE (°) 1,4 Bar.G. (M³/MIN)	(°)	2,1 Bar.G. (M³/MIN)	(°)	2,8 Bar.G. (M³/MIN)	(°)	3,4 Bar.G. (M³/MIN)	(°)	4,1 Bar.G. (M³/MIN)	(°)
		18,9	0,048	45	0,068	35	0,088	30				
-1	-2	37,8	0,020	75	0,025	65	0,059	60				
		56,7	0,010	80	0,020	75	0,023	70				
		37,8	0,065	50	0,012	40	0,133	30				
		56,7	0,048	60	0,082	50	0,110	40				
-15	-16	75,6	0,034	70	0,059	60	0,088	50				
		94,5	0,020	80	0,048	70	0,068	60				
		113,4	0,011	90	0,028	80	0,048	70				
		113,4			0,076	65	0,110	55	0,139	45		
		132,3			0,062	65	0,093	55	0,119	45		
-44	-45	151,2			0,051	70	0,079	60	0,105	50		
		170,1			0,040	70	0,065	60	0,088	50		
		189,0			0,028	75	0,054	65	0,076	55		
		207,9			0,022	75	0,042	65	0,065	55		
30616 -												
		226,8			0,014	80	0,034	70	0,057	60		
		226,8			0,150	60	0,218	50	0,283	40		
		245,7			0,139	60	0,204	50	0,269	40		
	-8	264,6			0,125	65	0,193	55	0,252	45		
		283,5			0,113	65	0,178	55	0,238	45		
		302,4			0,105	65	0,164	55	0,221	45		
		321,3			0,093	65	0,147	55	0,201	45		
		340,2			0,085	70	0,130	60	0,173	50		
		340,2			0,150	55	0,221	45	0,292	35		
	-14	359,1			0,139	60	0,204	50	0,269	40		
		378,0			0,130	60	0,187	50	0,252	40		
		396,9			0,119	65	0,173	55	0,235	45		
		415,8			0,108	65	0,161	55	0,221	45		
		434,7			0,099	70	0,153	60	0,212	50		
		434,7					0,229	45	0,297	40	0,371	35
		453,6					0,218	50	0,292	45	0,365	40
	-24	472,5					0,207	50	0,283	45	0,357	40
		491,4					0,198	55	0,272	50	0,346	45
		510,3					0,187	55	0,261	50	0,334	45
		529,2					0,176	60	0,241	55	0,306	50
		529,2					0,181	55	0,249	50	0,317	45
		548,1					0,173	60	0,241	55	0,309	50
	-29	567,0					0,161	60	0,229	55	0,297	50
		585,9					0,147	65	0,215	60	0,280	55
		604,8					0,133	65	0,195	60	0,255	55

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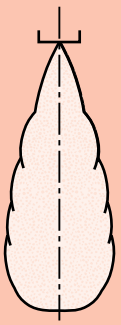

TYPE AL

AIR ATOMISING

SPRAY CHARACTERISTICS

- *The Delavan AL air atomising series spray nozzles offer the user a wide variety of spray patterns, flow rates and atomisation. Unlike hydraulic or pressurised nozzles where the energy from the pressure of the liquid is used to atomise, the AL series of nozzles use the energy of a pressurised gas (typically air) to atomise the liquid. This allows the liquid to be fed under lower pressure and still achieve fine atomisation. This is also advantageous for abrasive or high viscosity liquids.*
- *The nozzles are so designed that flow rates from almost no flow, as in the siphon-fed, to over four litres per minute can be achieved. (For higher flow rates in an air atomised spray, refer to Delavan's Swirl-Air series.)*
- *The low flow rates and air atomisation combine to give the AL series extremely fine atomisation. Droplet sizes below 50 microns Sauter Mean Diameter can be expected. In the lower flow rates, droplet sizes below 20 micron SMD are not uncommon.*
- *The mechanics of the atomisation in the AL series are of two types. The internal mix nozzle design provides for the gas and liquid to mix internally in the nozzle. For a given liquid pressure an increase in gas pressure will result in a decrease in liquid flow and a decrease in droplet size. A decrease in gas pressure will do the reverse to the liquid.*
- *The external mix nozzle has the gas flow intersect the liquid flow at the face of the nozzle. The liquid flow can remain constant while the atomisation and spray pattern can be modified with adjustments in gas pressure. The liquid supply can be siphoned, gravity or pressure fed.*
- *The Delavan internal and external air atomising series provide excellent atomisation with a simpler and less expensive nozzle.*

CONSTRUCTION AND MATERIALS

- *Standard materials of construction are 316 Stainless Steel and ENP Brass.*
- *The seals between mating surfaces are in PTFE and the O-Ring seals are in Viton although other materials can be supplied on request.*
- *Standard inlet connections are 1/8" BSPP and 1/4" BSPP with other sizes available to special order.*

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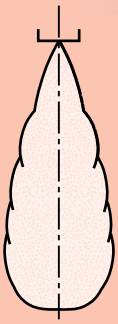
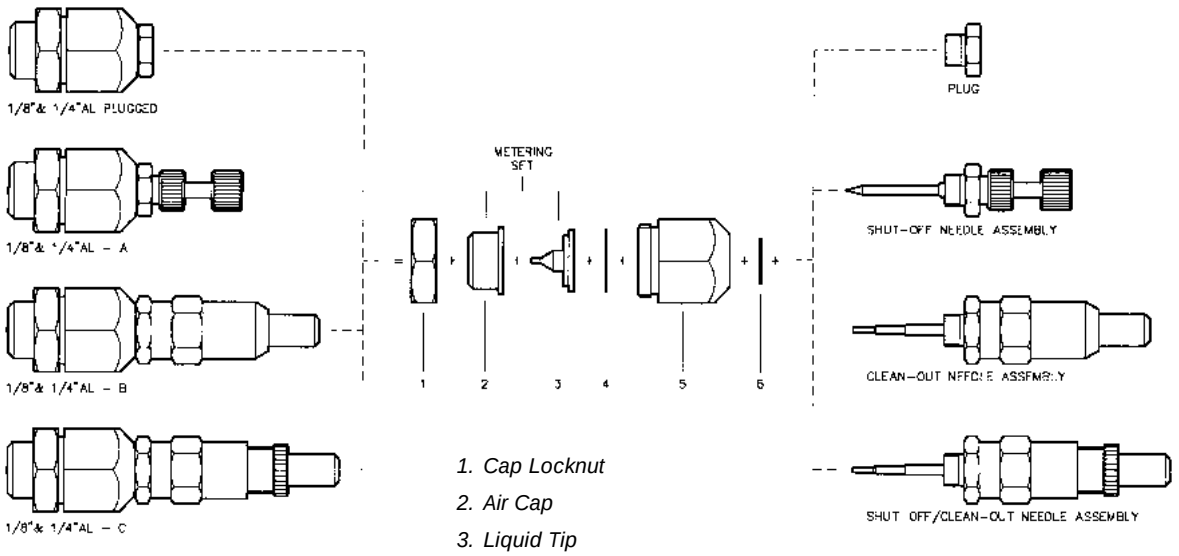
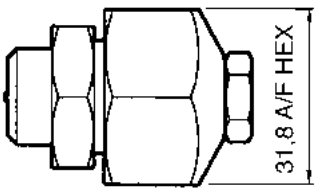


1/8" - 1/4" AL BASIC NOZZLE

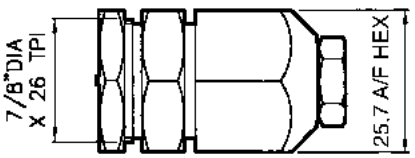


1. *Cap Locknut*
2. *Air Cap*
3. *Liquid Tip*
4. *Liquid Tip Gasket*
5. *Nozzle Body*
6. *Plug Gasket*

MOUNTING OPTIONS

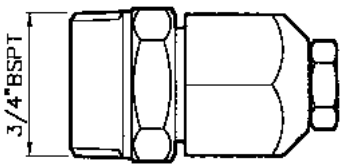


1/4"AL NOZZLES
(BODY SIZE INCREASES)



P = PANEL MOUNTING

This option has an alternative cap nut that allows the nozzle to be panel mounted and includes a locknut for tightening purposes.



S = WALL MOUNTING

This option has an alternative cap nut that allows the nozzle to be plate or socket mounted by the 3/4" Male BSPT thread.

AIR ATOMISING

TYPE AL

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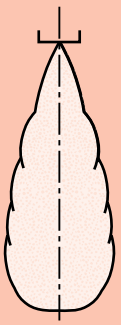
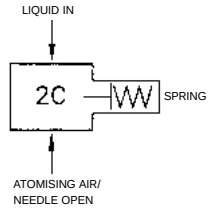
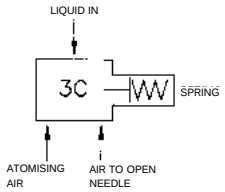
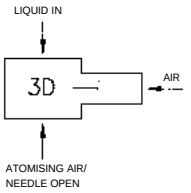
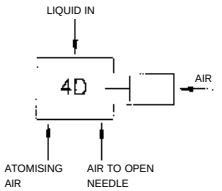
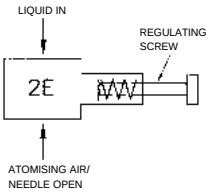
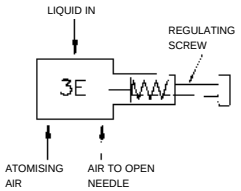
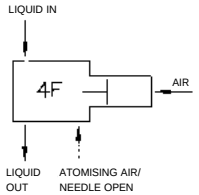
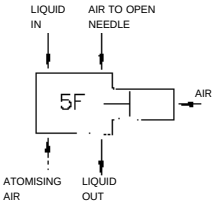


TYPE AL
AIR ATOMISING

Automatic Body Options

Type	Description	Schematic
2C	*This body option has two inlets, one for the liquid and the other for the atomising air which also opens the shut off needle. The needle has a spring return for shut off.*	
3C	*This body option has three inlets for the liquid, atomising air and needle operation. The needle has a spring return for shut off.*	
3D	*This body option is identical to 2C but the needle is returned to the shut off position with a seperate air inlet at the rear of the cylinder.*	
4D	*This body option is identical to 3C but the needle is returned to the shut off position with a seperate air inlet at the rear of the nozzle.*	
2E	*This body option is identical to 2C but is provided with a regulating screw at the rear of the nozzle to control the movement of the shut off needle.*	
3E	*This body option is identical to 3C but is provided with a regulating screw at the rear of the nozzle to control the movement of the shut off needle.*	
4F	*This body option is identical to 3D but is provided with a seperate body port to allow re-circulation of the liquid through the nozzle.*	
5F	*This body option is identical to 4D but is provided with a seperate body port to allow re-circulation of the liquid through the nozzle.*	

NOTE: Add 'x' to the above types to signify that a clean out needle is required in addition to shut off. This is not available with types 2E and 3E.

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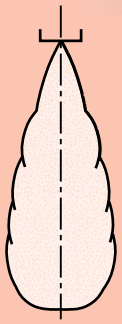
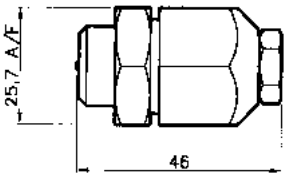
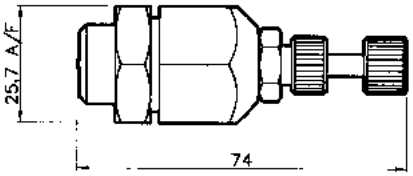


NOZZLE BODY OPTIONS WITH DIMENSIONS

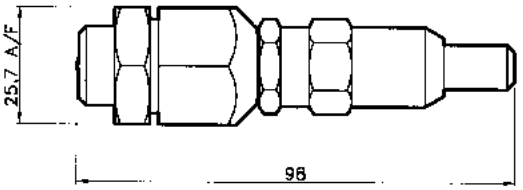
1/8" AL plugged



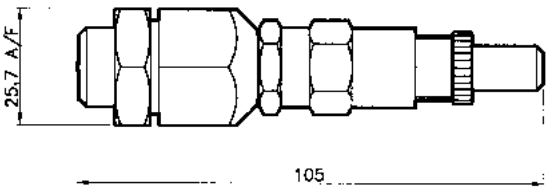
1/8" AL - A
(Manual metering needle)



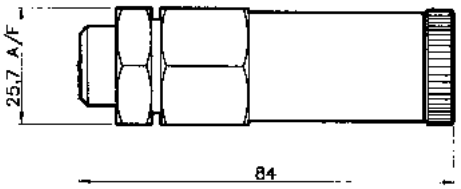
1/8" AL - B
(Manual clean out needle)



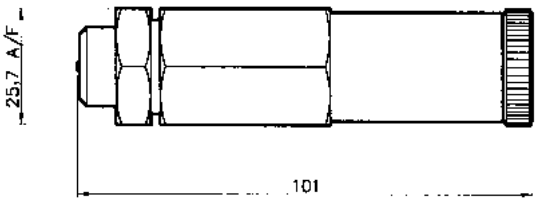
1/8" AL - C
(Manual clean out/shut off needle)



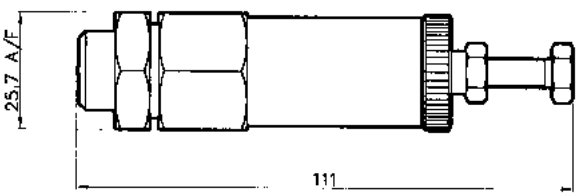
1/8" AL body options
2C, 3C, 3D, 4D and 4F



1/8" AL body option 5F



1/8" AL body options
2E and 3E



NOTE: All dimensions shown are in mm

AIR ATOMISING

TYPE AL

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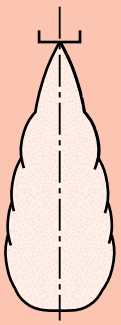

TYPE AL

AIR ATOMISING

ORDERING INFORMATION

Nozzle Number System	1/8”	AL	15-04	2C	P	316 S.S.

Nozzle Size - 1/8”
- 1/4”

Nozzle Series

Metering Set - see pages D.25 to D.31

Basic Nozzle / Body Options - see pages D.21 and D.22

Optional Mounting - see page D.21

Material 316 S.S. = 316 Stainless Steel
ENPB = Electroless Nickel Plated Brass

ORDERING EXAMPLES

1) 1/8” AL 45 - 03 ENPB.
2) 1/8” AL - 01 - A 316 S.S.
3) 1/8” AL 60 - 04 - 2CX ENPB.
4) 30 - 03 Metering Set 316 S.S. = Metering Set
5) Liquid Tip W13154 - 316 S.S. = Liquid Tip only.
6) Air Cap W01234 - 4 ENPB = Air Cap only.

Metering Sets - Each metering set provides a specific spray pattern with a specific flow capacity and spray coverage range performance. All of the metering sets are interchangeable, thereby providing flexibility for different spray performances. Each metering set consists of a liquid tip and air cap.

WE ARE HERE TO HELP

If you need more detailed information or advice then Delavan sales engineers and technical staff are always available to answer your questions.

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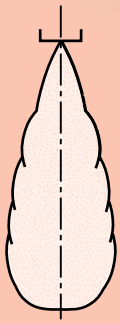
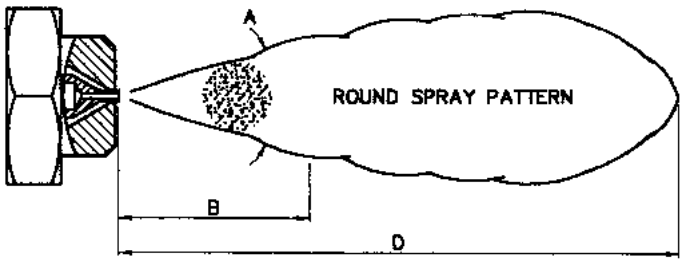


AL

ROUND SPRAY - EXTERNAL MIX

In the AL external mix nozzle the liquid can be provided by suction, gravity feed, or pressurised. Flow rates can be extremely low by increasing suction height. For pressurised liquid, a flow regulator should be used. Nominal spray angle of 20-25°.



CAPACITY CHARTS

METERING SET NO.	LIQUID TIP & AIR CAP NUMBERS	CAPACITIES AT SIPHON HEIGHT OF 15CM	AIR PRESSURE IN Bar.G. 0,35	0,7	1,0	1,5	1,75	2,0	3,0	4,0	6,0	7,0	SPRAY ANGLE(°) @ 1.5 Bar
	Liquid Tip W05736-1	Air Capacity Litres/Min	15	20	23	29	32	35	44	58	78	91	
01		Liquid Capacity Litres/Hour	1,36	2,27	3,12	3,41	3,72	4,08	4,64	5,9	7,1	8,3	20
	Air Cap W00003	Distance 'D' Metres	0,9	1,4	1,8	2,1	2,4	2,7	3,0	3,4	3,7	3,8	
	Liquid Tip W05736-2	Air Capacity Litres/Min	26	32	38	47	52	58	73	96	126	151	
02		Liquid Capacity Litres/Hour	2,50	4,54	5,9	7,0	7,9	9,1	10,7	13,6	16,6	19,5	20
	Air Cap W00009	Distance 'D' Metres	1,5	1,8	2,4	2,9	3,0	3,2	3,7	4,3	4,9	5,2	
	Liquid Tip W05736-3	Air Capacity Litres/Min	33	42	49	60	67	75	94	125	164	195	
03		Liquid Capacity Litres/Hour	3,18	5,4	7,3	8,9	10,2	11,8	14,8	20,9	26,8	32,7	20
	Air Cap W00011	Distance 'D' Metres	1,5	1,8	2,4	2,9	3,0	3,2	3,7	4,3	4,9	5,2	
	Liquid Tip W05736-4	Air Capacity Litres/Min	43	54	63	77	86	96	120	162	210	250	
04		Liquid Capacity Litres/Hour	3,63	6,4	8,6	10,7	12,5	14,1	17,5	24,1	30,9	37,7	20
	Air Cap W00013	Distance 'D' Metres	1,5	1,8	2,4	2,9	3,0	3,2	3,7	4,3	4,9	5,2	
	Liquid Tip W05736-5	Air Capacity Litres/Min	49	61	71	86	97	108	135	182	236	281	
05		Liquid Capacity Litres/Hour	4,22	7,4	10,0	12,4	14,5	16,4	20,3	28,0	35,9	43,8	20
	Air Cap W13155-5	Distance 'D' Metres	1,5	1,8	2,4	2,9	3,0	3,2	3,7	4,3	4,9	5,2	

METERING SET NO.	LIQUID TIP & AIR CAP NUMBERS	ATOMISING AIR Air Press. Bar.G.	Air Flow L/MIN	LIQUID CAPACITY LITRES/HOUR Gravity Head 45 cm	30 cm	15 cm	10 cm	Siphon Height 20 cm	30 cm	60 cm	90 cm	SPRAY DIMENSIONS AT 20 CM SIPHON HEIGHT Air Press. Bar.G.	Spray Angle A (°)	B cm	D M
	Liquid Tip W13154 - 1	0,7	11,3	1,5	1,3	1,1	0,87	0,68	0,53	-	-	0,7	18	28	1,8
06		1,5	17,0	1,8	1,7	1,5	1,3	1,2	1,1	0,62		1,5	18	28	1,9
	Air Cap W13155 - 1	3,0	28	2,1	1,9	1,7	1,5	1,4	1,3	1,1	0,76	3,0	18	30	2,3
		4,0	36	2,2	2,0	1,8	1,6	1,5	1,4	1,2	0,87	4,0	18	36	2,6
	Liquid Tip W13154 - 2	0,7	13,3	2,4	2,1	1,7	1,5	1,2	0,79	-	-	0,7	18	30	2,1
07		1,5	20	2,8	2,6	2,4	2,1	1,9	1,6	0,91	-	1,5	18	33	2,3
	Air Cap W13155 - 1	3,0	32	3,4	3,1	2,9	2,8	2,6	2,4	1,7	1,1	3,0	18	38	2,6
		4,0	41	3,7	3,4	3,3	3,1	2,9	2,7	2,1	1,5	4,0	19	43	3,0
	Liquid Tip W13154 - 2	0,7	23	2,5	2,3	2,0	1,6	1,4	1,1	-	-	0,7	18	30	2,4
08		1,5	36	2,9	2,8	2,5	2,2	2,0	1,7	0,89	-	1,5	18	33	2,7
	Air Cap W13155 - 2	3,0	58	3,4	3,3	3,2	2,9	2,8	2,5	1,9	1,2	3,0	19	38	3,4
		4,0	74	3,7	3,6	3,5	3,4	3,3	3,0	2,5	2,0	4,0	20	43	4,0
	Liquid Tip W13154 - 3	0,7	19,3	4,5	4,0	3,4	2,1	1,8	1,4	-	-	0,7	21	38	3,0
09		1,5	31	5,3	4,9	4,4	3,5	2,9	2,7	1,8	-	1,5	21	41	3,4
	Air Cap W13155 - 2	3,0	50	6,0	5,6	5,0	4,4	4,0	3,4	2,4	1,2	3,0	21	46	4,0
		4,0	65	5,7	5,4	5,0	4,2	3,9	3,5	2,8	1,9	4,0	22	51	4,6
	Liquid Tip W13154 - 6	1,5	58	22	19,9	16,3	12,3	10,5	8,3	2,8	-	1,5	17	46	3,7
10		3,0	88	25	23	19,5	16,7	14,2	11,5	6,4	2,8	3,0	18	51	4,3
	Air Cap W13155 - 3	4,0	111	26	24	21	18,4	15,7	12,9	7,9	4,5	4,0	18	53	4,9
		5,6	147	26	24	22	19,7	17,0	14,6	9,8	6,1	5,6	19	58	5,5
	Liquid Tip W13154 - 10	2,0	144	-	-	-	27	22	16,8	-	-	2,0	20	51	6,7
11		3,0	190	-	-	-	30	26	21	-	-	3,0	20	53	7,0
	Air Cap W13155 - 4	4,0	240	-	43	40	31	28	23	11,0	-	4,0	21	58	7,6
		5,6	315	44	42	39	31	28	24	16,7	8,3	5,6	22	63	8,2

AIR ATOMISING

TYPE AL

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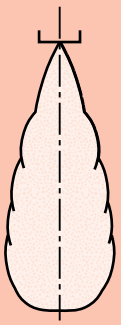
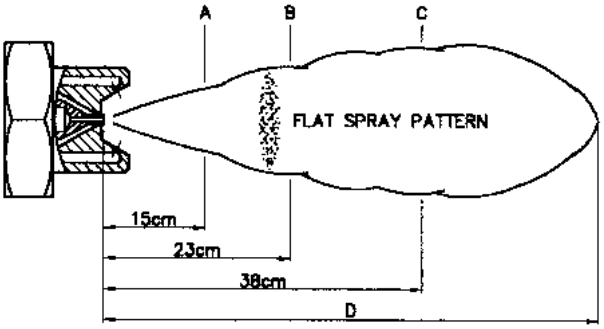


DELAVAN
Spray Technologies

AL 15

FLAT SPRAY - EXTERNAL MIX

The AL 15 series is a pressure-fed external mix flat fan spray nozzle. The external mix feature allows control of the atomisation without changing liquid flow. The lighter the air pressure, the higher the atomisation for a given liquid pressure (types 15-06 to 15-11). Types 15-01 to 15-05 are siphon type. The spray pattern is a function of pressure. The higher the air pressure, the longer the spray pattern (length D).



CAPACITY CHARTS

METERING SET NO.	LIQUID TIP & AIR CAP NUMBERS	CAPACITIES AS SIPHON HEIGHT OF 15CM	AIR PRESSURE IN Bar.G. 0,35	0,7	1,0	1,5	1,75	2,0	3,0	4,0	6,0	7,0	SPRAY ANGLE(°) @ 1.5 Bar
	Liquid Tip W05736-1	Air Capacity Litres/Min	40	51	54	57	62	66	74	88	95	108	
15-01		Liquid Capacity Litres/Hour	1,36	2,27	3,12	3,41	3,72	4,08	4,64	5,9	7,1	8,3	45
	Air Cap W01234-1	Distance D Metres	0,9	1,4	1,8	2,1	2,4	2,7	3,0	3,4	3,7	3,8	
	Liquid Tip W05736-2	Air Capacity Litres/Min	44	57	64	71	75	79	89	105	113	122	
15-02		Liquid Capacity Litres/Hour	2,50	4,54	5,9	7,0	7,9	9,1	10,7	13,6	16,6	19,5	50
	Air Cap W01234-2	Distance D Metres	1,5	1,8	2,4	2,9	3,0	3,2	3,7	4,3	4,9	5,2	
	Liquid Tip W05736-3	Air Capacity Litres/Min	54	68	78	85	94	99	110	127	139	151	
15-03		Liquid Capacity Litres/Hour	3,18	5,4	7,3	8,9	10,2	11,8	14,8	20,9	26,8	32,7	55
	Air Cap W01234-3	Distance D Metres	1,5	1,8	2,4	2,9	3,0	3,2	3,7	4,3	4,9	5,2	
	Liquid Tip W05736-4	Air Capacity Litres/Min	57	78	89	99	108	116	127	153	163	177	
15-04		Liquid Capacity Litres/Hour	3,63	6,4	8,6	10,7	12,5	14,1	17,5	24,1	30,9	37,7	60
	Air Cap W01234-4	Distance D Metres	1,5	1,8	2,4	2,9	3,0	3,2	3,7	4,3	4,9	5,2	
	Liquid Tip W05736-5	Air Capacity Litres/Min	63	85	97	108	119	128	142	173	189	208	
15-05		Liquid Capacity Litres/Hour	4,22	7,4	10,0	12,4	14,5	16,4	20,3	28,0	35,9	43,8	60
	Air Cap W01234-5	Distance D Metres	1,5	1,8	2,4	2,9	3,0	3,2	3,7	4,3	4,9	5,2	

METERING SET NO.	LIQUID TIP AND AIR CAP NOS.	LIQUID PRESSURE Bar.G. 0,2 Bar Air Press. Bar	Air l/min	Liquid l/h	0,3 Bar Air Press. Bar	Air l/min	Liquid l/h	0,7 Bar Air Press. Bar	Air l/min	Liquid l/h	1,5 Bar Air Press. Bar	Air l/min	Liquid l/h	3 Bar Air Press. Bar	Air l/min	Liquid l/h	SPRAY DIMENSIONS Air Bar	Liquid Bar	A cm	B cm	C cm	D M
		0,2	25,2		0,35	26,3		0,7	31,2		1,4	45,3		2,8	73,6		0,2	0,2	9	15	23	0,9
	Liquid Tip	0,35	26,3		0,7	31,2		1,05	39,6		1,75	53,8		3,5	85,0		1,05	0,2	9	15	23	1,2
	W13154-1	0,7	31,2		1,05	39,6		1,4	45,3		2,1	59,5		4,2	102		1,4	0,35	10	15	23	1,2
15-06		1,05	39,6	2,8	1,4	45,3	3,5	1,75	53,8	5,3	2,8	73,6	7,8	4,9	119	11,0	1,4	1,4	11,5	18	25	1,5
	Air Cap	1,4	45,3		1,75	53,8		2,1	59,4		3,5	85,0		5,3	127,5		1,75	0,7	11,5	15	24	1,5
	W13159-1	1,75	53,8		2,1	59,4		2,8	73,6		4,2	102		5,6	139		2,8	1,4	13	18	28	1,8
		2.1	59,4		2,8	73,6		3,5	85,0		5,6	139		6,3	159		4,9	2,8	15	18	24	2,4
																	0,4	0,3	20	28	33	1,2
	Liquid Tip	0,35	22		0,35	22		0,4	25		0,6	28		0,7	34		0,6	0,7	23	30	40	1,8
	W13154-1	0,4	25		0,4	25		0,6	28		0,7	34		1,1	45		0,6	1,5	28	35	46	1,8
15-07				2,8			3,5			5,3			7,8			11,0	1,1	1,5	28	33	43	2,4
	Air Cap	0,5	27,5		0,6	28		0,7	34		1,1	45		1,8	62		1,4	1,5	25	30	41	2,7
	W13159-2	0,6	28		0,7	34		0,85	40		1,4	54		2,5	79		1,1	2,0	28	35	48	2,6
																	1,4	3,0	30	38	51	2,7
		0,35	26,3		0,7	31,2		1,05	39,6		1,75	53,8		3,15	82		0,35	0,2	7,5	14	22	1,0
	Liquid Tip	0,7	31,2		1,05	39,6		1,4	45,3		2,1	59,4		3,5	85		1,4	0,2	9	15	22	1,7
	W13154-2	1,05	39,6		1,4	45,3		1,75	53,8		2,8	73,6		4,2	102		1,75	0,35	10	16,5	23	1,8
15-08		1,4	45,3	4,5	1,75	53,8	5,5	2,1	59,4	8,3	3,5	85,0	12,2	4,9	119	16,6	1,75	1,4	13	19	29	2,1
	Air Cap	1,75	53,8		2,1	59,4		2,8	73,6		4,2	102		5,25	127		2,1	0,7	13	18	25	1,8
	W13159-1	2,1	59,4		2,8	73,6		3,5	85,0		4,9	119		6,3	159		3,5	1,4	13	22	30	2,4
		2,8	73,6		3,5	85,0		4,2	102		6,3	159		6,7	164		5,3	2,8	15	19	25	3,0
																	0,7	0,3	28	33	40	1,5
	Liquid Tip	0,35	22		0,35	22		0,6	28		0,7	34		1,1	45		1,1	0,7	30	38	48	2,1
	W13154-2	0,6	28		0,7	34		0,7	34		1,4	54		1,4	54		0,7	1,5	38	46	58	1,8
15-09				4,5			5,5			8,3			12,2			17,2	1,4	1,5	35	43	56	2,4
	Air Cap	0,7	34		1,1	45		1,4	54		2,1	71		2,1	71		2,5	1,5	33	40	51	3,0
	W13159-2	1,1	45		1,4	54		2,1	71		2,5	79		2,5	79		1,8	2,0	38	46	58	2,7
																	1,8	3,0	41	48	66	2,9

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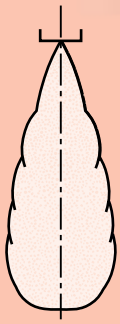

CAPACITY CHARTS (CONT.)

METERING SET NO.	LIQUID TIP AND AIR CAP NOS.	LIQUID PRESSURE Bar.G. 0,2 Bar Air Press. Bar	0,2 Bar Air l/min	0,2 Bar Liquid l/h	0,3 Bar Air Press. Bar	0,3 Bar Air l/min	0,3 Bar Liquid l/h	0,7 Bar Air Press. Bar	0,7 Bar Air l/min	0,7 Bar Liquid l/h	1,5 Bar Air Press. Bar	1,5 Bar Air l/min	1,5 Bar Liquid l/h	3 Bar Air Press. Bar	3 Bar Air l/min	3 Bar Liquid l/h	SPRAY DIMENSIONS Air Bar	Liquid Bar	A cm	B cm	C cm	D M
		0,7	31,2		1,05	39,6		1,4	45,3		2,5	68		3,5	85		0,7	0,2	13	16,5	25	1,2
	Liquid Tip	1,05	39,6		1,4	45,3		1,75	53,8		2,8	73,6		4,2	102		1,75	0,2	13	16,5	25	1,8
	W13154-3	1,4	45,3		1,75	53,8		2,1	59,4		3,5	85		4,9	119		2,1	0,35	13	18,0	24	1,8
15-10		1,75	53,8	8,5	2,1	59,4	10,4	2,8	73,6	15,9	4,2	102	23	5,3	127	33	2,5	1,4	14	20	32	1,8
	Air Cap	2,1	59,4		2,8	73,6		3,5	85,0		4,9	119		5,6	139		2,8	0,7	14	19	30	2,3
	W13159-1	2,8	73,6		3,5	85,0		4,2	102		5,6	139		6,3	159		4,2	1,4	14	20	36	3,0
		3,5	85,0		4,2	102		4,9	119		6,3	159		7,0	176		5,3	2,8	16,5	20	30	4,0
																	0,6	0,3	35	48	61	1,8
	Liquid Tip	0,4	25		0,4	25		0,4	25		0,7	34		1,4	54		0,6	0,7	35	48	63	1,5
	W13154-3	0,5	27,5		0,6	28		0,6	28		0,85	40		1,8	62		0,7	1,5	38	48	63	1,8
15-11				8,5			10,4			15,9			23			33	1,1	1,5	41	51	66	2,1
	Air Cap	0,6	28		0,65	31		0,7	34		1,1	45		2,1	71		1,4	1,5	43	53	66	2,4
	W13159-2	0,7	34		0,7	34		0,85	40		1,4	54		2,5	79		1,8	2,0	41	51	69	2,7
																	2,1	3,0	41	51	69	2,9
		0,7	85		1,0	102		1,4	116		2,5	178		3,2	212		0,7	0,2	13	19	25	1,7
	Liquid Tip	1,0	102		1,4	116		1,8	139		2,8	195		3,5	232		1,8	0,2	13	19	25	2,7
	W13154-4	1,4	116		1,8	139		2,1	156		3,5	227		3,9	255		2,1	0,35	15	19	28	3,0
15-12		1,8	139	13,4	2,1	156	16,4	2,5	178	25	4,2	266	37	4,2	275	52	2,5	0,7	15	22	28	3,5
	Air Cap	2,1	156		2,8	195		2,8	195		4,9	312		4,9	314		2,5	1,4	16,5	23	36	3,7
	W13159-3	2,8	195		3,5	227		3,7	227		5,6	360		5,6	360		4,2	1,4	16,5	23	36	4,3
		3,5	227		4,2	266		4,2	266		6,3	411		6,3	411		4,9	2,8	16,5	22	32	4,9
																	1,4	0,3	33	38	48	3,8
	Liquid Tip	0,6	91		0,7	102		1,4	156		2,1	210		3,2	285		2,1	0,7	33	40	56	4,3
	W13154-4	0,7	102		1,1	130		2,1	210		2,8	260		4,2	360		2,1	1,5	35	46	58	4,0
15-13				13,4			16,4			25			37			52	3,2	1,5	38	48	66	4,6
	Air Cap	1,1	130		1,8	184		2,5	235		3,5	310		5,3	430		4,2	1,5	38	48	64	5,2
	W13159-4	1,4	156		2,1	210		2,8	260		4,2	360		5,6	455		3,9	2,0	41	51	69	4,6
																	4,2	3,0	38	51	71	4,9
		0,7	85		1,4	116		1,8	139		2,8	195		3,5	232		0,7	0,35	15	19	27	2,1
	Liquid Tip	1,0	102		1,8	139		2,1	156		3,2	212		4,2	275		1,8	0,7	15	19	27	3,0
	W13154-5	1,4	116		2,1	156		2,5	178		3,5	227		4,9	314		2,5	1,4	15	22	33	3,4
15-14		1,8	139	17,6	2,5	178	22	2,8	195	33	4,2	266	48	5,3	340	68	2,8	1,4	15	22	36	3,8
	Air Cap	2,1	156		2,8	195		3,5	227		4,9	312		5,6	360		2,8	1,4	16,5	25	37	4,0
	W13159-3	2,8	195		3,5	227		4,2	226		5,6	360		6,3	411		4,2	2,1	16,5	25	37	4,9
		3,5	227		4,2	266		4,9	312		6,3	411		6,6	428		5,3	2,8	18	23	36	5,8
																	1,1	0,2	33	38	51	3,5
	Liquid Tip	0,6	91		0,7	102		1,1	130		2,5	235		3,5	310		1,8	0,7	35	48	64	3,0
	W13154-5	1,1	130		1,4	156		1,8	184		3,2	285		4,6	380		2,5	1,5	38	46	64	3,8
15-15				17,6			22			33			48			68	3,2	1,5	33	43	61	4,3
	Air Cap	1,4	156		1,8	184		2,5	235		3,9	330		6,0	475		4,2	1,5	30	43	58	4,9
	W13159-4	1,8	184		2,1	210		2,8	260		4,2	360		6,7	525		4,2	2,0	33	43	61	5,2
																	4,9	3,0	33	43	61	4,0
																	2,1	0,3	40	56	76	3,0
	Liquid Tip	0,7	102		1,1	130		1,8	184		3,2	285		5,3	430		2,8	0,7	46	58	81	4,0
	W13154-6	1,1	130		1,4	156		2,1	210		3,5	310		6,0	475		3,2	1,5	48	58	79	4,3
15-16				36			45			68			100			141	4,6	1,5	43	53	76	4,9
	Air Cap	1,4	156		2,1	210		2,8	260		4,9	405		6,7	525		5,6	1,5	38	51	66	5,8
	W13159-4	1,8	184		2,5	235		3,2	285		5,9	455		7,0	550		3,9	2,0	48	64	84	4,3
																	6,3	3,0	41	56	79	5,8
		1,0	102		1,8	139		2,5	178		3,2	212		3,9	255		1,0	0,2	15	20	25	2,7
	Liquid Tip	1,4	116		2,1	156		2,8	195		3,5	227		4,2	275		2,1	0,2	15	22	29	3,0
	W13154-6	1,8	139		2,5	178		3,2	212		3,9	246		4,6	297		2,8	0,35	18	24	36	3,5
15-17		2,1	156	36	2,8	195	45	3,5	227	68	4,2	266	100	4,9	314	141	3,2	1,4	20	28	39	3,7
	Air Cap	2,5	178		3,2	212		4,2	266		4,9	312		5,6	360		3,5	0,7	19	27	38	4,0
	W13159-3	2,8	195		3,5	227		4,9	312		5,6	360		6,3	411		4,2	1,4	20	28	39	4,3
		3,5	227		4,2	266		5,6	360		6,3	411		7,0	453		5,6	2,8	18	24	38	5,9
		1,8	235		1,8	235		2,5	300		3,9	410					1,8	0,2	15	20	29	3,0
	Liquid Tip	2,1	260		2,1	260		2,8	330		4,2	445					2,8	0,2	15	20	30	3,4
	W13154-8	2,5	300		2,5	300		3,2	355		4,6	480					2,8	0,3	15	20	30	4,0
15-18		2,8	330	36	2,8	330	45	3,5	380	68	4,9	529	100				3,5	0,7	17	22	32	4,3
	Air Cap	3,2	355		3,2	355		3,9	410		5,3	565					3,9	1,5	17	22	34	4,6
	W13159-5	3,5	380		3,5	380		4,2	445		5,6	600					4,2	1,0	17	23	33	4,7
		4,2	445		4,2	455		4,9	520		6,3	685					4,9	1,5	17	23	34	5,5
		2,1	260		2,8	330		3,9	410		4,9	520					2,1	0,2	17	24	34	3,5
	Liquid Tip	2,5	300		3,2	355		4,2	445		5,3	565					3,2	0,2	18	24	36	4,3
	W13154-9	2,8	330		3,5	380		4,6	480		5,6	600					3,9	0,3	18	25	36	4,9
15-19		3,2	355	64	3,9	410	78	4,9	520	119	6,0	640	175				4,9	0,7	18	25	36	5,5
	Air Cap	3,5	380		4,2	445		5,3	565		6,3	685					4,9	1,5	20	25	38	5,5
	W13159-5	4,2	445		4,9	520		5,6	600								5,3	1,0	18	25	38	5,8
		4,9	520		5,6	600		6,3	685								5,6	1,5	20	25	38	6,1
		2,8	330		3,5	380		4,6	480		5,6	600					2,8	0,2	19	25	36	4,6
	Liquid Tip	3,2	355		3,9	410		4,9	520		6,0	640					3,9	0,2	20	25	37	4,9
	W13154-10	3,5	380		4,2	445		5,3	565		6,3	685					4,6	0,3	20	25	37	5,2
15-20		3,9	410	102	4,6	480	125	5,6	600	192			280				5,3	0,7	22	27	38	5,5
	Air Cap	4,2	445		4,9	520		6,0	640								5,6	1,0	22	27	41	5,5
	W13159-5	4,6	480		5,3	565		6,3	685								5,6	1,5	22	27	41	5,8
		4,9	520		5,6	600											6,0	1,5	22	27	41	6,1

AIR ATOMISING

TYPE AL15

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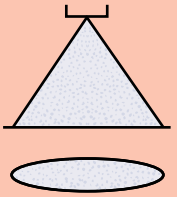
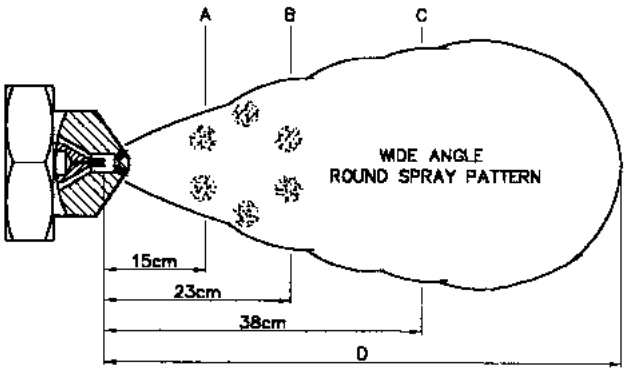


DELAVAN
Spray Technologies

AL 30

WIDE ROUND SPRAY - INTERNAL MIX

The AL 30 series produces a wide, round spray pattern with a nominal angle of 70°. This is an internal mix nozzle, where a change in air or liquid pressure will result in a change of flow or atomisation. Increasing air pressure decreases flow and increases atomisation. Increasing liquid pressure increases flow and decreases atomisation.



CAPACITY CHART

METERING SET NO.	LIQUID TIP AND AIR CAP NOS.	LIQUID PRESSURE Bar.G. 0,7 Bar Air Press. Bar	0,7 Bar Liquid l/h	0,7 Bar Air l/min	1,5 Bar Air Press. Bar	1,5 Bar Liquid l/h	1,5 Bar Air l/min	2 Bar Air Press. Bar	2 Bar Liquid l/h	2 Bar Air l/min	3 Bar Air Press. Bar	3 Bar Liquid l/h	3 Bar Air l/min	4 Bar Air Press. Bar	4 Bar Liquid l/h	4 Bar Air l/min	SPRAY DIMENSIONS Air Bar	Liquid Bar	A cm	B cm	C cm	D M
		0,6	5,3	10,2	1,1	8,1	13,3	1,5	8,1	16,4	2,4	8,9	22	3,1	10,5	24	0,7	0,7	14	18	23	1,5
	Liquid Tip	0,7	4,3	12,2	1,3	7,0	15,0	1,8	6,6	21	2,7	8,1	26	3,4	9,7	28	1,4	1,5	15	19	24	1,8
	W13154-2	0,85	3,0	14,2	1,4	6,4	17,0	2,1	4,9	25	3,0	6,4	30	3,9	7,8	36	1,8	2,0	16	20	25	2,1
30-01		1,0	1,7	17,0	1,5	5,5	19,0	2,4	3,2	29	3,2	4,9	34	4,2	6,1	42	3,0	3,0	16	20	26	2,7
	Air Cap				1,7	4,5	22				3,4	4,2	37	4,6	4,4	47	3,9	4,0	19	23	30	4,0
	W13157-1				1,8	3,5	24				3,5	3,4	40	4,9	2,8	54						
		0,85	7,0	50	1,7	13,2	68	2,0	18,5	68	2,8	25	84	3,7	31	96						
	Liquid Tip	1,0	2,1	62	1,8	9,8	79	2,1	15,1	76	3,0	22	92	3,8	28	105	0,85	0,7	18	24	31	1,8
	W13154-5							2,2	11,7	85	3,1	18,5	101	3,9	26	113	1,7	1,5	19	25	33	2,4
30-02											3,2	15,1	109	4,1	23	122	2,1	2,0	19	25	33	3,2
	Air Cap										3,4	12,1	119	4,2	20	130	3,2	3,0	20	26	34	4,1
	W13157-3										3,5	9,1	130	4,6	13,6	153	4,1	4,0	21	28	37	5,9
											3,7	6,1	142	4,9	6,8	183						
		0,7	24	32	1,4	43	37	2,1	33	66	2,8	52	65	3,7	63	68						
	Liquid Tip	0,85	13,6	44	1,5	35	49	2,2	26	78	3,0	46	76	3,8	58	79	0,85	0,7	19	25	36	2,1
	W13154-6	1,0	7,6	57	1,7	28	61	2,4	18,9	89	3,1	39	87	3,9	52	101	1,5	1,5	20	27	37	3,2
30-03					1,8	21	71	2,5	11,7	100	3,2	33	99	4,2	41	111	2,4	2,0	20	27	37	4,1
	Air Cap										3,4	26	110	4,6	27	138	3,2	3,0	20	28	38	5,0
	W13157-3										3,5	19,5	122	4,9	16	166	3,9	4,0	20	28	39	6,8
											3,7	13,2	133									
		1,3	36	85	2,1	57	116	3,1	53	156	4,2	64	197	5,6	74	245						
	Liquid Tip	1,5	29	102	2,4	51	130	3,2	50	163	4,9	51	230	6,0	68	260	2,0	0,7	20	25	33	5,5
	W13154-6	1,8	23	117	2,7	45	143	3,4	47	170	5,6	40	265	6,3	62	280	3,0	1,5	22	27	34	6,4
30-04		2,0	19,7	125	3,0	39	157	3,5	45	177	6,0	34	285	6,7	56	295	3,9	2,0	22	28	37	8,2
	Air Cap	2,1	16,7	133	3,2	33	170	3,9	38	194	6,3	28	300	7,0	51	315	6,0	3,0	23	29	38	9,1
	W13157-4	2,3	14,0	142	3,5	28	185	4,6	25	230	6,7	22	320				6,3	4,0	24	32	41	10,4
		2,4	11,4	149	4,2	13,6	220	4,9	18,5	245	7,0	17,8	335									
		1,1	12,3	40	2,2	16,3	62	2,7	21	69	4,2	19,3	100	5,6	22	130						
	Liquid Tip	1,3	9,9	45	2,5	12,1	71	3,0	16,3	78	4,6	14,6	113	6,0	17,6	142	1,5	0,7	15	19	23	2,7
	W13154-5	1,4	7,9	50	2,8	8,9	79	3,2	12,3	86	4,9	10,8	124	6,3	14,0	152	3,0	1,5	16	20	24	4,6
30-05		1,5	6,1	54	3,0	7,6	83	3,4	10,7	91	5,3	8,1	135	6,7	11,4	163	3,4	2,0	16	20	24	5,5
	Air Cap	1,7	4,9	58	3,1	6,4	87	3,5	9,3	94	5,6	6,2	146	7,0	9,1	174	5,3	3,0	18	22	25	7,3
	W13157-2	1,8	3,9	62	3,2	5,5	91	3,9	6,4	105	6,0	4,9	157				6,3	4,0	19	24	30	9,4
		2,0	3,1	67	3,4	4,7	95	4,2	4,7	115	6,3	4,0	167									
		1,7	25	156	3,0	39	230	3,4	50	250	4,6	62	320	6,0	93	395	2,0	0,7	24	33	46	5,5
	Liquid Tip	1,8	19,7	167	3,1	33	240	3,5	43	260	4,9	47	345	6,3	77	425	3,2	1,5	25	34	47	6,4
	W13154-10	2,0	15,1	178	3,2	27	255	3,7	41	275	5,3	36	375	6,7	62	460	3,9	2,0	28	37	51	7,3
30-06		2,1	11,4	193	3,4	23	265	3,9	27	300	5,6	26	405	7,0	52	495	5,3	3,0	29	38	53	7,9
	Air Cap	2,3	7,6	205	3,5	18,5	280	4,1	23	310	6,0	18,9	435				6,3	4,0	33	42	58	9,8
	W13157-5				3,7	14,8	290	4,2	18,9	320	6,3	13,6	460									
								4,4	15,9	335												

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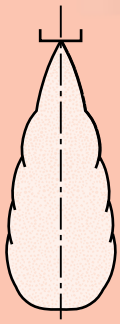
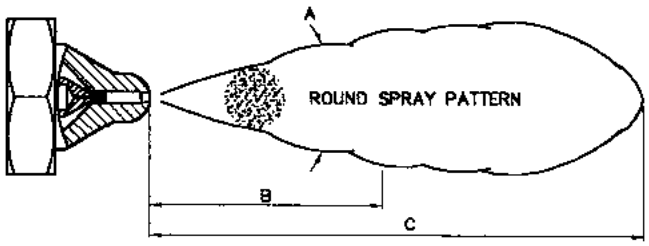


DELAVAN
Spray Technologies

AL 45

ROUND SPRAY - INTERNAL MIX

The AL 45 series produces a narrow angle spray pattern with a nominal angle of 15°-20°. This is an internal mix nozzle, where a change in air or liquid pressure will result in a change of flow or atomisation. Increasing air pressure decreases flow and increases atomisation. Increasing liquid pressure increases flow and decreases atomisation.



CAPACITY CHART

METERING SET NUMBER	LIQUID TIP AND AIR CAP NO.	LIQUID PRESSURE Bar.G. 0,7 Bar Air Press. Bar	0,7 Bar Liquid l/h	0,7 Bar Air l/min	1,5 Bar Air Press. Bar	1,5 Bar Liquid l/h	1,5 Bar Air l/min	2 Bar Air Press. Bar	2 Bar Liquid l/h	2 Bar Air l/min	3 Bar Air Press. Bar	3 Bar Liquid l/h	3 Bar Air l/min	4 Bar Air Press. Bar	4 Bar Liquid l/h	4 Bar Air l/min	SPRAY DIMENSIONS Air Bar	Liquid Bar	Spray Angle A (°)	B cm	C M
		0,7	2,5	15,6	1,1	6,4	11,9	1,4	6,4	13,9	2,7	6,2	23	3,5	7,8	28					
	Liquid Tip	0,85	1,8	19,0	1,4	5,0	15,0	1,7	5,5	16,7	2,8	5,7	25	3,7	7,3	29	0,85	0,7	13	30	2,7
	W13154-2	1,0	1,4	22	1,7	4,1	18,7	2,0	4,5	19,8	3,0	5,2	27	3,9	6,4	33	1,7	1,5	13	33	3,0
45-01					1,8	3,4	20	2,2	3,4	24	3,1	4,7	29	4,2	5,5	38	2,5	2,0	13	36	3,4
	Air Cap				2,0	3,0	23	2,4	3,0	26	3,2	4,3	31	4,5	4,5	43	3,1	3,0	14	39	3,8
	W13156-1				2,1	2,6	25	2,5	2,5	28	3,4	3,9	33	4,6	4,1	45	4,5	4,0	15	44	4,4
					2,2	2,0	27	2,7	2,3	31	3,7	3,0	38	4,8	3,7	47					
		0,7	2,5	18,7	1,4	5,7	27	1,7	6,7	29	2,2	9,2	34	2,8	11,9	39					
	Liquid Tip	0,85	2,0	22	1,5	5,2	29	1,8	6,4	31	2,5	8,2	39	3,1	11,0	43	0,85	0,7	12	43	3,7
	W13154-2	1,0	1,6	26	1,7	4,8	32	2,0	5,9	34	2,8	7,2	44	3,4	10,1	47	1,5	1,5	13	46	4,0
45-02					1,8	4,3	35	2,1	5,2	37	3,0	6,7	47	3,7	9,2	52	2,4	2,0	13	48	4,3
	Air Cap				2,0	3,9	37	2,2	4,8	40	3,1	6,3	49	3,9	8,4	58	3,0	3,0	13	51	4,6
	W13156-2				2,1	3,4	40	2,4	4,3	43	3,2	5,9	52	4,2	7,6	62	3,9	4,0	15	56	5,2
								2,7	3,6	48	3,4	5,5	55	4,5	6,8	68					
		0,85	4,8	21	1,7	8,4	31	2,0	10,7	33	2,7	16,5	37	3,4	20	43					
	Liquid Tip	1,1	4,1	27	1,8	7,5	35	2,1	9,8	37	2,8	15,4	38	3,7	18,4	47	1,5	0,7	12	48	4,0
	W13154-3	1,4	3,4	33	2,0	7,0	37	2,4	8,2	42	3,1	13,6	43	3,9	16,8	50	2,5	1,5	13	51	4,3
45-03		1,5	3,1	35	2,2	5,7	44	2,7	6,8	48	3,4	11,8	49	4,2	15,2	55	3,0	2,0	13	53	4,6
	Air Cap	1,7	3,0	39	2,5	4,8	49	3,0	5,9	55	3,7	10,4	55	4,5	13,8	60	3,4	3,0	14	56	4,9
	W13156-2	1,8	2,9	41	2,8	4,1	54	3,2	5,0	59	3,9	9,1	61	4,8	12,4	65	4,2	4,0	15	60	5,3
		2,0	2,8	44	3,1	3,6	59	3,5	4,1	65	4,2	7,9	65	4,9	11,8	68					
		1,1	13,0	76	2,2	17,8	116	2,8	20	136	3,4	32	149	4,6	37	193					
	Liquid Tip	1,4	8,9	91	2,5	13,1	130	3,1	16,3	149	3,9	25	170	5,3	29	220	1,7	0,7	18	66	4,9
	W13154-5	1,5	7,2	98	2,8	9,5	143	3,4	11,9	163	4,6	15,9	205	5,6	25	235	2,8	1,5	20	76	6,1
45-04		1,7	5,8	105	3,1	7,0	157	3,9	7,0	187	5,3	9,1	240	6,0	21	250	3,9	2,0	20	81	6,7
	Air Cap	1,8	4,7	112	3,4	4,9	171	4,2	4,7	205	5,6	6,8	255	6,3	17,4	270	5,3	3,0	21	91	7,9
	W13156-3	2,0	3,6	119	3,5	4,2	178	4,6	3,0	220	6,0	5,0	275	6,7	14,0	290	6,0	4,0	21	97	9,1
		2,1	2,7	127							6,3	3,6	290	7,0	11,0	305					
		0,85	31	57	1,4	61	69	2,1	53	96	2,7	80	103	3,8	88	135					
	Liquid Tip	1,0	25	66	1,5	54	76	2,4	41	112	3,0	69	117	4,2	73	156	1,0	0,7	17	61	4,9
	W13154-6	1,1	18,5	75	1,7	48	85	2,7	31	127	3,2	59	130	4,6	61	176	1,8	1,5	18	69	5,8
45-05		1,3	12,9	85	1,8	41	93	2,8	26	136	3,5	49	146	4,9	48	196	2,8	2,0	20	76	6,7
	Air Cap				2,0	35	102	3,0	22	144	3,7	44	154	5,3	39	215	3,5	3,0	20	79	7,0
	W13156-3				2,1	30	110				3,8	37	161	5,6	31	240	4,9	4,0	21	91	8,5
					2,2	25	119				3,9	35	170	6,0	23	260					
		1,0	44	86	1,4	125	79	2,0	123	108	2,2	199	88	3,0	250	99					
	Liquid Tip	1,1	32	102	1,5	106	91	2,1	108	119	2,5	174	110	3,2	225	120	1,0	0,7	19	89	6,1
	W13154-10				1,7	87	105	2,2	95	130	2,8	146	133	3,5	205	141	1,7	1,5	20	99	7,0
45-06					1,8	70	118	2,4	79	143	3,1	121	154	3,8	182	163	2,4	2,0	21	104	7,6
	Air Cap				2,0	55	130	2,5	64	155	3,2	108	166	4,1	159	184	3,1	3,0	21	107	7,9
	W13156-4							2,7	52	166	3,4	95	176	4,6	121	225	3,8	4,0	22	117	9,1
								2,8	42	178	3,5	84	187	4,9	93	255					

AIR ATOMISING

TYPE AL 45

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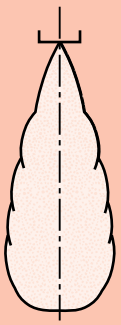
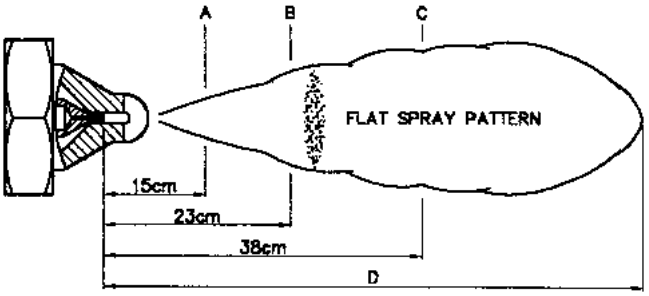


DELAVAN
Spray Technologies

AL 60

FLAT SPRAY - INTERNAL MIX

The AL 60 series produces a wide angle flat fan spray pattern with a nominal angle of 90°-110°. This is an internal mix nozzle, where a change in air or liquid pressure will result in a change of flow or atomisation. Increasing air pressure decreases flow and increases atomisation. Increasing liquid pressure increases flow and decreases atomisation.



CAPACITY CHART

METERING SET NO.	LIQUID TIP AND AIR CAP NO.S	LIQUID PRESSURE Bar.G. 0,7 Bar Air Press. Bar	0,7 Bar Liquid l/h	0,7 Bar Air l/min	1,5 Bar Air Press. Bar	1,5 Bar Liquid l/h	1,5 Bar Air l/min	2 Bar Air Press. Bar	2 Bar Liquid l/h	2 Bar Air l/min	3 Bar Air Press. Bar	3 Bar Liquid l/h	3 Bar Air l/min	4 Bar Air Press. Bar	4 Bar Liquid l/h	4 Bar Air l/min	SPRAY DIMENSIONS Air Bar	Liquid Bar	A cm	B cm	C cm	D M
		0,7	5,5	24	1,3	9,1	31	2,0	8,6	42	2,7	11,2	52	3,9	12,0	69	1,1	0,7	25	36	46	2,6
	Liquid Tip	0,85	4,7	27	1,5	7,7	36	2,2	7,5	47	3,0	10,1	56	4,6	9,7	81	2,1	1,5	36	48	76	3,0
	W13154-2	1,0	4,1	31	1,8	6,5	42	2,5	6,2	52	3,2	9,1	62	5,3	7,5	93	2,8	2,0	38	53	76	3,2
60-01		1,1	3,5	34	2,1	5,4	47	2,8	5,2	57	3,5	8,1	66	6,0	5,3	104	3,5	3,0	47	61	86	3,4
	Air Cap	1,3	3,0	37	2,4	4,3	52	3,1	4,2	63	4,2	5,4	79	6,3	4,3	110	6,0	4,0	56	74	94	4,0
	W13158-2	1,4	2,5	40	2,7	3,3	57	3,2	3,7	65	4,6	4,2	85	6,7	3,3	116						
		1,5	2,0	44	2,8	2,8	60	3,4	3,2	68	4,9	3,1	91	7,0	2,4	122						
		0,85	8,2	19,8	1,4	14,4	27	2,1	13,5	36	2,7	19,1	42	4,6	16,1	69	1,1	0,7	36	46	71	2,1
	Liquid Tip	1,0	6,8	23	1,7	11,9	32	2,4	11,4	42	3,0	17,1	46	4,9	13,8	76	2,1	1,5	43	61	81	2,4
	W13154-3	1,1	5,5	27	2,0	9,5	37	2,7	9,2	47	3,2	15,1	52	5,3	11,5	83	3,0	2,0	51	66	89	2,6
60-02		1,3	4,1	30	2,1	8,3	40	3,0	7,1	53	3,5	13,1	57	5,6	9,3	90	3,5	3,0	58	76	97	2,7
	Air Cap	1,4	2,9	34	2,2	7,1	43	3,2	5,0	59	4,2	8,1	72	6,0	7,3	97	5,6	4,0	58	76	97	3,2
	W13158-2				2,4	6,1	46	3,4	4,0	63	4,6	5,9	79	6,3	5,6	104						
					2,5	5,1	49	3,5	3,3	66	4,9	4,0	86	6,7	4,3	112						
		1,0	9,0	25	2,0	10,4	41	2,4	11,6	48	3,1	15,6	56	4,2	17,1	73	1,4	0,7	10	13	17	3,0
	Liquid Tip	1,1	7,8	30	2,1	9,3	45	2,5	10,4	51	3,2	14,6	59	4,6	15,0	80	2,5	1,5	13	15	20	3,7
	W13154-3	1,3	6,6	32	2,2	8,2	48	2,7	9,4	54	3,4	13,7	62	4,9	12,8	87	3,2	2,0	13	17	22	4,0
60-03		1,4	5,2	36	2,5	6,1	55	3,0	7,3	61	3,8	10,8	71	5,3	11,0	94	3,8	3,0	15	22	28	4,2
	Air Cap	1,7	3,1	44	2,8	4,3	62	3,2	5,5	68	4,2	8,5	82	5,6	9,4	103	5,3	4,0	20	25	33	4,8
	W13158-3	2,0	2,0	50	3,1	3,0	69	3,5	4,1	75	4,9	5,2	98	6,3	7,2	119						
		2,2	1,1	56	3,4	2,0	75	3,8	2,9	81	6,0	2,3	120	7,0	6,1	134						
		1,3	3,9	30	2,1	7,4	40	3,0	6,1	52	3,9	9,4	60	5,3	10,2	78	1,5	0,7	25	33	46	1,8
	Liquid Tip	1,4	3,0	33	2,4	5,3	45	3,1	5,3	54	4,2	7,2	67	5,6	8,3	84	2,7	1,5	36	51	69	2,0
	W13154-3	1,5	2,3	35	2,5	4,4	47	3,2	4,5	57	4,6	5,3	73	6,0	6,6	89	3,2	2,0	58	74	91	2,0
60-04		1,7	1,8	38	2,7	3,7	50	3,4	3,8	59	4,9	3,8	80	6,3	5,1	98	4,2	3,0	61	74	94	2,1
	Air Cap	1,8	1,3	41	2,8	3,1	52	3,5	3,2	62							5,6	4,0	64	76	97	2,3
	W13158-1	2,0	0,95	44	3,0	2,6	55	3,9	1,8	68												
					3,1	2,1	57															
		1,0,	17,0	23	2,0	24	44	2,4	28	51	3,4	38	72	3,9	65	75	1,1	0,7	10	13	15	2,4
	Liquid Tip	1,1	11,0	27	2,1	18,9	50	2,5	23	59	3,5	33	80	4,2	53	89	2,1	1,5	10	13	17	3,0
	W13154-6	1,3	7,6	33	2,2	14,4	56	2,7	18,9	66	3,7	28	89	4,6	40	108	2,8	2,0	13	17	22	3,4
60-05		1,4	3,2	40	2,4	10,6	63	2,8	15,1	74	3,8	23	97	4,9	30	127	3,7	3,0	15	20	28	3,6
	Air Cap				2,5	7,2	71	3,0	11,7	79	3,9	19,7	105	5,3	21	149	4,9	4,0	20	25	35	4,0
	W13158-5										4,2	13,1	120	5,6	13,8	173						
											4,6	7,2	138	6,3	3,2	225						
		1,1	11,2	54	2,1	18,0	79	2,7	19,6	93	3,5	27	112	4,6	33	137	1,4	0,7	15	18	20	3,0
	Liquid Tip	1,3	8,5	60	2,2	15,8	84	2,8	17,3	98	3,7	25	116	4,9	28	149	2,4	1,5	23	28	33	3,2
	W13154-5	1,4	6,5	65	2,4	13,6	89	3,0	15,2	103	3,8	23	121	5,3	24	161	3,0	2,0	25	33	46	3,4
60-06		1,5	5,0	71	2,5	11,6	95	3,1	13,2	109	3,9	21	126	5,6	19,7	174	3,7	3,0	30	38	46	3,5
	Air Cap	1,7	3,8	77				3,2	11,4	114	4,1	18,9	132	6,0	15,7	187	5,3	4,0	33	41	48	4,0
	W13158-4										4,2	17,0	137	6,3	12,4	200						
		0,85	27	33	1,8	38	55	2,4	39	67	3,2	58	76	4,6	59	106	1,1	0,7	18	23	30	3,4
	Liquid Tip	1,0	20	38	2,1	28	66	2,7	30	77	3,5	47	87	5,3	40	132	2,4	1,5	23	30	41	3,5
	W13154-6	1,1	15,9	45	2,2	24	71	3,0	24	87	3,8	38	97	5,6	32	145	3,2	2,0	25	33	43	3,7
60-07		1,3	12,5	48	2,4	21	76	3,2	17,8	98	3,9	34	103	6,0	26	158	3,9	3,0	30	38	48	3,8
	Air Cap	1,4	10,2	56	2,5	17,8	82	3,4	15,1	103	4,2	27	113	6,3	20	172	6,0	4,0	33	41	51	4,4
	W13158-4	1,5	7,6	62	2,7	15,1	87	3,5	12,9	109	4,6	20	126	6,7	15,9	185						
								3,7	10,6	114	4,9	14,8	140	7,0	12,7	198						
		1,0,	29	90	1,8	56	117	2,1	100	119	3,0	126	140	4,1	140	181	1,0	0,7	18	20	25	3,4
	Liquid Tip	1,1	18,9	108	2,0	40	133	2,2	79	133	3,1	110	151	4,2	125	193	1,8	1,5	25	30	43	3,8
	W13154-10							2,4	62	147	3,2	95	163	4,6	89	225	2,4	2,0	25	30	46	4,3
60-08								2,5	48	162	3,4	78	184	4,9	58	265	3,4	3,0	33	41	53	4,6
	Air Cap							2,7	36	177	3,5	62	193	5,3	34	305	4,9	4,0	36	43	58	5,2
	W13158-6										3,7	48	210	5,6	16,7	340						
											3,8	37	225									

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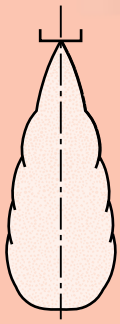
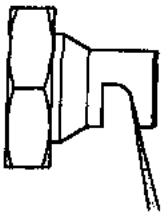
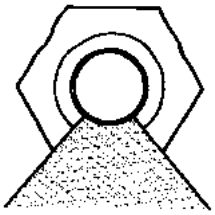


AL 75

DEFLECTED FLAT SPRAY - INTERNAL MIX

The AL 75 series offers a right angle version of the flat spray. Spray pattern is thinner than that of the standard straight versions and can be directed into a more concentrated pattern. This is an internal mix nozzle, where a change in air or liquid pressure will result in a change of flow or atomisation. Increasing air pressure decreases flow and increases atomisation. Increasing liquid pressure increases flow and decreases atomisation.



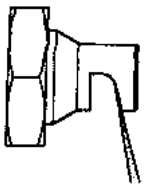


FLAT SPRAY PATTERN

CAPACITY CHART

METERING SET NO.	LIQUID TIP AND AIR CAP NO.S	LIQUID PRESSURE Bar.G. 0,7 Bar Air Press. Bar	0,7 Bar Liquid l/h	0,7 Bar Air l/min	1,5 Bar Air Press. Bar	1,5 Bar Liquid l/h	1,5 Bar Air l/min	2 Bar Air Press. Bar	2 Bar Liquid l/h	2 Bar Air l/min	3 Bar Air Press. Bar	3 Bar Liquid l/h	3 Bar Air l/min	4 Bar Air Press. Bar	4 Bar Liquid l/h	4 Bar Air l/min
75-01	Liquid Tip W13154-7	0,4	11,0	45	1,1	14,5	79	1,5	15,7	96	2,1	20	114	2,7	26	133
		0,6	9,5	54	1,3	13,2	86	1,7	14,3	104	2,2	19,2	121	3,2	22	160
		0,7	7,6	65	1,4	11,8	95	1,8	12,9	112	2,7	15,8	146	3,8	17,7	186
	Air Cap W13161	0,8	5,7	77	1,5	10,0	103	2,1	9,8	130	3,1	11,8	173	4,4	13,1	230
					1,7	8,7	113	2,2	8,3	142	3,2	10,3	183	4,6	10,2	250

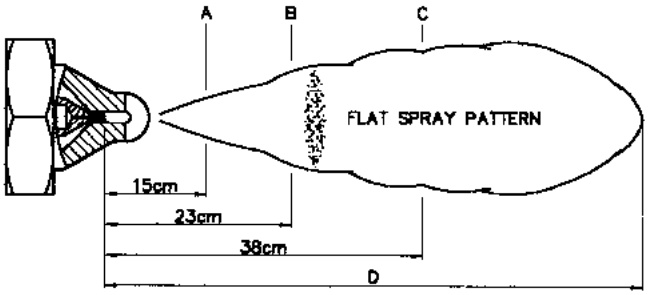
SPRAY PATTERN



AL 90

FLAT SPRAY - INTERNAL MIX

The AL 90 series produces a flat fan spray pattern with siphoned or gravity fed liquid. Unlike other internal mix types the flow will remain relatively constant with an increase or decrease in air pressure. This allows the user to maintain constant flow rates and adjust atomisation with air pressure.



CAPACITY CHART

METERING SET NO.	LIQUID TIP & AIR CAP NUMBERS	ATOMISING AIR Air Press. Bar.G.	Air Flow L/MIN	LIQUID CAPACITY LITRES/HOUR Gravity Head 45 cm	30 cm	15 cm	10 cm	Siphon Height 20 cm	30 cm	60 cm	90 cm	SPRAY DIMENSIONS AT 20 CM SIPHON HEIGHT AIR Bar.G.	A cm	B cm	C cm	D M
90-01	Liquid Tip W13154 - 3	0,7	28	1,3	1,2	1,1	1,0	0,95	0,83	0,64	0,49	0,7	20	26	38	2,1
		1,5	43	1,2	1,1	1,0	0,90	0,86	0,78	0,66	0,54	1,5	21	29	38	2.1
	Air Cap W13160 - 1	2,0	50	0,82	0,76	0,68	0,57	0,50				2,0	23	30	38	1,8
90-02	Liquid Tip W13154 - 4	1,5	56	3,7	3,5	3,3	2,9	2,8	2,5	2,3	2,1	1,5	23	32	38	2,7
		2,0	65	3,4	3,3	3,1	2,8	2,7	2,6	2,4	2,2	2,0	24	34	42	2,7
	Air Cap W13160 - 2	3,0	87	2,8	2,7	2,5	2,4	2,2	2,1	1,9	1,7	3,0	27	37	46	3,0
		4,0	110	1,9	1,8	1,6	1,5	1,3	1,2			4,0	28	39	48	2,7
90-03	Liquid Tip W13154 - 5	1,5	68	5,1	4,8	4,5	3,8	3,7	3,5	3,0	2,4	1,5	19	23	27	3,4
		2,0	78	4,9	4,7	4,4	3,6	3,4	3,2	2,9	2,3	2,0	20	25	28	3,4
	Air Cap W13160 - 3	3,0	103	3,4	3,2	3,0	2,2	2,0	1,7			3,0	22	27	30	3,0
		3,5	117	2,2	2,0	1,7										
90-04	Liquid Tip W13154 - 5	1,5	63	7,6	7,2	6,6	5,7	5,4	5,1	4,6	3,7	1,5	17	22	27	3,4
		2,0	73	7,6	7,3	6,8	5,9	5,7	5,5	5,0	4,2	2,0	18	23	29	3,4
	Air Cap W13160 - 4	3,0	96	6,4	6,1	5,7	5,0	4,5	4,1	3,3		3,0	20	27	33	3,4
		3,5	110	4,2	3,7	3,2	2,6									

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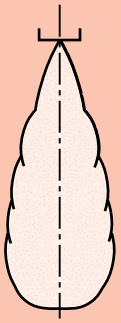


TYPE SN

AIR ATOMISING

SPRAY CHARACTERISTICS

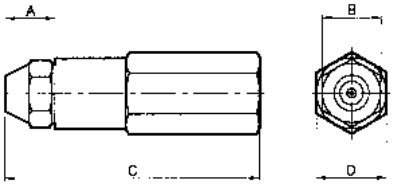
- *Produces a solid cone pattern with extremely fine particle size.*
- *Requires low pressure air and very low air flow.*
- *Suction lift up to 1,2 metres. Will operate with positive head if a shut off in liquid line is provided.*
- *Flow rates, spray angles and droplet sizes can be modified, with limitation, by variations in air, lift etc.*
- *Clog free operation of low volume due to relatively large passages.*

CONSTRUCTION AND MATERIALS

- *Five part construction:*
- *Nozzle Body - Brass or 416 Stainless Steel (9/16"-24 UNEF thread).*
- *Orifice Disc - 403F Stainless Steel, integral with body.*
- *Distributor - 403F Stainless Steel.*
- *Screw Pin - Brass or 416 Stainless Steel.*
- *Seal - Viton - O-ring with Brass nozzle, or PTFE preformed seal with Stainless Steel nozzle.*
- *30609 nozzles are produced in Brass with Stainless Steel metering parts.*
- *30610 nozzles are produced in Stainless Steel.*

ORDER EXAMPLE

30610-4 = Nozzle.
29713-2 = Adaptor.



DIMENSIONS AND WEIGHTS

Nozzle Type	Material	Dimensions (mm) A	B Hex	C	D Hex	Inlet Sizes Air	Liquid	Weight (g)
30610 with 29713-2 Adaptor	Stainless Steel	12,7	15,9	68,3	19,0	1/4" NPT	1/8" NPT	227
30609 with 17147-1 Adaptor	Brass	12,7	15,9	68,3	19,0	1/4" NPT	1/8" NPT	170

CAPACITY CHART

NOZZLE NUMBER	ATOMISING AIR PRESSURE Bar.G.	CAPACITY m³/min	FLOW RATE IN LITRES/HOUR AT Bar.G. GRAVITY HEAD (m) 0,6	0,45	0,3	0,15	SIPHON HEIGHT (m) 0,03	0,1	0,2	0,3	0,6	0,9	1,2	SPRAY ANGLES (°) AT 0,15 (m) HEAD	AT 0,2 (m) HEAD
	0,21	0,010	2,1	1,9	1,5	1,2	0,8	0,6	0,6	0,4	0,2	0,1	-	40	40
	0,35	0,013	2,0	1,9	1,6	1,4	1,0	0,9	0,8	0,6	0,4	0,3	0,2	40	35
30610-1	0,7	0,023	1,9	1,8	1,6	1,4	1,2	1,2	1,1	1,0	0,7	0,6	0,4	40	30
or	1,0	0,029	1,7	1,6	1,5	1,3	1,2	1,1	1,1	1,0	0,8	0,7	0,6	40	30
30609-2	1,4	0,036	1,4	1,4	1,2	1,2	1,1	1,0	0,9	0,9	0,8	0,6	0,6	35	30
	2,1	0,048	0,9	0,9	0,8	0,7	0,7	0,6	0,6	0,6	0,5	0,4	0,3	30	30
	2,8	0,059	-	-	-	0,3	0,4	0,3	0,2	0,2	0,1	-	-	30	30
	0,21	0,010	2,2	2,0	1,7	1,4	1,0	0,9	0,7	0,6	0,2	0,1	-	60	45
	0,35	0,014	2,3	2,0	1,8	1,6	1,2	1,1	1,0	0,9	0,6	0,3	0,2	60	40
30610-2	0,7	0,024	2,3	2,1	1,9	1,8	1,5	1,4	1,4	1,3	1,1	0,8	0,6	40	30
or	1,0	0,031	2,2	2,0	1,9	1,9	1,7	1,6	1,6	1,5	1,3	1,0	0,8	35	30
30609-3	1,4	0,036	2,1	2,0	1,7	1,8	1,8	1,7	1,7	1,6	1,4	1,2	1,0	30	30
	2,1	0,051	1,8	1,8	1,5	1,7	1,4	-	-	-	-	-	-	30	-
	2,8	0,063	1,3	1,2	1,0	1,0	-	-	-	-	-	-	-	30	-
	0,21	0,010	-	-	-	-	1,5	1,2	1,0	0,7	-	-	-	65	45
	0,35	0,015	-	2,5	2,2	2,0	1,8	1,6	1,5	1,2	0,9	0,5	0,3	65	45
30610-3	0,7	0,026	2,8	2,7	2,5	2,3	2,2	2,1	2,0	1,9	,16	-	-	35	30
or	1,0	0,033	3,0	2,8	2,6	2,5	2,4	2,3	2,2	2,1	1,9	-	-	30	30
30609-4	1,4	0,039	3,1	2,9	2,7	2,6	2,5	2,4	2,3	2,2	2,0	-	-	30	30
	2,1	0,053	3,0	2,8	2,6	2,5	2,4	2,3	2,3	2,2	2,1	-	-	30	30
	2,8	0,067	2,7	2,5	2,4	2,3	2,1	2,1	2,1	2,0	1,9	-	-	30	30

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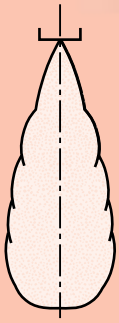

CAPACITY CHART (CONT.)

NOZZLE NUMBER	ATOMISING AIR PRESSURE Bar.G.	ATOMISING AIR CAPACITY m³/min	FLOW RATE IN LITRES/HOUR AT Bar.G. GRAVITY HEAD (m) 0,6	0,45	0,3	0,15	SIPHON HEIGHT (m) 0,03	0,1	0,2	0,3	0,6	0,9	1,2	SPRAY ANGLES (°) AT 0,15 (m) HEAD	AT 0,2 (m) HEAD
	0,21	0,012	4,3	3,7	3,1	2,6	1,9	1,5	1,3	0,9	-	-	-	65	50
	0,35	0,017	3,9	3,5	2,9	2,6	2,1	1,9	1,6	1,3	0,8	0,4	-	40	45
30610-4	0,7	0,030	3,4	3,1	2,7	2,5	2,2	2,0	1,9	1,8	1,3	-	-	35	35
or	1,0	0,039	3,1	2,9	2,6	2,5	2,2	2,0	-	-	-	-	-	30	-
30609-5	1,4	0,048	2,6	2,4	2,3	1,9	-	-	-	-	-	-	-	30	-
	2,1	0,061	2,0	1,8	1,7	1,6	-	-	-	-	-	-	-	30	-
	2,8	0,074	0,9	0,8	0,7	0,6	-	-	-	-	-	-	-	20	-
	0,21	0,013	4,8	4,2	3,6	3,0	2,2	1,9	1,5	1,2	0,6	0,2	-	70	50
	0,35	0,019	4,6	4,2	3,6	3,3	2,7	2,5	2,2	1,9	1,1	0,6	-	65	45
30610-5	0,7	0,033	4,6	4,2	3,9	3,6	3,3	3,1	2,9	2,7	2,2	-	-	40	35
or	1,0	0,043	4,4	4,2	4,0	3,7	3,4	3,3	3,2	3,1	2,6	-	-	35	30
30609-7	1,4	0,052	4,3	4,0	3,9	3,7	3,5	3,4	3,4	3,2	2,9	-	-	30	30
	2,1	0,072	4,0	3,9	3,6	3,5	3,6	3,6	3,4	3,3	2,9	-	-	30	30
	2,8	0,090	3,4	3,3	3,1	2,9	-	-	-	-	-	-	-	30	30
	0,21	0,014	6,4	5,6	4,5	3,8	2,8	2,3	1,9	1,3	-	-	-	65	50
	0,35	0,020	5,9	5,3	4,6	4,0	3,3	3,1	2,6	2,2	1,3	-	-	65	45
30610-6	0,7	0,033	5,2	4,8	4,2	4,0	3,7	3,6	3,4	3,1	2,6	-	-	40	35
or	1,0	0,043	4,8	4,6	4,2	4,0	3,8	3,7	3,5	3,3	2,7	-	-	40	35
30609-8	1,4	0,054	4,5	4,3	4,1	3,8	3,7	3,6	3,5	3,3	2,9	-	-	35	30
	2,1	0,076	4,3	4,0	3,8	3,6	3,3	3,3	3,1	3,0	2,7	-	-	30	30
	2,8	0,087	3,5	3,4	3,2	2,8	2,8	2,7	2,6	2,6	2,4	-	-	30	30
	0,21	0,018	6,89	6,28	5,34	4,01	3,14	2,65	2,08	1,40	0,45	-	-	95	85
	0,35	0,024	6,74	6,09	5,41	4,50	3,79	3,44	3,03	2,54	1,40	0,53	-	85	80
30610-7	0,7	0,037	6,78	6,32	5,87	5,26	4,81	4,66	4,35	3,97	2,91	2,04	-	65	65
or	1,0	0,048	6,85	6,40	5,87	5,30	4,96	4,77	4,47	4,16	3,48	2,84	-	55	55
30609-9	1,4	0,061	6,66	6,21	5,9	5,41	5,07	4,84	4,58	4,24	3,63	3,10	-	45	45
	2,1	0,081	7,15	6,81	6,55	5,98	5,56	5,53	5,22	5,15	4,43	3,71	-	35	35
	2,8	0,102	8,02	7,49	7,19	6,93	6,32	6,25	6,09	5,90	5,11	4,62	-	35	35
	0,21	0,018	10,3	8,40	7,57	5,15	3,79	2,91	1,85	0,30	-	-	-	95	90
	0,35	0,024	9,77	8,55	7,65	5,87	4,77	4,24	3,41	2,50	-	-	-	95	90
30610-8	0,7	0,035	9,69	8,93	8,18	6,81	6,36	5,83	5,22	4,66	2,88	0,53	-	75	75
or	1,0	0,046	9,69	9,01	8,40	7,42	6,93	6,70	6,21	5,68	4,35	2,54	-	70	70
30609-11	1,4	0,058	9,27	8,67	8,18	7,46	7,08	6,93	6,32	6,02	5,41	3,48	-	65	60
	2,1	0,077	8,48	7,65	7,19	6,66	6,32	6,21	5,72	5,49	3,90	3,29	-	55	55
	2,8	0,094	8,63	8,14	7,68	7,00	6,55	6,36	6,09	5,79	4,96	3,86	-	50	50

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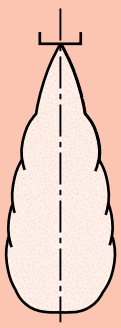


TYPE LO-AIR

AIR ATOMISING

SPRAY CHARACTERISTICS

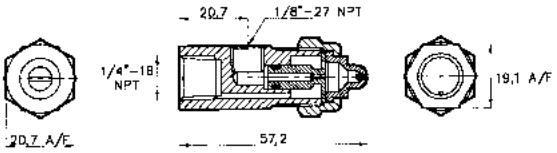
- *Produces a flat or fan spray pattern with extremely fine particle size especially suited for applications such as humidification, poultry cooling, lubrication and oil coating.*
- *Low pressures (liquid and air) needed for fine atomisation at low volumes or flow rates of liquid (LPH) and air (m³/min).*
- *A two-fluid, internal mix, air atomising nozzle with large flow passages which greatly reduce clogging.*

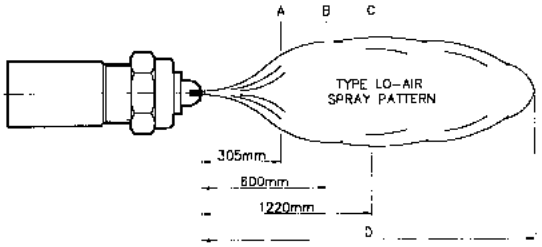
CONSTRUCTION AND MATERIALS

- *Five part construction: Body, Stem, O-Ring, Nozzle Cap and Tip.*
- *Brass (38977) and 303 Stainless Steel (45144) are standard. O-Ring is Buna-N.*
- *Other materials available to special order.*

ORDER EXAMPLE

38977-3.





SPRAY DIMENSIONS

Nozzle Assy. P/N	Air Press. @ Bar.G.	Liquid Press. @ Bar.G.	A (mm)	Dimensions B (mm)	C (mm)	D (m)
38977-1	1,4	1,4	610	1016	1524	3,05
	2,8	2,6	559	965	1524	3,35
45144-1	4,1	4,8	457	864	1321	3,96
38977-2	1,4	0,9	356	660	1118	3,66
45144-2	2,8	2,1	356	711	1270	3,66
38977-3	2,1	2,1	660	1168	1829	3,05
45144-3	3,4	2,4	660	1168	1930	3,66
38977-4	2,1	1,9	152	305	457	4,57
45144-4	3,4	3,4	203	381	610	5,49
38977-5	2,1	2,1	508	991	1372	2,13
	3,4	3,4	508	1016	1473	2,44
	2,1	2,6	533	1067	1524	2,13
45144-5	3,4	5,0	635	1219	1702	2,44
38977-6	2,1	2,0	660	1016	1422	2,13
	3,4	3,3	660	1118	1524	2,13
	2,1	2,1	660	1067	1778	2,13
45144-6	3,4	3,4	660	1118	1880	2,13

CAPACITY CHART

Nozzle Assy. Part No.	Nozzle Stem Part No.	Nozzle Tip Part No.	Mat.	Liquid Flow LPM	Liquid Flow LPH	AIR PRESSURE Bar.G. 0,7 Liquid Press. Bar.	0,7 Air Flow LPM	1,4 Liquid Press. Bar.	1,4 Air Flow LPM	2,0 Liquid Press. Bar.	2,0 Air Flow LPM	2,8 Liquid Press. Bar.	2,8 Air Flow LPM	3,5 Liquid Press. Bar.	3,5 Air Flow LPM
38977-1	38744-1	38882-1	Brass	0,19	11,4	0,62	72,5	1,07	115,5	1,62	155,7	2,07	192,5	2,55	225,1
				0,31	18,8	0,86	65,7	1,38	108,2	1,83	149,0	2,43	181,2	2,86	213,8
45144-1	38744-21	38882-11	S.S.	0,44	26,6	1,08	64,5	1,55	103,1	2,12	141,0	2,69	176,7	3,19	208,1
				0,63	37,9	-	-	2,22	100,2	2,76	134,2	3,29	168,5	3,79	198,2
38977-2	38744-2	38882-1	Brass	0,19	11,4	0,48	71,4	0,95	114,1	1,46	126,6	1,95	186,3	2,45	222,3
				0,37	18,8	0,56	64,5	1,08	103,6	1,56	145,8	2,12	178,4	2,12	213,8
				0,44	26,6	0,66	59,5	1,14	99,7	1,66	137,3	2,39	172,2	2,72	202,5
45144-2	38744-22	38882-11	S.S.	0,63	37,9	-	-	1,30	91,2	1,86	126,0	2,39	159,7	2,92	188,0
				0,89	53,1	-	-	1,48	86,6	2,05	117,5	2,59	148,9	3,17	178,4
				1,14	68,1	-	-	-	-	2,31	111,3	2,90	142,4	3,45	170,2
38977-3	38744-3	38882-2	Brass	0,63	37,9	0,66	47,0	1,23	81,0	1,79	114,4	2,35	143,8	2,92	175,6
				0,95	56,5	0,76	38,8	1,35	68,8	1,95	97,4	2,55	127,4	3,12	155,7
				1,25	74,9	-	-	1,45	60,9	2,07	87,2	2,69	113,8	3,28	140,5
45144-3	38744-23	38882-12	S.S.	1,56	93,8	-	-	1,62	54,4	2,22	79,3	2,85	103,6	3,45	128,3
				1,89	113,6	-	-	1,72	49,6	2,37	72,8	2,99	95,1	3,62	119,5

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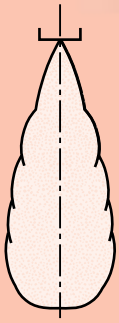

CAPACITY CHART (CONT.)

Nozzle Assy. Part No.	Nozzle Stem Part No.	Nozzle Tip Part No.	Mat.	Liquid Flow LPM	Liquid Flow LPH	AIR PRESSURE Bar.G. 0,7 Liquid Press. Bar.	0,7 Air Flow LPM	1,4 Liquid Press. Bar.	1,4 Air Flow LPM	2,0 Liquid Press. Bar.	2,0 Air Flow LPM	2,8 Liquid Press. Bar.	2,8 Air Flow LPM	3,5 Liquid Press. Bar.	3,5 Air Flow LPM
38977-4	38744-4	38882-4	Brass	0,19	11,4	0,66	43,9	1,24	71,4	1,86	97,4	-	-	-	-
				0,31	18,8	-	-	1,33	63,4	1,97	87,5	2,55	111,0	2,45	133,9
45144-4	38744-22	38882-14	S.S.	0,44	26,6	-	-	1,35	57,8	2,02	80,1	2,59	102,5	3,25	123,5
				0,63	37,9	-	-	1,54	49,8	2,17	71,4	2,79	90,0	3,38	111,3
				0,95	56,8	-	-	1,72	42,8	2,34	59,5	2,98	76,5	3,63	95,1
38977-5	38744-1	38882-3	Brass	0,19	11,4	-	-	1,45	39,6	2,14	53,8	2,79	68,8	3,41	83,0
				0,37	18,8	-	-	1,69	35,1	2,33	46,4	3,02	60,0	3,61	74,8
45144-5	38744-21	38882-13	S.S.	0,44	26,6	-	-	1,83	-	2,55	43,0	3,17	54,7	3,86	66,8
				0,63	37,9	-	-	-	-	3,17	36,8	3,83	47,6	4,48	62,0
38977-6	38744-2	38882-3	Brass	0,19	11,4	-	-	1,43	38,2	2,02	52,1	2,68	65,1	-	-
				0,37	18,8	-	-	1,41	-	2,10	42,8	2,76	55,2	3,28	68,5
45144-6	38744-22	38882-13	S.S.	0,44	26,6	-	-	1,45	-	2,14	39,1	2.77	48,1	3,45	60,0
				0,63	37,9	-	-	1,59	-	2,25	-	2,91	42,5	3,57	52,1
38977-7	38744-1	38882-5	Brass	0,19	11,4	-	-	1,14	79,3	1,68	107,6	2,27	135,9	2,85	169,9
				0,37	18,8	-	-	1,34	76,5	1,90	104,8	2,54	130,3	3,10	161,4
45144-7	38744-21	38882-15	S.S.	0,44	26,6	-	-	1,53	73,6	2,07	101,9	2,71	124,6	3,27	152,9
				0,63	37,9	-	-	1,83	70,8	2,60	96,3	3,17	118,9	3,76	141,6
38977-8	38744-4	38882-2	Brass	0,19	11,4	0,55	68,0	1,00	107,6	1,66	150,1	2,21	189,7	2,90	229,4
				0,31	18,8	0,59	59,5	1,17	99,1	1,83	138,8	2,40	178,4	3,03	215,2
				0,44	26,6	0,66	53,8	1,28	90,6	1,97	130,3	2,55	169,9	3,14	203,9
45144-8	38744-24	38882-12	S.S.	0,63	37,9	-	-	1,45	87,8	2,07	121,8	2,72	155,7	3,38	186,9
				0,95	56,8	-	-	-	-	2,45	110,4	3,10	138,8	3,76	169,9

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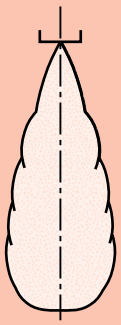


INTERNAL MIX

AIR ATOMISING

SPRAY CHARACTERISTICS

- *Good turn down ratios.*
- *Nominal 30° spray angle.*
- *Produces plume of finely atomised particles.*
- *Ideal for slurry atomisation.*
- *More wear resistant than other internal mix nozzles.*
- *Large internal passages reduce clogging.*

CONSTRUCTION AND MATERIALS

- *Three piece construction: Nozzle Body, Distributor and Cap.*
- *Right angle version has atomising air enter from the side of nozzle, and liquid from the back.*
- *In-line version allows for the nozzle to be placed on a lance for simple plumbing. The length of the lance can vary by providing two concentric pipes and couplings. A Swirl-Air adaptor could also be used.*
- *316L Stainless Steel is standard.*
- *Other materials available to special order.*

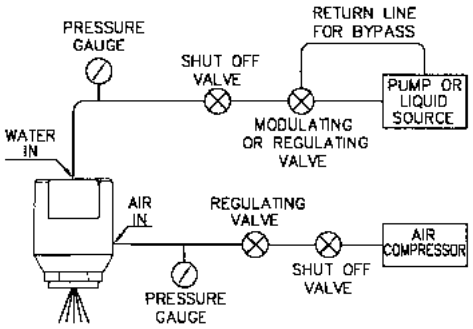
ORDER EXAMPLE

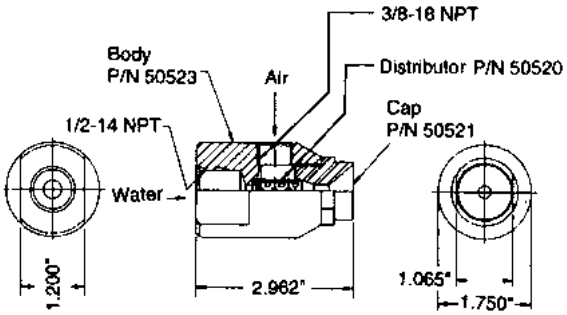
P/N 50544-4 GPM Right Angle Internal Mix Nozzle.

Maximum Recommended Pressure: 200 Psig (14 Bar.G.).
Maximum Recommended Temperature: 1000°F (540°C).

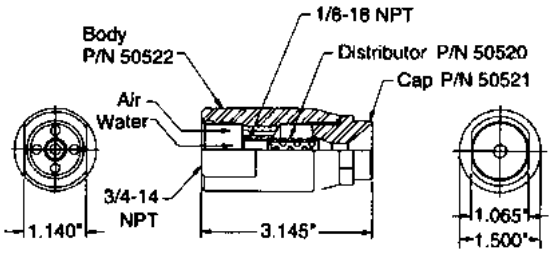
TYPICAL INSTALLATION

Install nozzle as shown in schematic drawing. Make certain both pressure gauges are located as close to the nozzle as practical. Allow for pressure losses between gauges and nozzle when establishing settings. Shut off valves included for convenience, allowing nozzle removal without shutting down system.

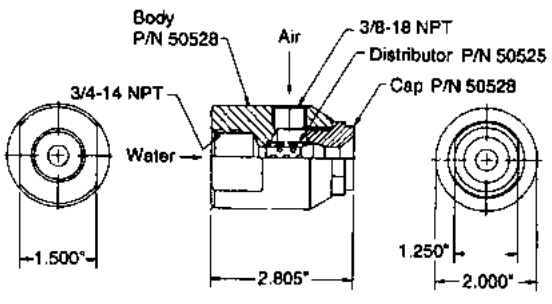




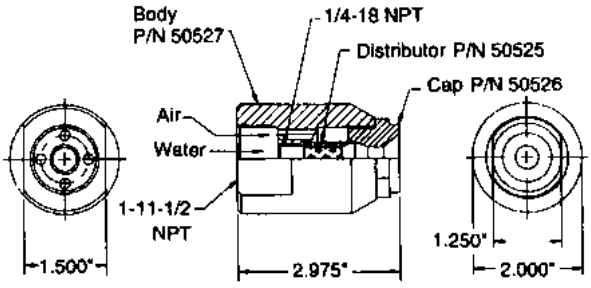
4 GPM Right Angle Internal Mix Nozzle Assembly P/N 50544



4 GPM In-Line Internal Mix Nozzle Assembly P/N 50524



10 GPM Right Angle Internal Mix Nozzle Assembly P/N 50545



10 GPM In-Line Internal Mix Nozzle Assembly P/N 50529

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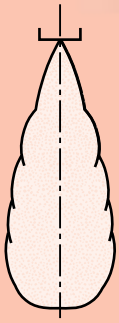

CAPACITY CHARTS

4 GPM	LIQUID FLOW		LIQUID PRESSURE (PSIG) at these Air Pressures (PSIG)							
	GPM	GPH	30	40	50	60	70	80	90	100
	0,5	30	25	35	46	57	66	76	82	90
	1,0	60	28	39	49	60	69	79	85	94
Right	1,5	90	32	42	52	63	72	83	88	98
Angle	2,0	120	34	44	54	65	74	85	92	103
	2,5	150	37	47	57	67	76,5	87	98	107
P/N 50544	3,0	180	40	49,5	60	69	80	90	100	110
	3,5	210	43	52,5	63	73	83	93	103	113
	4,0	240	46,5	57	67	77,5	87,5	97	107,5	117

4 GPM	LIQUID FLOW		AIR FLOW (SCFM) at these Air Pressures (PSIG)							
	GPM	GPH	30	40	50	60	70	80	90	100
	0,5	30	10,5	13	15,5	18	21	23	27	30
	1,0	60	9,0	11	14	16	19	21	25	28
Right	1,5	90	6,0	8,5	12	14,5	18	18,5	23	25
Angle	2,0	120	4,5	7,0	9,5	13,5	16,5	18	20	22
	2,5	150	3,5	5,0	7,0	10,0	11,5	14	16	19
P/N 50544	3,0	180	2,0	4,0	6,0	9,0	10,0	11,5	14	17
	3,5	210	1,5	3,0	5,0	6,5	8,0	9,5	11	13
	4,0	240	1,0	2,5	3,0	5,0	7,0	8,5	9,5	11

10 GPM	LIQUID FLOW		LIQUID PRESSURE (PSIG) at these Air Pressures (PSIG)							
	GPM	GPH	30	40	50	60	70	80	90	100
	2	120	28	37	45	54	62	70	77	84
	3	180	30	39,5	47,5	57	65	73	80	88
Right	4	240	31,5	41	50	60	68	75	82	90
Angle	5	300	34	43	52	63	71	78	85	93
	6	360	36	46	55	65	73	81	90	98
P/N 50529	7	420	39	49	58	68	77	85	93	101
	8	480	42	52	62	71	80	88	97	106
	9	540	46	55	65	75	85	94	104	113
	10	600	49	60	69	80	88	99	108	118

10 GPM	LIQUID FLOW		AIR FLOW (SCFM) at these Air Pressures (PSIG)							
	GPM	GPH	30	40	50	60	70	80	90	100
	2	120	42,5	56	60	64	68	73	77	85
	3	180	35	46	56	61	65	69	74	82
Right	4	240	32	43	50	57	61	66	72	80
Angle	5	300	27	33	45	54	57	63	70	78
	6	360	24	34	42	50	54	60	68	76
P/N 50529	7	420	22	32	39	47	51	58	66	73
	8	480	21	29	37	45	48	56	64	71
	9	540	20	27	34	43	46	54	61	68
	10	600	18	25	32	38	43	52	59	66

NOTE: The above capacity charts are all in US gallons liquid flow and SCFM air flow.

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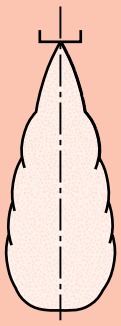

EXTERNAL MIX

AIR ATOMISING

FEATURES

- *Fine atomisation in a wide range of flow rates.*
- *Spray angle is wider than most external mix nozzles.*
- *Air Flow M³/Min is lower than most external mix nozzles.*
- *Good turndown ratios.*

SPRAY CHARACTERISTICS

- *With an external mix nozzle the air pressure can be varied to produce the desired atomisation without changing the liquid flow or pressure.*

CONSTRUCTION AND MATERIALS

- *Minimum wear from abrasive liquids because low liquid pressures are required.*
- *Nozzle can be separated from adaptor by means of concentric piping. Concentric pipe adaptors are optional and not included with the nozzle assembly. User can alter "C" dimension (see cutaway dimensional drawing) to any extended length by providing two concentric pipes with a coupling on one end of each. Both made up pipe/coupling lengths should be equal. The length is then the desired addition to "C" dimension.*
- *In-line nozzle is made of 303 Stainless Steel and adaptor is made of 316L Stainless Steel.*
- *Other materials available to special order.*

NOZZLE

ADAPTOR

External Mix In-Line Nozzle
Maximum Recommended Pressure: 14 Bar.G.
Maximum Recommended Temperature: 540°C.

Adaptor
Maximum Recommended Pressure: 14 Bar.G.
Maximum Recommended Temperature: 150°C.

CAPACITY CHART

NOZZLE NUMBER	LIQUID FLOW (LITRES PER MIN) AT THESE AIR PRESSURES (Bar.G.)													
	0,2	0,3	0,5	0,7	1,0	1,4	1,7	2,0	2,4	2,8	3,1	3,5	3,8	4,1
47283	-	-	-	3,22	4,16	4,73	5,3	5,67	5,94	6,05	-	-	-	-
47570	3,8	5,3	-	7,6	9,1	10,6	12,1	13,2	14,4	15,5	-	-	-	-
47980	-	-	7,6	9,1	11,4	13,2	15,1	16,7	17,8	19,3	20,4	21,2	22,3	23,5

NOZZLE NUMBER	AIR FLOW (M³ PER MIN) AT THESE AIR PRESSURES (Bar.G.)								
	1,4	2,0	2,8	3,5	4,1	4,9	5,5	6,2	7,0
47283	-	0,377	0,47	0,57	0,66	0,76	0,85	0,95	1,04
47570	-	0,99	1,16	1,27	1,47	1,67	1,9	2,1	-
47980	3,99	1,55	1,90	2,23	2,58	2,92	3,26	-	-

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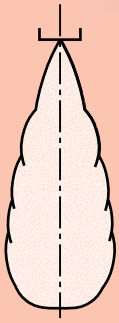
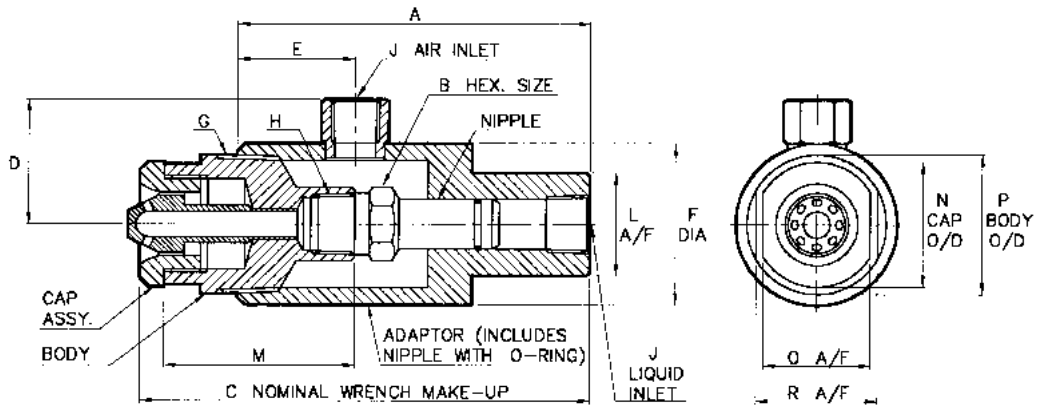
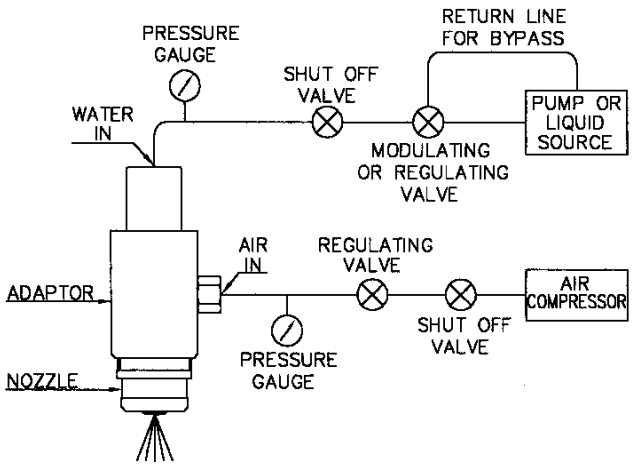




DIMENSIONS AND WEIGHTS

EXTERNAL MIX NOZZLE/ADAPTOR (mm)

Dimensions	*47980/32618*	*47570/32695*	*47283/32742*
A	120,7	120,7	90,2
B	15,9	15,9	12,7
C	146,1	142,7	108
D	39,6	39,6	32,6
E	58,4	58,4	38,1
F	41,3	41,3	28,6
L	31,8	31,7	19,1
M	53,8	54	38,1
N	31,8	25,3	20,4
O	28,6	22,2	19,1
P	37,8	26,7	23,6
R	33,3	27	21,4
G NPT (M)	1" - 11 1/2	3/4" - 14	1/2" - 14
H NPT (F)	1/4" - 18	1/4" - 18	1/8" - 27
J NPT (F)	1" - 14	1/2" - 14	1/4" - 18
Approx. Weight (g)	1120	1176	462



1. *Install nozzle as shown in schematic drawing. Make certain both pressure gauges are located as close to the nozzle as practical. Allow for pressure losses between gauges and nozzle when establishing settings. Shut-off valves are included for convenience, allowing nozzle removal without shutting down system.*

2. *The adaptor shown may be purchased from Delavan. It is not part of the nozzle.*

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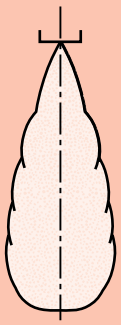

E Spray Drying

WELCOME TO DELAVAN

Meeting the **challenges** of new industries and *NEW markets*

DELAVAN®
Spray Technologies

DELAVAN
Spray Technologies

SECTION INDEX

Special purpose nozzles for use in the Spray Drying industry covering a wide variety of products.

	Nozzle Type	Spray Characteristics	Spray Angles	Basic Features	Flow Range. L/Hour @ 70 Bar.G.	Page No.
SPRAY DRYING	MINI-SDX	Uniform spray pattern with fine atomisation.	70° – 75°	1/4"-3/8" NPT Female threads. Hand tight assembly.	24,2 – 208,1	E.1-2
	SDX	Uniform spray pattern with fine atomisation.	45° – 90°	1/4"-3/4" NPT or BSPT Female threads.	76,5 – 2677	E.3
	SDX III	Uniform spray pattern with fine atomisation.	45° – 90°	1/4"-3/4" NPT or BSPT Female threads. Hand tight assembly.	76,5 – 2677	E.4
	MISC.	Bodies, Adaptors and Special Tools.	–	–	–	E.5
	CAPACITY CHART	Capacity charts for SDX and SDX III nozzle assemblies.	–	–	–	E.6-7
	KWIK-CHEK	Calibrated orifice gauge tool.	–	Three sizes available for 0,25-0,70mm, 0,60-3,30mm and 3,30-6,50mm	–	E.8

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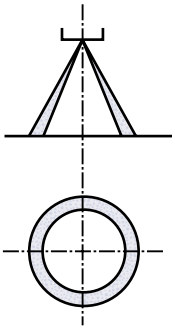


TYPE MINI-SDX

SPRAY DRYING

FEATURES

The unique swirl chamber is the heart of Delavan's Mini-SDX nozzle design. The single inlet spiral configuration produces a natural, free vortex pattern. Friction is minimised, permitting 10-20% lower operating pressure than conventional slotted distributor nozzles. This lengthens both pump and nozzle life.

SPRAY CHARACTERISTICS

- *The Mini-SDX nozzle produces a hollow cone spray pattern with relatively uniform droplet size and particle distribution.*
- *Nominal spray angle is 70º-75º.*
- *Flow rates on water at 69 Bar.G. range from as low as 24.2 litres/hour to as high as 208 litres/hour, depending on nozzle size.*

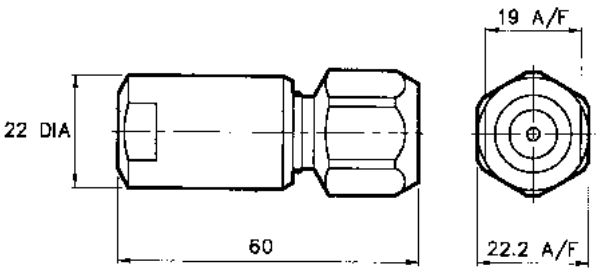
CONSTRUCTION AND MATERIALS

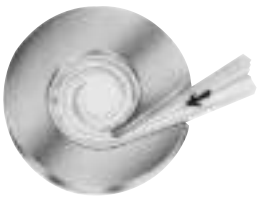
- *Five part construction (see part and material list below).*
- *The orifice disc, a pressed fit insert, is recessed to protect against damage if dropped or hit.*
- *Wrench tighten only when replacing orifice disc by pressing into nozzle body with assembly tool, otherwise no wrench tightening should be done during assembly. Wrench tightening may result in fracture of the swirl chamber.*
- *The patented single inlet swirl chamber minimises plugging and maximises particle uniformity.*
- *The Viton O-ring seal allows assembly and disassembly without tools.*
- *Only assembly tool (P/N 36386) is needed for changing the pressed fit orifice disc.*

ORDER EXAMPLE

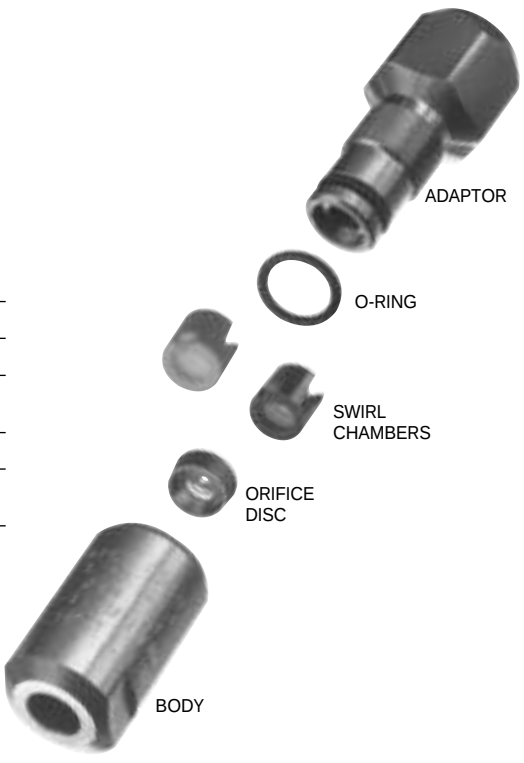
When ordering specify the following:
1) Assembly part number from capacity chart
or 2) Part numbers of individual items.

Max. Design Pressure: 350 Bar.G.
Max. Design Temperature: 150ºC.





UNIQUE SWIRL CHAMBER



MATERIALS AND WEIGHTS

DESCRIPTION	PART NO.	MATERIAL	WEIGHT (g)
Orifice Disc	902-XX*	Tungsten Carbide	8,5
Nozzle Body	32932	303 SS	62,4
Swirl Chamber Swirl Chamber	32933-X* 50791-X*	Ceramic Tungsten Carbide	7,1 9,9
O-Ring Seal	31352-013	Viton	2,3
¼" NPTF Adaptor ⅜" NPTF Adaptor	32931-1 32931-2	303 SS 303 SS	85,0 71,0

** Refer to capacity chart for dash number.*
NOTE: - 50791-1 is equivalent to 32933-1.

SEAL KIT (24 SEALS)

PART NO.	DESCRIPTION	MATERIAL
49109	Seal Kit	Viton

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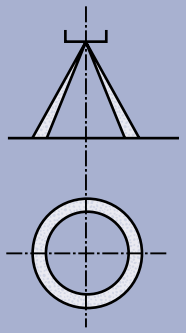

TYPE MINI-SDX

SPRAY DRYING

CAPACITY CHART

ASSEMBLY PART NUMBER	ADAPTOR	INLET THREAD (NPTF)	SWIRL CHAMBER	ORIFICE DISC	FLOW RATE IN LITRES/HOUR AT BAR.G.						APPROX. WEIGHT (g)
					34,5	69	138	207	276	345	
32936-47 32936-48	32931-1 32931-2	1/4 3/8	32933-4	902-18	17,4	24,2	34	42	48,4	53,7	133 119
32936-49 32936-50	32931-1 32931-2	1/4 3/8	32933-4	902-20	18,5	25,7	36,3	44,6	51,5	57,5	133 119
32936-51 32936-52	32931-1 32931-2	1/4 3/8	32933-4	902-22	20,4	28,4	40,1	49,2	56,8	63,6	133 119
32936-53 32936-54	32931-1 32931-2	1/4 3/8	32933-4	902-24	23,5	32,5	46,2	56,4	65,1	72,6	133 119
32936-55 32936-56	32931-1 32931-2	1/4 3/8	32933-4	902-27	26,9	37,8	53,3	65,5	75,7	84,7	133 119
32936-1 32936-2	32931-1 32931-2	1/4 3/8	32933-1	902-22	29,5	41,6	59,0	72,2	83,2	93,1	133 119
32936-3 32936-4	32931-1 32931-2	1/4 3/8	32933-1	902-24	34	47,3	67	82	94,6	105,9	133 119
32936-5 32936-6	32931-1 32931-2	1/4 3/8	32933-1	902-27	38,6	54,9	77,6	95	109,8	122,6	133 119
32936-7 32936-8	32931-1 32931-2	1/4 3/8	32933-1	902-30	44,3	62,4	88,2	108,2	124,8	140,1	133 119
32936-9 32936-10	32931-1 32931-2	1/4 3/8	32933-2	902-30	53,3	75,7	107,1	130,9	151,3	169,1	133 119
32936-11 32936-12	32931-1 32931-2	1/4 3/8	32933-2	902-33	60,1	85,1	120,3	147,5	170,2	190,3	133 119
32936-13 32936-14	32931-1 32931-2	1/4 3/8	32933-2	902-36	67	94,6	133,9	163,8	189,2	211,5	133 119
32936-15 32936-16	32931-1 32931-2	1/4 3/8	32933-2	902-38	70,7	100,3	141,9	173,3	200,5	224,4	133 119
32936-17 32936-18	32931-1 32931-2	1/4 3/8	32933-2	902-40	77,6	109,7	155,1	189,9	219,4	245,1	133 119
32936-19 32936-20	32931-1 32931-2	1/4 3/8	32933-2	902-42	80,2	113,5	160,8	196,7	227	253,5	133 119
32936-21 32936-22	32931-1 32931-2	1/4 3/8	32933-2	902-44	82,9	117,3	164,2	203,5	234,6	262,1	133 119
32936-23 32936-24	32931-1 32931-2	1/4 3/8	32933-2	902-46	87	123	174	213	245,9	275	133 119
32936-25 32936-26	32931-1 32931-2	1/4 3/8	32933-2	902-48	90,8	132,4	187,3	229,3	264,8	296,2	133 119
32936-27 32936-28	32931-1 32931-2	1/4 3/8	32933-2	902-50	97,6	138,1	195,2	239,1	276	308,7	133 119
32936-29 32936-30	32931-1 32931-2	1/4 3/8	32933-2	902-52	105,6	149,4	211,5	258,8	298,9	334,1	133 119
32936-31 32936-32	32931-1 32931-2	1/4 3/8	32933-2	902-54	109,7	155,1	219,4	268,6	310,2	346,9	133 119
32936-33 32936-34	32931-1 32931-2	1/4 3/8	32933-2	902-56	113,5	158,9	224,7	275,4	317,8	355,6	133 119
32936-37 32936-38	32931-1 32931-2	1/4 3/8	32933-3	902-50	117,3	169,5	239,5	293,6	339,0	378,3	133 119
32936-39 32936-40	32931-1 32931-2	1/4 3/8	32933-3	902-52	127,5	180,8	255,8	313,3	361,7	404,4	133 119
32936-41 32936-42	32931-1 32931-2	1/4 3/8	32933-3	902-54	135,1	191,1	270,1	331	382,1	427,1	133 119
32936-43 32936-44	32931-1 32931-2	1/4 3/8	32933-3	902-56	143,8	202,4	286,4	350,7	404,8	452,5	133 119
32936-45 32936-46	32931-1 32931-2	1/4 3/8	32933-3	902-58	147,2	208,1	294,3	360,6	416,2	465,3	133 119

All Spray Angles 70º-75º.

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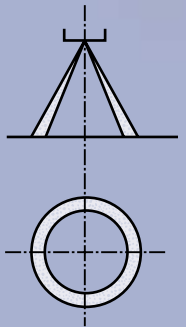


SPRAY CHARACTERISTICS

- *The SDX series nozzles produce a hollow cone spray pattern with uniform particle size distribution even at low operating pressures.*
- *Flow rates are certified to be within ±5% of rated capacity at 69 Bar.G. and within ±5º of rated spray angle when tested with water.*
- *Unique, patented single inlet, spiral swirl chamber offers increased nozzle life, improved product uniformity, density or solubility.*
- *Minimal friction due to nozzle design permitting 10-20% lower operating pressure than conventional slotted distributor nozzle for equivalent atomisation quality.*
- *Extended pump life due to lower operating pressure.*
- *Reduction in fine particles is possible due to lower pressure requirements.*

NOZZLE ASSEMBLY

ADAPTOR

CONSTRUCTION AND MATERIALS

- *Eight part construction (see part and material list below).*
- *Nozzle bodies, screw pins and adaptors are available in 316 Stainless Steel. Other materials available on special request.*
- *Orifice discs are easily removable and are available in Tungsten Carbide, Chrome Carbide and Ceramic as standard.*
- *Swirl chambers are standard in Tungsten Carbide, Hardened Stainless Steel or Ceramic.*
- *End plates are available in Tungsten Carbide, Chrome Carbide and Ceramic.*
- *Combined swirl chamber/end plate is available in Tungsten Carbide only.*
- *Seals are available in Nylon, PTFE, Copper, Hard Fibre and Aluminium.*

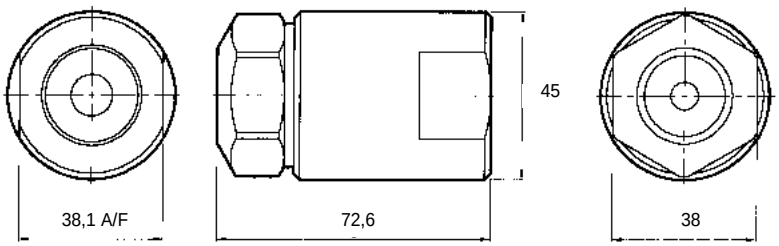
ORDER EXAMPLE

Please indicate all component parts and materials when ordering.

Max. Design Pressure: 500 Bar.G.
Max. Design Temperature: 540ºC (Metal Seals), 150ºC (Other Seals).

WEIGHTS

Assembly Size	*Weight (g)*
1/4"	680
3/8"	666
1/2"	640
3/4"	612

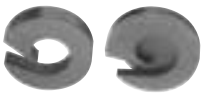


COMPONENT PARTS, MATERIALS AND WEIGHTS

BODY

ORIFICE SEAL

ORIFICE DISC



SWIRL CHAMBERS

END PLATE

SCREW PIN

BODY SEAL

ADAPTOR

Description	*Part No.*	*Material*	*Weight (g)*
Body	29776	316 SS	153,0
Orifice Seal	29772-1 29772-3 29772-6 29772-7 29772-4	Nylon Aluminium PTFE Hard Fibre Copper	– – – – –
Orifice Disc	703-XXX* 704-XXX 608-XXX	Tungsten Carbide Chrome Carbide Ceramic	11,4 11,4 –
Swirl Chamber Swirl Chamber Swirl Chamber Swirl Chamber with End Plate combined	29794-XX* 31212-XX 30655-XX WO1380-XX	Hardened SS Tungsten Carbide Ceramic Tungsten Carbide	8,5 17,0 – 28,4
End Plate	W05366 29953 34430	Tungsten Carbide Chrome Carbide Ceramic	11,4 11,4 –
Screw Pin	29777	316 Stainless Steel	91,0
Body Seal	29773-1 29773-3 29773-6 29773-7 29773-4	Nylon Aluminium PTFE Hard Fibre Copper	– – – – –
¼" BSPT Female Adaptor ⅜" BSPT Female Adaptor ½" BSPT Female Adaptor ¾" BSPT Female Adaptor	29775-9 29775-11 29775-13 29775-15	316 Stainless Steel	370,0

** Specify orifice size and swirl chamber suffix from capacity chart.*

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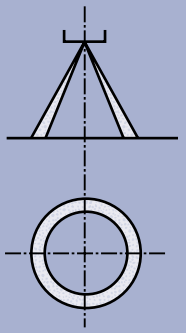


TYPE SDX III

SPRAY DRYING

SPRAY CHARACTERISTICS

- *The SDX series nozzles produce a hollow cone spray pattern with uniform particle size distribution even at low operating pressures.*
- *Flow rates are certified to be within ±5% of rated capacity at 65 Bar.G. and within ±5º of rated spray angle when tested with water.*
- *Unique, patented single inlet spiral swirl chamber offers increased nozzle life, improved product uniformity, density or solubility.*
- *Minimal friction due to nozzle design permitting 10-20% lower operating pressure than conventional slotted distributor nozzle for equivalent atomisation quality.*
- *Extended pump life due to lower operating pressure.*
- *Reduction in fine particles is possible due to lower pressure requirements.*

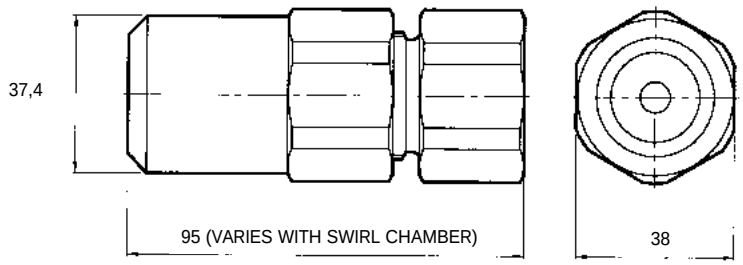
CONSTRUCTION AND MATERIALS

- *Six part construction (see part and material list below).*
- *O-ring seals allow assembly and disassembly without tools.*
- *Body and adaptors are produced from hexagon barstock with other materials in round bar with flats.*
- *Nozzle bodies and adaptors are available in 316 Stainless Steel. Other materials are available on special request.*
- *Orifice discs are easily removable and are available in Tungsten Carbide, Chrome Carbide and Ceramic.*
- *Swirl chambers are standard in Tungsten Carbide, Hardened Stainless Steel or Ceramic.*
- *End plates are available in Tungsten Carbide and Ceramic.*
- *Combined swirl chamber/end plate is available in Tungsten Carbide only.*
- *O-Rings are in Silicone or Viton.*

Max. Design Pressure: 350 Bar.G.
Max. Design Temperature: 150ºC.

ORDER EXAMPLE

Please indicate all component parts and materials when ordering.



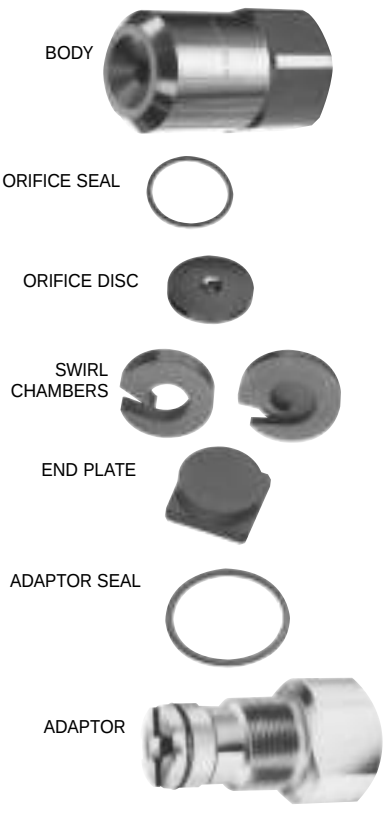
WEIGHTS

Assembly Size	*Weight (g)*
1/4"	743
3/8"	729
1/2"	714
3/4"	700

COMPONENT PARTS, MATERIALS AND WEIGHTS

Description	*Part No.*	*Material*	*Weight (g)*
Body	W11300	316 Stainless Steel	276
Orifice O-Ring	31351-66 31352-016	Silicone Viton	– –
Orifice Disc	703-XXX* 704-XXX 608-XXX	Tungsten Carbide Chrome Carbide Ceramic	11,4 11,4 –
Swirl Chamber Swirl Chamber Swirl Chamber Swirl Chamber with End Plate Combined	29794-XX* 31212-XX 30655-XX WO1380-XX	Hardened Stainless Steel Tungsten Carbide Ceramic Tungsten Carbide	8,5 17 – 28,4
End Plate	38331** W11430	Tungsten Carbide Ceramic	42,5 –
Adaptor O-Ring	31351-65 31351-32	Silicone Viton	– –
¼" BSPT Female Adaptor ⅜" BSPT Female Adaptor ½" BSPT Female Adaptor ¾" BSPT Female Adaptor	W11301-1 W11301-2 W11301-3 W11301-4	316 Stainless Steel	369 354 340 312

** Specify orifice size and swirl chamber suffix from capacity chart.*
*** End plate not required with W01380 swirl chamber.*



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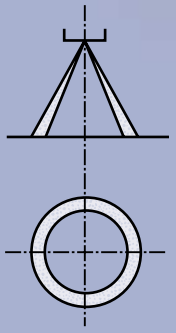


The following are various special bodies, adaptors and tools that are available for the SDX nozzle range.

CONE FACED BODIES

These are designed to prevent build up of sprayed product on the nozzle face and are available with cone angles of 70°, 80° and 90°. Special angles are available on request.

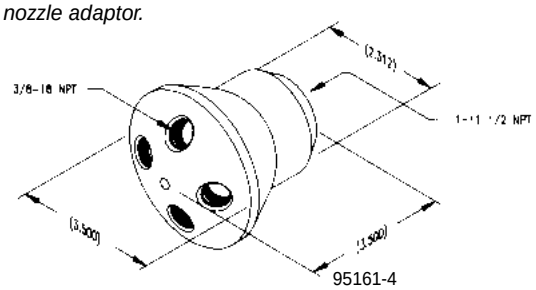
SDX III TYPE

CONE FACED BODY PART NUMBERS

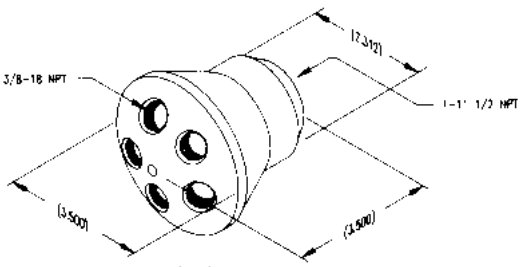
Nozzle Type	*70°*	*80°*	*90°*
SDX	20319-1	20319-2	20319-3
SDXIII	W11882-1	W11882-2	W11882-3

MULTIPLE NOZZLE ADAPTORS

Where spray dryers permit, special adaptors are available to provide multiple nozzle installations. These have a 1" NPTF inlet with 3/8" NPTF outlets so that nipples can be fitted on to which the nozzles will be mounted. The part numbers are 95161-4 for the four nozzle adaptor and 95161-5 for the five nozzle adaptor.



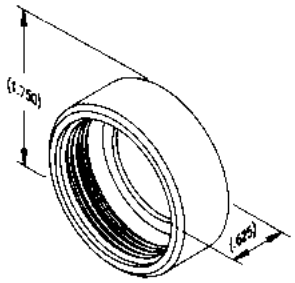
95161-4



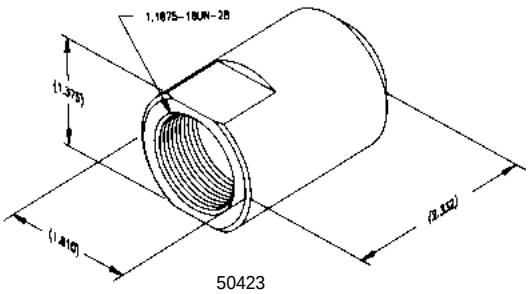
95161-5

THREAD GUARDS

These are designed to protect the threads and sealing surfaces during cleaning of the SDX bodies and SDX III adaptors. The part numbers are 50519 for the SDX and 50423 for the SDX III.



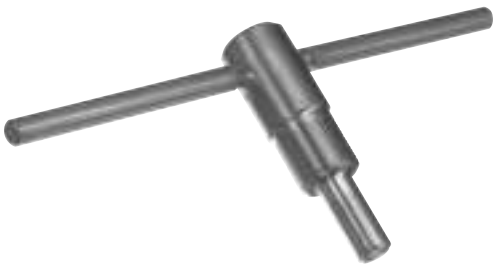
50519



50423

ASSEMBLY TOOLS

Part number 36386 for changing Mini-SDX orifice discs.



36386

Part number W15307 for insertion and removal of SDX and SDX III swirl chambers.

W15307

There is an additional tool number W15336 which is designed for removal of orifice discs which have become embedded with product.

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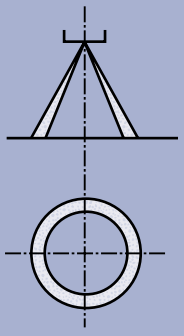

CAPACITY CHART - SDX & SDX III*

SWIRL CHAMBER SUFFIX	ORIFICE DISC	SPRAY ANGLE AT 69 Bar.G.	FLOW RATE IN LITRES/HOUR AT Bar.G.										
			15	25	50	75	100	125	150	200	300	400	500
SB	703-33	70	37,5	47,7	65,8	79,2	89,9	99,5	108	123	149	171	188
SA	703-38	80											
SC	703-34	60											
SB	703-40	75	45,9	58,1	81,8	98,3	112	124	135	156	187	216	240
SA	703-48	85											
SD	703-35	60											
SC	703-39	70	54,6	70,0	98,3	118	135	150	164	189	228	264	293
SA	703-59	85											
SE	703-35	50											
SD	703-39	65	63,4	81,5	115	136	159	179	193	225	271	312	347
SB	703-54	80											
SA	703-69	90											
SE	703-38	55											
SD	703-48	65	71,9	92,9	131	158	181	202	220	253	307	358	394
SC	703-50	75											
SB	703-62	85											
SF	703-38	50											
SE	703-41	60	80,7	106	146	178	205	227	248	285	347	401	439
SC	703-54	75											
SB	703-69	85											
SF	703-40	50											
SE	703-44	60											
SD	703-52	70	89,1	116	164	199	229	257	279	321	390	451	508
SC	703-60	80											
SB	703-77	90											
SF	703-43	50											
SE	703-48	60	97,5	126	179	216	248	279	303	351	428	497	554
SD	703-56	70											
SC	703-66	80											
SG	703-40	45											
SF	703-45	55	106	138	196	237	275	307	332	384	474	546	612
SE	703-51	65											
SC	703-71	80											
SG	703-45	45											
SF	703-51	55											
SE	703-58	65	124	160	229	277	321	360	390	451	559	646	722
SD	703-69	75											
SC	703-83	85											
SG	703-49	50											
SF	703-56	60											
SE	703-64	70	141	182	260	315	364	404	439	512	627	722	811
SD	703-76	80											
SC	703-94	90											
SG	703-53	50											
SF	703-60	60											
SE	703-70	70	158	205	293	356	409	459	505	585	711	811	929
SD	703-83	80											
SC	703-107	90											
SG	703-57	55											
SF	703-65	65	176	228	327	394	454	514	559	646	795	921	1032
SD	703-92	80											
SH	703-54	45											
SG	703-60	55	192	247	358	436	501	562	615	715	895	1013	1139
SF	703-70	65											
SE	703-83	75	192	247	358	436	501	562	615	715	895	1013	1139
SD	703-100	85											
SH	703-57	45											
SG	703-63	55											
SF	703-75	65	211	274	390	474	550	616	669	776	955	1101	1242
SE	703-89	75											
SD	703-108	85											

** Maximum Operating Pressure for SDX III = 350 Bar.G. (Available up to 500 Bar.G. on request)* *

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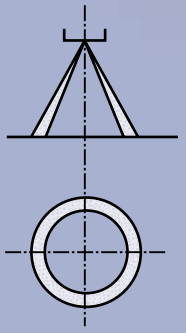

CAPACITY CHART - SDX & SDX III*

SWIRL CHAMBER SUFFIX	ORIFICE DISC	SPRAY ANGLE AT 69 Bar.G.	FLOW RATE IN LITRES/HOUR AT Bar.G.										
			15	25	50	75	100	125	150	200	300	400	500
SH	703-66	50											
SG	703-75	60											
SF	703-89	70	262	340	486	593	681	766	833	968	1170	1377	1548
SE	703-108	80											
SD	703-133	90											
SH	703-75	50											
SG	703-86	65	315	407	585	715	826	929	1013	1174	1449	1675	1881
SF	703-102	75											
SE	703-125	85											
SI	703-76	45											
SH	703-83	55											
SG	703-97	65	367	477	681	829	955	1086	1182	1365	1690	1950	2187
SF	703-114	75											
SE	703-141	85											
SI	703-83	50											
SH	703-90	60	420	546	780	948	1097	1232	1338	1544	1912	2218	2486
SG	703-106	70											
SF	703-127	80											
SI	703-88	50											
SH	703-99	60	474	612	880	1087	1238	1399	1518	1771	2180	2523	2829
SG	703-119	70											
SF	703-141	80											
SJ	703-85	45											
SI	703-95	55											
SH	703-106	65	524	683	975	1185	1369	1555	1683	1950	2409	2791	3135
SG	703-128	75											
SF	703-155	85											
SJ	703-94	45											
SI	703-106	55	608	798	1139	1384	1606	1813	1968	2275	2875	3269	3670
SH	703-120	65											
SG	703-144	75											
SJ	703-103	50											
SI	703-115	60	696	909	1292	1579	1827	2050	2236	2581	3193	3709	4167
SH	703-133	70											
SJ	703-110	50											
SI	703-128	60	748	1030	1460	1790	2064	2303	2523	2925	3613	4206	4722
SH	703-145	70											
SJ	703-118	55											
SI	703-135	65	872	1136	1625	1988	2294	2570	2810	3250	4015	4664	5199
SH	703-156	75											
SJ	703-127	55	968	1257	1790	2176	2514	2818	3058	3555	4392	5047	5658
SI	703-149	65											
SJ	703-135	60	1063	1384	1957	2370	2745	3030	3326	3861	4760	5467	5884
SI	703-155	70											
SJ	703-151	60	1154	1495	2122	2561	2963	3303	3594	4167	5085	5850	6499
SK	703-126	50											
SJ	703-158	65											
SK	703-138	55	1257	1616	2294	2771	3204	3596	3831	4473	5543	6385	7169
SM	703-113	40											
SJ	703-185	70											
SK	703-150	55	1519	1961	2773	3397	3922	4386	4804	5547	6794	7845	8770
SM	703-128	45											
SK	703-160	60	1766	2280	3225	3950	4561	5099	5586	6450	7900	9122	10190
SM	703-143	50											
SM	703-160	50	2208	2851	4032	4938	5702	6375	6983	8064	9876	11400	12700

*

** Maximum Operating Pressure for SDX III = 350 Bar.G. (Available up to 500 Bar.G. on request)*

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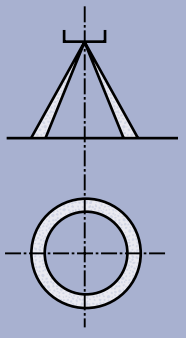

TYPE KWIK-CHEK

SPRAY DRYING

The Kwik-Chek orifice gauges are designed for the rapid measurement of small hole diameters. Models are available to cover a range of hole diameters from 0,010" to 0,255" (0,25mm-6,50mm).
These gauges work on the principle of directly transferring diameter measurements from a sliding, tapered needle to a linear scale readout graduated in 0,001" or 0,02mm.

FEATURES

- *No skill required. Untrained personnel can make fast and accurate measurements.*
- *Rapid and simple calibration. A setting master is provided with each gauge. Permits rapid periodic check on calibration and field readjustment, if necessary, by shop personnel.*
- *Magnified, direct reading scale permits easy reading of hole diameters to nearest 0,001" or 0,02mm.*
- *Precision ground tapered needle is made of 52-100 Steel and Chrome plated for maximum wear resistance.*
- *Positive Clutch which locks needle and scale at exact dimension of hole being measured.*
- *Convenient pocket size and weight makes these gauges ideal for roving inspectors and engineers.*

ORDER EXAMPLE

Please specify the model number and Inch or Metric size when ordering.

INDIVIDUAL GAUGES

Model Number	Hole Size Range	
	Inches	Metric
10	0,010"-0,028"	0,25mm-0,70mm
20	0,025"-0,130"	0,60mm-3,30mm
30	0,130"-0,255"	3,30mm-6,50mm

Note:- *Kwik-Chek orifice gauge is not suitable for Mini-SDX.*

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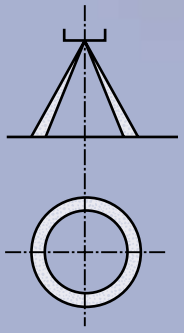

F Cleaning In Place

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SECTION INDEX

DELAVAN
Spray Technologies

CLEANING IN PLACE

TYPICAL SPRAY PATTERN

Various types of fixed and rotating spray heads are specified in this section and are designed to suit a wide range of applications and installations.

Nozzle Type	Spray Characteristics	Basic Features	Flow Range. L/Min @ 2 Bar.G.	Page No.
CIP 21	Full 360° 'ball' type spray pattern.	1½" BSPT Female thread.	45,78 – 335,2	F.1
CIP 15	230° or 360° 'ball' type spray pattern.	1½" BSPT Female thread.	32,7 – 184,8	F.2
DWN 19	Full 360° 'ball' type spray pattern.	¾" and 1" BSPP Female thread.	3,19 – 79,78	F.3
CL 7	180° 'ball' type spray pattern.	¾"-2" BSPP Female thread.	1,35 – 270,8	F.4
KN 9	Full 360° 'ball' type spray pattern.	⅜"-1½" BSPT Male thread.	3,19 – 191,4	F.5
CLFD 13	Full 360° 'ball' type spray pattern.	½" and ¾" BSPT Male and ½" to 1½" BSPP Female thread.	24,2 – 237,0	F.6
PU	Coarse atomisation in a 164° Hollow Cone spray pattern.	¾" BSPT Male thread with ¾" BSPP Male thread for installation.	22,0 – 48,4	F.7
MINI	Rotating spray head 180° down, 270° up and full 360° 'ball' type spray pattern.	½" and ¾" BSPT and NPT Female thread, clip-on and welded connections.	66 – 110	F.8-9
MAXI	Rotating spray head 180° down, 270° up and full 360° 'ball' type spray pattern.	1¼" BSPT and NPT Female thread, clip-on and welded connections.	167 – 258	F.10-11
TJ 20 G	Rotating spray head giving a full 360° indexed cleaning pattern.	1" BSPT or NPT Female thread.	108 – 193*	F.12-13
TZ-74	Rotating spray head giving a full 360° indexed cleaning pattern.	1½" BSPT or NPT Female thread.	217 – 358*	F.14-15
TZ-67, 79 & 68	Rotating spray head giving a full 360° indexed cleaning pattern.	See specification.	See specification.	F.16
TZ-82F, 65 & 75	Rotating spray head giving a full 360° indexed cleaning pattern.	See specification.	See specification.	F.17
TZ-89	Rotating spray head giving a full 360° indexed cleaning pattern.	See drawings.	See specification.	F.18
Others	Various fixed spray heads for specific applications.	See drawings.	Contact Customer Service Team.	F.18

* Flow quoted at 5 Bar.G.

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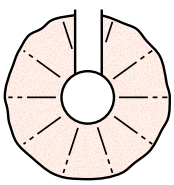


SPRAY CHARACTERISTICS

- *Relatively uniform distribution at all pressures.*
- *Available in a range of flow capacities.*
- *Produces a full spray pattern from a multiple orifice body, with 360° spherical cover for tanks up to 3 mtrs in diameter.*

CONSTRUCTION AND MATERIALS

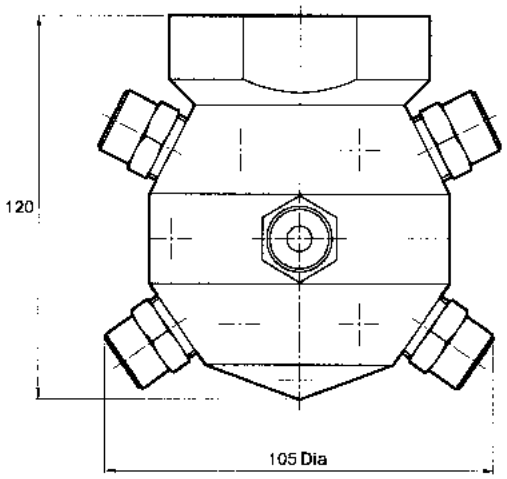
- *Manufactured with a 1½" BSPT Female threaded body fitted with 21 removable solid cone spray nozzles.*
- *Made in Stainless Steel, Gunmetal/Brass as standard.*
- *Other nozzles can be fitted to give non-standard spray patterns.*
- *Other materials available to special order.*

ORDER EXAMPLE

1½" CIP21-500 Stainless Steel.

APPROX. DIAMETER OF COVERAGE (mm)

Assembly Number	Pressure Bar. G.		
	1,0	3,0	5,0
CIP21-100/200	1000	1900	2000
CIP21-250/400	1200	2400	2500
CIP21-500/650	1500	2990	3100
CIP21-750/1000	1700	3300	3500



Approx. weight of assembly = 1.5Kg

Maximum Recommended Pressure: 35 Bar.G. (Metal), 7 Bar.G. (Plastic).

CAPACITY CHART

ASSEMBLY NUMBER	NOZZLES	FLOW RATE IN LITRES/MIN AT Bar.G.							
		0,7	1,0	2,0	3,0	4,0	5,0	6,0	7,0
1.½" CIP21-150	¼" BIM 6	-	31,50	45,78	55,64	60,26	67,37	71,61	74,34
1.½" CIP21-200	¼" BIM 8	-	47,87	67,83	83,98	95,55	104,8	112,9	120,1
1.½" CIP21-250	¼" BIM 12	-	71,61	95,54	111,2	124,1	138,7	147,4	159,1
1.½" CIP21-300	⅜" BIM 12	58,59	69,72	99,33	122,4	138,6	154,9	163,5	171,5
1.½" CIP21-400	⅜" BIM 16	75,18	92,61	128,9	152,6	167,9	187,7	199,7	210,8
1.½" CIP21-500	⅜" BIM 22	107,3	131,1	174,7	205,3	229,1	256,1	277,8	298,9
1.½" CIP21-650	⅜" BIM 27	126,8	155,8	211,9	258,7	286,4	320,1	337,2	366,6
1.½" CIP21-750	⅜" BIM 32	152,1	186,5	258,7	303,2	335,1	374,6	405,1	428,2
1.½" CIP21-1000	⅜" BIM 42	203,1	242,8	335,2	405,1	449,6	478,3	524,0	574,8

CLEANING IN PLACE

TYPE CIP 21

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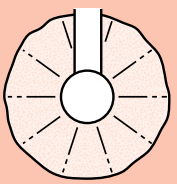


TYPE CIP 15

CLEANING IN PLACE

CIP 15 ASSEMBLY

SPRAY CHARACTERISTICS

- *Relatively uniform distribution at all pressures.*
- *Available in a range of flow capacities.*
- *The CIP15 is used in place of a standard full cone nozzle, where finer atomisation than a single nozzle might normally provide is required.*
- *Normal spray angle is 230°.*
- *For full 360° coverage with type CIP15 the assembly is identified with the suffix 'FC'.*

CONSTRUCTION AND MATERIALS

- *Manufactured with a 1½" BSPT Female threaded body fitted with 15 removable solid cone spray nozzles.*
- *Made in Stainless Steel, Gunmetal/Brass as standard.*
- *Other nozzles can be fitted to give non-standard spray patterns.*
- *Other material available to special order.*

ORDER EXAMPLE

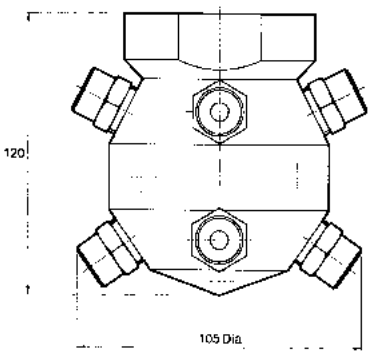
1½" CIP15-150 Stainless Steel.
1½" CIP15-150-FC P.T.F.E.

Approx. weight of assembly = 1.34Kg

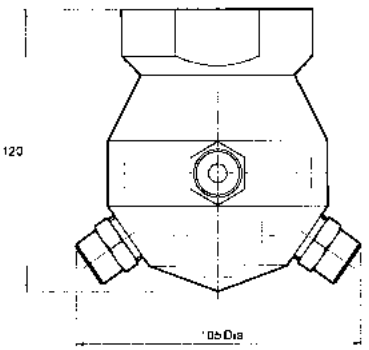
Maximum Recommended Pressure: 35 Bar.G. (Metal), 7 Bar.G. (Plastic).

APPROX. DIAMETER OF COVERAGE (mm)

Assembly Numbers	Pressure Bar. G.		
	1,0	3,0	5,0
CIP 15-FC 100/190	800	1550	1750
CIP 15-FC 250/380	1000	1850	2100
CIP 15-FC 430/550	1200	2250	2600
CIP 15- 100/200	900	1600	1900
CIP 15- 275/380	1050	1900	2250
CIP 15- 470/550	1400	2500	2950



CIP 15 - FC



CIP 15

CAPACITY CHART

ASSEMBLY NUMBER	NOZZLES	FLOW RATE IN LITRES/MIN AT Bar.G.							
		0,7	1,0	2,0	3,0	4,0	5,0	6,0	7,0
1.½" CIP 15 -100	1/4" BIM 6	18,75	22,50	28,20	32,70	39,75	44,44	51,15	53,10
1.½" CIP 15 -140	1/4" BIM 8	27,90	34,20	42,60	48,15	60,00	67,08	80,70	85,80
1.½" CIP 15 -200	1/4" BIM 12	41,85	51,15	61,35	68,25	79,95	89,39	105,30	113,70
1.½" CIP 15 -275	3/8" BIM 16	53,70	66,15	79,50	92,10	109,05	121,92	142,65	150,60
1.½" CIP 15 -350	3/8" BIM 20	66,90	81,90	97,50	113,10	135,90	151,94	178,80	189,45
1.½" CIP 15 -380	3/8" BIM 22	76,65	93,60	112,65	124,80	146,70	164,02	198,45	213,60
1.½" CIP 15 -470	3/8" BIM 27	90,60	111,30	135,15	151,50	184,80	206,61	240,90	262,05
1.½" CIP 15 -550	3/8" BIM 32	108,75	133,20	162,15	184,80	216,60	242,17	289,35	306,00
1.½" CIP 15 -100 FC	1/4" BNM 6	18,75	22,50	32,70	39,75	43,05	48,13	51,15	53,10
1.½" CIP 15 -140 FC	1/4" BNM 8	27,90	34,20	48,45	60,00	68,25	76,31	80,70	85,80
1.½" CIP 15 -190 FC	1/4" BNM 11	41,85	48,45	64,65	77,25	81,75	91,40	100,95	111,45
1.½" CIP 15 -250 FC	1/4" BNM 15	55,05	67,50	83,85	99,60	108,60	121,42	130,50	137,40
1.½" CIP 15 -300 FC	1/4" BNM 18	66,00	80,85	100,50	119,40	130,20	145,57	156,45	164,70
1.½" CIP 15 -380 FC	3/8" BNM 22	83,70	102,60	127,50	151,50	165,15	184,64	198,45	209,10
1.½" CIP 15 -430 FC	3/8" BNM 25	90,60	108,60	139,80	165,15	184,80	206,61	219,75	236,40
1.½" CIP 15 -550 FC	3/8" BNM 32	115,50	137,25	178,80	214,50	236,70	264,64	283,50	298,50

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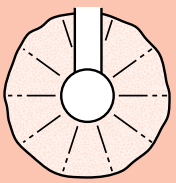


TYPE DWN19

CLEANING IN PLACE

SPRAY CHARACTERISTICS

- *Produces a solid cone type spray pattern from a multiple orifice body.*
- *Relatively uniform distribution at all pressures.*
- *Atomisation is finer than with a single nozzle of the same capacity.*
- *Available in a range of flow capacities and thread sizes.*
- *Produces a 360° 'Ball' shaped spray pattern.*

CONSTRUCTION AND MATERIALS

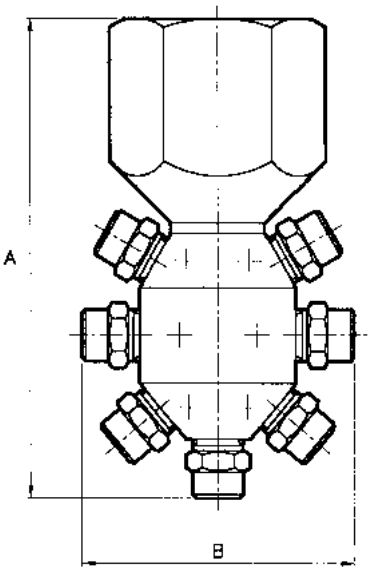
- *The cluster consists of a body fitted with 19 removable solid cone spray nozzles.*
- *Available with ¾" and 1" BSPP Female threads.*
- *Different spray nozzles can be installed to give non-standard spray patterns.*
- *Available in Stainless Steel and Brass as standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

¾" DWN19-25 Stainless Steel.
1" DWN19-50 Brass.

DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A	B Dia	Weight (kg)
¾"	100	57,0	0,66
1"	100	57,0	0,63



Maximum Recommended Pressure: 35 Bar.G. (Metal) 7 Bar.G. (Plastic).

CAPACITY CHART

ASSEMBLY NUMBER	NOZZLES	BSPP THREAD SIZE ¾"	BSPP THREAD SIZE 1"	FLOW RATE IN LITRES/MIN AT Bar.G. 0,7	1,0	2,0	3,0	4,0	5,0	6,0	7,0
DWN19-10	⅛" BL 3			-	2,25	3,19	3,91	4,50	5,05	5,53	5,88
DWN19-15	⅛" BL 4			-	3,38	4,78	5,86	6,76	7,56	8,29	8,88
DWN19-20	⅛" BL 6			-	4,51	6,37	7,81	9,19	10,08	11,04	11,74
DWN19-25	⅛" BL 7			-	5,64	7,98	9,77	11,27	12,61	13,80	14,69
DWN19-50	⅛" BL 14			9,44	11,28	15,98	19,55	22,55	25,24	27,64	29,58
DWN19-100	⅛" BL 30			18,88	22,57	31,92	39,10	45,14	50,48	55,25	58,75
DWN19-125	⅛" BIM 6			23,60	28,21	39,89	48,86	56,41	63,08	69,07	73,42
DWN19-150	⅛" BIM 7			28,32	33,85	47,87	58,63	67,69	75,69	82,88	88,11
DWN19-200	⅛" BIM 8			37,76	45,14	63,83	78,18	90,27	100,9	110,2	117,9
DWN19-250	⅛" BIM 12			47,19	56,41	79,78	97,72	112,8	126,1	138,1	146,8

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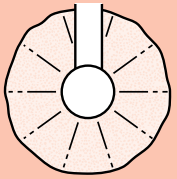


TYPE CL7

CLEANING IN PLACE

SPRAY CHARACTERISTICS

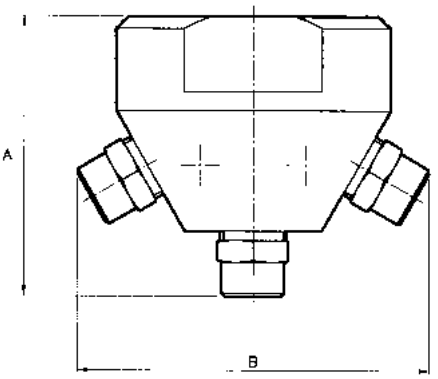
- *Produces a solid cone type spray pattern from a multiple orifice body.*
- *Relatively uniform distribution at all pressures.*
- *Atomisation is finer than with a single nozzle of the same capacity.*
- *Available in a range of flow capacities.*

CONSTRUCTION AND MATERIALS

- *The cluster consists of a body fitted with 7 removable solid cone spray nozzles.*
- *Available with ¾"-2", BSPP Female threads only.*
- *Different spray nozzles can be installed to give non-standard spray patterns.*
- *Made in Brass and Stainless Steel as standard.*
- *Other materials available to special order.*

ORDER EXAMPLE

¾" CL7-135, Stainless Steel.
1½" CL7-350, Brass.



DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A	B Dia	Weight (kg)
¾"	43,25	59,0	0,33
1"	55,00	67,5	0,66
1¼"	80,00	100,0	1,63
1½"	80,00	110,0	1,66
2"	90,00	130,0	2,10

Maximum Recommended Pressure: 35 Bar.G. (Metal), 7 Bar.G. (Plastic).

CAPACITY CHART

ASSEMBLY NUMBER	NOZZLES	BSPP THREAD SIZE ¾"	1"	1¼"	1½"	2"	FLOW RATE IN LITRES/MIN AT Bar.G. 0,7	1,0	2,0	3,0	4,0	5,0	6,0	7,0
CL7-4	⅛" BL 3						-	0,96	1,35	1,66	1,91	2,13	2,34	2,53
CL7-6	⅛" BL 4						-	1,27	1,81	2,22	2,55	2,85	3,13	3,38
CL7-8	⅛" BL 6						-	1,92	2,70	3,32	3,82	4,27	4,68	5,06
CL7-10	⅛" BL 7						-	2,23	3,16	3,87	4,47	5,00	5,47	5,91
CL7-20	⅛" BL 14						3,74	4,47	6,32	7,75	8,94	10,00	10,95	11,78
CL7-40	⅛" BL 30						7,76	9,27	12,48	15,48	18,51	19,62	21,05	22,76
CL7-50	⅛" BIM 6						8,75	10,50	15,26	18,55	20,09	22,46	23,87	24,78
CL7-75	⅛" BIM 8						13,02	15,96	22,61	28,00	31,85	35,60	37,66	40,04
CL7-100	¼" BIM 12						19,53	23,87	31,85	37,10	41,37	46,25	49,14	53,06
CL7-135	¼" BIM 16						25,06	30,87	42,98	50,89	56,00	62,61	66,57	70,28
CL7-160	¼" BIM 20						31,22	38,22	52,78	63,42	70,00	78,26	83,44	88,41
CL7-200	¼" BIM 25						39,03	47,78	65,98	79,28	87,50	97,83	104,3	110,5
CL7-250	⅜" BIM 32						50,57	62,16	86,24	101,9	111,7	124,9	135,0	140,3
CL7-300	⅜" BIM 37						58,67	71,86	99,69	117,3	129,1	144,3	156,0	162,2
CL7-350	½" BIM 42						67,69	82,74	111,7	135,0	150,0	167,7	174,6	191,6
CL7-400	½" BIM 49						81,34	99,68	130,8	161,9	175,3	196,0	205,0	227,6
CL7-500	½" BIM 63						101,1	119,5	166,9	202,2	225,5	252,1	269,4	289,1
CL7-600	½" BIM 77						113,2	135,4	191,4	234,4	270,6	302,6	331,4	325,4
CL7-700	¾" BIM 89						140,0	166,2	235,4	280,0	311,8	338,0	370,4	393,8
CL7-825	¾" BIM 102						146,4	171,6	270,8	323,8	350,0	384,0	420,7	451,8

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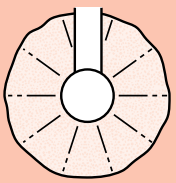


SPRAY CHARACTERISTICS

- *Produces a solid cone type spray pattern from a multiple orifice body.*
- *Relatively uniform distribution at all pressures, 360° coverage.*
- *Atomisation is finer than with a single nozzle of the same capacity.*
- *Available in a range of flow capacities and thread sizes.*

CONSTRUCTION AND MATERIALS

- *The cluster consists of a body fitted with 9 removable solid cone spray nozzles.*
- *Available with ⅜" - 1½" Male BSPT thread connection only.*
- *Different spray nozzles can be installed to give non-standard spray patterns.*
- *Made in Brass and Stainless Steel as standard.*
- *Other materials available to special order.*

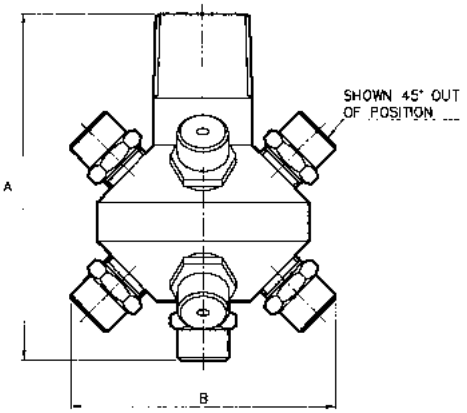
ORDER EXAMPLE

¾" KN9-30, Stainless Steel.
1½" KN9-300, Brass.

DIMENSIONS AND WEIGHTS

Thread Size	Dimensions (mm) A	B Dia	Weight (kg)
⅜"	65,00	47,00	0,74
½"	91,00	69,00	0,97
¾"	91,00	71,00	1,15
1"	87,00	85,00	1,50
1¼"	108,0	95,00	1,79
1½"	146,0	112,0	2,00

Maximum Recommended Pressure: 35 Bar.G. (Metal), 7 Bar.G. (Plastic).



CAPACITY CHART

ASSEMBLY NUMBER	NOZZLES	BSPT THREAD SIZE 3/8"	1/2"	3/4"	1"	1¼"	1½"	FLOW RATE IN LITRES/MIN AT Bar.G. 0,7	1,0	2,0	3,0	4,0	5,0	6,0	7,0
KN9-10	⅛" BL 6	■						-	2,25	3,19	3,91	4,50	5,05	5,53	5,88
KN9-15	⅛" BL 9	■						-	3,38	4,78	5,86	6,76	7,56	8,29	8,88
KN9-20	⅛" BL 12	■	■					-	4,51	6,37	7,81	9,19	10,08	11,04	11,74
KN9-25	⅛" BL 14	■	■					-	5,64	7,98	9,77	11,27	12,61	13,80	14,69
KN9-30	⅛" BL 18	■	■	■				5,66	6,76	9,56	11,72	13,52	15,12	16,58	17,76
KN9-40	⅛" BL 25	■	■	■				7,54	9,02	12,74	15,62	18,38	20,16	22,08	23,48
KN9-50	¼" BNM 6		■	■				9,44	11,28	15,98	19,55	22,55	25,24	27,64	29,58
KN9-75	¼" BNM 7		■	■				14,16	16,92	23,97	29,33	33,83	37,86	41,46	44,37
KN9-100	¼" BNM 8			■	■			18,88	22,57	31,92	39,10	45,14	50,48	55,25	58,75
KN9-120	¼" BNM 11			■	■			25,11	29,07	38,79	46,35	49,05	55,29	60,57	66,87
KN9-150	¼" BNM 16			■	■			28,32	33,85	47,87	58,63	67,69	75,69	82,88	88,11
KN9-200	⅜" BNM 20				■	■		37,76	45,14	63,83	78,18	90,27	100,9	110,2	117,9
KN9-250	⅜" BNM 25				■	■		47,19	56,41	79,78	97,72	112,8	126,1	138,1	146,8
KN9-300	½" BNM 32					■	■	56,64	67,70	95,74	117,2	135,3	151,3	165,7	176,2
KN9-400	½" BNM 37					■	■	75,52	90,28	127,6	156,3	180,5	201,8	220,4	235,8
KN9-500	½" BNM 48						■	94,38	112,8	159,5	195,5	225,6	252,2	276,2	293,6
KN9-600	½" BNM 59						■	113,2	135,4	191,4	234,4	270,6	302,6	331,4	352,4

CLEANING IN PLACE

TYPE KN9

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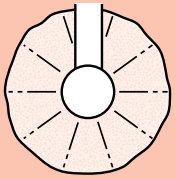


TYPE CLFD13

CLEANING IN PLACE

SPRAY CHARACTERISTICS

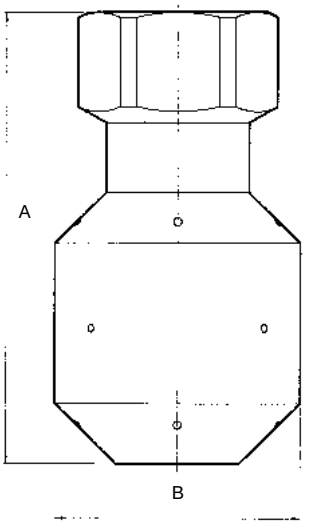
- *Produces a solid cone type spray pattern from a multiple orifice body.*
- *Relatively uniform distribution at all pressures, 360° coverage.*
- *Atomisation is finer than with a single nozzle of the same capacity.*
- *Available in a range of flow capacities and thread sizes.*

CONSTRUCTION AND MATERIALS

- *The cluster body is fitted with 13 flush mounted nozzles that are not removable.*
- *The ½" and ¾" sizes are ideal to fit through keg bung holes for internal washing.*
- *Useful in the food industry due to lack of sharp corners or threads where foreign matter may collect.*
- *Manufactured in 316 Stainless Steel as standard.*
- *Other materials available to special order.*
- *½" and ¾" are available in Male BSPT or Female BSPP threads. 1" and 1½" are available in Female BSPP only.*

ORDER EXAMPLE

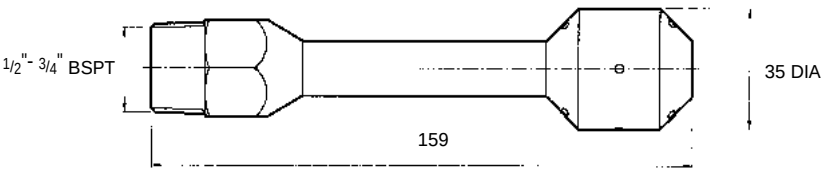
1" CLFD 13-300, Stainless Steel.



1"-1½" CLFD 13

DIMENSIONS

Thread Size	Dimensions (mm) A	B Dia
1"	105	57,2
1½"	143	76,2



½"- ¾" CLFD 13

Maximum Recommended Pressure: 7 Bar.G.

CAPACITY CHART

ASSEMBLY NUMBER	BSPT THREAD SIZE ½"	¾"	1"	1½"	FLOW RATE IN LITRES/MIN AT Bar.G. 0,7	1,0	2,0	3,0	4,0	5,0	6,0	7,0
CLFD13 - 75					-	17,1	24,8	29,6	34,2	38,2	41,9	45,3
CLFD13 - 90					17,0	20,3	28,7	35,2	40,6	45,4	49,7	52,9
CLFD13 - 165					31,2	37,2	52,7	64,5	74,5	83,3	91,2	96,9
CLFD13 - 240					47,2	54,2	76,6	93,8	108,3	121,0	132,6	140,9
CLFD13 - 300					57,2	68,4	97,8	118,5	136,8	153,0	167,6	181,0
CLFD13 - 400					76,3	91,2	129,0	158,0	182,5	204,0	223,5	241,4
CLFD13 - 500					94,5	114,0	161,3	197,5	228,0	255,0	279,3	301,7
CLFD13 - 600					114,5	136,8	193,5	237,0	273,7	306,0	335,0	362,0
CLFD13 - 700					132,0	158,0	223,3	273,5	315,7	353,0	386,6	411,0

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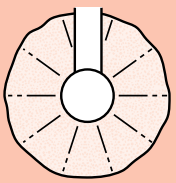


SPRAY CHARACTERISTICS

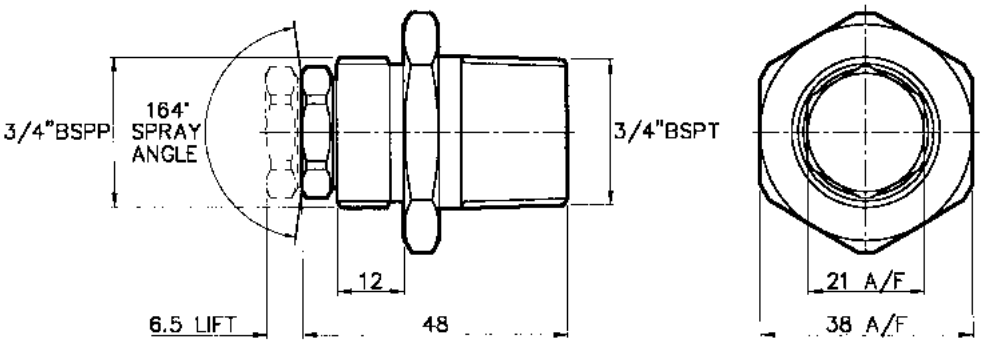
- *Produces a hollow cone spray pattern using an external pintle deflector.*
- *Relatively uniform distribution at low pressures.*
- *Produces coarser droplets than a normal hollow-cone spray.*
- *Standard spray angle is 164° but is available with other spray angles.*
- *The pintle deflector is spring loaded and will "pop-up" under pressure to produce the spray pattern. When the pressure reduces the pintle returns to its seat to prevent ingress from the external process.*

CONSTRUCTION AND MATERIALS

- *In line design, manufactured in ¾" BSPT Male thread only.*
- *The front of the nozzle is threaded ¾" BSPP for socket or plate mounting to allow installation through the floor of a vessel.*
- *Pintle design can be varied to allow for different spray angles.*
- *Manufactured in 316 Stainless Steel as standard with a 302 Stainless Steel spring.*
- *Other materials to special order.*

ORDER EXAMPLE

- *¾" PU 80 Stainless Steel.*



Maximum Recommended Pressure: 14 Bar.G.

CAPACITY CHART

NOZZLE NUMBER	FLOW RATE IN LITRES/MIN AT Bar.G.							
	0,7	1,0	2,0	3,0	4,0	5,0	6,0	7,0
¾" PU 50	9,61	11,61	16,07	19,89	22,77	25,50	27,93	30,19
¾" PU 60	11,44	13,84	19,20	23,67	27,23	30,69	33,61	36,14
¾" PU 70	13,27	16,07	22,77	27,46	32,14	35,88	39,30	42,54
¾" PU 80	15,10	18,75	25,45	31,72	36,61	41,06	44,98	48,03
¾" PU 90	16,73	20,00	28,95	35,10	40,95	45,02	50,01	54,00
¾" PU 100	19,21	22,77	31,70	39,30	45,53	51,00	55,87	60,38
¾" PU 125	24,01	28,46	39,62	49,12	56,91	63,75	69,83	75,48
¾" PU 150	28,6	34,2	48,4	59,3	68,4	76,5	83,8	90,5

CLEANING IN PLACE

TYPE PU

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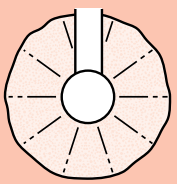


TYPE MINI

CLEANING IN PLACE

The Mini rotary spray head provides a rotating fan cleaning action using low volumes of liquid at low pressure. It is an automatic device for cleaning small tanks and represents a more efficient replacement for traditional fixed sprayballs or manual methods used in tank cleaning.

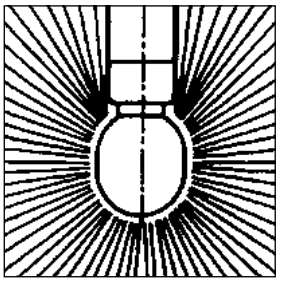
APPLICATIONS

Hygienic and non-hygienic industries can benefit from the use of the Mini in tanks ranging from 0.1 to 10m³ (26 to 2 600 US gallons).

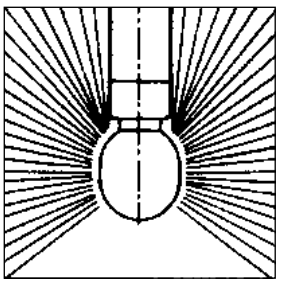
OPERATION

The flow of the cleaning fluid causes the body of the cleaning head to rotate providing a swirling impact. Three spray patterns 360°, 270° and 180° are available to suit various designs.

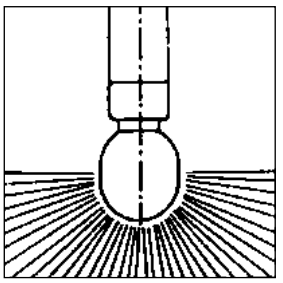
SPRAY CHARACTERISTICS



360°



270°



180° Down

ORDERING INFORMATION

Please specify desired spray pattern and required connections.

SPECIFICATIONS

Materials
Housing: SAF 2205 (UNS 31803)
Balls: AISI 316. Others: AISI 316L

Weight
Thread and clip-on: 0,30 kgs (0,66 lbs)
On pipe: 0,55/0,90 kg (1,21/1,98 lbs)

Lubricant
Self-lubricating with the cleaning fluid

Working pressure
1-3 Bar (14.5-44 psi)

Recommended pressure
2 Bar (29 psi)

Max. working temperature
95°C (203°F)

Max. ambient temperature
140°C (284°F)

Wetting radius
Max. 3 m (10 ft.)

Impact cleaning radius
Max. effective 1,4 m (4,6 ft.)

Connection
½" or ¾" BSP or NPT thread, clip-on, or welded on pipe

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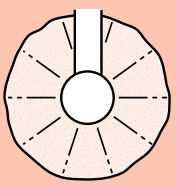
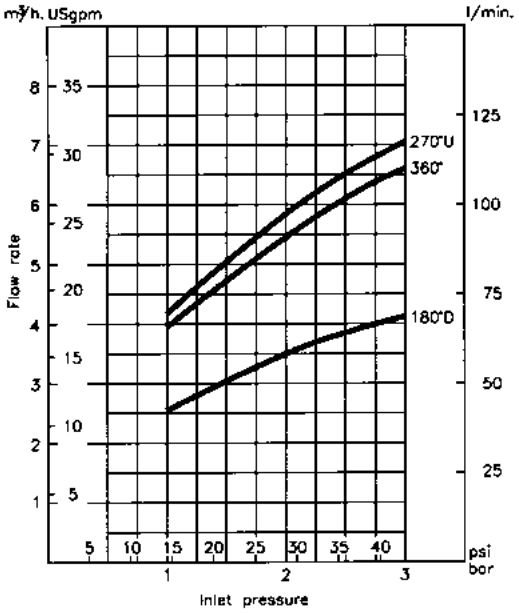
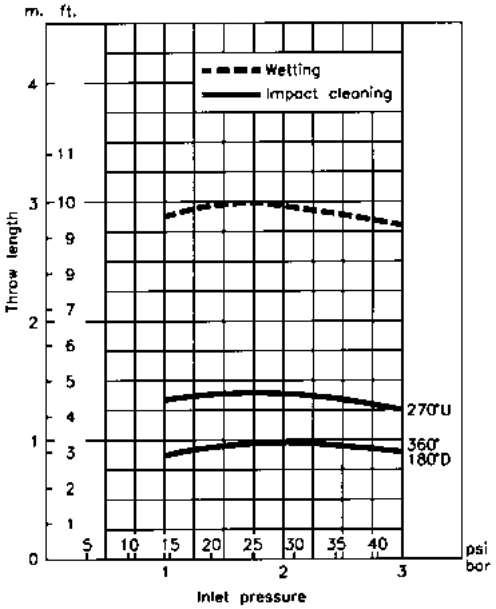


FLOW RATE



CLEANING RADIUS

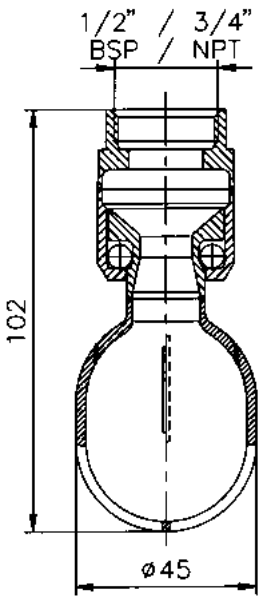


Note:- *For Clip-on models, the flow rate is increased by approx. 10%*

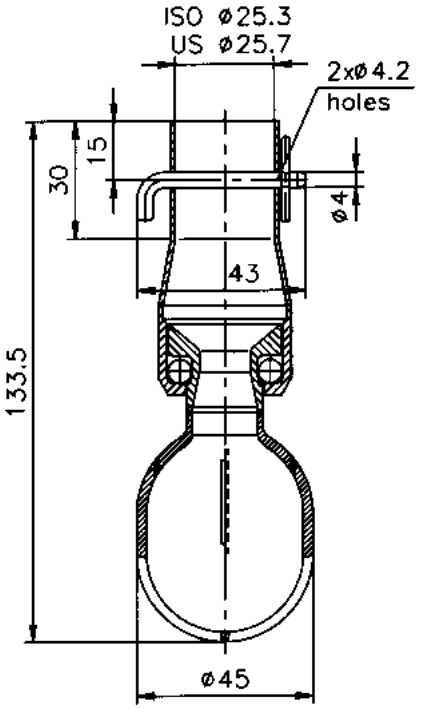
A low flow version of the 360˚ model is available on request.

DIMENSIONS

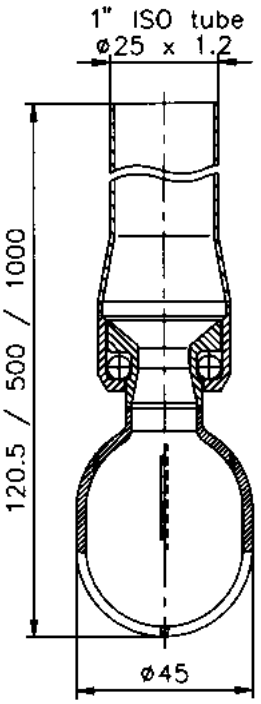
Thread



Clip-on



Welded on pipe



CLEANING IN PLACE

TYPE MINI

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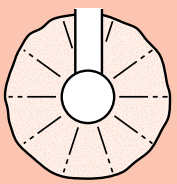


TYPE MAXI

CLEANING IN PLACE

The Maxi rotary spray head provides a rotating fan cleaning action using low volumes of liquid at low pressure. It is an automatic device for cleaning medium size tanks and a more efficient replacement for traditional fixed sprayballs or manual methods used in tank cleaning.

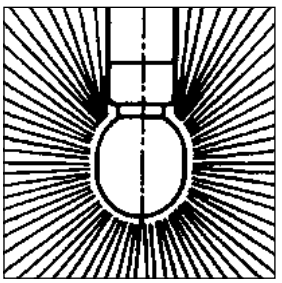
APPLICATIONS

Hygienic and non-hygienic industries can benefit from the use of the Maxi in tanks ranging from 5 to 50m³ (1 300 to 13 000 US gallons).

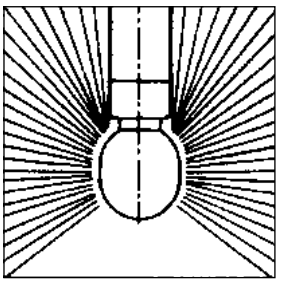
OPERATION

The flow of the cleaning fluid causes the body of the cleaning head to rotate providing a swirling impact. Three spray patterns 360°, 270° and 180° are available to suit various tank designs.

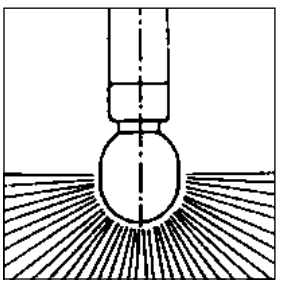
SPRAY CHARACTERISTICS



360°



270°



180° Down

ORDERING INFORMATION

Please specify desired spray pattern and required connections.

SPECIFICATIONS

Materials
Housing: SAF 2205 (UNS 31803)
Balls: AISI 316. Others: AISI 316L

Weight
Thread and clip-on: 0,76 kgs (1,48 lbs)
On pipe: 0,97/1,52 kg (2,14/3,35 lbs)

Lubricant
Self-lubricating with the cleaning fluid

Working pressure
1-3 Bar (14,5-44 psi)

Recommended pressure
2 Bar (29 psi)

Max. working temperature
95°C (203°F)

Max. ambient temperature
140°C (284°F)

Wetting radius
Max. 3 m (10 ft.)

Impact cleaning radius
Max. effective 2 m (6,6 ft.)

Connection
1¼" BSP or NPT thread, clip-on, or welded on pipe

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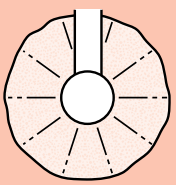
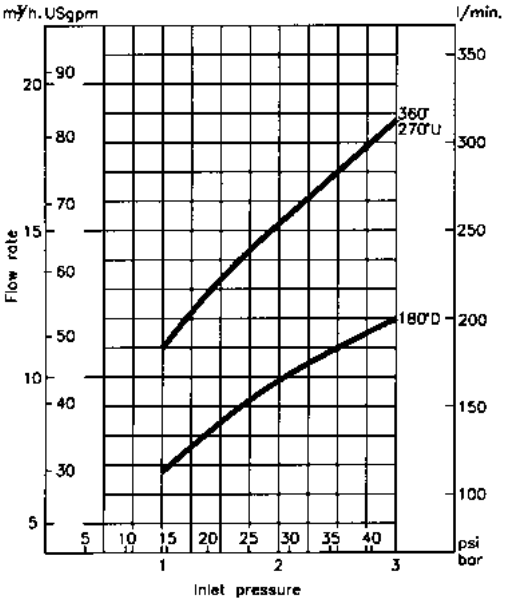
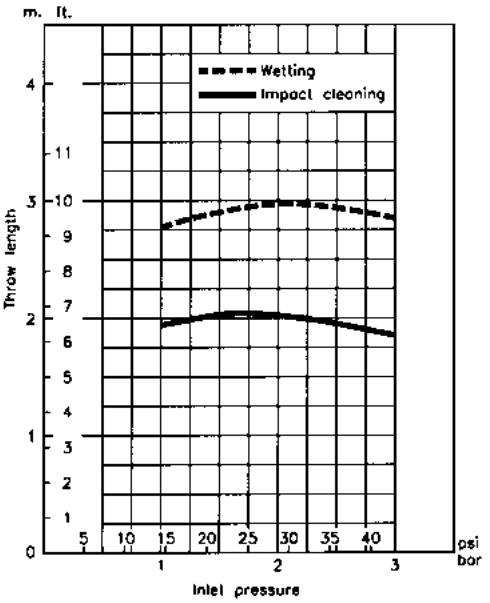


FLOW RATE



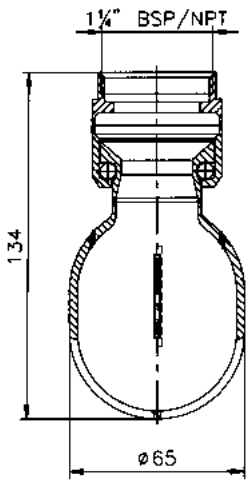
CLEANING RADIUS



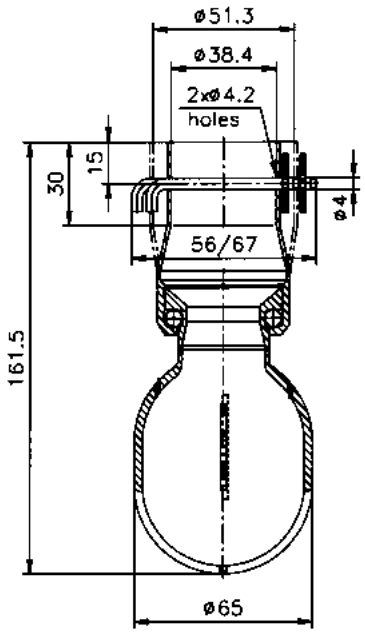
For Clip-on models, the flow rate is increased by approx. 10%.

DIMENSIONS

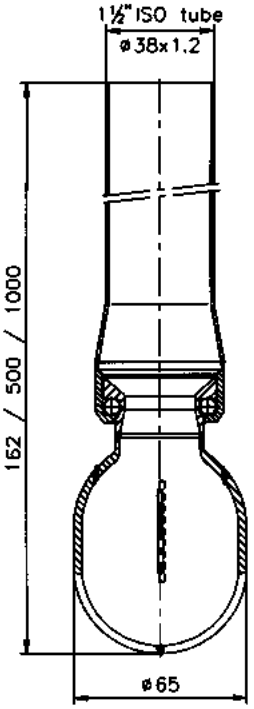
Thread



Clip-on



Welded on pipe



CLEANING IN PLACE

TYPE MAXI

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TYPE TJ 20G

CLEANING IN PLACE

The TJ 20G rotary jet head provides 360° indexed impact cleaning over a defined time period. It is automatic and represents a guaranteed means of achieving quality assurance from cleaning tanks.

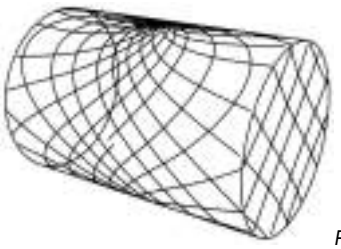
APPLICATIONS

Processing, storage and transportation tanks and vessels between 15 and 150m³ (4 000 to 39 400 US gallons). Used in breweries, food and dairy processes, chemical and many other industries. The award winning design is particularly suitable for ultra hygienic industries demanding Hygienic Equipment Design Group approval.

OPERATION

The flow of the cleaning fluid makes the nozzles perform a geared rotation around the vertical and horizontal axes. In the first cycle, the nozzles lay out a coarse pattern on the tank surface. The following cycles make the pattern gradually more dense until a full pattern is reached after 8 cycles.

CYCLE CHARACTERISTICS



First Cycle

Full Cycle

The above drawings show the cleaning pattern achieved on a cylindrical horizontal vessel. The difference between the first cycle and the full pattern represents the number of additional cycles available to increase the density of the clean.

OPTIONS

The choice of nozzle diameters can optimise jet impact length and flow rate at the desired pressure. An electronic rotation sensor to validate 360° coverage can also be included.

SYSTEM QUALITY

The TJ 20G is approved according to the EHEDG test procedure.

ORDERING INFORMATION

Please specify nozzle size and required connections.

SPECIFICATIONS

Materials
AISI 316L, AISI 316, SAF 2205 (UNS 31803), PTFE, E-CTFE, PEEK, PVDF

Weight
5,1 kgs (11,2 lbs)

Lubricant
Self-lubricating with the cleaning fluid

Working pressure
3-8 Bar (40-115 psi)

Recommended pressure
4-7 Bar (58-100 psi)

Max. working temperature
95°C (203°F)

Max. ambient temperature
140°C (284°F)

Max. throw length
9-14 m (29-46 ft.)

Effective throw length
4-8 m (13-26 ft.). Impact in centre of jet 250 mm water column (50 lbs/sq.ft.)

Standard thread
1" BSP or NPT, Female

Min. tank opening
See dimension drawings

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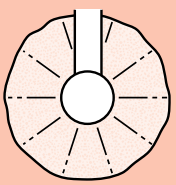
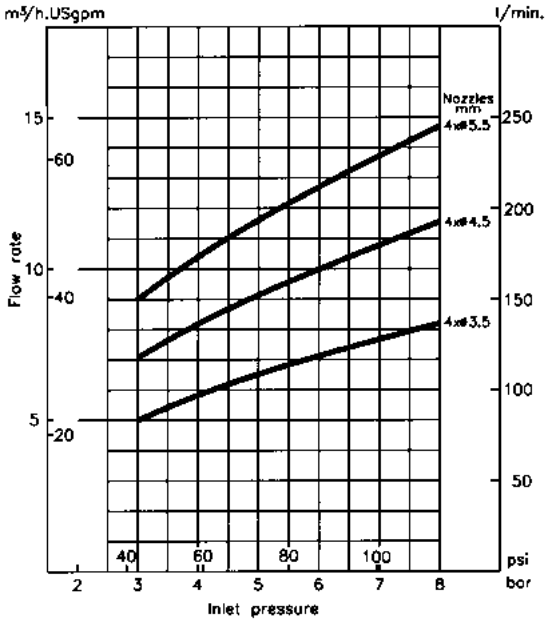
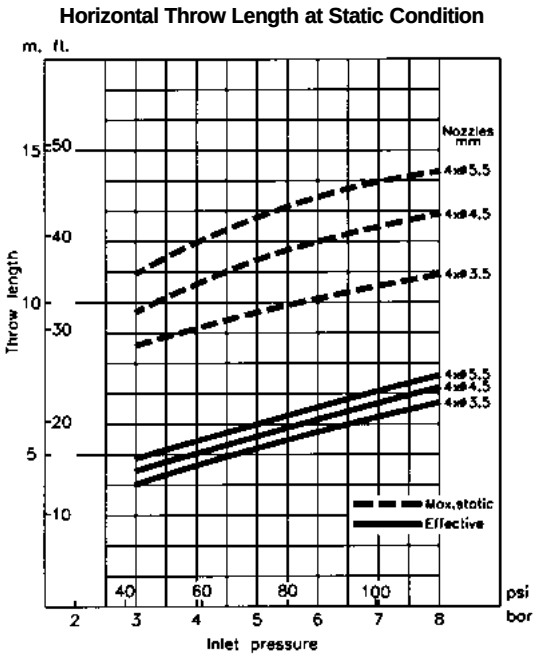


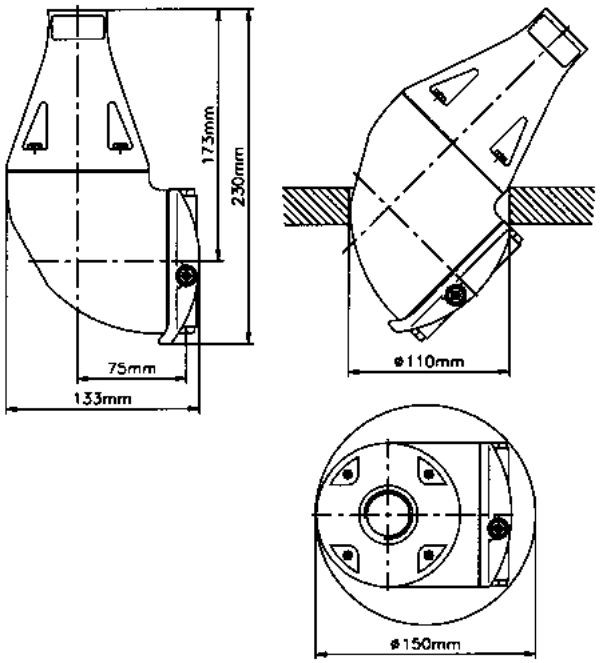
FLOW RATE



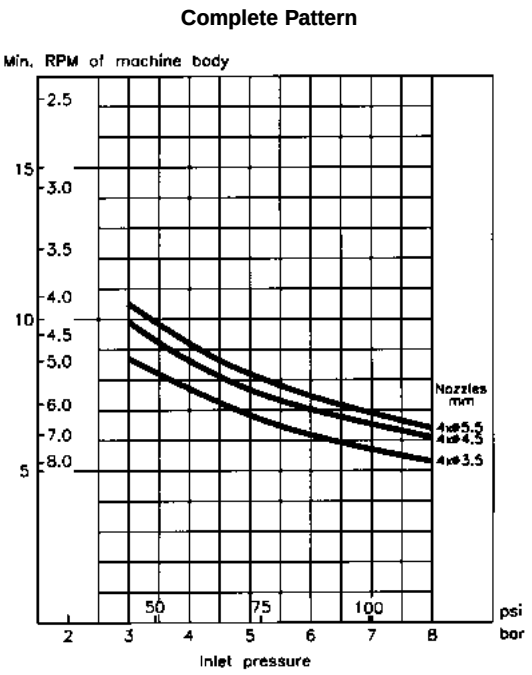
THROW LENGTH



DIMENSIONS



CLEANING TIME



CLEANING IN PLACE

TYPE TJ 20G

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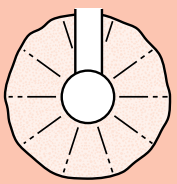


TYPE TZ-74

CLEANING IN PLACE

The TZ-74 rotary jet head provides 360° indexed impact cleaning over a defined time period. It is automatic and represents a guaranteed means of achieving quality assurance from cleaning tanks.

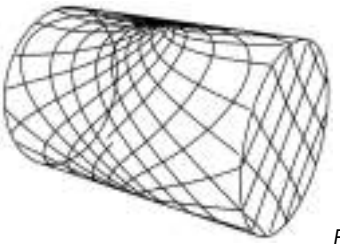
APPLICATIONS

Processing, storage and transportation tanks and vessels between 50 and 500m³ (13 000 and 131 000 US gallons). Used in breweries, food and dairy processes, chemical and many other industries. The TZ-74 rotary jet head has been particularly suitable and successful in the brewing industry worldwide.

OPERATION

The flow of the cleaning fluid makes the nozzles perform a geared rotation around the vertical and horizontal axis. In the first cycle, the nozzles lay out a coarse pattern on the tank surface. The following cycles make the pattern gradually more dense until a full pattern is reached after 8 cycles.

CYCLE CHARACTERISTICS



First Cycle

Full Cycle

The above drawings show the cleaning pattern achieved on a cylindrical horizontal vessel. The difference between the first cycle and the full pattern represents the number of additional cycles available to increase the density of the clean.

OPTIONS

The choice of nozzle diameters can optimise jet impact length and flow rate at the desired pressure. An electronic rotation sensor to validate 360° coverage can also be included.

ORDERING INFORMATION

Please specify nozzle size and inlet/guide configuration connections.

SPECIFICATIONS

Materials
AISI 316L, AISI 316, PTFE, PEEK, Tefzel

Weight
6,1 kgs (13,6 lbs)

Lubricant
Self-lubricating with the cleaning fluid

Working pressure
3-12 Bar (44-174 psi)

Recommended pressure
3-8 Bar (44-116 psi)

Max. working temperature
95°C (203°F)

Max. ambient temperature
140°C (284°F)

Max. throw length, static
7-24 m (23-79 ft.)

Effective throw length
4-13 m (13-43 ft.). Impact in centre of jet 250 mm water column (50 lbs/sq.ft.)

Standard thread
1½" BSP or NPT, Female

Min. tank opening
See dimension drawings

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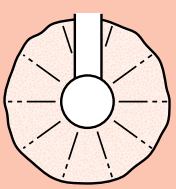
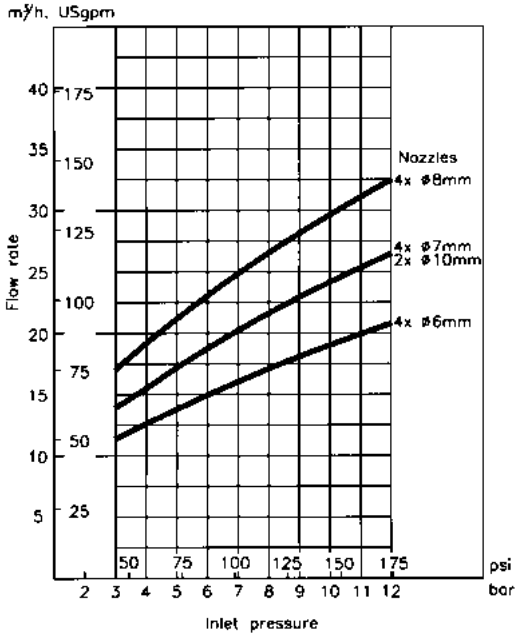
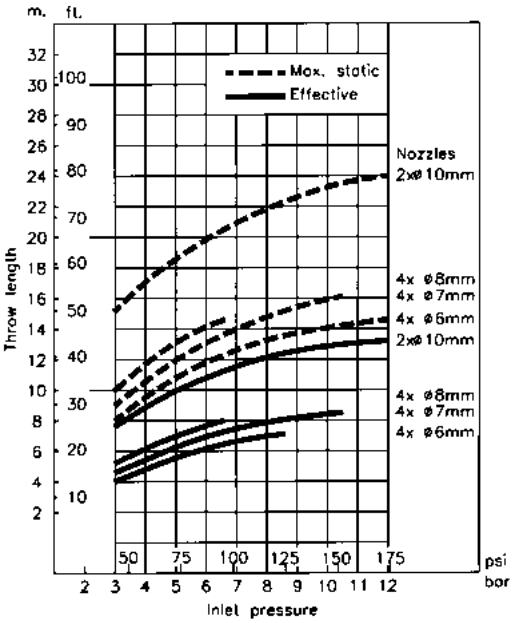


FLOW RATE

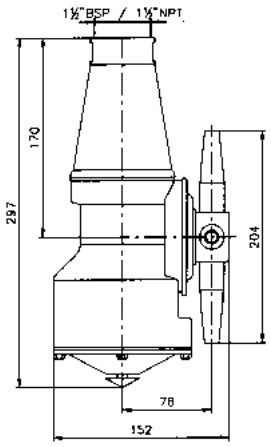


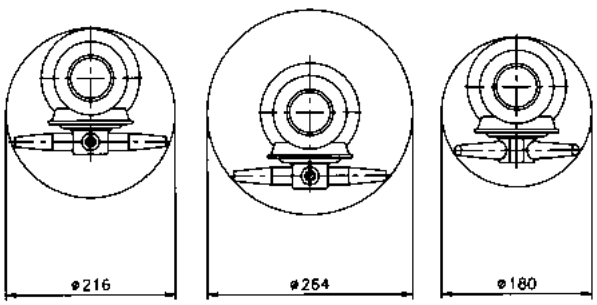
THROW LENGTH

Horizontal Throw Length at Static Condition



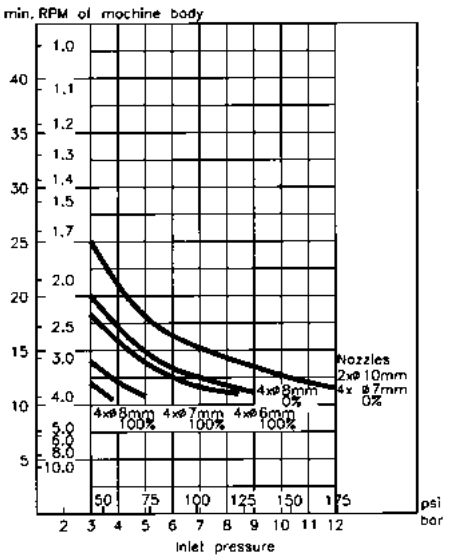
DIMENSIONS





CLEANING TIME

Complete Pattern



CLEANING IN PLACE

TYPE TZ-74

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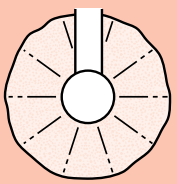

TYPE TZ-67/79/68

CLEANING IN PLACE

TYPE TZ-67

SPECIFICATIONS

Materials
AISI 316L, AISI 316, PTFE, PEEK, Tefzel

Weight
6,0 kgs (13,3 lbs)

Lubricant
Self-lubricating with the cleaning fluid

Working pressure
3-12 Bar (44-174 psi)

Recommended pressure
3-8 Bar (44-116 psi)

Max. working temperature
95ºC (203ºF)

Max. ambient temperature
140ºC (284ºF)

Max. throw length, static
7-24 m (23-79 ft.)

Effective throw length
4-13 m (13-43 ft.). Impact in centre of jet
250 mm water column (50 lbs/sq.ft.)

Standard thread
1½" BSP or NPT, Female

TYPE TZ-79

SPECIFICATIONS

Materials
AISI 316L, AISI 316, PTFE, PVDF,
Carbon, Tefzel

Weight
12,2 kgs (26,9 lbs)

Lubricant
Self-lubricating with the cleaning fluid

Working pressure
3-12 Bar (44-174 psi)

Recommended pressure
3-8 Bar (44-116 psi)

Max. working temperature
95ºC (203ºF)

Max. ambient temperature
140ºC (284ºF)

Max. throw length
9-29 m (29-95 ft.)

Effective throw length
5-15 m (16-49 ft.). Impact in centre of jet
250 mm water column (50 lbs/sq.ft.)

Standard thread
2" BSP or NPT, Female

TYPE TZ-68

SPECIFICATIONS

Materials
Bronze, AISI 316L, PTFE, Carbon, Tefzel

Weight
6,5 kgs (14,3 lbs) portable model
8,5 kgs (18,7 lbs) fixed model

Lubricant
Self-lubricating with the cleaning fluid

Working pressure
2-12 Bar (30-174 psi)

Recommended pressure
5-10 Bar (72-145 psi)

Max. working temperature
95ºC (203ºF)

Max. throw length
18-31 m (59-102 ft.)

Installation
Fixed or portable

Standard thread
1½" BSP or NPT for portable installation

Flange
ø127 - PC98.5 - 4 x ø11 mm (0,43") holes

Contact Delavan's Customer Service Team for further details.

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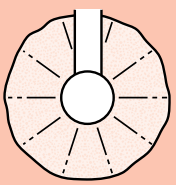

TYPE TZ-82F

SPECIFICATIONS

Materials
AISI 316L, PTFE, Carbon, Tefzel

Weight
8,5 kgs (18,7 lbs) fixed model

Lubricant
Self-lubricating with the cleaning fluid

Working pressure
2-12 Bar (30-174 psi)

Recommended pressure
5-10 Bar (72-145 psi)

Max. working temperature
95ºC (203ºF)

Max. throw length
18-31 m (59-102 ft.)

Installation
Fixed

Flange
ø127 - PC98.5 - 4 ø11 mm (0,43") holes

TYPE TZ-65

SPECIFICATIONS

Materials
Bronze, AISI 316L, PTFE, PVDF, Carbon

Weight
15 kgs (33 lbs) portable model
16 kgs (35.3 lbs) fixed model

Lubricant
Self-lubricating with the cleaning fluid

Working pressure
2-12 Bar (30-174 psi)

Recommended pressure
5-10 Bar (72-145 psi)

Max. working temperature
95ºC (203ºF)

Max. throw length
22-36 m (72-118 ft.)

Installation
Fixed or portable

Standard thread
2" NPT or 2½" ASA for portable installation

Flange
ø165 - PC125 - 4 x ø19 mm (0,75") holes

TYPE TZ-75

SPECIFICATIONS

Materials
AISI 316L, AISI 316, PTFE, Carbon, PEEK, Tefzel

Weight
13 kgs (28,7 lbs) portable model
16 kgs (35,3 lbs) fixed model

Lubricant
Self-lubricating with the cleaning fluid

Working pressure
2-12 Bar (30-174 psi)

Recommended pressure
5-10 Bar (72-145 psi)

Max. working temperature
95ºC (203ºF)

Max. throw length
22-36 m (72-118 ft.)

Installation
Fixed or portable

Standard thread
2" NPT 2½" ASA for portable installation

Flange
ø127 - PC98.5 - 4 x ø11 mm (0,43") holes

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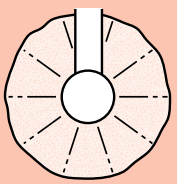


TYPE TZ-89

CLEANING IN PLACE

TYPE TZ-89

SPECIFICATIONS

Materials
AISI 316L, AISI 316, SAF 2205 (UNS 31803), PTFE, PVDF, PEEK, FEP/Silicone

Weight
7,0 kgs (15,4 lbs)

Lubricant
Self-lubricating with the cleaning fluid

Working pressure
2-7 Bar (30-100 psi)

Recommended pressure
3-6 Bar (44-87 psi)

Max. working temperature
95ºC (203ºF)

Max. ambient temperature
140ºC (284ºF)

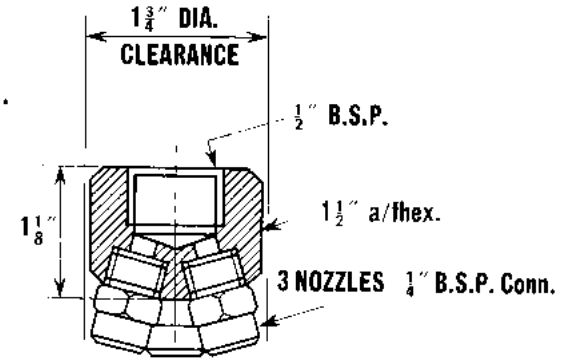
Max. throw length, static
4-7 m (13-23 ft.)

Effective throw length
2.5-4 m (8-13 ft.). Impact in centre of jet
250 mm water column (50 lbs/sq.ft.)

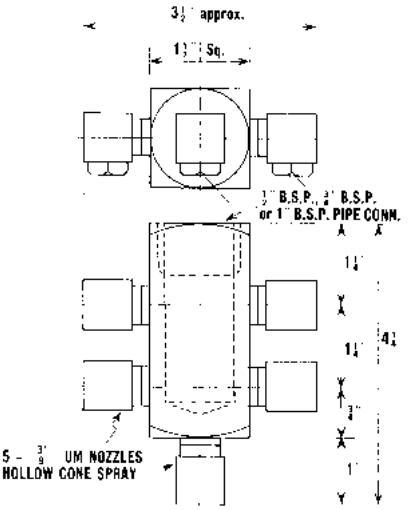
Inlet connections
Thread: ¾" BSP or NPT, Male
Clamp: 1" ISO 2852

Tank connection
Flange: 50 ND6 DIN 2501, or
3" ANSI B 16.5. Clamp: 3" ISO 2852

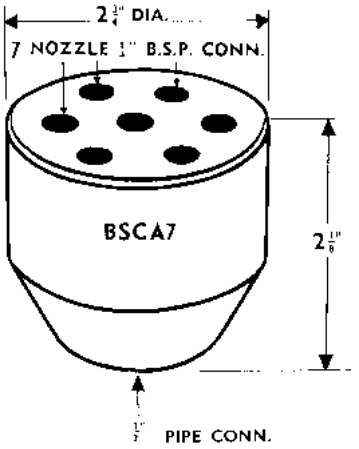
BSCA 3



CLUM 5



BSCA 7



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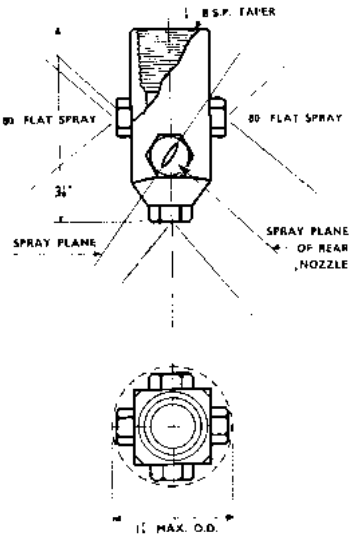

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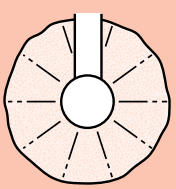

Dela-Fit

WELCOME TO DELAVAN

Meeting the **challenges** of new industries and *NEW markets*

DF

DELAVAN®
Spray Technologies

SECTION INDEX

Dela-Fit is a unique system of quick fitting nozzles of various spray types which allows connection to pipework without the use of spanners.

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SPRAY CHARACTERISTICS

- *Produces a uniform, flat spray pattern with soft tapered edges to allow overlapping for even distribution.*
- *Impact is generally greater with narrower spray angles assuming equal flow rates.*

CONSTRUCTION AND MATERIALS

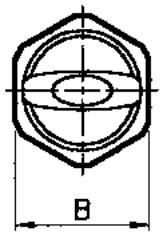
- *Available spray angles of 0°, 15°, 25°, 40°, 50°, 65°, 80°, 90°.*
- *Hexagonal one piece quick attach body.*
- *Tapered inlet reduces wear and clogging.*
- *Available in Brass and 316 Stainless Steel.*

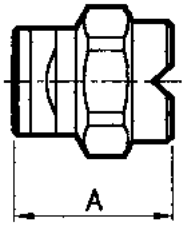
ORDER EXAMPLE

DFAC 20-65° Brass.

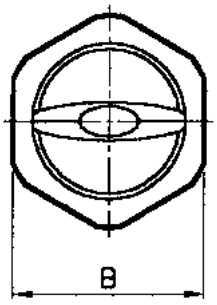
DIMENSIONS (mm)

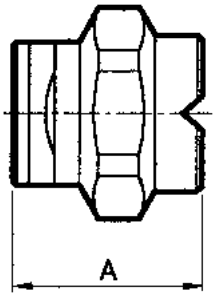
Nozzle Size	*A*	*B Hex*
DFAC STANDARD	21,4	18,0
DFAC LARGE	25,6	25,7





DFAC STANDARD





DFAC LARGE

CAPACITY CHART

NOZZLE NUMBER	*BODY SIZE**		*FLOW RATE IN LITRES/MIN AT Bar.G.*							
	S	*L*	*0,7*	*1,0*	*2,0*	*3*	*5*	*7*	*10*	*15*
DFAC 10			1,92	2,28	3,22	3,93	5,1	6,0	7,2	8,84
DFAC 15			2,84	3,44	4,92	6,16	7,9	9,2	10,7	13,2
DFAC 20			3,80	4,47	6,26	8,05	10,2	12,4	14,7	17,7
DFAC 25			4,60	5,80	8,00	9,95	13,0	15,1	18,3	22,3
DFAC 30			6,00	6,70	9,80	11,84	15,3	17,9	21,4	26,5
DFAC 40			7,80	9,40	13,00	15,62	20,8	24,3	28,6	35,4
DFAC 50			9,60	11,60	16,10	19,89	25,4	30,2	36,2	44,1
DFAC 60			11,40	13,90	19,20	23,67	30,5	36,2	43,4	52,9
DFAC 70			13,30	16,10	22,80	27,40	36,1	42,6	50,5	61,8
DFAC 80			15,10	18,80	25,50	31,72	41,2	48,1	57,2	70,6
DFAC 100			19,20	22,80	31,70	39,3	50,9	60,5	72,4	88,4
DFAC 120			22,90	27,30	38,90	47,34	61,1	72,4	86,3	106
DFAC 150			28,80	34,40	48,30	59,19	76,8	90,2	108	132
DFAC 200			38,00	48,70	64,40	79,07	102	120	144	175

**S = for use with ¼" or ⅜" Dela-Fit Bodies. L = for use with ½" Dela-Fit Bodies.*

DELA-FIT

TYPE DFAC

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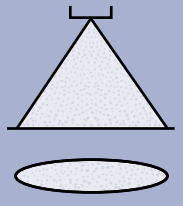


DF

TYPE DFAN

DELA-FIT

SPRAY CHARACTERISTICS

- *Produces a wide, flat spray pattern with uniform distribution.*
- *Low impact spray with low atomisation at low pressures.*
- *Nominal spray angle is 120° or more depending on size.*

CONSTRUCTION AND MATERIALS

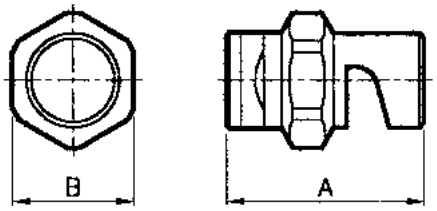
- *Hexagonal one piece quick attach body.*
- *Simple deflector type design producing spray at 75° spray angle from inlet orifice.*
- *Resistant to clogging.*
- *Available in Brass and 316 Stainless Steel.*

ORDER EXAMPLE

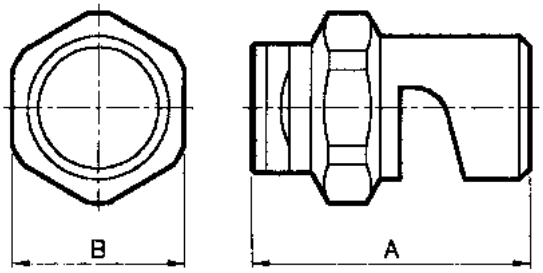
DFAN 10 Stainless Steel.

DIMENSIONS (mm)

Nozzle Size	*A*	*B Hex*
DFAN 5-20	29,4	18,0
DFAN 25-40	34,9	18,0
DFAN LARGE	41,3	25,7



DFAN STANDARD



DFAN LARGE

CAPACITY CHART

NOZZLE NUMBER	*BODY SIZE**		*FLOW RATE IN LITRES/MIN AT Bar.G.*							
	S	*L*	*0,35*	*0,5*	*0,7*	*1,0*	*1,5*	*2,0*	*3,0*	*4,0*
DFAN 5			1,33	1,61	1,92	2,28	2,79	3,21	3,94	4,42
DFAN 7,5			2,01	2,40	2,84	3,39	4,36	4,91	5,92	6,70
DFAN 10			2,70	3,23	3,81	4,46	5,49	6,29	7,91	9,38
DFAN 15			4,16	4,99	5,67	6,70	8,24	9,64	11,8	13,8
DFAN 18			5,03	5,70	6,86	8,17	9,94	11,6	14,2	16,4
DFAN 20			5,35	6,56	7,59	8,93	11,0	13,0	15,7	18,3
DFAN 25			6,86	8,09	9,61	11,6	13,8	16,1	16,1	22,8
DFAN 30			8,00	9,70	11,4	13,8	16,6	19,0	23,7	27,2
DFAN 35			9,60	16,6	13,3	15,6	19,4	22,7	27,5	32,1
DFAN 40			10,6	12,7	15,2	18,3	22,4	25,7	31,5	36,4
DFAN 50			13,3	16,2	19,0	22,7	28,0	32,0	39,4	46,4
DFAN 60			16,0	19,2	22,9	27,2	33,6	38,7	47,3	54,6
DFAN 75			20,2	24,2	28,6	34,2	41,8	48,3	59,2	68,4
DFAN 80			21,3	25,9	30,5	36,4	44,6	51,3	63,1	72,9
DFAN 100			27,0	32,3	38,1	45,4	55,6	64,3	78,9	91,1

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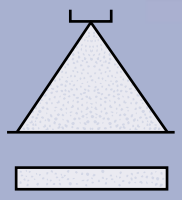


DF

SPRAY CHARACTERISTICS

- *Uniform hollow cone spray pattern.*
- *Atomisation becomes finer at higher pressures.*
- *Spray angle is 70°.*

CONSTRUCTION AND MATERIALS

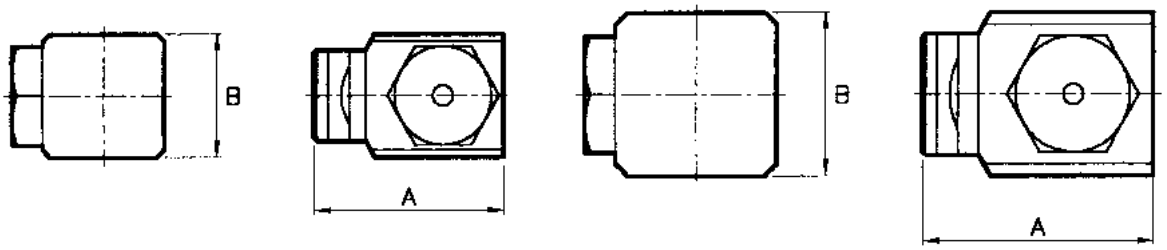
- *Right angle configuration, quick attach body with no internal vanes.*
- *Unique swirl chamber with single inlet and large passageways to provide a more uniform spray and to reduce chances of clogging.*
- *Available in Brass and 316 Stainless Steel.*

ORDER EXAMPLE

DFAE 20 Brass.

DIMENSIONS (mm)

Nozzle Size	*A*	*B Sq*
DFAE STANDARD	30,0	19,0
DFAE LARGE	36,5	25,4



DFAE STANDARD

DFAE LARGE

CAPACITY CHART

NOZZLE NUMBER	*BODY SIZE**		*FLOW RATE IN LITRES/MIN AT Bar.G.*							
	S	*L*	*0,7*	*1,0*	*2,0*	*3,0*	*4,0*	*5,0*	*6,0*	*7,0*
DFAE 6			1,14	1,3	1,9	2,4	2,7	3,1	3,4	3,6
DFAE 10			1,92	2,3	3,2	3,9	4,6	5,1	5,6	6,0
DFAE 15			2,84	3,4	4,8	5,9	6,8	7,6	8,4	9,0
DFAE 20			3,80	4,5	6,4	7,9	9,1	10,2	11,2	12,1
DFAE 25			4,76	5,7	8,1	9,9	11,4	12,7	14,0	15,1
DFAE 30			5,72	6,9	9,7	11,8	13,7	15,3	16,8	18,1
DFAE 40			7,60	9,1	12,9	15,8	18,2	20,4	22,3	24,1
DFAE 50			9,51	11,4	16,1	19,7	22,8	25,5	27,9	30,2
DFAE 60			11,44	13,6	19,3	23,7	27,3	30,6	33,5	36,2
DFAE 80			15,23	18,2	25,8	31,6	36,5	40,8	44,7	48,2
DFAE 100			19,08	22,8	32,2	39,5	45,6	41,0	55,8	60,3
DFAE 125			23,84	28,5	40,3	49,4	57,0	63,7	69,8	75,4
DFAE 150			28,59	34,2	48,3	59,2	68,4	76,4	83,7	90,5
DFAE 200			38,16	45,6	64,5	79,0	91,2	102	112	122

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DELA-FIT

TYPE DFAE

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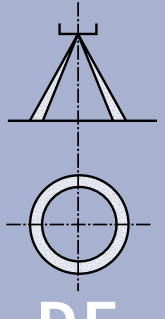


DF

TYPE DFAF

DELA-FIT

SPRAY CHARACTERISTICS

- *Uniform wide angle hollow cone spray pattern.*
- *Atomisation becomes finer at higher pressures.*
- *Spray angle is 110°.*

CONSTRUCTION AND MATERIALS

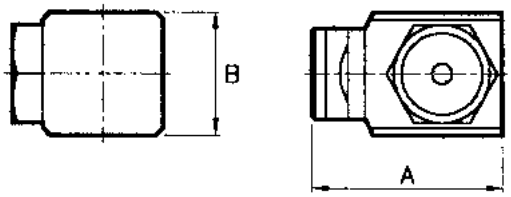
- *Right angle configuration, quick attach body with no internal vanes.*
- *Unique swirl chamber with single inlet and large passageways to provide a more uniform spray and to reduce chances of clogging.*
- *Available in Brass and 316 Stainless Steel.*

ORDER EXAMPLE

DFAF 50 Stainless Steel.

DIMENSIONS (mm)

Nozzle Size	*A*	*B Sq*
DFAF STANDARD	30,0	19,0
DFAF LARGE	36,5	25,4



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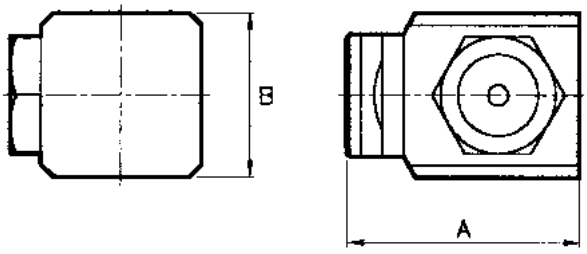

DFAF LARGE

CAPACITY CHART

NOZZLE NUMBER	*BODY SIZE**		*FLOW RATE IN LITRES/MIN AT Bar.G.*							
	S	*L*	*0,7*	*1,0*	*2,0*	*3,0*	*4,0*	*5,0*	*6,0*	*7,0*
DFAF 6			1,14	1,3	1,9	2,4	2,7	3,1	3,4	3,6
DFAF 10			1,92	2,3	3,2	3,9	4,6	5,1	5,6	6,0
DFAF 15			2,84	3,4	4,8	5,9	6,8	7,6	8,4	9,0
DFAF 20			3,80	4,5	6,4	7,9	9,1	10,2	11,2	12,1
DFAF 25			4,76	5,7	8,1	9,9	11,4	12,7	14,0	15,1
DFAF 30			5,72	6,9	9,7	11,8	13,7	15,3	16,8	18,1
DFAF 40			7,60	9,1	12,9	15,8	18,2	20,4	22,3	24,1
DFAF 50			9,51	11,4	16,1	19,7	22,8	25,5	27,9	30,2
DFAF 60			11,44	13,6	19,3	23,7	27,3	30,6	33,5	36,2
DFAF 80			15,23	18,2	25,8	31,6	36,5	40,8	44,7	48,2
DFAF 100			19,08	22,8	32,2	39,5	45,6	41,0	55,8	60,3
DFAF 125			23,84	28,5	40,3	49,4	57,0	63,7	69,8	75,4
DFAF 150			28,59	34,2	48,3	59,2	68,4	76,4	83,7	90,5
DFAF 200			38,16	45,6	64,5	79,0	91,2	102	112	122

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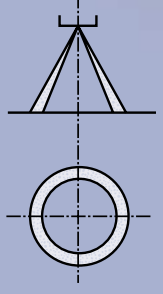


DF

SPRAY CHARACTERISTICS

- *Flat, high impact spray pattern.*

CONSTRUCTION AND MATERIALS

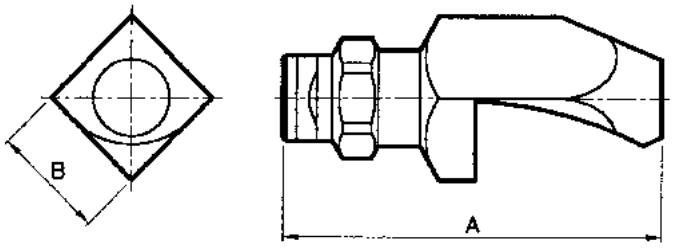
- *Circular orifice with tapered inlet to reduce plugging.*
- *Maximum impact for any given pressure due to deflector design.*
- *Available in Brass and 316 Stainless Steel.*

ORDER EXAMPLE

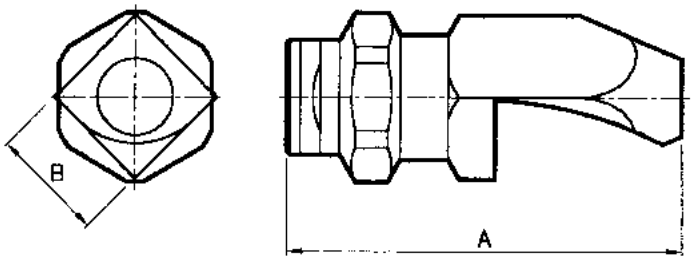
DFTJ 50-40° Brass.

DIMENSIONS (mm)

Nozzle Size	*A*	*B Sq*
DFTJ 10	31,0	15,9
DFTJ 20-40	73,0	25,4
DFTJ 50-60	72,2	25,4
DFTJ 80-100	88,9	31,8



DFTJ STANDARD



DFTJ LARGE

CAPACITY CHART

NOZZLE NUMBER	*BODY SIZE**		*SPRAY ANGLES (°)*			*FLOW RATE IN LITRES/MIN AT Bar.G.*						
	S	*L*	*35*	*40*	*50*	*1*	*1,5*	*2*	*3*	*4*	*5*	*7*
DFTJ 10	■		■	■	■	2,3	2,25	3,2	3,9	4,5	5,0	6,00
DFTJ 20	■		■			4,5	5,5	6,4	7,8	9,0	10,0	11,9
DFTJ 25	■		■		■	5,6	6,9	8,0	9,8	11,3	12,6	14,9
DFTJ 30	■		■			6,8	8,30	9,6	11,7	13,5	15,1	17,9
DFTJ 40	■		■	■	■	9,0	11,0	12,8	15,6	18,0	20,0	24,0
DFTJ 50	■		■	■		11,3	14,0	16,0	19,5	23,0	25	30,0
DFTJ 60	■		■	■	■	13,5	16,5	19,2	23	27	30	36,00
DFTJ 80		■	■	■		18,1	22,0	26	31	36	40	48,00
DFTJ 100		■	■	■	■	23,0	27,5	32	39	45	50	60,00

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DELA-FIT

TYPE DFTJ

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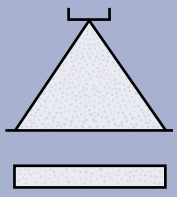


DF

TYPE DFBI

DELA-FIT

SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angles.*

CONSTRUCTION AND MATERIALS

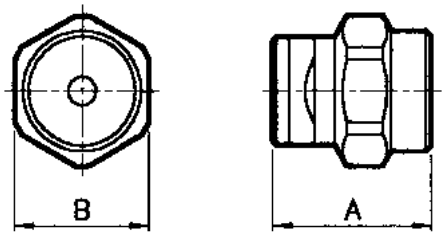
- *Hexagonal one piece quick attach body and cross-milled core.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Available in Brass and 316 Stainless Steel.*

ORDER EXAMPLE

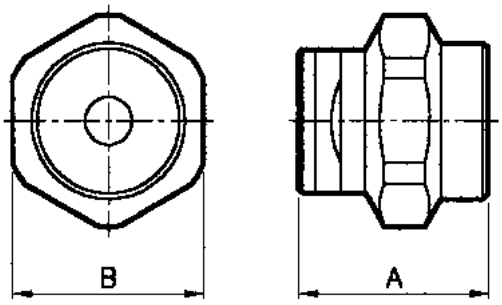
DFBI 49 Stainless Steel.

DIMENSIONS (mm)

Nozzle Size	*A*	*B Hex*
DFBI STANDARD	21,4	18,0
DFBI LARGE	28,6	25,7



DFBI STANDARD



DFBI LARGE

CAPACITY CHART

NOZZLE NUMBER	*BODY SIZE** S	L	*FLOW RATES IN LITRES/MIN AT Bar.G.* 0,7	1	1.5	2	3	4	6	7	*SPRAY ANGLE (°) @ 2 Bar.G.*
DFBI 6			1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	47
DFBI 8			1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	56
DFBI 11			2,32	2,87	3,62	4,05	4,87	5,36	6,30	6,74	64
DFBI 12			2,79	3,41	4,09	4,55	5,30	5,91	7,02	7,58	70
DFBI 16			3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	60
DFBI 20			4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	73
DFBI 22			5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	80
DFBI 27			6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	53
DFBI 32			7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	70
DFBI 42			9,67	11,82	14,44	15,96	19,29	21,41	24,95	27,37	76
DFBI 47			10,61	13,03	14,95	17,78	21,11	23,63	28,38	30,20	57
DFBI 49			11,62	14,24	16,36	18,69	23,13	25,05	29,29	32,52	86
DFBI 63			14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	69

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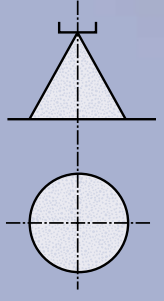


DF

SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a wide angle solid cone spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Pressure increases affect spray angles.*

CONSTRUCTION AND MATERIALS

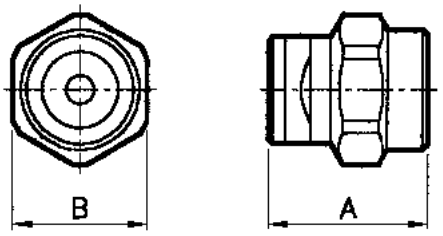
- *Hexagonal one piece quick attach body and cross-milled core.*
- *Core imparts the necessary swirl to produce a solid cone spray pattern.*
- *Available in Brass and 316 Stainless Steel.*

ORDER EXAMPLE

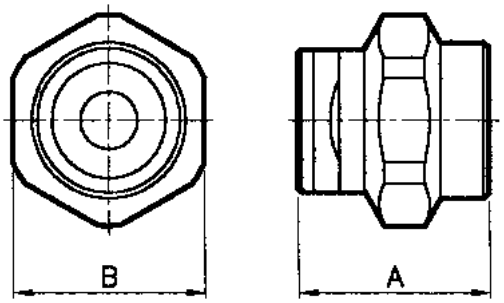
DFBN 59 Stainless Steel.

DIMENSIONS (mm)

Nozzle Size	*A*	*B Hex*
DFBN STANDARD	21,4	18,0
DFBN LARGE	28,6	25,7



DFBN STANDARD



DFBN LARGE

CAPACITY CHART

NOZZLE NUMBER	*BODY SIZE**		*FLOW RATE IN LITRES/MIN AT Bar.G.*								*SPRAY ANGLE (°) @ 2 Bar.G.*
	S	*L*	*0,7*	*1*	*1,5*	*2*	*3*	*4*	*6*	*7*	
DFBN 6			1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	85
DFBN 8			1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	95
DFBN 11			2,79	3,23	3,86	4,31	5,15	5,45	6,73	7,34	120
DFBN 15			3,67	4,50	5,26	5,59	6,64	7,24	8,70	9,16	110
DFBN 18			4,40	5,39	6,30	6,70	7,96	8,68	10,43	10,98	120
DFBN 22			5,58	6,84	8,0	8,50	10,10	11,01	13,23	13,94	110
DFBN 25			6,04	7,24	8,43	9,32	11,01	12,32	14,65	15,76	120
DFBN 32			7,70	9,15	10,80	11,92	14,30	15,78	18,90	19,90	110
DFBN 39			9,40	11,15	13,14	14,52	17,40	19,20	23,00	24,25	120
DFBN 46			11,62	13,64	15,86	17,27	19,29	22,32	25,45	27,88	112
DFBN 48			12,52	15,25	16,87	18,18	23,13	24,54	29,80	32,52	120
DFBN 59			13,23	15,96	19,29	22,32	26,06	28,18	34,64	37,67	128

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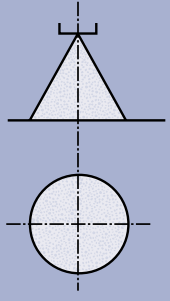


TYPE DFBQ

DELA-FIT

SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a solid cone square shaped spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Impact is generally greater with narrower spray angles, assuming the same flow rate. Pressure increases affect spray angles.*

CONSTRUCTION AND MATERIALS

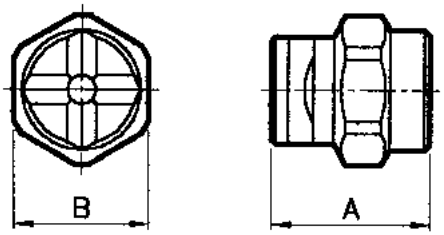
- *Hexagonal one piece quick attach body and cross-milled core.*
- *Core imparts the necessary swirl to produce a solid spray pattern.*
- *Available in Brass and 316 Stainless Steel.*

ORDER EXAMPLE

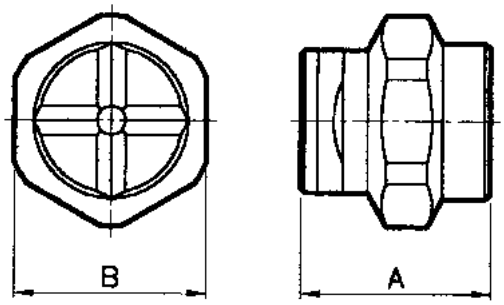
DFBQ 16 Brass.

DIMENSIONS (mm)

Nozzle Size	*A*	*B Hex*
DFBQ STANDARD	21,4	18,0
DFBQ LARGE	28,6	25,7



DFBQ STANDARD



DFBQ LARGE

CAPACITY CHART

NOZZLE NUMBER	*BODY SIZE**		*FLOW RATE IN LITRES/MIN AT Bar.G.*								*SPRAY ANGLE (°) @ 2 Bar.G.*
	S	*L*	*0,7*	*1*	*1,5*	*2*	*3*	*4*	*6*	*7*	
DFBQ 6			1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	47
DFBQ 8			1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	56
DFBQ 11			2,32	2,87	3,62	4,05	4,87	5,36	6,30	6,74	64
DFBQ 12			2,79	3,41	4,09	4,55	5,30	5,91	7,02	7,58	70
DFBQ 16			3,58	4,41	5,30	6,14	7,27	8,00	9,51	10,04	60
DFBQ 20			4,46	5,46	6,50	7,54	9,06	10,00	11,92	12,63	73
DFBQ 22			5,11	6,24	7,51	8,32	9,78	10,91	13,23	14,24	80
DFBQ 27			6,04	7,42	9,01	10,10	12,32	13,64	16,06	17,47	53
DFBQ 32			7,25	8,88	10,81	12,32	14,44	15,96	19,29	20,40	70
DFBQ 42			9,67	11,82	14,44	15,96	19,29	21,41	24,95	27,37	76
DFBQ 47			10,61	13,03	14,95	17,78	21,11	23,63	28,38	30,20	57
DFBQ 49			11,62	14,24	16,36	18,69	23,13	25,05	29,29	32,52	86
DFBQ 63			14,44	17,07	20,50	23,84	28,89	32,22	38,48	41,31	69

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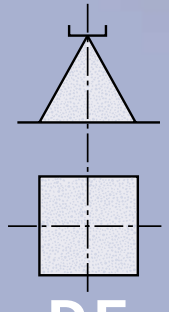


DF

SPRAY CHARACTERISTICS

- *Uniform distribution of droplets in a wide angle solid cone square shaped spray pattern.*
- *Droplet size is larger than in hollow cone nozzles of equal capacity.*
- *Pressure increases affect spray angles.*

CONSTRUCTION AND MATERIALS

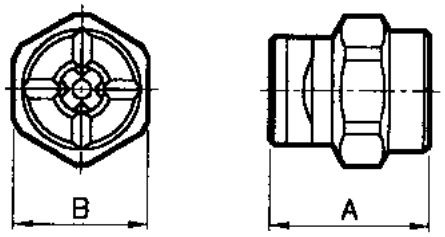
- *Hexagonal one piece quick attach body and cross-milled core.*
- *Core imparts the necessary swirl to produce a solid spray pattern.*
- *Available in Brass and 316 Stainless Steel.*

ORDER EXAMPLE

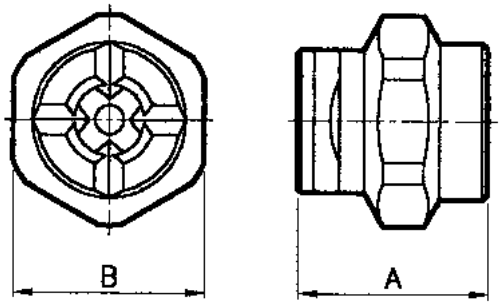
DFBT 25 Brass.

DIMENSIONS (mm)

Nozzle Size	*A*	*B Hex*
DFBT STANDARD	21,4	18,0
DFBT LARGE	28,6	25,7



DFBT STANDARD



DFBT LARGE

CAPACITY CHART

NOZZLE NUMBER	*BODY SIZE**		*FLOW RATE IN LITRES/MIN AT Bar.G.*								*SPRAY ANGLE (°) @ 2 Bar.G.*
	S	*L*	*0,7*	*1*	*1.5*	*2*	*3*	*4*	*6*	*7*	
DFBT 6			1,25	1,50	1,88	2,18	2,65	2,87	3,41	3,54	85
DFBT 8			1,86	2,28	2,84	3,23	4,00	4,55	5,38	5,72	95
DFBT 11			2,79	3,23	3,86	4,31	5,15	5,45	6,73	7,34	120
DFBT 15			3,67	4,50	5,26	5,59	6,64	7,24	8,70	9,16	110
DFBT 18			4,40	5,39	6,30	6,70	7,96	8,68	10,43	10,98	120
DFBT 22			5,58	6,84	8,0	8,50	10,10	11,01	13,23	13,94	110
DFBT 25			6,04	7,24	8,43	9,32	11,01	12,32	14,65	15,76	120
DFBT 32			7,70	9,15	10,80	11,92	14,30	15,78	18,90	19,90	110
DFBT 39			9,40	11,15	13,14	14,52	17,40	19,20	23,00	24,25	120
DFBT 46			11,62	13,64	15,86	17,27	19,29	22,32	25,45	27,88	112
DFBT 48			12,52	15,25	16,87	18,18	23,13	24,54	29,80	32,52	120
DFBT 59			13,23	15,96	19,29	22,32	26,06	28,18	34,64	37,67	128

**S = for use with ¼" or ⅜" Dela-Fit Bodies. L = for use with ½" Dela-Fit Bodies.*

DELA-FIT TYPE DFBT

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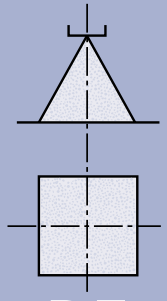


DF

TYPE DF / AD

DELA-FIT

DF BODIES

CHARACTERISTICS

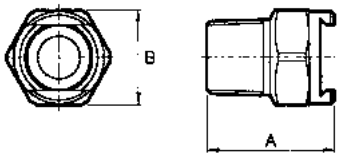
- *Dela-Fit bodies are designed to accept any tip from the Dela-Fit range as well as any of the threaded adaptors.*

CONSTRUCTION AND MATERIALS

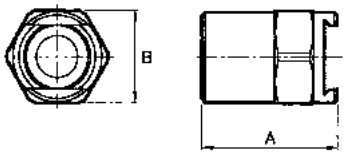
- *¼", ⅜" and DFW Welding bodies are for nozzles designated 'S' in the nozzle size chart. ½" bodies are for nozzles designated 'L'.*
- *EPDM Seals are Standard, Viton optional.*
- *Threaded bodies available in Brass and 316 Stainless Steel.*
- *Welding nipples available in 316 Stainless Steel and Mild Steel.*
- *Thread sizes are Male BSPT and Female BSPP.*

DIMENSIONS (mm)

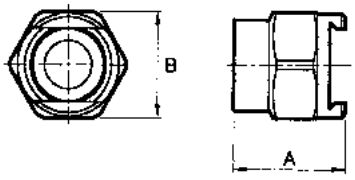
Body Type	*A*	*B Hex*
¼" DFM (Male)	28,6	20,8
⅜" DFM (Male)	28,6	20,8
½" DFM (Male)	36,5	28,0
¼" DFF (Female)	30,7	20,8
⅜" DFF (Female)	31,0	20,8
½" DFF (Female)	34,9	28,0
DFW (Welding)	19,0	20,8
½" DFF (Welding)	25,4	28,0



DFM BODY



DFF BODY



DFW BODY

AD ADAPTORS

CHARACTERISTICS

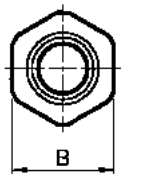
- *Adapts standard threaded nozzles, hose fittings or accessories to the Dela-Fit system.*
- *Can function as quick release couplings.*

CONSTRUCTION AND MATERIALS

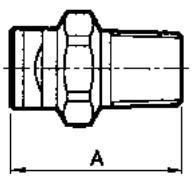
- *Available in Brass and 316 Stainless Steel.*
- *Thread sizes are Male BSPT and Female BSPP.*

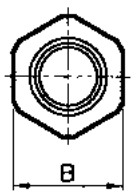
DIMENSIONS (mm)

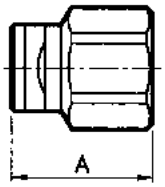
Adaptor Type	*A*	*B Hex*
DF x ¼" ADM (Male)	30,4	18,0
DF x ⅜" ADM (Male)	30,4	18,0
½" DF x ½" ADM (Male)	38,0	28,0
DF x ¼" ADF (Female)	23,2	18,0
DF x ⅜" ADF (Female)	26,2	20,8
½" DF x ½" ADF (Female)	30,5	28,0



DFM ADAPTOR







DFF ADAPTOR

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DF

FB BODIES

CHARACTERISTICS

- *Designed to accept the FB type cap with the Dela-Fit "Chamfaloc" locking system.*

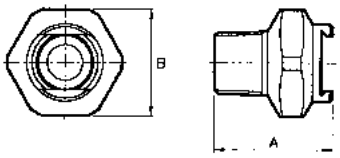
CONSTRUCTION AND MATERIALS

- *Available in Brass and 316 Stainless Steel.*
- *Threaded sizes are Male BSPT and Female BSPP.*
- *FBW welding nipple is available in 316 Stainless Steel and Mild Steel.*

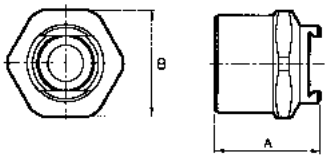
DFFBF BODY

DIMENSIONS (mm)

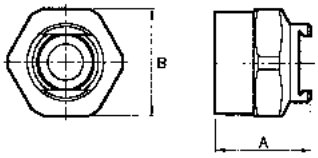
Body Type	*A*	*B Hex*
1/4" DFFBM (Male)	28,6	28,0
3/8" DFFBM (Male)	31,6	28,0
1/4" DFFBF Female)	27,8	28,0
3/8" DFFBF (Female)	28,2	28,0
FBW (Welding)	25,4	28,0



DFFBM BODY



DFFBF BODY



FBW BODY

FB CAPS

CHARACTERISTICS

- *Allows standard flanged nozzles to be used in the Dela-Fit system.*
- *FBLF cap is designed to ensure positive alignment of standard flat spray nozzles for correct orientation when overlapping sprays.*

CONSTRUCTION AND MATERIALS

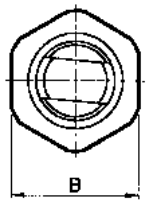
- *Available in Brass and 316 Stainless Steel.*

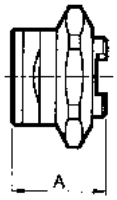
FBLF CAP

FBWG CAP

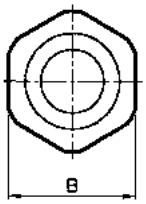
DIMENSIONS (mm)

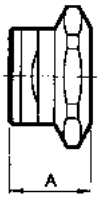
Cap Type	*A*	*B Hex*
FBWG	16,3	25,7
FBLF	20,6	25,7





FBLF CAP





FBWG CAP

SEALS

CHARACTERISTICS

- *Allows adequate compression to create a positive seal between the nozzles and bodies.*

CONSTRUCTION AND MATERIALS

- *EPDM is the standard material. Viton is available as an option.*

SEAL PART NUMBERS

Seal Type	*EPDM*	*Viton*
1/4" and 3/8" bodies	WO9665-1	WO9665-2
1/2" bodies	WO9666-1	WO9666-2
FB Caps	WO9693-1	WO9693-2

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H Airless

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Spray Technologies

DELAVAN
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SECTION INDEX

These units are purposely designed items for use in paint spraying and coating applications. Additional special purpose air assisted tips are also shown for reference.

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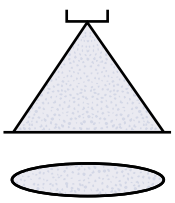

FEATURES

- *Delavan Carbide Tips are specifically designed and tested for all airless paint spraying applications.*
- *Design and manufacturing techniques used on the Delavan Airless Tips are based specifically on the industry's need for high performance standards using viscous materials etc.*
- *Carbide Tips are being used on all types of airless equipment and applications. Continued research assures all users of quality unsurpassed in the industry.*
- *The Carbide Tip material selected for use is the highest quality, wear resistant material now available.*
- *Every Airless Tip is checked to ensure calibration, and all other design features are achieved on every Tip before leaving the factory.*

SELECTION GUIDE

- *Airless Tip orifices are elliptical in shape. The term "equivalent orifice diameter" refers to a circular orifice diameter which will provide the same flow rates as the elliptical orifice. The equivalent orifice diameter does not indicate the actual orifice dimensions.*
- *The flow rates of Delavan Airless Tips are given in US GPM based on water at the pressures shown. Capacities would vary to some degree on other liquids.*
- *The pattern width dimension is the nominal pattern width of each Airless Tip when tested on a coating material of 20 seconds - # 4 Zahn cup viscosity at 1500 PSI at a distance of 12" from the Tip.*
- *Maximum design pressure is 500 Bar.G.*

CAPACITY CHART

TIP NUMBER	EQUIV. ORIF. (Inches)	PATTERN WIDTH (Inches)	FLOW RATE IN US GPM AT PSIG PRESSURE 500	1000	1500	2000	PRE-ORIFICE DISC NO.
C515		3					
C525	0,005	5	0,015	0,02	0,025	0,03	9
C540		7					
C715		3					
C725	0,007	5	0,03	0,04	0,05	0,06	9
C735		6					
C740		7					
C915		3					
C925		5,5					
C940	0,009	7	0,04	0,06	0,067	0,08	9
C950		8,5					
C965		10					
C1115		3					
C1125		5,5					
C1140		7					11
C1150	0,011	8,5	0,06	0,08	0,10	0,12	OR
C1165		10					13
C1180		11,5					
C1315		3					
C1325		5,5					
C1340		8					
C1350	0,013	9	0,09	0,12	0,15	0,18	16
C1365		11					
C1380		13					
C1395		14					
C1515		4					
C1525		6					
C1540		8					
C1550	0,15	10	0,12	0,16	0,20	0,23	16
C1565		12					
C1580		14					
C1595		15,5					

TIP NUMBER	EQUIV. ORIF. (Inches)	PATTERN WIDTH (Inches)	FLOW RATE IN US GPM AT PSIG PRESSURE 500	1000	1500	2000	PRE-ORIFICE DISC NO.
C1615		4					
C1625		6					
C1640		8					
C1650	0,016	10	0,14	0,19	0,24	0,28	20
C1665		12					
C1673		14					
C1680		15					
C1695		17					
C1825		6					
C1840		8,5					
C1850	0,018	10	0,18	0,25	0,30	0,36	20
C1865		13					
C1880		15					
C1895		17					
C2025		6					
C2040		8,5					
C2050		10					
C2060	0,020	12	0,20	0,28	0,35	0,40	25
C2065		14					
C2080		16					
C2095		18					
C2125		6					
C2140		8,5					
C2150	0,021	11,5	0,24	0,33	0,41	0,47	25
C2165		15					
C2180		17					
C2195		19					
C2425		7					
C2440		9					
C2450		12					
C2465	0,024	15	0,30	0,42	0,52	0,60	25
C2473		17					
C2480		18,5					
C2495		21					

Continued on page H.2

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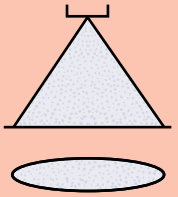


AIRLESS TIPS

AIRLESS

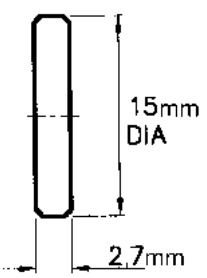
CAPACITY CHART (CONT.)

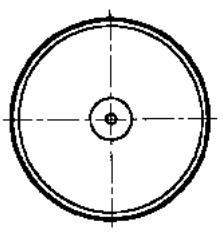
TIP NUMBER	EQUIV. ORIF. (Inches)	PATTERN WIDTH (Inches)	FLOW RATE IN US GPM AT PSIG PRESSURE 500	1000	1500	2000	PRE-ORIFICE DISC NO.
C2625		7					
C2640		9					
C2650	0,026	12	0,35	0,50	0,61	0,71	28
C2665		15					
C2680		18,5					
C2695		21					
C2925		7					
C2940		9					
C2950		12					
C2965	0,029	15	0,45	0,63	0,80	0,90	31
C2973		17					
C2980		18,5					
C2995		21,5					
C3140		9					
C3150		12					
C3165	0,031	15	0,53	0,75	0,92	1,1	39
C3180		18,5					
C3195		21,5					

TIP NUMBER	EQUIV. ORIF. (Inches)	PATTERN WIDTH (Inches)	FLOW RATE IN US GPM AT PSIG PRESSURE 500	1000	1500	2000	PRE ORIFICE DISC NO.
C3640		9					
C3650		12					
C3665	0,036	15	0,71	1,0	1,2	1,4	39
C3680		18,5					
C3695		21,5					
C4195	0,041	21,5	0,88	1,2	1,5	1,8	45
C4340		9					
C4350		12					
C4365	0,043	15	1,1	1,5	1,8	2,1	45
C4380		18,5					
C4395		21,5					
C4880	0,048	18,5	1,2	1,7	2,1	2,5	55
C4895		22					
C5240	0,052	9	1,4	2,0	2,4	2,8	55
C5265		15					
C6240	0,062	9	2,1	3,0	3,7	4,2	65
C6265		15					
C7265	0,072	15	2,8	4,0	4,9	5,7	76
C8565	0,085	15	4,1	5,7	6,7	8,1	76

PRE-ORIFICE DISCS

- *The spray quality of most airless tips can be improved with the use of a Delavan Pre-Orifice Disc.*
- *Applications previously considered impractical can now be handled by adding a Delavan Pre-Orifice.*
- *Substantially lower operating pressures can be used without sacrificing spray quality.*
- *Larger Airless Tip sizes may be used at lower pressures, resulting in low flow rates without clogging.*
- *The Pre-Orifice Disc, which is easily installed directly behind the Airless Tip, also serves as a seal, eliminating the need for a separate gasket.*
- *Pre-Orifice Discs are constructed with a Carbide insert mounted in a Stainless Steel housing.*
- *Refer to the above chart and that on page H.1 to obtain the recommended Pre-Orifice Disc size.*





ORIFICE DIMENSIONS

DISC NO.	9	11	13	16	20	25	28	31	39	45	55	65	76
ORIFICE DIA. (inches)	0,009	0,011	0,013	0,016	0,020	0,025	0,028	0,031	0,039	0,045	0,055	0,065	0,076

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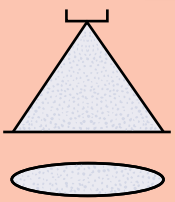
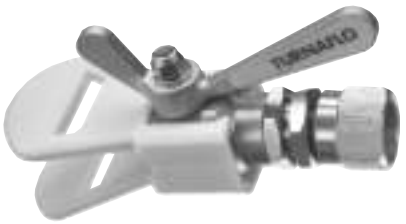


FEATURES

- *The Delavan Turnaflo adaptor provides a quick and easy method for removal of particles blocking the spray tip during operation.*
- *When spray tip is blocked, turn handle 180°. Flow then reverses through spray tip and flushes out foreign matter.*
- *Maximum recommended pressure is 4000 PSIG (275 Bar.G.)*



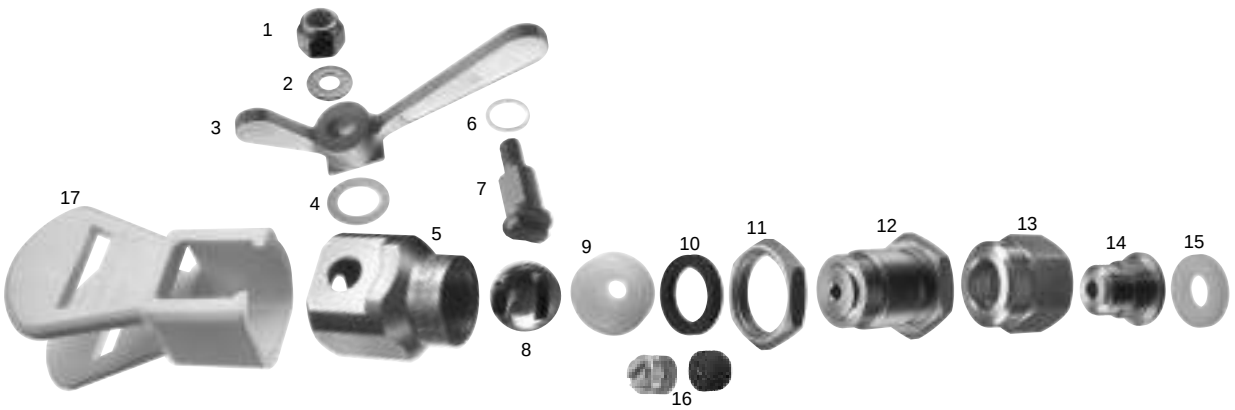
Parts List

ITEM	DESCRIPTION	PART NUMBER
1	Nut	W01744
2	Nut Washer	W01741
3	Handle	W01468
4	Handle Washer	W01563
5	Body	W01561
6	Drive Shank Washer	W01564
7	Drive Shank	W01560
8	Ball	W01482
9	Ball Gasket	W01086
10	Nu-lip Seal	W00075

Parts List

ITEM	DESCRIPTION	PART NUMBER
11	Locknut	W00916
12	Seal-Retainer	W00915
13	Cap	See Table Below
14	Connecting Piece	W00747
15	Gasket	See Table Below
16	Turnatip Kit	See Page H.4
17	Safety Guard	W05758
18	Seal Kit	4600 SK*
19	Ball and Seal Kit	4600 BSK*

** Not illustrated.*



TURNAFLO SELECTION GUIDE

TURNAFLO PART NUMBER	TO FIT GUN TYPE	SCREW CAP THREAD	SREW CAP PART NUMBER	GUN SEALING GASKET
4500 - AG	Speeflo	3/8" NPS	W00056	W06428
4500 - AG	Kremlin	3/8" NPS	W00056	W06428
4500 - AG	Nordson	3/8" NPS	W00056	W06428
4500 - AG	De Vilbiss	3/8" NPS	W00056	W06428
4510 - AG	Graco*	11/16" x 16 UN	W00057	W06428
4510 - AG	Alemite	11/16" x 16 UN	W00057	W06428
4510 - AG	S.S. Co. 24-A & 25A	11/16" x 16 UN	W00057	W06428
4510 - AG	Wagner Super G15	11/16" x 16 UN	W00057	W06428
4510 - AG	Rexson	11/16" x 16 UN	W00057	W06428
4510 - AG	Binks 43	11/16" x 16 UN	W00057	W06428
4520 - AG	Blinks 50	3/4" x 20 UNEF	W00058	W01776
4530 - AG	Graco**	7/8" x 14 NF	W00059	W00064
4540 - AG	S.S. Co. 44A	1" x 14 NF	W00060	W00079
4550 - AG	Atlas Copco	M18 x 1	W01684	W06428
4550 - AG	Bede	M18 x 1	W01684	W06428
4550 - AG	Kopperschmidt	M18 x 1	W01684	W06428
4560 - AG	Iwata	M18 x 1	W01684	W00063
4570 - AG	Aro 651-516	11/16" x 16 UN	W00697	W06428
4580 - AG	-	5/8" BSPP	W01324	W00064
4590 - AG	-	M18 x 1,5	W15151	W06428

** Attach Turnaflo after removing Airless Tip retaining nut only.*
*** Attach Turnaflo after removing filter retainer.*

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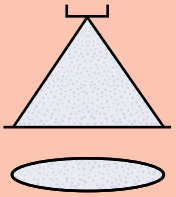

TURNATIP KIT

AIRLESS

FEATURES

- *The Turnatip Kit utilises the same Carbide insert as the Airless Tip but with a Brass housing to fit a Turnaflo adaptor.*
- *The Brass housing is bonded to the Carbide insert and is slotted in the orifice area. The slot is also utilised for orientation purposes by using a special alignment tool.*
- *Each Turnatip Kit is supplied with grubscrews, for both Delavan and competitive units, and an alignment tool.*
- *The Turnatip number is stamped on the Brass housing for ease of identification e.g.D2.*
- *The Turnatip is flow tested and pattern width checked in the same way as the Airless Tip.*

TURNATIP KIT CONTENTS

- *Turnatip size as per order.*
- *W00126 - Hardened Steel safety grubscrews for use with Turnaflo.*
- *W00127 - Hardened Steel safety grubscrews for use with competitive units.*
- *W00761 - Turnatip alignment tool.*

ORDER EXAMPLE

Turnatip Kit P4.

TURNATIP NUMBER	AIRLESS TIP REF.	EQUIV. ORIFICE (INCHES)	PATTERN WIDTH (INCHES)	FLOW RATE*
X-2	C515		3	
X-3	C525	0,005	5	0,02
X-4	C540		7	
A-2	C715		3	
A-3	C725	0,007	5	0,4
A-4	C735		6	
A-5	C740		7	
B-2	C915		3	
B-3	C925		5,5	
B-4	C940	0,009	7	0,06
B-5	C950		8,5	
B-6	C965		10	
C-2	C1115		3	
C-3	C1125		5,5	
C-4	C1140	0,011	7	0,08
C-5	C1150		8,5	
C-6	C1165		10	
C-7	C1180		11,5	
D-2	C1315		3	
D-3	C1325		5,5	
D-4	C1340		8	
D-5	C1350	0,013	9	0,12
D-6	C1365		11	
D-7	C1380		13	
D-8	C1395		14	
E-2	C1515		4	
E-3	C1525		6	
E-4	C1540		8	
E-5	C1550	0,015	10	0,16
E-6	C1565		12	
E-7	C1580		14	
E-8	C1595		15,5	
F-2	C1615		4	
F-3	C1625	0,016	6	0,19
F-4	C1640		8	
F-5	C1650		10	

TURNATIP NUMBER	AIRLESS TIP REF.	EQUIV. ORIFICE (INCHES)	PATTERN WIDTH (INCHES)	FLOW RATE*
F-6	C1665		12	
F-7	C1673	0,016	14	0,19
F-8	C1680		15	
F-9	C1695		17	
G-2	C1825		6	
G-3	C1840		8,5	
G-4	C1850	0,018	10	0,25
G-5	C1865		13	
G-6	C1880		15	
G-7	C1895		17	
H-2	C2025		6	
H-3	C2040		8,5	
H-4	C2050		10	
H-5	C2060	0,020	12	0,28
H-6	C2065		14	
H-7	C2080		16	
H-8	C2095		18	
J-2	C2125		6	
J-3	C2140		8,5	
J-4	C2150	0,021	11,5	0,33
J-5	C2165		15	
J-6	C2180		17	
J-7	C2195		19	
K-2	C2425		7	
K-3	C2440		9	
K-4	C2450		12	
K-5	C2465	0,024	15	0,42
K-6	C2473		17	
K-7	C2480		18,5	
K-8	C2495		21	
L-2	C2625		7	
L-3	C2640		9	
L-4	C2650	0,026	12	0,50
L-5	C2665		15	
L-6	C2680		18,5	
L-7	C2695		21	

TURNATIP NUMBER	AIRLESS TIP REF.	EQUIV. ORIFICE (INCHES)	PATTERN WIDTH (INCHES)	FLOW RATE*
M-2	C2925		7	
M-3	C2940		9	
M-4	C2950		12	
M-5	C2965	0,029	15	0,63
M-6	C2973		17	
M-7	C2980		18,5	
M-8	C2995		21,5	
N-2	C3140		9	
N-3	C3150		12	
N-4	C3165	0,031	15	0,75
N-5	C3180		18,5	
N-6	C3195		21,5	
P-2	C3640		9	
P-3	C3650		12	
P-4	C3665	0,036	15	1,0
P-5	C3680		18,5	
P-6	C3695		21,5	
P-7	C36110		24	
R-2	C4195	0,041	21,5	1,2
R-3	C4340		9	
R-4	C4350		12	
R-5	C4365	0,043	15	1,5
R-6	C4380		18,5	
R-7	C4395		21,5	
S-2	C4880	0,048	18,5	1,7
S-3	C4895		22	
T-2	C5240	0,052	9	2,0
T-3	C5265		15	
V-3	C6240	0,062	9	3,0
V-4	C6265		15	
W-2	C7265	0,072	15	4,0
W-3	C8565	0,085	15	5,7

* Flow rates are indicated in US galls/min (water) at an operating pressure of 1000 PSIG (69 Bar.G.).

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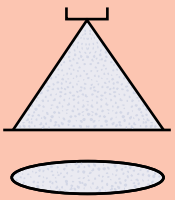
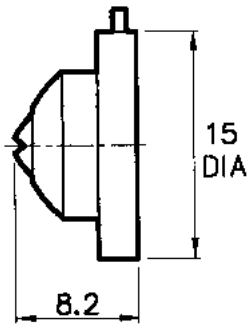
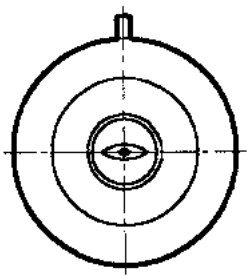
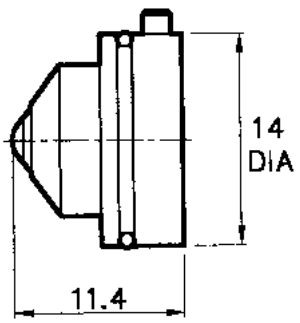
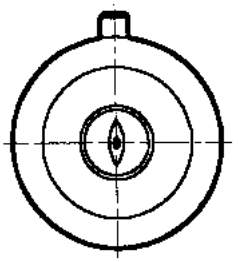


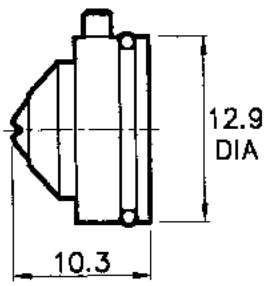
Delavan manufacture various types of flanged tip assemblies for use with air assisted spray guns. These are supplied with Carbide inserts from our standard range of Airless Tips. The dimensional details of the three current styles are shown below.

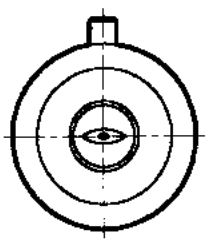












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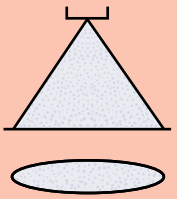

I Special Purpose

WELCOME TO DELAVAN

Meeting the **challenges** of new industries and *NEW markets*

DELAVAN®
Spray Technologies

SECTION INDEX

These special purpose assemblies have been designed for particular applications but can be utilised for others when necessary. Other 'specials' can be designed for specific applications. Please contact Delavan's Customer Service Team for further details.

** Flow quoted at 1 Bar.G. approx.*

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APPLICATIONS

- *Agitation and mixing of liquids containing solid suspensions.*
- *Cataphoresis plants.*
- *Stainless Steel units ideal for steam heating of liquid in tanks where uniform heat distribution over a large area is required.*

FEATURES

- *High efficiency.*
- *Wide range of flow capacities.*
- *Outstanding resistance to erosion/corrosion.*
- *Tapered inlet reduces wear and resists clogging.*
- *High velocity jet stream for maximum agitation/mixing.*
- *Typical turnover ratio of 3:1.*

SPRAY CHARACTERISTICS

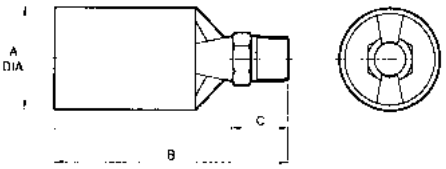
- *Produces a high velocity straight jet.*
- *Induces the surrounding liquid into the jet stream.*

CONSTRUCTION AND MATERIALS

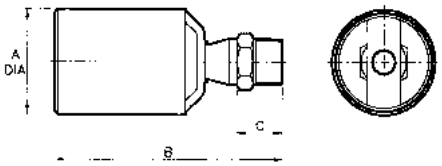
- *One piece design with no internal components.*
- *Available with ⅜", ½" and ¾" Male BSPT thread.*
- *Available in 316 Stainless Steel or Glass filled Polypropylene (Polyglass).*

ORDER EXAMPLE

½" BB 100 Stainless Steel.
¾" BB 250 Polyglass.



MOULDED EDUCTOR



METAL EDUCTOR

DIMENSIONS AND WEIGHTS

THREAD Size	POLYGLASS A	B	C	Weight (g)	316 STAINLESS STEEL A	B	C	Weight (g)
⅜"	60,3	140	33,3	79	48,3	124	25	525
½"	60,3	140	33,3	85	48,3	127	25	540
¾"	60,3	140	33,3	86	60,3	137	30	580

Maximum Recommended Pressure: 10 Bar.G.(Polyglass), 35 Bar.G.(Stainless Steel).

Maximum Recommended Temperature: 75˚C (Polyglass), 500˚C (Stainless Steel).

CAPACITY CHART

NOZZLE NUMBER	APPROX. ORIFICE SIZE (mm)	BSPT THREAD SIZE ⅜	½	¾	FLOW RATE IN LITRES/MIN AT Bar.G. ,7	1,0	1,5	2,0	3,0	4,0	5,0	7,0	8,0	Turnover Ratio 1,5–4,0 Bar.G.
BB 50	4,4				9,61	11,61	14,2	16,4	20,00	23,1	25,8	30,19	32,2	3:1
BB 75	5,4				14,42	17,42	21,3	24,6	30,00	34,8	38,90	45,3	48,3	3:1
BB 100	6,4				19,1	22,8	27,94	32,24	40,00	45,6	51,0	60,38	64,4	3:1
BB 125	7,1				24,0	29,0	35,5	40,25	50,00	58,0	63,75	75,48	80,5	3:1
BB 150	7,8				28,8	34,4	41,67	48,6	60,00	68,8	76,5	90,12	96,4	3:1
BB 175	8,4				33,4	39,90	48,9	56,48	69,00	79,8	89,25	105,57	110,95	3:1
BB 200	8,8				38,0	45,5	55,70	64,3	78,80	91,0	102	120,31	128,6	3:1
BB 250	9,8				47,6	57,0	69,6	80,4	98,75	114,0	128	150	160,8	3:1
BB 300	11,0				57,2	68,3	83,33	96,9	118,30	136,6	153	180,7	197,8	3:1
BB 350	11,9				66,5	79,63	97,50	112,53	138,00	159,28	178,0	210,54	225,0	3:1
BB 400	12,7				76,0	90,6	111,96	129	157,00	181,2	202,5	241,1	258	3:1

LARGER SIZES ARE AVAILABLE - CONTACT OUR CUSTOMER SERVICES DEPARTMENT

TANK HEATING CHART

STEAM PRESSURE Bar.G.		TIME IN MINUTES TO HEAT 300 LITRES OF WATER AT VARIOUS STEAM PRESSURES 0,35	0,7	1	2	3	4	5	6
TEMPERATURE RISE	5˚C	11	7	6	4	3	2	2	2
	10˚C	22	13	11	7	5	4	4	3
	20˚C	43	26	22	13	10	8	6	6
	40˚C	86	52	43	26	19	15	12	10
	60˚C	130	78	64	58	29	23	19	15
	80˚C	173	103	86	51	38	30	25	20
	100˚C	216	130	107	64	48	38	31	25

This chart is based on using a single 1/2" BB 100 Stainless Steel nozzle with a 6,4mm orifice.

Contact our Helpline for any special requirements:
Tel: +44 (0) 151 424 6821
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e-mail:sales@delavan.co.uk
Web:www.delavan.co.uk

TYPE 1505/RO

SPECIAL PURPOSE

TYPE 1505

SPRAY CHARACTERISTICS

- *Calibrated metering orifice for regulating liquid fluids.*
- *Straight stream jet with needle type spray.*

CONSTRUCTION AND MATERIALS

- *Burr-free orifice to provide consistent flow with minimum deviation.*
- *Available in 302 Stainless Steel only.*
- *Used with Standard bodies and caps.*

ORDER EXAMPLE

1505-45.

CAPACITY CHART

NOZZLE NUMBER	DIA. (mm)	FLOW RATE IN LITRES/MIN AT Bar.G. 1	2	3	4
1505-8	0,20	,018	,026	,032	,036
1505-10	0,25	,030	,042	,051	,059
1505-12	0,30	,041	,058	,071	,082
1505-14	0,36	,057	,081	,099	,114
1505-15	0,38	,064	,090	,111	,128
1505-16	0,41	,073	,103	,126	,146
1505-17	0,43	,082	,116	,142	,164
1505-18	0,46	,091	,129	,158	,182
1505-19	0,48	,103	,145	,178	,205
1505-20	0,51	,112	,158	,193	,223
1505-22	0,56	,135	,190	,233	,269
1505-24	0,61	,169	,239	,292	,337
1505-25	0,64	,182	,258	,316	,365
1505-26	0,66	,198	,280	,344	,397
1505-28	0,71	,228	,322	,395	,456
1505-29	0,74	,246	,348	,426	,492
1505-30	0,76	,262	,371	,454	,524
1505-32	0,81	,285	,403	,494	,570
1505-34	0,86	,312	,442	,541	,625
1505-35	0,89	,328	,464	,569	,657
1505-37	0,94	,367	,519	,636	,734
1505-39	0,99	,413	,584	,715	,825
1505-41	1,04	,499	,635	,778	,898
1505-43	1,09	,492	,696	,853	,985
1505-45	1,14	,540	,764	,936	1,08
1505-46	1,17	,565	,800	,979	1,13
1505-47	1,19	,593	,838	1,03	1,19
1505-48	1,22	,616	,870	1,07	1,23
1505-49	1,24	,638	,903	1,11	1,28
1505-51	1,30	,684	,967	1,18	1,37
1505-52	1,32	,72	1,02	1,25	1,44
1505-54	1,37	,775	1,1	1,34	1,55
1505-55	1,40	,807	1,14	1,4	1,61
1505-57	1,45	,866	1,23	1,5	1,73
1505-59	1,50	,926	1,31	1,6	1,85
1505-61	1,55	1,0	1,42	1,74	2,01
1505-63	1,60	1,09	1,55	1,90	2,19
1505-65	1,65	1,16	1,64	2,01	2,33
1505-67	1,70	1,25	1,77	2,17	2,51
1505-68	1,73	1,28	1,81	2,21	2,55
1505-70	1,78	,140	1,98	2,42	2,80
1505-72	1,83	1,46	2,06	2,53	2,92
1505-73	1,85	1,54	2,18	2,67	3,08
1505-75	1,91	1,60	2,26	2,76	3,19
1505-78	1,98	1,76	2,48	3,04	3,51
1505-80	2,03	1,85	2,61	3,20	3,69
1505-81	2,05	1,89	2,68	3,28	3,78
1505-83	2,11	1,98	2,81	3,44	3,97
1505-86	2,18	2,05	2,90	3,55	4,1
1505-89	2,26	2,2	3,11	3,31	4,4
1505-91	2,31	2,23	3,16	3,87	4,47
1505-93	2,36	2,3	3,26	3,99	4,61
1505-95	2,41	2,51	3,55	4,34	5,02
1505-98	2,49	2,67	3,77	4,62	5,34
1505-105	2,62	2,96	4,19	5,13	5,93
1505-107	2,72	3,19	4,51	5,53	6,38
1505-110	2,79	3,42	4,84	5,92	6,84
1505-115	2,92	3,88	5,48	6,71	7,75
1505-120	3,05	4,01	5,67	6,95	8,03
1505-125	3,18	4,74	6,71	8,21	9,48
1505-140	3,56	5,75	8,13	9,95	11,5
1505-156	3,96	7,25	10,3	12,6	14,5
1505-177	4,50	9,23	13,1	16,0	18,5
1505-196	4,98	11,2	15,9	19,5	22,5
1505-218	5,54	14,2	20,1	24,6	28,5
1505-234	5,94	16,2	23,0	28,1	32,5

TYPE RO

SPRAY CHARACTERISTICS

- *Calibrated metering orifice for regulating liquid fluids.*
- *Straight stream jet with needle type spray.*

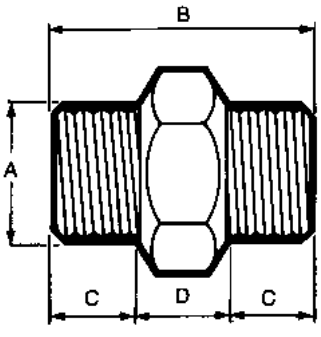
CONSTRUCTION AND MATERIALS

- *One piece construction with Male BSPT thread.*
- *Burr-free orifice to provide consistent flow with minimum deviation.*
- *Brass and Stainless Steel are standard.*
- *Other materials are available to special order.*

ORDER EXAMPLE

Specify thread size required, together with orifice size and orifice length as follows:

3/8" RO x 3.0mm x 10.0mm.



DIMENSIONS AND WEIGHTS

BSPT Thread Size	Dimensions (mm)			Weight
A	B	C	D	(g)
1/4"	25,4	9,5	6,4	28
3/8"	33,3	12,7	7,9	57
1/2"	38,1	12,7	12,7	99
3/4"	44,5	14,3	15,9	170
1"	57,2	20,6	15,9	184

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SPRAY CHARACTERISTICS

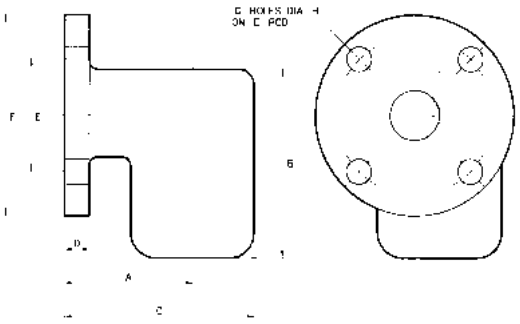
- *Produces a hollow cone spray pattern with uniform distribution.*
- *Has a narrower droplet spectrum than equivalent solid cone sprays.*

CONSTRUCTION AND MATERIALS

- *Manufactured in Silicon Carbide, Nitride bonded (SiC).*
- *Clog resistant design with no internal vanes or cones.*
- *Uses 'Canted Bottom' design of swirl chamber for maximum wear resistance.*
- *Ideal for Gas washing and cooling where high temperatures, together with corrosive and abrasive elements, are present.*
- *Manufactured in flanged version only.*
- *Mounting flanges as per ANSI 150.*

ORDER EXAMPLE

3" UC 250-FL.



DIMENSIONS AND WEIGHTS

Size (N.B.)	A	B	C	D	E	F	G	H	Weight (Kg)
2"	98,4	140	148	19	121	152	4	19	2,69
2½"	98,4	190	148	22	140	178	4	19	4,66
3"	127	225	210	24	152	191	4	19	7,45
4"	152	269	252	24	191	229	8	19	13,4

Maximum Recommended Pressure: 7 Bar.G.
Maximum Recommended Temperature: 1650˚C.

CAPACITY CHART

FLANGE SIZE (N.B.)	NOZZLE NUMBER	FLOW RATE IN LITRES/MINUTE AT Bar.G.							Nominal Spray Angle(°) at 1 Bar.G.
		0,3	0,5	0,7	1,0	1,5	2,0	3,0	
2"	UC 60-FL	106	136	161	193	236	272	334	70
	UC 75-FL	132	170	201	241	295	340	417	70
	UC 90-FL	158	204	241	289	353	408	500	80
	UC 100-FL	176	228	269	322	394	455	557	80
	UC 110-FL	194	250	296	354	433	500	613	80
	UC 120-FL	211	273	322	386	472	545	668	80
	UC 135-FL	238	307	363	434	531	613	751	85
	UC 150-FL	265	342	404	483	591	683	836	85
2½"	UC 90-FL	158	204	241	289	353	408	500	70
	UC 100-FL	176	228	269	322	394	455	557	70
	UC 110-FL	194	250	296	354	433	500	613	70
	UC 120-FL	211	273	322	386	472	545	668	80
	UC 135-FL	238	307	363	434	531	613	751	80
	UC 150-FL	265	342	404	483	591	683	836	80
	UC 165-FL	290	375	444	531	650	750	919	85
3"	UC 135-FL	238	307	363	434	531	613	751	80
	UC 150-FL	265	342	404	483	591	683	836	80
	UC 175-FL	308	398	448	563	689	796	975	85
	UC 200-FL	353	455	539	644	788	910	1115	85
	UC 225-FL	396	512	606	724	886	1023	1254	90
	UC 250-FL	441	569	673	805	985	1138	1394	90
	UC 275-FL	485	625	740	885	1089	1251	1532	90
4"	UC 225-FL	396	512	606	724	886	1023	1254	75
	UC 250-FL	441	569	673	805	985	1138	1394	75
	UC 275-FL	485	625	740	885	1089	1251	1532	75
	UC 325-FL	573	740	875	1046	1281	1479	1811	80
	UC 375-FL	662	854	1010	1208	1479	1708	2092	80
	UC 450-FL	794	1025	1213	1450	1775	2050	2511	85
	UC 500-FL	882	1138	1347	1610	1971	2276	2788	85
	UC 550-FL	970	1252	1481	1771	2169	2504	3067	90
	UC 600-FL	1059	1367	1617	1933	2367	2733	3348	90

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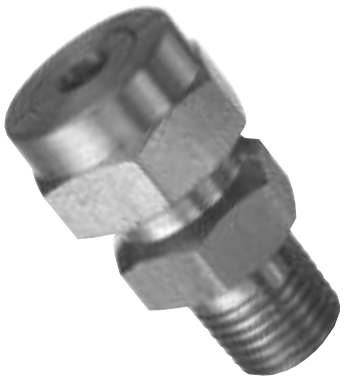
TYPE CON

SPECIAL PURPOSE



SPRAY CHARACTERISTICS

- *Produces a straight jet of steam which subsequently opens up with surrounding air resistance.*

CONSTRUCTION AND MATERIALS

- *Nozzle tip has a precision machined orifice to provide accurate calibration of steam flow.*
- *Maximum orifice size available is 0,400" (10,2mm).*
- *Supplied in a 3 piece design of nozzle tip, cap and threaded body.*
- *Body thread sizes are Male BSPT and Female BSPP.*
- *Available thread sizes are 1/8", 1/4" and 3/8".*
- *Supplied in Brass and Stainless Steel as standard.*
- *Other materials available to special order.*

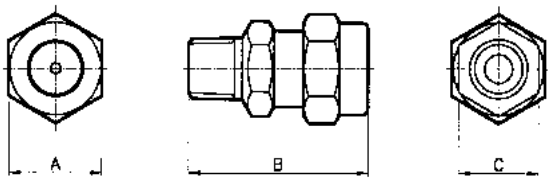
ORDER EXAMPLE

Advise the following: *1) Steam flow rate in kg/hr*
2) Operating pressure in Bar.G.

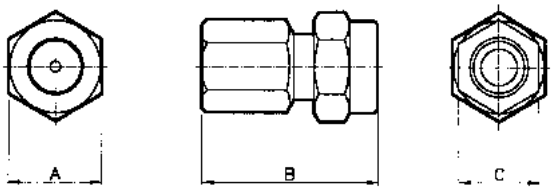
If the orifice is known:-
1/4" CONM (Male) x 4,8mm (0,189") Stainless Steel.
3/8" CONF (Female) x 9,2mm (0,362") Brass.

DIMENSIONS AND WEIGHTS

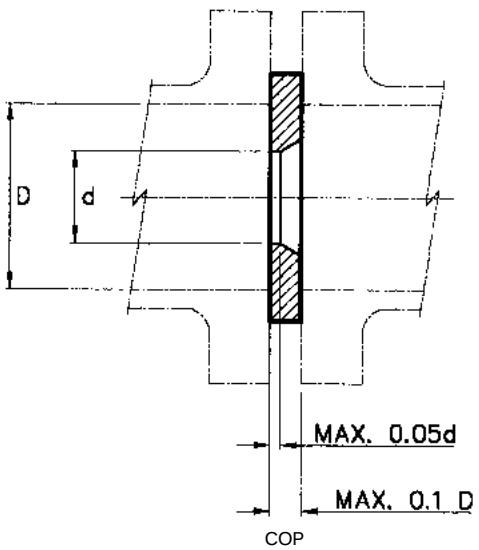
Thread Size	Dimensions (mm) A Hex	B	C Hex	Weight (g)
1/8"	20,8	40,0	18,0	65
1/8"	20,8	38,4	18,0	55
1/4"	20,8	40,0	18,0	64
1/4"	20,8	40,0	18,0	55



CON (MALE)



CON (FEMALE)



COP

COP F is a calibrated orifice plate and is utilised for higher flow rates that the CON cannot handle. They are designed in accordance with the British Standard 1042 and typical profiles are shown in the drawing.

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Web:www.delavan.co.uk

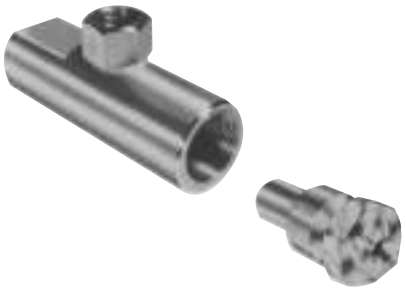
Delavan's Bypass nozzle has won an Honours Award in the Vaaler Awards competition held by Chemical Processing *magazine. The product was judged as a major contribution toward more efficient and effective operation of plants in chemical processing industries.*

APPLICATION

- *Evaporative cooling, chemical processing.*

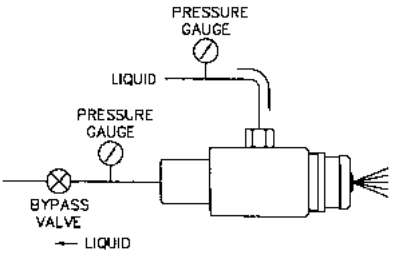
FEATURES

- *Flow rate is changed by means of a bypass valve without varying the supply pressure of using atomising air or gas. (See flow diagram.)*
- *Reduces the number of nozzles needed when gas inlet temperatures vary.*
- *In a bypass system, a portion of the input liquid may be diverted through a return line by means of a bypass valve. As the valve is opened, the total input flow increases. Delavan's Bypass nozzle's patented design minimises this flow growth to avoid excessive pumping requirements and hydraulic power consumption. The input flow increase (when bypass valve is opened) can be as low as 15%.*
- *Nozzle can be located in high temperature zone and connected by concentric piping to adaptor in cool area.*



SPRAY CHARACTERISTICS

- *Hollow cone spray pattern.*
- *"Turndown" refers to the ratio of the maximum discharge (bypass valve closed) to the minimum flow (bypass valve open) while maintaining satisfactory quality. Between these flow limits, there are no large fluctuations in spray angle or droplet size.*
- *The quality of atomisation depends on nozzle capacity, turndown rating, and specific operating conditions. For example, a nozzle will produce finer droplets when the inlet pressure is higher than 42 Bar.G., and vice versa.*



CONSTRUCTION AND MATERIALS

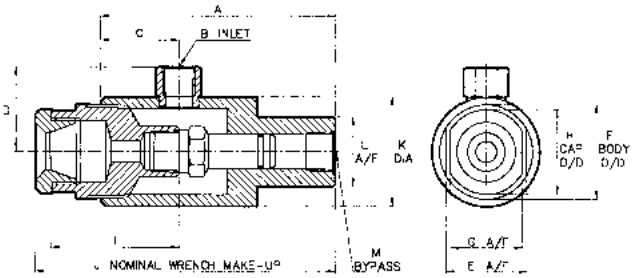
- *Large passages, to minimise restriction and to avoid clogging.*
- *Nozzle cap and body easily removed from adaptor.*
- *Available in 316 L Stainless Steel only.*

ORDER EXAMPLE

Refer to capacity chart for part numbers.

DIMENSIONS

Dimensions	*Nozzle and Adaptor*	
(mm)	*35051/35054*	*38635/38640*
A	120.6	90.1
B (Thds)	1/2" -14 NPTF	1/4" -18 NPTF
C	58.4	38.1
D	39.6	32.6
E(Flats)	22.2	19.1
F	26.7	21.3
G	19.1	15.9
H	21.9	18.8
I	54	38.1
J	142.7	105.8
K	41.3	28.6
L	31.7	19.1
M	1/2" -14 NPTF	1/4" -18 NPTF



WEIGHT

Part	*Part Number*	*Weight (g)*
Nozzle	35051–	150
	38635–	79
Adaptor	35054	992
	38640	360

Maximum Design Pressure: 56 Bar.G.

Maximum Design Temperature: 540˚C (Bypass Nozzle), 150˚C (Adaptor).

CAPACITY CHART

NOZZLE ASSEMBLY PART NUMBER	*ADAPTOR PART NUMBER*	*FLOW RATE IN LITRES/MIN AT 42 Bar.G.*		*TURN DOWN RATIO*	*SPRAY ANGLE (°)*	*NOZZLE BODY PART NUMBER*	*NOZZLE CAP PART NUMBER*
		MAXIMUM	*MINIMUM*				
35051-2	35054	26.5	2.19	12:1	80	35052-2	25053-2
35051-9	35054	26.5	2.65	10:1	85	35052-6	25053-7
35051-7	35054	18.9	1.21	15:1	80	37701-2	37702-2
35051-8	35054	18.9	1.89	10:1	85	37701-3	35053-6
38635-1	38640	11.3	.76	15:1	80	38636-1	38637-1
38635-3	38640	11.3	1.13	10:1	75	38636-3	38637-3

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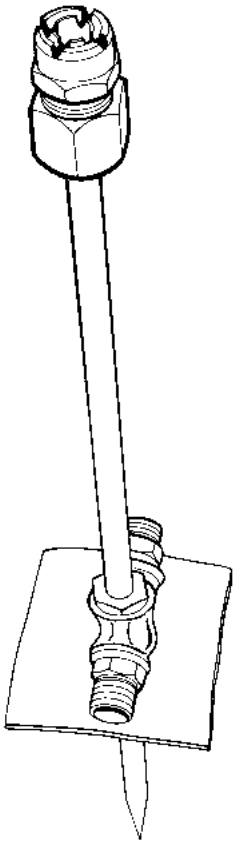
KIT-ONE

SPECIAL PURPOSE

For horticultural irrigation use Kit-One units with H.L. nozzles.

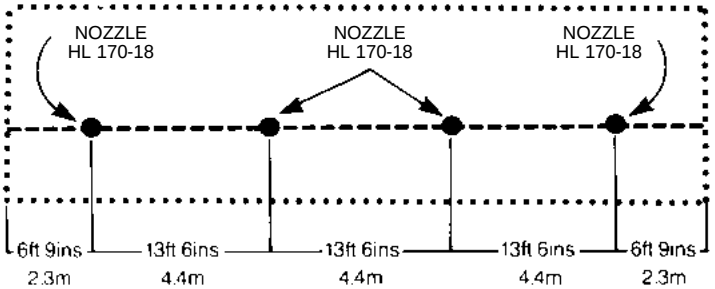


- *A universal system, in kit form, for permanent or semi-permanent siting in polythene-clad structures, under glass or on open ground.*
- *For interconnection and initial connection from the water supply, Hose-Tails are 3/4" or 1", to suit length of run, diameter of orifice, width of cover and volume/pressure available on site.*
- *Each free standing member comprises a Ground-Spike, Heel Plate, Tee, Hose Connector and Clips, plus a Riser topped by a Brass Nozzle which produces a squared pattern. The nozzles are in our HL range and are available in 8 different flow-rates. Operating pressures are in the region of 12 to 15 psi (0,8 to 1 Bar.G.). Standard heights are 1 metre, 1/2 metre and 1/4 metre, though the nozzle can be used at low level directly from the tee if required.*
- *Droplet sizes from our HL range of nozzles are larger than the norm, so lessening the problem of "Drift" on open ground.*
- *Though true evenness of watering from man-made sprinklers is a myth, the squared pattern produced by the HL nozzle helps to keep water on target, reduces variation in overlap and irrigates those areas in which retarded growth rates have curbed profit.*
- *Materials used in the construction of Kit-One will, with reasonable care, provide a generation of nurserymen and growers with a sound system. Ideal for watering applications in Tunnels, Glasshouses, Production beds, Borders, Trial plots, Display areas, Container grounds etc.*

INSTALLATION GUIDE

NOZZLE TYPE	***HL 80-12***	***HL 100-14***	***HL 140-16***	***HL 170-18***	***HL 185-21***	***HL 200-24***	***HL 250-27***	***HL 300-30***
Aprox. flow Litres/Hour	363	454	636	772	840	908	1135	1362
Aprox. flow Gals/Hour	80	100	140	170	185	200	250	300
Maximum width of cover	3,95m	4,6m	5,3m	5,9m	6,3m	7,2m	8,1m	9,1m
at 1 Metre high	12ft	14ft	16ft	18ft	21ft	24ft	27ft	30ft
Maximum recommended	3,1m	3,8m	4,3m	4,8m	5,4m	6,3m	7,0m	7,8m
space in house run	9½ft	11½ft	13ft	14½ft	16½ft	19ft	23ft	26ft

Typical Example 54ft x 16ft (17,8m x 5,3m).



Note: For larger installations contact Delavan's Customer Service Team.

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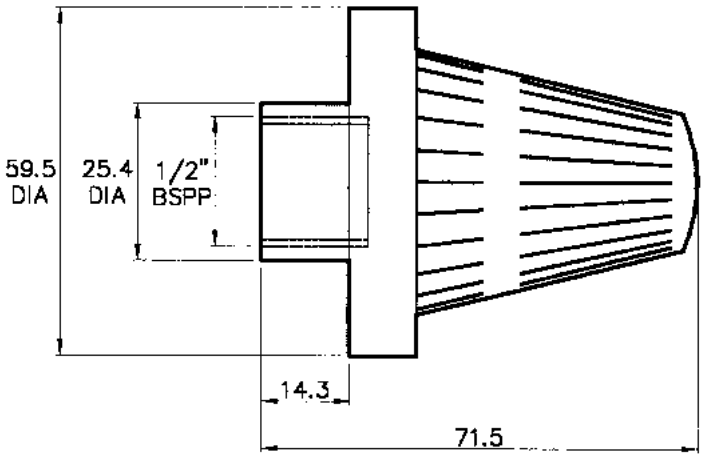
e-mail:sales@delavan.co.uk
Web:www.delavan.co.uk

APPLICATIONS

- *Fluidised bed for sand reclamation in foundries.*
- *Aeration and cooling nozzle.*
- *Filter nozzle for cooling water reclamation in steel mills, etc.*
- *Tertiary treatment in effluent plants.*
- *Aeration of sludge.*
- *Trub dispersal in breweries.*

CONSTRUCTION AND MATERIALS

- *Moulded in black Polypropylene.*
- *Available with 1/2" Female BSPP connection only.*
- *Unit has 24 slots each 0,25mm wide in two positions.*



CAPACITY CHART

PRESSURE Bar.G.	0,7	1,4	2,1	2,8	3,5
FLOW RATE IN LITRES/MIN	68	100	123	150	173
DIAMETER OF COVERAGE (M) FROM A HEIGHT OF 600mm	5,5	7,0	7,9	8,8	9,1

SPECIAL PURPOSE

TYPE FN

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TYPE AJ

SPECIAL PURPOSE

SPRAY CHARACTERISTICS

- *Produces a flat pattern of high impact compressed air.*

FEATURES AND BENEFITS

- *With its 16 orifices a volume of compressed air is converted into a high speed stream with uniform distribution and good spray pattern.*
- *Low noise levels which are under OSHA standard*
- *Low air consumption*
- *Can be mounted side by side to produce an effective air curtain*

TYPICAL APPLICATIONS

- *Cooling*
- *Warming*
- *Drying*
- *Cleaning*
- *Moving of parts*

MATERIAL

- *POLYACETAL – a highly stable material with excellent wear characteristics*

ORDER EXAMPLE

1/4" BSPT AJ 150 Part No W18783-1
1/4" NPT AJ 150 Part No W18783-2

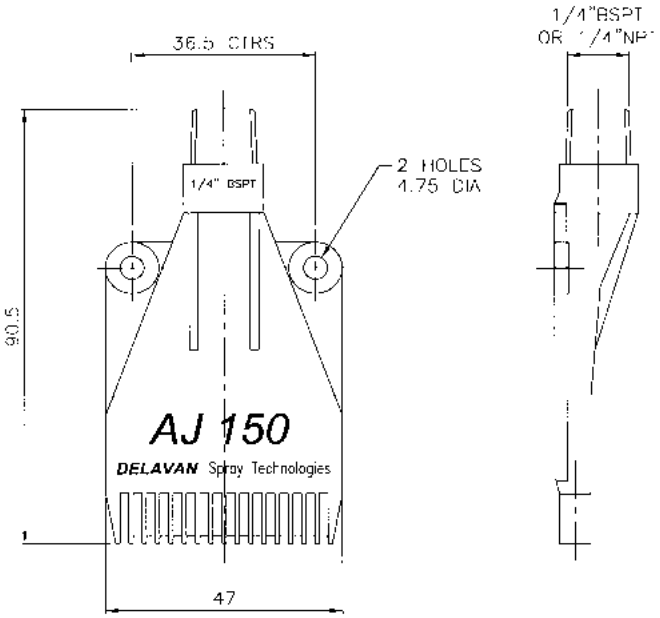
PERFORMANCE DATA

Flow rate in M³/hr at Bar.G

Bar G	1	2	3	4	5	6	7
M³/hr	14	20.5	27	34	41	47.5	54

Sound level (dB) at Bar.G

Bar G	1	2	3	4	5	6
DB	74	82	87	92	95	97



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J Handguns & Accessories

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SECTION INDEX

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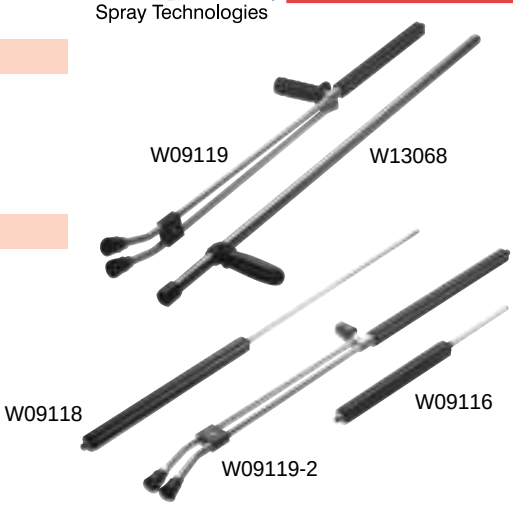
FEATURES

- *Manufactured in a range of flows and pressures.*
- *Various models in different styles.*
- *Trigger lock-off for safety.*
- *A range of compatible hand lances and accessories are available.*

CONSTRUCTION AND MATERIALS

- *Body, handle and trigger in Glass Reinforced Polyamide.*
- *Valve body in Brass. Some available in Stainless Steel.*
- *Plunger and spring in Stainless Steel.*
- *Liquid inlet integrated into handle in some models.*



PART NUMBER	DESCRIPTION	TYPE	MAX. FLOW (LPM)	MAX. PRESS. (Bar.G.)	MAX. TEMP. (°C)	INLET CONN. (BSP)	OUTLET CONN. (BSP)	LENGTH OF LANCE (mm)
W09114*	Handgun	ST 2000	40	250	160	3/8" Fem	1/4" Fem	
W09115	Handgun	ST 601	40	250	160	3/8" Fem	1/4" Fem	
W13063	Handgun	ST 810	30	200	160	3/8" Fem	1/4" Fem	
W13064*	Handgun	ST 1500	40	250	150	3/8" Fem	1/4" Fem	
W13066	Handgun	ST 3002	100	250	150	1/2" Male	1/2" Fem	
W09116	Hand Lance	ST 007	40	250	160	1/4" Male	1/4" Male	500
W09117	Hand Lance	ST 007	40	250	160	1/4" Male	1/4" Male	800
W09118	Hand Lance	ST 007	40	250	160	1/4" Male	1/4" Male	1000
W09119-1	Twin Lance	ST 53	40	250	160	1/4" Male	1/4" Fem	
W09119-2	Twin Lance	ST 54	40	250	160	1/4" Male	1/4" Fem	
W13067	H.P. Hand Lance	ST 3001/ v	100	500	150	1/2" Male	1/4" Fem	500
W13068	H.P. Hand Lance	ST 3001/ v	100	500	150	1/2" Male	1/4" Fem	1000
W09121	Adjustable Nozzle	ST 51N	30	250	80	1/4" Fem	1/4" Fem	
W09122	Rollover Nozzle	ST 56	30	250	150	1/4" Fem	2 x 1/4" Fem	
W13070-2	Turbo Nozzle	ST 357	80	200	80	1/4" Fem	Turbo	
W13070-3	Turbo Nozzle	ST 457	120	350	80	1/4" Fem	Turbo	
W13069	Suction Filter	ST 35	-	-	-	1/2" – 3/4" Hosetail	-	
W09120-1	Siphon Injector (1,8mm)	ST 60	8,5	250	150	3/8" Male	3/8" Fem	
W09120-2	Siphon Injector (2,1mm)	ST 60	12,6	250	150	3/8" Male	3/8" Fem	
W09120-3	Siphon Injector (2,4mm)	ST 60	18,9	250	150	3/8" Male	3/8" Fem	
W09123-1	Coupling	ST 40		250	150	22 x 1,5mm	1/4" Male	
W09123-2	Coupling	ST 40		250	150	22 x 1,5mm	1/4" Fem	
W09123-3	Coupling	ST 40		250	150	22 x 1,5mm	3/8" Male	
W09123-4	Coupling	ST 40		250	150	22 x 1,5mm	3/8" Fem	
W09123-5	Coupling	ST 40		250	150	22 x 1,5mm	1/2" Fem	
W09124-1	Nipple	ST 41		250	150	1/4" Fem	22 x 1,5mm	
W09124-2	Nipple	ST 41		250	150	1/4" Male	22 x 1,5mm	
W09124-3	Nipple	ST 41		250	150	3/8" Fem	22 x 1,5mm	
W09124-4	Nipple	ST 41		250	150	3/8" Male	22 x 1,5mm	
W09124-5	Nipple	ST 41		250	150	1/2" Male	22 x 1,5mm	

*Fitted with inlet swivel as standard.


W09115


W13065


W09114


W09122


W13070

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EYELETS

ACCESSORIES

FEATURES

- *Delavan threaded eyelets offer the most economical method of attaching spray nozzles to pipe systems.*
- *Can be used as a Tee piece with PVC or Poly. pipes in place of a solvent welded or threaded unit.*
- *11/16"–16 and 3/8" BSP outlets will accept all standard flanged nozzle tips and filters.*
- *Ease of installation. Only a single hole is required in the pipe with a single screw for attachment.*
- *Light weight with excellent chemical resistance through materials of construction.*
- *The body design provides leak proof service, facilitating high flowrates with minimum pressure drop.*
- *Allows the use of thin wall tubing in pipe systems for reduced cost.*

CONSTRUCTION AND MATERIALS

- *One piece design, hinged bridge and locking screw.*
- *Twin outlet bodies are also available in 1/2" and 3/4".*
- *Polypropylene, Nylon and Steel are available as standard. (Steel eyelets have plated Steel clamp with wetted outlet in Brass or Stainless Steel.)*

ORDER EXAMPLE

- *W06046 (3/4" NB x 3/8" BSPPM – Poly. Eyelet).*

SELECTION CHART

Part Number	SIZE (NB)	MATERIAL	OUTLET	HOLE	SEAL	SCREW
36977	1/2"	St/Br	11/16"-16	8,75	37052-2	26139
W11396-2	1/2"	St/SS	11/16"-16	8,75	37052-2	26139
W11396-11	1/2"	St/Br	1/8" NPTF	8,75	37052-2	26139
W11396-1	1/2"	St/SS	1/8" NPTF	8,75	37052-2	26139
W11396-13	1/2"	St/Br	1/8" BSPF	8,75	37052-2	26139
W11396-3	1/2"	St/SS	1/8" BSPF	8,75	37052-2	26139
W11396-14	1/2"	St/Br	1/4" BSPF	8,75	37052-2	26139
W11396-4	1/2"	St/SS	1/4" BSPF	8,75	37052-2	26139
W11396-15	1/2"	St/Br	1/8" NPTM	8,75	37052-2	26139
W11396-5	1/2"	St/SS	1/8" NPTM	8,75	37052-2	26139
W11396-16	1/2"	St/Br	1/4" NPTM	8,75	37052-2	26139
W11396-6	1/2"	St/SS	1/4" NPTM	8,75	37052-2	26139
W11396-17	1/2"	St/Br	1/8" BSPTM	8,75	37052-2	26139
W11396-7	1/2"	St/SS	1/8" BSPTM	8,75	37052-2	26139
W11396-18	1/2"	St/Br	1/4" BSPTM	8,75	37052-2	26139
W11396-8	1/2"	St/SS	1/4" BSPTM	8,75	37052-2	26139
W11396-19	1/2"	St/Br	3/8" BSPTM	8,75	37052-2	26139
W11396-9	1/2"	St/SS	3/8" BSPTM	8,75	37052-2	26139
W11396-20	1/2"	St/Br	3/8" BSPPM	8,75	37052-2	26139
W11396-10	1/2"	St/SS	3/8" BSPPM	8,75	37052-2	26139
10001	1/2"	Nylon	11/16" - 16	5,60	4010-1	45202
W06045	1/2"	Poly.	11/16" - 16	10,3	W16250-310	45202-3
W10878-1	1/2"	Poly.	1/8" NPTF x2	10,3	W16250-310	45202-3
W10878-2	1/2"	Poly.	1/8" NPTF x2	10,3	W16250-310	45202-3
W12048-1	1/2"	Poly.	3/8" BSPM x2	10,3	W16250-310	45202-3
W16901-2	1/2"	Poly.	1/4" NPTM	10,3	W16250-310	45202-3

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Part Number	SIZE (NB)	MATERIAL	OUTLET	HOLE	SEAL	SCREW
36977	3/4"	St/Br	11/16"-16	8,75	37052-2	26139
W11473-2	3/4"	St/SS	11/16"-16	8,75	37052-2	26139
W11473-11	3/4"	St/Br	1/8" NPTF	8,75	37052-2	26139
W11473-1	3/4"	St/SS	1/8" NPTF	8,75	37052-2	26139
W11473-13	3/4"	St/Br	1/8" BSPF	8,75	37052-2	26139
W11473-3	3/4"	St/SS	1/8" BSPF	8,75	37052-2	26139
W11473-14	3/4"	St/Br	1/4" BSPF	8,75	37052-2	26139
W11473-4	3/4"	St/SS	1/4" BSPF	8,75	37052-2	26139
W11473-15	3/4"	St/Br	1/8" NPTM	8,75	37052-2	26139
W11473-5	3/4"	St/SS	1/8" NPTM	8,75	37052-2	26139
W11473-16	3/4"	St/Br	1/4" NPTM	8,75	37052-2	26139
W11473-6	3/4"	St/SS	1/4" NPTM	8,75	37052-2	26139
W11473-17	3/4"	St/Br	1/8" BSPTM	8,75	37052-2	26139
W11473-7	3/4"	St/SS	1/8" BSPTM	8.75	37052-2	26139
W11473-18	3/4"	St/Br	1/4" BSPTM	8,75	37052-2	26139
W11473-8	3/4"	St/SS	1/4" BSPTM	8,75	37052-2	26139
W11473-19	3/4"	St/Br	3/8" BSPTM	8,75	37052-2	26139
W11473-9	3/4"	St/SS	3/8" BSPTM	8,75	37052-2	26139
W11473-20	3/4"	St/Br	3/8" BSPPM	8,75	37052-2	26139
W11473-10	3/4"	St/SS	3/8" BSPPM	8,75	37052-2	26139
10000-2	3/4"	Nylon	11/16"-16	10,3	4010-2	45202
W06046	3/4"	Poly.	3/8" BSPPM	10,3	W16250-310	45202-3
W10817-3	3/4"	Poly.	1/4" NPTF x2	10,3	W16250-310	45202-3
W10817-4	3/4"	Poly.	1/4" NPTF x2	10,3	W16250-310	45202-3
W10817-2	3/4"	Poly.	3/8" BSPM x2	10,3	W16250-310	45202-3
W16901-1	3/4"	Poly.	1/4" NPTM	10,3	W16250-310	45202-3

Part Number	SIZE (NB)	MATERIAL	OUTLET	HOLE	SEAL	SCREW
36979	1"	St/Br	11/16"-16	8,75	37052-2	26139
W11474-2	1"	St/SS	11/16"-16	8,75	37052-2	26139
W11474-11	1"	St/Br	1/8" NPTF	8,75	37052-2	26139
W11474-1	1"	St/SS	1/8" NPTF	8,75	37052-2	26139
W11474-13	1"	St/Br	1/8" BSPF	8,75	37052-2	26139
W11474-3	1"	St/SS	1/8" BSPF	8,75	37052-2	26139
W11474-14	1"	St/Br	1/4" BSPF	8,75	37052-2	26139
W11474-4	1"	St/SS	1/4" BSPF	8,75	37052-2	26139
W11474-15	1"	St/Br	1/8" NPTM	8,75	37052-2	26139
W11474-5	1"	St/SS	1/8" NPTM	8,75	37052-2	26139
W11474-16	1"	St/Br	1/4" NPTM	8,75	37052-2	26139
W11474-6	1"	St/SS	1/4" NPTM	8,75	37052-2	26139
W11474-17	1"	St/Br	1/8" BSPTM	8,75	37052-2	26139
W11474-7	1"	St/SS	1/8" BSPTM	8,75	37052-2	26139
W11474-18	1"	St/Br	1/4" BSPTM	8,75	37052-2	26139
W11474-8	1"	St/SS	1/4" BSPTM	8,75	37052-2	26139
W11474-19	1"	St/Br	3/8" BSPTM	8,75	37052-2	26139
W11474-9	1"	St/SS	3/8" BSPTM	8,75	37052-2	26139
W11474-20	1"	St/Br	3/8" BSPPM	8,75	37052-2	26139
W11474-10	1"	St/SS	3/8" BSPPM	8,75	37052-2	26139
W06043	1"	Poly.	3/8" BSPPM	10,3	W16250-310	45202-3
W16807	1"	Poly.	1/4" NPTM	10,3	W16250-310	45202-3

Part Number	SIZE (NB)	MATERIAL	OUTLET	HOLE	SEAL	SCREW
W10046-1	1 1/4"	Poly.	3/8" BSPPM	20	W10371	W04091
W10046-2	1 1/4"	Poly.	1/2" BSPPM	20	W10371	W04091
W10046-3	1 1/4"	Poly.	3/4" BSPPM	20	W10371	W04091
W10046-4	1 1/4"	Poly.	1" BSPPM	20	W10371	W04091
W10046-5	1 1/2"	Poly.	3/8" BSPPM	20	W10371	W04091
W10046-6	1 1/2"	Poly.	1/2" BSPPM	20	W10371	W04091
W10046-7	1 1/2"	Poly.	3/4" BSPPM	20	W10371	W04091
W10046-8	1 1/2"	Poly.	1" BSPPM	20	W10371	W04091

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DELAVAN
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39908 and 39911 Y-TYPE LINE STRAINER

FEATURES

- *O-ring sits on a special chamber to seal against leaking and for easy removal of cap for cleaning.*
- *Body configuration turns the liquid flow, the strainer acts as a plumbing elbow and plugs less due to internal flow design.*
- *Cap can be removed with the help of a slot in the cap. Use a screwdriver, etc. through the slot to loosen cap.*

CONSTRUCTION AND MATERIALS

- *Made of Nylon with Stainless Steel screens and Viton O-rings.*
- *A new coarse buttress thread is featured on the cap for ease of installation and removal (two turns only).*
- *Strainer 39908 weighs approx. 269g.*
- *Strainer 39911 weighs approx. 666g.*

REPLACEMENT SEALS

- *31352-226 for 39908 Strainers.*
- *31352-234 for 39911 Strainers.*

CAPACITY CHART

PART NUMBER	INLET/OUTLET THREAD SIZE NPTF	Screen Information				
		PART NUMBER OF SCREEN	MESH SIZE	SIZE OF OPENINGS (mm)	STRAINER AREA (cm^2)	EFFECTIVE STRAINER AREA (cm^2)
39908-3	3/4"	31500-3	20	0,84	145	66
39908-2	3/4"	31500-1	40	0,46	145	55
39908-1	3/4"	31500-4*	80	0,18	145	46
39908-7	3/4"	31500-8	100	0,13	145	39
39908-6	1"	31500-3	20	0,84	145	66
39908-5	1"	31500-1	40	0,46	145	55
39908-4	1"	31500-4*	80	0,18	145	46
39908-8	1"	31500-8	100	0,13	145	39
39911-4	1 1/4"	25157	20	0,84	145	152
39911-5	1 1/4"	25156	40	0,46	145	126
39911-6	1 1/4"	32876	10	1,96	145	195
39911-7	1 1/4"	50321-1	80	0,18	145	46
39911-8	1 1/4"	50321-2	100	0,13	145	46
39911-1	1 1/2"	25257	20	0,84	330	152
39911-2	1 1/2"	25156	40	0,46	330	126
39911-3	1 1/2"	32876	10	1,97	330	195
39911-9	1 1/2"	50321-2	80	0,18	145	46
39911-10	1 1/2"	50321-2	100	0,13	145	39

* 20-mesh outer and 80-mesh inner screen.

Maximum Recommended Pressure:
39908 Strainer (3/4" and 1"): 10 Bar.G. (150 psig).
39911 Strainer (1 1/4" and 1 1/2"): 5 Bar.G. (75 psig).

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45946 and 45992 Y-TYPE LINE STRAINER

FEATURES

- *Low cost strainer that removes contaminants from the line.*
- *Easily flushed by removing cap.*

CONSTRUCTION AND MATERIALS

- *Made of Glass-filled Polypropylene with Stainless Steel screens and EPDM seals.*
- *Strainer 45946 weighs approx. 211g.*
- *Strainer 45992 weighs approx. 666g.*
- *45992 should be used only as a suction strainer.*

REPLACEMENT SEALS

- *45950 EPDM Seal for 45946.*
- *32627-237 EPDM O-ring for 45992.*

CAPACITY CHART

PART NUMBER	INLET/OUTLET THREAD SIZE NPTF	Screen Information				
		PART NUMBER OF SCREEN	MESH SIZE	SIZE OF OPENINGS (mm)	STRAINER AREA (cm^2)	EFFECTIVE STRAINER AREA (cm^2)
45946-3	3/4"	31500-3	20	0,84	145	66
45946-2	3/4"	31500-1	40	0,46	145	55
45946-1	3/4"	31500-4 *	80	0,18	145	46
45946-7	3/4"	31500-8	100	0,13	145	39
45946-6	1"	31500-3	20	0,84	145	66
45946-5	1"	31500-1	40	0,46	145	55
45946-4	1"	31500-4 *	80	0,18	145	46
45946-8	1"	31500-8	100	0,13	145	39
45992-1 (see caution)	1 1/2"	25157	20	0,84	330	152
45992-2 (see caution)	1 1/2"	25156	40	0,46	330	126
45992-3 (see caution)	1 1/2"	32876	10	1,97	330	195
45992-4	1 1/2"	50321-1	80	0,18	145	46
45992-5	1 1/2"	50321-2	100	0,13	145	46

* 20-mesh outer and 80-mesh inner screen.

Maximum Recommended Pressure: 3.5 Bar.G.

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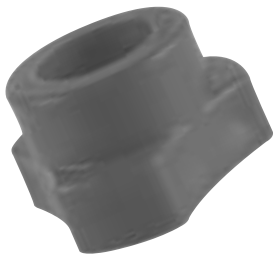

NOZZLE BODIES

CHARACTERISTICS

- *These are designed to accept any standard flanged tip from the standard nozzle range.*
- *Will accept the caps from the list below.*

CONSTRUCTION AND MATERIALS

- *Available in Brass and Stainless Steel as standard.*
- *Thread sizes are Male BSPT, Female BSPP and NPT Male and Female.*
- *Other materials available to special order.*

NOZZLE BODIES

THREAD SIZE	MATERIAL	PART NUMBER		CAP THREAD
		MALE	FEMALE	
1/8" BSP	Brass	32011-1	32012-1	3/8" BSPP
1/8" BSP	Stainless Steel	32011-3	32012-3	3/8" BSPP
1/4" BSP	Brass	32013-1	32014-1	3/8" BSPP
1/4" BSP	Stainless Steel	32013-3	32014-3	3/8" BSPP
3/8" BSP	Brass	32016-1	32017-1	3/8" BSPP
3/8" BSP	Stainless Steel	32016-3	32017-3	3/8" BSPP
1/8" NPT	Brass	1171-1	1173-1	11/16"-16 UN
1/8" NPT	Stainless Steel	1171-3	1173-3	11/16"-16 UN
1/4" NPT	Brass	1167-1	1169-1	11/16"-16 UN
1/4" NPT	Stainless Steel	1167-3	1169-3	11/16"-16 UN
3/8" NPT	Brass	50701-1	50702-1	11/16"-16 UN
3/8" NPT	Stainless Steel	50701-2	50702-2	11/16"-16 UN
1/4" NPT	Nylon	8474	-	11/16"-16 UN

NOZZLE CAPS

CHARACTERISTICS

- *Designed to fit nozzle bodies, eyelets and swivels from the standard range.*

CONSTRUCTION AND MATERIALS

- *Available in Brass, Stainless Steel, Polypropylene and Nylon.*
- *Refer to chart for thread sizes and part numbers.*
- *Other materials available to special order.*

NOZZLE CAPS

PART NUMBER	THREAD SIZE	MATERIAL
W00105-1	3/8" BSPP	Stainless Steel
W00105-2	3/8" BSPP	Brass
W01783	3/8" BSPP	Polypropylene
1165-1	11/16"-16 UN	Brass
1165-3	11/16"-16 UN	Stainless Steel
8475	11/16"-16 UN	Nylon

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THREADED FILTER (SC TYPE)

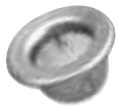
- *For use with WM, WG and WA nozzle range.*

Part Number	Mesh	Material
W00089-101	40	Brass
W00089-301	40	Stainless Steel
W00089-102	80	Brass
W00089-302	80	Stainless Steel
W00089-103	200	Brass
W00089-303	200	Stainless Steel

DOME FILTER (FC TYPE)

- *For use with standard flanged nozzles such as LF and BF.*

Part Number	Mesh	Material
W00091-1	50	Stainless Steel
W00091-3	80	Stainless Steel
W00091-2	50	Phosphor Bronze
W00091-4	80	Phosphor Bronze



FLANGED FILTER

- *For use with standard flanged nozzles.*

Part Number	Mesh	Material
28175-1	50	Stainless Steel
28175-2	100	Stainless Steel
28175-3	50	Brass
28175-4	100	Brass
28175-11	150	Brass
28175-7	200	Brass
28175-10	200	Stainless Steel
28175-13	24	Stainless Steel
28175-14	24	Brass
26642-1	50	Glass-filled Poly.
26642-2	100	Glass-filled Poly.
26642-3	150	Glass-filled Poly.
26642-4	200	Glass-filled Poly.
26642-7	24	Glass-filled Poly.

SLOTTED FILTER (NYLAFIL)

- *Primarily for use with DC nozzle assemblies but can be used with standard flanged nozzles.*

Part Number	Mesh	Material	Slot Width
19410-1	50	Glass-filled Nylon	0.36 (mm)
19410-2	25	Glass-filled Nylon	0.56 (mm)
19410-3	16	Glass-filled Nylon	0.84 (mm)

BALL CHECK STRAINER

- *For use with standard flanged nozzles to help stop dripping after pressure shut off.*

Part Number	Spring Press.	Mesh	Material
35288-1	5 PSI	50	Brass
35288-2	5 PSI	100	Brass
35288-6	5 PSI	24	Brass
35288-7	5 PSI	50	Stainless Steel
35288-8	5 PSI	100	Stainless Steel
35288-9	5 PSI	24	Stainless Steel
35288-10	5 PSI	200	Stainless Steel
50136-1	5 PSI	50	Nylon
50136-2	5 PSI	100	Nylon
49420-1	10 PSI	50	Brass
49420-2	10 PSI	100	Brass
49420-3	10 PSI	200	Brass
49420-6	10 PSI	24	Brass

SWIVELS

- *These have single or double outlet connections for use with standard flanged nozzles and filters to enable positioning of sprays.*

Part Number	Type	Material	Inlet	Outlet
33764-1	Single	Brass	1/8" NPTF	11/16"-16 UN
33764-2	Single	Brass	1/4" NPTF	11/16"-16 UN
33765-2	Double	Brass	1/4" NPTF	11/16"-16 UN
33764-3	Single	Brass	1/4" NPTM	11/16"-16 UN
33765-3	Double	Brass	1/4" NPTM	11/16"-16 UN
30387-8	Single	Nylon	1/8" NPTF	11/16"-16 UN
30384-7	Double	Nylon	1/8" NPTF	11/16"-16 UN
30387-9	Single	Nylon	1/4" NPTF	11/16"-16 UN
30384-8	Double	Nylon	1/4" NPTF	11/16"-16 UN
30387-12	Single	Nylon	1/4" NPTF	11/16"-16 UN
30384-11	Double	Nylon	1/4" NPTF	11/16"-16 UN

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BALL CHECK VALVE

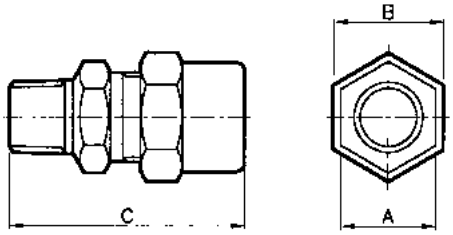
BALL CHECK NOZZLE

FEATURES

- *Especially designed to stop drooling or dripping in car washing or other cleaning applications to prevent line from emptying during wash cycles.*
- *The Ball Check Valve Assembly is for use with standard 1/8" and 1/4" NPT Male threaded nozzles.*
- *The Ball Check Nozzle Assembly is for use with standard flanged type nozzles.*
- *Available with spring pressures of 0,2, 0,35 and 0,7 Bar.G.*

CONSTRUCTION AND MATERIALS

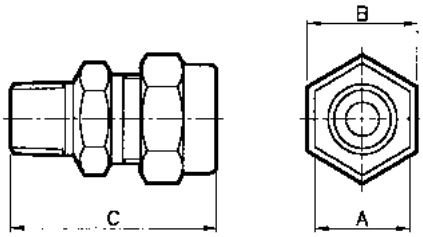
- *1/8" or 1/4" NPT Male threaded inlets.*
- *Available in Brass, Stainless Steel and Nylon.*
- *Ball and spring are Stainless Steel.*
- *Seal washer is Nylon.*



BALL CHECK VALVE

DIMENSIONS (mm)

Assembly Size	A Hex	B Hex	C
1/8"	17,5	20,7	43,7
1/4"	17,5	20,7	44,5



BALL CHECK NOZZLE

DIMENSIONS (mm)

Assembly Size	A Hex	B Hex	C
1/8"	17,5	20,7	38,7
1/4"	17,5	20,7	39,5

BALL CHECK VALVE ASSEMBLY

ASSEMBLY NUMBER			INLET NPTM	OUTLET NPTF	SPRING PRESSURE	SPRING PART No.	BALL PART No.	WASHER PART No.
BRASS	STAINLESS STEEL	NYLON						
28800-1	28800-11		1/8"	1/8"	0,7 Bar	27211	13809	37538
28800-26	28800-36		1/4"	1/4"	0,35 Bar	27211	13809	37538
		37444-1	1/4"	1/4"	0,7 Bar	27211	13809	37538
		37444-4	1/4"	1/4"	0,2 Bar	50375	13809	37538

BALL CHECK NOZZLE ASSEMBLY

ASSEMBLY NUMBER			INLET NPTM	SPRING PRESSURE	SPRING PART No.	BALL PART No.	WASHER PART No.
BRASS	STAINLESS STEEL	NYLON					
29800-1			1/8"	0,7 Bar	27211	13809	37538
29800-13	29800-17		1/4"	0,35 Bar	27211	13809	37538
		37444-3	1/4"	0,7 Bar	27211	13809	37538

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HEADER NOZZLE SOCKET

FEATURES

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

CONSTRUCTION AND MATERIALS

- *Available with Female BSPP threads only.*
- *Available in Brass, Stainless Steel and Mild Steel.*
- *Other materials available to special order.*
- *Refer to chart for pipe drilled hole size.*

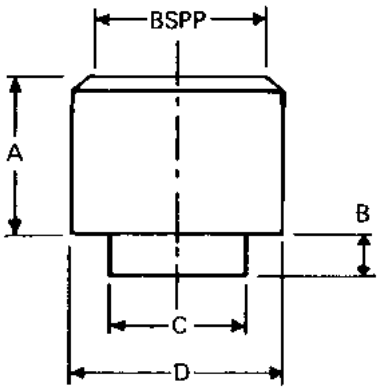
ORDER EXAMPLE

HNS 500 Stainless Steel.

HEADER NOZZLE SOCKETS

Dimensions (mm)

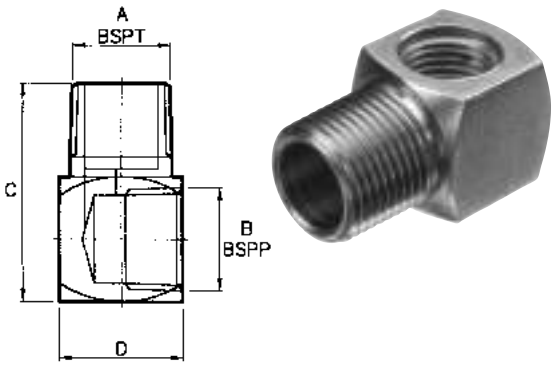
HNS Number	Thread Size	A	B	C	D	Hole Size
125	⅛"	12,7	3,2	9,1	14,3	9,5
250	¼"	15,9	3,2	15,1	19,1	15,9
375	⅜"	19,1	3,2	15,1	25,4	15,9
500	½"	22,3	4,8	21,8	31,8	22,2
750	¾"	22,3	4,8	21,8	31,8	22,2
1000	1"	25,4	6,4	31,4	38,1	31,8

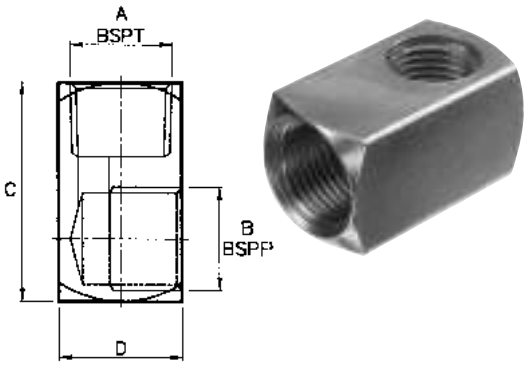


ADAPTORS

FEATURES

- *90° adaptor for positioning of nozzles.*
- *Available with thread sizes 1/8"-1" BSPT Male and BSPP Female.*
- *Available in Brass and Stainless Steel.*
- *Other materials available to special order.*





Male Adaptor

PART NUMBER		A	B	mm	
STAINLESS STEEL	BRASS	Thread size	Thread size	C	D
W13713-1	W13713-2	1/8"	1/8"	25,4	15,9
W00081-1	W00081-2	1/4"	1/8"	28,4	15,9
W00318-1	W00318-2	1/4"	1/4"	28,4	15,9
W00082-1	W00082-2	3/8"	1/4"	34,8	19,1
W00319-1	W00319-2	3/8"	3/8"	34,8	19,1
W00083-1	W00083-2	1/2"	3/8"	44,5	25,4
W00320-1	W00320-2	1/2"	1/2"	44,5	25,4
W00084-1	W00084-2	3/4"	1/2"	57,2	31,8
W00194-1	W00194-2	3/4"	3/4"	57,2	31,8
W00085-1	W00085-2	1"	3/4"	76,2	38,1
W00468-1	W00468-2	1"	1"	76,2	38,1

Female Adaptor

Part Number		A	B	mm	
Stainless Steel	Brass	Thread size	Thread size	C	D
W06785-1	W06785-2	1/8"	1/8"	25,4	15,9
W00216-1	W000216-2	1/4"	1/8"	28,4	15,9
W00464-1	W00464-2	1/4"	1/4"	28,4	15,9
W00217-1	W00217-2	3/8"	1/4"	34,8	19,1
W00463-1	W00463-2	3/8"	3/8"	34,8	19,1
W00218-1	W00218-2	1/2"	3/8"	44,5	25,4
W00462-1	W00462-2	1/2"	1/2"	44,5	25,4
W00219-1	W00219-2	3/4"	1/2"	57,2	31,8
W00196-1	W00196-2	3/4"	3/4"	57,2	31,8
W00220-1	W00220-2	1"	3/4"	76,2	38,1
W00470-1	W00470-2	1"	1"	76,2	38,1

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ADJUSTABLE JOINT

ACCESSORIES

FEATURES

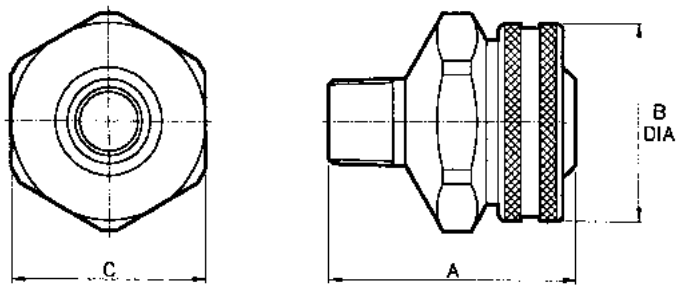
- *Facilitates finger-tight nozzle adjustment without disturbing piping system.*
- *No tools required for repositioning.*
- *Positive O-ring seal handles pressures up to 35 Bar.G.*
- *No internal obstructions.*
- *Complete 360° radial adjustment.*
- *Up to 50° angular adjustment.*

CONSTRUCTION AND MATERIALS

- *Available with Male BSPT inlet connections and Female BSPP outlets.*
- *Available in Brass and Stainless Steel.*
- *Other materials available to special order.*

ORDER EXAMPLE

W09111-4 (3/8" x 1/4") Stainless Steel.



CAPACITY CHART

ASSEMBLY NUMBER	INLET SIZE BSPT	OUTLET SIZE BSPP	DIMENSIONS (mm)			ANGULAR ADJUSTMENT (°)
			A	B	C Hex	
W09111-1	1/8"	1/8"	28,6	25,4	20,8	50
W09111-2	1/4"	1/8"	28,6	25,4	20,8	50
W09111-3	1/4"	1/4"	34,9	31,8	25,7	50
W09111-4	3/8"	1/4"	34,9	31,8	25,7	50
W09111-5	3/8"	3/8"	44,5	38,1	31,8	40
W09111-6	1/2"	1/2"	55,6	44,5	31,8	40
W09111-7	3/4"	3/4"	61,1	50,8	38,0	40
W09111-8	1"	1"	75,0	70,0	60,0	40

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DELAVAN
Spray Technologies

Spray Drying
Fax Back Form

Name: _____ Date: _____

Company: _____

Address: _____

_____

_____

Tel No: _____ Fax No: _____

The Feed Material

Substance being sprayed: _____ % Solids: _____

Specific gravity (or Density): _____ Viscosity: _____

Acidic or alkaline (pH): _____

The Nozzle

Nozzle type presently being used: _____

Manufacturer: _____ Number of nozzles: _____

Rated flow and spray angle: _____ Average wear life: _____

Pipe size: _____

The Dryer

Dryer manufacturer: _____ Inlet air temp: _____

Cocurrent or countercurrent air: _____ Outlet air temp: _____

Dryer diameter at nozzle position: _____ Maximum pump pressure: _____

Pump manufacturer: _____ Operating pressure: _____

The Dry Product

% Moisture: _____ Density: _____

Pounds per hour: _____ Solubility: _____

Comments: _____

_____

_____

_____

Please fax back to:

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FAX BACK

CUSTOMER ENQUIRY

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CUSTOMER ENQUIRY

FAX BACK

DELAVAN
Spray Technologies

Gas Cooling Information

Fax Back Form

Name: _____ Date: _____

Company: _____

Address: _____

_____

_____

Tel No: _____ Fax No: _____

Inlet gas temperature:	a) _____ ˚C	b) _____ ˚F
Outlet gas temperature:	a) _____ ˚C	b) _____ ˚F
Volume of gas:	a) _____ SCFM	b) _____ NM^3/hr
Cooling chamber dimensions:	a) Circular	b) Rectangular
	i _____ Diameter	i _____ Height
	ii _____ Length	ii _____ Width
		iii _____ Length

Comments: _____

_____

_____

_____

_____

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DELAVAN
Spray Technologies

CUSTOMER ENQUIRY

FAX BACK

Nozzle Specification Information

Fax Back Form

Name: _____ Date: _____

Company: _____

Address: _____

_____

_____

Tel No: _____ Fax No: _____

To specify any type of nozzle it is essential to provide several pieces of information:

Flow rate: _____

which can be given in a variety of units such as:

- Litres per minute
- Gallons per minute (specify US or Imp)
- M^3/hour
- Kg per hour (density will be required if different from water

Operating pressure: _____

which can be given in a variety of units such as:

- Bar.G.
- P.S.I.G.
- Kg/cm^2
- kPa (Kilo Pascals)
- Head in Metres or Feet

Spray angle: _____

Type of spray pattern: _____

- Flat
- Solid Cone/Circular or Square
- Hollow Cone
- Air Atomising

Liquid being sprayed: _____

If different from water the following are required:

- Density: _____
- Viscosity: _____
- Surface Tension: _____
- Solids Content : _____

Application or Purpose of Nozzle (not always necessary) e.g.

- Washing/Rinsing
- Cleaning in Place
- Humidification
- Gas Scrubbing
- Quenching
- Aeration of liquids
- De-Scaling
- Gas Cooling - Separate Enquiry Sheet required
- Spray Drying - Separate Enquiry Sheet required

_____

_____

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Other Specialist literature available

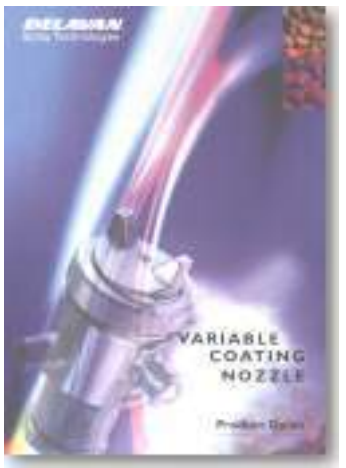
Safety Showers & Accessories

Pulp and Paper Guide

Clean in Place Product Guide

Oil Burner Nozzles & Accessories

SDX Spray Drying



Variable Coating Nozzle

Short Form Brochure

Steel Industry Product Guide