

JSR SPRAY SYSTEMS (INDIA)



DESIGNERS & MFG. OF INDL. SPRAY NOZZLES, ACCESSORIES AND SPRAY SYSTEMS



COMPANY PROFILE

"JSR SPRAY SYSTEMS (INDIA) " is started by Mr Sunil S. Jaiswar with a Good Knowledge in Design & Manufacturing Spray Nozzles & Spray systems.

The company is stand for Only Experiences, Expertise, Quality & Reliability in the design & Development as well as manufacturing industrial spray nozzles and Spray Systems.

We are leader in Design and manufacturing in spray nozzles & Spray systems

We Design to each customers unique Requirement , While at all times emphasizing outstanding customer service. Our is a Dynamic Organization with enthusiastic and competent Techno-Professionals Having a global Business Outlook .

"JSR Spray Systems (INDIA)" has earned an excellent Reputation in industry with on Going satisfied clients Spread all over india . The Strategic vision of our Company is to Deliver Quality products & Excellent Customer Service at Effective Prizes .

WHAT WE DO

We at " JSR SPRAY SYSTEMS (INDIA) " Constantly endeavor to offer you Different types of industrial spray nozzles and systems that Deploy Cutting Edge Technologies Delivered just in time at Optimum Pricing.

We are pleased to present you, Complete range of high performance spray nozzles and systems that deploy state of art Technology assuring Consistent and trouble free Performance.

All our nozzles are widely accepted in Chemical, Pharma, cement, Steel Plants, OEM as well as users .

INDUSTRIAL APPLICATIONS



Pharmaceuticals



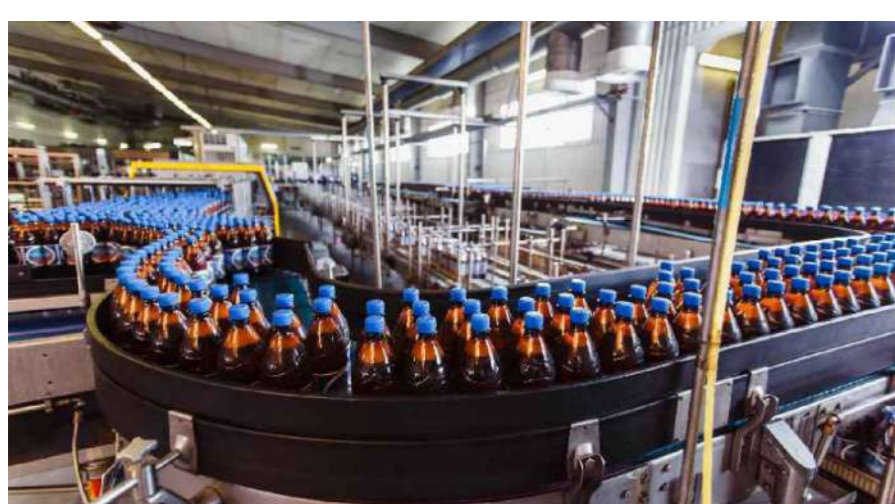
Chemical & Fertilizers



Automobile Sector



Oil & Gas



Food Beverage



Paper Industries



Pollution Control



Metallurgical

OUR VISION, MISSION & VALUES

VISION

" We assist you to improve the quality of finished products. "

MISSION

" We provide our customer highest quality products that combine performance and advanced technology with value pricing achieving 101% Customer satisfaction."

OUR CORE VALUES

- Performance
- Quality
- Innovation
- Passion
- Action oriented



TYPES OF SPRAY PATTERNS

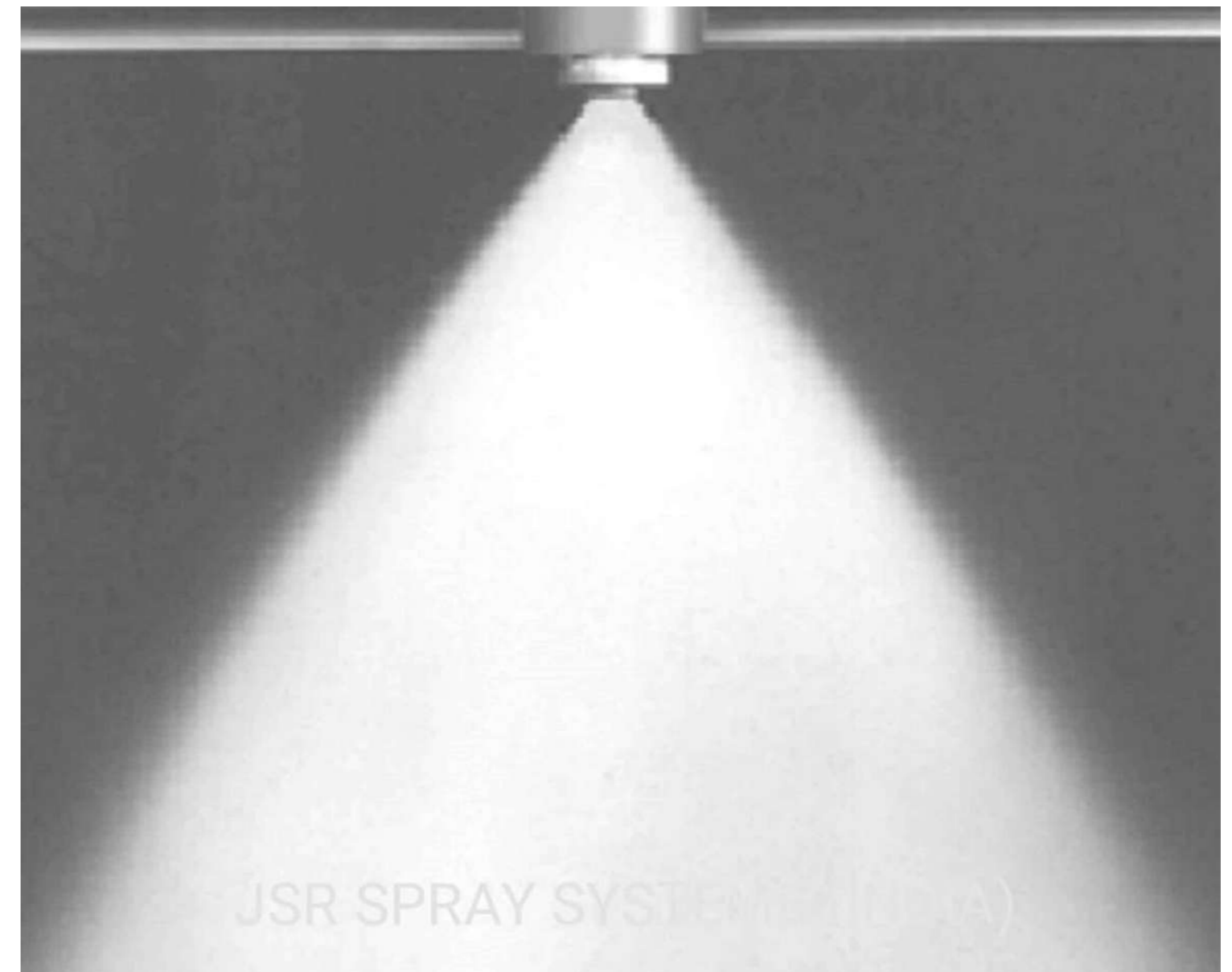
ATOMIZING SPRAY PATTERNS

1. "Atomizing Spray Nozzles" Produces a flat fan spray pattern with extremely fine droplets and spray angles up to 80° .

These Nozzles are Particularly suited for applications enquiring fine droplets and a wide linear impact.

2. Atomizing Full spray nozzles are used for application demanding uniform circular impact patterns or larger spray distance .

Generally, a narrow full spray with approx 20° - 30° formed . Wider spray angles can be achieved by using special multi-orifice design .



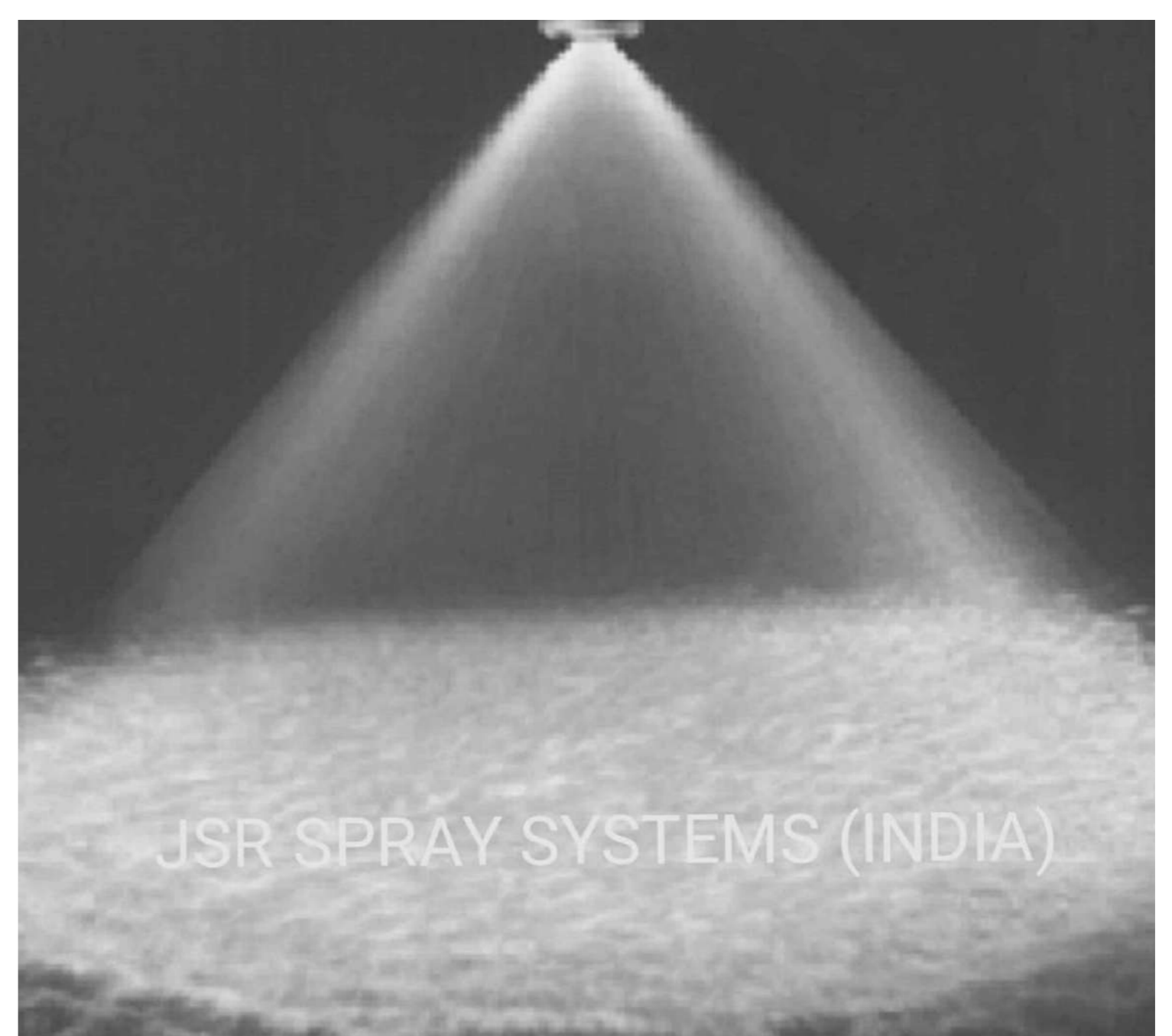
FULL SPRAY PATTERN

"Axial-flow full spray nozzles" Attain a uniform liquid distribution over a circular area. A rotary motion of liquid achieved with the help of swirl insert inside the free cross section of the nozzle.

Spray information liquid distribution and shaping of droplets are energize by the dimensioning and functional coordination of the rotary motion and the swirl chamber Turbulent flows with different axial and tangential speed components lead to overall coarser droplets than with a comparable hollow spray nozzles.

"Tangential-flow full spray nozzles" are free from swirl insert. therefore they are not at all prone to clogging.

The full spray pattern is produced by grooves milled into the bottom of the nozzle which provide a defined deviation of the liquid flow to the mixing center, whereby an extremely uniform area distribution of the atomized liquid is obtained



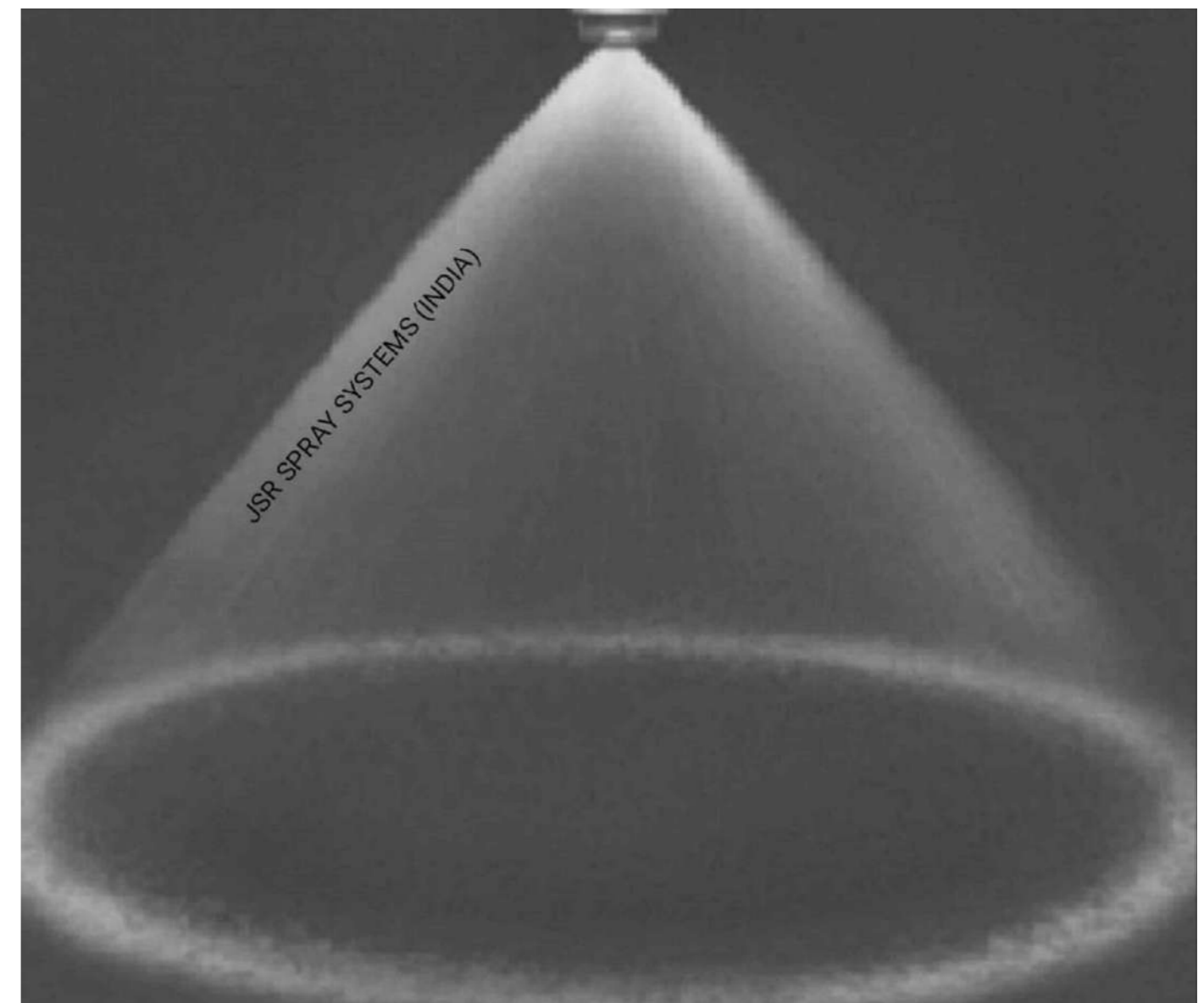
TYPES OF SPRAY PATTERNS

"HOLLOW SPRAY PATTERN "

Axial Flow hollow spray nozzles, The liquid supply is axial, rotary motion of the liquid generated by so called swirl insert and vanes . Axial-flow hollow spray nozzles allow reproduce the finest droplets achievable with pressure operated nozzle designs, this is also called as hydraulic atomization.

Eccentric - flow hollow spray nozzles, The liquid supply, which is tangentially positioned to the mixing chamber, causes the liquid to rotate. A liquid layer forms around the inside walls of the nozzle which influences heavily the drop size.

A rotary motion of the liquid flow is transformed at the nozzle orifice into axial and tangential speeds. A circular liquid screen is formed which disintegrates into fine droplets soon after leaving the nozzle orifice . This nozzle design has wide free cross - sections making it highly clog proof.



"FLAT SPRAY PATTERN"

The spray pattern of flat spray nozzles features a sharply delimited line due to internal flow characteristics . The coverage width can be varied by modifying the geometric configuration of the nozzle orifices, where the liquid is shaped into flat fan - like spray patterns .

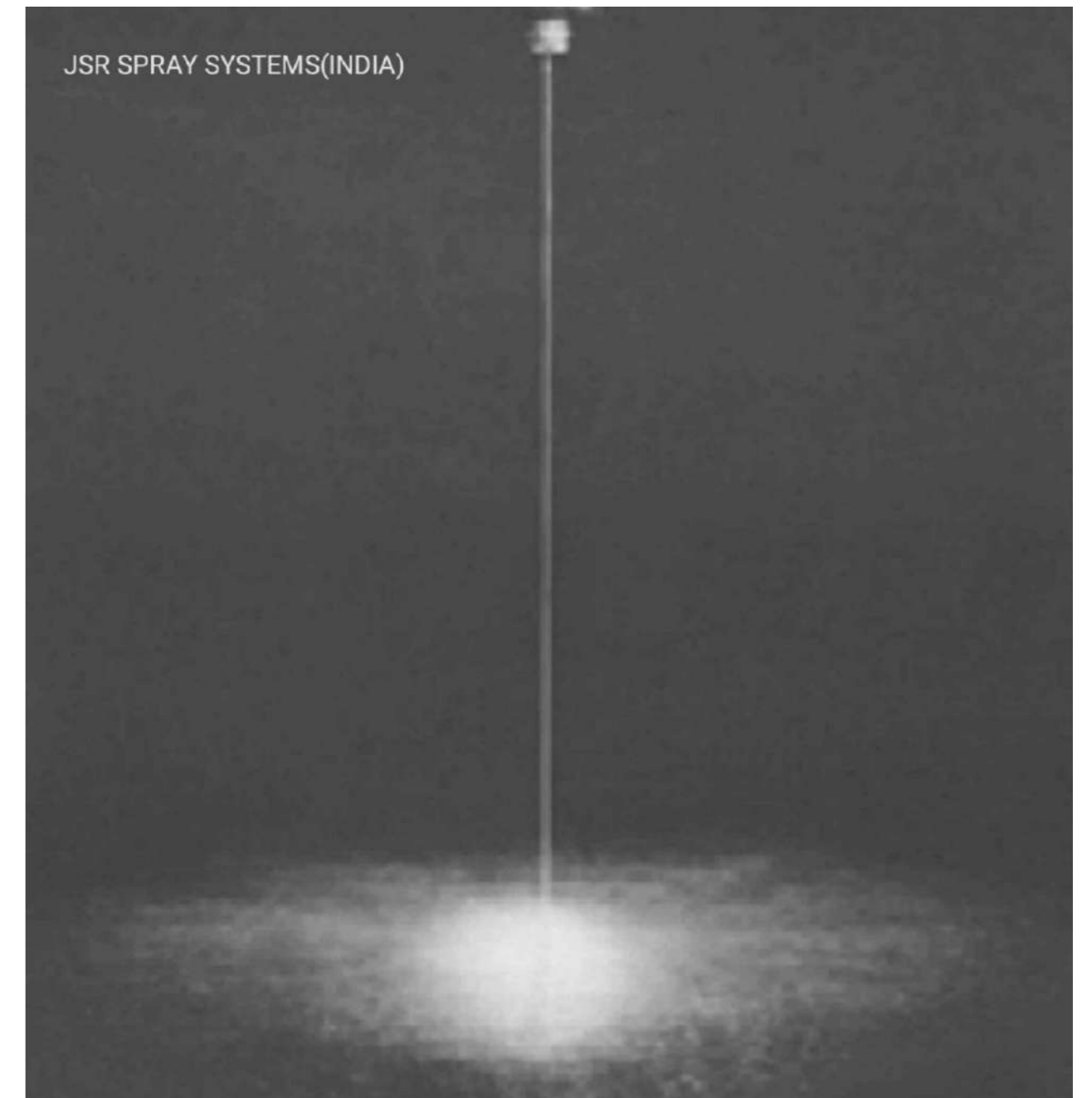
The flat liquid body takes on a laminar form and disintegrates into droplets as its distance from the nozzle orifice increases, parabolic, trapezoidal or rectangular impact areas are achieved by adequately determining the functional and geometrical dimensions.



TYPES OF SPRAY PATTERNS

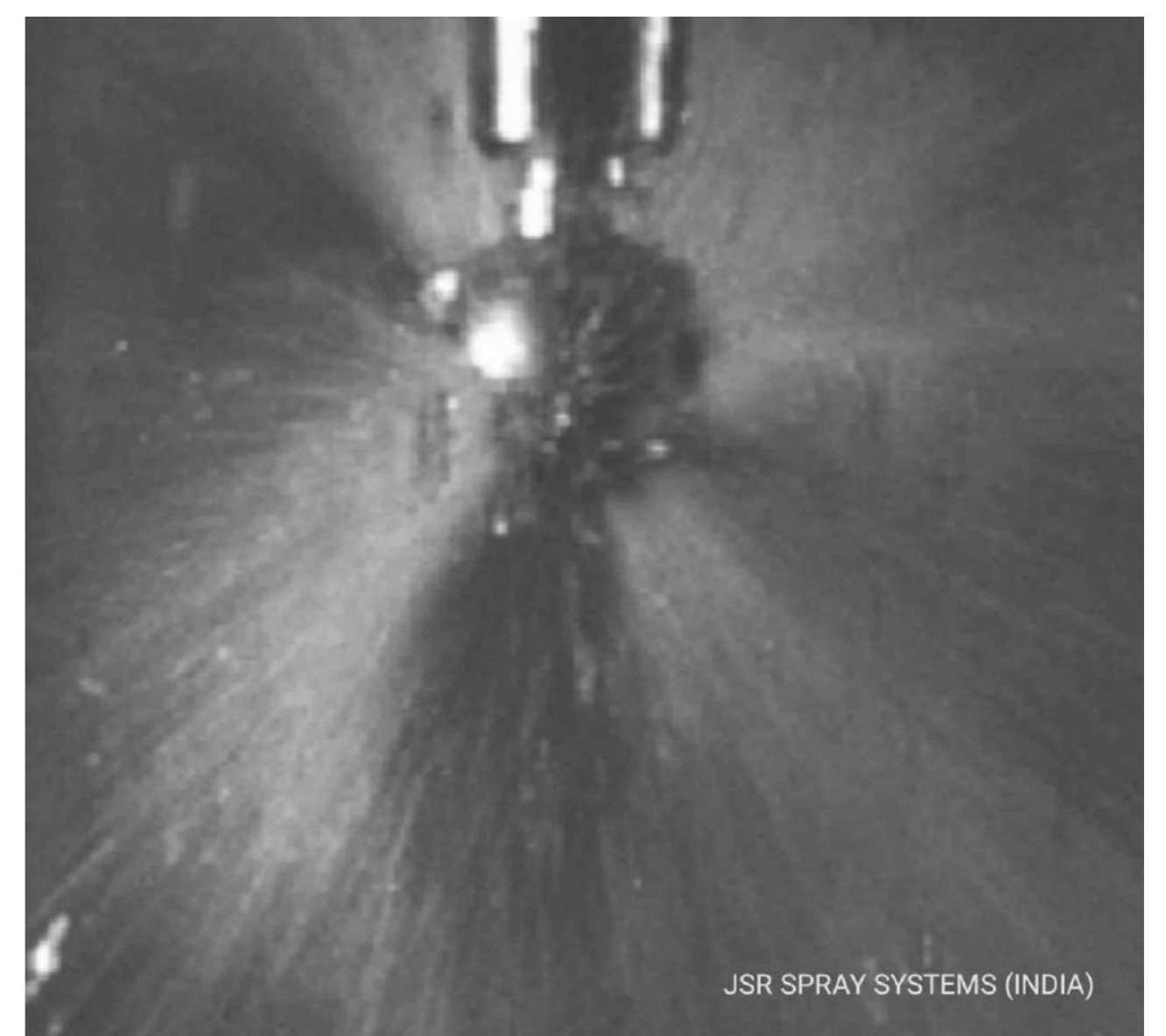
" SINGLE JET SPRAY PATTERN"

The smooth Single jet spray nozzle is known as the so-called "Primary jet". Actually, The Single jet nozzle is not supposed to produce atomized spray pattern because it has been design or maximum jet power.



" TANK RINSING NOZZLES SPRAY PATTERN"

Tank rinsing nozzles can be used for both small and large tanks and are available as both rotating and static sprays. The rotating nozzles are driven but cleaning fluids or liquid by means of specially positioned nozzles or by turbine or internal gears, Rotational cleaners achieve very good cleaning of the entire tank surface as a rapid - repetition impact loosens the dirt and washes it off the inside tank surface .

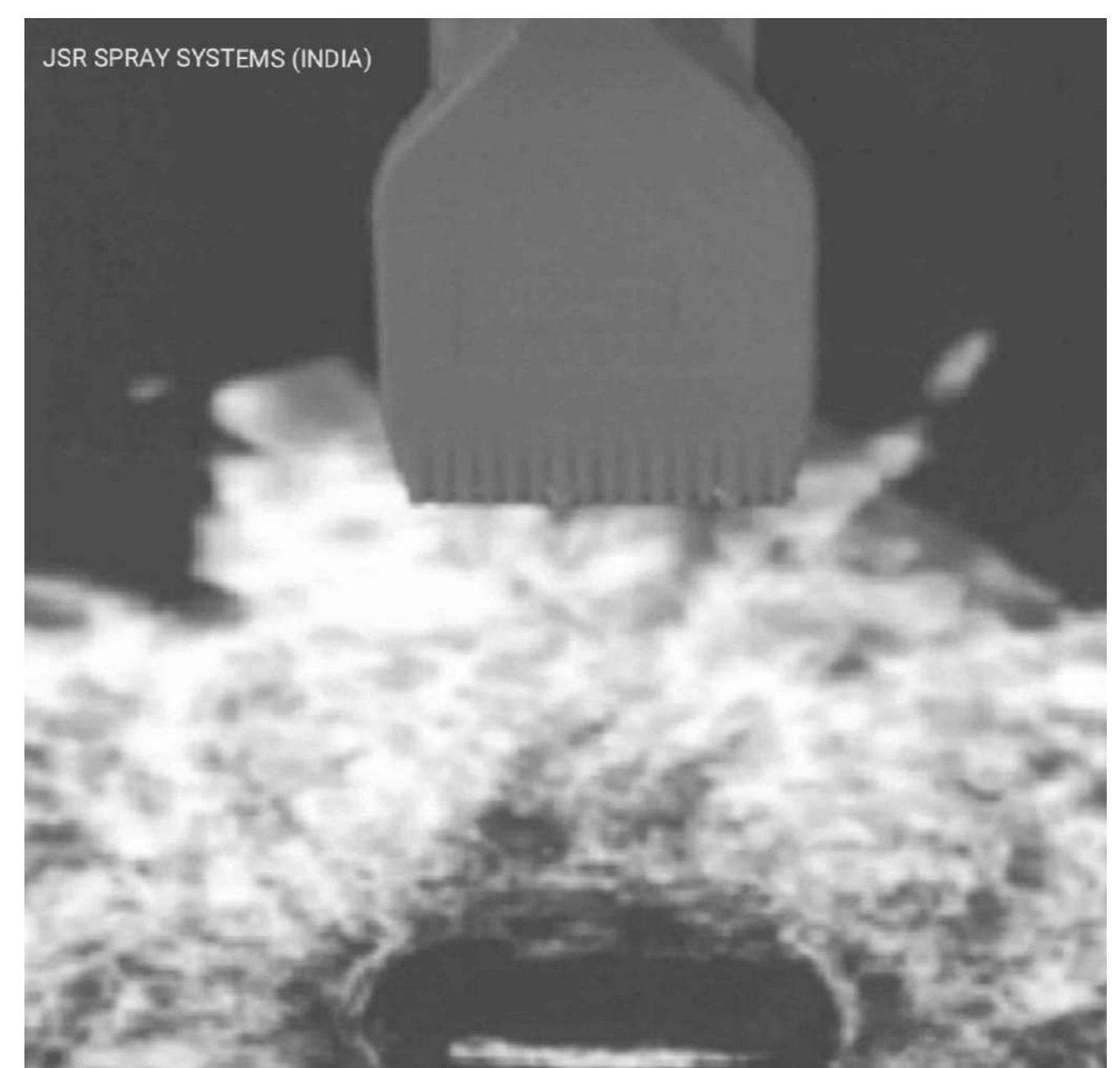


Static spray balls do not rotate,. They are used primarily for washing down relatively small tanks and cessels. All tanks cleaning nozzles are operating at low pressures .

" AIR JET NOZZLES SPRAY PATTERN "

Air jet nozzles are used for dispersing air or stream in a concentrated and straight fan

Generallly air nozzles have a flat fan of solid stream spray pattern, when using conventional air nozzles, air is blown through a single hole, often a loud ear - splitting and hissing noise is produced to avoid this unpleasant noise , JSR SPRAY SYSTEMS INDIA has design special multi channel air nozzles .



FULL SPRAY NOZZLES

The "Full spray nozzles" has high Precision & Uniform liquid distribution circular area. This gives Uniform liquid distribution Through out the entire circular Impact area.

Principle of working : The Basic design of full Spray nozzles is based on Fundamental principle of Axial Swirling Motion.

Application :

1. Gas Cooling Towers
2. Chemical Process Engineering
3. Spraying on Surface
4. Dust Control
5. Quenching & Cooling of primary metal & Others Metal
6. Cooling of Fluid spray



JSR SPRAY SYSTEMS (INDIA)



TECHNICAL DATA SHEET

Flow Rate(lpm)@ 2 Bar	Spray Angle	Inlet Connection	Materials
1 to 6500	20°,30°,45° 60°,90°,120°	1/8"to 4" BSPT/BSP /NPT Or Flanged Type	SS - 316L,316,304 Brass Nylon



HOLLOW SPRAY NOZZLES

The "Hollow spray nozzles" has high Precision & Uniform Liquid distribution circular area .
This gives Uniform liquid distribution Through out the entire circular Impact area.

Principle of working : The Basic design of full cone nozzles is based on Fundamental principle of Axial swirling Motion .

Application:

1. Gas Cooling Towers
2. Chemical Process Engineering
3. Spraying On surface
4. Dust Control
5. Quenching & Cooling of praimary metal & Others metals
6. cooling Of fluids Spray
7. Foam Control



TECHNICAL DATA SHEET

Flow Rate(lpm)@ 2 Bar	Spray Angle	Inlet Connection	Materials
1 to 4000	45°,60°,90°,120° & 180°	1/8"to 4" BSPT/BSP /NPT Or Flanged Type	SS - 316L,316,304 Brass Nylon

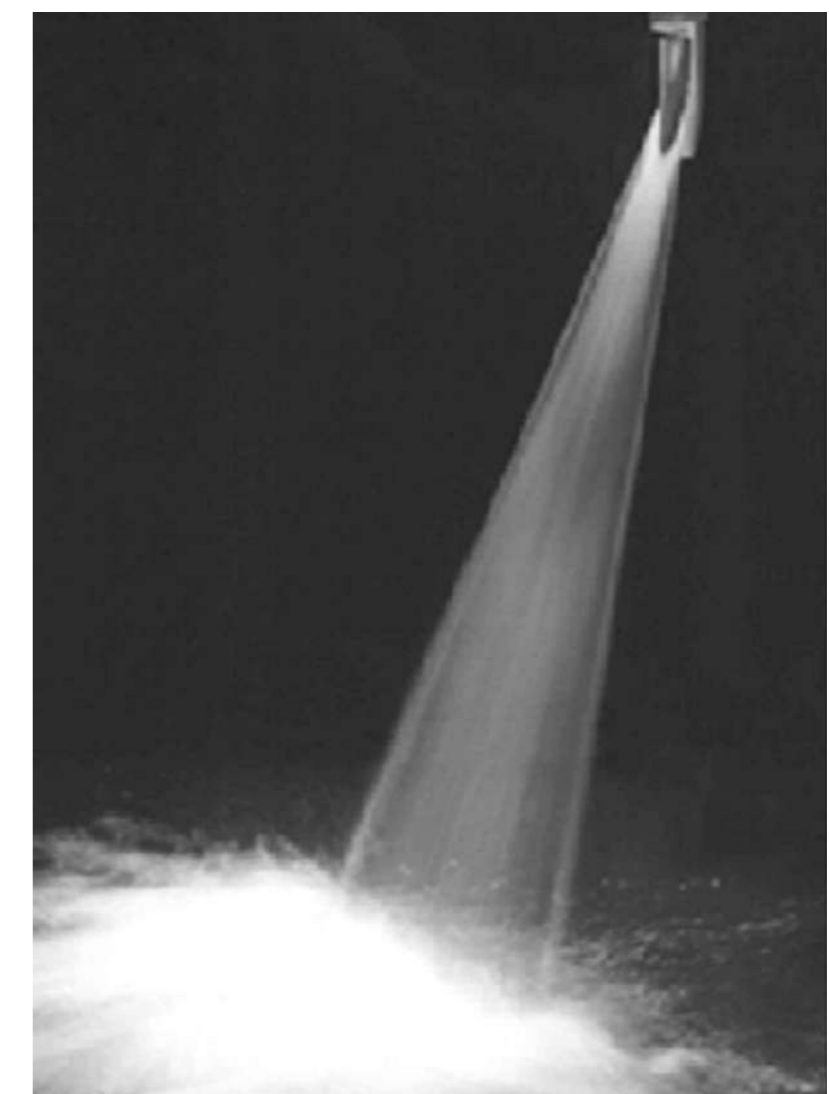
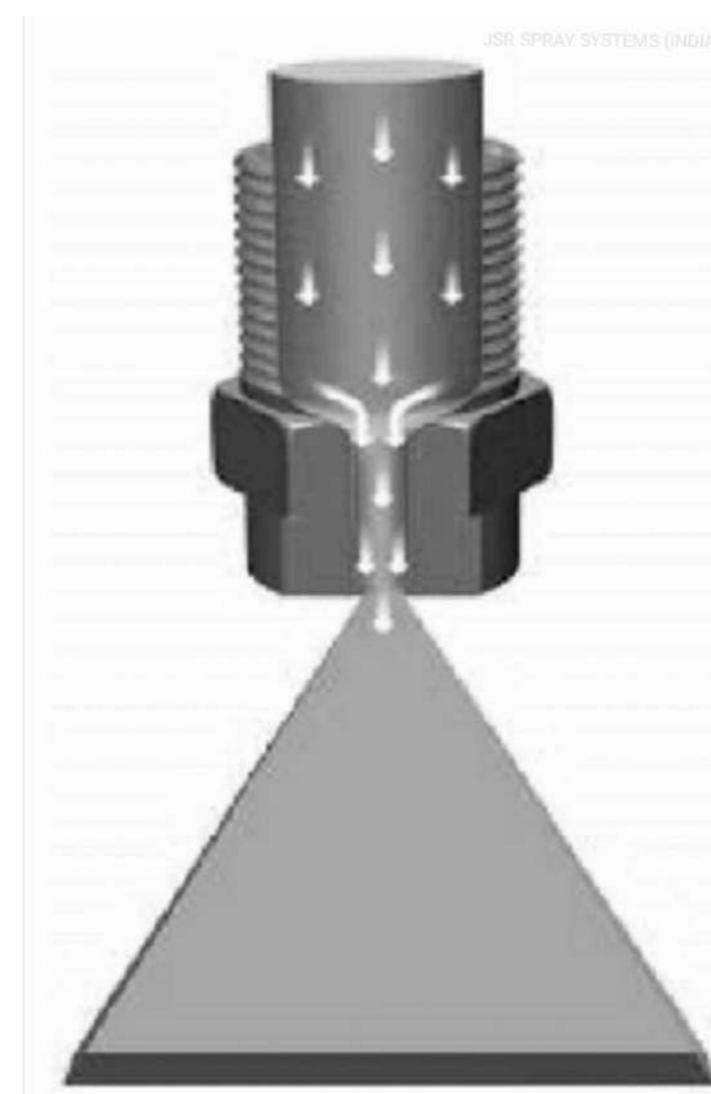


FLAT SPRAY NOZZLES

"FLAT SPRAY NOZZLES: ensure uniform, parabolic distribution of liquid, this flow geometry of nozzle produces impact and accurate jets with stable spray angle. These nozzles are suitable for all universal applications. These nozzles are non prone to clogging.

Applications :

1. Roll Cooling
2. High Impact washing
3. Surface treatment
4. Degreasing & Rinsing
5. Lubrication & Spray Coating
6. Washing & Phosphating Process



TECHNICAL DATA SHEET

Flow Rate(lpm)@ 2 Bar	Spray Angle	Inlet Connection	Materials
1 to 280	15°,30°,45°,60°,90° & 120°	1/8"to 2" BSPT/BSP /NPT	SS-316L,316,304 Brass Nylon

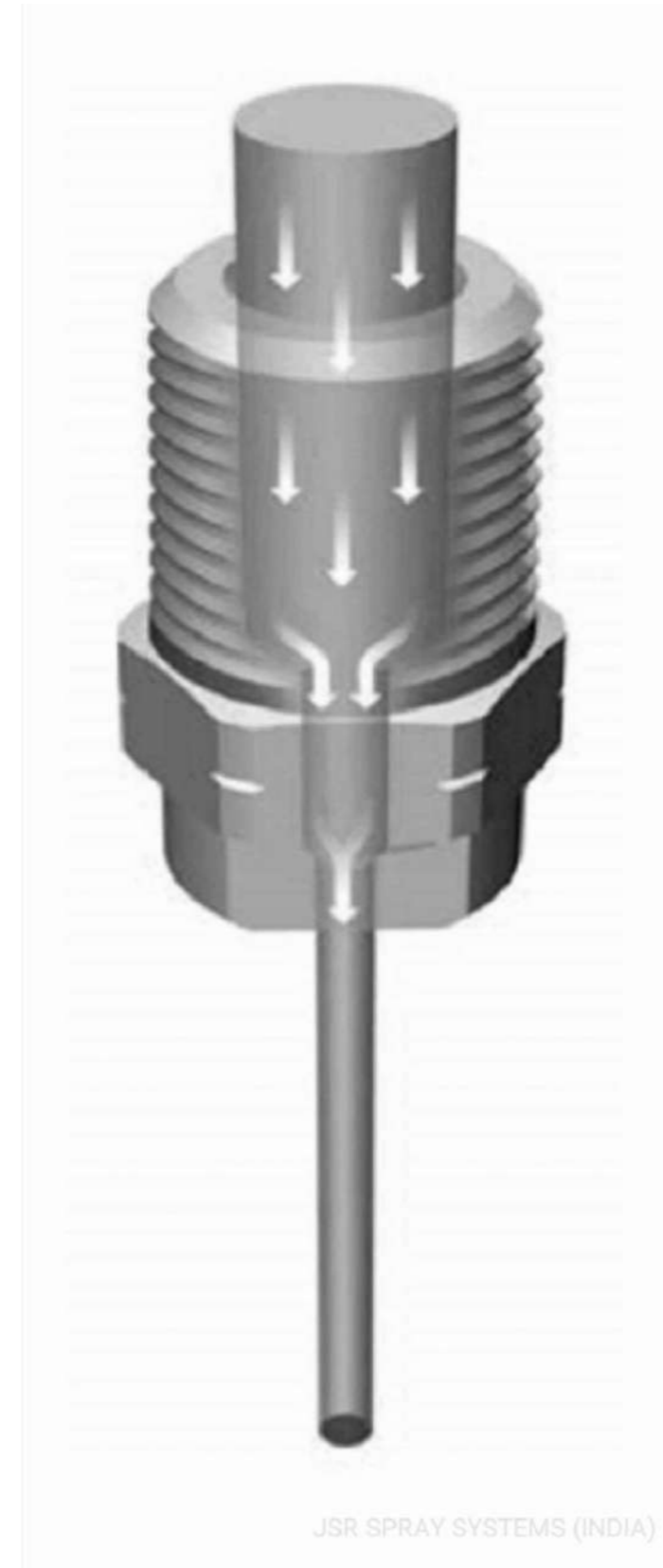


SINGLE JET NOZZLES

" SINGLE JET NOZZLES" Produces solid stream jet of defined length which has transparent & Compact view, Nozzle achieve excellent jet Performance with out any inside insert. It Produces powerful concentrated jet which gives better productivity at the plant .

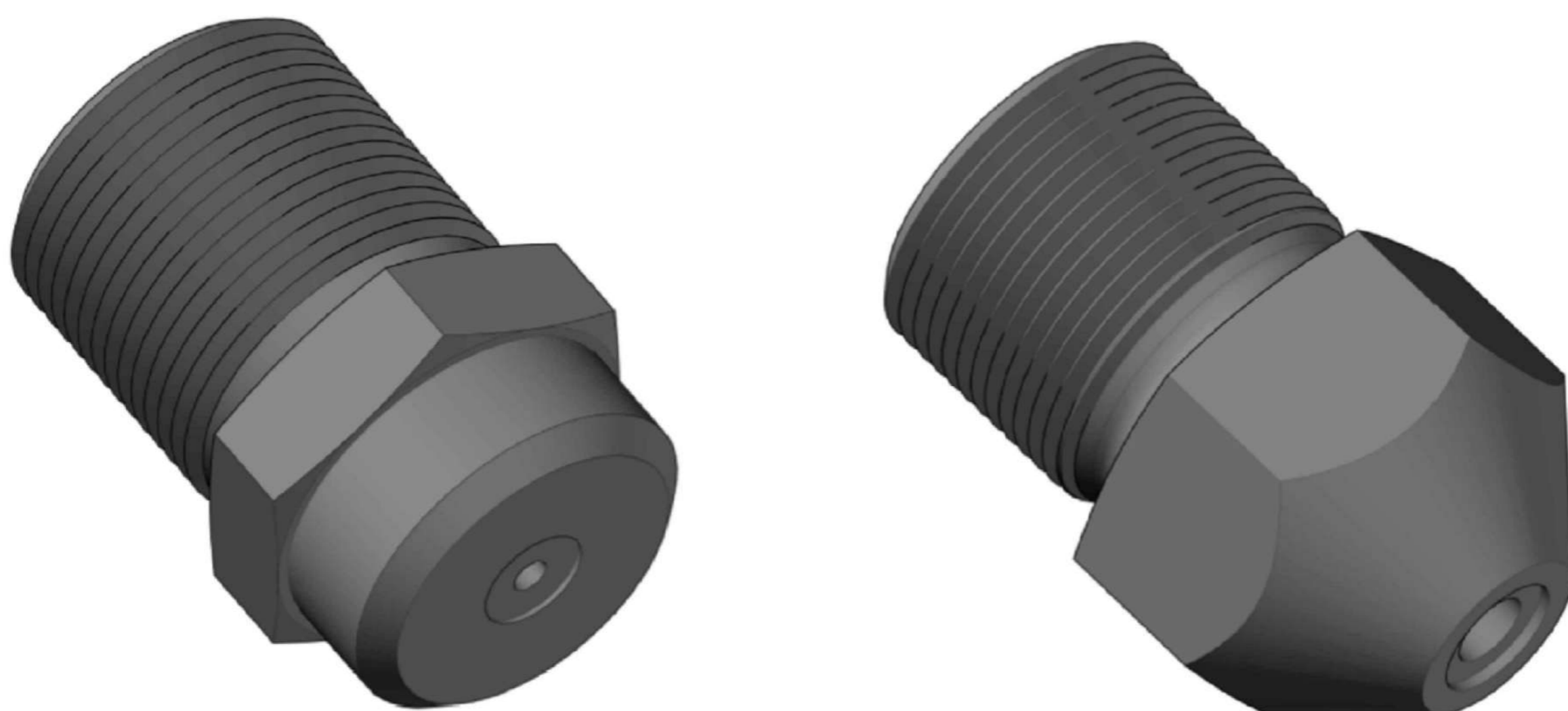
Applications :

1. Roll Cooling
2. High Impact washing
3. Surface treatment
4. Degreasing & rinsing
5. Lubrication * spray coating
6. Washing & phosphating Process



TECHNICAL DATA SHEET

Flow Rate(lpm)@ 2 Bar	Spray Angle	Inlet Connection	Materials
1 to 300	0°	1/8" to 1" BSPT/BSP/NPT	SS - 316L,316,304 Brass, Nylon



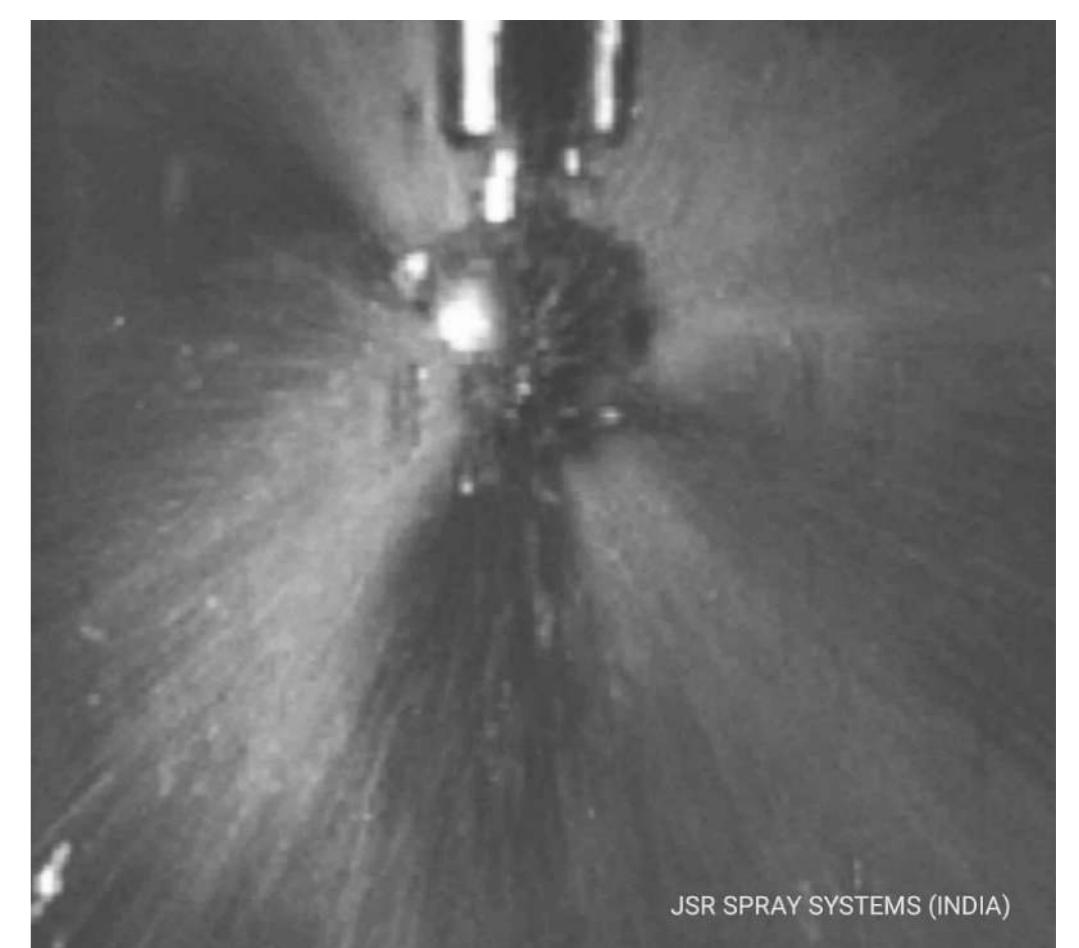
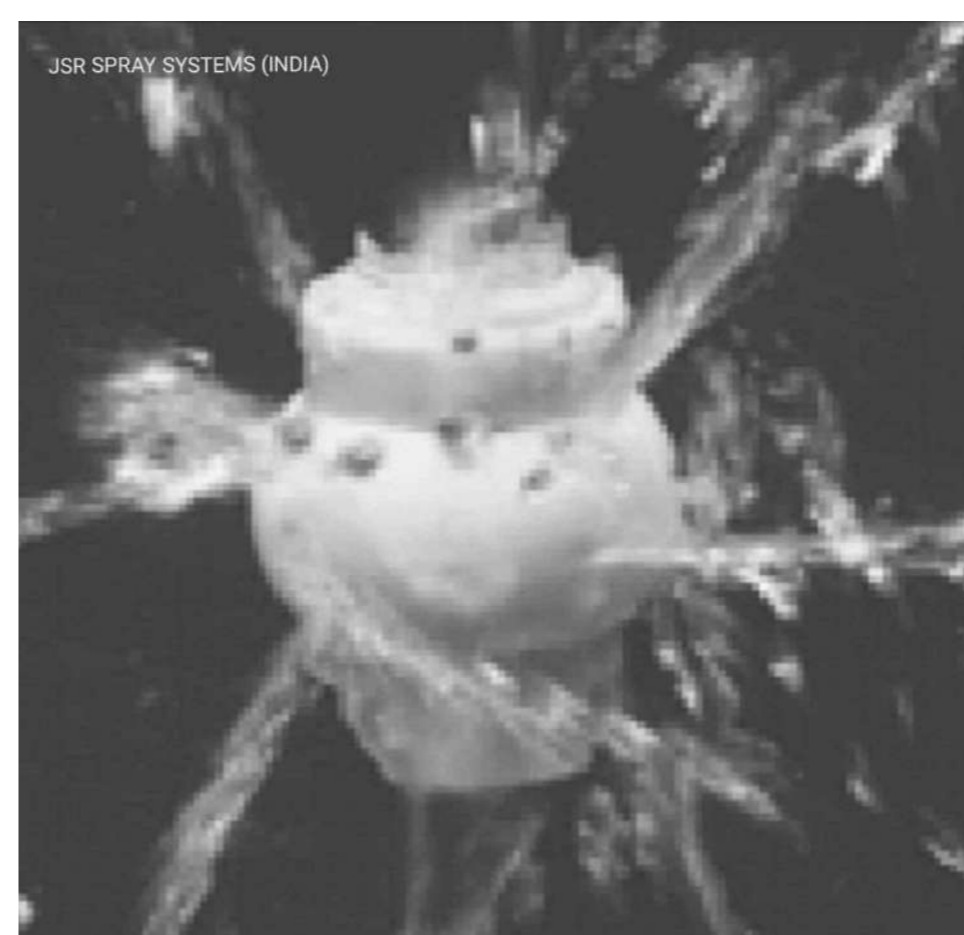
TANK RINSING NOZZLES

"TANK RINSING NOZZLES" are Process efficient & much more reliable this is safe cleaning practice it's require less labour & also cleaning media.

All rotating nozzles heads make the devise suitable or all industrial cleaning application including tanks,reactors, vessels and other containers ranging from 450 mm to 5 Meters.

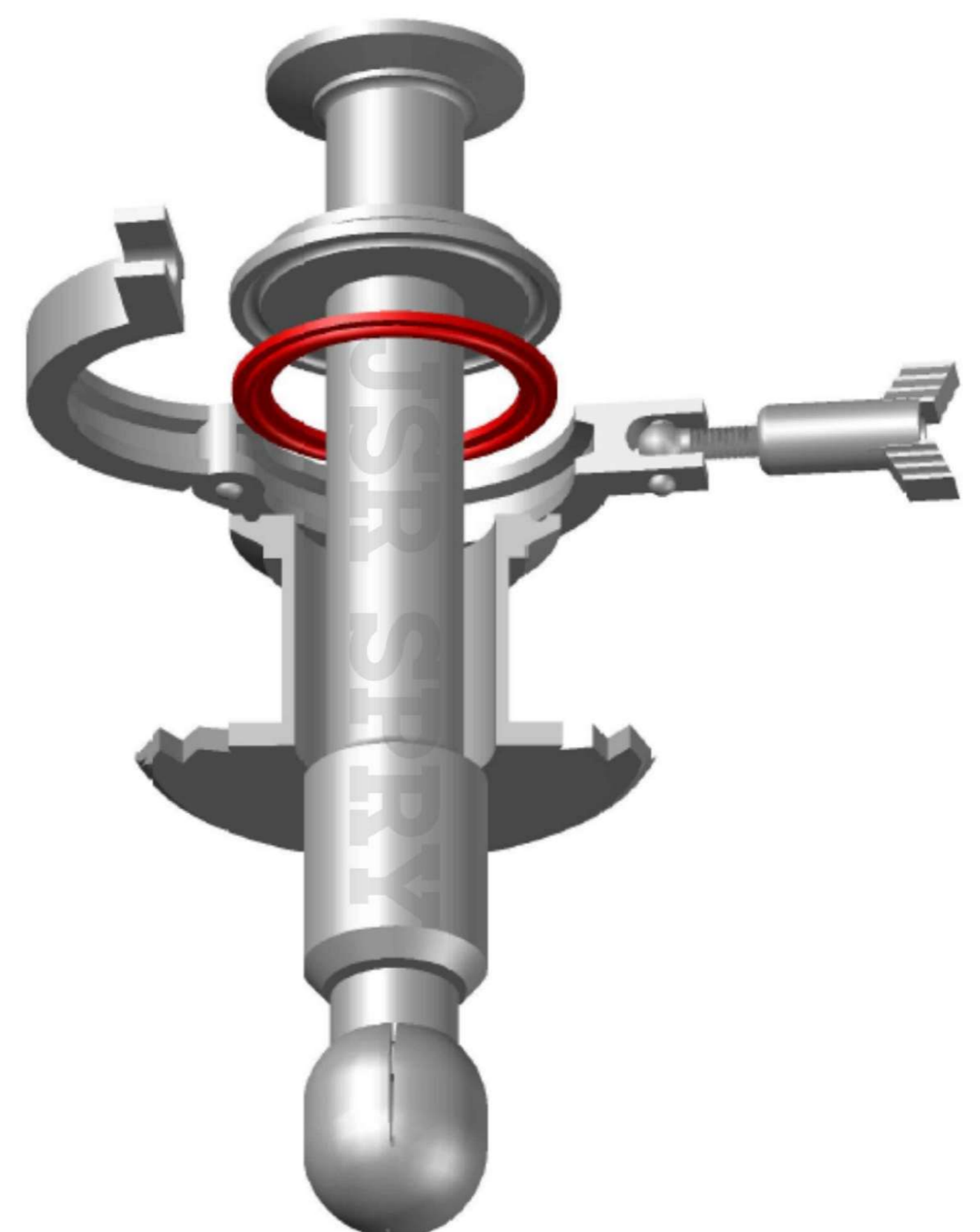
Advantage of tank rinsing nozzles . . .

- Guarantee the product integrity of what processed
- To prevent Cross Contamination
- To reduce time & Man power
- To prevent Explosive atmoshere
- To control mcrobiological activity



TECHNICAL DATA SHEET

Flow Rate(lpm)@ 2 Bar	Spray Angle	Inlet Connection	Materials
1 to 1000	180°,300°,360°	1/8" to 3" BSPT/BSP/NPT or TC connections	SS - 316L,316,304 Brass, Nylon

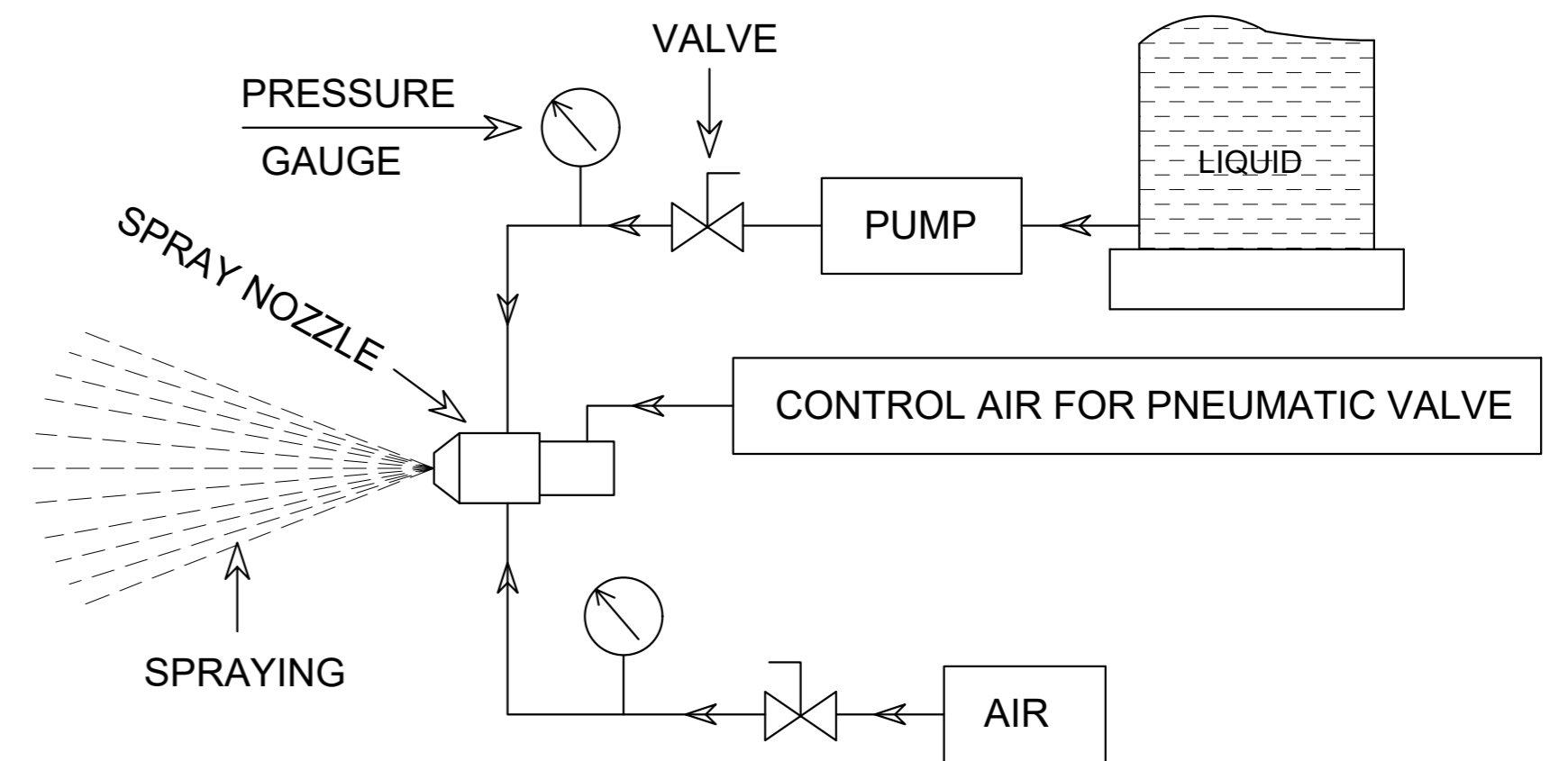


ATOMIZING SPRAY NOZZLES

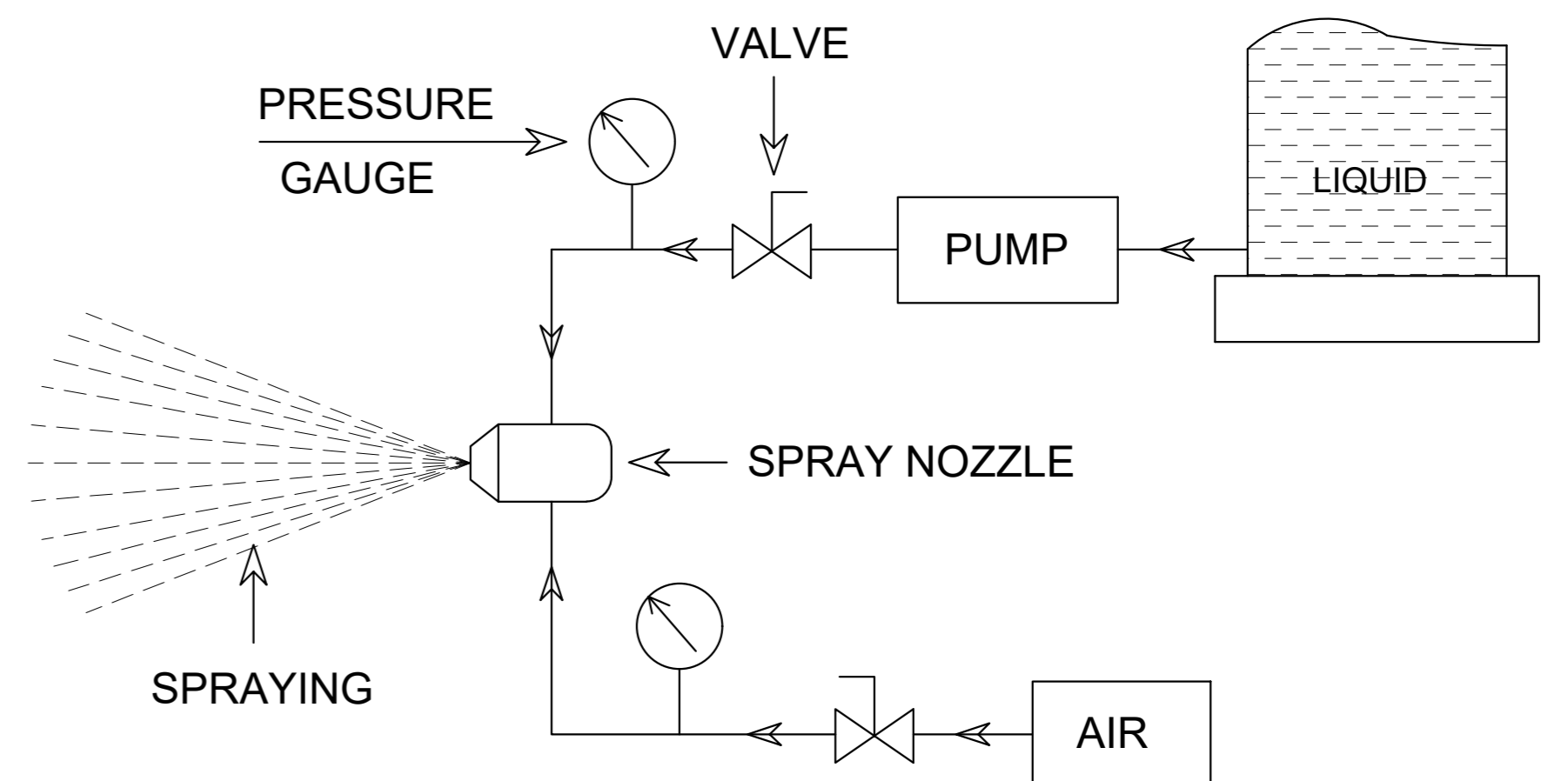
"ATOMIZING SPRAY NOZZLES" are unique twin fluids nozzles used where very large and high viscous quantities of liquid and pastes have to be turned to mist or fine atomized. highly atomized sprays can be obtained at comparatively low flow rates Liquid fed under pressure or by suction. Liquid fed under pressure or by suction.

APPLICATIONS :

1. Humidification
2. Autocoater / Pan coater Spray Applications
3. Cooling
4. Process Engineering
5. Web Dampening
6. Gas Cooling
7. Blowing Off of liquid
8. Billet and bloom caster for higher steel grades.



CYLINDER OPERATED ATOMIZING SPRAY NOZZLES



BASIC DESIGN ATOMIZING SPRAY NOZZLES

TECHNICAL DATA SHEET

Flow Rate(lpm)@ 2 Bar	Spray Angle	Inlet Connection	Materials
0.05 To 7.0	20°,60°,120°	1/8" to 3/4" BSP/BSPT	SS - 316L, 316,304

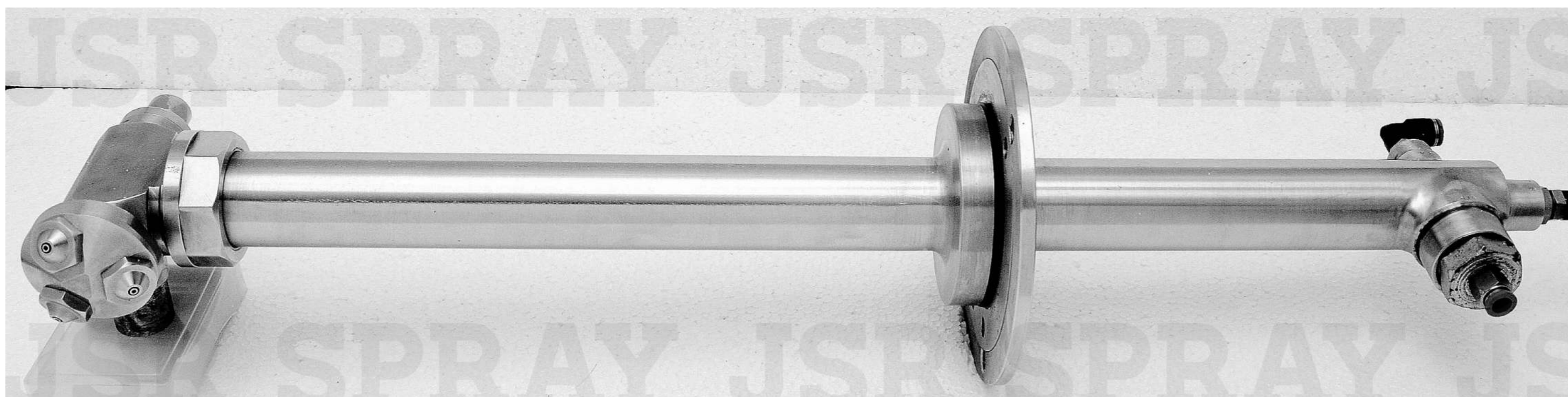


TOP SPRAY NOZZLES (FBP SPRAY GUN)

We Offer Top spray Gun to our client . . .

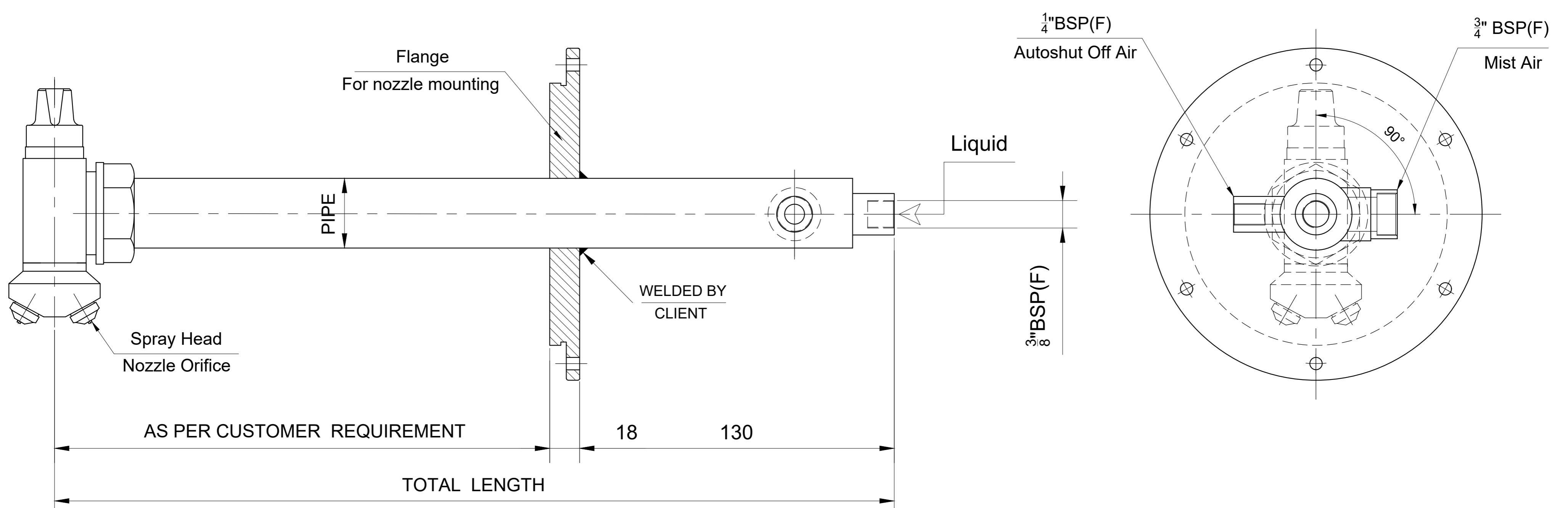
Design Features

- Modular design for quick desassembly
- Fine spray droplets
- Equally spray patterns, wide cone (Top down spray)
- Available with anti-drip design
- Multi numbers of head (ie . 3 Nos , 5 nos & 7 nos)
- For Lab / production scale application
- Material : SS 316L stainless steel, FDA Approved Viton O-Ring & Gaskets



TECHNICAL DATA SHEET

Model number	Orifice size	Operating Pressure	Nos. of Head	End Connection
N66.9 & N66.21	0.5 to 2.0mm	3 to 4 bar	3, 5, 7, 9, 11	As per customer requirement OR Flange mounted



BOTTOM SPRAY NOZZLE (FBP SPRAY GUN)

We Offer Bottom spray Gun to our client . . .

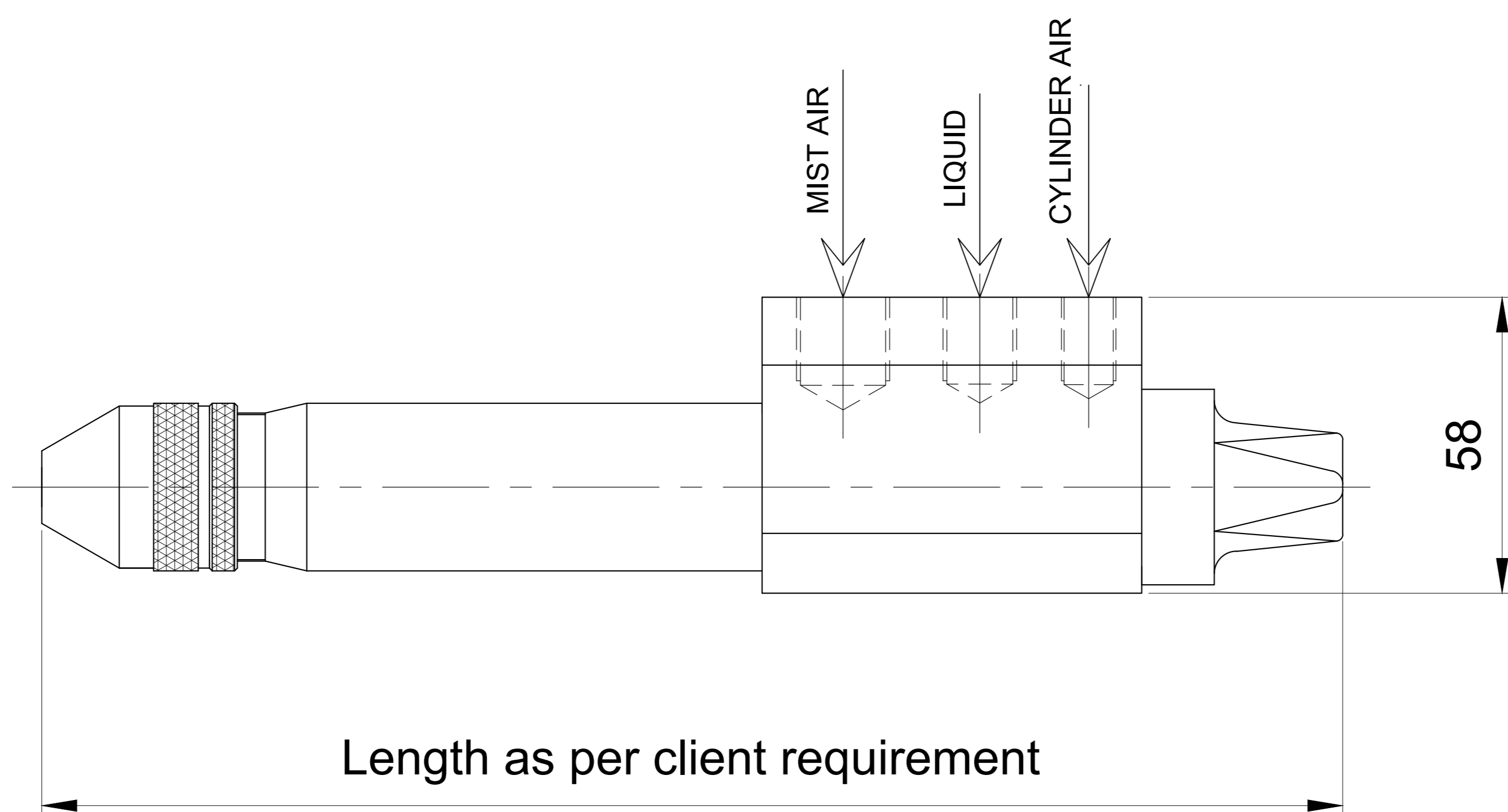
Design Features

- Modular design for quick disassembly
- Fine spray droplets
- Equally spray patterns, Narrow full cone (Bottom-up spray)
- Available in different orifices
- Length should be kept as per client Requirement.
- For Lab / production scale application .
- Material : SS 316L stainless steel, FDA Approved Viton O-Ring & Gaskets .



TECHNICAL DATA SHEET

Model number	Orifice size	Operating Pressure	End Connection
N66.18	0.5 to 2.0mm	3 to 4 bar	Autoshut off air - 1/8" BSP(F) Liquid - 1/4" BSP(F) Mist Air - 3/8" BSP(F)

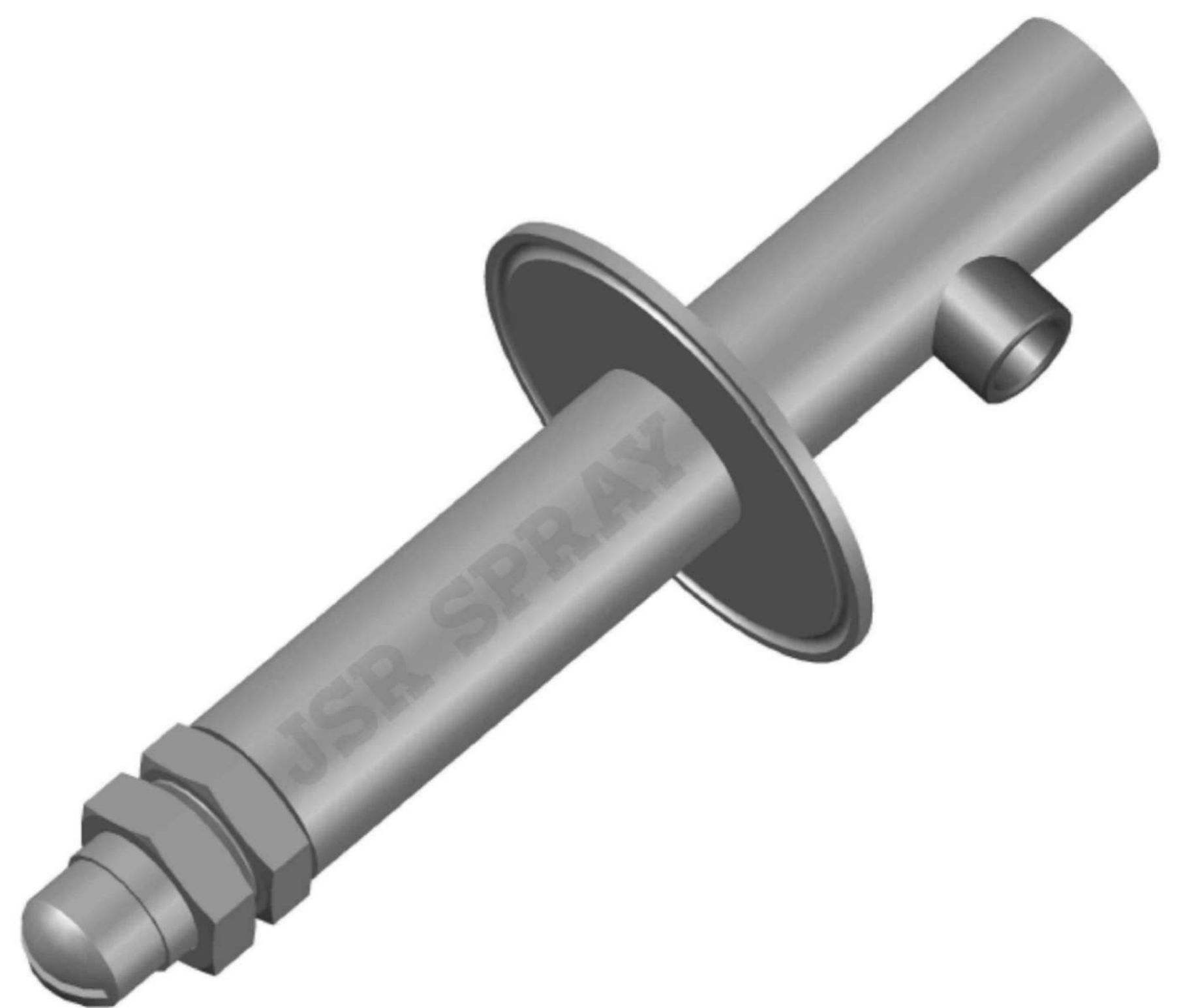


RMG BINDER SPRAY GUN

RMG Binder nozzle are designed for large scale, Medium scale, and lab scale Rapid mixer Granulator and high - shear Granulator for wet granulation .

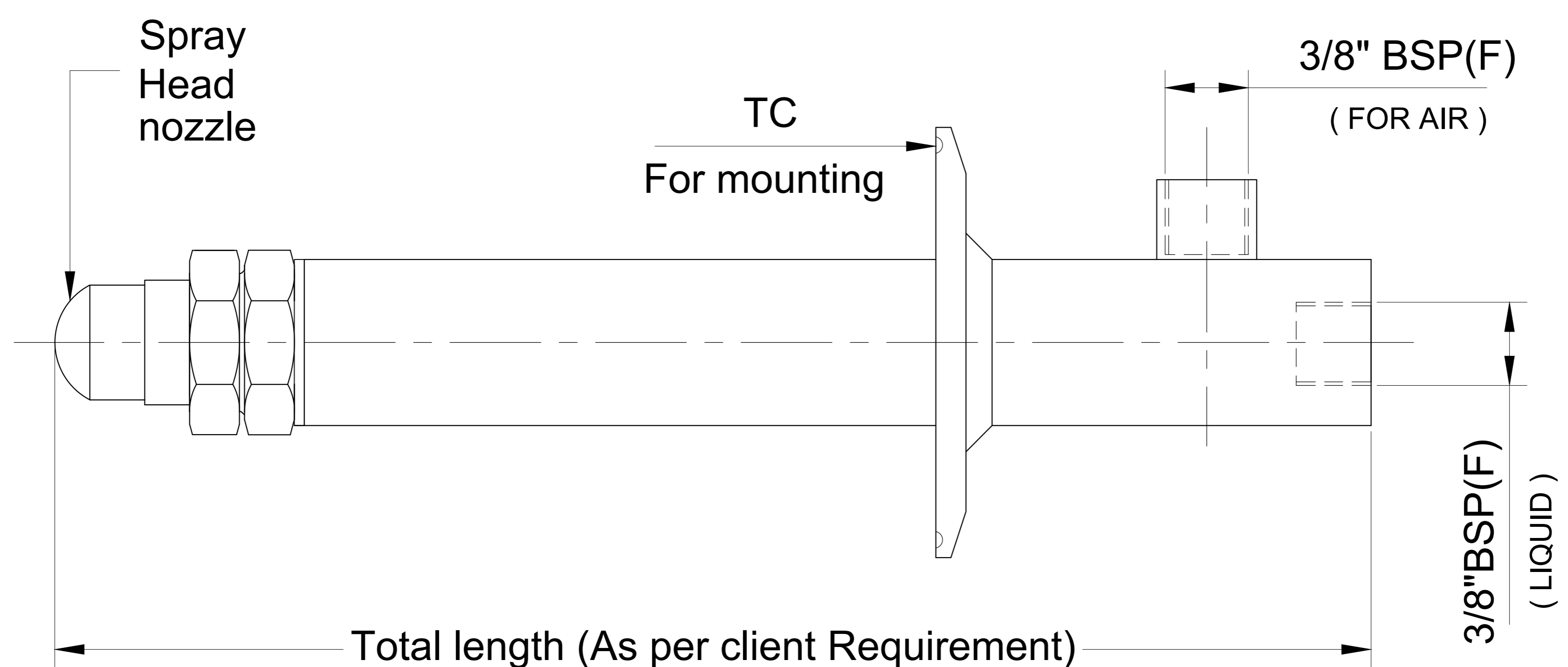
Design Features

- Anti clogging lance Design
- Fine Spray droplets
- 90° Flat fan Spray Pattern
- Material : SS 316 Stainless steel
- Available with anti drip feature
- Available in various spray angles



TECHNICAL DATA SHEET

Model number	Orifice size	Operating Pressure	End Connection
N66.14	1 to 2.5mm	3 to 4 bar	Liquid - 3/8" BSP(F) Mist Air - 3/8" BSP(F)



AIR JET NOZZLES

JSR "AIR JET NOZZLE" has a highly efficient air stream action upon areas, Reduces noise levels, low air consumption.

Applications :

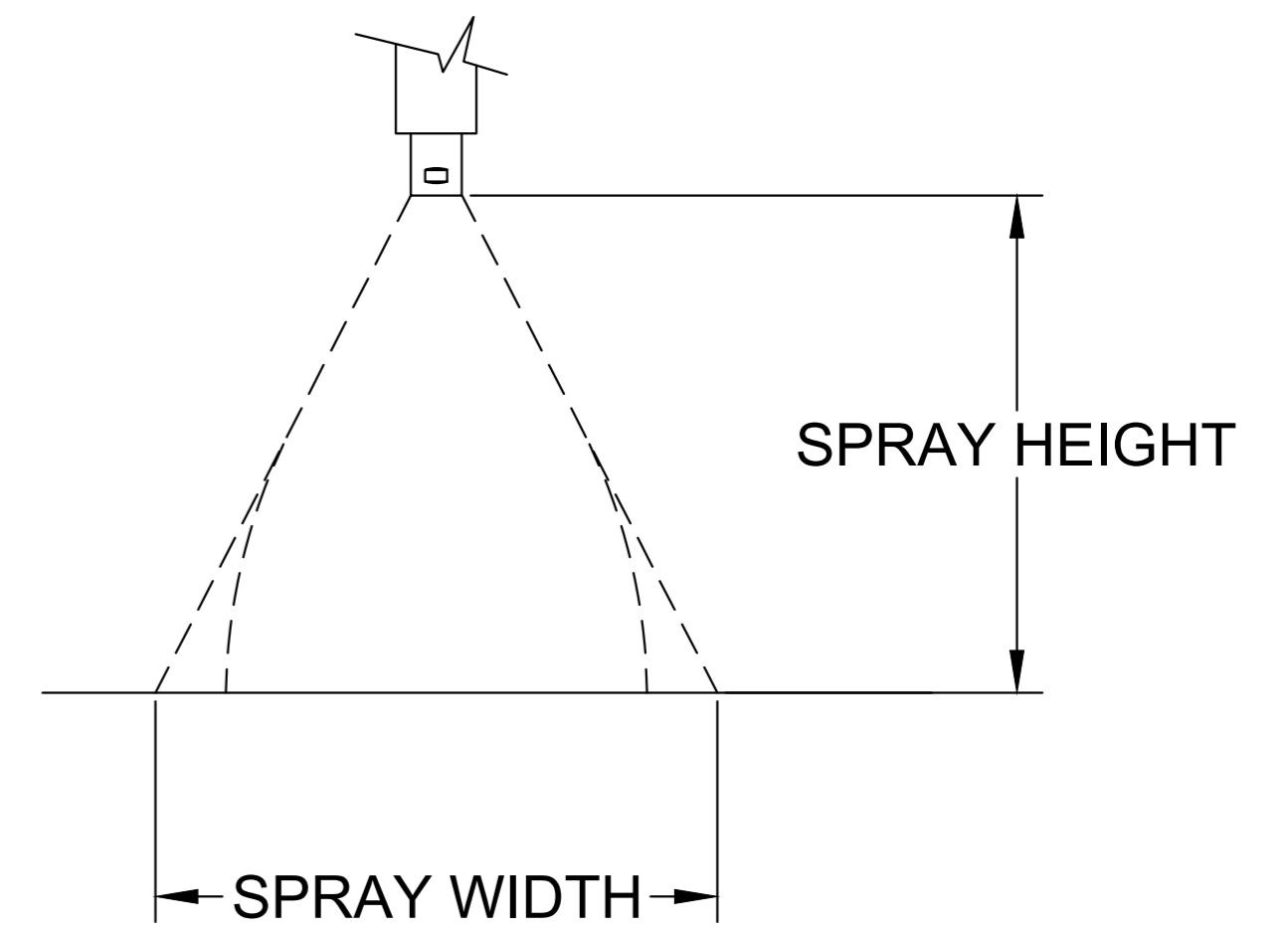
1. Blowing off or blowing out
2. Cleaning
3. Drying
4. Coolinh
5. Conveying With air
6. Reheating



TECHNICAL DATA SHEET

Flow Rate(lpm)@ 2 Bar	Spray Angle	Inlet Connection	Materials
15 cum/hr to 35.6 cum/hr	20°	1/8" & 1/4" BSP/BSPT, Male female	PP,SS & Aluminum

SPRAY ANGLE INFORMATION



The table shows theoretical spray patterns as calculated from the include spray and the distance from the nozzle orifice. These values are based on the assumption that the spray angle remains the same throughout entire spray distance. In actual practice the calculated spray angle does not hold for Long spray distance .

Theoretical Spray width (in mm) at various height from nozzle orifice

Spray Angle	50	100	150	200	300	400	500	600	700	800	900	1000
5°	4	9	13	18	22	26	35	44	52	61	70	87
10°	9	18	26	35	44	53	70	88	105	123	140	175
15°	13	26	40	53	66	79	105	132	158	184	211	263
20°	18	35	53	71	88	106	141	176	212	247	282	353
25°	22	44	67	89	111	133	171	222	266	310	355	443
30°	27	54	80	107	134	161	214	268	322	375	429	536
35°	32	63	95	126	153	189	252	315	378	441	505	631
40°	36	73	109	146	182	218	291	364	437	510	582	728
45°	41	83	124	166	207	249	331	414	497	580	663	828
50°	47	93	140	187	233	280	373	466	560	653	746	833
55°	52	104	156	208	260	312	417	521	625	729	833	1040
60°	58	106	173	231	289	346	462	577	693	808	924	1150
65°	64	127	191	255	319	382	510	637	765	892	1020	1270
70°	70	140	210	280	350	420	560	700	840	980	1120	1400
75°	77	154	230	307	384	460	614	767	921	1070	1230	1530
80°	84	168	252	336	420	504	671	839	1010	1180	1340	1680
85°	92	183	275	367	458	550	733	916	1100	1280	1470	1830
90°	100	200	300	400	500	600	800	1000	1200	1400	1600	2000
95°	109	218	327	437	546	655	873	1090	1310	1530	1750	2180
100°	119	238	358	477	596	715	953	1190	1430	1670	1910	2380
110°	143	286	429	571	714	857	1140	1430	1710	2000	2290	2860
120°	173	346	520	693	866	1040	1390	1730	2080	2430		
130°	215	429	643	858	1070	1290	1720	2150	2570	2920		

Pressure Conversion Chart

Unit	Bar	Pascal [pa]=N/m ²	Kg/cm ² =1 at	psi	lb/sq.ft
1 bar	1	100000	1.02	14.5	2089
1 Pascal	1x10 ⁻⁵	1	1.02x10 ⁻⁵	14.5x10 ⁻⁵	0.0209
1at=Kg/cm ²	0.9807	98070	1	1422	2048
1 psi	0.06895	6895	0.07031	1	144
1 lb/sq.ft.	0.479x10 ⁻³	47.9	0.4882x10 ⁻³	6.94x10 ⁻³	1

Volume flow Rate Conversion chart

Unit	l/s	l/min	m ³ /hr	US-gal /min	IMP-gal /min
1 l/s	1	60	3.6	15.85	13.2
1 l/min	0.01667	1	0.06	0.2642	0.22
1 m ³ /hr	0.28	16.67	1	4.4	3.66
1 US-gal/min	0.0631	3.785	0.227	1	0.8327
1 IMP-gal/min	0.076	4.546	0.273	1.201	1

ACCESSORIES FOR SPRAY NOZZLES

Varies types of ACCESSORIES are available at JSR SPRAY SYSTEMS (INDIA) .

Types of accesories :

1. Dovetail nipple
2. Welding nipple
3. Threaded nipple
4. Metallic nipple
5. Stabilizers
6. Sockets
7. Retaining Nut
8. Hose Connectors



CLIP MOUNTED NOZZLES

This types of spray nozzles are enhanced with different sizes clips which is made bt stainless steel Grade 304 . These types of clips provide strong clamping force on risers . There clip are Available in 1" ,1-1/4" ,1-1/2" & 2" ID Sizes .

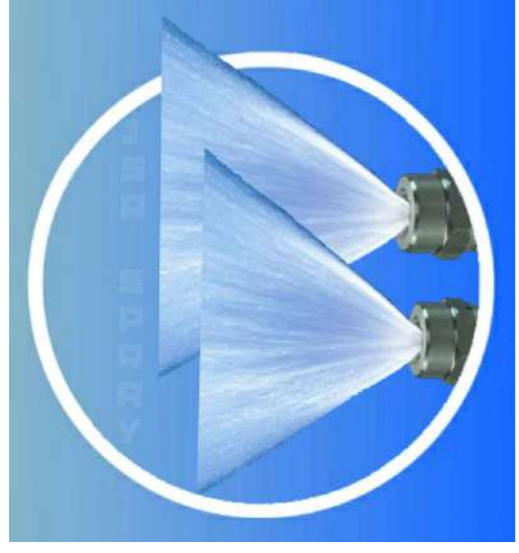
Design Features :

1. Balll types tips allow quick and accurate adjustment od spray direction
2. Nozzles are design by client Requirement, as there flow and spray angle required .
3. Clips are design for high pressure upto 4 bar (60 PSI).

Applications :

1. Paint booth in Automobile sector
2. Cleaning paint sharp.
- 3 In surface treatment
4. in surface treatment
4. 7 Stage paint processing unit .





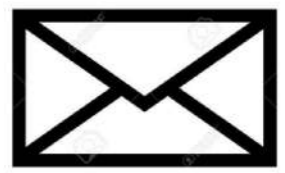
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