Tablet Coating Spray Nozzles

- RC Series
- RB Series
- RCS Series
- RDS Series

Optional Accessories available for R series coating spray nozzles

- MOUNTING STUD For round rod (ACC405)
- MOUNTING STUD For Hex rod (ACC406)
- PLUG (ACC006)
- BARB CONNECTOR (ACC005)
- NIPPLE (ACC303)
- PUSH-IN CONNECTOR (ACC304)
- FLOW REGULATOR (ACC305)
Today many solid pharmaceutical dosage mediums are produced with coatings, either on the external surface of tablets, or on materials dispensed within gelatine capsules.

Coating serves a number of purposes right from protecting stomach lining from aggressive drugs to protecting the tablet from stomach acids. It also helps in maintaining the shape of the tablet and thus can offer a delayed release of the medication.

But for good results, a better coating medium is required. And the same can be fulfilled by Tablet coating spray nozzles.

**General purposes of tablet coating**

- Covers unpleasant taste, colour and odour
- Chemical and physical protection from environment
- To control the release of drug with enteric coating
- It protects drug from gastric surrounding of stomach
- Provide way to identify the drug and improves appearance

**Results of bad coating**

- Sticking or picking
- Roughness
- Twinning
- Peeling
- Cracking

**Granulation With RMG / HSG**

Also known as wet granulation process, material is loaded into bowl having agitator and chopper and mixed rigorously then binder material is sprayed from top and granules are formed.

Good quality granules are foundation for good quality tablet.

Various liquid blenders are used for wet granulation.

Spraying binder over bulk material could reduce wet granulation cycle time and increase productivity.
Fluid bed process consists of following applications:

1. **Drying**
   Process of extracting moisture from solid bulk material by making it fluidized with high flow blow of air, so moisture is removed homogeneously and all over surface of every single particle.

2. **Granulation/Agglomeration**
   Powder particles of bulk material bonded by liquid fine spray. Liquid could be water or an organic solvent and the powder material will be mixed together. Agglomerate has less strength of particle bond.

3. **Coating**
   Fluidized particles are coated with spray of coating material which enhances coating film must be very uniform over the particle surface.

4. **Tangential Coating**
   Centrifugal motion is used for making spherical pallets, at the same time particles are bonded by binder liquid. Layering also can be done in same way.

---

![Top spray](#)  
![Bottom spray](#)  
![Tangential spray](#)
The following description will help to explain our Part Number/ Code in relation to the “SPRAYTECH” Spray Nozzle EXAMPLE ORDERING.

<table>
<thead>
<tr>
<th>SPRAYTECH</th>
<th>R C</th>
<th>10</th>
<th>M2L</th>
<th>X A</th>
<th>FC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Name</td>
<td>Spray Nozzle Series</td>
<td>Sub-type of Nozzles</td>
<td>Orifice Size</td>
<td>Material Code</td>
<td>Thread Type</td>
</tr>
</tbody>
</table>

### 1) Spray Nozzles Series

\[ R = \text{Coating Nozzle} \]

### 2) Sub Type of Nozzles

- **RC**
- **RB**
- **RCS**
- **RDS**

### 3) Orifice Size

- 05 = 0.5mm
- 08 = 0.8mm
- 10 = 1.0mm
- 12 = 1.2mm
- 15 = 1.5mm
- 18 = 1.8mm
- 20 = 2.0mm

### 4) Material code

- M2 = SS316
- M2L = SS316L

### 5) Thread Type Code

- X = BSPP
- Note: Special Connection on request

### 6) Thread Size code

- A = 1/8"
- B = 1/4"
- C = 3/8"
- Note: Special Size on request
Spraytech’s popular RC Series tablet coating spray nozzle are specially designed to meet GMP requirements where surface texture plays very important role.

The unique Air Cap design makes it Anti Bearding and keeps coating process shutdown free, thus higher production ratio and quality requirements are achieved.

RC series spray nozzle is a compact device incorporating of independent controls for Liquid, Atomizing Air and Fan Air for fine tuning of spray capacity, droplet size and spray patterns. It is available in wide variety of spray setups that give a complete selection of flow rate and flat spray patterns.

RC series spray nozzles are externally mix nozzles. This means the liquid and air are mixed outside of air cap to produce complete atomized spray.

The liquid atomization is controlled by varying atomizing air and fan air pressures without changing liquid flow rates. The flat spray pattern is controlled by varying the fan air pressure in conjunction with the atomizing air. This is effective for high viscosity liquids, coatings and suspensions.

Tablet coating spray nozzle features a cylinder for controlled “on-off” operation. The cylinder controls a liquid clean-out/ Shut-off needle which also cleans the liquid orifice.

The RC Series coating Spray Nozzle are a compact, precision nozzles. Incorporating independent controls of liquid atomizing air and fan air for fine tuning of spray capacity droplet size and spray patterns. It is available in a wide variety of spray Set-ups that give a complete selection of flow rates and flat spray patterns.

<table>
<thead>
<tr>
<th>Spray Nozzle</th>
<th>Type</th>
<th>RC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray Type :</td>
<td>Type</td>
<td>RC</td>
</tr>
<tr>
<td>Liquid orifice size Range (standard)</td>
<td>mm</td>
<td>0.8 - 1.8, (1.0)</td>
</tr>
<tr>
<td>Solution Flow Rate (typical per nozzle)</td>
<td>Liters/hour</td>
<td>6 - 30</td>
</tr>
<tr>
<td>Atomizing Air Pressure Range</td>
<td>bar</td>
<td>0.7 - 3</td>
</tr>
<tr>
<td>Spray Width Pressure Range</td>
<td>bar</td>
<td>1.0 - 4.0</td>
</tr>
<tr>
<td>Maximum Compressed Air Pressure</td>
<td>bar</td>
<td>5.5</td>
</tr>
<tr>
<td>Compressed Air Consumption (maximum @ 2.0 bar)</td>
<td>Nm³/hour</td>
<td>10.5</td>
</tr>
<tr>
<td>Seal Material (standard) check compatibility for organic use</td>
<td>FDA</td>
<td>Approved</td>
</tr>
</tbody>
</table>
RC Series Tablet Coating Spray Nozzles

**DESIGN FEATURES**

1. GMP model
2. Complete SS316L construction
3. Separate atomizing and fan air lines for complete control.
4. Minimum part assembly for easy maintenance
5. Only 2 O-rings
6. Provides variable coverage and fine control of drop size without affecting liquid flow rates.
7. Non-clogging and anti-bearding design
8. Auto shut-off & anti-drip feature
10. Available with and Without flow control feature

**Part Details**

1. Lock Nut
2. Air Cap
3. Liquid Nozzle
4. Body
5. Needle Assembly
6. Rear Spring
7. Strainer Disc
8. End Cap

**Details of Inlet Connections**

- Fan Air
- Liquid
- Atom Air
**Design Summary:**

Liquid Orifice Range: 0.5 to 2.0 MM

- RB Series variable spray nozzles provide uniform spray distribution with uniform droplet sizes, even when spraying viscous fluids.
- RB series works with HVLP principle where the atomization is possible at lowest pressures.
- RB series comes with Independent inlets for Atomization air, Fan air, Cylinder air and Liquid for complete control over the spray nozzle.
- RB series is best suitable for auto coaters for large scale production.
- Additional inlet/outlet port allows for liquid re-circulation that effectively maintains the flow of viscous liquids.
- Having removable auto shut off and spring loaded needle cylinder assembly is provided for maintenance.

**Design Features**

1. GMP model
2. Complete SS316L construction
3. Separate atomizing and fan air lines for complete control.
4. Provides variable coverage and fine control of drop size without affecting liquid flow rates.
5. Non clogging and anti - bearding design
6. Auto shut-off & anti-drip feature
7. Self-cleaning needle design.
8. Comes with Wide range of orifice size

**Part Details**

1. Lock Nut
2. Air Cap
3. Fluid Cap
4. Body
5. Cylinder (Needle) Assembly

**Details of Inlet Connections:**

*With fan air*: Flat Spray Pattern.
*Without fan air*: Round Spray Pattern.
SPRAYTECH’S RCS series coating spray nozzles offers very compact design with innovative flow control feature. This feature offers the user to take the RCS coating nozzle from the lowest 20 ml to its max limit is just a spin.

RCS type coating spray nozzle is very lightweight and features anti bearding air cap design which eliminates the deposition of material over the air cap and abolishes bearding over gun.

Liquid Orifice Range: 0.5 to 1.2 MM

RCS comes with individual ports for liquid, Atomizing, Fan control and auto shut-off for total control. Also as it is has external mixed design thus, atomized spray properties could be changed as per need with fine tuning of individual pressures of Atomizing air, Fan Air & Liquid pressure.

Innovative needle assembly provides the Auto-shut off, Anti-Drip and Auto Cleaning of liquid orifice.

RCS type coating spray nozzle is best suitable for Lab-coater and Conventional coater.

Spray setup available with Flat Fan, and Round Pattern.

All Sealing materials are FDA Approved.

**DESIGN FEATURES**

1. GMP model
2. Compact & lightweight design
3. Complete SS316L construction
4. Separate atomizing and fan air lines for complete control.
5. Minimum part assembly for easy maintenance
6. Provides variable coverage and fine control of drop size without affecting liquid flow rates.
7. Non clogging and anti - bearding design
8. Auto shut-off & anti-drip feature
10. Available with and Without flow control feature

**Part Details**

1. Lock Nut (Front)
2. Air Cap
3. Liquid Nozzle
4. Body
5. Gland
6. Needle Assembly
7. Needle Spring
8. End Cap
9. Flow Control Regulator
10. Flow Adjustment Screw
RCD Series Coating Spray Nozzles

Liquid Orifice Range: 0.5 to 1.8 MM

SPRAYTECH’s Latest Development, RDS series coating spray nozzles offers operation of spray using just three connections, 1 for Atomization air & Fan air combined, 1 for cylinder air and 1 for liquid. Only two air connections makes it best suitable for conventional pan coaters.

RDS offers variety of spray setups ranging from 0.5 mm to 1.8 mm.

RDS comes with Anti bearding air cap design for clog free operation and its special design needle makes it anti drip and auto shut off.

RDS comes with flow control feature to take total control over the flow rate.

**DESIGN FEATURES**

1. GMP model
2. Complete SS316L construction
3. Only 3 connections
4. Minimum part assembly for easy maintenance
5. Provides variable coverage and fine control of drop size without affecting liquid flow rates.
6. Non clogging and anti-bearding design
7. Auto shut-off & anti-drip feature
8. Self-cleaning needle design.
9. Available with flow control feature
Mounting Assembly

Accessories

Optional Accessories available for R series coating spray nozzles

1. Mounting STUD
   For round rod (ACC405)
2. Mounting STUD
   For Hex rod (ACC406)
3. Plug
   (ACC006)
4. Barb Connector
   (ACC005)
5. Nipple
   (ACC303)
6. Push-In Connector
   (ACC304)
7. Flow Regulator
   (ACC305)
Spraytech's TS 50 is a very compact spray nozzle designed specially for Lab Scale Fluid Bed Processors. With a length less than 50 mm, it can be easily mounted in any lab model FBP. It is also available with a wide range of spray rates with fine atomization.

**Design Features**

- Compact design
- Narrow spray angle (Top down spray)
- Multiple orifice sizes for liquid nozzle
- Homogeneous spray distribution
- Minimum parts for easy maintenance
- Auto shut off feature (Available in TS 50AS)
- GMP Suitable design
- Made from SS316L and All O-rings from FDA Approved material

**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray pattern</td>
<td>Full cone</td>
</tr>
<tr>
<td>Spray angle</td>
<td>15°-20° (Variable)</td>
</tr>
<tr>
<td>Orifice range</td>
<td>0.5 to 2.0 mm</td>
</tr>
<tr>
<td>Capacity</td>
<td>0.1 to 1.5 LPM</td>
</tr>
</tbody>
</table>
Spraytech’s TS100 is a compact design Top spray granulation nozzle equipped with one spray head (single head) and is ideal for lab scale and small capacity FBP. The single head provides fine atomized cone spray pattern with adjustable spray angles. The unique air cap has air flow adjustment where the atomization and the spray angle can be fine-tuned.

Manufactured and designed considering GMP standards, TS100 is equipped with cylinder assembly which offers auto shutoff feature and needle assembly which shuts the liquid orifice to provide anti-drip function.

**Design Features**

- Compact design
- Auto-shut off & Anti Drip feature
- Complete SS316L and Food grade Viton seals
- Anti-bearding air cap
- Interchangeable liquid nozzles
- Customised lance available

**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray pattern</td>
<td>Full cone</td>
</tr>
<tr>
<td>Spray angle</td>
<td>20° - 30° (Variable)</td>
</tr>
<tr>
<td>Orifice range</td>
<td>0.5 to 2.5 mm</td>
</tr>
<tr>
<td>Capacity</td>
<td>0.05 to 2 LPM</td>
</tr>
</tbody>
</table>
Spraytech’s TS300 is a multi-head design top spray granulation nozzle equipped with three spray head (Three head) suitable for medium capacity Fluid Bed Processors. It offers interchangeable liquid nozzle and air caps setups that works on external mix spray platform which enhances the spray quality and distribution in optimum way.

The multi-head setup provides three individual 20 degree full cone spray pattern which combines and forms a cluster of fine atomized spray. TS300 also offers cylinder assembly for auto shut-off operation.

**Design Features**

- Interchangeable Liquid nozzle and air cap setups
- Auto-shut off Feature
- Wider spray angle with maximum coverage area
- Finest droplet size & Homogeneous spray distribution
- Complete SS316L and Food grade Viton seals
- Customised lance available

**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray pattern</td>
<td>Full cone</td>
</tr>
<tr>
<td>Spray angle</td>
<td>60° - 90°</td>
</tr>
<tr>
<td>Orifice range</td>
<td>0.5 to 2.5 mm</td>
</tr>
<tr>
<td>Capacity</td>
<td>0.15 to 4 LPM</td>
</tr>
</tbody>
</table>
Spraytech’s TS600 is a multi-head design top spray granulation nozzle equipped with six spray head (Referred as Six head) suitable for large capacity Fluid Bed Processors. The unique cluster head block comprises of six independent liquid nozzle and air cap setups. The six cluster head design provides higher capacity flow with homogenous spray pattern distribution.

**Design Features**

- Interchangeable Liquid nozzle and air cap setups
- Auto-shut off Feature
- Wider spray angle with maximum coverage area
- Finest droplet size & Homogeneous spray distribution
- Complete SS316L and Food grade Viton seals
- Customised lance available

**Specifications**

<table>
<thead>
<tr>
<th>Spray pattern</th>
<th>: Full cone (Circular type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray angle</td>
<td>: 60° - 90°</td>
</tr>
<tr>
<td>Orifice range</td>
<td>: 0.5 to 2.5 mm</td>
</tr>
<tr>
<td>Capacity</td>
<td>: 0.15 to 5 LPM</td>
</tr>
</tbody>
</table>
Spraytech’s specially designed and customizable Fluid bed Bottom spray (Wurster coating) nozzle helps to improve the wurster coating application and also makes it possible to attain high-quality results in coating pellets and particles.

Designed for All type of Bottom Spray Coating, Allegiant spray distribution and fine droplets results in optimum quality of coating. Light weight design and easy to control the spray parameters. Minimum internal parts hence less maintenance.

**Design Features**

- Optimum spray quality
- Easy to assemble and dismantle
- GMP Suitable design
- Available with various orifices sizes
- Custom made designs available
- Variable mounting height
- Compact design

**Specifications**

- Spray pattern: Full cone
- Spray angle: 15° - 25° (Adjustable)
- Orifice range: 0.5 to 2.2 mm
- Capacity: 0.1 to 1.5 LPM
Spraytech’s specially designed and customizable Fluid bed Bottom spray (Wurster coating) nozzle helps to improve the wurster coating application and also makes it possible to attain high-quality results in coating pellets and particles.

Designed for Lab & small of Bottom Spray Coating, Applications. Allegiant spray distribution and fine droplets results in optimum quality of coating. Light weight design and easy to control the spray parameters. Minimum internal parts hence less maintenance. Also can be mounted directly on perforated sheet

**Design Features**

- Optimum spray quality
- Easy to assemble and dismantle
- Auto shut off feature (Available in WS 50AS)
- Special air cap design to avoid material build-up
- GMP Suitable design
- Available with various orifices sizes
- Made from SS316L and All O-rings from FDA Approved material
- Custom made designs available
- Easy Mounting

**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray pattern</td>
<td>Full cone</td>
</tr>
<tr>
<td>Spray angle</td>
<td>15° - 20° (Adjustable)</td>
</tr>
<tr>
<td>Orifice range</td>
<td>0.5 to 1.8 mm</td>
</tr>
<tr>
<td>Capacity</td>
<td>0.1 to 1 LPM</td>
</tr>
</tbody>
</table>
Spraytech’s specially designed and customizable WS 200 Fluid bed Bottom spray (Wurster coating) nozzle helps to improve the wurster coating application and also makes it possible to attain high-quality results in coating pellets and particles.

Suitable for all Small and Medium scale Bottom Spray Coating application. It provides homogenous spray distribution and fine droplets which results in optimum quality of coating. It is Light weight and easy to operate.

**Design Features**
- Optimum spray quality
- Anti-drip spray tip
- Spray angle and atomization Adjustment
- Easy to assemble and dismantle
- Special air cap design to avoid material build-up
- GMP Suitable design
- Available with various orifices sizes
- Made from SS316L and All O-rings from FDA Approved material
- Custom made designs available

**Specifications**
- Spray pattern: Full cone
- Spray angle: 15° - 20° (Adjustable)
- Orifice range: 0.5 to 2.0 mm
- Capacity: 0.1 to 1.5 LPM
Spraytech’s WS 300 popularly known as High speed gun is specially designed for higher capacity Fluid bed Bottom spray (Wurster coating) application. Its unique design and Higher capacity helps to improve the wurster coating application and also makes it possible to attain high-quality results in coating pellets and particles in less time.

Suitable for all type of Bottom Spray Coating application with homogenous spray distribution and fine droplets that results in optimum quality of coating.

**Design Features**

- High capacity spray nozzle
- Optimum spray quality
- Spray angle and atomization Adjustment
- Anti-drip spray tip
- Auto-clean needle assembly
- Special air cap design to avoid material build-up
- GMP Suitable design
- Anti-clogging lance
- Available with various orifices sizes
- Made from SS316L and All O-rings from FDA Approved material
- Custom made designs available

**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray pattern</td>
<td>Full cone</td>
</tr>
<tr>
<td>Spray angle</td>
<td>15° -20° (Adjustable)</td>
</tr>
<tr>
<td>Orifice range</td>
<td>0.5 to 2.5 mm</td>
</tr>
<tr>
<td>Capacity</td>
<td>0.1 to 1.5 LPM</td>
</tr>
</tbody>
</table>
Spraytech’s RMG / HSG Top Spray Nozzles & Lance are designed for Large Scale, Medium Scale and Lab Scale Rapid Mixer Granulator and High-Shear Granulator for Wet Granulation. Superior spray quality produces best-in-class granules from bulk. Manufactured according to GMP and available in a wide range of spray rates. An external mixing spray setup enhances the spray quality and distribution in optimum ways.

Spray Nozzles and special purpose lance designs available

**Design Features**

- Available in 1, 3, 4 spray heads
- Available in various spray angles
- Auto-shut off feature
- Anti-drip spray heads
- Long Life Lance design
- Compact design of spray nozzle
- Homogeneous spray distribution
- Fine droplet size, best for wet granulation
- GMP Suitable design
- Anti-clogging lance design
- Made from SS316L and All O-rings from FDA Approved material
- Custom made designs available
Special Design For R&D & Pilot RMG / HSG Equipment

**Spray angle range:** 20° - 90°

**Flow range:** 1 LPM to 8 LPM

---

**Internal Mix Setup**

**Spray angle range:** 60° - 80°

**Flow range:** 10 LPM to 50 LPM

**Features:**
- Anti drip Spray setup
- Auto shut off
- Finest droplet Size
OUR BRANCHES

Regd. Office (Mumbai):
Spraytech House, Plot A-132, Road No. 23, Spraytech Circle,
Wagle Indl. Estate, Thane (W) - 400 604. Mumbai Maharashtra, (India)
Tel. : 91-022-2582 8929 / 2735 / 2736
E-mail: - sales@spraytechindia.com
sales1@spraytechindia.com

Rabale Plant 1 (Navi Mumbai):
Spraytech Systems (I) Pvt. Ltd., Plot No.: R-513, MIDC, TTC Industrial
Area, Rabale, Navi Mumbai - 400 701.

Rabale Plant 2 (Navi Mumbai):
R-446, I.T.C. Industrial Area, M.I.D.C Rabale,
Navi Mumbai - 400 701.

Branch Office (Pune):
White House, Survey no. 161, Near
Bhosale Garden Hadapsar, Pune 411028

Indapur Plant (Pune):
Industrial Area, Village - Loni Devkar Balpudi, Tal. - Indapur,
Dist. - Pune. - 413132