SPRAY TECH SYSTEMS

Spray Drying Solutions for R&D and Production

Pharmaceuticals | Chemicals | Polymers /Resins
Food Industry | Fragrances / Perfumes | Flavours
Soaps & Detergents | Textile Dyes & Pigments
Spices | Ceramics | Beverages | Metallurgical

www.spraytechsystem.com

SPRAY TECH SYSTEMS

ABOUT US

Incorporated in 1998, spray tech systems is professionally managed engineering company, manufactures industrial drying plant since 20 years.

- We Manufactures, Design and Supply Equipments For Laboratory, R&D and Industrial.
- Our Products Includes Spray Dryers, Spin Flash Dryers, Fluidised Bed Dryers and Plunger Pump.
- We Have More Than 20 Years of Experience In Spray Drying Technology.

Supplied to over

6 Countries | **11** Indian States

20 More than Year Of Experience | **114** Happy Customers

Spray Drying Machines supplied all over India as well as Overseas

SPRAY TECH SYSTEMS

MINI LABORATORY SPRAY DRYER

STS001

Technical Specifications

- Evaporation capacity: 500 ml to 1000 ml / hr of
- Feed Rate: 1.0 to 1.5 Ltr/Hr or 1.0 to 1.5 Kg/Hr
  Output Product Rate @30 - 40% solid: 400g - 500g/hr
- Suitable For: Aqueous/ Water Based Solvent Feed Solution
- Heating power: 4.5 KW, Single Phase
- Max inlet temp.: 260° C; Accuracy ± 5° C
- Hot air flow: Co-current
- Nozzle type: Two-fluid nozzle
- Nozzle diameter: 1.0 mm / 0.7 mm
- Typical yield: 40 - 70 %
- Operating conditions: Open
- Power consumption: Max. 19 amps
- Voltage: 200 - 230 V; 50/60 Hz
- Dimension (H x W x D): 1250 x 500 x 600 (mm)
- Weight: 95 kg
- Blower Type: 0.5 HP Aspirator

Features

- Used for Spray drying Encapsulation and others
- Most Flexible instument for Lab spray drying
- Cost efficient
- Easy to Handle
- Portable on Wheels
- Aceptic GMP Unit
- Aqueous /Solvent Feed Solutions
- Co-Current Spray Nozzle
- PLC based with 7" Touch screen
- Two-way communication with PC / Laptop & HMI
- Digital Vacuum / Pressure Indicator
- Capacity 1 Lit./Hr. (H20)
- Built-in Hotplate & Magnetic stirrer controlled through the inbuilt controller
- Built-in Mechanical Stirrer controlled through the inbuilt controller
- Compact Design
- Easy to Move
- Shoter time to Optimize Formulation

SPRAY TECH SYSTEMS

MINOR LABORATORY SPRAY DRYER

STS003

Technical Specifications

- Evaporation capacity : 2 - 3 ltr/hr
- Feed Rate : 3.5 ltr/hr
- Output Product Rate @ 30 - 40% solid : 1kg/hr
- Max inlet temperature : 260^0 C ; accuracy ± 1^0 C
- Atomization : Two Fluid Nozzle
- Application : Food , Pharmaceutical, Enzymes, Chemical , Clays , Dyestuff , Leather , Pigment , Polymer , Textile.

Features

- Compact design ideal for Laboratories and Kilo labs
  High Purity Design
- Ideal for Low volumes pharmaceuticals
- grade finishes
  SS 316L construction
- Sanitary type Ports are Standard
- Solvent and Aqueous Feed
- Flexible design
- Easy to Use
- GMP Standards
- Pressure and Two Fluid nozzle systems
- Co Current Spray
- PLC based 7" Touch screen
- Fully automated PLC based Touch screen Operator panel with Recipe function and USB data logger
- Built in Mechanical Hotplate & Megnetic stirrer controlled through inbuilt controller
- Shorter time to Optimize formulation

SPRAY TECH SYSTEMS

ADVANCED LABORATORY SPRAY DRYER

STS005

Technical Specifications

- Evaporation capacity : 3 - 5 ltr/hr
- Feed Rate : 6.2 ltr/hr
- Output Product Rate @ 30 - 40% solid : 2.10 kg/hr
- Max inlet temperature : 260^{0} C ; accuracy ± 1^{0} C
- Atomization : Two Fluid Nozzle, Pressure Nozzle and Rotary Atomizer
- Application : Food, Pharmaceutical, Enzymes, Chemical, Clays, Dyestuff, Leather, Pigment, Polymer, Textile

Features

- SS 316 L Construction
- Robust and High purity design
- GMP standards
- Solvent and Aqueous feeds with Flameproof Design
- HEPA filter for gas streams
- Ideal for establishing Process data for
- Commercial production

  Easy to dismantle for cleaning and fast product switch.
- Available with Rotary Atomizer, Pressure Nozzle and Two fluid Nozzle
- Simple Skid mounted arrangement
- CIP system for Cleaning
- PLC based system with HMI touch screen operation panel.
- Closed Cycle design available for operation with Organic solvent
- Reinforced design with suppression system for dust explosion protection
- Options include for Emission control - Cartridge
- Filter , Bag filter and Wet scrubber

SPRAY TECH SYSTEMS

PILOT SPRAY DRYER

STS010

Technical Specifications

- Evaporation capacity : 8 - 10 ltr/hr
- Feed Rate : 14 ltr/hr
- Output Product Rate @ 30 - 40% solid : 4.2 kg/hr
- Max inlet temperature : 260^0 C ; accuracy ± 1^0 C
- Atomization : Two Fluid Nozzle, Pressure Nozzle and Rotary Atomizer.
- Application : Food , Pharmaceutical, Enzymes, Chemical , Clays , Dyestuff , Leather , Pigment , Polymer , Textile.

Features

- SS 316 L Construction
- Robust and High purity design
- GMP standards
- Sanitary design
- Interchangeable Atomization between - Rotary atomizer - Pressure Nozzle - Two fluid Nozzle Two in One Design
- Solvent and Aqueous feeds with Flameproof Design HEPA filter for gas streams
- Ideal for establishing Process data for Commercial Production
- Easy to dismantle for cleaning and fast Product Switch
- Available with Rotary Atomizer, Pressure Nozzle and Two fluid Nozzle.
- Simple Skid mounted arrangement
- CIP system for Cleaning
- PLC based system with HMI touch screen operation panel.
- Closed Cycle design available for operation with Organic solvent
- Reinforced design with suppression system for dust explosion protection
- Options include for Emission control - Cartridge Filter, Bag filter and Wet scrubber

SPRAY TECH SYSTEMS

PRODUCTION SPRAY DRYER

STS050

Technical Specifications

- Evaporation capacity : 50 - 100 ltr/hr
- Feed Rate : 140 ltr/hr
- Output Product Rate @ 30 - 40% solid : 40 - 60 kg/hr
  Max inlet temperature : 260° C ; accuracy ± 1° C
- Atomization : Two Fluid Nozzle, Pressure Nozzle and Rotary Atomizer.
- Application : Food , Pharmaceutical, Enzymes, Chemical , Clays , Dyestuff , Leather , Pigment , Polymer , Textile.

Features

- Product Contact part in High alloy stainless steel or other corrosion proof materials.
- Customised design as per Product properties
- Total Control over Wide Range of Critical Process Parameter and Product properties
- Such as Temprature, Holding Time, Solid Contents and Critical Powder Characteristics,
- Varible atomizer speed
- Variable Feed rate for Pressure Nozzle Atomization
- Temprature adjustment
- Controlled Nozzle spray for Consistent Partical Size
- Reinforced design with suppression system for dust explosion protection
- Options include for Emission control - Cartridge Filter , Bag filter and Wet scrubber
- Energy Efficient Technology
- Capable of Handling Variety of Application
- High Yields
- Top Quality Components
- Prolonged Service life
- Complete CIP systems

CLOSED LOOP SPRAY DRYER

Closed Loop Spray Dryer

- The complete range of SPRAY TECH spray dryers are also available for operating in closed cycle. This ensures safety, protects the environment and enables solvent recovery.
- A wide range of products suspended or dissolved in organic solvents cannot be spray dried in a standard dryer with atmospheric air, due to the risk of an explosion or fire. These products must be spray dried in a plant set-up, where an inert gas, e.g., nitrogen, is used for eliminating fire and explosion risk.
- For environmental protection, spray drying of products that are dissolved in organic solvents is done in a closed-cycle spray drying system where the organic solvent is recovered in a condenser unit. The same type of plant set up can also be used where oxidative degradation of the product must be avoided
- Spray dryers in closed-cycle design are available for all capacity requirements and can also be applied for products that are suspended or dissolved in water (water based feeds).

ATOMIZATION

Different atomization modes

One of the most important choices in a plant configuration is choosing the right atomization and powder discharge method. SPRAY TECH SYSTEM offer a wide rane of atomization solution, as illustrated.

Rotary atomizer

Rotary atomizer

In rotary atomization, the feed is centrifugally accelerated to high velocity in the atomizer wheel before being discharged into the hot drying gas. The degree of atomization and particle morphology depends upon peripheral speed, feed rate, liquid properties and atomizer wheel design. Particle size is adjusted by changing the peripheral speed. The rotary atomizer, considered the most flexible atomizing device, is suitable for a wide range of products. Rotary atomizers will generally deliver a narrower particle size distribution and more free flowing powder than two fluid nozzles.

Two-fluid nozzle, co-current or fountain mode

Two-fluid nozzle atomization is achieved pneumatically by high-velocity compressed air/gas impacting the liquid feed. Particle size is controlled by varying the nozzle flow ratio between atomizing gas and feed. When operating in co-current mode, the nozzle tip is placed close to the outlet of the ceiling air disperser. The co-current mode is selected when drying heat-sensitive products. When coarse particles of a non-heatsensitivefeed are required, the two-fluid nozzle in fountain mode is appropriate.

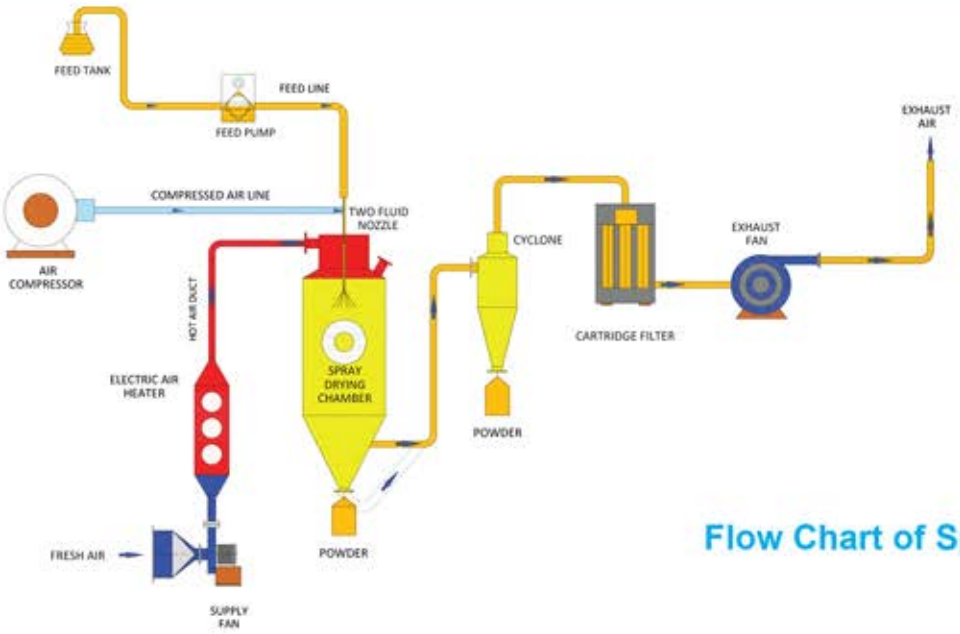
Pressure nozzle, co-current mode

Pressure nozzle

With a pressure nozzle, atomization is the result of the conversion of pressure energy within the liquid feed into kinetic energy of a moving thin liquid sheet. Pressure applied to the liquid within the nozzle forces the liquid out of the orifice creating the atomization. A pressure nozzle can be operated in co-current mode or in fountain mode. Particle size is adjusted by changing the feed pressure and nozzle size. Pressure nozzles will generally deliver a narrower particle size distribution and coarser particles than other atomizer types.

SPRAY TECH SYSTEMS

SPRAY DRYING TECHNOLOGY



Flow Chart of Spray Dryer

Spray Drying Technology Is The Most Widely Used Process In Chemical, Minerals, Pharmaceuticals, Food, And Dyestuff Industries For Converting Liquid Solution/Suspension/Slurry/Emulsion Into Powder, Granule, Or Agglomerates.

Features and Advantages of Spray Tech Systems Spray Dryer

- 1. Broad Range of Application- Foods, pharmaceuticals, biochemicals, inorganic materials, new developed materials.
- 2. High Controllability- Particle size, Particle size distribution, and bulk density are adjustable by changing operational conditions easily, like air, temperature and changing atomizing conditions.
- 3. Easy to Wash- Clamp connection of ducts or swing bolt connection, all corner round finish inside, high grade polish inside process provides easy washing to keep it clean.
- 4. Hygienic Design- All inside and outside stainless steel constructions of drying chamber, duct, and cyclones. Both rough filter and HEPA filter eliminate impurity dust over 99.97% at 0.3 μ m dust to avoid contamination.
- 5. Save Energy -VFD (Variable Frequency Drive) controlled fans and atomizer achieve easy control and offer exact reproducibility.
- 6. Various Options -Various kinds of rotary atomizers, two-fluid nozzle in co-current flow, and mixed flow available, easy change of process flow to one point or two points of powder collections and dust collection system

SPRAY TECH SYSTEMS

TRIAL TEST FACILITY

- The key benefit of working with Spray Tech is our test facility enables the client to work with customized spray dryers, take trials and develop a customized final product before making any significant capital investment.
- We are a leading manufacturer of spray technology products and own an advanced test facility for the product trials. We also help our customers develop customized spray drying processes for various industries in our Spray dryer laboratory.
- We also assist our clients by optimizing their manufacturing process and guide them from initial product trials to machine installation.
- The initial trials can be performed under flexible conditions as our dedicated and experienced staff can assist the clients.
- Need technical assistance from our team? Make use of our test facility for your Product development, quality improvement, and energy saving. We will closely work with you to assist you in overcoming the operational challenges.

APPLICATION

ENZYMES

ENCAPSULATED FLAVOURS

DISPERSE DYES

DETERGENTS

TEXTILE CHEMICALS

MIXED SPICES

RESINS

MILK DERIVATIVES

SPRAY TECH SYSTEMS

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