



**AKSH ENGINEERING  
SYSTEMS (P) LTD**



**Dryers**

**Evaporators**

**Turnkey Plants**

**TRANSFORMING THE WORLD OF DRYERS**

# Re-engineering Innovation



MAX

MIN

Aksh Engineering Systems Private Limited was started in 2013 by a Team of Technocrats with over 75 Man Years Of Experience in the Field of Industrial Drying and Evaporation Systems to the Chemical, Dyestuff, Food, Extract, Natural Products and Pharmaceutical Industry.

Backed by Rich Experience and Knowledge, our Capabilities include Process Design and Engineering, Consulting, Manufacturing and Installation of Turnkey Plants for Industrial Drying and Evaporation in Various Sectors.

Since its inception, Aksh Engineering Systems Private Limited has been delivering a Comprehensive Range of Reliable Industrial Drying Systems with High Standards of Quality and Performance. Its has been our forte to deliver our systems well before the stipulated time.

We recognize the fact the each Client has his own Unique Requirement and all our Systems are Custom Built to suit each Client's Specific Requirement.

Incorporating the Latest Technologies as per International Industrial Standards and Requirements, we have become one of the fastest growing Companies to successfully set up several Industrial Drying and Evaporation solutions in India and Abroad.



TRANSFORMING THE WORLD OF **DRYERS** 

# Modern Marvels of Engineering

Leading the Development of Industrial Drying and Evaporation solutions, we understand Each Client's Specific Requirement and Deliver the Desired Solutions through our Dedication, Professionalism, Customer Focus and Excellence. We endeavor to Deliver Cost Efficient, Reliable and World Class Quality Systems. For us, each Client Satisfaction and Appreciation is Foremost to Develop Long-Term Relationships with our Client till the Satisfactory Culmination of the Project.

# Spray Dryers

Spray Dryer produces a Dry Powder or Granules from a Liquid or Slurry by rapidly drying with a Hot Gas. It involves the atomization of a Liquid Feed into a Spray of Droplets and contacting the Droplets with hot drying air in a Spray Drying Chamber. The Rapid Evaporation of moisture from the Droplets results in formation of Dry Powder.

The Product Properties desired by the client are achieved by using the Unique and correctly selected Atomisation Systems. Different combinations of product properties like bulk density, product moisture, and dispersibility can be achieved during spray drying.



Dryers with CE and ATEX Certifications are available



1) Atomizer Type Counter Current High Temperature Spray Dryer

2) Co-current Rotary Atomizer Spray Dryer for Polymer Emulsions

3) Atomizer Type Co-current Spray Dryer for Heat Sensitive Product



# Rotary Disk Atomization

Rotary Disk Atomization utilizes Centrifugal Energy, where the feed is introduced at the centre of the Wheel rotating at a High Speed. The feed flows towards the periphery of the Wheel where it accelerates and disintegrates into tiny droplets. These Droplets come in contact with the Hot Air and get dried to form free flowing Powders. Aksh offers the Complete Gamut of Rotary Atomizer.

Wheel designs which include Straight Hole, Square Hole, S-Wheel, Umbrella Wheel, Curved Vane of Diameters 60mm, 100mm, 160mm, 175mm, 200mm, 250mm, 350mm & 400mm. Aksh Atomizers operate for Feed Rates Varying from 10 Kg/Hr to 15000 Kg/Hr.



Dryers with CE and ATEX Certifications are available



## Nozzle Atomization

Nozzle Atomizers operate under High Pressure. Pressure Energy is converted to Kinetic Energy and the Feed is disintegrated to Fine Droplets which are instantaneously Dried. Products from the Nozzle Type Dryers are Free Flowing, Coarse or Fine Powders with Particle size ranging from 80 - 250 Microns based on the Feed characteristics and Air Flow Patterns. Air Flow Patterns and Dryer configuration should be decided upon the desired Product characteristics required.

Aksh Nozzle Dryers operate from 25 Kg/Hr. feed up to 4000 Kg/Hr. feed rate.

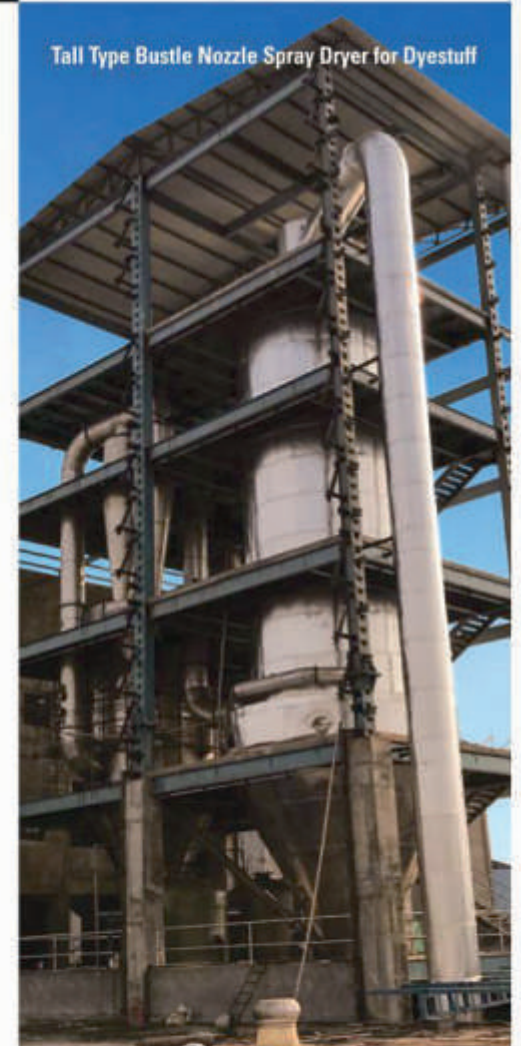


Dryers with CE and ATEX Certifications are available



**Complete Turnkey  
Disperse Dyes  
Manufacturing Plant  
with Spray Dryer  
and Liquid Preparation  
System**

Tall Type Bustle Nozzle Spray Dryer for Dyestuff



## Flash Dryer

Flash Dryers evaporate Moisture instantaneously with a very low Residence time. Wet Cakes, Powders, Granules, Lumps are best dried in our Flash Dryers.

In these Dryers the Feed is dispersed in a stream of Hot Air at significant velocities and are Dried. These Dryers can be designed to suit varying Residence Times based on the end Product requirement. Special Feed Conditioning Equipment are integral to this Dryer to take care of Uneven Feed Cake Moisture.

Feed Cake Moisture contents from 5% w/w up to 87% w/w can be handled in these Dryers.

Aksh offers Flash Dryers with Feed Capacities ranging from 50 Kg/Hr to 7000 Kg/Hr.



Dryers with CE and Atex Certifications are available



## Swirl Agitated (Spin) Flash Dryer

Swirl Agitated (Spin) Flash Dryers are ideal for drying Sticky, Thixotropic Cakes. In these Dryers the Wet Feed is introduced in a swirling Fluidised bed of material. The bed is kept in continuous agitation by means of an Agitator mounted at the bottom. Adequate Residence Time of drying is provided in the Dryer. Particle size of the Final Product can be controlled in this Dryer. If Cake is Solvent Laden, then Closed Loop Designs of the Swirl Agitated (Spin) Flash Dryer operating with Nitrogen as the heating media are available.

Aksh offers Swirl Agitated (Spin) Flash Dryers with Feed Capacities ranging from 50 Kg/Hr to 8000 Kg/Hr.



Dryers with CE and Atex Certifications are available

## Cage Mill Flash Dryer

The Cage Mill design consists of a Vertical Mounted Rotor enclosed in Casing having Stator Plates. This Dryer is also commonly called an Attritor Dryer.

In this Type of Dryer Both the Feed and the Hot Air enter the Cage Mill Dryer simultaneously into the 'Eye' of the Cage Mill Disintegrator.

When the Feed Cake is very hard or have a tendency to lump or crust while drying and needs to be simultaneously disintegrated and dried then Dryers with Cage Mill Disintegrators are used. The Advantage of this Dryer is to handle the Hard Cakes, Crusts And Lumps.

Aksh offers Cage Mill Flash Dryers with Feed Capacities ranging from 100 Kg/Hr to 3000 Kg/Hr.



Dryers with CE and Atex Certifications are available



# Effluent / Waste Water Spray Dryers for Zero Liquid Discharge



Aksh offers the complete range of Spray Dryers for a wide range of Effluent / Waste Water streams. These Dryers can be operated on solid fuel to make the Effluent Drying very Economical. Aksh Spray Dryers can easily operate on different Effluents with hugely variable Solid Contents, Specific Gravities and other Physical Properties.

This is a single step process for Zero Liquid Discharge for the Effluents. Aksh offers Spray Dryers with feed capacities ranging from 750 Kg/Hr to 15000 Kg/Hr.

Presently Aksh has completed Installation of One of the Largest Waste Water Spray Dryer in India having a Feed capacity of 15000 Kg/Hr. (300 KL/Day)

**1) Spray Dryer for H-Acid / Dyestuff Effluent**

**2) Spray Dryer with Coal Fired HAG for Dyestuff Effluent**

**3) Spray Dryer for VS Effluent**



Dryers with CE and Atex Certifications are available



**4) Spray Dryer with Coal Fired HAG for Process Effluent**

**5) Multi Effect Evaporator + Spray Drying Plant for Pigment Industry Effluent**

**6) Largest Spray Dryer in India for Common Effluent Treatment Plant (CETP) Capacity 15000 kg per Hr**



Three Stage Fluidised  
Spray Dryer for Water  
Dispersible Agrochemicals  
Granules



Dryers with CE and Atex Certifications are available



Integrated Fluid Bed Dryer

## Agglomeration Multistage Spray Dryer (FSD)

Agglomeration Multistage Spray Dryers (FSD) are ideal for producing Highly Dispersible Products with High Particle Sizes; These Particles Dry at a Lower Exhaust Temperature, so as to make the Dryer Energy Efficient.

Aksh offers Agglomeration Multistage Spray Dryers in various sizes available from 50 Kg/Hr to 3000 Kg/Hr. Evaporation Capacity.

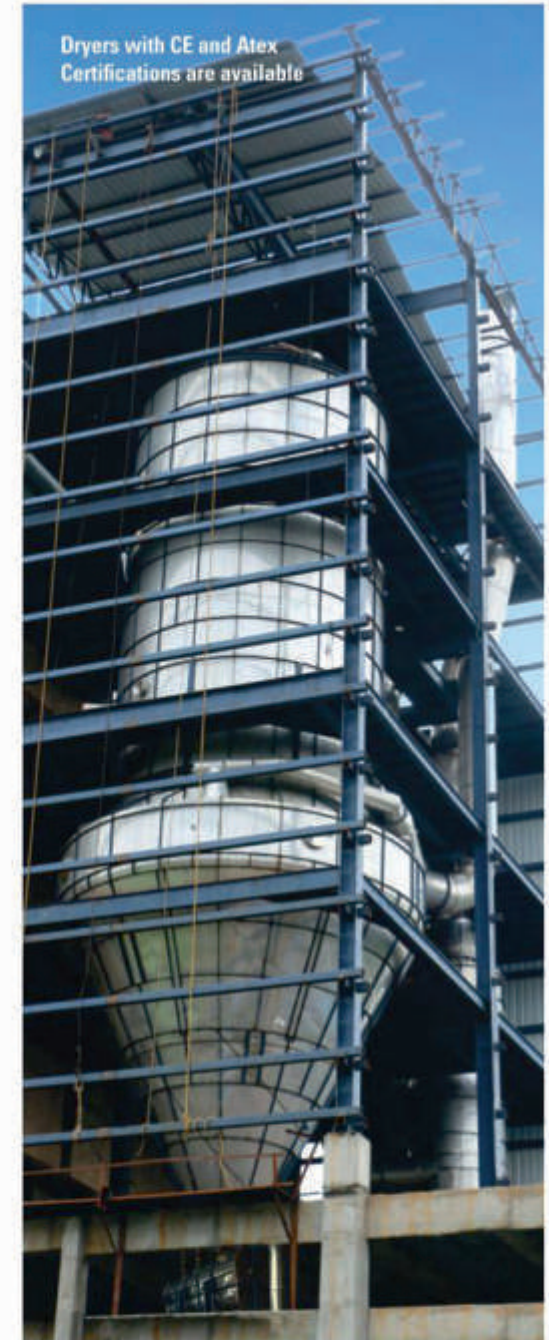
These Dryers can also be designed for Highly Flammable and Explosive Products.

### Two Stage Spray Dryer with Post Fluid Bed Dryer for Granulated Dyestuff



Dryers with CE and Atex Certifications are available

Dryers with CE and Atex  
Certifications are available





## Continuous Fluid Bed Dryers

Continuous Fluid Bed Dryers are ideal for drying free flowing Crystals, Powders, Granules and Extruded Products.

Continuous Fluid Bed Dryers can be Static and Vibratory Type.

In Vibrating Fluid Bed Dryers, vibration transmitted by Vibratory Motors are used to Supplement the Fluidizing Air.

Aksh offers Closed Loop Fluid Bed Dryers for Solvent Laden feed or where the feed can be oxidized in presence of air.

Aksh Fluid Bed Dryer Product capacities vary from 100 Kg/Hr to 7000 Kg/Hr.



## Rotary Dryer

Rotary Dryers are ideally suited for Large Capacity Applications where feed has an uneven Particle Size Distribution. These Dryers are very Robust and have Low Maintenance Cost.

The Rotary Dryer is essentially an inclined Shell which is rotating. Feed is showered throughout the Shell by spirally mounted Lifters into a stream of hot air. The Rotary Dryer is rotated by means of a Girth Gear and Tyres. Special seals are provided to avoid Air/Product leakage through the Dryer.

Aksh offers Rotary Dryers with Feed capacities ranging from 500 Kg/Hr to 20000 Kg/Hr.



Dryers with CE and Atex Certifications are available

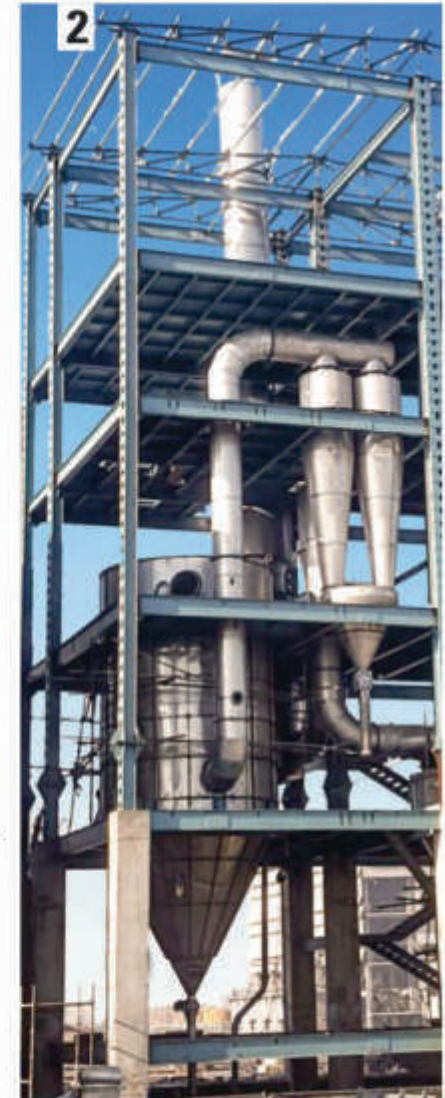
## Pollution Control Systems

Aksh offers the Complete Range of Dust Pollution Control Systems like High Efficiency Cyclones, Multicyclones, Reverse Pulse Jet Bag Houses, High Efficiency Variable Throat Wet Scrubbing Systems and Two stage Scrubbing Systems with Swirler Flasher Droplet Separation Systems and Dip Scrubbers.

The Dust Pollution Control Systems are Custom Built to meet each individual requirement.



1) High Efficiency Twin Cyclones with Two Stage Ventury Scrubber having Swirler Flasher



2) High Efficiency Twin Cyclones with Reverse Pulse Jet Bag Filter Assembly



Dryers with CE and Atex Certifications are available

## Hygienic Spray Dryers

- GMP Design
- Built as per EHEDG Norms (European Hygiene Engineering and Design Group)
- Customised Designs To Meet the Optimum Hygiene and Quality Standards
- Single Fluid Pressure Nozzles and Atomiser Configurations Available



## Evaporators

- 1) Multiple Effect Evaporator Plant
- 2) Falling Film Evaporators
- 3) Agitated Thin Film Evaporator

4) Evaporator Calendrias under Manufacturing

5) Self Supported Stripper



Dryers with CE and ATEX Certifications are available



# Instrumentation, Automation and Controls

Aksh offers the Complete Automation Package for automatic operation of Industrial Drying and Evaporation Plants. The Automation Package includes PLC/ DCS/ MCC/HCP based Control Configurations.

Aksh has its Own In-house Team for Electrical / Instrumentation/ PLC Design, Installation and Commissioning.

Special features like Remote Operation and Cableless Panels have already been introduced by Aksh.



# Spray Dryer Accessories

## Air Heating Systems

- 1) Indirect Hot Air Generator with Monoblock Burner
- 2) Direct Coal Fired Hot Air Generator
- 4) Indirect Coal Fired Hot Air Generator



Dryers with CE and ATEX Certifications are available



## On-Line Dedusting Blenders

On - Line Dedusting System with 2 Blenders and On - Line Packing System



## R & D Facility and Pilot Plant

Aksh has a full fledged Pilot Plant which houses Spray Dryers and Flash Dryers.

Extensive Trials can be carried out to generate Data on New Products.

Aksh also has Skid Mounted Pilot Spray Dryer Models having Capacity of 5 Kgs/hr, 10 Kgs/hr, 15 Kgs/hr and 25 Kgs/hr Water Evaporation Capacities available for Clients.

The Pilot Spray Dryers are operated through the PLC.



Dryers with CE and ATEX Certifications are available

## On Site Activities / After Sales Service



## Automatic Cleaning in Place (CIP) System

The Cleaning in Place (CIP) System is required for Dryers and Evaporators when they are operated on Several Different Products. Aksh Automatic Cleaning in Place (CIP) System has many Advantages which include Special High Pressure Turbine Type Nozzles are used for the CIP Cleaning of Larger Vessels. CIP Systems include Cleaning by Hot / Cold Water, Alkalies and Weak Acids to ensure Complete Cleaning.

The CIP Systems can be completely operated through the PLC.



Dryers with CE and Atex Certifications are available



## User Industries



Dryers with CE and Atex Certifications are available

### Dyestuff and Auxiliaries

- Reactive Dyes
- Acid Dyes
- Disperse Dyes
- CPC Pigments
- VAT Dyes
- Direct Dyes
- H-Acid
- Azo Pigments
- Optical Brighteners
- Dispersing Agents
- Sodium Lauryl Sulphates
- Dye Intermediates
- Alfa Olefin Sulphonates
- Basic Chromium Sulphates
- Para Phenylenediamine
- 6-Acetyl GPASA



### Chemicals

- Poly Aluminium Chloride
- Polymer Emulsions
- Formaldehyde Resins
- Potassium Fluoride
- Manganese Sulphate
- Di Sodium Octoborate Tetrahydrate
- FC Acid
- Sodium Sulphate
- H-Acid Effluent
- Vinyl Sulphone
- VS Effluent
- Di-Calcium Phosphate
- Precipitated Calcium Carbonate
- Detergent Powders
- Salicylic Acid
- Metallic Stearates
- Sodium Sulphate
- Ammonium Chloride/DASA
- Cobalt Hydroxide/OAVS



### Agriculture Related

- Zinc Sulphate Monohydrate
- Chelates
- Sulphur WDG
- Mancozeb
- Z - 4 D Sodium Acid
- Glyphosate
- Acephate
- Ferrous Sulphate



### Foodstuff

- Whole-Skimmed Milk
- Instant Tea
- Instant Coffee
- Whole Egg Powder
- Flavors
- Food Colours
- Protein Hydrolysate
- Chilli
- Instant Salt
- Lactose



### Natural Products

- Herbal Extracts
- Spirulina Algae
- Enzymes
- Yeast
- Fruit Juices
- Acetates



### Starch and Derivatives

- Starch
- Gum
- Dextrose Monohydrate
- Dextrose Anhydrous
- Sorbitol
- Maltodextrine
- Maize Germ
- Gluten
- Fibra



### Ceramics and Minerals

- Kaolin
- Precipitated Silica
- Zirconium Silicate
- Sand
- Technical Ceramics
- Tile Slip
- Alumina
- Bauxite
- Metal Oxides
- Ferrites
- Activated Earth
- Bentonite





## **AKSH ENGINEERING SYSTEMS (P) LTD**

Dryers, Evaporators, Turnkey Plants

### **Product Range**

- Spray Dryers
- Flash Dryers
- Agitated Swirl ( Spin) Flash Dryers
- Cage Mill Flash Dryers
- Continuous Fluid Bed Dryers
- Rotary Dryers
- Evaporator
- Detergent Powder Plant
- Whole Egg Powder Plant
- Turnkey Dyestuff Plant
- Turnkey Sulphur WDG Plant
- Hygienic Spray Dryers

### **Head Office**

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### **Evaporator Group Office**

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