SPRAY DRYERS
FLUID BEDS
EVAPORATORS
Welcome to EUROPEAN SPRAY DRY TECHNOLOGIES

European SprayDry Technologies (ESDT) are the UK’s premier suppliers of spray drying systems with an extensive range of plant and equipment for powder production.

We are committed to the design and supply of high performance, safe and simple to operate systems and equipment which is subject to continuous review and development.

Our process solutions are designed, where possible, to allow future upgrading to enable our customers to take advantage of new technology as it becomes available.

Our main product lines include both wet and dry process solutions incorporating liquid feed preparation, evaporation, spray drying, secondary drying, cooling, agglomeration, powder separation, powder conveying and powder storage solutions.

With a legacy spanning over four decades, ESDT supply equipment which is technologically advanced, aesthetically pleasing and of the highest industry quality standards.

Our experienced project delivery team provide a professional service to our customers which includes sales, design, project management, installation supervision, operator training and commissioning etc.

By listening and communicating closely with our clients we can deliver bespoke solutions to suit their exact requirements with a focus on performance, quality and value for money.

With a global clientele, our plant and machinery is designed to be fully compliant with regional and industry specific standards in order to satisfy production requirements in all market sectors including chemical, food, dairy and pharmaceutical applications.

For more information on ESDT systems and equipment please visit: www.spray-dryer.com
SPRAY DRYERS

ESDT design and supply a complete range of spray drying solutions to clients across the globe.

The ESDT spray dryer portfolio is based around our tried and tested ‘tall form’ spray dryer design with high pressure spray nozzle technology.

This type of dryer can be supplied with or without a fines extraction bustle and in numerous design / process arrangements dependent upon the material to be dried. Although the tall form spray dryer design is probably the most versatile configuration on the market, ESDT are also able to offer any type of spray dryer design to suit client’s specific needs.

Further drier types available include multi-stage and wide body units with either high pressure spray nozzles or rotary atomisation.

Our dryers come in all configurations and sizes to provide the best solutions for your production needs, be it plug flow, co-current, counter-current, mixed flow etc.

ESDT has a perfect product to satisfy your exact requirements.

ESDT spray dryers boast high thermal efficiencies and low radiation losses, reducing the need for insulation.

Minimum powder contact time with hot process air reduces thermal degradation and provides better retention of flavour and colour to produce a higher quality of finished powder.
ESDT 1

A cost effective and highly flexible laboratory Spray Drying solution for product development or samples.

The ESDT1 is a complete solution with it’s own integral compressor for atomisation delivered by our 3 fluid nozzle atomiser and requiring a power supply from any 13Amp electrical socket — just plug in and go.

The unit has straight forward controls with clear illuminated displays for inlet and exhaust temperatures. The feed flow and temperatures are PID controlled for accuracy.

Contact parts including the chamber, interconnected ducting and cyclone are constructed form hygienic borosilicate glass allowing contact parts to be stripped in minutes ensuring a fast turnaround on completion of a deep clean.

A robust casing houses electrical heaters, fans, compressor and an integral peristaltic pump. Heating, air flow and compressed air is fully adjustable as is the peristaltic pump designed to deliver variable feed rates to the ESDT three fluid nozzle.

The ESDT 1 is compact requiring less than 0.2m2 of bench space and remains extremely operator friendly making it an ideal platform for training operators.

The unit is supplied in 2 variants, standard co-current operation or with a closed circuit for inert atmosphere production.

Technical Specification

<table>
<thead>
<tr>
<th>Height</th>
<th>1040mm</th>
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<tbody>
<tr>
<td>Width</td>
<td>330mm</td>
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<tr>
<td>Length</td>
<td>500mm</td>
</tr>
<tr>
<td>Weight</td>
<td>52 kg</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>1.6 Kg/hr</td>
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<tr>
<td>(at 200°C (392°F) Inlet Air Temperature &amp; 90°C (194°F) Exhaust Temperature)</td>
<td></td>
</tr>
<tr>
<td>Heater</td>
<td>3Kw</td>
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<tr>
<td>Running Load</td>
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Power Characteristics 230v - 1 - 50/60hz

ESDT 5

The all stainless steel ESDT 5 is not only visually appealing but a complete self-contained process plant requiring only power and compressed air connections to start production and is capable of delivering 5kg/hr water evaporation.

A practical and sophisticated high performance drying solution which retains an uncomplicated, easy to use control interface making it ideally suitable for entry level operators who have limited spray drying experience.

The whole assembly is mobile and fitted with lockable castors allowing production or storage flexibility.

Delivered as a complete unit the ESDT 5 is fully equipped with product feed and powder collection solutions.

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<tr>
<td>Weight</td>
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<tr>
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Power Characteristics 230v - 1 - 50/60hz
Electrically heated process air is filtered through a food grade duplex system containing G4/EU4 pre filters and FB/EU8 main filters, upgradeable to HEPA filtration for Pharmaceutical or dairy applications.

Atomisation is supplied by our 3 fluid nozzle technology facilitating trouble free atomisation over long periods whilst allowing adjustable particle parameters.

ESDT models 5, 10 and 15 share a common PLC control regime with multi position, touch screen HMI with windows based software. 

The ESDT pilot scale range of spray dryers are available in both food and pharmaceutical executions.

**Technical Specification**

- **Height**: 2610mm
- **Width**: 923mm
- **Length**: 1784mm
- **Weight**: 600kg
- **Evaporation Rate**: 15Kg/hr (at 200 °C (392 °F) Inlet Air Temperature & 90 °C (194 °F) Exhaust Temperature)
- **Heater**: 36Kw
- **Running Load**: 27Kw

**Power Characteristics**

- **Europe**: 380/440v 3ph 50hz
- **USA**: 480V 3ph 60hz
For optimum performance, feed solutions to spray drying systems are required to possess the highest concentration of solids possible.

Some products have low solid content as a raw liquid and without a pre-concentration stage would not be cost effective to spray dry.

Satisfying the concentration process with minimal heat damage to the product, ESDT’s range of tubular falling film evaporators have been designed to form, where necessary, an integrated process within the spray drying system.

Evaporators can be designed as either MVR (mechanical vapour recompression) or TVR (thermal vapour recompression) units.

ESDT evaporators can also be utilised as stand alone units, most often for waste product concentration or to make liquid products more cost effective to transport.

They can also be supplied as modern cost effective replacements for clients existing evaporation plants which may no longer be compliant to current legislation etc.

Manufactured from stainless steel our versatile designs can be fitted with full CIP (clean in place), pasteurisation and other heat treatments within the plant layout.

Our range of evaporation processes include:

- Multiple effect falling film evaporating plants
- With or without thermo-compression
- Circulating evaporation plants with one flow and counter-flows
- Low temperature evaporating plants with or without aroma recovery
- Evaporating plants with vacuum cookers
- Evaporation plants of special application
Fluidised beds form an important part of the ESDT product range.

They are perhaps the most versatile and functional plant for processing powder. Fluid bed technology can be incorporated into any spray dryer design creating a multi stage drying system.

Either by integrating a static fluidised bed at the base of the spray dryer allowing final product drying, or by inserting one or more vibratory fluid beds on the powder outlet of the spray dryer to increase performance and reduce processing costs.

As a stand alone process or as part of a multi stage drying system, ESDT fluid beds can perform a myriad of different procedures within one single unit.

Fluid bed functionality is such that it can perform a combination of duties such as drying, cooling, chilling, roasting, blending, agglomerating or classifying of powders within a single fluidised bed.

ESDT supply a full range of fluid beds from laboratory scale to some of the largest continuous fluid beds in production.