PSL is an award winning international manufacturer providing quality innovative technology with process development expertise to the pharmaceutical, biopharmaceutical, chemical and laboratory industries. PSL have received two Queen’s Awards for Enterprise, the UK’s highest accolade for business success. Our awards were received for both International Trade and Innovation.

PSL's experienced technical experts have refined our Filter Dryer range over many years using the latest global technology.

QUALITY & INNOVATION

PSL has offices around the globe to support our worldwide customers.

Call +44 (0)151 448 7700  info@powdersystems.com  www.powdersystems.com
GLOBAL RELATIONSHIPS

PSL’s established supply chain management ensures all components, sourced from across the globe, are of the highest quality and value. This enables market savings to be passed directly onto our customers.

We continue to increase our number of global offices, agents and distributors to aid the smooth distribution of equipment to any part of the world.

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PSL Serve is our dedicated customer care, on-site service and spares team. They are technical specialists, here to aid the smooth installation of new equipment, along with the servicing and repairs of existing PSL equipment and any spare parts required. PSL Serve offers full installation, training and preventative maintenance contracts. Information on our IQ/OQ packages is available on request. Contact one of our dedicated customer care experts on serve@powdersystems.com

To see the full PSL product range go to www.powdersystems.com

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GFD® Lab Filter Dryers
Microsphere Formulation
Tray Dryers
Nutsche Agitated Filter Dryers
High Containment Glovebox and Sterile Isolators

GLOBAL RELATIONSHIPS

Serving our customers since 1989

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E: info@powdersystems.com
T: +44 (0)151 448 7700
W: www.powdersystems.com
Filter Dryers

- Quality
- Innovation
- Global Relationships

Serving our customers since 1989
PSL’s filter dryers provide optimum levels of safety and quality and are designed to meet industry regulations. Our filter dryers range from laboratory and R&D to full scale production, thus providing a full process solution.

PSL’s high containment gloveboxes can be incorporated for the safe handling of highly potent APIs. We manufacture all of our filtration, drying and containment products in-house at our global engineering and manufacturing base, providing the complete integrated solution.
### Direct Scale-Up

**Labortory (GFD®)**
- 0.002m² to 0.05m²

**Kilo Laboratory**
- 0.03m² to 0.125m²

**Pilot Plant**
- 0.3m² to 0.6m²

**Commercial Production**
- 1m² to 5m²

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### Filter Dryer Range

<table>
<thead>
<tr>
<th>Filtration area (m²)</th>
<th>0.05</th>
<th>0.125</th>
<th>0.3</th>
<th>0.6</th>
<th>1</th>
<th>1.6</th>
<th>2</th>
<th>2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max liquid volume (litres)</td>
<td>20</td>
<td>50 to 105</td>
<td>200 to 270</td>
<td>490 to 620</td>
<td>1,000</td>
<td>1,600</td>
<td>2,000</td>
<td>2,500</td>
</tr>
<tr>
<td>Cake volume range (litres)</td>
<td>8 to 10</td>
<td>19 to 50</td>
<td>90 to 120</td>
<td>180 to 200</td>
<td>300 to 400</td>
<td>480 to 640</td>
<td>600 to 800</td>
<td>750 to 1,000</td>
</tr>
<tr>
<td>Design temperature (°C)</td>
<td>-20 to 165</td>
<td>-20 to 165</td>
<td>-20 to 165</td>
<td>-20 to 165</td>
<td>-20 to 165</td>
<td>-20 to 165</td>
<td>-20 to 165</td>
<td>-20 to 165</td>
</tr>
<tr>
<td>Design temperature (°F)</td>
<td>-68 to 329</td>
<td>-68 to 329</td>
<td>-68 to 329</td>
<td>-68 to 329</td>
<td>-68 to 329</td>
<td>-68 to 329</td>
<td>-68 to 329</td>
<td>-68 to 329</td>
</tr>
<tr>
<td>Design pressure (Barg)</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>4.5</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Design pressure (psig)</td>
<td>87</td>
<td>87</td>
<td>87</td>
<td>87</td>
<td>87</td>
<td>87</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>Stroke</td>
<td>150-200</td>
<td>150-400</td>
<td>300-400</td>
<td>300-400</td>
<td>300-400</td>
<td>300-400</td>
<td>300-400</td>
<td>300-400</td>
</tr>
<tr>
<td>Motor size (Kw)</td>
<td>0.25</td>
<td>1.5</td>
<td>3</td>
<td>4</td>
<td>5.5</td>
<td>7.5</td>
<td>11</td>
<td>15</td>
</tr>
</tbody>
</table>

†Other sizes and specifications are available

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**Aseptic/Sterile Filter Dryers**

PSL’s aseptic/sterile filter dryers are designed and built to meet the strict manufacturing requirements necessary for aseptic/sterile processes. PSL’s filter dryers utilise gas lift-off mechanical seals, unique off-loading designs and have CIP (clean-in-place) and SIP (steam-in-place) capabilities.
DESIGN FEATURES

- Highly efficient drying due to unique underplate heating system
- Reflux cleaning can typically achieve less than 2.5ppm
- Tapered filter plate and seal design provides minimum product retention
- Differential mixing agitator achieves homogeneity and uniformed drying even with difficult cakes
- Omega wave bellows

Discharge hatch with sampling port including high containment product offload and heel recovery gloveboxes designed and integrated by PSL.

Minimum solvent volumes beneath mesh and direct heating

Internal dust collector design for higher product yield and ease of cleaning

Tiltable filter dryer options are available