P3TF Air Filters Series
Air Preparation System

1/4” to 3” Body Ports

Catalogue PDE2603TCUK
Compressed Air - The 4th Utility

Compressed air is a safe and reliable power source that is widely used throughout industry, approximately 90% of all companies use compressed air in some aspect of their operations, however unlike gas, water and electricity, compressed air is generated on-site, giving the user responsibility for air quality and operational costs.

- the ambient air being drawn into the compressor
- the type and operation of the air compressor
- compressed air storage vessels
- distribution pipework

There are 10 major contaminants found in a compressed air system, these are:

- Water Vapour
- Condensed Water
- Water Aerosols
- Atmospheric Dirt
- Rust
- Pipescale
- Liquid Oil
- Oil Aerosols
- Oil Vapour
- Micro-organisms

The largest quantity of contamination introduced into the compressed air system originates from the atmospheric air drawn into the compressor and not as often believed, introduced by the compressor itself. The most prolific and problematic of the contaminants is water which accounts for 99.9% of the total liquid contamination found in a compressed air system.

High efficiency compressed air filtration is not only used to remove particulate and oil, but more importantly it removes water aerosols and is key to operating an efficient and cost effective compressed air system.

Regardless of what type of compressor is installed, the same level of filtration is required.

Contaminant removal

Failure to remove this contamination can cause numerous problems in the compressed air system, such as:

- Corrosion within storage vessels and the distribution system
- Blocked or frozen valves, cylinders, air motors and tools
- Damaged production equipment
- Premature unplanned desiccant changes for adsorption dryers

In addition to problems associated with the compressed air system itself, allowing contamination such as water, particulate, oil and micro-organisms to exhaust from valves, cylinders, air motors and tools, can lead to an unhealthy working environment with the potential for personal injury, staff absences and financial compensation claims.

Compressed air contamination will ultimately lead to:

- Inefficient production processes
- Spoiled, damaged or reworked products
- Reduced production efficiency
- Increase manufacturing costs

**WARNING**

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Not all Compressed Air Filters are the same

Compressed air filtration is essential to all modern production facilities. It must deliver promising performance and reliability whilst providing the right balance of air quality with the lowest cost of operation. Today, many manufacturers offer products for the filtration and purification of contaminated compressed air, which are often selected only upon their initial purchase cost, with little or no regard for the air quality they provide or the cost of operation throughout their life. When purchasing purification equipment, the delivered air quality, cost of operation and the overall cost of ownership must always be considered.

Air quality

Compressed air purification equipment is installed to deliver high quality, clean dry air, and to eliminate the problems and costs associated with contamination. When selecting this type of equipment, the delivered air quality and the verification of performance must always be the primary driver, otherwise why install it in the first place.

- P3TF filters provide air quality in accordance with ISO 8573.1:2001, the international standard for compressed air quality
- P3TF coalescing filters are the first range of filters specifically designed to deliver air quality in accordance with ISO 8573.1 : 2001 when tested with the stringent requirements of the new ISO 12500-1 international standard for Compressed Air Filter Testing
- P3TF adsorption filters are also tested in accordance with the test methods of the ISO 8573 series
- P3TF filter performance has been independently verified by Lloyds Register
- P3TF coalescing filters are covered by a one year compressed air quality guarantee
- The air quality guarantee is automatically renewed with annual maintenance

Energy efficiency

After air quality, the next consideration when selecting a compressed air filter is the cost of operation. P3TF filters not only provide air quality in accordance with the international standards, they are designed to do so with the lowest operational costs available.

- P3TF filters use aerospace technology to keep pressure losses to a minimum
- Deep pleat element technology and specially treated filtration media provides a low pressure loss filter element with 450% more filtration surface area when compared to a conventional wrapped filter, and 200% greater area than typical pleated filter elements
- Overall pressure losses start low and stay low throughout the 12 month life of the filter element
- Can help to significantly reduce your carbon footprint

<table>
<thead>
<tr>
<th>Alternative Manufacturer</th>
<th>Initial saturated differential pressure</th>
<th>Annual Savings with P3TF Filter</th>
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</thead>
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<td></td>
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<td>Energy Savings Kw</td>
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<tr>
<td>500</td>
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</table>

Example based upon :
- System pressure : 7 bar g
- Compressor Size : 120 Kw
- Duration of Operation : 8000 Hrs
- P3TF Coalescing Filter
  - 0.01 micron (0.01mg/m³)
- Alternative Manufacturer’s Coalescing Filter
  - 0.01 micron (0.01mg/m³)

Low lifetime costs

Equipment with a low purchase price may turn out to be a more costly investment in the long term. By guaranteeing air quality and ensuring energy consumption is kept to a minimum, P3TF filters can reduce the total cost of ownership and help improve your bottom line through improved manufacturing efficiencies.
Air Quality

The P3TF range of compressed air filters has been designed from the outset to meet the requirements of ISO 8573.1 : 2001, the International standard for compressed air quality, when validated in accordance with the requirements of ISO 12500, the International standard for filter testing and the test methods of ISO 8573.2, ISO 8573.4 and ISO 8573.5.

Correct selection of filtration media

Coalescing and dust removal filters use a high efficiency borosilicate glass nanofibre material which has a 96% voids volume, providing media with excellent filtration efficiency and a high dirt holding capacity.

Construction of the filtration media into a filter element

P3TF filter elements use pleated not wrapped filter media, which is constructed using a unique deep bed pleating technique. This provides 450% more filtration surface area when compared to a traditional wrapped filter element and around 200% more surface area compared to a traditional pleated element.

Deep bed pleating also reduces the air flow velocity within the media, which further improves filtration performance.

Drainage method 1

High efficiency drainage layer provides increased liquid drainage, improved chemical compatibility and higher operational temperatures when compared to conventional materials.

Drainage method 2

Traditional elements have a build up of liquid known as a “wet band” where the drainage layer is glued into the lower endcap.

The P3TF design wraps the drainage layer under lower endcap removing coalesced liquid from the air flow path, increasing liquid removal efficiency, and providing more usable filtration surface area.

Drainage method 3

Surface tension breakers are moulded into the lower filter element endcap to prevent liquid from sticking, and to ensure fast and efficient drainage of coalesced liquid.

Drainage method 4

Drainage ribs cast into the filter bowl compress the lower part of the filter element, allowing bulk liquid to rapidly drain from the filter element through capillary action.
Energy Efficiency

Any restriction to airflow within a filter housing / element will reduce the system pressure, to generate compressed air, large amounts of electrical energy is required, therefore any pressure lost within the system can be directly converted into a cost for wasted energy. The higher the pressure loss, the higher the energy costs.

Providing an optimal flow path for the compressed air is key to reducing system operating costs.

Pressure loss in a compressed air filter is a combination of fixed pressure losses and incremental pressure losses. Fixed pressure losses come from the filter housing and the interface between the filter housing and filter element. Incremental pressure losses come from the filter element as it blocks up with contamination during operation. In most filters, high operational costs are generally due to a poorly designed airflow path within the filter housing and element and poorly selected filtration media. In addition to this, the high differential pressure change points recommended by many filter manufacturers increase operational costs even further.

Aerospace Flow Management System

“Bell mouth” housing inlet & full flow inlet conduit

P3TF filter housings feature a “Bell Mouth” inlet to provide a smooth, turbulent free transition for the air as it enters into the filter element without restriction through the full flow element inlet conduit.

Smooth 90° elbow & aerospace turning vanes

In aerodynamic terms, a design which turns the air sharply through 90° is known as an inefficient corner. This typically has always been the method used to direct air into a compressed air filter element.

P3TF uses a smooth 90° elbow to direct air into the filter element, reducing turbulence and pressure losses significantly by turning the inefficient, sharp 90° corner into an efficient one.

As the diameter for the conduit increases, the benefits are reduced, therefore filter sizes 3/8" to 3" also include aerospace turning vanes which channels the air through a number of smaller, more efficient corners, reducing pressure loss and energy consumption even further.

Flow distributor

Filter sizes 3/8" to 3" include an upper flow distributor and all models include a lower conical flow diffuser.

The upper flow distributor provides turbulent free distribution of the air flow throughout the filter element ensuring full utilisation of all available filtration media, increasing filtration performance and reducing energy consumption.

The combination of conical flow diffuser and a drainage layer wrapped under the lower endcap allows airflow through the lowest section of the element, which is not possible on conventional filters due to the position of the "wet band".
Advanced Filter housing

P3TF filter housings have been designed to provide simple installation, long housing life and reduced maintenance times.

The unique design of the P3TF filter provides more port sizes for flexibility and ensures service technicians do not have to contact contaminated elements during maintenance.

Filter connections

Port sizes are available to match both pipe size and system flow rate giving additional customer choice and reduced installation costs.

Compact and lightweight

Advanced element design provides a smaller, more compact filter.

Fully corrosion protected

All P3TF filters undergo cleaning, de-greasing and Alocrom treatment before painting. Alocrom treatment not only primes the aluminium surface for painting, it also provides corrosion protection. Additionally, all P3TF filter housings are also externally protected with a tough, durable dry powder epoxy coating. P3TF filter housings are provided with a 10 year housing guarantee.

‘Clean change’ filter element

Element changes are now easy and do not require the user to touch the contaminated element during annual element change.

Minimal service clearance

Space saving design minimises service clearance and allows installation in confined spaces.

Choice of drains

Coalescing filters are fitted as standard with energy efficient, zero air loss float drains for the removal of coalesced liquids. Adsorption filters are fitted with a manual drain.

Optional accessories

Additional mounting and interconnecting hardware is available.

INTERNATIONAL APPROVALS

- CRN
- ASME VIII National Board
- Lloyd’s Register
- CE
- AS1210
- LRO4003083
- LRO4001479
- VDMA
- bcas
- Druckluft effizient
Maintaining air quality and energy efficiency through regular maintenance

It has long been the practice to change filter elements based upon the pressure drop measured across the filter as this is directly attributable to operational costs.

However, one must remember the reason for installing the filter in the first place, i.e. to remove contamination.

Filter elements must always be replaced in accordance with the manufacturers instructions to ensure the delivered air quality is never compromised.

‘Why should I change my filter element?’

To achieve the stringent air quality levels required by both modern industry and ISO 8573.1 : 2001 the international standard for compressed air quality, highly specialised filtration materials are employed, which has both a finite life and a finite capacity to retain contamination.

It is important to remember that when the filter life has expired, the required air quality can no longer be maintained.

Filters are installed to provide contaminant removal to a specific air quality requirement, therefore the primary reason to change filter elements should always be to maintain air quality.

Filter elements should be changed based upon manufacturers recommendations to maintain air quality.

“My filter is fitted with a differential pressure gauge and the needle is in the green - why should I change my element?”

Many filter housings are fitted with “Differential Pressure Gauges”. Generally, these are indicators not precise gauges and offer no level of calibration. Typically these will show an area of green and red, indicating if the needle is in the green, that the element does not require changing.

Differential pressure gauges are not filter service indicators or air quality indicators, they are simply measuring differential pressure and offer an indication of premature blockage.

As the filter media in an element degrades, even a tiny hole can result in the filter media rupturing, allowing all contamination to be carried past the filter into the system. If this should happen, the needle on the gauge would always indicate in the green area and the element would never be serviced until the user spotted contamination downstream. If the element was replaced after such an incident, contamination will still be present downstream of the filter for some time.

What are the consequences of not changing filter elements?

What seems like a cost saving in the short term can turn out to be a very costly mistake. Having identified a contamination problem in the compressed air system and the need for purification equipment, what would be the cost to your business of poor air quality?

- Damaged adsorption dryer beds requiring unplanned desiccant changes
- Corrosion within the compressed air storage and distribution system
- Blocked / frozen valves and air motors
- Damaged machinery
- Contamination exhausting from valves and cylinders leading to unhealthy working environments, risk of personal injury, staff absences and personal injury claims
- Inefficient production processes
- Spoiled, damaged products
- Re-worked products
- Increased manufacturing costs
- Increased production downtime

What are the benefits of regularly changing filter elements?

- High quality compressed air - Guaranteed
- Protection of adsorption dryer beds
- Protection of downstream equipment, personnel and processes
- Reduced operational costs
- Increased productivity & profitability
- Continued peace of mind
High Efficiency 0.01 μm Filtration

Filtration Grade

<table>
<thead>
<tr>
<th>Filtration Grade</th>
<th>Coalescing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particle removal (inc water &amp; oil aerosols)</td>
<td>Down to 0.01 micron</td>
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<tr>
<td>Max remaining oil content at 21°C</td>
<td>0.01 mg/m³</td>
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<tr>
<td>Filter efficiency</td>
<td>99.9999%</td>
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<tr>
<td>Test methods used</td>
<td>ISO 8573.2</td>
</tr>
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<td></td>
<td>ISO 8573.4</td>
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<td>ISO 12500-1</td>
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<tr>
<td>ISO 12500-1 Inlet Challenge concentration</td>
<td>10 mg/m³</td>
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<td>Initial dry differential pressure</td>
<td>&lt;140 mbar (2psi)</td>
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<td>Initial saturated differential pressure</td>
<td>&lt;200 mbar (3psi)</td>
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<td>Change element every</td>
<td>12 months</td>
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<tr>
<td>Precede with filtration grade</td>
<td>1 micron Coalescer</td>
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</table>

Product selection

Stated flows are for operation at 7 bar (g) with reference to 20°C, 1 bar (a), 0% relative water vapour pressure. For flows at other pressures apply the correction factors shown.

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Part Number</th>
<th>L/s</th>
<th>m³/hr</th>
<th>cfm</th>
<th>0.01 μm Replacement Element Kit</th>
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<td>1/4”</td>
<td>P3TFA22CAAN</td>
<td>10</td>
<td>36</td>
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<td>P3TKA00ESCA</td>
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<td>3/8”</td>
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<td>64</td>
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Correction factors

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<td>16</td>
<td>232</td>
<td>1.51</td>
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Filter selection example

Selecting a filter model to match a system flow rate and pressure.

Example: System flow 1050 m³/hr at a pressure of 8.5 bar g

1. Obtain pressure correction factor from table or calculate factor using method shown. Correction factor for 8.5 bar g = 1.10
2. Divide system flow by correction factor to give equivalent flow rate at 7 bar g 1050 m³/hr ÷ 1.10 = 955 m³/hr (at 7 bar g)
3. Select a filter model from the above table with a flow rate above or equal to 955 m³/hr. Filter model selected: P3TFA2CCHAN
4. Select pipe connection & Thread type System uses 2” piping and BSP threads: Model P3TFA2CCHAN
## Technical data

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<th>Filter Grade</th>
<th>Drain type</th>
<th>Max operating pressure</th>
<th>Max recommended operating pressure</th>
<th>Max recommended operating temp.</th>
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<td></td>
<td></td>
<td>bar g</td>
<td>g</td>
<td>psi g</td>
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<tr>
<td>0.01 micron</td>
<td>Auto</td>
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<td>80°C</td>
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### Weights and dimensions

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<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Weight</th>
<th>Modular Connection Kit</th>
<th>Wall Mounting Bracket Kit</th>
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<td>P3TF28CEJAN</td>
<td>205.0</td>
<td>8.1</td>
<td>641.5</td>
<td>25.3</td>
<td>581.5</td>
<td>22.9</td>
<td>35.5</td>
<td>1.40</td>
<td>42.5</td>
<td>1.67</td>
</tr>
<tr>
<td>2.1/2&quot;</td>
<td>P3TF28DCKAN</td>
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<td>832.0</td>
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<td>30.4</td>
<td>35.5</td>
<td>1.40</td>
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</tr>
<tr>
<td>3&quot;</td>
<td>P3TF28ECKAN</td>
<td>205.0</td>
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<td>30.4</td>
<td>35.5</td>
<td>1.40</td>
<td>42.5</td>
<td>1.67</td>
</tr>
</tbody>
</table>

### Optional Accessories

#### DPI Kit
- **P3TKA00RQ**

**Incident Monitor**

Used to indicate premature high differential pressure. Indicator can be retrofitted to existing housings without depressurising the system.

#### Wall Mounting Bracket Kit

Mounting brackets provide additional support to filters installed in flexible piping systems or OEM equipment.

#### Drain Kits
- **Auto drain**: P3TKA00DA
- **Manual drain**: P3TKA00DM

---

**Modular Connection Kit**

Fixing clamp allows quick and simple connection of multiple filter housings.
1 µm Filtration

Filtration Grade

<table>
<thead>
<tr>
<th>Filtration type</th>
<th>Coalescing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particle removal (inc water &amp; oil aerosols)</td>
<td>Down to 1 micron</td>
</tr>
<tr>
<td>Max remaining oil content at 21°C</td>
<td>0.06 mg/m³, 0.05 ppm (w)</td>
</tr>
<tr>
<td>Filter efficiency</td>
<td>99.925%</td>
</tr>
<tr>
<td>Test methods used</td>
<td>ISO 8573.2, ISO 8573.4, ISO 12500-1</td>
</tr>
<tr>
<td>ISO 12500-1 Inlet Challenge concentration</td>
<td>40 mg/m³</td>
</tr>
<tr>
<td>Initial dry differential pressure</td>
<td>&lt;70 mbar (2psi)</td>
</tr>
<tr>
<td>Initial saturated differential pressure</td>
<td>&lt;140 mbar (3psi)</td>
</tr>
<tr>
<td>Change element every</td>
<td>12 months</td>
</tr>
</tbody>
</table>

Product selection

Stated flows are for operation at 7 bar (g) with reference to 20°C, 1 bar (a), 0% relative water vapour pressure. For flows at other pressures apply the correction factors shown.

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Part Number</th>
<th>L/s</th>
<th>m³/hr</th>
<th>cfm</th>
<th>1 µm Replacement Element Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot;</td>
<td>P3TFA229AAN</td>
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<td>36</td>
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<td>3/8&quot;</td>
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<td>72</td>
<td>42</td>
<td>P3TKA00ES9B</td>
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<td>216</td>
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</tr>
<tr>
<td>1&quot;</td>
<td>P3TFA289EAN</td>
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<td>396</td>
<td>233</td>
<td>P3TKA00ES9E</td>
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<tr>
<td>1.1/4&quot;</td>
<td>P3TFA2A9EAN</td>
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<td>P3TKA00ES9E</td>
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<tr>
<td>1.1/2&quot;</td>
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<td>1548</td>
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<td>P3TKA00ES9J</td>
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<tr>
<td>2.1/2&quot;</td>
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<td>620</td>
<td>2232</td>
<td>1314</td>
<td>P3TKA00ES9K</td>
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<td>3&quot;</td>
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<td>620</td>
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Correction factors

<table>
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<tr>
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<th>psi g</th>
<th>Correction factor</th>
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</thead>
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<tr>
<td>bar g</td>
<td></td>
<td></td>
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<tr>
<td>1</td>
<td>15</td>
<td>0.38</td>
</tr>
<tr>
<td>2</td>
<td>29</td>
<td>0.53</td>
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<tr>
<td>3</td>
<td>44</td>
<td>0.65</td>
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<td>160</td>
<td>1.25</td>
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<tr>
<td>12</td>
<td>174</td>
<td>1.31</td>
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<td>13</td>
<td>189</td>
<td>1.36</td>
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<td>14</td>
<td>203</td>
<td>1.41</td>
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<td>15</td>
<td>218</td>
<td>1.46</td>
</tr>
<tr>
<td>16</td>
<td>232</td>
<td>1.51</td>
</tr>
</tbody>
</table>

Filter selection example

Selecting a filter model to match a system flow rate and pressure.

Example: System flow 1050 m³/hr at a pressure of 8.5 bar g

1. Obtain pressure correction factor from table or calculate factor using method shown. Correction factor for 8.5 bar g = 1.10
2. Divide system flow by correction factor to give equivalent flow rate at 7 bar g 1050 m³/hr ÷ 1.10 = 955 m³/hr
3. Select a filter model from the above table with a flow rate above or equal to 955 m³/hr. Filter model selected : P3TFA2C9HAN
4. Select pipe connection & Thread type System uses 2" piping and BSP threads: Model P3TFA2C9HAN
**PDE2603TCUK**

**P3TF Compressed Air Filters**

### Technical data

<table>
<thead>
<tr>
<th>Filter Grade</th>
<th>Drain type</th>
<th>Max operating pressure</th>
<th>Max recommended operating temp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 micron</td>
<td>Auto</td>
<td>16 bar, 232 g</td>
<td>80°C, 176°F, 1.5°C, 35°F</td>
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</tbody>
</table>

### Weights and dimensions

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Part Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Weight kg</th>
<th>Modular Connection Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot;</td>
<td>P3TFA229AAN</td>
<td>76.0</td>
<td>3.0</td>
<td>181.5</td>
<td>7.2</td>
<td>153.0</td>
<td>6.0</td>
<td>18.0</td>
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<td>3/8&quot;</td>
<td>P3TFA239BAN</td>
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<td>3.8</td>
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<td>201.0</td>
<td>7.9</td>
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<td>97.5</td>
<td>3.8</td>
<td>235.0</td>
<td>9.3</td>
<td>201.0</td>
<td>7.9</td>
<td>20.5</td>
<td>0.81</td>
<td>25.5</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>P3TFA269DAN</td>
<td>129.0</td>
<td>5.1</td>
<td>275.0</td>
<td>10.8</td>
<td>232.5</td>
<td>9.2</td>
<td>23.0</td>
<td>0.91</td>
<td>28.0</td>
</tr>
<tr>
<td>1&quot;</td>
<td>P3TFA289EAN</td>
<td>129.0</td>
<td>5.1</td>
<td>364.5</td>
<td>14.3</td>
<td>322.0</td>
<td>12.7</td>
<td>23.0</td>
<td>0.91</td>
<td>28.0</td>
</tr>
<tr>
<td>1.1/4&quot;</td>
<td>P3TFA299EAN</td>
<td>129.0</td>
<td>5.1</td>
<td>364.5</td>
<td>14.3</td>
<td>322.0</td>
<td>12.7</td>
<td>23.0</td>
<td>0.91</td>
<td>28.0</td>
</tr>
<tr>
<td>1.1/2&quot;</td>
<td>P3TFA309FAN</td>
<td>170.0</td>
<td>6.7</td>
<td>432.5</td>
<td>17.0</td>
<td>382.5</td>
<td>15.1</td>
<td>32.0</td>
<td>1.26</td>
<td>39.0</td>
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<td>1.1/2&quot;</td>
<td>P3TFA319GAN</td>
<td>170.0</td>
<td>6.7</td>
<td>524.5</td>
<td>20.6</td>
<td>474.5</td>
<td>18.7</td>
<td>32.0</td>
<td>1.26</td>
<td>39.0</td>
</tr>
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<td>P3TFA229HAN</td>
<td>170.0</td>
<td>6.7</td>
<td>524.5</td>
<td>20.6</td>
<td>474.5</td>
<td>18.7</td>
<td>32.0</td>
<td>1.26</td>
<td>39.0</td>
</tr>
<tr>
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<td>P3TFA329JAN</td>
<td>205.0</td>
<td>8.1</td>
<td>641.5</td>
<td>25.3</td>
<td>581.5</td>
<td>22.9</td>
<td>35.5</td>
<td>1.40</td>
<td>42.5</td>
</tr>
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<td>P3TFA339JAN</td>
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<td>8.1</td>
<td>641.5</td>
<td>25.3</td>
<td>581.5</td>
<td>22.9</td>
<td>35.5</td>
<td>1.40</td>
<td>42.5</td>
</tr>
<tr>
<td>2.1/2&quot;</td>
<td>P3TFA229KAN</td>
<td>205.0</td>
<td>8.1</td>
<td>832.0</td>
<td>32.8</td>
<td>772.0</td>
<td>30.4</td>
<td>35.5</td>
<td>1.40</td>
<td>42.5</td>
</tr>
<tr>
<td>3&quot;</td>
<td>P3TFA239KAN</td>
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<td>8.1</td>
<td>832.0</td>
<td>32.8</td>
<td>772.0</td>
<td>30.4</td>
<td>35.5</td>
<td>1.40</td>
<td>42.5</td>
</tr>
</tbody>
</table>

### Optional Accessories

- **DPI Kit**
  - P3TKA000RQ

  **Incident Monitor**
  - Used to indicate premature high differential pressure. Indicator can be retrofitted to existing housings without depressurising the system.

- **Modular Connection Kit**
  - Fixing clamp allows quick and simple connection of multiple filter housings.

- **Wall Mounting Bracket Kit**
  - Mounting brackets provide additional support to filters installed in flexible piping systems or OEM equipment.

- **Drain Kits**
  - Auto drain: P3TKA000DA
  - Manual drain: P3TKA000DM
Oil Vapour Removal Filter

Filtration Grade

<table>
<thead>
<tr>
<th>Filtration type</th>
<th>Oil vapour removal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particle removal (inc water &amp; oil aerosols)</td>
<td>N/A</td>
</tr>
<tr>
<td>Max remaining oil content at 21°C</td>
<td>0.003 mg/m³ 0.003 ppm(w)</td>
</tr>
<tr>
<td>Filter efficiency</td>
<td>N/A</td>
</tr>
<tr>
<td>Test methods used</td>
<td>ISO 8573.5</td>
</tr>
<tr>
<td>ISO 12500-1 Inlet Challenge concentration</td>
<td>N/A</td>
</tr>
<tr>
<td>Initial dry differential pressure</td>
<td>&lt;200 mbar (3psi)</td>
</tr>
<tr>
<td>Initial saturated differential pressure</td>
<td>N/A</td>
</tr>
<tr>
<td>Change element every</td>
<td>When oil vapour is detected</td>
</tr>
<tr>
<td>Precede with filtration grade</td>
<td>0.01 micron Coalescer filter</td>
</tr>
</tbody>
</table>

Product selection

Stated flows are for operation at 7 bar (g) with reference to 20°C, 1 bar (a), 0% relative water vapour pressure. For flows at other pressures apply the correction factors shown.

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Part Number</th>
<th>L/s</th>
<th>m³/hr</th>
<th>cfm</th>
<th>Oil vapour removal Replacement Element Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4”</td>
<td>P3TFA22AAMN</td>
<td>10</td>
<td>36</td>
<td>21</td>
<td>P3TKA00ESAA</td>
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<tr>
<td>3/8”</td>
<td>P3TFA23ABMN</td>
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<td>72</td>
<td>42</td>
<td>P3TKA00ESAB</td>
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<tr>
<td>1/2”</td>
<td>P3TFA24ACMN</td>
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<td>1”</td>
<td>P3TFA28AEMN</td>
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<td>396</td>
<td>233</td>
<td>P3TKA00ESAE</td>
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<tr>
<td>1.1/2”</td>
<td>P3TFA22AFMN</td>
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<td>576</td>
<td>339</td>
<td>P3TKA00ESAF</td>
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<td>1.1/2”</td>
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<td>1188</td>
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<td>1314</td>
<td>P3TKA00ESAK</td>
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Correction factors

<table>
<thead>
<tr>
<th>Line pressure bar g</th>
<th>psi g</th>
<th>Correction factor</th>
</tr>
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<tbody>
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<td>1</td>
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<tr>
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<td>29</td>
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<td>1.46</td>
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<td>232</td>
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<td>1.60</td>
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<td>1.65</td>
</tr>
<tr>
<td>20</td>
<td>290</td>
<td>1.70</td>
</tr>
</tbody>
</table>

Filter selection example

Selecting a filter model to match a system flow rate and pressure.

**Example:** System flow 1050 m³/hr at a pressure of 8.5 bar g

1. Obtain pressure correction factor from table or calculate factor using method shown. Correction factor for 8.5 bar g = 1.10
2. Divide system flow by correction factor to give equivalent flow rate at 7 bar g 1050 m³/hr ÷ 1.10 = 955 m³/hr (at 7 bar g)
3. Select a filter model from the above table with a flow rate above or equal to 955 m³/hr. Filter model selected: P3TFA2CAH/MN
4. Select pipe connection & Thread type System uses 2” piping and BSP threads: Model P3TFA2CAH/MN

To find the correction factor for 8.5 bar g (122psi g) = \[ \sqrt{\frac{\text{System Operating Pressure}}{\text{Nominal Pressure}}} \]

\[ = \sqrt{\frac{8.5 \text{ bar g}}{7 \text{ bar g}}} = 1.10 \]
Oil Vapour Removal Filter

Technical data

<table>
<thead>
<tr>
<th>Filter Grade</th>
<th>Drain type</th>
<th>Max operating pressure</th>
<th>Max recommended operating temp.</th>
<th>Min recommended operating temp.</th>
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<tr>
<td>Oil Vapour Removal</td>
<td>Manual</td>
<td>20 g</td>
<td>290 bar</td>
<td>100°C 212°F 1.5°C 35°F</td>
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</table>

Weights and dimensions

<table>
<thead>
<tr>
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<th>Part Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Weight</th>
<th>Optional Accessories</th>
</tr>
</thead>
<tbody>
<tr>
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<td>P3TFA22AAMN</td>
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<td>181.5</td>
<td>7.2</td>
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<td>1.40</td>
<td></td>
</tr>
</tbody>
</table>

Optional Accessories

- Modular Connection Kit: Fixing clamp allows quick and simple connection of multiple filter housings.
- Wall Mounting Bracket Kit: Mounting brackets provide additional support to filters installed in flexible piping systems or OEM equipment.

Drain Kits

- Auto drain: P3TKA00DA
- Manual drain: P3TKA00DM
High Efficiency Bulk Liquid Removal

- Tested in accordance with ISO 8573.9
- Performance independently verified by Lloyds Register
- High liquid removal efficiencies at all flow conditions
- Low pressure losses for low operational costs
- Multiple port sizes for a given flow rate provides increased flexibility during installation
- Suitable for variable flow compressors
- Works with all types of compressor and compressor condensate
- Low maintenance
- 10 Year Housing Guarantee

Typical Applications

- Bulk liquid removal at any point in a compressed air system
- Protection of refrigeration and adsorption dryer pre-filtration
- Liquid removal from compressor inter-coolers / after-coolers
- Liquid separation within refrigeration dryers

Product selection

Stated flows are for operation at 7 bar (g) with reference to 20°C, 1 bar (a), 0% relative water vapour pressure.

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Part Number</th>
<th>L/s</th>
<th>m3/hr</th>
<th>cfm</th>
<th>Max operating pressure bar g</th>
<th>psi g</th>
<th>Max Operating temperature °C</th>
<th>Min Operating temperature °C</th>
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</thead>
<tbody>
<tr>
<td>1/4&quot;</td>
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<td>21</td>
<td>16</td>
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<td>144</td>
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<td>232</td>
<td>80</td>
<td>176</td>
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<td>233</td>
<td>16</td>
<td>232</td>
<td>80</td>
<td>176</td>
</tr>
<tr>
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<td>1695</td>
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<td>232</td>
<td>80</td>
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<td>800</td>
<td>2880</td>
<td>1695</td>
<td>16</td>
<td>232</td>
<td>80</td>
<td>176</td>
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</table>

Correction factors

<table>
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<tr>
<th>Line pressure bar g</th>
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<th>Correction factor</th>
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<tr>
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<tr>
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<tr>
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</table>

Filter selection example

Selecting a Water Separator model to match a system flow rate and pressure. Example: System flow 1050 m³/hr at a pressure of 8 bar g

1. Obtain pressure correction factor from table. Correction factor for 8 bar g = 1.06
2. Divide system flow by correction factor to give equivalent flow rate at 7 bar g 1050 m³/hr ÷ 1.06 = 984 m³/hr (at 7 bar g)
3. Select a filter model from the above table with a flow rate above or equal to 984 m³/hr. Suitable Water Separator models: P3TFA2AWFAN P3TFA2AWGAN P3TFA2AWWHAN
4. Select pipe connection & Thread type System uses 1.1/2" piping and BSP threads: Model P3TFA2BWGAN
High Efficiency Bulk Liquid Removal

Separation Efficiency

Tested with an inlet challenge concentration of 33ml/m³/hr and in accordance with ISO 8573.9.
Performance shown is an average for all models in range. Individual model performance available on request.

Weights and dimensions

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Part Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Weight</th>
<th>Modular Connection Kit</th>
<th>Wall Mounting Bracket Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot;</td>
<td>P3TFA22WAAN</td>
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<td>181.5</td>
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<td>0.71</td>
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<td>201.0</td>
<td>7.9</td>
<td>20.5</td>
<td>0.81</td>
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<td>1.00</td>
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<td>20.5</td>
<td>0.81</td>
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<td>1.00</td>
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<td>232.5</td>
<td>9.2</td>
<td>23.0</td>
<td>0.91</td>
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<td>1.26</td>
<td>39.0</td>
<td>1.54</td>
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<td>1.54</td>
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<td>18.7</td>
<td>32.0</td>
<td>1.26</td>
<td>39.0</td>
<td>1.54</td>
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<td>30.4</td>
<td>35.5</td>
<td>1.40</td>
<td>42.5</td>
<td>1.67</td>
</tr>
</tbody>
</table>

Optional Accessories

- Modular Wall Mounting Bracket Kit
  - P3TFA00CB
  - P3TFA00CBB
  - P3TFA00CBB
  - P3TFA00CBD
  - P3TFA00CBB
  - P3TFA00CBF
  - P3TFA00CBF
  - P3TFA00CBF
  - P3TFA00CBJ

Modular Connection Kit
Fixing clamp allows quick and simple connection of multiple filter housings.

Wall Mounting Bracket Kit
Mounting brackets provide additional support to filters installed in flexible piping systems or OEM equipment.
ISO 8573 - Compressed air quality standards

ISO 8573 is the group of International standards relating to the quality of compressed air and consists of nine separate parts. Part 1 specifies the quality requirements of the compressed air and parts 2 - 9 specify the methods of testing for a range of contaminants.

ISO 8573.1 : 2001 is the primary document used from the ISO 8573 series and it is this document which allows the user to specify the air quality or purity required at key points in a compressed air system.

Within ISO 8573.1 : 2001 purity levels for the main contaminants are shown in separate tables, however for ease of use, this document combines all three into one easy to understand table.

<table>
<thead>
<tr>
<th>Class</th>
<th>Solid Particulate</th>
<th>Water Vapour</th>
<th>Oil Total Oil (aerosol, liquid and vapour)</th>
</tr>
</thead>
<tbody>
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<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>100</td>
<td>-3°C</td>
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<tr>
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<td>100,000</td>
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<td>-</td>
</tr>
<tr>
<td>8</td>
<td>-</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>-</td>
<td>10</td>
<td>-</td>
</tr>
</tbody>
</table>

* As specified by the equipment user or supplier

Specifying air purity in accordance with ISO 8573.1 : 2001

When specifying the purity of air required, the standard must always be referenced, followed by the purity class selected for each contaminant (a different purity class can be selected for each contaminant if required). An example of how to write an air quality specification is shown below:

ISO 8573.1 : 2001 Class 1.2.1

ISO8573.1 : 2001 refers to the standard document and its revision, the three digits refer to the purity classifications selected for solid particulate, water and total oil. Selecting an air purity class of 1.2.1 would specify the following air quality when operating at the standard’s reference conditions:

**Class 1 Particulate**
In each cubic metre of compressed air, no more than 100 particles in the 0.1 - 0.5 micron size range are allowed
In each cubic metre of compressed air, no more than 1 particle in the 0.5 - 1 micron size range is allowed
In each cubic metre of compressed air, no particles in the 1 - 5 micron size range are allowed

**Class 2 Water**
A pressure dewpoint of -40°C or better is required and no liquid water is allowed.

**Class 1 Oil**
In each cubic metre of compressed air, not more than 0.01mg of oil is allowed. This is a combined level for both oil aerosol and oil vapour.

Cost effective system design

To achieve the stringent air quality levels required for today’s modern production facilities, a careful approach to system design, commissioning and operation must be employed. Treatment at one point alone is not enough and it is highly recommended that the compressed air is treated prior to entry into the distribution system to a quality level suitable for protecting air receivers and distribution piping.

The following table highlights the Parker Extras filtration and drying products required to achieve each air purity classification shown in ISO 8573.1 : 2001.

<table>
<thead>
<tr>
<th>ISO 8573.1:2001 Class</th>
<th>Solid Particulate</th>
<th>Water Vapour</th>
<th>Total Oil (Aerosol Liquid &amp; Vapour)</th>
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</thead>
<tbody>
<tr>
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<td>Coalescing Grade 1µm filter + Grade 0.01µm filter + Sterile filter</td>
<td>Adsorption Dryer -70°C PDP</td>
<td>Coalescing Grade 0.01µm filter + Grade 1µm filter + Vapour removal filter</td>
</tr>
<tr>
<td>2</td>
<td>Coalescing Grade 1µm filter + Grade 0.01µm filter</td>
<td>Adsorption Dryer -40°C PDP</td>
<td>Coalescing Grade 0.01µm filter + Grade 1µm filter</td>
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<tr>
<td>3</td>
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<td>Coalescing Grade 1µm filter</td>
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