Parker Thermal Mass Dryer
Thermal Mass Cycling Refrigerated Air Dryers
(PTM200 - PTM1000)
The importance of compressed air as a provider of energy for modern industrial processes is widely known. What is often overlooked however is the need to provide quality treatment for this air. In fact, the air entering the system contains condensate which, when cooled, will turn into liquid water, causing extensive damage not only to the compressed air network, but also to the finished product.

These costly contamination problems can be avoided by installing a refrigerated air dryer package complete with Parker filtration. The combination of our thermal mass dryer and high quality filtration provides air quality to ISO 8573.1 Class 1.4.1.

A refrigerated dryer is typically selected to achieve its design performance at the user’s most extreme working conditions. (ie. a warm summer day with the air compressor operating at maximum load).

This maximum condition, however, is very rarely achieved in everyday conditions. First, the air compressor load will vary significantly during a working day and will rarely be at full load, thereby significantly reducing the load on the dryer itself.

Furthermore, average temperatures are well below the maximum inlet and ambient temperatures for which the system has been sized. Reduced temperatures at colder moments during the day and overall temperature reductions during the mid-season and winter add a further reduction to the load on the dryer.

Parker Thermal Mass dryers perfectly and continuously adapt to the actual operating conditions, ensuring perfect dewpoint control together with the lowest operating costs. Over and above this extreme flexibility of use, Parker Thermal Mass advanced technical solutions offer reliability, efficiency, energy savings, compact dimensions and low weight, making it the ideal solution for all industrial users.

Benefits:

- Optimum dewpoint levels for highest system performance
- Lowest operating costs
- Continuously and automatically adjusts to actual working parameters
- High reliability, easy to use and maintain
- ColdPack 4-in-1 heat exchanger
- Integral zero air loss energy saving drain (PTM400 to PTM1000)

**Drain**

- Overflow/blockage alarm - automatically goes to time mode
- Solenoid valve located in easily accessible alcove - no cabinet to remove

- Low pressure drop design (1.9 average)
- Microprocessor based energy management controller
- Unique Thermal Mass ColdStorage reduces power consumption and improves temperature control.
- Digital display of dewpoint temperature
- Digital display of thermal mass temperature
- Diagnostic codes for troubleshooting
- Dryers manufactured in facility certified to ISO9001 and ISO14001
- 3rd party performance verified by CAGI
Parker Thermal Mass (PTM) - How it works

There are three circuits: air, glycol, and refrigerant. The refrigerant cools the glycol and the glycol cools the air to improve efficiency. With these three circuits, there are two primary heat exchangers: the air and glycol and the glycol and refrigerant heat exchangers. Both insulated heat exchangers use counter flow to produce optimum heat transfer to the glycol cooling fluid.
Smart technology: the benefits

Technology that adjusts energy consumption

Parker’s technology automatically and precisely adjusts energy consumption in response to actual operating conditions (air variability and seasonal changes), avoiding unnecessary waste. This technology controls the dryer operation via multiple sensors guaranteeing maximum savings and avoiding dewpoint surges. Parker’s ColdPack heat exchanger’s all-in-one design and thermal insulation further enhance the overall energy savings.

Patented ColdPack 4-in-1 heat exchanger design

A 4-in-1 ColdPack heat exchanger features an extremely robust, all-in-one aluminum design, with no interconnecting piping.

ColdPack features the lowest pressure drop in the industry, notable energy savings and guaranteed dewpoint. Optimum dewpoint performance is ensured thanks to wide air channels leading to low air velocities, an oversized slowflow demister separator offering perfect condensate separation even at partial air flows and a dewpoint temperature sensor within the air flow for improved control. The generously sized air-to-air section and insulation contribute to a very low power consumption.

The 4-in-1 design promotes Continuous Active Separation. Separation occurs as soon as the condensate forms so most of the condensate is already removed before the air reaches the demister separator. This allows the demister to act as a final polisher - removing only the finest condensate droplets that have made it this far. The demister separator is unique in that it provides efficient separation at any air flow. Most competitors use centrifugal separators, which are designed to operate efficiently at 100% of their rated flow, but lose efficiency at higher or lower flows.

Integral zero air loss drain with fail safe trigger

A truly unique part of ColdPack is the integral zero loss drain. The drainage chamber is integrated into the heat exchanger while the drain continuously adjusts itself to the actual working conditions, ensuring zero air loss and a notable reduction in system power consumption. An innovative control system continuously monitors for fault situations. If a fault does occur, an alarm is signaled and the drain switches to conventional timed solenoid drain operation. The dual mode circuitry ensures maximum reliability.

Environmentally friendly

Montreal Protocol compliant R404A refrigerant allows for zero ozone depletion, low global warming potential and low refrigerant charge. Because R404A does not separate easily, it is more reliable for these designs and therefore the refrigerant of choice for cycling applications.
Parker Thermal Mass (PTM200 - PTM1000)

Features

- High operating limits
- Easy to remove panels with frontal access to all major components
- User friendly control panel
- Aluminum heat exchangers for maximum efficiency
- Environmentally friendly propylene glycol
- ETL listed complete unit
- CRN all Provinces
- ColdControl - UL listed
- Refrigerant compressor overload protection switch
- Rugged sheet metal enclosure with polyester-based powder coat finish withstands harsh environment.
- Automatic fan cycling controls on each fan (air-cooled models)
- Suction pressure gauge - Standard all models
- Remote board loop 4-20 mA - Optional
- Integral zero air loss drain valve (PTM400 to PTM1000)

CRN all Provinces (PTM Dryer and Filters)

Microprocessor Based Energy Management Controller - Standard

Display LEDs

- Dryer ON
- Common Alarm
- Drain Open
- Drain Alarm
- Power Save

Setting

- Degrees °F/°C
- Set Dewpoint Temperature

Digital Display Readouts

- Process control temperature
- Set auto drain off time (minutes)
- Factory dewpoint temperature set at 39°F (4°C)

Adjustable Operating Parameters

- Adjustable dewpoint temperature (36-60°F (2-10°C))
- Automatic drain close time
- Automatic drain test

Fault Alarm Warnings (W) and Shutdowns (S)

- High dewpoint (W)
- Low evaporative temperature alarm shutdown (S)
- Dryer overload alarm shutdown (S)
- Low refrigerant pressure alarm shut down (S)
- High refrigerant pressure alarm shut down (S)
- Low coolant temperature shutdown alarm (S)
- Drain fault alarm with back-up time drain mode (W)
- Sensor fault open dewpoint sensor alarm (S)
- Sensor fault shorted dewpoint sensor alarm (S)
- Sensor fault open thermal mass sensor alarm (S)
- Sensor fault shorted thermal mass sensor alarm (S)
- Service due indicator (W)
- Compressor protection anti short cycle warning ("CP") (W)
- Short cycle shutdown (S)

www.parker.com/faf
Add to your savings with Parker Filtration

Any restriction to airflow within a filter housing and element will reduce the system pressure. To generate compressed air, large amounts of electrical energy are consumed, 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. In order to build upon the low pressure drop of PTM Series, not just any compressed air filter will do.

Compressed air and gas lines typically contain water, oil, and particulate contamination

The contaminants of greatest concern in precision compressed air systems are water, oil, and solids.

Water vapor is present in all compressed air and it becomes greatly concentrated by the compression process. While air dryer systems can be used effectively to remove water from compressed air, they will not remove oil, which is the second major liquid contaminant.

Most oil comes from compressor lubrication carry-over, but even the air produced by oil-free compressors has hydrocarbon contamination brought into the system through the intake.

The third contaminant is solid matter including dirt, rust, and scale. Solid particulates, combined with aerosols of water and oil, can clog and shorten the life of air system components and can foul processes.

Parker High Efficiency Filtration

- Elements utilize low turbulence flow design
- Epoxy saturated borosilicate glass nanofiber media with outer synthetic fabric dryer layer allowing swift removal of coalesced liquids
- Differential pressure gauge and auto drain
- Durable aluminum chromated heads and bowls with powder coated finish
- Large sump capacity to handle condensate
- Simple installation and easy maintenance

International Standard ISO8573-1 has become the industry standard method for specifying compressed air cleanliness.

<table>
<thead>
<tr>
<th>ISO8573-1:2010 CLASS</th>
<th>Solid Particulate</th>
<th>Water</th>
<th>Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum number of particles per m³</td>
<td>Mass Concentration ppm</td>
<td>Vapor Pressure Dewpoint</td>
</tr>
<tr>
<td>0.1 - 0.5 micron</td>
<td>0.5 - 1 micron</td>
<td>1 - 5 micron</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>≤ 20,000</td>
<td>≤ 400</td>
<td>≤ 10</td>
</tr>
<tr>
<td>2</td>
<td>≤ 400,000</td>
<td>≤ 6,000</td>
<td>≤ 100</td>
</tr>
<tr>
<td>3</td>
<td>≤ 90,000</td>
<td>≤ 1,000</td>
<td>≤ 4°F (-20°C)</td>
</tr>
<tr>
<td>4</td>
<td>≤ 10,000</td>
<td>≤ 100,000</td>
<td>≤ 37.4°F (3°C)</td>
</tr>
<tr>
<td>5</td>
<td>≤ 100,000</td>
<td>≤ 44.6°F (7°C)</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>≤ 50°F (10°C)</td>
<td>≤ 10</td>
<td>-</td>
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<tr>
<td>7</td>
<td>5 - 10</td>
<td>≤ 0.5</td>
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</tr>
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<td>8</td>
<td>0.5 - 5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>5 - 10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>X</td>
<td>&gt; 10</td>
<td>&gt; 10</td>
<td>&gt; 10</td>
</tr>
</tbody>
</table>

As specified by the equipment user or supplier and more stringent than Class 1
Technical (PTM200 - PTM1000)

PTM0250 - A4 - F1

A = Air cooled
W = Water cooled

2 = (230V/1Ph/60Hz)
3 = (230V/3Ph/60Hz)
4 = (460V/3Ph/60Hz)
5 = (575V/3Ph/60Hz)

Blank = Dryer Only
F1 = Dryer Plus Pre-Filter
F2 = Dryer Plus Pre-Filter & After-Filter

Product Selection

<table>
<thead>
<tr>
<th>Model</th>
<th>Air In/Out</th>
<th>Nominal Capacity (scfm)¹</th>
<th>Dimensions ins (mm)</th>
<th>Weight</th>
<th>Filtration²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Height</td>
<td>Width</td>
<td>Depth</td>
</tr>
<tr>
<td>PTM0200-A2-*³</td>
<td>2&quot; FPT</td>
<td>200</td>
<td>58 (1473.2)</td>
<td>28 (711.2)</td>
<td>30 (762.0)</td>
</tr>
<tr>
<td>PTM0250-**</td>
<td>2&quot; FPT</td>
<td>250</td>
<td>58 (1473.2)</td>
<td>28 (711.2)</td>
<td>30 (762.0)</td>
</tr>
<tr>
<td>PTM0325-**</td>
<td>2&quot; FPT</td>
<td>325</td>
<td>58 (1473.2)</td>
<td>28 (711.2)</td>
<td>30 (762.0)</td>
</tr>
<tr>
<td>PTM0400-**</td>
<td>2&quot; FPT</td>
<td>400</td>
<td>61 (1549.4)</td>
<td>41 (1041.4)</td>
<td>36 (914.4)</td>
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<tr>
<td>PTM0500-**</td>
<td>2&quot; FPT</td>
<td>500</td>
<td>61 (1549.4)</td>
<td>41 (1041.4)</td>
<td>36 (914.4)</td>
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<tr>
<td>PTM0700-**</td>
<td>3&quot; FPT</td>
<td>700</td>
<td>71 (1803.4)</td>
<td>49 (1244.6)</td>
<td>37 (939.8)</td>
</tr>
<tr>
<td>PTM0850-**</td>
<td>3&quot; FPT</td>
<td>850</td>
<td>71 (1803.4)</td>
<td>49 (1244.6)</td>
<td>37 (939.8)</td>
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<tr>
<td>PTM1000-**</td>
<td>3&quot; FPT</td>
<td>1000</td>
<td>71 (1803.4)</td>
<td>49 (1244.6)</td>
<td>37 (939.8)</td>
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</tbody>
</table>

Notes:
1. Flowrates at the following climatic conditions - Ambient Temperature: 100°F (38°C), Inlet Temperature: 100°F (38°C), Inlet Pressure: 100 psi g (7 bar g).
2. Filter packages recommended based on flowrates not connection size.
3. PTM200 only available 230V/1Ph/60Hz - Air Cooled. Water cooled not available.
4. For reliable operation and to meet warranty conditions, a pre-filter must be installed.

Replacement Elements

<table>
<thead>
<tr>
<th>Model</th>
<th>Pre-Filter Element</th>
<th>After-Filter Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTM0200-A2-*³</td>
<td>JF0340H-7CPK</td>
<td>JF0320H-6CK</td>
</tr>
<tr>
<td>PTM0250-**</td>
<td>JF0340H-7CPK</td>
<td>JF0320H-6CK</td>
</tr>
<tr>
<td>PTM0325-**</td>
<td>JF0340H-7CPK</td>
<td>JF0320H-6CK</td>
</tr>
<tr>
<td>PTM0400-**</td>
<td>JF0465H-7CPK</td>
<td>JF0430H-6CK</td>
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<tr>
<td>PTM0500-**</td>
<td>JF0900J-7CPK</td>
<td>JF0650J-6CK</td>
</tr>
<tr>
<td>PTM0700-**</td>
<td>JF1300K-7CPK</td>
<td>JF0900K-6CK</td>
</tr>
<tr>
<td>PTM0850-**</td>
<td>JF1300K-7CPK</td>
<td>JF0900K-6CK</td>
</tr>
<tr>
<td>PTM1000-**</td>
<td>JF1300K-7CPK</td>
<td>6CU51-280 X 1</td>
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</table>

Note:
Replacement element kits include: replacement element, head-to-bowl o-ring, and lube

Technical Data

<table>
<thead>
<tr>
<th>Models</th>
<th>Max Ambient Temperature</th>
<th>Max Inlet Temperature</th>
<th>Min Ambient Temperature</th>
<th>Max Inlet Pressure</th>
<th>Refrigerant</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTM0200 - PTM1000</td>
<td>115°F (46°C)</td>
<td>140°F (60°C)</td>
<td>41°F (5°C)</td>
<td>200 psi g (13.7 bar g)</td>
<td>R404A</td>
</tr>
</tbody>
</table>

Correction Factors

To obtain dryer capacity at new conditions, multiply nominal capacity x C1 x C2 x C3.

<table>
<thead>
<tr>
<th>Ambient Temperature (C1)</th>
<th>°F</th>
<th>80</th>
<th>90</th>
<th>95</th>
<th>100</th>
<th>105</th>
<th>110</th>
<th>115</th>
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<tbody>
<tr>
<td>°C</td>
<td>27</td>
<td>32</td>
<td>35</td>
<td>38</td>
<td>41</td>
<td>43</td>
<td>46</td>
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<tr>
<td>CF</td>
<td>1.12</td>
<td>1.08</td>
<td>1.05</td>
<td>1</td>
<td>0.95</td>
<td>0.9</td>
<td>0.84</td>
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<table>
<thead>
<tr>
<th>Inlet Temperature (C2)</th>
<th>°F</th>
<th>80</th>
<th>90</th>
<th>95</th>
<th>100</th>
<th>105</th>
<th>110</th>
<th>115</th>
<th>120</th>
<th>130</th>
<th>140</th>
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<tbody>
<tr>
<td>°C</td>
<td>27</td>
<td>29</td>
<td>32</td>
<td>35</td>
<td>38</td>
<td>41</td>
<td>43</td>
<td>46</td>
<td>49</td>
<td>54</td>
<td>60</td>
</tr>
<tr>
<td>CF</td>
<td>1.32</td>
<td>1.22</td>
<td>1.22</td>
<td>1.1</td>
<td>1</td>
<td>0.92</td>
<td>0.83</td>
<td>0.76</td>
<td>0.69</td>
<td>0.56</td>
<td>0.46</td>
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<table>
<thead>
<tr>
<th>Working Pressure (C3)</th>
<th>psi g</th>
<th>50</th>
<th>60</th>
<th>75</th>
<th>80</th>
<th>90</th>
<th>100</th>
<th>110</th>
<th>125</th>
<th>130</th>
<th>140</th>
<th>150</th>
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</thead>
<tbody>
<tr>
<td>bar g</td>
<td>3.5</td>
<td>4.1</td>
<td>5.2</td>
<td>5.5</td>
<td>6.2</td>
<td>6.9</td>
<td>7.6</td>
<td>8.6</td>
<td>9</td>
<td>9.7</td>
<td>10.3</td>
<td></td>
</tr>
<tr>
<td>CFP</td>
<td>0.8</td>
<td>0.84</td>
<td>0.9</td>
<td>0.92</td>
<td>0.96</td>
<td>1</td>
<td>1.01</td>
<td>1.02</td>
<td>1.03</td>
<td>1.04</td>
<td>1.05</td>
<td></td>
</tr>
</tbody>
</table>
Worldwide Filtration Manufacturing Locations

North America
Compressed Air Treatment Filtration & Separation/Balston
Haverhill, MA
978 858 0505
www.parker.com/balston

Finite Airtek Filtration
Airetek/domnick hunter/Zander
Lancaster, NY
716 686 6400
www.parker.com/faf

Finite Airtek Filtration/Finite
Oxford, MI
248 628 6400
www.parker.com/faf

Engine Filtration & Water Purification
Racor
Modesto, CA
209 521 7860
www.parker.com/racor

Holly Springs, MS
662 252 2656
www.parker.com/racor

Beaufort, SC
843 846 3200
www.parker.com/racor

Racor – Village Marine Tec.
Gardena, CA
310 516 9811
desalination.parker.com

Parker Sea Recovery
Carson, CA
310 637 3400
www.parker.com/rfde

Hydraulic Filtration
Hydraulic Filter
Arnhem, Holland
+31 26 3760376
www.parker.com/hfde

Laval, QC Canada
450 629 9594
www.parkerfarr.com

Process Filtration
domnick hunter Process Filtration
Oxnard, CA
805 604 3400
www.parker.com/processfiltration

Madison, WI
608 824 0500
www.scilog.com

Phoenixville, PA
610 933 1600
www.parker.com/processfiltration

Aerospace Filtration
Velcon Filtration
Colorado Springs, CO
719 531 5855
www.velcon.com

Europe
Compressed Air Treatment
domnick hunter Filtration & Separation
Gateshead, England
+44 (0) 191 402 9000
www.parker.com/dhfns

Parker Gas Separations
Etten-Leur, Netherlands
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www.kittiwake.com

Parker Twin Filter BV
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www.parker.com/india

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www.johnfowlerindia.com

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305 470 8800
www.parker.com/panam

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