



FOCUSED ON COMPRESSED AIR TREATMENT

Parker Thermal Mass Cycling Refrigerated Air Dryer | PTM Series



ENGINEERING YOUR SUCCESS.

FOCUSED ON QUALITY AIR TREATMENT

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 8573.1:2010 Class 1.4/5.1.

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 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 temperature 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 (PTM200 - PTM 1000)

- Energy saving design
- 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)
- Unique Thermal Mass ColdStorage reduces power consumption and improves temperature control
- Digital display of both dewpoint and thermal mass temperatures
- Diagnostic codes for troubleshooting
- Dryers manufactured in facility certified to ISO9001 and ISO14001.
- Provides air quality to ISO 8573.1 Class 1.4/5.1.
- CAGI performance verification
- Low pressure drop design (1.9 average)
- Microprocessor based energy management controller
- Rugged sheet metal enclosure with polyester-based powder coat finish withstands harsh environment



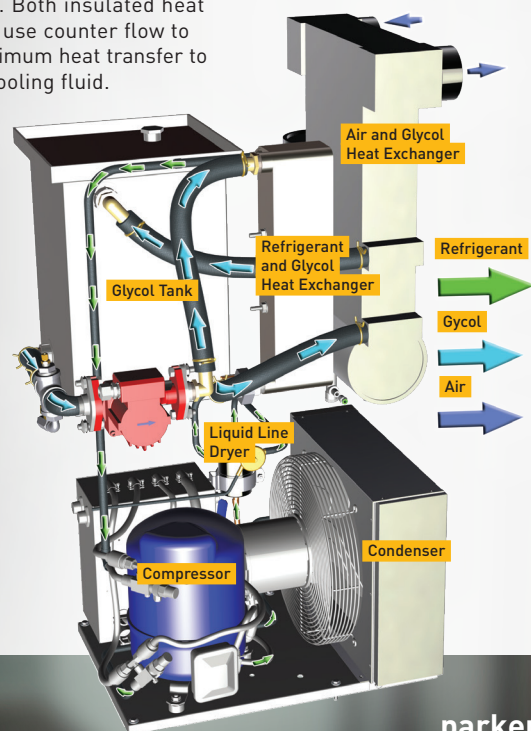
Drain

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

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.

The Heat Exchanger is designed for ease of filter and bypass installation. All units designed for ease of service and servicability.



FOCUSED ON RELIABILITY AND EFFICIENCY

As the most energy efficient air dryer on the market today, the Parker Thermal Mass series is fail-safe under all operating conditions.

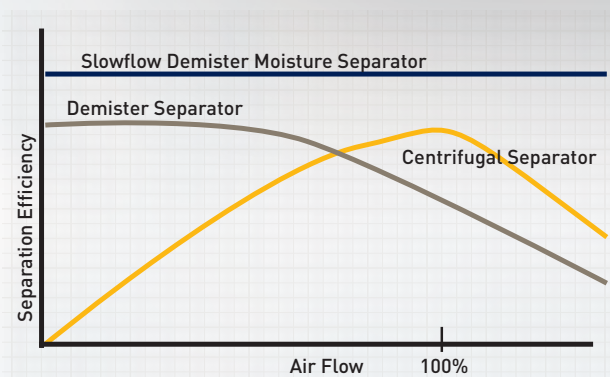
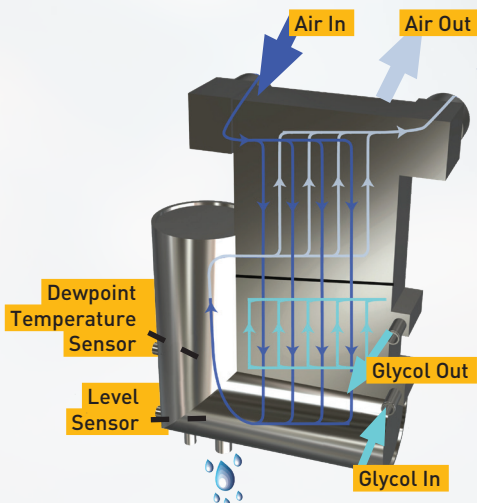
Smart Technology: The Benefits

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.



- Non - velocity dependent moisture separation technology
- Maintains excellent moisture separation at reduced air flows.
- Ensures dewpoint performance across all operating conditions.



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.

Integral Zero Air Loss Drain with Fail Safe Trigger

(PTM400 - PTM1000)

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.

Benefits

- Energy savings
- 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
- cETLu listed complete unit
- CRN all provinces
- Refrigerant compressor overload protection switch
- 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)



Microprocessor Based Energy Management Controller

Fault Alarm Warnings and Shutdowns

Warnings (W)

- High dewpoint
- Drain fault alarm with back-up time drain mode
- Service due indicator
- Compressor protection anti short cycle warning ("CP")

Shutdowns (S)

- Low evaporative temperature alarm shutdown
- Dryer overload alarm shutdown
- Low refrigerant pressure alarm shut down
- High refrigerant pressure alarm shut down
- Low coolant temperature shutdown alarm
- Short cycle shutdown

Sensor Fault Shutdowns

- Open dewpoint sensor alarm
- Fault shorted dewpoint sensor alarm
- Open thermal mass sensor alarm
- Shorted thermal mass sensor alarm



Display LEDs

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

Adjustable Operating Parameters

- Adjustable dewpoint temperature (36-50°F [2-10°C])
- Automatic drain close time
- Automatic drain test

Digital Display Readouts

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

Setting

- Degrees °F/°C
- Set Dewpoint Temperature





Add to Your Savings with Parker domnick hunter Filtration

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.



OIL-X

COMPRESSED AIR FILTERS

Parker domnick hunter OIL-X - a new series of compressed air filters, taking efficiency to a different level.

Built on Parker's worldwide expertise in filtration, the OIL-X range has been developed to ensure consistent outstanding air quality, guaranteed for 12 months, and third party validated to meet ISO 8573-1.

FOCUSED ON MARKET LEADING LOW DIFFERENTIAL PRESSURE

> Unique filter element

Specifically constructed for reduced air flow velocity, reduced pressure loss, increased dirt holding capacity, and improved efficiency. Includes a 12-month air quality guarantee.

> Flow management system

Specially engineered 'bell mouth', with 90-degree elbow, flow distributor and conical flow diffuser, to promote a consistent, optimum air flow.

Combining the unique filter element with a specially designed advanced air flow management system, the Parker domnick hunter OIL-X range is engineered to not only deliver air quality in accordance with ISO 8573-1 classifications, but it does so with a extremely low differential pressure - ensuring maximum efficiency and productivity.

> Filter housing

Designed to allow easy maintenance and element replacement, and covered by a 10-year guarantee.

> Flexible connections

A wide range of port sizes and filter connections, for added flexibility.

> Epoxy coating

Finished with alocrom corrosion protection and a tough, dry powder epoxy coating for a high quality feel.



PTM0250 - A4 - D1

Technical (PTM200 - PTM1000)

Product Selection

| | | |
|-------------------------|----------------------------|---|
| A = Air-Cooled | 2 = (230V/1Ph/60Hz) | Blank = dryer only |
| W = Water-Cooled | 3 = (230V/3Ph/60Hz) | D1 = Dryer Plus Pre-Filter |
| | 4 = (460V/3Ph/60Hz) | D2 = Dryer Plus Pre and After-Filter |
| | 5 = (575V/3Ph/60Hz) | |

| Model | Air In/Out | Nominal Capacity (scfm) ¹ | Dimensions ins (mm) | | | Weight | | Filtration ² | |
|---------------------------|------------|--------------------------------------|---------------------|-------------|------------|--------|-----|-------------------------|--------------|
| | | | Height | Width | Depth | lbs | kg | Pre-Filter | After-Filter |
| PTM0200-A2- ^{*3} | 2" FPT | 200 | 58 (1473.2) | 28 (711.2) | 30 (762.0) | 446 | 202 | AOP040HNFI | AAP040HNFI |
| PTM0250- ^{**} | 2" FPT | 250 | 58 (1473.2) | 28 (711.2) | 30 (762.0) | 492 | 223 | AOP040HNFI | AAP040HNFI |
| PTM0325- ^{**} | 2" FPT | 325 | 58 (1473.2) | 28 (711.2) | 30 (762.0) | 508 | 230 | AOP040HNFI | AAP040HNFI |
| PTM0400- ^{**} | 2" FPT | 400 | 61 (1549.4) | 41 (1041.4) | 36 (914.4) | 702 | 318 | AOP040HNFI | AAP040HNFI |
| PTM0500- ^{**} | 2" FPT | 500 | 61 (1549.4) | 41 (1041.4) | 36 (914.4) | 712 | 323 | AOP045INFI | AAP045INFI |
| PTM0700- ^{**} | 3" FPT | 700 | 71 (1803.4) | 49 (1244.6) | 37 (939.8) | 1022 | 464 | AOP055JNFI | AAP055JNFI |
| PTM0850- ^{**} | 3" FPT | 850 | 71 (1803.4) | 49 (1244.6) | 37 (939.8) | 1047 | 475 | AOP055JNFI | AAP055JNFI |
| PTM1000- ^{**} | 3" FPT | 1000 | 71 (1803.4) | 49 (1244.6) | 37 (939.8) | 1174 | 533 | AOP055JNFI | AAP055JNFI |



Notes

- 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)
- Filter packages recommended based on connection size
- PTM200 only available 230V/1Ph/60Hz - Air cooled. Water cooled not available
- For reliable operation, a Parker pre-filter is recommended. Dryer not operated in accordance with ISO air quality class 3 for solids may see degradation in performance and/or permanent dryer failure.

Note:

Standard PTM models are designed for 100° F (38° C) ambient temperature, 100° F (38° C) inlet temperature and 100 psig (7 barg) inlet pressure. For operating conditions outside of standard design, use correction factors or consult factory for sizing assistance.

Correction Factors

| To obtain dryer capacity at new conditions, multiply nominal capacity x C1 x C2 x C3. | | | | | | | | |
|---|----|------|------|------|-----|------|-----|------|
| Ambient Temperature (C1) | °F | 80 | 90 | 95 | 100 | 105 | 110 | 115 |
| | °C | 27 | 32 | 35 | 38 | 41 | 43 | 46 |
| | CF | 1.12 | 1.08 | 1.05 | 1 | 0.95 | 0.9 | 0.84 |

| Inlet Temperature (C2) | °F | 80 | 85 | 90 | 95 | 100 | 105 | 110 | 115 | 120 | 130 | 140 |
|------------------------|----|------|------|------|-----|-----|------|------|------|------|------|------|
| | °C | 27 | 29 | 32 | 35 | 38 | 41 | 43 | 46 | 49 | 54 | 60 |
| | CF | 1.22 | 1.22 | 1.22 | 1.1 | 1 | 0.92 | 0.83 | 0.76 | 0.69 | 0.56 | 0.46 |

| Working Pressure (C3) | psi g | 50 | 60 | 75 | 80 | 90 | 100 | 110 | 125 | 130 | 140 | 150 |
|-----------------------|-------|-----|------|-----|------|------|-----|------|------|------|------|------|
| | bar g | 3.5 | 4.1 | 5.2 | 5.5 | 6.2 | 6.9 | 7.6 | 8.6 | 9 | 9.7 | 10.3 |
| | CFP | 0.8 | 0.84 | 0.9 | 0.92 | 0.96 | 1 | 1.01 | 1.02 | 1.03 | 1.04 | 1.05 |

Replacement Elements

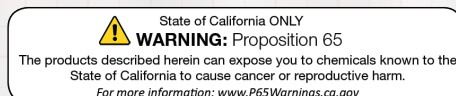
| Model | Pre-Filter Element | After-Filter Element |
|---------------------------|--------------------|----------------------|
| PTM0200-A2- ^{*3} | P040AO | P040AA |
| PTM0250- ^{**} | P040AO | P040AA |
| PTM0325- ^{**} | P040AO | P040AA |
| PTM0400- ^{**} | P040AO | P040AA |
| PTM0500- ^{**} | P045AO | P045AA |
| PTM0700- ^{**} | P055AO | P055AA |
| PTM0850- ^{**} | P055AO | P055AA |
| PTM1000- ^{**} | P055AO | P055AA |

Note

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

Technical Data

| Models | Max Ambient Temperature | Max Inlet Temperature | Min Ambient Temperature | Max Inlet Pressure | Refrigerant |
|-------------------|-------------------------|-----------------------|-------------------------|------------------------|-------------|
| PTM0200 - PTM1000 | 115°F (46°C) | 140°F (60°C) | 41°F (5°C) | 200 psi g (13.7 bar g) | R404A |



CRN registered all provinces



| CLASS | Dirt | | | Water | Oil |
|-------|--|----------------|--------------|------------------------------|------------------------------------|
| | Maximum number of particles per m ³ | | | Pressure Dewpoint °F [°C] | [incl. vapor] mg/m ³ |
| | 0.1 - 0.5 micron | 0.5 - 1 micron | 1 - 5 micron | | |
| 1 | 100 | 1 | 0 | -94°F [-70°C] | 0.01 |
| 2 | 100,000 | 1,000 | 10 | -40°F [-40°C] | 0.1 |
| 3 | - | 10,000 | 500 | -4°F [-20°C] | 1 |
| 4 | - | - | 1,000 | 37.4°F [3°C] | 5 |
| 5 | - | - | 20,000 | 44.6°F [7°C] | - |
| 6 | - | - | - | 50°F [10°C] | - |

Compressed Air Quality to ISO 8573.1:2010 - The Industry Standard Method for Specifying Compressed Air Cleanliness

The ISO 8573.1:2010 international standard for compressed air quality provides a simple system of classification for the three main contaminants present in any compressed air system - dirt, water, and oil. To specify the quality class required for a particular application, simply list the class for each contaminant.

AFTERMARKET

Compressed air equipment users demand much more than the supply of high quality products in order to maintain a competitive edge.

Modern production technology is increasingly demanding the provision of a higher purity and more reliable compressed air supply. Products and solutions that are manufactured by Parker are designed to provide air quality that meets and often exceeds international standards.

As well as the requirement for air purity and reliability, there are additional factors to consider when choosing the right service provider for your compressed air and gas purification system. For example, knowledge of the many regulations regarding the management of industrial waste, energy efficiency improvement programs and consideration of any environmental impact. It is anticipated that future legislations will demand further in-depth technical and knowledge-based support from service providers.

Our commitment to industry does not stop with the supply of high quality products. We are also committed to ensuring that our equipment provides high performance by providing a trouble-free service from a bespoke maintenance and verification package – all tailored to your own specific requirements.

We offer a wide range of valuable services that will impact positively on your drive towards improved production efficiency and product quality with reduced production rejections and operational costs.

From initial selection to installation, commissioning, preventative maintenance and specialized services, Parker is redefining customer service.

| Filter Elements and Consumable Parts | Maintenance, Repair and Overhaul | Customer Support | Specialized Services |
|--|--|--|--|
| Genuine Replacement Filter Elements Preventative Maintenance Kits Repair Kits Installation Kits Upgrade Kits | Installation and Commissioning Maintenance and Repair Updates and Upgrades Service Contracts Parts Service Warranty | Business Development Technical Support Group Training Technical Publications | Air Quality Testing Dewpoint Measurement Leak Detection Particle Counting Micro-biological Testing |

NEXT STEPS

To find out more about Parker's expertise and solutions for cycling refrigerated air dryers please call 716 686 6400.



Worldwide Filtration Manufacturing Locations

North America

Compressed Air Treatment

Industrial Gas Filtration & Generation Division

Airtek/Finite/donnick hunter/Zander
Lancaster, NY
716 686 6400
www.parker.com/gsf

Balston
Haverhill, MA
978 858 0505
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Velcon
Colorado Springs, CO
719 531 5855
www.velcon.com

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domnick hunter Process Filtration SciLog

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Carson, CA
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Gas Separation & Filtration Division EMEA

Gas Generation/Compressed Air and Gas Treatment
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www.parker.com/gsf

Membrane and Modules
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+31 76 508 5300
www.parker.com/gsf

Hiross Zander
Essen, Germany
+49 2054 9340
www.parker.com/gsf

Padova, Italy
+39 049 9712 111
www.parker.com/gsf

Engine Filtration & Water Purification

Racor

Dewsbury, England
+44 (0) 1924 487 000
www.parker.com/rfde

Racor Research & Development

Stuttgart, Germany
+49 (0)711 7071 290-10

Hydraulic Filtration

Hydraulic Filter

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

Ujala, Finland
+358 20 753 2500

Condition Monitoring Parker Kittiwake

West Sussex, England
+44 (0) 1903 731 470
www.kittiwake.com

Process Filtration

domnick hunter Process Filtration Parker Twin Filter BV

Birtley, England
+44 (0) 191 410 5121
www.parker.com/processfiltration

Asia Pacific

Australia

Castle Hill, Australia
+61 2 9634 7777
www.parker.com/australia

China

Shanghai, China
+86 21 5031 2525
www.parker.com/china

India

Chennai, India
+91 22 4391 0700
www.parker.com/india

Parker Fowler

Bangalore, India
+91 80 2783 6794
www.johnfowlerindia.com

Japan

Tokyo, Japan
+81 45 870 1522
www.parker.com/japan

Korea

Hwaseon-City
+82 31 359 0852
www.parker.com/korea

Singapore

Jurong Town, Singapore
+65 6887 6300
www.parker.com/singapore

Thailand

Bangkok, Thailand
+66 2186 7000
www.parker.com/thailand

Latin America

Parker Comercio Ltda. Filtration Division

Sao Paulo, Brazil
+55 12 4009 3500
www.parker.com/br

Pan American Division

Miami, FL
305 470 8800
www.parker.com/panam

Africa

Aeroporto Kempton Park, South Africa
+27 11 9610700
www.parker.com/africa



Parker Hannifin Corporation
Industrial Gas Filtration
and Generation Division
4087 Walden Avenue
Lancaster, NY 14086
phone 800 343 4048
www.parker.com/igf



State of California ONLY
WARNING: Proposition 65

The products described herein can expose you to chemicals known to the State of California to cause cancer or reproductive harm.
For more information: www.P65Warnings.ca.gov