The most reliable, energy efficient, large-flow heaterless dryer available

PNEUMATIC PRODUCTS

Century Series™ Dryers
The CHA Heat-Les® Dryer
1,800 - 12,100 scfm

DESCRIPTION

The CHA Heat-Les® Desiccant Air Dryer is designed for flows ranging from 1,800 to 12,100 scfm at pressures ranging from 60 to 150 psig. Pressure dewpoints of -40°F to -100°F available. Other sizes and pressures available upon request.

APPLICATIONS

The AMLOC® CHA Series dryer is the simplest and most versatile of any large flow dryer on the market today. Simplicity is the key to this system's high performance rating, reliability, and long life. With PPC's patented AMLOC® Energy Management Systems, ***heaterless dryers can now be efficient with energy savings up to 70% of design.***

The Dryer may be used in continuous or intermittent service, downstream of oil lubricated or oil free compressors, and is compatible with corrosive, toxic or explosive environments.

FEATURES AND BENEFITS

- Simple Design: *Economical first cost; dependability.*
- Fewest Moving Parts: *Low maintenance.*
- Century Series Valves: *Most reliable/dependable operation.*
- AMLOC® Energy Management: *Energy savings/diagnostics.*
- Advanced Dryer Control System (ADC) : *Functioning system schematic - reference system operation.*
- Information Center: *80 character display of system information.*
- Interactive Keypad: *(4) menus*
  - *(1) Dryer Status*
  - *(2) Dryer History*
  - *(3) Dryer Service*
  - *(4) Dryer Configuration*
- PPC Pleated Coalescing Filters: *(.0014 ppmw) Long cartridge life, enhances dryer performance, and extends desiccant life.*
- PPC Pleated Particulate Filters: *(0.9 micron absolute) Long cartridge life, no desiccant dust downstream.*
- Fail-Safe Operation: *Uninterrupted performance and safety.*
- Down-Flow Drying: *Extends desiccant life (5 to 7 years).*
- Muffler: *Corrosion resistant; non-plugging or clogging.*
- Vessels & Manifolds: *Shot blast, zinc chromate primer, and 2-part epoxy paint for superior corrosion resistance.*
- Fill and Drain Ports: *Easy desiccant change-out.*
- Removable SST Desiccant Support and Inlet Diffuser Screens: *Easy to service and clean.*
- DE-4 Desiccant Charge: *-40°F or -100°F pressure dewpoints.*
- 115 VAC Electrical Service: *Simple installation and safety.*

2000 CHA

ADC Control System with AMLOC® Moisture Load Control

CONTROLS-MONITORS-DIAGNOSTICS

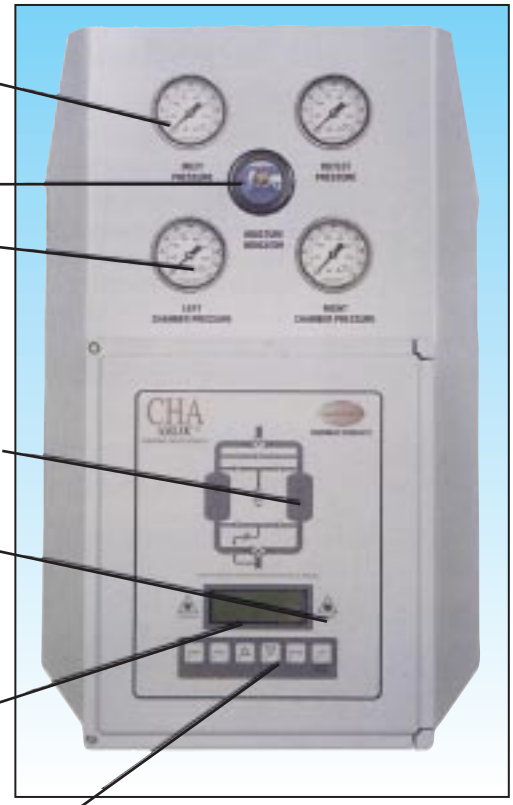
The synoptic display and information center work together to provide automatic operation of the dryer, monitor all dryer functions, and diagnose system faults.

Features

- LED Status Display **30 times** brighter than standard industrial LED's
- Liquid crystal display with LED back lighting for wide variety of ambient lighting conditions

Operator Information - Menu (1)

- Dryer Operation Normal
- Switchover
- Right or Left chamber depressurizing, seconds displayed
- Right or Left chamber repressurizing, seconds displayed
- Right or Left chamber purging, seconds displayed
- Right or Left chamber holding, total time displayed
- Right or Left chamber depressurization failure
- Right or Left chamber repressurization failure
- Right or Left chamber low on-line pressure
- Right or Left AMLOC® Failure
- High Humidity Alarm
- Clear Alarm
- Loss of Power Alarm
- Digital Dewpoint read-out (optional)



ADC CONTROLS

PROGRAMMING CAPABILITIES

To provide additional flexibility and protection for PPC systems, the PPC dryer has the ability to be reprogrammed in the field to match unusual operating conditions.

Messages Menu (4)

- Nema Cycle Settings (Minutes)
- Repressurization Settings (Seconds)
- AMLOC® Settings (KHz)
- Switching Failure Settings
- Communication Configuration (RS 232)

One feature particularly important to long term performance is the ability to reprogram AMLOC® controls. It provides:

- Protection for dryers downstream of refrigerant dryer, or low relative humidity conditions.
- Quicker recovery from upset conditions.

RS 232 SERIAL COMMUNICATION

PPC provides a standard serial communication port to monitor dryer operations with most PLC families, computer systems and modems.

HISTORY OF DRYER OPERATION

The history of dryer operation is maintained by storing up to 20 alarms. This provides operators and "Service Technicians" with readily available information for repair and maximum uptime.

Messages Menu (2)

- 20 Alarms (History)
- Purge Savings - Total Hours/Avg. per hour
- Run Time - Total Hours

SERVICE INFORMATION

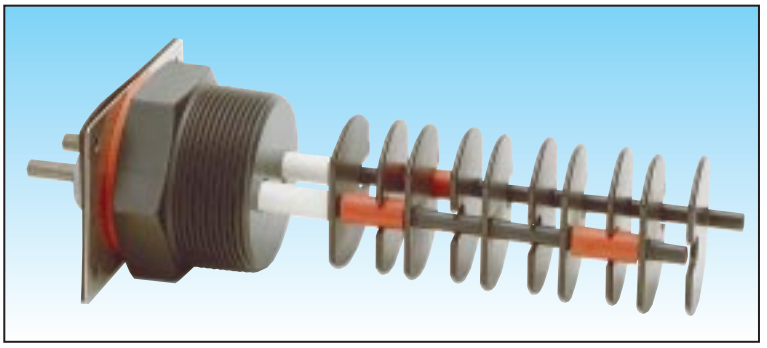
Service Requirements for PPC Air Dryers are minimal due to the long service life engineered and designed into each component part. However, much like changing the oil in your car, there are a couple of recommended preventive maintenance procedures to ensure long, troublefree performance of PPC purification systems.

Information and Functions — Menu (3)

- Program Version/Catalog No.
- Filter Usage: X of X weeks
- Valve Usage: X of X weeks
- Desiccant Usage: X of X weeks
- Service requirements can be reset and or reprogrammed to meet specific customer conditions and requirements.

The Need for Energy Management and PPC's Patented AMLOC® System

Practical experience has shown that dryers seldom operate at maximum design moisture conditions. In fact, ***operating at 20 to 30 percent of the design load is quite common.*** Our AMLOC® Energy Management System recognizes this situation and automatically adjusts the dryer operation to compensate for changes in operating conditions.



AMLOC® PROBE Proven in over 22,000 Applications with a Life Time Warranty and no calibration requirements.

MAXIMIZE ENERGY SAVINGS

AMLOC® (Automatic Moisture Load Control) offers maximum energy savings by minimizing energy consumed for regeneration. It also provides superior dryer diagnostics and alarm capabilities. Desiccant attrition is lowered and maintenance costs are reduced!

AMLOC® maximizes energy efficiency by limiting the number of purge cycles to only those required for the actual moisture load on the desiccant. The AMLOC® system makes sure that the dryer uses the minimum energy required for regeneration.

Over time the dryer regenerates fewer times, therefore the desiccant is not exposed to as many flow reversals, and thermal stresses (heated dryers). This results in less attrition and longer desiccant life.

Century Series Valves:

Dependable Operation By Design

Over 40 years of dryer manufacturing experience has made Pneumatic Products Corporation an authority on valves for air drying applications. The ideal valve for use on desiccant dryers is a full-ported, poppet-type, piston-actuated, non-lubricated, pilot-air controlled valve.

The valve must be manufactured from materials which are able to withstand hostile operating conditions: stainless steel internals, steel valve bodies, and high temperature elastomer seals.

FEATURES AND BENEFITS

Cycle Tested to 500,000 cycles:	Reliability and long life.
Full-ported, poppet operation:	Low ΔP through the valve at line pressure. No flow interruption during switching. Linear motion of poppet operation results in the least amount of seal wear and prevents seat abrasion caused by friction.
Pilot air control:	Positive control of switching valves under all operating conditions.
Elastomer seals:	Positive seal even when small amounts of solid contaminants are present. High reliability without need for lubrication and frequent maintenance.
Special Turcite sliding seals:	Widely used in military and industrial applications involving wear particles, and corrosive contaminants.
Forged steel bodies:	Provide safe operation.
Stainless steel internals:	Critical components of Century Valves are constructed of stainless steel resisting the effects of abrasive and corrosive components.
Tie rod construction:	Permits valve maintenance without the use of special tools.
Position indicators:	Fast, simple monitoring of valve operation for autodiagnostics.

The PPC is used a outlet val Century s

The PPC is located the 2-way AMLOC® The Flow valve gra depressu chamber preventin fluidizatio desiccan and redu

CAPACITANCE MOISTURE SENSING

The AMLOC® energy management system is ***unlike any other demand cycle control. Only AMLOC® senses the actual condition of the desiccant bed.*** This unique feature utilizes an industrial grade capacitance probe imbedded in the desiccant. The probe senses the actual moisture content of the desiccant.

LIFETIME WARRANTY

Made of Teflon® coated stainless steel, the AMLOC® probe is immune to contamination. ***With a life-time warranty service life, this rugged industrial design means there is no need to stock replacement sensors. Another feature of PPC's patented probe is that no calibration is required for the life of the equipment!***

Since the moisture content is sensed directly by the probe, accurate readings are assured. No filters or other devices are required between the moisture and the sensor, eliminating the possibility for inaccurate or misleading readings.

The microcomputer-based control ensures system reliability and is fail-safe. AMLOC's operation can be monitored with comprehensive easy-to-read liquid crystal display supplied as standard.

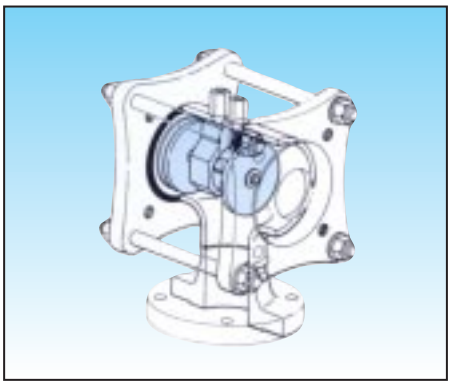
Specifically designed for the severest industrial environments, PPC's AMLOC® system has been field proven in over 22,000 installations since 1978.

Example of Annual Moisture Load Factor (M.L.F.) and Potential Energy Savings

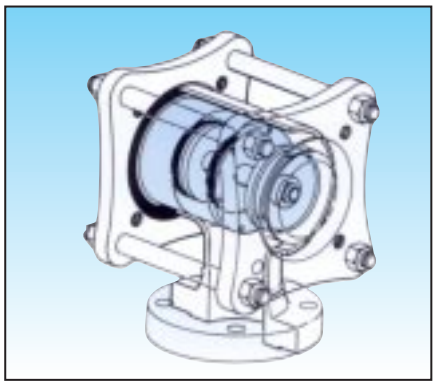
	Design Conditions	Annual Average	M.L.F.
FLOW:	1000 SCFM	700 SCFM	70%
TEMP:	100 Deg. F	100 Deg. F	100%
PRESS:	100 PSIG	100 PSIG	100%
R.H.:	100%	80%	80%
			56% M.L.F.

Result 56% Annual average moisture load results in **44% savings in energy consumption!!**

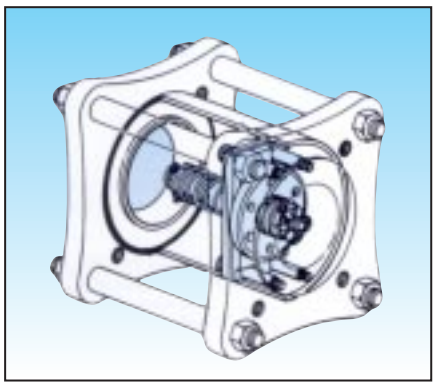
3-way Valve s an inlet and ve on all series dryers.



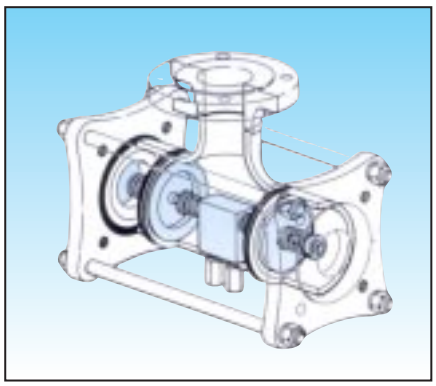
The PPC 2-way Valve is similar in construction to the 3-way valve and is utilized as the exhaust valve for AMLOC® CHA dryers.



Flow Restrictor d downstream of y valves on ® CHA dryers. y Restrictor dually urizes a to atmosphere, g bed on and t attrition cing noise.



The PPC Check Valve is used to direct purge flow to the depressurized bed for regeneration on AMLOC® CHA dryers. The Check Valve has been designed to eliminate chatter at low flow rates.



HOW IT WORKS

Inlet air flows through the PPC coalescing prefilter where all droplets, mists and aerosols are removed. The liquid-free, but saturated air enters the upper 3-way inlet valve. The air is directed down through the on-line drying chamber, where the water vapor is removed. The dry air flows through the lower 3-way outlet valve and then through the PPC afterfilter where any particulates (desiccant dust) are removed.

Concurrent to drying, the off-line chamber is depressurized through the upper 2-way exhaust valve. In order to prevent desiccant bed fluidization, the chamber is de-pressurized through a flow restrictor which maintains the air velocity below the fluidization limit.

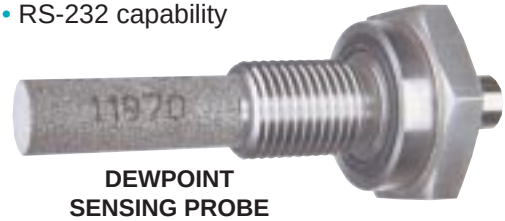
Dry air from the outlet of the dryer is purged upward through the off-line desiccant bed. The dry purge air in combination with the stored heat of adsorption removes the moisture from the desiccant bed.

If the PPC AMLOC® probe senses a low desiccant moisture level, the off-line chamber is not depressurized and purging is delayed until the desiccant bed requires regeneration. Therefore, purge air is only used when required.

NEW OPTION

Digital Dewpoint Monitor

- Features a proprietary sensor insuring fast, repeatable and accurate response
- RS-232 capability

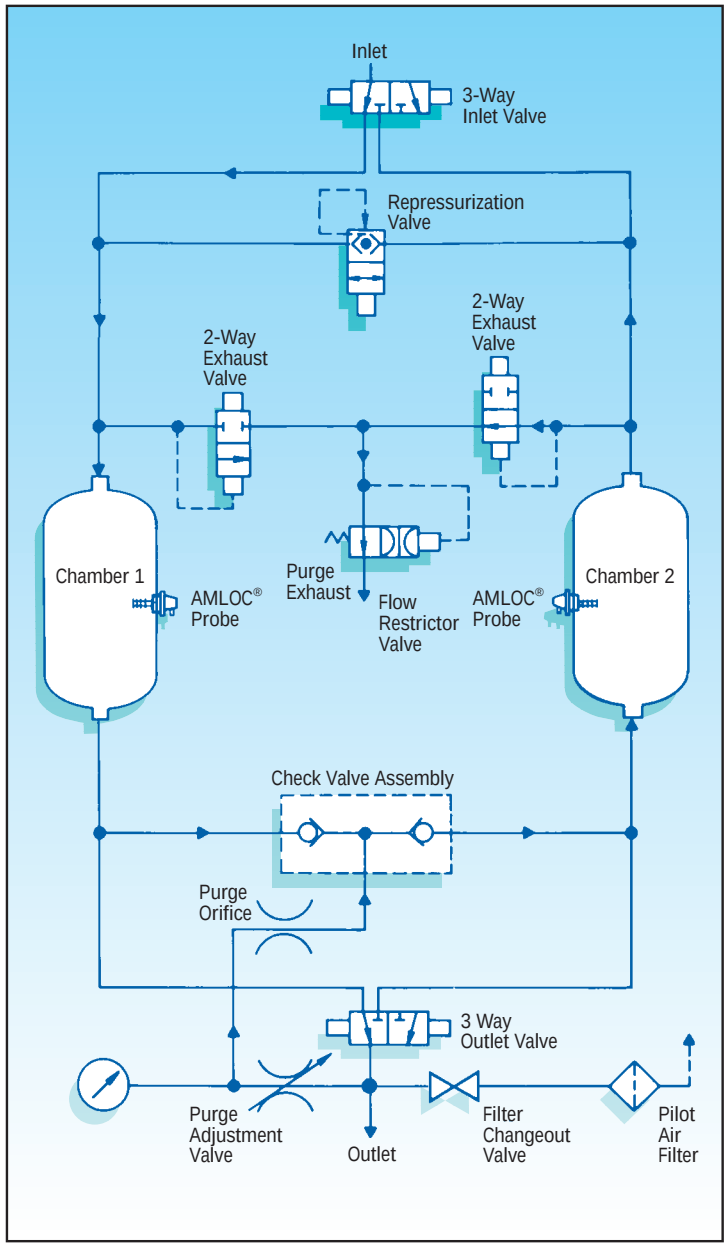


DEWPOINT SENSING PROBE

- Historical data storage
- Warning & failure indication
- Automatic field calibration
- User defined alarm setpoint capabilities
- Negligible sensitivity to temperature change
- SST construction for industrial applications
- Range -85°F to +68°F (-65°C to +20°C)

(NOTE: For -100°F pressure dewpoint design, consult factory)

CHA FLOW DIAGRAM



Depending on dryer design, repressurization valve may be located at the top or bottom of the dryer.

PNEUMATIC PRODUCTS

SELECT A ÒSYSTEMÓ

TABLE 1
BASE UNIT
2000
2500
3000
3600
4900
6400
8100
10000
12100

NOTE: Model Number designates flow capacity at 100 psig/100°F and -40°F Dewpoint. Consult factory for -100°F Dewpoint.

TABLE 2	
CONTROLS	
A4	OPTION
A4D	OPTION
A7	OPTION
M4	OPTION
M7	OPTION

TABLE 3	
INSTRUMENTS	
B1	STANDARD
S1	OPTION

TABLE 4	
MUFFLERS	
S	STANDARD
H	OPTION

TABLE 5	
FILTER HOUSINGS	PIPING
F01	OPTION
F11	OPTION
F21	OPTION

TABLE 6	
DRAIN VALVES	
P4	OPTION
D1	OPTION

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TABLE 1 Ñ Base unit includes vessels, manifolds, Century Series Valves, removable stainless diffuser screens, 150# brass instrument package and PPCÕ standard corrosion resistant non-plugging muffler.

TABLE 2 Ñ A4 AMLOC" includes Energy Management System, ADC controller, diagnostics, synoptic display, information center, high-humidity alarm, indicating lights and switching failure. A4D is A4 with the Dewpointer option. A7 Option: AMLOC" electricals meet Class I, Groups B, C & D, Div. II. M4 fixed cycle electronic control, M7 electricals meet Class I, Groups C & D, Div. II.

TABLE 3 Ñ Instrument package includes inlet/outlet pressure gauges, chamber pressure gauges, purge flow gauge, purge adjusting valve, AQUADEX moisture indicator, .9 micron absolute pilot air filter and filter block valve. Copper pilot air harness. Stainless steel available as an option.

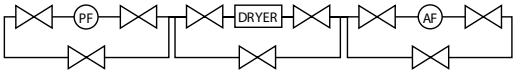
TABLE 4 Ñ Mufflers: ÒHÓ option for Hush package offers up to 10 dba additional noise abatement for sensitive environments.

TABLE 5 Ñ Filter Housings/Piping Options

TABLE 6 Ñ Drain Valves: Programmable electric solenoid or Demand Drain (Pneumatic).

F01 - MOUNTED:
Prefilter & Afterfilter
No Block Valves

F11 - MOUNTED:
Prefilter, Afterfilter,
3-Valve Block & Bypass
around Filters and Dryer



F21 - MOUNTED:
Dual Prefilter, Dual
Afterfilter, 2 Block Valves
around each Filter. 3 Valve
Block & Bypass around
Dryer.

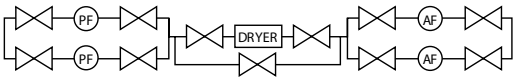


TABLE 7 - OPTIONS	
CODE	DESCRIPTION
A1	ALUMINUM ΔP GAUGES ¥Qty 1 (ΔP System)
A2	¥Qty 2 (ΔP F01/F11)
A3	¥Qty 3 (ΔP F01/F11 & System)
A4	¥Qty 4 (ΔP F21)
A5	¥Qty 5 (ΔP F21 & System)
S1	SST ΔP GAUGES ¥Qty 1 (ΔP System)
S2	¥Qty 2 (ΔP F01/F11)
S3	¥Qty 3 (ΔP F01/F11 & System)
S4	¥Qty 4 (ΔP F21)
S5	¥Qty 5 (ΔP F21 & System)
BB	BLOCK VALVES (Brass) (Kit of 5)
BS	BLOCK VALVES (SST) (Kit of 5)
F1	FLOW METERS (8 wks lead-time) ¥2000 - 3600 CHA
F2	¥4900 - 6400 CHA
F3	¥8100 CHA
WI4	WIRE-IN DRAIN VALVES (UP TO 2) A4/M4
WI7	WIRE-IN DRAIN VALVES (UP TO 2) A7/M7

APPROXIMATE OPERATING DIMENSIONS AND WEIGHTS

Model Number	Connection Size	Height	Width	Depth	Weight (lbs.)
2000CHA	3" Flange	136"	79"	51"	4,700
2500CHA	4" Flange	139"	89"	52"	6,500
3000CHA	4" Flange	139"	89"	52"	6,600
3600CHA	4" Flange	147"	105"	56"	9,500
4900CHA	6" Flange	156"	124"	62"	13,330
6400CHA	6" Flange	159"	139"	73"	17,200
8100CHA	8" Flange	166"	158"	74"	24,000
10000CHA	8" Flange	172"	168"	80"	27,000
12100CHA	8" Flange	175"	184"	86"	33,000

Because of our policy of continuous improvement, some information, specifications and dimensions contained herein may be revised. For confirmed accuracy, always refer to factory submittals.

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