

TWINTOWER, HEATLESS, REGENERATIVE COMPRESSED AIR DRYERS



**Model AP-630-FP-AN c/w
"Purge Economizer Control\$"
and mounted filters**

- **Minus 40°C & Lower Pressure Dew Points**
- **ASME Compliant & Provincially Registered**
- **3 Year Switching Valve Warranty on Poppet-Style Valves (up to 2-1/2")**
- **Standard Models rated to 150 PSIG
Higher Pressure Models Available**
- **Designed and Manufactured in Canada
Under APPL's Registered ISO-9001-2008
Quality Assurance Program**



Model AP-280-FP



APPL

AIR POWER PRODUCTS LIMITED

3 - Year Switching Valve Warranty

Switching valves are a main wear and tear component on twintower regenerative air dryers. *APPL* dryers employ poppet-style pneumatically actuated switching valves for the tower inlet and purge exhaust functions on dryers up to model AP-850, and in exhaust and blow-down applications on larger models. The valves have brass bodies, stainless steel shafts and springs, and PTFE sealing discs. Pop-up position indicators mounted on top of the actuators provide a quick visual indication of whether the valve is currently in the open or closed position. Maintenance is very rare, but when required, the valve body can remain on the dryer piping, and the operator and main wear components may be removed from the body as a complete assembly for servicing. There are no rubber diaphragms to break down due to water and oil contamination which can occur in systems which are serviced on an infrequent basis. The standard *APPL* warranty for all other components is 12 months from date of start up or 15 months from date of shipment, whichever comes first. Warranty for these time-proven rugged switching valves is confidently extended to 3 year from date of shipment. See our warranty text.



Additional Quality Construction Features

- | | | | |
|---|--------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------------------|
| C | 200 PSIG Tower Design Pressure, ASME compliant and TSSA registered | C | Repressurization valve to allow full repressurization prior to tower switching |
| C | Removable Stainless Steel wedge wire style desiccant retainers | C | Up-flow drying and down-flow depressurization and purging ensures desiccant stability |
| C | Stainless Steel control solenoid valves | C | NEMA-12 Control panel enclosure |
| C | 5 Micron Control air filter | C | Micro processor programmed for 10 minute time cycle and convertible to 4 minute cycle for lower dew points |
| C | Liquid filled tower pressure gauges | | |

Two Models to Choose From

APPL dryers are available in two versions for models AP-100 to AP-850. Each version offers advantages to users having specific operating requirements. The economical “Fixed Purge” version is designed for applications having constant pressure and flow conditions. These models have a fixed purge orifice which is tamper-proof and provides for a pre-determined purge volume during dryer operation. This version also eliminates the requirement for purge check valves, which will reduce maintenance requirements in future years. If the operating pressure or system demand changes significantly, the purge orifice may be replaced to accommodate the new conditions.

The “Adjustable Purge” models are designed for those applications which may see varying pressure or flow conditions, requiring the purge flow to be adjusted frequently. These dryers are provided with a purge flow adjusting valve, and a pressure/flow indicating gauge which allows the user to determine the purge flow level.

Both models are provided with a standard 10 minute time cycle to yield a 40/C or lower pressure dew point at maximum rated conditions. The configuration also allows the user to remove a jumper which will result in operation on a 4 minute time cycle, yielding lower dew point to approximately minus 60/C.

Optional *Purge Economizer Control*\$

The standard controls for heatless twintower regenerative air dryers feature a fixed 10 minute time cycle which provides for 5 minutes drying on each tower, during which time, the other tower is regenerated through the purging of the desiccant using dry, expanded air from the outlet of the on-line tower. This method of drying/regeneration is referred to as the “pressure swing adsorption” principle. Operation at 100 PSIG will require approximately 15% purge air flow (of the estimated maximum inlet volume to the dryer) through the regenerating tower at all times (with exception to the 45 second tower repressurization period), regardless of your system’s actual demand for production air. In most applications, systems will see reduced air demand at times such as second and third shift operations, employee breaks, or for processes and work routines which consume air at irregular intervals. The result is usually over-purging which will yield dew points which are lower than those required to satisfy the application. This over-purging results in higher operating costs due to the additional energy costs required to compress the excess purge air, and also higher wear and tear on the air compressor resulting in higher maintenance costs. The optional *APPL* “Purge Economizer Control\$” system eliminates this excess purge air by maintaining a close outlet dew point tolerance, and halting purge air flow when dew point levels are within an acceptance range. It does this at the end of each repressurization period just prior to normal tower switching. If the on-line tower is yielding a dew point at this time which is below a pre-determined set level, the dryer enters a “Purgeless” condition. The condition is maintained until the dew point yielded by the on-line tower deteriorates to the set level of a precision hygrometer. At that time, tower switching resumes, and the freshly regenerated standby tower is placed on line in the drying position. This system has been time-proven for well over a decade, and not only provides the user with a digital display of the actual outlet dew point, but also logs the hours during which the dryer has been in the “Purgeless” condition. The PLC-based controls additionally calculate the total number of cubic feet of purge air saved since the dryer was commissioned, which may be displayed on the control panel text display window. Based on knowing the cost to compress air, an actual dollar savings can be calculated through the use of “Purge Economizer Controls” versus standard fixed time cycle operation. The text display window provides a continuous display of all dryer operating functions. Unlike many competitive hygrometer-based control systems which do not provide a dew point display, *APPL*’s highly informative system will pay for itself in short order while measuring and logging cost savings information for your routine evaluation. *APPL* highly recommends *Purge Economizer Control*\$ for maximum efficiency, especially on larger dryer models where a quick payback will be realized, after which savings can be deducted straight off the bottom line of your compressed air system’s annual operating costs.

Capacity - SCFM @ Operating Pressure

From the table below, read across the top to the pressure at which the dryer will operate. From this pressure, follow the vertical column downward until the first SCFM figure exceeding your capacity requirement is found. From this figure, follow the horizontal row to the far left, where the APPL model number suitable for your requirements will be shown.

| Model | Operating Pressure - PSIG | | | | | | | Overall Dimensions (Inches) | | | Inlet & Outlet Size | Weight (LBS) |
|------------------------------------------------------------------------|---------------------------|-------|------|-------|-------|-------|-------|----------------------------------------------------------------------------------------------------|-------|-------|---------------------|--------------|
| | 80 | 80 | 100 | 110 | 120 | 130 | 140 | Height | Width | Depth | | |
| AP-100 | 83 | 91 | 100 | 109 | 117 | 126 | 135 | 71 | 32 | 28 | 1" NPT | 250 |
| AP-150 | 124 | 137 | 150 | 163 | 176 | 189 | 202 | 74 | 37 | 31 | 1.5" NPT | 375 |
| AP-200 | 165 | 183 | 200 | 217 | 235 | 252 | 270 | 80 | 36 | 31 | 1.5" NPT | 450 |
| AP-280 | 231 | 256 | 280 | 304 | 329 | 353 | 378 | 86 | 41 | 33 | 2" NPT | 650 |
| AP-380 | 314 | 347 | 380 | 413 | 446 | 479 | 513 | 85 | 45 | 42 | 2" NPT | 900 |
| AP-630 | 520 | 575 | 630 | 685 | 740 | 795 | 850 | 85 | 57 | 46 | 2" NPT | 1300 |
| AP-850 | 702 | 776 | 850 | 924 | 998 | 1072 | 1146 | 87 | 60 | 49 | 2.5" NPT | 1800 |
| AP-1200 | 991 | 1095 | 1200 | 1305 | 1409 | 1514 | 1618 | 99 | 69 | 60 | 3" FL. | 3500 |
| AP-1600 | 1321 | 1461 | 1600 | 1739 | 1879 | 2018 | 2158 | 101 | 88 | 62 | 3" FL. | 4200 |
| AP-2000 | 1651 | 1826 | 2000 | 2174 | 2349 | 2523 | 2697 | 120 | 82 | 62 | 4" FL. | 5000 |
| AP-2800 | 2312 | 2556 | 2800 | 3044 | 3288 | 3532 | 3776 | 118 | 104 | 48 | 4" FL. | 6500 |
| AP-3800 | 3137 | 3469 | 3800 | 4131 | 4463 | 4794 | 5125 | 120 | 141 | 62 | 6" FL. | 9000 |
| PURGE AIR CONSUMPTION | 18.8% | 16.7% | 15% | 13.8% | 12.8% | 11.9% | 11.1% | DIMENSIONS ARE WEIGHTS ARE SUBJECT TO CHANGE WITHOUT NOTICE. CONTACT APPL FOR DIMENSIONAL DRAWING. | | | | |
| FIGURE SHOWN REPRESENTS THE PORTION OF THE DRYER INLET VOLUME CONSUMED | | | | | | | | | | | | |

Note: Select Model and use suffix "-FP" for Fixed Purge models, and suffix "-AP" for Adjustable Purge models.

Optional Equipment and Features

| OPTION | FUNCTION AND BENEFITS |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PURGE ECONOMIZER CONTROLS | Reduce operating costs by reducing purge flow, wear and tear on air compressor and dryer switching valves. Provides user with actual operating performance of dryer and saving statistics. |
| Oil Coalescing Prefilter with Auto Drain | Mandatory with all systems to removal oil aerosols and contaminants before air dryer. |
| Particulate AfterFilter | Required to remove desiccant fines and other contaminants at dryer outlet. |
| Mounting and Pre-Piping of Filters | Reduces installation requirements and ensures proper piping of filters. |
| 3-Valve Bypass | Allows bypass of dryer or filters. Optionally tandem filters with isolation valves allow maintenance during on-line service. |
| "Tower Switching Failure" Alarm | Alerts the user to malfunctions of switching valves, exhaust restrictions (mufflers) or switching control failure. |
| "High Humidity" Alarm | Alerts user to improper performance. This option is most economical if packaged with "Purge Economizer Controls". |
| "Low Inlet or Outlet" Pressure Alarm | Available to indicate low air supply due to excess system demand, or possible high pressure drop across dryer/filters. |
| Copper-free Construction | Sour gas applications to prevent corrosion of yellow metals. |
| Explosion-proof Controls | Suitable for hazardous locations. Contact APPL with specific conditions. |
| High Pressure Models | For pressures to 1500 PSIG, special construction is offered. |
| Colour Change Moisture Indicator | Provides visual indication of high humidity condition. |
| Other customized features are available to suit specific applications upon request. | |



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