

# Membrane Air Dryers for Process Control Valves

Market Application Publication



## Background:

Pneumatically operated control valves play a critical role in the food and chemical processing industry. Clean, dry, oil free compressed air is critical to their proper operation. Downtime caused from excessive moisture can cost thousands of dollars per hour. Traditional methods of drying compressed air require electricity, regular cleaning and maintenance.

## Application:

Advanced control schemes can't produce optimum results unless the control valves operate properly. These valves are typically pneumatically operated or solenoid operated with air assist. To control the valves, air is directed through narrow channels operating precision machined cylinders and slides. The valves exhaust the air into the nearby environment that may include computer control circuits. Contamination in the air will result in partial or total failure of the valves or contamination of the computer control circuits. These valves and control circuitry control the flow of important process materials, so a partial or total failure will affect the quality of the product produced. In most industries, substandard product is rejected at a severe cost.



## Case Study:

Bliss Brother's Dairy is a manufacturer and distributor of ice cream and frozen desserts. Several years ago they had a moisture problem that simple filtration could not control. Water in their control valves caused downtime and constant control valve maintenance. Moisture in their sterile air filters caused frequent change outs. They installed a Parker Balston membrane air dryer in their compressed air system

and are pleased with the results. Rich Renoni, general manager at Bliss Brother's Dairy says "Before we got the Parker Balston Dryer, we were using simple filtration and the biggest problem was moisture. Water and computer control systems don't mix very well. When we went to the Balston dryer it increased our productivity. I can't think of any application that is using air that dry air wouldn't be a plus."

# Flow Rates at 35°F (2°C) Pressure Dewpoint <sup>(1)</sup>

| Model Number                                 | IT0010-35 | IT0030-35 | IT0080-35 | IT0150-35 | IT0250-3560 | IT0250-3500 | IT0500-3560 | IT0500-3500 | IT1000-3560 | IT1000-3500 |
|--|-----------|-----------|-----------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| Flow @ 100 psig<br>Inlet Pressure (scfm)     | 1         | 3         | 8         | 15        | 25          | N/A         | 50          | N/A         | 100         | N/A         |
| Flow @ 101-150 psig<br>Inlet Pressure (scfm) | 1         | 3         | 8         | 15        | N/A         | 25          | N/A         | 50          | N/A         | 100         |
| Regeneration Flow @<br>100 psig (scfm)       | 0.25      | 0.5       | 1.5       | 2.7       | 4.5         | 4.5         | 9.0         | 9.0         | 14          | 14          |

Notes:

1 Dewpoint specified for saturated inlet air at 100°F (38°C) and 100 psig

## Principal Specifications

| Model Number                     | IT0010-35   | IT0030-35                           | IT0080-35                        | IT0150-35                           | IT0250-3560                     | IT0250-3500                     | IT0500-3560                     | IT0500-3500                     | IT1000-3560                  | IT1000-3500                  |
|----------------------------------|---|-------------------------------------|----------------------------------|-------------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|------------------------------|------------------------------|
| Min/Mas Inlet Air Temp.          | 40°F/120°F<br>4°C/49°C  | 40°F/120°F<br>4°C/49°C              | 40°F/120°F<br>4°C/49°C           | 40°F/120°F<br>4°C/49°C              | 40°F/120°F<br>4°C/49°C          | 40°F/120°F<br>4°C/49°C          | 40°F/120°F<br>4°C/49°C          | 40°F/120°F<br>4°C/49°C          | 40°F/120°F<br>4°C/49°C       | 40°F/120°F<br>4°C/49°C       |
| Min/Max Ambient<br>Air Temp.     | 40°F/120°F<br>4°C/49°C  | 40°F/120°F<br>4°C/49°C              | 40°F/120°F<br>4°C/49°C           | 40°F/120°F<br>4°C/49°C              | 40°F/120°F<br>4°C/49°C          | 40°F/120°F<br>4°C/49°C          | 40°F/120°F<br>4°C/49°C          | 40°F/120°F<br>4°C/49°C          | 40°F/120°F<br>4°C/49°C       | 40°F/120°F<br>4°C/49°C       |
| Min/Max Inlet<br>Pressure        | 60/150 psig<br>4.1/10 barg  | 60/150 psig<br>4.1/10 barg          | 60/150 psig<br>4.1/10 barg       | 60/150 psig<br>4.1/10 barg          | 60/100 psig<br>4.1/6.9 barg     | 10/150 psig<br>6.9/10 barg      | 60/100 psig<br>4.1/16.9 barg    | 10/150 psig<br>6.9/10 barg      | 60/100 psig<br>4.1/16.9 barg | 10/150 psig<br>6.9/10 barg   |
| Compressed Air<br>Requirements   | Total Air Consumption: Regeneration Flow + Outlet Flow Requirements |                                     |                                  |                                     |                                 |                                 |                                 |                                 |                              |                              |
| Max. Pressure Drop               | 3 psid  | 3 psid                              | 3 psid                           | 3 psid                              | 5 psid                          | 5 psid                          | 5 psid                          | 5 psid                          | 5 psid                       | 5 psid                       |
| Wall Mountable                   | Yes   | Yes                                 | Yes                              | Yes                                 | Yes                             | Yes                             | Yes                             | Yes                             | Yes                          | Yes                          |
| Mechanical Separator<br>Included | F14F17B   | F06F18B                             | F06F18B                          | F07F38B                             | F07F38B                         | F07F38B                         | F07F38B                         | F07F38B                         | F07F38B                      | F07F38B                      |
| Coalescing Prefilters<br>(2)     | 8A02N-OB2-BX<br>(2)   | 2002N-OB1-BX<br>(2)                 | 2002N-OB1-BX<br>2104N-OB1-BX     | B2004N-1B1-DX<br>2104N-OB1-BX       | 2104N-1B1-DX<br>2208N-OB1-BX    | 2104N-1B1-DX<br>2208N-OB1-BX    | 2208N-1B1-DX<br>2208N-OB1-BX    | 2208N-1B1-DX<br>2208N-OB1-BX    | 2208N-1B1-DX<br>2208N-OB1-BX | 2208N-1B1-DX<br>2208N-OB1-BX |
| Inlet Port Size                  | 1/4" NPT  | 1/4" NPT                            | 1/4" NPT                         | 1/2" NPT                            | 1/2" NPT                        | 1/2" NPT                        | 1" NPT                          | 1" NPT                          | 1" NPT                       | 1" NPT                       |
| Outlet Port Size                 | 1/4" NPT  | 1/4" NPT                            | 1/4" NPT                         | 1/2" NPT                            | 1" NPT                          | 1" NPT                          | 1" NPT                          | 1" NPT                          | 1" NPT                       | 1" NPT                       |
| Electrical Requirements          | None  | None                                | None                             | None                                | None                            | None                            | None                            | None                            | None                         | None                         |
| Dimensions<br>(cm)               | 17.5"Lx8"Wx2.5"D<br>(44.5x20.3x6.3)                                 | 18.1"Lx5.4"Wx4"D<br>(45.2x10.5x6.3) | 24"Lx11.1"Wx4"D<br>(61x28.2x6.3) | 25"Lx16"Wx4.5"D<br>(63.5x40.6x 1.4) | 26"Lx18"Wx6"D<br>(66x45.7x15.2) | 26"Lx18"Wx6"D<br>(66x45.7x15.2) | 39"Lx21"Wx6"D<br>(99x53.3x15.2) | 39"Lx21"Wx6"D<br>(99x53.3x15.2) | 47"Lx28"Wx7"D<br>(119x71x18) | 47"Lx28"Wx7"D<br>(119x71x18) |
| Shipping Weight                  | 1.6 lbs(.7 kg)  | 6.68 lbs(3 kg)                      | 6.6 lbs(3 kg)                    | 14.8 lbs(6.7 kg)                    | 24.5 lbs(11.1 kg)               | 24.5 lbs(11.1 kg)               | 35.5 lbs(16.5 kg)               | 36.5 lbs(16.5 kg)               | 52 lbs(24 kg)                | 52 lbs(24 kg)                |

Notes:

2 If compressed air is extremely contaminated, a Grade DX prefilter should be installed directly upstream from the membrane dryer.

## Ordering Information

For assistance, call 1-800-343-4048, 8AM to 5PM EST

| Model Number                | IT0010-35 | IT0030-35 | IT0080-35 | IT0150-35 | IT0250-3560 | IT0250-3500 | IT0500-3560 | IT0500-3500 | IT1000-3560 | IT1000-3500 |
|-----------------------------|-----------|-----------|-----------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| Replacement Filter Elements |           |           |           |           |             |             |             |             |             |             |
| 1st Stage                   | 050-05-BX | 100-12-BX | 100-12-BX | 100-12-DX | 100-18-DX   | 100-18-DX   | 150-19-DX   | 150-19-DX   | 150-19-DX   | 150-19-DX   |
| 2nd Stage                   | ---       | ---       | ---       | 100-12-BX | 100-18-BX   | 100-18-BX   | 150-19-BX   | 150-19-BX   | 150-19-BX   | 150-19-BX   |

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