

Membrane Air Dryers for Laser Cutting

MAP Application Solutions

Customer Value Statement

Bad Boy Mowers has been using Parker Balston dryers on their Trumpf laser cutting machines for the past 3 years with no downtime. "We have no problems with the machines. We just let 'em run!"



Background

Laser cutting technology has become an integral part of the materials shaping industry. The need for high tolerances and clean, smooth finishes on high quality materials has created a greater need for these machines in house. These complex and computerized pieces

of equipment create no contact with the manipulated material, have a concentrated heat zone, and have greater precision than more traditional cutters. CO₂ and solid-state cutters are used for milling, welding, drilling, surface treatment, and marking applications.

Application

The laser source is directed to the manipulated material through a plenum lined with a series of angled mirrors. This plenum, along with the mirrors themselves, must be maintained free of dust, haze, smoke, moisture, and solid particulates. Moisture is particularly bad as it causes solid particles to adhere to the mirrored surfaces. This plenum must be purged with clean, dry air. The Parker Balston IT Series Dryer can

convert house compressed air to clean, dry air at a 35°F with no particles greater than 0.01 microns. With 10 available models and flow rates up to 100 SCFM, Parker Balston IT Series Dryers provide the type of reliability and performance needed for today's precision laser cutting technology. Parker Balston has been providing dryers for lasers for over 15 years.

Case Study

Mark Henley at Bad Boy Mowers, www.badboymowers.com, was purchasing additional laser cutting machines for their rapid expansion. Upon consideration of using the IT Series Parker Balston membrane air dryers, they were impressed with the elimination of moving parts, easy installation, operation, and elimination of their most common and annoying issues. They were ecstatic that the dryer did not use any electricity, while providing a 35°F dew point, saving them electrical operating costs, installation costs, and

overall cost of ownership. Since their first purchase, Bad Boy Mowers has continued to purchase Parker Balston membrane air dryers for their laser cutting operations. The toughest mowers at Bad Boy require the toughest air quality specifications. For manufacturing superiority, Bad Boy Mowers relies on the efficiency and reliability that only Parker Balston has been able to deliver to their operations. Bad Boy Mowers is pleased to not have any downtime for 3 years while operating 24 hours a day and 5 days a week. Now that's value!



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Application Solutions

IT Series Dryers for Laser Purge

Flow Rates at 35°F (2°C) Pressure Dewpoint (1)

| 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 Inlet Pressure (scfm) | 1 | 3 | 8 | 15 | 25 | N/A | 50 | N/A | 100 | N/A |
| Flow @ 101-150 psig Inlet Pressure (scfm) | 1 | 3 | 8 | 15 | N/A | 25 | N/A | 50 | N/A | 100 |
| Regeneration Flow @ 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 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C |
| Min/Max Ambient Air Temp. | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C | 40°F/120°F 4°C/49°C |
| Min/Max Inlet Pressure | 60/150 psig 4.1/10 barg | 60/150 psig 4.1/10 barg | 60/150 psig 4.1/10 barg | 60/150 psig 4.1/10 barg | 60/100 psig 4.1/6.9 barg | 10/150 psig 6.9/10 barg | 60/100 psig 4.1/16.9 barg | 10/150 psig 6.9/10 barg | 60/100 psig 4.1/16.9 barg | 10/150 psig 6.9/10 barg |
| Compressed Air 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 Included | F14F17B | F06F18B | F06F18B | F07F38B | F07F38B | F07F38B | F07F38B | F07F38B | F07F38B | F07F38B |
| Coalescing Prefilters | 8A02N-OB2-BX (2) | 2002N-OB1-BX (2) | 2002N-OB1-BX (2) | B2004N-1B1-DX 2104N-OB1-BX | 2104N-1B1-DX 2104N-OB1-BX | 2104N-1B1-DX 2208N-OB1-BX | 2208N-1B1-DX 2208N-OB1-BX | 2208N-1B1-DX 2208N-OB1-BX | 2208N-1B1-DX 2208N-OB1-BX | 2208N-1B1-DX 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 (cm) | 17.5"Lx8"Wx2.5"D (44.5x20.3x6.3) | 18.1"Lx5.4"Wx4"D (45.2x10.5x6.3) | 24"Lx11.1"Wx4"D (61x28.2x6.3) | 25"Lx16"Wx4.5"D (63.5x40.6x1.4) | 26"Lx18"Wx6"D (66x45.7x15.2) | 26"Lx18"Wx6"D (66x45.7x15.2) | 39"Lx21"Wx6"D (99x53.3x15.2) | 39"Lx21"Wx6"D (99x53.3x15.2) | 47"Lx28"Wx7"D (119x71x18) | 47"Lx28"Wx7"D (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 toll free at 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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