

# Membrane Air Dryers for CNC Machining Centers

## MAP Application Solutions

### Background

The introduction of CNC machines radically changed the manufacturing industry. Curves are as easy to cut as straight lines, complex 3-D structures are relatively easy to produce, and the number of machining steps that required human action have been dramatically reduced. These machines operate at high speeds and use air to operate spindles, blow off parts and change tool heads without operator intervention. Clean, dry compressed air is essential to maximize equipment uptime.



VF-2 Vertical Machining Center (20 horsepower)

### Application

CNC machining centers change tools to perform multiple operations such as milling, drilling, boring, tapping, etc. Each time a tool change occurs, the shank of each toolholder is removed from the spindle so that the toolholder used to perform the next operation can be inserted. During this period both the new and old tool are exposed to chips and other particles from the cutting bed. If any particles were to stick to the shank, the tool would not run true when it was inserted into the spindle. This would substantially reduce the accuracy of the machine and in many cases cause it to produce scrap parts.

To prevent this from happening, both the shank and the inside of the tool holder receive a blast of compressed air just before the shank is inserted, to blow off any particles. It's extremely important that this air blast be free of water, because if it isn't, rust will quickly form on both the spindle and the toolholder shank. Rust can also cause the tool to not run true and create quality problems and scrap parts.

### Case Study

Loecy Precision Manufacturing is a contract machining operator with several Okuma Howa CNC machines. Prior to installing a Balston Membrane Air Dryer, Loecy had installed desiccant cartridge filters that needed monthly replacement at a cost of \$300/month. Expensive machines were forced to sit idle while the cartridges were replaced. Once they installed the Balston Membrane Air Dryer, they were able to operate continuously for a year with no down time caused by water contamination or filter replacement. They also realized a savings of \$3600 per year. As you might guess, Loecy management is extremely pleased with the success of the air

dryer and the quick payback. Managers no longer worry about water in the air, leaving them free to focus on producing a quality product for their customers.



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## IT Series Dryers for CNC Machining Centers

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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