Environmental Chambers

Market Application Publication

Background:

For manufacturers in the electronics, plastics, food, chemical and life sciences industries, there is a requirement to provide a controlled test environment for components from the research and development stage all the way through to manufacturing. Providing a specific environment to test product allows the manufacturer to determine a products performance in terms of strength, resistance, life cycle and overall environmental compatibility specifications. For many of these environment chambers, the use of compressed air is an integral part of the testing process. Until recently, a manufacturer could only choose between refrigerated or desiccant technologies to control their compressed air. Often times the requirements for these technologies include large capital investment, significant floor space, electrical service and frequent maintenance of consumable parts. Given most environmental chambers are located in a laboratory setting, the use of older technologies created installation issues in terms of physical size, noise level and cleanliness of operation.

Contact Information:

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Features and benefits:

- Prevent need to re-work materials due to humidity fluctuations in chamber
- Eliminate the need for duplicate testing resulting from impurities in compressed air
- No moving parts or electricity needed
- Environmentally safe, requiring no refrigerants or freons.
- Silent operation
- Easy to install, requiring minimal maintenance

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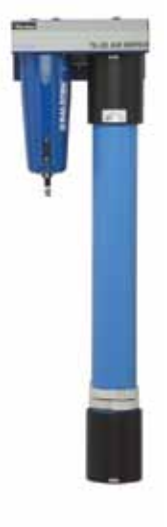
Application:

As the need for a controlled atmosphere is important for accurate test results, so is the need for a consistent source of compressed air with a uniform dewpoint. Changes in compressed air quality will have an immediate affect on chamber dewpoint and humidity level, resulting in invalid testing. These inconsistencies will require the operator to scrap or recondition tested material and would result in additional testing. The expense of duplicate test effort and lost product can be prevented with the use of a Balston Membrane Air Dryer. A Balston Membrane Air Dryer will produce compressed air free of moisture and particulate with a dewpoint as low as -40°F (-40°C). Placed at the point of use, this product ensures smooth operation of environmental chambers and helps reduce testing times required to certify materials.

Case Study:

Engineered Polymer Industries is a Chicopee, MA based producer of custom compounds and engineered resins for the automotive and electrical markets. As part of their development process, the use of a Darwin Humidity Chamber determines that materials meet customer specifications. According to Dan Wells, Laboratory Supervisor, there can be significant expense involved if the product is exposed to higher humidity. "We would need to complete a re-work and reconditioning of the material and essentially start the process all over again. We use a Balston Membrane Air Dryer to provide air with a consistent dewpoint and humidity specification. Since installing the dryer, we haven't had any issues with re-working and have kept testing times down."



Principal Specifications

Model	76-01	76-02	76-10	76-20	76-40
Max. Flow Rate At -40°F (-40°C) Dewpoint	1 SCFM (1.7 Nm^3/Hr)(1)	2 SCFM (3.4 Nm^3/Hr)(1)	10 SCFM (1.7 Nm^3/Hr)(1)	20 SCFM (3.4 Nm^3/Hr)(1)	40 SCFM (6.8 Nm^3/Hr)(1)
Min/Max Inlet Air Temp.	40°F/120°F (4°C/49°C) (2)				
Ambient Temp. Range	40°F - 120°F (4°C - 49°C)				
Min/Max Inlet Pressure	60 psig (4.1 slpm)/150 psig (10.3 slpm)				
Compressed Air Requirement	Total Air Consumption: Regeneration Flow + Outlet Flow Requirements (see tables on pg.166)				
Max. Pressure Drop	5 psid (.34 bard) (3)	5 psid (.34 bard) (3)	5 psid (.34 bard) (3)	5 psid (.34 bard) (3)	5 psid (.34 bard) (3)
Wall Mountable	Yes	Yes	Yes	Yes	Yes
Prefilter (included)	Yes (4)	Yes (4)	Yes (4)	Yes (4)	Yes (4)
Inlet/Outlet Port Size	1/4" NPT (female)	1/4" NPT (female)	1/2" NPT (female)	1" NPT (female)	1 1/2" NPT (female)/ 3/4" NPT (female)
Electrical Requirements	None	None	None	None	None
Dimensions	6"W x 22"H x 5"D (15cm x 58cm x 13cm)	6"W x 23"H x 5"D (15cm x 58cm x 13cm)	6"W x 37"H x 5"D (15cm x 94cm x 13cm)	12"W x 37"H x 7"D (30cm x 94cm x 18cm)	19"W x 39"H x 8"D (48cm x 99cm x 21cm)
Shipping Weight	9 lbs. (4 kg)	10 lbs. (5 kg)	18 lbs. (9 kg)	20 lbs. (9 kg)	35 lbs. (16 kg)

Notes:
1 Dewpoint specified for saturated inlet air at 100°F (38°C) and 100 psig (6.9 barg). Outlet flows will vary slightly for other inlet conditions.
2 Inlet compressed air dewpoint must not exceed the ambient air temperature.
3 5 psid (.34 bard) at -40°F (-40°C) dewpoint operating parameters.
4 If compressed air is extremely contaminated, a Balston Grade DX prefilter should be installed directly upstream from the membrane dryer.
5 Filtration efficiency: 99.99% at 0.01 micron.

Ordering Information

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

Description	Model Number				
Balston Membrane Air Dryer	76-01	76-02	76-10	76-20	76-40
Replacement Prefilter Cartridges	100-12-BX	100-12-BX	100-18-BX	150-19-BX	200-35-BX
Optional Additional Coalescing Prefilter	2002N-1B1-DX	2002N-1B1-DX	2104N-1B1-DX	2208N-1B1-DX	2312N-1B1-DX
Replacement Filter Cartridges for Optional Prefilter	100-12-DX	100-12-DX	100-18-DX	150-19-DX	200-35-DX
Pressure Regulator (0-130 psig) 1/2" NPT Ports	72-130	72-130	72-130	-------	——

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