

Coordinate Measuring Machine

Market Application Publication



Background:

A Coordinate Measuring Machine (CMM) is an instrument that locates point coordinates on three dimensional structures mainly used for quality control applications. The highly sensitive machine measures parts down to the fraction of an inch and must be properly maintained and protected to ensure accurate measurements. Specifically, a CMM contains many highly sensitive air bearings on which the measuring arm floats.

Customer Comment:

"Before we bought a Balston Membrane Dryer, we required two repairs to our CMM; the first cost \$10,000 and the next was over \$6,000. In the more than two years since installing the Balston Membrane Dryer we have not needed any repairs."

*Rick Nisula
Maintenance Buyer
Smith's Aerospace*



Features and benefits:

- Protects CMMs from costly repairs caused by oil and water
- Guaranteed dewpoint of 35°F and contaminate removal to .01 micron
- Offers a reliable, efficient, and economical alternative to other dryer technologies
- Ideal for supplying pure, dry air to Starrett, Brown & Sharpe, Zeiss, IMS and MTI CMMs
- Requires no electricity resulting in lower operating costs; silent, vibration free operation
- Decreases maintenance with no desiccant to change
- No heat or vibration generated; prevents inaccurate measurements
- Environmentally friendly, using no refrigerants or freons
- Complete system with high efficiency coalescing filters
- May be installed vertically or horizontally

Application:

Oil, moisture and particulate matter can prove to be extremely harmful to the air bearings on the CMM often resulting in “drag” or resistance in the air bearings which leads to hysteresis. Moisture and oil in the air may also cause condensation and rust, leading to poor machine performance and inaccurate measurements. Correcting the damage to the CMM caused by the contaminated air will require costly maintenance repairs and production downtime. A Parker Balston CMM Series Air Dryer will eliminate all water, oil and particulate contaminate from the compressed air supply, protecting the CMM, reducing downtime and costly maintenance. Parker Balston Dryers can provide flow rates of up to 15 scfm with a guaranteed dew point of 35°F servicing up to 2 CMMs.

Case Study:

Most customers understand that filtering the compressed air to their CMM is necessary. Many applications use refrigerated dryers, which remove most of the water but neglect the oil in the air that can significantly damage the CMM. Refrigerated drying systems require electricity and also generate heat and vibration. Most do not have high efficiency coalescing filters to remove the condensed liquid resulting in carryover liquid and oil contaminant. In addition, refrigerated air dryers require frequent maintenance by specialized service professionals. Parker Balston offers a drying system that is specifically designed to protect CMMs from contaminated compressed air while eliminating the costs associated with maintenance, rework, and

air bearing replacement. Resources For Manufacturing (RFM), located in Dayton, Ohio, sells and services coordinate measurement machines. RFM trusts Parker Balston Air Dryers to protect the CMMs they sell and service, and highly recommend them to their customers. The Parker Balston Air Drying System is easy to install while requiring no electricity and generates no heat or vibration. It will eliminate 99.99% of all water, vapor, oil, and particulate contaminate from the air supply and uses no refrigerants or freons. The installation of a Parker Balston drying system complete with high efficiency coalescing filters and a 35°F dew point will eliminate future maintenance costs and production line disruptions while maintaining original instrument performance specifications.

Performance Chart:

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

Model Number	CM0080-35	CM0150-35	Model Number	CM0080-35	CM0150-35
Flow @ 100 psig Inlet Pressure (scfm)	8	15	Replacement Filter Elements		
Regeneration Flow @ 100 psig (scfm)	1.5	2.7	1st Stage	PS702	PS802
			2nd Stage	100-12-BX	100-12DX
			3rd Stage	–	100-12BX

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

Ordering Information:

Principal Specifications:

Model Number	CM0080-35	CM0150-35
Min/Max Inlet Air Temp.	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)
Min/Max Inlet Pressure	60/150 psig (4.1/10 barg)	60/150 psig (4.1/10 barg)
Compressed Air Requirements	Total Air Consumption: Regeneration Flow + Outlet Flow Requirements	
Max. Pressure Drop	3 psid	3 psid
Wall Mountable	Yes	Yes
Mechanical Separator Included	F06F18B	F07F38B
Coalescing Prefilters	8002N-0B1-BX 8002N-0A1-BX	8004N-1A1-DX 8004N-0A1-BX
Inlet Port Size	1/4" NPT	1/2" NPT
Outlet Port Size	1/4" NPT	1/2" NPT
Electrical Requirements	None	None
Dimensions (cm)	24"Lx11.1"Wx4"D (61 x 28.2 x 6.3)	25"Lx16"Wx4.5"D (63.5 x 40.6 x 11.4)
Shipping Weight	6.68 lbs (3 kg)	14.88 lbs (6.75 kg)

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