



**High Inlet Temperature
Refrigeration Dryers**

5-2-1 Product Warranty

Great Lakes Air Products has produced high quality refrigeration dryers since its founding. In an effort to express this quality standard, as well as distinguish its products in the marketplace, it initiated industry leading product warranties on standard refrigerated air dryers. The warranty requires no additional purchases or contracts and covers the entire dryer, and excludes only maintenance items through a simple purchase.

The EDR series is covered by the 5-2-1 product warranty

- 5** - Year Warranty, covers heat exchangers.
- 2** - Year Warranty, covers all the independent components of the dryer omitting only maintenance items.
- 1** - Year Warranty, covers labor required to repair or replace warranty items.



Detailed warranty coverage and requirements can be referenced in the EDR warranty publication.

With continuous improvement in engineering and quality standards, that are a product of current technology, you can be assured that Great Lakes Air Products will provide you with a quality product for years of uninterrupted service.

Non Standard Condition Capacity Correction

Inlet Temperature °F		140			160			170			180		
Ambient Temperature °F		90	100	110	90	100	110	90	100	110	90	100	110
	80 psig	2.38	2.18	1.85	1.09	1.00	0.85	1.00	0.92	0.78	0.77	0.70	0.60
	90 psig	2.63	2.41	2.05	1.09	1.00	0.85	1.10	1.01	0.86	0.85	0.78	0.66
	100 psig	2.88	2.64	2.24	1.09	1.46	0.85	1.21	1.11	0.94	0.93	0.85	0.72
	110 psig	3.13	2.87	2.44	1.73	1.59	1.35	1.32	1.21	1.03	1.01	0.93	0.79
	120 psig	3.37	3.10	2.63	1.09	1.72	1.46	1.42	1.30	1.11	1.09	1.00	0.85
	130 psig	3.62	3.33	2.83	2.01	1.85	1.57	1.53	1.40	1.19	1.17	1.07	0.91
	140 psig	3.87	3.55	3.02	2.15	1.97	1.68	1.63	1.50	1.27	1.25	1.15	0.98
	150 psig	4.12	3.78	3.21	2.29	2.10	1.79	1.74	1.59	1.35	1.33	1.22	1.04
	175 psig	4.74	4.35	3.70	2.64	2.42	2.06	2.00	1.84	1.56	1.54	1.41	1.20

To obtain flow capacities at conditions other than standard (**SCFM @ 120 PSIG, 180°F Inlet & 100°F Ambient**), locate the multiplier at the interception of actual operating conditions. Multiply the standard rated capacity of the dryer by the selected multiplier. The result is the flow capacity of that dryer under corrected conditions. Flow rates in excess of design due to capacity correction can result in increased pressure drop.

Made with Pride in the USA

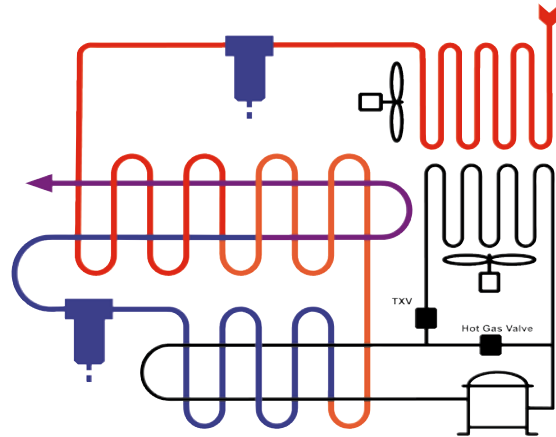
Great Lakes Air Products manufactures all of its compressed air dryers in southeastern Michigan which has a long and rich history in manufacturing. We offer our customers a steady stream of value driven, high quality, industrial grade products with decades of proven performance. Readily available replacement components and maintenance items are locally available through the Great Lakes distribution network. Base your equipment purchase on the quality and durability of American made products.



EDR Series Air Dryer Operation

The EDR Series air dryer takes hot saturated compressed air into an air cooled heat exchanger, which cools the air, and a gross water separator removes the condensed liquid. The air then enters the Air-Air exchanger where it is pre-cooled by the air discharged from the Air-Refrigeration exchanger. The final cooling is accomplished in the Air-Refrigerant exchanger where it is further cooled to the specified dewpoint, and additional condensed moisture is separated from the air stream. The cool dry air enters the Air-Air exchanger where it acts as the cooling medium for the previous pre-cooling stage. It also reheats the discharge air to increase volume and prevent the compressed air piping from sweating.

The refrigeration system is comprised of a compressor that boosts the refrigeration gas pressure. As the pressure is boosted the temperature is increased through heat of compression. The heat is removed and the Freon gas is condensed to a liquid by an air or water cooled heat exchanger. The high pressure liquid is collected in a receiver then feed to the expansion valve where it is expanded at a regulated volume.



The expansion of the liquid causes the Freon to cool which is the equal and opposite reaction to the heat generated by compression. The cold Freon adsorbs the heat of the compressed air stream and evaporates to a gas. Any residual liquid is collected and evaporated in a suction accumulator prior to reentering the compressor before the process repeats.

Engineered for a Green Future

The EDR series refrigerated compressed air dryer is designed with the most current technology and methodology for the 21st century.

- **Enhanced High Efficiency Heat Exchangers**

The enhanced efficiency of the heat exchanger allows closer approach temperatures in both the Air-Air and Air-Refrigeration exchangers reducing the required BTU/h input of the refrigeration system required to meet or exceed ISO Class 8573 class 4 pressure dewpoints.

- **Reduced Operating Costs & Carbon Footprint**

The reduction of required refrigeration BTU/h input correlates to smaller refrigeration requirements and reduction of operational input watts.

- **Reduced Manufacturing Carbon Footprint**

The Carbon Footprint required to manufacture a refrigeration dryer has also been reduced in the EDR series. It has a reduced material and equipment footprint which requires less materials to manufacture thus reducing its carbon footprint.



Quality Products start with Quality Components

Expansion Valves

The use of expansion valves that modulate refrigerant flow to match system requirements in fluctuating ambient temperatures and compressed air load. Low cost capillary tube systems used by other manufacturers will increase or decrease refrigerant flow based upon ambient conditions with no regard to system load. High ambient temperatures or slightly clogged condensers will increase refrigerant flow without a load to balance the system. Operation under these conditions can cause premature compressor failure.

Automatic Expansion Valve

Automatic expansion valves are used to regulate and maintain the evaporator's refrigerant pressure and indirectly the temperature as the compressed air load modulates. When load decreases, pressure in the evaporator would normally decrease but the automatic expansion valve maintains constant pressure regardless of load preventing freeze up conditions.



Thermostatic Expansion Valve

Thermostatic expansion valves are used to regulate and maintain the evaporator's refrigerant temperature and pressure as the compressed air and refrigerant system load modulates. The valve uses a temperature bulb to sense the superheat at the outlet of the evaporator and the resultant refrigerant flow is more responsive to the actual load providing a more efficient refrigerant system.



High Quality Gauges

Stainless steel panel mounted gauges with brazed connections and coiled vibration eliminator removes the possibility of a refrigerant leak from a common leak point in competitors dryers.



Heavy Duty Piston Refrigeration Compressor

Heavy duty, industrial service piston type refrigeration compressor with proven durability that is designed to handle the fluctuating loads of a compressed air refrigeration dryer.



Hot-Gas Bypass Valve

Heavy duty hot-gas bypass valves are specifically designed for the high pressure applications required with modern refrigerants.

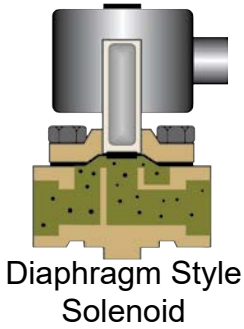


Service valves on the dryer package allows isolation as well as access to the refrigeration system that aids in the long term service and maintenance of a refrigeration dryer.

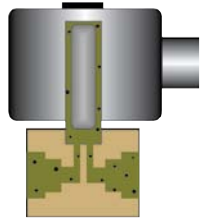
Individual components apply to the EDR series as a whole, not all components apply to each EDR model.

Quality Products start with Quality Components

Smart-Design Solenoid Drain



Unlike the commonly utilized direct acting solenoid drain valves, diaphragm style valves keep the main stream of contaminant laden condensate away from the internal moveable piston. If particulate contaminant in the condensate stream fouls and restricts movement of the piston, the valve will fail. Diaphragm type valves also have much larger orifice and flow paths substantially reducing the possibility of clogging the drain valve.



The **Smart-Design** solenoid drain package utilizes electronic timers with diaphragm type solenoid valves and incorporates an isolation valve and strainer. This simplifies maintenance while further protecting the high quality drain system from contaminant failure.



Refrigerant Pressure Switch

High pressure switch will protect the refrigeration system from out of range operation that could cause compressor failure. The high limit disables the compressor in the event of an overpressure condition. which prevents the refrigeration system from short cycling in the event of condenser cooling medium loss, high ambient conditions, or dirty/clogged air cooled condensers.



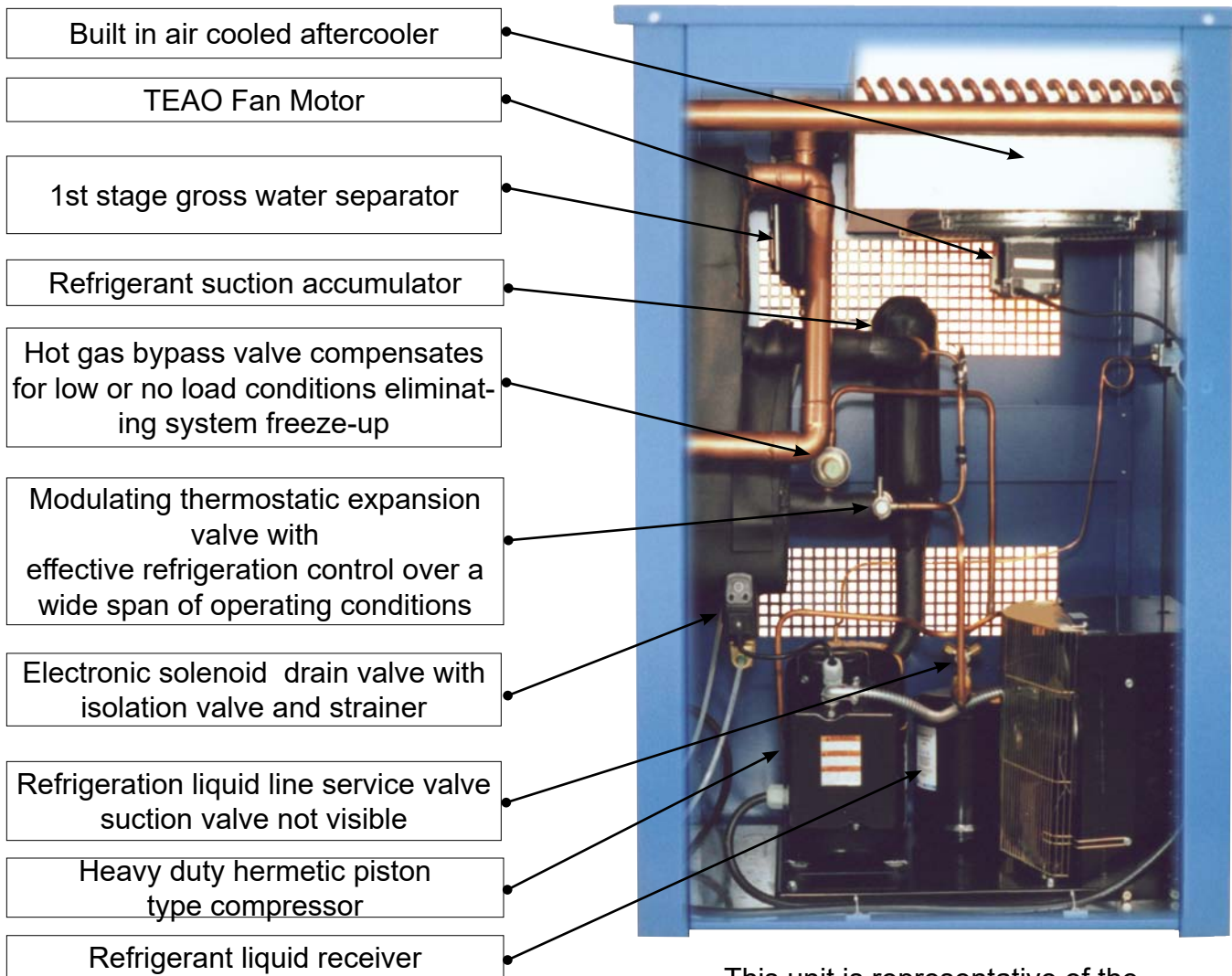
Features & Benefits

Description	EDR A1	EDR A2	EDR B1	EDR B2	EDR C1	EDR C2
Power & Instrumentation						
Refrigeration Suction Gauge	●	●	●	●	●	●
On/Off Power Switch	●	●	●	●	●	●
Corded Service Feed	●	●	●	●	-	-
Junction Service Feed	-	-	-	-	●	●
Refrigeration System						
Piston Refrigeration Compressor	●	●	●	●	●	●
Thermostatic Expansion Valve	-	-	-	-	●	●
Automatic Expansion Valve	●	●	●	●	-	-
Hot Gas Bypass Capacity Control	-	-	-	-	●	●
Relay/Contactor	●	●	●	●	●	●
Overload Protection	●	●	●	●	●	●
High Pressure Shutdown	-	-	-	●	●	●
Condensate Drain						
Strainer with Isolation Valve	-	-	●	●	●	●
Smart Design Solenoid Drain	-	-	●	●	●	●

39°F Pressure Dewpoints

The Great Lakes EDR series refrigeration dryer delivers pressure dewpoints of 39°F. Many other high inlet temperature dryers offer only a 50°F dewpoint, which can prove insufficient in many manufacturing processes. A 39°F pressure dewpoint provides compressed air that contains 33% less moisture than a 50°F pressure dewpoint. The EDR series can be rated for 39°F or 50°F pressure dewpoints.

39° vs 50° Pressure Dewpoints 33% Less Moisture



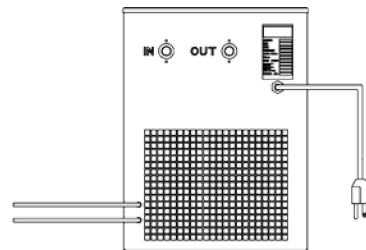
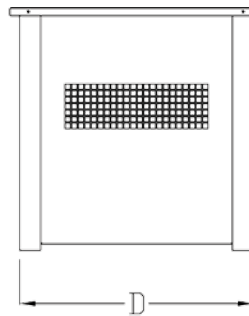
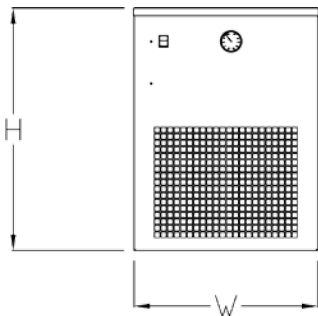
This unit is representative of the EDR C series dryer

Design and Specification Information

Model Number	Capacity in SCFM @ 120 PSIG		Refrigeration System			Available Voltages	In / Out Ports	Max. Inlet	Dimensions			Weight
	50°F PDP	39°F PDP	HP	Watts	Freon				H	W	D	
EDR-A1-116	28	23	1/4	376	134a	120-1-60	3/4	230 PSIG	24	18	24	117
EDR-A2-116	36	30	1/4	373	134a		3/4		24	18	24	119
EDR-B1-116	50	42	1/4	410	134a		3/4		35	20	24	167
EDR-B2-◆	80	66	1/3	500	134a	120-1-60 230-1-60	3/4		35	20	24	171
EDR-C1-◆	102	85	5/8	1011	134a		1		42	22	29	268
EDR-C2-◆	145	119	5/8	1011	134a		1-1/4		42	22	29	276

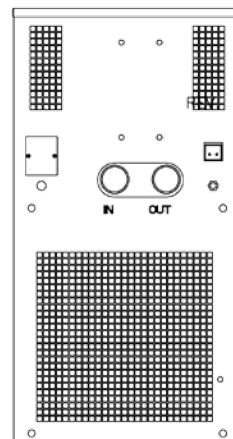
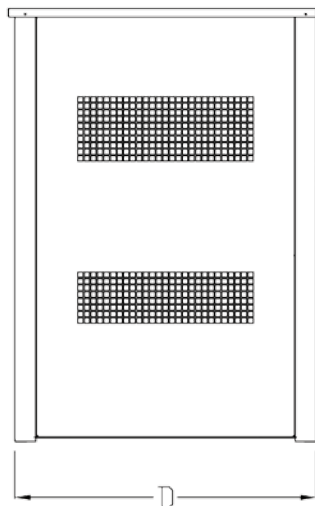
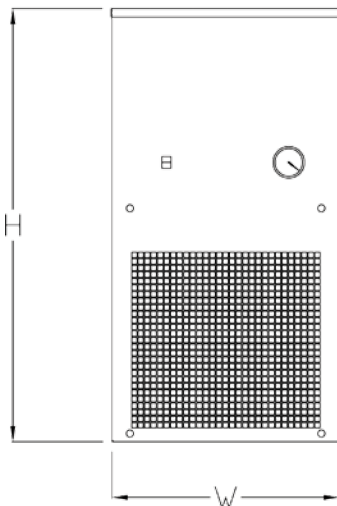
Notes:

1. Capacity reflects a maximum 180°F inlet temperature and 100°F ambient
2. The symbol "◆" represents a missing voltage designation 116 = 120-1-60 and 216 = 230-1-60
4. Inlet/Outlet connections are NPT unless otherwise specified
5. Watts specified assume 35°F evaporator and 100°F Ambient
6. Dimensions are in inches with a +/- 0.5" Tolerance, complete drawings available at www.glair.com
7. Equipment weight is in pounds
8. Dimensions and specifications are subject to change without notice



Model Series A

Series A is provided with a six foot standard 15A plug.



Model Series B & C

Series B is provided with a six foot standard 15A plug.

Series C is provided with a junction box access

Other Products from Great Lakes Air Products



**GNX Series Cycling
Air Dryer**



**GMNX Series High Capacity
Cycling Air Dryer**



**Regenerative
Desiccant Air Dryers**



**Compressed Air
Filtration**



**Nitrogen
Generators**

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