HRS-L SERIES

Blower Purge Regenerative Air Dryer

HRS-L-3000

Regenerative compressed air dryers use desiccant to adsorb water vapor from the compressed airstream. In the twin tower design one tower dries the air from the compressor while the desiccant in the other tower is being regenerated to provide continuous operation. These dryers are typically referred to as "heatless" or "heated". Heatless dryers do not use any source of heat for regeneration other than the heat given off during the drying phase. This is known as the "Heat of Adsorption". Heated dryers, on the other hand, utilize an external heat source for regeneration and require little or no process air.

The **Aircel HRS-L Series Dryers (600 - 10,000 scfm)** utilize externally heated atmospheric air for regeneration of the desiccant bed. This eliminates the use of compressed purge air for regeneration resulting in an overall reduction in the cost of operation. In the HRS-L the cool-down of the regenerated bed is assisted by a water cooled heat exchanger that further reduces compressed air usage. The result, only a small fraction of process air is consumed during depressurization of the offline tower. This amounts to an average process air use of < .05% of the rated capacity of the dryer.

HRS-L Series Benefits

- Zero purge air consumption.
- Built-in energy management controls.
- Heating and cooling cycles are terminated early when set temperature is reached, saves energy and further reduces cost of operation
- Low pressure drop design for energy savings.
- Maximum desiccant volume for long life.
- High quality components for reliable service and long life.
- Unique HRS-L parallel flow to reduce or eliminate dew point and temperature spikes.
- Small footprint saves valuable floor space.
- Water-cooled heat exchanger.

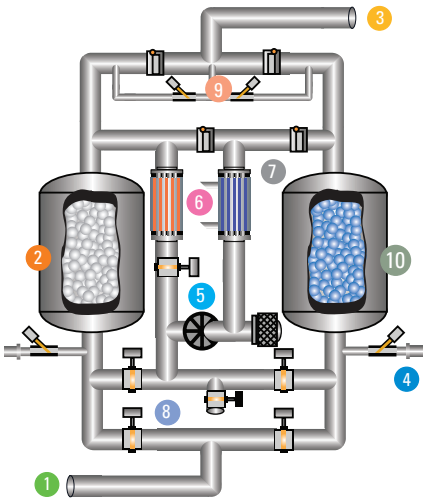
HRS-L Series Features

- Corrosion resistant finish.
- NEMA 4 electrical enclosures.
- Allen Bradley PLC control system.
- Common alarm / pilot light.
- Switching Alarm (using pressure switch logic).
- High performance butterfly and stainless steel valves.
- Highly reliable angle body piston valves for depressurization.

HRS-L SERIES How it Works

The HRS-L heated blower purge dryer incorporates a water-cooled heat exchanger which eliminates the need for purge air during the cool-down period. At the end of the heat cycle, a series of valves open or close creating a closed-loop between the air blower and vessel.

1. Wet compressed air, controlled by butterfly valves, enters the base of the on-line vessel (prefilter recommended).
2. As the compressed air passes through the desiccant bed, moisture is removed, lowering the dew point to -40° F.
3. Dry compressed air exits the top of the vessel, passes through a check valve and flows downstream to the use point (afterfilter recommended).
4. When the desiccant bed becomes saturated with moisture, it goes off-line and depressurizes to ambient through an angle-seat globe valve. A muffler attenuates the noise of depressurization.
5. After the off-line vessel has depressurized, a blower draws in ambient air for regeneration.
6. The ambient air is heated to 400° F, giving it the energy required to initiate and accomplish desorption, after which it passes through a check valve and enters the top of the regenerating vessel.
7. As the hot ambient air passes through the desiccant bed, water molecules are released from the surface of the desiccant and enter the airstream.
8. At the end of the heating phase the heater is turned off and regeneration air is directed through a water cooled heat exchange.
9. The blower circulates the cooled air back through the vessel.
10. As the cooled air passes through the desiccant bed, it picks up heat energy which is removed from the system via the water-cooled heat exchanger. The closed-loop cycle continues until the bed temperature is lowered to its operation point without the use of purge air.



HRS-L SERIES
TECHNICAL SPECIFICATIONS

HRS-L SERIES Model Comparison

Models	Capacity[1] (scfm)	Connection (in. FLG/ANSI)	Heater kW	Blower HP	Full Load Amps	Voltage (Standard)	Dimensions (inches) Height	Width	Depth	Weight (lbs)
HRS-L-600	600	3 FLG	16	5	27	460V/60 Hz/3Ph	105	85	50	3,222
HRS-L-800	800	3 FLG	24	7.5	40	460V/60 Hz/3Ph	105	85	50	4,295
HRS-L-1000	100	3 FLG	27	7.5	44	460V/60 Hz/3Ph	120	85	55	5,370
HRS-L-1200	1200	4 FLG	37	10	53	460V/60 Hz/3Ph	120	105	70	6,444
HRS-L-1600	1600	4 FLG	45	10	69	460V/60 Hz/3Ph	120	125	70	8,592
HRS-L-2000	2000	4 FLG	52	10	77	460V/60 Hz/3Ph	125	130	75	10,740
HRS-L-2500	2500	6 FLG	64	15	98	460V/60 Hz/3Ph	125	140	85	12,888
HRS-L-3000	3000	6 FLG	78	15	115	460V/60 Hz/3Ph	125	140	85	16,110
HRS-L-3500	3500	6 FLG	90	15	130	460V/60 Hz/3Ph	135	165	85	18,798
HRS-L-4000	4000	6 FLG	100	20	148	460V/60 Hz/3Ph	140	165	95	21,480
HRS-L-5000	5000	6 FLG	120	20	172	460V/60 Hz/3Ph	150	175	105	26,850
HRS-L-6000	6000	8 FLG	170	25	215	460V/60 Hz/3Ph	CF*	CF*	CF*	32,222
HRS-L-7000	7000	8 FLG	200	25	275	460V/60 Hz/3Ph	CF*	CF*	CF*	37,592
HRS-L-8000	8000	8 FLG	230	25	295	460V/60 Hz/3Ph	CF*	CF*	CF*	42,966
HRS-L-10000	10000	10 FLG	280	25	340	460V/60 Hz/3Ph	CF*	CF*	CF*	53,706

* Consult Factory.
[1] Capacity based on -40°F pdp, 100 psig operating pressure, 100°F inlet temperature and 100°F ambient temperature according to CAGI ADF 200.
Due to a continuous program of product improvement, specification and dimensions are subject to change without notice.

Optional Features

- NEMA 4X (corrosive protection) electrical construction.
- NEMA 7 (explosion proof) electrical construction.
- -100°F pressure dew point.
- Low ambient temperature package.
- Dew point monitor.
- Demand cycle control with dew point monitor.
- Pre-piped filters and by-pass valve packages.
- Visual moisture indicator.
- High outlet temperature alarm.
- Low ambient temperature alarm.

HRS-L SERIES
Capacity Correction Factors

The Compressed Air and Gas Institute (CAGI) has developed standards to protect users of compressed air & gas equipment ADF 200 is the current standard for desiccant compressed air dryers. ADF 200 specifies the dryers performance to be rated at -40°F pressure dew point, 100°F inlet temperature, 100°F ambient temperature, and 100 psig system pressure. To adjust the dryer capacity from these "CAGI conditions" to your specific application, please use the correction factors below for differing inlet air temperatures (C1) and system pressures (C2).

To Size the Dryer Capacity for Actual Conditions

Adjusted Capacity = scfm x C1 x C2

To calculate the capacity of a given dryer based on non-standard operating conditions, multiply the standard capacity by the appropriate correction factor(s).

EXAMPLE: Dryer Model: HRS-L-600
Standard Capacity: 600 scfm
Actual Operating Conditions: 80°F ambient temperature: C1 = 1.15
90 psig system pressure: C2 = 0.91

Adjusted Capacity = 600 scfm x 1.15 x 0.91 = **628 scfm**

To Select the Dryer Model for Actual Conditions

Adjusted Capacity = scfm/C1/C2

To choose a dryer based on a given flow at non-standard operating conditions, divide the given flow by the appropriate correction factor(s).

EXAMPLE: Given Flow: 600 scfm
Actual Operating Conditions: 80°F ambient temperature: C1 = 1.15
130 psig system pressure: C2 = 1.27
Adjusted Capacity = 600 scfm / 1.15 / 1.27 = **410 scfm**
Selected Dryer Model: **HRS-L-600**

Capacity correction factors for inlet air temperature (C1)

Ambient Temperature (°F)	70	80	90	**100**	105	110
Correction Factor	1.2	1.15	1.1	**1**	0.9	0.8

Capacity correction factors for system air pressure (C2)

System Pressure (psig)	60	70	80	90	**100**	110	120	130	140	150
Correction Factor	0.65	0.73	0.82	0.91	**1**	1.09	1.18	1.27	1.35	1.44

www.AircelDryers.com

AIRCEL
323 Crisp Circle
Maryville, Tennessee
37801

DISTRIBUTED BY
Air & Vacuum Process, Inc.
Toll Free: (866) 660-0208
Local: (281) 866-9700
Fax: (281) 866-9717

EMAIL
sales@airvacuumprocess.com