

# DES/DX CR

Energy Efficient Cold Air Dehumidification  
Advanced Humidity Control

The **DES/DX CR** series is designed specifically to dehumidify low temperature spaces such as cold storage facilities. This highly efficient system combines refrigerant based dehumidification with desiccant technology to dehumidify spaces kept at colder temperatures. The unique design allows the unit to achieve below freezing dew points with above freezing evaporator temperatures. The innovative method of using a desiccant wheel to move moisture around the evaporator results in a lower supply air dew point at a very high compressor COP of 5 - 5.5. Standard sizes up to 15,000 cfm.

## Cold Environment Applications



## BENEFITS

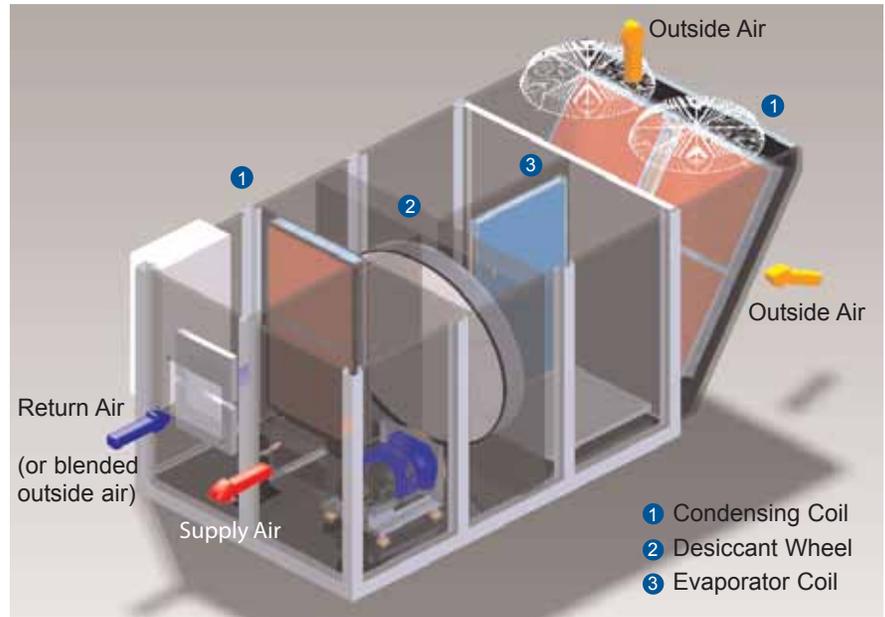
- Energy saving dehumidification at low temperatures
- Achieve below freezing dew points with above freezing evaporator temperatures
- Single Path- does not require a desiccant reactivation air stream - no gas lines
- Simple but elegant design - easy maintenance
- Unmatched energy efficiency - high COP
- Low first cost
- Improve IAQ with humidity control

## FEATURING

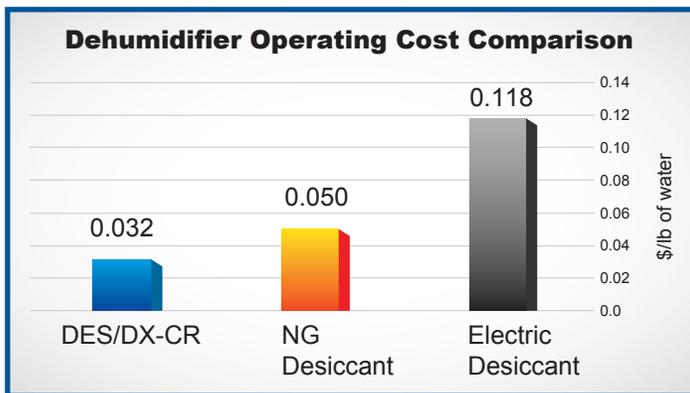
- 454B refrigerant, scroll compressors
- NovelAire proprietary high performance desiccant wheel
- Designed with low face velocity for quiet operation and maximum efficiency
- Double wall insulated panel construction
- Low maintenance direct drive fans
- Microprocessor control with BMS interface
- Optional hot gas re-heat configuration
- ETL listed

# HOW IT WORKS

The **DES/DX CR** unit is comprised of a proprietary desiccant wheel positioned between the coils of a refrigeration circuit. Return air (or a blend of OA with RA) from the space flows across a condensing coil where it is heated. The warmer air is then used to remove moisture from the desiccant wheel which increases the moisture content of the air prior to the evaporator coil. The evaporator coil wrings out moisture and the saturated air leaving the evaporator is then further dehumidified by the desiccant wheel. The ability of the desiccant wheel to move moisture around the evaporator coil allows the evaporator to operate at a higher temperature and the condenser at lower temperatures resulting in below freezing dew points at a very high COP. Available options include energy recovery, mixed-air for pressurization, post-heating, post-cooling and upgraded filtration.



Unit shown with optional external condensing section.



Basis: \$1/therm, \$ 0.1/kWh

# ENERGY SAVINGS

Expensive gas fired and electric desiccant units have traditionally been used to dehumidify refrigerated warehouses and other sub-cooled environments. Operating costs are high, the units are complicated to operate, and maintenance and first costs are high. The new **DES/DX CR** units can achieve comparable dew point performance with far less energy consumption. Simplicity of operation and low maintenance requirements are additional advantages versus gas fired or electric type units.

# SPECIFICATIONS

Unit/CFM	600	1000	2000	4000	6000	8000	10000	12000	15000
Compressor (tons)	2	3	5	10	15	20	25	32	20(2)
Water Removed (lb/h)	5.4	8.9	15.0	30.6	45.7	60.0	81.4	102.1	124.4
Exiting DB/DP (F)	70 / 25	72 / 24	68 / 26	69 / 26	69 / 26	68 / 25	69 / 25	70 / 25	69 / 25
Power Consumption (kW)	2.6	3.1	4.7	9.9	15.0	19.4	25.4	33.7	40.8
Dimensions LxWxH (in)	58 x 42 x 18	90 x 40 x 36	90 x 55 x 52	102 x 65 x 73	120 x 81 x 81	140 x 87 x 96	156 x 90 x 111	156 x 101 x 111	168 x 120 x 121
Weight (lb)	395	1100	1720	3600	5400	7200	9000	10800	13500

Basis: 55F/50% RH entering air

Consult factory for larger units

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