NovelAire Technologies
Creating the Great Indoors

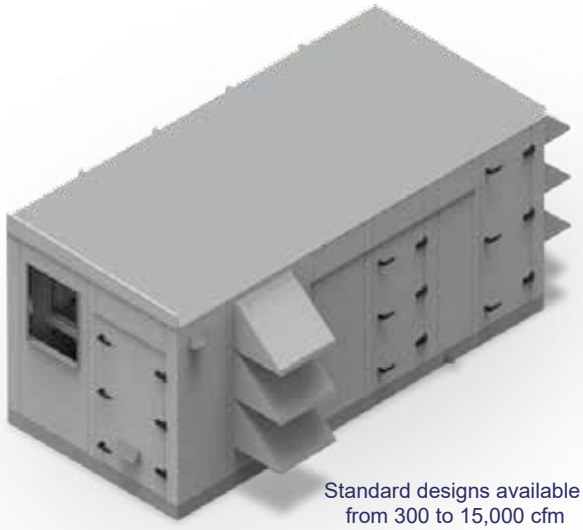
DES/DX

Commercial / Industrial Desiccant Dehumidifier

Energy Efficient Return Air Dehumidifier

Advanced Humidity Control

The **DES/DX** Commercial Dehumidifier is an ultra-efficient dehumidification system that combines the benefits of desiccant dehumidification and mechanical DX cooling. The system design permits the capture of condenser heat (normally rejected as waste) to power desiccant dehumidification. The **DES/DX** units provide low dewpoint air at space-neutral dry-bulb temperatures. Multiple standard **DES/DX** unit sizes are available from 300 to 15,000 cfm and unit design may be further customized to match required dehumidification capacity. Operation is fully independent of space temperature control so target humidity levels are maintained regardless of space cooling or heating demand.



Standard designs available from 300 to 15,000 cfm

BENEFITS

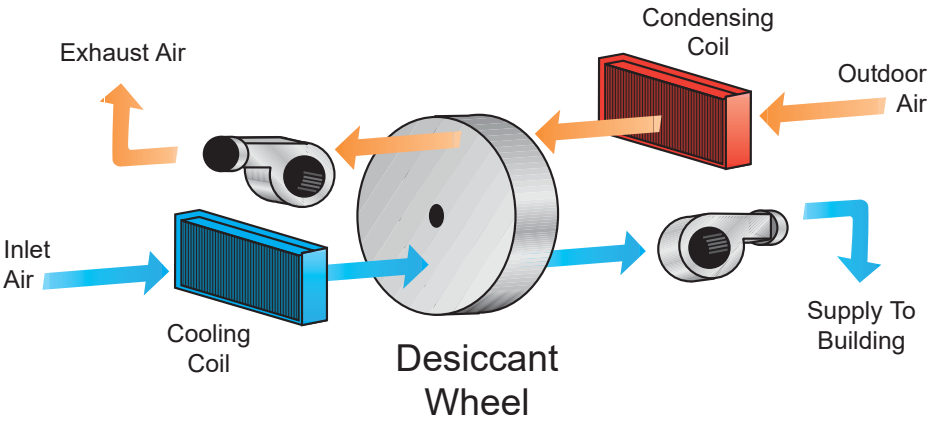
- Unmatched dehumidification efficiency
- Temperature-neutral operation provides effective refrigeration capacity
- Capable of lower dewpoints than conventional technology
- Prevents mold, mildew and dust mite growth
- Independent humidity control maintains comfort at higher dry-bulb setpoint
- Preserves building materials by lowering equilibrium moisture content and eliminating condensation or other collected water

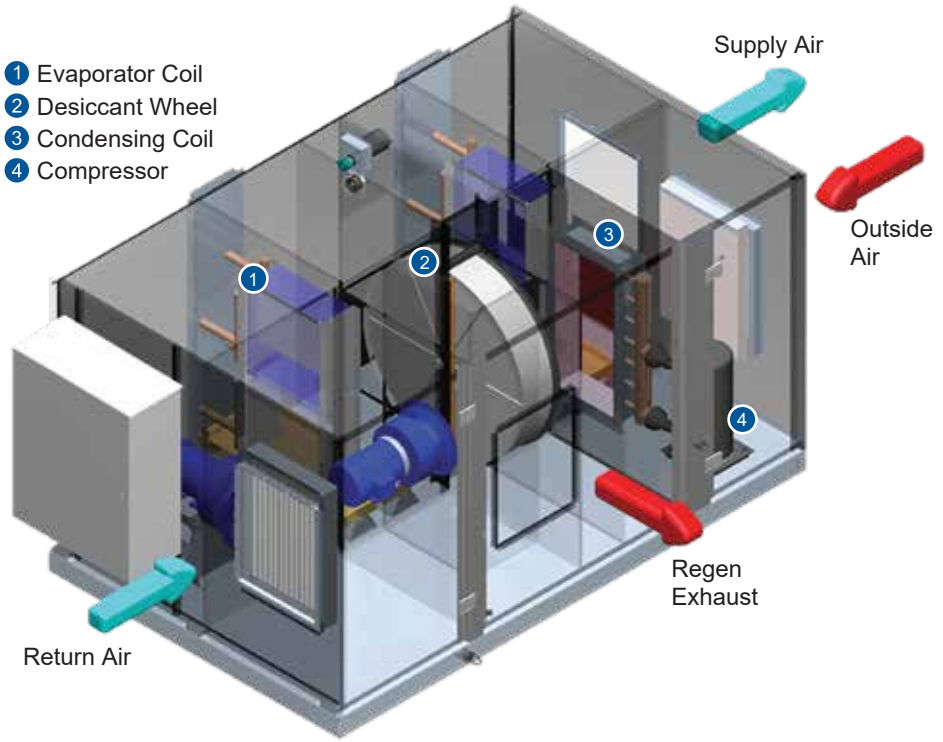
BENEFITS

- 454B refrigerant, scroll compressors
- Proprietary NovelAire desiccant wheel optimized for design conditions
- Desiccant wheel and refrigeration components selected for efficient and quiet operation
- Post heating and post cooling options available
- Double-wall cabinet construction for larger units
- Direct-drive fans controlled by VFDs
- BMS interface available
- ETL listed

HOW IT WORKS

The core of the **DES/DX** dehumidifier is a DX refrigeration loop coupled with a desiccant dehumidification wheel. In dehumidification mode, return air passes first through the evaporator coil where it is cooled and typically experiences some dehumidification and then through the desiccant wheel where the air is dried to a low dewpoint. In the isolated regeneration section of the unit, outdoor air is used to capture rejected condenser heat and regenerated (dry) the desiccant wheel. The wet air exiting the regeneration half of the desiccant wheel is exhausted.





Units are typically designed so that cooling through the evaporator coil matches re-heat through the desiccant wheel to provide for temperature-neutral operation and to facilitate parallel operation with equipment used for sensible temperature control. Optional post-heating or cooling is used to further control the supply air conditions if required. The use of the desiccant wheel following the DX section ensures the lowest possible supply air dewpoints with significantly less energy consumption than the typical process of over-cooling followed by reheat.

SPECIFICATIONS

Unit/CFM	300	1000	2000	3000	4000	6000	8000	10000	12000	15000
Compressor Tons	1	3	5	7.5	10	15	20	25	32	40
Total Capacity (BTU/hr)	5940	16125	30307	49691	68692	97232	113219	161828	219000	262950
Water Removed (lb/hr)	7	19	32	48	65	98	130	164	205	261
Leaving Air DB/DP (F)	77 / 28	76 / 34	74 / 38	73 / 38	72 / 38	73 / 37	75 / 38	74 / 37	72 / 37	73 / 36
Dimensions L x W x H (in)	40 x 22 x 30	108 x 40 x 38	120 x 55 x 53	144 x 65 x 61	156 x 65 x 76	174 x 81 x 84	192 x 87 x 98	204 x 90 x 114	228 x 101 x 115	234 x 120 x 124
Weight (lbs)	280	1100	1900	2800	3900	5700	7200	9400	11600	14200

Basis 95F/75F wb outside air, 72F/50% rh

Consult factory for larger units

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10132 Mammoth Drive, Baton Rouge, LA 70814-4420
tel. 800-762-1320/225-924-0427 fax 225-930-0340
www.novelaire.com

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