



## DRY-O-TRON® DB5 SERIES DEHUMIDIFIERS



## Engineers & Contractors Overcome Fire & Rainstorms at Las Vegas Water Showroom

Removing 950 lb./hr. of moisture, with water flying everywhere, Wynn Las Vegas' Le Rêve aquatic theater is no ordinary indoor pool.

**Las Vegas, Nev.** — The designers of the HVAC systems for the Wynn Las Vegas Hotel were faced with the challenge of fierce rainstorms, cannon balls of water, and a ring of fire... all without even leaving their offices.

It was the genius of internationally acclaimed show innovator, Franco Dragone, that conceived performers braving the elements of rain and fire indoors at the 3,000-seat Le Rêve, another Las Vegas aquatic theatrical extravaganza, at the Wynn. However,

it was the HVAC design that would harness the weathering power of Le Rêve's dramatic effects and provide indoor air comfort.

The HVAC design challenge began with the main 8,200-square-foot, 1.1-million-gallon performance pool, which presented somewhat of an evaporative nightmare of humidity. The 32,000-square-foot theater-in-the-round also includes an 80-foot-high rainstorm, an authentic boiling effect that sends bubbles and moisture

roaring out of the pool, and an ample assortment of water cannons and other aquatic effects, not to mention supplemental staging pools.

All totaled, the dehumidification design must control an almost insurmountable 950-lb./hr. of moisture produced by the show. The design is anchored by two 32,000-cfm model DB5-362 and two 11,000-cfm model DB5-120 DRY-O-TRON® dehumidifiers, manufactured by Dectron Inc., Roswell, Ga., that serve the aquatic staging areas

beneath the seats, as well as the general theater dehumidification, heating, and cooling.

More conventional pool designs, such as a community or waterpark indoor pool, typically offer engineers steadfast statistics on water usage to help size equipment properly. For this project, although the concept of the effects that would be used during the HVAC design phase were known, it was unknown as to how long, or how much, the effects would be part of the show.

In most natatorium designs, space and water temperatures typically have a two-degree differential to minimize evaporation. The Le Rêve pool has an 86°F water temperature; however, the air supplied above the pool is 105°F to keep the wet performers warmer.



the DRY-O-TRON® dehumidifiers is also very energy efficient. The DRY-O-TRON® dehumidifier's heat recovery process rejects the heat to the theater's integral water source heat pump loop

Fire Protection Association Code 160 (Flame Effect Before An Audience), airflows, high/low gas pressure, pilot light operation, and other critical factors are combined by a monitoring system and operator before ignition at each show.

Above and beyond being an engineering feat, the Le Rêve is perhaps one of the world's greatest collaborative efforts between architects, consulting engineers, contractors, theatrical designers, and other disciplines to create an aquatic theater masterpiece.

Dectron Inc., an ISO-Certified company, is a global HVAC industry leader. For three decades, Dectron's highly-skilled engineers and technical staff have been designing and manufacturing innovative, state-of-the-art DRY-O-TRON®

*In addition to indoor air quality, the design system incorporating the DRY-O-TRON® dehumidifiers is also very energy efficient.*

Further, outdoor air varies from 30 to 50 percent, depending on the required special effects, occupied rates, and time of day. The design, which also provided life/safety, mechanical, electrical, and low-voltage engineering for the entire hotel, took full advantage of Las Vegas' inherently dry climate to lessen the dehumidification loads of the theater.

In addition to indoor air quality, the design system incorporating

that, in turn, is used to efficiently heat the pool water. Not having to cool the water-cooled equipment, and instead rejecting heat to the loop, also saves energy.

Aside from humidity, a ring of fire with huge center flames also has an unpredictable effect on airflow throughout the space. Most importantly, acute attention was paid to exhausting products of combustion during the flame effect. According to National

dehumidification equipment that use leading-edge technology to recycle energy, conserve pool water, and CHLORAGUARD® filter natatoriums. Dectron Inc.'s DRY-O-TRON® line of products encompasses an extensive array of custom and semi-custom systems for industrial, commercial, and residential applications.



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