DCA DEHUMIDIFIER CORPORATION OF AMERICA

R-454B REFRIGERANT
REFRIGERANT SAFETY GROUP A2L

ALL DCA SERIES COMMERCIAL / INDUSTRIAL DEHUMIDIFIERS
SPECIFICATION DATA

A. GENERAL INFORMATION
The DCA dehumidifier is an industrial grade, selfcontained, closed loop heat recovery system. This piece of equipment shall include at least the following components; freon compressor, dehumidifier coil (evaporator), air reheat coil (condenser), centrifugal air moving blower, blower motor, various refrigeration components including copper piping, valves and all electrical controls and devices. The configuration of the dehumidifier will be horizontal in design intended for swimming pool applications and all application where the control of humidity is critical.

B. OPERATIONAL MODES
1. Dehumidification and Room Air Heating
2. Dehumidification and Room Cooling, Remote Outdoor Condenser (optional)
3. Dehumidification and Pool Water Heating (optional) Dehumidifier shall be manufactured to include all equipment needed to readily add on an air cooled remote condenser, to include all refrigeration parts for full flooding operation and all electrical apparatus to accommodate remote condenser.

C. CABINET CONSTRUCTION
The base panel shall be 12-gauge galvannealed steel with 12 gauge welded supports on the bottom side for maximum rigidity. The frame panels, removable access doors and top panels shall be 16 or 20 gauge galvannealed steel. Removable access doors will provide fingertip access to all major and minor replaceable components of the unit. The electrical compartment shall be separated from the mechanical area with access with its own door from the outside of the cabinet.

D. PAINT AND CABINET FINISH
All metal parts shall be galvannealed coated steel in its raw state. All metal cabinet parts shall be painted by the following process:
1. Metal pretreatment using phosphate cleaning and rinsing.
2. Moisture removal via forced warm air oven
3. Primer application.
4. Primer curing via high temperature oven
5. Finish coat applied using a high solids liquid or powder coat material
6. Finish coat cured using a high temperature curing oven

E. DEHUMIDIFICATION COIL (EVAPORATOR)
Coil tubes shall be made from 3/8” or 1/2” OD seamless drawn, rifle tube design, copper and be hydraulically extruded into the fins to form a permanent bond, metal to metal, for maximum heat transfer and overall stability. The fins shall be constructed from die-formed flat tempered stock for easy cleaning. Accurate fin spacing of 10 fins per inch and extruded fin collars providing maximum heat transfer and efficiency. All headers, manifolds and connecting copper tubing to be made from heavy wall seamless tubing. Final testing shall consist of leak testing with 420 psig nitrogen gas and sealed after testing to avoid contamination. Coil casing shall be at least 18 gauge galvanized steel. Coil shall have Electro Fin e-coat; a flexible epoxy polymer e-coat uniformly applied to all coil surface areas without material bridging between fins. Coating process shall ensure complete coil encapsulation and a uniform dry film thickness from 0.8 - 1.2 mil on all surface areas including fin edges. Humidity and water immersion resistance shall be up to a minimum 1000 and 260 hours respectively (ASTM D2247-92 and ASTM D870-02). Corrosion durability shall be confirmed through testing to no less than 5,000 hours salt spray per ASTM B117-90 using scribed aluminum test coupons.

F. AIR REHEAT COIL (CONDENSER)
This coil shall be constructed with seamless drawn, rifle tube design, copper tubing, hydraulically expanded into the fin collars to form a metal bond for maximum heat transfer and overall stability. Coil fins shall be tempered aluminum with extruded collars and accurately spaced at 10 fins per inch. All headers shall be constructed form heavy wall seamless copper tubing. Coil casing shall be made from at least 18 gauge galvanized steel. Coil testing shall be leak tested with at least 420 psig nitrogen gas and then sealed to avoid contamination. Coil shall have Electro Fin e-coat; a flexible epoxy polymer ecoat uniformly applied to all coil surface areas without material bridging between fins. Coating process shall ensure complete coil encapsulation and a uniform dry film thickness from 0.8 - 1.2 mil on all surface areas including fin edges. Humidity and water immersion resistance shall be up to a minimum 1000 and 260 hours respectively (ASTM D2247-92 and ASTM D870-02). Corrosion durability shall be confirmed through testing to no less than 5,000 hours salt spray per ASTM B117-90 using scribed aluminum test coupons.

G. POOL WATER HEAT EXCHANGER (OPTIONAL)
This pool water heating vessel shall be coaxial in design with cupro-nickel inner tube and corrosion resistant steel outer shell. It shall be sized for use as a full system capacity condenser.

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DEHUMIDIFIER CORPORATION OF AMERICA

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H. EVAPORATOR CONTROL
A damper assembly, located above the evaporator coil, can be controlled either with a manual or an electrically controlled device to maintain optimum coil efficiency under varying load conditions.

I. COMPRESSOR
The freon compressor shall be a scroll design which is heavy duty and fully hermetic. Also included is a crankcase heater to protect against liquid slugging and a hard start system on all single phase applications. The compressor shall be protected with both high and low pressure safety switches and internally protected from both overheating and over pressure situations. The compressor shall be vibration isolated externally and internally.

J. LOW AMBIENT CONTROL
The low ambient control will control discharge pressure regardless of ambient temperature. A hot gas bypass valve shall prevent evaporator coil freeze ups and the need for defrost timers. This control shall also be externally adjustable by the technician to suit specific installations.

K. FREON RECEIVER VESSEL
This receiver shall be safety laboratory listed and meet ASME standards for 675psig maximum working pressure. Receivers shall also be fitted with pressure safety relief valves listed by safety laboratories for such use. This receiver shall also be equipped with rota -lock refrigeration valves to provide for freon pump down for easy replacement of components.

L. CONDENSATE DRAIN PAN
The drain pan shall be constructed from 20-gauge or heavier stainless steel with silver soldered seams. This pan shall be securely attached with clips, but easily removed for cleaning.

M. ELECTRICAL CONTROL PANEL
The electrical control panel with hinged door and quarter turn latch shall be readily accessible from the front of the unit. The electrical controls shall include IEC starters for compressor (three phase only) and blower motor and interlock relay. A low voltage power supply to supply 24 volt control power with integral circuit breaker or fused protection. Clearly labeled high and low voltage terminal strips, potential relay, start and run capacitors, automatic reset of of low pressure cut-out and a short cycling timer to prevent against rapid cycling of compressor. The following indicating lights will be prominently displayed outside the cabinet 1. System 2. Blower 3. Compressor

N. REFRIGERATION CIRCUITRY
All refrigeration copper tubing and components to be coated with a clear polyurethane coating to prevent early deterioration and degradation. The entire refrigeration system to be pumped down to no less than 500 microns and charged with the appropriate amount of HFO 454B.

O. INSULATION
The sound an thermal insulation shall be applied to the bottom, top and all interior sides of the cabinet. It shall be a fiberglass, bonded with a thermosetting resin and flame-attenuated. It shall resist fire up to 250F and withstand air over velocities to at least 5000 feet per minute. It shall also possess the following minimum standards. Flame spread - 25 Smoke developed - 15 Fuel for fire contribution - 0 NFPA 90 and 90B/ASTM-C 1071, federal Specification - HH-1 -545B/R-21, ULCCAN4 S1 02

P. AIR BLOWER ASSEMBLY
The blower shall be a double inlet, forward curve, centrifugal, low RPM type blower that is dynamically and statically factory balanced. Permanently lubricated ball bearings to provide at least 200,000 hours of average life. The blower shall be vibration isolated when mounted to the cabinet floor. The Blower Motor Shall Not Be Attached Mechanically To The Blower In Any Way, other than the drive belt.

Q. BLOWER MOTOR
The blower motor shall be a totally enclosed fan cooled design (TEFC), or open drip proof (ODP) with class F insulation, continuous duty,40 degree C ambient with overload protection. It shall havepermanently lubricated ball bearings, a key slotted shaftwith rigid or resilient mount. It shall carry a Type Uthermally protected automatic resetting high temperaturecontrol, SF 1.35. The motor shall carry a UL and CSAListing. Blower motor shall be base mounted and notattached to blower mechanically.

R. BLOWER DRIVE COMPONENTS
The motor pulley and blower pulley shall be machined cast iron in construction. The motor pulley shall be a variable pitch type that is field adjustable to vary CFM and external static pressure. The pulleys shall be single V-Belt up to and including 5HP.

S. RETURN AIR FILTERS
Filters shall be of a disposable type with a UL flammability class rating of 2,3777-AUL. Permanent aluminum cleanable filters are an option to any system.

T. WARRANTY
This unit shall be comprised of the finest components available, which are readily available either as *off* the shelf replacements or replacements readily available from factory. See limited product warranty.

U. APPROVAL AND AGENCY LISTINGS
This unit shall be manufactured, tested and listed to meet the most rigid standards of ETL Laboratories.

W. MANUFACTURER OF EQUIPMENT
This unit shall be manufactured by DEHUMIDIFIER CORPORATION OF AMERICA (DCA), Cedarburg, WI.

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