



ENGINEERING CATALOG:
DryCool ERV



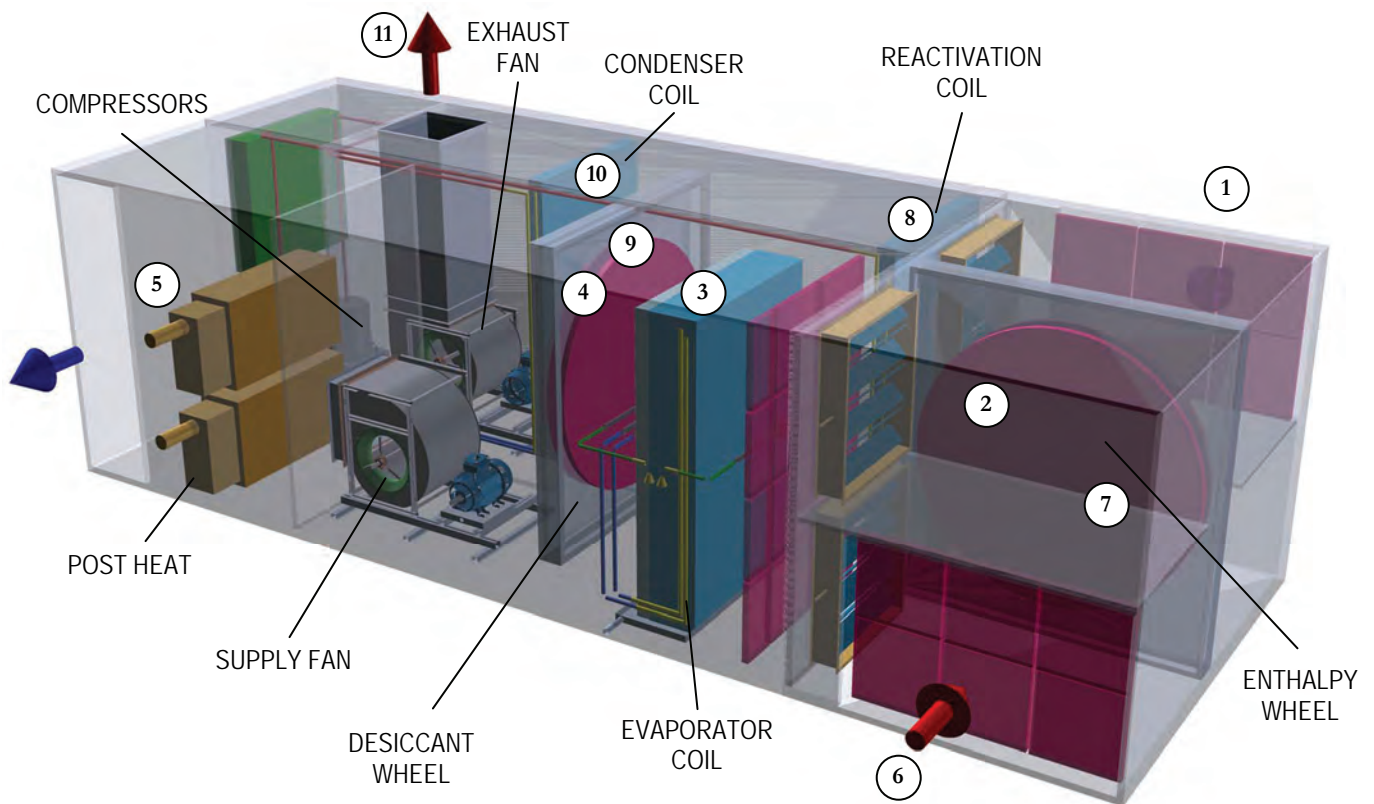
Operating Principles

SUPPLY AIR STREAM

Outside air is drawn into the unit using the supply fan <1>. The warm, moist outside air first passes through filters and then the enthalpy wheel <2> where it is cooled and dehumidified. The air then goes through the direct expansion (DX) cooling coil <3> where the air is further cooled and dehumidified. The moisture removed by the DX coil is carried off by a drainpipe. After it leaves the DX coil, the air is cool and at or near saturation. This is where the desiccant wheel functions most efficiently. The air passes through the desiccant wheel <4> where additional moisture is removed and the temperature is raised to near the space temperature. This air is delivered directly to the space or into an existing air handler <5>.

EXHAUST AIR STREAM

Exhaust air is used to provide energy recovery at the enthalpy wheel and for reactivation of the desiccant wheel and is drawn into the unit using the exhaust fan <6>. The air is filtered and then heated and humidified during the energy recovery process at the enthalpy wheel <7>. The air is then heated while passing through the reactivation coil <8>. The heated air removes the moisture that the desiccant wheel <9> adsorbs from the process air stream. Additional condensing heat required for the DX cooling process, but not needed for the regeneration process, heats the air <10> and then it is exhausted to the outside <11>.



The DryCool system uses energy recovery, refrigeration dehumidification and desiccant dehumidification in their most efficient realms to maximize system performance. By utilizing the enthalpy wheel, the DX coil and the desiccant wheel where each are the most efficient, the unit functions with very low energy requirements and very low SHRs. By utilizing the waste heat from the condenser coil to drive moisture off of the desiccant wheel, no extra energy is required to provide increased dehumidification performance. By using the exhaust airstream to remove all heat rejected by the refrigeration system, no additional condenser fans or remote condensers are required.

**Summer operation*

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Features and Benefits

Indoor air quality and make-up air has quickly become a major focus for building managers and designers. The increased introduction of make-up air into buildings has resulted in increased operating costs and has led to moisture related problems such as mold, wet surfaces and structural decay.

Munters innovative DryCool ERV units are the reliable and energy efficient solution. These products not only condition make-up air cost effectively and prevent problems caused by excessive moisture, but are also simple to order, install, operate and maintain.

The Munters DryCool ERV product line offers commercial customers an energy efficient way to bring dry make-up air into their building to control humidity, effectively reducing the costly ramifications of high indoor humidity: mold growth and poor IAQ.

The unit is designed to condition 100% make-up air to provide leaving air conditions at low humidity levels and space neutral temperatures. The DryCool operates at very low sensible heat ratios (SHRs) and can operate as an outside air pretreatment unit, offloading other air conditioning and air handling equipment.

DryCool ERV products range in volume from 1,350 to 16,000 cfm and are suitable for outdoor installations. All products are manufactured with full access service doors, panels and filters.

The unit utilizes a packaged refrigeration system in conjunction with active titanium silica gel desiccant and enthalpy wheels. The DryCool ERV captures energy from exhaust air and uses it to reduce the amount of mechanical refrigeration required by pre-cooling and dehumidifying the outdoor air prior to the DX coil, further enhancing efficiency of the unit. The DryCool ERV unit operates cost-effectively because all of the energy required for the regeneration of the desiccant wheel is recycled from the condenser waste heat. The system is integrally designed and controlled for superior performance in even the highest humidity load conditions.

BENEFITS	FEATURES
<ul style="list-style-type: none">• Provides substantially improved IAQ• Avoids cool and reheat• Controls humidity during full load, part load and unoccupied periods• Provides very high energy efficiency• Optimizes the refrigeration based air conditioning and desiccant based dehumidification performance• Provide energy recovery during winter operation• Provides energy recovery during summer operation to reduce required DX capacity	<ul style="list-style-type: none">• Remote monitoring capabilities• High efficiency Scroll Compressors• 2 independent refrigeration circuits• Titanium enhanced silica gel with carbon• 2" double wall construction with galvalume exterior skin• Molecular sieve enthalpy wheel• No additional split system condensing required on indoor installations• Suitable for indoor or outdoor use• Built in digital controller

Base Unit Components and Options

BASE UNIT

The basic unit includes access panels, louvered air intakes and a base that allows for a minimum of four lifting points. The unit is fully assembled, tested and ETL listed. The unit is suitable for indoor or outdoor installation.

REFRIGERATION COMPONENTS

Each unit comes equipped with the latest in scroll compressor technology utilizes environmentally friendly R-410a refrigerant. Evaporator and condenser coils are sized for maximum system performance. Each system comes standard with balanced port thermal expansion valve, liquid line solenoid valve, liquid line filter drier, pressure cut out switches, pressure sensors, refrigeration gauge ports, overload protection and condenser capacity control for increased energy efficiency.

DESICCANT COMPONENTS

The DryCool unit includes Munters own Honeycombe© Silica Gel desiccant wheel, specially designed for optimal moisture removal capacity. All of the energy used to regenerate the wheel is recycled from the condenser. There is never a need to provide a supplemental energy source saving you both first cost and operating cost. The wheel rotates slowly at 0.1 rpm.

ENTHALPY WHEEL COMPONENTS

The enthalpy wheel provides pretreatment of the outside air to lower the overall cooling, dehumidification and heating load that needs to be performed by the other components in the unit. This allows for smaller cooling, dehumidification and heating requirements, as well as lower operating costs.

CONTROLS

The DryCool ERV unit is provided with all the necessary controls to ensure efficient operation. Munters microprocessor control interfaces with many building management systems to maintain the desired space conditions. The microprocessor constantly monitors outdoor conditions to ensure that the delivered air is conditioned before it enters the building. This helps to prevent swings in the space humidity often associated with other equipment. The unit can be added to an existing system to condition make-up air and control humidity in the building. In night set-back mode, the DryCool ERV unit can maintain humidity control when the building is not occupied.

OTHER BASIC UNIT FEATURES INCLUDE:	UNIT OPTIONS – Options vary model to model. The standard system options include:
<ul style="list-style-type: none"> • Titanium silica gel desiccant wheel, drive motor and full face seals • Molecular sieve enthalpy wheel • Direct expansion evaporator coil, condensing coil and scroll compressor factory assembled, piped and refrigerant charged • Bottom or horizontal supply outlet • DWDI or SWSI BAF supply fan with high efficiency motor • DWDI or SWSI BAF reactivation fan with high efficiency motor • Air intake hoods or louvers on outdoor units • 2” supply and reactivation filters • Factory tested prior to shipment • ETL label • Microprocessor 	<ul style="list-style-type: none"> • Corrosion-resistant coil coating • High static supply fan • High static exhaust fan • BMS communication interface <ul style="list-style-type: none"> ○ Modbus ○ Echelon ○ Bacnet ○ Metasys • Return and supply smoke detection • Roof curb • Auxiliary gas, electric, steam or hot water post heat • High efficiency air filters

DryCool ERV General Engineering Specifications

Furnish and install MUNTERS DryCool ERV unit(s) or approved equal. Sizes, arrangements, capacities and performance shall be as indicated on plans and schedules. Unit manufacturer shall be registered under ISO 9001. Coil performance shall be rated in accordance with ARI standards. Unit shall be ETL listed. Units shall be factory pre-assembled, tested and shipped complete with all components necessary to maintain humidity control levels independent of load variations within design limits. Unit(s) shall be designed for year-round 24 hr/day service.

DESICCANT WHEEL

The desiccant wheel media shall be a monolithic, extended-surface contact medium, fabricated entirely of inert, inorganic binders and glass fibers formed into narrow passages in the direction of airflow. The wheel shall be non-toxic. The process and reactivation air streams shall be separated by air seals and internal partitions so that the humid reactivation air does not mix with the dry process air. Suppliers who do not manufacture their own desiccant wheel, shall provide a five year parts and labor warranty for the wheel and carry stock sufficient to ship replacements within 24 hours. The proposed equipment shall meet the following minimum requirements:

- A) Wheel Face Seals** - The dehumidifier shall have full-face seals on both the process air entering and the process air leaving sides of the wheel. These shall seal the entire perimeter of both air streams as they enter and leave the wheel. Partial seals shall not be acceptable. The seals shall be the silicone rubber bulb-type, with a protective strip of low-friction, abrasive-resistant surface to extend seal life and reduce the force needed to turn the desiccant wheel. Neither wiper-type seals nor brush-type nor any non-contact-type seal shall be acceptable for the desiccant wheel. The seals shall be documented to have a minimum working life of 25,000 hours of normal operation.
- B) Materials** - The glass fibers which form the support matrix shall be made from uniform continuous strands larger than five microns in diameter which are non-respirable and are not considered a possible health risk by the International Agency for Research on Cancer (IARC).
- C) Flame spread and smoke generation** - The wheel shall be tested according to ASTM E84-90 (Standard Test Method for Surface Burning of Building Materials) and shall achieve the following results:
 - 1) Flame spread index = 0
 - 2) Smoke developed index = 10
- D) Desiccant impregnation** - The desiccant shall be evenly impregnated throughout the structure for predictable, consistent performance and for maximum wheel life. Coatings applied on top of the contact medium shall not be acceptable unless the manufacturer can provide independent life tests demonstrating less than a 5% decline in desiccant capacity over a five year period of normal operation.
- E) Desiccant type** - The desiccant material used in wheels of DryCool ERV units shall be Type III Brunauer isotherm desiccant. The desiccant impregnated into the contact medium shall be a titanium-reinforced silica gel. The HoneyCombe® desiccant wheel shall be a fabricated extended surface contact media with a multitude of small passages parallel to the airflow. The rotary structure shall be a monolithic composite consisting of inert silicates with microscopic pores designed to remove water in a vapor phase. The desiccant shall be hydro thermally -stabilized silica gel reinforced with titanium for maximum strength and stability over time. The fabricated structure shall be smooth and continuous having a depth of between 125 and 200 millimeters in the direction of airflow without interruptions or sandwich layers which restrict air flow or create a leakage path at joining surfaces. Nominal face velocity shall not exceed 1000 fpm. The HoneyCombe® wheel shall be manufactured in the United States. The manufacturer shall provide documentation to establish that:
 - 1) 1) The desiccant retains more than 90% of its original capacity after ten years of continuous operation in clean air, with inlet air conditions up to an including 100% relative humidity.

- 2) 2) The wheel as impregnated with silica gel is capable of withstanding five complete water immersion cleaning cycles while retaining more than 95% of its original adsorption capacity.

DESICCANT WHEEL SUPPORT AND DRIVE ASSEMBLY

Desiccant wheels 60" in diameter and smaller shall be a single piece for fast removal and simple handling. Belt-driven desiccant wheels shall be supported by four rollers at the base of the unit so the wheel can be easily removed by lifting it over the rollers using the drive belt. In addition, the wheel drive assembly shall provide:

- A) **Rotation speed** - To avoid excessive heat carryover from reactivation to the process air, the wheel rotation speed shall not exceed 8 rph while achieving the required moisture removal rate at the specified conditions.
- B) **Drive belt** - Units with compressor capacity less than 25 nominal tons shall use a belt-driven wheel. Units with compressor capacities greater than 25 tons shall use direct-drive wheels.
- C) **Drive motor** - The drive motor shall be fractional horsepower and rated for continuous duty for a period of 20,000 hours under the load conditions imposed by the drive assembly.
- D) **Rotation detection** - The drive assembly shall be equipped with a rotation detection circuit which shuts down the dehumidifier and signals the operator through an alarm if the wheel is not rotating.

ENTHALPY WHEEL HEAT EXCHANGER

The rotary air-to-air heat exchanger(s) shall be Model RT3 as manufactured by Munters. Suppliers who do not manufacture their own energy recovery wheels shall provide a five year parts and labor warranty for the wheel and carry stock sufficient to ship replacements within 24 hours.

- A) **Wheel Matrix** - Rotor shall be constructed of rotating honeycomb matrix consisting of a highly selective desiccant, permanently bonded to aluminum. The desiccant material shall be a molecular sieve with pore diameters ranging from 3A to 4A to minimize the carryover of undesirable gases. The corrugated media provides individual flutes to channel the airflow and the thus minimize cross contamination and ensure rated performance under all differential pressure conditions. The desiccant coating shall provide corrosion resistance against attack from office, laboratory, hospital, pharmaceutical chemicals, etc., and protection in coastal and marine environments.
- B) **Wheel Casing** - The wheel frames shall consist of evenly spaced galvanized steel spokes, galvanized steel outer band, and a rigid center hub. The wheel construction shall allow for wheel alignment. The wheel seals shall be brush type and shall be easily adjustable. Brush seals shall be included to separate fresh air from exhaust air across entire surface of air entering side, air leaving side and outer band (all four planes). Additionally, the entire circumference of the rotor shall include brush seal to minimize air bypass. Cassettes shall be fabricated of heavy-duty, reinforced 16-gauge galvanized steel. Bearings shall be outboard-flanged ball bearing with concentric locking collars. Bearings shall be permanently sealed and lubricated for zero maintenance and long life. Drive system shall consist of a heavy-duty AC motor driving a self-adjusting, easily replaceable multi-link belt. Heat exchangers shall be tested in accordance with ASHRAE Standard 84-1991 and ARI Standard 1060.
- C) Variable speed drive and controls for **economizer mode** shall be provided as scheduled
- D) Variable speed drive and controls for **frost prevention** shall be provided as scheduled.

DIRECT EXPANSION (DX) COOLING COILS

Coils shall be sized to provide the full capacity scheduled. Coils shall be arranged to condition the full volume of process air. Refrigerant pressure drop to be between 1.5 psi and 5 psi, and air face velocities shall be 450 fpm or less. Coil circuiting provides for optimum performance with minimum pressure loss. Coil shall be designed for 600 PSI working pressure and factory tested under water at 600 PSI air pressure.

Direct expansion cooling coils are fin and tube type constructed of 3/8" O.D. x 0.012" or 1/2" O.D. x 0.016" wall rifled copper tubes and .006 inch thickness aluminum fins mechanically bonded to tubes. Casing and tube support sheets are 16 gauge galvanized steel formed to provide mounting flanges and structural support for the fin-tube assembly. Supply headers consist of an expansion valve and distributor to feed liquid refrigerant through copper tubing to all circuits in the coil equally. Tubes are circuited to insure minimum refrigerant pressure drop and maximum heat transfer. Fin spacing of up to 12 FPI provides adequate transfer area to minimum air pressure drop. Direct expansion coils are rated in accordance with ARI Standard 410 and are compatible with all other components of the same refrigeration circuit.

DRAIN PANS

The drain pan is to be constructed of welded 304 SS and bolted in place. The cooling coil drain pan shall extend the entire length of the coil and extend a minimum of 4 inches beyond the air leaving side of the coil. The drain pan shall be double-sloped to ensure zero standing water. Drain connection shall extend through unit base.

CONDENSING SECTION

Condensing section is complete with compressors, condenser heat exchanger, and all controls and accessories required to regulate refrigerant pressure, flow rates and temperatures. The condensing unit is piped together with the evaporator coil and is sized and controlled to operate at all conditions required. The condensing section is an integral part of the unit whether indoor or outdoor construction. The exhaust fan pulls air across the enthalpy wheel, the reactivation coil, the desiccant wheel and condenser coil in series, eliminating the need for a separate condenser fan. The refrigeration equipment shall be capable of operation down to an ambient temperature of 50 F.

Compressors are scroll type. Service Access shall be provided around the entire compressor for maintenance. Each compressor shall have its own refrigeration circuit and expansion valve. Tandem compressors sets are not acceptable.

Condenser heat exchanger shall be sized to reject the heat absorbed by the evaporator coil and the work of compression at a low delta T relative to ambient to enhance efficiency. Coil circuiting provides for optimum performance with minimum pressure loss. Coil shall be round tube, plate-fin, or microchannel design. Coil shall be designed for 600 PSI working pressure and factory tested under water at 600 PSI air pressure.

WEATHER PROTECTION (OUTDOOR UNITS)

The dehumidification system shall be capable of continuous outdoor operation. The air inlets shall be protected from water entry by hoods, louvers, mist eliminators or connected duct work. Consequently, all access panels shall be weather tight, as shall all joints between casing and electrical conduits and between the unit casing and any components mounted in separate enclosures. The roof shall be fabricated using a capped standing seam or single piece style construction.

FANS

Fans provide the specified air volume(s) through the system with adequate static pressure to overcome duct and distribution losses specified.

- A) Fan Blowers** - Supply blowers shall be belt-driven DWDI BIA or SWSI BIA. Exhaust blowers shall be belt-driven DWDI BIA or SWSI BIA. Access shall be provided to the supply and exhaust blower for inspection and servicing. All fans shall be rated in accordance with AMCA Standard 210.
- B) Fan Isolation** - DWDI fans shall use rubber-in-shear isolation. SWSI fans shall use 1" spring isolation.
- C) Fan Balancing** - Fans shall be balanced such that the maximum displacement in any plane does not exceed 1.5 mils for fans operating at or below 2000 rpm or 1.0 mils for fans operating above 2000 rpm.
- D) High Efficiency Fan Motors** - Supply and exhaust fan motors shall be the totally-enclosed fan-cooled (TEFC), high-efficiency type with a minimum of Class F insulation.

- E) Premium Efficiency Fan Motors (Optional)** - Supply and exhaust fan motors shall be the totally-enclosed fan-cooled (TEFC), premium-efficiency type with a minimum of Class F insulation.

FILTERS

The unit shall include disposable filters with 25% to 30% minimum efficiency with 90% to 92% arrestance minimum as rated by ASHRAE Test Standard 52-76. The filters shall be removable at the inlet of both supply and reactivation air streams. These filters shall be mounted on sliding or lift racks and accessible through access or doors. The entire supply and reactivation air stream shall be filtered.

ELECTRICAL CONTROL CABINET

The electrical control cabinet shall be weather tight to NEMA 3R standards and shall include:

- A)** Wiring to comply with the current National Electrical Code with further fuse and wiring sizing to meet or exceed UL 508A Industrial Control Panel.
- B)** Wires shall be color-coded or numbered at both ends and all terminal block connection points shall be numbered. These markings shall correspond with the electrical diagram provided in the operating and maintenance manual.
- C)** Components shall be UL, ETL or CSA approved where possible.
- D)** Operating and maintenance manual
The control cabinet shall include a copy of the O&M manual, mounted in a separate compartment or pocket to allow access to critical information by maintenance personnel after installation.
- E)** For units with compressor capacity greater than 13 nominal tons the unit shall be factory provided with a non-fused means of disconnecting the unit power. For units with compressor capacities less than 13 nominal tons, the unit shall not be provided with a factory disconnect.

CONTROLS

The unit shall have microprocessor control. Units with a microprocessor shall be capable of communicating with a building management system (BMS) through Modbus, Lonworks or BACnet protocol. Control options include the ability for the DryCool ERV to determine stages of heating and dehumidification required to maintain space conditions when an “enable” command is given via the BMS, or direct control via commands issued from the BMS.

UNIT CONSTRUCTION – DRYCOOL ERV

Unit Base - Unit base shall be bolted steel construction with formed heavy gauge galvanized steel channels around the outside perimeter and reinforced with galvanized steel cross members bolted on centers not exceeding 31 inches. Base shall have a minimum of four lifting brackets.

Unit Structure - The unit casing shall be constructed using a double wall panel and frame system for torsional rigidity. This includes walls, floors and ceilings. This system shall not contain any through metal. The unit casing shall also meet the following criteria based on ASTM E84-90 (Standard Test Method for Surface Burning of Building Materials), flame spread = 25, smoke index = 50.

The frame system components shall be constructed of fiberglass reinforced plastic (FRP) pultruded members. Horizontal frame members shall be supported along their length by intermediate supports and internal partitions. Through metal systems shall not be allowed. To avoid condensation, heat loss or loss of cooling capacity, each panel shall be 2 inches thick and constructed such that there are no through metal connections between the exterior surface and the interior surface. The interior casing shall be 22-gauge galvanized steel. The exterior casing shall be 22-gauge corrosion resistant galvalume. Manufacturers not providing exterior galvalume construction must provide painted galvanized exterior panels. Painted coating must be corrosion resistant exceeding ANSI 2000 hour salt spray standards.

Panels shall be foam injected into individual panels with a density of 2-1/2 lb/ft³. The heat transfer rate through casing walls shall be less than 0.0625 Btu/sq. ft./°F equivalent to an R-value of 14. This construction shall be suitable for a 50 °F difference as tested between process air dry bulb temperature and the dew point of the air surrounding the plenum. The unit casing shall be manufactured as an air and vapor tight system. There shall be a gasket system which seals the panels to the structure. Fixed panels shall be provided with flat closed cell neoprene and be sealed in place with FDA approved silicon. Doors and plug panels shall be provided with polyvinyl chloride seals.

Access Doors and Panels - Access doors or plug panel doors will be provided as indicated on the drawings. Doors shall be rigid double wall construction and shall use heavy-duty hinges with lockable latches on each door. Doors shall be a minimum of 15" in width. Doors shall be of the same construction as panels. Door latches shall be capable of being fully tightened against gasket surfaces. All major components such as coils, filters, blowers, etc., within the air handling structure shall be easily removable through access panels without dismantling plenums or distributing ductwork. Equipment that requires disassembly of components rather than access through removable or hinged panels shall not be acceptable. The unit casing shall include access panels for inspection and for any maintenance required by the operating and maintenance manual. Panels without gaskets shall not be acceptable.

Indirect Fired Post Heaters (Optional) - Heater shall conform to ANSI Z83.9. Unit shall be suitable for operation on natural gas or propane as specified. Unit shall be of down blast or horizontal configuration. Unit shall have an input rating of 100, 150, 200, 250, 300, 350 or 400 MBH at full fire and shall be 4:1 turndown modulating output or step control. Where input is greater than 400 MBH multiple heaters shall be used. It shall contain tube type heated exchangers, flue gas collector with vent fan, in shot burners, and controls for high and low fire. Unit shall be un-housed and fit within the unit housing envelope dimensions.

Burners shall be die formed in shot type with adjustable air shutters. Burners must be individually removable for cleaning or service. Entire burner assembly must be easily removable as an assembly.

Unit shall have a powered venting system consisting of a collection box, direct drive vent fan and an air proving switch. The collection box shall be made of the same material as the heat exchanger bulkhead plate and shall be removable. The venting fan bearings shall have a minimum L10 bearing life of 24000 hrs. The vent fan shall exhaust the flue gas horizontally out the side of the unit. The unit fan shall operate on 120/1/60 and not exceed 2 FLA.

Tubes shall be permanently attached to a bulkhead plate to form an airtight seal between combustion byproducts and heated air system. Heat exchanger shall be constructed of 18 gauge aluminized tubes with 14 gauge aluminized steel bulkhead plate. Heat exchanger shall be rated for a minimum lifespan of 100,000 cycles.

Gas train shall utilize components certified by AGA. Gas train shall consist of a 24 VAC two stage combination valve (manual on-off, automatic safety shutoff, regulation to handle 0.5 psig input pressure and adjustable pilot valve). The combination valve shall be rated at a flow of 400 MBH. The valve shall feed in shot burners through a manifold with screw in brass orifices sized for either natural gas or propane, as required by unit schedule. The flame controllers shall be solid state module that operates on 24 VAC. It shall have a built in spark igniter and flame sensor with 100% gas shutoff. The pilot shall be ignited during each cycle of operation. After the pilot is proven, the main burner valve shall open. Pilot and main burners shall be extinguished during the off cycle. The thermal disc type high temperature limit switch shall shut off the main and pilot valves if an overheat occurs.

Electric Post Heaters (Optional) - Electric heater shall be Underwriters Laboratories or Applied Research Laboratories listed for zero clearance and shall meet the requirements of 2006 National Electrical Code and U.L. 1996 specifications file #E 50663.

Each heater shall be furnished with one or more automatic resets as an over temperature safety device(s), serviceable and replaceable, that will be de-energized the heater on over temperature.

Each heater shall be furnished with one or more manual resets as a secondary over temperature safety device(s), serviceable and replaceable, that will be de-energized part of the heater on over temperature or failure of the automatic reset(s).

Terminal box and element frame shall be of heavy gauge (minimum of 20 gauge) galvanized steel, sufficiently formed and braced to assure structural rigidity of the entire heater assembly, terminal box and terminal box cover must be totally enclosed and free of any perforation. Terminal box may have a false bottom design for greater cooling effect for the control components on large terminal boxes.

Heater shall have multiple stages with step control, or one stage optionally controlled by an SCR and a sequencer coordinating all stages to provide fully modulating control.

Heating element(s) shall be high grade nickel-chrome alloy. Heating element(s) shall be held in place with floating steatite bushings. Heating element(s) are field replaceable. For maximum strength, the bracket must completely surround the ceramic bushing and have 1/32 inch total clearance between the bushing and metal. Double threaded stainless steel stud bolts.

Each heater shall be furnished with exact wiring diagram on the corner of the terminal box. Internal wiring is stranded copper only wrapped with 105C insulation 600V. Standard contactors per stage shall be 120V control circuit.

Terminal block or lugs shall be sizes for installation of 75C copper wire for field wiring. Heaters over 48 amps total shall be sub-divided and circuit fused for protection. Control circuit (120V) shall be wired to the terminal block.

All components are recognized or listed components by UL.

Warranty

EQUIPMENT WARRANTY

Munters warrants all its equipment to be free from defects in workmanship and material under normal usage for a period of 12 months from factory documented start up or 18 months from date of original shipment, whichever is shorter. Munters will repair or replace, at its option, any such equipment determined to be defective during this one-year period. The Basic Product Warranty is a 'Parts Only' warranty. Munters shall ship parts or products (equipment) repaired or replaced under this warranty to the customer F.O.B. factory. Method of shipment shall be standard ground transportation at Munters' expense. Munters shall not bear the cost of expedited delivery.

The foregoing warranty does not apply to:

- Any equipment or part that has been misused, used for any purpose other than its intended purpose, or that has not been installed, maintained and operated under normal conditions with competent supervision in accordance with the equipment instruction manual and Munters' recommendations; or
- Any equipment or part that has been disassembled, repaired or tampered with in any way, except when such work has been done [by an authorized service representative] in accordance with Munters' service guidelines; or
- Damage or operational problems caused by excessive corrosion, or excessive dirt, dust or other foreign material; or
- Installation or connection of external ductwork; electrical power and signals; or supplied air, water and gas; or
- Components supplied by customers or others; or
- Labor, equipment or crane charges associated with the removal or replacement of defective components.

This warranty covers replacements and repairs or adjustments, at Munters discretion, made at a Munters' factory or by factory personnel. If the services of a Munters Service Technician are required at the site where the equipment or part is installed, or at any other location other than Munters' factory, buyer will be responsible for the cost thereof and a purchase order shall be issued to Munters. In such cases that Munters is prevented from providing timely service through its employees or contractors, the customer accepts full responsibility for any warranty claim.

FIVE YEAR WARRANTY FOR MUNTERS HONEYCOMBE WHEELS

Munters Commercial DH Division- 5 Year Prorated Desiccant Wheel Warranty

Munters warrants the desiccant wheel to be free of defects in material and workmanship for a period of up to five years from the date of original shipment.

The foregoing does not apply to:

- 1) Damage caused by misuse or any improper maintenance or contamination of the Honeycombe® wheel media; or
- 2) Damage caused by other component malfunction or operation of the equipment beyond the specified conditions

Should this desiccant wheel be found to be defective due to material or workmanship within the specified warranty period, Munters shall repair or replace the desiccant wheel at its option.

If the wheel is determined to be defective and not repairable, the wheel will be replaced as per the prorated schedule below. A credit will be applied towards the cost to replace the desiccant wheel. The replacement costs do not include freight or labor to remove or reinstall the wheel.

This warranty is not transferable and does not cover normal wear and tear or damage caused by improper use. The warranty is also voided if the purchaser modifies the desiccant wheel or original equipment in any way.

PRORATED SCHEDULE

YEAR	PERCENT CREDIT
1	100%
2	80%
3	60%
4	40%
5	20%

Steam Reactivated Systems - Munters will only repair or replace leaking steam coils under warranty when accompanied by a water quality report from an independent, qualified laboratory showing the chemical analysis of the steam associated with these coils. These tests must show pH values and sulfur content within the ranges associated with proper steam operating ranges. Proper steam piping, per manufacturer's recommendations, must be applied to any steam coil installations to prevent contamination and possible water hammering that could lead to leaks.

LABOR WARRANTY

Munters' obligation under this warranty for labor is limited to correcting any improperly performed start-up labor, for a period of ninety (90) days. Customer is responsible for providing clear access to equipment.

CLAIM PROCEDURES

If any defect appears in the equipment during the applicable warranty period:

- 1) Buyer shall notify Munters of the defect in writing within 10 days of a problem occurrence, including in such written notice the model, serial number and part number of such equipment or defective part thereof, and a description of the nature of the defect.
- 2) Buyer shall file a completed start up report within ten days of a customer supplied start up of product. If not filed as indicated, warranty term shall extend no longer than 12 months from shipment. To file a start up report customer shall send information to Munters Service Department, 16900 Jordan Rd, Selma, TX 78154. At a minimum the customer start up information shall include start up conditions, equipment performance, date, time, serial #, model #, project name, installing contractor, contact personnel, phone, site owner and contact information.
- 3) Obtain a warranty service authorization to repair or replace defective equipment and / or a service authorization to return equipment believed to be defective.
- 4) After receipt of such information, Munters will ship a replacement, F.O.B. Munters factory, and will invoice the buyer therefore, and for shipping charges, if applicable.
- 5) Upon receipt of written authorization from Munters, buyer shall return the defective equipment or part to Munters with shipping charges prepaid.
- 6) Upon receipt of the equipment or part by Munters, the cause of the failure will be analyzed and, if equipment or part is found to be defective in workmanship or material, a credit will be issued for the cost of the replacement or repair of said equipment or part. Any special shipping requests such as "Next Day Air" will be the customer's responsibility and will be sent "freight collect".

MUNTERS ASSUMES NO RESPONSIBILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGE TO STRUCTURES (INCLUDING, BUT NOT LIMITED TO, ANY DUCTWORK, ROOFING MATERIALS, OUTBUILDINGS OR PIPING) OR ANY OTHER EQUIPMENT CAUSED BY ANY DEFECTIVE EQUIPMENT OR PART OR THE REMOVAL OR REPLACEMENT THEREOF.

This warranty does not include labor. The customer is responsible for labor, including the cost of problem diagnosis and all costs associated with the removal and reinstallation necessary to accomplish the repair or replacement of defective components. This warranty does not include delivery of materials to the job site or rigging, scaffolding, lifts or labor necessary to install replacement equipment or parts. Buyer is responsible for lifting requirements, cranes, unpacking, etc., as well as removal of previously supplied or installed materials.

To keep this warranty in full effect, the customer must adhere to the requirements set forth in Terms of Sale; maintain the product according to written instructions in the installation, operation and maintenance (IOM) documents. Failure to return a completed start-up report to Munters Service Department within 10 days of a customer supplied start-up voids this warranty.

EXCLUSIVE REMEDY

MUNTER'S OBLIGATION, AND BUYER'S SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY, IS LIMITED TO REPAIR OR REPLACEMENT, AT MUNTERS' OPTION, OF ANY EQUIPMENT DETERMINED TO BE DEFECTIVE IN WORKMANSHIP OR MATERIAL DURING THE APPLICABLE WARRANTY PERIOD.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, MUNTERS DISCLAIMS AND BUYER HEREBY WAIVES, ANY OTHER CLAIM AGAINST MUNTERS (WHETHER ARISING BY OPERATION OF LAW OR OTHERWISE), INCLUDING ANY CLAIM OR LIABILITY FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND RELATING TO OR ARISING OUT OF THE EQUIPMENT OR ANY PART THEREOF, OR THE BUYER'S USE THEREOF.

MUNTERS NEITHER ASSUMES NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE MANUFACTURE, SALE, DELIVERY, INSTALLATION AND OPERATION OF THE EQUIPMENT OR ANY PART THEREOF EXCEPT AS AFORESAID.

APPENDIX
EQUIPMENT SCHEDULES & DRAWINGS

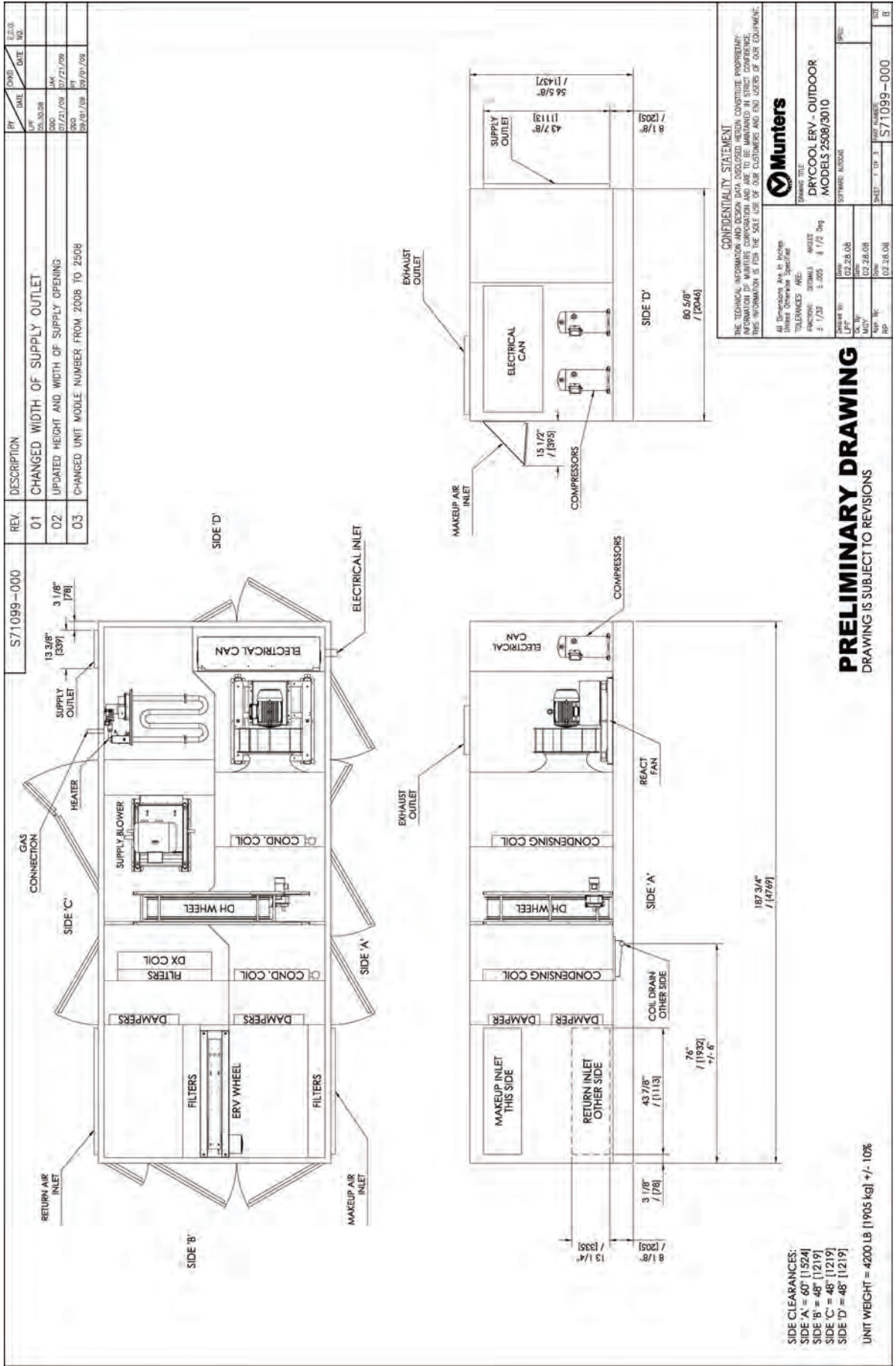
Equipment Schedule - DryCool ERV-2508

Unit Type	DX Air-cooled Packaged Condensing, Indoor or Outdoor, R-410a		
Unit Base Dimensions	56-5/8"H x 80-5/8"W x 187-3/4"L		
Unit Weight (+/- 10%)	4,200 lb.		
Supply Fan			
Type	DWDI Airfoil		
Motor Size	2, 3 or 5 HP		
Supply Airflow Range	1,350 - 2,900 SCFM		
Maximum ESP ("WG)	3.00		
Exhaust Fan			
Type	DWDI Airfoil		
Motor Size	2, 3 or 5 HP		
Exhaust Airflow Range	1,500 - 3,190 SCFM		
Maximum ESP ("WG)	3.00		
DX Coil			
Number of circuits	2		
Face Area (ft ²)	8.6		
Rows / fpi	6 / 12		
Reactivation Coil			
Nominal Tonnage	4		
Face Area (ft ²)	5.8		
Rows / fpi	3 / 15		
Condenser Coil			
Nominal Tonnage	4		
Face Area (ft ²)	5.8		
Rows / fpi	3 / 15		
Compressors			
Nominal Tonnage	8		
Stages of capacity	2		
Refrigerant	R-410a		
After Heat			
Type	Electric, Natural Gas, Propane, Hot Water, or Steam		
Stages of capacity	Modulating		
Filter			
Type	2" or 4" Pleated Disposable		
Size	(6) 20" x 20", (2) 20" x 24"		
Electrical			
Power	208-230 / 3 / 60	460 / 3 / 60	575 / 3 / 60
FLA	46.2 - 63.4	20.9 - 28.7	17.0 - 23.0
MCA	49.6 - 67.0	22.4 - 30.3	18.3 - 24.3
MOP	60 - 80	25 - 35	20 - 25

Equipment Schedule - DryCool ERV-3010

Unit Type	DX Air-cooled Packaged Condensing, Indoor or Outdoor, R-410a		
Unit Base Dimensions	56-5/8"H x 80-5/8"W x 187-3/4"L		
Unit Weight (+/- 10%)	4,200 lb.		
Supply Fan			
Type	DWDI Airfoil		
Motor Size	3, 5 or 7.5 HP		
Supply Airflow Range	1,643 - 3,600 SCFM		
Maximum ESP ("WG)	3.00		
Exhaust Fan			
Type	DWDI Airfoil		
Motor Size	3, 5 or 7.5 HP		
Exhaust Airflow Range	1,825 - 3,960 SCFM		
Maximum ESP ("WG)	3.00		
DX Coil			
Number of circuits	2		
Face Area (ft ²)	8.6		
Rows / fpi	6 / 12		
Reactivation Coil			
Nominal Tonnage	5		
Face Area (ft ²)	5.8		
Rows / fpi	3 / 15		
Condenser Coil			
Nominal Tonnage	5		
Face Area (ft ²)	5.8		
Rows / fpi	3 / 15		
Compressors			
Nominal Tonnage	10		
Stages of capacity	2		
Refrigerant	R-410a		
After Heat			
Type	Electric, Natural Gas, Propane, Hot Water, or Steam		
Stages of capacity	Modulating		
Filter			
Type	2" or 4" Pleated Disposable		
Size	(6) 20" x 20", (2) 20" x 24"		
Electrical			
Power	208-230 / 3 / 60	460 / 3 / 60	575 / 3 / 60
FLA	55.6 - 80.8	26.7 - 37.9	20.2 - 29.2
MCA	59.5 - 86.1	28.7 - 40.3	21.7 - 31.1
MOP	70 - 100	35 - 45	25 - 35

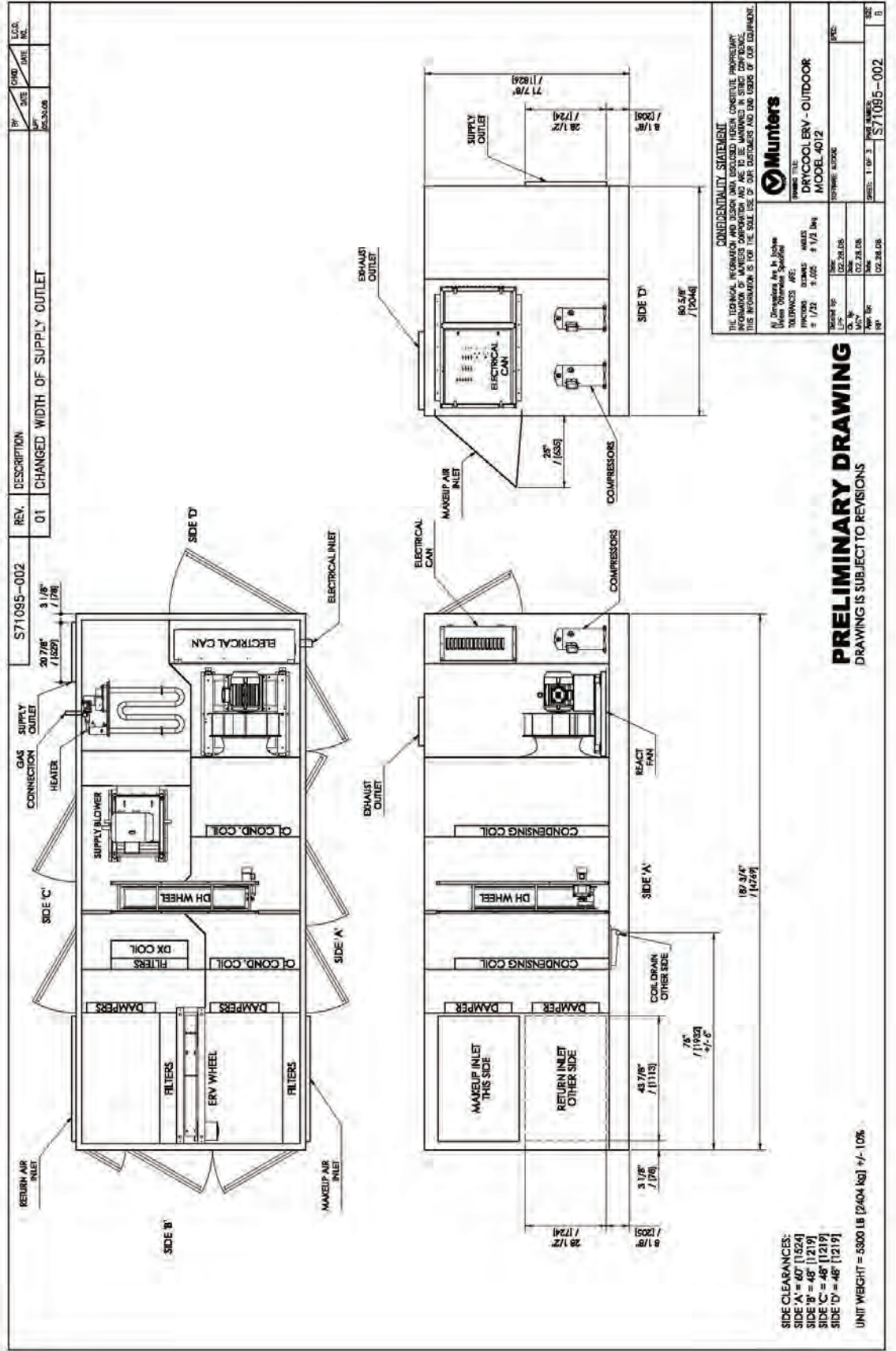
Drawing – DC-ERV-2508-3010



Equipment Schedule - DryCool ERV-4012

Unit Type	DX Air-cooled Packaged Condensing, Indoor or Outdoor, R-410a		
Unit Base Dimensions	71-7/8"H x 80-5/8"W x 187-3/4"L		
Unit Weight (+/- 10%)	5,300 lb.		
Supply Fan			
Type	DWDI Airfoil		
Motor Size	3, 5 or 7.5 HP		
Supply Airflow Range	2,007 - 4,450 SCFM		
Maximum ESP ("WG)	3.00		
Exhaust Fan			
Type	DWDI Airfoil		
Motor Size	5, 7.5 or 10 HP		
Exhaust Airflow Range	2,230 - 4,895 SCFM		
Maximum ESP ("WG)	3.00		
DX Coil			
Number of circuits	2		
Face Area (ft ²)	10.5		
Rows / fpi	6 / 12		
Reactivation Coil			
Nominal Tonnage	6		
Face Area (ft ²)	10.7		
Rows / fpi	3 / 15		
Condenser Coil			
Nominal Tonnage	6		
Face Area (ft ²)	10.7		
Rows / fpi	3 / 15		
Compressors			
Nominal Tonnage	12		
Stages of capacity	2		
Refrigerant	R-410a		
After Heat			
Type	Electric, Natural Gas, Propane, Hot Water, or Steam		
Stages of capacity	Modulating		
Filter			
Type	2" or 4" Pleated Disposable		
Size	(6) 16" x 20", (4) 24" x 24"		
Electrical			
Power	208-230 / 3 / 60	460 / 3 / 60	575 / 3 / 60
FLA	75.0 - 101.5	34.9 - 46.8	26.1 - 35.6
MCA	80.6 - 108.6	37.6 - 50.0	28.0 - 38.1
MOP	100 - 125	45 - 60	35 - 45

Drawing – DC-ERV-4012



Equipment Schedule - DryCool ERV-4714

Unit Type	DX Air-cooled Packaged Condensing, Indoor or Outdoor, R-410a		
Unit Base Dimensions	71-7/8"H x 95-7/8"W x 218-3/8"L		
Unit Weight (+/- 10%)	7,300 lb.		
Supply Fan			
Type	DWDI Airfoil		
Motor Size	3, 5 or 7.5 HP		
Supply Airflow Range	2,115 - 5,000 SCFM		
Maximum ESP ("WG)	3.00		
Exhaust Fan			
Type	DWDI Airfoil		
Motor Size	5, 7.5 or 10 HP		
Exhaust Airflow Range	2,350 - 5,500 SCFM		
Maximum ESP ("WG)	3.00		
DX Coil			
Number of circuits	2		
Face Area (ft ²)	15.6		
Rows / fpi	6 / 12		
Reactivation Coil			
Nominal Tonnage	7		
Face Area (ft ²)	10.7		
Rows / fpi	3 / 15		
Condenser Coil			
Nominal Tonnage	7		
Face Area (ft ²)	14.5		
Rows / fpi	3 / 15		
Compressors			
Nominal Tonnage	14		
Stages of capacity	2		
Refrigerant	R-410a		
After Heat			
Type	Electric, Natural Gas, Propane, Hot Water, or Steam		
Stages of capacity	Modulating		
Filter			
Type	2" or 4" Pleated Disposable		
Size	(21) 16" x 20"		
Electrical			
Power	208-230 / 3 / 60	460 / 3 / 60	575 / 3 / 60
FLA	80.2 - 106.7	40.9 - 52.8	28.7 - 38.2
MCA	86.4 - 113.8	44.3 - 56.2	31.0 - 40.7
MOP	100 - 125	50 - 60	35 - 50

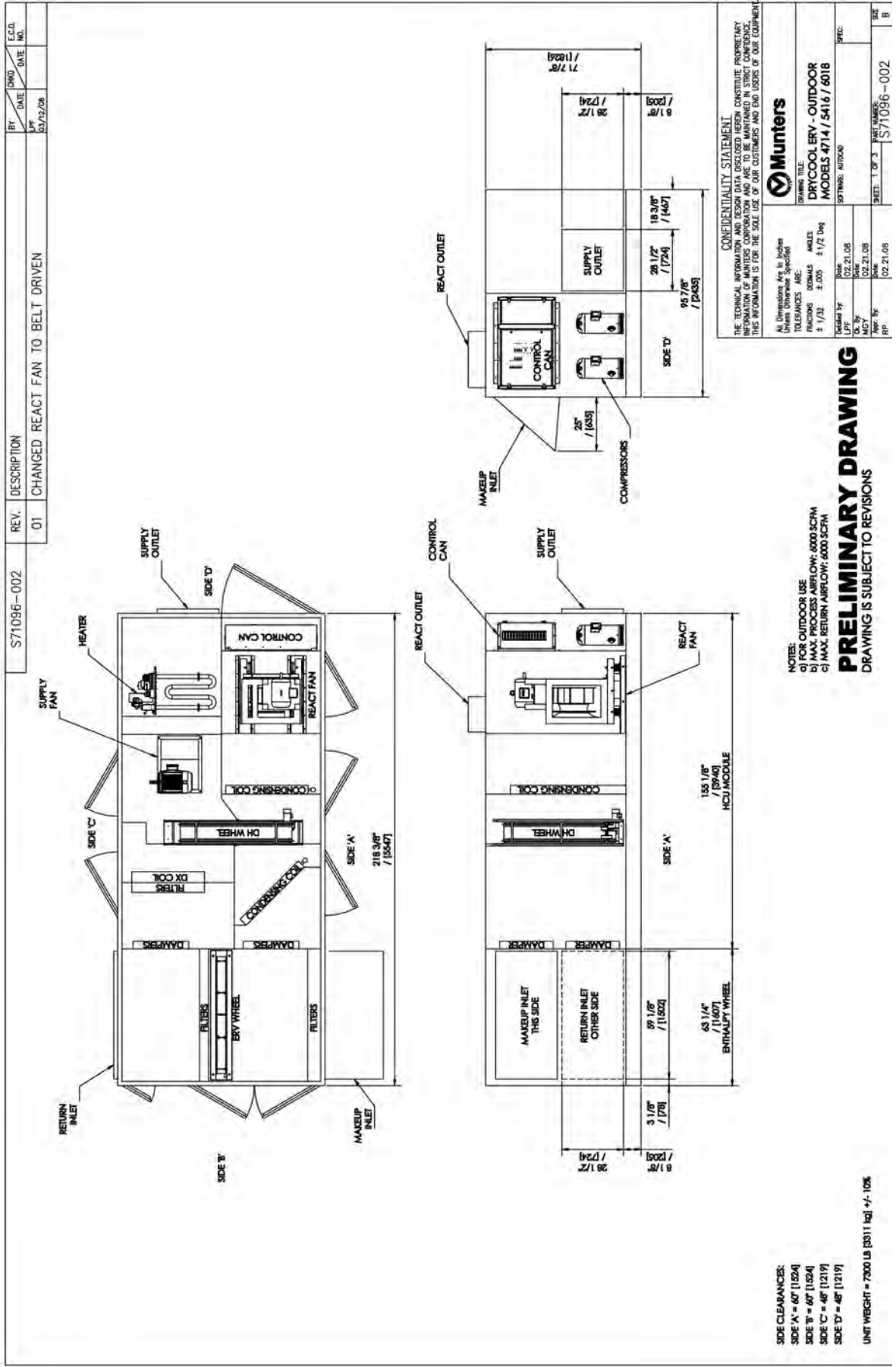
Equipment Schedule - DryCool ERV-5416

Unit Type	DX Air-cooled Packaged Condensing, Indoor or Outdoor, R-410a		
Unit Base Dimensions	71-7/8"H x 95-7/8"W x 218-3/8"L		
Unit Weight (+/- 10%)	7,300 lb.		
Supply Fan			
Type	DWDI Airfoil		
Motor Size	5, 7.5 or 10 HP		
Supply Airflow Range	2,520 - 5,600 SCFM		
Maximum ESP ("WG)	3.00		
Exhaust Fan			
Type	DWDI Airfoil		
Motor Size	7.5, 10 or 15 HP		
Exhaust Airflow Range	2,800 - 6,160 SCFM		
Maximum ESP ("WG)	3.00		
DX Coil			
Number of circuits	2		
Face Area (ft ²)	15.6		
Rows / fpi	6 / 12		
Reactivation Coil			
Nominal Tonnage	8		
Face Area (ft ²)	10.7		
Rows / fpi	3 / 15		
Condenser Coil			
Nominal Tonnage	8		
Face Area (ft ²)	14.5		
Rows / fpi	3 / 15		
Compressors			
Nominal Tonnage	16		
Stages of capacity	2		
Refrigerant	R-410a		
After Heat			
Type	Electric, Natural Gas, Propane, Hot Water, or Steam		
Stages of capacity	Modulating		
Filter			
Type	2" or 4" Pleated Disposable		
Size	(21) 16" x 20"		
Electrical			
Power	208-230 / 3 / 60	460 / 3 / 60	575 / 3 / 60
FLA	101.8 - 134.3	48.7 - 63.4	39.6 - 51.3
MCA	109.2 - 144.2	52.4 - 67.9	42.6 - 54.9
MOP	125 - 175	60 - 80	50 - 60

Equipment Schedule - DryCool ERV-6018

Unit Type	DX Air-cooled Packaged Condensing, Indoor or Outdoor, R-410a		
Unit Base Dimensions	71-7/8"H x 95-7/8"W x 218-3/8"L		
Unit Weight (+/- 10%)	7,300 lb.		
Supply Fan			
Type	DWDI Airfoil		
Motor Size	5, 7.5 or 10 HP		
Supply Airflow Range	3,150 - 6,100 SCFM		
Maximum ESP ("WG)	3.00		
Exhaust Fan			
Type	DWDI Airfoil		
Motor Size	7.5, 10 or 15 HP		
Exhaust Airflow Range	3,500 - 7,073 SCFM		
Maximum ESP ("WG)	3.00		
DX Coil			
Number of circuits	2		
Face Area (ft ²)	15.6		
Rows / fpi	6 / 12		
Reactivation Coil			
Nominal Tonnage	9		
Face Area (ft ²)	10.7		
Rows / fpi	3 / 15		
Condenser Coil			
Nominal Tonnage	9		
Face Area (ft ²)	14.5		
Rows / fpi	3 / 15		
Compressors			
Nominal Tonnage	18		
Stages of capacity	2		
Refrigerant	R-410a		
After Heat			
Type	Electric, Natural Gas, Propane, Hot Water, or Steam		
Stages of capacity	Modulating		
Filter			
Type	2" or 4" Pleated Disposable		
Size	(21) 16" x 20"		
Electrical			
Power	208-230 / 3 / 60	460 / 3 / 60	575 / 3 / 60
FLA	103.0 - 135.5	52.7 - 67.4	39.6 - 51.3
MCA	110.5 - 145.4	56.9 - 71.9	42.6 - 54.9
MOP	125 - 175	70 - 80	50 - 60

Drawing - DC-ERV - 4714-5416-6018



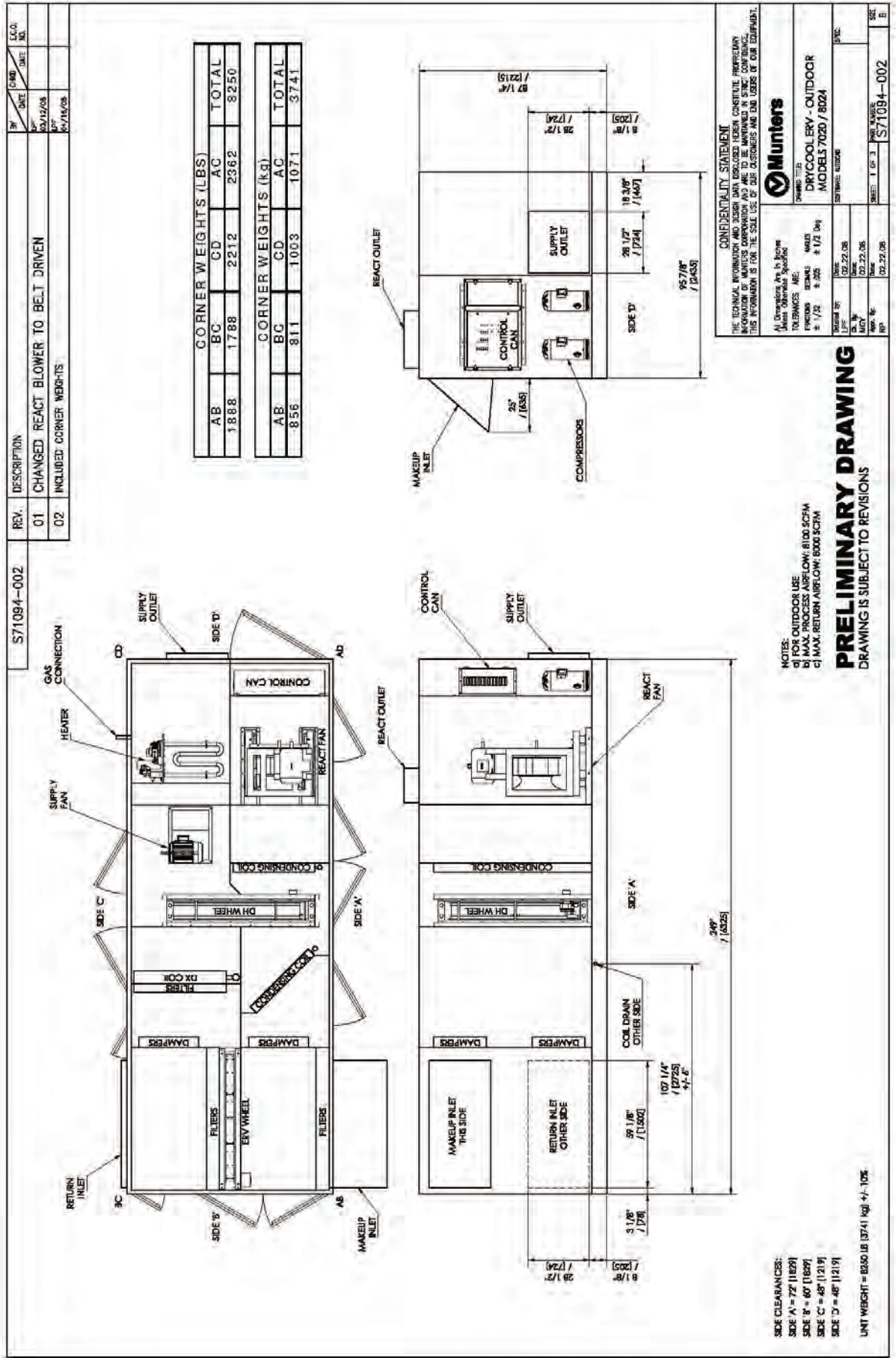
Equipment Schedule - DryCool ERV-7020

Unit Type	DX Air-cooled Packaged Condensing, Indoor or Outdoor, R-410a		
Unit Base Dimensions	87-1/4"H x 95-7/8"W x 249"L		
Unit Weight (+/- 10%)	8,250 lb.		
Supply Fan			
Type	DWDI Airfoil		
Motor Size	5, 7.5 or 10 HP		
Supply Airflow Range	3,780 - 7,200 SCFM		
Maximum ESP ("WG)	3.00		
Exhaust Fan			
Type	DWDI Airfoil		
Motor Size	7.5, 10 or 15 HP		
Exhaust Airflow Range	4,200 - 8,250 SCFM		
Maximum ESP ("WG)	3.00		
DX Coil			
Number of circuits	2		
Face Area (ft ²)	21.5		
Rows / fpi	6 / 12		
Reactivation Coil			
Nominal Tonnage	10		
Face Area (ft ²)	17.5		
Rows / fpi	2 / 15		
Condenser Coil			
Nominal Tonnage	10		
Face Area (ft ²)	17.5		
Rows / fpi	3 / 15		
Compressors			
Nominal Tonnage	20		
Stages of capacity	2		
Refrigerant	R-410a		
After Heat			
Type	Electric, Natural Gas, Propane, Hot Water, or Steam		
Stages of capacity	Modulating		
Filter			
Type	2" or 4" Pleated Disposable		
Size	(12) 16" x 20", (11) 16" x 25"		
Electrical			
Power	208-230 / 3 / 60	460 / 3 / 60	575 / 3 / 60
FLA	110.0 - 142.5	55.4 - 70.1	41.1 - 52.8
MCA	118.3 - 152.4	59.9 - 74.6	44.3 - 56.4
MOP	150 - 175	70 - 90	50 - 70

Equipment Schedule - DryCool ERV-8024

Unit Type	DX Air-cooled Packaged Condensing, Indoor or Outdoor, R-410a		
Unit Base Dimensions	87-1/4"H x 95-7/8"W x 249"L		
Unit Weight (+/- 10%)	8,250 lb.		
Supply Fan			
Type	DWDI Airfoil		
Motor Size	7.5, 10 or 15 HP		
Supply Airflow Range	4,320 - 8,500 SCFM		
Maximum ESP ("WG)	3.00		
Exhaust Fan			
Type	DWDI Airfoil		
Motor Size	10, 15 or 20 HP		
Exhaust Airflow Range	4,800 - 9,350 SCFM		
Maximum ESP ("WG)	3.00		
DX Coil			
Number of circuits	2		
Face Area (ft ²)	21.5		
Rows / fpi	6 / 12		
Reactivation Coil			
Nominal Tonnage	12		
Face Area (ft ²)	17.5		
Rows / fpi	2 / 15		
Condenser Coil			
Nominal Tonnage	12		
Face Area (ft ²)	17.5		
Rows / fpi	3 / 15		
Compressors			
Nominal Tonnage	24		
Stages of capacity	2		
Refrigerant	R-410a		
After Heat			
Type	Electric, Natural Gas, Propane, Hot Water, or Steam		
Stages of capacity	Modulating		
Filter			
Type	2" or 4" Pleated Disposable		
Size	(12) 16" x 20", (11) 16" x 25"		
Electrical			
Power	208-230 / 3 / 60	460 / 3 / 60	575 / 3 / 60
FLA	153.5 - 198.0	63.1 - 83.1	49.9 - 65.9
MCA	165.5 - 211.6	67.7 - 89.2	53.6 - 70.8
MOP	200 - 250	80 - 100	60 - 90

Drawing - DC-ERV-7020-8024



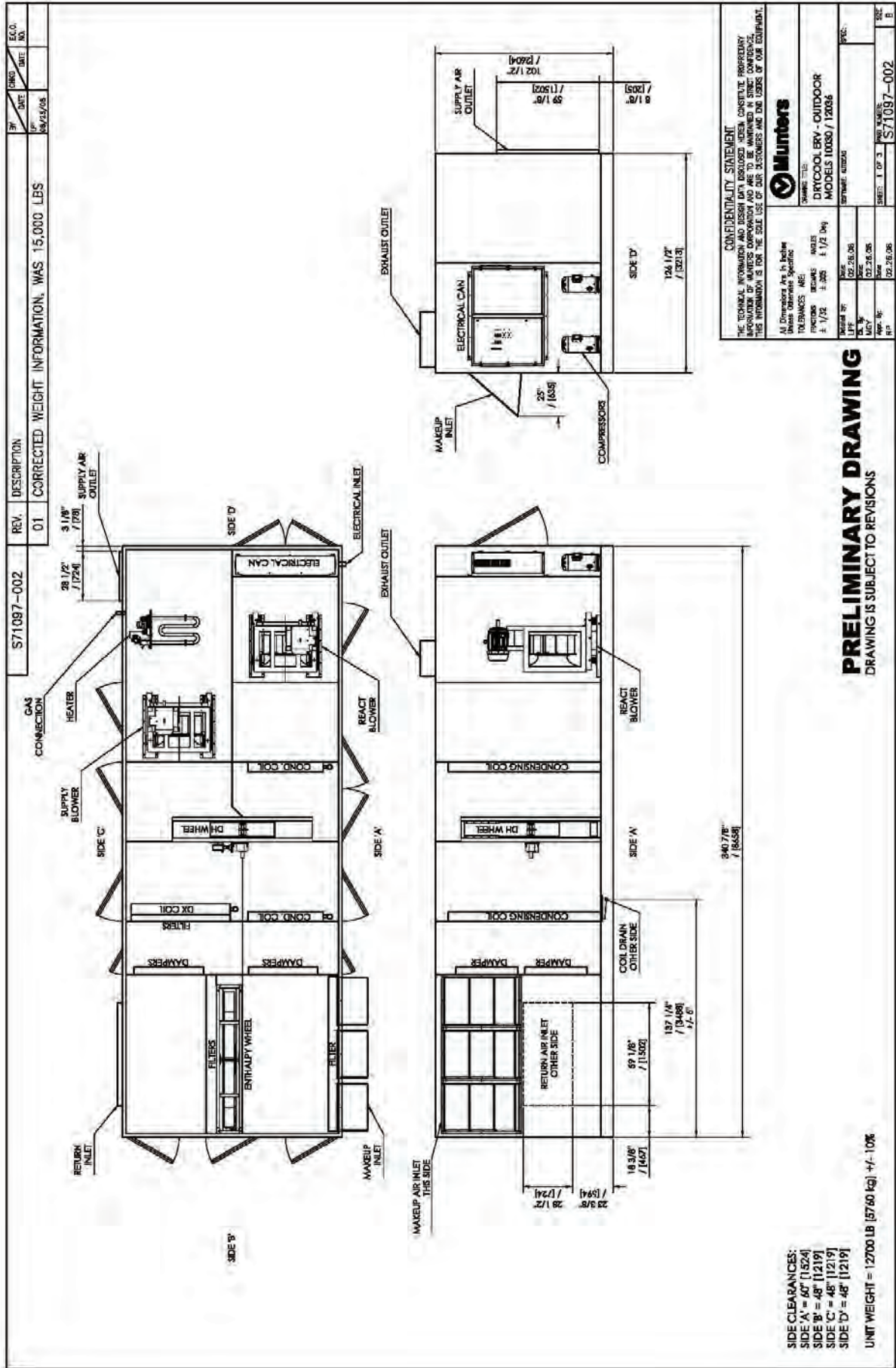
Equipment Schedule - DryCool ERV-1026

Unit Type	DX Air-cooled Packaged Condensing, Indoor or Outdoor, R-410a		
Unit Base Dimensions	102"H x 126-1/2"W x 340-7/8"L		
Unit Weight (+/- 10%)	12,700 lb.		
Supply Fan			
Type	DWDI Airfoil		
Motor Size	7.5, 10 or 15 HP		
Supply Airflow Range	4,860 - 10,800 SCFM		
Maximum ESP ("WG)	3.00		
Exhaust Fan			
Type	DWDI Airfoil		
Motor Size	10, 15 or 20 HP		
Exhaust Airflow Range	5,400 - 11,880 SCFM		
Maximum ESP ("WG)	3.00		
DX Coil			
Number of circuits	2		
Face Area (ft ²)	32.3		
Rows / fpi	6 / 12		
Reactivation Coil			
Nominal Tonnage	13		
Face Area (ft ²)	24.2		
Rows / fpi	2 / 15		
Condenser Coil			
Nominal Tonnage	13		
Face Area (ft ²)	24.2		
Rows / fpi	3 / 15		
Compressors			
Nominal Tonnage	26		
Stages of capacity	2		
Refrigerant	R-410a		
After Heat			
Type	Electric, Natural Gas, Propane, Hot Water, or Steam		
Stages of capacity	Modulating		
Filter			
Type	2" or 4" Pleated Disposable		
Size	(17) 20" x 20", (11) 20" x 25"		
Electrical			
Power	208-230 / 3 / 60	460 / 3 / 60	575 / 3 / 60
FLA	160.9 - 205.4	72.5 - 92.5	60.8 - 76.8
MCA	173.7 - 219.0	78.3 - 98.6	65.8 - 81.8
MOP	225 - 250	100	80 - 100

Equipment Schedule - DryCool ERV-1230

Unit Type	DX Air-cooled Packaged Condensing, Indoor or Outdoor, R-410a		
Unit Base Dimensions	102"H x 126-1/2"W x 340-7/8"L		
Unit Weight (+/- 10%)	12,700 lb.		
Supply Fan			
Type	DWDI Airfoil		
Motor Size	10, 15 or 20 HP		
Supply Airflow Range	6,143 - 12,800 SCFM		
Maximum ESP ("WG)	3.00		
Exhaust Fan			
Type	DWDI Airfoil		
Motor Size	15, 20 or 25 HP		
Exhaust Airflow Range	6,825 - 14,080 SCFM		
Maximum ESP ("WG)	3.00		
DX Coil			
Number of circuits	2		
Face Area (ft ²)	32.3		
Rows / fpi	6 / 12		
Reactivation Coil			
Nominal Tonnage	15		
Face Area (ft ²)	24.2		
Rows / fpi	2 / 15		
Condenser Coil			
Nominal Tonnage	15		
Face Area (ft ²)	24.2		
Rows / fpi	3 / 15		
Compressors			
Nominal Tonnage	30		
Stages of capacity	2		
Refrigerant	R-410a		
After Heat			
Type	Electric, Natural Gas, Propane, Hot Water, or Steam		
Stages of capacity	Modulating		
Filter			
Type	2" or 4" Pleated Disposable		
Size	(17) 20" x 20", (11) 20" x 25"		
Electrical			
Power	208-230 / 3 / 60	460 / 3 / 60	575 / 3 / 60
FLA	188.5 - 240.5	87.3 - 110.6	75.1 - 93.8
MCA	202.4 - 257.0	93.9 - 118.0	81.0 - 99.7
MOP	250 - 300	100 - 125	100

Drawing – DC-ERV - 10030-12036



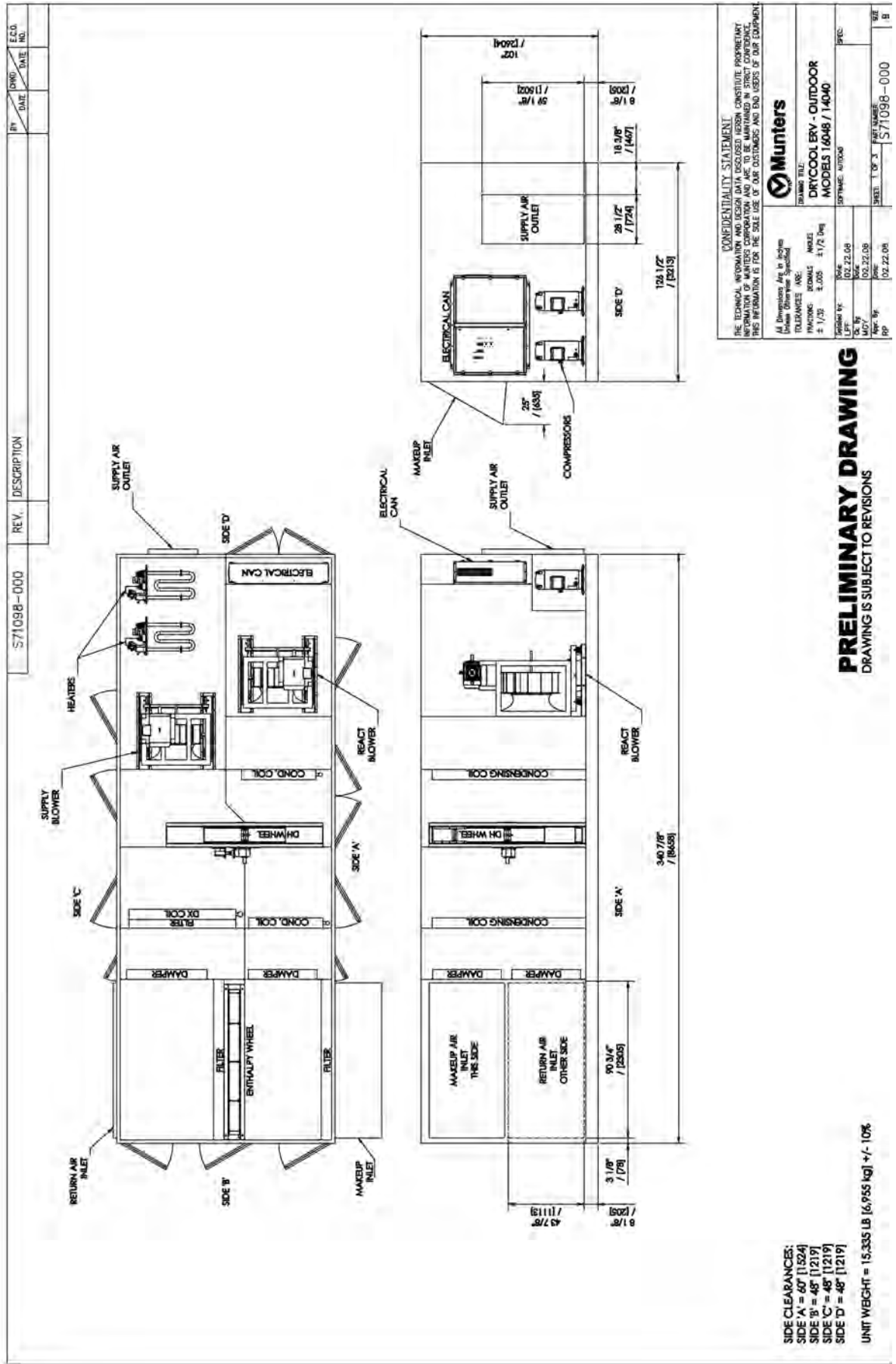
Equipment Schedule - DryCool ERV-1440

Unit Type	DX Air-cooled Packaged Condensing, Indoor or Outdoor, R-410a		
Unit Base Dimensions	102"H x 126-1/2"W x 340-7/8"L		
Unit Weight (+/- 10%)	15,335 lb.		
Supply Fan			
Type	SWSI Airfoil		
Motor Size	15, 20 or 25 HP		
Supply Airflow Range	7,020 - 15,850 SCFM		
Maximum ESP ("WG)	3.00		
Exhaust Fan			
Type	SWSI Airfoil		
Motor Size	20, 25 or 30 HP		
Exhaust Airflow Range	7,800 - 16,350 SCFM		
Maximum ESP ("WG)	3.00		
DX Coil			
Number of circuits	2		
Face Area (ft ²)	35.4		
Rows / fpi	6 / 12		
Reactivation Coil			
Nominal Tonnage	20		
Face Area (ft ²)	24.2		
Rows / fpi	3 / 15		
Condenser Coil			
Nominal Tonnage	20		
Face Area (ft ²)	24.2		
Rows / fpi	4 / 15		
Compressors			
Nominal Tonnage	40		
Stages of capacity	2		
Refrigerant	R-410a		
After Heat			
Type	Electric, Natural Gas, Propane, Hot Water, or Steam		
Stages of capacity	Modulating		
Filter			
Type	2" or 4" Pleated Disposable		
Size	(14) 20" x 20", (6) 20" x 24", (8) 20" x 25"		
Electrical			
Power	208-230 / 3 / 60	460 / 3 / 60	575 / 3 / 60
FLA	250.6 - 298.9	107.1 - 128.8	97.8 - 115.2
MCA	269.1 - 318.0	114.7 - 137.4	105.4 - 122.8
MOP	300 - 350	125 - 150	125 - 150

Equipment Schedule - DryCool ERV-1648

Unit Type	DX Air-cooled Packaged Condensing, Indoor or Outdoor, R-410a		
Unit Base Dimensions	102"H x 126-1/2"W x 340-7/8"L		
Unit Weight (+/- 10%)	15,335 lb.		
Supply Fan			
Type	SWSI Airfoil		
Motor Size	20, 25 or 30 HP		
Supply Airflow Range	9,957 - 16,000 SCFM		
Maximum ESP ("WG)	3.00		
Exhaust Fan			
Type	SWSI Airfoil		
Motor Size	25, 30 or 40 HP		
Exhaust Airflow Range	11,063 - 17,600 SCFM		
Maximum ESP ("WG)	3.00		
DX Coil			
Number of circuits	2		
Face Area (ft ²)	35.4		
Rows / fpi	6 / 12		
Reactivation Coil			
Nominal Tonnage	24		
Face Area (ft ²)	24.2		
Rows / fpi	3 / 15		
Condenser Coil			
Nominal Tonnage	24		
Face Area (ft ²)	24.2		
Rows / fpi	4 / 15		
Compressors			
Nominal Tonnage	48		
Stages of capacity	2		
Refrigerant	R-410a		
After Heat			
Type	Electric, Natural Gas, Propane, Hot Water, or Steam		
Stages of capacity	Modulating		
Filter			
Type	2" or 4" Pleated Disposable		
Size	(14) 20" x 20", (6) 20" x 24", (8) 20" x 25"		
Electrical			
Power	208-230 / 3 / 60	460 / 3 / 60	575 / 3 / 60
FLA	299.5 - 361.7	141.8 - 169.8	115.8 - 138.2
MCA	320.8 - 388.2	152.3 - 181.7	124.5 - 147.7
MOP	400	175 - 225	150 - 175

Drawing – DC-ERV-1440-1648



REV.	DESCRIPTION
S71098-000	

REV.	DATE	DATE	E.C.O. NO.

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Munters
 DRAWING TITLE: DRY-COOL ERV - OUTDOOR
 MODELS 14048 / 14040
 SOFTWARE: AUTOCAD

All Dimensions Are in Inches Unless Otherwise Specified
 TOLERANCE ARE:
 FINISHES: 300MIL ANGLE
 ± 1/32 0.005 ± 1/2 Dwg
 MADE BY: BOK 02.22.08
 CHECKED BY: M27 02.22.08
 APP. BY: [Signature] 02.22.08
 REV. BY: [Signature]

SHEET 1 OF 3 PART NUMBER: S71098-000
 SIZE: B

PRELIMINARY DRAWING
 DRAWING IS SUBJECT TO REVISIONS

SIDE CLEARANCES:
 SIDE 'A' = 60" [1524]
 SIDE 'B' = 48" [1219]
 SIDE 'C' = 48" [1219]
 SIDE 'D' = 48" [1219]
 UNIT WEIGHT = 15,335 LB [6,955 kg] +/- 10%

Munters is a global leader in
energy efficient air treatment solutions.

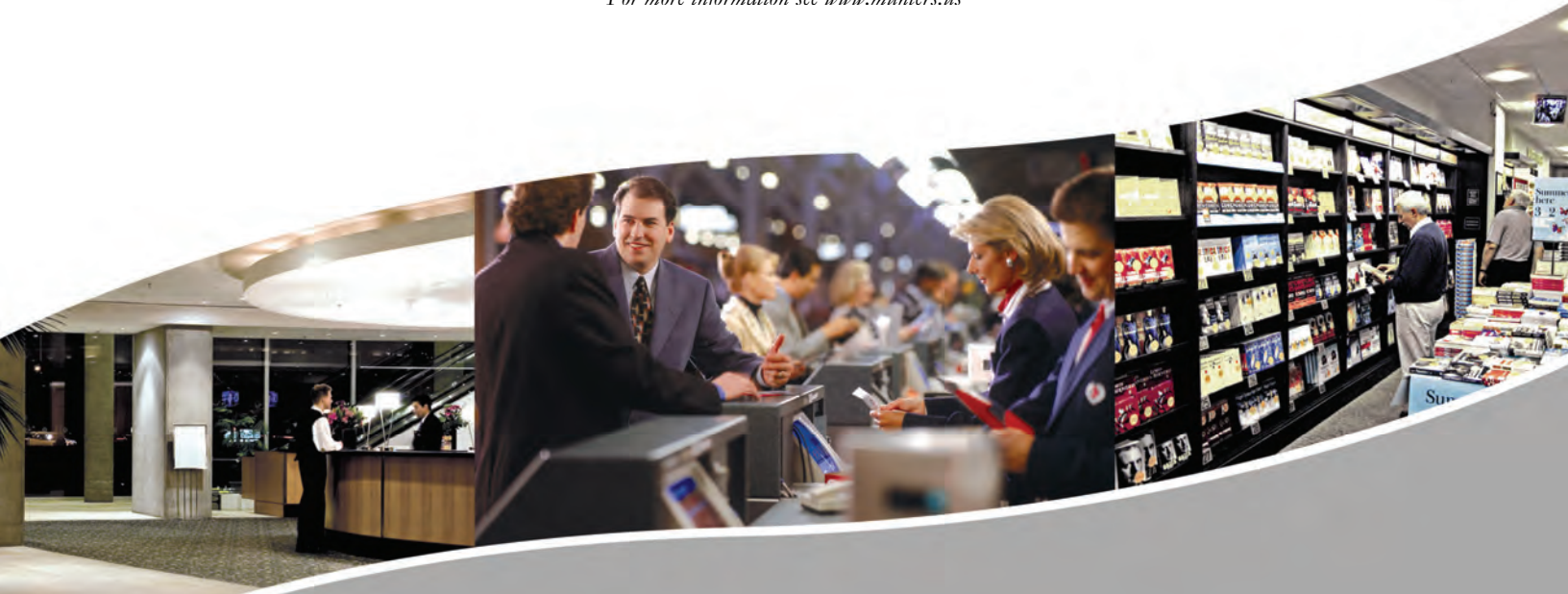
Munters manufactures engineered products that can economically control humidity and temperature, provide energy recovery, and/or utilize direct or indirect evaporative cooling for comfort, process and environmental protection.

With permanent or temporary solutions, Munters offers a wide variety of options to meet specific climate, application and budget requirements.

Munters has net sales approaching \$1 billion USD with more than 20 manufacturing facilities across the globe and sales offices in over 30 countries.

Munters employs approximately 4,300 people worldwide.

For more information see www.munters.us



Munters Corporation
Tel: (800) 843-5360
E-mail: dhinfo@munters.com
www.munters.us



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