



ICE RINK

DESIGN & DEHUMIDIFICATION



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Introduction

This booklet has been prepared to assist the reader in gaining a preliminary understanding of humidity control in curling arenas and ice rinks. A Model Selection sheet has been included (see page 5) which when completed can be used by a DRY-O-TRON customer service representative to determine the most energy efficient humidity control solution.

This booklet contains valuable design guidelines, based on Dectron's extensive field experience in solving humidity control problems in arenas.

Dectron Inc., the inventor of DRY-O-TRON, is a company committed to being the absolute best at what they do - providing leading expertise and quality products to customers who need to control high humidity efficiently.

Dectron has been creating products to recycle energy for more than 15 years. Protecting the environment has been one of Dectron's guiding philosophies from the day the first DRY-O-TRON was designed.

DRY-O-TRON is the original energy recycling dehumidifier. More than 10,000 units have been installed throughout the world, and DRY-O-TRON has become synonymous with quality, reliability and energy savings.

Today's DRY-O-TRON represents years of intensive research and development by a team of highly qualified experts. Dectron has the only large-scale dehumidifier testing and environmental simulation laboratory in the industry. Every DRY-O-TRON model line has been developed in this laboratory, and every customer's unit is fully factory tested under design conditions before shipment.

The DRY-O-TRON is available in a broad range of standard products for industrial and commercial applications. We also have a team of highly skilled engineering and manufacturing professionals who are dedicated to custom design projects.

Design Guidelines

Humidity in Ice Rinks

There are two sources of moisture in an indoor ice rink: infiltration and spectators. This moisture travels from warm areas to cold areas, since the vapor pressure is lower on a cold surface. If a cold surface has a lower temperature than the dew point temperature of the air, condensation will occur. In an ice rink moisture moves predominantly towards the ice surface. Some moisture will also move towards the ceiling. The visible effect of high humidity is fog near the ice surface and condensation on the ceiling and in extreme cases a deposit of stalagmites on the ice surface.

Fog on the ice surface

Fog is formed when moisture-laden air at the ice surface level is cooled near or below its dew point temperature.

The ice surface actually acts as a dehumidifier condensing moisture from the air, which accumulates on the surface as additional ice. This process increases the load on the ice-making equipment, which in turn wastes energy. The ice rink and its surrounding boards actually traps moisture-laden air in a "pool" near the ice surface. In order to remove this moisture without melting the ice surface, the DRY-OTRON DA2 SERIES units must be installed properly in pairs. (See drawing following page). This configuration is necessary in order to "scoop" out the moist air from the ice surface, without causing the ice to melt.

When installed correctly, the DA2 Series can virtually eliminate fog near the ice surface.

Condensation on the Ceiling

The cold ice surface is directly opposite the ceiling and absorbs heat by radiation, literally drawing the heat out of the roof or ceiling structure. This radiation effect can be such that the ceiling is actually cooler than the air below it. If the ceiling inside surface temperature falls below the room air dew point temperature, then condensation will occur.

The design of the structure must take this radiation effect into account, and at design conditions the ceiling inside surface temperature should be no cooler than five degrees fahrenheit below the room air temperature. The room air dew point temperature should not exceed this temperature if condensation is to be prevented. Low emissivity ceilings may be considered to raise the inside ceiling structure temperature.

The DA2 Series removes moisture from the air, reducing the relative humidity levels and lowering the room air dew point temperature. In conjunction with proper building design, this helps to reduce condensation on ceiling structures.

The DA2 Series

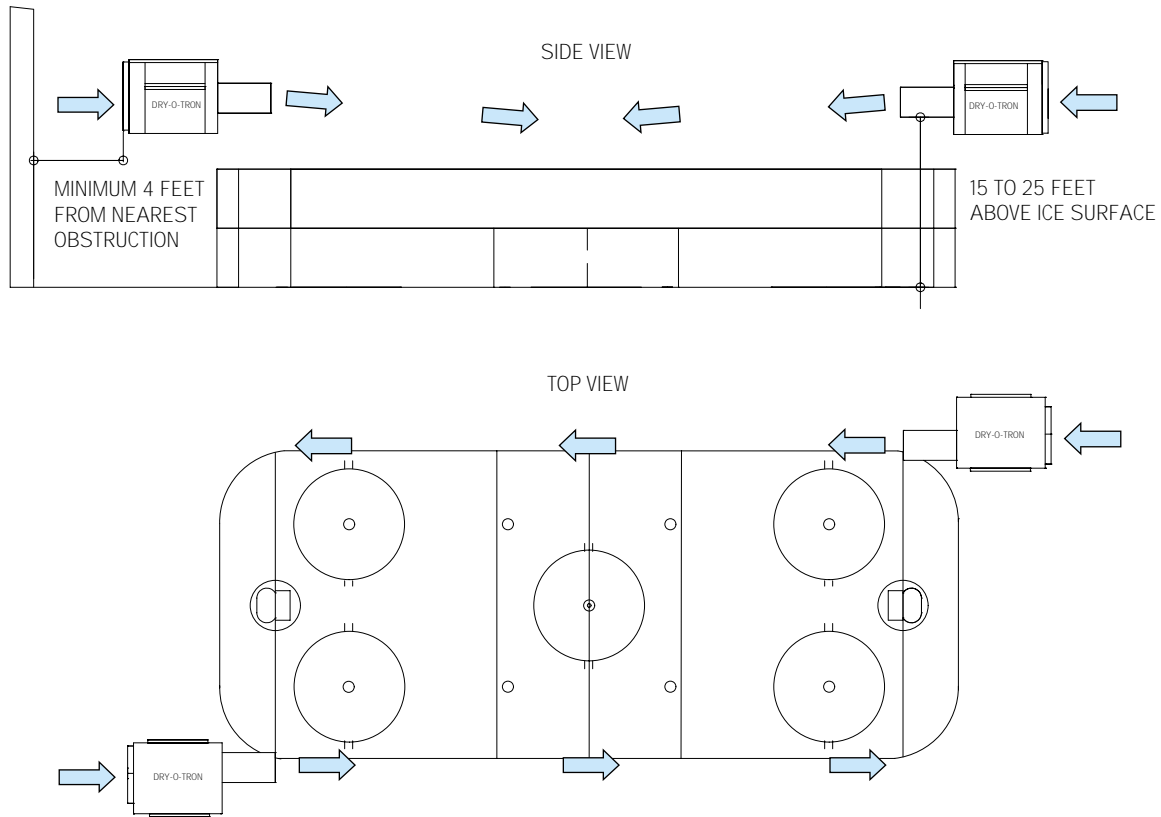
- △ Reduces building repair costs.
- △ Reduces ice surface maintenance.
- △ Helps eliminate fog and condensation.
- △ Increases capacity of ice-making equipment.
- △ Contributes to space heating.

The DA2 Series Features

- △ Very simple and energy efficient operation - simply turn on the unit during active use periods.
- △ Engineered to be virtually maintenance free.
- △ Built-in automatic defrost cycle rapidly removes ice build-up on the coils, eliminating long downtime.

Design Guidelines

DA2 SERIES ICE RINK INSTALLATION



NOTE:

1. DIRECT THE AIR FLOW ALONG THE BOARDS. DO NOT DIRECT AIR OVER THE ICE SURFACE.
2. DISCHARGE DUCT EQUIPPED WITH HORIZONTALLY AND VERTICALLY ADJUSTABLE LOUVERS SUPPLIED BY OTHERS.
3. DA2 UNITS MUST BE INSTALLED IN PAIRS.
4. AIR INLET MUST BE A MINIMUM OF 4 FEET FROM NEAREST OBSTRUCTION.
5. AIR DISCHARGE LOCATION MUST NOT BE ALTERED EVEN WHEN DRY-O-TRON UNITS ARE LOCATED REMOTELY AND DUCTWORK IS USED.

	VIEW: SIDE ELEVATION	SCALE: NOT TO SCALE	NET WEIGHT:	MODEL:
	VIEW: TOP VIEW	SCALE: NOT TO SCALE	DATE: JAN. 07, 1992	DA2
	DRAWING NO: DA2 -INST	US AND CANADIAN PATENTS	APPROVED: <i>P.R.</i>	

Model Selection

Ice Rinks ¹		
NO. OF SPECTATORS ²	DA2 SERIES MODEL	QTY REQUIRED
None	DA2-016	2
0-500	DA2-024	2
500-1500	DA2-035	2

Curling Rinks ¹		
NO. OF CURLING SHEETS	DA2 SERIES MODEL	QTY REQUIRED
4	DA2-007	1
8	DA2-007	2
12	DA2-007	3

1. Selection is based on average infiltration rates and spectator latent loads as given by ASHRAE handbooks. Excessive infiltration requires the next larger model.

2. For ice rinks with more than 1500 spectators, supplementary make up air dehumidification is required, Consult your Dectron representative for unit selection assistance.

Years of field experience have led Dectron to the development of the optimum model selection method shown above.

For ice rinks with less than 1500 spectators, the DA2 Series has been perfectly designed to efficiently dehumidify the critical area over the ice surface during an event. Note that it is not practical or economically feasible for the DA2 units to manage the entire mois-

ture load generated by the spectators and the outdoor air brought in as per ASHRAE ventilation standards. During an event, the DA2 concentrates its dehumidification capacity where it is needed - at the ice surface level.

When an event is over (spectators have left and ventilation is reduced), the DA2 units should be left running for several hours to lower the overall humidity level back to design conditions.

For ice rinks with more than 1500 spectators the DRY-O-TRON DM Series make-up air dehumidifiers must be used in conjunction with DA2 units in order to effectively manage the moisture load. For these applications, contact the local Dectron representative or the factory for unit selection assistance.

Options

Ice Rinks/Curling Rinks					
Voltage Option					
60 Hz		DA2-007	DA2-016	DA2-024	DA2-035
208/230V	1 phase	YES	YES	YES	-
208/230V	3 phase	YES	YES	YES	YES
460V	3 phase	YES	YES	YES	YES
575V	3 phase	-	-	YES	YES

The DRY-O-TRON DA2 Series is available in a number of voltages and phases.

Extended Warranties

Optional extended warranties are available. The compressor warranty can be extended to 5 years. If start-up will be postponed to well after the shipment or

installation date, then an optional delayed start-up warranty is available. Consult the warranty form for additional information.

Operation

The DRY-O-TRON DA2 Series is easily controlled from a remote on/off switch or from a seven day time clock with a schedule capability (optional). Turn on the DA2 units approximately one to two hours before the ice rink is to be used, and leave the units running continuously during the active period or whenever high humidity is a problem. The use of a humidistat is not recommended due to their inaccuracy at low temperatures.

When the return air temperature is low, the DA2 Series actually freezes moisture out of the air. The coils have been designed for frost buildup. An automatic built-in defrost cycle engages periodically to eliminate the ice build-up. When a defrost cycle is initiated, the blower is shut off. The compressor continues to run for a short while until it too is shut off. Normal operation resumes with both the compressor and blower running when the defrost cycle is terminated.

The DRY-O-TRON DA2 Series units are protected by an internal temperature limiting thermostat which is factory set at 35° F. This is to prevent the external drain line from freezing up.

Sample Specification

1. General

1.1 Scope

- .1 Packaged system for ice rink defogging and humidity control.

1.2 Quality and Safety Assurance

- .1 Units shall be ETL or CSA certified.
- .2 Coils shall be UL or CSA certified.
- .3 Blower motors and compressors shall be UL or CSA certified. Blower motors shall have a service factor rating of 1.15 or higher and must be stamped or marked high efficiency.
- .4 Piping in accordance with BOCA code P-308.2 for corrosion resistant coating of copper tubing and M-702.0 for joints and connections. All refrigerant pipes shall be copper type "L" and vinyl-coated for corrosion prevention.
- .5 Units shall be completely factory assembled, wired, piped and tested.
- .6 Manufacturer of the packaged system for ice rink defogging and humidity control shall have a minimum of five years experience in the production of these systems.
- .7 The system shall have a limited warranty for one full year from start-up or 15 months from shipment, whichever comes first.
- .8 The entire cabinet shall be painted internally and externally.

1.3 Submittals

- .1 Submit overall dimension drawings, field wiring diagram, installation drawing and product data including air flow, total power consumption and moisture removal capacity.

1.4 Operating and Maintenance Data.

- .1 Electrical wiring diagrams, installation and maintenance instructions and an owner's manual shall be supplied with each unit.

2. Products

2.1 General

- .1 Furnish and install ice arena defogging/dehumidification system. The system shall be specifically designed to defog the ice surface, and help control humidity in the ice arena or curling rink. Performance and specifications shall meet or exceed that shown on the equipment schedule.
- .2 Proper air distribution for defogging purposes and to prevent ice surface damage shall be achieved using two identical units, installed as per manufacturer's specifications or as shown on plans. In ice rink applications a single unit system shall not be acceptable.
- .3 The dehumidifiers shall be single package units. Each unit shall include compressor, evaporator (dehumidifying coil), condenser (air reheat coil), automatic defrost control, supply air fan, fan motor, motor starters and controls in one complete enclosure. All controls shall be factory adjusted and preset to the design conditions.

2.2 Principle of Operation

- .1 The humid air from the arena passes through the dehumidifying coil and is cooled below its dew point, thereby condensing moisture. The heat captured by this process and the heat generated by the compressor power consumption are absorbed by a mechanical refrigeration system. This heat shall be completely recycled and transferred to the air to contribute to the space heating requirements in the arena. The

supply air dry bulb temperature shall at all times be higher than the return air temperature.

- .2 The dehumidifying coil shall be designed for ice build-up. At low return air temperatures, moisture shall be removed from the air by freezing. The unit shall be equipped with an automatic reverse cycle defrost control to remove ice build-up from the dehumidifying coil when necessary. A capacity reduction frost prevention system shall absolutely not be used.

2.3 Cabinet

- .1 The units shall be constructed with a combination of 16-gauge and 20-gauge, satin coated steel, reinforced for maximum rigidity with a 14-gauge base.
- .2 Removable service panels shall be furnished to provide access to all internal parts.
- .3 Each unit shall have a built-in electrical control panel in a separate compartment in order not to disturb the air flow within the dehumidifier during electrical servicing.
- .4 The unit shall have a built-in air filter rack.

2.4 Condensation Prevention

- .1 Condensation on the outer surfaces of the unit during operation shall not be acceptable. Units must be designed to prevent water vapor from condensing on the outer surfaces of the unit enclosure.

2.5 Evaporator (Dehumidifier coil)

- .1 Shall not be less than six rows deep for maximum moisture removal capacity with air velocity not to exceed 500 fpm, with 1/2 inch OD seamless copper tubes

Sample Specification

mechanically expanded to assure high heat transfer with maximum ten flat aluminum fins per inch.

- .2 Corrugated or facetized fins shall not be acceptable.
- .3 Coil shall have a 16-gauge galvanized casing and end plates coated with 660 clear coat.
- .4 Coils shall be factory tested at air pressures not less than 400 psig in a water bath.

2.6 Condenser (Air Reheat Coil)

- .1 Shall not be less than six rows deep for maximum heat transfer with 1/2 inch OD seamless copper tubes mechanically expanded to assure high heat transfer with maximum eight aluminum fins per inch.
- .2 Coil shall have a 16-gauge galvanized casing and end plates coated with 660 clear coat.
- .3 Coils shall be factory tested at air pressures not less than 400 psig in a water bath.

2.7 Drain Pan

- .1 Each unit shall be equipped with a drain pan under the entire evaporator coil and prevent condensate carryover.
- .2 The drain pan shall be made of 20-gauge type 304 stainless steel and shall be heated during operation to prevent ice formation.
- .3 The drain pan shall have an internally mounted P-trap and condensate drain of rubber construction, heated during operation to prevent ice formation.

2.8 Blower

- .1 Shall be double width, double inlet, multi-blade forward curved centrifugal type fan wheel, dynam-

ically and statically balanced and tested, mounted on a solid steel shaft coated with silicon.

- .2 The blower shall have a galvanized steel wheel and galvanized steel casing painted with a baked enamel finish.
- .3 Blower bearings shall be grease lubricated for 200,000 hours average life.

2.9 Blower Motor

- .1 Shall be open drip-proof, class B insulation, induction type, 40C rise, pre-lubricated ball bearings mounted on an adjustable base.
- .2 Blower motor shall be equipped with internal thermal protection (single phase only).
- .4 Motors shall be UL or CSA approved.

2.10 Blower Belt Drive Assembly

- .1 Shall be single V-belt with a safety factor not less than 1.2, dynamically balanced cast iron fixed pitch fan sheave and dynamically balanced cast iron variable pitch motor sheave.

2.11 Compressor

- .1 Shall be hermetic compressor(s), suction gas-cooled, suitable for refrigerant R-22, equipped with internal solid state sensor thermal protection, resilient type external mounting and easily removable external crankcase heater for liquid migration protection.
- .2 Compressor(s) to be UL or CSA approved.
- .3 Compressor manufacturer must have a wholesale outlet for replacement parts in the nearest major city.

2.12 Refrigeration Circuit

- .1 Shall have an in-line solder type liquid line filter drier and a four-way reversing valve.
- .2 Tamper proof, hermetically sealed non-adjustable high and low pressure controls and refrigeration service valves shall be installed using Schraeder-type valves.
- .3 Refrigeration service valves shall be located outside of the airstream.
- .4 Suction line shall be fully insulated with not less than 1/2 inch rubber foam insulation.

.13 Control Panel

- .1 Shall be built-in within a separate compartment in order not to disturb the air flow during servicing.
- .2 Blower motor and compressor shall be controlled by contactors.
- .3 On three phase units, fan motor and compressor shall be protected with push-button operated, adjustable thermal trip and fixed magnetic trip overloads. On single phase units, fan motor and compressor shall be protected with internal thermal overloads.
- .4 Power block terminal shall be provided for proper wire size.
- .5 Color coding and wire numbering shall be provided for easy troubleshooting. All wires shall be in a wire duct.
- .6 Compressor shall have a time delay start to prevent short cycling.
- .7 An automatic reverse cycle defrost control shall be provided and shall operate when required.

Sample Specification

- .8 Connection shall be provided for a remote on-off switch and automatic or semi-automatic fan operation.
 - .9 Units shall be equipped with an adjustable, low temperature limiting thermostat.
 - .10 All wiring shall be installed in accordance with UL or CSA safety electrical code regulations, and shall be in accordance with NFPA. All components used shall be UL or CSA listed.
- 2.14 Air Filters
- .1 Shall be 1 inch disposable type suitable for commercial application, to handle average dust loading. Initial resistance at 100% R.A.F. of 0.08 inch W.G. and average arrestance efficiency of 80% based on 500 fpm air velocity.
3. Execution
- 3.1 Unit Selection
- .1 Furnish and install Dectron DRY-O-TRON Model DA2 Energy Recycling Dehumidifier - The Ice Rink Defogger.
- 3.2 Product delivery, storage and handling
- .1 Handle dehumidifier unit carefully to prevent damage, breaking, denting and scoring. Damaged units or damaged components shall not be installed. Replace all damaged parts with new parts from the manufacturer.
 - .2 If unit is to be stored prior to installation store in a clean, dry place. Protect from weather, dirt, fumes, water, construction and physical damage.
 - .3 Comply with manufacturer's rigging and installation instructions for unloading the unit and moving it to the final location.
- 3.3 Installation
- .1 Execute the work in accordance with the specifications and in accordance with the manufacturer's instructions and only by workmen experienced in this type of work.
 - .2 Provide a service platform with adequate clearances for each unit. A step ladder shall absolutely not be used for service access.

Technical Specifications

Voltage ¹ 60 Hz	208/230 V 1 ph	208/230 V 3 ph	460 V 3 ph	575 V 3 ph
Minimum Ampacity	22 A	13 A	07 A	-
Maximum Main Fuse	30 A	20 A	10 A	-
Total Power Consumption ²	2.4 Kw	2.4 Kw	2.4 Kw	-
Compressor FLA	13.4 A	8.7 A	4.2 A	-
Compressor LRA	59 A	50 A	23 A	-
Blower	0.5 HP	0.5 HP	0.5 HP	-
Blower FLA	4.4 A	2.2 A	1.1 A	-
Control Voltage ³	24 V	24 V	24 V	-
Reverse Cycle Defrost ⁴	Standard			
Air Volume	1000 - 1200 cfm			
Air Discharge Location	Horizontal			
Filter Quantity	2			
Filter Size	16 in x 16 in x 1 in			
Condensate Drain Connection	3/4 in I.D. Rubber ⁵			
Condensate Drain P-Trap	Standard			
Net Weight	315 lb			
Shipping Weight	375 lb			
Operating Range ⁶	40 - 74 F			
Refrigerant Charge	4 lb R-22			
Options				
Extended Warranties	Compressor, Start-up			

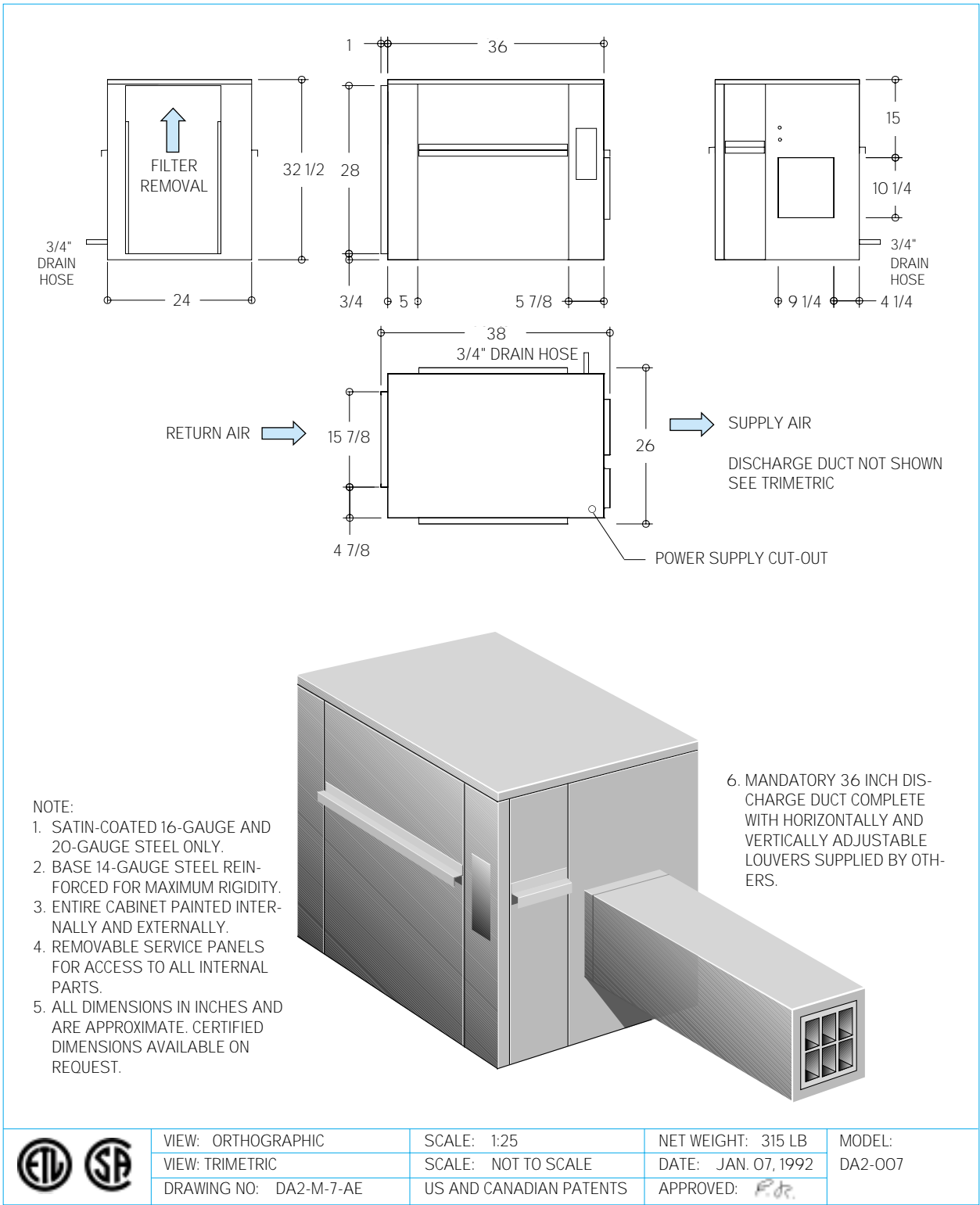
- For other voltages and 50 Hz applications refer to the Dectron DRY-O-TRON European publications.
- Based on 60 F 75% RH Entering Air, Standard Blower.
- Use minimum 20 gauge wire.

- Dectron's automatic reverse cycle defrost maintains full moisture removal capacity. Hot gas by-pass (false load) or other capacity reducing methods are not recommended.

- In an unheated environment Dectron's rubber connections are virtually maintenance free.
- Operating limit: 35 - 80 F.

Performance Data

Operating Condition	Moisture Removal Capacity In lb/h			
	Relative Humidity			
Return Air Temperature	80%	70%	60%	50%
40 °F	3.9	2.4	-	-
42 °F	4.4	2.9	1.4	-
44 °F	4.9	3.4	1.8	0.4
46 °F	5.4	3.8	2.2	0.8
48 °F	5.9	4.2	2.6	1.2
50 °F	6.4	4.6	3.0	1.6
52 °F	6.9	5.0	3.4	2.0
54 °F	7.4	5.5	3.8	2.3
56 °F	7.9	6.0	4.1	2.6
58 °F	8.4	6.5	4.4	2.8
60 °F	8.8	7.0	4.7	3.0
62 °F	9.0	7.4	5.0	3.2
64 °F	9.2	7.4	5.1	3.4
66 °F	9.3	7.4	5.1	3.5
68 °F	9.4	7.4	5.2	3.5
70 °F	9.5	7.5	5.2	3.5
72 °F	9.6	7.5	5.3	3.5
74 °F	9.6	7.5	5.3	3.6



VIEW: ORTHOGRAPHIC

VIEW: TRIMETRIC

DRAWING NO: DA2-M-7-AE

SCALE: 1:25

SCALE: NOT TO SCALE

US AND CANADIAN PATENTS

NET WEIGHT: 315 LB

DATE: JAN. 07, 1992

APPROVED: *RJR*

MODEL:

DA2-007

Technical Specifications

Voltage ¹ 60 Hz	208/230 V 1 ph	208/230 V 3 ph	460 V 3 ph	575 V 3 ph
Minimum Ampacity	41 A	26 A	13 A	-
Maximum Main Fuse	60 A	40 A	20 A	-
Total Power Consumption ²	4.9 Kw	4.9 Kw	4.9 Kw	-
Compressor FLA	26.5 A	16.8 A	8.2 A	-
Compressor LRA	114 A	84 A	42 A	-
Blower	1.5 HP	1.5 HP	1.5 HP	-
Blower FLA	7.2 A	4.6 A	2.3 A	-
Control Voltage ³	24 V	24 V	24 V	-
Reverse Cycle Defrost ⁴	Standard			
Air Volume	2600 - 3000 cfm			
Air Discharge Location	Horizontal			
Filter Quantity	2			
Filter Size	25 in x 16 in x 2 in			
Condensate Drain Connection	3/4 in I.D. Rubber ⁵			
Condensate Drain P-Trap	Standard			
Net Weight	560 lb			
Shipping Weight	675 lb			
Operating Range ⁶	40 - 74 F			
Refrigerant Charge	6 lb R-22			
Options				
Extended Warranties	Compressor, Start-up			

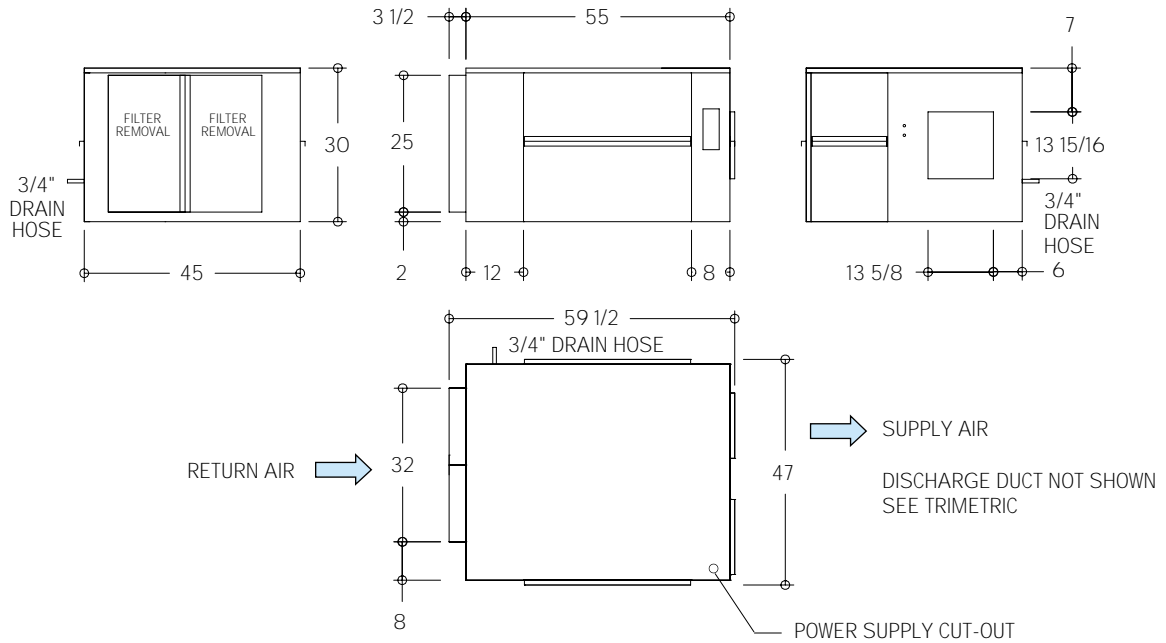
- For other voltages and 50 Hz applications refer to the Dectron DRY-O-TRON European publications.
- Based on 60 F 75% RH Entering Air, Standard Blower.
- Use minimum 20 gauge wire.

- Dectron's automatic reverse cycle defrost maintains full moisture removal capacity. Hot gas by-pass (false load) or other capacity reducing methods are not recommended.

- In an unheated environment Dectron's rubber connections are virtually maintenance free.
- Operating limit: 35 - 80 F.

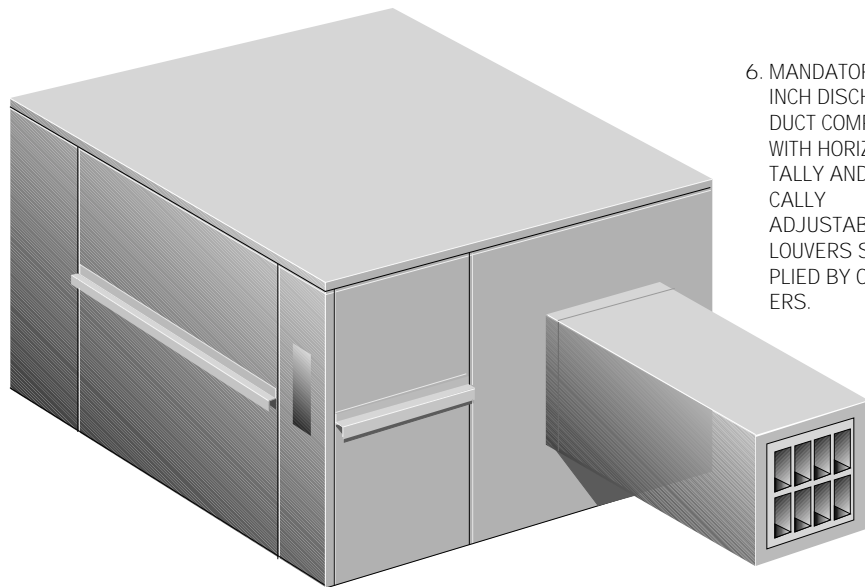
Performance Data

Operating Condition	Moisture Removal Capacity In lb/h			
Return Air Temperature	Relative Humidity			
	80%	70%	60%	50%
40 °F	7.0	4.4	-	-
42 °F	7.9	5.2	2.5	-
44 °F	8.8	6.0	3.2	0.8
46 °F	9.7	6.8	3.9	1.4
48 °F	10.6	7.6	4.6	1.9
50 °F	11.5	8.4	5.3	2.4
52 °F	12.4	9.2	6.0	2.9
54 °F	13.3	10.0	6.7	3.4
56 °F	14.2	10.8	7.4	3.9
58 °F	15.0	11.6	8.1	4.4
60 °F	15.7	12.4	8.8	5.0
62 °F	16.2	12.8	9.0	5.5
64 °F	16.5	13.0	9.1	5.6
66 °F	16.6	13.1	9.2	5.7
68 °F	16.7	13.2	9.3	5.8
70 °F	16.8	13.3	9.4	5.9
72 °F	16.9	13.4	9.5	6.0
74 °F	17.0	13.5	9.5	6.0



NOTE:

1. SATIN-COATED 16-GAUGE AND 20-GAUGE STEEL ONLY.
2. BASE 14-GAUGE STEEL REINFORCED FOR MAXIMUM RIGIDITY.
3. ENTIRE CABINET PAINTED INTERNALLY AND EXTERNALLY.
4. REMOVABLE SERVICE PANELS FOR ACCESS TO ALL INTERNAL PARTS.
5. ALL DIMENSIONS IN INCHES AND ARE APPROXIMATE. CERTIFIED DIMENSIONS AVAILABLE ON REQUEST.



6. MANDATORY 36 INCH DISCHARGE DUCT COMPLETE WITH HORIZONTALLY AND VERTICALLY ADJUSTABLE LOUVERS SUPPLIED BY OTHERS.



VIEW: ORTHOGRAPHIC

VIEW: TRIMETRIC

DRAWING NO: DA2-M-16-AE

SCALE: 1:40

SCALE: NOT TO SCALE

US AND CANADIAN PATENTS

NET WEIGHT: 560 LB

DATE: JAN. 07, 1992

APPROVED: *P.R.*

MODEL:
DA2-016

Technical Specifications

Voltage ¹ 60 Hz	208/230 V 1 ph	208/230 V 3 ph	460 V 3 ph	575 V 3 ph
Minimum Ampacity	55 A	33 A	16 A	13 A
Maximum Main Fuse	80 A	50 A	20 A	20 A
Total Power Consumption ²	6.7 Kw	6.7 Kw	6.7 Kw	6.7 Kw
Compressor FLA	34.3 A	21.4 A	9.6 A	7.9
Compressor LRA	142 A	115 A	65 A	45 A
Blower	2.0 HP	2.0 HP	2.0 HP	2.0 HP
Blower FLA	10.5 A	6.2 A	3.1 A	2.5 A
Control Voltage ³	24 V	24 V	24 V	24 V
Reverse Cycle Defrost ⁴	Standard			
Air Volume	3600 - 4000 cfm			
Air Discharge Location	Horizontal			
Filter Quantity	4			
Filter Size	20 in x 16 in x 2 in			
Condensate Drain Connection	3/4 in I.D. Rubber ⁵			
Condensate Drain P-Trap	Standard			
Net Weight	690 lb			
Shipping Weight	870 lb			
Operating Range ⁶	40 - 74 F			
Refrigerant Charge	8 lb R-22			
Options				
Extended Warranties	Compressor, Start-up			

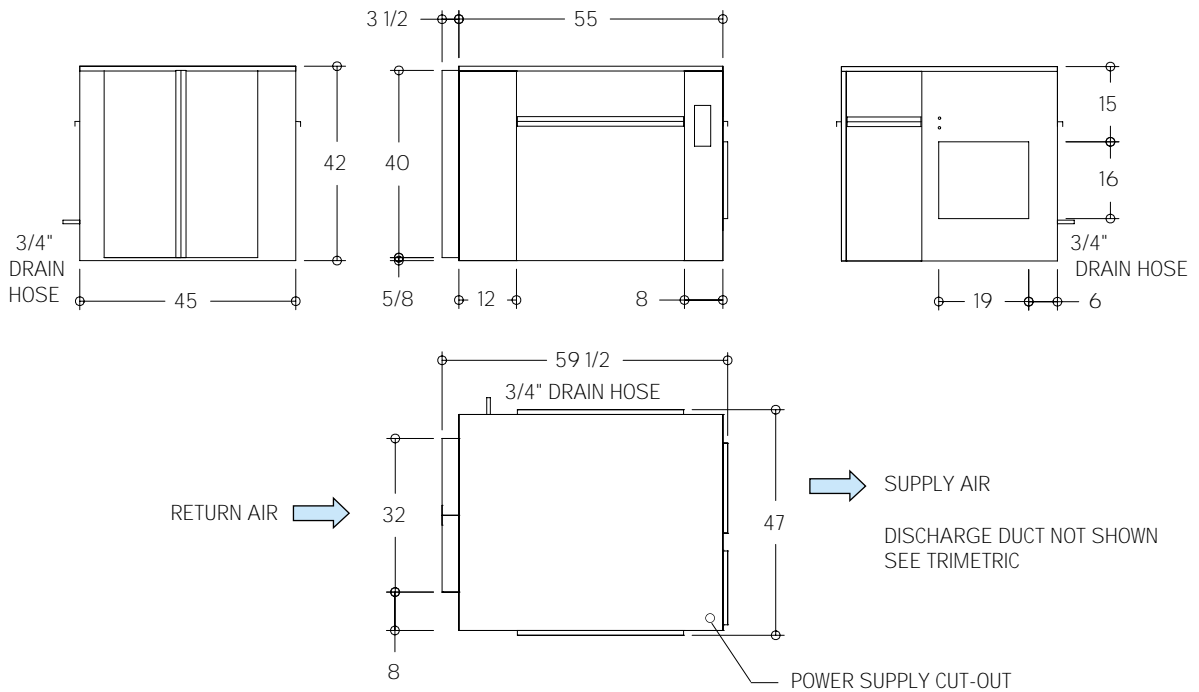
- For other voltages and 50 Hz applications refer to the Dectron DRY-O-TRON European publications.
- Based on 60 F 75% RH Entering Air, Standard Blower.
- Use minimum 20 gauge wire.

- Dectron's automatic reverse cycle defrost maintains full moisture removal capacity. Hot gas by-pass (false load) or other capacity reducing methods are not recommended.

- In an unheated environment Dectron's rubber connections are virtually maintenance free.
- Operating limit: 35 - 80 F.

Performance Data

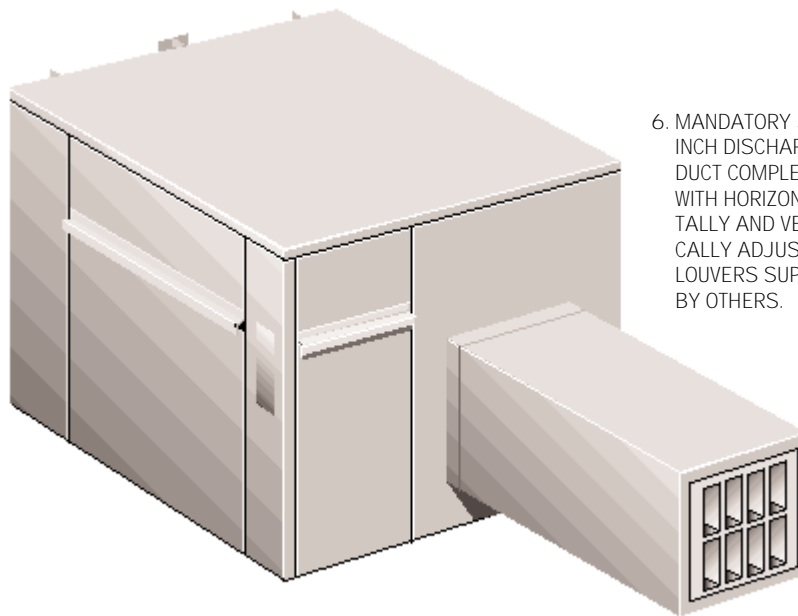
Operating Condition	Moisture Removal Capacity In lb/h			
Return Air Temperature	Relative Humidity			
	80%	70%	60%	50%
40 °F	10.0	6.4	-	-
42 °F	11.4	7.5	3.6	-
44 °F	12.8	8.6	4.6	1.1
46 °F	14.1	9.8	5.6	2.0
48 °F	15.4	11.0	6.6	2.8
50 °F	16.7	12.2	7.6	3.6
52 °F	18.0	13.4	8.6	4.2
54 °F	19.2	14.5	9.6	4.9
56 °F	20.4	15.6	10.6	5.7
58 °F	21.6	16.7	11.6	6.4
60 °F	22.8	17.8	12.6	7.2
62 °F	23.5	18.8	13.0	7.9
64 °F	24.0	18.9	13.1	8.1
66 °F	24.1	19.0	13.2	8.2
68 °F	24.2	19.1	13.3	8.3
70 °F	24.3	19.2	13.4	8.4
72 °F	24.4	19.3	13.5	8.5
74 °F	24.5	19.4	13.6	8.6



NOTE:

1. SATIN-COATED 16-GAUGE AND 20-GAUGE STEEL ONLY.
2. BASE 14-GAUGE STEEL REINFORCED FOR MAXIMUM RIGIDITY.
3. ENTIRE CABINET PAINTED INTERNALLY AND EXTERNALLY.
4. REMOVABLE SERVICE PANELS FOR ACCESS TO ALL INTERNAL PARTS.
5. ALL DIMENSIONS IN INCHES AND ARE APPROXIMATE. CERTIFIED DIMENSIONS AVAILABLE ON REQUEST.

6. MANDATORY 36 INCH DISCHARGE DUCT COMPLETE WITH HORIZONTALLY AND VERTICALLY ADJUSTABLE LOUVERS SUPPLIED BY OTHERS.



	VIEW: ORTHOGRAPHIC	SCALE: 1:40	NET WEIGHT: 690 LB	MODEL:
	VIEW: TRIMETRIC	SCALE: NOT TO SCALE	DATE: JAN. 07, 1992	DA2-024
	DRAWING NO: DA2-M-24-AE	US AND CANADIAN PATENTS	APPROVED: <i>R.R.</i>	

Technical Specifications

Voltage ¹ 60 Hz	208/230 V 1 ph	208/230 V 3 ph	460 V 3 ph	575 V 3 ph
Minimum Ampacity	-	40 A	18 A	15 A
Maximum Main Fuse	-	60 A	25 A	20 A
Total Power Consumption ²	-	9.4 Kw	9.4 Kw	9.4 Kw
Compressor FLA	-	24.1 A	10.7 A	8.4 A
Compressor LRA	-	156 A	79 A	63 A
Blower	-	3.0 HP	3.0 HP	3.0 HP
Blower FLA	-	9 A	4.5 A	3.7 A
Control Voltage ³	-	120 V	120 V	120 V
Reverse Cycle Defrost ⁴	Standard			
Air Volume	5400 - 5700 cfm			
Air Discharge Location	Horizontal			
Filter Quantity	4			
Filter Size	16 in x 25 in x 2 in			
Condensate Drain Connection	3/4 in I.D. Rubber ⁵			
Condensate Drain P-Trap	Standard			
Net Weight	800 lb			
Shipping Weight	920 lb			
Operating Range ⁶	40 - 74 F			
Refrigerant Charge	14 lb R-22			
Options				
Extended Warranties	Compressor, Start-up			

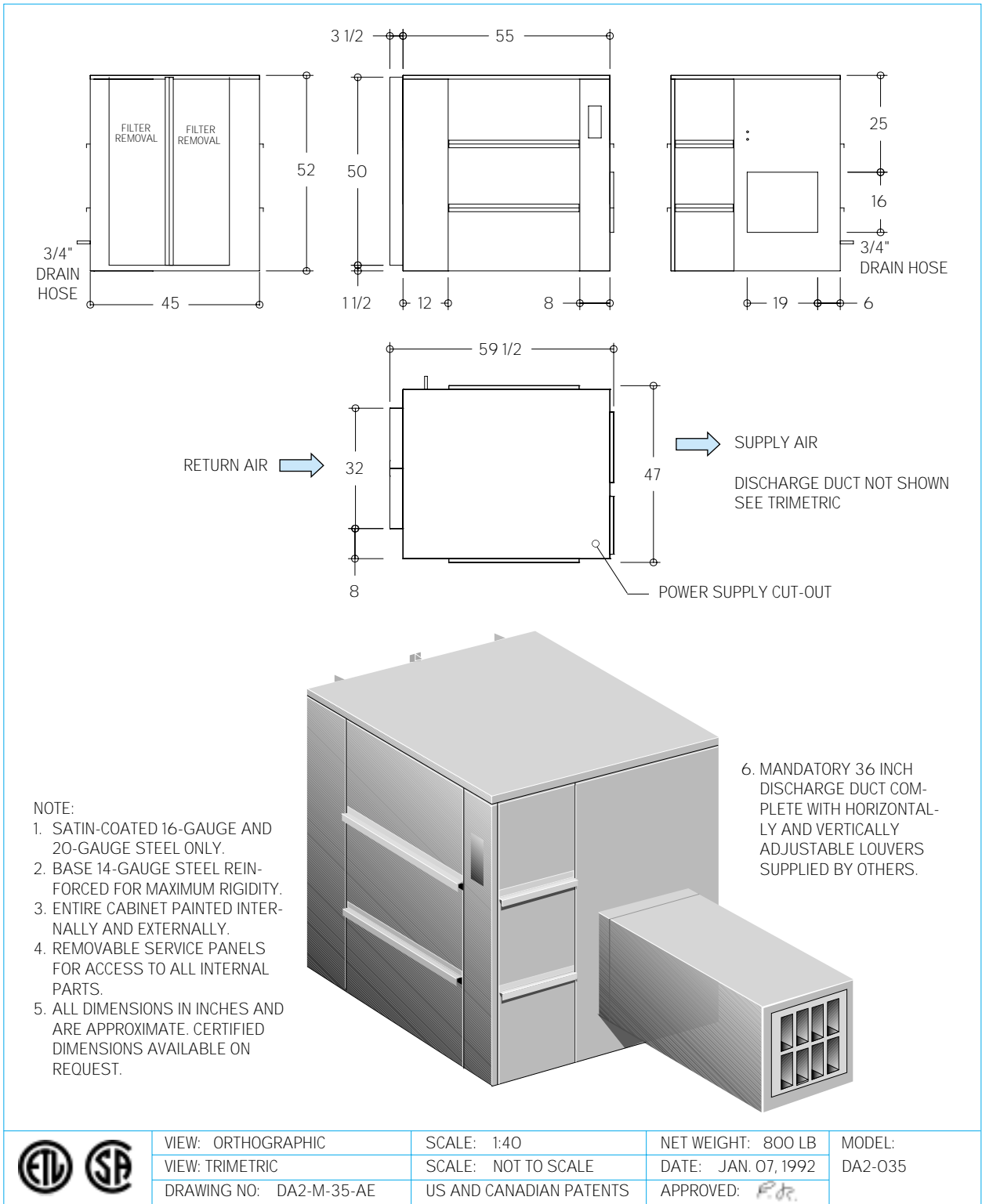
- For other voltages and 50 Hz applications refer to the Dectron DRY-O-TRON European publications.
- Based on 60 F 75% RH Entering Air, Standard Blower.
- Use minimum 20 gauge wire.

- Dectron's automatic reverse cycle defrost maintains full moisture removal capacity. Hot gas by-pass (false load) or other capacity reducing methods are not recommended.

- In an unheated environment Dectron's rubber connections are virtually maintenance free.
- Operating limit: 35 - 80 F.

Performance Data

Operating Condition	Moisture Removal Capacity In lb/h			
Return Air Temperature	Relative Humidity			
	80%	70%	60%	50%
40 °F	14.0	8.8	-	-
42 °F	15.8	10.4	5.0	-
44 °F	17.6	12.0	6.4	1.6
46 °F	19.4	13.6	7.8	2.8
48 °F	21.2	15.2	9.2	3.8
50 °F	23.0	16.8	10.6	4.8
52 °F	24.8	18.4	12.0	5.8
54 °F	26.6	20.0	13.4	6.8
56 °F	28.4	21.6	14.8	7.8
58 °F	30.0	23.2	16.2	8.8
60 °F	31.4	24.8	17.6	10.0
62 °F	32.4	25.6	18.0	11.0
64 °F	33.0	26.0	18.2	11.2
66 °F	33.2	26.2	18.4	11.4
68 °F	33.4	26.4	18.6	11.6
70 °F	33.6	26.6	18.8	11.8
72 °F	33.8	26.8	19.0	12.0
74 °F	34.0	27.0	19.0	12.0



VIEW: ORTHOGRAPHIC

VIEW: TRIMETRIC

DRAWING NO: DA2-M-35-AE

SCALE: 1:40

SCALE: NOT TO SCALE

US AND CANADIAN PATENTS

NET WEIGHT: 800 LB

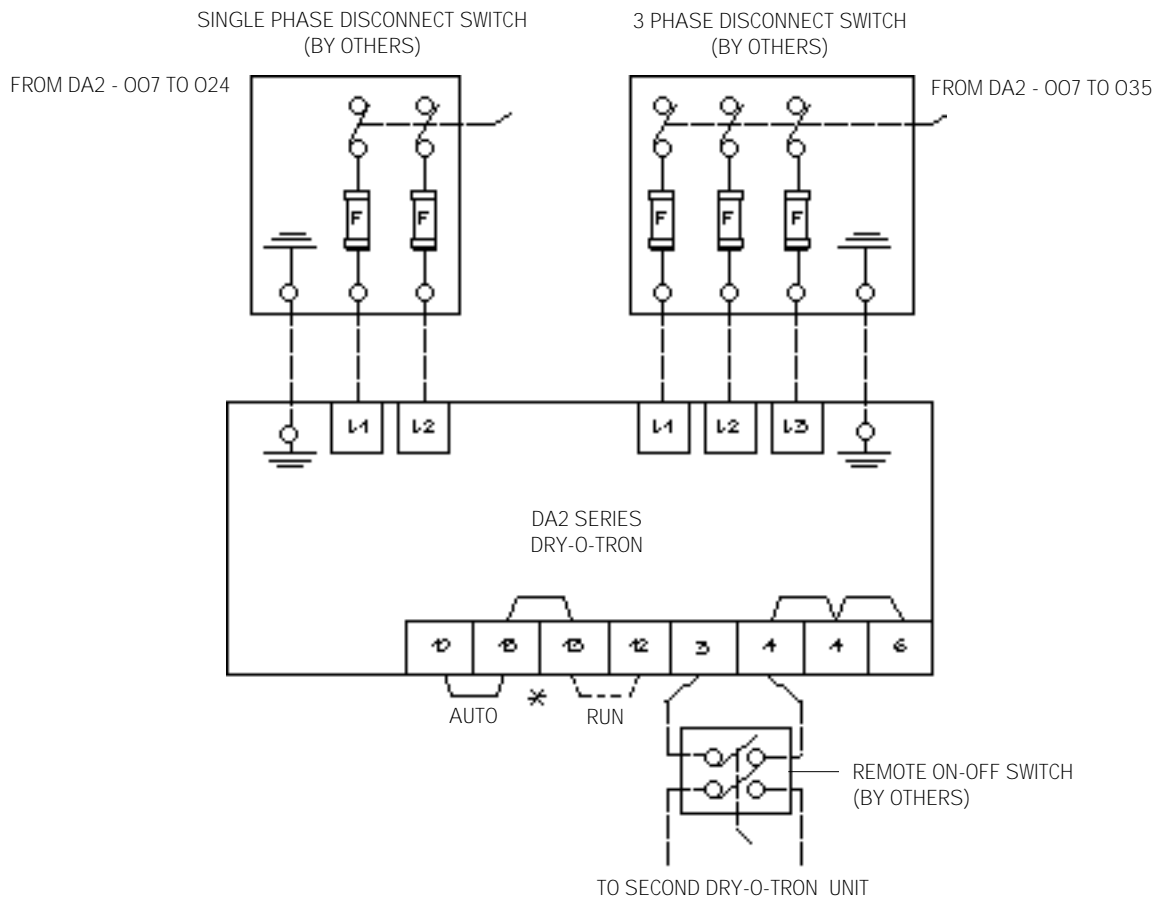
DATE: JAN. 07, 1992

APPROVED: *R.D.*

MODEL:

DA2-035

Field Wiring



NOTE:

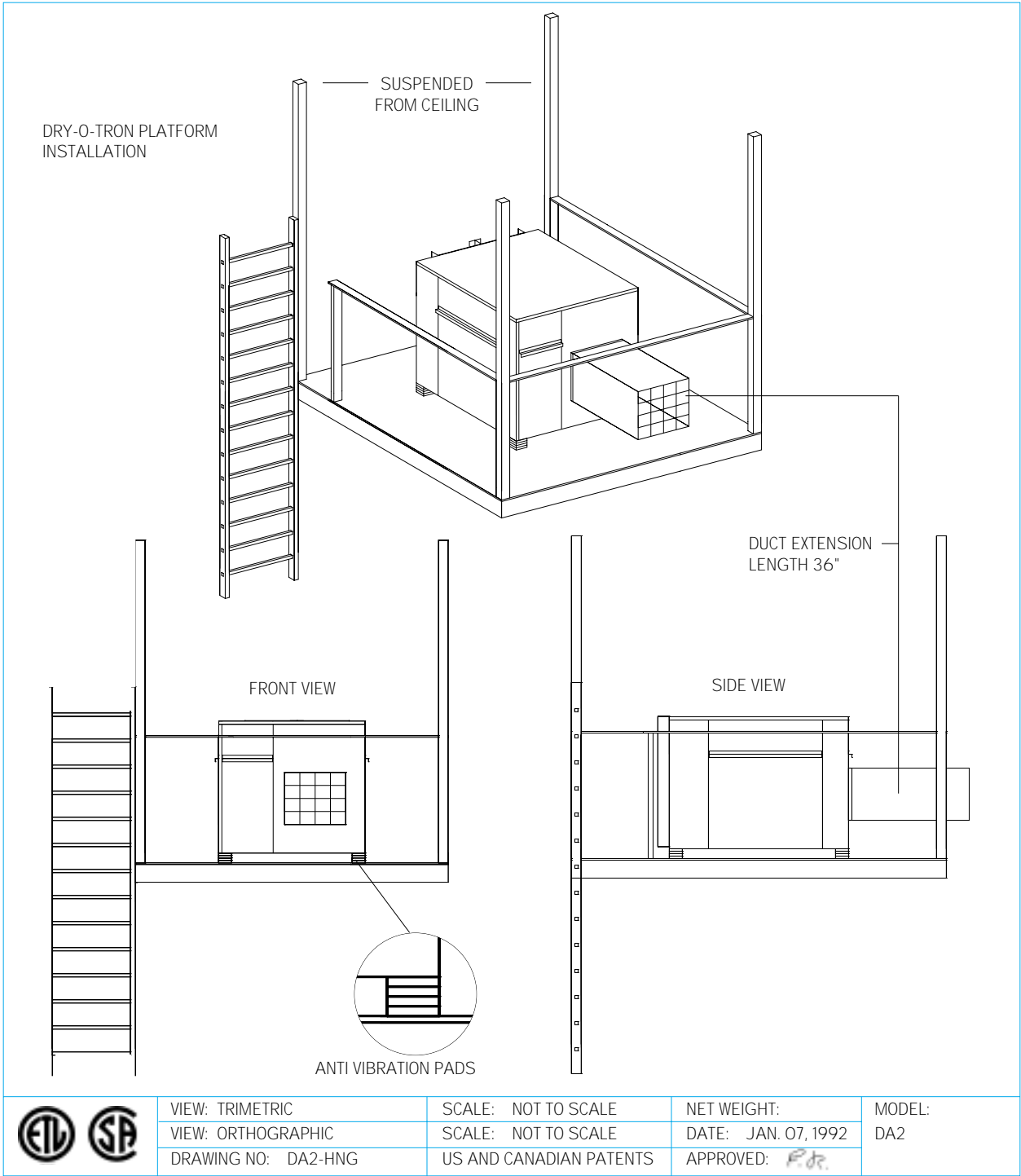
1. SEE TECHNICAL SPECIFICATIONS FOR MINIMUM AMPACITY AND MAXIMUM MAIN FUSE.
2. MINIMUM CONTROL WIRE SIZE 20 AWG.

* AUTO MODE IS STANDARD: FAN OPERATES IN DEHUMIDIFICATION MODE ONLY.

RUN MODE: CONTINUES FAN OPERATION (STOPS DURING DEFROST) REMOVE WIRE FROM TERMINALS 10 AND CONNECT IT TO TERMINAL 12.

	VIEW: DIAGRAM	SCALE: NOT TO SCALE	NET WEIGHT:	MODEL:
	VIEW:	SCALE: NOT TO SCALE	DATE: AUG. 24, 1993	DA2
	DRAWING NO: DA2 -FWD	US AND CANADIAN PATENTS	APPROVED: <i>RJR</i>	

Installation



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Dectron Inc. reserves the right to make any changes in the design or specification of any product at any time without notice.



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