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Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

MAKE-UP AIR DEHUMIDIFIERS Designed and Engineered for Industrial and Commercial Applications

DRY-O-TRON® Quality

Dectron Inc., the inventor of DRY-O-TRON®, is a company dedicated to providing state-of-the-art in design, engineering and quality products.

Today's DRY-O-TRON® represents years of intensive research and development by a team of experts. Dectron has one of the only large-scale dehumidifier testing and environmental simulation laboratory in the industry.

The DRY-O-TRON® line of products range from an extensive array of standard systems for industrial and commercial applications. We also offer the services of our skilled engineering and technical staff dedicated to custom design projects.

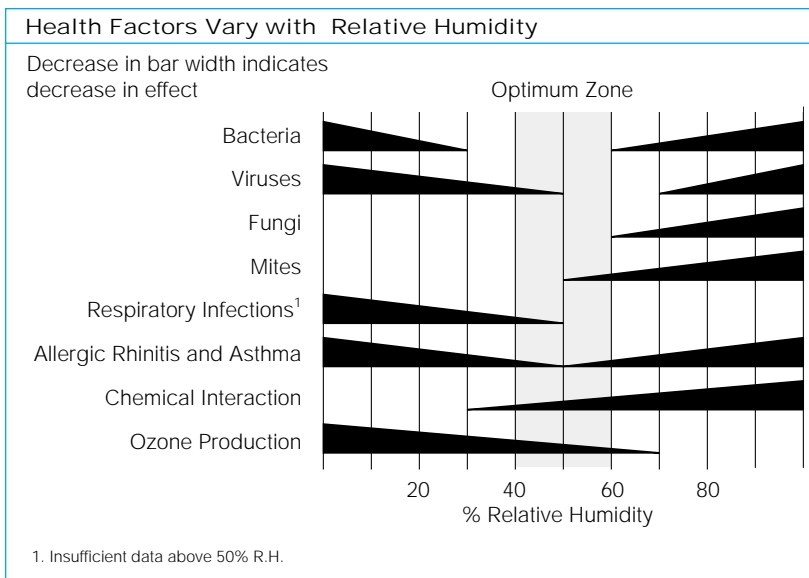
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Introduction

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

ASHRAE Standard 62-2003 "Ventilation for Acceptable Indoor Air Quality" calls for new increased outdoor air ventilation rates and quality of indoor air that will be acceptable to human occupants. These new rates of outdoor air volume are intended to avoid adverse health effects. In hot and humid climates, the increased amount of outdoor air (15 to 20 cfm per person for schools and offices) coupled with internal latent heat loads has increased the relative humidity levels for both new and existing buildings.

Human comfort is very sensitive to relative humidity. Fluctuation of relative humidity outside the 40 - 60% relative humidity range can result in increased levels of bacteria, viruses, fungi and other factors that reduce air quality and lead to respiratory problems. (See chart). One of the best solutions is to employ specialized mechanical dehumidification systems tailored to the specific application utilizing the DRY-O-TRON® DK/RK Series. The DK/RK Series Make-Up Air Dehumidifier is a packaged solution to humidity problems caused by the introduction of outdoor air to achieve the satisfaction of ASHRAE Standard 62-2003.



Study by Theodore Sterling Ltd., A. Arundel Research Associates and Simon Fraser University

Why Dehumidify Outdoor Air?

The outdoor air requirements for ventilation (Table 1, Page 6) shows substantial amounts are required to meet the ASHRAE Standard 62-2003. In most cases this "outdoor air" is extremely humid.

For example: Outdoor air of 95°F DB 75°F WB has a dew point of 67°F and a moisture content of 99 grains/lb. of dry air.

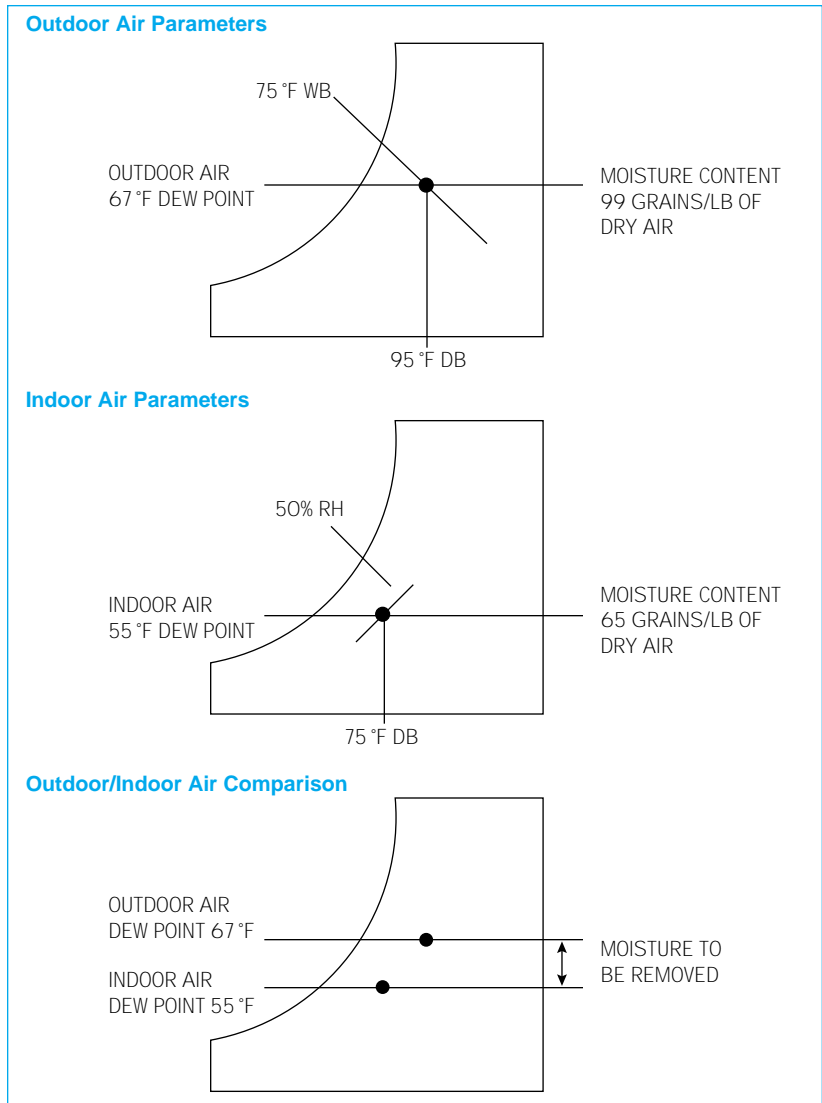
If the room is to be maintained at 75°F D.B. 50% RH (62.5°F WB), then the indoor air has a dew point of 55°F and a moisture content of 65 grains/lb. of dry air.

The latent heat load is staggering. Standard air conditioning units are not equipped to handle this heavy dehumidification requirement.

For example 2000 CFM of outdoor air would introduce 41 lb. of moisture (4.9 gallons!) **per hour** into the facility at these conditions.

Off-Peak Operation

On a cool rainy day there may not be an air conditioning demand. If it's 70°F and raining outside (100% RH), the air contains more moisture than at a summer design day (95°F DB and 75°F WB). Clearly the outdoor air requires dehumidification. An air conditioner would overcool the air causing the space to get too cold. This overcooled air would then have to be reheated by bringing on the space heater.



Most local energy codes state that this type of operation is inefficient and prohibit it.

Since most of the equipment's run time will be during "off-peak" periods, it is important that this be properly addressed. Efficient system operation is crucial for proper indoor conditions and energy consumption.

With the advent of the DRY-O-TRON® technology, the DK/RK Series actually reheats the air with recovered heat in the dehumidification mode. The air conditioning system can be off while the DRY-O-TRON® DK/RK unit takes care of the outdoor air treatment.

The compressor hot gas is **free reheat** which is used to bring the air temperature back up to the design room temperature.

Principle of Operation

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged)

Standard Reheat Mode

Warm and humid outdoor air passes through the dehumidifying coil and is cooled below its dew point thereby releasing moisture. The latent and sensible heat captured by this process is absorbed by the refrigeration system along with the heat generated by the compressor due to its power consumption. Part of the recovered heat can be used to reheat the air when it passes through the hot gas reheat coil. The balance is rejected to an outdoor condenser.

Example:

T_1 = Outdoor air entering 95°F DB/75°F WB

T_2 = Air leaving dehumidifying coil 55°F DP

T_3 = Supply air 75°F DB/62.5°F WB

As the outdoor air temperature drops, more heat is automatically rejected by the hot gas reheat coil due to its increased temperature differential. This is a desired and self adjusting feature.

Example:

T_1 = Outdoor air entering 70°F DB/70°F WB

T_2 = Air leaving dehumidifying coil 50°F DP

T_3 = Supply air 72°F DB/59°F WB

Cooling Mode

In the cooling mode all heat contained in the hot gas refrigerant is rejected to an outdoor condenser coil or water cooled condenser. Only the heat generated by the blower motor and other components is added to the conditioned air to prevent condensation in the supply air duct.

Example:

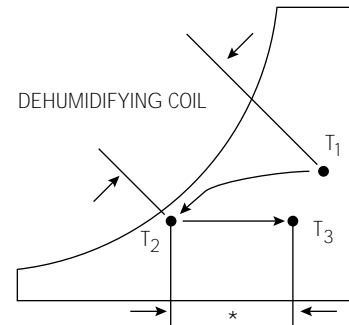
T_1 = Outdoor air entering 95°F DB/78°F WB

T_2 = Air leaving dehumidifying coil 55°F DP

T_3 = Supply air 60°F DB/57°F WB

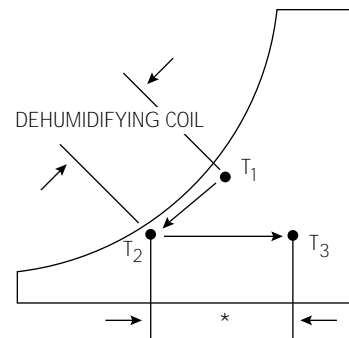
Modular Heat Rejection

High Ambient - Dehumidification



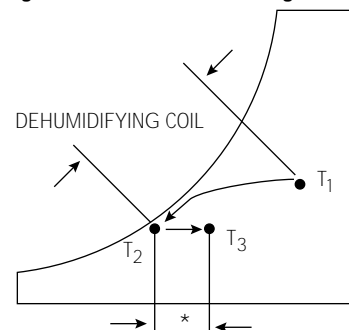
* SENSIBLE HEAT REJECTION OF HOT GAS REHEAT COIL AND OTHER COMPONENTS

Low Ambient - Dehumidification



* SENSIBLE HEAT REJECTION OF HOT GAS REHEAT COIL AND OTHER COMPONENTS

High Ambient - Air Conditioning



* SENSIBLE HEAT GAIN FROM BLOWER MOTOR AND OTHER COMPONENTS

Features

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

Make-Up Air Humidity Control

The DK/RK Series is designed to treat make-up air by removing moisture and reducing the humidity level of the discharge air. In conjunction with the proper building design, this helps to alleviate high humidity, condensation and their related problems.

The DK/RK Series has been designed and engineered to provide the flexibility to handle an extremely wide range of entering air conditions that can be expected when treating make-up air.

DK/RK Series:

- △ Treats 100% make-up air entering at as high as 80°F wet bulb.
- △ Supplies treated outdoor air required by ventilation codes.
- △ Helps reduce moisture related building repair and maintenance costs.
- △ Reduces the running time of the main air conditioning system, saving energy and maintenance costs.
- △ Helps provide a comfortably dry working environment.
- △ Contributes to space cooling and heating.
- △ Can be added to existing HVAC systems without complex tie-ins.
- △ Dehumidifies even when space cooling is not required.
- △ Pressurizes the facility to prevent infiltration of untreated air.
- △ Uses state-of-the-art heavy duty Scroll compressor technology for reliability and energy savings.
- △ **OPTIONAL** HyPoxy® coils coating.

DK/RK Series - Customized for Every Project

The DK/RK Series offer solutions for a broad range of humidity control applications (see Applications on page 7, Table 1).

To provide the best product at a competitive price, Dectron has used a modular approach for the design of the DK/RK Series. Each DK/RK unit can be customized for a particular project.

Dectron has a Technical Sales Division, staffed by a team of highly skilled engineering and manufacturing profession-

als who are at your service for any special applications.

Our local representative is available to assist in the selection and application of the DRY-O-TRON® - DK (Split System) units, RK (packaged rooftop), RK (Split System).

Other Dectron Make-Up Air Treatment Products

DRY-O-TRON® RM (packaged rooftop), DM (indoor split system) Series for extreme operating temperatures up to 86°F WB, and supply air dew points as low as 40°F. Units feature two stage compressors and two stage unloading evaporator coil arrangement.

Outdoor Air Requirements for Ventilation¹ - Table 1

Application	cfm/person	cfm/sq ft	Application	cfm/person	cfm/sq ft
Dry Cleaners, Laundries			Sports and Amusement		
Commercial laundry	25		Spectator areas	15	
Commercial dry cleaner	30		Game rooms	25	
Storage, pick-up	35		Ice arenas		0.50
Coin-operated laundries	15		Swimming pools (pool and deck)		0.50
Coin-operated dry cleaner	15		Playing floors (gymnasium)	20	
Food and Beverage Service			Ballrooms and discos	25	
Dining rooms	20		Bowling alleys (seating areas)	25	
Cafeteria, fast food	20		Theaters		
Bars, cocktail lounges	30		Ticket booths	20	
Kitchens (cooking)	15		Lobbies	20	
Garages, Repair, Service Stations			Auditorium	15	
Enclosed parking garage		1.50	Stages, studios	15	
Auto repair rooms		1.50	Transportation		
Hotels, Motels, Resorts			Waiting Rooms	15	
Bedrooms (cfm/room)		30	Platforms	15	
Living rooms (cfm/room)		30	Workrooms		
Baths (cfm/room)		35	Meat processing	15	
Lobbies	15		Photo studios	15	
Conference rooms	20		Dark rooms		0.50
Assembly rooms	15		Pharmacy	15	
Gambling casinos	30		Bank vaults	15	
Offices			Duplicating, printing		0.50
Office space	20		Education		
Telecommunication, data entry	20		Classroom	15	
Conference rooms	20		Laboratories	20	
Public Spaces			Training shop	20	
Corridors and utilities		0.05	Libraries	15	
Public restrooms (cfm/wc or urinal)	50		Corridors		0.10
Locker and dressing rooms		0.50	Locker rooms		0.50
Smoking lounge	60		Smoking lounges	60	
Retail Stores, Sales Floors			Hospitals, Nursing and Convalescent Homes		
Basement and street		0.30	Patient rooms	25	
Upper floors		0.20	Medical procedure	15	
Malls and arcades		0.20	Operating rooms	30	
Shipping and receiving		0.15	Recover and ICU	15	
Warehouses		0.05	Autopsy rooms		0.50
Smoking lounge	60		Physical therapy	15	
Specialty Shops			Correctional Facilities		
Barber	15		Cells	20	
Beauty	25		Dining halls	15	
Florists	15		Guard stations	15	
Clothiers, furniture		0.30			
Hardware, drugs, fabric	15				
Supermarkets	15				

1. Source, ASHRAE 62-2003 - Ventilation for Acceptable Indoor Air Quality.

Application Worksheet

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

Project Information	
Name:	Location:..... Elevation:.....ft
Electrical Power	Volts..... Phase, 60 Hz
Design Data	
Outdoor Air	
Summer DB / WB	°F
Winter DB	°F
Supply air to be heated (Y/N):	
Heater, unit or duct mounted:	
Supply Air	
Dry Bulb:	°F
Wet Bulb:	°F
Relative Humidity:	% RH
Dew Point:	°F
(Use psychrometric chart)	
Heating Coil (Optional)	
Electric	kW stages
Single point power connection (Y/N):	
Electrical Power	Volts Ph, 60Hz
Hot water coil:	Btu/h
Entering water temperature	°F
Maximum water flow:.....	GPM
Glycol type	Concentration % by weight
Make-Up Air Requirement (Use data from Table 1, Page 6, or applicable local codes)	
Application:.....	A: cfm/person x people = cfm
	B: cfm/ft ² x room ft ² = cfm
Exhaust Air Volume (if applicable)	C: cfm
Use the larger amount of A., B. or C for unit selection.	
Unit Selection (refer to page 9 for example)	
Step 1 (From Table 2, page 8)	Reference factor: _ _ _ _ _
Step 2 Ratio = $\frac{\text{Outdoor Air Volume}}{\text{Reference Factor}}$ = _____	= _____
Step 3 (From Table 3, page 8)	Selection 1: Model: _____ Ratio: _____
	Selection 2: Model: _____ Ratio: _____
Note: Ratio (Step 2) must fall between ratios of models selected.	
Supply Dew Point (Interpolation will be required on Table 2, page 8)	
Reference factor = $\frac{\text{Outdoor Air Volume}}{\text{Ratio of DK/RK Model}}$	Selection 1: _____ = _____ °F DP
	Selection 2: _____ = _____ °F DP
Intersection of calculated reference factor and design wet bulb from Table 2, page 8 will indicate unit supply air dew point capability.	
Heat Rejection	
Air Cooled Condenser (split system)	Water Cooled Condenser
Location (Above, same level or below DRY-O-TRON®)	Entering water temperature range: °F
Total hot gas line length: ft	Maximum water flow:..... GPM
Air on condenser: °F	Water source (well, ground loop, cooling towers):
Electrical Power	Volts Ph, 60Hz
	Loop type: Open / Closed:
	Fluid cooler: Glycol type Concentration % by weight

Model Selection

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

Quick Selection

An approximate selection can be obtained from the tables below. To be used as a guideline at the initial project

stage. Contact your local DECTRON® representative for assistance in final unit selection.

Reference Factor Selection - Table 2

	Outdoor Design Wet Bulb Temperature °F													Reference Factor
	56	58	60	62	64	66	68	70	72	74	76	78	80	
Dew Point Temperature	-	-	-	-	-	-	-	41	42	43	45	46	47	1200
	-	-	-	-	-	-	41	42	44	46	47	49	50	1400
	-	-	-	-	-	41	43	44	46	48	50	51	53	1600
	-	-	-	-	41	43	44	46	48	50	52	54	56	1800
	-	-	-	40	42	44	46	48	50	52	54	56	58	2000
	-	-	40	42	44	46	48	50	52	54	56	58	60	2200
	-	40	42	44	46	48	50	52	54	56	58	60	62	2400
	-	41	43	45	47	49	51	53	55	57	59	61	63	2600
	40	42	44	46	48	50	52	54	56	58	60	62	64	2800
41	43	45	47	49	51	53	55	57	59	61	63	65	3000	

Model Selection - Table 3

DK/RK	010	015	020	030	040	050	060	080	100	120	150
Ratio	0.4	0.5	0.85	1	1.4	1.6	2	2.4	3.2	4.0	4.8

Sensible Heat Rejection of Hot Gas Reheat Coil and other Components - Table 4

DK/RK 010		DK/RK 015		DK/RK 020		DK/RK 030 DK/RK 040		DK/RK 050			
cfm	Btu/h	cfm	Btu/h	cfm	Btu/h	cfm	Btu/h	cfm	Btu/h	cfm	Btu/h
480	18 000	600	22 500	1 020	38 300	1 200	45 000	1 680	63 000	1 920	72 000
800	21 000	1 000	26 300	1 700	44 800	2 200	54 500	3 000	76 300	3 200	84 300
1 100	23 600	1 500	30 300	2 550	51 600	3 000	60 700	4 200	85 000	4 800	97 200
DK/RK 060		DK/RK 080		DK/RK 100		DK/RK 120		DK/RK 150			
cfm	Btu/h	cfm	Btu/h	cfm	Btu/h	cfm	Btu/h	cfm	Btu/h	cfm	Btu/h
2 400	90 200	2 800	108 000	4 000	150 400	5 200	195 000	6 000	225 600		
3 900	96 700	4 600	132 000	6 000	168 600	8 800	224 000	9 000	252 900		
5 330	107 900	6 300	145 000	10 000	202 500	12 500	262 000	15 000	303 700		

Sensible Heat Gain from Blower Motor and other Components in Btu/h - Table 5

DK/RK	010	015	020	030	040	050	060	080	100	120	150
Heat Gain	5 000	6 000	10 000	12 000	17 000	20 000	22 000	34 000	42 000	53 000	63 000

Model Selection

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

Model Selection & Performance

Step 1

Select reference factor from table 2 using:

- outdoor air summer design wet bulb temperature
- room dew point temperature.

Example:

Outdoor air wet bulb: 76°F
Room air dew point: 56°F
Reference factor: 2200

Step 2

Find ratio using:

- outdoor air volume
- divided by reference factor found in step 1.

Example:

$\frac{\text{Outdoor Air Volume}}{\text{Reference Factor}} = \frac{3600}{2200}$
Ratio = 1.636

Step 3

Select model using:

- Δ table 3 in matching the ratio found in step 2.

Example

Using table 3

Model selected DK/RK 050

Consideration of model selected must be given to **the supply air dew point required**.

Selection A

The DK/RK 050 unit selected has a ratio of 1.6. Unit is marginal.

Selection B

Next larger model DK/RK 060 has a ratio of 2.0.

Step 4

Find Unit Supply Air Dew Point for:

Selection A

For DK/RK-050 (ratio 1.6)
find actual reference factor

$$\frac{\text{Outdoor Air Volume}}{\text{Ratio}} = \frac{3600}{1.6}$$
$$\text{Reference factor} = 2250$$

From Table 2

- Outdoor air wet bulb: 76°F
- Actual reference factor: 2250
- Supply air dew point: 56.5°F (found by interpolation)

Selection B

For DK/RK-060 (ratio 2.0)
find actual reference factor

$$\frac{\text{Outdoor Air Volume}}{\text{Ratio}} = \frac{3600}{2.0}$$
$$\text{Reference factor} = 1800$$

From Table 2

- Outdoor air wet bulb: 76°F
- Actual reference factor: 1800
- Supply air dew point: 52°F

Note: It is the system designers decision if a marginal model selection is acceptable or if the extra capital investment is warranted for a larger model.

Step 5

Find Supply Air Temperature during Dehumidification with Reheat

Based on:

- Δ Outdoor air volume 3600 cfm.
- Δ Entering air at 70°F DB, 70°F WB.
- Δ Model selected: DK/RK-050 as per model selection procedure. Step 1 to 3.
- Δ Air leaving dehumidifying coil at 50.5°F saturated as per **dew point calculation** procedure

- Δ Sensible heat rejection of hot gas reheat coil and other components: table 4, page 8. DK/RK-050 with an air volume of 3600 cfm develops 88,000 Btu/h sensible heat (found by interpolation)

- Δ Temperature rise across hot gas reheat coil and other components:

$$\frac{88,000 \text{ Btu/h}}{3600 \text{ cfm} \times 1.08} = 22.6^\circ\text{F}$$

Supply air temperature:

$$50.5^\circ\text{F} + 22.6^\circ\text{F} = 73.1^\circ\text{F DB}$$

Step 6

Find Supply Air Temperature during Cooling

Based on:

- Δ Outdoor air volume 3600 cfm.
- Δ Entering air at 95°F DB, 76°F WB (68.5°F dew point).
- Δ Model selected: DK/RK-050 as per model selection procedure. (Step 1 to 3).
- Δ Air leaving dehumidifying coil at 56.5°F saturated as per dew point calculation procedure (Step 4, Selection A).

- Δ Sensible heat gain from blower motor and other components: Table 5, page 8. DK/RK-050 develops 20,000 Btu/h sensible heat

- Δ Temperature rise due to sensible heat gain:

$$\frac{20,000 \text{ Btu/h}}{3600 \text{ cfm} \times 1.08} = 5.1^\circ\text{F}$$

Supply air temperature:

$$56.5^\circ\text{F} + 5.1^\circ\text{F} = 61.6^\circ\text{F DB}$$

Note: A small amount of reheat is always supplied to prevent condensation in supply duct and diffusers.

Technical Specifications

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

DK/RK 010

Voltage at 60 Hz	208/230V 1 PH		208/230V 3 PH		460V 3 PH		575V 3 PH	
Model	DK	RK	DK	RK	DK	RK	DK	RK
Compressor FLA	26.5A	26.5A	16.8A	16.8A	8.2A	8.2A	6.4A	6.4A
Compressor LRA	114A	114A	84A	84A	42A	42A	33A	33A
Compressor EER ¹	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2
Condenser Fan Motor(s)	-	2 x 0.5 HP	-	2 x 0.5 HP	-	2 x 0.5 HP	-	2 x 0.5 HP
Condenser Fan FLA (total)	-	5.4A	-	5.4A	-	2.7A	-	2.2A
Blower motor selection at 0.5" W.C. External Static Pressure (Higher External Static Pressure available refer to Page 23)	cfm 480 - 680 680 - 1100		Fan Size 9 - 4 9 - 7		Motor HP 0.5 HP 0.5 HP			
Blower Motor	0.5 HP	0.5 HP	0.5 HP	0.5 HP	0.5 HP	0.5 HP	0.5 HP	0.5 HP
Blower FLA	4.4A	4.4A	2.2A	2.2A	1.1A	1.1A	0.9A	0.9A
Unit Minimum Ampacity	38A	42A	24A	29A	12A	15A	9.0A	12A
Unit Maximum Fuse	60A	70A	40A	45A	20A	20A	15A	15A
Total Power Consumption ¹	4.4 kW	5.2 kW	4.4 kW	5.2 kW	4.4 kW	5.2 kW	4.4 kW	5.2 kW
Blower Motor	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP
Blower FLA	6.4A	6.4A	3.4A	3.4A	1.8A	1.8A	1.4A	1.4A
Unit Minimum Ampacity	40A	45A	25A	30A	12A	15A	10A	12A
Unit Maximum Fuse	60A	70A	40A	45A	20A	20A	15A	15A
Total Power Consumption ¹	4.8 kW	5.6 kW	4.8 kW	5.6 kW	4.8 kW	5.6 kW	4.8 kW	5.6 kW
Control Voltage	24V		24V		24V		24V	
Air Volume	480 - 1100 cfm							
Air Discharge Location	Horizontal							
DK/RK Filter Quantity	2							
DK/RK Filter Size	20 in x 16 in x 2 in							
Condensate Drain Connection	1 1/2" OD rubber hose							
Maximum Air Inlet Temperature	100°F DB / 80°F WB							
Unit Refrigerant Charge	DK = 12 lb R-22 (A/C not included)				RK = 30 lb R-22			
Net Weight	DK = 580 lb				RK = 1300 lb			
Shipping Weight	DK = 660 lb				RK = 1350 lb			

1. Based on maximum cfm and 95 °F DB/80 °F WB entering air.

Technical Specifications

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

DK/RK 015

Voltage at 60 Hz	208/230V 1 PH		208/230V 3 PH		460V 3 PH		575V 3 PH	
Model	DK	RK	DK	RK	DK	RK	DK	RK
Compressor FLA	34.3A	34.3A	21.4A	21.4A	9.6A	9.6A	7.9A	7.9A
Compressor LRA	142A	142A	130A	130A	65A	65A	52A	52A
Compressor EER ¹	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3
Condenser Fan Motor(s)	-	2 X 0.5 HP	-	2 x 0.5 HP	-	2 x 0.5 HP	-	2 x 0.5 HP
Condenser Fan FLA (total)	-	5.4A	-	5.4A	-	2.7A	-	2.2A
Blower motor selection at 0.5" W.C. External Static Pressure (Higher External Static Pressure available refer to Page 23)	cfm 600 - 800 800 - 1150 1150 - 1500		Fan Size 9 - 4 9 - 4 9 - 7		Motor HP 0.5 HP 1.0 HP 1.0 HP			
Blower Motor	0.5 HP	0.5 HP	0.5 HP	0.5 HP	0.5 HP	0.5 HP	0.5 HP	0.5 HP
Blower FLA	4.4A	4.4A	2.2A	2.2A	1.1A	1.1A	0.9A	0.9A
Unit Minimum Ampacity	48A	53A	29A	35A	14A	16A	11A	13A
Unit Maximum Fuse	80A	80A	50A	50A	20A	25A	15A	20A
Total Power Consumption ¹	5.7 kW	6.5 kW	5.7 kW	6.5 kW	5.7 kW	6.5 kW	5.7 kW	6.5 kW
Blower Motor	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP
Blower FLA	6.4A	6.4A	3.4A	3.4A	1.8A	1.8A	1.4A	1.4A
Unit Minimum Ampacity	50A	55A	30A	36A	14A	17A	12A	14A
Unit Maximum Fuse	80A	80A	50A	50A	20A	25A	15A	20A
Total Power Consumption ¹	6.1 kW	6.9 kW	6.1 kW	6.9 kW	6.1 kW	6.9 kW	6.1 kW	6.9 kW
Blower Motor	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP
Blower FLA	7.2A	7.2A	4.6A	4.6A	2.3A	2.3A	1.9A	1.9A
Unit Minimum Ampacity	50A	56A	31A	37A	15A	18A	12A	14A
Unit Maximum Fuse	80A	90A	50A	60A	20A	25A	20A	20A
Total Power Consumption ¹	6.4 kW	7.2 kW	6.4 kW	7.2 kW	6.4 kW	7.2 kW	6.4 kW	7.2 kW
Control Voltage	24V		24V		24V		24V	
Air Volume	600 - 1500 cfm							
Air Discharge Location	Horizontal							
DK/RK Filter Quantity	2							
DK/RK Filter Size	20 in x 20 in x 2 in							
Condensate Drain Connection	1 1/2" OD rubber hose							
Maximum Air Inlet Temperature	100°F DB / 80°F WB							
Unit Refrigerant Charge	DK = 16 lb R-22 (A/C not included)					RK = 36 lb R-22		
Net Weight	DK = 700 lb					RK = 1350 lb		
Shipping Weight	DK = 780 lb					RK = 1400 lb		

1. Based on maximum cfm and 95 °F DB/80 °F WB entering air.

Technical Specifications

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

DK/RK 020

Voltage at 60 Hz	208/230V 3 PH		460V 3 PH		575V 3 PH	
Model	DK	RK	DK	RK	DK	RK
Compressor FLA	30.1A	30.1A	15.8A	15.8A	12.4A	12.4A
Compressor LRA	183A	183A	91.1A	91.1A	73.3A	73.3A
Compressor EER ¹	14.2	14.2	14.2	14.2	14.2	14.2
Condenser Fan Motor(s)	-	2 x 0.5 HP	-	2 x 0.5 HP	-	2 x 0.5 HP
Condenser Fan FLA (total)	-	5.4A	-	2.7A	-	2.2A
Blower motor selection at 0.5" W.C. External Static Pressure (Higher External Static Pressure available refer to Page 23)	cfm		Fan Size		Motor HP	
	1020 - 1300		9 - 7		0.5 HP	
	1300 - 1800		9 - 7		1.0 HP	
	1800 - 2200		10 - 10		1.0 HP	
	2200 - 2500		10 - 10		1.5 HP	
Blower Motor	0.5 HP	0.5 HP	0.5 HP	0.5 HP	0.5 HP	0.5 HP
Blower FLA	2.2A	2.2A	1.1A	1.1A	0.9A	0.9A
Unit Minimum Ampacity	40A	46A	21A	24A	16A	19A
Unit Maximum Fuse	70A	70A	35A	40A	25A	30A
Total Power Consumption ¹	8.8 kW	9.6 kW	8.8 kW	9.6 kW	8.8 kW	9.6 kW
Blower Motor	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP
Blower FLA	3.4A	3.4A	1.8A	1.8A	1.4A	1.4A
Unit Minimum Ampacity	41A	47A	22A	25A	17A	20A
Unit Maximum Fuse	70A	70A	35A	40A	30A	30A
Total Power Consumption ¹	9.2 kW	10.0 kW	9.2 kW	10.0 kW	9.2 kW	10.0 kW
Blower Motor	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP
Blower FLA	5.6A	5.6A	2.8A	2.8A	1.9A	1.9A
Unit Minimum Ampacity	44A	49A	23A	26A	18A	20A
Unit Maximum Fuse	70A	70A	35A	40A	30A	30A
Total Power Consumption ¹	9.6 kW	10.4 kW	9.6 kW	10.4 kW	9.6 kW	10.4 kW
Blower Motor	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP
Blower FLA	6.2A	6.2A	3.1A	3.1A	2.5A	2.5A
Unit Minimum Ampacity	44A	50A	23A	26A	18A	21A
Unit Maximum Fuse	70A	80A	35A	40A	30A	30A
Total Power Consumption	10.0 kW	10.7 kW	10.0 kW	10.7 kW	10.0 kW	10.7 kW
Control Voltage	24V		24V		24V	
Air Volume	1020 - 2550 cfm					
Air Discharge Location	Horizontal					
DK/RK Filter Quantity	4					
DK/RK Filter Size	16 in x 20 in x 2 in					
Condensate Drain Connection	1 1/2" OD rubber hose					
Maximum Air Inlet Temperature	100°F DB / 80°F WB					
Unit Refrigerant Charge	DK = 25 b R-22 (A/C not included)			RK = 50 lb R-22		
Net Weight	DK = 975 lb			RK = 1850 b		
Shipping Weight	DK = 1065 lb			RK = 1925 lb		

1. Based on maximum cfm and 95 °F DB/80 °F WB entering air.

Technical Specifications

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

DK/RK 030

Voltage at 60 Hz	208/230V 3 PH		460V 3 PH		575V 3 PH	
Model	DK	RK	DK	RK	DK	RK
Compressor FLA	42.2A	42.2A	18.4A	18.4A	14.8A	14.8A
Compressor LRA	222/251A	222/251A	117A	117A	94A	94A
Compressor EER ¹	16.9	16.9	16.9	16.9	16.9	16.9
Condenser Fan Motor(s)	-	2 x 0.5 HP	-	2 x 0.5 HP	-	2 x 0.5 HP
Condenser Fan FLA (total)	-	5.4A	-	2.7A	-	2.2A
Blower motor selection at 0.5" W.C. External Static Pressure (Higher External Static Pressure available refer to Page 23)	cfm 1200 - 1400 1400 - 2500 2500 - 3000		Fan Size 9 - 7 12 - 10 12 - 10		Motor HP 0.5 1.0 1.5	
Blower Motor	0.5 HP	0.5 HP	0.5 HP	0.5 HP	0.5 HP	0.5 HP
Blower FLA	2.2A	2.2A	1.1A	1.1A	0.9A	0.9A
Unit Minimum Ampacity	55A	61A	25A	27A	20A	22A
Unit Maximum Fuse	90A	100A	40A	40A	30A	30A
Total Power Consumption ¹	10.3 kW	11.2 kW	10.3 kW	11.2 kW	10.3 kW	11.2 kW
Blower Motor	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP
Blower FLA	3.4A	3.4A	1.8A	1.8A	1.4A	1.4A
Unit Minimum Ampacity	57A	62A	25A	28A	20A	23A
Unit Maximum Fuse	90A	100A	40A	45A	35A	35A
Total Power Consumption ¹	10.7 kW	11.6 kW	10.7 kW	11.6 kW	10.7 kW	11.6 kW
Blower Motor	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP
Blower FLA	5.6A	5.6A	2.8A	2.8A	1.9A	1.9A
Unit Minimum Ampacity	59A	64A	26A	29A	21A	23A
Unit Maximum Fuse	100A	100A	40A	45A	35A	35A
Total Power Consumption ¹	11.1 kW	11.9 kW	11.1 kW	11.9 kW	11.1 kW	11.9 kW
Blower Motor	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP
Blower FLA	6.2A	6.2A	3.1A	3.1A	2.5A	2.5A
Unit Minimum Ampacity	59A	65A	27A	29A	21A	24A
Unit Maximum Fuse	100A	100A	45A	45A	30A	35A
Total Power Consumption ¹	11.4 kW	12.2 kW	11.4 kW	12.2 kW	11.4 kW	12.2 kW
Blower Motor	3.0 HP	3.0 HP	3.0 HP	3.0 HP	3.0 HP	3.0 HP
Blower FLA	9.0A	9.0A	4.5A	4.5A	3.7A	3.7A
Unit Minimum Ampacity	62A	68A	28A	31A	23A	25A
Unit Maximum Fuse	100A	100A	45A	45A	35A	40A
Total Power Consumption ¹	12.2 kW	12.9 kW	12.2 kW	12.9 kW	12.2 kW	12.9 kW
Control Voltage	24V		24V		24V	
Air Volume	1200 - 3000 cfm					
Air Discharge Location	Horizontal					
DK Filter Quantity	2 , 2					
DK Filter Size	16 in x 20 in x 2 in, 16 in x 25 in x 2 in					
RK Filter Quantity	1, 1, 1, 1					
RK Filter Size	16 in x 20 in x 2 in, 16 in x 25 in x 2 in, 20 in x 20 in x 2 in, 20 in x 25 in x 2 in					
Condensate Drain Connection	1-1/2" OD rubber hose					
Maximum Air Inlet Temperature	100°F DB / 80°F WB					
Unit Refrigerant Charge	DK = 32 lb R-22 (A/C not included)				RK = 70 lb R-22	
Net Weight	DK = 1100 lb				RK = 2250 lb	
Shipping Weight	DK = 1200 lb				RK = 2330 lb	

1. Based on maximum cfm and 95 °F DB/80 °F WB entering air.

Technical Specifications

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

DK/RK 040

Voltage at 60 Hz	208/230V 3 PH		460V 3 PH		575V 3 PH	
Model	DK	RK	DK	RK	DK	RK
Compressor FLA	62.2A	62.2A	27.6A	27.6A	22.1A	22.1A
Compressor LRA	337/376A	337/376A	178A	178A	143A	143A
Compressor EER ¹	15.0	15.0	15.0	15.0	15.0	15.0
Condenser Fan Motor(s)	-	2 x 1.0 HP	-	2 x 1.0 HP	-	2 x 1.0 HP
Condenser Fan FLA (total)	-	10.6A	-	5.2A	-	4.2A
Blower motor selection at 0.5" W.C. External Static Pressure (Higher External Static Pressure available, refer to Page 23)	cfm		Fan Size		Motor HP	
	1680 - 2400		10 - 10		1.0 HP	
	2400 - 2900		10 - 10		1.5 HP	
	2900 - 3200		10 - 10		2.0 HP	
	3200 - 3500		12 - 10		2.0 HP	
	3500 - 4200		12 - 10		3.0 HP	
Blower Motor	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP
Blower FLA	3.4A	3.4A	1.8A	1.8A	1.4A	1.4A
Unit Minimum Ampacity	82A	92A	37A	42A	30A	34A
Unit Maximum Fuse	125A	150A	60A	60A	50A	50A
Total Power Consumption ¹	16.1 kW	17.6 kW	16.1 kW	17.6 kW	16.1 kW	17.6 kW
Blower Motor	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP
Blower FLA	5.6A	5.6A	2.8A	2.8A	1.9A	1.9A
Unit Minimum Ampacity	84A	94A	38A	43A	30A	34A
Unit Maximum Fuse	125A	150A	60A	70A	50A	50A
Total Power Consumption ¹	16.4 kW	18.0 kW	16.4 kW	18.0 kW	16.4 kW	18.0 kW
Blower Motor	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP
Blower FLA	6.2A	6.2A	3.1A	3.1A	2.5A	2.5A
Unit Minimum Ampacity	84A	95A	38A	43A	31A	35A
Unit Maximum Fuse	125A	150A	60A	70A	50A	50A
Total Power Consumption ¹	16.8 kW	18.3 kW	16.8 kW	18.3 kW	16.8 kW	18.3 kW
Blower Motor	3.0 HP	3.0 HP	3.0 HP	3.0 HP	3.0 HP	3.0 HP
Blower FLA	9.0A	9.0A	4.5A	4.5A	3.7A	3.7A
Unit Minimum Ampacity	87A	98A	39A	45A	32A	36A
Unit Maximum Fuse	125A	150A	60A	70A	45A	50A
Total Power Consumption ¹	17.5 kW	19.1 kW	17.5 kW	19.1 kW	17.5 kW	19.1 kW
Blower Motor	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP
Blower FLA	14.4A	14.4A	7.2A	7.2A	5.7A	5.7A
Unit Minimum Ampacity	93A	103A	42A	47A	34A	38A
Unit Maximum Fuse	150A	150A	60A	70A	50A	60A
Total Power Consumption ¹	19.0 kW	20.5 kW	19.0 kW	20.5 kW	19.0 kW	20.5 kW
Control Voltage	24V		24V		24V	
Air Volume	1680 - 4200 cfm					
Air Discharge Location	Horizontal					
DK Filter Quantity	2, 2					
DK Filter Size	16 in x 20 in x 2 in, 16 in x 25 in x 2 in					
RK Filter Quantity	1, 1, 1, 1					
RK Filter Size	16 in x 20 in x 2 in, 16 in x 25 in x 2 in, 20 in x 20 in x 2 in, 20 in x 25 in x 2 in					
Condensate Drain Connection	1-1/2" OD rubber hose					
Maximum Air Inlet Temperature	100°F DB / 80°F WB					
Unit Refrigerant Charge	DK = 36 lb R-22 (A/C not included)				RK = 80 lb R-22	
Net Weight	DK = 1400 lb				RK = 2400 lb	
Shipping Weight	DK = 1500 lb				RK = 2490 lb	

1. Based on maximum cfm and 95 °F DB/80 °F WB entering air.

Technical Specifications

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

DK/RK 050

Voltage at 60 Hz	208/230V 3 PH		460V 3 PH		575V 3 PH	
Model	DK	RK	DK	RK	DK	RK
Compressor FLA	62.2A	62.2A	27.6A	27.6A	22.1A	22.1A
Compressor LRA	337/376A	337/376A	178A	178A	143A	143A
Compressor EER ¹	16.1	16.1	16.1	16.1	16.1	16.1
Condenser Fan Motor(s)	-	2 x 1.0 HP	-	2 x 1.0 HP	-	2 x 1.0 HP
Condenser Fan FLA (total)	-	10.6A	-	5.2A	-	4.2A
Blower motor selection at 1.0" W.C. External Static Pressure (Higher External Static Pressure available refer to Page 23)	cfm		Fan Size		Motor HP	
	1920 - 2200		10 - 10		1.0 HP	
	2200 - 2700		10 - 10		1.5 HP	
	2700 - 3500		12 - 10		2.0 HP	
	3500 - 4200		12 - 10		3.0 HP	
	4200 - 4800		15 - 11		3.0 HP	
Blower Motor	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP	1.0 HP
Blower FLA	3.4A	3.4A	1.8A	1.8A	1.4A	1.4A
Unit Minimum Ampacity	82A	92A	37A	42A	30A	34A
Unit Maximum Fuse	125A	150A	60A	60A	50A	50A
Total Power Consumption ¹	16.1 kW	17.6 kW	16.1 kW	17.6 kW	16.1 kW	17.6 kW
Blower Motor	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP
Blower FLA	5.6A	5.6A	2.8A	2.8A	1.9A	1.9A
Unit Minimum Ampacity	84A	94A	38A	43A	30A	34A
Unit Maximum Fuse	125A	150A	60A	70A	50A	50A
Total Power Consumption ¹	16.4 kW	18.0 kW	16.4 kW	18.0 kW	16.4 kW	18.0 kW
Blower Motor	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP
Blower FLA	6.2A	6.2A	3.1A	3.1A	2.5A	2.5A
Unit Minimum Ampacity	84A	95A	38A	43A	31A	35A
Unit Maximum Fuse	125A	150A	60A	70A	50A	50A
Total Power Consumption ¹	16.8 kW	18.4 kW	16.8 kW	18.4 kW	16.8 kW	18.4 kW
Blower Motor	3.0 HP	3.0 HP	3.0 HP	3.0 HP	3.0 HP	3.0 HP
Blower FLA	9.0A	9.0A	4.5A	4.5A	3.7A	3.7A
Unit Minimum Ampacity	87A	98A	39A	45A	32A	36A
Unit Maximum Fuse	125A	150A	60A	70A	50A	50A
Total Power Consumption ¹	17.5 kW	19.1 kW	17.5 kW	19.1 kW	17.5 kW	19.1 kW
Blower Motor	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP
Blower FLA	14.4A	14.4A	7.2A	7.2A	5.7A	5.7A
Unit Minimum Ampacity	93A	103A	42A	47A	34A	38A
Unit Maximum Fuse	150A	150A	60A	70A	50A	60A
Total Power Consumption ¹	19.0 kW	20.6 kW	19.0 kW	20.6 kW	19.0 kW	20.6 kW
Control Voltage	24V		24V		24V	
Air Volume	1920 - 4800 cfm					
Air Discharge Location	DK = Horizontal					RK = Bottom
DK/RK Filter Quantity	3, 3					
DK/RK Filter Size	16 in x 20 in x 2 in, 16 in x 25 in x 2 in					
Condensate Drain Connection	1-1/2" OD rubber hose					
Maximum Air Inlet Temperature	100°F DB / 80°F WB					
Unit Refrigerant Charge	DK = 48 lb R-22 (A/C not included)					RK = 88 lb R-22
Net Weight	DK = 1650 lb					RK = 3150 lb
Shipping Weight	DK = 1750 lb					RK = 3250 lb

1. Based on maximum cfm and 95 °F DB/80 °F WB entering air.

Technical Specifications

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

DK/RK 060

Voltage at 60 Hz	208/230V 3 PH		460V 3 PH		575V 3 PH	
Model	DK	RK	DK	RK	DK	RK
Compressor FLA	2 x 42.2A	2 x 42.2A	2 x 18.4A	2 x 18.4A	2 x 14.8A	2 x 14.8A
Compressor LRA	2 X 222/251A	2 X 222/251A	2 x 117A	2 x 117A	2 x 94A	2 x 94A
Compressor EER ¹	15.5	15.5	15.5	15.5	15.5	15.5
Condenser Fan Motor(s)	-	2 x 1.0 HP	-	2 x 1.0 HP	-	2 x 1.0 HP
Condenser Fan FLA (total)	-	10.6A	-	5.2A	-	4.2A
Blower motor selection at 1.0" W.C. External Static Pressure (Higher External Static Pressure available refer to Page 23)	cfm		Fan Size		Motor HP	
	2400 - 2800		10 - 10		1.5 HP	
	2800 - 3400		12 - 10		2.0 HP	
	3400 - 4000		12 - 10		3.0 HP	
	4000 - 4700		15 - 11		3.0 HP	
	4700 - 5330		15 - 11		5.0 HP	
Blower Motor	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP	1.5 HP
Blower FLA	5.6A	5.6A	2.8A	2.8A	1.9A	1.9A
Unit Minimum Ampacity	101A	112A	45A	50A	36A	40A
Unit Maximum Fuse	125A	150A	60A	60A	50A	50A
Total Power Consumption ¹	21.3 kW	22.8 kW	21.3 kW	22.8 kW	21.3 kW	22.8 kW
Blower Motor	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP
Blower FLA	6.2A	6.2A	3.1A	3.1A	2.5A	2.5A
Unit Minimum Ampacity	102A	112A	45A	50A	36A	40A
Unit Maximum Fuse	125A	150A	60A	60A	50A	50A
Total Power Consumption ¹	21.7 kW	23.2 kW	21.7 kW	23.2 kW	21.7 kW	23.2 kW
Blower Motor	3.0 HP	3.0 HP	3.0 HP	3.0 HP	3.0 HP	3.0 HP
Blower FLA	9.0A	9.0A	4.5A	4.5A	3.7A	3.7A
Unit Minimum Ampacity	104A	115A	46A	52A	37A	42A
Unit Maximum Fuse	125A	150A	60A	70A	50A	50A
Total Power Consumption ¹	22.4 kW	23.9 kW	22.4 kW	23.9 kW	22.4 kW	23.9 kW
Blower Motor	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP
Blower FLA	14.4A	14.4A	7.2A	7.2A	5.7A	5.7A
Unit Minimum Ampacity	110A	120A	49A	54A	39A	44A
Unit Maximum Fuse	150A	150A	60A	70A	50A	50A
Total Power Consumption ¹	24.0 kW	25.5 kW	24.0 kW	25.5 kW	24.0 kW	25.5 kW
Control Voltage	24V		24V		24V	
Air Volume	2400 - 5330 cfm					
Air Discharge Location	DK = Horizontal				RK = Bottom	
DK/RK Filter Quantity	3, 3					
DK/RK Filter Size	16 in x 20 in x 2 in, 16 in x 25 in x 2 in					
Condensate Drain Connection	1-1/2" OD rubber hose					
Maximum Air Inlet Temperature	100°F DB / 80°F WB					
Unit Refrigerant Charge	DK = 2 x 40 lb R-22 (A/C not included)				RK = 2 x 75 lb R-22	
Net Weight	DK = 1850 lb				RK = 3500 lb	
Shipping Weight	DK = 1925 lb				RK = 3600 lb	

1. Based on maximum cfm and 95 °F DB/80 °F WB entering air.

Technical Specifications

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

DK/RK 080

Voltage at 60 Hz	208/230V 3 PH		460V 3 PH		575V 3 PH	
Model	DK	RK	DK	RK	DK	RK
Compressor FLA	62.2A 42.2A	62.2A 42.2A	27.6A 18.4A	27.6A 18.4A	22.1A 14.8A	22.1A 14.8A
Compressor LRA	337/376A 222/251A	337/376A 222/251A	178A 117A	178A 117A	143A 94A	143A 94A
Compressor EER ¹	15.0	15.0	15.0	15.0	15.0	15.0
Condenser Fan Motor(s)	-	3 x 1.0 HP	-	3 x 1.0 HP	-	3x 1.0 HP
Condenser Fan FLA (total)	-	15.9A	-	7.8A	-	6.3A
Blower motor selection at 1.0" W.C. External Static Pressure (Higher External Static Pressure available refer to Page 23)	cfm		Fan Size		Motor HP	
	2800 - 3200		12 - 10		2.0 HP	
	3200 - 3800		15 - 11		2.0 HP	
	3800 - 4800		15 - 11		3.0 HP	
	4800 - 5200		15 - 15		3.0 HP	
	5200 - 6300		15 - 15		5.0 HP	
Blower Motor	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP
Blower FLA	6.2A	6.2A	3.1A	3.1A	2.5A	2.5A
Unit Minimum Ampacity	127A	143A	56A	64A	45A	53A
Unit Maximum Fuse	175A	200A	80A	90A	60A	70A
Total Power Consumption ¹	26.9 kW	29.1 kW	26.9 kW	29.1 kW	26.9 kW	29.1 kW
Blower Motor	3.0 HP	3.0 HP	3.0 HP	3.0 HP	3.0 HP	3.0 HP
Blower FLA	9.0A	9.0A	4.5A	4.5A	3.7A	3.7A
Unit Minimum Ampacity	129A	145A	58A	66A	47A	53A
Unit Maximum Fuse	175A	200A	80A	90A	60A	70A
Total Power Consumption ¹	27.6 kW	29.9 kW	27.6 kW	29.9 kW	27.6 kW	29.9 kW
Blower Motor	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP
Blower FLA	14.4A	14.4A	7.2A	7.2A	5.7A	5.7A
Unit Minimum Ampacity	135A	151A	61A	68A	48A	55A
Unit Maximum Fuse	175A	200A	80A	90A	70A	70A
Total Power Consumption ¹	29.1 kW	31.4 kW	29.1 kW	31.4 kW	29.1 kW	31.4 kW
Blower Motor	7.5 HP	7.5 HP	7.5 HP	7.5 HP	7.5 HP	7.5 HP
Blower FLA	20.0A	20.0A	9.3A	9.3A	8.0A	8.0A
Unit Minimum Ampacity	140A	156A	63A	70A	51A	57A
Unit Maximum Fuse	200A	200A	90A	90A	70A	70A
Total Power Consumption ¹	31.0 kW	33.2 kW	31.0 kW	33.2 kW	31.0 kW	33.2 kW
Control Voltage	24V		24V		24V	
Air Volume	2800 - 3600 cfm					
Air Discharge Location	DK = Horizontal				RK = Bottom	
DK/RK Filter Quantity	2, 2, 1, 1					
DK/RK Filter Size	16 in x 20 in x 2 in, 16 in x 25 in x 2 in, 20 in x 20 in x 2 in, 20 in x 25 in x 2 in					
Condensate Drain Connection	1-1/2" OD rubber hose					
Maximum Air Inlet Temperature	100°F DB / 80°F WB					
Unit Refrigerant Charge	DK = 70 lb R-22 (A/C not included)				RK = 120 lb R-22	
Net Weight	DK = 2300 lb				RK = 4000 lb	
Shipping Weight	DK = 2380 lb				RK = 4100 lb	

1. Based on maximum cfm and 95 °F DB/80 °F WB entering air.

Technical Specifications

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

DK/RK 100

Voltage at 60 Hz	208/230V 3 PH		460V 3 PH		575V 3 PH	
Model	DK	RK	DK	RK	DK	RK
Compressor FLA	2 x 62.2A	2 x 62.2A	2 x 27.6A	2 x 27.6A	2 x 22.1A	2 x 22.1A
Compressor LRA	2 x 337/376A	2 x 337/376A	2 x 178A	2 x 178A	2 x 143A	2 x 143A
Compressor EER ¹	16.2	16.2	16.2	16.2	16.2	16.2
Condenser Fan Motor(s)	-	4 x 1.0 HP	-	4 x 1.0 HP	-	4 x 1.0 HP
Condenser Fan FLA (total)	-	21.2A	-	10.4A	-	8.2A
Blower motor selection at 1.0" W.C. External Static Pressure (Higher External Static Pressure available refer to Page 23)	cfm		Fan Size		Motor HP	
	4000 - 4400		15 - 11		2.0 HP	
	4400 - 5300		15 - 11		3.0 HP	
	5300 - 6200		18 - 18		3.0 HP	
	6200 - 7800		18 - 18		5.0 HP	
	7800 - 8500		20 - 20		5.0 HP	
	8500 - 10000		20 - 20		7.5 HP	
Blower Motor	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP	2.0 HP
Blower FLA	6.2A	6.2A	3.1A	3.1A	2.5A	2.5A
Unit Minimum Ampacity	147A	168A	61A	71A	48A	57A
Unit Maximum Fuse	200A	225A	80A	90A	70A	70A
Total Power Consumption ¹	31.9 kW	34.9 kW	31.9 kW	34.9 kW	31.9 kW	34.9 kW
Blower Motor	3.0 HP	3.0 HP	3.0 HP	3.0 HP	3.0 HP	3.0 HP
Blower FLA	9.0A	9.0A	4.5A	4.5A	3.7A	3.7A
Unit Minimum Ampacity	149A	171A	62A	72A	50A	58A
Unit Maximum Fuse	200A	225A	80A	90A	70A	70A
Total Power Consumption ¹	32.7 kW	35.7 kW	32.7 kW	35.7 kW	32.7 kW	35.7 kW
Blower Motor	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP
Blower FLA	14.4A	14.4A	7.2A	7.2A	5.7A	5.7A
Unit Minimum Ampacity	155A	176A	65A	75A	52A	60A
Unit Maximum Fuse	200A	225A	90A	100A	70A	80A
Total Power Consumption ¹	34.2 kW	37.2 kW	34.2 kW	37.2 kW	34.2 kW	37.2 kW
Blower Motor	7.5 HP	7.5 HP	7.5 HP	7.5 HP	7.5 HP	7.5 HP
Blower FLA	20.0A	20.0A	9.3A	9.3A	8.0A	8.0A
Unit Minimum Ampacity	160A	182A	67A	77A	55A	62A
Unit Maximum Fuse	200A	225A	90A	100A	70A	80A
Total Power Consumption ¹	36.1 kW	39.1 kW	36.1 kW	39.1 kW	36.1 kW	39.1 kW
Blower Motor	10.0 HP	10.0 HP	10.0 HP	10.0 HP	10.0 HP	10.0 HP
Blower FLA	27.0A	27.0A	12.5A	12.5A	11.0A	11.0A
Unit Minimum Ampacity	167A	189A	70A	80A	57A	65A
Unit Maximum Fuse	225A	250A	90A	100A	70A	80A
Total Power Consumption ¹	37.9 kW	40.9 kW	37.9 kW	40.9 kW	37.9 kW	40.9 kW
Control Voltage	24V		24V		24V	
Air Volume	4000 - 10000 cfm					
Air Discharge Location	DK = Horizontal			RK = Bottom		
DK Filter Quantity	4, 2, 2, 1					
DK Filter Size	16 in x 25 in x 2 in, 16 in x 20 in x 2 in, 20 in x 25 in x 2 in, 20 in x 20 in x 2 in					
RK Filter Quantity	2, 1, 4, 2					
RK Filter Size	16 in x 25 in x 2 in, 16 in x 20 in x 2 in, 20 in x 25 in x 2 in, 20 in x 20 in x 2 in					
Condensate Drain Connection	1-1/2" OD rubber hose					
Maximum Air Inlet Temperature	100°F DB / 80°F WB					
Unit Refrigerant Charge	DK = 2 x 45 lb R-22 (A/C not included)			RK = 2 x 85 lb R-22		
Net Weight	DK = 3550 lb			RK = 5600 lb		
Shipping Weight	DK = 3700 lb			RK = 5700 lb		

1. Based on maximum cfm and 95 °F DB/80 °F WB entering air.

Technical Specifications

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

DK/RK 120

Voltage at 60 Hz	208/230V 3 PH		460V 3 PH		575V 3 PH	
Model	DK	RK	DK	RK	DK	RK
Compressor FLA	4 x 42.2A	4 x 42.2A	4 x 18.4A	4 x 18.4A	4 x 14.8A	4 x 14.8A
Compressor LRA	4 x 222/251A	4 x 222/251A	4 x 117.0A	4 x 117.0A	4 x 94.0A	4 x 94.0A
Compressor EER ¹	15.9	15.9	15.9	15.9	15.9	15.9
Condenser Fan Motor(s)	-	6 x 1.0 HP	-	6 x 1.0 HP	-	6 x 1.0 HP
Condenser Fan FLA (total)	-	31.8A	-	15.6A	-	12.6A
Blower motor selection at 1.0" W.C. External Static Pressure (Higher External Static Pressure available refer to Page 23)	cfm		Fan Size		Motor HP	
	5200 - 7000		15 - 15		5.0 HP	
	7000 - 7800		18 - 18		5.0 HP	
	7800 - 9800		18 - 18		7.5 HP	
	9800 - 11600		20 - 20		7.5 HP	
	11600 - 12500		20 - 20		10.0 HP	
Blower Motor	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP
Blower FLA	14.4A	14.4A	7.2A	7.2A	5.7A	5.7A
Unit Minimum Ampacity	194A	226A	86A	101A	69A	82A
Unit Maximum Fuse	225A	250A	100A	125A	80A	90A
Total Power Consumption ¹	43.7 kW	48.1 kW	43.7 kW	48.1 kW	43.7 kW	48.1 kW
Blower Motor	7.5 HP	7.5 HP	7.5 HP	7.5 HP	7.5 HP	7.5 HP
Blower FLA	20.0A	20.0A	9.3A	9.3A	8.0A	8.0A
Unit Minimum Ampacity	200A	232A	88A	104A	71A	84A
Unit Maximum Fuse	225A	250A	100A	125A	80A	90A
Total Power Consumption ¹	45.5 kW	49.9 kW	45.5 kW	49.9 kW	45.5 kW	49.9 kW
Blower Motor	10.0 HP	10.0 HP	10.0 HP	10.0 HP	10.0 HP	10.0 HP
Blower FLA	27.0A	27.0A	12.5A	12.5A	11.0A	11.0A
Unit Minimum Ampacity	207A	239A	91A	107A	74A	87A
Unit Maximum Fuse	225A	250A	100A	125A	80A	100A
Total Power Consumption ¹	47.4 kW	51.8 kW	47.4 kW	51.8 kW	47.4 kW	51.8 kW
Blower Motor	15.0 HP	15.0 HP	15.0 HP	15.0 HP	15.0 HP	15.0 HP
Blower FLA	39.0A	39.0A	19.0A	19.0A	15.2A	15.2A
Unit Minimum Ampacity	219A	251A	98A	113A	79A	91A
Unit Maximum Fuse	250A	300A	100A	125A	80A	100A
Total Power Consumption ¹	51.1 kW	55.5 kW	51.1 kW	55.5 kW	51.1 kW	55.5 kW
Control Voltage	24V		24V		24V	
Air Volume	5200 - 12500 cfm					
Air Discharge Location	DK = Horizontal			RK = Bottom		
DK Filter Quantity	2, 1, 6, 3					
DK Filter Size	16 in x 25 in x 2 in, 16 in x 20 in x 2 in, 20 in x 25 in x 2 in, 20 in x 20 in x 2 in					
RK Filter Quantity	8, 4					
RK Filter Size	20 in x 25 in x 2 in, 20 in x 20 in x 2 in					
Condensate Drain Connection	1-1/2" OD rubber hose					
Maximum Air Inlet Temperature	100°F DB / 80°F WB					
Unit Refrigerant Charge	DK = 2 x 50 lb R-22 (A/C not included)			RK = 2 x 90 lb R-22		
Net Weight	DK = 4500 lb			RK = 7400 lb		
Shipping Weight	DK = 4675 lb			RK = 7600 lb		

1. Based on maximum cfm and 95 °F DB/80 °F WB entering air.

Technical Specifications

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

DK/RK 150

Voltage at 60 Hz	208/230V 3 PH		460V 3 PH		575V 3 PH	
Model	DK	RK	DK	RK	DK	RK
Compressor FLA	2 x 62.2A 2 x 42.2A	2 x 62.2A 2 x 42.2A	2 x 27.6A 2 x 18.4A	2 x 27.6A 2 x 18.4A	2 x 22.1A 2 x 14.8A	2 x 22.1A 2 x 14.8A
Compressor LRA	2 x 337/376A 2 x 222/251A	2 x 337/376A 2 x 222/251A	2 x 178A 2 x 117A	2 x 178A 2 x 117A	2 x 143A 2 x 94A	2 x 143A 2 x 94A
Compressor EER ¹	15.9	15.9	15.9	15.9	15.9	15.9
Condenser Fan Motor(s)	-	6 x 1.0 HP	-	6 x 1.0 HP	-	6 x 1.0 HP
Condenser Fan FLA (total)	-	31.8A	-	15.6A	-	12.6A
Blower motor selection at 1.0" W.C. External Static Pressure (Higher External Static Pressure available refer to Page 23)	cfm		Fan Size		Motor HP	
	6000 - 8200		18 - 18		5.0 HP	
	8200 - 9500		20 - 20		5.0 HP	
	9500-11500		20 - 20		7.5 HP	
	11500-13200		20 - 20		10.0 HP	
	13200-15000		20 - 20		15.0 HP	
Blower Motor	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP	5.0 HP
Blower FLA	14.4A	14.4A	7.2A	7.2A	5.7A	5.7A
Unit Minimum Ampacity	239A	271A	107A	122A	86A	98A
Unit Maximum Fuse	300A	300A	125A	150A	100A	100A
Total Power Consumption ¹	54.4 kW	58.9 kW	54.4 kW	58.9 kW	54.4 kW	58.9 kW
Blower Motor	7.5 HP	7.5 HP	7.5 HP	7.5 HP	7.5 HP	7.5 HP
Blower FLA	20.0A	20.0A	9.3A	9.3A	8.0A	8.0A
Unit Minimum Ampacity	245A	277A	109A	124A	88A	100A
Unit Maximum Fuse	300A	300A	125A	150A	100A	125A
Total Power Consumption ¹	56.3 kW	60.8 kW	56.3 kW	60.8 kW	56.3 kW	60.8 kW
Blower Motor	10.0 HP	10.0 HP	10.0 HP	10.0 HP	10.0 HP	10.0 HP
Blower FLA	27.0A	27.0A	12.5A	12.5A	11.0A	11.0A
Unit Minimum Ampacity	252A	284A	112A	127A	91A	103A
Unit Maximum Fuse	300A	300A	125A	150A	100A	125A
Total Power Consumption ¹	58.2 kW	62.6 kW	58.2 kW	62.6 kW	58.2 kW	62.6 kW
Blower Motor	15.0 HP	15.0 HP	15.0 HP	15.0 HP	15.0 HP	15.0 HP
Blower FLA	39.0A	39.0A	19.0A	19.0A	15.2A	15.2A
Unit Minimum Ampacity	264A	296A	118A	134A	95A	108A
Unit Maximum Fuse	300A	350A	125A	150A	100A	125A
Total Power Consumption ¹	61.9 kW	66.4 kW	61.9 kW	66.4 kW	61.9 kW	66.4 kW
Control Voltage	24V		24V		24V	
Air Volume	6000 - 15000 cfm					
Air Discharge Location	DK = Horizontal			RK = Bottom		
DK Filter Quantity	2, 1, 6, 3					
DK Filter Size	16 in x 25 in x 2 in, 16 in x 20 in x 2 in, 20 in x 25 in x 2 in, 20 in x 20 in 2 in					
RK Filter Quantity	8, 4					
RK Filter Size	20 in x 25 in x 2 in, 20 in x 20 in 2 in					
Condensate Drain Connection	1-1/2" OD rubber hose					
Maximum Air Inlet Temperature	100°F DB / 80°F WB					
Unit Refrigerant Charge	DK = 2 x 50 lb R-22 (A/C not included)			RK = 2 x 90 lb R-22		
Net Weight	DK = 5100 lb			RK = 7600 lb		
Shipping Weight	DK = 5300 lb			RK = 7800 lb		

1. Based on maximum cfm and 95 °F DB/80 °F WB entering air.

Options

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

Models DK/RK-010, 015, 020, 030, 040, 050

OPTIONS AVAILABLE	DK/RK 010	DK/RK 015	DK/RK 020	DK/RK 030	DK/RK 040	DK/RK 050
Water Cooled Condenser						
A) Enclosure for: - Shell and tube condenser for Glycol solution - Drain kit for water loop (if installed in areas with freezing temperature)	√	√	√	√	√	√
B) Plate type heat exchanger for closed loop system	√	√	√	√	√	√
Maximum Heat Rejection Btu/h	80,000	100,000	160,000	180,000	260,000	290,000
Maximum Water Flow GPM	16	20	32	36	52	58
Maximum Water Pressure Drop PSI	2.5	4.1	8	9.0	8.0	10.0
Water Connections inch. MPT	1	1-1/4	1-1/4	1-1/4	2	2
Maximum Entering Water Temperature °F	95°F	95°F	95°F	95°F	95°F	95°F
Electric Heater						
Long base (Lbx) enclosure	√	√	√	√	√	√
Range for maximum of 70°F ΔT (kW)	10-20	10-35	10-55	10-60	15-80	15-90
Separate power connection	√	√	√	√	√	√
Single point power connection	√	√	√	√	√	√
Protective screen	√	√	√	√	√	√
Pressure differential switch	√	√	√	√	√	√
High temperature cut-out	√	√	√	√	√	√
Maximum three ON-OFF stages	√	√	√	√	√	√
Binary step control maximum 15 steps	√	√	√	√	√	√
SCR current modulating	√	√	√	√	√	√
Hot Water Coil						
Long base (Lbx) enclosure, 1 row or 2 row	√	√	√	√	√	√
Modulating 3-way valve supplied separately, field installed	√	√	√	√	√	√
Gas Heater Package	√	√	√	√	√	√
Remote Monitoring Panel						
Monitors the unit from distance (max. 1000 feet)	√	√	√	√	√	√
Return or Supply Air Motorized Damper						
(Closes the make-up air) Fail Safe Operation	√	√	√	√	√	√
Extended return air filter section for return air damper only)	√	√	√	√	√	√
Return Air Mixing Box						
(Damper setting for recirculated or make-up air dehumidification)	√	√	√	√	√	√
(RMB) Return air mixing enclosure	√	√	√	√	√	√
Air Discharge						
Side, bottom or top (to be specified)	√	√	√	√	√	√
Duct or Room Air Thermostat						
For heating control (Max. 3 stages or 0-10 VDC signal)	√	√	√	√	√	√
Unit mounted cooling thermostat	√	√	√	√	√	√
Double Skin Enclosure						
Inner liner galvanized, 2 inch insulation	√	√	√	√	√	√
Microprocessor						
Supervisaire® modem, shared sensors, EPROM	√	√	√	√	√	√
7-day time clock	√	√	√	√	√	√
Intake Hood	√	√	√	√	√	√
Custom Filter Section	√	√	√	√	√	√
Plug Fan						
PLX enclosure	√	√	√	√	√	√
Stainless Steel Coil Casing	√	√	√	√	√	√
Blower Corrosion Protection	√	√	√	√	√	√
Extended Warranty						
5 years compressor	√	√	√	√	√	√
5 years coils	√	√	√	√	√	√
Delayed Start-Up	√	√	√	√	√	√

Options

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

Models DK/RK-060, 080, 100, 120, 150

OPTIONS AVAILABLE	DK/RK 060	DK/RK 080	DK/RK 100	DK/RK 120	DK/RK 150
Water Cooled Condenser					
A) Enclosure for: - Shell and tube condenser for Glycol solution - Drain kit for water loop (if installed in areas with freezing temperature)	√	√	√	√	√
B) Plate type heat exchanger for closed loop system	√	√	√	√	√
Maximum Heat Rejection Btu/h	360,000	470,000	580,000	720,000	940,000
Maximum Water Flow GPM	72	94	116	144	188
Maximum Water Pressure Drop PSI	10.0	10.0	11.0	11.0	12.0
Water Connections inch. MPT	2	2-1/2	2-1/2	3	3
Maximum Entering Water Temperature °F	95°F	95°F	95°F	95°F	95°F
Electric Heater¹					
Long base (Lbx) enclosure	√	√	√	√	√
Range for maximum of 70°F ΔT (kW)	30-100	35-110	40-130	45-200	55-200
Separate power connection	√	√	√	√	√
Single point power connection	√	√	√	√	√
Protective screen	√	√	√	√	√
Pressure differential switch	√	√	√	√	√
High temperature cut-out	√	√	√	√	√
Maximum three ON-OFF stages	√	√	√	√	√
Binary step control maximum 15 steps	√	√	√	√	√
SCR current modulating	√	√	√	√	√
Hot Water Coil					
Long base (Lbx) enclosure, 1 row or 2 row	√	√	√	√	√
Modulating 3-way valve supplied separately, field installed	√	√	√	√	√
Gas Heater Package	√	√	√	√	√
Remote Monitoring Panel					
Monitors the unit from distance (max. 1000 feet)	√	√	√	√	√
Return or Supply Air Motorized Damper (Closes the make-up air) Fail Safe Operation Extended return air filter section for return air damper only)	√	√	√	√	√
Return Air Mixing Box (Damper setting for recirculated or make-up air dehumidification) (RMB) Return air mixing enclosure	√	√	√	√	√
Air Discharge Side, bottom or top (to be specified)	√	√	√	√	√
Duct or Room Air Thermostat For heating control (Max. 3 stages or 0-10 VDC signal)	√	√	√	√	√
Unit mounted cooling thermostat	√	√	√	√	√
Double Skin Enclosure Inner liner galvanized, 2 inch insulation	√	√	√	√	√
Microprocessor Supervisaire® modem, shared sensors, EPROM	√	√	√	√	√
7-day time clock	√	√	√	√	√
Intake Hood	√	√	√	√	√
Custom Filter Section	√	√	√	√	√
Plug Fan PLX enclosure	√	√	√	√	√
Stainless Steel Coil Casing	√	√	√	√	√
Blower Corrosion Protection	√	√	√	√	√
Extended Warranty					
5 years compressor	√	√	√	√	√
5 years coils	√	√	√	√	√
Delayed Start-Up	√	√	√	√	√

1- Not applicable on 208 volt with 100 kW heater and up.

Options

Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)

Motor & Blower Selection

1.0" W.C. External Static Pressure

Model	cfm Range	Blower Size	Motor HP
DK/RK-010	600 - 700	9 x 4	0.5
	700 - 1000	9 x 4	1.0
	1000 - 1100	9 x 7	1.0
DK/RK-015	600 - 700	9 x 4	0.5
	700 - 1000	9 x 4	1.0
	1000 - 1500	9 x 7	1.0
DK/RK-020	1020 - 1500	9 x 7	1.0
	1500 - 1700	9 x 7	1.5
	1700 - 2400	10 x 10	1.5
	2400 - 2550	10 x 10	2.0
DK/RK-030	1400 - 1750	9 x 7	1.0
	1750 - 2100	10 x 10	1.0
	2100 - 2400	10 x 10	1.5
	2400 - 3000	10 x 10	2.0
DK/RK-040	1680 - 2100	10 x 10	1.0
	2100 - 3000	10 x 10	2.0
	3000 - 4000	12 x 10	3.0
	4000 - 4200	15 x 11	3.0

2.0" W.C. External Static Pressure

Model	cfm Range	Blower Size	Motor HP
DK/RK-050	1920 - 2200	10 x 16	2.0
	2200 - 2400	10 x 8	2.0
	2400 - 3200	10 x 10	3.0
	3200 - 4500	12 x 10	5.0
	4500 - 4800	15 x 11	5.0
DK/RK-060	2400 - 3200	10 x 10	3.0
	3200 - 4500	12 x 10	5.0
	4500 - 5330	15 x 11	5.0
DK/RK-080	2800 - 3200	10 x 10	3.0
	3200 - 4500	12 x 10	5.0
	4500 - 5300	15 x 11	5.0
	5300 - 5900	15 x 15	5.0
	5900 - 6300	15 x 15	7.5
DK/RK-100	4400 - 5300	15 x 11	5.0
	5300 - 6000	15 x 15	5.0
	6000 - 7500	15 x 15	7.5
	7500 - 8200	18 x 18	7.5
	8200 - 10000	18 x 18	10.0
DK/RK-120	5200 - 6200	15 x 15	5.0
	6200 - 8400	18 x 18	7.5
	8400 - 10000	18 x 18	10.0
	10000 - 11800	20 x 20	10.0
	11800 - 12500	20 x 20	15.0
DK/RK-150	6000 - 8400	18 x 18	7.5
	8400 - 10000	18 x 18	10.0
	10000 - 11800	20 x 20	10.0
	11800 - 14500	20 x 20	15.0
	14500 - 15000	22 x 22	15.0

Air Cooled Condensers - Table 6

Make-Up Air Unit Model	Air on Condenser		
	90 °F	95 °F	100 °F
	Condenser Model		
DK-010	CCA-005	CCA-007	CCA-008
DK-015	CCA-008	CCA-008	CCB-009
DK-020	CCB-009	CCB-012	CCC-020
DK-030	CCB-012	CCB-014	CCC-020
DK-040	CCC-020	CCC-023	CCB-026
DK-050	CCC-020	CCB-026	CCB-030
DK-060	CCB-026	CCB-030	CCC-040
DK-080	CCC-040	CCC-040	CCD-054
DK-100	CCC-040	CCD-054	CCD-061
DK-120	CCD-054	CCD-061	CCE-066
DK-150	CCE-066	CCF-080	CCG-106

Dimensions and wiring diagrams for air cooled condensers with DRY-O-TRON® DK Series units (refer to Air Cooled Condenser Section)

For RK Split (Rooftop), refer to above air cooled condensers selection.

Double Hot Gas Riser¹ - Table 7

Model	No. Circuit	Refrigerant Connections	
		Riser A	Riser B
DK-010	1	1/2"	7/8"
DK-015	1	5/8"	7/8"
DK-020	1	7/8"	1-1/8"
DK-030	1	7/8"	1-1/8"
DK-040	1	7/8"	1-3/8"
DK-050	1	7/8"	1-3/8"
DK-060	2	7/8"	1-1/8"
DK-080	1	1-1/8"	1-5/8"
DK-100	2	1-1/8"	1-3/8"
DK-120	2	1-1/8"	1-3/8"
DK-150	2	1-3/8"	1-5/8"

1. The system is designed to operate at reduced compressor capacity. A vertical hot gas line sized to carry oil at minimum load conditions will have excessive pressure drop at full load. A double hot gas riser is required. During partial load, the trap will fill with oil until riser "B" is sealed off.

Line sizes are based on 100 ft equivalent line length. If this distance is to be exceeded, contact factory for additional recommendations.

1. General

1.1 Scope

- .1 Packaged system for outdoor air dehumidification.

1.2 Quality and Safety Assurance

- .1 Unit shall be designed to conform ETL or CSA standards and shall comply with BOCA code M-401.1 and M-402.1.
- .2 Coils shall be UL or CSA listed.
- .3 Blower motor(s) and compressor(s) shall be UL or CSA listed.
- .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, precharged with R-22 and fully tested in all modes of operation. All controls shall be factory adjusted and preset to the design conditions. Test report shall be available on request. Engineer reserves the right to witness factory performance testing.
- .6 Manufacturer of the packaged system for outdoor air dehumidification shall have a minimum of five years experience in the production of dehumidification 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, and product data including air flow,

static pressures, total power consumption, total cooling capacity, moisture removal capacity at design and off peak conditions per performance schedule, compressor(s) EER, air leaving conditions under all operating modes and total refrigerant charge.

- .2 Basis of unit selection and performance with supporting documentation to be furnished with bid.

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 a 100% outdoor air dehumidification and air-conditioning system. Performance and specifications shall meet or exceed that shown on the equipment schedule.
- .2 The 100% outdoor air dehumidifier(s) shall be completely factory assembled, piped, partially charged with R-22, wired, tested and shipped in one piece with a single point power supply. Each unit shall include compressor(s), evaporator (dehumidifying coil), hot gas reheat coil, supply air blower, blower motor, motor starters and controls all in one complete enclosure. All controls shall be factory adjusted and preset to the design conditions, ready for start-up.
- .3 The unit shall be specifically designed for indoor installation.

2.2 Principle of Operation

- .1 The unit shall be designed to treat make-up air by reducing the moisture content of the discharge air.

- .2 The unit shall operate according to the following sequence. The warm humid outdoor air 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(s) power consumption are absorbed by a mechanical refrigeration system. In the dehumidification mode this recovered heat is then used to reheat the air. The excess heat is then rejected to a remote air cooled or optional water-cooled condenser. When cooling is required, all the recovered heat shall be rejected to the remote air cooled or optional water-cooled condenser.

.3 ▲ OPTIONAL

Adjustable Reheat. The supply air temperature shall be reheated continuously to the manually adjusted requirement. The unit shall be configured to the specified supply air temperature by the factory during the testing of the unit. On cooling demand the supply air temperature shall be field adjustable between 0-100% of the reheat coil capacity.

2.3 Cabinet

- .1 The unit shall be constructed of minimum 16-gauge satin coated sheet metal, reinforced for maximum rigidity with a 12-gauge base.
- .2 Removable service panels shall be furnished to provide access to all internal parts from both sides and in all sections shall be provided.
- .3 Entire cabinet shall be painted internally and externally color grey.
- .4 The unit shall have a built-in hinged door electrical control panel in a separate compartment in order not to disturb the air flow within the dehumidifier during servicing of control components.

- .5 The unit shall have a built-in air filter rack with separate hinged access door.
- .6 **Δ OPTIONAL**
Double Skin Enclosure. Entire cabinet shall include a minimum of 22 gauge galvanized steel liners to form a double wall construction.

2.4 Insulation

- .1 Units entire cabinet shall be insulated with 1/2 inch thick fiberglass duct liner insulation, approved for 250 °F operating temperature and up to 5,000 fpm air velocity. Surface to be protected against perforation with a reinforcing mesh. Fire resistance rating to conform with NFPA Standard 90A. Sound attenuation coefficient shall be not less than 0.86 at a frequency of 1000 Hz as per ASTM Standard C423. Thermal conductivity shall be not more than 0.232 Btu/in•h•sq ft•F at 75 F. Insulation shall be securely fastened with approved adhesive and mechanical fasteners.

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 minimum 1/2 inch OD seamless copper tubing mechanically expanded to assure high heat transfer with maximum ten sine-wave aluminum fins per inch.
- .2 Shall be specially designed for heavy moisture removal. Coil design shall be such, that at design conditions system performance does not change due to overloading with condensate.
- .3 **Δ OPTIONAL**
Aluminum fins shall be coated with "HyPoxy®" for protection against common acids, salt and gases. Coating shall comply with ASTM B117/D1654 and ASTM D2126 for corrosion resistance. Coated alu-

minum fins shall allow the condensate to sheet off reducing bacterial growth and odor formation.

- .4 Corrugated or facetized fins shall not be acceptable. Possible system performance reduction from coated coils must be fully disclosed.
- .5 Coils shall have a 16-gauge galvanized casing and end plates with plated hardware for corrosion free assembly.
- .6 Coil shall be factory leak tested at air pressure not less than 400 psig in a water bath.
- .7 **Δ OPTIONAL**
Coil shall have a 5-year extended warranty.

2.6 Hot Gas Reheat Coil

- .8 **Δ OPTIONAL**
Coil shall have a 16-gauge type 316 stainless steel casing and end plates with stainless steel hardware.
- .1 Shall be designed to reheat the air off the evaporator. Coil shall be factory installed and tested. Field installed reheat coil shall not be acceptable. Coil shall be fabricated from seamless copper tubing mechanically expanded to assure high heat transfer with maximum twelve sine-wave aluminum fins per inch.
- .2 **Δ OPTIONAL**
Aluminum fins shall be coated with "HyPoxy®" for protection against common acids, salt and gases. Coating shall comply with ASTM B117/D1654 and ASTM D2126 for corrosion resistance.
- .3 Possible system performance reduction from coated coils must be fully disclosed.
- .4 Coil shall have a 16-gauge galvanized casing and end plates with plated hardware for corrosion free assembly.

- .5 Coil shall be factory leak tested at air pressure not less than 400 psig in a water bath.

2.7 Drain Pan

- .6 **Δ OPTIONAL**
Coil shall have a 5-year extended warranty.
- .7 **Δ OPTIONAL**
Coil shall have a 16-gauge type 316 stainless steel casing and end plates with stainless steel hardware.

2.7 Drain Pan

- .1 Each unit shall be equipped with a sloped self-draining pan under the entire evaporator coil to comply with ASHRAE IAQ Standards and shall prevent condensate carry-over. Flat drain pans susceptible to water pooling and subsequent bacteria growth shall not be acceptable.
- .2 The drain pan shall be made of 12-gauge grey Noryl plastic with hair cell finish, temperature resistant to 200 °F complete with sanitary round corners.
- .3 The drain pan shall have an external trap and condensate drain connection of rubber construction.
- .4 **Δ OPTIONAL**
The drain pan shall be made of 20-gauge type 304 stainless steel. Completed with a sloped positive drainage, smooth surface and rounded corners to avoid dirt collection and microbial growth. Shall be insulated to comply with the IAQ requirements for drain pans.

2.8 Blower

- .1 Shall be double width, double inlet, multi-blade forward curved centrifugal type blower wheel, dynamically and statically balanced and tested, mounted on a solid steel shaft coated with silicon.

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

2.8.0▲ OPTIONAL Plug Fan

- .1 The fan shall be of the centrifugal plenum (plug) type with a non overloading type backward inclined airfoil blade wheel.
- .2 The inlet plates shall be of heavy gauge reinforced steel construction, welded to a heavy structural angle frame to form an integral unit.
- .3 Blades shall be die formed airfoil shaped, continuously welded to the inlet cones as well as the back plates. Partial welding shall not be acceptable.
- .4 Wheels shall be statically and dynamically balanced on precision electronic balancers.
- .5 Shaft shall be of solid hot rolled steel construction, accurately turned, grounded, polished and ring gauged for accuracy.
- .6 Ball bearings shall be grease lubricated, self-aligning, pillow block type. Bearings shall be designed in excess of 200,000 hours life and equipped with regreasable zerk fittings.
- .7 Fan wheel and frame shall be enamel coated paint finish.

2.9 Blower Motor

- .1 Shall be open drip-proof, class B insulation, induction type, 40 °C rise, pre-lubricated ball bearings mounted on an adjustable base.
- .2 Shall have a service factor rating of 1.15 or higher and must be stamped or marked: high efficiency. (Motors 7-1/2 HP and up)

2.10 Blower Belt Drive Assembly

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

2.11 Compressor(s)

- .1 Shall be hermetic compressor(s) Scroll type (DK-30 thru DK-150) suction gas cooled, suitable for refrigerant R-22, equipped with internal thermal protection and resilient type external mounting.
- .2 Compressor manufacturer must have a wholesale outlet for replacement parts in the nearest major city.
- .3 ▲ OPTIONAL Compressor(s) shall have an optional 5-year extended warranty.

2.12 Refrigeration Circuit

- .1 Shall have an in-line solder type liquid line filter drier, liquid and moisture indicator, hot gas bypass, suction accumulator, receiver with pressure relief valve set at 400 psig, thermostatic expansion valve and adjustable low pressure control.
- .2 Tamper proof, hermetically sealed non-adjustable high pressure control and refrigeration service valve shall be installed using Schraeder type valve for easy replacement.
- .3 Refrigeration service valves shall be located outside of the air stream.
- .4 Suction line shall be fully insulated with not less than 1/2 inch closed cell insulation.
- .5 Shall be partially factory charged with R-22.

- .6 A three way valve shall be placed on the hot gas reheat coil to direct the hot gas refrigerant around the coil when cooling is required.

2.13 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(s) shall be controlled by contactors.
- .3 Blower motor and compressor(s) shall be protected with solid state adjustable trip overloads.
- .4 Built-in controls shall include:
 - a.) low enthalpy cut-out to ensure compressor(s) do not operate when outdoor dew point is lower than indoor design requirement;
 - b.) auxiliary heating control interlock. To prevent simultaneous operation of compressor(s) and auxiliary heating system.
 - c.) OPTIONAL built in cool-reheat mode outdoor air thermostat.
- .5 Voltage monitor (DK-030 thru DK-150) shall be provided to shut down electrical system to prevent damage in the event of temporary voltage fluctuation or phase loss. Voltage monitor shall be auto reset.
- .6 Power block terminal shall be provided for proper wire size.
- .7 Dry contacts shall be provided for blower interlock.
- .8 Connections shall be provided for remote ON-OFF control and fire-stat.
- .9 Color coding and wire numbering shall be provided for easy troubleshooting. All wires shall be in a wire duct.
- .10 Compressor(s) shall have a time delay start to prevent short cycling.

- .11 All wiring shall be installed in accordance with UL or CSA safety electrical code regulation, and shall be in accordance with NFPA. All components used shall be UL or CSA listed.

2.14 Air Filters

- .1 Shall be two inch cleanable permanent type air filters suitable for commercial application. The filter element shall be made from 100% virgin natural fiber, spun into a high loft, interlocking maze. The fibers shall be bonded to tough scrim backing for rigidity. The frame shall be made of galvanized formed channel with drain holes punched for ease of cleaning. The frame shall enclose a 16-gauge wire air leaving grid and 10-gauge wire front support grid for maximum filter pad support. Initial resistance at 100% R.A.F. of 0.07 inch W.G., dust holding capacity of 232 grams at final resistance of 1 inch W.G. and average arrestance efficiency of 67% based on 500 fpm air velocity.

2.15 **OPTIONAL** Water Cooled Condenser(s)

- .1 Shall be of shell and tube, counter-flow condenser(s) designed for easy cleaning, with removable end plates, straight through access to water tubes. Water cooled condenser shall conform to ASME construction requirements and tagged accordingly. Water tubes shall be constructed of heavy-gauge copper tubing in a carbon steel shell, painted. Fouling factor shall not be less than 0.0005. Glycol solution or optional drain kit required if installed in areas below freezing temperature.
- .2 **OPTIONAL**
Water Cooled Plate Type Heat Exchanger (for closed loop systems not open to the atmosphere).
- Shall be plate heat exchanger with 304 stainless steel plates copper brazed designed for refrigeration applications with high efficient

heat transfer surface. Water circuit shall be supplied with self-aligning union fittings for easy connection. The internal water circuit of the unit shall be designed for constant water flow. The entire assembly shall be hydrogen brazed into a single piece assembly and leak tested at 600 psig. Fouling factor shall not be less than 0.0001. Glycol solution or optional drain kit required if installed in areas below freezing temperature.

2.16 **OPTIONAL** Electric Heater(s)

- .1 Electric heater shall be factory installed.
- .2 Submit heater kW data including full load amp (FLA), number of stages.
- .3 Frame shall be galvanized cold rolled steel sheet, minimum 20-gauge including a protective screen. Heating elements shall be of nickel-chromium resistance wire elements, supported on ceramic bushings held in element support brackets. Elements shall be crimped to monel or stainless steel terminal lugs and terminal pins shall be positively prevented gauge including a protective screen.
- .4 Built-in controls shall be supplied with electric heater as integral and prewired components: contactors, fused control transformer, pressure differential switch, power supply terminals, control terminals, thermal overheat protection and maximum of three ON-OFF stages.
- .5 Electrical contractor shall be responsible for external power wiring, disconnect switch and fusing
- .6 **OPTIONAL**
Electrical heater shall be supplied with a maximum of 15 steps (5°F each) binary controller.

.7 **OPTIONAL**

Electric heater shall be supplied with a solid state current modulating control (SCR).

.8 **OPTIONAL**

Single point power connection.

2.17 **OPTIONAL** Hot Water Coil

- .1 Hot water coil shall be factory installed.
- .2 Submit hot water coil capacity, including air flow, water flow, water pressure drop, minimum entering air temperature, leaving air temperature, water entering temperature, leaving water temperature and water size connections.
- .3 Shall be designed for maximum heat transfer into the air with 1/2 inch OD seamless copper tubing mechanically expanded to assure high heat transfer with a maximum of 12 aluminum fins per inch.
- .4 Coil shall have a 16-gauge galvanized casing and end plates, with plated hardware.
- .5 **OPTIONAL**
Aluminum fins shall be coated with "HyPoxy®" for protection against common acids, salt and gases. Coating shall comply with ASTM B117/D1654 and ASTM D2126 for corrosion resistance.
- .6 Coil shall be factory leak tested at air pressures not less than 400 psig in a water bath.
- .7 **OPTIONAL**
Coil shall have a 16-gauge type 316 stainless steel casing and end plates with stainless steel hardware.

2.18 **OPTIONAL** Gas Heater Package

- .1 Gas heater package shall be completely factory assembled, piped, wired, tested and shipped as an integral part of DRY-O-TRON® unit. Each package shall include indirect gas-fired heater, glycol

- coil, circulating pumps and a controller. Gas heater and gas line shall be out of supply air stream allowing service without stopping the main unit.
- .2 Principle of operation: The gas heater package shall be designed to maintain supply air temperature of the 100% make-up air DRY-OTRON® unit. The gas heater system efficiency shall be not less than 88.0%. The gas heater shall be capable of using either natural or propane gas, shall include an integral power vent system which provides metered combustion air, dilutes flue products and eliminates need for vent cup.
 - .3 Gas-fired heater: Heat exchanger shall be designed for maximum heat transfer into the glycol with copper tubing, fins and casing. One piece stainless steel burners shall be divided for staging control and shall have slide out burner drawer. Ignition shall have electronic direct spark ignition control module with automatic system lockout if main burner flame is not detected. Gas valves shall be two stage, 24 volt, 100% shut-off in case of power failure. Gas heater enclosure shall be of the same construction as the main unit with a drain in case of condensation. Safety controls shall include interlock with water pressure switch, differential air pressure switch to verify vent flow, high limit thermostat and main blower.
 - .4 Glycol coil (supply air heat): Shall be designed for maximum heat transfer into the air with 1/2 inch OD seamless copper tubing mechanically expanded to assure high heat transfer with maximum twelve faceted aluminum fins per inch.
 - .5 **Δ OPTIONAL** (Glycol Coil) Shall be HyPoxy® coated fins. System performance reduction from coated coils must be fully disclosed. Coil shall have a 16-gauge galvanized casing and end plates. Coil shall be factory tested at air pressures not less than 400 psig in a water bath.
 - .6 Circulating pump package: Shall be a multi-pump design to allow the system to operate at a reduced fluid flow rate using one pump only in case of a pump failure.
 - .7 Controller: Supply air temperature shall be controlled with unit mounted microprocessor based control with a maximum of eight steps.
 - .8 **Δ OPTIONAL** (Controller) Modulating supply air temperature control.
 - .9 **Δ OPTIONAL** Warranty: Gas heater exchanger and glycol coil shall have a 5-year extended warranty.
 - .10 Quality and Safety Assurance: Unit shall have ETL or CGA approval.
- 2.19 Δ OPTIONAL Make-Up Air Motorized Damper**
- .1 The make-up air or discharge damper shall be fail-safe damper operator type. The motor shall shut the damper tightly when power is not applied or blower motor is not running. Damper shall be parallel type with overlapping blades, edge seals to minimize leakage, which operates from 0% to 100% open position. Damper blades shall be mounted on steel rods, which rotate on rust-proof nylon bushings. The damper motor shall be controlled in conjunction with unit blower operation. End switch to start blower motor when damper is min. 80% open.
- 2.20 Δ OPTIONAL Return Air Mixing Box for Outdoor Air or Recirculated Air.**
- .1 The return air mixing box section shall be part of the entire cabinet and shall comply with the construction requirements listed under "Cabinet", and shall consists of outdoor and recirculating air dampers. Damper shall be opposed type with overlapping blades, edge seals with maximum of 0.6% @ 10 WG leakage, which can operate between 0% to 100% open position. Damper blades shall be mounted on steel rods, which rotate on rust-proof nylon bushings.
- .2 The damper motors shall be controlled with occupied/unoccupied period setback control (Optional 7-day time clock)
 - .3 **Δ OPTIONAL** The modulating damper motors shall be controlled in conjunction with variable exhaust air signal (by others).
 - .4 **Δ OPTIONAL** The modulating damper motors shall be controlled in conjunction with CO₂ sensor (by others).
- 2.21 Δ OPTIONAL Remote Status Panel**
- .1 Unit manufacturer shall provide a remote monitoring panel. Panel shall be mounted and wired by electrical contractor to matching terminals in unit control panel. The monitoring panel shall include ON-OFF system switch, and signal indicator lights for compressor operation and power ON. The enclosure shall be of 14-gauge steel rated NEMA 12 for dust and oil tight, painted internally and externally.
- 2.22 Remote outdoor condenser**
- .1 The outdoor condenser shall be supplied and ready for installation including controls, propeller fans, fan guards. Refrigeration piping for connecting both parts of the package unit shall be limited to one hot gas and one liquid line for a maximum equivalent length of 100 feet. The contractor shall be responsible for connecting both

parts of the package unit. Wiring, evacuation, refrigerant charging shall be under his responsibility.

2.23 **Δ** OPTIONAL

Water source heat pump configuration (contact factory).

3. Execution

3.1 Unit Selection

- .1 Specified manufacturer to be Dectron DRY-O-TRON® Model DK
010
015
020
030
040
050
060
080
100
120
150
100% Outdoor Air Dehumidification and Air Conditioning System. Alternate manufacturers must be bid as such with full submittals in writing to the engineer not later than one week prior to bid closing.
- .2 All costs associated with deviation from the specifications shall be borne entirely by the contractor.

3.2 Product Delivery, Storage and Handling

- .1 Handle 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.

1. General

1.1 Scope

- .1 Packaged system for outdoor air dehumidification.

1.2 Quality and Safety Assurance

- .1 Unit shall be designed to conform ETL or CSA standards and shall comply with BOCA code M-401.1 and M-402.1.
- .2 Coils shall be UL or CSA listed.
- .3 Blower motor(s), fan motor(s) and compressor(s) shall be UL or CSA listed.
- .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, charged with R-22 and fully tested in all modes of operation. All controls shall be factory adjusted and preset to the design conditions. Test report shall be available on request. Engineer reserves the right to witness factory performance testing.
- .6 Manufacturer of the packaged system for outdoor air dehumidification shall have a minimum of five years experience in the production of dehumidification 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, and product data including air flow, static pressures, total power consumption, total cooling capacity, moisture removal capacity at design and off peak conditions per performance schedule, compressor(s) EER, air leaving conditions under all operating modes and total refrigerant charge.
- .2 Basis of unit selection and performance with supporting documentation to be furnished with bid.

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 a 100% outdoor air dehumidification and air-conditioning system. Performance and specifications shall meet or exceed that shown on the equipment schedule.
- .2 The 100% outdoor air dehumidifier(s) shall be completely factory assembled, piped, fully charged with R-22, wired, tested and shipped in one piece with a single point power supply. Each unit shall include compressor(s), evaporator (dehumidifying coil), hot gas reheat coil, supply air blower, blower motor, condenser coil, condenser fans, fan guards, motor starters and controls all in one complete enclosure. All controls shall be factory adjusted and preset to the design conditions, ready for start-up.
- .3 The unit shall be specifically designed for outdoor, rooftop application and include a weather-proof cabinet.

2.2 Principle of Operation

- .1 The unit shall be designed to treat make-up air by removing moisture and reducing the relative humidity level of the discharge air.
- .2 The unit shall operate according to the following sequence. The warm humid outdoor air 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(s) power consumption are absorbed by a mechanical refrigeration system. In the dehumidification mode this recovered heat is then used to reheat the air. The excess heat is then rejected to an air cooled or optional water-cooled condenser. When cooling is required, all the recovered heat shall be rejected to the air cooled or optional water-cooled condenser.
- .3 **Δ OPTIONAL** Adjustable Reheat. The supply air temperature shall be reheated continuously to the manually adjusted requirement. The unit shall be configured to the specified supply air temperature by the factory during the testing of the unit. On cooling demand the supply air temperature shall be field adjustable between 0-100% of the reheat coil capacity.

2.3 Cabinet

- .1 The unit shall be constructed of minimum 14-gauge satin coated sheet metal, reinforced for maximum rigidity with a 12-gauge base.
- .2 Hinged access doors shall be 2" double wall construction. Access to all internal parts from both sides and in all sections shall be provided.
- .3 Access doors shall be provided with flush mounted cam latch mechanisms and shall be equipped with safety door holders.

The latches shall be secured to unit frame and shall prevent entrance to the unit without tools.

- .4 Unit(s) shall be weatherproof, all seams shall be bolted with stainless steel hardware and sealed to prevent air or moisture leakage. Access doors shall be sealed against the unit frame with a raised compression gasket.
- .5 Entire cabinet shall be painted internally and externally with two coats of Sico epoxy primer and two coats of Acrythane finish, color grey.
- .6 The unit shall have a built-in hinged double door electrical control panel (single door shall not be acceptable) in a separate compartment in order not to disturb the air flow within the dehumidifier during servicing of control components. Enclosure to be rated NEMA 4 for direct water spray protection.
- .7 Roof and access doors shall include a minimum of 22 gauge galvanized steel liners to form a double wall construction.
- .8 The unit shall have a built-in air filter rack with separate hinged access door.
- .9 The make-up air inlet shall be provided with storm proof louvers constructed of extruded aluminum. Blades shall be inclined 45°, design for minimum water penetration. Protected with 1/2" bird screen.
- .10 Lifting holes shall be provided on the unit base to accept cable or chain hooks.
- .11 The unit base shall have a positive weather tight seal consisting of a roof curb with continuous surface for seating on a roof curb gasket.

.12 **▲ OPTIONAL**

Double Skin Enclosure. Entire cabinet shall include a minimum of 22 gauge galvanized steel liners with a minimum of 2 inch thick fiberglass duct liner insulation to form a double wall construction. The insulation shall comply with the requirements listed under "Insulation".

2.4 Insulation

- .1 Units entire cabinet shall be insulated with 1 inch thick fiberglass duct liner insulation, approved for 250 °F operating temperature and up to 5,000 fpm air velocity. Surface to be protected against perforation with a reinforcing mesh. Fire resistance rating to conform with NFPA Standard 90A. Sound attenuation coefficient shall be not less than 0.86 at a frequency of 1000 Hz as per ASTM Standard C423. Thermal conductivity shall be not more than 0.232 Btu/in-h-sq ft-F at 75 F. Insulation shall be securely fastened with approved adhesive and mechanical fasteners.

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 minimum 1/2 inch OD seamless copper tubing mechanically expanded to assure high heat transfer with maximum sine-wave aluminum fins per inch.
- .2 Shall be specially designed for heavy moisture removal. Coil design shall be such, that at design conditions system performance does not change due to overloading with condensate.
- .3 **▲ OPTIONAL**
Aluminum fins shall be coated with "HyPoxy®" for protection against common acids, salt and gases. Coating shall comply with ASTM B117/D1654 and ASTM D2126 for corrosion resistance. Coated alu-

minum fins shall allow the condensate to sheet off reducing bacterial growth and odor formation.

- .4 Corrugated or facetized fins shall not be acceptable. Possible system performance reduction from coated coils must be fully disclosed.
- .5 Coils shall have a 16-gauge galvanized casing and end plates with plated hardware for corrosion free assembly.
- .6 Coil shall be factory leak tested at air pressure not less than 400 psig in a water bath.
- .7 **▲ OPTIONAL**
Coil shall have a 5-year extended warranty.
- .8 **▲ OPTIONAL**
Coil shall have a 16-gauge type 316 stainless steel casing and end plates with stainless steel hardware.

2.6 Hot Gas Reheat Coil

- .1 Shall be designed to reheat the air off the evaporator. Coil shall be factory installed and tested. Field installed reheat coil shall not be acceptable. Coil shall be fabricated from minimum 1/2 inch OD seamless copper tubing mechanically expanded to assure high heat transfer with maximum twelve sine-wave aluminum fins per inch.
- .2 **▲ OPTIONAL**
Aluminum fins shall be coated with "HyPoxy®" for protection against common acids, salt and gases. Coating shall comply with ASTM B117/D1654 and ASTM D2126 for corrosion resistance.
- .3 Possible system performance reduction from coated coils must be fully disclosed.
- .4 Coil shall have a 16-gauge galvanized casing and end plates with plated hardware for corrosion free assembly.

- .5 Coil shall be factory leak tested at air pressure not less than 400 psig in a water bath.
- .6 **Δ OPTIONAL**
Coil shall have a 5-year extended warranty.
- .7 **Δ OPTIONAL**
Coil shall have a 16-gauge type 316 stainless steel casing and end plates with stainless steel hardware.

2.7 Condenser Coil

- .1 Shall be designed for variable heat transfer into the air with seamless deoxidized heavy wall smooth copper tubing mechanically expanded in self-spaced full colored aluminum plate fins for permanent bond to assure high heat transfer with maximum twelve corrugated aluminum fins per inch.
- .2 **Δ OPTIONAL**
Aluminum fins shall be coated with "HyPoxy®" for protection against common acids, salt and gases. Coating shall comply with ASTM B117/D1654 and ASTM D2126 for corrosion resistance.
- .3 Possible system performance reduction from coated coils must be fully disclosed.
- .4 Coil shall have a 16-gauge galvanized casing and end plates with plated hardware.
- .5 Coil shall be factory leak tested at air pressure not less than 400 psig in a water bath.
- .6 **Δ OPTIONAL**
Coil shall have a 16-gauge type 316 stainless steel casing and end plates with stainless steel hardware.

2.8 Drain Pan

- .1 Each unit shall be equipped with a sloped self-draining pan under the entire evaporator coil to comply with ASHRAE IAQ Standards and

shall prevent condensate carry-over. Flat drain pans susceptible to water pooling and subsequent bacteria growth shall not be acceptable.

- .2 The drain pan shall be made of 12-gauge grey Noryl plastic with hair cell finish, temperature resistant to 200 °F complete with sanitary round corners.
- .3 The drain pan shall have an external trap and condensate drain connection of rubber construction.
- .4 **Δ OPTIONAL**
The drain pan shall be made of 20-gauge type 304 stainless steel. Completed with a sloped positive drainage, smooth surface and rounded corners to avoid dirt collection and microbial growth. Shall be insulated to comply with IAQ requirements for drain pans.

2.9 Blower

- .1 Shall be double width, double inlet, multi-blade forward curved centrifugal type blower wheel, dynamically and statically balanced and tested, mounted on a solid steel shaft coated with silicon.
- .2 Shall have a galvanized steel wheel and galvanized steel casing painted with a baked enamel finish.
- .3 Ball bearings shall be grease-lubricated, self-aligning for 200,000 hours average life.

2.9.0 Δ OPTIONAL Plug Fan

- .1 The fan shall be of the centrifugal plenum (plug) type with a non overloading type backward inclined airfoil blade wheel.
- .2 The inlet plates shall be of heavy gauge reinforced steel construction, welded to a heavy structural angle frame to form an integral unit.

- .3 Blades shall be die formed airfoil shaped, continuously welded to the inlet cones as well as the back plates. Partial welding shall not be acceptable.
- .4 Wheels shall be statically and dynamically balanced on precision electronic balancers.
- .5 Shaft shall be of solid hot rolled steel construction, accurately turned, ground, polished and ring gauged for accuracy.
- .6 Ball bearings shall be grease lubricated, self-aligning, pillow block type. Bearings shall be designed in excess of 200,000 hours life and equipped with regreasable zerkl fittings.
- .7 Fan wheel and frame shall be enamel coated paint finish.

2.10 Blower Motor

- .1 Shall be open drip-proof, class B insulation, induction type, 40 °C rise, pre-lubricated ball bearings mounted on an adjustable base.
- .2 Shall have a service factor rating of 1.15 or higher and must be stamped or marked: high efficiency. (Motors 7-1/2 HP and up)

2.11 Blower Belt Drive Assembly

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

2.12 Condenser Fans

- .1 Shall be direct drive, propeller type designed for low tip speed and vertical air discharge. Fan blades shall be constructed of aluminum and riveted to dipped steel center hub. Fan diameter shall not exceed 20 inches with 1100 rpm and 30 inches with 825 rpm.

2.13 Condenser Fan Motors

- .1 Shall be permanently lubricated sealed ball bearings with built-in overload protection.
- .2 Shall be resilient mounted to heavy gauge galvanized steel rails.
- .3 All motors shall be factory wired to the units weatherproof main control panel.
- .4 All fans shall be protected with heavy gauge, welded steel wire fan guards with baked on powder epoxy coating.

2.14 Compressor(s)

- .1 Shall be hermetic compressor(s), Scroll type (RK-030 thru RK-150) suction gas cooled, suitable for refrigerant R-22, equipped with internal thermal protection and resilient type external mounting.
- .2 Compressor manufacturer must have a wholesale outlet for replacement parts in the nearest major city.
- .3 **Δ OPTIONAL**
Compressor(s) shall have an optional 5-year extended warranty.

2.15 Refrigeration Circuit

- .1 Shall have an in-line solder type liquid line filter drier, liquid and moisture indicator, hot gas bypass, suction accumulator, receiver with pressure relief valve set at 400 psig thermostatic expansion valve and adjustable low pressure control.
- .2 Tamper proof, hermetically sealed non-adjustable high pressure control and refrigeration service valve shall be installed using Schraeder type valve for easy replacement.
- .3 Refrigeration service valves shall be located outside of the air stream.

- .4 Suction line shall be fully insulated with not less than 1/2 inch closed cell insulation.
- .5 Shall be factory charged with R-22. Field piping and field refrigerant charging are not acceptable.
- .6 A three way valve shall be placed on the hot gas reheat coil to direct the hot gas refrigerant around the coil when cooling is required.

2.16 Control Panel

- .1 Shall be built-in within a separate compartment in order not to disturb the air flow during servicing.
- .2 Blower motor, condenser fan motors and compressor(s) shall be controlled by contactors.
- .3 Blower motor and compressor(s) shall be protected with solid state adjustable trip overloads.
- .4 Built-in controls shall include:
 - a.) low enthalpy cut-out to ensure compressor(s) do not operate when outdoor dew point is lower than indoor design requirement;
 - b.) auxiliary heating control interlock. To prevent simultaneous operation of compressor(s) and auxiliary heating system.
 - c.) condenser fan motors low ambient fan cycling control.
 - d.) **OPTIONAL**
built in cool reheat mode outdoor air thermostat.

- .5 Voltage monitor (RK-030 thru RK-150) shall be provided to shut down electrical system to prevent damage in the event of temporary voltage fluctuation or phase loss. Voltage monitor shall be auto reset.
- .6 Power block terminal shall be provided for proper wire size.

- .7 Dry contacts shall be provided for blower interlock.
- .8 Connections shall be provided for remote ON-OFF control and fire-stat.
- .9 Color coding and wire numbering shall be provided for easy troubleshooting. All wires shall be in a wire duct.
- .10 Compressor(s) shall have a time delay start to prevent short cycling.
- .11 All wiring shall be installed in accordance with UL or CSA safety electrical code regulation, and shall be in accordance with NFPA. All components used shall be UL or CSA listed.

2.17 Air Filters

- .1 Shall be two inch cleanable permanent type air filters suitable for commercial application. The filter element shall be made from 100% virgin natural fiber, spun into a high loft, interlocking maze. The fibers shall be bonded to tough scrim backing for rigidity. The frame shall be made of galvanized formed channel with drain holes punched for ease of cleaning. The frame shall enclose a 16-gauge wire air leaving grid and 10-gauge wire front support grid for maximum filter pad support. Initial resistance at 100% R.A.F. of 0.07 inch W.G., dust holding capacity of 232 grams at final resistance of 1 inch W.G. and average arrestance efficiency of 67% based on 500 fpm air velocity.

2.18 **Δ OPTIONAL**

Water Cooled Condenser(s)

- .1 Shall be of shell and tube, counter-flow condenser(s) designed for easy cleaning, with removable end plates, straight through access to water tubes. Water cooled condenser shall conform to ASME construction requirements and tagged accordingly. Water tubes

shall be constructed of heavy-gauge copper tubing in a carbon steel shell, painted. Fouling factor shall not be less than 0.0005. Glycol solution or optional drain kit required if installed in areas below freezing temperature.

.2 **Δ OPTIONAL**

Water Cooled Plate Type Heat Exchanger (for closed loop systems not open to the atmosphere). Shall be plate heat exchanger with 304 stainless steel plates copper brazed designed for refrigeration applications with high efficient heat transfer surface. Water circuit shall be supplied with self-aligning union fittings for easy connection. The internal water circuit of the unit shall be designed for constant water flow. The entire assembly shall be hydrogen brazed into a single piece assembly and leak tested at 600 psig. Fouling factor shall not be less than 0.0001. Glycol solution or optional drain kit required if installed in areas below freezing temperature.

2.19 **Δ OPTIONAL Electric Heater(s)**

- .1 Electric heater shall be factory installed.
- .2 Submit heater kW data including full load amp (FLA), number of stages.
- .3 Frame shall be galvanized cold rolled steel sheet, minimum 20-gauge including a protective screen. Heating elements shall be of nickel-chromium resistance wire elements, supported on ceramic bushings held in element support brackets. Elements shall be crimped to monel or stainless steel terminal lugs and terminal lugs and terminal pins shall be positively prevented from corroding by means of non-round bulkhead bushings including protective screens.

.4 Built-in controls shall be supplied with electric heater as integral and prewired components: contactors, fused control transformer, pressure differential switch, power supply terminals, control terminals, thermal overheat protection and maximum of three ON-OFF stages.

.5 Electrical contractor shall be responsible for external power wiring, disconnect switch and fusing.

.6 **Δ OPTIONAL**

Electrical heater shall be supplied with a maximum of 15 steps (5°F each) binary controller.

.7 **Δ OPTIONAL**

Electric heater shall be supplied with a solid state current modulating control (SCR).

.8 **Δ OPTIONAL**

Single point power connection.

2.20 **Δ OPTIONAL Hot Water Coil**

.1 Hot water coil shall be factory installed.

.2 Submit hot water coil capacity, including air flow, water flow, water pressure drop, minimum entering air temperature, leaving air temperature, water entering temperature, leaving water temperature and water size connections.

.3 Shall be designed for maximum heat transfer into the air with 1/2 inch OD seamless copper tubing mechanically expanded to assure high heat transfer with a maximum of 12 aluminum fins per inch.

.4 Coil shall have a 16-gauge galvanized casing and end plates, with plated hardware.

.5 **Δ OPTIONAL**

Aluminum fins shall be coated with "HyPoxy®" for protection against common acids, salt and gases. Coating shall comply with ASTM B117/D1654 and ASTM D2126 for corrosion resistance.

.6 Coil shall be factory leak tested at air pressures not less than 400 psig in a water bath.

.7 **Δ OPTIONAL**

Coil shall have a 16-gauge type 316 stainless steel casing and end plates with stainless steel hardware.

2.21 **Δ OPTIONAL Gas Heater Package**

.1 Gas heater package shall be completely factory assembled, piped, wired, tested and shipped as an integral part of DRY-O-TRON® unit. Each package shall include indirect gas-fired heater, glycol coil, circulating pumps and a controller. Gas heater and gas line shall be out of supply air stream allowing service without stopping the main unit.

.2 Principle of operation: The gas heater package shall be designed to maintain supply air temperature of the 100% make-up air DRY-O-TRON® unit. The gas heater system efficiency shall be not less than 88.0%. The gas heater shall be capable of using either natural or propane gas, shall include an integral power vent system which provides metered combustion air, dilutes flue products and eliminates need for vent cup.

.3 Gas-fired heater: Heat exchanger shall be designed for maximum heat transfer into the glycol with copper tubing, fins and casing. One piece stainless steel burners shall be divided for staging control and shall have slide out burner drawer. Ignition shall have electronic direct spark ignition control module with automatic system lockout if main burner flame is not detected. Gas valves shall be two stage, 24 volt, 100% shut-off in case of power failure. Gas heater enclosure shall be of the same construction as the main unit with a drain in case of condensation. Safety controls shall include interlock with water pressure switch,

differential air pressure switch to verify vent flow, high limit thermostat and main blower.

- .4 Glycol coil (supply air heat): Shall be designed for maximum heat transfer into the air with 1/2 inch OD seamless copper tubing mechanically expanded to assure high heat transfer with maximum twelve facetized aluminum fins per inch.
- .5 **Δ OPTIONAL (Glycol Coil)**
Shall be HyPoxy® coated fins. System performance reduction from coated coils must be fully disclosed. Coil shall have a 16-gauge galvanized casing and end plates. Coil shall be factory tested at air pressures not less than 400 psig in a water bath.
- .6 Circulating pump package: Shall be a multi-pump design to allow the system to operate at a reduced fluid flow rate using one pump only in case of a pump failure.
- .7 Controller: Supply air temperature shall be controlled with unit mounted microprocessor based control with a maximum of eight steps.
- .8 **Δ OPTIONAL (Controller)**
Modulating supply air temperature control.
- .9 **Δ OPTIONAL**
Warranty: Gas heater exchanger and glycol coil shall have a 5-year extended warranty.
- .10 Quality and Safety Assurance: Unit shall have ETL or CGA approval.

2.22 Δ OPTIONAL Make-Up Air Motorized Damper

- .1 The make-up air or discharge damper shall be fail-safe damper operator type. The motor shall shut the damper tightly when power is not applied or blower motor is not running. Damper shall be parallel type with overlapping

blades, edge seals to minimize leakage, which operates from 0% to 100% open position. Damper blades shall be mounted on steel rods, which rotate on rust-proof nylon bushings. The damper motor shall be controlled in conjunction with unit blower operation. End switch to start blower motor when damper is min. 80% open.

2.23 Δ OPTIONAL Return Air Mixing Box for Outdoor Air or Recirculated Air.

- .1 The return air mixing box section shall be part of the entire cabinet and shall comply with the construction requirements listed under "Cabinet", and shall consist of outdoor and recirculating air dampers. Damper shall be opposed type with overlapping blades, edge seals with maximum of 0.6% @ 10 WG leakage, which can operate between 0% to 100% open position. Damper blades shall be mounted on steel rods, which rotate on rust-proof nylon bushings.
- .2 The damper motors shall be controlled with occupied/unoccupied period setback control (Optional 7-day time clock)
- .3 **Δ OPTIONAL**
The modulating damper motors shall be controlled in conjunction with variable exhaust air signal (by others).
- .4 **Δ OPTIONAL**
The modulating damper motors shall be controlled in conjunction with CO₂ sensor (by others).

2.24 Δ OPTIONAL Remote Status Panel

- .1 Unit manufacturer shall provide a remote monitoring panel. Panel shall be mounted and wired by electrical contractor to matching terminals in unit control panel. The monitoring panel shall include ON-OFF system switch, and signal indicator lights for compressor

operation and power ON. The enclosure shall be of 14-gauge steel rated NEMA 12 for dust and oil tight, painted internally and externally.

2.25 Δ OPTIONAL Split System with remote outdoor condenser

- .1 The make-up air dehumidifier shall include compressor(s), evaporator (dehumidifying coil) hot gas reheat coil, supply air blower, blower motor, electrical controls all in one complete enclosure. The outdoor condenser shall be supplied and ready for installation including controls, propeller fans, fan guards. The contractor shall be responsible for connecting both packages together. Piping, wiring, evacuation, refrigerant charging shall be under his responsibility.

2.26 Δ OPTIONAL

Water source heat pump configuration (contact factory)

3. Execution

3.1 Unit Selection

- .1 Specified manufacturer to be Dectron DRY-O-TRON® Model RK 010
015
020
030
040
050
060
080
100
120
150
100% Outdoor Air Dehumidification and Air Conditioning Control System. Alternate manufacturers must be bid as such with full submittals in writing to the engineer not later than one week prior to bid closing.
- .2 All costs associated with deviation from the specifications shall be borne entirely by the contractor.

3.2 Product Delivery, Storage and Handling

- .1 Handle 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.

△ Supply air blower

Blower operates continuously; at design CFM.

Blower stops and damper (Optional) closes on:

- power failure
- firestat alarm
- remote off control (manual or from building automation system)

△ Dehumidification mode

Outdoor air enthalpy content is above the outdoor air enthalpy controller (factory installed) setpoint. Compressor(s) and condenser fan(s) operate in "dehumidification and hot gas reheat mode".

The outdoor condenser or optional water cooled condenser rejects the remaining heat that has not been used in the reheat coil.

△ Cooling mode

On cooling demand from the outdoor air thermostat (factory installed) or room air thermostat (supplied separately), compressor(s) and condenser fan(s) must be running. A 3-way valve is energized and all of the hot gas flows directly to the outdoor condenser or optional water cooled condenser. The DRY-O-TRON® runs in the "air conditioning mode".

△ Adjustable reheat (optional)

In cooling mode the supply air temperature can be manually adjusted with the hot gas reheat valve (factory installed) to obtain desired supply air temperature or relative humidity. The compressor(s) and the condenser fan(s) must be running.

△ Heating mode (optional)

On heating demand from supply air thermostat (supplied with optional heater) or room air thermostat (supplied separately), heating system is activated. Compressor(s) and condenser fan(s) do not run.

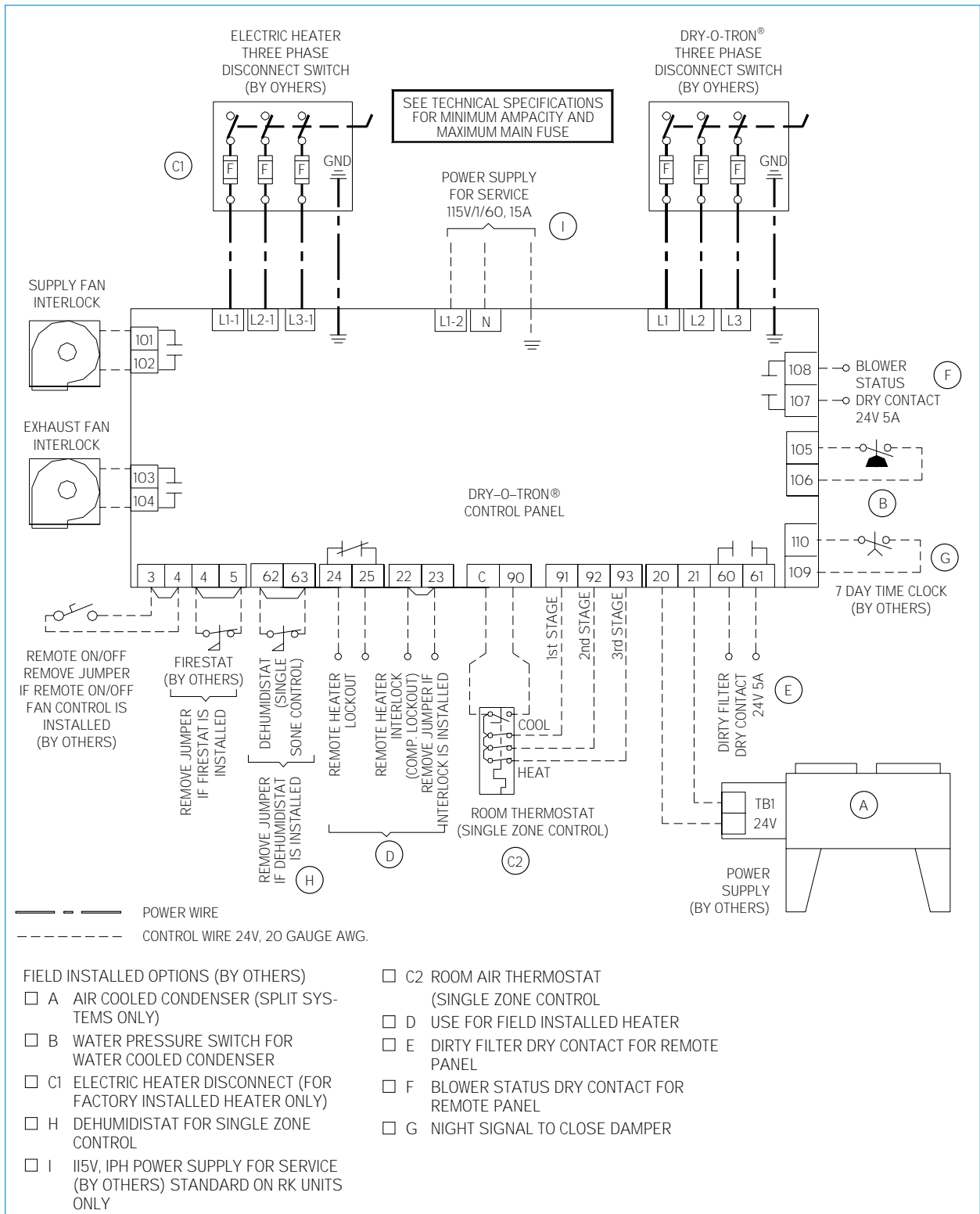
△ Unoccupied mode (optional)

Controlled with a 7-day time clock. During the unoccupied period the outdoor air damper closes, the recirculation damper opens. If the indoor relative humidity is above the room humidistat (supplied separately) setpoint, the supply fan, the compressor(s) and condenser fan(s) are activated. The DRY-O-TRON® operates in the "indoor dehumidification mode".

Note: This requires mixing box option and appropriate duct design to allow the recirculation of indoor air.

Field Wiring

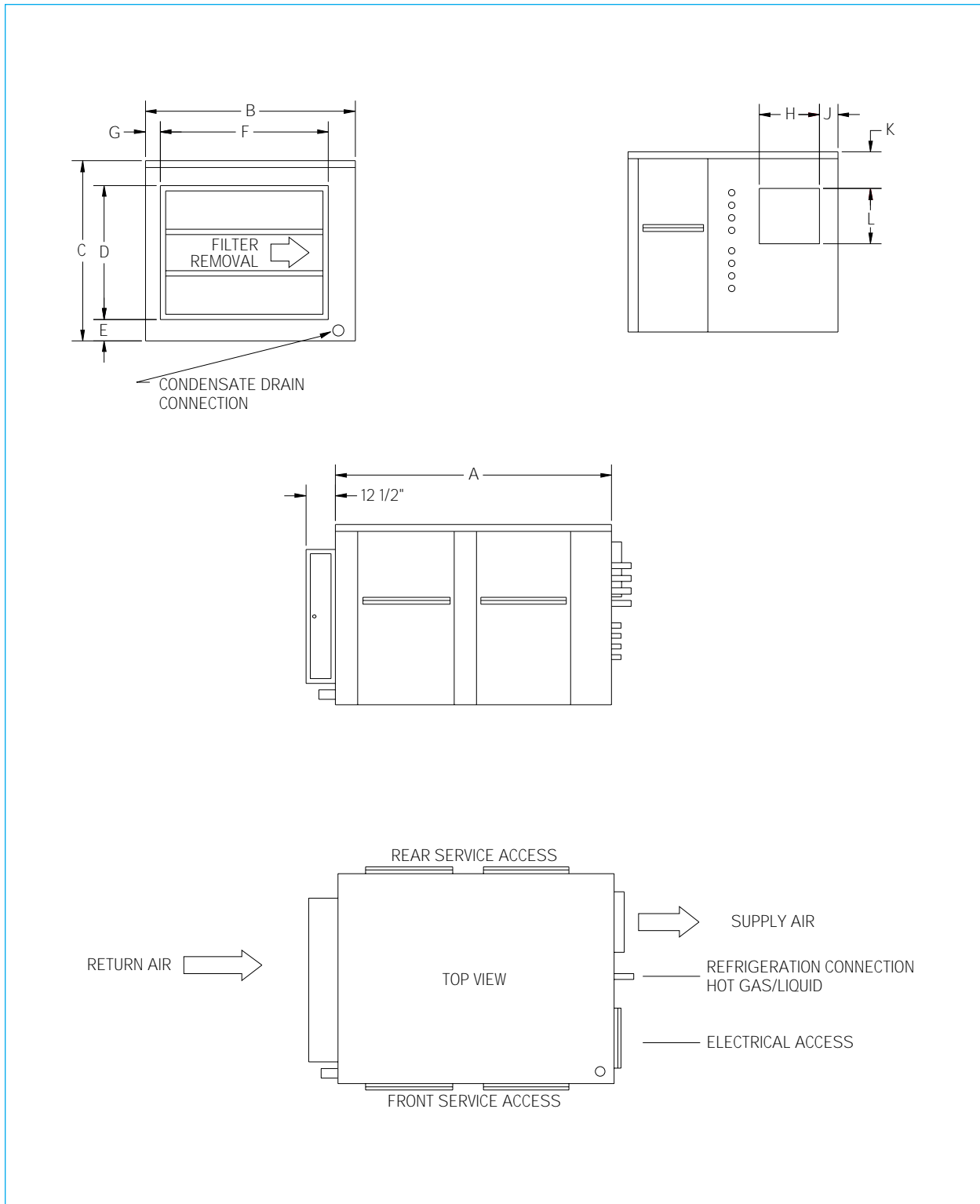
Make-Up Air Dehumidifiers Series DK (Split Indoor) - RK (Packaged Rooftop)



Dimensional Data

Make-Up Air Dehumidifiers Series DK (Split Indoor)

Models DK-010, 015, 020, 030, 040, 050, 060, 080, 100, 120, 150



Dimensional Data

Make-Up Air Dehumidifiers Series DK (Split Indoor)

Models DK-010, 015, 020, 030, 040, 050, 060, 080, 100, 120, 150

Dimensions (inches)

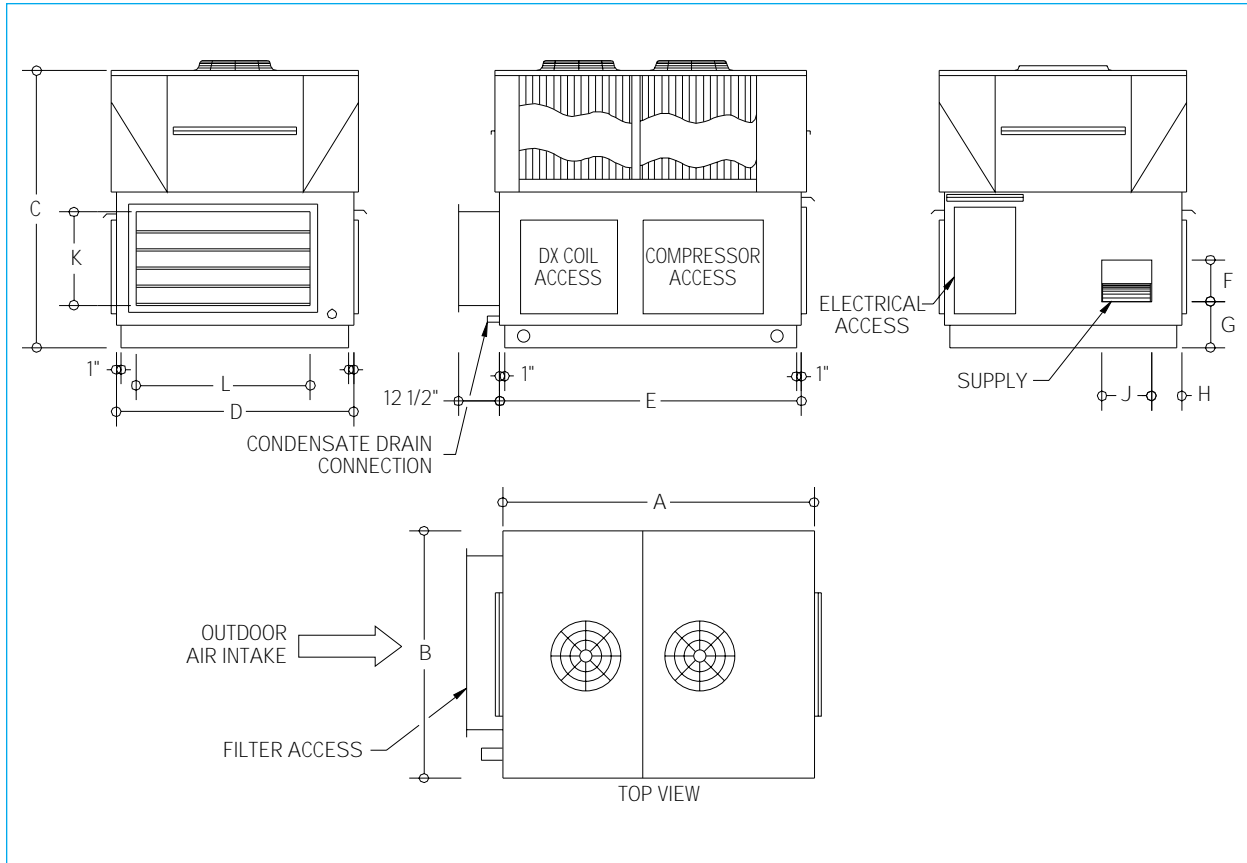
Model	Fan Size	A	B	C	D	E	F	G	H	J	K	L	Refrigerant Connections ¹		Service Access		Net Weight lb		
													Hot Gas	Liquid	Front	Rear			
DK-010	9-4	48	45	26	16	4	40	2	7	8	8 1/4	10 1/4	7/8	5/8	1	1	580		
	9-7								9 1/4										
DK-015	9-4	51	45	32	20	6	40	2	7	8	10	10 1/4	7/8	5/8	1	1	700		
	9-7								9 1/4										
DK-020	9-7	51	45	38	32	5	40	2	9 1/4	8	16 1/4	10 1/4	7/8	7/8	1	1	975		
	10-10								13 1/4		14 1/4	11 1/2							
DK-030	9-7	55	53	44	32	6	45	2	9 1/4	8	6	10 1/4	1 1/8	7/8	1	1	1100		
	10-10								13 1/4			11 1/2							
	12-10								13 1/4			13 1/2							
DK-040	10-10	55	53	44	32	6	45	2	13 1/4	8	6	11 1/2	1 3/8	1 1/8	1	1	1400		
	12-10								13 1/4			13 1/2							
	15-11								15			13 3/4						16	
DK-050	10-6	72	55	54	45	6	48	2	8 1/4	8	28 1/2	11 1/2	1 3/8	1 1/8	2	2	1650		
	10-8								10 1/2										
	10-10								13 1/4									25 1/2	13 1/2
	12-10								13 1/4									21 3/4	16
	15-11								15									21 3/4	16
DK-060	10-10	72	55	54	45	6	48	2	13 1/4	8	28 1/2	11 1/2	(2x) 1 1/8	(2x) 7/8	2	2	1850		
	12-10								13 1/4		25 1/2	13 1/2							
	15-11								15		21 3/4	16							
DK-080	10-10	80	55	64	52	7	45	2	13 1/4	8	38 1/4	11 1/2	1 3/8	1 3/8	2	2	2350		
	12-10								13 1/4		35 1/2	13 1/2							
	15-11								15		10	33 1/2						16	
	15-15								19										
DK-100	15-11	80	80	64	52	7	70	5	15	10	31 3/4	16	(2x) 1 3/8	(2x) 1 3/8	2	2	3550		
	18-18								22 1/4		28 1/2	19 1/4							
	20-20								25		21 3/4	25							
DK-120	15-15	102	80	90	76	8	70	5	19	10	59 1/4	16	(2x) 1 3/8	(2x) 1 3/8	2	2	4500		
	18-18								22 1/4		54 1/4	19 1/4							
	20-20								25		47 3/4	25							
DK-150	18-18	102	80	90	76	10	70	5	22 1/4	10	54 1/4	19 1/4	(2x) 1 3/8	(2x) 1 3/8	2	2	5100		
	20-20								22 1/4		47 3/4	25							
	22-22								27 1/2		44 1/4	27 1/2							

1. Refrigerant connections are in copper sweat; maximum 100 ft equivalent line length.

Dimensional Data

Make-Up Air Dehumidifiers RK (Packaged Rooftop)

Models RK-010, 015, 020, 030, 040



Dimensions (inches)

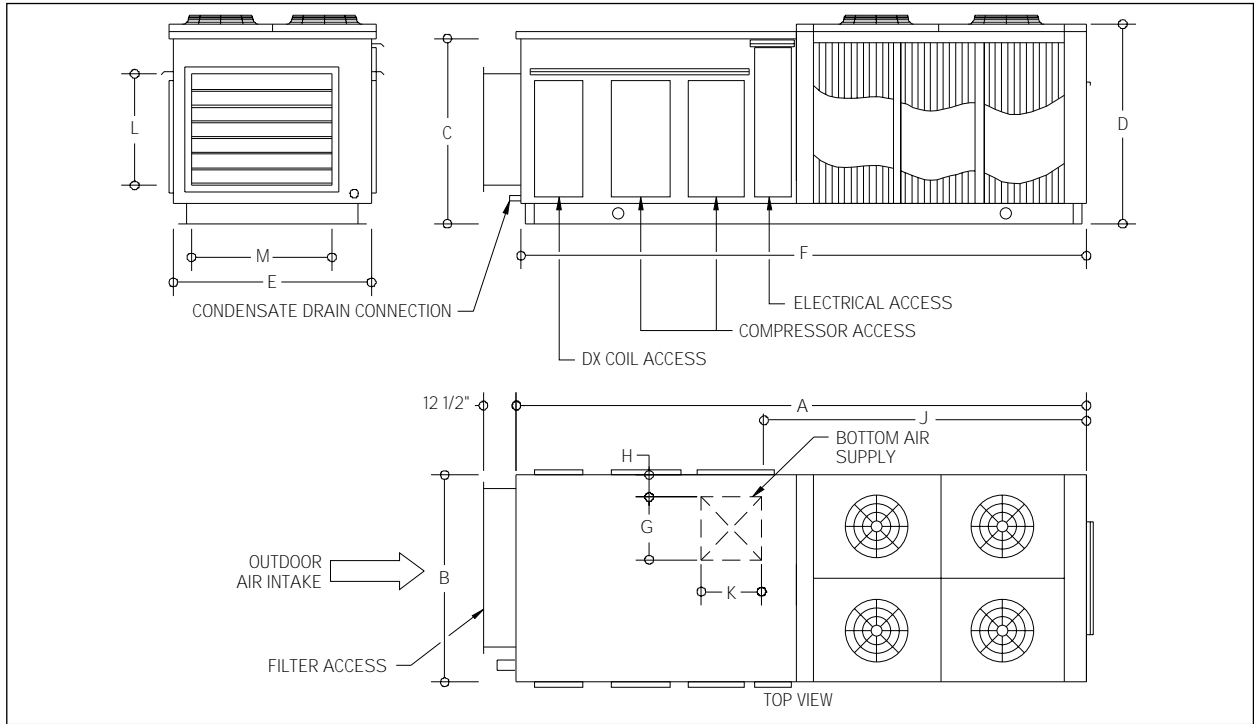
Model	Fan Size	A	B	C	D	E	F	G	H	J	Filter		Net Weight lb
											K	L	
RK-010	9-4	62/86*	54	56	48	60/84	10 1/2	15 1/4	8	7	16	40	1300/ 1500*
	9-7									9 1/2			
RK-015	9-4	62/86*	60	58	48	60/84	10 1/2	15 1/4	8	7	20	40	1350/ 1550*
	9-7									9 1/2			
RK-020	9-7	86	72	66	48	84	10 1/2	15 1/4	8	9 1/2	32	40	1850
	10-10						11 5/8	16		13 3/8			
RK-030	9-7	86	77	72	53	84	10 1/2	15 1/4	8	9 1/2	36	45	2250
	10-10						11 5/8	16		13 3/8			
	12-10						13 3/4	17					
RK-040	10-10	86	80	76	53	84	11 5/8	16	8	13 3/8	36	45	2400
	12-10						13 3/4	17					
	15-11						16 1/4	18 1/4					

* Unit with space heater

Dimensional Data

Make-Up Air Dehumidifiers RK (Packaged Rooftop)

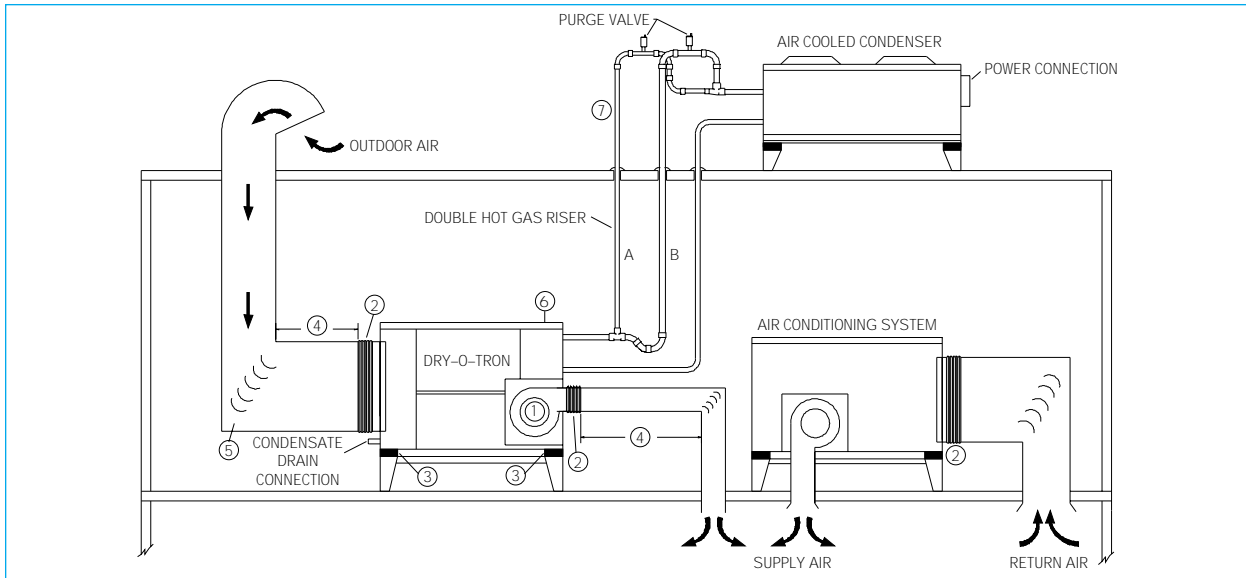
Models RK-050, 060, 080, 100, 120, 150



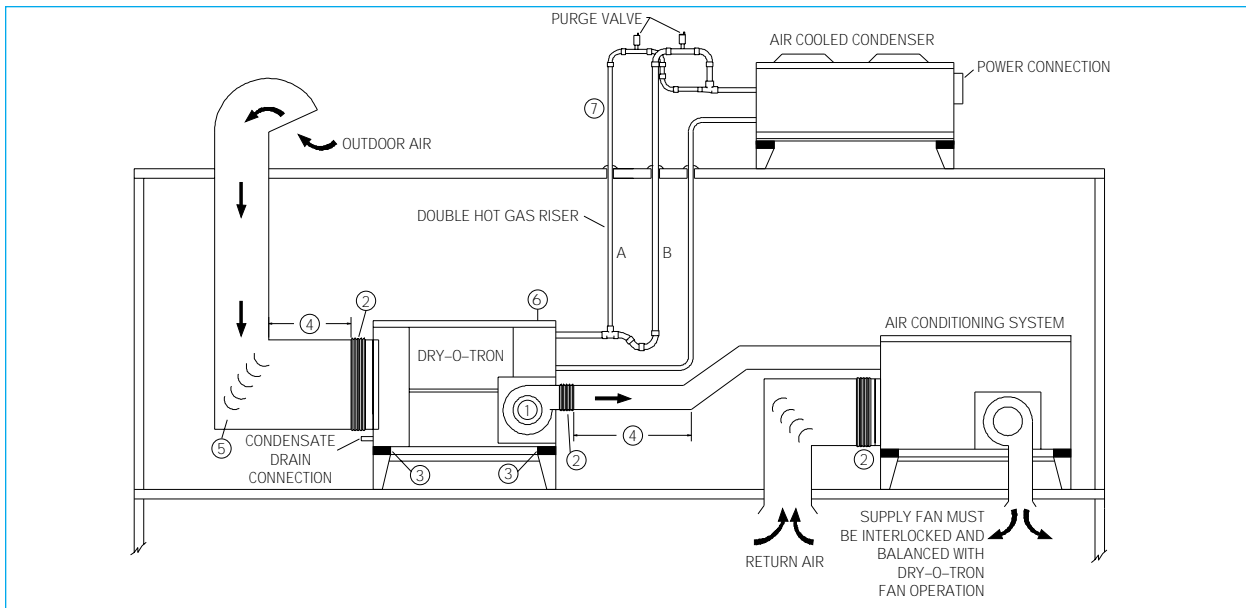
Dimensions (inches)

Model	Fan Size	A	B	C	D	E	F	G	H	J	K	Filter		No. of Fans	Net Weight lb
												L	M		
RK-050	10-6	155	57	57	46	53	154	8 1/4	8	88	11 1/2	45	48	2	3150
	10-8							10 1/2							
	10-10							13 1/4							
	12-10							15							
	15-11							16 1/4							
RK-060	10-10	169	57	57	54	55	168	13 1/4	8	88	11 1/2	45	48	2	3500
	12-10							13 1/2							
	15-11							16 1/4							
RK-080	10-10	217	57	67	46	55	216	13 1/4	8	122	11 1/2	52	45	3	4000
	12-10							13 1/2							
	15-11							15							
	15-15							16 1/4							
RK-100	15-11	185	82	67	64	80	184	15	8	88	16 1/4	56	70	4	5600
	15-15							19							
	18-18							22 1/4							
	20-20							25							
RK-120	15-15	243	82	93	82	80	242	19	10	122	16 1/4	80	70	6	7400
	18-18							22 1/4							
	20-20							25							
RK-150	18-18	243	82	93	82	80	242	22 1/4	10	122	19 1/4	80	70	6	7600
	20-20							25							
	22-22							27 1/2							

Make-Up Air Treatment Independent from Main Air Conditioning System



Make-Up Air Treatment Connected with Main Air Conditioning System



- 1 Optional Top or Bottom fan discharge.
- 2 Flexible duct connections for sound and vibration isolation.
- 3 Install anti-vibration pads to isolate the DRY-O-TRON® from the supportive structure.
- 4 For 100% effective duct length, minimum distance must be 2.5 duct diameters for 2500 fpm or less. Add 1 duct diameter for each 1000 fpm. For rectangular duct use equivalent duct diameter from duct calculator or tables. (as per AMCA publication 201-90).
- 5 Install 90° elbows with aerofoil turning vanes and use acoustic insulation to eliminate air noise.
- 6 Power connection; top or bottom entry.
- 7 The system is designed to operate at reduced compressor capacity. A vertical hot gas line sized to carry oil at minimum load conditions will have excessive pressure drop at full load. A double hot gas riser is required. During partial load, the trap will fill with oil until riser "B" is sealed off. Keep the trap as small as possible to limit its holding capacity. Size riser "A" and riser "B" as shown in table 7 page 24.

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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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