Publication No. RU-LCX-0523A



# Low Charge 20 TO 30 HP AIR COOLED CONDENSING UNITS

Russell

with Scroll Compressors



## Efficient and Accessible Eco-Friendly Condensing Unit

The Low Charge dual scroll compressor condensing units feature energy-efficient variable speed EC condenser fan motors and are circuited for R448A and R449A/B low GWP refrigerants. Models incorporate features from our award-winning QV-Series Condensing Units™ and Quantum Air™ Condensers such as the innovative floating coil design with generously sized condensers for energy savings, swept wing fan blades for optimal air flow, and LED lighted control panel and hinged venturi panels for easy access. A floored compressor cabinet with removable compressor tray, service convenience outlet, hinged and removable access panels, integral liquid subcooling circuit, and paint protected galvanized steel housing are all standard features of these units.

#### **Standard Features**

- Scroll compressors
- 900 RPM Variable Speed EC Condenser Fan Motors
- Available as dual compressor configurations from 20 to 30 HP
- All models are non-flooded and include electronic fan cycling control
- Prepaint gray exterior/ G60 galvanized steel outdoor cabinet construction
- Heavy gauge G90 galvanized steel frame
- Award-winning floating coil design with generously sized condensers for energy savings
- Mechanically formed pre-bent tubing reduces potential leaks
- Enhanced tube design
- Separate power and control electrical panels
- · Swept wing fan/Venturi improves airflow and sound
- Crankcase heater
- · Pump down switch
- Hinged and removable access panels
- Flip top hinged Venturi panels for easy servicing

- · Floored compressor cabinet with removable compressor tray
- LED control and compressor panel lighting
- 110V service convenience outlet
- Service gauge hooks
- Color-coded high and low pressure hoses
- Thru-the-door non-fused disconnect switch
- Suction line isolation valve
- Liquid line isolation valve with sight glass
- · Liquid line injection on low temp. models
- Sealed liquid line filter
- · Single point alarm with liquid line solenoid lockout
- Control circuit and condenser fan fusing
- Condenser fan contactors
- UL and cUL listed for outdoor use

			MODEL NUM	IBER NOMEN	CLATURE			
R	В	0	D	020	М	4S	G	Α
Brand	Model Style	Compressor Type	Configuration	Horsepower	Temperature Range	Refrigerant Type	Voltage^	Vintage
R = Russell	B = Non-Flooded	O = Scroll	D = Dual Piping		M = Medium Temp. L = Low Temp.	4S = R448A, R449A/B	E = 208-230/3/60 G = 460/3/60	

Note: ^ 50 Hz available. Contact Factory for additional information.

#### Options

- Air defrost timer or electric defrost components
- Electric defrost kits available for up to 4 evaporators
- +  $\operatorname{ElectroFin}^{\scriptscriptstyle \otimes}$  or Bronz-Glow coil coating
- Receiver
- Heated and insulated receiver
- · Oil separator with check valve

- Suction accumulator
- Replaceable core liquid line filter
- Replaceable core suction line filter
- Sealed suction line filter
- Electronic oil float

	Features and Options	
	DESCRIPTION	RB NON-FLOODED MODELS
	Vertical air discharge configuration	STANDARD
CENEDAL	Prepaint gray exterior/G60 Galvanized outdoor cabinet construction	STANDARD
CONSTRUCTION	G90 Galvanized frame	STANDARD
	High and low voltage electrical panels with hinged door	STANDARD
	Single point electrical connection	STANDARD
	Award-winning floating coil design	STANDARD
	Copper tubes mechanically expanded into aluminum fins	STANDARD
	900 RPM Variable Speed EC Condenser Fan Motors	STANDARD
AND FANS	Flip top condenser fan venturi(s)	STANDARD
	Swept wing fan blades for optional air flow	STANDARD
	Enhanced tube	STANDARD
	Adjustable flooded head pressure control valve	N/A
COIL COATINGS	ElectroFin® or Bronz-Glow	OPTIONAL
	Crankcase heater	STANDARD
	Electronic oil failture control	OPTIONAL
COMPRESSORS	Floored compressor cabinet with removable compressor tray	STANDARD
	Coresense Diagnostic Module	STANDARD
	Liquid injection on low temp. compressors	STANDARD
	Compressor contactor and circuit breaker	STANDARD
	Hinged and removable access panels	STANDARD
	Condenser fan contactors	STANDARD
	Control circuit and condenser fan fuses	STANDARD
	Control circuit and condenser fan breakers	OPTIONAL
	Thru-the-door non-fused disconnect (200 amp Max)	STANDARD
	Thru-the-door breaker disconnect (200 amp Max)	OPTIONAL
ELECTRICAL AND	Air defrost time clock	OPTIONAL
CONTROL PANEL	Up to 4 evaporators electric defrost kit	OPTIONAL
	Single point alarm with liquid line solenoid lockout	STANDARD
	Anti short cycle timer	OPTIONAL
	Pump down switch	STANDARD
	208-230 Control voltage	STANDARD
	Service and control LED control panel lighting (Panel door switch/service togale)	STANDARD
	110 VAC 20 Amp convenience outlet	STANDARD
	Hiah and low pressure controls (with color-coded hose connections)	STANDARD
	Horizontal receiver with isolation valves	OPTIONAL
	Refrigerant relief valve	STANDARD
	Replaceable core liauid line filter	OPTIONAL
	Heated and insulated receiver	OPTIONAL
	Oil separator with check valve	OPTIONAL
	Suction accumulator	OPTIONAL
REFRIGERATION	Liauid line isolation valve with sight glass	STANDARD
	Liquid line solenoid valve (Shipped loose)	OPTIONAL
	Suction isolation valve	STANDARD
	Suction line filter (sealed)	OPTIONAL
	Replaceable core suction line filter	OPTIONAL
	Hot aas bypass (Discharae tee, ball valve)	OPTIONAL
		OFHONAL

## Capacity Data (BTUH) - Medium Temp. <u>R448A</u>, <u>R449A/B</u> Scroll - Dual Compressor - 60 Hz‡

#### SUCTION TEMPERATURE

MODEL	COMP. MODEL	45	40	35	30	25	20	15	10	0
90°F Ambient										
RBOD020M4S*A RBOD026M4S*A RBOD030M4S*A	(2) ZB76K5E (2) ZB95K5E (2) ZB114K5E	247,700 316,400 358,900	227,200 288,900 328,500	208,900 262,800 299,600	191,800 240,400 274,600	176,000 218,900 250,500	161,000 198,400 225,800	146,200 177,800 202,300	131,200 158,800 180,000	100,900 121,700 134,000
95°F Ambient										
RBOD020M4S*A RBOD026M4S*A RBOD030M4S*A	(2) ZB76K5E (2) ZB95K5E (2) ZB114K5E	239,500 305,200 346,000	219,900 278,500 316,400	201,000 253,000 288,200	184,900 231,100 263,700	169,700 210,100 239,600	154,600 190,000 212,600	139,400 169,900 192,200	126,200 151,300 169,800	94,500 114,600 125,500
100°F Ambient										
RBOD020M4S*A RBOD026M4S*A RBOD030M4S*A	(2) ZB76K5E (2) ZB95K5E (2) ZB114K5E	231,100 294,200 332,600	212,000 267,800 304,100	193,600 243,000 276,500	177,900 221,900 252,300	162,500 201,000 228,700	148,700 181,200 202,600	132,900 161,800 181,400	118,900 143,400 160,000	88,100 107,800 120,600
110°F Ambient										
RBOD020M4S*A RBOD026M4S*A RBOD030M4S*A	(2) ZB76K5E (2) ZB95K5E (2) ZB114K5E	- - -		178,000 221,900 251,800	163,300 201,600 228,400	147,800 182,300 206,300	134,300 163,300 180,400	118,900 144,400 160,200	105,600 127,600 138,200	73,700 92,800 99,900

\* Asterisk represents a variable character based upon voltage ordered. See page 2 for nomenclature.

All capacities are calculated at 65°F return gas temperature and dew point values.

 $\ddagger$  Multiply capacity by .83 when used with 50 Hz power.



Swept wing fans improve air flow and diminish sound output

Stud mounted motors make for easier motor changes

## Capacity Data (BTUH) - Low Temp. <u>R448A</u>, <u>R449A/B</u> Scroll - Dual Compressor - 60 Hz‡

#### SUCTION TEMPERATURE

MODEL	COMP. MODEL	0	-5	-10	-15	-20	-25	-30	-35	-40
90°F Ambient										
RBOD020L4S*A RBOD026L4S*A RBOD030L4S*A	(2) ZF34K5E (2) ZF41K5E (2) ZF49K5E	103,100 126,800 155,500	92,800 112,000 138,800	81,400 101,400 123,500	71,900 88,800 109,100	63,200 78,400 95,700	55,100 68,800 84,000	47,700 60,000 73,000	40,800 51,800 62,800	35,300 44,200 54,100
95°F Ambient										
RBOD020L4S*A RBOD026L4S*A RBOD030L4S*A	(2) ZF34K5E (2) ZF41K5E (2) ZF49K5E	100,100 120,400 150,500	90,500 108,000 135,700	79,400 97,100 120,700	69,600 85,700 106,500	60,900 76,200 93,500	54,300 66,500 81,100	46,000 59,300 71,100	39,500 50,400 60,700	34,200 43,600 52,300
100°F Ambient										
RBOD020L4S*A RBOD026L4S*A RBOD030L4S*A	(2) ZF34K5E (2) ZF41K5E (2) ZF49K5E	97,200 116,500 146,100	87,300 104,000 130,800	77,300 92,900 116,600	66,900 82,600 101,500	58,700 73,000 89,200	52,700 64,100 78,400	44,300 57,300 68,800	39,100 49,700 59,300	33,200 42,400 51,200
110°F Ambient										
RBOD020L4S*A RBOD026L4S*A RBOD030L4S*A	(2) ZF34K5E (2) ZF41K5E (2) ZF49K5E	90,100 107,400 133,800	81,000 96,200 121,000	69,800 86,700 107,500	61,500 76,500 93,600	54,100 67,400 82,900	48,800 59,200 71,900	42,200 53,300 62,700	36,300 46,000 54,400	31,200 39,500 47,200

\* Asterisk represents a variable character based upon voltage ordered. See page 2 for nomenclature.

All capacities are calculated at 65°F return gas temperature and dew point values.

‡ Multiply capacity by .83 when used with 50 Hz power.



**Application: Food Processing** 

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## **Electrical Specifications - Scroll - Dual Compressor Models**

		СОМ			COND	. FAN	
BASE MODEL	COMPRESSOR MODEL	RLA	МСС	LRA	TOTAL FAN FLA	QTY.	CONTROL AMPS
208-230V/3/60 Hz							
RBOD020M4S*A	(2) ZB76K5E	38.6	60.3	239	10.8	2	2
RBOD026M4S*A	(2) ZB95K5E	47.4	74.0	298	10.8	2	2
RBOD030M4S*A	(2) ZB114K5E	56.5	88.2	321	10.8	2	2
RBOD020L4S*A	(2) ZF34K5E	33.3	52.0	239	10.8	2	2
RBOD026L4S*A	(2) ZF41K5E	37.8	59.0	248	10.8	2	2
RBOD030L4S*A	(2) ZF49K5E	45.5	71.0	339	10.8	2	2
460V/3/60 Hz		1	fr	<u>.</u>	îî		1
RBOD020M4S*A	(2) ZB76K5E	18.6	29.1	125	5.4	2	1
RBOD026M4S*A	(2) ZB95K5E	21.8	34.1	150	5.4	2	1
RBOD030M4S*A	(2) ZB114K5E	24.4	38.1	179	5.4	2	1
RBOD020L4S*A	(2) ZF34K5E	16.0	25.0	125	5.4	2	1
RBOD026L4S*A	(2) ZF41K5E	17.3	27.0	125	5.4	2	1
RBOD030L4S*A	(2) ZF49K5E	18.1	28.3	139	5.4	2	1

## Electrical Specifications - Scroll - Dual Compressor Models Cont.

		2 CONTA	CTOR DEF	ROST KIT		4 CONTACTOR DEFROST KIT				
BASE MODEL	KIT NAME	KIT FAN AMPS	KIT HEAT AMPS	МСА	MOPD	KIT NAME	KIT FAN AMPS	KIT HEAT AMPS	MCA	MOPD
208-230V/3/60 Hz										
RBOD020M4S*A	DLB96	24	96	123.6	150	DLD96	24	96	123.6	150
RBOD026M4S*A	DLB96	24	96	143.4	175	DLD96	24	96	143.4	175
RBOD030M4S*A	DLB96	24	96	163.9	200	DLD96	24	96	163.9	200
RBOD020L4S*A	DLB96	24	96	122.0	150	DLD96	24	96	122.0	150
RBOD026L4S*A	DLB96	24	96	122.0	150	DLD96	24	96	122.0	150
RBOD030L4S*A	DLB96	24	96	139.2	175	DLD96	24	96	139.2	175
460V/3/60 Hz										
RBOD020M4S*A	DLB40	15	48	63.2	80	DLD60	24	60	76.0	90
RBOD026M4S*A	DLB48	15	48	70.4	90	DLD60	24	60	79.4	100
RBOD030M4S*A	DLB48	15	48	76.3	100	DLD60	24	60	85.3	100
RBOD020L4S*A	DLB35	15	35	57.4	70	DLD60	24	60	76.0	80
RBOD026L4S*A	DLB35	15	35	60.3	70	DLD60	24	60	76.0	80
RBOD030L4S*A	DLB35	15	35	62.1	80	DLD60	24	60	76.0	80

\* Asterisk represents a variable character based upon voltage ordered. See page 2 for nomenclature.



**Application: Warehousing** 

### **Defrost Kits- All Models**

#### DEFROST KIT NOMENCLATURE

When selecting defrost kit, use the next higher amp value above the defrost load.

DL	HEATER CONTACTOR QTY.	MAX TOTAL HEATER AMP VALUE	SPECIAL KIT CODES
Defrost Kit Large Condenser	<b>B:</b> 2 Heater Contactors <b>D:</b> 4 Heater Contactors	30 = 30 amps total 48 = 48 amps total	"-1" # of Evaps with Multiple Heater Feeds

All kits include 1 fan contactor and are suitable for 1 or 3 phase loads.

Electrical resistance loads greater than 48 amps must be split into multiple circuits.

2 Contactor	4 Contactor
TMR ONLY	DLB35
DLB35	DLB40
DLB40	DLD144-2
DLB48	DLD192-2
DLB60	DLD60
DLB96	DLD96
	DLD144
	DLD192

#### **Dual Compressor Kit Options**

Defrost Kit selected is not per compressor. One defrost timer controls both systems. Up to two contractors per compressor.



**Application: Commercial Warehouse Cooling** 

#### **Specifications - All Models**

М	ODEL DATA			CONNI (C	ECTIONS DDS)	FANIO	DIM	ENSIONS	(IN.)	APPROX.	SOUND
MODEL NUMBER	COMP. MODEL	HP	COND. FAN QTY.	LIQUID LINE	SUCTION LINE <sup>^</sup>	FANS LONG	н	w	L	SHIP WT. (LBS.)	DATA dBA†
Dual Compressor I	Models										
RBOD020M4S*A	(2) ZB76K5E	20	2	(2) 7/8	(2) 1-5/8	2	58 1/8	45 3/8	159 1/4	1,928	74.9
RBOD026M4S*A	(2) ZB95K5E	26	2	(2) 7/8	(2) 2-1/8	2	58 1/8	45 3/8	159 1/4	1,928	74.9
RBOD030M4S*A	(2) ZB114K5E	30	2	(2) 7/8	(2) 2-1/8	2	58 1/8	45 3/8	159 1/4	1,928	74.9
RBOD020L4S*A	(2) ZF34K5E	20	2	(2) 5/8	(2) 1-5/8	2	58 1/8	45 3/8	159 1/4	1,928	74.9
RBOD026L4S*A	(2) ZF41K5E	26	2	(2) 5/8	(2) 2-1/8	2	58 1/8	45 3/8	159 1/4	1,928	74.9
RBOD030L4S*A	(2) ZF49K5E	30	2	(2) 5/8	(2) 2-1/8	2	58 1/8	45 3/8	159 1/4	1,928	74.9

\* Asterisk represents a variable character based upon model and voltage ordered. See page 2 for nomenclature.

^ Connection size with or without factory installed liquid and/or suction line assembly.

3.15

3.15

Department of Energy Annual Walk-In Energy Factor (AWEF) Ratings								
Base Model Number AWEF								
Medium Temperature Ma	dels <sup>1</sup>							
RBOD020M4S*A	7.6							
RBOD026M4S*A	7.6							
RBOD030M4S*A	7.6							
Low Temperature Models <sup>2</sup>								
RBOD020L4S*A 3.15								

NOMINAL COMPRESSOR HP
DUAL PIPING
20 (2) 10 HP
26 (2) 13 HP
30 (2) 15 HP

RBOD026L4S\*A

RBOD030L4S\*A

- \* Each asterisk represents a variable character based upon model and voltage ordered. See page 2 for nomenclature.
- † Estimated dBA values at 10 feet from the unit. Correction factors: Deduct 6 dBA for 20 to 40 feet, 12 dBA @ 40 to 60 feet. Ratings at the outlet of the discharge air. The actual measurements may vary depending upon installation variables. Environmental factors may have a significant influence on this data.

See page 11 for dimensional drawings.

- If the medium temperature model has a numerical value in the table above, the following statement applies: "This refrigeration system is designed and certified for use in walk-in cooler applications."
- 2. If the low temperature model has a numerical value in the table above, the following statement applies: "This refrigeration system is designed and certified for use in walk-in freezer applications."



**Application: Industrial Cooling** 

#### **Highlighted Features**



Hinged fan panels for easy serviceability Gas filled struts hold fan panels securely in upright position Service convenience outlet Thru-the-door disconnect switch Floored and lighted compressor cabinet with removable compressor tray

> Mechanically formed pre-bent tubing reduces potential leaks

> > Service gauge hooks

Hinged and removable access panels



Photo for illustrative purposes only. Units are not available with Discus compressors.

Hinged and removable lighted control panels

Easy to read control wiring diagram with diagnostic terminals

Separate high and low voltage control panels





## **Dimensional Drawings**





# 

#### 2 FAN | SINGLE MODELS



#### Notes:

- All dimensions are in inches.
- Utilize all lifting points during installation.
- Refrigerant connections located on each side for Dual models.

# Commercial refrigeration solutions for medium and large cold storage applications





QV-SERIES 15 to 100 HP

The design of the innovative QV-Series Condensing Units<sup>™</sup> sets the new standard for efficiency, reliability and serviceability to meet the needs of the food processing, industrial cooling and warehousing industries.

Models incorporate features from our award-winning Quantum Air<sup>™</sup> Condensers such as the floating coil design, swept wing fan blades, hinged venturi panels, and a LED lighted control panel. Additional advancements include a floored compressor cabinet with removable compressor tray, service convenience outlet, and hinged and removable access panels, QV-Series models are available in single, dual or parallel compressor configurations.



#### NEXT-GEN II 3 to 22 HP

Next-Gen II units feature a robust design that improves serviceability, increases unit efficiency, and includes a host of standard features and available options to meet a wide variety of

refrigeration needs. Features include a high-efficiency condenser with enhanced copper tubes and aluminum fins; three phase fan motors; and flow-through equipment guard. For easy service and maintenance, units have externally mounted service valves that are easily accessible from the cabinet exterior; large control panel with a swing-wide hinged door; and color-coded point-to-point wiring. Units are offered with Copeland Discus<sup>™</sup>, Copeland Scroll<sup>™</sup> and Bitzer semi-hermetic compressors for use with low GWP refrigerants.





#### MEDIUM PROFILE

Units were engineered to meet the Dept. of Energy's new AWEF performance regulations and are the

perfect evaporator solution for medium to large walk-in coolers and freezers. Medium Profile units feature rail-mount motors, high efficiency fan and venturi designs, enhanced surface coil tubing, easily removable fan guards and modular fan panels, face mounted defrost heaters, hinged drain pans and are optimized for multiple refrigerants. One, two and three fan models are available with air, electric or hot gas defrost.



#### **HEAVY DUTY**

Units feature energyefficient rail-mount Dual Speed EC Motors and have several enhanced service features including railmount motors, new high efficiency fan and venturi

designs, enhanced surface coil tubing, easily removable fan guards and modular fan panels, face mount defrost heaters, hinged drain pans and shipping pallets designed to facilitate easy installation. Designed with efficiency, service and performance in mind, the Heavy Duty units were engineered to meet the Dept. of Energy's new AWEF performance regulations. One through four fan models are available with air, electric or hot gas defrost.

#### WAREHOUSE

Designed with efficiency, performance and service in mind, Russell's Warehouse Unit Cooler line is optimized to cover Cold Storage applications in the most effective way. Models are designed exclusively for use in walk-in coolers and freezers 3,000 sq. ft and larger. Warehouse Unit Coolers have several enhanced service features including rail-mount motors, new high efficiency fan and venturi designs, enhanced surface coil tubing, easily removable fan guards and modular fan panels, face mount defrost heaters, hinged drain pans and shipping pallets designed to facilitate easy installation. One through four fan models are available with air, electric or hot gas defrost.



## LOW CHARGE CONDENSING UNITS

Due to continuing product development, specifications are subject to change without notice.



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