COOLTEC

REFRIG-O-PAK® MULTI-COMPRESSOR RACK

MODEL CRS-10

MODEL CRS-6

ENERGY EFFICIENT REFRIGERATION SYSTEMS

for schools, universities, hotels, restaurants, coffee shops, hospitals, prisons and convenience stores

COOLTEC REFRIGERATION CORPORATION

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REFRIG-O-PAK® MULTI-COMPRESSOR RACK

the BENEFITS

COOLTEC remote air-cooled REFRIG-O-PAK refrigeration systems utilize safe CFCs for food service applications, cost less to buy and to install, yet can save up to 20% per month on energy usage.

IDEAL FOR ALL AMBIENT CONDITIONS, the COOLTEC Refrigeration Corp. REFRIG-O-PAK can be located on the roof-top or next to the building on a concrete pad.

OUR UNITS ARE EASIER TO INSTALL AND SERVICE. At the same time, they offer low energy costs.

REFRIG-O-PAK REFRIGERATION SYSTEMS ARE COMPLETELY UNITIZED AT OUR FACTORY with scroll compressors, single circuited condensers, oversized receivers, vibration eliminators, dual pressure controls, head pressure controls with crankcase heaters (for low ambient conditions), prewired control panels with main fused disconnects, compressor breakers, contractors, relays and defrost time clocks. REFRIG-O-PAK units are pre-piped with drier/sight glass assembly.

THESE SYSTEMS ARE DESIGNED FOR VERTICAL AIR DISCHARGE OF HOT AIR with an oversized condenser surface 50% larger than conventionally package refrigeration using single condensing units. Run times are much shorter. As a result, service and maintenance costs are reduced and electrical savings are realized.

COMPLETELY PRE-WIRED AND PRE-PIPED requiring one roof penetration and singe-point electrical connection, the REFRIG-O-PAK system will reduce up-front construction costs. The need for expensive multiple electrical power lines for each compressor and electrical fused disconnects is eliminated by using this system.

COOLTEC REFRIGERATION OFFERS EIGHT STANDARD MODELS to use two to twenty compressors for various cooling applications. One standard refrigerant is available: R-404A for medium, high and low-temperature applications.

THE **REFRIG-O-PAK** HAS A PROVEN TRACK RECORD, with hundreds of units in operation worldwide in hospitals, hotels, restaurants, coffee shops, schools, cafeterias, convenience stores and supermarkets.

the DIMENSIONS

COOLTEC MODEL NO.	DIMENSIONS (inches) Length	Width	Height
CRS-4	48	48	50
CRS-6	72	48	50
CRS-8	96	48	50
CRS-10	120	48	50
CRS-12	144	48	50
CRS-14	168	48	50
CRS-16	192	48	50
CRS-20	240	48	50

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the DESIGN

MODEL CRS-6

OPERATING WITH ENVIRONMENTALLY SAFE, CFC-FREE R-404A REFRIGERANT

The COOLTEC Refrigeration Corp. remote-air-cooled REFRIG-O-PAK cooling system utilizes safe CFC and offers tremendous operating efficiency by using multi-circuited condensers for 2-20 compressors and ice makers.

This high operating efficiency is made possible through effective use of the condenser coil surface area. The condenser coils on our units are almost twice the size of conventional competitive designs. The large condensers coils provide the unit with summer design TD's (temperature difference between refrigerant condensing temperature and ambient air temperature) lower than traditional designs allow. Lower design TD's produce lower condensing temperatures, which effects lower compression ratios and higher compressor capacities. Lower compression ratios and higher compressor capacity mean reduced kw/ton, thereby reducing operating cost. A 10% to 20% reduction, in fact, depends on unit size and h.p. In contrast to single condensing units, REFRIG-O-PAK systems are easier to install, easier to service, and much less expensive to operate. Complete factory assembly eliminates on-sight construction costs of built-up systems by refrigeration technicians and electricians in the field. The REFRIG-O-PAK is designed primarily for institutional food-service operations including hospitals, universities, schools, hotels, restaurants, coffee shops and convenience stores.

REFRIG-O-PAK pulls fresh air over the compressor bodies to reduce their operating temperature. Compressor ventilation has become increasingly important because of regulations affecting the use of R-22 refrigerant, which has a higher discharge temperature.

The systems are designed to use from two to ten condenser fan motors. R-404A refrigerants is used for low-temperature (0° to –30°), high and medium temperature (+20° to +50°) applications.

the ADVANTAGES

There are four main advantages of the REFRIG-O-PAK design to highlight:

FIRST, the air conditioning load is reduced as the compressor heat is rejected to the outside of the building. This allows the operator to use a smaller cooling system in the store.

SECONDLY, there are a lower operating costs and increased compressor life time due to the constant cooling of external airflow across the compressor bodies. External airflow lowers operating temperature, reduces overheating and increases compressor efficiency.

THIRD, installation cost is low due to complete factory assembly. This eliminates the on-sight construction costs of building up systems. A rigid 3" square steel channel base distributes weight for low roof loading. Lifting eyes in the base permits quick, inexpensive rigging. The main power permitting on-sight selection of the most economical method of supply-power wiring. Extensive unit-test and checkout procedures at the factory ensure trouble-free start-up when installation is complete. Each unit is shipped compete with a holding charge of nitrogen.

FINALLY, low maintenance cost is guaranteed because one-step service calls simplify system check-out procedures and minimize on-sight service time. Our units are designed to offer easy accessibility of equipment for repair. Multiple refrigeration systems permit shutdown and service of one system while the other systems maintain operation. Reduced compressor operating temperatures associated with the lower design TD's help increase compressor life. Compressor crankcase heaters, dual pressure controls with pump-down solenoid valves, extensive factory

fusing, and a complete array of safety controls protect the units from abnormal operating conditions. Greater design flexibility is available to fit a wide range of exacting applications for low and medium temperatures. Available in 34 sizes from 1/2hp to 40hp; there is a selection that will closely match the required capacity, eliminating the need for equipment that is too large or too small for an application. Many units are rated for use in ambient air temperatures up to 120°F. Ambient controls are available to permit operation down to –30°F.

the FEATURES

CABINET: a durable 14 ga. galvanized cabinet with a ridged 3" square steel channel base finished with baked enamel in a attractive contemporary color. The channel base distributes the unit weight for low-roof loading. Lifting holes in the base simplify rigging for installation.

MULTI-CIRCUITED CONDENSER: Field-proven single-circuit condenser coils are constructed with seamless copper tubes arranged in a staggered row pattern and mechanically expanded to bond with ripped aluminum fins with full fin collars. This eliminates liquid flashing and provides increased unit efficiency. Designed for 20°FTD.

COMPRESSOR: Copeland compressors are used from 1/2 to 40hp with R-404A refrigerant for medium and low-temperature applications. Full motor protection in all models. Oil pumps are standard on models 5hp and larger. Compressors are designed for heavy-duty use. Vibration mounts isolate the compressors to minimize noise and vibration transmission.

RECEIVER: Generous pump-down capacity for low ambient operation. Inlet and outlet valves with a changing port allow the refrigerant to be isolated in the receiver during field service. A Fusible plug is installed on all receivers. An optional relief valve in lieu of fusible plug is available.

FAN MOTOR GUARD: Single phase capacitor starter motors are used on all racks. OSHA-approved fan guards are provided as standard equipment.

SWEAT FITTINGS: Sweat fittings are used for piping rather than flare nuts. They reduce leaks and leakage of CFCs.

LIQUID LINES FILTER-DRIER AND MOISTURE INDICATOR: Added protection against contaminants by removing moisture, foreign matter and acids from the system. Sight glass and a moisture indicator will indicate the presence of moisture as well as a shortage of refrigerant in the system.

DUAL PRESSURE CONTROL: High and low pressure control, with a field adjustable pressure setting for use with R-404A systems.

COMPRESSOR LOCK-OUT DURING DEFROST: The system is designed to interlock during defrost. The interlock prevents simultaneous compressor and heater operation, allowing full pump down before defrost begins. This lowers electrical connected load (amps).

ELECTRICAL CONTROL PANEL: A large 14 ga. Control panel pre-wired with main fused disconnect, compressor breakers, contractors, fuses, interlock relays and defrost time clock. Wiring is precisely installed and clearly identified for fast installation. The only field connections required are "power" and "defrost control."

REFRIGERANT CONNECTIONS: Extra long pipe is provided for field connection. All lines are marked with system numbers.

HEAD PRESSURE CONTROL: An adjustable head pressure-control system combined with fan cycle control maintains optimum performance during low ambient conditions. A crankcase heater is provided for all systems.

condensing unit & coil **CAPACITY**

CONDENSING UNIT CAPACITY					COIL CAPACITY								TOTAL SYSTEM				
HP	COMPRESSOR MODEL NO. (COPELAND)	CAPACITY MBH @ 95 F AMB	ELECTRIC DATA (AMPS) VOLTS/PHASE/60 HZ		DIMENSIONS (INCHES)			COIL QTY.	COIL MODEL NO.	RATINGS@1-PH 60HZ FAN MOTOR		DEFROST	LINE SIZE (100° MAX)		TOTAL SYSTEM AMPS		SHIP WT.
										RLA	VOLTS	HTR. RLA	SUCTION O.D.	LIQUID O.D.	208V 1PH	208V 3PH	
			208-230/1	208-230/3	L	W	H					208V/1PH					LBS.
SCROLL COMPRESSOR R-404 A MEDIUM TEMP. WALK-IN COOLER																	
0.5	RS43C2E-CAV	5.9	5.4		10.75	6.63	11.25	1	ADT052	1.8	115		1/2	1/4	5.4		100
0.75	RS64C1E-CAV	8.2	7.7		10.75	6.63	11.25	1	ADT070	3.6	115		5/8	3/8	7.7		110
1	RS80C2E-TF5	10.8		6.4	10.75	6.63	11.25	1	ADT104	3.6	115		7/8	3/8		6.4	120
1.3	ZB10KCE-PFV	12.2	10		9.5	9.5	14.86	1	ADT120	3.6	115		7/8	3/8	10		125
1.5	ZB11KCE-PFV	13.4	10		9.5	9.5	14.86	1	ADT130	3.6	115		7/8	3/8	10		130
1.8	ZB13KCE-PFV	16.3	12.9		9.5	9.5	14.86	1	ADT156	5.4	115		7/8	3/8	12.9		140
2	ZB14KCE-PFV	17.9	13.6		9.5	9.5	14.86	1	ADT180	5.4	115		7/8	1/2	13.6		150
2.5	ZB19KCE-TF5	22.5		10	9.5	9.5	15.76	1	ADT208	7.2	115		1 1/8	1/2		10	200
3	ZB21KCE-TF5	27.1		12.1	9.5	9.5	15.76	1	ADT260	9	115		1 1/8	1/2		12.1	220
3.5	ZB26KCE-TF5	31.6		13.9	9.5	9.5	15.76	1	ADT312	10.8	115		1 1/8	1/2		13.9	300
4	ZB30KCE-TF5	36.2		15.7	9.47	9.59	17.25	1	ADT370	10.8	115		1 1/8	1/2		15.7	350
5	ZB38KCE-TF5	45.2		22.1	9.47	9.59	17.25	2	ADT208	14.4	115		11/8	5/8		22.1	390
5.5	ZB42KCE-PFV	51.6	31.4		9.47	9.59	17.25	2	ADT260	18	115		1 3/8	5/8	31.4		400
6	ZB45KCE-TF5	53.6		22.5	9.47	9.59	17.25	2	ADT260	18	115		1 3/8	5/8		22.5	400
7	ZB50KCE-TFS	61.6		28.6	10.38	11.19	18.88	2	ADT312	21.6	115		1 5/8	5/8		28.6	425
8	ZB58KCE-TF5	67.9		32.1	10.38	11.19	18.88	2	ADT312	21.6	115		1 5/8	5/8		32.1	425
9	ZB66KCE-TF5	79.2		33.6	10.38	11.19	21.5	2	BMA365	24	115		1 5/8	5/8		33.6	450
10	ZB76KCE-TF5	92.3		41.4	10.38	11.19	21.5	2	BMA450	24	115		2 1/8	7/8		41.4	500
15	ZS92K4E-TWC	113.4		52.9	12.63	13.89	21.54	2	BMA510	32	115		2 1/8	7/8		52.9	600
SCROLL COMPRESSOR R-404A LOW TEMP. WALK-IN FREEZER																	
0.5	RS43C2E-CAV	1.4	5.4		10.75	6.63	11.25	1	TL21	1	115	9.6	1/2	1/4	6.4		100
0.75	RS64C1E-CAV	2.3	7.7		10.75	6.63	11.25	1	TL28	1.2	115	5.7	5/8	3/8	8.9		110
1	CF04K6E-TF5	3.05		6.4	10.28	9.09	13.31	1	LET035	1	208	3.9	5/8	3/8		7.4	120
1.25	CF06K6E-TF5	5.19		7	10.28	9.09	13.31	1	LET047	1	208	3.9	7/8	3/8		8	125
1.5	ZF06K4E-TF5	7.1		9.28	9.5	9.5	14.5	1	LET065	2	208	7.8	7/8	3/8		11.28	130
2	ZF09K4E-TF5	10.1		11.1	9.5	9.5	15.4	1	LET090	2	208	7.8	1 1/8	3/8		13.1	140
2.5	ZF11K4E-TF5	12.4		13.6	9.5	9.5	15.9	1	LET120	3	208	11.7	1 1/8	3/8		16.6	150
3	ZF13K4E-TFS	14		15	9.47	9.6	17.4	1	LET140	3	208	11.7	1 1/8	3/8		18	200
3.5	ZF15K4E-TF5	17.5		21.4	9.47	9.6	17.4	1	LET160	4	208	15.7	1 1/8	1/2		25.4	220
4	ZF18K4E-TF5	21.2		23.9	9.47	9.6	17.4	1	LET200	5	208	19.6	1 3/8	1/2		28.9	300
5	ZF24K4E-TWC	25.7		30	12.63	14.06	21.17	1	LET240	6	208	23.5	1 3/8	1/2		36	350
7.5	ZF33K4E-TWC	36.4		43.6	12.63	14.06	21.17	2	LET180	8	208	31.4	1 3/8	1/2		51.6	425
10	ZF40K4E-TWC	44.9		52.9	12.63	14.06	21.5	2	LET200	10	208	39.2	1 5/8	1/2		62.9	500
12	ZF48K4E-TWC	50.9		60	12.63	14.06	23.3	2	LET280	12	208	47	1 5/8	5/8		72	600

Notes:

1. Condensing unit capabilities are 95°F ambient. Cooler temp. is at 35°F with 25°F suction gas temp. Freezer term is at -10°F with -20°F suction gas temp.

2. Unit cooler and condensing units will have a separate power supplies for walk-in cooler applications and a single power supply for walk-in freezer applications. The Unit Cooler is electrically connected to the condensing unit with a 4-wire color-coded defrost harness.

3. 1MBH = 1000 BTUs/Hour

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the SPECIFICATIONS

Item No. _____ Remote Refrigeration package

Furnish and install all compressors, compressor rack, evaporators, refrigerant and refrigeration piping, controls and accessories required to complete the refrigeration systems shown on, or called for, on the drawings and refrigeration schedule. Omission from the following specifications of express reference to any part necessary for the complete installation shall not release the contractor from responsibility of furnishing such parts.

1. REFRIGERATION RACK The refrigeration package shall be a pre-engineered and factory assembled unit trade name, "REFRIG-O-PAK," as manufactured by COOLTEC Refrigeration Corp. 1280 E. Ninth St., Pomona, CA 91766 ph: 909-865-2229 fx: 909-868-0777 email: sales@cooltec-online.com

Contractor shall furnish and install where shown of plans (1) COOLTEC Refrigeration U.L. Approved "REFRIG-O-PAK" Air Cooled Remote Refrigeration Package. Model_____with control panel_____volts_____PH_____HZ. Refrigeration system shall be housed in a weather-protected and ambient controlled enclosure. The frame, enclosure and panels shall be frabricated of galvanized steel. Entire frame shall be pre-assembled, welded, cleaned and painted with a prime coat of zinc chromate, then finished with a coat of baked enamel epoxy-based paint. The condenser shall be single-circuited with riffled tube slotted finned and shall be designed for 20 FTD. Condenser fan motors shall be mounted within the enclosure. Suction line for low-temperature units must be insulated with Armaflex.

2. REFRIGERATION UNITS

A. All refrigerant condensing units shall be scroll type (Copeland). Each unit shall be equipped with high/low pressure control, liquid line dryer, sight glass and head pressure control.

B. All compressor units shall be new and factory-assembled to operate with the refrigerant specified in the engineering summary sheet. Refrigerant R-404A shall be used on all commercial temperature units and on all low-temperature units.

3.PRE-PIPING

A. All refrigerant lines shall be extended to one side of the package in a neat and orderly manner.

B. All tubing shall be securely supported with clamps.

C. Silver solder and/or sil-fos shall be used for all refrigerant piping. Soft solder is not acceptable.

D. All piping to be pressure tested with nitrogen at 300/psi. After the condensing unit and coil have been connected, the balance of the system shall be leak tested with all valves open.

4. CONTROL PANEL

A. The package shall have a factory mounted and pre-wired control panel complete with main discount switch, compressor circuit breakers, fuses, contractors and time clocks wired for single-point connection.

B. Electrical contractor shall provide and install main power lines to the panel and provide a wire harness wiring control and a defrost heater between the defrost clock and the refrigeration fixture, all in accordance with the wiring diagram and local codes.

CONSTRUCTION NOTES FOR TRADES

1. GENERAL CONTRACTOR

A. Contractors shall verify all dimensions and coordinate with other trades.

B. General contractor shall prepare and weatherproof the platform and curbed openings

2. REFRIGERATION CONTRACTOR

A. All copper tubing to the refrigerant grade A.C.R. or type "L."

B. Silver solder and/or sil-fos shall be used for all refrigerant piping. Soft solder is not acceptable.

C. All piping to be pressure tested with nitrogen at 300'psi. After condensing unit and coil have been connected, the balance of the system shall be leak tested with all valves open.

D. The complete system shall be evacuated with a vacuum pump.

E. Charge, test and adjust each unit.

F. Refrigeration contractor to provide and install drain-line heater in freezer to be connected by electrical contractor.

G. Refrigerant suction lines outside of refrigerated compartments, not run in conduit, shall be insulated back to the compressor with Armstrong Arma-Flex AP-25/50 foamed plastic insulation or equal, applied in accord with direction of the manufacturer. Minimum thickness shall be 1/2 inch for commercial temperature and 3/4 inch for low temperature.

3. ELECTRICAL CONTRACTOR

A. Electrical contractor to provide power for refrigeration package and connect control and defrost system as called for in the wiring diagram.

B. Electrical contractor to provide 4-wire color-coded service from the time clock of the refrigeration package to the blower coil in fixture for automatic defrost.

C. Electrical contractor to connect drain-line heater in freezer.

D. All electrical wiring and installation shall be in accordance with the wiring diagram and local codes.

4. PLUMBING CONTRACTOR

A. Plumbing contractor to provide type"M" copper drain lines or walk-in-refrigeration and freezer, pitched 1/2 inch-per-foot or run. In freezer, unheated drain lines must be outside of insulation to prevent freezing. Trap drain line outside of refrigerated space to avoid entrance of warm and moist air.

B. Plumbing contractor to provide individual drain line for each evaporator unless otherwise specified.

C. All plumbing installation shall be in accordance with local codes.

REPRESENTED BY:

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