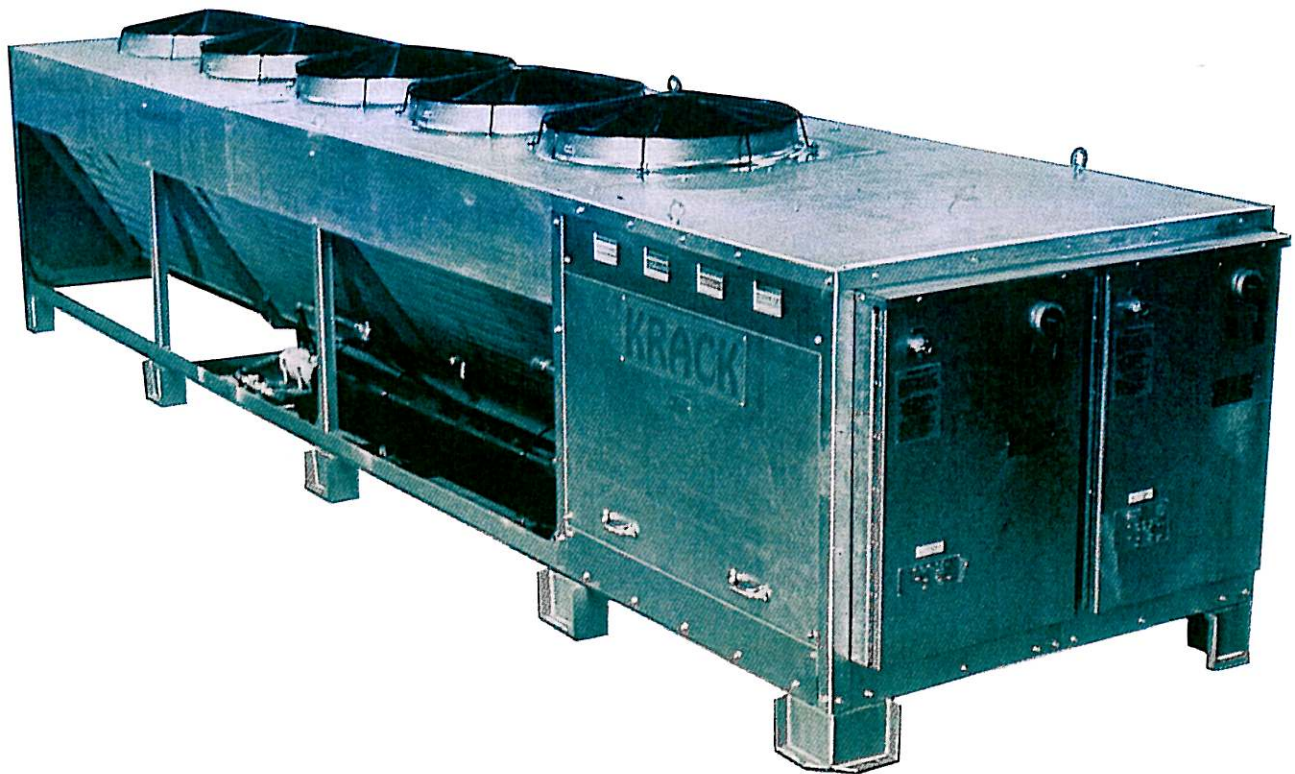


KRACK

Dual System Krack-Pak



*KPDS Outdoor Air-Cooled Condensing Units
With Two Independent Refrigeration Systems For
High, Medium and Low Temperature Application
Using R12, R22 and R502 Refrigerants*



STANDARD FEATURES

FOR TWO-IN-ONE DUAL SYSTEMS. EACH PACKAGE HAS TWO EQUAL SIZED REFRIGERATION SYSTEMS.

Two Compressors

Semi-hermetic, multi-cylinder, reciprocating type with refrigerant cooled motor including:

- Three phase internal motor overheat protection
- Anti-short cycle two minute delay—4 and 6 cylinder models
- Crankcase heater
- Oil level sight glass
- Internal shaft driven oil pump—3 HP and larger
- Back-seating suction and discharge service valves
- Manual reset oil failure safety switch
- Manual reset high discharge pressure switch
- Automatic reset low suction pressure switch
- Cylinder head cooling fans on R502 low temp models

Compressors are factory balanced and rigid mounted to reduce risk of line fatigue failure. Safety switches are piped with cadmium plated seamless steel tubing.

Two Condensers

Arranged for vertical air discharge, with coils constructed of copper tubes, with eight aluminum fins per inch. Liberal surface is adequate for 105°F ambients.

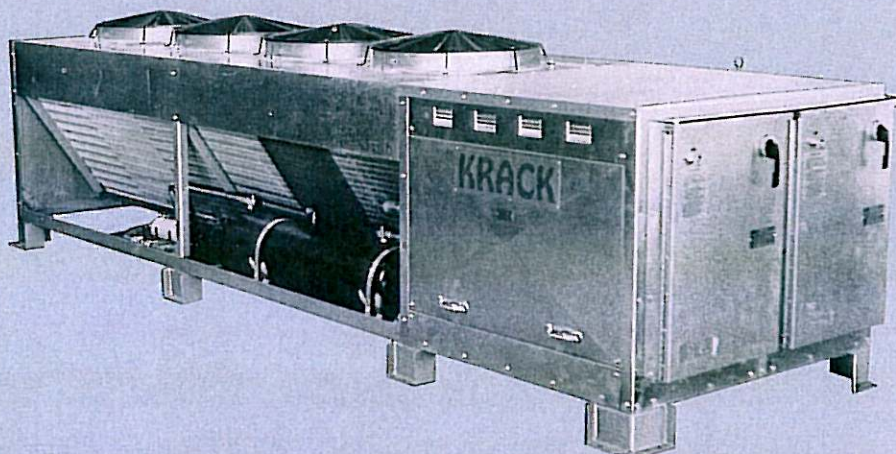
Quiet 30 inch diameter aluminum propeller fans are direct driven by ¾ HP, 850 RPM, weather resistant motors with sealed ball bearings and internal three phase overheat protection.

Housing

Weather resistant mill galvanized steel is attached to a rugged welded and painted steel frame. Large access panels allow easy compressor service.

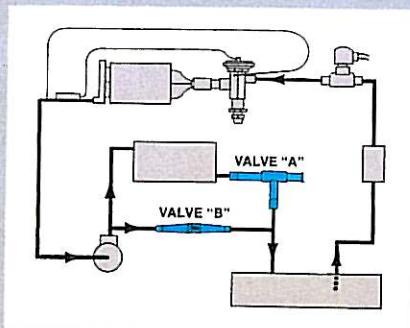
Two Receivers

Amply sized to allow for evaporator pumpout and condenser flooding charges. A 400 psi relief valve and backseating liquid service valves are included.



Two Minimum Head Pressure Low Ambient Controls

Automatically allows reduced compressor discharge pressure coincident with lower ambients, minimizing power consumption. A minimum receiver pressure is maintained to distribute liquid to the thermostatic expansion valve fed evaporator.



Valve "A" (adjustable from 65 to 225 psig) throttles condensate flow. As the condenser floods, its condensing capacity is reduced maintaining a minimum system head pressure.

Valve "B" maintains a differential pressure of 20 psi between the compressor discharge and the receiver. On start-up, receiver pressure builds rapidly to 20 psi below the setting of Valve A.

All but one condenser fan, are cycled by adjustable pressure switches.

Typical Valve A Settings:

Refrigerant	12	22	502
Room Temp	35	35	-10
PSIG	100	140	110

Two Liquid Filter Driers

Replaceable core type with dry-eye sight glass. Refrigerant charging valve, located on drier flange, allows safe charging thru the drier.

Two Suction Accumulators

Minimizes compressor failure caused by liquid or oil slug-backs.

Two Control Panels

- Weather resistant enclosure
- Main power circuit breaker with door mounted handle
- 115 volt control circuit transformer
- Safe-start system
- Compressor and condenser fan contactors
- Terminals, fuses, and relays
- Optional Matched System evaporator controls

Applicable Standards

The units are constructed in accordance with ARI, ASME, ANSI-B9, ASHRAE, UL, and the National Electric Code.

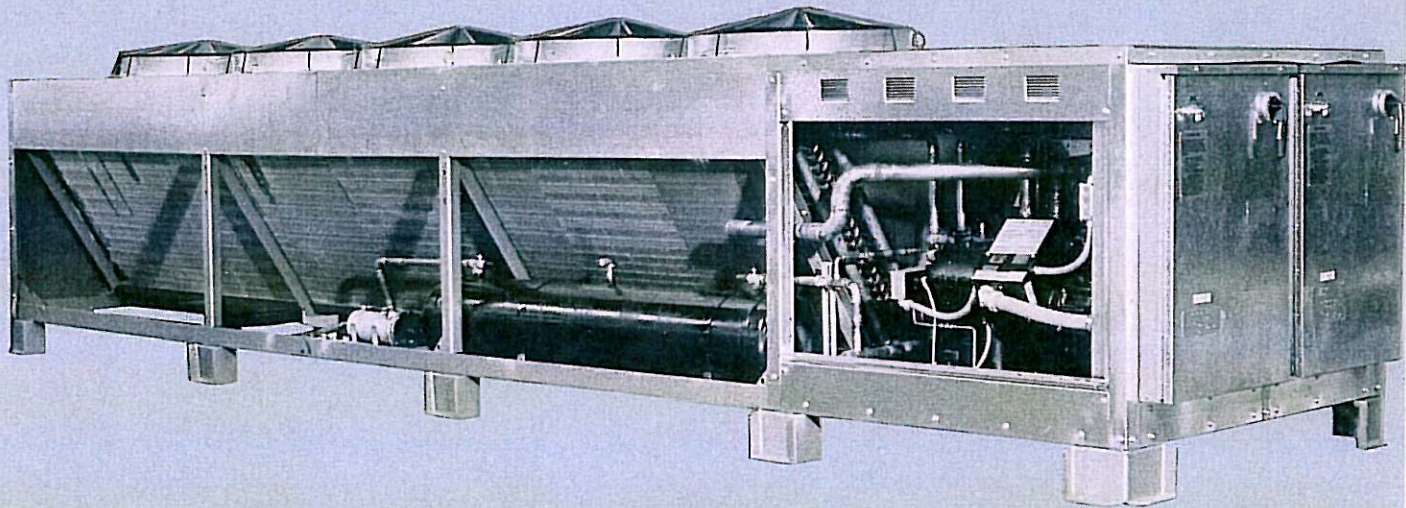
Shipment

The units are pressure tested and evacuated to 500 microns. Units are shipped with a dry nitrogen and refrigerant holding charge.

We reserve the right to change or revise specifications and product design in connection with any feature of our products. Such changes do not entitle the buyer to corresponding changes, improvements, additions or replacements for equipment previously sold or shipped.

SELECTION

KPDS Dual Compressor Systems



System Selection must result in compressor operation within the suction temperature ranges listed in the Model Key. Crankcase pressure regulators may be necessary if compressors are to be operated above rated suction temperature for long periods. Pressure limiting thermostatic expansion valves are recommended for low temperature evaporators.

Electrical Characteristics

208/230-3-60 or 200/220-3-50
460-3-60 or 380/400-3-50
575-3-60 or 500-3-50

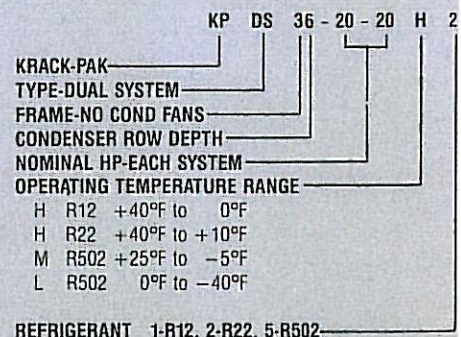
Conversion Factors

BTUH @ 60 HZ x 0.83 = BTUH
@ 50 HZ
BTUH @ 60 HZ x 0.252 = K-CAL/HR
@ 60 HZ
BTUH @ 60 HZ x 0.210 = K-CAL/HR
@ 50 HZ
Pounds x 0.454 = Kilograms
Inches x 25.4 = Millimeters

Options

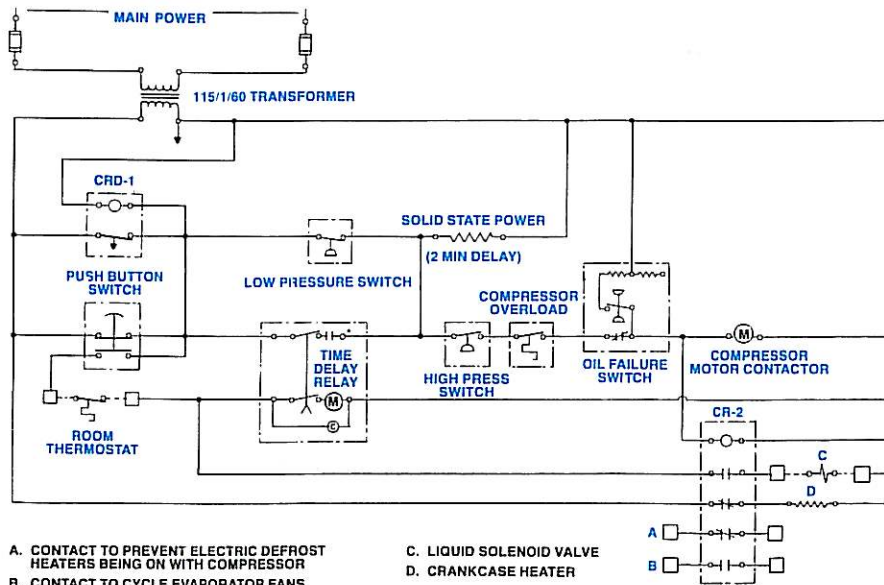
- Oversized condensers for high ambient operation.
- Factory installed Matched System controls.
- KOR oil return system consisting of an oil separator with float, crankcase oil float switch and oil fill solenoid valve.
- Compressor cylinder unloading for 4, or 6 cylinder R-22 compressors operating above +25°F suction temperature. KOR oil return system and cylinder head cooling fan are included.

Model Key



ELECTRICAL CONTROL

FOR EACH SYSTEM

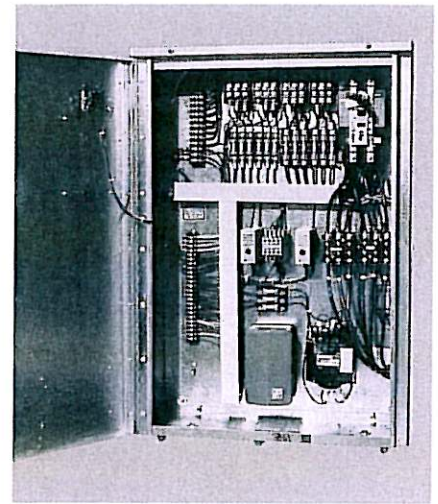


A. CONTACT TO PREVENT ELECTRIC DEFROST HEATERS BEING ON WITH COMPRESSOR
B. CONTACT TO CYCLE EVAPORATOR FANS WITH COMPRESSOR

C. LIQUID SOLENOID VALVE
D. CRANKCASE HEATER

A □
B □

THE ABOVE SCHEMATIC HAS BEEN SIMPLIFIED FOR CLARITY.
CONTACT FACTORY FOR YOUR TAILOR MADE WIRING DIAGRAMS.



Nema 12 Control Panel

Optional Factory Mounted
Unit Cooler Controls
For Each System

Safe-Start System

- Allows compressor, liquid solenoid valve and evaporator fan motors to be energized by the room thermostat.
- Allows automatic pumpdown to a low pressure switch setting 10 to 20°F below design suction temperature. This reduces oil foaming. Pumpdown below compressor design suction conditions, even in cold ambients, is eliminated.
- Allows automatic restart after a short power failure. Compressors are protected with an adjustable time delay relay which prevents compressor restart after power failure exceeding ten minutes.
- Prevents compressor short cycling due to insufficient or loss of refrigerant charge.
- Short cycle protection is provided in larger compressors with solid state overload modules. A fixed timer will allow the system to start only after a two minute delay.

Start-Up Cycle

After closing the door mounted circuit breaker and start-stop push button, the system will start if the thermostat (or other control sensor) calls for cooling. The adjustable time delay relay by-passes the low pressure switch to allow the system to establish head and suction pressure.

Shutdown Cycle

When the room thermostat (or control sensor) is satisfied or the door mounted start-stop push button is released, the liquid solenoid closes. The system will pumpdown to the low pressure switch setting and shut down. Refrigerant capacity of the evaporator plus the low ambient charge should not exceed the pumpdown capacity of the receiver.

Wiring Diagrams

Tailor made system wiring diagrams are provided for each application.

Air Defrost

A time clock will cycle the compressor off at selected intervals to allow the unit cooler fans to circulate room air (above 35°F) over the coil. See application guidelines.

Electric Defrost

A time clock will cycle the compressor off, stop the fan motors and energize the defrost heaters at selected intervals. Unit cooler fan motor and defrost heater contractors are provided. An adjustable temperature control or time control returns the system to the refrigeration cycle. A lock-out relay prevents the compressor and defrost heaters from operating simultaneously.

CAPACITY DATA

FOR EACH SYSTEM

R12 HIGH TEMPERATURE

KPDS MODEL	FIG NO.	NOMINAL HP EACH	BTUH AT 95°F/35°C AMBIENT						
			40°F	30°F	25°F	20°F	10°F	0°F	
			4.4°C	-1.1°C	-3.9°C	-6.7°C	-12.2°C	-17.8°C	
24-8/8H1	1	7½	85,000	74,000	67,000	60,000	46,000	39,000	
24-9/9H1	1	9	101,000	84,000	78,000	71,000	58,000	46,000	
26-10/10H1	1	10	107,000	90,000	83,000	75,000	61,000	49,000	
26-11/11H1	1	11	128,000	106,000	98,000	88,000	72,000	56,000	
36-15/15H1	2	15	167,000	140,000	127,000	117,000	91,000	72,000	
36-20/20H1	2	20	194,000	160,000	146,000	131,000	103,000	86,000	
46-21/21H1	3	21	246,000	207,000	190,000	172,000	141,000	112,000	

R22 HIGH TEMPERATURE

KPDS MODEL	FIG NO.	NOMINAL HP EACH	BTUH AT 95°F/35°C AMBIENT						
			40°F	30°F	25°F	20°F	10°F	0°F	
			4.4°C	-1.1°C	-3.9°C	-6.7°C	-12.2°C	-17.8°C	
24-8/8H2	1	7½	94,000	77,000	69,000	60,000	46,000	—	
26-10/10H2	1	10	132,000	109,000	98,000	89,000	71,000	—	
36-15/15H2	2	15	182,000	152,000	139,000	126,000	102,000	—	
36-20/20H2	2	20	208,000	171,000	159,000	143,000	114,000	—	
46-25/25H2	3	25	266,000	220,000	201,000	180,000	142,000	—	
56-30/30H2	4	30	307,000	257,000	233,000	207,000	174,000	—	
56-35/35H2	4	35	379,000	315,000	286,000	259,000	210,000	—	

R502 MEDIUM TEMPERATURE

KPDS MODEL	FIG NO.	NOMINAL HP EACH	BTUH AT 95°F/35°C AMBIENT						
			25°F	20°F	15°F	10°F	0°F	-5°F	
			-3.9°C	-6.7°C	-9.4°C	-12.2°C	-17.8°C	-20.6°C	
24-8/8M5	1	7½	72,000	67,000	60,000	53,000	40,000	33,000	
26-10/10M5	1	10	101,000	95,000	88,000	82,000	66,000	60,000	
26-15/15M5	1	15	130,000	121,000	110,000	101,000	85,000	80,000	
36-20/20M5	2	20	164,000	149,000	135,000	122,000	98,000	90,000	
44-25/25M5	3	25	203,000	186,000	169,000	152,000	122,000	109,000	
46-30/30M5	3	30	228,000	214,000	195,000	178,000	144,000	130,000	
56-35/35M5	4	35	296,000	276,000	252,000	229,000	188,000	169,000	

R502 LOW TEMPERATURE

KPDS MODEL	FIG NO.	NOMINAL HP EACH	BTUH AT 95°F/35°C AMBIENT						
			0°F	-10°F	-20°F	-25°F	-30°F	-40°F	
			-17.8°C	-23.3°C	-28.9°C	-31.7°C	-34.4°C	-40°C	
22-8/8L5	1	8	65,000	53,000	43,000	38,000	34,000	26,000	
24-9/9L5	1	9	71,000	59,000	50,000	45,000	40,000	30,000	
24-10/10L5	1	10	83,000	67,000	55,000	50,000	43,000	33,000	
26-15/15L5	1	15	101,000	82,000	67,000	60,000	52,000	40,000	
26-20/20L5	1	20	115,000	96,000	77,000	72,000	64,000	51,000	
36-22/22L5	2	22	128,000	105,000	84,000	75,000	67,000	52,000	
36-25/25L5	2	25	152,000	125,000	99,000	90,000	82,000	61,000	
46-30/30L5	3	30	176,000	145,000	117,000	104,000	92,000	70,000	

COMPRESSOR AND PHYSICAL DATA

FOR EACH SYSTEM

NOMINAL HP	MODEL	COMPRESSOR DATA				SYSTEM AMPACITY 3 PHASE 60 HZ		RECEIVER DATA		CONDENSER FLOODING CHARGE	SYSTEM CONNECTIONS		TOTAL OPERATING WEIGHT LBS
		230-3-60		460-3-60		208-220	440-460	DIA x L INCHES	CAPACITY LBS		SUCTION ODS	LIQUID ODS	
7½ 9	3DB-0750	31.5	161	14.3	83.0	40.1	18.6	8⅝ x 42	79	38	1⅝	⅞	2800
	3DF-0900	39.0	215	16.9	106.0	47.6	21.2	8⅝ x 42	79	38	1⅝	⅞	2900
10 11	3DS-1000	42.0	215	18.6	106.0	50.6	22.9	10¾ x 36	102	58	2⅛	⅞	2900
	4DA-1000	53.6	240	26.8	120	62.2	31.1	10¾ x 36	102	58	2⅛	⅞	3300
15 20	4DH-1500	61.4	278	30.7	140	73.2	36.6	10¾ x 60	175	87	2⅛	⅞	3800
	4DJ-2000	71.4	346	35.7	173	83.2	41.6	10¾ x 60	175	87	2⅛	⅞	4200
21	6DH-2000	75.0	346	37.5	173	90.0	45.0	12¾ x 60	242	116	2⅝	1⅞	4700

NOMINAL HP	MODEL	COMPRESSOR DATA				SYSTEM AMPACITY 3 PHASE 60 HZ		RECEIVER DATA		CONDENSER FLOODING CHARGE	SYSTEM CONNECTIONS		TOTAL OPERATING WEIGHT LBS
		230-3-60		460-3-60		208-220	440-460	DIA x L INCHES	CAPACITY LBS		SUCTION ODS	LIQUID ODS	
7½ 10	MDA-0750	28.4	175	15.7	75.0	37.0	20.0	8⅝ x 42	72	36	1⅝	⅞	2900
	3DB-1000	43.6	215	20.0	106	52.2	24.3	10¾ x 36	93	54	1⅝	⅞	3300
15 20	3DS-1500	59.6	275	29.0	138	71.4	34.9	10¾ x 60	159	81	1⅝	⅞	3800
	4DA-2000	70.0	308	35.0	154	81.8	40.9	10¾ x 60	159	81	2⅛	1⅞	4100
25 30	4DH-2500	85.7	428	42.9	214	100.0	50.4	12¾ x 60	220	108	2⅛	1⅞	4700
	4DJ-3000	118	470	59.0	235	136.2	68.1	12¾ x 72	266	135	2⅛	1⅞	5400
35	6DH-3500	125	565	62.5	283	143.2	71.6	12¾ x 72	266	135	2⅝	1⅞	5500

NOMINAL HP	MODEL	COMPRESSOR DATA				SYSTEM AMPACITY 3 PHASE 60 HZ		RECEIVER DATA		CONDENSER FLOODING CHARGE	SYSTEM CONNECTIONS		TOTAL OPERATING WEIGHT LBS
		230-3-60		460-3-60		208-220	440-460	DIA x L INCHES	CAPACITY LBS		SUCTION ODS	LIQUID ODS	
7½ 10	MDA-0750	28.4	175	15.7	75.0	37.0	20.0	8⅝ x 42	75	37	1⅝	⅞	2900
	3DB-1000	43.6	215	20.0	106	52.2	24.3	10¾ x 36	97	56	1⅝	⅞	3300
15 20	3DS-1500	59.6	275	29.0	138	68.2	33.3	10¾ x 36	97	56	2⅛	⅞	3500
	4DA-2000	70.0	308	35.0	154	81.8	40.9	10¾ x 60	166	84	2⅛	⅞	4100
25 30	4DH-2500	85.7	428	42.9	214	100.0	50.4	10¾ x 60	166	74	2⅛	1⅞	4700
	4DJ-3000	118	470	59.0	235	133.0	66.5	12¾ x 60	229	112	2⅛	1⅞	5400
35	6DH-3500	125	565	62.5	283	143.2	71.6	12¾ x 72	277	135	2⅝	1⅞	5500

NOMINAL HP	MODEL	COMPRESSOR DATA				SYSTEM AMPACITY 3 PHASE 60 HZ		RECEIVER DATA		CONDENSER FLOODING CHARGE	SYSTEM CONNECTIONS		TOTAL OPERATING WEIGHT LBS
		230-3-60		460-3-60		208-220	440-460	DIA x L INCHES	CAPACITY LBS		SUCTION ODS	LIQUID ODS	
8	3DF-0900	39.0	215	16.9	106	48.5	21.7	6⅝ x 38	39	18	1⅝	⅝	2700
9	3DS-1000	42.0	215	18.6	106	51.5	23.4	8⅝ x 42	75	36	2⅛	⅝	2700
10	4DA-1000	53.6	240	26.8	120	63.1	31.6	8⅝ x 42	75	36	2⅛	⅝	3000
15	4DL-1500	60.0	278	30.0	140	69.5	34.8	10¾ x 36	97	56	2⅛	⅞	3300
20 22	4DT-2200	71.4	374	35.7	187	80.9	40.5	10¾ x 36	97	56	2⅛	⅞	3600
	4DT-2200	71.4	374	35.7	187	87.3	42.1	10¾ x 60	166	84	2⅛	⅞	3900
25	6DL-2700	89.3	450	44.7	225	102.0	51.1	10¾ x 60	166	84	2⅝	⅞	4100
30	6DT-3000	111.0	470	55.5	235	126.9	63.5	12¾ x 60	229	112	2⅝	1⅞	4700

DIMENSIONS

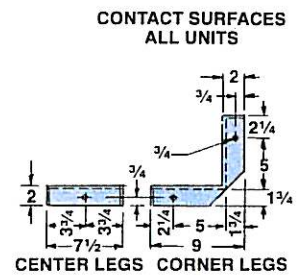
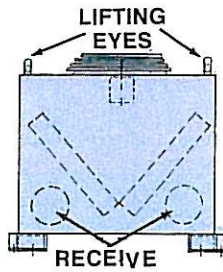
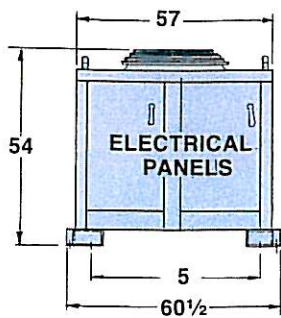
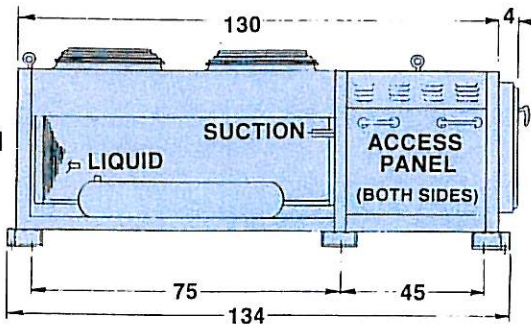


FIGURE 1



ALL UNITS
MINIMUM
CLEARANCE
36 INCHES
ALL SIDES

FIGURE 2

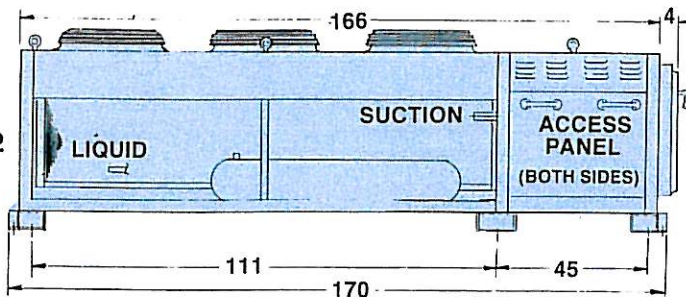


FIGURE 3

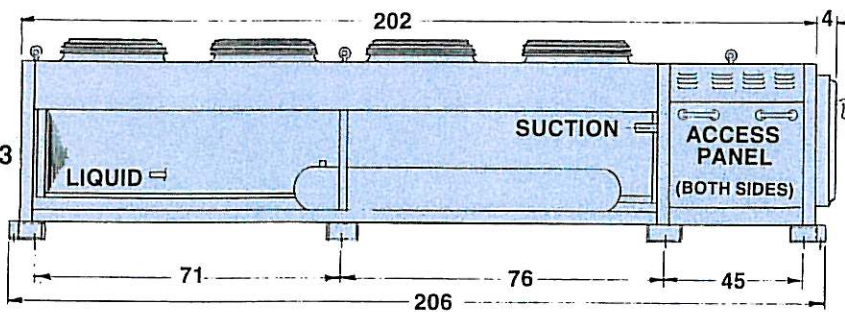
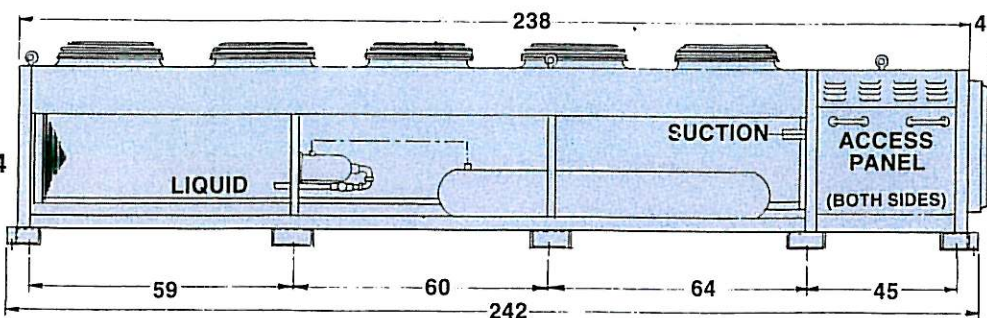


FIGURE 4



14' 10"
12 | 238
12
118
108
10

DO NOT USE FOR CONSTRUCTION — USE CERTIFIED DRAWING

APPLICATION GUIDELINES

Roof Mounting

Unit should be mounted so vertical air discharge is not obstructed. Three feet clearance on all sides for service is recommended. The unit should be securely attached to a level supporting framework.

Ground Mounting

The unit should be set on a level concrete pad. Three feet clearance on all sides for service is recommended. Liquid-suction heat exchangers are required at the bottom of the vertical risers. Liquid risers outside the refrigerated space should be insulated. For vertical rise in excess of 30 feet, consult factory.

Liquid Solenoid Valve

Liquid solenoid valves are required at each evaporator. Solenoid valves should not be located at the condensing unit liquid outlet.

Piping

Refrigerant piping should be installed following good piping practices and in accordance with existing piping codes. Care should be taken to avoid hydraulic lock-up. Suction lines must be sized for proper oil return.

Special Applications

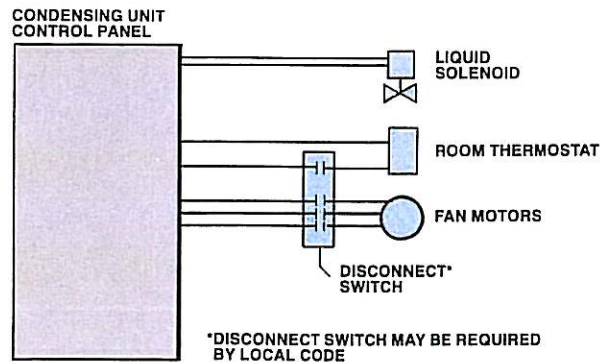
Factory approval must be requested for applications using flooded evaporator liquid feeds, ice makers, ice builders, various dairy processing equipment, i.e. which may require oversized receivers, remote start-stop control, and special oil return provisions.

KRACK-PAK MATCHED SYSTEMS CONSIST OF THE FOLLOWING COMPONENTS:

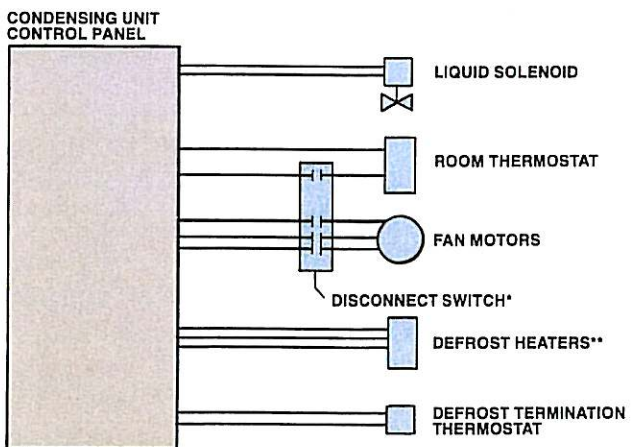
- Condensing Unit
- Unit Cooler
- Defrost Controls
- Thermostatic Expansion Valve
- Liquid Solenoid Valve
- Liquid Suction Heat Exchanger
- Room Thermostat

The diagrams below show typical air defrost and electric defrost field wiring requirements for each compressor system.

AIR DEFROST WITH SINGLE EVAPORATOR



ELECTRIC DEFROST WITH SINGLE EVAPORATOR



*DISCONNECT SWITCH MAY BE REQUIRED BY ELECTRICAL CODES

**MAXIMUM CURRENT DRAW IS 48 AMPS. ABOVE 48 AMPS CONSULT FACTORY.



Krack Corporation

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