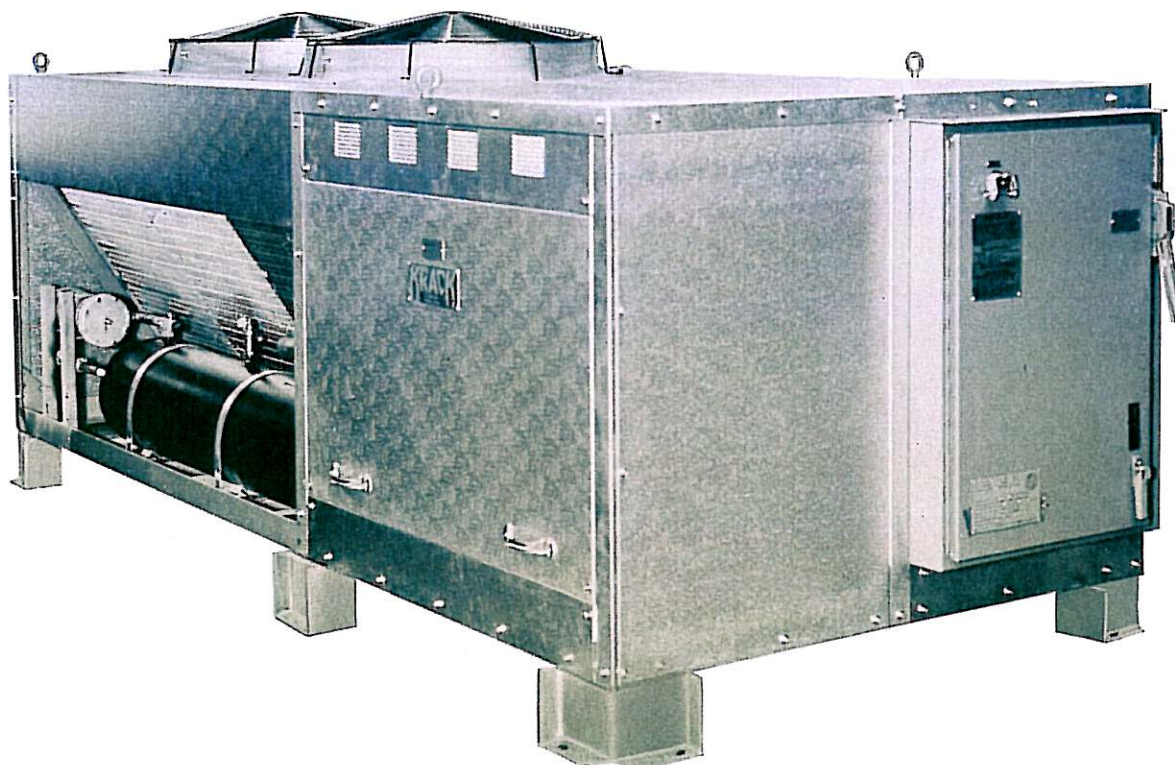


KRACK

Parallel Compressor Krack-Pak



*KPPC Outdoor Air-Cooled Condensing
Systems With Parallel Compressors For
High, Medium and Low Temperature Application
Using R12, R22 and R502 Refrigerants*



STANDARD FEATURES

FOR PARALLEL COMPRESSOR 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 thru 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.

One Condenser

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 3/4 HP, 850 RPM, weather resistant motors with sealed ball bearings and internal three phase overheat protection.

KOR Oil Return

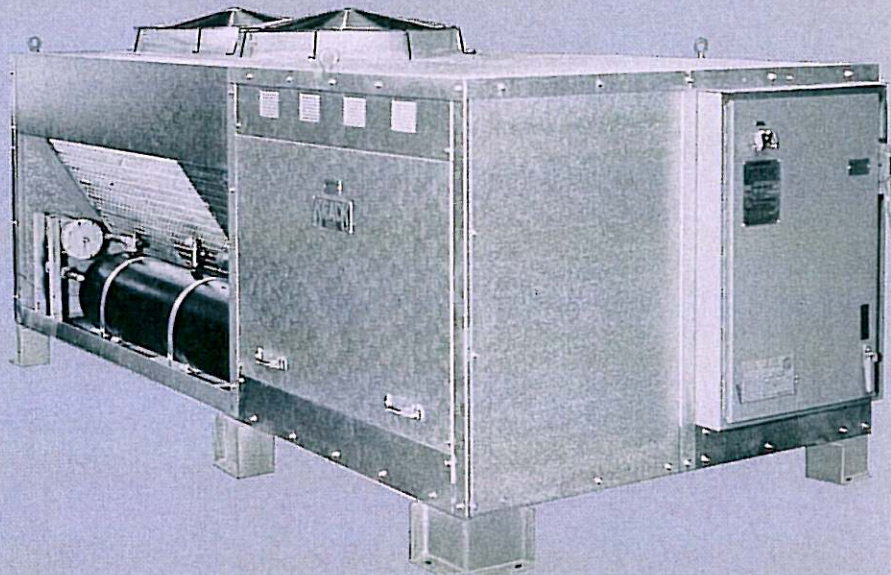
A common oil separator/reservoir provides oil for each compressor. An oil float switch on each compressor operates an oil feed solenoid, providing oil as required to each compressor.

One Receiver

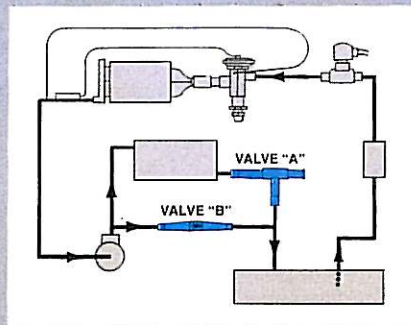
Amply sized to allow for evaporator pumpout and condenser flooding charges. A 400 psi relief valve and backseating liquid service valves are included.

One Minimum Head Pressure Low Ambient Control System

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

One Liquid Filter Drier

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

One Suction Accumulator

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

One Control Panel Includes:

- 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.

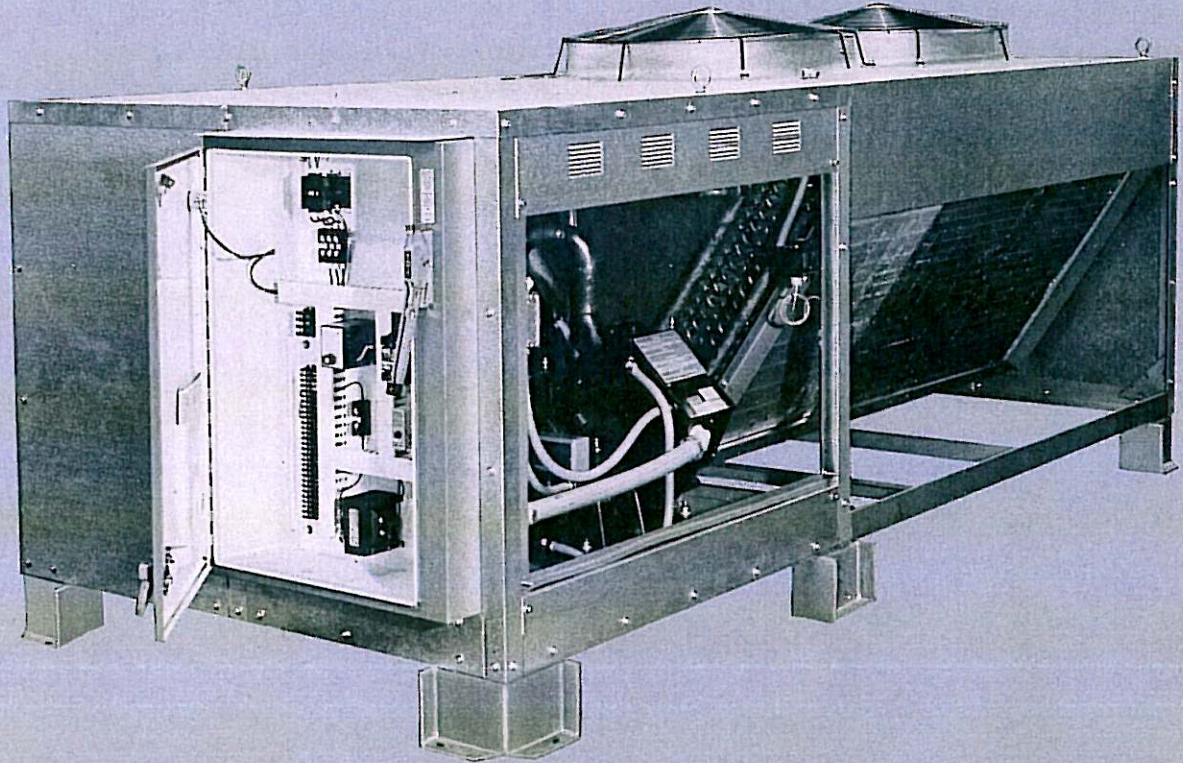
Shipment

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

KPPC Parallel 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

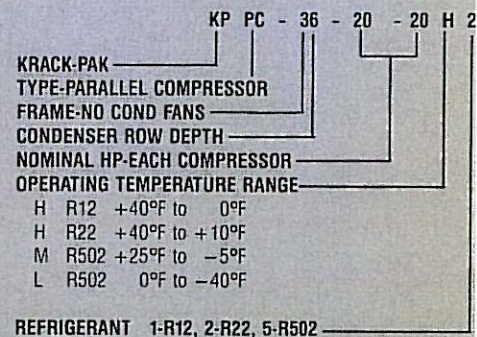
BTUH @ 60 HZ x 0.210 = K-CAL/HR
@ 50 HZ

Pounds x 0.454 = Kilograms
Inches x 25.4 = Millimeters

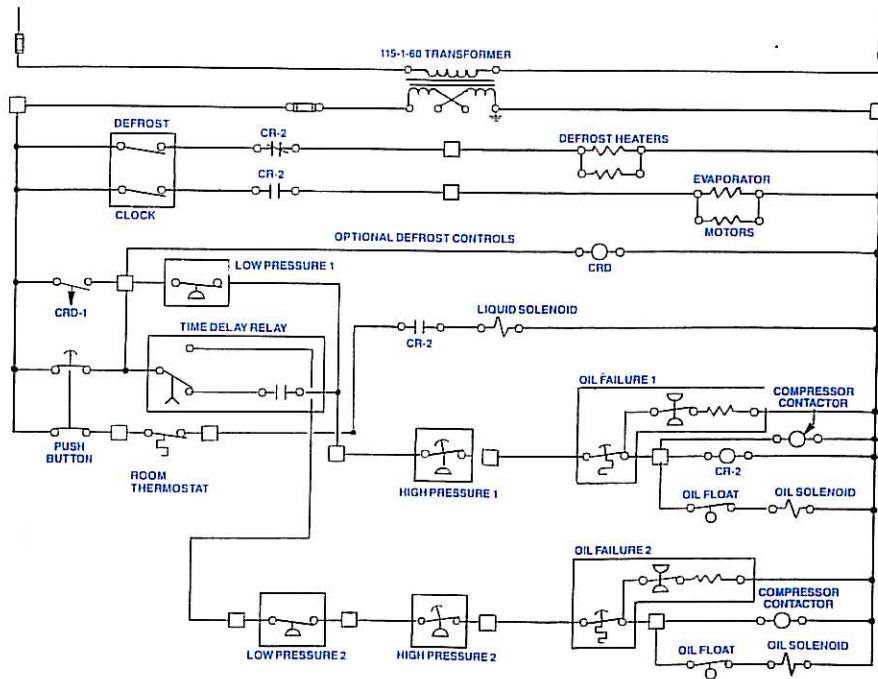
Options

- Oversized condensers for high ambient operation.
- Factory installed Matched System controls.

Model Key



ELECTRICAL CONTROL



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

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 bypasses one low pressure switch allowing one compressor to start. The second compressor starts as the system establishes suction and head 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.

Optional Factory Mounted Unit Cooler Controls

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

R12 HIGH TEMPERATURE

BTUH AT 95°F/35°C AMBIENT									
KPPC MODEL	FIG NO.	NOMINAL HP EACH	+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	16	178,000	148,000	134,000	120,000	92,000	78,000	
24-9/9H1	1	18	202,000	168,000	156,000	142,000	116,000	92,000	
26-10/10H1	1	20	216,000	180,000	166,000	150,000	122,000	98,000	
26-11/11H1	1	22	254,000	212,000	196,000	176,000	144,000	112,000	
36-15/15H1	2	30	322,000	272,000	254,000	232,000	182,000	144,000	
36-20/20H1	2	40	382,000	316,000	290,000	262,000	206,000	172,000	
46-21/21H1	3	42	492,000	414,000	380,000	344,000	282,000	224,000	

R22 HIGH TEMPERATURE

BTUH AT 95°F/35°C AMBIENT									
KPPC MODEL	FIG NO.	NOMINAL HP EACH	+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	15	188,000	154,000	138,000	120,000	92,000	—	
26-10/10H2	1	20	264,000	218,000	196,000	178,000	142,000	—	
36-15/15H2	2	30	364,000	304,000	278,000	252,000	204,000	—	
36-20/20H2	2	40	416,000	342,000	318,000	286,000	228,000	—	
46-25/25H2	3	50	532,000	440,000	402,000	360,000	284,000	—	
56-30/30H2	4	60	614,000	514,000	466,000	414,000	348,000	—	
56-35/35H2	4	70	758,000	630,000	572,000	518,000	420,000	—	

R502 MEDIUM TEMPERATURE

BTUH AT 95°F/35°C AMBIENT									
KPPC MODEL	FIG NO.	NOMINAL HP EACH	+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	16	144,000	134,000	120,000	106,000	80,000	66,000	
26-10/10M5	1	20	202,000	190,000	176,000	164,000	132,000	120,000	
26-15/15M5	1	30	260,000	242,000	220,000	202,000	170,000	160,000	
36-20/20M5	2	40	328,000	298,000	270,000	244,000	196,000	180,000	
44-25/25M5	3	50	406,000	372,000	338,000	304,000	244,000	218,000	
46-30/30M5	3	60	456,000	428,000	390,000	356,000	285,000	260,000	
56-35/35M5	4	70	592,000	552,000	504,000	458,000	376,000	338,000	

R502 LOW TEMPERATURE

BTUH AT 95°F/35°C AMBIENT									
KPPC MODEL	FIG NO.	NOMINAL HP EACH	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	16	130,000	106,000	86,000	76,000	68,000	52,000	
24-9/9L5	1	18	148,000	122,000	102,000	90,000	80,000	60,000	
24-10/10L5	1	20	168,000	136,000	112,000	100,000	86,000	66,000	
26-15/15L5	1	30	206,000	166,000	134,000	120,000	104,000	80,000	
26-20/20L5	1	40	230,000	192,000	156,000	144,000	128,000	102,000	
34-22/22L5	2	44	256,000	210,000	168,000	150,000	134,000	105,000	
36-25/25L5	2	50	300,000	248,000	198,000	180,000	164,000	122,000	
46-30/30L5	3	60	352,000	290,000	234,000	208,000	184,000	140,000	

COMPRESSOR AND PHYSICAL DATA

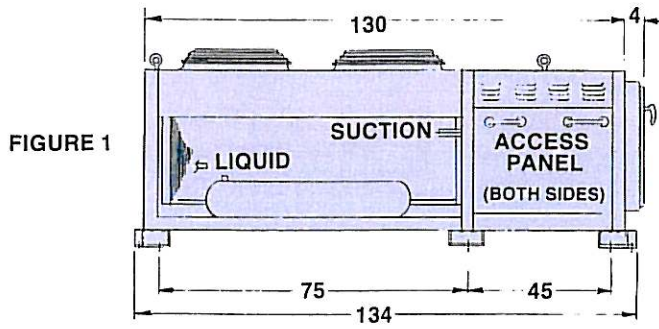
NOMINAL HP	EACH MODEL	COMPRESSOR DATA				TOTAL SYSTEM AMPACITY 3 PHASE 60 HZ		RECEIVER DATA		CONDENSER FLOODING CHARGE	SYSTEM CONNECTIONS		TOTAL OPERATING WEIGHT LBS
		230-3-60		460-3-60		208-230	440-480	DIA x L INCHES	CAPACITY LBS		SUCTION ODS	LIQUID ODS	
		RLA	LRA	RLA	LRA								
15	3DB-0750	31.5	161	14.3	83.0	71.6	32.9	10 $\frac{3}{4}$ x 60	175	76	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2800
18	3DF-0900	39.0	215	16.9	106.0	86.6	38.1	10 $\frac{3}{4}$ x 60	175	76	2 $\frac{5}{8}$	1 $\frac{1}{8}$	2900
20	3DS-1000	42.0	215	18.6	106.0	92.6	41.5	12 $\frac{3}{4}$ x 60	242	116	2 $\frac{5}{8}$	1 $\frac{1}{8}$	2900
22	4DA-1000	53.6	240	26.8	120	115.8	57.9	12 $\frac{3}{4}$ x 60	242	116	2 $\frac{5}{8}$	1 $\frac{1}{8}$	3000
30	4DH-1500	61.4	280	30.7	140	134.6	67.3	12 $\frac{3}{4}$ x 72	293	174	2 $\frac{5}{8}$	1 $\frac{1}{8}$	3500
40	4DJ-2000	71.4	346	35.7	173	154.6	77.3	12 $\frac{3}{4}$ x 72	293	174	2 $\frac{5}{8}$	1 $\frac{3}{8}$	3600
42	6DH-2000	75.0	346	37.5	173	165.0	82.5	12 $\frac{3}{4}$ x 96	394	232	3 $\frac{1}{8}$	1 $\frac{3}{8}$	4500

NOMINAL HP	EACH MODEL	COMPRESSOR DATA				TOTAL SYSTEM AMPACITY 3 PHASE 60 HZ		RECEIVER DATA		CONDENSER FLOODING CHARGE	SYSTEM CONNECTIONS		TOTAL OPERATING WEIGHT LBS
		230-3-60		460-3-60		208-230	440-480	DIA x L INCHES	CAPACITY LBS		SUCTION ODS	LIQUID ODS	
		RLA	LRA	RLA	LRA								
15	MDA-0750	28.4	175	15.7	75.0	65.7	35.7	10 $\frac{3}{4}$ x 60	159	72	1 $\frac{5}{8}$	7 $\frac{7}{8}$	2800
20	3DB-1000	43.6	215	20.0	106	95.8	44.3	12 $\frac{3}{4}$ x 60	220	108	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2900
30	3DS-1500	59.6	275	29.0	138	131.1	63.9	12 $\frac{3}{4}$ x 72	266	162	2 $\frac{1}{8}$	1 $\frac{1}{8}$	3400
40	4DA-2000	70.0	308	35.0	160	151.8	75.9	12 $\frac{3}{4}$ x 72	266	162	2 $\frac{5}{8}$	1 $\frac{1}{8}$	3600
50	4DH-2500	85.7	428	42.9	211	186.4	93.3	12 $\frac{3}{4}$ x 96	358	216	2 $\frac{5}{8}$	1 $\frac{1}{8}$	4500
60	4DJ-3000	118	470	59.0	235	254.2	127.1	14 x 96	435	270	2 $\frac{5}{8}$	1 $\frac{3}{8}$	5400
70	6DH-3500	125	565	62.5	289	268.2	134.1	14 x 96	435	270	2 $\frac{5}{8}$	1 $\frac{3}{8}$	5500

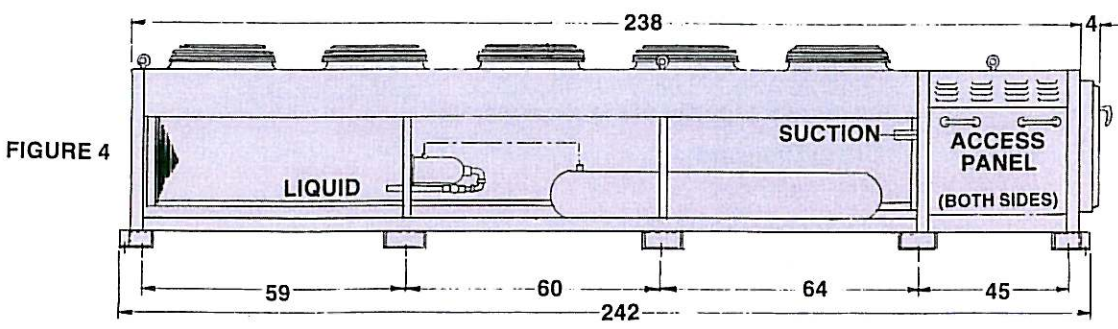
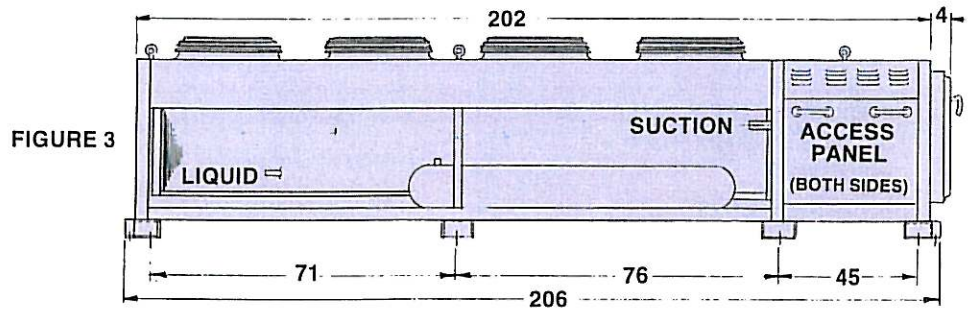
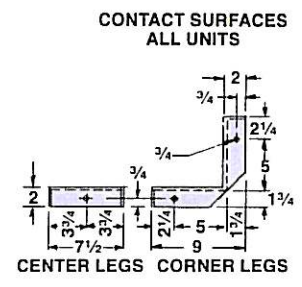
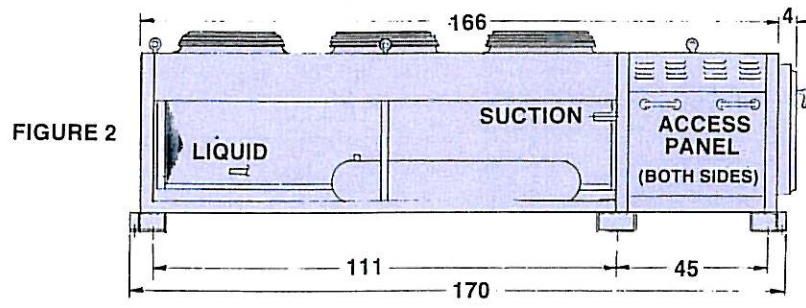
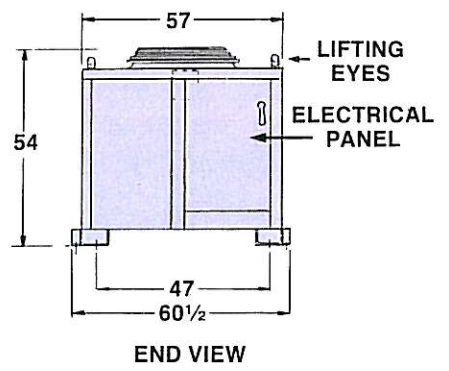
NOMINAL HP	EACH MODEL	COMPRESSOR DATA				TOTAL SYSTEM AMPACITY 3 PHASE 60 HZ		RECEIVER DATA		CONDENSER FLOODING CHARGE	SYSTEM CONNECTIONS		TOTAL OPERATING WEIGHT LBS
		230-3-60		460-3-60		208-230	440-480	DIA x L INCHES	CAPACITY LBS		SUCTION ODS	LIQUID ODS	
		RLA	LRA	RLA	LRA								
15	MDA-0750	28.4	175	15.7	75.0	65.4	35.7	10 $\frac{3}{4}$ x 60	166	74	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2800
20	3DB-1000	43.6	215	20.0	106	95.8	44.3	12 $\frac{3}{4}$ x 60	229	112	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2900
30	3DS-1500	59.6	275	29.0	138	131.1	63.9	12 $\frac{3}{4}$ x 60	229	112	2 $\frac{1}{8}$	1 $\frac{1}{8}$	3500
40	4DA-2000	70.0	308	35.0	160	151.8	75.9	12 $\frac{3}{4}$ x 72	277	168	2 $\frac{5}{8}$	1 $\frac{3}{8}$	3800
50	4DH-2500	85.7	428	42.9	211	186.4	93.3	12 $\frac{3}{4}$ x 72	277	168	2 $\frac{5}{8}$	1 $\frac{3}{8}$	4300
60	4DJ-3000	118	470	59.0	235	251.0	125.5	12 $\frac{3}{4}$ x 96	374	224	2 $\frac{5}{8}$	1 $\frac{3}{8}$	4600
70	6DH-3500	125	565	62.5	289	268.2	134.1	14 x 96	453	280	3 $\frac{1}{8}$	1 $\frac{3}{8}$	5300

NOMINAL HP	EACH MODEL	COMPRESSOR DATA				TOTAL SYSTEM AMPACITY 3 PHASE 60 HZ		RECEIVER DATA		CONDENSER FLOODING CHARGE	SYSTEM CONNECTIONS		TOTAL OPERATING WEIGHT LBS
		230-3-60		460-3-60		208-230	440-480	DIA x L INCHES	CAPACITY LBS		SUCTION ODS	LIQUID ODS	
		RLA	LRA	RLA	LRA								
16	3DF-0900	39.0	215	16.9	106	88.4	39.0	10 $\frac{3}{4}$ x 60	166	74	2 $\frac{1}{8}$	7 $\frac{7}{8}$	2700
18	3DS-1000	42.0	215	18.6	106	94.4	42.4	10 $\frac{3}{4}$ x 60	166	74	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2900
20	4DA-1000	53.6	240	26.8	120	117.6	58.8	10 $\frac{3}{4}$ x 60	166	74	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2900
30	4DL-1500	60.0	278	30.0	140	130.4	65.2	12 $\frac{3}{4}$ x 60	229	112	2 $\frac{5}{8}$	1 $\frac{1}{8}$	3200
40	4DT-2200	71.4	374	35.7	187	154.2	76.6	12 $\frac{3}{4}$ x 60	229	112	2 $\frac{5}{8}$	1 $\frac{1}{8}$	3400
44	4DT-2200	71.4	374	35.7	187	159.6	78.2	12 $\frac{3}{4}$ x 60	229	112	2 $\frac{5}{8}$	1 $\frac{1}{8}$	4200
50	6DL-2700	89.3	450	44.7	225	192.2	96.2	12 $\frac{3}{4}$ x 72	277	168	2 $\frac{5}{8}$	1 $\frac{3}{8}$	4200
60	6DT-3000	111.0	470	55.5	235	238.8	119.5	12 $\frac{3}{4}$ x 96	374	224	3 $\frac{1}{8}$	1 $\frac{3}{8}$	4700

DIMENSIONS



ALL UNITS
MINIMUM
CLEARANCE
36 INCHES
ALL SIDES



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 evaporators, ice makers or various dairy processing equipment.

Compressor Operation

This system was designed to have both compressors operating together, except for start-up.

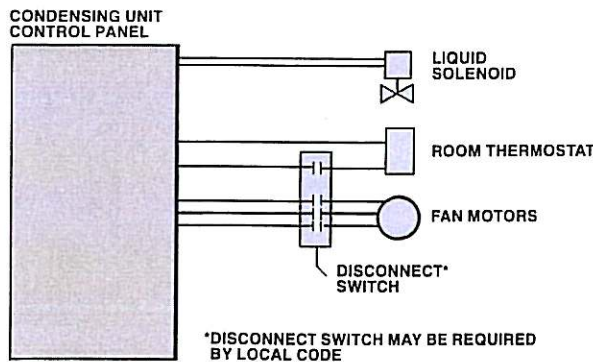
One compressor may not be cycled for part load capacity without consultation with the factory for a specific application.

KRACK-PAK MATCHED SYSTEMS CONSIST OF THE FOLLOWING COMPONENTS:

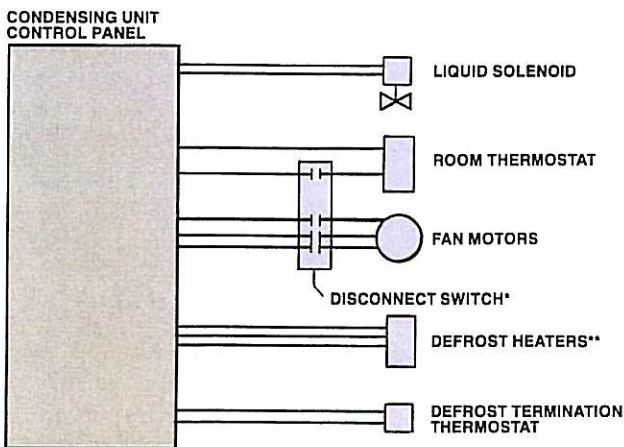
- Condensing Unit
- Unit Cooler
- Defrost Controls
- Thermostatic Expansion Valve
- Liquid Solenoid Valve
- Liquid Suction Heat Exchanger
- Room Thermostat

The diagrams below show typical air defrost and electric defrost field wiring requirements.

AIR DEFROST WITH SINGLE EVAPORATOR



ELECTRIC DEFROST WITH SINGLE EVAPORATOR



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



Krack Corporation

401 S. Rohlwing Road (Route 53) • Addison, Illinois 60101
Phone: (312) 629-7500 • Telex 72-1435 • Cable: KRACKCOIL