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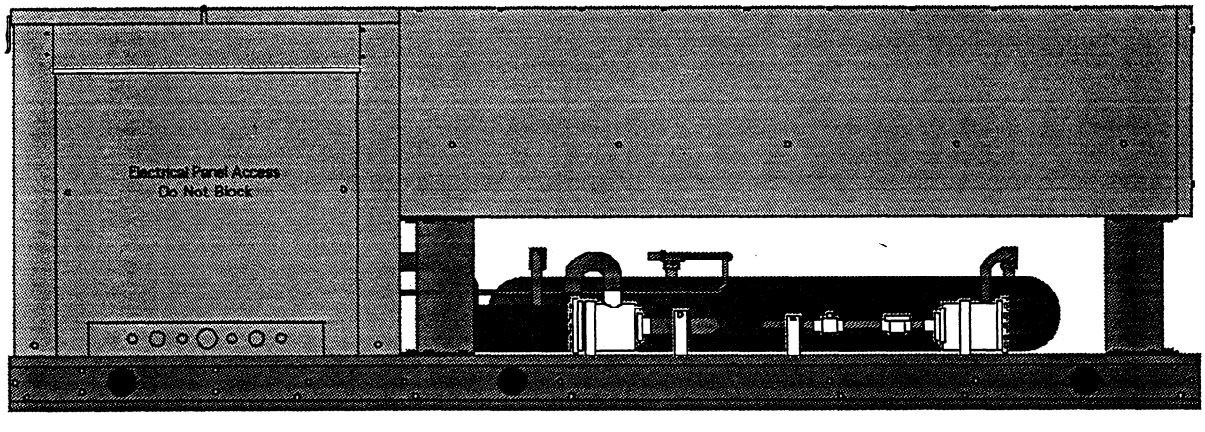
KYSOR/WARREN®

Division of Kysor Industrial Corporation

The Leading Edge of Technology

INSTALLATION & OPERATION MANUAL

MODEL: OCC, OCD, OCR
CONDENSING UNITS



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Introduction

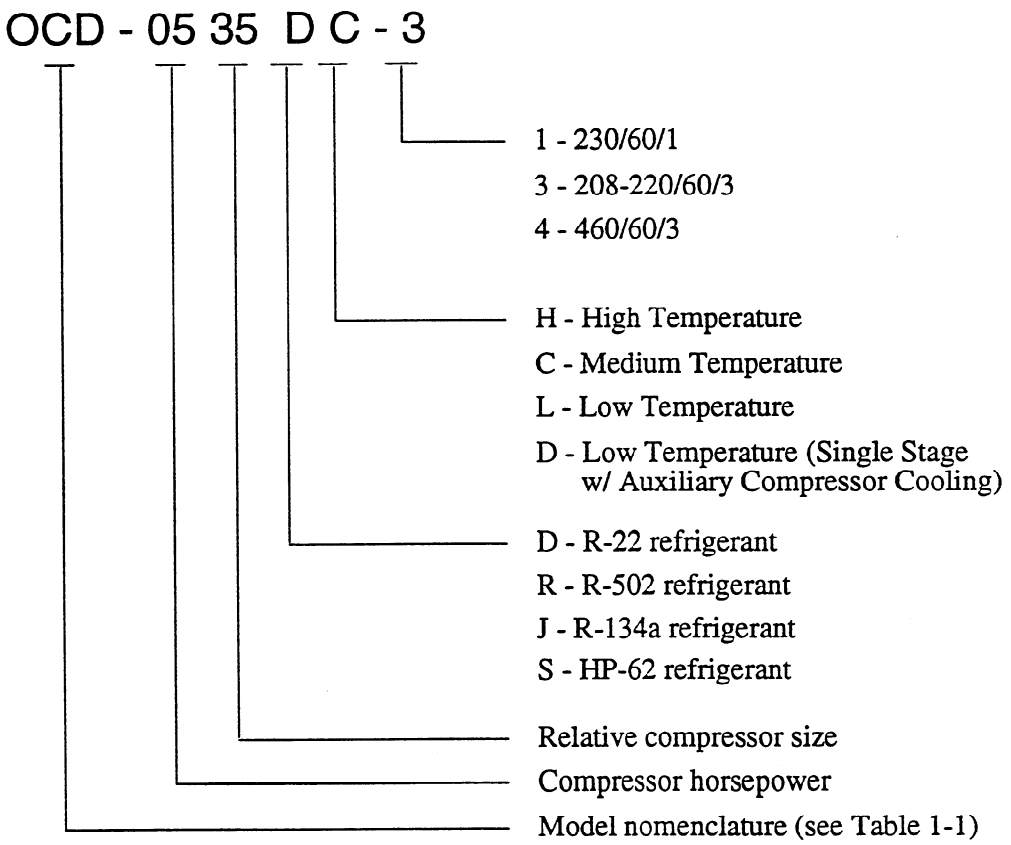
Mastermetic condensing and compressor units are available in sizes ranging from 1/2 through 30 HP (depending on application). These compact single compressor units are designed to operate at maximum efficiency. All HCFC22 and R502 units are listed with ETL Testing Laboratories, Inc (Report No. 477000). All units have ETL Testing Laboratories, Inc listed control panels (Report No. 500570).

Component parts have been selected for their dependability and availability to keep service problems to a minimum. A large number of options are available to facilitate the condensing unit and fixture installation and are available at a slight additional cost. A discussion of the standard options is contained later in this manual.

Model Description

Table 1-1

Designation	Unit Type	Compressor
OCC	Condensing	Carlyle semi-hermetic
OCD	Condensing	Copeland semi-hermetic
OCR	Condensing	Copeland hermetic



Receipt and Inspection of Equipment

Inspect the Mastermetic Unit and any accessories shipped with it for damage or shortages before and during unloading. If there is any damage, the carrier should be notified immediately and an inspection requested. The delivery receipt must be noted that the equipment was received damaged. If damage is of a concealed nature you must contact the carrier immediately or no later than three (3) days following delivery. It is the responsibility of the consignee to file all claims for damage with the transportation company.

Accessory items, such as drier cores, liquid line solenoids, etc. are packaged in a separate carton. Be sure that you receive all items.

Refrigerant Selection

Refrigerqnt R22 and HFC134a is offered for commercial temperature applications. For low temperature applications R22, and R502 are available.

Compressor Selection

The appropriate condensing or compressor unit is selected after the type refrigerant has been determined.

Please note that most of the compressor selections are based on 90° ambient which will produce approximately 105° condensing on low temperature units and 110° condensing on commercial temperature units. If ambients over 90° are expected, then the machine's capacity will decrease about 4% per 5°F increase ambient.

Multiplexing

Multiplexing is the term applied when more than one case line up is supplied by one compressor. When multiplexing, care must be taken to size the compressor to accommodate the entire load at the lowest evaporator temperature requirement for any case in the group. In order to avoid problems associated with dissimilar defrosts, it is preferable to multiplex only the same kind of cases.

Installation

All Mastermetics are shipped with a DRY NITROGEN HOLDING CHARGE. This holding charge prevents unit contamination and allows verification of the pressure integrity of the unit upon customer receipt. Cracking the discharge service valve should allow the nitrogen holding charge to escape. If no nitrogen escapes, a leak in the high side is probable, and steps should be taken to find and repair the leak. Each Mastermetic is factory checked for leaks by an electronic helium leak detector with a pressure of 400 psig, so the possibility of a leak is very remote. However, on occasion rough handling in transportation may break a line or solder joint. Check all piping for leaks during the installation process.

Warning: Effective 7/1/92, it is illegal to knowingly vent or discharge any CFC's or HCFC's to the Atmosphere. All CFC's and HCFC's must be reclaimed or recyled.

Line Sizing

For a particular job where exact line lengths are known, contact the Application Engineering Department for sizing assistance, ask for the Line Sizing Bulletin or ask for the *LINE SIZING PROGRAM*.

Recommended Piping Practices

1 Use only clean sealed copper tubing.

2 Proper size refrigeration lines are essential to good refrigeration performance. Suction lines are more critical that liquid or discharge lines. Oversized suction lines may prevent proper oil return to the compressor. Undersized lines can rob refrigeration capacity and increase operating cost. Consult the technical manual or legend sheet for proper line sizes.

3 Refrigeration lines in cases in line-ups can be reduced. However, the lines should be no smaller than the main trunk lines in at least 1/3 of the cases and no smaller than one size above the case lines to the last case. Reductions should not exceed one line size per case. It is preferred to bring the main trunk lines in at the center of the line-up. Individual feed lines should be at the bottom of the liquid header.

4 Do not run refrigeration lines from one system through cases on another system.

5 Use dry nitrogen in lines during the brazing to prevent scaling and oxidation.

Warning: When using a high pressure nitrogen container, proper regulating equipment in good operating condition must be used.

6 Insulate suction lines from the cases to the compressor with 3/4" wall thickness Armaflex or equal on low temperature cases to provide maximum of 65°F superheated gas back to the compressor and prevent condensation in exposed areas. Insulate suction lines on medium temperature cases with 1/2" thick insulation in exposed areas to prevent condensate dropping.

7 Suction and liquid lines should never be taped or soldered together. Adequate heat exchanger is provided in the case.

8 Refrigeration lines should never be placed in the ground unless they are protected against moisture and electrolysis attack.

9 Always slope suction lines down toward the compressor, 1/2 inch each 10 feet. Do not leave dips in the line that would trap oil.

10 Provide "P" traps at the bottom of suction line risers, 4 feet or higher. Use a double "P" trap for each 20 feet of riser. "P" traps should be the same size as the horizontal line. Consult the

technical manual or legend sheet for proper size risers.

11 Use long radius ells and avoid 45° ells.

12 Strap and support tubing to prevent excessive line vibration and noise.

13 Brazing of copper to copper should be with a minimum of 10% silver solder. Copper to brass or copper to steel should be with 45% silver solder.

14 Avoid the use of "bull head" tees in suction lines. An example is where suction gas enters both ends of the tee and exits the center. This can cause a substantial increase in pressure drop in the suction lines.

15 When connecting more than one suction line to a main trunk line, connect each branch line with an inverted trap.

Refrigeration Line Hook-up

For safe operation and trouble-free installations the following steps should be carried out by the installation personnel:

1 After all welds are made, open both ends of the tubing run and connect one end to dry nitrogen line. Blow out the lines with 250 to 350 psig until there is no scale present in the gas coming out of the open end.

2 Check the entire system for leaks.

3 With all valves open, connect a suitable vacuum pump to the Mastermetic and pull a vacuum of at least 1500 Microns (see the Case Installation Manual for evacuation). If the gauge does not approach this value after a reasonable period, stop the vacuum pump. Check again for system leaks.

4 After leak repair, reconnect the vacuum pump to the Mastermetic and follow the procedure of step 5 above.

5 After holding a vacuum for a long time (at least 2 hours for each fixture in the system) the system is ready to charge.

6 When charging from a large cylinder, use a new drier in the line between the cylinder and the unit, to insure dry refrigerant.

7 After 24 hours operation, install a new drier in liquid line after checking all expansion valve strainers, and compressor suction strainer.

Application of Air-Cooled Mastermetics

In locations where the temperature does not vary to a great extent between summer and winter, no special arrangements are necessary except that the units should be located where a fresh air supply is available and the condenser should be kept clean of dirt and other air boren contaminants. Excessive dust tends to clog the condenser air passages and thereby reduce refrigeration efficiency.

Winter Control

A head pressure control valve is standard. When "flooding" a condenser to control winter head pressures, additional refrigerant is required to fill the condenser with liquid to cut down on condensing surface. the following chart lists the amount of refrigerant that should be added after the sight glass indicates a full charge based on ambient temperature when charging the system. This chart is based on 105° condensing temperature and the valve is set to maintain 105° condensing.

It is imperative that this chart be adhered to for proper operation in cold weather.

Additional charging after a full sight glass (lbs of refrigerant)						
Size (HP)	Ambient Temperatures When Charging					
	10° & less	11° to 24°	25° to 39	40° to 59°	60° to 79°	80° & up
1	1.0	2.5	3.0	3.5	3.5	4.0
1-1/2	1.5	4.0	4.5	5.0	5.5	6.0
2	2.5	5.0	6.0	6.5	7.0	7.5
3	3.0	7.0	8.0	8.5	9.0	10.0
5	3.5	8.5	10.0	10.5	11.0	12.0
7-1/2	5.5	13.0	15.0	16.0	17.5	19.0
10	7.0	16.0	18.0	20.0	21.0	22.0
15	11.0	26.0	30.0	32.5	35.0	37.0
20	14.0	32.0	36.0	40.0	42.0	44.0
25	14.0	32.0	36.0	40.0	42.0	44.0

Accessories

There are many accessories available for the Mastermetic. Use of these accessories will facilitate a rapid installation of both the condensing and refrigerator units. Complete details are available from your local sales representative.

Standard control panel components include a suitable circuit breaker, contactor, and dual pressure control. Braided stainless steel flexible hoses are used for the pressure control connections to eliminate the possibility of capillary line breakage.

Oil safety controls are standard on all Mastermetic compressors that have oil pumps. These controls prevent compressor damage due to low oil pressure. This is a manual reset control and should the control cycle off, it is recommended that the system be examined to determine the cause of the problem. Continued reset of the reset button will probably result in the repeated cycling off if the cause of the low oil pressure is not found and repaired. Minimum oil pressure should be 8-10 psi above suction pressure.

All liquid-line kits have a drier of adequate size, a liquid indicator, and hand valve to isolate the drier when changing is necessary. The drier in a system functions as a filter and moisture remover. When replacing the original drier, make sure to replace it with one of the same characteristics.

Liquid line pump down solenoid valves are available. A liquid-line solenoid is recommended for walk-ins using electric or hot-gas defrost. Not included in panels.

A defrost time clock is available.

Defrost kits are available; both single and three phase, for applications up to 48 ampere load per kit. The contactors are sized for non-inductive (defrost heater) loads and should not be used for compressor loads.

Defrost Timer Kit (Installed)

Part No.	Description
96J14026	*PRECISION* Time Clock Kit
96J14028	*PARAGON* Time Clock Kit

Unit Cooler Fan Kit (Installed)

Part No.	Description
96J14027	Evap Fan Kit

230/60/1 Electric Defrost Kit (Includes (1) circuit breaker and (1) contactor.)

Part No.	Description
96J22083	Defrost Kit 230/60/1 12 A
96J22084	Defrost Kit 230/60/1 16 A
96J22085	Defrost Kit 230/60/1 24 A
96J22086	Defrost Kit 230/60/1 32 A
96J22087	Defrost Kit 230/60/1 40 A
96J22088	Defrost Kit 230/60/1 48 A

*208/60/3 Electric Defrost Kit (Includes (1) circuit breaker and (1) contactor.)

Part No.	Description
96J22089	Defrost Kit 208/60/3 12 A
96J22090	Defrost Kit 208/60/3 16 A
96J22091	Defrost Kit 208/60/3 24 A
96J22092	Defrost Kit 208/60/3 32 A
96J22093	Defrost Kit 208/60/3 40 A
96J22094	Defrost Kit 208/60/3 48 A

Mastermetic Advantages

Mastermetic air-cooled condensing units meet the most stringent requirements, in performance, size efficiency, and cost of ownership.

Major Advantages of the Mastermetic are

- low cost of ownership, first cost, installation and maintenance
- size efficiency and space saving
- equal or greater capacity than remote air-cooled units

Electrical Data Notes (All Models)

- MCA is minimum circuit ampacity.
- MOPD is maximum overcurrent protective device.

OCC-DH Data (HCFC22 High Temperature)

Model	Comp.	Comp. RLA	Cond. FLA	MCA	MOPD	Liq OD	Suct OD	Rec. No.	Cabinet Size	Cond. No.	Net WT
OCC-0305DH-3	06DM808	12.4	3.1	18.6	30	5/8	7/8	2	B	5	520
OCC-0505DH-3	06DM313	19.3	3.1	27.3	45	5/8	7/8	3	B	7	610
OCC-0655DH-3	06DA818	31.4	6.2	45.5	70	5/8	1-1/8	4	C	8	830
OCC-0755DH-3	06DA824	39.6	6.2	55.7	90	5/8	1-3/8	4	C	9	915
OCC-1005DH-3	06DA328	44.3	9.3	64.7	100	7/8	1-3/8	5	D	10	1640
OCC-1505DH-3	06DA537	63.6	9.3	88.8	150	7/8	1-5/8	5	D	11	1720
OCC-2005DH-3	06EA250	74.3	12.4	105.3	175	1-1/8	1-5/8	5	D	13	2180

OCC-DC Data (HCFC22 Medium Temperature)

Model	Comp.	Comp. RLA	Cond. FLA	MCA	MOPD	Liq OD	Suct OD	Rec. No.	Cabinet Size	Cond. No.	Net WT
OCC-0305DC-3	06DM808	12.4	3.1	18.6	30	5/8	7/8	2	B	5	520
OCC-0505DC-3	06DM313	19.3	3.1	27.3	45	5/8	7/8	3	B	6	590
OCC-0535DC-3	06DM316	19.3	3.1	27.3	45	5/8	1-1/8	3	B	7	610
OCC-0645DC-3	06DR820	31.4	6.2	45.5	70	5/8	1-3/8	4	C	8	825
OCC-0665DC-3	06DR724	31.4	6.2	45.5	70	5/8	1-3/8	4	C	8	885
OCC-0775DC-3	06DR228	39.6	6.2	55.7	90	5/8	1-5/8	4	C	9	915
OCC-1005DC-3	06DM337	44.3	9.3	64.7	100	7/8	1-5/8	5	D	10	1640
OCC-1505DC-3	06EM150	64.3	12.4	92.8	150	7/8	2-1/8	5	D	12	2100
OCC-2005DC-3	06EA265	90.7	12.4	125.8	200	1-1/8	1-5/8	5	D	13	2220

OCC-JC Data (HFC134a Medium Temperature)

Model	Comp.	Comp. RLA	Cond. FLA	MCA	MOPD	Liq OD	Suct OD	Rec. No.	Cabinet Size	Cond. No.	Net WT
OCC-0200JC-3	06DR109	8.6	.9	11.7	20	5/8	7/8	2	A	4	410
OCC-0300JC-3	06DR013	12.4	3.1	18.6	30	5/8	1-1/8	3	B	5	570
OCC-0500JC-3	06DM316	19.3	3.1	22.3	45	5/8	1-1/8	3	B	5	575
OCC-0520JC-3	06DR718	19.3	3.1	22.3	45	5/8	1-3/8	3	B	6	605
OCC-0640JC-3	06DR820	31.4	3.1	42.4	70	5/8	1-3/8	3	B	7	625
OCC-0660JC-3	06DR724	31.4	6.2	45.5	70	5/8	1-3/8	4	C	8	885
OCC-0760JC-3	06DR228	39.6	6.2	55.7	90	5/8	1-5/8	4	C	8	890
OCC-1000JC-3	06DM337	44.3	6.2	61.6	100	7/8	1-5/8	4	C	8	890
OCC-1020JC-3	06DR337	44.3	6.2	61.6	100	7/8	1-5/8	4	C	9	915
OCC-1500JC-3	06EM150	64.3	9.3	89.7	150	7/8	2-1/8	5	D	10	1780
OCC-1520JC-3	06ER150	59.3	9.3	83.5	125	7/8	2-1/8	5	D	10	1780
OCC-2000JC-3	06ER165	74.3	9.3	102.2	175	1-1/8	2-1/8	5	D	11	1880
OCC-2020JC-3	06ER175	74.3	12.4	105.3	175	1-1/8	2-1/8	5	D	12	2160
OCC-2500JC-3	06EM175	90.7	9.3	122.7	200	1-1/8	2-1/8	5	D	11	1920
OCC-3000JC-3	06ER099	116.4	12.4	157.9	250	1-1/8	2-1/8	5	D	13	2250
OCC-3500JC-3	06EM199	130.0	12.4	174.9	300	1-1/8	2-1/8	5	D	13	2265

OCC-DL Data (HCFC22 Low Temperature)

Model	Comp.	Comp. RLA	Cond. FLA	MCA	MOPD	Liq OD	Suct OD	Rec. No.	Cabinet Size	Cond. No.	Net WT
OCC-0505DL-3	06CC016	19.3	3.1	27.3	45	5/8	1-1/8	2	B	5	690
OCC-0645DL-3	06CC018	19.3	3.1	27.3	45	5/8	1-3/8	3	B	6	705
OCC-0665DL-3	06CC124	23.6	3.1	32.6	50	5/8	1-3/8	3	B	6	715
OCC-0765DL-3	06CC228	29.7	3.1	40.3	60	5/8	1-3/8	3	B	7	740
OCC-1005DL-3	06CC337	33.2	6.2	47.7	80	7/8	1-5/8	4	C	8	945
OCC-1505DL-3	06CC550	36.0	6.2	51.2	80	7/8	1-5/8	4	C	9	1170
OCC-2005DL-3	06CC665	60.7	9.3	85.2	125	1-1/8	1-5/8	5	D	10	1905
OCC-2045DL-3	06CC675	60.7	9.3	85.2	125	1-1/8	1-5/8	5	D	11	1980
OCC-3005DL-3	06CC899	82.9	12.4	116.1	175	1-1/8	1-5/8	5	D	12	2255

OCC-RL Data (R502 Low Temperature)

Model	Comp.	Comp. RLA	Cond. FLA	MCA	MOPD	Liq OD	Suct OD	Rec. No.	Cabinet Size	Cond. No.	Net WT
OCC-0210RL-3	06DR109	8.6	0.9	11.7	20	5/8	7/8	1	A	4	410
OCC-0310RL-3	06DR013	12.4	3.1	18.6	30	5/8	1-1/8	2	B	5	570
OCC-0510RL-3	06DR316	19.3	3.1	22.3	45	5/8	1-1/8	3	B	6	590
OCC-0560RL-3	06DR718	19.3	3.1	22.3	45	5/8	1-3/8	3	B	6	605
OCC-0660RL-3	06DR820	31.4	3.1	42.4	70	5/8	1-3/8	3	B	7	625
OCC-0690RL-3	06DR724	31.4	6.2	45.5	70	5/8	1-3/8	4	C	8	885
OCC-0760RL-3	06DR228	39.6	6.2	55.7	90	5/8	1-5/8	4	C	8	890
OCC-1010RL-3	06DR337	44.3	6.2	61.6	100	7/8	1-5/8	4	C	9	915
OCC-1510RL-3	06ER150	59.3	9.3	83.5	125	7/8	2-1/8	5	D	10	1780
OCC-2010RL-3	06ER165	74.3	9.3	102.2	175	1-1/8	2-1/8	5	D	11	1880
OCC-2060RL-3	06ER175	74.3	12.4	105.3	175	1-1/8	2-1/8	5	D	12	2160

OCD-DH Data (HCFC22 High Temperature)

Model	Comp.	Comp. RLA	Cond. FLA	MCA	MOPD	Liq OD	Suct OD	Rec. No.	Cabinet Size	Cond. No.	Net WT
OCD-0045DH-3	HAG1-0050-TAC	2.4	0.9	3.9	15	3/8	5/8	1	A	1	315
OCD-0075DH-3	KAN1-0075-TAC	3.5	0.9	5.3	15	3/8	5/8	1	A	1	325
OCD-0105DH-3	KAR1-0100-TAC	4.3	0.9	6.3	15	3/8	5/8	1	A	3	345
OCD-0135DH-3	KAM1-0100-TAC	4.5	0.9	6.5	15	3/8	5/8	1	A	3	345
OCD-0155DH-3	KAGA-0150-TAC	5.5	0.9	7.8	15	3/8	7/8	1	A	3	350
OCD-0205DH-3	KAKA-0200-TAC	6.8	0.9	9.4	15	3/8	7/8	1	A	4	360
OCD-0295DH-3	EAD1-0320-TAC	12.4	0.9	16.4	25	5/8	7/8	2	B	5	525
OCD-0305DH-3	ERF1-0310-TAC	12.4	3.1	18.6	30	5/8	1-1/8	2	B	5	535
OCD-0505DH-3	2DC3-0500-TFC	22.3	3.1	30.1	50	5/8	1-3/8	3	B	7	690
OCD-0535DH-3	2DD3-0500-TFC	31.2	3.1	42.1	70	5/8	1-3/8	3	B	7	690
OCD-0745DH-3	2DL3-0750-TFC	31.6	6.2	45.7	70	5/8	1-3/8	4	C	8	900
OCD-0765DH-3	2DA3-0750-TFC	32.0	6.2	46.2	70	5/8	1-3/8	4	C	8	900
OCD-0775DH-3	3DA3-0750-TFC	41.0	6.2	57.5	90	5/8	1-3/8	4	C	8	945
OCD-1005DH-3	3DB3-1000-TFC	43.6	6.2	60.7	100	5/8	1-3/8	4	C	9	985
OCD-1205DH-3	3DF3-1200-TFC	48.2	9.3	69.6	110	7/8	1-5/8	5	D	10	1720
OCD-1505DH-3	3DS3-1500-TFC	59.6	9.3	83.8	125	7/8	1-5/8	5	D	11	1800
OCD-2005DH-3	4DA3-2000-TSK	66.0	9.3	91.8	150	7/8	1-5/8	5	D	11	1830
OCD-2505DH-3	4DH3-2500-TSK	82.2	12.4	115.2	175	1-1/8	2-1/8	5	D	13	2170

OCD-JH Data (HFC134a High Temperature)

Model	Comp.	Comp. RLA	Cond. FLA	MCA	MOPD	Liq OD	Suct OD	Rec. No.	Cabinet Size	Cond. No.	Net WT
OCD-0300JH-3	2DF3-030E-TFC	16.8	3.1	24.1	40	5/8	1-3/8	3	B	7	680
OCD-0600JH-3	2DA3-060E-TFC	28.8	6.2	42.2	70	5/8	1-3/8	4	C	8	890
OCD-0620JH-3	2DB3-060E-TFC	28.2	6.2	41.5	60	5/8	1-3/8	4	C	8	890
OCD-0640JH-3	3DA3-060E-TFC	30.3	6.2	44.1	70	5/8	1-3/8	4	C	8	945
OCD-0740JH-3	3DB3-075E-TFC	31.5	6.2	45.6	70	5/8	1-3/8	4	C	8	945
OCD-0900JH-3	3DF3-090E-TFC	39.0	6.2	55.0	90	5/8	1-3/8	4	C	9	970
OCD-1000JH-3	3DS3-100E-TFC	42.0	6.2	58.7	100	5/8	1-3/8	4	C	9	985
OCD-1020JH-3	4DA3-100E-TFC	42.0	9.3	61.8	100	7/8	1-5/8	5	D	10	1735
OCD-1500JH-3	4DH3-150E-TSK	58.0	9.3	81.8	125	7/8	1-5/8	5	D	11	1830
OCD-2000JH-3	4DJ3-200E-TSK	66.0	12.4	94.9	150	7/8	1-5/8	5	D	12	2090
OCD-2020JH-3	6DH3-200E-TSK	75.0	12.4	106.2	175	1-1/8	2-1/8	5	D	13	2240
OCD-3000JH-3	6DJ3-300E-TSK	100.0	12.4	137.4	225	1-1/8	2-1/8	5	D	13	2280

OCD-DC Data (HCFC22 Medium Temperature)

Model	Comp.	Comp. RLA	Cond. FLA	MCA	MOPD	Liq OD	Suct OD	Rec. No.	Cabinet Size	Cond. No.	Net WT
OCD-0045DC-3	HAG1-0050-TAC	2.4	0.9	3.9	15	3/8	1/2	20	A	1	315
OCD-0055DC-3	HAJ1-0050-TAC	2.2	0.9	3.7	15	3/8	1/2	20	A	1	315
OCD-0075DC-3	KAN1-0075-TAC	3.5	0.9	5.3	15	3/8	1/2	20	A	1	325
OCD-0085DC-3	KAE1-0075-TAC	3.4	0.9	5.2	15	3/8	5/8	20	A	1	330
OCD-0105DC-3	KAR1-0100-TAC	4.3	0.9	6.3	15	3/8	5/8	20	A	2	340
OCD-0135DC-3	KAM1-0100-TAC	4.5	0.9	6.5	15	3/8	5/8	20	A	2	340
OCD-0155DC-3	KAGA-0150-TAC	5.5	0.9	7.8	15	3/8	7/8	20	A	3	350
OCD-0205DC-3	KAKA-0200-TAC	6.8	0.9	9.4	15	3/8	7/8	20	A	4	360
OCD-0215DC-3	ERC1-0200-TAC	6.8	0.9	9.4	15	3/8	7/8	20	A	4	420
OCD-0295DC-3	EAD1-0320-TAC	12.4	3.1	18.6	30	5/8	7/8	30	B	5	525
OCD-0305DC-3	ERF1-0310-TAC	12.4	3.1	18.6	30	5/8	1-1/8	30	B	5	540
OCD-0325DC-3	3RA1-0310-TAC	14.2	3.1	20.9	35	5/8	1-1/8	30	B	5	540
OCD-0505DC-3	2DC3-0500-TFC	22.3	3.1	30.1	50	5/8	1-3/8	76	B	6	670
OCD-0535DC-3	2DD3-0500-TFC	31.2	3.1	42.1	70	5/8	1-3/8	76	B	7	690
OCD-0745DC-3	2DL3-0750-TFC	31.6	6.2	45.7	70	5/8	1-3/8	96	C	9	925
OCD-0765DC-3	2DA3-0750-TFC	32.0	6.2	46.2	70	5/8	1-3/8	96	C	9	925
OCD-0775DC-3	3DA3-0750-TFC	41.0	6.2	57.5	90	5/8	1-3/8	96	C	9	970
OCD-1005DC-3	3DB3-1000-TFC	43.6	6.2	60.7	100	5/8	1-3/8	96	C	9	985
OCD-1205DC-3	3DF3-1200-TFC	48.2	9.3	69.6	110	7/8	1-5/8	139	D	10	1720
OCD-1505DC-3	3DS3-1500-TFC	59.6	9.3	83.8	125	7/8	1-5/8	139	D	10	1720
OCD-2005DC-3	4DA3-2000-TSK	66.0	9.3	91.8	150	7/8	1-5/8	139	D	11	1830
OCD-2505DC-3	4DH3-2500-TSK	82.2	12.4	115.2	175	1-1/8	2-1/8	139	D	12	2100
OCD-3005DC-3	4DJ3-3000-TSK	94.0	12.4	129.9	200	1-1/8	2-1/8	139	D	13	2180

OCD-JC Data (HFC134a Medium Temperature)

Model	Comp.	Comp. RLA	Cond. FLA	MCA	MOPD	Liq OD	Suct OD	Rec. No.	Cabinet Size	Cond. No.	Net WT
OCD-0300JC-3	2DF3-030E-TFC	16.8	3.1	24.1	40	5/8	1-3/8	3	B	6	660
OCD-0600JC-3	2DA3-060E-TFC	28.8	3.1	39.1	60	5/8	1-3/8	3	B	7	690
OCD-0620JC-3	2DB3-060E-TFC	28.2	3.1	38.4	60	5/8	1-3/8	3	B	7	690
OCD-0640JC-3	3DA3-060E-TFC	30.3	6.2	44.1	70	5/8	1-3/8	4	C	8	945
OCD-0740JC-3	3DB3-075E-TFC	31.5	6.2	45.6	70	5/8	1-3/8	4	C	8	945
OCD-0900JC-3	3DF3-090E-TFC	39.0	6.2	55.0	90	5/8	1-3/8	4	C	8	945
OCD-1000JC-3	3DS3-100E-TFC	42.0	6.2	58.7	100	5/8	1-3/8	4	C	9	985
OCD-1020JC-3	4DA3-100E-TFC	42.0	9.3	61.8	100	7/8	1-5/8	5	D	10	1735
OCD-1500JC-3	4DH3-150E-TSK	58.0	9.3	81.8	125	7/8	1-5/8	5	D	10	1755
OCD-2000JC-3	4DJ3-200E-TSK	66.0	9.3	91.8	150	7/8	1-5/8	5	D	11	1840
OCD-2020JC-3	6DH3-200E-TSK	75.0	12.4	106.2	175	1-1/8	2-1/8	5	D	12	2165
OCD-3000JC-3	6DJ3-300E-TSK	100.0	12.4	137.4	225	1-1/8	2-1/8	5	D	13	2280

OCD-DD Data (HCFC Low Temperature)

Model	Comp.	Comp. RLA	Cond. FLA	MCA	MOPD	Liq OD	Suct OD	Rec. No.	Cabinet Size	Cond. No.	Net WT
OCD-0115DD-3	KAJA-0101-TAC	4.5	0.9	6.5	15	3/8	5/8	20	A	1	335
OCD-0205DD-3	KAKA-0200-TAC	6.8	0.9	9.4	15	3/8	7/8	20	A	2	350
OCD-0295DD-3	EAD1-0320-TAC	12.4	3.1	18.6	30	5/8	7/8	30	B	5	525
OCD-0365DD-3	2DF3-0300-TFC	16.8	3.1	24.1	40	5/8	1-3/8	30	B	5	640
OCD-0415DD-3	2DL3-0400-TFC	26.3	3.1	36.0	60	5/8	1-3/8	30	B	6	670
OCD-0615DD-3	2DA3-0600-TFC	28.8	3.1	39.1	60	5/8	1-3/8	76	B	7	690
OCD-0635DD-3	2DB3-0600-TFC	28.2	3.1	38.4	60	5/8	1-3/8	76	B	7	690
OCD-0695DD-3	3DA3-0600-TFC	30.3	6.2	44.1	70	5/8	1-3/8	96	C	8	945
OCD-0765DD-3	3DB3-0750-TFC	31.5	6.2	45.6	70	5/8	1-3/8	96	C	8	945
OCD-0915DD-3	3DF3-0900-TFC	39.0	6.2	55.0	90	5/8	1-3/8	96	C	8	945
OCD-1015DD-3	3DS3-1000-TFC	42.0	6.2	58.7	100	5/8	1-3/8	96	C	9	985
OCD-1095DD-3	4DA3-1000-TSK	42.0	9.3	61.8	100	7/8	1-5/8	139	D	10	1730
OCD-1515DD-3	4DL3-1500-TSK	52.6	9.3	75.1	125	7/8	1-5/8	139	D	10	1750
OCD-2215DD-3	4DT3-2200-TSK	66.0	9.3	91.8	150	1-1/8	2-1/8	139	D	11	1840
OCD-2715DD-3	6DL3-2700-TSK	80.8	12.4	113.4	175	1-1/8	2-1/8	139	D	12	2160

OCD-RL Data (R502 Low Temperature)

Model	Comp.	Comp. RLA	Cond. FLA	MCA	MOPD	Liq OD	Suct OD	Rec. No.	Cabinet Size	Cond. No.	Net WT
OCD-0110RL-3	KAJ1-0100-TAC	3.4	0.9	5.2	15	3/8	5/8	21	A	1	335
OCD-0160RL-3	KALA-0150-TAC	5.4	0.9	7.7	15	3/8	7/8	21	A	3	350
OCD-0210RL-3	EAV1-0200-TAC	6.6	0.9	9.2	20	3/8	7/8	21	A	4	420
OCD-0310RL-3	LAH1-0310-TAC	10.7	3.1	16.5	25	5/8	1-1/8	31	B	5	570
OCD-0330RL-3	LAC1-0310-TAC	10.0	3.1	15.6	25	5/8	1-1/8	31	B	5	570
OCD-0360RL-3	2DF3-0300-TFC	16.8	3.1	24.1	40	5/8	1-3/8	31	B	5	640
OCD-0410RL-3	2DL3-0400-TFC	26.3	3.1	36.0	60	5/8	1-3/8	31	B	6	670
OCD-0610RL-3	2DA3-0600-TFC	28.8	3.1	39.1	60	5/8	1-3/8	78	B	7	690
OCD-0630RL-3	2DB3-0600-TFC	28.2	3.1	38.4	60	5/8	1-3/8	78	B	7	690
OCD-0690RL-3	3DA3-0600-TFC	30.3	6.2	44.1	60	5/8	1-3/8	101	C	8	945
OCD-0760RL-3	3DB3-0750-TFC	31.5	6.2	45.6	70	5/8	1-3/8	101	C	8	945
OCD-0910RL-3	3DF3-0900-TFC	39.0	6.2	55.0	90	5/8	1-3/8	101	C	8	945
OCD-1010RL-3	3DS3-1000-TFC	42.0	6.2	58.7	100	5/8	1-3/8	101	C	9	985
OCD-1090RL-3	4DA3-1000-TSK	42.0	9.3	61.8	100	7/8	1-5/8	145	D	10	1730
OCD-1510RL-3	4DL3-1500-TSK	52.6	9.3	75.1	125	7/8	1-5/8	145	D	10	1750
OCD-2210RL-3	4DT3-2200-TSK	66.0	9.3	91.8	150	1-1/8	2-1/8	145	D	11	1840
OCD-2710RL-3	6DL3-2700-TSK	80.8	12.4	113.4	175	1-1/8	2-1/8	145	D	12	2160

OCR-DH Data (HCFC22 High Temperature)

Model	Comp.	Comp. RLA	Cond. FLA	MCA	MOPD	Liq OD	Suct OD	Rec. No.	Cabinet Size	Cond. No.	Net WT
OCR-0045DH-1	JRE1-0050-IAV	5.0	0.9	7.2	15	3/8	3/8	20	A	1	280
OCR-0055DH-1	JRF4-0050-IAV	6.4	0.9	8.9	15	3/8	3/8	20	A	1	280
OCR-0075DH-1	RSE4-0075-IAV	7.1	0.9	9.8	15	3/8	1/2	20	A	2	295
OCR-0105DH-1	RRG4-0100-PAV	6.0	0.9	8.4	15	3/8	3/8	20	A	2	295
OCR-0125DH-1	REK3-0125-PFV	7.0	0.9	9.7	15	3/8	1/2	20	A	3	300
OCR-0155DH-1	REB3-0150-PFV	8.5	0.9	11.5	20	3/8	1/2	20	A	3	300
OCR-0175DH-3	REY3-0175-TFC	6.5	0.9	9.0	15	3/8	1/2	20	A	3	300
OCR-0185DH-3	CRA1-0150-TF5	9.3	0.9	12.5	20	3/8	5/8	20	A	3	315
OCR-0205DH-3	CRD1-0200-TF5	8.7	0.9	11.8	20	3/8	5/8	20	A	4	320
OCR-0225DH-3	CRE1-0225-TF5	10.6	0.9	14.2	20	3/8	5/8	20	A	4	320
OCR-0255DH-3	CRF1-0250-TF5	11.4	3.1	17.4	25	3/8	5/8	30	B	5	425
OCR-0265DH-3	CRG3-0250-TF5	12.0	3.1	18.1	30	5/8	7/8	30	B	5	425
OCR-0275DH-3	CRH3-0275-TF5	12.5	3.1	18.7	30	5/8	7/8	30	B	5	430
OCR-0305DH-3	CRJ3-0300-TF5	14.3	3.1	21.0	35	5/8	7/8	30	B	5	430
OCR-0325DH-3	CRK3-0325-TF5	15.3	3.1	22.2	35	5/8	7/8	30	B	5	430
OCR-0355DH-3	CRL3-0350-TF5	16.8	3.1	24.1	40	5/8	7/8	30	B	6	455
OCR-0405DH-3	CRM3-0400-TF5	17.9	3.1	25.5	40	5/8	7/8	30	B	6	455
OCR-0455DH-3	CRP5-0450-TF5	19.6	3.1	27.6	45	5/8	7/8	30	B	7	485
OCR-0505DH-3	CRN5-0500-TF5	21.4	3.1	29.9	50	5/8	7/8	30	B	7	490

OCR-DC Data (HCFC22 Medium Temperature)

Model	Comp.	Comp. RLA	Cond. FLA	MCA	MOPD	Liq OD	Suct OD	Rec. No.	Cabinet Size	Cond. No.	Net WT
OCR-0045DC-1	JRE1-0050-IAV	5.0	0.9	7.2	15	3/8	3/8	20	A	1	280
OCR-0055DC-1	JRF4-0050-IAV	6.4	0.9	8.9	15	3/8	3/8	20	A	1	280
OCR-0075DC-1	RSE4-0075-IAV	7.1	0.9	9.8	15	3/8	1/2	20	A	1	295
OCR-0105DC-1	RRG4-0100-PAV	6.0	0.9	8.4	15	3/8	3/8	20	A	2	295
OCR-0125DC-1	REK3-0125-PFV	7.0	0.9	9.7	15	3/8	1/2	20	A	3	295
OCR-0155DC-1	REB3-0150-PFV	8.5	0.9	11.5	20	3/8	1/2	20	A	3	295
OCR-0175DC-3	REY3-0175-TFC	6.5	0.9	9.0	15	3/8	1/2	20	A	3	295
OCR-0185DC-3	CRA1-0150-TF5	9.3	0.9	12.5	20	3/8	5/8	20	A	3	315
OCR-0205DC-3	CRD1-0200-TF5	8.7	0.9	11.8	20	3/8	5/8	20	A	3	315
OCR-0225DC-3	CRE1-0225-TF5	10.6	0.9	14.2	20	3/8	5/8	20	A	4	320
OCR-0255DC-3	CRF1-0250-TF5	11.4	0.9	15.2	25	3/8	5/8	20	A	4	320
OCR-0265DC-3	CRG3-0250-TF5	12.0	0.9	15.9	25	5/8	7/8	20	A	4	320
OCR-0275DC-3	CRH3-0275-TF5	12.5	3.1	18.7	30	5/8	7/8	30	B	5	430
OCR-0305DC-3	CRJ3-0300-TF5	14.3	3.1	21.0	35	5/8	7/8	30	B	5	430
OCR-0325DC-3	CRK3-0325-TF5	15.3	3.1	22.2	35	5/8	7/8	30	B	5	430
OCR-0355DC-3	CRL3-0350-TF5	16.8	3.1	24.1	40	5/8	7/8	30	B	5	435
OCR-0405DC-3	CRM3-0400-TF5	17.9	3.1	25.5	40	5/8	7/8	30	B	5	435
OCR-0455DC-3	CRP5-0450-TF5	19.6	3.1	27.6	45	5/8	7/8	30	B	6	465
OCR-0505DC-3	CRN5-0500-TF5	21.4	3.1	29.9	50	5/8	7/8	30	B	6	470

Condenser Data

Cond No.	Assy Part No.	Btuh per °TD	Rows	Fin Height	Finned Length	CFM	Fan Dia.	No. of Fans	RPM
1	51V18131	464	2	17.5	18	965	14	1	1000
2	51V18132	574	3			863			
3	51V18133	823	2	22.5	22	1969	20		
4	51V18134	1044	3			1764			
5	51V18135	1865	2	30	33.5	5226	26		850
6	51V18136	2451	3			4785			
7	51V18137	2875	4			4492			
8	51V18139	4901	3		67	9571		2	
9	51V18140	5751	4			8984			
10	51V18141	7438	3	37.5	90	14546		3	
11	51V18142	8695	4			13523			
12	51V18143	9918	3		120	19395		4	
13	51V18144	11593	4			18031			

Condenser Notes

1 All coils are copper tube with aluminum plate type fins.

2 All coils are 10 Fins Per Inch.

3 The 1000 RPM fan motor is 1/8 HP with an amp draw of 0.9 at 208/60/1.

4 The 850 RPM fan motor is 1/2 HP with an amp draw of 3.1 at 208/60/1.

5 The 14 inch fan is Model F07H5.7-1430.

6 The 20 inch fan is Model T07H08-2022.

7 The 26 inch fan is Model T2604-27.

Receiver Pump Down Capacity

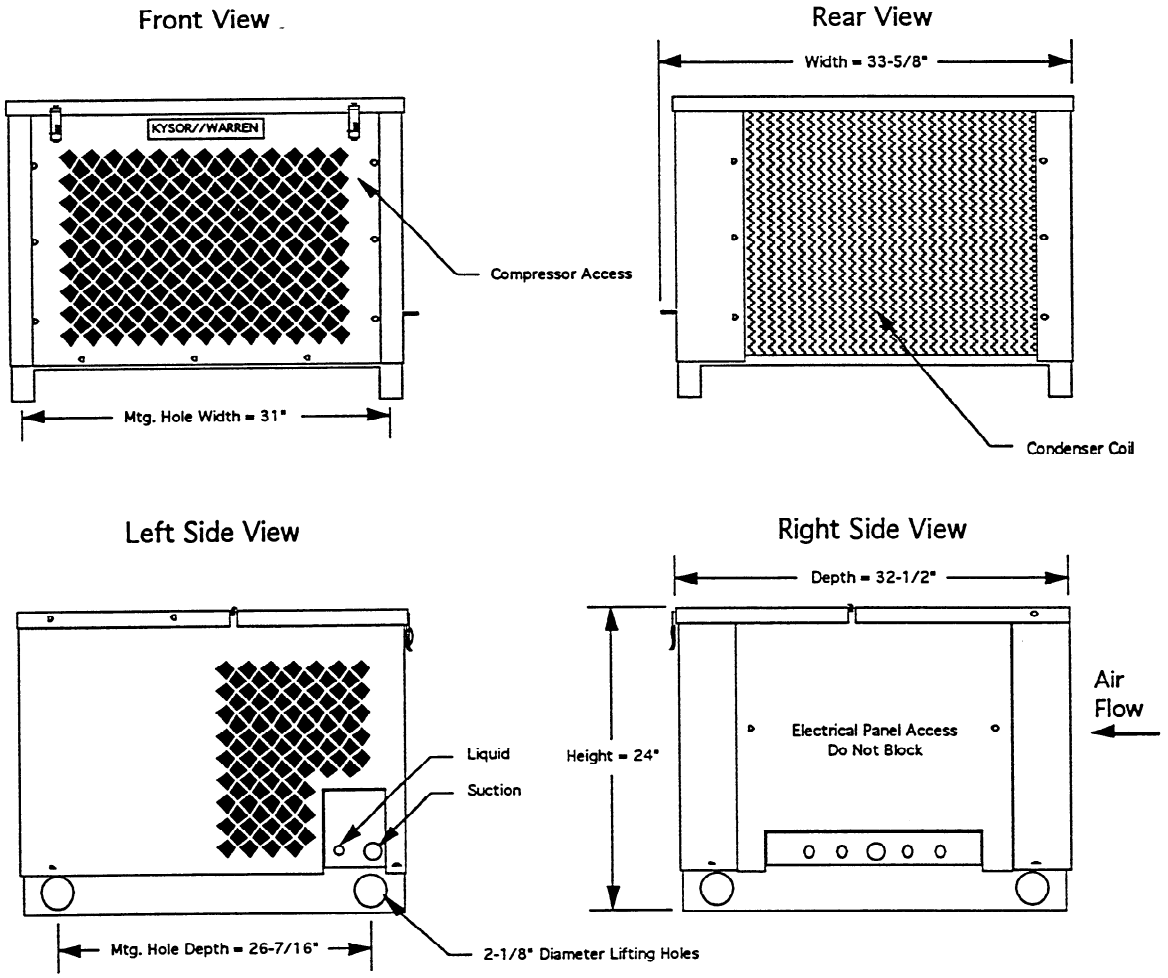
Receiver	Dimensions	R22	R502
1	6 x 24	20	21
2	6 x 36	30	31
3	9.75 x 36	76	78
4	8.625 x 56	96	101
5	8.625 x 80	139	145

Receiver Notes

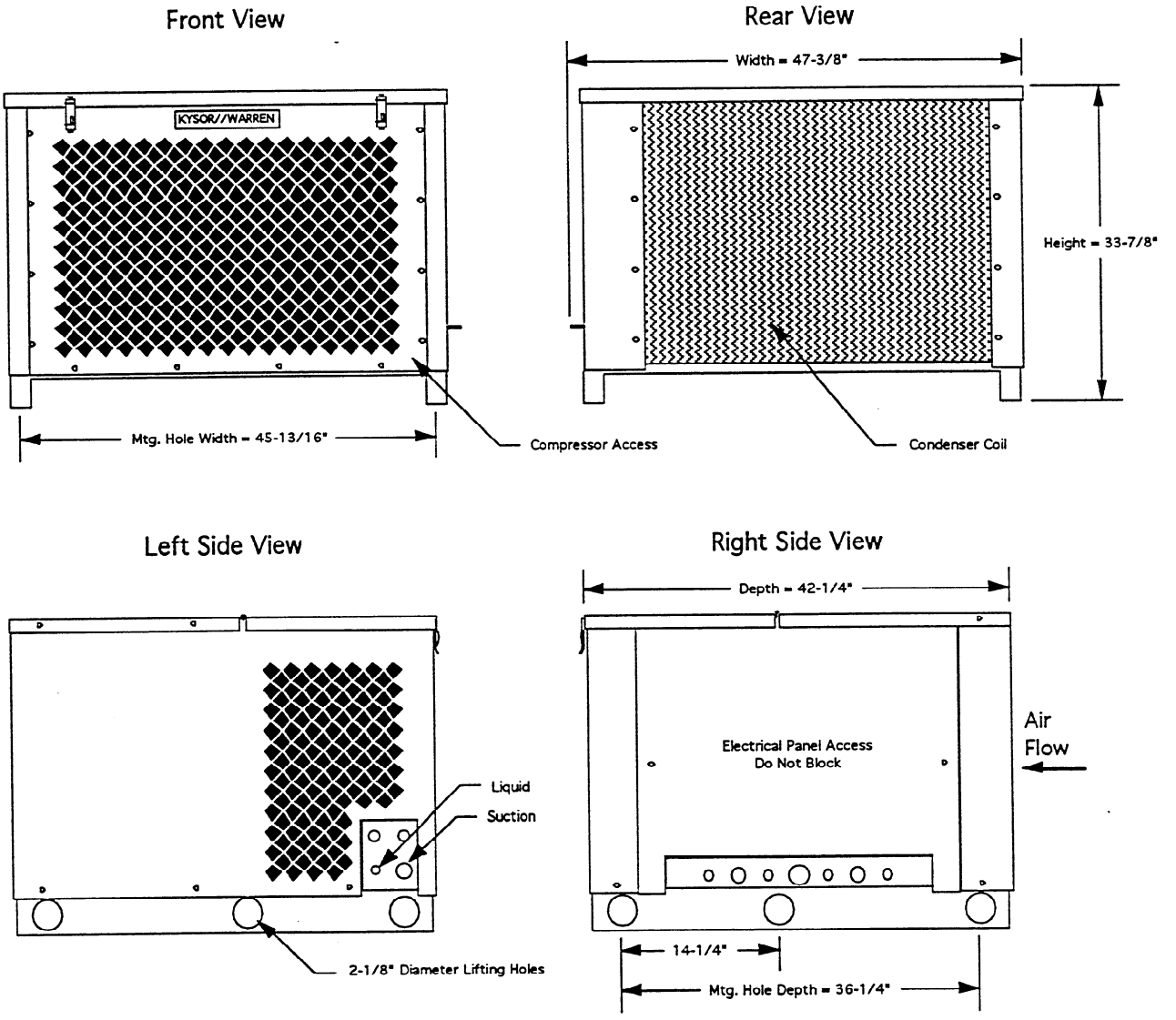
1 Pump down capacity is in pounds at 80% full and 100°F saturated liquid.

2 Any receiver in this list may be optionally substituted for the standard receiver listed in the dimensional tables on all units.

Dimensions for Cabinet "A"

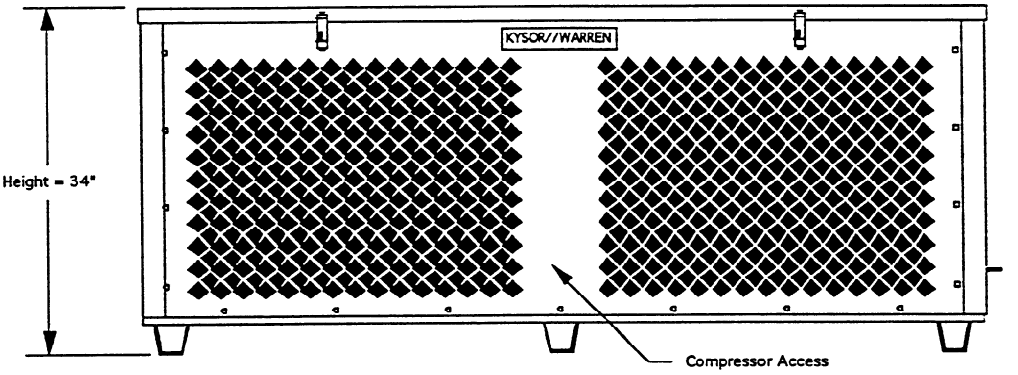


Dimensions for Cabinet "B"

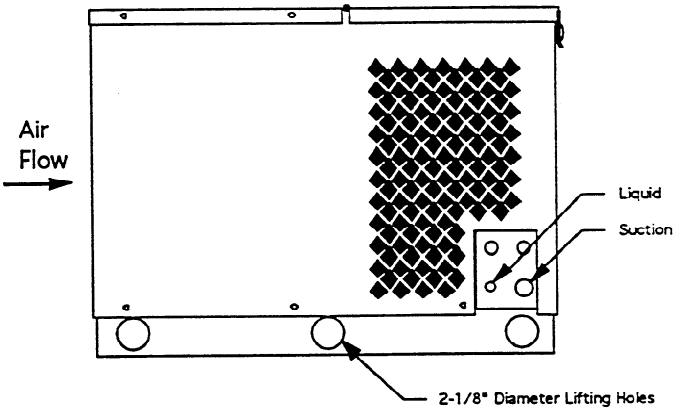


Dimensions for Cabinet "C"

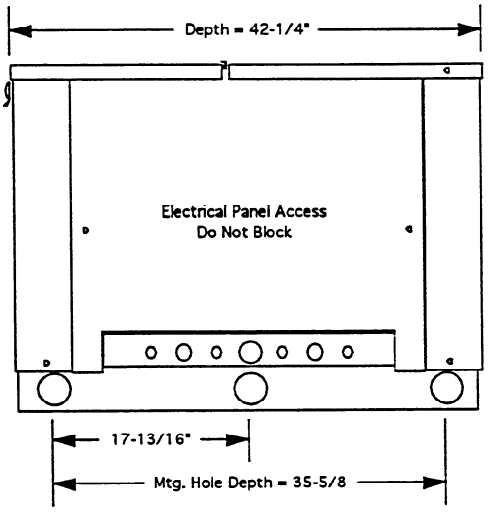
Front View



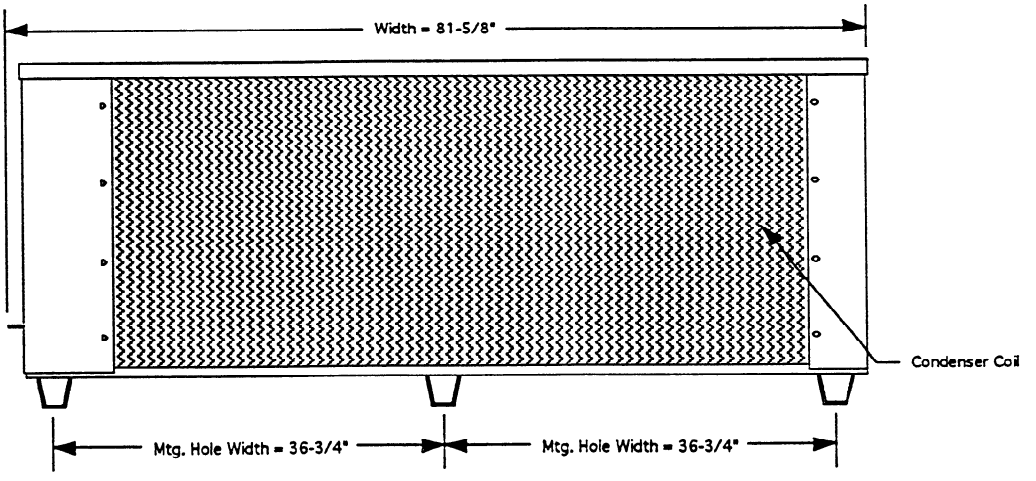
Left Side View



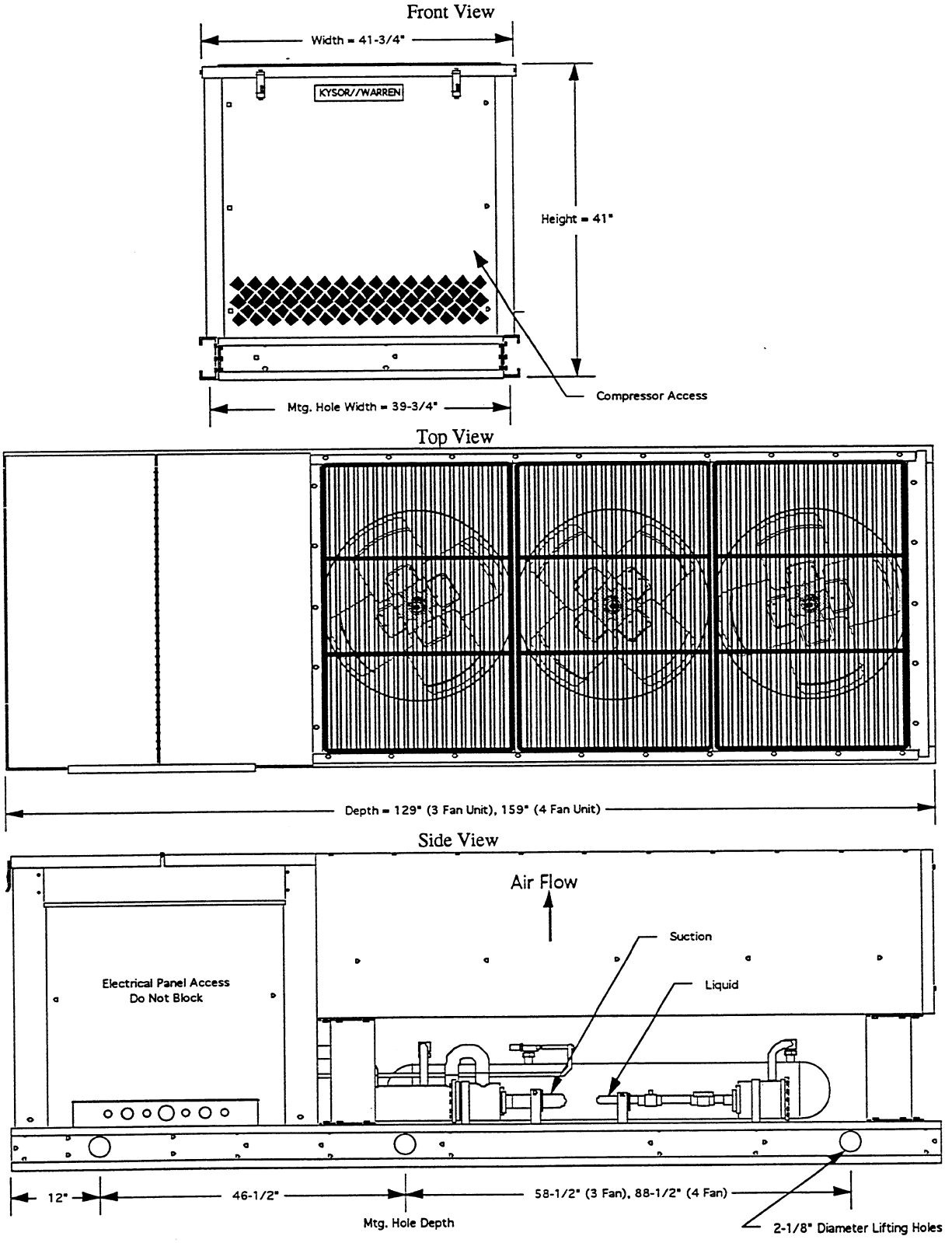
Right Side View



Rear View



Dimensions for Cabinet "D"



Initial Control Settings

Reprinted from ENGINEERING BULLETIN: #90-130-7 dated 7/26/90

The following recommended settings are based upon 75°F/55% RH store conditions and properly loaded cases. Some adjustments may be required in both case temperature and defrost frequency after initial opening dates, and store settles down to usual traffic and environment.

General Control Recommendations

1 Thermostats are recommended as the primary control with Mastermetic units except on service meat cases.

2 Low pressure controls may require different settings if cases are controlled by thermostats.

3 EPR valves should only be used on Parallel System units on cases requiring higher temperature evaporators than the system design level. EPR valves are not recommended for ice cream applications.

4 Service meat cases should always have EPR as primary control and temperature thermostat as secondary control for peak performance.

5 All reach-in's must have a positive temperature control by thermostat or EPR. Control settings indicated are for safety only and are not intended for temperature control.

Defrost Control Settings

Application	Case Model	F/S-AD	F/S-E	F/S-OC	F/S-HG	Def/Day
Beverage	DV5H1		44			3
Dairy	BQD/BRQD		30	40	20	4
	C1W(all)			40		4
	D61		30	40	20	4
	D6(R)L1		30	40	20	6
	WALK-IN			60		3
Deli	D61		30	40	20	4
	M4(A)(G)1	45		50	18	6
	S3 - Blower			60		1
	WALK-IN			60		3
Frozen Food	BIL1/EBIL1	60	60		46	1
	IL1	60	60		46	1
	L5(F)(A)1	60	30		30	6
	LM1(G)1	54			46	4
	LV5H1		70		34	1
	WALK-IN		34		18	2-4
	WTL1/EWTL1	40	40		36	1
	XL1	60	60		46	1
Ice Cream	BIL1/EBIL1		60		46	1-2
	I5F		34		18	6
	IL1		60		46	1-2
	IV5H1		70		34	1
	WALK-IN		34		18	2-4
	WTL1/EWTL1		60		46	1-2
	XL1		60		46	1-2
Meat	M1A(G)1	45		50	18	3
	M4A(G)1	45		50	18	6
	S3-Gravity			80		1-2
	WALK-IN		34		18	2-4
Meat Prep	WALK-IN			60		1
Produce	HZV1,ZV1,TZP			32		4
	P1W(all)			32		4
	WALK-IN		60		3	

Control Settings R502

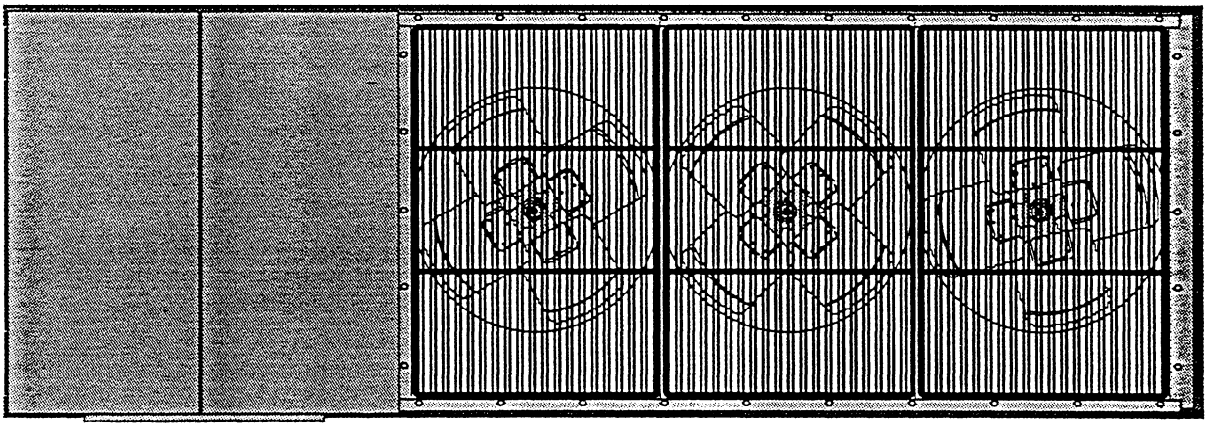
Application	Case Model	Air Temp	EPR	LP C/I	LP C/O
Beverage	DV5H1	34/38	52	30	10
Dairy	BQD/BRQD	24/28	43	60	46
	C1W(all)	28/32	50	60	46
	D61	28/32	52	60	46
	D6(R)L1	28/32	43	60	40
	WALK-IN	35/39	54	65	51
Deli	D61	24/28	43	60	40
	M4(A)(G)1	25/29	42	63	42
	S3-Blower	28/32	54	50	24
	WALK-IN	33/38	52	63	49
Frozen Food	BIL1/EBIL1	-10/0	12	16	9
	IL1	-10/0	12	16	9
	L5(F)(A)1	-5/0	14	10	4
	LM1(G)1	-10/0	12	16	9
	LV5H1	-5/0	18	15	5
	WALK-IN	-10/-5	15	16	9
	WTL1/EWTL1	-10/0	12	16	9
	XL1	-10/0	12	16	9
Ice Cream	BIL1/EBIL1	-28/-24	N/A	8	2
	I5F	-22/-12	N/A	12	5
	IL1	-28/-24	N/A	8	2
	IV5H1	-15/-12	N/A	8	1
	WALK-IN	-15/-10	12	N/A	N/A
	WTL1/EWTL1	-28/-24	N/A	8	2
	XL1	-28/-24	N/A	8	2
Meat	M1A(G)1	20/24	47	63	37
	M4A(G)1	20/24	47	63	37
	S3-Gravity	34/38	54	50	24
	WALK-IN	28/32	51	65	51
Meat Prep	WALK-IN	45/50	65	N/A	N/A
Produce	HZV1,ZV1,TZP	38/42	50	68	52
	P1W(all)	38/42	50	68	52
	WALK-IN	35/39	54	65	51

Control Settings HCFC22

Application	Case Model	Air Temp	EPR	LP C/I	LP C/O
Beverage	DV5H1 -	34/38	43	22	7
Dairy	BQD/BRQD	24/28	38	54	34
	C1W(all)	28/32	38	50	38
	D61	28/32	43	54	34
	D6(R)L1	28/32	38	54	29
	WALK-IN	35/39	44	54	34
Deli	D61	24/28	38	54	34
	M4(A)(G)1	25/29	38	54	30
	S3-Blower	28/32	43	42	17
	WALK-IN	33/38	41	50	34
Frozen Food	BIL1/EBIL1	-10/0	8	8	1
	IL1	-10/0	8	8	1
	L5(F)(A)1	-5/0	8	8	1
	LM1(G)1	-10/0	8	8	1
	LV5H1	-5/0	13	8	1
	WALK-IN	-10/-5	10	8	1
	WTL1/EWTL1	-10/0	8	8	1
	XL1	-10/0	8	8	1
Ice Cream	BIL1/EBIL1	-28/-24	N/A	4	1
	I5F	-22/-12	N/A	4	1
	IL1	-28/-24	N/A	4	1
	IV5H1	-15/-12	8	4	1
	WALK-IN	-15/-10	7	4	1
	WTL1/EWTL1	-28/-24	N/A	4	1
	XL1	-28/-24	N/A	4	1
Meat	M1A(G)1	20/24	38	50	29
	M4A(G)1	20/24	38	50	29
	S3-Gravity	34/38	43	42	17
	WALK-IN	28/32	41	50	29
Meat Prep	WALK-IN	45/50	55	N/A	N/A
Produce	HZV1.ZV1.TZP	38/42	43	65	42
	P1W(all)	38/42	43	65	42
	WALK-IN	35/39	46	54	42

Control Settings HFC134a

Application	Case Model	Air Temp	EPR	LP C/I	LP C/O
Beverage	DV5H1	34/38	18	6	1
Dairy	BQD/BRQD	24/28	15	26	13
	C1W(all)	28/32	15	23	15
	D61	28/32	18	26	13
	D6(R)L1	28/32	15	26	10
	WALK-IN	35/39	19	26	13
Deli	D61	24/28	15	26	13
	M4(A)(G)1	25/29	15	26	10
	S3-Blower	28/32	18	17	3
	WALK-IN	33/38	17	23	13
Meat	M1A(G)1	20/24	15	23	10
	M4A(G)1	20/24	15	23	10
	S3-Gravity	34/38	18	17	3
	WALK-IN	28/32	17	23	25
Meat Prep	WALK-IN	45/50	26	N/A	N/A
Produce	HZV1.ZV1.TZP	38/42	18	33	17
	P1W(all)	38/42	18	33	17
	WALK-IN	35/39	20	26	17



Kysor//Warren whose policy is one of continuous improvement, reserves the right to change at anytime, specifications, design or prices without incurring obligation.

Outdoor condensing units are custom designed and manufactured in Columbus, GA. USA.

For further information or quotation please contact the Application Engineering Department in Conyers, GA., your local Kysor//Warren Representative or Kysor//Warren Zone Manager.

For service information contact our Service Department in Conyers, GA.

Kysor//Warren
Service Department
1600 Rockdale Industrial Blvd.
Conyers, GA. USA
30207

404-483-5600

KYSOR//WARREN®
Division Of Kysor Industrial Corporation

IN THE CONSTANT EFFORT TO IMPROVE OUR PRODUCTS, WE RESERVE THE RIGHT TO CHANGE AT ANY TIME SPECIFICATIONS, DESIGN, OR PRICES WITHOUT INCURRING OBLIGATION.

KYSOR//WARREN

DIVISION OF KYSOR INDUSTRIAL CORPORATION

P.O. Box C
1600 Industrial Blvd.
Conyers, Georgia 30207
404 483-5600

ONE-YEAR WARRANTY

KYSOR/WARREN warrants to the original purchaser this new equipment and all parts thereof, to be free from defects in material and workmanship under normal use and service. If any part or parts of the equipment should prove defective during the period of one year from installation date (not to exceed one year and thirty days from the date of original shipment from the factory), KYSOR/WARREN hereby guarantees to replace or repair, without charge (F.O.B. CONYERS, GEORGIA), such part or parts as prove defective, and which KYSOR/WARREN's examination discloses to its satisfaction to be thus defective, with a new or functionally operative part. The liability of KYSOR/WARREN under this warranty shall be limited to claims made by the original purchaser to KYSOR/WARREN or its local distributor within the warranty period.

GLAZING: Glass is not guaranteed against breakage. If this refrigerator is equipped with a glazing assembly carrying the manufacturer's brand name (Thermopane, Twindow, etc.), the manufacturer's glazing warranty in effect at the time of this shipment is extended to that assembly. It is void outside the continential United States.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS, AND ALL OTHER OBLIGATIONS OR LIABILITIES OF KYSOR/WARREN.

THIS WARRANTY SHALL NOT APPLY:

1. To the condensing unit used with refrigerated equipment unless same was sold and shipped by KYSOR/WARREN.
2. When this equipment or any part thereof is damaged by fire, flood, act of God, or when the original model and serial—number plate has been altered, defaced, or removed.
3. When this equipment or any part thereof is subject to accident, alteration, abuse, misuse, tampering, operation on low or improper voltages, or is put to a use other than recommended by KYSOR/WARREN.
4. When this equipment or any part thereof is damaged, or when operation is impaired, due to failure to follow installation manual (improper installation is the responsibility of the installer).
5. Outside the continental United States.
6. To labor cost for replacement of parts, or for freight or shipping expenses.
7. If the Warranty holder fails to comply with all the provisions, terms and conditions of this Warranty.

Parts replaced under this Warranty are warranted only through the remainder of the original Warranty. KYSOR/WARREN may, at its option and in its discretion, elect to honor this Warranty and to disregard the original purchaser's noncompliance with any of the provisions, terms and conditions of this Warranty.

THIS WARRANTY DOES NOT COVER CONSEQUENTIAL DAMAGES.

KYSOR/WARREN shall not be liable under any circumstances for any consequential damages, including loss of profits, additional labor costs, loss of refrigerant or food products, or injury to person or property caused by defective material or parts or for any delay in the performance of this Warranty due to causes beyond its control. The foregoing shall constitute the sole and exclusive remedy of any purchaser and the sole and exclusive liability of KYSOR/WARREN in connection with this product.