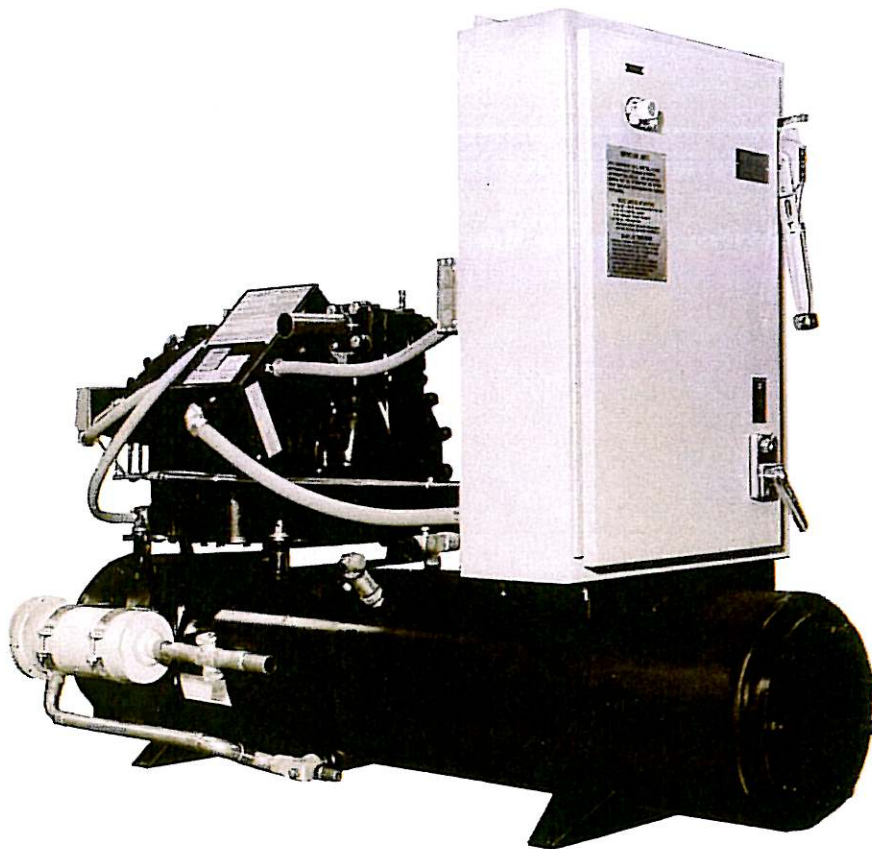


KPWC Series
Bulletin KPWC-1187
Supercedes: KPWC-1284

KRACK

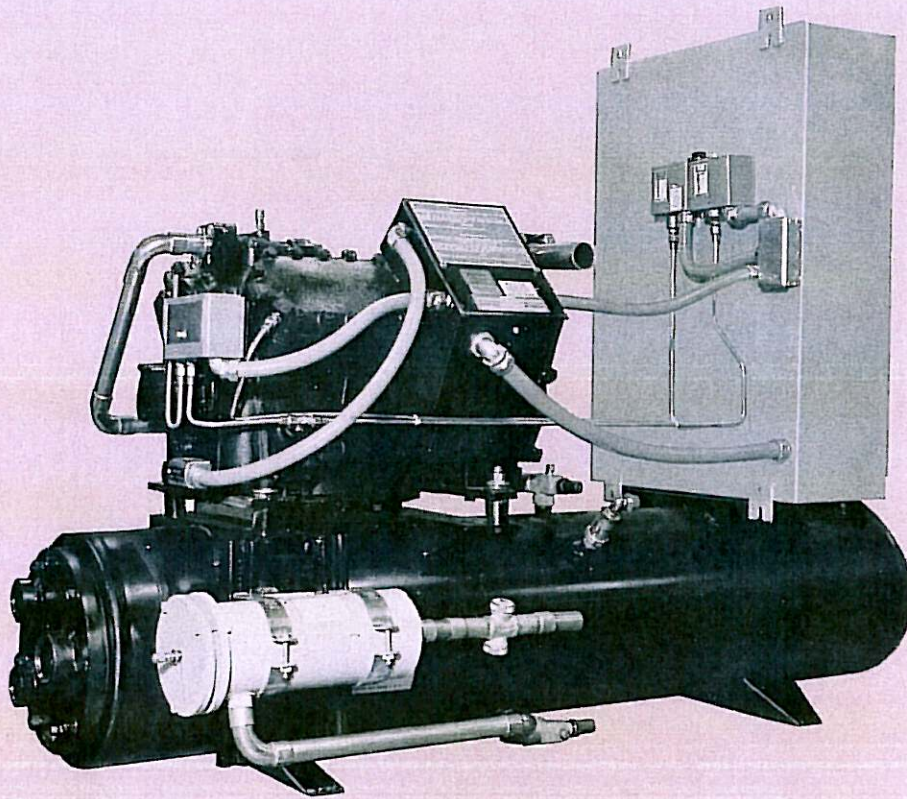
Water-Cooled Krack-Pak Systems



*Water Cooled Compressor Systems
High, Medium and Low Temperature
Applications Using R12, R22 and R502*



FEATURES



Compressor

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 cylinders
- Crankcase heater
- Oil level sight glass
- Internal shaft driven oil pump 3 HP and larger
- Back seating suction and discharge service valves
- Manual reset high discharge pressure switch
- Automatic reset low suction
- Manual reset oil failure switch
- Cylinder head cooling fans on R502 low temperature models

Condenser

- Large capacity pumpdowns
- Removable water plates for cleaning
- Relief valve
- Back seating service valves
- Mounting feet, serves as a base for system components

Liquid Filter Drier

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

Control Panel

- Main power circuit breaker with door mounted handle
- 115V control circuit transformer
- Compressor contactor
- Terminals, fuses, and relays
- Optional Matched Systems evaporator controls for air or electric defrost

Options:

- Factory installed Matched System evaporator controls
- Two tier stacking arrangement.

Accessories Shipped Loose:

- Suction Accumulator
- Liquid suction heat exchanger

Applicable Standards

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

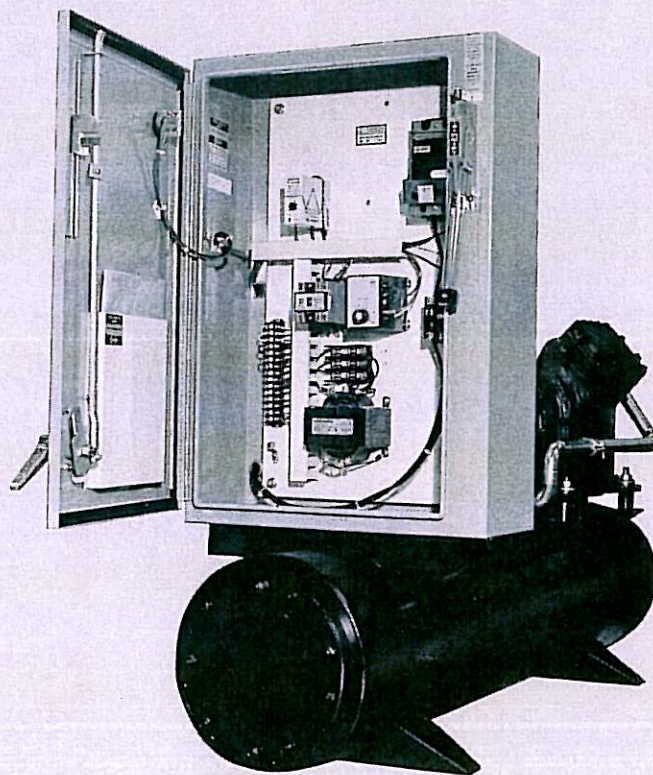
Shipment

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

KPWC Water Cooled Systems



Water Cooled Krack-Pak consists of a compressor-condenser package with electrical controls to be coupled with one or more evaporators. Applications usually result in two or more refrigeration systems per room with compressor and controls located in engine rooms. Engine rooms must be kept above 35°F to prevent freezing of the condenser. Unit cooler defrost method is air, electric or water.

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.

Refrigerant charge of the Match System evaporator(s) plus the full flooding charge of the condenser should not exceed the capacity of the receiver.

Model Key

	KP	WC	30	L	5
KRACK-PAK	_____	_____	_____	_____	_____
WATER COOLED	_____	_____	_____	_____	_____
NOMINAL COMPRESSOR HP	_____	_____	_____	_____	_____
OPERATING RANGE	_____	_____	_____	_____	_____
H R12 +45°F to 0°F	_____	_____	_____	_____	_____
H R22 +45°F to 10°F	_____	_____	_____	_____	_____
L R502 0°F to -40°F	_____	_____	_____	_____	_____
REFRIGERANT 1-R12, 2-R22, 5-R502	_____	_____	_____	_____	_____

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

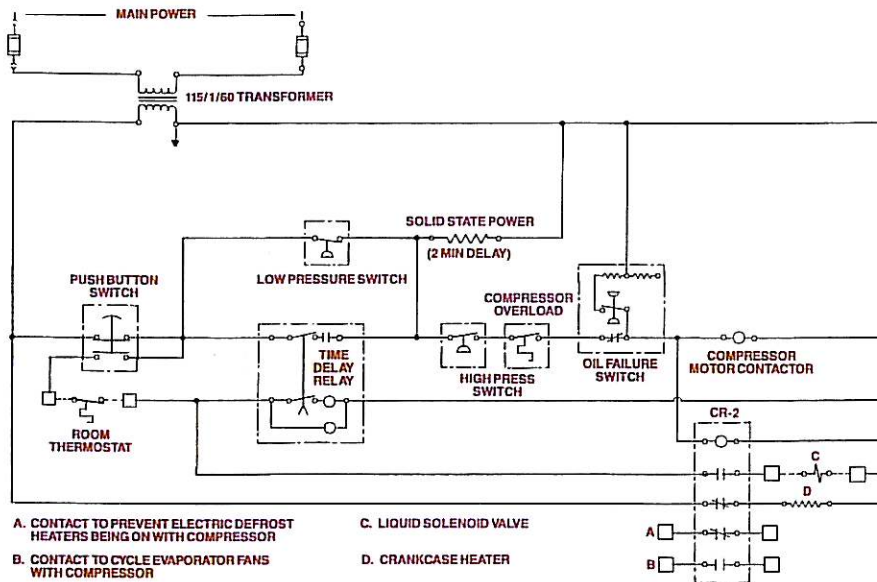
Options:

- Water regulating valve
- Matched system evaporator controls
- Suction accumulator (field mounted)
- Liquid suction heat exchanger (field mounted)

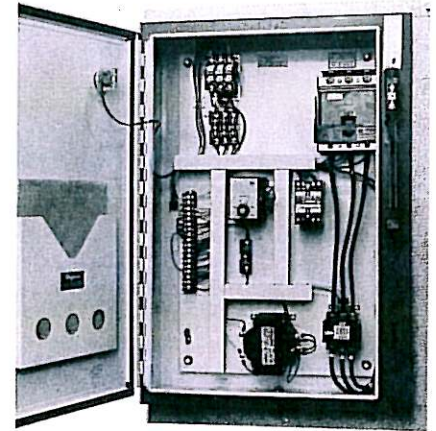
Water Regulating Valve:

Water regulating valves are direct acting, opening on a condenser pressure increase. Valves have a 30 inch copper capillary for connection to the condensing unit through a 1/4" flare connection. The valve is field adjustable for use with R12, R22, and R502. Maximum water supply pressure is 150 psig. Valves from 3/8" to 1 1/4" are FPT. Valves 1 1/2, 2, and 2 1/2 are flanged.

PI ELECTRICAL CONTROL



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



Nema 12 Control Panel

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 is eliminated.
- 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.

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 liquid solenoid valve resulting in compressor pumpdown at selected intervals allowing the unit cooler fans to circulate room air (above 35°F) through the coil.

Electric Defrost

A time clock will cycle the liquid solenoid valve resulting in compressor pumpdown, de-energizing unit cooler heaters at selected intervals. Unit cooler fan motor and defrost heater contactors are provided. An adjustable temperature control or time control returns the system to the refrigeration cycle. A lockout relay prevents the compressor and defrost heaters from operating simultaneously.

CAPACITY DATA

R12 HIGH TEMPERATURE

CAPACITY AND TOTAL HEAT REJECTION (MBH)

KPWC MODEL	FIG NO	40°F/4.4°C		30°F/-1.1°C		25°F/-3.9°C		20°F/-6.7°C		10°F/-12.2°C		0°F/-17.8°C		CONDENSER MODEL #
		CAP	THR	CAP	THR	CAP	THR	CAP	THR	CAP	THR	CAP	THR	
3H1	1	35	46	27	37	24	34	21	30	16	25	12	20	841
5H1	1	65	82	53	67	48	63	43	58	35	49	27	39	841
8H1	2	94	116	76	97	69	89	62	82	49	68	39	56	848
9H1	2	111	138	90	115	81	106	73	97	59	82	46	67	848
10H1	2	120	150	98	127	88	120	79	106	63	88	49	72	848
11H1	4	141	174	116	148	105	136	94	125	74	102	58	84	1054
15H1	5	178	220	145	185	131	170	117	155	93	129	72	104	1263
20H1	5	215	271	172	223	154	205	136	184	108	152	86	126	1263
21H1	6	264	330	219	282	198	258	180	239	146	201	114	164	1266

R22 HIGH TEMPERATURE

CAPACITY AND TOTAL HEAT REJECTION (MBH)

KPWC MODEL	FIG NO	40°F/4.4°C		30°F/-1.1°C		25°F/-3.9°C		20°F/-6.7°C		10°F/-12.2°C		0°F/-17.8°C		CONDENSER MODEL #
		CAP	THR	CAP	THR	CAP	THR	CAP	THR	CAP	THR	CAP	THR	
3H2	1	36	48	29	40	26	37	22	32	17	26	—	—	841
5H2	1	67	85	50	68	45	63	40	57	30	45	—	—	841
8H2	2	105	129	85	108	75	98	67	89	53	74	—	—	848
10H2	3	146	179	117	149	104	135	92	123	73	102	—	—	855
15H2	4	198	244	160	204	145	189	130	171	103	142	—	—	1054
20H2	5	227	280	185	233	166	213	148	194	116	159	—	—	1263
25H2	6	298	365	238	303	212	275	188	249	145	201	—	—	1266
30H2	7	337	419	275	351	247	321	221	294	176	242	—	—	1270
35H2	8	435	536	352	451	315	410	281	372	224	310	—	—	1288
40H2	8	511	631	416	543	373	495	334	452	268	377	—	—	1288

R502 LOW TEMPERATURE

CAPACITY AND TOTAL HEAT REJECTION (MBH)

KPWC MODEL	FIG NO	0°F/-17.8°C		-10°F/-23.3°C		-20°F/28.9°C		-25°F/31.7°C		-30°F/34.4°C		-40°F/-40°C		CONDENSER MODEL #
		CAP	THR	CAP	THR	CAP	THR	CAP	THR	CAP	THR	CAP	THR	
3L5	1	25	40	20	33	16	27	12	21	10	19	8	16	841
5L5	1	44	65	35	54	27	43	23	38	20	34	15	27	841
6L5	1	53	78	41	63	32	51	27	45	24	41	17	31	841
7L5	2	63	92	50	76	38	61	33	55	29	49	21	38	848
8L5	2	74	108	59	91	46	74	41	67	35	60	27	48	848
9L5	2	81	119	65	99	51	82	45	72	39	61	28	50	848
10L5	4	95	139	75	114	57	91	50	82	43	70	31	56	1054
15L5	4	115	169	90	138	69	110	60	99	51	87	38	68	1054
20L5	5	134	198	108	166	85	137	76	125	67	111	49	90	1263
25L5	5	170	254	137	211	107	172	83	143	80	130	58	102	1263
30L5	6	203	295	159	248	122	199	105	176	90	150	66	120	1266

DIMENSIONS

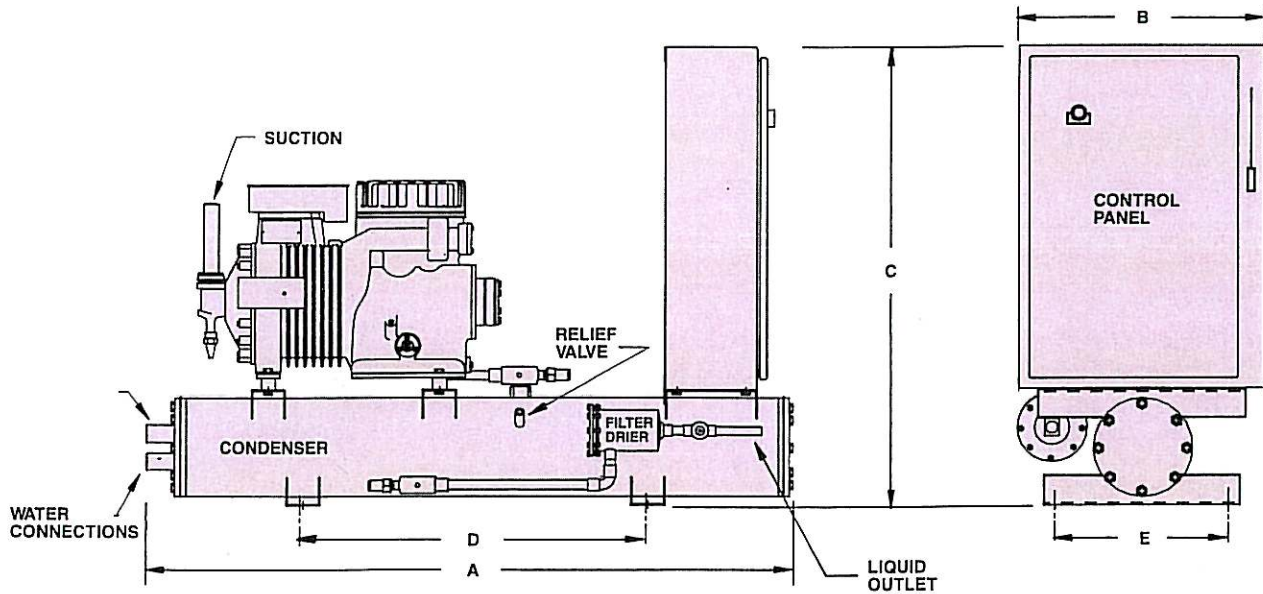
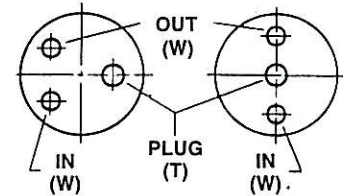


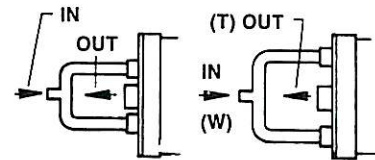
FIGURE NUMBER	A	B	C	D	E	WATER CONNECTIONS	
						T (FPT)	W (FPT)
1	41	21 ³ / ₈	35	18	15 ¹ / ₂	1 ¹ / ₄	1
2	48	21 ³ / ₈	35	24	15 ¹ / ₂	1 ¹ / ₄	1
3	55	21 ³ / ₈	41	27	15 ¹ / ₂	1 ¹ / ₄	1
4	54	21 ³ / ₈	43	30	15 ¹ / ₂	1 ¹ / ₂	1 ¹ / ₄
5	63	21 ³ / ₈	45	36	15 ¹ / ₂	2	1 ¹ / ₂
6	66	21 ³ / ₈	45	36	15 ¹ / ₂	2	1 ¹ / ₂
7	70	21 ³ / ₈	45	40	15 ¹ / ₂	2	1 ¹ / ₂
8	88	21 ³ / ₈	45	56	15 ¹ / ₂	2	1 ¹ / ₂

WATER CONNECTIONS

FOR CITY WATER



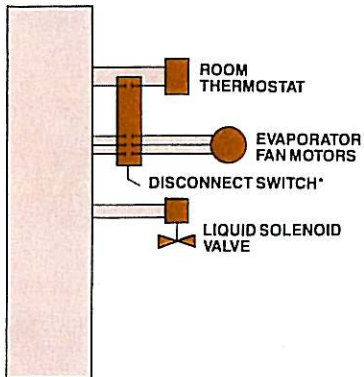
FOR COOLING TOWER



FIELD WIRING REQUIREMENTS FOR MATCHED SYSTEM COMPONENTS

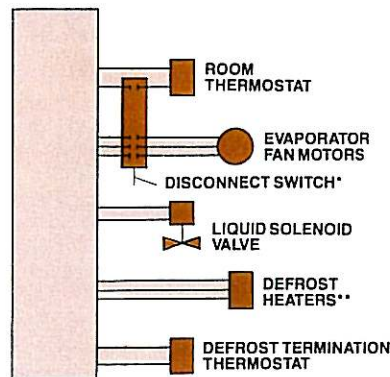
AIR DEFROST SYSTEMS with Single Evaporator

COMPRESSOR UNIT CONTROL PANEL



ELECTRIC DEFROST SYSTEMS with Single Evaporator

COMPRESSOR UNIT CONTROL PANEL



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

*DISCONNECT SWITCH MAY BE REQUIRED BY LOCAL CODE.
 **MAXIMUM CURRENT DRAW IS 48 AMPS. ABOVE 48 AMPS. CONSULT FACTORY.

Do Not Use For Construction.
 Use Only Certified Drawings.

ADDISON ACTIVITIES

NOMBRE	Position	Returns	Current activities	Nota
Antonio Mondragon	Production Lead			
Julio Cruz	Quality Engineer		<p>1) Releasing all the industrial units from Jul 2nd. 2) Product CTOs for fin coils assy. were defined, likewise the inspection methods for these specific points. 3) Critical operations for fin coils were defined. 4) Training about handle of welding testing for operators qualification. 5) To issue visual aids showing the packing and handle methods of industrial units. 6) Record leak testing method for mainey serpentine (pressure decay). 7) To issue a visual aid with the most common defects in final assembly. 8) Define an record CTOs and inspection methods for drain pan assy. 9) Support to operators on translation with Addison operators. 10) Support to Addison QE on inspection of sheet metal parts from Mly. & Gloversville. 11) Training for final inspection of industrial and Large comercial units. 12) Training on welding testing to operators.</p>	
Leonardo Ferratiz	Manufacturing Engineer		Process engineer activities.	
Evaristo Martinez Rivas	Grup Lead	Final Assemble Training	Final assembly	
Rodrigo Jimenez Castillo	Grup Lead	Coil Assembly Training	Bending tubos area.	
Rogelio Gonzalez San Miguel	Grup Lead	Welding Assembly coil training	Coil assembly.	
Rene Arias	CNC Programer (Hurko)	Training in the operation	Drain pan assembly & tubing expand.	
Efrain Sevilla Tepez	Welder		Welder & Interpiping	
Gerardo Camarillo Bocanegra	Welder		Welder	
Jesus H.Grana Cerda	Welder		Welder	
Jorge A. Ramirez Peña	Welder	Returns to MTY	Drain pan assembly and welding	
Jose G. Pacheco Perez	Welder		Final testing	
Juan R. Villarreal Zermeño	Welder		Welder	
Julio Cesar Hernandez Giz	Welder		Welder & headers	
Luis Loredo Torres	Welder	Returns to MTY	Fin press, Seam welder.	
Pedro Cisneros Albizo	Welder		Welder	

WATER VALVE SELECTION CHART

City Water 75°F Entering R12

CONDENSER MODEL	THR RANGE	ΔP GPM	WATER VALVE SIZE	THR RANGE	ΔP GPM	WATER VALVE SIZE	THR RANGE	ΔP GPM	WATER VALVE SIZE
841	20 to 30	10 4	3/8	31 to 46	6 5	1/2	47 to 82	7 9	3/4
848	56 to 97	7 6	1/2	98 to 136	11 10	3/4	137 to 150	12 15	1
1054	84 to 102	5 8	3/4	103 to 136	12 12	3/4	137 to 174	11 17	1
1263	104 to 129	5 11	3/4	130 to 185	7 15	1	186 to 271	12 28	1 1/2
1264	164 to 201	9 17	1	239 to 258	7 22	1 1/4	232 to 330	18 32	1 1/2

Tower Water 85°F Entering R12

CONDENSER MODEL	THR RANGE	ΔP GPM	WATER VALVE SIZE	THR RANGE	ΔP GPM	WATER VALVE SIZE	THR RANGE	ΔP GPM	WATER VALVE SIZE
841	20 to 30	7 10	3/4	31 to 46	8 12	3/4	47 to 82	4 13	1
848	56 to 97	7 17	1	98 to 116	5 19	1 1/4	117 to 150	14 30	1 1/2
1054	84 to 102	6 15	1	103 to 136	5 18	1 1/4	137 to 174	11 28	1 1/2
1263	104 to 129	8 20	1 1/4	130 to 185	8 25	1 1/2	186 to 271	12 55	2 1/2
1266	164 to 201	10 28	1 1/2	202 to 258	7 45	2	259 to 330	17 68	2 1/2

R22, R502

CONDENSER MODEL	THR RANGE	ΔP GPM	WATER VALVE SIZE	THR RANGE	ΔP GPM	WATER VALVE SIZE	THR RANGE	ΔP GPM	WATER VALVE SIZE
841	16 to 37	6 5	3/8	38 to 57	7 6	1/2	58 to 85	9 8	1/2
848	49 to 61	6 5	3/8	62 to 91	9 7	1/2	92 to 129	9 13	3/4
855	102 to 123	8 11	3/4	124 to 149	11 14	3/4	150 to 179	8 16	1
1054	70 to 91	7 8	1/2	92 to 139	6 12	3/4	140 to 244	11 22	1 1/4
1263	111 to 137	6 11	3/4	138 to 198	6 17	1	199 to 280	10 26	1 1/4
1266	150 to 199	5 16	1	200 to 227	8 19	1	228 to 305	8 25	1 1/4
1270	242 to 292	7 24	1 1/4	293 to 351	9 32	1 1/2	352 to 429	10 40	2
1288	THIS UNIT IS NOT AVAILABLE WITH CITY CONNECTIONS								

R22, R502

CONDENSER MODEL	THR RANGE	ΔP GPM	WATER VALVE SIZE	THR RANGE	ΔP GPM	WATER VALVE SIZE	THR RANGE	ΔP GPM	WATER VALVE SIZE
841	16 to 37	4 10	3/4	38 to 57	5 12	3/4	58 to 85	8 14	3/4
848	49 to 61	4 10	3/4	62 to 91	15 14	3/4	92 to 129	9 21	1
855	102 to 123	4 16	1	124 to 149	6 18	1	150 to 179	12 30	1 1/4
1054	70 to 91	3 15	1	92 to 139	6 19	1	140 to 244	8 40	2
1263	111 to 137	6 20	1	138 to 198	7 26	1 1/4	199 to 280	12 50	2
1266	150 to 199	5 24	1 1/4	200 to 227	6 26	1 1/4	228 to 305	12 50	2
1270	242 to 292	6 40	2	293 to 351	10 60	2 1/2	352 to 429	5 80	N/A
1288	310 to 372	8 58	2 1/2	373 to 536	3 80	N/A	537 to 631	6 120	N/A

Water Valve Selection Procedure

- Find condenser model shown on the capacity data table for the condensing unit model selected.
- From the capacity data table, find the total heat rejection at operating conditions.
- Determine whether city water (75°F) or tower water (85°F) will be used.
- Using the condenser model from Step 1, the THR from Step 2, and water source from Step 3, ΔP, GPM and valve size is determined from the THR range and refrigerant.

ΔP is pressure drop through the water valve and the condenser in psig at the GPM shown.

GPM shown is for the maximum THR in the THR range.

Valve connection is FPT from 3/8 to 1 1/4 inches. Valves at 1 1/2, 2 and 2 1/2 inches, use four bolt round flanges.



Krack Corporation

401 S. Rohlwing Road (Route 53) • Addison, Illinois 60101
Phone: (708) 629-7500 • Telex 72-1435 • Cable: KRACKOIL
Fax: (708) 629-0168