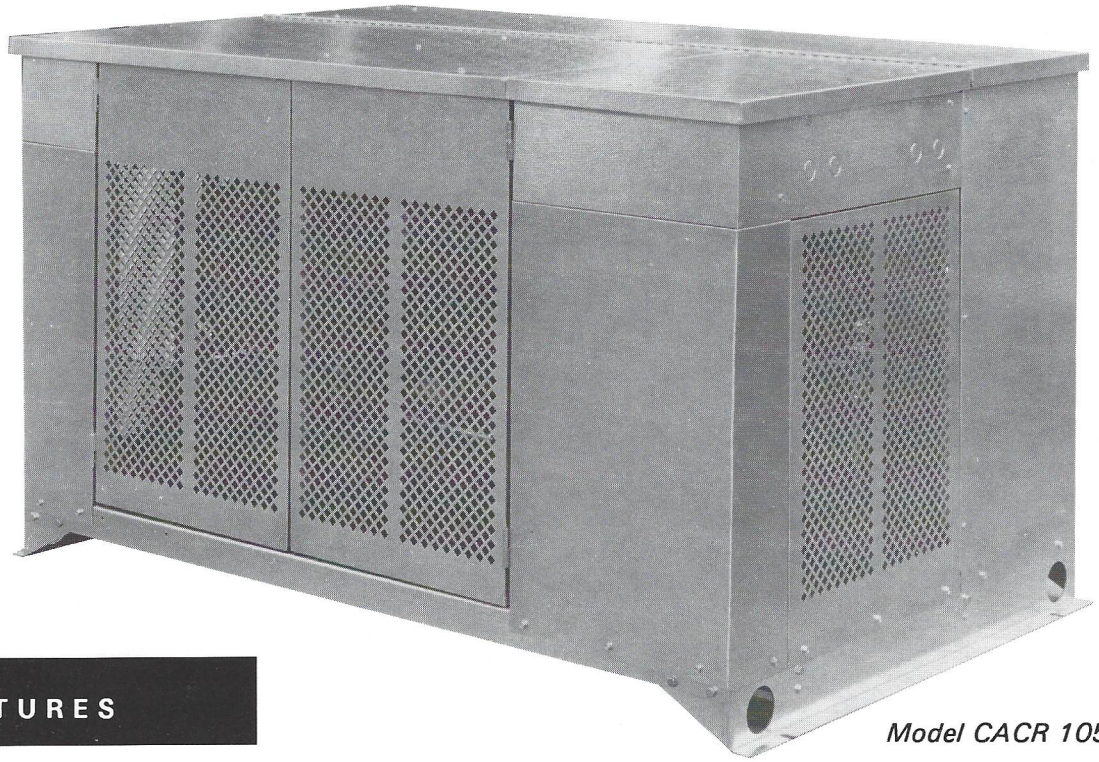
Russell

Packaged Air Cooled Water Chiller



Model CACR 1050 pictured

FEATURES

- **FAST INSTALLATION.** Factory packaged operating and safety controls with a single point power connection.
- **EASY MAINTENANCE.** Accessible semi-hermetic compressor. Shell and tube chiller. Receiver with outlet shut off valve. Waist high control panel.
- **HIGH EFFICIENCY.** The Copeland Discus semi-hermetic compressor is the most efficient compressor available. An oversized condenser coil with 10 FPI maximizes compressor performance and service life.
- **RELIABLE.** Proven rugged design with quality components is based on years of application in the refrigeration industry.
- **ATTRACTIVE WEATHERPROOF CABINET.** Textured aluminum casing, hinged access panels, with raised base construction.

APPLICATIONS

Air Handling Equipment

Laser Welding Machines

Injection Molding

Magnetic Resonance Imaging

Pharmaceutical Processing

Food Processing

Laboratories

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CAPACITY INFORMATION

SEMI HERMETIC COMPRESSORS (APPLICATION LIMIT: 60°F Maximum Return, 40°F Minimum Leaving Water Temperature)

Model	PERFORMANCE @ 95°F AMBIENT											
	52°F EWT / 42°F LWT			54°F EWT / 44°F LWT			56°F EWT / 46°F LWT			58°F EWT / 48°F LWT		
	TONS	GPM	P.D. (ft.)	TONS	GPM	P.D. (ft.)	TONS	GPM	P.D. (ft.)	TONS	GPM	P.D. (ft.)
0075	0.7	1.7	5.2	0.73	1.75	5.5	0.75	1.8	5.7	0.78	1.9	5.9
0100	1.07	2.6	2.4	1.11	2.7	2.6	1.15	2.8	2.7	1.19	2.9	2.8
0150	1.23	2.9	2.9	1.28	3.1	3.2	1.32	3.2	3.3	1.37	3.3	3.4
0200	1.66	4.0	4.5	1.72	4.1	4.7	1.78	4.3	5.4	1.84	4.4	5.6
0300	2.63	6.3	2.0	2.73	6.5	2.1	2.82	6.8	2.3	2.92	7.0	2.4
0500	4.8	11.6	4.6	5.0	12.1	5.1	5.2	12.5	5.3	5.4	13.0	5.6
0700	6.6	15.9	8.3	6.9	16.5	9.0	7.2	17.3	9.8	7.5	17.9	10.4
0800	7.3	17.5	9.9	7.5	18.0	10.5	7.8	18.7	11.4	8.0	19.3	11.9
0900	8.7	20.9	13.6	9.0	21.6	14.4	9.3	22.3	15.2	9.6	23.0	16.2
1050	10.3	24.6	12.6	10.6	25.4	13.4	10.9	26.2	14.1	11.3	27.0	15.0

CAPACITY CORRECTIONS AND LIMITATIONS:

1. For operation at different ambients, increase/decrease capacity by 3% for every 5°F lower/higher outdoor ambient.
2. Capacity data is based on a 10°F range between the entering and leaving water temperatures. Data is applicable for 8°F through 12°F ranges. Range = EWT - LWT. To determine capacity in BTUH, multiply TONS x 12000.
3. For altitudes above 1000' Above Sea Level (A.S.L.), adjust capacity per Table 1.
4. Published data is for cooling water. For operation with glycol solution, adjust capacity and pressure drop per Table 2.
   Example: Model 0800 with 40% E.G. @ 52°F EWT / 42°F LWT
   7.3 tons (0.968) = 7.07 tons

Table 1

Altitude Correction Factor	
Feet A.S.L.	Capacity Correction
Sea Level	1.000
1000	0.996
2000	0.992
3000	0.988
4000	0.984
5000	0.98

Table 2 **Ethylene Glycol**

Capacity / Pressure Drop Conversion Table			
% Glycol Solution By Weight	Freezing Point	Capacity Correction	Pressure Drop Correction
20	+17°F	0.982	1.13
30	+6°F	0.976	1.19
40	-10°F	0.968	1.28
50	-32°F	0.962	1.37

GUIDE

General

Furnish and install where shown on the plan a model _____, air cooled packaged chiller having a capacity of ___ tons when cooling ___ GPM of water from ____ °F to ____ °F and with ____ °F ambient condenser air. Cooler pressure shall not exceed ____ ft. at design flow. Capacity rating shall be at .0005 fouling on cooler. The unit shall be rated in accordance with ARI Standard 590, latest edition.

Cabinet

Shall be fabricated of heavy gauge aluminum panels. All units will have structural parts including base rail. All refrigerant containing vessels are to be constructed in accordance with ANSI B9.1 code. Each electrical component is to be U.L. approved and applied in accordance with the NEC. Each unit shall be given a complete factory control sequence test. Units shall be completely charged with refrigerant 22 at the factory. The unit shall include the following:

Compressor

Shall be field serviceable semi-hermetic type (1750 rpm), suction cooled, with *full pressure lubrication, oil return check valves, suction and oil strainers,* suction and discharge shut-off valves, oil level sight glass and *automatic reversible oil pump*. The motor shall be doubly protected against overload, and shall be equipped with a time guard circuit to prevent short cycling. A muffler shall be located in the discharge line. High and low pressure controls shall be provided. *Italicized items are provided on models 0300-1050 only.*

Chiller

Chiller barrel shall be a direct expansion shell and tube type with water flowing through a steel shell and refrigerant through copper tubes (coaxial tube in tube type chiller is supplied on models 0075-0500). Evaporator shall be built in accordance with ASME standards. Barrel shall be lined with electrical heat tape and insulated for operation in ambients below freezing. Design working pressure shall be 225 psig (shell side) and 250 psig (tube side).

Condenser

The condenser coil shall be constructed of 3/8" O.D. copper tube, with die formed tempered aluminum plate fins. Fins are formed with full tube collars and tube is mechanically expanded into fin collars for full contact and optimum heat transfer. Fin collar to completely cover tube surface. Condenser coil shall be tested to 350 PSIG air. Casings are heavy gauge galvanized. Tube holes are die formed and full collared for tube support. Headers are constructed of heavy wall seamless copper tubing.

ELECTRICAL DATA

Model	Volts 60 Hz.	Ph.	Comp. Model	Compressor		Fan		Unit Full Load Amps	Min. Circuit Ampacity	Min. Wire Size (AWG)	Max. Fuse Size
				RLA	LRA	Qty.	FLA ea.				
0075	208-230	1	KAN-0075	6.1	36	1	0.8	6.9	15	14	15
	208-230	3		3.5	20	1	0.8	4.3	15	14	15
	460	3		NOT AVAILABLE							
0100	208-230	1	KAM-0100	7.5	40	1	0.8	8.3	15	14	15
	208-230	3		4.5	27	1	0.8	5.3	15	14	15
	460	3		2.2	14	1	0.4	2.6	15	14	15
0150	208-230	1	KAG-0150	9.6	55	2	0.8	11.2	15	14	15
	208-230	3		5.5	36	2	0.8	7.1	15	14	15
	460	3		2.5	18	2	0.4	3.3	15	14	15
0200	208-230	1	KAK-0200	10.6	55	2	0.8	12.2	15	14	20
	208-230	3		6.8	50	2	0.8	8.4	15	14	15
	460	3		3.0	25	2	0.4	3.8	15	14	15
0300	230	1	ERF-0310	17.0	86	1	3.0	20.0	25	12	30
	208-230	3		12.4	82	1	3.0	15.4	19	12	20
	460	3		5.8	41	1	1.4	7.2	15	14	15
0500	208-230	1	2DD-0500	NOT AVAILABLE							
	208-230	3		22.3	120	1	3.0	22.2	27	10	35
	460	3		10.5	60	1	1.4	11.0	15	14	15
0700	208-230	3	2DL-0750	31.6	169	2	3.0	36.3	44	8	50
	460	3		13.8	85	2	1.4	16.3	20	12	25
0800	208-230	3	2DA-0750	31.6	169	2	3.0	37.6	46	8	60
	460	3		14.1	85	2	1.4	16.9	21	12	25
0900	208-230	3	3DA-0750	41.0	215	2	3.0	47.0	58	6	70
	460	3		20.0	106	2	1.4	22.8	28	10	35
1050	208-230	3	3DB-1000	43.6	215	2	3.0	49.6	61	6	80
	460	3		20	106	2	1.4	22.8	28	10	35

SPECIFICATIONS

Condenser Fans

Fans are direct drive propeller type with aluminum blades riveted to painted steel hubs. Dual fan units shall be equipped with fan cycle control to allow mechanical cooling operation at ambient as low as +20°F. Permanent split capacitor (PSC) motors utilize permanently lubricated ball bearings. Motors to contain inherent overload protection.

Refrigeration Circuit

Shall be complete with thermostatic expansion valve, liquid line solenoid valve, sightglass/moisture indicator, filter/drier, liquid line shut-off with charging connection, suction filter, and full charge receiver.

Control Circuit and Panel

Shall include all safety and operating controls required to meet ARI, UL and NEC requirements. Controls to include control thermostat, contactors, relays, pressure controls, and safety controls Unit to operate on demand cycle pumpdown control and have freeze protection. All safety controls to be manual reset. Panel to be constructed to NEMA 3R requirements.

Low Ambient Control

Flooded condenser low ambient control shall be provided for start up and positive head pressure control. Unit shall be provided with a 3-way low ambient control valve to flood condenser in low ambients, and receivers sized to hold liquid charge during warmer conditions.

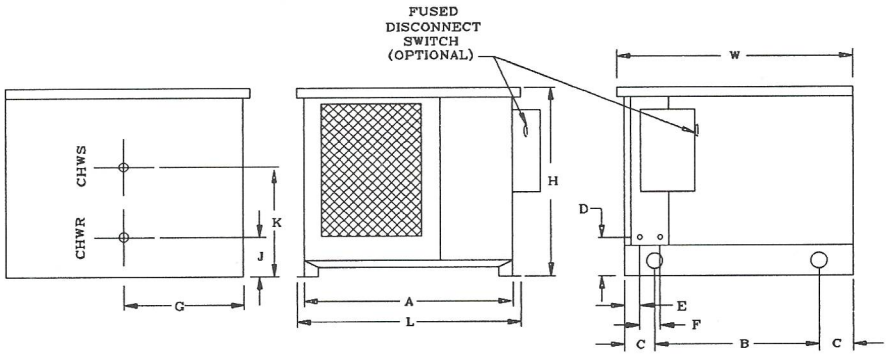
Accessories and Options

- Refrigerant Pressure Gauge
- Water Pressure Gauge
- Entering and Leaving Chilled Water Thermometers
- Cylinder Unloading
- Hot Gas Bypass
- Replaceable core filter driers with isolation valves or 3-way bypass
- Coil Treatments
- Storage tank and/or pump system in a supplementary cabinet
- Fan Speed, low ambient control
- Power Disconnect Switch (fused)
- Indoor chiller with remote air cooled condenser
- Explosion Proof
- Special selections for low temperature brine applications

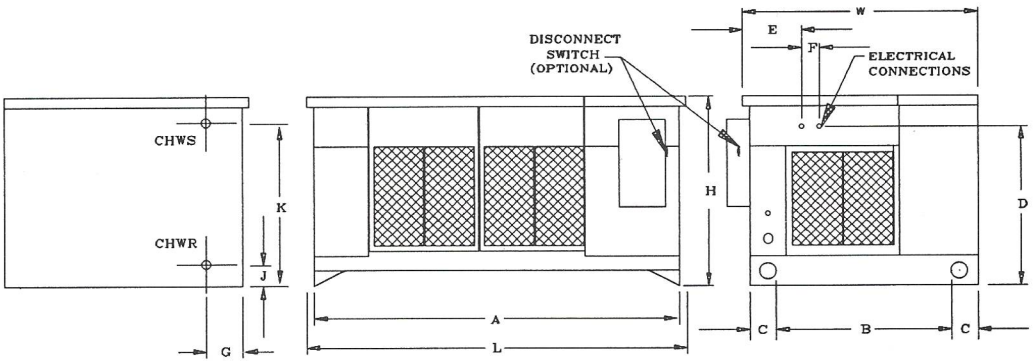
DIMENSIONAL DATA

Russell

Models 0075 - 0500



Models 0700 - 1050



DIMENSIONAL DATA

Model CACR	Overall			Mounting			Electrical			Water			Weight
	L Length	W Width	H Height	A	B	C	D	E	F	M.P.T. G	J	K	
0075	26.62	32	24.88	25.50	24	4.0	5.25	1.5	2.0	1/2	13	19	300
0100	26.62	32	24.88	25.50	24	4.0	5.25	1.5	2.0	1/2	13	19	320
0150	40.62	32	24.88	39.50	24	4.0	5.25	1.5	2.0	1/2	13	19	380
0200	40.62	32	24.88	39.50	24	4.0	5.25	1.5	2.0	3/4	13	19	450
0300	40.81	42	34.75	39.69	34.2	3.90	4.74	1.5	3.0	3/4	14	20	550
0500	40.81	42	34.75	39.69	34.2	3.90	4.74	1.5	3.0	1	14	20	650
0700	71	45.12	40.74	69.50	34.25	4.94	35.74	8.88	3.0	1 1/4	12	38	1250
0800	71	45.12	40.74	69.50	34.25	4.94	35.74	8.88	3.0	1 1/4	12	38	1320
0900	71	45.12	40.74	69.50	34.25	4.94	35.74	8.88	3.0	1 1/4	12	38	1390
1050	71	45.12	40.74	69.50	34.25	4.94	35.74	8.88	3.0	1 1/4	12	38	1400

UNIT NOMENCLATURE:

CACR 0500 D 2

Chiller Air Cooled
Russell

Nominal Capacity
0500 = 5 tons

Compressor Type
S = Semi-Hermetic, Reed (0075-0300)
D = Discus (0500-1050)
H = Hermetic (0075-0500)

Voltage
1 = 208-230/60/1
2 = 208-230/60/3
3 = 460/60/3

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Specifications subject to change without notice. All Russell products are manufactured in the U.S.A.

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