

KAC WATER-COOLED AIR CONDITIONERS

KHP WATER-SOURCE HEAT PUMPS *(closed loop)*



QUALITY CONSTRUCTION

The heavy-duty, self-contained packaged systems for commercial, industrial and residential applications offer high Energy Efficiency Ratios (EER), as they operate at constant condensing temperatures (KAC) or fixed water flow (KHP). Units are completely assembled, piped, wired, charged and factory tested.

ENCLOSURE

Frame, panels, removable access panels, and top panel are constructed of heavy gauge satin-coated steel. Base panel is constructed of heavy gauge satin-coated steel with welded steel channel supports for maximum rigidity. Removable panels allow easy access to internal parts within each section. Electrical control panel is in a separate compartment.

PAINT AND FINISH

Painting is performed with a powder coat process to assure positive adherence with a high-impact finish. Prior to painting, all metal parts are pretreated to remove oil and dirt and rinsed. All units have a standard white paint finish.

COMPRESSOR

High efficiency, suction cooled hermetic type, mounted outside the air stream in an insulated compartment to reduce airborne noise. Internal spring and external rubber isolation provide vibration-free operation. *(*Model 096 and larger are twin compressor design providing single or two stage cooling.)*

BLOWER MOTOR ASSEMBLY

Blowers are double inlet type with centrifugal forward curved wheel, statically and dynamically balanced. Blower wheels (models 007 to 060) are driven by multi-speed, permanent split capacitor motors, permanently lubricated, mounted on the blower casing on resilient mounts to prevent vibration. Blower wheels (models 070 to 140) are belt driven with adjustable pitch pulleys.

COILS

Coils are constructed of die-formed, collared, self-spacing aluminum plate fins and 3/8" O.D. seamless drawn copper tubes staggered in the direction of the airflow and mechanically bonded for maximum heat transfer efficiency. Coils are leak tested at 400 psig.

COAXIAL CONDENSER

Tube-in-tube type water-cooled condenser with convoluted inner tube to enhance surface area for efficient heat transfer. The inner tube (refrigeration circuit) is made of copper material for a maximum operation at 450 psig. The exterior tube (hydraulic circuit) is made of steel.

REFRIGERANT CIRCUIT

All units are completely factory piped, tested, dehydrated and charged with R22 refrigerant.

DRAIN PAN

Constructed of galvanized steel to help prevent corrosion. Unique feature: Pan is external to the unit (horizontal models) or accessible (vertical models) therefore allowing for ease of removability and cleaning.



WATER-SOURCE HEAT PUMP SYSTEMS (closed loop) HOW DOES IT WORK?

A series of combination heating and cooling heat pump units are located throughout the building. The units are served by a common loop of uninsulated piping through which water at 60°F to 90°F is continuously circulated. When the units are in the cooling mode, heat is transferred from the conditioned space to the water loop.

When they are in the heating mode, heat is transferred from the water loop to the conditioned space. Because the water is recirculating, the recovered heat can, either be transferred to other parts of the building for immediate use or stored in the heat storage tank to be

recycled at night to meet building requirements throughout the nighttime hours. The system does not wastefully exhaust excess heat into the atmosphere as other systems do, but continues to recycle the recovered energy within the building throughout the day, thus lowering energy costs substantially. This recovered heat may be generated by a variety of sources including people, lights, appliances, computers, solar heat gains through the windows, etc.



KAC - 007 - V4	
Model	Voltage code
Unit size(MBH)	Arrangement Vertical Horizontal
Voltage codes	
1	- 115/1/60
4	- 208-230/1/60
5	- 208-230/3/60
7	- 460/3/60
8	- 575/3/60
9	- 265/1/60

Model	Horizontal Dimensions (in.)			Vertical Dimensions (in.)			Net Weight lb
	W	H	D	W	H	D	
KAC/KHP							
007	34	11.75	23	22	36.5	22	130
009	34	11.75	23	22	36.5	22	130
012	34	11.75	23	22	36.5	22	130
015	34	17.75	27	22	40.5	22	175
018	34	17.75	27	22	40.5	22	175
024	38	17.75	27	22	40.5	22	175
030	38	17.75	27	22	46.5	22	195
036	39	21.75	30	25.75	46.5	25.75	230
048	43	21.75	30	25.75	52.5	28	250
060	48	21.75	36	30	56.5	28	320
070	48	21.75	36	30	56.5	28	350
096	60	21.25	44	31.5	66.5	29	650
108	62	25.25	44	38.5	66.5	32	660
120	70	25.25	44	42.5	66.5	32	710
140	70	25.25	44	42.5	66.5	32	720

KAC
WATER-COOLED
AIR CONDITIONERS

KHP
WATER-SOURCE HEAT
PUMPS (closed loop)



- Indoor packaged units
- For use in commercial and residential applications (office buildings, manufacturing plants, schools, hotels, computer rooms, multi-residential complexes)
- Vertical units with front return and top discharge are suitable for duct connections or for use with optional free air discharge plenum (2 axis adjustable louvered grill)
- Horizontal units with front return and back discharge are suitable for duct connections, complete with hanger rails and rubber isolation for suspension
- Compressor compartment separated from air stream

QUALITY FEATURES

- Factory installed water regulating valve (KAC) adjusted to provide a pressure regulated water flow thus keeping constant condensing pressure in the system
- Factory installed reversing valve (KHP)
- Satin-coated steel casing with powder paint finish
- 3 available fan motor tap speeds (models 007 thru 060)
- Adjustable motor pulley (models 070 thru 140)
- 24V external terminal strip for thermostat connection
- Refrigerant high and low pressure cut-out switches
- Capillary tube refrigerant controlling device
- Access ports on high and low sides
- Freezestat on heat pump models
- Easy to remove drain pan
- Easy access to all components through large removable panels
- Voltages available:
208-230/1/60
208-230, 460, 575/3/60

OPERATING RANGE

- Entering Air
70°F thru 85°F DB
61°F thru 73°F WB
- Entering Water A/C mode
40°F thru 85°F
Heat Pump mode 60°F thru 80°F
- External Static Pressure
Direct Drive 0" thru 0.3"
Belt Driven 0" thru 1.0"

OPTIONS AVAILABLE

- Back discharge for vertical units (factory ordered)
- Side discharge for horizontal units (field convertible)
- Heresite coated coils
- Copper or HyPoxy® coated fin coils
- Plenum for vertical models
- Water regulating valve kit for heat pump
- Cupronickel or double vented condenser
- Rubber or braided stainless steel flexible hose kits
- Larger motor for higher ESP applications
- Thermostatic expansion valve
- 300 psi operating condition on waterside
- Sound attenuation package
- 265/1/60

WITH WATER REGULATING VALVE

Model	Cooling ¹ Total		Sensible	EER	Nominal	usgpm ²	Unit amps (60 Hz)			
	Btu/h	Btu/h					208-230/1	208-230/3	460/3	575/3
KAC										
007	7,200	5,600	10.6		350	0.7	3.6*			
009	9,730	6,800	15.0		350	0.8	4.3*			
012	13,320	9,080	14.6		415	0.8	6.6*			
015	15,960	10,580	16.0		475	1.0	6.3			
018	20,940	14,450	13.6		650	1.2	9.1	6.6		
024	24,060	16,430	13.4		825	1.4	11.2	7.7		
030	30,240	21,350	13.1		1005	2.0	13.0	9.2	4.5	
036	36,410	25,230	14.3		1160	2.3	15.4	10.2	5.3	
048	50,890	33,950	14.3		1500	4.0	25.2	17.5	8.1	6.3
060	61,150	41,160	15.1		1825	4.4	26.0	19.0	9.4	7.2
070	73,250	49,730	15.7		2200	5.1	36.5	21.4	10.5	8.3
096	99,750	66,630	13.6		3200	7.8		28.8	13.2	11.2
108	115,130	80,590	13.7		3800	7.4		31.4	15.6	12.6
120	126,940	88,220	15.5		4100	9.0		33.6	16.7	12.3
140	144,950	99,870	15.2		4600	10.4		38.4	19.3	14.5

1. At 80°F DB, 67°F WB
 2. At 60°F entering water
 * also available at 115/1/60

WITHOUT WATER REGULATING VALVE

Model	Heating (KHP only) ¹		Total Cooling ²		Nominal	usgpm ²	Unit amps (60 Hz)			
	Btu/h	COP	Btu/h	EER			208-230/1	208-230/3	460/3	575/3
KAC/KHP										
007	9,200	3.8	7,200	10.6	350	1.9	3.6*			
009	11,440	4.3	9,320	13.0	350	2.4	4.3*			
012	15,000	4.2	13,090	13.7	415	3.2	6.6*			
015	19,410	4.4	15,420	14.2	475	3.8	6.3			
018	21,640	4.0	19,670	12.3	650	5.3	9.1	6.6		
024	28,140	4.1	23,480	12.5	825	6.0	11.2	7.7		
030	34,830	4.1	29,160	12.1	1005	7.5	13.0	9.2	4.5	
036	41,891	4.2	34,640	12.6	1160	9.3	15.4	10.2	5.3	
048	55,400	4.1	48,490	12.6	1500	12.3	25.2	17.5	8.1	6.3
060	67,000	4.3	59,350	13.8	1825	16.0	26.0	19.0	9.4	7.2
070	81,520	4.3	68,930	13.8	2200	18.0	36.5	21.4	10.5	8.3
096	111,440	4.0	94,870	12.1	3200	24.6		28.8	13.2	11.2
108	119,290	3.8	110,370	12.3	3800	28.4		31.4	15.6	12.6
120	140,370	4.1	119,900	13.3	4100	32.6		33.6	16.7	12.3
140	166,120	4.3	138,080	13.4	4600	40.8		38.4	19.3	14.5

1. Air on at 70°F
 2. At 80°F DB, 67°F WB
 3. At 85°F entering water (cooling mode) 70°F (heating mode)
 * also available at 115/1/60
 Contact factory for out-of-range applications