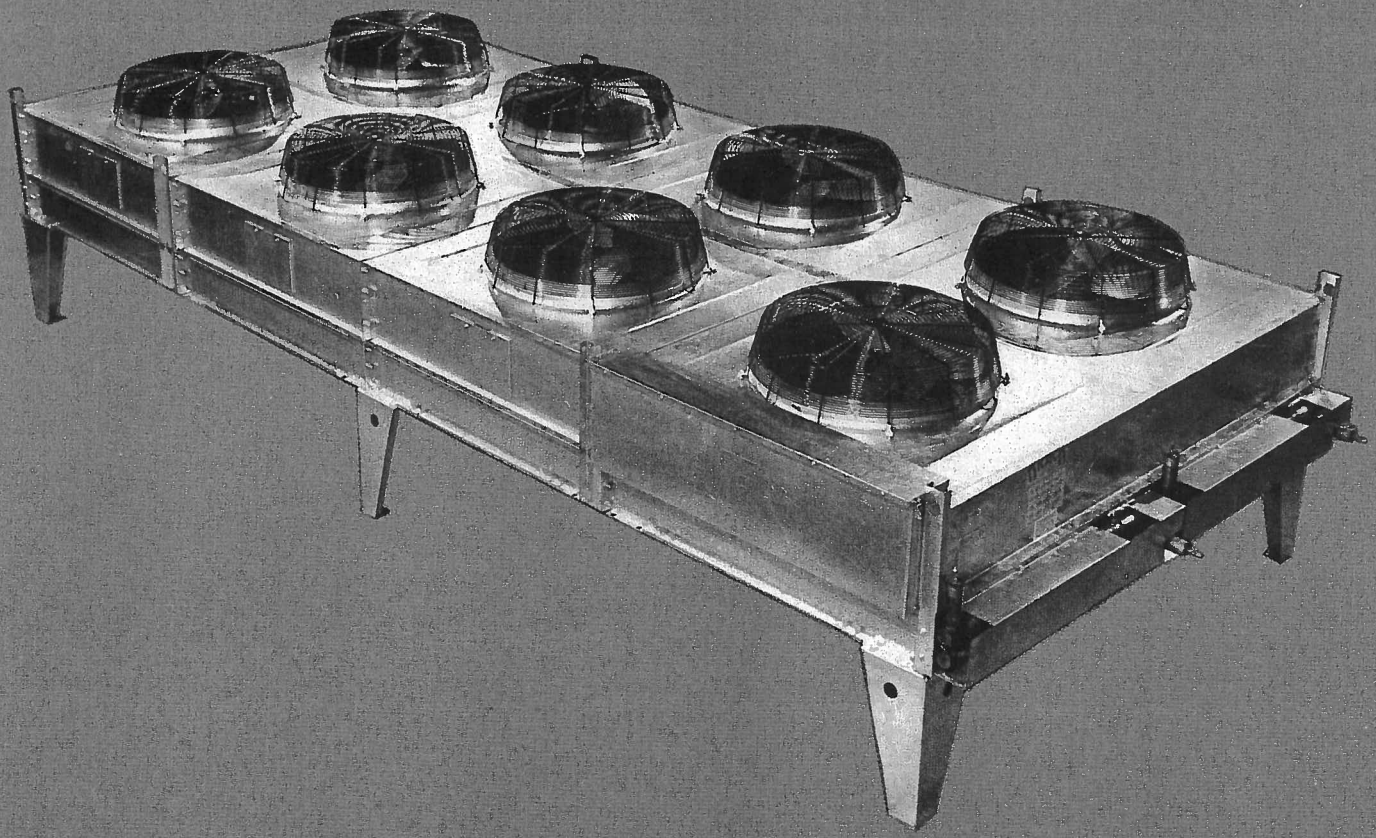
KRACK

Commercial Refrigeration Equipment

KS Series

Direct Drive Remote Air Cooled Condensers



UL Listed With 8, 10, 12 Fins/Inch in Vertical and Horizontal Air Discharge Models. Low Ambient Fan Cycling or Flooding Controls.

The KS Series: tough, versatile air-cooled condensers with the quality and performance the industry has come to expect from Krack Corporation.

Chances are the rooftop condenser you need will have to operate under some of the toughest conditions imaginable. The rugged construction features of Krack's KS Series are up to the task.

Modular Design

Arranged for vertical and horizontal air discharge. Multi-fan sections compartmented to allow individual fan cycling while preventing off-fan "windmilling". Large clean-out access doors standard.

Corrosion Resistant

Module A has a textured aluminum housing. Larger capacity models employ mill galvanized steel fan sections and coil side baffles. Legs are heavy mill galvanized steel.

Optional Hinged Top

It's easy. Just loosen two captive bolts and the condenser opens wide for coil, motor and fan service. Each optional hinged venturi fan panel is secured by convenient locking control rods during cleaning or service work.

High Efficiency Coil

Copper tubes are mechanically expanded into corrugated full collared aluminum fins spaced 8, 10 or 12 per inch. Coils are pressure tested under water with 400 psig air, evacuated to 500 microns, shipped pressurized with dry nitrogen.

Optional fin materials are copper and heresite or polyester coated aluminum. Multi-circuited coils are optional. Liquid sub-cooling circuits are available.

Computerized Circuiting

The Krack engineering staff is always available to help in optimizing the performance of every application. Our computerized coil circuiting program is specially designed to minimize the condenser refrigerant charge for less cost and increased performance. Plus, every Krack condenser will be custom circuited to precisely meet your application needs.

Direct Driven Propeller Fans

Quiet multi-bladed propeller fans provide uniform air distribution thru the coil. Venturi fan orifices optimize efficiency.

Quiet by Design

Unlike traditional air-cooled condensers, fan and coil vibration is isolated from the cabinet, so it is not transmitted to the unit frame and building supports.

Weather Resistant Fan Motors

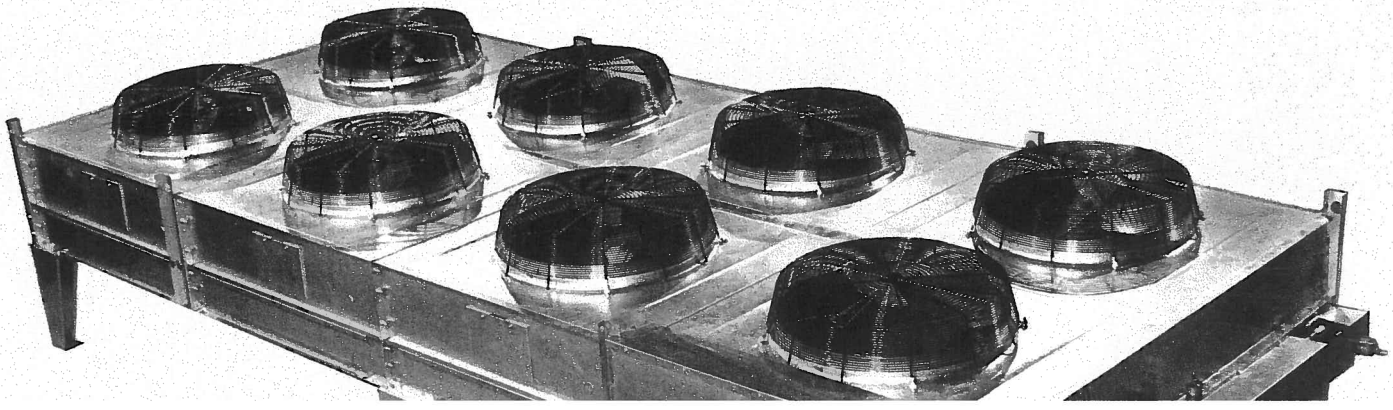
Outdoor condenser motors designed with ball bearings; inherent overheat protection in each phase; shaft slingers; enclosure, hardware, and lubrication for all weather conditions. Each motor lead is wired to terminals in an electrical enclosure.

Versatile Head Pressure Control Fan Cycling Control Methods:

Thermal Fantrol
Pressure Fantrol
Thermal Pressure Fantrol
Variable Speed Fantrol
Gravity Dampers

Refrigerant Flooding Control Methods:

Holdback
Dual Holdback
Combination Fantrol Holdback



System Selection

THR Total Heat of Rejection

Condenser total heat of rejection (BTUH) is the sum of the evaporator refrigeration effect and the heat of compression which varies with compressor type and operating conditions.

THR Calculation Method

THR = Open Reciprocating Compressor Capacity (BTUH) + (2545 x BHP)

THR = Suction Gas Cooled Hermetic Reciprocating Compressor Capacity (BTUH) + (3413 x KW)

THR Estimated Method

THR may be estimated by multiplying the rated compressor BTUH capacity by the compressor operating condition factor shown in the proper table. Multiply result by altitude factor when applicable.

Table 1

Evaporator Temp.	Hermetic Compressor Condensing Temperature (F)					
(F)	90	100	110	120	130	140
-40	1.66	1.73	1.80	2.00	*	*
-30	1.57	1.62	1.68	1.80	*	*
-20	1.49	1.53	1.58	1.65	*	*
-10	1.42	1.46	1.50	1.57	1.64	*
0	1.36	1.40	1.44	1.50	1.56	1.62
5	1.33	1.37	1.41	1.46	1.52	1.59
10	1.31	1.34	1.38	1.43	1.49	1.55
15	1.28	1.32	1.35	1.40	1.46	1.52
20	1.26	1.29	1.33	1.37	1.43	1.49
25	1.24	1.27	1.31	1.35	1.40	1.45
30	1.22	1.25	1.28	1.32	1.37	1.42
40	1.18	1.21	1.24	1.27	1.31	1.35
50	1.14	1.17	1.20	1.23	1.26	1.29

*Beyond the normal limits for single stage compressor application.

Table 2

Evaporator Temp.	Open Compressor Condensing Temperature (F)					
(F)	90	100	110	120	130	140
-30	1.37	1.42	1.47	*	*	*
-20	1.33	1.37	1.42	1.47	*	*
-10	1.28	1.32	1.37	1.42	1.47	*
0	1.24	1.28	1.32	1.37	1.41	1.47
10	1.21	1.24	1.28	1.32	1.36	1.42
20	1.17	1.20	1.24	1.28	1.32	1.37
30	1.14	1.17	1.20	1.24	1.27	1.32
40	1.12	1.15	1.17	1.20	1.23	1.28
50	1.09	1.12	1.14	1.17	1.20	1.24

Table 2

Altitude			
Feet	Factor	Feet	Factor
1000	1.02	5000	1.12
2000	1.05	6000	1.15
3000	1.07	7000	1.17
4000	1.10	8000	1.20

Multi-Circuit Selection

Condenser coils may be divided into many individual refrigerant circuits or systems; each sized for a specified refrigerant, THR capacity and TD. Systems are tagged for identification from left to right; facing the connection end.

Unless specified, ODS connections will be sized in accordance with Refrigerant Line Capacity Data-Applications Section.

Avoid locating high TD section next to low TD sections. Add excess circuits to low TD sections next to high TD sections. Add excess circuits to outboard sections.

Thermal Fantrol fan cycling is recommended with multi-circuited condensers. Holdback flooding control kits may be field installed in each system liquid drain.

Sample Calculation

95°F Ambient - Suction Cooled Semi-Hermetic Reciprocating Compressors

COMP NOM HP	REF	DESIGN TD °F	SAT SUCT °F	SAT COND °F	COMPRESSOR RATING NET BTUH	MOTOR KW	MOTOR BTU	TOTAL BTUH		BASED ON R22 AT 15° TD REF FACTOR		TD FACTOR		SELECT THR	CIR-CUITS REQ'D	CIR-CUITS	SYSTEM NUMBER L TO R	ACTUAL TD °F
6	134a	15	20	110	4009	4.3	14676	54766	x	1.06	x	1.0	=	58051	4.30	5	1	8.6
9	404a	10	-20	105	45900	8.1	27645	73545	x	1.03	x	1.5	=	113627	8.42	9	2	9.4
10	404a	10	-20	105	50640	9.6	32765	83405	x	1.03	x	1.5	=	128860	9.55	10	3	9.6
10	22	15	+25	110	104000	9.7	33106	137106	x	1.00	x	1.0	=	137106	10.16	10	4	10.2
														UNITS THR REQ'D: 437644		34		

Selection

- KSVJ-4410 Rated at THR of 458.9 MBH with R-22 at 15°TD.
- KSVJ Unit Lists 34 Available Circuits
- From Sample Calculation THR Req'd/Circuit = 437644 ÷ 34 = 12871
- KSVJ-4410 = 458900 ÷ 34 = 13497 Available THR/Circuit

Circuits Req'd = Select THR ÷ THR/Circuit. Example: 113627 ÷ 13497 = 8.42 Circuits

Assign Number of Circuits/System and System Number Left to Right

Actual TD = (Circuits Req'd ÷ Assign Circuit) x Design TD. Example: (8.42 ÷ 9) = 9.4

REF. FACTOR
R22-1.00
*R143a-1.06
**R404a-1.03

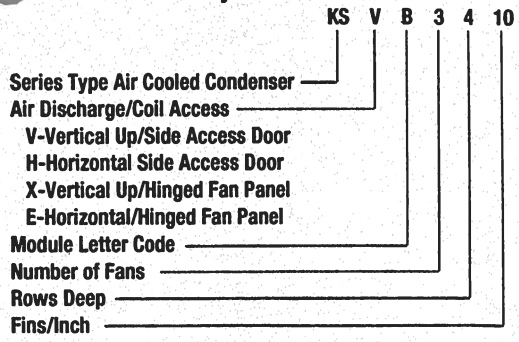
*Usable for R12
**Usable for R502a, R507a

TD FACTOR
10°-1.50
15°-1.00
20°-0.75
25°-0.60

Specifications
18" & 24" Fans

MODULE LETTER CODE					
ONE FAN WIDE	HP	RPM	FAN DIAM	SUR-FACE	FACE TUBES
A	¼	1140	18	⅜	22
B	½	1140	24	⅜	30

Model Key



Please Specify:

- Model Number
- Electrical Characteristics
- Total Heat of Rejection - BTUH
- Ambient Temp
- Sat. Cond. Temp or TD
- Refrigerant
- Multi-Circuit Selections

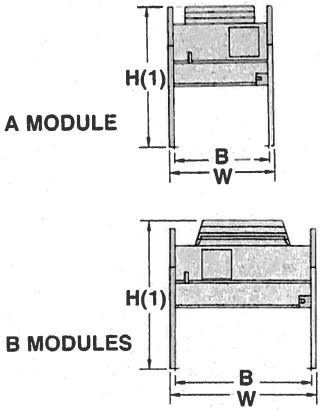
KSV—VERTICAL UP AIR DISCHARGE
KSH—HORIZONTAL AIR DISCHARGE

TOTAL HEAT OF REJECTION CAPACITY—BTUH (000 OMITTED)

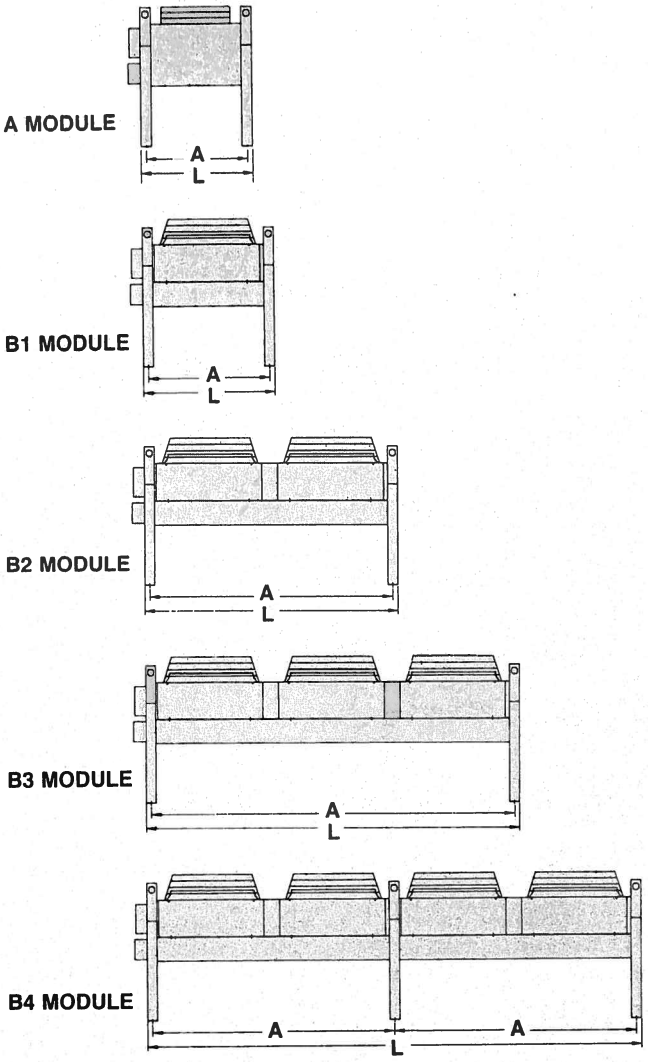
MODEL MODULE NO. FANS ROW DEPTH FINS/INCH	QUAN FANS	ROWS DEEP	RATING BASED ON 85-115°F ENTERING AIR TEMPERATURE TD IS SATURATED CONDENSING TEMP MINUS ENTERING AIR TEMP R22 TD 10	R22 TD 15	R22 TD 20	R404a, R507a TD 10	R404a, R507a TD 15	R404a, R507a TD 20	AIR FLOW CFM	MAX FLOOD CHARGE LBS.	WEIGHT INCL FLOOD CHARGE LBS.	AVAILABLE CIRCUITS
ONE FAN WIDE												
A-1210	1	2	12.5	18.8	25.5	12.2	18.2	24.3	2722	5	170	4
A-1410	1	4	18.0	27.0	36.0	17.5	26.3	35.0	2579	10	200	6
B-1210	1	2	30.2	45.4	60.5	29.4	44.2	58.9	6750	10	181	30
B-1310	1	3	39.4	59.1	78.9	38.4	57.6	76.7	6400	14	185	30
B-1410	1	4	45.4	68.2	90.9	44.2	66.4	88.4	6000	19	200	30
B-2210	2	2	60.5	90.7	121.0	58.9	83.3	117.8	13500	19	352	30
B-2310	2	3	78.9	118.3	157.8	76.7	115.1	153.5	12800	29	372	30
B-2410	2	4	90.9	136.3	181.7	88.4	132.6	176.8	12000	39	400	30
B-3310	3	3	118.3	177.6	236.7	115.1	172.7	230.2	19200	43	559	30
B-3410	3	4	136.3	204.5	272.6	132.6	199.0	265.2	18000	58	600	30
B-4310	4	3	157.8	236.7	315.6	153.5	230.2	307.1	25600	64	840	30
B-4410	4	4	181.7	272.6	363.4	176.8	265.2	353.6	24000	86	900	30

Physical Data
18" & 24" Fans

HEADER END VIEW



SIDE VIEWS



ELECTRICAL DATA

	DIMENSIONAL DATA					FAN MOTOR TOTAL RATED FULL LOAD AMPS (2)						CONNECTIONS OD IN. (3)	
MODEL	L	W	H	A	B	208-1	230-1	460-1	208-3	230-3	460-3	INLET	OUTLET
ONE FAN WIDE													
A-1	33	31	41	30	28⅜	1.5	1.5	0.9	—	—	—	⅞	⅞
B-1	39	45¾	30⁹⁄₁₆	36	43	3.2	3.0	1.5	2.8	2.6	1.3	1⅛	1⅛
B-2	75	45¾	30⁹⁄₁₆	72	43	6.4	6.0	3.0	5.6	5.2	2.6	1⅜	1⅜
B-3	111	45¾	30⁹⁄₁₆	108	43	9.6	9.0	4.5	8.4	7.8	3.9	1⅜	1⅜
B-4	147	45¾	30⁹⁄₁₆	72/72	43	12.8	12.0	6.0	11.2	10.4	5.2	1⅝	1⅝

#Includes Standard 22" Legs
(2) Minimum Unit Circuit Amps = 1.25 x FLA of One Motor + FLA of All Remaining Motors
(2) Minimum Unit Overload Protection = 2.25 x FLA of One Motor + FLA of All Remaining Motors
(3) Connections are approximate. Exact size is determined by computerized circuiting program.

Specifications
30" Fans
High Efficiency Models

MODULE LETTER CODE

ONE FAN WIDE	HP	RPM	FAN DIAM	SUR-FACE	FACE TUBES
F	1	850	30	⅜	34
G	1	850	30	½	28
TWO FANS WIDE					
V	1	850	30	⅜	2 x 34
W	1	850	30	½	2 x 28

KSV—VERTICAL UP AIR DISCHARGE
KSH—HORIZONTAL AIR DISCHARGE

TOTAL HEAT OF REJECTION CAPACITY—BTUH (000 OMITTED)

MODEL MODULE NO FANS ROW DEPTH FINS/INCH	RATING BASED ON 85-115°F ENTERING AIR TEMPERATURE TD IS SATURATED CONDENSING TEMP MINUS ENTERING AIR TEMP								AIR FLOW CFM	MAX FLOOD CHARGE LBS.	WEIGHT INCL FLOOD CHARGE LBS.	AVAILABLE CIRCUITS
	R22 TD				R404a, R507a TD							
	10	15	20	25	10	15	20	25				
ONE FAN WIDE												
F-2310	114.0	171.0	228.0	285.0	110.9	166.4	221.8	277.3	21,938	44	605	34
F-2312	120.5	180.8	241.0	301.3	117.2	175.9	234.5	293.1	21,600	44	645	34
F-2408	126.5	189.8	253.0	316.3	123.1	184.6	246.2	307.7	20,925	60	710	34
F-2410	133.0	199.5	266.0	332.5	129.4	194.1	258.8	323.5	20,250	60	730	34
F-2412	138.5	207.8	277.0	346.3	134.8	202.1	269.5	336.9	19,774	60	770	34
F-3310	171.0	256.5	342.0	427.5	166.4	249.6	332.8	416.0	32,906	66	920	34
F-3312	181.0	271.5	362.0	452.5	176.1	264.2	352.2	440.3	32,400	66	950	34
F-3408	190.0	285.0	380.0	475.0	184.9	277.3	369.7	462.2	31,388	90	1,020	34
F-3410	199.5	299.3	399.0	498.8	194.1	291.2	388.2	485.3	30,375	90	1,050	34
F-3412	208.0	312.0	416.0	520.0	202.4	303.6	404.8	506.0	29,616	90	1,080	34
F-4310	228.0	342.0	456.0	570.0	221.8	332.8	443.7	554.6	43,875	88	1,190	34
F-4312	241.0	361.5	482.0	602.5	234.5	351.7	469.0	586.2	43,200	80	1,220	34
F-4408	253.0	379.5	506.0	632.5	246.2	369.3	492.3	615.4	41,850	120	1,360	34
F-4410	266.0	399.0	532.0	665.0	258.8	388.2	517.6	647.0	40,500	120	1,400	34
F-4412	277.5	416.3	555.0	693.8	270.0	405.0	540.0	675.0	39,488	120	1,440	34
G-5408	322.5	483.8	645.0	806.3	313.8	470.7	627.6	784.5	53,156	220	2,170	28
G-5410	345.0	517.5	690.0	862.5	335.7	503.5	671.4	839.2	52,734	220	2,270	28
G-5412	357.5	536.3	715.0	893.8	347.8	521.8	695.7	869.6	52,313	220	2,330	28
G-6408	387.0	580.5	774.0	967.5	376.6	564.8	753.1	941.4	63,788	266	2,610	28
G-6410	414.0	621.0	828.0	1,035.0	402.8	604.2	805.6	1,007.1	63,281	266	2,660	28
G-6412	429.0	643.5	858.0	1,072.5	417.4	626.1	834.8	1,043.5	62,775	266	2,720	28
TWO FANS WIDE												
V- 4310	228.0	342.0	456.0	570.0	221.8	332.8	443.7	554.6	43,875	88	1,190	68
V-4312	241.0	361.5	482.0	602.5	234.5	351.7	469.0	586.2	43,200	88	1,230	68
V-4408	253.0	379.5	506.0	632.5	246.2	369.3	492.3	615.4	41,850	120	1,360	68
V-4410	266.0	399.0	532.0	665.0	258.8	388.2	517.6	647.0	40,500	120	1,400	68
V-4412	277.0	415.5	554.0	692.5	269.5	404.3	539.0	673.8	39,488	120	1,440	68
V-6310	342.0	513.0	684.0	855.0	332.8	499.1	665.5	831.9	65,813	132	1,810	68
V-6312	362.0	543.0	724.0	905.0	352.2	528.3	704.5	880.6	64,800	132	1,900	68
V-6408	380.0	570.0	760.0	950.0	369.7	554.6	739.5	924.4	62,775	180	2,000	68
V-6410	399.0	598.5	798.0	997.5	388.2	582.3	776.5	970.6	60,750	189	2,100	68
V-6412	416.0	624.0	832.0	1,040.0	404.8	607.2	809.5	1,011.9	59,231	189	2,160	68
V-8310	456.0	684.0	912.0	1,140.0	443.7	665.5	887.4	1,109.2	87,750	176	2,380	68
V-8312	482.0	723.0	964.0	,1205.0	469.0	703.5	938.0	1,172.5	86,400	176	2,460	68
V-8408	506.0	759.0	1,012.0	1,265.0	492.3	738.5	984.7	1,230.8	83,700	240	2,670	68
V-8410	532.0	798.0	1,064.0	1,330.0	517.6	776.5	1,035.3	1,294.1	81,000	240	2,800	68
V-8412	555.0	832.5	1,110.0	1,387.5	540.0	810.0	1,080.0	1,350.0	78,975	240	2,880	68
W-10408	645.0	967.5	1,290.0	1,612.5	627.6	941.4	1,255.2	1,569.0	106,313	440	4,340	56
W-10410	690.0	1,035.0	1,380.0	1,725.0	671.4	1,007.1	1,342.7	1,678.4	105,469	440	4,540	56
W-10412	715.0	1,072.5	1,430.0	1,787.5	695.7	1,043.5	1,391.4	1,739.2	104,625	440	4,700	56
W-12408	774.0	1,161.0	1,548.0	1,935.0	753.1	1,129.7	1,506.2	1,882.8	127,575	532	5,240	56
W-12410	828.0	1,242.0	1,656.0	2,070.0	805.6	1,208.5	1,611.3	2,014.1	126,563	532	5,350	56
W-12412	858.0	1,287.0	1,716.0	2,145.0	834.8	1,252.3	1,669.7	2,087.1	125,550	532	5,470	56

Specifications
30" Fans
High Performance Models

MODULE LETTER CODE

ONE FAN WIDE	HP	RPM	FAN DIAM	TUBE DIAM	FACE TUBES
J	1½	1140	30	⅜	34
Y	1½	1140	30	½	28
TWO FANS WIDE					
K	1½	1140	30	⅜	2 x 34
Z	1½	1140	30	½	2 x 28

KSV—VERTICAL UP AIR DISCHARGE
KSH—HORIZONTAL AIR DISCHARGE

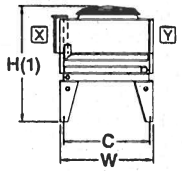
TOTAL HEAT OF REJECTION CAPACITY—BTUH (000 OMITTED)

MODEL MODULE NO. FANS ROW DEPTH FINS/INCH	RATING BASED ON 85-115°F ENTERING AIR TEMPERATURE TD IS SATURATED CONDENSING TEMP MINUS ENTERING AIR TEMP								AIR FLOW CFM	MAX FLOOD CHARGE LBS.	WEIGHT INCL FLOOD CHARGE LBS.	AVAILABLE CIRCUITS
	R22 TD				R404a, R507a TD							
	10	15	20	25	10	15	20	25				
ONE FAN WIDE												
J-2310	127.7	191.5	255.3	319.1	124.2	186.3	248.4	310.4	28,688	44	625	34
J-2312	139.2	208.7	278.3	347.9	135.4	203.0	270.7	338.4	28,216	44	645	34
J-2408	146.1	219.1	292.1	365.1	142.1	213.1	284.2	355.2	27,338	60	730	34
J-2410	153.0	229.4	305.9	382.4	148.8	223.2	297.6	372.0	26,494	60	750	34
J-2412	159.9	239.8	319.7	399.6	155.5	233.3	311.0	388.8	25,820	60	770	34
J-3310	196.7	295.0	393.3	491.6	191.3	287.0	382.6	478.3	43,032	66	950	34
J-3312	208.2	312.2	416.3	520.4	202.5	303.7	405.0	506.2	42,324	66	980	34
J-3408	218.5	327.7	437.0	546.3	212.6	318.8	425.1	531.4	41,007	90	1,050	34
J-3410	230.0	345.0	460.0	575.0	223.7	335.6	447.5	559.4	39,741	90	1,080	34
J-3412	239.2	358.8	478.4	598.0	232.7	349.0	465.4	581.7	38,730	90	1,110	34
J-4310	262.2	393.3	524.4	655.5	255.1	382.6	510.1	637.7	57,376	88	1,230	34
J-4312	277.2	415.7	554.3	692.9	269.6	404.4	539.2	674.0	56,432	80	1,260	34
J-4408	291.0	436.4	581.9	727.4	283.0	424.6	566.1	707.6	54,676	120	1,400	34
J-4410	305.9	458.9	611.8	764.7	297.6	446.4	595.2	743.9	52,988	120	1,440	34
J-4412	318.6	477.8	637.1	796.4	309.9	464.8	619.8	774.7	51,640	120	1,480	34
Y-5408	371.5	557.2	742.9	928.6	361.3	542.0	722.7	903.4	68,345	220	2,220	28
Y-5410	396.8	595.1	793.5	991.9	386.0	578.9	771.9	964.9	66,235	220	2,320	28
Y-5412	411.7	617.6	823.4	1,029.2	400.5	600.8	801.0	1,001.3	64,550	220	2,380	28
Y-6408	445.1	667.6	890.1	1,112.6	432.9	649.4	865.9	1,082.4	82,014	266	2,670	28
Y-6410	476.1	714.2	952.2	1,190.3	463.2	694.7	926.3	1,157.9	79,482	266	2,720	28
Y-6412	493.4	740.0	986.7	1,233.4	479.9	719.9	959.9	1,199.8	77,460	266	2,780	28
TWO FANS WIDE												
K-4310	262.2	393.3	524.4	655.5	255.1	382.6	510.1	637.7	57,376	88	1,230	68
K-4312	277.2	415.7	554.3	692.9	269.6	404.4	539.2	674.0	56,432	88	1,270	68
K-4408	291.0	436.4	581.9	727.4	283.0	424.6	566.1	707.6	54,676	120	1,400	68
K-4410	305.9	458.9	611.8	764.7	297.6	446.4	595.2	743.9	52,988	120	1,440	68
K-4412	318.6	477.8	637.1	796.4	309.9	464.8	619.8	774.7	51,640	120	1,480	68
K-6310	393.3	590.0	786.6	983.3	382.6	573.9	765.2	956.5	86,064	132	1,870	68
K-6312	416.3	624.5	832.6	1,040.8	405.0	607.5	810.0	1,012.4	84,648	132	1,930	68
K-6408	427.0	655.5	874.0	1,092.5	425.1	637.7	850.2	1,062.8	82,014	180	2,100	68
K-6410	458.9	688.3	917.7	1,147.1	446.4	669.6	892.7	1,115.9	79,482	189	2,160	68
K-6412	478.4	717.6	956.8	1,196.0	465.4	698.1	930.8	1,163.5	77,460	189	2,220	68
K-8310	524.4	786.1	1,048.8	1,311.0	510.1	765.2	1,020.3	1,275.3	114,752	176	2,460	68
K-8312	554.3	831.5	1,108.6	1,385.7	539.2	808.8	1,078.4	1,348.1	112,864	176	2,540	68
K-8408	581.9	872.9	1,163.8	1,454.8	566.1	849.1	1,132.1	1,415.2	109,352	240	2,750	68
K-8410	611.8	917.7	1,223.6	1,529.5	595.2	892.7	1,190.3	1,487.9	105,976	240	2,880	68
K-8412	638.3	957.4	1,276.5	1,595.6	620.9	931.3	1,241.8	1,552.2	103,280	240	2,960	68
Z-10408	741.8	1,112.6	1,483.5	1,854.4	721.6	1,082.4	1,443.1	1,803.9	136,690	440	4,440	56
Z-10410	793.5	1,190.3	1,587.0	1,983.8	771.9	1,157.9	1,543.8	1,929.8	132,470	440	4,640	56
Z-10412	822.3	1,233.4	1,644.5	2,055.6	799.9	1,199.8	1,599.8	1,999.7	129,100	440	4,700	56
Z-12408	890.1	1,355.2	1,780.2	1,225.3	865.9	1,298.8	1,731.8	2,164.7	164,028	532	5,350	56
Z-12410	952.2	1,428.3	1,904.4	2,380.5	926.3	1,389.5	1,852.6	2,315.8	158,964	532	5,470	56
Z-12412	986.7	1,480.0	1,973.4	2,466.7	959.9	1,439.8	1,919.7	2,399.7	154,920	532	5,580	56

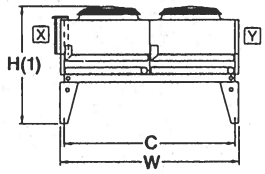
Physical Data 30" Fans

HEADER END VIEW

1 FAN WIDE

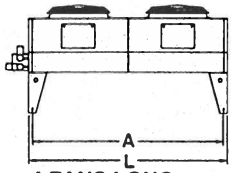


2 FANS WIDE

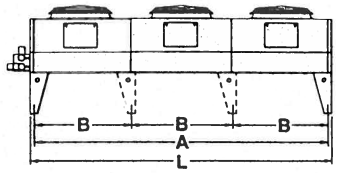


SIDE VIEWS

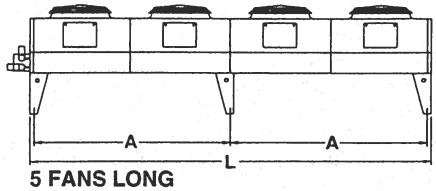
2 FANS LONG



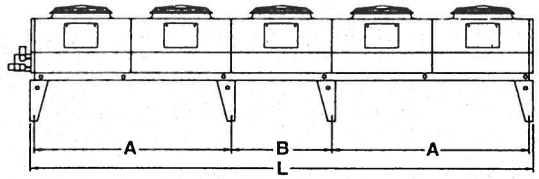
3 FANS LONG



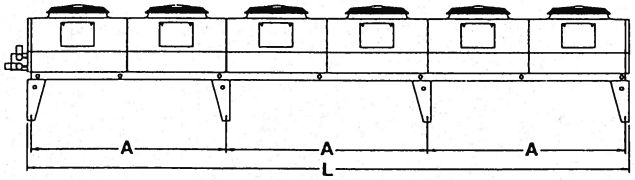
4 FANS LONG



5 FANS LONG



6 FANS LONG



MODEL	DIMENSIONAL DATA						ELECTRICAL DATA (3)			CONNECTIONS (4)
	OVERALL INCHES			¾" LEG ANCHOR BOLT HOLE CENTERS			FAN MOTORS 1½ HP 1140 RPM 3PH 60Hz TOTAL RATED FULL LOAD AMPS			OD INCHES
MODULE NO FANS	L	W	H(1)	A	B	C	208/230	460	380/50	INLET - OUTLET
J2	112	48	55	108	—	44	14.0	7.0	7.0	1⅝ - 1⅝
J3 (2)	166	48	55	162	—	44	21.0	10.5	10.5	2⅛ - 2⅛
J4	220	48	55	108	—	44	28.0	14.0	14.0	2⅛ - 2⅛
Y5	274	48	58	108	54	44	35.0	17.5	17.5	2⅝ - 2⅝
Y6	328	48	58	108	—	44	42.0	21.0	21.0	2⅝ - 2⅝
K4	112	96	55	108	—	92	28.0	14.0	14.0	(2) 1⅝ - 1⅝
K6 (2)	166	96	55	—	54	92	42.0	21.0	21.0	(2) 2⅛ - 2⅛
K8	220	96	55	108	—	92	56.0	28.0	28.0	(2) 2⅛ - 2⅛
Z10	274	96	58	108	54	92	70.0	35.0	35.0	(2) 2⅝ - 2⅝
Z12	328	96	58	108	—	92	84.0	42.0	42.0	(2) 2⅝ - 2⅝

MODEL	DIMENSIONAL DATA						ELECTRICAL DATA (3)					CONNECTIONS (4)
	OVERALL INCHES			¾" LEG ANCHOR BOLT HOLE CENTERS			FAN MOTORS 1 HP 850 RPM 3PH 60Hz TOTAL RATED FULL LOAD AMPS					OD INCHES
MODULE NO FANS	L	W	H(1)	A	B	C	200	230	460	575	380/50	INLET - OUTLET
F2	112	48	55	108	—	44	8.8	8.0	4.0	3.6	4.6	1⅝ - 1⅝
F3 (2)	166	48	55	162	—	44	13.2	12.0	6.0	5.4	6.9	2⅛ - 2⅛
F4	220	48	55	108	—	44	17.6	16.0	8.0	7.2	9.2	2⅛ - 2⅛
G5	274	48	58	108	54	44	22.0	20.0	10.0	9.0	11.5	2⅝ - 2⅝
G6	328	48	58	108	—	44	26.4	24.0	12.0	10.8	13.8	2⅝ - 2⅝
V4	112	96	55	108	—	92	17.6	16.0	8.0	7.2	9.2	(2) 1⅝ - 1⅝
V6 (2)	166	96	55	—	54	92	26.4	24.0	12.0	10.8	13.8	(2) 2⅛ - 2⅛
V8	220	96	55	108	—	92	35.2	32.0	16.0	14.4	18.4	(2) 2⅛ - 2⅛
W10	274	96	58	108	54	92	44.0	40.0	20.0	18.0	23.0	(2) 2⅝ - 2⅝
W12	328	96	58	108	—	92	52.8	48.0	24.0	21.6	27.6	(2) 2⅝ - 2⅝

(1) H dimension includes 22", field assembled legs. Add 20" for optional 42" legs.
(2) Model 1 x 3 has 4 legs - 2 x 6 has 8 legs.
(3) Min unit circuit amps = 1.25 x FLA of one motor + FLA or remaining motors.
(3) Min unit overload protection = 2.25 x FLA of one motor + FLA of remaining motors.
(3) Variable speed motors and control–contact factory.
(4) Connections are approximate. Exact size is determined by computerized circuiting program.
H (horiz. air disch.) dimensions, fantrol location, and unit support–contact factory.
[X] Standard fantrol location. [Y] Optional fantrol location–must be specified.
USE CERTIFIED DRAWINGS FOR CONSTRUCTION

Application

Locate Condensers no closer than their width from walls or other condensers. Avoid locations near exhaust fans, pluming vents, flues or chimneys.

Parallel Condensers should be the same models resulting in the same refrigerant side pressure drops. Compressor discharge lines should have equal pressure drops to each condenser.

Condenser Charge will approximate 30% of the maximum flooding charge listed under "Specifications" for summer design conditions. Low ambient head pressure controls require an additional charge which is difficult to predict with fan cycling and is maximized with holdback.

Receiver Capacity should be adequate to store the condenser Summer charge, plus the condenser low ambient allowance, plus the evaporator pumpout charge, plus an allowance for piping and heat reclaim coil charges.

Receiver Equalizer lines must be free of traps and be connected to the top of condenser liquid outlets—not the inlets. Equalizers should not be used with holdback controls.

Non-Condensables in operating systems are best collected at the condenser liquid outlet. Use a tee on the horizontal outlet with a purge valve located in tip of a 12-18 inch high, full size, vertical extension.

Compressor Discharge lines should be sized to minimize pressure drops and maintain oil return gas velocities. Each connection should be looped to the top of the condenser.

Gravity Liquid Drain lines should drop from each outlet as low as possible before headering or running horizontally. Pitch downhill to the receiver.

Off-The-Line Coil Sections will have refrigerant pressures corresponding to the ambient. Check valves or isolating valves should be installed in the liquid drains to prevent refrigerant migration and receiver pressure loss.

Liquid-Sub-Cooling may be accomplished with a section of circuits in the coil or with a separate coil section under the last operating fans. Liquid outlet temperature will approach the entering air temperature by approximately 5°F. Benefit is not economical unless TD is 15°F or higher.

See Installation & Operating Instructions for piping, holdback and fan cycling details.

REFRIGERANT LINE CAPACITY DATA

COPPER LINE SIZE O.D.	LINE CAPACITY IN TONS									LBS OF REFRIG LIQUID PER 100' OF LENGTH		
	COMP. DISCHARGE LINE						COND TO REC'R LIQUID LINE					
	R 22		R404a		R134a							
	100'	200'	100'	200'	100'	200'	R 22	R404a	R134a	R22	R404a	R134a
⅝	1.5	1.0	1.0	0.5	1.0	0.5	3.6	3	3.7	13	11	13
⅞	4	3	3	2	3	2	7.4	6	7.7	25	22	26
1 ⅛	10	6.5	7	4	6.5	4.5	12.7	10.4	13.0	42	36	43
1 ⅜	20	15	15	7	12	7	19.2	16	20	64	55	65
1 ⅝	30	20	20	15	20	11	29	23	28.5	90	78	92
2 ⅛	65	45	45	30	42	28	47	40	46	160	138	163
2 ⅝	90	75	75	45	55	43	73	62	72	245	212	250

Capacity is compressor suction tons for application between -40° F and +40° F suction at condensing temperatures between 80° F and 120° F sat.
For multiple or unloading compressor application, the vertical discharge riser from the compressor may need to be one size smaller.
This table data is only to be used as a guide. For exact values, please calculate to your specific job line lengths and design pressure/temp values using ASHRAE handbook or ARI refrigerant tables.