

Specifications sheet

KCM519CAL-B312H

Condensing :	Ambient(K) + 12°C / 21.6 °F
Electrical:	220 - 230 V, 50 Hz, 1 Phase

Sub-Cooling : (K)	0°C / 0°F
Suction Return :	20 °C / 68°F
Refrigerant :	R404A



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A) MODEL DESCRIPTION

Model Name	KCM519CAL-BXXXH
Compressor Type	Reciprocating, Connecting Rod Type
Application Group	Medium Temperature (CBP) With R404A High/Medium (HBP/CBP) With R134a
Evaporating Temperature Range	(-)15 °C To 12.8 °C Or(-)5 °F To 55 °F (For R404A) (-)17.8 °C To 12.8 °C Or 0 °F To 55 °F(For R134a)
Refrigerant	R-404A / R134a
Rated Voltage	220 - 230 V, 50 Hz, 1 Phase
Compressor Cooling	Fan : 400 ft3 / minute
Typical Application	Visi-Cooler, Display Cabinet, Chillers
Certifications & Approvals	EN60335-2-34 (For R404A), CCC (For R134a)

B) PERFORMANCE SPECIFICATION @ RATED CONDITION

Parameter	Unit	R404A-CBP		R134a-CBP
		ASRE / T	ARI	ARI
Cooling Capacity	Btu / hr	16,100	15,625	8750
	kcal / hr	4,057	3,937	2205
	W	4,717	4,579	2564
	Nominal HP	2.01	1.95	1.09
Input Power	W	2,360	2,360	1185
Input Current	A	12.3	12.3	5.9
EER = $\frac{\text{Cooling Capacity}}{\text{Input Power}}$	Btu / W-hr	6.82	6.62	7.4
	kcal / W-hr	1.72	1.67	1.86
	W / W	2.00	1.94	2.17

Note: Above Performance Parameters are Nominal Values & subject to $\pm 5\%$ variation

C) RATING CONDITIONS

Parameter	Unit	ASRE / T (CBP)	ARI (CBP)
Evaporating Temperature	°C (°F)	-6.7 (20)	-6.7 (20)
Condensing Temperature	°C (°F)	54.4 (130)	54.4 (130)
Ambient Temperature	°C (°F)	35 (95)	35 (95)
Sub-cooled Liquid Temperature	°C (°F)	46.1 (115)	46.1 (115)
Return Gas Temperature	°C (°F)	35 (95)	4.4 (40)
Test Voltage	V	230	230

D) MECHANICAL SPECIFICATIONS

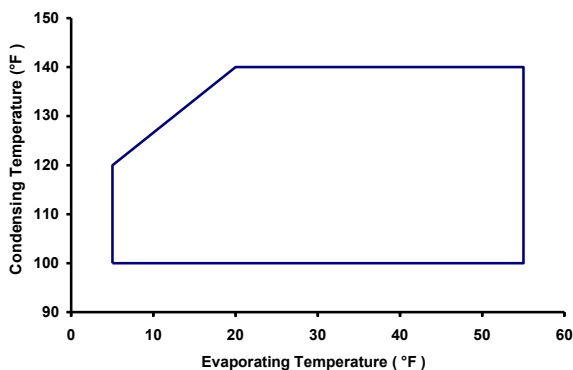
Parameter	Unit	Value
Number of Cylinders	Number	Two (2)
Displacement	cm ³ (inch ³) / rev	59.65 (3.640)
Net Weight	kg	34.9
Approximate Shipping Weight	kg	36.0
Oil Charge	cm ³ (Oz)	1,330 (45)
Oil Type	Refrigeration Grade	Polyolester (POE)
IPRV (Pressure Differential)	kg/cm ² (psig)	31.65 / 38.68 (450 / 550)
** Crank - case Heater	W @ V	40 @ 240

** Recommended only for Heat Pump Application.

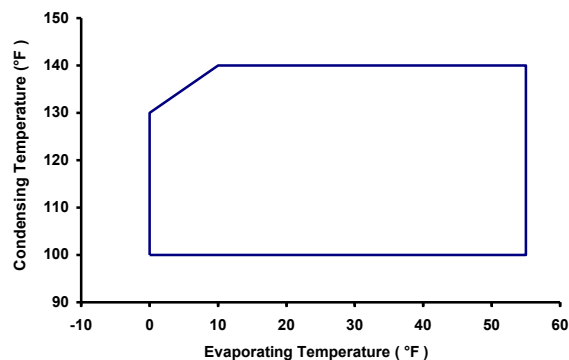
E) ELECTRICAL SPECIFICATIONS

Parameter	Unit	Value
Operating Voltage Range	V	180 To 260
Motor Circuit	---	CSCR
Electrical Accessories	---	
➤ Start Capacitor	μF @ V AC	130/156 @ 250, 43/52 @ 330
➤ Run Capacitor	μF @ V AC	40 @ 370, 45 @ 370
➤ Relay	---	Potential
➤ Over Load Protector	---	Internal
Locked Rotor Ampere (LRA)	A	85
Maximum Continuous Current (MCC)	A	17.0
High Potential Test	(kV / second / mA)	1.85 / 1 / 5.5 ± 0.5

F) OPERATING ENVELOPE @ 230 V, 50 Hz, 1 Phase



For R404A



For R134a

G) PERFORMANCE TABLES

Superheat	11.1 °C (20 °F)	Voltage	230 V, 50 Hz, 1 Phase
Sub - cooling	8.3 °C (15 °F)	Compressor Cooling	400 ft ³ / minute
Ambient Temperature	35 °C (95 °F)	Refrigerant	R404A

H) COOLING CAPACITY (Btu / hr)

Condensing Temperature		Evaporating Temperature								Coefficients	
										c1	Under Evolution
°C		-15	-12.2	-6.7	-1.1	4.4	7.2	10	12.8	c2	
	(°F)	5	10	20	30	40	45	50	55	c3	
37.8	100	14500	16800	22400	29300	37250	41800	46300	50300	c4	
43.3	110	12900	15100	20110	26475	33950	38050	42700	46200	c5	
48.9	120	11500	13100	17950	23700	30500	34500	39000	42000	c6	
54.4	130	-	11235	15625	20820	27200	30750	34725	37660	c7	
60.0	140	-	-	13200	18000	23750	27300	30700	33250	c8	
										c9	
										c10	

J) INPUT POWER (W)

Condensing Temperature		Evaporating Temperature								Coefficients	
										c1	Under Evolution
°C		-15	-12.2	-6.7	-1.1	4.4	7.2	10	12.8	c2	
	(°F)	5	10	20	30	40	45	50	55	c3	
37.8	100	1700	1810	2000	2150	2230	2260	2285	2300	c4	
43.3	110	1823	1935	2145	2300	2420	2455	2485	2500	c5	
48.9	120	1900	2015	2255	2465	2630	2685	2730	2760	c6	
54.4	130	-	2080	2360	2615	2825	2910	2980	3030	c7	
60.0	140	-	-	2440	2740	3000	3100	3200	3300	c8	
										c9	
										c10	

K) INPUT CURRENT (A)

Condensing Temperature		Evaporating Temperature								Coefficients	
										c1	Under Evolution
°C		-15	-12.2	-6.7	-1.1	4.4	7.2	10	12.8	c2	
	(°F)	5	10	20	30	40	45	50	55	c3	
37.8	100	10.3	10.6	11.4	12.1	12.4	12.5	12.5	12.7	c4	
43.3	110	10.4	10.8	11.9	12.6	13.3	13.5	13.6	13.8	c5	
48.9	120	10.7	11.1	12.1	13.2	14.1	14.4	14.6	14.8	c6	
54.4	130	-	11.3	12.3	13.6	14.8	15.2	15.7	15.9	c7	
60.0	140	-	-	12.5	14.1	15.4	16.1	16.7	16.9	c8	
										c9	
										c10	

L) MASS FLOW RATE (lbs / hr)

Condensing Temperature		Evaporating Temperature								Coefficients	
										c1	Under Evolution
°C		-15	-12.2	-6.7	-1.1	4.4	7.2	10	12.8	c2	
	(°F)	5	10	20	30	40	45	50	55	c3	
37.8	100	Under Evolution								c4	
43.3	110									c5	
48.9	120									c6	
54.4	130									c7	
60.0	140									c8	
										c9	
										c10	

Note: 1. Nominal Performance Values (± 5%) based on 24 h of 'run in'. Subject to change without notice.

2. Compressor is intended to be operated in the range of condensing & evaporating temperatures where performance values are specified in above tables.

G) PERFORMANCE TABLES

Superheat	11.1 °C (20 °F)	Voltage	230 V, 50 Hz, 1 Phase
Sub - cooling	8.3 °C (15 °F)	Compressor Cooling	400 ft ³ / minute
Ambient Temperature	35 °C (95 °F)	Refrigerant	R134a

H) COOLING CAPACITY (Btu / hr)

Condensing Temperature		Evaporating Temperature								Coefficients	
										c1	c2
°C		-17.8	-12.2	-6.7	-1.1	4.4	7.2	10	12.8	c3	1158.47282
	(°F)	0	10	20	30	40	45	50	55	c4	0.47884
37.8	100	5500	8950	12600	16850	21950	24900	28150	31750	c5	-11.37896
43.3	110	---	8050	11450	15400	20150	22950	26050	29450	c6	-9.61317
48.9	120	---	---	10100	13800	18350	21000	24000	27300	c7	0.04634
54.4	130	---	---	8750	12300	16700	19300	22200	25400	c8	-0.00482
60.0	140	---	---	---	11000	15350	17900	20750	23950	c9	0.04097
										c10	0.02415

J) INPUT POWER (W)

Condensing Temperature		Evaporating Temperature								Coefficients	
										c1	c2
°C		-17.8	-12.2	-6.7	-1.1	4.4	7.2	10	12.8	c3	-177.48610
	(°F)	0	10	20	30	40	45	50	55	c4	0.02109
37.8	100	743	951	1147	1312	1427	1460	1475	1467	c5	1.50010
43.3	110	---	915	1166	1385	1555	1616	1657	1678	c6	1.44248
48.9	120	---	---	1187	1451	1667	1751	1815	1858	c7	-0.00307
54.4	130	---	---	1185	1486	1738	1840	1923	1985	c8	0.00008
60.0	140	---	---	---	1466	1745	1861	1957	2033	c9	-0.00457
										c10	-0.00406

K) INPUT CURRENT (A)

Condensing Temperature		Evaporating Temperature								Coefficients	
										c1	c2
°C		-17.8	-12.2	-6.7	-1.1	4.4	7.2	10	12.8	c3	-0.86700
	(°F)	0	10	20	30	40	45	50	55	c4	-0.00038
37.8	100	3.8	4.8	5.7	6.4	6.9	7.0	7.1	7.1	c5	0.00729
43.3	110	---	4.6	5.7	6.0	7.5	7.8	8.0	8.1	c6	0.00704
48.9	120	---	---	5.9	7.1	8.0	8.4	8.7	9.0	c7	-0.00001
54.4	130	---	---	5.9	7.2	8.4	8.9	9.3	9.6	c8	-0.000001
60.0	140	---	---	---	7.1	8.4	9.0	9.4	9.8	c9	-0.00002
										c10	-0.00002

L) MASS FLOW RATE (lbs / hr)

Condensing Temperature		Evaporating Temperature								Coefficients	
										c1	c2
°C		-17.8	-12.2	-6.7	-1.1	4.4	7.2	10	12.8	c3	17.60107
	(°F)	0	10	20	30	40	45	50	55	c4	-0.02724
37.8	100	66	109	155	207	271	309	351	397	c5	-0.14937
43.3	110	---	103	146	197	260	297	339	385	c6	-0.13939
48.9	120	---	---	135	185	248	286	327	374	c7	0.00069
54.4	130	---	---	122	174	238	276	318	366	c8	0.00021
60.0	140	---	---	---	164	231	270	314	363	c9	0.00059
										c10	0.00034

Note: 1. Nominal Performance Values (± 5%) based on 24 h of 'run in'. Subject to change without notice.

2. Compressor is intended to be operated in the range of condensing & evaporating temperatures where performance values are specified in above tables.

L) MECHANICAL SPECIFICATIONS

Parameter	Unit	Value
Cylinder Bore Diameter	cm (inch)	4.21 (1.656)
Crank - Shaft Eccentricity	cm (inch)	1.07 (0.423)
Crank - Shaft Stroke	cm (inch)	2.15 (0.846)
Approximate Internal Free Volume (Without Oil)	cm ³ (inch ³)	8030 (490)
Maximum Residual Moisture	mg	300
Maximum Internal Solid Residue / Impurities	mg	40

M) ELECTRICAL SPECIFICATIONS

Parameter	Unit	Value	
Motor Type	---	2 Pole, Induction, Single Phase	
Nominal Motor Speed	rpm	2,900	
Nominal Motor Winding Resistance (@ 25 °C)	Main	Ω	0.90 To 1.02
	Aux.	Ω	3.25 To 3.75
Nominal Motor Output Power	kW	1.94	
Max. Allowable Motor Winding Temp.	°F (°C)	266 (130) B Class Insulation	
Relay			
Type	---	Potential	
Part Number	---	HLR3800-3F3C-4	
Pick Up (Maximum)	V	165 To 185	
Drop Out (Minimum)	V	65 To 95	
Maximum Voltage Rating of Coils	V	330	
Over Load Protector			
Type	---	Internal	
Part Number		15HM-1899-78	
Disc Opening Temperature	°F (°C)	105 To 115 (221 To 239)	
Disc Closing Temperature	°F (°C)	52 To 70 (126 To 158)	
1 st Cycle Trip Current	A	56	
1 st Cycle Trip On Time	second	2 To 10	
Terminal Fused Cluster	---	¼" Quick connector	
Wire Material	---	Hermetic Grade Round Enameled	
Wire Enamel Designation & Construction	---	H Class, Dual Coated	

N) PERFORMANCE SPECIFICATIONS

Parameter	Unit	Value
Bare Compressor Sound	dBA	74.0 Maximum
Bare Compressor Vibration	µm	142.0 Maximum
Compressor Discharge Pulse	psi	6.0 Maximum

P) TEST CONDITIONS

Parameter	Voltage	Suction Pressure	Discharge Pressure	Top Shell Temperature	Ambient Temperature
Unit	V	kg/cm ² (psig)	kg/cm ² (psig)	°C (°F)	°C (°F)
Test					
Overload (High Load)	260, 230	5.13 (73)	31.70 (451)	--	46 (115)
Blocked Fan	230	6.7 (95)	28.4 (404)	--	35 (95)
Low Voltage Start :					
Unequalised	180	8 (114)	25.3 (360)	65 (149)	--
Equalised	180	14.3 (203)	14.3 (203)	65 (149)	--
Low Voltage Run	180	5.13 (73)	31.70 (451)	--	46 (115)

Note: Above test conditions are only for reference. Refer operating envelop and maximum allowable discharge line temperature for safe operation of compressor.

Q) REFERENCE APPLICATION DETAIL CONDITIONS

Parameter	Unit	Value
Maximum Allowable Ambient Temperature	°C (°F)	46 (115)
Maximum Discharge Line Temperature	°C (°F)	135 (275)
Maximum Return Gas Temperature	°C (°F)	43 (109)

Note: Application Details are the guidelines for safe operation of compressor.