

# Specifications sheet

## KCM514CAL-E512H

<b>Condensing :</b>	Ambient(K) + 12°C / 21.6 °F
<b>Electrical:</b>	400 V, 50 Hz, 3 Phase

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





### A) MODEL DESCRIPTION

<b>Model Name</b>	<b>KCM514CAL-EXXXH</b>
<b>Compressor Type</b>	Reciprocating, Connecting Rod Type
<b>Application Group</b>	Medium Temperature (CBP)
<b>Evaporating Temperature Range</b>	(-)15 °C To 12.8 °C Or (-)5 °F To 55 °F
<b>Refrigerant</b>	R-404A
<b>Rated Voltage</b>	400 V, 50 Hz, 3 Phase
<b>Compressor Cooling</b>	Fan : 400 ft <sup>3</sup> / minute
<b>Typical Application</b>	Visi Cooler, Display Cabinet, Chillers
<b>Certifications &amp; Approvals</b>	-----

### B) PERFORMANCE SPECIFICATION @ RATED CONDITION

<b>Parameter</b>	<b>Unit</b>	<b>ASHRAE-T CBP</b>
Cooling Capacity	Btu / hr	13000
	kcal / hr	3276
	W	3810
	Nominal HP	1.90
Input Power	W	1865
Input Current	A	3.5
EER = $\frac{\text{Cooling Capacity}}{\text{Input Power}}$	Btu / W-hr	7.00
	kcal / W-hr	1.80
	W / W	2.00

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

### C) RATING CONDITIONS

<b>Parameter</b>	<b>Unit</b>	<b>ASHRAE-T CBP</b>
Evaporating Temperature	°C (°F)	-6.7 (20)
Condensing Temperature	°C (°F)	54.4 (130)
Ambient Temperature	°C (°F)	35 (95)
Sub-cooled Liquid Temperature	°C (°F)	46 (115)
Return Gas Temperature	°C (°F)	35 (95)
Test Voltage	V	400

### D) MECHANICAL SPECIFICATIONS

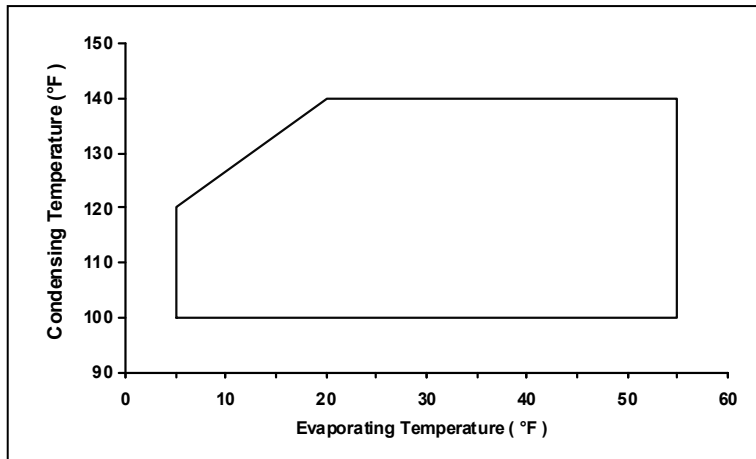
Parameter	Unit	Value
Number of Cylinders	Number	Two (2)
Displacement	cm <sup>3</sup> (inch <sup>3</sup> ) / rev	51.47 (3.141)
Net Weight	kg	30.0
Approximate Shipping Weight	kg	30.6
Oil Charge	cm <sup>3</sup> (Oz)	1,330 (45)
Oil Type	Refrigeration Grade	POE
IPRV (Pressure Differential)	kg/cm <sup>2</sup> (psig)	31.64 / 38.67 (450 / 550)
** Crank - case Heater	W @ V	35 @ 220/240

\*\* Recommended only for Heat Pump Application.

### E) ELECTRICAL SPECIFICATIONS

Parameter	Unit	Value
Operating Voltage Range	V	342 To 460
Motor Circuit	---	3 Phase
Electrical Accessories	---	
➤ Start Capacitor	μF @ V AC	N/A
➤ Run Capacitor	μF @ V AC	N/A
➤ Relay	---	N/A
➤ Over Load Protector	---	Internal
Locked Rotor Ampere (LRA)	A	28
Maximum Continuous Current (MCC)	A	6.1
High Potential Test	(kV / second / mA)	2.3 / 1 / 5.5 ± 0.5

### F) OPERATING ENVELOPE @ 400 V, 50 Hz, 3 Phase



### G) PERFORMANCE TABLES

<b>Superheating</b>	11 °C ( 20 °F )	<b>Voltage</b>	400 V, 50 Hz, 3 Phase
<b>Sub - cooling</b>	8.3 °C ( 15 °F)	<b>Compressor Cooling</b>	400 ft <sup>3</sup> / minute
<b>Ambient Temperature</b>	35 °C ( 95 °F )	-	-

### H) COOLING CAPACITY (Btu / hr)

Condensing Temperature		Evaporating Temperature								Coefficients	
										c1	c2
°C		-15	-12.2	-6.7	-1.1	4.4	7.2	10	12.8	c3	1.47E+04
	( °F )	5	10	20	30	40	45	50	55	c4	1.44E+03
37.8	100	11667	14912	20870	26480	32178	35195	38397	41839	c5	6.65E+01
43.3	110	9847	12791	18270	23568	29120	32126	35359	38873	c6	-1.44E+01
48.9	120	7998	10639	15637	20620	26022	29016	32278	35863	c7	-6.97E+00
54.4	130	---	8486	13000	17665	22915	25896	29186	32839	c8	-1.82E+00
60.0	140	---	---	10391	14735	19830	22795	26111	29833	c9	7.25E-02
										c10	8.30E-02
										c9	-1.44E-03
										c10	5.10E-03

### J) INPUT POWER (W)

Condensing Temperature		Evaporating Temperature								Coefficients	
										c1	c2
°C		-15	-12.2	-6.7	-1.1	4.4	7.2	10	12.8	c3	3.35E+03
	( °F )	5	10	20	30	40	45	50	55	c4	5.46E+01
37.8	100	1334	1477	1703	1870	2005	2068	2134	2205	c5	-6.55E+01
43.3	110	1352	1507	1757	1950	2113	2192	2273	2360	c6	-6.64E-01
48.9	120	1364	1533	1815	2042	2241	2338	2438	2544	c7	-5.43E-01
54.4	130	---	1545	1865	2133	2374	2494	2617	2746	c8	6.48E-01
60.0	140	---	---	1895	2210	2502	2647	2796	2952	c9	4.45E-03
										c10	1.02E-03
										c9	3.60E-03
										c10	-2.11E-03

### K) INPUT CURRENT (A)

Condensing Temperature		Evaporating Temperature								Coefficients	
										c1	c2
°C		-15	-12.2	-6.7	-1.1	4.4	7.2	10	12.8	c3	-5.63E+00
	( °F )	5	10	20	30	40	45	50	55	c4	2.96E-02
37.8	100	3.0	3.1	3.3	3.6	3.9	4.0	4.1	4.2	c5	6.01E-04
43.3	110	3.1	3.2	3.4	3.7	4.0	4.1	4.2	4.3	c6	-3.92E-04
48.9	120	3.2	3.2	3.5	3.8	4.1	4.2	4.3	4.4	c7	-1.58E-03
54.4	130	---	3.3	3.5	3.8	4.1	4.3	4.4	4.5	c8	-8.23E-06
60.0	140	---	---	3.6	3.9	4.2	4.4	4.5	4.6	c9	1.33E-06
										c10	1.66E-06
										c9	4.23E-06

### L) MASS FLOW RATE (lbs/hr)

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

### M) MECHANICAL SPECIFICATIONS

Parameter	Unit	Value
Cylinder Bore Diameter	cm (inch)	4.207 (1.6564)
Crank - Shaft Eccentricity	cm (inch)	0.93 (0.365)
Crank - Shaft Stroke	cm (inch)	1.85 (0.729)
Approximate Internal Free Volume (Without Oil)	cm <sup>3</sup> (inch <sup>3</sup> )	7000 (427)
Maximum Residual Moisture	mg	300
Maximum Internal Solid Residue / Impurities	mg	40

### N) ELECTRICAL SPECIFICATIONS

Parameter	Unit	Value
Motor Type	---	2 Pole, Induction, Three Phase
Nominal Motor Speed	rpm	2,850
Nominal Motor Winding Resistance (@ 25 °C)	Ω	4.59 To 5.29
Nominal Motor Output Power	kW	2.25
Max. Allowable Motor Winding Temp.	°F (°C)	266 (130) B Class Insulation
Relay		
Type	---	N/A
Part Number	---	N/A
Pick Up (Maximum)	V	N/A
Drop Out (Minimum)	V	N/A
Maximum Voltage Rating of Coils	V	N/A
Over Load Protector		
Type	---	Internal
Part Number		34HM-200-6
Disc Opening Temperature	°F (°C)	212 To 230 (100 To 110)
Disc Closing Temperature	°F (°C)	126 To 158 (52 To 70)
1 <sup>st</sup> Cycle Trip Current	A	18
1 <sup>st</sup> Cycle Trip On Time	second	2 To 10
Terminal Fused Cluster	---	¼" Quick connector
Copper Wire Material	---	Hermetic Grade Round Enameled
Copper Wire Enamel Designation & Construction	---	H Class, Dual Coated

### P) PERFORMANCE SPECIFICATIONS

Parameter	Unit	Value
Bare Compressor Sound	dBA	76 Maximum
Bare Compressor Vibration	µm	75 Maximum
Compressor Discharge Pulse	psi	2.2 Maximum

### Q) TEST CONDITIONS

Parameter	Voltage	Suction Pressure	Discharge Pressure	Top Shell Temperature	Ambient Temperature
Unit	V	kg/cm <sup>2</sup> (psig)	kg/cm <sup>2</sup> (psig)	°C (°F)	°C (°F)
Test					
Overload ( High Load )	400, 460	5.13 (73)	31.70 (451)	---	46 (115)
Blocked Fan	400	6.7 (95)	28.4 (404)	---	35 (95)
Low Voltage Start : Equalised	342	8 (114) 14.3 (203)	25.3 (360) 14.3 (203)	65 (149) 65 (149)	--- ---
Low Voltage Run	342	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.

### R) 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.