

PRODUCT SPECIFICATION

COMPRESSOR MODEL

CR30K6M-PF1-XXXXX

BILL OF MATERIAL

**101, 102, 111, 112, 111DM, 141, 341,
401, 401DM, 441, 651**

Emerson Climate Technologies (India) Private Limited
Karad Dhebewadi Road
Karad - 415 110
INDIA

Note: Sales compressor drawing number and compressor model name are the same.

DVM				01	F45-1018-0211 EN No.	A5 24.10.2018
Prepared by	Checked by	Verified by	Approved by	Page No.	CR30K6M-PF1-XXXXX DOCUMENT No.	

PRODUCT SPECIFICATION**MODEL: CR30K6M-PF1-XXXXX****A) MODEL DESCRIPTION**

Model Name	CR30K6M-PF1-XXXXX
Compressor Type	Reciprocating, Connecting Rod Type
Application Group	High Temperature (HBP)
Evaporating Temperature Range	(-) 23.3 °C To 12.8 °C Or (-) 10 °F To 55 °F
Refrigerant	R-22
Rated Voltage	230 V, 50 Hz, 1 Phase
Compressor Cooling	Fan: 400 ft ³ / minute
Typical Application	Air - Conditioning, Heat Pump
*Certifications & Approvals	ISI, EN60335-2-34, UL (File No. SA12060)

* The Electrical Accessories are provided for reference and not included in the scope of Certification.

B) PERFORMANCE SPECIFICATION @ RATED CONDITION

Parameter	Unit	ASRE/T	ARI
Cooling Capacity	Btu / hr	25,000	24,250
	kcal / hr	6,300	6,110
	W	7,330	7,110
	Nominal HP	2.50	2.50
Input Power	W	2,350	2,350
Input Current	A	11.0	11.0
EER = $\frac{\text{Cooling Capacity}}{\text{Input Power}}$	Btu / W-h	10.64	10.32
	kcal / W-h	2.68	2.60
	W / W	3.12	3.03

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

C) RATING CONDITIONS

Parameter	Unit	ASRE/T	ARI
Evaporating Temperature	°C (°F)	7.2 \pm 0.5 (45)	7.2 \pm 0.5 (45)
Condensing Temperature	°C (°F)	54.4 \pm 1 (130)	54.4 \pm 1 (130)
Ambient Temperature	°C (°F)	35 \pm 1 (95)	35 \pm 1 (95)
Sub-cooled Liquid Temperature	°C (°F)	46 \pm 1 (115)	46 \pm 1 (115)
Return Gas Temperature	°C (°F)	35 \pm 1 (95)	18.3 \pm 1 (65)
Test Voltage	V	230	230

DVM				02	F45-1018-0211 EN No	A5 24.10.2018
Prepared by	Checked by	Verified by	Approved by	Page No.	CR30K6M-PF1-XXXXX DOCUMENT No.	

PRODUCT SPECIFICATION

MODEL : CR30K6M-PF1-XXXXX

D) MECHANICAL SPECIFICATIONS

Parameter	Unit	Value
Number of Cylinders	Number	Two (2)
Displacement	cm ³ (inch ³) / rev	51.47 (3.141)
Net Weight	kg	32.5
Approximate Shipping Weight	kg	33.1
Oil Charge	cm ³ (Oz)	1,330 (45)
Oil Type	Refrigeration Grade	Mineral
IPRV (Pressure Differential)	kg/cm ² (psig)	31.64 / 38.67 (450 / 550)
** Crank - Case Heater	W @ V	35@240 Wherever Applicable

** Recommended only for Heat Pump Application.

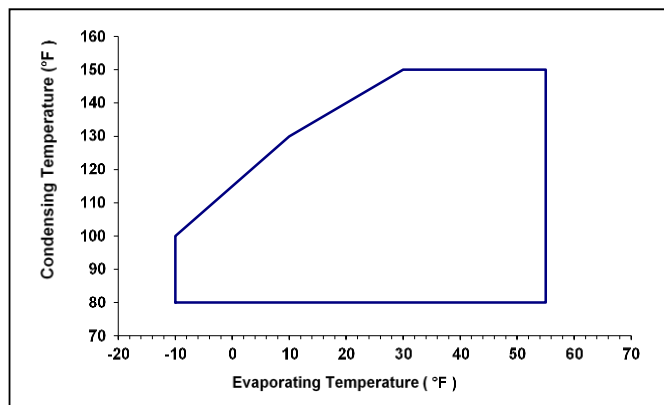
E) ELECTRICAL SPECIFICATIONS

Parameter	Unit	Value
Operating Voltage Range	V	180 To 260
Motor Circuit	---	*PSC / **CSCR)
Electrical Accessories	---	
➤ Start Capacitor	μF @ V AC	150 - 200 @ 230
➤ Run Capacitor	μF @ V AC	45 @ 440
➤ Relay	---	Potential
➤ Over Load Protector	---	Internal
Locked Rotor Ampere (LRA)	A	72
Maximum Continuous Current (MCC)	A	17.8
High Potential Test	(kV / second / mA)	1.85 / 1 / 5.5 ± 0.5

* Recommended for Equal Pressure (169 psig) condition & Minimum Terminal voltage of 180 v.

**Recommended for Hard Start & Unequal Pressure Condition

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



S
P
E
C
I
F
I
C
A
T
I
O
N

DVM				03	F45-1018-0211 EN No.	A5 24.10.2018
Prepared by	Checked by	Verified by	Approved by	Page No.	CR30K6M-PF1-XXXXX DOCUMENT No.	

PRODUCT SPECIFICATION

MODEL : CR30K6M-PF1-XXXXX

G) PERFORMANCE TABLES

Superheating	11 °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)	-	-

H) COOLING CAPACITY (Btu / hr)

Condensing Temperature		Evaporating Temperature									Coefficients	
											C1	C2
°C		-23.3	-17.8	-12.2	-6.7	-1.1	4.4	7.2	10.0	12.8	C3	22848.188867873100
	(°F)	-10	0	10	20	30	40	45	50	55	C4	430.701441480204
37.8	100	5040	8200	12200	17000	22400	28600	32000	35600	39400	C5	-127.852040847779
43.3	110	-	6870	10600	15300	20400	26300	29500	32900	36500	C6	6.350845047468
48.9	120	-	-	9060	13600	18500	24000	27100	30300	33700	C7	-0.385636353384
54.4	130	-	-	7550	12000	16600	21800	24250	27700	30900	C8	-0.354870754326
60.0	140	-	-	-	10300	14600	19600	22200	25100	28100	C9	0.005464159987
65.6	150	-	-	-	8680	12800	17400	19900	22500	25400	C10	-0.030042809582

J) INPUT POWER (W)

Condensing Temperature		Evaporating Temperature									Coefficients	
											C1	C2
°C		-23.3	-17.8	-12.2	-6.7	-1.1	4.4	7.2	10.0	12.8	C3	3183.796430525830
	(°F)	-10	0	10	20	30	40	45	50	55	C4	-50.001612844742
37.8	100	980	1190	1390	1660	1770	1840	1850	1860	1850	C5	-45.624807781265
43.3	110	-	1180	1410	1740	1890	2000	2040	2060	2080	C6	-0.148437940939
48.9	120	-	-	1410	1800	1990	2140	2200	2250	2290	C7	0.953806518654
54.4	130	-	-	1390	1840	2070	2260	2350	2420	2480	C8	0.367874272441
60.0	140	-	-	-	1850	2120	2360	2460	2560	2640	C9	-0.001067187803
65.6	150	-	-	-	1820	2130	2410	2540	2660	2770	C10	-0.000406732085

K) INPUT CURRENT (A)

Condensing Temperature		Evaporating Temperature									Coefficients	
											C1	C2
°C		-23.3	-17.8	-12.2	-6.7	-1.1	4.4	7.2	10.0	12.8	C3	9.706906520662
	(°F)	-10	0	10	20	30	40	45	50	55	C4	0.026377147920
37.8	100	5.5	6.3	7.1	8.7	9.2	9.4	9.5	9.4	9.3	C5	-0.061060552981
43.3	110	-	6.3	7.2	8.9	9.5	9.9	10.0	10.1	10.0	C6	-0.001347702166
48.9	120	-	-	7.2	9.0	9.7	10.3	10.5	10.7	10.0	C7	0.000991774834
54.4	130	-	-	7.1	9.0	9.9	10.7	11.0	11.2	11.4	C8	0.000345598238
60.0	140	-	-	-	9.1	10.1	11.1	11.5	11.8	12.1	C9	-0.000020572394
65.6	150	-	-	-	9.2	10.3	11.4	11.9	12.4	12.8	C10	0.000013810742

L) MASS FLOW RATE (lbs/hr)

Condensing Temperature		Evaporating Temperature									Coefficients	
											C1	C2
°C		-23.3	-17.8	-12.2	-6.7	-1.1	4.4	7.2	10.0	12.8	C3	Under Evolution
	(°F)	-10	0	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	
65.6	150										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 tab

DVM				04	F45-1018-0211 EN No.	A5 24.10.2018
Prepared by	Checked by	Verified by	Approved by	Page No.	CR30K6M-PF1-XXXXX DOCUMENT No.	

PRODUCT SPECIFICATION**MODEL: CR30K6M-PF1-XXXXX****M) MECHANICAL SPECIFICATIONS**

Parameter	Unit	Value
Cylinder Bore Diameter	cm (inch)	4.21 (1.656)
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 ³ (inch ³)	7,000 (427)
Maximum Residual Moisture	mg	300
Maximum Internal Solid Residue / Impurities	mg	40

N) 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 0.87 To 1.00
	Aux.	Ω 3.25 To 3.75
Nominal Motor Output Power	kW	1.96
Max. Allowable Motor Winding Temp.	°F (°C)	266 (130) B Class Insulation
Relay		
Type	---	Potential
Part Number	---	Hongli : HLR3800-6H3C-1
Pick Up (Maximum)	V	195 To 215
Drop Out (Minimum)	V	80 To 110
Maximum Voltage Rating of Coils	V	430
Over Load Protector		
Type	---	Internal
Part Number		15HM-1484-78 OR 5DN-0484-78
Disc Opening Temperature	°F (°C)	239 To 257 (115 To 125)
Disc Closing Temperature	°F (°C)	126 To 158 (52 To 70)
1 st Cycle Trip Current	A	53
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

SPECIFICATION

DVM				05	F45-1018-0211 EN No.	A5 24.10.2018
Prepared by	Checked by	Verified by	Approved by	Page No.	CR30K6M-PF1-XXXXX DOCUMENT No.	

PRODUCT SPECIFICATION**MODEL : CR30K6M-PF1-XXXXX****P) PERFORMANCE SPECIFICATIONS**

Parameter	Unit	Value
Bare Compressor Sound	dBA	68.0 Maximum
Bare Compressor Vibration	µm	75.0 Maximum
Compressor Discharge Pulse	psi	2.0 Maximum

Q) 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)	230	6.50 (92.43)	30 (426.6)	--	55 (131)
Blocked Fan	230	6.33 (90)	28.12 (400)	--	--
Low Voltage Start:					
Equalised	180	11.9 (169)	11.9 (169)	62 (143.6)	--
Unequilised	180	8.4 (119)	18.9 (269)	62 (143.6)	
Low Voltage Run	180	6.50 (92.43)	30 (426.6)	--	55 (131)

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)	55 (131)
Maximum Discharge Line Temperature	°C (°F)	129.4 (265)
Maximum Return Gas Temperature	° C (°F)	27 (80.6)

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

DVM				06	F45-1018-0211 EN No.	A5 24.10.2018
Prepared by	Checked by	Verified by	Approved by	Page No.	CR30K6M-PF1-XXXXX DOCUMENT No.	