

PRODUCT SPECIFICATION

COMPRESSOR MODEL

**CR57KQM-TFD-XXXXX
(50 Hz)**

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.

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MODEL : CR57KQM-TFD-XXXXX

A) MODEL DESCRIPTION

Model Name	CR57KQM-TFD-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	380 - 420 V, 50 Hz, 3 Phase
Compressor Cooling	Fan : 400 ft ³ / minute
Typical Application	Air - Conditioning, Heat Pump
*Certifications & Approvals	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	ARI
Cooling Capacity	Btu / h	47,800
	kcal / h	12,046
	W	14,005
	Nominal HP	4.75
Input Power	W	4,650
Input Current	A	8.3
EER = $\frac{\text{Cooling Capacity}}{\text{Input Power}}$	Btu / W-h	10.27
	kcal / W-h	2.59
	W / W	3.01

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

C) RATING CONDITIONS

Parameter	Unit	ARI
Evaporating Temperature	°C (°F)	7.2 $\pm$ 0.5 (45)
Condensing Temperature	°C (°F)	54.4 $\pm$ 1 (130)
Ambient Temperature	°C (°F)	35 $\pm$ 1 (95)
Sub-cooled Liquid Temperature	°C (°F)	46 $\pm$ 1 (115)
Return Gas Temperature	°C (°F)	18.3 $\pm$ 1 (65)
Test Voltage	V	380

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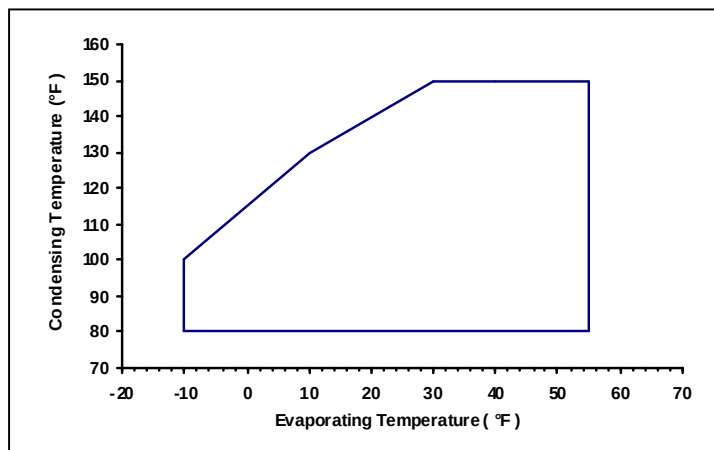
D) MECHANICAL SPECIFICATIONS

Parameter	Unit	Value
Number of Cylinders	Number	Two (2)
Displacement	cm ³ (inch ³) / rev	94.61 (5.774)
Net Weight	kg	36.2
Approximate Shipping Weight	kg	37.5
Oil Charge	cm ³ (Oz)	1,330 (45)
Oil Type	Refrigeration Grade	Mineral
IPRV (Pressure Differential)	kg/cm ² (psig)	31.65 / 38.68 (450 / 550)
*Crank - case Heater (Refer note on page no 6)	W @ V	40 @ 240 FOR CR57KQM-TFD-X02 40 @ 480 FOR CR57KQM-TFD-X03

E) ELECTRICAL SPECIFICATIONS

Parameter	Unit	Value
Operating Voltage Range	V	342 To 462
Motor Circuit	---	Three Phase
Electrical Accessories	---	--
➤ Start Capacitor	μF @ VAC	N / A
➤ Run Capacitor	μF @ VAC	N / A
➤ Relay	---	N / A
➤ Over Load Protector	---	Internal
Lock Rotor Ampere (LRA)	A	61 @ 420V
Maximum Continuous Current (MCC)	A	14.2
High Potential Test	(kV/second/mA)	2.3 / 1 / 5.5 ± 0.5

F) OPERATING ENVELOP @ 380 V, 50 Hz, 3 Phase



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G) PERFORMANCE TABLES

Superheating	11 °C (20 °F)	Voltage	380 V, 50 Hz, 3 Phase
Sub - cooling	8.3 °C (15 °F)	Compressor Cooling	400 ft ³ / minute
Ambient Temperature	35 °C (95 °F)	-	-

H) COOLING CAPACITY (Btu / h)

Condensing Temperature		Evaporating Temperature									Coefficients	
											c1	c2
°C	(°F)	-23.3	-17.8	-12.2	-6.7	-1.1	4.4	7.2	10.0	12.8	c3	c4
37.8	100	11800	17400	24600	33300	43500	55200	61500	68200	75100	c5	c6
43.3	110	---	15200	22000	30100	39700	50700	56700	63000	69600	c7	c8
48.9	120	---	---	19600	27200	36300	46600	52200	58100	64400	c9	c10
54.4	130	---	---	17200	24400	32900	42600	47800	53500	59400		
60.0	140	---	---	---	21500	29400	38500	43500	48800	54300		
65.6	150	---	---	---	18100	25600	34200	38800	43800	49000		

J) INPUT POWER (W)

Condensing Temperature		Evaporating Temperature									Coefficients	
											c1	c2
°C	(°F)	-23.3	-17.8	-12.2	-6.7	-1.1	4.4	7.2	10.0	12.8	c3	c4
37.8	100	2080	2420	2790	3150	3450	3660	3720	3740	3780	c5	c6
43.3	110	---	2380	2800	3210	3580	3850	3940	3980	3990	c7	c8
48.9	120	---	---	2920	3400	3830	4170	4300	4390	4430	c9	c10
54.4	130	---	---	3030	3590	4100	4530	4650	4840	4930		
60.0	140	---	---	---	3630	4280	4820	5040	5230	5370		
65.6	150	---	---	---	3650	4260	4910	5190	5440	5650		

K) INPUT CURRENT (A)

Condensing Temperature		Evaporating Temperature									Coefficients	
											c1	c2
°C	(°F)	-23.3	-17.8	-12.2	-6.7	-1.1	4.4	7.2	10.0	12.8	c3	c4
37.8	100	3.8	5.0	5.9	6.5	6.7	6.8	6.9	7.0	7.1	c5	c6
43.3	110	---	4.7	5.7	6.3	6.7	6.9	7.0	7.1	7.2	c7	c8
48.9	120	---	---	5.9	6.5	7.0	7.4	7.5	7.7	7.8	c9	c10
54.4	130	---	---	6.1	6.7	7.4	7.9	8.3	8.4	8.7		
60.0	140	---	---	---	6.8	7.7	8.4	8.7	9.0	9.4		
65.6	150	---	---	---	6.9	7.5	8.6	8.8	9.2	9.7		

L) MASS FLOW RATE (lbs/hr)

Condensing Temperature		Evaporating Temperature									Coefficients	
											c1	c2
°C	(°F)	-23.3	-17.8	-12.2	-6.7	-1.1	4.4	7.2	10.0	12.8	c3	c4
37.8	100	164	238	332	444	572	717	794	875	958	c5	c6
43.3	110	---	217	310	418	544	686	762	841	924	c7	c8
48.9	120	---	---	289	395	520	658	733	810	892	c9	c10
54.4	130	---	---	266	372	494	630	702	781	861		
60.0	140	---	---	---	345	464	599	672	748	827		
65.6	150	---	---	---	307	427	562	633	709	788		

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.

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M) MECHANICAL SPECIFICATIONS

Parameter	Unit	Value
Cylinder Bore Diameter	cm (inch)	4.98 (1.960)
Crank - Shaft Eccentricity	cm (inch)	1.21 (0.478)
Crank - Shaft Stroke	cm (inch)	2.43 (0.956)
Approximate Internal Free Volume (Without Oil)	cm ³ (inch ³)	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	2,900
Nominal Motor Winding Resistance (@ 25 °C)	Main	Ω 2.83 To 2.97
	Aux.	Ω ---
Nominal Motor Output Power	kW	3.80
Max. Allowable Motor Winding Temp.	°F (°C)	266 (130) B Class Insulation
Relay		
Type	---	N / A
Make - 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	---	
Part Number		37HM-528-14
Disc Opening Temperature	°F (°C)	212/230 (100/110)
Disc Closing Temperature	°F (°C)	134/156 (57/69)
1 st Cycle Trip Current	A	37
1 st Cycle Trip On Time	second	5-15
Terminal Fused Cluster	---	Screw Type Connector
Copper Wire Material	---	Hermetic Grade Round Enameled
Copper Wire Enamel Designation & Construction	---	H Class, Dual Coated

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P) SOUND & VIBRATION SPECIFICATIONS

Parameter	Unit	Value	
		Average	Maximum
Bare Compressor Sound	dBA	77	82
Bare Compressor Vibration	µm	90	150
Compressor Discharge Pulse	psi	8	10

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)	380	6.50 (92.43)	30.00 (426.6)	--	55 (131.0)
Blocked Fan	380	6.33 (90)	28.12 (400)	--	--
Low Voltage Start: Equalised	342	11.9 ± 0.5 (169)	11.9 ± 0.5 (169)	62 (143.6)	--
Low Voltage Run	342	6.50 (92.43)	30.00 (426.6)	--	55 (131.0)

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

R) RECOMMENDED APPLICATION DETAIL

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)
**System Refrigerant Charge Limit	Kg (lbs)	2.72 (6)

** For system Charge more than 6 lbs, use of appropriate sized Accumulator is recommended. Selected Accumulator shall be validated with suitable tests such as Low Ambient tests etc. (Ref Application Engineering Bulletin AE4-1329)

Crankcase Heater

* The Crankcase heater must be switched on 12 Hrs before first start

* Crankcase heater should be kept continuously energized even during shut down period, irrespective of duration of shut down. Refer Page No 3 for Voltage Rating.

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

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