

PRODUCT SPECIFICATION

COMPRESSOR MODEL

CR47KQM-TFD-XXXXX (@50Hz)

Copeland (India) Private Limited

Karad Dhebewadi Road

Karad - 415 110

INDIA

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

SC1				01	F45-1215-0627 EN No.	A6 25.12.2015
Prepared by	Checked by	Verified by	Approved by	Page No.	CR47KQM-TFD-XXXXX (@50Hz) DOCUMENT No.	

PRODUCT SPECIFICATION**MODEL : CR47KQM-TFD-XXXXX****A) MODEL DESCRIPTION**

Model Name	CR47KQM-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 / hr	39,700
	kcal / hr	10,004
	W	11,635
	Nominal HP	3.9
Input Power	W	3825
Input Current	A	6.9
EER = $\frac{\text{Cooling Capacity}}{\text{Input Power}}$	Btu / W-hr	10.38
	kcal / W-hr	2.62
	W / W	3.04

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

SC1				02	F45-1215-0627 EN No.	A6 25.12.2015
Prepared by	Checked by	Verified by	Approved by	Page No.	CR47KQM-TFD-XXXXX (@50Hz) DOCUMENT No.	

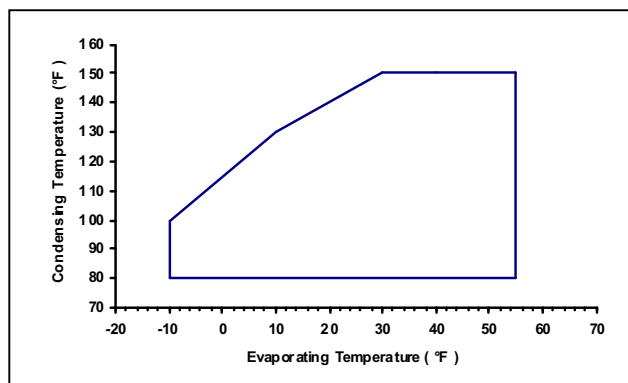
S
P
E
C
I
F
I
C
A
T
I
O
N

PRODUCT SPECIFICATION**MODEL : CR47KQM-TFD-XXXXX****D) MECHANICAL SPECIFICATIONS**

Parameter	Unit	Value
Number of Cylinders	Number	Two (2)
Displacement	cm ³ (inch ³) / rev	78.78 (4.807)
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 CR47KQM-TFD-X02 40 @ 480 For CR47KQM-TFD-X03

E) ELECTRICAL SPECIFICATIONS

Parameter	Unit	Value
Operating Voltage Range	V	342 To 462
Motor Circuit	---	Three 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	60 A @ 420 V (66 @ 480 V)
Maximum Continuous Current (MCC)	A	11
High Potential Test	(kV / second / mA)	2.3 / 1 / 5.5 ± 0.5

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

SC1				03	F45-1215-0627 EN No.	A6 25.12.2015
Prepared by	Checked by	Verified by	Approved by	Page No.	CR47KQM-TFD-XXXXX (@50Hz) DOCUMENT No.	

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

PRODUCT SPECIFICATION**MODEL : CR47KQM-TFD-XXXXX****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 / hr)

Condensing Temperature		Evaporating Temperature									Coefficients	
											c1	Under Evolution
		c2										
°C		-23.3	-17.8	-12.2	-6.7	-1.1	4.4	7.2	10.0	12.8	c3	
(°F)	-10	0	10	20	30	40	45	50	55	c4		
37.8	100	12800	16860	22000	28080	35160	44030	49852	54085	59765	c5	
43.3	110	-	15650	20700	26600	33275	41432	47525	51325	56790	c6	
48.9	120	-	-	19000	24610	31060	38630	42871	48350	53360	c7	
54.4	130	-	-	17460	22635	29325	36050	39700	45045	49960	c8	
60.0	140	-	-	-	20730	27130	33645	37680	41920	46700	c9	
65.6	150	-	-	-	-	25815	31696	35480	39294	42100	c10	

J) INPUT POWER (W)

Condensing Temperature		Evaporating Temperature									Coefficients	
											c1	Under Evolution
°C		-23.3	-17.8	-12.2	-6.7	-1.1	4.4	7.2	10.0	12.8	c2	
(°F)		-10	0	10	20	30	40	45	50	55	c3	
37.8	100	2018	2260	2470	2050	2720	2734	2705	2650	2570	c4	
43.3	110	-	2400	2660	2870	3025	3105	3115	3100	3055	c5	
48.9	120	-	-	2834	2420	3315	3460	3510	3530	3530	c6	
54.4	130	-	-	2990	3310	3585	3790	3825	3931	3970	c7	
60.0	140	-	-	-	3500	3840	3808	4225	4320	4395	c8	
65.6	150	-	-	-	-	4100	4444	4610	4740	4826	c9	
											c10	

K) INPUT CURRENT (A)

Condensing Temperature		Evaporating Temperature									Coefficients	
											c1	Under Evolution
°C		-23.3	-17.8	-12.2	-6.7	-1.1	4.4	7.2	10.0	12.8	c2	
(°F)		-10	0	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	
65.6	150										c9	
											c10	

L) MASS FLOW RATE (lbs/hr)

Condensing Temperature		Evaporating Temperature									Coefficients	
											c1	Under Evolution
°C		-23.3	-17.8	-12.2	-6.7	-1.1	4.4	7.2	10.0	12.8	c2	
(°F)		-10	0	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	
65.6	150										c9	
											c10	

Note: 1. Nominal Performance Values ($\pm 5\%$) 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.

SC1				04	F45-1215-0627 EN No.	A6 25.12.2015
Prepared by	Checked by	Verified by	Approved by	Page No.	CR47KQM-TFD-XXXXX (@50Hz) DOCUMENT No.	

PRODUCT SPECIFICATION**MODEL : CR47KQM-TFD-XXXXX****M) MECHANICAL SPECIFICATIONS**

Parameter	Unit	Value
Cylinder Bore Diameter	cm (inch)	4.98 (1.960)
Crank - Shaft Eccentricity	cm (inch)	1.01 (0.398)
Crank - Shaft Stroke	cm (inch)	2.02 (0.796)
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 3.15 To 3.50
	Aux.	Ω ---
Nominal Motor Output Power	kW	3.40
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		37HM-211-14
Disc Opening Temperature	°F (°C)	212 To 230 (100 To 110)
Disc Closing Temperature	°F (°C)	124 To 156 (51 To 69)
1 st Cycle Trip Current	A	33
1 st Cycle Trip On Time	second	5 To 15
Terminal Fused Cluster	---	Screw Type Connector
Copper Wire Material	---	Hermetic Grade Round Enameled
Copper Wire Enamel Designation & Construction	---	H Class, Dual Coated

SC1				05	F45-1215-0627 EN No.	A6 25.12.2015
Prepared by	Checked by	Verified by	Approved by	Page No.	CR47KQM-TFD-XXXXX (@50Hz) DOCUMENT No.	

PRODUCT SPECIFICATION**MODEL : CR47KQM-TFD-XXXXX****P) PERFORMANCE SPECIFICATIONS**

Parameter	Unit	Value	
		Average	Maximum
Bare Compressor Sound	dBA	76	79
Bare Compressor Vibration	µm	100	120
Compressor Discharge Pulse	psi	10	10

Q) TEST CONDITIONS

Parameter	Voltage	Suction Pressure	Discharge Pressure	Top Shell Temperature	Ambient Temperature
Test \ Unit	V	kg/cm ² (psig)	kg/cm ² (psig)	°C (°F)	°C (°F)
Overload (High Load)	380	6.50 (92.43)	30 (426.6)	--	55 (131)
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 (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)
**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.

SC1				06	F45-1215-0627 EN No.	A6 25.12.2015
Prepared by	Checked by	Verified by	Approved by	Page No.	CR47KQM-TFD-XXXXX (@50Hz) DOCUMENT No.	