

PRODUCT SPECIFICATION

COMPRESSOR MODEL
CR47KQM-PFZ-XXX
BILL OF MATERIALS
101,102

Copeland (India) Private Limited
Karad Dhebewadi Road
Karad - 415 110
INDIA

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

DVM				01	F45-1018-0216 EN No.	A5 31.10.2018
Prepared by	Checked by	Verified by	Approved by	Page No.	CR47KQM-PFZ-XXX DOCUMENT No.	

PRODUCT SPECIFICATION**MODEL: CR47KQM-PFZ-XXX****A) MODEL DESCRIPTION**

Model Name	CR47KQM-PFZ-XXX
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	220-240 V, 50 Hz, 1 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	ASRE / T
Cooling Capacity	Btu / h	40,700	41,725
	kcal / h	10,256	10,514
	W	11,908	12,228
	Nominal HP	3.39	3.47
Input Power	W	3,950	3,950
Input Current	A	20.0	20.0
EER = $\frac{\text{Cooling Capacity}}{\text{Input Power}}$	Btu / W-h	10.30	10.56
	kcal / W-h	2.60	2.66
	W / W	3.02	3.09

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

C) RATING CONDITIONS

Parameter	Unit	ARI	ASRE / T
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)	18.3 $\pm$ 1 (65)	35 $\pm$ 1 (95)
Test Voltage	V	220	220

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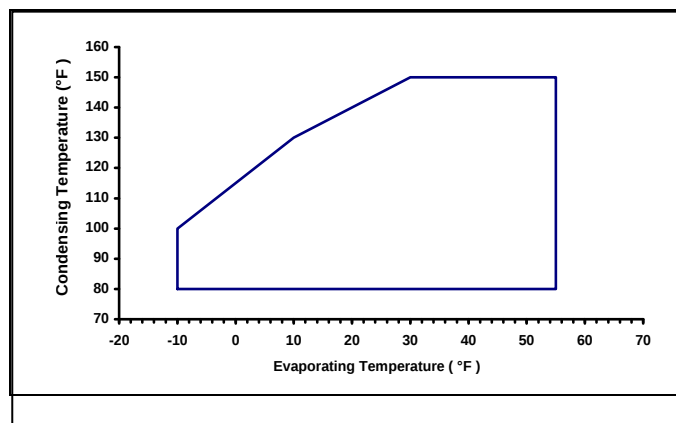
PRODUCT SPECIFICATION**MODEL : CR47KQM-PFZ-XXX****D) MECHANICAL SPECIFICATIONS**

Parameter	Unit	Value
Number of Cylinders	Number	Two (2)
Displacement	cm ³ (inch ³) / rev	82.74 (5.050)
Net Weight	kg	36
Approximate Shipping Weight	kg	37
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	40 @ 240 For CR47KQM-PFZ-102

** Recommended only for Heat Pump Application.

E) ELECTRICAL SPECIFICATIONS

Parameter	Unit	Value
Operating Voltage Range	V	198 To 264
Motor Circuit	---	CSCR
Electrical Accessories	---	
➤ Start Capacitor	μF @ V AC	189-227 @ 330
➤ Run Capacitor	μF @ V AC	60 @ 440
➤ Relay	---	Potential
➤ Over Load Protector	---	Internal
Locked Rotor Ampere (LRA)	A	110
Maximum Continuous Current (MCC)	A	30.1
High Potential Test	(kV / second / mA)	1.85 / 1 / 5.5 ± 0.5

F) OPERATING ENVELOPE @ 220 V, 50 Hz, 1 Phase

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PRODUCT SPECIFICATION**MODEL: CR47KQM-PFZ-XXX****G) PERFORMANCE TABLES**

Superheating	11 °C (20 °F)	Voltage	220 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 / 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	4900	12800	21000	28800	37200	46400	52000	58000	62200	c5	c6
43.3	110	-	9700	17550	25650	34300	43000	48300	53800	58100	c7	c8
48.9	120	-	-	15000	23000	30700	39500	44500	49600	54300	c9	c10
54.4	130	-	-	13000	20600	28400	36100	40700	45500	50100		
60.0	140	-	-	-	18200	25100	32600	36100	41300	46200		
65.6	150	-	-	-	15900	22400	29100	33100	37100	41200		

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	2160	2280	2525	2745	2690	3135	3200	3280	3350	c5	c6
43.3	110	-	2310	2585	2870	3150	3350	3450	3550	3660	c7	c8
48.9	120	-	-	2660	2955	3330	3570	3700	3830	3960	c9	c10
54.4	130	-	-	2710	3045	3470	3785	3950	4100	4225		
60.0	140	-	-	-	3115	3600	3945	4180	4330	4510		
65.6	150	-	-	-	3185	3645	4100	4330	4560	4790		

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	13.6	14.4	15.1	15.9	16.7	17.2	17.9	18.5	19.1	c5	c6
43.3	110	-	14.5	15.3	16.1	17.1	18.0	18.5	18.9	20.4	c7	c8
48.9	120	-	-	15.6	16.3	17.7	18.8	19.1	20.1	21.2	c9	c10
54.4	130	-	-	15.9	16.5	18.0	19.1	20.0	20.8	22.1		
60.0	140	-	-	-	17.0	18.5	19.9	21.3	21.6	22.5		
65.6	150	-	-	-	17.6	19.0	20.4	21.3	22.3	23.3		

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	68	175	284	384	489	603	671	744	794	c5	c6
43.3	110	-	139	247	356	470	581	649	718	771	c7	c8
48.9	120	-	-	221	334	440	558	624	692	752	c9	c10
54.4	130	-	-	201	314	426	534	598	664	726		
60.0	140	-	-	-	292	396	507	567	633	704		
65.6	150	-	-	-	270	374	478	540	601	662		

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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PRODUCT SPECIFICATION**MODEL : CR47KQM-PFZ-XXX****M) MECHANICAL SPECIFICATIONS**

Parameter	Unit	Value
Cylinder Bore Diameter	cm (inch)	4.98 (1.960)
Crank - Shaft Eccentricity	cm (inch)	1.06 (0.418)
Crank - Shaft Stroke	cm (inch)	2.12 (0.836)
Approximate Internal Free Volume (Without Oil)	cm ³ (inch ³)	8,358 (510)
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	3,500
Nominal Motor Winding Resistance (@ 25 °C)	Main	Ω 0.50 To 0.80
	Aux.	Ω 1.80 To 2.00
Nominal Motor Output Power	kW	4.7
Max. Allowable Motor Winding Temp.	°F (°C)	266 (130) B Class Insulation
Relay		
Type	---	Potential
Part Number	---	RVA-4L 3D/6D 3ARR3CT 6V5 : GE
Pick Up (Maximum)	V	240 To 260
Drop Out (Minimum)	V	80 To 150
Maximum Voltage Rating of Coils	V	430
Over Load Protector		
Type	---	Internal
Part Number		15HM-1641-78
Disc Opening Temperature	°F (°C)	284 To 302 (140 To 150)
Disc Closing Temperature	°F (°C)	140 To 172 (60 To 78)
1 st Cycle Trip Current	A	100
1 st Cycle Trip On Time	second	1 To 10
Terminal Fused Cluster	---	¼" Quick connector
Wire Material	---	Hermetic Grade Round Enameled
Wire Enamel Designation & Construction	---	H Class, Dual Coated

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PRODUCT SPECIFICATION**MODEL : CR47KQM-PFZ-XXX****P) SOUND & VIBRATION SPECIFICATIONS**

Parameter	Unit	Value
Bare Compressor Sound	dBA	77.0 Maximum
Bare Compressor Vibration	µm	100.0 Maximum
Compressor Discharge Pulse	psi	9.0 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)	220	6.50 (92.43)	30 (426.6)	--	55 (131)
Blocked Fan	220	6.33 (90)	28.12 (400)	--	--
Low Voltage Start : Equalised	198	11.9 ± 0.5 (169)	11.9 ± 0.5 (169)	62 (143.6)	--
Low Voltage Run	198	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.

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