

COMPRESSOR DEFINITION

Designation	EM C3121U
Nominal Voltage/Frequency	220-240 V 50 Hz
Engineering Number	513301690

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-290		
3 Nominal voltage and frequency	220-240 / 50	[V / Hz]	
4 Application type	Low-Medium Back Pressure (Light Commercial)		
4.1 Evaporating temperature range	-35°C to 0°C	(-31°F to 32°F)	
5 Motor type	RSCR		
6 Starting torque	LST - Low Starting Torque		
7 Expansion device	Capillary tube		
8 Compressor cooling	Operating voltage range		
		50 Hz	60 Hz
8.1 LBP (32°C Ambient temperature)	Static	198 to 255 V	-
8.2 LBP (43°C Ambient temperature)	Static	198 to 255 V	-
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	18.4	[kgf/cm ²] (262 psig)	/ °C - °F
9.2 Peak	20.6	[kgf/cm ²] (293 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/4	[hp]
2 Displacement	5.19	[cm ³] (0.317 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	15.000	
3 Lubricant charge	150	[ml] (5.07 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO10	
4 Weight (with oil charge)	6.8	[kg] (14.99 lb.)
5 Nitrogen charge	0.2 to 0.3	[kgf/cm ²] (2.84 to 4.27 psig)

C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	220-240 V 50 Hz 1 ~ (Single phase)	
2 Starting device type	PTC	
2.1 Starting device	8EA17C3/QPS2-A22MD3	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	5(350)	[µF(VAC minimum)]
5 Motor protection	4TM232KFBYY-53	
6 Start winding resistance	20.76	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	16.40	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50 Hz)	5.80	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50 Hz)	1.37	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (50 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	UL AR - VDE	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V50Hz			ASHRAELBP32 Fan		Evaporating temperature (Condensing temperature		-23.3°C (-9.94°F) 54.4°C (129.92°F)	
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
820	207	240	136	0.62	2.44	6.04	1.52	1.77

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz			ASHRAE32 Fan		(Condensing temperature 35°C (+95°F))				
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	524	132	154	93	0.43	1.55	5.66	1.43	1.66
-30 (-22)	676	170	198	104	0.47	2.00	6.51	1.64	1.91
-25 (-13)	862	217	253	115	0.51	2.56	7.55	1.90	2.21
-20 (- 4)	1083	273	317	124	0.56	3.23	8.74	2.20	2.56
-15 (+ 5)	1336	337	391	133	0.60	4.00	10.02	2.52	2.94
-10 (+14)	1621	409	475	143	0.65	4.88	11.34	2.86	3.32
-5 (+23)	1939	489	568	153	0.70	5.86	12.64	3.19	3.70
0 (+32)	2288	576	670	165	0.75	6.96	13.88	3.50	4.07

TEST CONDITIONS: @220V50Hz			ASHRAE32 Fan		(Condensing temperature 45°C (+113°F))				
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	479	121	140	97	0.44	1.42	4.92	1.24	1.44
-30 (-22)	625	157	183	111	0.50	1.85	5.60	1.41	1.64
-25 (-13)	805	203	236	124	0.56	2.39	6.47	1.63	1.90
-20 (- 4)	1018	256	298	136	0.62	3.04	7.47	1.88	2.19
-15 (+ 5)	1264	318	370	148	0.68	3.79	8.55	2.16	2.51
-10 (+14)	1542	389	452	160	0.73	4.64	9.66	2.43	2.83
-5 (+23)	1851	466	542	173	0.79	5.60	10.74	2.71	3.15
0 (+32)	2191	552	642	186	0.84	6.66	11.75	2.96	3.44

TEST CONDITIONS: @220V50Hz			ASHRAE32 Fan		(Condensing temperature 55°C (+131°F))				
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	404	102	118	95	0.42	1.19	4.26	1.07	1.25
-30 (-22)	546	138	160	112	0.51	1.62	4.84	1.22	1.42
-25 (-13)	722	182	211	129	0.59	2.15	5.58	1.41	1.64
-20 (- 4)	930	234	273	144	0.67	2.78	6.44	1.62	1.89
-15 (+ 5)	1171	295	343	159	0.74	3.51	7.38	1.86	2.16
-10 (+14)	1443	364	423	174	0.81	4.34	8.32	2.10	2.44
-5 (+23)	1747	440	512	190	0.87	5.28	9.24	2.33	2.71
0 (+32)	2080	524	610	206	0.93	6.32	10.06	2.54	2.95

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		ASHRAE32 Fan			(Condensing temperature 65°C (+149°F))					
Evaporating temperature		Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	310	78	91	88	0.40	0.92	3.55	0.89	1.04
-30	(-22)	451	114	132	110	0.52	1.34	4.06	1.02	1.19
-25	(-13)	625	157	183	131	0.63	1.86	4.73	1.19	1.39
-20	(- 4)	831	209	243	150	0.73	2.48	5.51	1.39	1.61
-15	(+ 5)	1069	269	313	169	0.82	3.20	6.34	1.60	1.86
-10	(+14)	1338	337	392	188	0.90	4.02	7.18	1.81	2.10
-5	(+23)	1637	413	480	207	0.97	4.95	7.97	2.01	2.33
0	(+32)	1966	495	576	227	1.04	5.98	8.66	2.18	2.54

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal		
2 Tray holder	No		
3 Connectors			
3.1 SUCTION	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.1.1 Material	Copper		
3.1.2 Shape	Straight		
3.2 DISCHARGE	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.2.1 Material	Copper		
3.2.2 Shape	Straight		
3.3 PROCESS	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.3.1 Material	Copper		
3.3.2 Shape	Straight		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		