

COMPRESSOR DEFINITION

Designation	EM C3121U
Nominal Voltage/Frequency	115-127 V 60 Hz
Engineering Number	513301707

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-290		
3 Nominal voltage and frequency	115-127 / 60	[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	-	98 to 140 V
8.2 LBP (43°C Ambient temperature)	Static	-	98 to 140 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	115-127 V 60 Hz 1 ~ (Single phase)	
2 Starting device type	PTC	
2.1 Starting device	8EA14C3/QPS2-A4R7MD3	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	12(177)	[µF(VAC minimum)]
5 Motor protection	4TM427NFBYY-53	
6 Start winding resistance	7.28	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	3.09	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	14.90	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	2.85	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	3.45	[A] - Measured according to UL 984
11 Approval boards certification	UL	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @115V60Hz			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]
1002	253	294	166	1.54	2.98	6.04	1.52	1.77

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz			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)	657	166	193	115	1.09	1.94	5.72	1.44	1.67
-30 (-22)	851	214	249	130	1.23	2.52	6.53	1.65	1.91
-25 (-13)	1082	273	317	145	1.36	3.22	7.45	1.88	2.18
-20 (- 4)	1352	341	396	160	1.49	4.04	8.48	2.14	2.49
-15 (+ 5)	1662	419	487	173	1.60	4.98	9.66	2.43	2.83
-10 (+14)	2010	507	589	184	1.70	6.05	10.99	2.77	3.22
-5 (+23)	2399	604	703	193	1.77	7.26	12.51	3.15	3.67
0 (+32)	2827	713	828	197	1.82	8.60	14.23	3.59	4.17

TEST CONDITIONS: @115V60Hz			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)	589	148	172	118	1.11	1.74	5.03	1.27	1.47
-30 (-22)	777	196	228	135	1.27	2.30	5.74	1.45	1.68
-25 (-13)	1004	253	294	154	1.43	2.99	6.49	1.64	1.90
-20 (- 4)	1271	320	372	172	1.59	3.79	7.33	1.85	2.15
-15 (+ 5)	1578	398	462	190	1.75	4.73	8.26	2.08	2.42
-10 (+14)	1924	485	564	207	1.89	5.79	9.31	2.35	2.73
-5 (+23)	2312	583	677	221	2.02	6.99	10.49	2.64	3.07
0 (+32)	2740	690	803	232	2.13	8.33	11.84	2.98	3.47

TEST CONDITIONS: @115V60Hz			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)	514	130	151	117	1.11	1.52	4.44	1.12	1.30
-30 (-22)	694	175	203	137	1.28	2.06	5.09	1.28	1.49
-25 (-13)	914	230	268	159	1.47	2.72	5.75	1.45	1.69
-20 (- 4)	1174	296	344	181	1.66	3.50	6.45	1.63	1.89
-15 (+ 5)	1475	372	432	203	1.86	4.42	7.20	1.81	2.11
-10 (+14)	1817	458	532	225	2.05	5.47	8.02	2.02	2.35
-5 (+23)	2200	554	645	245	2.23	6.65	8.94	2.25	2.62
0 (+32)	2624	661	769	264	2.41	7.98	9.97	2.51	2.92

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz		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)	433	109	127	114	1.09	1.28	3.76	0.95	1.10
-30	(-22)	602	152	176	137	1.29	1.78	4.43	1.12	1.30
-25	(-13)	811	204	238	162	1.50	2.41	5.06	1.28	1.48
-20	(- 4)	1061	267	311	188	1.72	3.17	5.68	1.43	1.67
-15	(+ 5)	1353	341	396	215	1.96	4.05	6.31	1.59	1.85
-10	(+14)	1686	425	494	242	2.19	5.07	6.97	1.76	2.04
-5	(+23)	2062	520	604	268	2.43	6.23	7.68	1.94	2.25
0	(+32)	2480	625	727	293	2.66	7.54	8.46	2.13	2.48

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal		
2 Tray holder	No		
3 Connectors			
3.1 SUCTION	8.2 +0.12/-0.08	[mm]	(0.323" +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		