

COMPRESSOR DEFINITION

Designation	EM 2X3121U
Nominal Voltage/Frequency	115-127 V 60 Hz
Engineering Number	513304106

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 - Curves until T.Evap -		
4.1 Evaporating temperature range	-40°C to 0°C	(-40°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/Fan	-	103 to 140 V
8.2 LBP (43°C Ambient temperature)	Static/Fan	-	103 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	1/3	[hp]
2 Displacement	5.54	[cm ³] (0.338 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	16.000	
3 Lubricant charge	180	[ml] (6.09 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	7.84	[kg] (17.28 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	8EA14C3/8EA14E63/QPS2-A4R7MD3/QPS2-A4R7MD3 094	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	20(180)	[µF(VAC minimum)]
5 Motor protection	4TM762MDBZZ-53	
6 Start winding resistance	5.30	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	3.26	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	16.90	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	1.85	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	2.36	[A] - Measured according to UL 984
11 Approval boards certification	CE - TUV - UKCA - UL	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @115V60Hz			ASHRAELBP32 Static		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]
1185	299	347	193	1.73	3.53	6.14	1.55	1.80

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]
1208	304	354	194	1.74	3.60	6.23	1.57	1.83

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz		ASHRAE32 Static				(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]
-40 (-40)	604	152	177	115	1.09	1.78	5.22	1.32	1.53
-35 (-31)	775	195	227	135	1.23	2.29	5.72	1.44	1.68
-30 (-22)	975	246	286	152	1.36	2.89	6.41	1.62	1.88
-25 (-13)	1209	305	354	166	1.49	3.59	7.28	1.83	2.13
-20 (- 4)	1480	373	434	179	1.61	4.42	8.29	2.09	2.43
-15 (+ 5)	1792	452	525	191	1.72	5.37	9.44	2.38	2.77
-10 (+14)	2150	542	630	201	1.82	6.47	10.70	2.70	3.14
-5 (+23)	2557	644	749	212	1.90	7.73	12.05	3.04	3.53
0 (+32)	3017	760	884	224	1.97	9.17	13.48	3.40	3.95

TEST CONDITIONS: @115V60Hz		ASHRAE32 Static				(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]
-40 (-40)	563	142	165	127	1.11	1.66	4.45	1.12	1.30
-35 (-31)	732	184	214	146	1.27	2.17	4.96	1.25	1.45
-30 (-22)	930	234	272	164	1.42	2.76	5.62	1.42	1.65
-25 (-13)	1160	292	340	179	1.58	3.45	6.42	1.62	1.88
-20 (- 4)	1426	359	418	194	1.74	4.26	7.33	1.85	2.15
-15 (+ 5)	1733	437	508	208	1.89	5.19	8.33	2.10	2.44
-10 (+14)	2085	525	611	222	2.03	6.27	9.40	2.37	2.75
-5 (+23)	2484	626	728	236	2.17	7.51	10.52	2.65	3.08
0 (+32)	2936	740	860	252	2.29	8.93	11.67	2.94	3.42

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz		ASHRAE32 Static			(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]
-40	(-40)	500	126	147	121	1.12	1.48	4.21	1.06	1.23
-35	(-31)	668	168	196	142	1.29	1.98	4.73	1.19	1.39
-30	(-22)	864	218	253	162	1.48	2.56	5.36	1.35	1.57
-25	(-13)	1091	275	320	180	1.66	3.24	6.09	1.53	1.78
-20	(- 4)	1354	341	397	198	1.85	4.04	6.88	1.73	2.02
-15	(+ 5)	1656	417	485	216	2.04	4.96	7.73	1.95	2.26
-10	(+14)	2002	504	587	235	2.23	6.02	8.61	2.17	2.52
-5	(+23)	2395	603	702	254	2.42	7.24	9.50	2.39	2.78
0	(+32)	2839	715	832	276	2.60	8.63	10.38	2.61	3.04

TEST CONDITIONS: @115V60Hz		ASHRAE32 Static			(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]
-40	(-40)	415	105	122	125	1.11	1.22	3.32	0.84	0.97
-35	(-31)	583	147	171	149	1.31	1.72	3.85	0.97	1.13
-30	(-22)	777	196	228	173	1.52	2.30	4.45	1.12	1.30
-25	(-13)	1003	253	294	196	1.74	2.98	5.10	1.28	1.49
-20	(- 4)	1262	318	370	219	1.96	3.76	5.78	1.46	1.69
-15	(+ 5)	1560	393	457	243	2.19	4.67	6.47	1.63	1.90
-10	(+14)	1901	479	557	268	2.42	5.72	7.15	1.80	2.10
-5	(+23)	2288	577	670	295	2.66	6.92	7.81	1.97	2.29
0	(+32)	2725	687	799	324	2.89	8.28	8.41	2.12	2.46

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EUEM		
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	Slanted 42° up + 45° to Back		
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	Slanted parallel BP+24°to Back		
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	Slanted 45° up + 45° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		