

COMPRESSOR DEFINITION

Designation	EM 2X3121U
Nominal Voltage/Frequency	115-127 V 60 Hz
Engineering Number	513304086

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/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	150	[ml] (5.07 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / 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 - ELECTRICAL 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	8EA14C3/8EA14E63/8EA21C3/QPS2-A4R7MD3/QPS2-A4R7M	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	20(180)	[µF(VAC minimum)]
5 Motor protection	4TM427NFBYY-53	
6 Start winding resistance	5.27	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	3.04	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	15.90	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	3.50	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	3.87	[A] - Measured according to UL 984
11 Approval boards certification	CE - ISI - 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 (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%			
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
1119	282	328	191	1.67	3.33	5.87	1.48	1.72	

TEST CONDITIONS: @115V60Hz			ASHRAELBP32 Fan		Evaporating temperature (Condensing temperature		-23.3°C (-9.94°F) 54.4°C (129.92°F)		
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%			
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
1135	286	333	191	1.69	3.38	5.93	1.49	1.74	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz		ASHRAE32 Static			(Condensing temperature 35°C (+95°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	696	175	204	126	1.14	2.06	5.53	1.39	1.62
-30	(-22)	912	230	267	145	1.29	2.71	6.28	1.58	1.84
-25	(-13)	1140	287	334	160	1.42	3.39	7.13	1.80	2.09
-20	(- 4)	1393	351	408	173	1.54	4.16	8.09	2.04	2.37
-15	(+ 5)	1686	425	494	184	1.64	5.05	9.19	2.32	2.69
-10	(+14)	2032	512	595	195	1.73	6.12	10.44	2.63	3.06
-5	(+23)	2445	616	716	206	1.81	7.40	11.85	2.99	3.47
0	(+32)	2939	741	861	218	1.89	8.94	13.46	3.39	3.94

TEST CONDITIONS: @115V60Hz		ASHRAE32 Static			(Condensing temperature 45°C (+113°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	651	164	191	133	1.19	1.93	4.90	1.23	1.44
-30	(-22)	870	219	255	155	1.37	2.58	5.58	1.41	1.63
-25	(-13)	1100	277	322	174	1.53	3.27	6.31	1.59	1.85
-20	(- 4)	1353	341	397	190	1.67	4.04	7.11	1.79	2.08
-15	(+ 5)	1645	415	482	205	1.81	4.93	8.00	2.02	2.34
-10	(+14)	1989	501	583	220	1.94	5.98	9.00	2.27	2.64
-5	(+23)	2398	604	703	236	2.07	7.25	10.12	2.55	2.97
0	(+32)	2887	728	846	255	2.20	8.78	11.39	2.87	3.34

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz		ASHRAE32 Static			(Condensing temperature 55°C (+131°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	579	146	170	137	1.22	1.71	4.25	1.07	1.24
-30	(-22)	799	201	234	162	1.42	2.37	4.91	1.24	1.44
-25	(-13)	1028	259	301	183	1.61	3.06	5.59	1.41	1.64
-20	(- 4)	1280	323	375	203	1.79	3.82	6.29	1.59	1.84
-15	(+ 5)	1568	395	460	223	1.97	4.70	7.04	1.78	2.06
-10	(+14)	1907	481	559	242	2.14	5.74	7.86	1.98	2.30
-5	(+23)	2311	582	677	263	2.32	6.99	8.75	2.21	2.56
0	(+32)	2793	704	818	287	2.50	8.49	9.75	2.46	2.86

TEST CONDITIONS: @115V60Hz		ASHRAE32 Static			(Condensing temperature 65°C (+149°F))					
Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	479	121	140	138	1.23	1.42	3.46	0.87	1.01
-30	(-22)	698	176	205	165	1.46	2.07	4.18	1.05	1.22
-25	(-13)	925	233	271	189	1.68	2.75	4.87	1.23	1.43
-20	(- 4)	1173	296	344	213	1.90	3.50	5.54	1.40	1.62
-15	(+ 5)	1456	367	427	236	2.11	4.36	6.21	1.56	1.82
-10	(+14)	1788	451	524	260	2.33	5.38	6.90	1.74	2.02
-5	(+23)	2184	550	640	286	2.55	6.60	7.63	1.92	2.24
0	(+32)	2657	670	779	315	2.78	8.07	8.41	2.12	2.47

F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard		
2 Tray holder	Yes		
3 Connectors			
3.1 SUCTION	6.1 +0.10/+0.00	[mm]	(0.240" +0.004"/+0.000")
3.1.1 Material	Copper		
3.1.2 Shape	Slanted 42° up + 45° to Back		
3.2 DISCHARGE	4.94 +0.08/-0.08	[mm]	(0.194" +0.003"/-0.003")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted parallel BP+24°to Back		
3.3 PROCESS	6 +0.08/-0.08	[mm]	(0.236" +0.003"/-0.003")
3.3.1 Material	Copper(OD)		
3.3.2 Shape	Slanted 43° up + 45° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		