

COMPRESSOR DEFINITION

Designation	EM 2X3121U
Nominal Voltage/Frequency	115-127 V 60 Hz
Engineering Number	513304070

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-A4R7MI	
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 Fan			(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)	701	177	205	128	1.14	2.07	5.48	1.38	1.60
-30	(-22)	927	234	272	147	1.31	2.75	6.28	1.58	1.84
-25	(-13)	1162	293	341	162	1.44	3.46	7.16	1.80	2.10
-20	(- 4)	1420	358	416	175	1.54	4.24	8.15	2.05	2.39
-15	(+ 5)	1714	432	502	186	1.63	5.13	9.27	2.34	2.72
-10	(+14)	2058	519	603	195	1.71	6.19	10.55	2.66	3.09
-5	(+23)	2465	621	722	205	1.81	7.46	11.99	3.02	3.51
0	(+32)	2950	743	864	216	1.92	8.97	13.63	3.44	3.99

TEST CONDITIONS: @115V60Hz		ASHRAE32 Fan			(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)	655	165	192	133	1.17	1.94	4.92	1.24	1.44
-30	(-22)	881	222	258	156	1.38	2.61	5.61	1.41	1.64
-25	(-13)	1116	281	327	175	1.55	3.32	6.35	1.60	1.86
-20	(- 4)	1373	346	402	192	1.69	4.10	7.15	1.80	2.09
-15	(+ 5)	1666	420	488	207	1.83	4.99	8.03	2.02	2.35
-10	(+14)	2008	506	588	222	1.96	6.04	9.03	2.28	2.65
-5	(+23)	2414	608	707	237	2.10	7.30	10.16	2.56	2.98
0	(+32)	2896	730	849	254	2.28	8.80	11.44	2.88	3.35

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz		ASHRAE32 Fan			(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)	584	147	171	137	1.19	1.73	4.31	1.09	1.26
-30	(-22)	809	204	237	162	1.43	2.40	4.99	1.26	1.46
-25	(-13)	1043	263	306	184	1.63	3.10	5.66	1.43	1.66
-20	(- 4)	1299	327	381	204	1.81	3.87	6.36	1.60	1.86
-15	(+ 5)	1590	401	466	224	1.98	4.76	7.10	1.79	2.08
-10	(+14)	1931	487	566	243	2.16	5.81	7.91	1.99	2.32
-5	(+23)	2334	588	684	264	2.35	7.06	8.80	2.22	2.58
0	(+32)	2814	709	825	287	2.58	8.55	9.81	2.47	2.87

TEST CONDITIONS: @115V60Hz		ASHRAE32 Fan			(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)	488	123	143	138	1.20	1.44	3.52	0.89	1.03
-30	(-22)	712	180	209	165	1.46	2.11	4.26	1.07	1.25
-25	(-13)	945	238	277	190	1.69	2.81	4.97	1.25	1.46
-20	(- 4)	1199	302	351	213	1.90	3.57	5.65	1.42	1.66
-15	(+ 5)	1488	375	436	236	2.11	4.46	6.33	1.60	1.86
-10	(+14)	1826	460	535	260	2.32	5.49	7.04	1.77	2.06
-5	(+23)	2227	561	653	286	2.56	6.73	7.80	1.96	2.28
0	(+32)	2704	681	792	313	2.83	8.22	8.62	2.17	2.53

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EUEM		
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	Slanted 90° up		
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	Slanted 90° up		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		