

COMPRESSOR DEFINITION

Designation	EM 2U3121U
Nominal Voltage/Frequency	220-240 V 50 Hz
Engineering Number	513304140

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 - 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	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	1/3	[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	ALQUILB / ISO22	
4 Weight (with oil charge)	8.05	[kg] (17.75 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-A22MG1/QPS2-A22MG1 092	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	5(346)	[µF(VAC minimum)]
5 Motor protection	4TM283KFBYY-53	
6 Start winding resistance		[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance		[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50 Hz)	6.77	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50 Hz)	0.87	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (50 Hz)	1.05	[A] - Measured according to UL 984
11 Approval boards certification		

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V50Hz			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]
909	229	266	169	0.81	2.71	5.37	1.35	1.57

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]
945	238	277	170	0.82	2.81	5.56	1.40	1.63

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]
-40	(-40)	494	124	145	110	0.57	1.46	4.48	1.13	1.31
-35	(-31)	630	159	185	122	0.62	1.86	5.13	1.29	1.50
-30	(-22)	794	200	233	135	0.67	2.35	5.88	1.48	1.72
-25	(-13)	989	249	290	147	0.72	2.94	6.74	1.70	1.97
-20	(- 4)	1220	307	357	159	0.77	3.64	7.72	1.95	2.26
-15	(+ 5)	1491	376	437	170	0.82	4.47	8.84	2.23	2.59
-10	(+14)	1805	455	529	180	0.86	5.43	10.11	2.55	2.96
-5	(+23)	2168	546	635	188	0.90	6.56	11.56	2.91	3.39
0	(+32)	2583	651	757	195	0.93	7.85	13.19	3.32	3.87

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]
-40	(-40)	454	114	133	113	0.58	1.34	4.03	1.01	1.18
-35	(-31)	585	147	171	127	0.64	1.73	4.59	1.16	1.35
-30	(-22)	744	187	218	142	0.70	2.20	5.22	1.32	1.53
-25	(-13)	933	235	273	157	0.76	2.77	5.92	1.49	1.73
-20	(- 4)	1157	292	339	172	0.82	3.45	6.70	1.69	1.96
-15	(+ 5)	1421	358	416	186	0.89	4.26	7.59	1.91	2.22
-10	(+14)	1727	435	506	201	0.95	5.20	8.60	2.17	2.52
-5	(+23)	2081	524	610	214	1.01	6.29	9.74	2.45	2.85
0	(+32)	2487	627	729	227	1.07	7.56	11.03	2.78	3.23

E - PERFORMANCE - CURVES

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]
-40	(-40)	410	103	120	115	0.59	1.21	3.61	0.91	1.06
-35	(-31)	535	135	157	130	0.65	1.58	4.15	1.04	1.21
-30	(-22)	687	173	201	146	0.72	2.04	4.71	1.19	1.38
-25	(-13)	868	219	254	163	0.79	2.58	5.30	1.34	1.55
-20	(- 4)	1084	273	318	181	0.87	3.23	5.95	1.50	1.74
-15	(+ 5)	1339	337	392	200	0.95	4.01	6.66	1.68	1.95
-10	(+14)	1636	412	479	218	1.03	4.92	7.45	1.88	2.18
-5	(+23)	1980	499	580	237	1.11	5.99	8.34	2.10	2.44
0	(+32)	2374	598	696	255	1.20	7.22	9.35	2.36	2.74

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]
-40	(-40)	362	91	106	114	0.59	1.07	3.12	0.79	0.91
-35	(-31)	480	121	141	131	0.66	1.42	3.68	0.93	1.08
-30	(-22)	623	157	182	148	0.73	1.85	4.23	1.07	1.24
-25	(-13)	795	200	233	168	0.81	2.36	4.78	1.20	1.40
-20	(- 4)	1001	252	293	189	0.90	2.99	5.34	1.35	1.57
-15	(+ 5)	1245	314	365	210	1.00	3.73	5.94	1.50	1.74
-10	(+14)	1531	386	449	233	1.10	4.61	6.57	1.66	1.93
-5	(+23)	1863	469	546	256	1.20	5.63	7.27	1.83	2.13
0	(+32)	2245	566	658	279	1.31	6.82	8.04	2.03	2.36

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	4.94 +0.08/-0.08	[mm]	(0.194" +0.003"/-0.003")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted 30° up + 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		