

COMPRESSOR DEFINITION

Designation	EM 2U3111U
Nominal Voltage/Frequency	220-240 V 50-60 Hz
Engineering Number	513305609

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-290		
3 Nominal voltage and frequency	220-240 / 50-60	[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	198 to 255 V	198 to 255 V
8.2 LBP (43°C Ambient temperature)	Static	198 to 255 V	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	1/6	[hp]
2 Displacement	3.00	[cm ³] (0.183 cu.in)
2.1 Bore [mm]	19.000	
2.2 Stroke [mm]	10.600	
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)	7.54	[kg] (16.62 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 50-60 Hz 1 ~ (Single phase)	
2 Starting device type	PTC	
2.1 Starting device	7M220MD3/8EA17C3/QPS2-A22MD3/QPS2-A22MD3 091	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	5(305)	[µF(VAC minimum)]
5 Motor protection	4TM189KFBYY-53	
6 Start winding resistance	18.77	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	24.13	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	4.41/4.01	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	-	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (50/60 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	TUV	

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]	
472	119	138	87	0.40	1.40	5.41	1.36	1.59	

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]	
484	122	142	88	0.41	1.44	5.50	1.39	1.61	

TEST CONDITIONS: @220V60Hz			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]	
567	143	166	101	0.48	1.69	5.60	1.41	1.64	

TEST CONDITIONS: @220V60Hz			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]	
583	147	171	103	0.48	1.73	5.67	1.43	1.66	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		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]
-35	(-31)	327	82	96	64	0.31	0.97	5.07	1.28	1.49
-30	(-22)	415	105	122	71	0.34	1.23	5.86	1.48	1.72
-25	(-13)	519	131	152	77	0.36	1.54	6.74	1.70	1.97
-20	(- 4)	641	162	188	83	0.39	1.91	7.75	1.95	2.27
-15	(+ 5)	785	198	230	88	0.41	2.35	8.94	2.25	2.62
-10	(+14)	954	240	280	93	0.43	2.87	10.36	2.61	3.03
-5	(+23)	1150	290	337	96	0.44	3.48	12.03	3.03	3.53
0	(+32)	1377	347	404	98	0.45	4.19	14.01	3.53	4.11

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		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]
-35	(-31)	293	74	86	65	0.31	0.87	4.50	1.13	1.32
-30	(-22)	379	96	111	73	0.34	1.12	5.21	1.31	1.53
-25	(-13)	480	121	141	80	0.38	1.43	5.94	1.50	1.74
-20	(- 4)	598	151	175	88	0.41	1.78	6.76	1.70	1.98
-15	(+ 5)	737	186	216	95	0.44	2.21	7.69	1.94	2.25
-10	(+14)	899	227	264	102	0.47	2.71	8.79	2.21	2.58
-5	(+23)	1088	274	319	108	0.49	3.29	10.09	2.54	2.96
0	(+32)	1307	329	383	113	0.52	3.97	11.64	2.93	3.41

TEST CONDITIONS: @220V50Hz		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]
-35	(-31)	252	64	74	66	0.31	0.75	3.85	0.97	1.13
-30	(-22)	338	85	99	74	0.35	1.00	4.56	1.15	1.34
-25	(-13)	437	110	128	83	0.39	1.30	5.24	1.32	1.54
-20	(- 4)	552	139	162	93	0.43	1.65	5.94	1.50	1.74
-15	(+ 5)	687	173	201	102	0.47	2.06	6.70	1.69	1.96
-10	(+14)	844	213	247	111	0.51	2.54	7.57	1.91	2.22
-5	(+23)	1027	259	301	120	0.55	3.10	8.58	2.16	2.51
0	(+32)	1238	312	363	127	0.58	3.76	9.77	2.46	2.86

TEST CONDITIONS: @220V50Hz		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]
-35	(-31)	198	50	58	65	0.30	0.58	3.04	0.77	0.89
-30	(-22)	283	71	83	74	0.34	0.84	3.84	0.97	1.12
-25	(-13)	382	96	112	84	0.39	1.13	4.55	1.15	1.33
-20	(- 4)	495	125	145	95	0.44	1.48	5.22	1.32	1.53
-15	(+ 5)	628	158	184	107	0.49	1.88	5.89	1.48	1.73
-10	(+14)	781	197	229	118	0.54	2.35	6.61	1.66	1.94
-5	(+23)	959	242	281	129	0.59	2.90	7.41	1.87	2.17
0	(+32)	1165	293	341	140	0.64	3.54	8.34	2.10	2.44

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		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]
-35	(-31)	390	98	114	74	0.37	1.15	5.26	1.33	1.54
-30	(-22)	496	125	145	81	0.40	1.47	6.09	1.53	1.78
-25	(-13)	620	156	182	89	0.42	1.85	6.99	1.76	2.05
-20	(- 4)	767	193	225	96	0.45	2.29	8.01	2.02	2.35
-15	(+ 5)	940	237	275	103	0.48	2.82	9.17	2.31	2.69
-10	(+14)	1142	288	335	109	0.51	3.44	10.52	2.65	3.08
-5	(+23)	1377	347	403	114	0.53	4.16	12.07	3.04	3.54
0	(+32)	1647	415	483	118	0.55	5.01	13.88	3.50	4.07

TEST CONDITIONS: @220V60Hz		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]
-35	(-31)	350	88	102	76	0.38	1.03	4.60	1.16	1.35
-30	(-22)	453	114	133	85	0.41	1.34	5.33	1.34	1.56
-25	(-13)	573	144	168	94	0.44	1.70	6.08	1.53	1.78
-20	(- 4)	714	180	209	103	0.48	2.13	6.89	1.74	2.02
-15	(+ 5)	880	222	258	112	0.52	2.63	7.79	1.96	2.28
-10	(+14)	1073	270	314	121	0.56	3.23	8.81	2.22	2.58
-5	(+23)	1297	327	380	130	0.59	3.92	10.00	2.52	2.93
0	(+32)	1556	392	456	137	0.62	4.73	11.38	2.87	3.34

TEST CONDITIONS: @220V60Hz		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]
-35	(-31)	305	77	89	76	0.38	0.90	4.05	1.02	1.19
-30	(-22)	407	103	119	86	0.42	1.21	4.78	1.20	1.40
-25	(-13)	525	132	154	96	0.46	1.56	5.48	1.38	1.60
-20	(- 4)	661	167	194	107	0.50	1.97	6.17	1.56	1.81
-15	(+ 5)	821	207	241	118	0.55	2.46	6.91	1.74	2.02
-10	(+14)	1007	254	295	130	0.60	3.03	7.71	1.94	2.26
-5	(+23)	1222	308	358	141	0.65	3.70	8.63	2.17	2.53
0	(+32)	1471	371	431	152	0.69	4.47	9.68	2.44	2.84

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		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]
-35	(-31)	242	61	71	77	0.37	0.72	3.12	0.79	0.91
-30	(-22)	344	87	101	87	0.41	1.02	3.94	0.99	1.15
-25	(-13)	461	116	135	99	0.46	1.37	4.68	1.18	1.37
-20	(- 4)	595	150	174	111	0.51	1.77	5.36	1.35	1.57
-15	(+ 5)	750	189	220	125	0.57	2.25	6.03	1.52	1.77
-10	(+14)	930	234	273	139	0.64	2.80	6.71	1.69	1.97
-5	(+23)	1138	287	334	153	0.70	3.44	7.45	1.88	2.18
0	(+32)	1378	347	404	167	0.76	4.19	8.27	2.08	2.42

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal
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