COMPRESSOR DEFINITION

Designation	**EM 2U3111U**
Nominal Voltage/Frequency	**220-240 V 50-60 Hz**
Engineering Number	**513305565**

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 Expantion device	Capillary tube		
8 Compressor cooling		Operating voltage range	
		50 Hz	60 Hz
8.1 LBP (32ºC Ambient temperature)	Static	198 to 255 V	198 to 255 V
8.2 LBP (43ºC Ambient temperature)	Static	198 to 255 V	198 to 255 V
8.3 HBP (32ºC Ambient temperature)	-	-	-
8.4 HBP (43ºC Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	18.4	[kgf/cm²] (262 psig)	/ ºC - ºF
9.2 Peak	20.6	[kgf/cm²] (293 psig)	/ ºC - ºF
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/6	[hp]
2 Displacement	3.00	[cm³] (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	ESTER / ISO22	
4 Weight (with oil charge)	7.54	[kg] (16.62 lb.)
5 Nitrogen charge	0.2 to 0.3	[kgf/cm²] (2.84 to 4.27 psig)

C - ELECTRICAL 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	8EA17C3/8EA17E61/8EA17E62/8EA17E63/QPS2-A22MD3/QPS	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	5(450)	[µF(VAC minimum)]
5 Motor protection	4TM189KFBYY-53	
6 Start winding resistance	12.13	[Ω at 25ºC (77ºF)] +/- 8%
7 Run winding resistance	19.45	[Ω at 25ºC (77ºF)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	6.25/5.80	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	0.89/0.80	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (50/60 Hz)	1.08/0.98	[A] - Measured according to UL 984
11 Approval boards certification	CE - IMTRO - IRAM - TUV - UKCA	

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 (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]
475	120	139	93	0.48	1.41	5.12	1.29	1.50

TEST CONDITIONS: **@220V50Hz**			**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]
490	123	144	92	0.50	1.46	5.33	1.34	1.56

TEST CONDITIONS: **@220V60Hz**			**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]
568	143	166	104	0.47	1.69	5.46	1.38	1.60

TEST CONDITIONS: **@220V60Hz**			**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]
588	148	172	104	0.48	1.75	5.66	1.43	1.66

E - PERFORMANCE - CURVES

TEST CONDITIONS: **@220V50Hz**		**ASHRAE32 Fan**			(Condensing temperature **35ºC (+95ºF))**					
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)**	319	80	93	69	0.42	0.94	4.64	1.17	1.36
-30	**(-22)**	414	104	121	75	0.44	1.23	5.49	1.38	1.61
-25	**(-13)**	523	132	153	81	0.46	1.56	6.41	1.62	1.88
-20	**(- 4)**	649	163	190	87	0.48	1.94	7.46	1.88	2.19
-15	**(+ 5)**	794	200	233	92	0.50	2.38	8.67	2.18	2.54
-10	**(+14)**	962	242	282	96	0.52	2.90	10.09	2.54	2.96
-5	**(+23)**	1156	291	339	99	0.53	3.50	11.75	2.96	3.44
0	**(+32)**	1380	348	404	100	0.54	4.20	13.70	3.45	4.02

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@220V50Hz **Fan**

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)**	289	73	85	70	0.42	0.85	4.12	1.04	1.21
-30	**(-22)**	382	96	112	78	0.45	1.13	4.88	1.23	1.43
-25	**(-13)**	489	123	143	86	0.48	1.46	5.68	1.43	1.66
-20	**(- 4)**	613	154	180	93	0.50	1.83	6.54	1.65	1.92
-15	**(+ 5)**	756	190	221	100	0.53	2.26	7.52	1.89	2.20
-10	**(+14)**	921	232	270	106	0.56	2.77	8.65	2.18	2.54
-5	**(+23)**	1113	281	326	112	0.58	3.37	9.98	2.52	2.92
0	**(+32)**	1334	336	391	116	0.60	4.05	11.55	2.91	3.38

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@220V50Hz **Fan**

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)**	251	63	74	71	0.42	0.74	3.56	0.90	1.04
-30	**(-22)**	342	86	100	80	0.45	1.02	4.31	1.09	1.26
-25	**(-13)**	447	113	131	89	0.49	1.33	5.05	1.27	1.48
-20	**(- 4)**	568	143	166	98	0.52	1.69	5.80	1.46	1.70
-15	**(+ 5)**	708	178	208	106	0.56	2.12	6.62	1.67	1.94
-10	**(+14)**	871	220	255	115	0.59	2.62	7.54	1.90	2.21
-5	**(+23)**	1060	267	311	123	0.62	3.20	8.60	2.17	2.52
0	**(+32)**	1277	322	374	130	0.65	3.88	9.85	2.48	2.89

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **65ºC (+149ºF))**
@220V50Hz **Fan**

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)**	205	52	60	71	0.42	0.61	2.85	0.72	0.84
-30	**(-22)**	294	74	86	80	0.45	0.87	3.67	0.93	1.08
-25	**(-13)**	396	100	116	90	0.49	1.18	4.42	1.11	1.30
-20	**(- 4)**	514	129	151	101	0.54	1.53	5.14	1.29	1.51
-15	**(+ 5)**	651	164	191	111	0.58	1.95	5.86	1.48	1.72
-10	**(+14)**	811	204	238	122	0.62	2.44	6.64	1.67	1.95
-5	**(+23)**	996	251	292	132	0.67	3.01	7.51	1.89	2.20
0	**(+32)**	1210	305	355	142	0.71	3.68	8.51	2.15	2.49

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **35ºC (+95ºF))**
@220V60Hz **Fan**

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)**	380	96	111	76	0.36	1.12	5.00	1.26	1.47
-30	**(-22)**	490	123	144	83	0.39	1.45	5.86	1.48	1.72
-25	**(-13)**	617	156	181	91	0.42	1.84	6.81	1.72	2.00
-20	**(- 4)**	767	193	225	97	0.45	2.29	7.90	1.99	2.31
-15	**(+ 5)**	943	238	276	103	0.48	2.82	9.14	2.30	2.68
-10	**(+14)**	1150	290	337	109	0.51	3.46	10.57	2.66	3.10
-5	**(+23)**	1393	351	408	114	0.53	4.21	12.22	3.08	3.58
0	**(+32)**	1676	422	491	119	0.54	5.09	14.12	3.56	4.14

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@220V60Hz **Fan**

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)**	352	89	103	79	0.37	1.04	4.47	1.13	1.31
-30	**(-22)**	460	116	135	88	0.41	1.37	5.23	1.32	1.53
-25	**(-13)**	584	147	171	97	0.45	1.74	6.03	1.52	1.77
-20	**(- 4)**	728	183	213	105	0.49	2.17	6.92	1.74	2.03
-15	**(+ 5)**	896	226	262	113	0.52	2.68	7.91	1.99	2.32
-10	**(+14)**	1093	275	320	121	0.56	3.29	9.05	2.28	2.65
-5	**(+23)**	1324	334	388	128	0.59	4.00	10.35	2.61	3.03
0	**(+32)**	1593	402	467	135	0.62	4.84	11.86	2.99	3.47

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@220V60Hz **Fan**

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)**	309	78	91	79	0.37	0.91	3.93	0.99	1.15
-30	**(-22)**	418	105	122	90	0.42	1.24	4.65	1.17	1.36
-25	**(-13)**	540	136	158	100	0.46	1.61	5.38	1.36	1.58
-20	**(- 4)**	680	171	199	111	0.51	2.03	6.14	1.55	1.80
-15	**(+ 5)**	843	212	247	121	0.56	2.52	6.96	1.75	2.04
-10	**(+14)**	1033	260	303	131	0.60	3.11	7.87	1.98	2.31
-5	**(+23)**	1254	316	367	141	0.65	3.79	8.91	2.24	2.61
0	**(+32)**	1512	381	443	150	0.69	4.60	10.10	2.54	2.96

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **65ºC (+149ºF))**
@220V60Hz **Fan**

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)**	252	63	74	77	0.36	0.74	3.26	0.82	0.96
-30	**(-22)**	363	92	106	90	0.41	1.08	4.03	1.02	1.18
-25	**(-13)**	486	122	142	102	0.47	1.45	4.75	1.20	1.39
-20	**(- 4)**	625	157	183	115	0.52	1.86	5.46	1.37	1.60
-15	**(+ 5)**	784	198	230	127	0.58	2.35	6.18	1.56	1.81
-10	**(+14)**	969	244	284	140	0.64	2.91	6.94	1.75	2.03
-5	**(+23)**	1183	298	347	152	0.70	3.58	7.78	1.96	2.28
0	**(+32)**	1432	361	420	164	0.75	4.35	8.73	2.20	2.56

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	Straight		
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	Straight		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		