COMPRESSOR DEFINITION

Designation	**EM 2U3111U**
Nominal Voltage/Frequency	**220-240 V 50-60 Hz**
Engineering Number	**513305581**

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 Static**			(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)**	323	81	95	69	0.42	0.96	4.64	1.17	1.36
-30	**(-22)**	412	104	121	75	0.43	1.22	5.44	1.37	1.59
-25	**(-13)**	504	127	148	80	0.45	1.50	6.32	1.59	1.85
-20	**(- 4)**	612	154	179	85	0.48	1.82	7.31	1.84	2.14
-15	**(+ 5)**	745	188	218	89	0.50	2.23	8.47	2.13	2.48
-10	**(+14)**	915	231	268	93	0.52	2.75	9.84	2.48	2.88
-5	**(+23)**	1132	285	332	98	0.54	3.42	11.47	2.89	3.36
0	**(+32)**	1408	355	413	105	0.54	4.28	13.41	3.38	3.93

E - PERFORMANCE - CURVES

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

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)**	264	67	77	70	0.41	0.78	3.84	0.97	1.12
-30	**(-22)**	368	93	108	79	0.43	1.09	4.62	1.16	1.35
-25	**(-13)**	474	119	139	86	0.46	1.41	5.43	1.37	1.59
-20	**(- 4)**	592	149	173	93	0.49	1.77	6.31	1.59	1.85
-15	**(+ 5)**	733	185	215	100	0.52	2.20	7.31	1.84	2.14
-10	**(+14)**	908	229	266	107	0.55	2.73	8.47	2.13	2.48
-5	**(+23)**	1128	284	331	114	0.58	3.41	9.83	2.48	2.88
0	**(+32)**	1404	354	411	124	0.60	4.27	11.46	2.89	3.36

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

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)**	225	57	66	70	0.42	0.66	3.31	0.83	0.97
-30	**(-22)**	331	83	97	80	0.44	0.98	4.07	1.03	1.19
-25	**(-13)**	436	110	128	90	0.47	1.30	4.81	1.21	1.41
-20	**(- 4)**	551	139	161	98	0.51	1.64	5.58	1.41	1.63
-15	**(+ 5)**	686	173	201	107	0.55	2.05	6.41	1.61	1.88
-10	**(+14)**	853	215	250	115	0.59	2.57	7.35	1.85	2.15
-5	**(+23)**	1062	268	311	125	0.63	3.21	8.46	2.13	2.48
0	**(+32)**	1324	334	388	136	0.66	4.02	9.77	2.46	2.86

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

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	69	0.42	0.61	2.90	0.73	0.85
-30	**(-22)**	299	75	88	81	0.44	0.89	3.64	0.92	1.07
-25	**(-13)**	390	98	114	91	0.48	1.16	4.31	1.09	1.26
-20	**(- 4)**	488	123	143	100	0.52	1.45	4.95	1.25	1.45
-15	**(+ 5)**	604	152	177	109	0.57	1.81	5.62	1.41	1.65
-10	**(+14)**	749	189	219	119	0.62	2.25	6.34	1.60	1.86
-5	**(+23)**	933	235	273	130	0.66	2.82	7.18	1.81	2.10
0	**(+32)**	1169	295	342	142	0.71	3.55	8.17	2.06	2.39

E - PERFORMANCE - CURVES

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

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)**	303	76	89	67	0.41	0.90	4.51	1.14	1.32
-30	**(-22)**	455	115	133	80	0.41	1.35	5.63	1.42	1.65
-25	**(-13)**	605	152	177	89	0.42	1.80	6.74	1.70	1.97
-20	**(- 4)**	761	192	223	97	0.44	2.27	7.88	1.99	2.31
-15	**(+ 5)**	934	235	274	103	0.47	2.80	9.11	2.30	2.67
-10	**(+14)**	1132	285	332	109	0.50	3.41	10.47	2.64	3.07
-5	**(+23)**	1365	344	400	113	0.52	4.13	12.03	3.03	3.52
0	**(+32)**	1641	414	481	118	0.54	4.99	13.82	3.48	4.05

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

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)**	275	69	81	70	0.42	0.81	3.93	0.99	1.15
-30	**(-22)**	418	105	122	84	0.42	1.24	4.90	1.24	1.44
-25	**(-13)**	559	141	164	95	0.44	1.66	5.83	1.47	1.71
-20	**(- 4)**	708	178	208	104	0.47	2.11	6.76	1.70	1.98
-15	**(+ 5)**	874	220	256	113	0.51	2.62	7.76	1.95	2.27
-10	**(+14)**	1066	269	312	120	0.55	3.21	8.86	2.23	2.60
-5	**(+23)**	1293	326	379	127	0.59	3.91	10.13	2.55	2.97
0	**(+32)**	1564	394	458	135	0.62	4.75	11.61	2.93	3.40

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

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)**	254	64	74	73	0.42	0.75	3.53	0.89	1.04
-30	**(-22)**	386	97	113	87	0.43	1.14	4.39	1.11	1.29
-25	**(-13)**	517	130	151	100	0.46	1.54	5.17	1.30	1.52
-20	**(- 4)**	656	165	192	110	0.50	1.96	5.94	1.50	1.74
-15	**(+ 5)**	813	205	238	120	0.55	2.43	6.74	1.70	1.98
-10	**(+14)**	997	251	292	130	0.60	3.00	7.63	1.92	2.24
-5	**(+23)**	1216	306	356	140	0.65	3.68	8.65	2.18	2.54
0	**(+32)**	1480	373	434	150	0.69	4.50	9.87	2.49	2.89

E - PERFORMANCE - CURVES

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

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)**	242	61	71	74	0.43	0.72	3.21	0.81	0.94
-30	**(-22)**	361	91	106	90	0.45	1.07	3.99	1.00	1.17
-25	**(-13)**	479	121	140	103	0.48	1.42	4.67	1.18	1.37
-20	**(- 4)**	606	153	178	115	0.53	1.81	5.32	1.34	1.56
-15	**(+ 5)**	752	190	220	127	0.58	2.25	5.97	1.50	1.75
-10	**(+14)**	925	233	271	139	0.64	2.78	6.68	1.68	1.96
-5	**(+23)**	1135	286	333	151	0.70	3.43	7.50	1.89	2.20
0	**(+32)**	1390	350	407	164	0.75	4.22	8.48	2.14	2.49

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		