

### COMPRESSOR DEFINITION

Designation	EM 2U3115U
Nominal Voltage/Frequency	220-240 V 50-60 Hz
Engineering Number	513305536

### 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 <sup>2</sup> ] (262 psig)	/ °C - °F
9.2 Peak	20.6	[kgf/cm <sup>2</sup> ] (293 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/4	[hp]
2 Displacement	3.97	[cm <sup>3</sup> ] (0.242 cu.in)
2.1 Bore [mm]	19.000	
2.2 Stroke [mm]	14.000	
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)	7.89	[kg] (17.39 lb.)
5 Nitrogen charge	0.2 to 0.3	[kgf/cm <sup>2</sup> ] (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	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	5(310)	[µF(VAC minimum)]
5 Motor protection	4TM213KFBYY-53	
6 Start winding resistance	18.10	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	12.80	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	7.90/7.20	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	1.80/1.50	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (50/60 Hz)	1.90/1.70	[A] - Measured according to UL 984
11 Approval boards certification	CCC - CE - IMTRO - IRAM - TUV - UKCA - UL - VDE	

### 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]
667	168	195	123	0.66	1.99	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 (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]
685	173	201	124	0.67	2.04	5.52	1.39	1.62

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]
789	199	231	140	0.65	2.35	5.62	1.42	1.65

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]
815	205	239	143	0.66	2.43	5.72	1.44	1.68

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		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]
-35	(-31)	- 27	- 7	- 8	- 2	- 0.01	- 0.08	- 0.30	- 0.08	- 0.09
-30	(-22)	- 95	- 24	- 28	- 15	- 0.08	- 0.28	- 0.62	- 0.16	- 0.18
-25	(-13)	101	25	30	9	0.06	0.30	1.02	0.26	0.30
-20	(- 4)	468	118	137	54	0.31	1.40	3.88	0.98	1.14
-15	(+ 5)	912	230	267	105	0.58	2.73	7.24	1.82	2.12
-10	(+14)	1340	338	393	144	0.79	4.03	10.36	2.61	3.04
-5	(+23)	1659	418	486	156	0.85	5.01	12.50	3.15	3.66
0	(+32)	1775	447	520	125	0.68	5.40	12.93	3.26	3.79

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		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)	- 22	- 5	- 6	- 3	- 0.02	- 0.06	- 0.17	- 0.04	- 0.05
-30	(-22)	- 99	- 25	- 29	- 14	- 0.08	- 0.30	- 0.69	- 0.17	- 0.20
-25	(-13)	87	22	25	12	0.07	0.26	0.71	0.18	0.21
-20	(- 4)	444	112	130	60	0.32	1.33	3.30	0.83	0.97
-15	(+ 5)	878	221	257	114	0.61	2.63	6.34	1.60	1.86
-10	(+14)	1296	327	380	157	0.83	3.90	9.10	2.29	2.67
-5	(+23)	1605	405	470	173	0.92	4.85	10.85	2.73	3.18
0	(+32)	1712	432	502	147	0.77	5.21	10.84	2.73	3.18

TEST CONDITIONS: @220V50Hz		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)	- 15	- 4	- 4	- 4	- 0.02	- 0.05	- 0.07	- 0.02	- 0.02
-30	(-22)	- 104	- 26	- 31	- 14	- 0.07	- 0.31	- 0.72	- 0.18	- 0.21
-25	(-13)	70	18	21	15	0.08	0.21	0.51	0.13	0.15
-20	(- 4)	415	105	122	65	0.34	1.24	2.88	0.73	0.84
-15	(+ 5)	838	211	246	121	0.64	2.51	5.66	1.43	1.66
-10	(+14)	1245	314	365	168	0.88	3.74	8.12	2.05	2.38
-5	(+23)	1543	389	452	188	0.98	4.66	9.53	2.40	2.79
0	(+32)	1638	413	480	167	0.85	4.98	9.14	2.30	2.68

TEST CONDITIONS: @220V50Hz		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)	- 9	- 2	- 3	- 4	- 0.02	- 0.03	- 0.07	- 0.02	- 0.02
-30	(-22)	- 111	- 28	- 33	- 13	- 0.07	- 0.33	- 0.79	- 0.20	- 0.23
-25	(-13)	50	13	15	17	0.08	0.15	0.32	0.08	0.09
-20	(- 4)	382	96	112	69	0.36	1.14	2.53	0.64	0.74
-15	(+ 5)	791	199	232	128	0.67	2.37	5.12	1.29	1.50
-10	(+14)	1185	299	347	178	0.92	3.56	7.34	1.85	2.15
-5	(+23)	1469	370	431	202	1.04	4.44	8.47	2.13	2.48
0	(+32)	1552	391	455	185	0.93	4.72	7.76	1.95	2.27

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		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]	[Btu/Wh]	[kcal/Wh]
-35	(-31)	- 30	- 8	- 9	- 2	- 0.01	- 0.09	- 0.31	- 0.08	- 0.09
-30	(-22)	- 118	- 30	- 35	- 17	- 0.08	- 0.35	- 0.65	- 0.16	- 0.19
-25	(-13)	113	29	33	10	0.05	0.34	1.05	0.26	0.31
-20	(- 4)	552	139	162	62	0.29	1.65	4.01	1.01	1.17
-15	(+ 5)	1086	274	318	121	0.56	3.26	7.45	1.88	2.18
-10	(+14)	1603	404	470	168	0.78	4.82	10.60	2.67	3.11
-5	(+23)	1991	502	583	184	0.86	6.01	12.68	3.19	3.71
0	(+32)	2137	539	626	152	0.71	6.50	12.90	3.25	3.78

TEST CONDITIONS: @220V60Hz		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]	[Btu/Wh]	[kcal/Wh]
-35	(-31)	- 25	- 6	- 7	- 3	- 0.01	- 0.07	- 0.18	- 0.05	- 0.05
-30	(-22)	- 121	- 30	- 35	- 16	- 0.08	- 0.36	- 0.72	- 0.18	- 0.21
-25	(-13)	101	25	30	14	0.06	0.30	0.74	0.19	0.22
-20	(- 4)	527	133	155	69	0.32	1.58	3.43	0.86	1.01
-15	(+ 5)	1047	264	307	131	0.61	3.14	6.57	1.65	1.92
-10	(+14)	1548	390	454	182	0.84	4.65	9.37	2.36	2.75
-5	(+23)	1917	483	562	202	0.94	5.79	11.06	2.79	3.24
0	(+32)	2044	515	599	175	0.81	6.22	10.87	2.74	3.19

TEST CONDITIONS: @220V60Hz		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]	[Btu/Wh]	[kcal/Wh]
-35	(-31)	- 19	- 5	- 6	- 4	- 0.02	- 0.06	- 0.08	- 0.02	- 0.02
-30	(-22)	- 125	- 31	- 37	- 16	- 0.07	- 0.37	- 0.76	- 0.19	- 0.22
-25	(-13)	85	21	25	17	0.08	0.25	0.52	0.13	0.15
-20	(- 4)	497	125	146	75	0.35	1.49	2.99	0.75	0.88
-15	(+ 5)	1001	252	293	140	0.65	3.00	5.87	1.48	1.72
-10	(+14)	1484	374	435	195	0.90	4.46	8.38	2.11	2.45
-5	(+23)	1833	462	537	219	1.02	5.54	9.74	2.46	2.85
0	(+32)	1938	488	568	196	0.91	5.89	9.18	2.31	2.69

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		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)	- 13	- 3	- 4	- 5	- 0.02	- 0.04	- 0.05	- 0.01	- 0.02
-30	(-22)	- 131	- 33	- 38	- 15	- 0.07	- 0.39	- 0.83	- 0.21	- 0.24
-25	(-13)	65	16	19	20	0.09	0.19	0.32	0.08	0.09
-20	(- 4)	462	116	135	80	0.38	1.38	2.62	0.66	0.77
-15	(+ 5)	948	239	278	149	0.69	2.84	5.30	1.33	1.55
-10	(+14)	1411	356	414	206	0.96	4.24	7.57	1.91	2.22
-5	(+23)	1739	438	510	235	1.10	5.25	8.66	2.18	2.54
0	(+32)	1820	459	533	216	1.01	5.54	7.78	1.96	2.28

### 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	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		