

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 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	1/4	[hp]
2 Displacement	3.97	[cm ³] (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 ²] (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)			Input power (We)	Electric current	Mass flow rate	Efficiency EER & COP			
+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 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)			Input power (We)	Electric current	Mass flow rate	Efficiency EER & COP			
+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 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)			Input power (We)	Electric current	Mass flow rate	Efficiency EER & COP			
+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 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)			Input power (We)	Electric current	Mass flow rate	Efficiency EER & COP			
+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 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 Static				(Condensing temperature 35°C (+95°F))				
Evaporating temperature	Cooling capacity (Qe)			Input power (We)	Electric current	Mass flow rate	Efficiency EER & COP			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	- 27	- 7	- 8	- 2	- 0.01	- 0.08	- 0.30	- 0.08	- 0.09	
-30 (-22)	- 92	- 23	- 27	- 15	- 0.08	- 0.28	- 0.61	- 0.15	- 0.18	
-25 (-13)	100	25	29	9	0.06	0.30	1.01	0.25	0.29	
-20 (- 4)	458	116	134	54	0.31	1.37	3.82	0.96	1.12	
-15 (+ 5)	892	225	261	104	0.58	2.68	7.11	1.79	2.08	
-10 (+14)	1310	330	384	144	0.79	3.94	10.15	2.56	2.97	
-5 (+23)	1621	409	475	156	0.86	4.90	12.21	3.08	3.58	
0 (+32)	1735	437	508	126	0.69	5.28	12.58	3.17	3.69	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		ASHRAE32 Static			(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)	- 21	- 5	- 6	- 3	- 0.02	- 0.06	- 0.17	- 0.04	- 0.05
-30	(-22)	- 97	- 24	- 28	- 14	- 0.08	- 0.29	- 0.67	- 0.17	- 0.20
-25	(-13)	85	21	25	12	0.07	0.25	0.71	0.18	0.21
-20	(- 4)	433	109	127	60	0.32	1.30	3.25	0.82	0.95
-15	(+ 5)	857	216	251	113	0.61	2.57	6.23	1.57	1.83
-10	(+14)	1265	319	371	156	0.84	3.80	8.93	2.25	2.62
-5	(+23)	1566	395	459	173	0.92	4.73	10.61	2.67	3.11
0	(+32)	1670	421	489	147	0.76	5.08	10.56	2.66	3.09

TEST CONDITIONS: @220V50Hz		ASHRAE32 Static			(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	- 0.04	- 0.07	- 0.02	- 0.02
-30	(-22)	- 102	- 26	- 30	- 14	- 0.07	- 0.31	- 0.71	- 0.18	- 0.21
-25	(-13)	68	17	20	14	0.07	0.20	0.49	0.12	0.14
-20	(- 4)	404	102	119	65	0.34	1.21	2.82	0.71	0.83
-15	(+ 5)	816	206	239	121	0.64	2.45	5.55	1.40	1.63
-10	(+14)	1213	306	355	167	0.88	3.65	7.96	2.00	2.33
-5	(+23)	1503	379	440	188	0.98	4.54	9.31	2.35	2.73
0	(+32)	1595	402	467	167	0.85	4.85	8.89	2.24	2.61

TEST CONDITIONS: @220V50Hz		ASHRAE32 Static			(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)	- 8	- 2	- 2	- 4	- 0.02	- 0.02	- 0.06	- 0.01	- 0.02
-30	(-22)	- 109	- 28	- 32	- 13	- 0.07	- 0.33	- 0.79	- 0.20	- 0.23
-25	(-13)	48	12	14	17	0.08	0.14	0.29	0.07	0.09
-20	(- 4)	371	93	109	69	0.36	1.11	2.46	0.62	0.72
-15	(+ 5)	770	194	226	128	0.67	2.31	5.00	1.26	1.46
-10	(+14)	1153	291	338	178	0.93	3.47	7.17	1.81	2.10
-5	(+23)	1430	360	419	202	1.04	4.32	8.25	2.08	2.42
0	(+32)	1509	380	442	185	0.93	4.59	7.53	1.90	2.21

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		ASHRAE32 Static			(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)	- 31	- 8	- 9	- 2	- 0.11	- 0.09	- 0.31	- 0.08	- 0.09
-30	(-22)	- 112	- 28	- 33	- 17	- 0.27	- 0.33	- 0.63	- 0.16	- 0.18
-25	(-13)	114	29	33	10	- 0.10	0.34	1.05	0.26	0.31
-20	(- 4)	539	136	158	62	0.27	1.61	3.95	1.00	1.16
-15	(+ 5)	1057	266	310	120	0.68	3.17	7.33	1.85	2.15
-10	(+14)	1560	393	457	166	0.98	4.69	10.42	2.63	3.05
-5	(+23)	1943	490	569	183	1.02	5.87	12.47	3.14	3.66
0	(+32)	2098	529	615	152	0.66	6.38	12.72	3.21	3.73

TEST CONDITIONS: @220V60Hz		ASHRAE32 Static			(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)	- 24	- 6	- 7	- 3	0.26	- 0.07	- 0.18	- 0.05	- 0.05
-30	(-22)	- 115	- 29	- 34	- 16	0.05	- 0.34	- 0.70	- 0.18	- 0.21
-25	(-13)	98	25	29	13	0.16	0.29	0.73	0.18	0.21
-20	(- 4)	509	128	149	68	0.44	1.52	3.36	0.85	0.98
-15	(+ 5)	1011	255	296	130	0.75	3.03	6.42	1.62	1.88
-10	(+14)	1497	377	439	180	0.94	4.50	9.16	2.31	2.68
-5	(+23)	1860	469	545	201	0.86	5.62	10.82	2.73	3.17
0	(+32)	1993	502	584	174	0.37	6.06	10.65	2.68	3.12

TEST CONDITIONS: @220V60Hz		ASHRAE32 Static			(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)	- 18	- 4	- 5	- 4	- 0.10	- 0.05	- 0.07	- 0.02	- 0.02
-30	(-22)	- 120	- 30	- 35	- 15	- 0.28	- 0.36	- 0.74	- 0.19	- 0.22
-25	(-13)	81	20	24	17	- 0.14	0.24	0.50	0.13	0.15
-20	(- 4)	477	120	140	74	0.15	1.43	2.91	0.73	0.85
-15	(+ 5)	962	243	282	139	0.46	2.89	5.71	1.44	1.67
-10	(+14)	1430	360	419	193	0.63	4.30	8.16	2.06	2.39
-5	(+23)	1773	447	520	218	0.52	5.35	9.49	2.39	2.78
0	(+32)	1884	475	552	196	- 0.02	5.73	8.95	2.26	2.62

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		ASHRAE32 Static			(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)	- 12	- 3	- 4	- 5	- 0.06	- 0.04	- 0.05	- 0.01	- 0.02
-30	(-22)	- 125	- 32	- 37	- 15	- 0.10	- 0.38	- 0.81	- 0.20	- 0.24
-25	(-13)	62	16	18	19	0.15	0.18	0.31	0.08	0.09
-20	(- 4)	443	112	130	79	0.55	1.32	2.55	0.64	0.75
-15	(+ 5)	911	230	267	147	0.95	2.73	5.15	1.30	1.51
-10	(+14)	1360	343	398	204	1.19	4.09	7.36	1.86	2.16
-5	(+23)	1682	424	493	233	1.14	5.08	8.42	2.12	2.47
0	(+32)	1771	446	519	216	0.64	5.39	7.58	1.91	2.22

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		