

COMPRESSOR DEFINITION

Designation	EM 2U3115U
Nominal Voltage/Frequency	220-240 V 50-60 Hz
Engineering Number	513305569

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	ESTER / 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 - 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	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 - 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 +/- 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]	
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 +/- 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]	
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 +/- 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]	
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 +/- 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]	
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 +/- 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)	434	109	127	91	0.56	1.28	4.77	1.20	1.40
-30	(-22)	563	142	165	100	0.59	1.67	5.62	1.42	1.65
-25	(-13)	706	178	207	108	0.62	2.10	6.51	1.64	1.91
-20	(- 4)	869	219	255	116	0.65	2.59	7.48	1.89	2.19
-15	(+ 5)	1058	267	310	123	0.69	3.17	8.60	2.17	2.52
-10	(+14)	1277	322	374	130	0.71	3.84	9.92	2.50	2.91
-5	(+23)	1532	386	449	134	0.73	4.63	11.48	2.89	3.36
0	(+32)	1829	461	536	137	0.74	5.56	13.33	3.36	3.91

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V50Hz		Fan								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	410	103	120	95	0.57	1.21	4.34	1.09	1.27	
-30 (-22)	534	135	157	105	0.60	1.58	5.08	1.28	1.49	
-25 (-13)	673	170	197	115	0.64	2.00	5.83	1.47	1.71	
-20 (- 4)	832	210	244	125	0.68	2.48	6.62	1.67	1.94	
-15 (+ 5)	1015	256	297	135	0.72	3.04	7.51	1.89	2.20	
-10 (+14)	1229	310	360	144	0.76	3.70	8.55	2.15	2.50	
-5 (+23)	1478	372	433	151	0.80	4.47	9.79	2.47	2.87	
0 (+32)	1768	446	518	157	0.82	5.37	11.29	2.84	3.31	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V50Hz		Fan								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	373	94	109	97	0.58	1.10	3.88	0.98	1.14	
-30 (-22)	494	125	145	108	0.62	1.47	4.58	1.16	1.34	
-25 (-13)	629	159	184	120	0.66	1.87	5.24	1.32	1.54	
-20 (- 4)	783	197	230	132	0.71	2.34	5.91	1.49	1.73	
-15 (+ 5)	962	242	282	145	0.76	2.88	6.63	1.67	1.94	
-10 (+14)	1170	295	343	156	0.81	3.52	7.46	1.88	2.19	
-5 (+23)	1414	356	414	167	0.86	4.28	8.45	2.13	2.48	
0 (+32)	1698	428	498	176	0.90	5.16	9.65	2.43	2.83	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 65°C (+149°F))					
@220V50Hz		Fan								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	324	82	95	97	0.59	0.96	3.30	0.83	0.97	
-30 (-22)	442	111	129	110	0.63	1.31	4.03	1.01	1.18	
-25 (-13)	573	144	168	124	0.68	1.70	4.67	1.18	1.37	
-20 (- 4)	723	182	212	138	0.74	2.16	5.27	1.33	1.54	
-15 (+ 5)	897	226	263	153	0.80	2.69	5.88	1.48	1.72	
-10 (+14)	1101	277	323	167	0.86	3.31	6.57	1.66	1.92	
-5 (+23)	1339	337	392	181	0.92	4.05	7.37	1.86	2.16	
0 (+32)	1617	408	474	194	0.98	4.91	8.34	2.10	2.44	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		ASHRAE32 Fan			(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)	518	131	152	103	0.49	1.53	5.05	1.27	1.48
-30	(-22)	657	166	193	113	0.53	1.95	5.83	1.47	1.71
-25	(-13)	824	208	241	123	0.57	2.45	6.71	1.69	1.97
-20	(- 4)	1022	257	299	133	0.62	3.05	7.70	1.94	2.26
-15	(+ 5)	1254	316	368	142	0.66	3.76	8.84	2.23	2.59
-10	(+14)	1526	385	447	151	0.70	4.59	10.13	2.55	2.97
-5	(+23)	1841	464	539	159	0.74	5.57	11.62	2.93	3.40
0	(+32)	2202	555	645	165	0.77	6.70	13.31	3.36	3.90

TEST CONDITIONS: @220V60Hz		ASHRAE32 Fan			(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)	494	124	145	107	0.50	1.46	4.63	1.17	1.36
-30	(-22)	632	159	185	119	0.55	1.87	5.31	1.34	1.55
-25	(-13)	794	200	233	131	0.61	2.36	6.04	1.52	1.77
-20	(- 4)	985	248	289	143	0.66	2.94	6.85	1.73	2.01
-15	(+ 5)	1208	304	354	155	0.72	3.62	7.76	1.96	2.27
-10	(+14)	1467	370	430	167	0.77	4.41	8.79	2.22	2.58
-5	(+23)	1766	445	518	177	0.82	5.34	9.98	2.51	2.92
0	(+32)	2110	532	618	186	0.87	6.41	11.33	2.86	3.32

TEST CONDITIONS: @220V60Hz		ASHRAE32 Fan			(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)	454	114	133	109	0.51	1.34	4.17	1.05	1.22
-30	(-22)	591	149	173	123	0.57	1.75	4.80	1.21	1.41
-25	(-13)	750	189	220	138	0.64	2.23	5.44	1.37	1.59
-20	(- 4)	935	236	274	153	0.70	2.79	6.12	1.54	1.79
-15	(+ 5)	1149	290	337	167	0.77	3.44	6.87	1.73	2.01
-10	(+14)	1396	352	409	181	0.84	4.20	7.70	1.94	2.26
-5	(+23)	1681	424	493	194	0.90	5.08	8.64	2.18	2.53
0	(+32)	2008	506	588	207	0.96	6.10	9.71	2.45	2.85

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		ASHRAE32 Fan			(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)	398	100	117	110	0.52	1.18	3.61	0.91	1.06
-30	(-22)	536	135	157	126	0.59	1.59	4.25	1.07	1.24
-25	(-13)	692	174	203	143	0.67	2.06	4.85	1.22	1.42
-20	(- 4)	872	220	255	160	0.74	2.60	5.46	1.38	1.60
-15	(+ 5)	1078	272	316	177	0.83	3.23	6.10	1.54	1.79
-10	(+14)	1315	331	385	194	0.91	3.95	6.78	1.71	1.99
-5	(+23)	1586	400	465	211	0.98	4.79	7.53	1.90	2.21
0	(+32)	1896	478	556	226	1.06	5.76	8.38	2.11	2.45

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