

COMPRESSOR DEFINITION

Designation	EM 2X3121U
Nominal Voltage/Frequency	115-127 V 60 Hz
Engineering Number	513300583

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-290		
3 Nominal voltage and frequency	115-127 / 60	[V / Hz]	
4 Application type	L/MBP(LC-Curve until T.E. -40°C) Hot Gas Defrost Not Allowed		
4.1 Evaporating temperature range	-40°C to 0°C	(-40°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)	-	-	-
8.2 LBP (43°C Ambient temperature)	-	-	-
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	5.54	[cm ³] (0.338 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	16.000	
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)	7.8	[kg] (17.20 lb.)
5 Nitrogen charge	-	[kgf/cm ²]

C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	115-127 V 60 Hz 1 ~ (Single phase)	
2 Starting device type	PTC	
2.1 Starting device	8EA14C3/8EA14E62/8EA14E63/QP2-4.7	
3 Start capacitor	-	[μF(VAC minimum)]
4 Run capacitor	20(180)	[μF(VAC minimum)]
5 Motor protection	DRB44N61A2	
6 Start winding resistance	5.27	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	3.04	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	15.60	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	3.50	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	3.87	[A] - Measured according to UL 984
11 Approval boards certification	UL	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @115V60Hz			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]	
1138	287	333	194	1.70	3.39	5.87	1.48	1.72	

TEST CONDITIONS: @115V60Hz			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]	
1158	292	339	196	1.71	3.45	5.91	1.49	1.73	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz			ASHRAE32 Static		(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]	[W/W]	
-40 (-40)	653	165	191	120	1.03	1.93	5.41	1.36	1.59	
-35 (-31)	832	210	244	133	1.15	2.46	6.25	1.57	1.83	
-30 (-22)	1050	265	308	148	1.28	3.11	7.13	1.80	2.09	
-25 (-13)	1314	331	385	163	1.41	3.91	8.11	2.04	2.38	
-20 (- 4)	1629	411	477	178	1.55	4.86	9.22	2.32	2.70	
-15 (+ 5)	2001	504	586	192	1.67	6.00	10.50	2.65	3.08	
-10 (+14)	2434	613	713	204	1.78	7.33	12.00	3.02	3.52	
-5 (+23)	2933	739	860	214	1.87	8.87	13.75	3.47	4.03	
0 (+32)	3505	883	1027	220	1.93	10.66	15.81	3.98	4.63	

TEST CONDITIONS: @115V60Hz			ASHRAE32 Static		(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]	[W/W]	
-40 (-40)	551	139	161	126	1.10	1.63	4.40	1.11	1.29	
-35 (-31)	726	183	213	140	1.23	2.15	5.18	1.31	1.52	
-30 (-22)	934	235	274	156	1.37	2.77	5.95	1.50	1.74	
-25 (-13)	1179	297	345	174	1.52	3.50	6.73	1.70	1.97	
-20 (- 4)	1467	370	430	192	1.68	4.38	7.57	1.91	2.22	
-15 (+ 5)	1803	454	528	210	1.84	5.40	8.52	2.15	2.50	
-10 (+14)	2193	553	643	227	1.99	6.60	9.62	2.42	2.82	
-5 (+23)	2642	666	774	243	2.13	7.99	10.90	2.75	3.19	
0 (+32)	3155	795	924	255	2.24	9.59	12.41	3.13	3.64	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V60Hz		ASHRAE32 Static			(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]	[W/W]
-40	(-40)	430	108	126	130	1.14	1.27	3.34	0.84	0.98
-35	(-31)	605	152	177	146	1.28	1.79	4.15	1.05	1.22
-30	(-22)	803	202	235	164	1.44	2.38	4.88	1.23	1.43
-25	(-13)	1032	260	302	185	1.62	3.07	5.55	1.40	1.63
-20	(- 4)	1295	326	380	207	1.82	3.86	6.22	1.57	1.82
-15	(+ 5)	1599	403	469	230	2.01	4.79	6.92	1.74	2.03
-10	(+14)	1949	491	571	252	2.21	5.86	7.69	1.94	2.25
-5	(+23)	2349	592	688	273	2.40	7.10	8.59	2.16	2.52
0	(+32)	2806	707	822	292	2.57	8.53	9.64	2.43	2.82

TEST CONDITIONS: @115V60Hz		ASHRAE32 Static			(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]
-40	(-40)	293	74	86	131	1.13	0.86	2.21	0.56	0.65
-35	(-31)	469	118	137	149	1.29	1.39	3.14	0.79	0.92
-30	(-22)	662	167	194	170	1.48	1.96	3.91	0.99	1.15
-25	(-13)	876	221	257	194	1.69	2.61	4.56	1.15	1.34
-20	(- 4)	1118	282	328	220	1.92	3.33	5.14	1.29	1.50
-15	(+ 5)	1392	351	408	247	2.17	4.17	5.67	1.43	1.66
-10	(+14)	1704	429	499	275	2.41	5.12	6.21	1.57	1.82
-5	(+23)	2058	519	603	302	2.66	6.22	6.80	1.71	1.99
0	(+32)	2461	620	721	328	2.90	7.48	7.48	1.88	2.19

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal		
2 Tray holder	Yes		
3 Connectors			
3.1 SUCTION	6.1 +0.10/+0.00	[mm]	(0.240" +0.004"/+0.000")
3.1.1 Material	Copper		
3.1.2 Shape	Slanted 40° up + 45° to Back		
3.2 DISCHARGE	4.9 +0.10/-0.05	[mm]	(0.193" +0.004"/-0.002")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted 0° up + 24° to Back		
3.3 PROCESS	6.1 +0.10/+0.00	[mm]	(0.240" +0.004"/+0.000")
3.3.1 Material	Copper		
3.3.2 Shape	Slanted 40° up + 45° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		