

COMPRESSOR DEFINITION

Designation	EM 2Z70HLP
Nominal Voltage/Frequency	220-240 V 50-60 Hz
Engineering Number	513304096

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	220-240 / 50-60	[V / Hz]	
4 Application type	Low Back Pressure		
4.1 Evaporating temperature range	-35°C to -10°C	(-31°F to 14°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	14.2	[kgf/cm ²] (202 psig)	/ °C - °F
9.2 Peak	15.9	[kgf/cm ²] (226 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/4	[hp]
2 Displacement	6.36	[cm ³] (0.388 cu.in)
2.1 Bore [mm]	22.500	
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 / ISO10	
4 Weight (with oil charge)	8.19	[kg] (18.06 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/QPS3	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	5(450)	[µF(VAC minimum)]
5 Motor protection	4TM232NFBYY-53	
6 Start winding resistance	12.13	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	19.45	[Ω at 25°C (77°F)] +/- 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 - 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 +/- 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]
645	163	189	113	0.56	3.66	5.71	1.44	1.67

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]
760	192	223	128	0.59	4.32	5.92	1.49	1.73

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz			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]
-35 (-31)	368	93	108	76	0.41	2.08	4.84	1.22	1.42
-30 (-22)	516	130	151	88	0.46	2.93	5.84	1.47	1.71
-25 (-13)	689	174	202	100	0.51	3.91	6.87	1.73	2.01
-20 (- 4)	892	225	261	112	0.56	5.08	7.97	2.01	2.33
-15 (+ 5)	1129	285	331	124	0.61	6.45	9.14	2.30	2.68
-10 (+14)	1406	354	412	135	0.66	8.06	10.42	2.63	3.05

TEST CONDITIONS: @220V50Hz			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]
-35 (-31)	327	82	96	76	0.41	1.85	4.32	1.09	1.27
-30 (-22)	469	118	137	90	0.47	2.66	5.19	1.31	1.52
-25 (-13)	639	161	187	105	0.53	3.63	6.07	1.53	1.78
-20 (- 4)	842	212	247	120	0.59	4.79	6.98	1.76	2.05
-15 (+ 5)	1082	273	317	136	0.66	6.18	7.95	2.00	2.33
-10 (+14)	1364	344	400	152	0.73	7.81	8.98	2.26	2.63

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		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]
-35 (-31)	280	71	82	74	0.41	1.58	3.80	0.96	1.11	
-30 (-22)	412	104	121	89	0.47	2.34	4.62	1.16	1.35	
-25 (-13)	575	145	168	106	0.53	3.26	5.42	1.37	1.59	
-20 (- 4)	772	195	226	124	0.61	4.40	6.23	1.57	1.82	
-15 (+ 5)	1010	255	296	143	0.69	5.77	7.05	1.78	2.07	
-10 (+14)	1292	326	379	163	0.78	7.40	7.91	1.99	2.32	

TEST CONDITIONS: @220V50Hz		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]
-35 (-31)	222	56	65	70	0.39	1.25	3.14	0.79	0.92	
-30 (-22)	339	85	99	85	0.45	1.92	3.98	1.00	1.17	
-25 (-13)	489	123	143	103	0.52	2.78	4.78	1.20	1.40	
-20 (- 4)	677	171	198	123	0.60	3.85	5.55	1.40	1.63	
-15 (+ 5)	908	229	266	144	0.70	5.18	6.30	1.59	1.85	
-10 (+14)	1185	299	347	168	0.80	6.79	7.06	1.78	2.07	

TEST CONDITIONS: @220V60Hz		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]
-35 (-31)	461	116	135	86	0.40	2.61	5.35	1.35	1.57	
-30 (-22)	614	155	180	100	0.46	3.48	6.18	1.56	1.81	
-25 (-13)	804	203	236	114	0.52	4.56	7.08	1.78	2.07	
-20 (- 4)	1037	261	304	129	0.59	5.90	8.04	2.03	2.36	
-15 (+ 5)	1320	333	387	145	0.66	7.54	9.08	2.29	2.66	
-10 (+14)	1661	419	487	163	0.74	9.52	10.18	2.57	2.98	

TEST CONDITIONS: @220V60Hz		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]
-35 (-31)	409	103	120	88	0.41	2.32	4.64	1.17	1.36	
-30 (-22)	565	142	166	104	0.48	3.20	5.45	1.37	1.60	
-25 (-13)	754	190	221	120	0.55	4.28	6.29	1.58	1.84	
-20 (- 4)	982	247	288	137	0.63	5.59	7.15	1.80	2.10	
-15 (+ 5)	1256	316	368	156	0.71	7.17	8.05	2.03	2.36	
-10 (+14)	1584	399	464	176	0.81	9.08	8.99	2.27	2.63	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		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]
-35	(-31)	348	88	102	86	0.40	1.97	4.05	1.02	1.19
-30	(-22)	506	128	148	104	0.48	2.87	4.85	1.22	1.42
-25	(-13)	693	175	203	123	0.56	3.93	5.63	1.42	1.65
-20	(- 4)	915	231	268	143	0.65	5.21	6.41	1.62	1.88
-15	(+ 5)	1180	297	346	164	0.75	6.74	7.19	1.81	2.11
-10	(+14)	1495	377	438	188	0.86	8.57	7.96	2.01	2.33

TEST CONDITIONS: @220V60Hz		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]
-35	(-31)	278	70	81	79	0.37	1.57	3.53	0.89	1.03
-30	(-22)	438	110	128	100	0.46	2.48	4.32	1.09	1.27
-25	(-13)	622	157	182	122	0.56	3.53	5.07	1.28	1.49
-20	(- 4)	839	211	246	146	0.67	4.77	5.77	1.45	1.69
-15	(+ 5)	1094	276	320	171	0.79	6.24	6.43	1.62	1.88
-10	(+14)	1395	351	409	199	0.91	7.99	7.05	1.78	2.07

F - EXTERNAL CHARACTERISTICS

1 Base plate	New Base Plate EUEM		
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	6.35 +0.08/-0.08	[mm]	(0.250" +0.003"/-0.003")
3.3.1 Material	Copper(OD)		
3.3.2 Shape	Slanted 45° up + 45° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		