

### COMPRESSOR DEFINITION

Designation	ES Z36CBC
Nominal Voltage/Frequency	220 V 50-60 Hz
Engineering Number	518100029

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-600a		
3 Nominal voltage and frequency	220 / 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 242 V	198 to 242 V
8.2 LBP (43°C Ambient temperature)	Static	198 to 242 V	198 to 242 V
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	6.9	[kgf/cm <sup>2</sup> ] (98 psig)	/ °C - °F
9.2 Peak	7.8	[kgf/cm <sup>2</sup> ] (111 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/5	[hp]
2 Displacement	5.68	[cm <sup>3</sup> ] (0.347 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	16.400	
3 Lubricant charge	115	[ml] (3.89 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	5.3	[kg] (11.68 lb.)
5 Nitrogen charge	-	[kgf/cm <sup>2</sup> ]

### C - ELECTRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	220 V 50-60 Hz 1 ~ (Single phase)	
2 Starting device type	Combo	
2.1 Starting device	8EA17E64/QPS2-C22MD3107	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	3(350)	[µF(VAC minimum)]
5 Motor protection	4TM189KFBYY-53	
6 Start winding resistance	29.35	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	41.56	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	2.73/2.55	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	0.53/0.42	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	0.61/0.51	[A] - Measured according to UL 984
11 Approval boards certification	CE - IMTRO - IRAM - 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 (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]
316	80	92	62	0.35	0.99	5.06	1.28	1.48

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]
387	98	113	69	0.32	1.22	5.62	1.42	1.65

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz			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]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	183	46	54	44	0.27	0.57	4.12	1.04	1.21
-30 (-22)	258	65	76	50	0.30	0.81	5.15	1.30	1.51
-25 (-13)	338	85	99	55	0.32	1.06	6.13	1.55	1.80
-20 (- 4)	431	109	126	60	0.34	1.35	7.16	1.80	2.10
-15 (+ 5)	542	137	159	66	0.36	1.71	8.31	2.09	2.43
-10 (+14)	680	171	199	70	0.38	2.14	9.66	2.43	2.83

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)	155	39	46	46	0.28	0.49	3.38	0.85	0.99
-30 (-22)	231	58	68	52	0.31	0.72	4.42	1.11	1.30
-25 (-13)	311	78	91	58	0.33	0.98	5.36	1.35	1.57
-20 (- 4)	404	102	118	64	0.36	1.27	6.28	1.58	1.84
-15 (+ 5)	515	130	151	71	0.38	1.62	7.27	1.83	2.13
-10 (+14)	651	164	191	77	0.41	2.05	8.41	2.12	2.46

### E - PERFORMANCE - CURVES

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]	[Btu/Wh]	[kcal/Wh]
-35	(-31)	128	32	38	48	0.29	0.40	2.67	0.67	0.78
-30	(-22)	204	51	60	54	0.31	0.64	3.76	0.95	1.10
-25	(-13)	285	72	83	60	0.34	0.89	4.70	1.18	1.38
-20	(- 4)	377	95	110	68	0.37	1.18	5.56	1.40	1.63
-15	(+ 5)	487	123	143	75	0.40	1.53	6.43	1.62	1.88
-10	(+14)	622	157	182	84	0.43	1.96	7.39	1.86	2.17

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]	[Btu/Wh]	[kcal/Wh]
-35	(-31)	102	26	30	51	0.31	0.32	1.96	0.49	0.57
-30	(-22)	178	45	52	57	0.33	0.56	3.14	0.79	0.92
-25	(-13)	258	65	76	63	0.35	0.81	4.12	1.04	1.21
-20	(- 4)	350	88	103	71	0.38	1.10	4.96	1.25	1.45
-15	(+ 5)	460	116	135	80	0.41	1.45	5.76	1.45	1.69
-10	(+14)	594	150	174	90	0.45	1.88	6.59	1.66	1.93

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)	251	63	73	45	0.21	0.79	5.53	1.39	1.62
-30	(-22)	337	85	99	53	0.25	1.06	6.38	1.61	1.87
-25	(-13)	437	110	128	60	0.28	1.37	7.27	1.83	2.13
-20	(- 4)	553	139	162	67	0.31	1.74	8.25	2.08	2.42
-15	(+ 5)	686	173	201	74	0.34	2.16	9.33	2.35	2.73
-10	(+14)	838	211	246	79	0.37	2.64	10.56	2.66	3.09

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)	200	51	59	48	0.22	0.63	4.24	1.07	1.24
-30	(-22)	289	73	85	55	0.26	0.91	5.20	1.31	1.53
-25	(-13)	391	99	115	63	0.30	1.23	6.14	1.55	1.80
-20	(- 4)	509	128	149	71	0.33	1.60	7.08	1.78	2.07
-15	(+ 5)	643	162	188	80	0.37	2.02	8.05	2.03	2.36
-10	(+14)	796	201	233	88	0.41	2.51	9.07	2.29	2.66

### E - PERFORMANCE - CURVES

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]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	153	39	45	50	0.23	0.48	3.08	0.78	0.90
-30	(-22)	243	61	71	58	0.27	0.76	4.20	1.06	1.23
-25	(-13)	346	87	101	66	0.31	1.09	5.21	1.31	1.53
-20	(- 4)	465	117	136	75	0.35	1.46	6.14	1.55	1.80
-15	(+ 5)	600	151	176	85	0.40	1.89	7.02	1.77	2.06
-10	(+14)	753	190	221	95	0.44	2.38	7.88	1.99	2.31

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)	108	27	32	53	0.24	0.34	1.99	0.50	0.58
-30	(-22)	199	50	58	60	0.28	0.62	3.30	0.83	0.97
-25	(-13)	302	76	89	69	0.32	0.95	4.42	1.11	1.30
-20	(- 4)	421	106	123	79	0.37	1.32	5.37	1.35	1.57
-15	(+ 5)	556	140	163	90	0.43	1.75	6.20	1.56	1.82
-10	(+14)	710	179	208	103	0.48	2.24	6.92	1.74	2.03

### F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard ES/FMS		
2 Tray holder	Yes		
3 Connectors			
3.1 SUCTION	7.6 +0.05/-0.05	[mm]	(0.299" +0.002"/-0.002")
3.1.1 Material	Copper(OD)		
3.1.2 Shape	Slanted parallel to Base Plate		
3.2 DISCHARGE	4.25 +0.05/-0.05	[mm]	(0.167" +0.002"/-0.002")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted parallel BP+50°to up		
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 parallel BP+45°to up		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		