

### COMPRESSOR DEFINITION

Designation	VEM Z7C
Nominal Voltage/Frequency	230 V 53-150 Hz
Engineering Number	513902032

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-600a		
3 Nominal voltage and frequency	230 / 53-150	[ 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	BPM		
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	187 to 255 V	187 to 255 V
8.2 LBP (43°C Ambient temperature)	Static	187 to 255 V	187 to 255 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	7.23	[cm <sup>3</sup> ] (0.441 cu.in)
2.1 Bore [mm]	24.000	
2.2 Stroke [mm]	16.000	
3 Lubricant charge	220	[ml] (7.44 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	7.59	[kg] (16.73 lb.)
5 Nitrogen charge	-	[kgf/cm <sup>2</sup> ]

### C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	230 V 53-150 Hz 3 ~ (Three phase)	
2 Starting device type	Inverter	
2.1 Starting device	VCC32456XXXX	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	VCC32456XXXXX	
6 Start winding resistance	16.07	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	16.07	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (53/15 Hz)	2.10/2.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (53/15 Hz)	2.10/2.10	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (53/15 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	CE - UKCA - VDE	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V1600RPM			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]	
242	61	71	40	0.33	0.76	6.07	1.53	1.78	

TEST CONDITIONS: @220V2000RPM			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]	
297	75	87	48	0.40	0.93	6.17	1.55	1.81	

TEST CONDITIONS: @220V3000RPM			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]	
446	112	131	72	0.58	1.40	6.19	1.56	1.81	

TEST CONDITIONS: @220V4500RPM			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]	
621	156	182	105	0.82	1.95	5.93	1.49	1.74	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1600RPM		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]
-35	(-31)	136	34	40	24	0.21	0.43	5.60	1.41	1.64
-30	(-22)	183	46	54	29	0.25	0.57	6.38	1.61	1.87
-25	(-13)	239	60	70	33	0.28	0.75	7.27	1.83	2.13
-20	(- 4)	306	77	90	37	0.31	0.96	8.31	2.10	2.44
-15	(+ 5)	385	97	113	40	0.33	1.21	9.57	2.41	2.80
-10	(+14)	479	121	140	43	0.35	1.51	11.07	2.79	3.25

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1600RPM		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)	126	32	37	25	0.22	0.39	4.96	1.25	1.45
-30	(-22)	172	43	51	31	0.26	0.54	5.60	1.41	1.64
-25	(-13)	228	58	67	36	0.30	0.72	6.31	1.59	1.85
-20	(- 4)	295	74	86	41	0.34	0.93	7.11	1.79	2.08
-15	(+ 5)	374	94	110	46	0.38	1.18	8.05	2.03	2.36
-10	(+14)	467	118	137	51	0.41	1.47	9.19	2.32	2.69

TEST CONDITIONS: @220V1600RPM		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)	112	28	33	26	0.22	0.35	4.34	1.09	1.27
-30	(-22)	159	40	47	32	0.27	0.50	4.97	1.25	1.46
-25	(-13)	215	54	63	39	0.32	0.67	5.60	1.41	1.64
-20	(- 4)	282	71	83	45	0.37	0.89	6.27	1.58	1.84
-15	(+ 5)	361	91	106	51	0.41	1.14	7.02	1.77	2.06
-10	(+14)	455	115	133	57	0.46	1.43	7.91	1.99	2.32

TEST CONDITIONS: @220V2000RPM		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)	173	44	51	30	0.25	0.54	5.76	1.45	1.69
-30	(-22)	231	58	68	35	0.30	0.73	6.51	1.64	1.91
-25	(-13)	302	76	88	41	0.34	0.95	7.39	1.86	2.17
-20	(- 4)	387	97	113	46	0.38	1.21	8.43	2.12	2.47
-15	(+ 5)	487	123	143	50	0.41	1.53	9.68	2.44	2.84
-10	(+14)	605	152	177	54	0.44	1.91	11.16	2.81	3.27

TEST CONDITIONS: @220V2000RPM		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)	160	40	47	31	0.26	0.50	5.10	1.28	1.49
-30	(-22)	218	55	64	38	0.32	0.68	5.74	1.45	1.68
-25	(-13)	289	73	85	45	0.37	0.91	6.45	1.63	1.89
-20	(- 4)	374	94	109	51	0.42	1.17	7.26	1.83	2.13
-15	(+ 5)	474	119	139	58	0.47	1.49	8.20	2.07	2.40
-10	(+14)	592	149	173	63	0.51	1.87	9.33	2.35	2.73

### E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V2000RPM		Static								
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)	144	36	42	32	0.27	0.45	4.46	1.12	1.31	
-30 (-22)	202	51	59	40	0.33	0.63	5.10	1.29	1.50	
-25 (-13)	273	69	80	48	0.39	0.86	5.75	1.45	1.69	
-20 (- 4)	358	90	105	56	0.45	1.12	6.44	1.62	1.89	
-15 (+ 5)	458	115	134	64	0.51	1.44	7.19	1.81	2.11	
-10 (+14)	576	145	169	71	0.57	1.82	8.07	2.03	2.36	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@220V3000RPM		Static								
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)	261	66	76	45	0.35	0.82	5.84	1.47	1.71	
-30 (-22)	351	88	103	53	0.42	1.10	6.55	1.65	1.92	
-25 (-13)	459	116	134	63	0.49	1.44	7.34	1.85	2.15	
-20 (- 4)	588	148	172	71	0.56	1.85	8.24	2.08	2.41	
-15 (+ 5)	741	187	217	80	0.63	2.33	9.32	2.35	2.73	
-10 (+14)	921	232	270	87	0.69	2.91	10.64	2.68	3.12	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V3000RPM		Static								
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)	239	60	70	47	0.37	0.75	5.12	1.29	1.50	
-30 (-22)	329	83	96	57	0.45	1.03	5.80	1.46	1.70	
-25 (-13)	437	110	128	67	0.53	1.37	6.48	1.63	1.90	
-20 (- 4)	566	143	166	78	0.62	1.78	7.20	1.81	2.11	
-15 (+ 5)	719	181	211	89	0.71	2.26	8.03	2.02	2.35	
-10 (+14)	899	227	264	100	0.79	2.84	9.01	2.27	2.64	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V3000RPM		Static								
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)	213	54	62	49	0.38	0.67	4.36	1.10	1.28	
-30 (-22)	303	76	89	59	0.46	0.95	5.12	1.29	1.50	
-25 (-13)	411	104	120	71	0.56	1.29	5.80	1.46	1.70	
-20 (- 4)	540	136	158	84	0.66	1.70	6.46	1.63	1.89	
-15 (+ 5)	693	175	203	97	0.77	2.18	7.14	1.80	2.09	
-10 (+14)	873	220	256	110	0.88	2.76	7.91	1.99	2.32	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V4500RPM		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)	377	95	110	69	0.50	1.18	5.46	1.38	1.60	
-30 (-22)	508	128	149	83	0.62	1.59	6.09	1.53	1.78	
-25 (-13)	666	168	195	98	0.75	2.09	6.77	1.71	1.98	
-20 (- 4)	855	216	251	113	0.87	2.69	7.55	1.90	2.21	
-15 (+ 5)	1080	272	316	127	0.99	3.40	8.49	2.14	2.49	
-10 (+14)	1344	339	394	140	1.10	4.24	9.63	2.43	2.82	

TEST CONDITIONS: @220V4500RPM		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)	343	86	101	72	0.52	1.07	4.80	1.21	1.41	
-30 (-22)	475	120	139	87	0.65	1.49	5.43	1.37	1.59	
-25 (-13)	633	159	185	105	0.80	1.99	6.03	1.52	1.77	
-20 (- 4)	822	207	241	123	0.95	2.58	6.66	1.68	1.95	
-15 (+ 5)	1046	264	307	141	1.11	3.29	7.38	1.86	2.16	
-10 (+14)	1310	330	384	159	1.26	4.13	8.22	2.07	2.41	

TEST CONDITIONS: @220V4500RPM		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)	303	76	89	74	0.55	0.95	4.07	1.02	1.19	
-30 (-22)	435	110	127	91	0.68	1.36	4.79	1.21	1.40	
-25 (-13)	593	149	174	109	0.84	1.86	5.43	1.37	1.59	
-20 (- 4)	782	197	229	130	1.01	2.46	6.02	1.52	1.76	
-15 (+ 5)	1006	254	295	152	1.20	3.17	6.62	1.67	1.94	
-10 (+14)	1270	320	372	174	1.39	4.01	7.29	1.84	2.14	

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EUEM		
2 Tray holder	No		
3 Connectors			
3.1 SUCTION	8.2 +0.12/-0.08	[mm]	(0.323" +0.005"/-0.003")
3.1.1 Material	Copper		
3.1.2 Shape	Straight		
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	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		