

### COMPRESSOR DEFINITION

Designation	VEM Z9C
Nominal Voltage/Frequency	230 V 53-150 Hz
Engineering Number	513902026

### 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 pressures/temperature			
9.1 Operating (gauge)	7.7	[kgf/cm <sup>2</sup> ] (109 psig)	/ °C - °F
9.2 Peak (gauge)	9.8	[kgf/cm <sup>2</sup> ] (139 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/5	[hp]
2 Displacement	9.04	[cm <sup>3</sup> ] (0.552 cu.in)
2.1 Bore [mm]	24.000	
2.2 Stroke [mm]	20.000	
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	19.40	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	19.40	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (53/15 Hz)	2.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (53/15 Hz)	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		

### 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]
317	80	93	51		1.00	6.20	1.56	1.82

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]
549	138	161	87		1.72	6.32	1.59	1.85

### 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]	[W/W]
-35 (-31)	178	45	52	30	0.00	0.56	5.90	1.49	1.73
-30 (-22)	232	58	68	36	0.00	0.73	6.41	1.62	1.88
-25 (-13)	308	78	90	42	0.00	0.97	7.33	1.85	2.15
-20 (- 4)	406	102	119	47	0.00	1.27	8.53	2.15	2.50
-15 (+ 5)	526	132	154	53	0.00	1.65	9.88	2.49	2.89
-10 (+14)	667	168	195	60	0.00	2.10	11.23	2.83	3.29

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)	191	48	56	33	0.00	0.60	5.68	1.43	1.66
-30 (-22)	225	57	66	39	0.00	0.71	5.80	1.46	1.70
-25 (-13)	291	73	85	46	0.00	0.91	6.37	1.61	1.87
-20 (- 4)	389	98	114	54	0.00	1.22	7.26	1.83	2.13
-15 (+ 5)	518	131	152	62	0.00	1.63	8.33	2.10	2.44
-10 (+14)	678	171	199	72	0.00	2.14	9.46	2.38	2.77

### E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V1600RPM		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	33	0.00	0.45	4.42	1.11	1.30	
-30 (-22)	169	43	50	40	0.00	0.53	4.40	1.11	1.29	
-25 (-13)	237	60	69	49	0.00	0.74	4.86	1.22	1.42	
-20 (- 4)	346	87	101	60	0.00	1.09	5.68	1.43	1.66	
-15 (+ 5)	495	125	145	72	0.00	1.56	6.72	1.69	1.97	
-10 (+14)	686	173	201	87	0.00	2.16	7.86	1.98	2.30	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°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)	224	56	66	37	0.00	0.70	6.02	1.52	1.76	
-30 (-22)	291	73	85	45	0.00	0.91	6.58	1.66	1.93	
-25 (-13)	383	97	112	51	0.00	1.20	7.51	1.89	2.20	
-20 (- 4)	496	125	145	57	0.00	1.56	8.68	2.19	2.54	
-15 (+ 5)	625	158	183	63	0.00	1.97	9.95	2.51	2.91	
-10 (+14)	768	194	225	69	0.00	2.42	11.19	2.82	3.28	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°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)	231	58	68	40	0.00	0.72	5.65	1.42	1.65	
-30 (-22)	277	70	81	48	0.00	0.87	5.85	1.47	1.71	
-25 (-13)	355	90	104	55	0.00	1.11	6.46	1.63	1.89	
-20 (- 4)	460	116	135	63	0.00	1.45	7.36	1.85	2.16	
-15 (+ 5)	589	149	173	70	0.00	1.86	8.40	2.12	2.46	
-10 (+14)	739	186	216	78	0.00	2.33	9.45	2.38	2.77	

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)	175	44	51	39	0.00	0.55	4.53	1.14	1.33	
-30 (-22)	216	54	63	49	0.00	0.68	4.57	1.15	1.34	
-25 (-13)	294	74	86	58	0.00	0.92	5.07	1.28	1.49	
-20 (- 4)	407	103	119	68	0.00	1.28	5.90	1.49	1.73	
-15 (+ 5)	551	139	162	79	0.00	1.74	6.91	1.74	2.03	
-10 (+14)	722	182	212	90	0.00	2.28	7.99	2.01	2.34	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V3000RPM		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]
-35	(-31)	320	81	94	57	0.00	1.00	5.65	1.42	1.66
-30	(-22)	429	108	126	68	0.00	1.35	6.34	1.60	1.86
-25	(-13)	575	145	169	79	0.00	1.80	7.34	1.85	2.15
-20	(- 4)	751	189	220	88	0.00	2.36	8.50	2.14	2.49
-15	(+ 5)	952	240	279	98	0.00	2.99	9.67	2.44	2.83
-10	(+14)	1170	295	343	109	0.00	3.69	10.70	2.70	3.14

TEST CONDITIONS: @220V3000RPM		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]
-35	(-31)	308	78	90	59	0.00	0.96	5.16	1.30	1.51
-30	(-22)	392	99	115	72	0.00	1.23	5.50	1.39	1.61
-25	(-13)	521	131	153	84	0.00	1.64	6.24	1.57	1.83
-20	(- 4)	689	174	202	95	0.00	2.17	7.22	1.82	2.12
-15	(+ 5)	889	224	261	107	0.00	2.80	8.29	2.09	2.43
-10	(+14)	1116	281	327	120	0.00	3.52	9.31	2.35	2.73

TEST CONDITIONS: @220V3000RPM		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]
-35	(-31)	259	65	76	59	0.00	0.81	4.45	1.12	1.30
-30	(-22)	323	81	95	74	0.00	1.01	4.52	1.14	1.32
-25	(-13)	441	111	129	88	0.00	1.38	5.07	1.28	1.48
-20	(- 4)	605	153	177	101	0.00	1.90	5.94	1.50	1.74
-15	(+ 5)	811	204	238	115	0.00	2.55	6.99	1.76	2.05
-10	(+14)	1052	265	308	130	0.00	3.32	8.06	2.03	2.36

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]
-35	(-31)	519	131	152	92	0.00	1.63	5.44	1.37	1.59
-30	(-22)	635	160	186	115	0.00	1.99	5.84	1.47	1.71
-25	(-13)	854	215	250	133	0.00	2.68	6.81	1.72	1.99
-20	(- 4)	1045	263	306	139	0.00	3.28	7.60	1.92	2.23
-15	(+ 5)	1077	271	315	125	0.00	3.38	7.51	1.89	2.20
-10	(+14)	817	206	239	86	0.00	2.57	5.79	1.46	1.70

### E - PERFORMANCE - CURVES

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)	310	78	91	84	0.00	0.97	3.93	0.99	1.15
-30	(-22)	472	119	138	110	0.00	1.48	4.47	1.13	1.31
-25	(-13)	821	207	240	140	0.00	2.58	6.06	1.53	1.77
-20	(- 4)	1226	309	359	166	0.00	3.86	7.96	2.01	2.33
-15	(+ 5)	1555	392	456	183	0.00	4.90	9.45	2.38	2.77
-10	(+14)	1678	423	492	183	0.00	5.29	9.79	2.47	2.87

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)	476	120	139	103	0.00	1.49	4.66	1.17	1.36
-30	(-22)	436	110	128	107	0.00	1.36	4.03	1.02	1.18
-25	(-13)	668	168	196	124	0.00	2.09	4.92	1.24	1.44
-20	(- 4)	1041	262	305	148	0.00	3.27	6.62	1.67	1.94
-15	(+ 5)	1422	358	417	171	0.00	4.48	8.38	2.11	2.46
-10	(+14)	1681	424	492	187	0.00	5.30	9.48	2.39	2.78

### F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard		
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 12° out + 79° up		
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 parallel BP+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 42° up + 45° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		