

### COMPRESSOR DEFINITION

Designation	VEM Z5C
Nominal Voltage/Frequency	230 V 53-150 Hz
Engineering Number	513903502

### 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	1/10	[hp]
2 Displacement	5.19	[cm <sup>3</sup> ] (0.317 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	15.000	
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]
160	40	47	27		0.50	5.88	1.48	1.72

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]
297	75	87	50		0.93	5.94	1.50	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)	82	21	24	16	0.15	0.26	5.11	1.29	1.50
-30	(-22)	129	33	38	20	0.18	0.41	6.43	1.62	1.88
-25	(-13)	172	43	50	23	0.20	0.54	7.57	1.91	2.22
-20	(- 4)	217	55	64	25	0.21	0.68	8.68	2.19	2.54
-15	(+ 5)	269	68	79	27	0.23	0.85	9.88	2.49	2.90
-10	(+14)	335	85	98	30	0.24	1.06	11.31	2.85	3.31

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]
-35	(-31)	77	19	23	17	0.15	0.24	4.32	1.09	1.27
-30	(-22)	112	28	33	20	0.18	0.35	5.42	1.37	1.59
-25	(-13)	147	37	43	23	0.20	0.46	6.34	1.60	1.86
-20	(- 4)	187	47	55	26	0.22	0.59	7.21	1.82	2.11
-15	(+ 5)	239	60	70	29	0.24	0.75	8.15	2.05	2.39
-10	(+14)	309	78	91	33	0.27	0.97	9.31	2.35	2.73

### 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)	60	15	17	17	0.15	0.19	3.49	0.88	1.02	
-30 (-22)	93	23	27	21	0.18	0.29	4.53	1.14	1.33	
-25 (-13)	129	33	38	24	0.21	0.40	5.39	1.36	1.58	
-20 (- 4)	175	44	51	29	0.24	0.55	6.17	1.55	1.81	
-15 (+ 5)	237	60	69	33	0.27	0.75	7.02	1.77	2.06	
-10 (+14)	321	81	94	39	0.32	1.01	8.07	2.03	2.36	

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)	114	29	33	21	0.18	0.36	5.40	1.36	1.58	
-30 (-22)	154	39	45	24	0.21	0.48	6.36	1.60	1.86	
-25 (-13)	206	52	60	28	0.23	0.64	7.48	1.88	2.19	
-20 (- 4)	270	68	79	31	0.25	0.85	8.74	2.20	2.56	
-15 (+ 5)	348	88	102	34	0.28	1.10	10.16	2.56	2.98	
-10 (+14)	441	111	129	38	0.30	1.39	11.72	2.95	3.43	

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)	99	25	29	21	0.19	0.31	4.63	1.17	1.36	
-30 (-22)	139	35	41	25	0.22	0.44	5.47	1.38	1.60	
-25 (-13)	188	47	55	29	0.24	0.59	6.40	1.61	1.88	
-20 (- 4)	249	63	73	34	0.27	0.78	7.42	1.87	2.18	
-15 (+ 5)	321	81	94	38	0.30	1.01	8.54	2.15	2.50	
-10 (+14)	407	103	119	42	0.33	1.28	9.74	2.46	2.86	

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)	82	21	24	21	0.19	0.26	3.86	0.97	1.13	
-30 (-22)	122	31	36	26	0.22	0.38	4.68	1.18	1.37	
-25 (-13)	170	43	50	31	0.26	0.53	5.53	1.39	1.62	
-20 (- 4)	227	57	66	35	0.29	0.71	6.41	1.61	1.88	
-15 (+ 5)	294	74	86	40	0.32	0.92	7.32	1.85	2.15	
-10 (+14)	372	94	109	45	0.36	1.17	8.27	2.08	2.42	

### 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]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	172	43	51	33	0.24	0.54	5.34	1.34	1.56	
-30 (-22)	234	59	68	37	0.29	0.73	6.37	1.60	1.87	
-25 (-13)	314	79	92	42	0.34	0.98	7.50	1.89	2.20	
-20 (- 4)	411	104	121	47	0.38	1.29	8.72	2.20	2.55	
-15 (+ 5)	524	132	154	52	0.41	1.65	10.01	2.52	2.93	
-10 (+14)	650	164	191	57	0.44	2.05	11.37	2.87	3.33	

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]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	156	39	46	33	0.27	0.49	4.70	1.18	1.38	
-30 (-22)	213	54	62	38	0.32	0.67	5.54	1.40	1.62	
-25 (-13)	288	73	84	45	0.36	0.90	6.46	1.63	1.89	
-20 (- 4)	380	96	111	51	0.41	1.19	7.45	1.88	2.18	
-15 (+ 5)	486	123	142	57	0.45	1.53	8.48	2.14	2.49	
-10 (+14)	606	153	177	64	0.49	1.91	9.56	2.41	2.80	

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]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	130	33	38	32	0.26	0.41	4.12	1.04	1.21	
-30 (-22)	189	48	55	39	0.32	0.59	4.90	1.23	1.43	
-25 (-13)	266	67	78	46	0.37	0.84	5.73	1.44	1.68	
-20 (- 4)	359	90	105	54	0.42	1.13	6.61	1.66	1.94	
-15 (+ 5)	466	117	136	62	0.48	1.47	7.51	1.89	2.20	
-10 (+14)	585	147	171	69	0.53	1.84	8.43	2.12	2.47	

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)	273	69	80	52	0.40	0.85	5.24	1.32	1.53	
-30 (-22)	366	92	107	60	0.46	1.15	6.08	1.53	1.78	
-25 (-13)	463	117	136	67	0.51	1.45	6.95	1.75	2.04	
-20 (- 4)	575	145	169	73	0.56	1.81	7.88	1.99	2.31	
-15 (+ 5)	711	179	208	79	0.61	2.24	8.93	2.25	2.62	
-10 (+14)	882	222	258	86	0.65	2.78	10.15	2.56	2.97	

### 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)	241	61	71	53	0.45	0.75	4.51	1.14	1.32
-30	(-22)	342	86	100	64	0.52	1.07	5.32	1.34	1.56
-25	(-13)	441	111	129	72	0.57	1.38	6.11	1.54	1.79
-20	(- 4)	550	139	161	80	0.63	1.73	6.92	1.74	2.03
-15	(+ 5)	678	171	199	87	0.68	2.13	7.81	1.97	2.29
-10	(+14)	835	210	245	94	0.73	2.63	8.83	2.23	2.59

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)	206	52	60	52	0.43	0.65	4.03	1.01	1.18
-30	(-22)	317	80	93	65	0.51	1.00	4.83	1.22	1.42
-25	(-13)	422	106	124	75	0.58	1.33	5.58	1.41	1.63
-20	(- 4)	532	134	156	84	0.64	1.67	6.31	1.59	1.85
-15	(+ 5)	655	165	192	93	0.70	2.06	7.08	1.79	2.08
-10	(+14)	803	202	235	101	0.75	2.53	7.95	2.00	2.33

### 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		