

### COMPRESSOR DEFINITION

Designation	VEM Z9C
Nominal Voltage/Frequency	230 V 53-150 Hz
Engineering Number	513902002

### 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	80 to 140 V	80 to 140 V
8.2 LBP (43°C Ambient temperature)	Static	80 to 140 V	80 to 140 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	9.34	[cm <sup>3</sup> ] (0.570 cu.in)
2.1 Bore [mm]	26.000	
2.2 Stroke [mm]	17.600	
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	VCC31156XXXX	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	MSP59AMN-6	
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)	-	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (53/15 Hz)	-	[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: @115V1600RPM			CECOMAFLBP Static		Evaporating temperature (Condensing temperature		-25°C (-13°F) 55°C (131°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]
231	58	68	46	0.68	0.88	5.03	1.27	1.47

TEST CONDITIONS: @115V2000RPM			CECOMAFLBP Static		Evaporating temperature (Condensing temperature		-25°C (-13°F) 55°C (131°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]
278	70	81	56	0.77	1.06	5.00	1.26	1.47

TEST CONDITIONS: @115V3000RPM			CECOMAFLBP Static		Evaporating temperature (Condensing temperature		-25°C (-13°F) 55°C (131°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]
429	108	126	86	1.14	1.64	5.01	1.26	1.47

TEST CONDITIONS: @115V4500RPM			CECOMAFLBP Static		Evaporating temperature (Condensing temperature		-25°C (-13°F) 55°C (131°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]
637	161	187	139	1.68	2.43	4.58	1.15	1.34

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V1600RPM		CECOMAF 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)	175	44	51	30	0.24	0.56	5.89	1.48	1.72
-30	(-22)	234	59	68	35	0.28	0.75	6.58	1.66	1.93
-25	(-13)	305	77	89	41	0.33	0.98	7.35	1.85	2.15
-20	(- 4)	390	98	114	47	0.38	1.25	8.23	2.07	2.41
-15	(+ 5)	491	124	144	53	0.42	1.58	9.29	2.34	2.72
-10	(+14)	610	154	179	58	0.45	1.97	10.56	2.66	3.09

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V1600RPM		CECOMAF 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)	150	38	44	31	0.26	0.52	4.79	1.21	1.40
-30	(-22)	204	51	60	38	0.31	0.71	5.41	1.36	1.58
-25	(-13)	270	68	79	45	0.36	0.94	6.01	1.52	1.76
-20	(- 4)	348	88	102	52	0.41	1.21	6.66	1.68	1.95
-15	(+ 5)	441	111	129	59	0.46	1.54	7.40	1.86	2.17
-10	(+14)	550	138	161	66	0.51	1.92	8.28	2.09	2.43

TEST CONDITIONS: @115V1600RPM		CECOMAF 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)	123	31	36	33	0.27	0.47	3.69	0.93	1.08
-30	(-22)	173	44	51	40	0.32	0.66	4.37	1.10	1.28
-25	(-13)	233	59	68	47	0.37	0.89	4.95	1.25	1.45
-20	(- 4)	304	77	89	56	0.43	1.16	5.50	1.39	1.61
-15	(+ 5)	389	98	114	64	0.50	1.49	6.05	1.53	1.77
-10	(+14)	488	123	143	73	0.57	1.87	6.67	1.68	1.95

TEST CONDITIONS: @115V2000RPM		CECOMAF 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)	220	55	64	37	0.30	0.70	5.93	1.49	1.74
-30	(-22)	293	74	86	44	0.35	0.94	6.60	1.66	1.93
-25	(-13)	381	96	112	52	0.41	1.22	7.31	1.84	2.14
-20	(- 4)	487	123	143	60	0.47	1.57	8.13	2.05	2.38
-15	(+ 5)	613	154	180	67	0.52	1.97	9.12	2.30	2.67
-10	(+14)	761	192	223	74	0.57	2.45	10.31	2.60	3.02

TEST CONDITIONS: @115V2000RPM		CECOMAF 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)	188	47	55	39	0.32	0.65	4.84	1.22	1.42
-30	(-22)	255	64	75	47	0.38	0.89	5.43	1.37	1.59
-25	(-13)	337	85	99	56	0.44	1.17	6.01	1.51	1.76
-20	(- 4)	434	109	127	65	0.51	1.51	6.61	1.67	1.94
-15	(+ 5)	550	139	161	75	0.58	1.92	7.30	1.84	2.14
-10	(+14)	686	173	201	84	0.65	2.40	8.13	2.05	2.38

### E - PERFORMANCE - CURVES

TEST CONDITIONS:		CECOMAF			(Condensing temperature 55°C (+131°F))					
@115V2000RPM		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)	155	39	46	41	0.33	0.59	3.73	0.94	1.09	
-30 (-22)	218	55	64	49	0.39	0.83	4.40	1.11	1.29	
-25 (-13)	292	74	86	59	0.46	1.11	4.97	1.25	1.46	
-20 (- 4)	380	96	111	70	0.54	1.45	5.49	1.38	1.61	
-15 (+ 5)	486	122	142	81	0.62	1.86	6.03	1.52	1.77	
-10 (+14)	610	154	179	92	0.70	2.34	6.64	1.67	1.95	

TEST CONDITIONS:		CECOMAF			(Condensing temperature 35°C (+95°F))					
@115V3000RPM		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)	330	83	97	55	0.44	1.06	5.99	1.51	1.76	
-30 (-22)	440	111	129	67	0.52	1.41	6.57	1.66	1.93	
-25 (-13)	572	144	168	80	0.61	1.84	7.19	1.81	2.11	
-20 (- 4)	730	184	214	93	0.71	2.35	7.89	1.99	2.31	
-15 (+ 5)	918	231	269	105	0.80	2.95	8.72	2.20	2.56	
-10 (+14)	1139	287	334	117	0.88	3.67	9.76	2.46	2.86	

TEST CONDITIONS:		CECOMAF			(Condensing temperature 45°C (+113°F))					
@115V3000RPM		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)	283	71	83	58	0.46	0.98	4.93	1.24	1.44	
-30 (-22)	384	97	113	70	0.55	1.34	5.50	1.39	1.61	
-25 (-13)	506	128	148	84	0.65	1.76	6.02	1.52	1.76	
-20 (- 4)	652	164	191	99	0.76	2.27	6.54	1.65	1.92	
-15 (+ 5)	825	208	242	115	0.87	2.88	7.13	1.80	2.09	
-10 (+14)	1028	259	301	131	0.98	3.60	7.83	1.97	2.29	

TEST CONDITIONS:		CECOMAF			(Condensing temperature 55°C (+131°F))					
@115V3000RPM		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)	235	59	69	62	0.49	0.90	3.81	0.96	1.12	
-30 (-22)	328	83	96	73	0.57	1.25	4.48	1.13	1.31	
-25 (-13)	439	111	129	87	0.67	1.67	5.03	1.27	1.47	
-20 (- 4)	572	144	168	104	0.79	2.18	5.50	1.39	1.61	
-15 (+ 5)	729	184	214	123	0.92	2.79	5.96	1.50	1.75	
-10 (+14)	914	230	268	142	1.06	3.51	6.45	1.62	1.89	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V4500RPM		CECOMAF 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)	472	119	138	85	0.65	1.51	5.53	1.39	1.62	
-30 (-22)	638	161	187	105	0.79	2.05	6.08	1.53	1.78	
-25 (-13)	837	211	245	126	0.95	2.69	6.64	1.67	1.95	
-20 (- 4)	1076	271	315	148	1.11	3.46	7.28	1.83	2.13	
-15 (+ 5)	1359	343	398	169	1.26	4.37	8.04	2.03	2.36	
-10 (+14)	1692	426	496	189	1.40	5.46	8.98	2.26	2.63	

TEST CONDITIONS: @115V4500RPM		CECOMAF 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)	397	100	116	88	0.67	1.38	4.52	1.14	1.33	
-30 (-22)	549	138	161	108	0.82	1.91	5.07	1.28	1.49	
-25 (-13)	733	185	215	131	0.99	2.55	5.56	1.40	1.63	
-20 (- 4)	953	240	279	157	1.18	3.32	6.05	1.52	1.77	
-15 (+ 5)	1213	306	355	184	1.37	4.24	6.58	1.66	1.93	
-10 (+14)	1520	383	445	210	1.56	5.32	7.22	1.82	2.11	

TEST CONDITIONS: @115V4500RPM		CECOMAF 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)	319	80	94	92	0.70	1.22	3.45	0.87	1.01	
-30 (-22)	460	116	135	111	0.84	1.75	4.11	1.04	1.21	
-25 (-13)	627	158	184	135	1.01	2.39	4.64	1.17	1.36	
-20 (- 4)	827	208	242	163	1.22	3.16	5.09	1.28	1.49	
-15 (+ 5)	1064	268	312	194	1.44	4.07	5.51	1.39	1.61	
-10 (+14)	1343	338	394	225	1.67	5.16	5.96	1.50	1.75	

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal 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 parallel BP+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 parallel BP+24°to Back		
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	Slanted parallel BP+45°to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		