

### COMPRESSOR DEFINITION

Designation	VEM Z5C
Nominal Voltage/Frequency	230 V 53-150 Hz
Engineering Number	513902030

### 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	4.99	[cm <sup>3</sup> ] (0.305 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	14.400	
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			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]	
111	28	33	25	0.20	0.42	4.42	1.11	1.30	

TEST CONDITIONS: @220V2000RPM			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]	
136	34	40	31		0.52	4.46	1.12	1.31	

TEST CONDITIONS: @220V3000RPM			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]	
211	53	62	46	0.36	0.80	4.55	1.15	1.33	

TEST CONDITIONS: @220V4500RPM			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]	
319	80	93	73	0.55	1.22	4.37	1.10	1.28	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1600RPM		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)	92	23	27	17	0.14	0.29	5.33	1.34	1.56
-30	(-22)	120	30	35	20	0.17	0.39	6.13	1.55	1.80
-25	(-13)	156	39	46	22	0.19	0.50	7.04	1.77	2.06
-20	(- 4)	200	50	58	25	0.21	0.64	8.10	2.04	2.37
-15	(+ 5)	254	64	74	27	0.23	0.82	9.38	2.36	2.75
-10	(+14)	321	81	94	29	0.24	1.04	10.93	2.76	3.20

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1600RPM		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)	79	20	23	18	0.16	0.27	4.37	1.10	1.28
-30	(-22)	106	27	31	21	0.18	0.37	5.06	1.27	1.48
-25	(-13)	137	35	40	24	0.20	0.48	5.76	1.45	1.69
-20	(- 4)	175	44	51	27	0.21	0.61	6.52	1.64	1.91
-15	(+ 5)	222	56	65	30	0.23	0.78	7.41	1.87	2.17
-10	(+14)	279	70	82	33	0.24	0.98	8.47	2.14	2.48

TEST CONDITIONS: @220V1600RPM		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)	57	14	17	18	0.17	0.22	3.24	0.82	0.95
-30	(-22)	85	21	25	21	0.19	0.32	3.95	1.00	1.16
-25	(-13)	115	29	34	25	0.20	0.43	4.58	1.16	1.34
-20	(- 4)	149	37	44	29	0.22	0.57	5.18	1.31	1.52
-15	(+ 5)	189	48	56	33	0.24	0.73	5.81	1.47	1.70
-10	(+14)	238	60	70	36	0.27	0.92	6.53	1.65	1.91

TEST CONDITIONS: @220V2000RPM		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)	117	29	34	22	0.19	0.37	5.22	1.32	1.53
-30	(-22)	150	38	44	25	0.21	0.48	5.99	1.51	1.75
-25	(-13)	195	49	57	28	0.23	0.63	6.96	1.75	2.04
-20	(- 4)	254	64	74	31	0.26	0.81	8.15	2.05	2.39
-15	(+ 5)	326	82	95	34	0.29	1.05	9.55	2.41	2.80
-10	(+14)	412	104	121	37	0.31	1.33	11.17	2.81	3.27

TEST CONDITIONS: @220V2000RPM		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)	86	22	25	22	0.17	0.30	3.91	0.99	1.15
-30	(-22)	119	30	35	26	0.19	0.41	4.63	1.17	1.36
-25	(-13)	162	41	47	29	0.23	0.56	5.47	1.38	1.60
-20	(- 4)	215	54	63	33	0.26	0.75	6.44	1.62	1.89
-15	(+ 5)	281	71	82	37	0.30	0.98	7.54	1.90	2.21
-10	(+14)	358	90	105	41	0.34	1.25	8.79	2.21	2.57

### E - PERFORMANCE - CURVES

TEST CONDITIONS:		CECOMAF			(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)	72	18	21	23	0.19	0.27	3.17	0.80	0.93	
-30 (-22)	101	25	30	26	0.21	0.38	3.82	0.96	1.12	
-25 (-13)	139	35	41	31	0.24	0.53	4.52	1.14	1.33	
-20 (- 4)	185	47	54	35	0.28	0.71	5.27	1.33	1.54	
-15 (+ 5)	240	61	70	40	0.32	0.92	6.07	1.53	1.78	
-10 (+14)	306	77	90	44	0.37	1.18	6.92	1.74	2.03	

TEST CONDITIONS:		CECOMAF			(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)	162	41	48	34	0.25	0.52	4.76	1.20	1.39	
-30 (-22)	220	55	64	38	0.30	0.70	5.73	1.44	1.68	
-25 (-13)	297	75	87	43	0.35	0.95	6.85	1.73	2.01	
-20 (- 4)	394	99	115	49	0.40	1.27	8.09	2.04	2.37	
-15 (+ 5)	505	127	148	54	0.44	1.63	9.44	2.38	2.77	
-10 (+14)	631	159	185	58	0.47	2.04	10.85	2.73	3.18	

TEST CONDITIONS:		CECOMAF			(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)	143	36	42	35	0.30	0.50	4.04	1.02	1.18	
-30 (-22)	191	48	56	40	0.34	0.66	4.79	1.21	1.40	
-25 (-13)	258	65	76	46	0.38	0.90	5.66	1.43	1.66	
-20 (- 4)	343	86	100	52	0.42	1.19	6.61	1.67	1.94	
-15 (+ 5)	442	111	130	58	0.47	1.54	7.62	1.92	2.23	
-10 (+14)	554	140	162	64	0.51	1.94	8.66	2.18	2.54	

TEST CONDITIONS:		CECOMAF			(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)	108	27	32	35	0.28	0.41	3.12	0.79	0.92	
-30 (-22)	150	38	44	40	0.31	0.57	3.80	0.96	1.11	
-25 (-13)	210	53	62	46	0.36	0.80	4.55	1.15	1.33	
-20 (- 4)	287	72	84	54	0.42	1.09	5.34	1.35	1.57	
-15 (+ 5)	377	95	110	61	0.48	1.44	6.15	1.55	1.80	
-10 (+14)	478	120	140	69	0.54	1.83	6.96	1.75	2.04	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V4500RPM		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)	232	59	68	53	0.39	0.74	4.36	1.10	1.28	
-30 (-22)	332	84	97	61	0.48	1.07	5.40	1.36	1.58	
-25 (-13)	440	111	129	69	0.54	1.41	6.41	1.61	1.88	
-20 (- 4)	557	140	163	75	0.60	1.79	7.42	1.87	2.17	
-15 (+ 5)	688	173	202	81	0.64	2.21	8.47	2.13	2.48	
-10 (+14)	834	210	244	87	0.68	2.69	9.59	2.42	2.81	

TEST CONDITIONS: @220V4500RPM		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)	195	49	57	54	0.44	0.68	3.64	0.92	1.07	
-30 (-22)	288	73	85	63	0.52	1.00	4.54	1.14	1.33	
-25 (-13)	388	98	114	72	0.58	1.35	5.37	1.35	1.57	
-20 (- 4)	497	125	146	81	0.64	1.73	6.18	1.56	1.81	
-15 (+ 5)	618	156	181	88	0.69	2.16	7.00	1.76	2.05	
-10 (+14)	753	190	221	96	0.74	2.64	7.86	1.98	2.30	

TEST CONDITIONS: @220V4500RPM		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)	145	37	42	50	0.37	0.55	2.88	0.73	0.84	
-30 (-22)	232	58	68	62	0.47	0.88	3.72	0.94	1.09	
-25 (-13)	325	82	95	73	0.55	1.24	4.47	1.13	1.31	
-20 (- 4)	426	107	125	83	0.63	1.63	5.16	1.30	1.51	
-15 (+ 5)	538	135	158	92	0.71	2.06	5.83	1.47	1.71	
-10 (+14)	663	167	194	102	0.79	2.55	6.51	1.64	1.91	

### F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard EUEM		
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	5.1 +0.10/+0.00	[mm]	(0.201" +0.004"/+0.000")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted parallel BP+24° to Back		
3.3 PROCESS	6 +0.08/-0.08	[mm]	(0.236" +0.003"/-0.003")
3.3.1 Material	Copper(OD)		
3.3.2 Shape	Slanted 42° up + 45° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		