

### COMPRESSOR DEFINITION

Designation	<b>VES C13C</b>
Nominal Voltage/Frequency	<b>230 V 40-150 Hz</b>
Engineering Number	<b>513907249</b>

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-600a		
3 Nominal voltage and frequency	230 / 40-150	[ 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	13.27	[cm <sup>3</sup> ] (0.810 cu.in)
2.1 Bore [mm]	26.000	
2.2 Stroke [mm]	25.000	
3 Lubricant charge	190	[ml] (6.42 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	6.75	[kg] (14.88 lb.)
5 Nitrogen charge	-	[kgf/cm <sup>2</sup> ]

### C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	230 V 40-150 Hz 3 ~ (Three phase)	
2 Starting device type	Inverter	
2.1 Starting device	VCC32456UXXX	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	INVERTER VCC3 2456 U	
6 Start winding resistance	7.30	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	7.30	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (40/150 Hz)	2.90	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (40/150 Hz)	-	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (40/150 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	CCC - VDE	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V1300RPM			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]
290	73	85	55		1.11	5.27	1.33	1.54

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]
447	113	131	83		1.70	5.39	1.36	1.58

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]
659	166	193	127		2.51	5.19	1.31	1.52

### E - PERFORMANCE - CURVES

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]
-35	(-31)	319	80	93	52	0.48	1.02	6.17	1.55	1.81
-30	(-22)	420	106	123	61	0.56	1.35	6.86	1.73	2.01
-25	(-13)	545	137	160	71	0.64	1.75	7.68	1.94	2.25
-20	(- 4)	697	176	204	81	0.73	2.24	8.62	2.17	2.53
-15	(+ 5)	880	222	258	91	0.82	2.83	9.66	2.43	2.83
-10	(+14)	1097	277	322	102	0.91	3.54	10.79	2.72	3.16

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]
-35	(-31)	270	68	79	54	0.49	0.94	5.04	1.27	1.48
-30	(-22)	360	91	105	64	0.58	1.25	5.62	1.42	1.65
-25	(-13)	472	119	138	75	0.68	1.64	6.28	1.58	1.84
-20	(- 4)	610	154	179	86	0.77	2.13	7.04	1.77	2.06
-15	(+ 5)	778	196	228	99	0.88	2.72	7.86	1.98	2.30
-10	(+14)	980	247	287	112	0.99	3.43	8.75	2.20	2.56

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V2000RPM		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)	235	59	69	55	0.51	0.89	4.29	1.08	1.26	
-30 (-22)	311	78	91	66	0.61	1.18	4.73	1.19	1.39	
-25 (-13)	409	103	120	78	0.71	1.56	5.25	1.32	1.54	
-20 (- 4)	531	134	156	91	0.83	2.03	5.81	1.47	1.70	
-15 (+ 5)	681	172	200	106	0.95	2.61	6.42	1.62	1.88	
-10 (+14)	865	218	253	122	1.08	3.32	7.06	1.78	2.07	

TEST CONDITIONS: @220V3000RPM		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)	465	117	136	80	0.73	1.49	5.78	1.46	1.69	
-30 (-22)	619	156	181	95	0.85	1.99	6.54	1.65	1.92	
-25 (-13)	792	200	232	109	0.97	2.54	7.26	1.83	2.13	
-20 (- 4)	995	251	292	125	1.10	3.20	7.96	2.01	2.33	
-15 (+ 5)	1240	312	363	143	1.25	3.99	8.67	2.18	2.54	
-10 (+14)	1538	388	451	163	1.42	4.96	9.40	2.37	2.76	

TEST CONDITIONS: @220V3000RPM		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)	406	102	119	82	0.74	1.41	4.94	1.25	1.45	
-30 (-22)	555	140	163	99	0.88	1.93	5.57	1.40	1.63	
-25 (-13)	715	180	210	117	1.03	2.49	6.15	1.55	1.80	
-20 (- 4)	900	227	264	134	1.18	3.14	6.71	1.69	1.97	
-15 (+ 5)	1120	282	328	154	1.34	3.91	7.28	1.84	2.13	
-10 (+14)	1387	349	406	176	1.52	4.86	7.88	1.99	2.31	

TEST CONDITIONS: @220V3000RPM		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)	331	83	97	82	0.74	1.26	4.06	1.02	1.19	
-30 (-22)	473	119	139	102	0.91	1.80	4.60	1.16	1.35	
-25 (-13)	620	156	182	121	1.07	2.36	5.09	1.28	1.49	
-20 (- 4)	785	198	230	141	1.24	3.00	5.57	1.40	1.63	
-15 (+ 5)	979	247	287	162	1.41	3.75	6.05	1.52	1.77	
-10 (+14)	1212	306	355	185	1.60	4.66	6.56	1.65	1.92	

### 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]
-35	(-31)	591	149	173	118	0.93	1.90	5.04	1.27	1.48
-30	(-22)	763	192	224	134	1.02	2.43	5.69	1.43	1.67
-25	(-13)	1020	257	299	162	1.25	3.26	6.23	1.57	1.83
-20	(- 4)	1333	336	391	196	1.56	4.28	6.77	1.71	1.98
-15	(+ 5)	1673	422	490	227	1.86	5.39	7.38	1.86	2.16
-10	(+14)	2011	507	589	249	2.07	6.50	8.14	2.05	2.39

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]
-35	(-31)	520	131	152	121	0.97	1.80	4.28	1.08	1.26
-30	(-22)	677	170	198	141	1.09	2.35	4.85	1.22	1.42
-25	(-13)	908	229	266	171	1.34	3.16	5.33	1.34	1.56
-20	(- 4)	1184	298	347	204	1.63	4.13	5.81	1.46	1.70
-15	(+ 5)	1477	372	433	232	1.89	5.16	6.37	1.61	1.87
-10	(+14)	1757	443	515	249	2.05	6.15	7.10	1.79	2.08

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]
-35	(-31)	419	106	123	114	0.92	1.59	3.66	0.92	1.07
-30	(-22)	567	143	166	141	1.10	2.17	4.10	1.03	1.20
-25	(-13)	778	196	228	175	1.37	2.98	4.47	1.13	1.31
-20	(- 4)	1024	258	300	210	1.67	3.91	4.85	1.22	1.42
-15	(+ 5)	1276	322	374	238	1.91	4.87	5.33	1.34	1.56
-10	(+14)	1505	379	441	252	2.02	5.76	5.98	1.51	1.75

### F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard VES		
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 45° up + 49° to Back		
3.2 DISCHARGE	4.9 +0.10/-0.05	[mm]	(0.193" +0.004"/-0.002")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted 0° up + 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 47° up + 59° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		