

### COMPRESSOR DEFINITION

Designation	VES D11C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513907165

### 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	-	-
8.2 LBP (43°C Ambient temperature)	-	-	-
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	1/4+	[hp]
2 Displacement	11.14	[cm <sup>3</sup> ] (0.680 cu.in)
2.1 Bore [mm]	26.000	
2.2 Stroke [mm]	21.000	
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)	6.76	[kg] (14.90 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	PFC CF02D01 M	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	SP(PFC CF02D01M)	
6 Start winding resistance	9.60	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	9.60	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (40/150 Hz)	-	[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	

### 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]
219	55	64	42	0.32	0.84	5.19	1.31	1.52

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]
273	69	80	52	0.39	1.04	5.28	1.33	1.55

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]
348	88	102	66	0.49	1.33	5.31	1.34	1.56

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]
528	133	155	102	0.74	2.01	5.16	1.30	1.51

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]
714	180	209	149	1.00	2.72	4.80	1.21	1.41

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1300RPM		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]
-35	(-31)	174	44	51	28	0.22	0.56	6.28	1.58	1.84
-30	(-22)	231	58	68	32	0.26	0.74	7.13	1.80	2.09
-25	(-13)	302	76	88	37	0.29	0.97	8.08	2.04	2.37
-20	(- 4)	387	97	113	42	0.33	1.24	9.15	2.31	2.68
-15	(+ 5)	488	123	143	47	0.36	1.57	10.40	2.62	3.05
-10	(+14)	607	153	178	51	0.39	1.96	11.87	2.99	3.48

TEST CONDITIONS: @220V1300RPM		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]
-35	(-31)	147	37	43	29	0.23	0.51	5.15	1.30	1.51
-30	(-22)	199	50	58	34	0.27	0.69	5.83	1.47	1.71
-25	(-13)	262	66	77	40	0.32	0.91	6.55	1.65	1.92
-20	(- 4)	340	86	100	46	0.36	1.18	7.33	1.85	2.15
-15	(+ 5)	432	109	127	52	0.40	1.51	8.22	2.07	2.41
-10	(+14)	541	136	158	58	0.44	1.89	9.28	2.34	2.72

TEST CONDITIONS: @220V1300RPM		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]
-35	(-31)	119	30	35	29	0.23	0.45	4.02	1.01	1.18
-30	(-22)	164	41	48	36	0.27	0.62	4.62	1.17	1.36
-25	(-13)	219	55	64	42	0.32	0.84	5.19	1.31	1.52
-20	(- 4)	287	72	84	50	0.37	1.10	5.77	1.45	1.69
-15	(+ 5)	369	93	108	58	0.43	1.41	6.40	1.61	1.88
-10	(+14)	466	117	137	65	0.48	1.79	7.13	1.80	2.09

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]
-35	(-31)	210	53	62	34	0.27	0.67	6.24	1.57	1.83
-30	(-22)	283	71	83	40	0.31	0.91	7.09	1.79	2.08
-25	(-13)	372	94	109	46	0.36	1.20	8.04	2.03	2.36
-20	(- 4)	480	121	141	53	0.40	1.54	9.13	2.30	2.68
-15	(+ 5)	608	153	178	59	0.44	1.96	10.40	2.62	3.05
-10	(+14)	759	191	222	64	0.48	2.45	11.87	2.99	3.48

### 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)	184	46	54	35	0.29	0.64	5.20	1.31	1.52
-30	(-22)	246	62	72	42	0.33	0.86	5.84	1.47	1.71
-25	(-13)	324	82	95	49	0.38	1.13	6.53	1.65	1.91
-20	(- 4)	419	106	123	57	0.43	1.46	7.31	1.84	2.14
-15	(+ 5)	534	135	157	65	0.48	1.87	8.21	2.07	2.41
-10	(+14)	670	169	196	72	0.53	2.34	9.27	2.34	2.72

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)	152	38	45	36	0.29	0.58	4.16	1.05	1.22
-30	(-22)	205	52	60	44	0.34	0.78	4.72	1.19	1.38
-25	(-13)	273	69	80	52	0.39	1.04	5.28	1.33	1.55
-20	(- 4)	358	90	105	61	0.46	1.37	5.87	1.48	1.72
-15	(+ 5)	461	116	135	71	0.52	1.76	6.53	1.64	1.91
-10	(+14)	583	147	171	80	0.59	2.24	7.28	1.84	2.13

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)	266	67	78	43	0.33	0.85	6.12	1.54	1.79
-30	(-22)	354	89	104	51	0.38	1.14	6.97	1.76	2.04
-25	(-13)	465	117	136	59	0.44	1.49	7.90	1.99	2.31
-20	(- 4)	600	151	176	67	0.50	1.93	8.93	2.25	2.62
-15	(+ 5)	760	192	223	75	0.55	2.45	10.11	2.55	2.96
-10	(+14)	947	239	277	83	0.60	3.05	11.47	2.89	3.36

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)	229	58	67	45	0.34	0.80	5.13	1.29	1.50
-30	(-22)	308	78	90	53	0.40	1.07	5.80	1.46	1.70
-25	(-13)	407	103	119	63	0.47	1.42	6.51	1.64	1.91
-20	(- 4)	529	133	155	72	0.54	1.84	7.28	1.83	2.13
-15	(+ 5)	673	170	197	83	0.61	2.35	8.14	2.05	2.39
-10	(+14)	842	212	247	92	0.67	2.95	9.13	2.30	2.68

### 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)	189	48	55	45	0.35	0.72	4.13	1.04	1.21	
-30 (-22)	259	65	76	55	0.41	0.99	4.73	1.19	1.39	
-25 (-13)	348	88	102	66	0.49	1.33	5.31	1.34	1.56	
-20 (- 4)	458	115	134	77	0.57	1.75	5.92	1.49	1.73	
-15 (+ 5)	589	148	173	90	0.65	2.25	6.57	1.65	1.92	
-10 (+14)	742	187	217	101	0.73	2.85	7.30	1.84	2.14	

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)	405	102	119	69	0.52	1.30	5.88	1.48	1.72	
-30 (-22)	538	136	158	80	0.59	1.73	6.69	1.69	1.96	
-25 (-13)	704	177	206	93	0.68	2.26	7.54	1.90	2.21	
-20 (- 4)	904	228	265	107	0.78	2.91	8.42	2.12	2.47	
-15 (+ 5)	1142	288	335	122	0.87	3.67	9.36	2.36	2.74	
-10 (+14)	1419	357	416	137	0.97	4.58	10.36	2.61	3.04	

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)	342	86	100	70	0.52	1.19	4.87	1.23	1.43	
-30 (-22)	464	117	136	84	0.61	1.61	5.54	1.40	1.62	
-25 (-13)	615	155	180	99	0.71	2.14	6.23	1.57	1.83	
-20 (- 4)	796	201	233	115	0.82	2.78	6.95	1.75	2.04	
-15 (+ 5)	1010	254	296	131	0.94	3.53	7.71	1.94	2.26	
-10 (+14)	1259	317	369	148	1.05	4.41	8.51	2.14	2.49	

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)	280	70	82	69	0.52	1.06	4.03	1.01	1.18	
-30 (-22)	392	99	115	85	0.62	1.49	4.59	1.16	1.34	
-25 (-13)	528	133	155	102	0.74	2.01	5.16	1.30	1.51	
-20 (- 4)	690	174	202	120	0.86	2.63	5.74	1.45	1.68	
-15 (+ 5)	880	222	258	139	0.99	3.37	6.34	1.60	1.86	
-10 (+14)	1101	278	323	158	1.12	4.23	6.98	1.76	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)	556	140	163	104	0.74	1.78	5.33	1.34	1.56	
-30 (-22)	722	182	212	120	0.81	2.33	6.01	1.51	1.76	
-25 (-13)	913	230	268	136	0.91	2.94	6.74	1.70	1.98	
-20 (- 4)	1155	291	339	153	1.02	3.71	7.56	1.91	2.22	
-15 (+ 5)	1477	372	433	173	1.11	4.74	8.51	2.14	2.49	
-10 (+14)	1905	480	558	197	1.18	6.13	9.62	2.42	2.82	

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)	484	122	142	107	0.77	1.68	4.53	1.14	1.33	
-30 (-22)	637	160	187	124	0.85	2.22	5.11	1.29	1.50	
-25 (-13)	810	204	237	142	0.96	2.82	5.71	1.44	1.67	
-20 (- 4)	1032	260	302	162	1.07	3.59	6.37	1.61	1.87	
-15 (+ 5)	1328	335	389	185	1.17	4.64	7.15	1.80	2.09	
-10 (+14)	1728	436	506	213	1.23	6.05	8.07	2.03	2.37	

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)	423	107	124	110	0.78	1.61	3.83	0.97	1.12	
-30 (-22)	560	141	164	129	0.88	2.12	4.31	1.09	1.26	
-25 (-13)	714	180	209	149	1.00	2.72	4.80	1.21	1.41	
-20 (- 4)	912	230	267	172	1.11	3.49	5.33	1.34	1.56	
-15 (+ 5)	1181	298	346	199	1.21	4.53	5.95	1.50	1.74	
-10 (+14)	1550	391	454	231	1.26	5.96	6.71	1.69	1.97	

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal 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	Straight		
3.2 DISCHARGE	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted 0° up + 59° to Back		
3.3 PROCESS	4.9 +0.10/-0.05	[mm]	(0.193" +0.004"/-0.002")
3.3.1 Material	Copper		
3.3.2 Shape	Slanted 0° up + 59° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		