

COMPRESSOR DEFINITION

Designation	VES C13C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513907346

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)	-	-	-
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 ²] (98 psig)	/ °C - °F
9.2 Peak	7.8	[kgf/cm ²] (111 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/5	[hp]
2 Displacement	13.27	[cm ³] (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)	6.7	[kg] (14.77 lb.)
5 Nitrogen charge	-	[kgf/cm ²]

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	CF02B11 L XX XX/CF02B11 M XX XX/VCC31156UXXX	
3 Start capacitor	-	[μF(VAC minimum)]
4 Run capacitor	-	[μF(VAC minimum)]
5 Motor protection	INVERTER VCC3 1156 U	
6 Start winding resistance		[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance		[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		

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @115V1300RPM			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]
286	72	84	55		1.09	5.21	1.31	1.53

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]
444	112	130	82		1.69	5.39	1.36	1.58

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]
659	166	193	127		2.51	5.20	1.31	1.52

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]
833	210	244	179		3.18	4.67	1.18	1.37

E - PERFORMANCE - CURVES

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%		
	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
°C (°F)									
-35 (-31)	313	79	92	52	0.48	1.00	6.05	1.53	1.77
-30 (-22)	426	107	125	61	0.56	1.37	6.96	1.75	2.04
-25 (-13)	554	140	162	71	0.64	1.78	7.84	1.98	2.30
-20 (- 4)	704	177	206	81	0.73	2.27	8.75	2.20	2.56
-15 (+ 5)	883	222	259	91	0.82	2.84	9.70	2.45	2.84
-10 (+14)	1096	276	321	102	0.91	3.53	10.75	2.71	3.15

E - PERFORMANCE - CURVES

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)	219	55	64	54	0.49	0.76	4.10	1.03	1.20
-30	(-22)	330	83	97	64	0.58	1.15	5.05	1.27	1.48
-25	(-13)	455	115	133	75	0.68	1.58	5.96	1.50	1.75
-20	(- 4)	601	151	176	86	0.77	2.09	6.86	1.73	2.01
-15	(+ 5)	774	195	227	99	0.88	2.70	7.78	1.96	2.28
-10	(+14)	980	247	287	112	0.99	3.43	8.76	2.21	2.57

TEST CONDITIONS: @115V2000RPM		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)	228	58	67	55	0.51	0.87	4.17	1.05	1.22
-30	(-22)	316	80	93	66	0.61	1.20	4.83	1.22	1.41
-25	(-13)	417	105	122	78	0.71	1.59	5.40	1.36	1.58
-20	(- 4)	537	135	157	91	0.83	2.05	5.94	1.50	1.74
-15	(+ 5)	684	172	200	106	0.95	2.62	6.46	1.63	1.89
-10	(+14)	863	218	253	122	1.08	3.32	7.02	1.77	2.06

TEST CONDITIONS: @115V3000RPM		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	5.79	1.46	1.70
-30	(-22)	619	156	181	95	0.85	1.99	6.55	1.65	1.92
-25	(-13)	792	200	232	109	0.97	2.55	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	313	363	143	1.25	3.99	8.67	2.19	2.54
-10	(+14)	1539	388	451	163	1.42	4.96	9.41	2.37	2.76

TEST CONDITIONS: @115V3000RPM		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)	405	102	119	82	0.74	1.41	4.93	1.24	1.45
-30	(-22)	554	140	162	99	0.88	1.93	5.56	1.40	1.63
-25	(-13)	715	180	209	117	1.03	2.49	6.14	1.55	1.80
-20	(- 4)	899	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

E - PERFORMANCE - CURVES

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%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	331	84	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	1.53	1.77	
-10 (+14)	1214	306	356	185	1.60	4.66	6.56	1.65	1.92	

TEST CONDITIONS:		CECOMAF			(Condensing temperature 35°C (+95°F))					
@115V4500RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	591	149	173	118	0.93	1.90	5.04	1.27	1.48	
-30 (-22)	764	192	224	134	1.02	2.44	5.69	1.43	1.67	
-25 (-13)	1021	257	299	162	1.25	3.26	6.24	1.57	1.83	
-20 (- 4)	1333	336	391	196	1.56	4.28	6.77	1.71	1.98	
-15 (+ 5)	1674	422	490	227	1.86	5.40	7.38	1.86	2.16	
-10 (+14)	2012	507	590	249	2.07	6.50	8.15	2.05	2.39	

TEST CONDITIONS:		CECOMAF			(Condensing temperature 45°C (+113°F))					
@115V4500RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	519	131	152	121	0.97	1.80	4.28	1.08	1.25	
-30 (-22)	676	170	198	141	1.09	2.35	4.85	1.22	1.42	
-25 (-13)	907	229	266	171	1.34	3.16	5.33	1.34	1.56	
-20 (- 4)	1183	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)	1758	443	515	249	2.05	6.16	7.11	1.79	2.08	

TEST CONDITIONS:		CECOMAF			(Condensing temperature 55°C (+131°F))					
@115V4500RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	418	105	123	114	0.92	1.59	3.65	0.92	1.07	
-30 (-22)	566	143	166	141	1.10	2.17	4.10	1.03	1.20	
-25 (-13)	778	196	228	175	1.37	2.97	4.47	1.13	1.31	
-20 (- 4)	1024	258	300	210	1.67	3.91	4.85	1.22	1.42	
-15 (+ 5)	1277	322	374	238	1.91	4.87	5.33	1.34	1.56	
-10 (+14)	1507	380	441	252	2.02	5.77	5.99	1.51	1.75	

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal VES		
2 Tray holder	No		
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 5° out + 63° up		
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 10° up + 24° to Back		
3.3 PROCESS	6.2 +0.05/+0.05	[mm]	(0.244" +0.002"/+0.002")
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		