

### COMPRESSOR DEFINITION

Designation	VES D5C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513907057

### 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-Medium Back Pressure		
4.1 Evaporating temperature range	-35°C to -5°C	(-31°F to 23°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	5.19	[cm <sup>3</sup> ] (0.317 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	15.000	
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)	6.45	[kg] (14.22 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	VCC3 1156 XXXXX/VES 2456 XX X X	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	INVERTER VES 2456X	
6 Start winding resistance	13.40	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	13.40	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (46/133 Hz)	2.10/2.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (46/133 Hz)	2.10/2.10	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (46/133 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	CCC - VDE	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: <b>@220V1300RPM</b>			<b>CECOMAFLBP</b> <b>Static</b>		Evaporating temperature (Condensing temperature)		<b>-25°C (-13°F)</b> <b>55°C (131°F)</b>	
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]
85	21	25	18	0.17	0.32	4.67	1.18	1.37

TEST CONDITIONS: <b>@220V1600RPM</b>			<b>CECOMAFLBP</b> <b>Static</b>		Evaporating temperature (Condensing temperature)		<b>-25°C (-13°F)</b> <b>55°C (131°F)</b>	
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]
105	26	31	22	0.20	0.40	4.75	1.20	1.39

TEST CONDITIONS: <b>@220V2000RPM</b>			<b>CECOMAFLBP</b> <b>Static</b>		Evaporating temperature (Condensing temperature)		<b>-25°C (-13°F)</b> <b>55°C (131°F)</b>	
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]
137	35	40	28	0.24	0.52	4.89	1.23	1.43

TEST CONDITIONS: <b>@220V3000RPM</b>			<b>CECOMAFLBP</b> <b>Static</b>		Evaporating temperature (Condensing temperature)		<b>-25°C (-13°F)</b> <b>55°C (131°F)</b>	
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]
209	53	61	44	0.36	0.80	4.80	1.21	1.41

TEST CONDITIONS: <b>@220V4500RPM</b>			<b>CECOMAFLBP</b> <b>Static</b>		Evaporating temperature (Condensing temperature)		<b>-25°C (-13°F)</b> <b>55°C (131°F)</b>	
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]
317	80	93	69	0.54	1.21	4.60	1.16	1.35

### 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]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	73	18	21	13	0.12	0.23	5.42	1.36	1.59	
-30 (-22)	96	24	28	15	0.14	0.31	6.28	1.58	1.84	
-25 (-13)	126	32	37	17	0.16	0.40	7.28	1.83	2.13	
-20 (- 4)	163	41	48	19	0.18	0.52	8.48	2.14	2.48	
-15 (+ 5)	209	53	61	21	0.19	0.67	9.93	2.50	2.91	
-10 (+14)	265	67	78	23	0.20	0.86	11.69	2.95	3.43	
-5 (+23)	333	84	98	24	0.21	1.08	13.82	3.48	4.05	

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]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	55	14	16	12	0.12	0.19	4.50	1.13	1.32	
-30 (-22)	78	20	23	15	0.14	0.27	5.24	1.32	1.53	
-25 (-13)	106	27	31	18	0.16	0.37	5.99	1.51	1.76	
-20 (- 4)	140	35	41	20	0.19	0.49	6.83	1.72	2.00	
-15 (+ 5)	182	46	53	23	0.21	0.63	7.80	1.96	2.28	
-10 (+14)	232	58	68	26	0.23	0.81	8.95	2.26	2.62	
-5 (+23)	293	74	86	28	0.24	1.03	10.35	2.61	3.03	

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]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	35	9	10	12	0.12	0.13	2.99	0.75	0.88	
-30 (-22)	58	15	17	15	0.14	0.22	3.88	0.98	1.14	
-25 (-13)	85	21	25	18	0.17	0.32	4.67	1.18	1.37	
-20 (- 4)	117	29	34	22	0.20	0.45	5.42	1.37	1.59	
-15 (+ 5)	154	39	45	25	0.22	0.59	6.18	1.56	1.81	
-10 (+14)	199	50	58	28	0.25	0.77	7.01	1.77	2.05	
-5 (+23)	253	64	74	32	0.27	0.97	7.96	2.01	2.33	

### 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]	[W/W]
-35 (-31)	85	21	25	15	0.14	0.27	5.50	1.39	1.61	
-30 (-22)	115	29	34	18	0.17	0.37	6.31	1.59	1.85	
-25 (-13)	154	39	45	21	0.19	0.49	7.33	1.85	2.15	
-20 (- 4)	203	51	59	24	0.21	0.65	8.59	2.16	2.52	
-15 (+ 5)	262	66	77	26	0.23	0.84	10.10	2.54	2.96	
-10 (+14)	334	84	98	28	0.24	1.08	11.89	3.00	3.48	
-5 (+23)	417	105	122	30	0.25	1.35	13.98	3.52	4.10	

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)	72	18	21	15	0.14	0.25	4.74	1.19	1.39	
-30 (-22)	98	25	29	18	0.17	0.34	5.33	1.34	1.56	
-25 (-13)	132	33	39	22	0.19	0.46	6.04	1.52	1.77	
-20 (- 4)	175	44	51	25	0.22	0.61	6.90	1.74	2.02	
-15 (+ 5)	227	57	67	29	0.25	0.79	7.92	2.00	2.32	
-10 (+14)	290	73	85	32	0.27	1.02	9.13	2.30	2.68	
-5 (+23)	364	92	107	35	0.29	1.28	10.56	2.66	3.09	

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)	51	13	15	15	0.13	0.20	3.47	0.88	1.02	
-30 (-22)	75	19	22	18	0.16	0.28	4.10	1.03	1.20	
-25 (-13)	105	27	31	22	0.20	0.40	4.75	1.20	1.39	
-20 (- 4)	144	36	42	26	0.23	0.55	5.45	1.37	1.60	
-15 (+ 5)	191	48	56	31	0.26	0.73	6.24	1.57	1.83	
-10 (+14)	248	62	73	35	0.29	0.95	7.12	1.79	2.09	
-5 (+23)	314	79	92	39	0.32	1.21	8.13	2.05	2.38	

### 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]	[W/W]
-35 (-31)	110	28	32	19	0.17	0.35	5.61	1.41	1.65	
-30 (-22)	146	37	43	23	0.20	0.47	6.41	1.61	1.88	
-25 (-13)	194	49	57	26	0.23	0.62	7.39	1.86	2.17	
-20 (- 4)	255	64	75	30	0.25	0.82	8.59	2.17	2.52	
-15 (+ 5)	328	83	96	33	0.27	1.06	10.04	2.53	2.94	
-10 (+14)	416	105	122	36	0.29	1.34	11.74	2.96	3.44	
-5 (+23)	520	131	152	38	0.31	1.68	13.74	3.46	4.03	

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)	92	23	27	20	0.17	0.32	4.71	1.19	1.38	
-30 (-22)	125	31	37	23	0.21	0.43	5.34	1.35	1.57	
-25 (-13)	168	42	49	27	0.24	0.58	6.09	1.53	1.78	
-20 (- 4)	223	56	65	32	0.27	0.78	6.96	1.75	2.04	
-15 (+ 5)	289	73	85	36	0.30	1.01	7.98	2.01	2.34	
-10 (+14)	368	93	108	40	0.32	1.29	9.19	2.32	2.69	
-5 (+23)	461	116	135	44	0.35	1.62	10.59	2.67	3.10	

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)	70	18	20	19	0.17	0.26	3.61	0.91	1.06	
-30 (-22)	99	25	29	23	0.21	0.38	4.24	1.07	1.24	
-25 (-13)	137	34	40	28	0.24	0.52	4.89	1.23	1.43	
-20 (- 4)	185	46	54	33	0.28	0.70	5.59	1.41	1.64	
-15 (+ 5)	243	61	71	38	0.31	0.93	6.35	1.60	1.86	
-10 (+14)	313	79	92	43	0.35	1.20	7.20	1.81	2.11	
-5 (+23)	395	100	116	48	0.39	1.52	8.16	2.06	2.39	

### E - PERFORMANCE - CURVES

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)	163	41	48	30	0.26	0.52	5.41	1.36	1.59	
-30 (-22)	225	57	66	35	0.29	0.72	6.37	1.61	1.87	
-25 (-13)	303	76	89	41	0.34	0.97	7.40	1.86	2.17	
-20 (- 4)	399	101	117	47	0.38	1.28	8.53	2.15	2.50	
-15 (+ 5)	511	129	150	52	0.42	1.65	9.80	2.47	2.87	
-10 (+14)	641	161	188	57	0.45	2.07	11.25	2.83	3.30	
-5 (+23)	787	198	231	61	0.48	2.54	12.90	3.25	3.78	

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)	133	34	39	30	0.25	0.46	4.42	1.12	1.30	
-30 (-22)	187	47	55	36	0.30	0.65	5.22	1.32	1.53	
-25 (-13)	257	65	75	42	0.35	0.90	6.04	1.52	1.77	
-20 (- 4)	344	87	101	49	0.40	1.20	6.92	1.74	2.03	
-15 (+ 5)	446	112	131	56	0.45	1.56	7.89	1.99	2.31	
-10 (+14)	564	142	165	63	0.49	1.97	9.00	2.27	2.64	
-5 (+23)	698	176	205	68	0.53	2.45	10.26	2.59	3.01	

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)	103	26	30	30	0.26	0.39	3.43	0.87	1.01	
-30 (-22)	149	38	44	36	0.31	0.57	4.14	1.04	1.21	
-25 (-13)	209	53	61	44	0.36	0.80	4.82	1.22	1.41	
-20 (- 4)	285	72	84	52	0.42	1.09	5.52	1.39	1.62	
-15 (+ 5)	376	95	110	60	0.47	1.44	6.27	1.58	1.84	
-10 (+14)	482	121	141	68	0.53	1.85	7.10	1.79	2.08	
-5 (+23)	603	152	177	75	0.58	2.32	8.05	2.03	2.36	

### 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)	252	64	74	50	0.39	0.81	5.07	1.28	1.49	
-30 (-22)	336	85	99	57	0.45	1.08	5.86	1.48	1.72	
-25 (-13)	441	111	129	66	0.51	1.42	6.73	1.70	1.97	
-20 (- 4)	571	144	167	74	0.57	1.83	7.71	1.94	2.26	
-15 (+ 5)	728	184	213	82	0.63	2.34	8.82	2.22	2.59	
-10 (+14)	918	231	269	91	0.69	2.96	10.09	2.54	2.96	
-5 (+23)	1143	288	335	99	0.75	3.70	11.53	2.91	3.38	

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)	206	52	60	49	0.39	0.71	4.21	1.06	1.23	
-30 (-22)	287	72	84	59	0.46	1.00	4.90	1.23	1.43	
-25 (-13)	384	97	113	69	0.54	1.34	5.62	1.42	1.65	
-20 (- 4)	502	127	147	79	0.61	1.75	6.41	1.61	1.88	
-15 (+ 5)	644	162	189	88	0.68	2.25	7.28	1.83	2.13	
-10 (+14)	813	205	238	98	0.75	2.85	8.27	2.08	2.42	
-5 (+23)	1014	256	297	108	0.82	3.56	9.38	2.36	2.75	

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	36	42	44	0.35	0.55	3.28	0.83	0.96	
-30 (-22)	225	57	66	56	0.45	0.85	3.94	0.99	1.16	
-25 (-13)	317	80	93	69	0.54	1.21	4.60	1.16	1.35	
-20 (- 4)	425	107	125	81	0.63	1.62	5.27	1.33	1.54	
-15 (+ 5)	553	139	162	93	0.71	2.12	5.99	1.51	1.76	
-10 (+14)	705	178	207	104	0.79	2.71	6.78	1.71	1.99	
-5 (+23)	884	223	259	116	0.87	3.40	7.65	1.93	2.24	

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal VES		
2 Tray holder	Yes		
3 Connectors			
3.1 SUCTION	8.2 +0.12/-0.08	[mm]	(0.323" +0.005"/-0.003")
3.1.1 Material	Copper		
3.1.2 Shape	Straight		
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 0° up + 59° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		