

### COMPRESSOR DEFINITION

Designation	VES A7C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513907009

### 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 pressures/temperature			
9.1 Operating (gauge)	7.7	[kgf/cm <sup>2</sup> ] (109 psig)	/ °C - °F
9.2 Peak (gauge)	9.8	[kgf/cm <sup>2</sup> ] (139 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/5	[hp]
2 Displacement	7.23	[cm <sup>3</sup> ] (0.441 cu.in)
2.1 Bore [mm]	24.000	
2.2 Stroke [mm]	16.000	
3 Lubricant charge	200	[ml] (6.76 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	5.99	[kg] (13.21 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	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	11.50	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	11.50	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (40/150 Hz)	2.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (40/150 Hz)	2.10	[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

### 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)	100	25	29	17	0.15	0.32	5.72	1.44	1.68	
-30 (-22)	132	33	39	21	0.18	0.42	6.41	1.62	1.88	
-25 (-13)	176	44	52	24	0.21	0.57	7.30	1.84	2.14	
-20 (- 4)	232	59	68	28	0.24	0.75	8.39	2.11	2.46	
-15 (+ 5)	299	75	88	31	0.26	0.96	9.68	2.44	2.84	
-10 (+14)	375	95	110	34	0.29	1.21	11.17	2.82	3.27	

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)	76	19	22	18	0.16	0.26	4.27	1.08	1.25	
-30 (-22)	106	27	31	22	0.19	0.37	4.89	1.23	1.43	
-25 (-13)	147	37	43	26	0.22	0.51	5.62	1.42	1.65	
-20 (- 4)	199	50	58	31	0.26	0.69	6.45	1.63	1.89	
-15 (+ 5)	260	66	76	35	0.29	0.91	7.40	1.86	2.17	
-10 (+14)	330	83	97	39	0.32	1.15	8.46	2.13	2.48	

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)	54	14	16	17	0.15	0.21	3.12	0.79	0.91	
-30 (-22)	80	20	24	22	0.19	0.31	3.75	0.94	1.10	
-25 (-13)	117	30	34	27	0.23	0.45	4.39	1.11	1.29	
-20 (- 4)	163	41	48	32	0.27	0.62	5.05	1.27	1.48	
-15 (+ 5)	218	55	64	38	0.32	0.83	5.73	1.44	1.68	
-10 (+14)	280	71	82	44	0.36	1.07	6.44	1.62	1.89	

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)	121	31	36	22	0.19	0.39	5.61	1.41	1.64	
-30 (-22)	170	43	50	26	0.22	0.55	6.58	1.66	1.93	
-25 (-13)	226	57	66	30	0.25	0.73	7.55	1.90	2.21	
-20 (- 4)	292	74	86	34	0.28	0.94	8.62	2.17	2.53	
-15 (+ 5)	370	93	108	38	0.31	1.19	9.85	2.48	2.89	
-10 (+14)	464	117	136	41	0.34	1.50	11.34	2.86	3.32	

### 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)	93	23	27	21	0.19	0.32	4.39	1.11	1.29
-30	(-22)	138	35	40	26	0.22	0.48	5.22	1.32	1.53
-25	(-13)	189	48	55	32	0.26	0.66	5.99	1.51	1.76
-20	(- 4)	250	63	73	37	0.30	0.87	6.77	1.71	1.98
-15	(+ 5)	322	81	94	42	0.34	1.12	7.64	1.93	2.24
-10	(+14)	408	103	120	47	0.38	1.43	8.69	2.19	2.55

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)	65	16	19	20	0.18	0.25	3.14	0.79	0.92
-30	(-22)	105	26	31	26	0.22	0.40	3.98	1.00	1.17
-25	(-13)	151	38	44	32	0.27	0.57	4.66	1.18	1.37
-20	(- 4)	205	52	60	39	0.32	0.78	5.29	1.33	1.55
-15	(+ 5)	270	68	79	46	0.37	1.04	5.93	1.49	1.74
-10	(+14)	349	88	102	52	0.42	1.34	6.66	1.68	1.95

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)	153	39	45	27	0.23	0.49	5.58	1.41	1.64
-30	(-22)	207	52	61	32	0.27	0.67	6.51	1.64	1.91
-25	(-13)	278	70	81	37	0.31	0.89	7.49	1.89	2.20
-20	(- 4)	364	92	107	42	0.35	1.17	8.59	2.16	2.52
-15	(+ 5)	467	118	137	48	0.39	1.50	9.85	2.48	2.89
-10	(+14)	586	148	172	52	0.43	1.89	11.33	2.85	3.32

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)	121	30	35	27	0.23	0.42	4.49	1.13	1.32
-30	(-22)	171	43	50	32	0.27	0.59	5.28	1.33	1.55
-25	(-13)	236	59	69	39	0.32	0.82	6.06	1.53	1.77
-20	(- 4)	316	80	93	46	0.37	1.10	6.87	1.73	2.01
-15	(+ 5)	410	103	120	53	0.42	1.43	7.78	1.96	2.28
-10	(+14)	520	131	152	59	0.47	1.82	8.83	2.22	2.59

### 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)	91	23	27	26	0.22	0.34	3.42	0.86	1.00	
-30 (-22)	135	34	40	33	0.27	0.52	4.19	1.06	1.23	
-25 (-13)	193	49	57	40	0.32	0.74	4.87	1.23	1.43	
-20 (- 4)	265	67	78	48	0.38	1.01	5.52	1.39	1.62	
-15 (+ 5)	350	88	102	57	0.45	1.34	6.18	1.56	1.81	
-10 (+14)	448	113	131	65	0.51	1.72	6.91	1.74	2.03	

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)	223	56	65	42	0.34	0.71	5.36	1.35	1.57	
-30 (-22)	320	81	94	50	0.39	1.02	6.29	1.58	1.84	
-25 (-13)	435	110	127	59	0.45	1.40	7.34	1.85	2.15	
-20 (- 4)	570	144	167	67	0.52	1.83	8.51	2.14	2.49	
-15 (+ 5)	726	183	213	75	0.59	2.34	9.77	2.46	2.86	
-10 (+14)	905	228	265	82	0.64	2.92	11.10	2.80	3.25	

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)	188	47	55	42	0.35	0.65	4.53	1.14	1.33	
-30 (-22)	268	68	79	51	0.40	0.93	5.22	1.32	1.53	
-25 (-13)	368	93	108	61	0.47	1.28	6.01	1.52	1.76	
-20 (- 4)	489	123	143	71	0.55	1.70	6.89	1.74	2.02	
-15 (+ 5)	633	159	185	81	0.63	2.21	7.84	1.98	2.30	
-10 (+14)	800	202	234	91	0.71	2.80	8.84	2.23	2.59	

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)	156	39	46	42	0.35	0.59	3.66	0.92	1.07	
-30 (-22)	217	55	64	52	0.40	0.82	4.22	1.06	1.24	
-25 (-13)	299	75	88	62	0.48	1.14	4.86	1.22	1.42	
-20 (- 4)	404	102	118	73	0.56	1.54	5.56	1.40	1.63	
-15 (+ 5)	532	134	156	85	0.65	2.04	6.30	1.59	1.85	
-10 (+14)	686	173	201	97	0.74	2.64	7.07	1.78	2.07	

### 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)	356	90	104	67	0.53	1.14	5.30	1.34	1.55	
-30 (-22)	484	122	142	79	0.60	1.56	6.10	1.54	1.79	
-25 (-13)	634	160	186	91	0.69	2.04	6.97	1.76	2.04	
-20 (- 4)	814	205	239	103	0.78	2.62	7.90	1.99	2.32	
-15 (+ 5)	1031	260	302	116	0.88	3.32	8.91	2.24	2.61	
-10 (+14)	1293	326	379	129	0.99	4.17	9.98	2.52	2.93	

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)	292	74	86	66	0.53	1.01	4.44	1.12	1.30	
-30 (-22)	412	104	121	80	0.62	1.43	5.12	1.29	1.50	
-25 (-13)	550	139	161	94	0.72	1.92	5.83	1.47	1.71	
-20 (- 4)	714	180	209	109	0.83	2.49	6.59	1.66	1.93	
-15 (+ 5)	911	230	267	123	0.94	3.18	7.38	1.86	2.16	
-10 (+14)	1148	289	337	139	1.05	4.02	8.23	2.07	2.41	

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)	217	55	64	62	0.49	0.83	3.52	0.89	1.03	
-30 (-22)	328	83	96	79	0.61	1.25	4.13	1.04	1.21	
-25 (-13)	453	114	133	95	0.73	1.72	4.75	1.20	1.39	
-20 (- 4)	600	151	176	112	0.85	2.29	5.39	1.36	1.58	
-15 (+ 5)	776	196	227	129	0.98	2.97	6.04	1.52	1.77	
-10 (+14)	989	249	290	147	1.11	3.80	6.72	1.69	1.97	

### F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard VES		
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 45° up + 15° 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 +0.08/-0.08	[mm]	(0.236" +0.003"/-0.003")
3.3.1 Material	Copper(OD)		
3.3.2 Shape	Slanted 47° up + 59° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		