

COMPRESSOR DEFINITION

Designation	VES D7C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513907020

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 ²] (109 psig)	/ °C - °F
9.2 Peak (gauge)	9.8	[kgf/cm ²] (139 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/5	[hp]
2 Displacement	7.23	[cm ³] (0.441 cu.in)
2.1 Bore [mm]	24.000	
2.2 Stroke [mm]	16.000	
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)	6.81	[kg] (15.01 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	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	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)	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)	104	26	30	17	0.12	0.33	6.08	1.53	1.78	
-30 (-22)	139	35	41	20	0.15	0.45	6.97	1.76	2.04	
-25 (-13)	182	46	53	23	0.18	0.58	7.92	2.00	2.32	
-20 (- 4)	235	59	69	26	0.20	0.75	9.03	2.27	2.64	
-15 (+ 5)	299	75	88	29	0.22	0.96	10.35	2.61	3.03	
-10 (+14)	377	95	111	32	0.24	1.22	11.98	3.02	3.51	

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)	82	21	24	17	0.14	0.28	4.69	1.18	1.37	
-30 (-22)	114	29	33	21	0.16	0.39	5.49	1.38	1.61	
-25 (-13)	153	38	45	24	0.19	0.53	6.26	1.58	1.83	
-20 (- 4)	200	50	59	28	0.22	0.70	7.09	1.79	2.08	
-15 (+ 5)	258	65	75	32	0.24	0.90	8.05	2.03	2.36	
-10 (+14)	327	82	96	35	0.27	1.15	9.22	2.32	2.70	

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)	55	14	16	17	0.14	0.21	3.23	0.81	0.95	
-30 (-22)	86	22	25	21	0.17	0.32	4.09	1.03	1.20	
-25 (-13)	122	31	36	25	0.20	0.46	4.84	1.22	1.42	
-20 (- 4)	165	42	48	30	0.23	0.63	5.55	1.40	1.63	
-15 (+ 5)	217	55	64	34	0.26	0.83	6.30	1.59	1.85	
-10 (+14)	281	71	82	39	0.29	1.08	7.17	1.81	2.10	

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)	124	31	36	21	0.16	0.40	5.84	1.47	1.71	
-30 (-22)	171	43	50	25	0.19	0.55	6.87	1.73	2.01	
-25 (-13)	227	57	66	29	0.21	0.73	7.94	2.00	2.33	
-20 (- 4)	293	74	86	32	0.24	0.94	9.12	2.30	2.67	
-15 (+ 5)	374	94	109	36	0.26	1.20	10.48	2.64	3.07	
-10 (+14)	470	118	138	39	0.29	1.51	12.10	3.05	3.54	

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)	99	25	29	21	0.17	0.35	4.70	1.18	1.38
-30	(-22)	143	36	42	26	0.20	0.50	5.58	1.41	1.64
-25	(-13)	193	49	57	30	0.23	0.67	6.42	1.62	1.88
-20	(- 4)	253	64	74	35	0.26	0.88	7.29	1.84	2.14
-15	(+ 5)	324	82	95	39	0.30	1.13	8.25	2.08	2.42
-10	(+14)	409	103	120	43	0.33	1.43	9.38	2.36	2.75

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)	71	18	21	20	0.15	0.27	3.48	0.88	1.02
-30	(-22)	112	28	33	25	0.19	0.42	4.37	1.10	1.28
-25	(-13)	158	40	46	31	0.24	0.60	5.13	1.29	1.50
-20	(- 4)	211	53	62	36	0.28	0.81	5.83	1.47	1.71
-15	(+ 5)	274	69	80	42	0.32	1.05	6.53	1.65	1.91
-10	(+14)	349	88	102	48	0.36	1.34	7.32	1.84	2.15

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)	155	39	45	27	0.20	0.49	5.81	1.46	1.70
-30	(-22)	211	53	62	31	0.23	0.68	6.80	1.71	1.99
-25	(-13)	281	71	82	36	0.26	0.90	7.87	1.98	2.31
-20	(- 4)	367	92	107	41	0.30	1.18	9.07	2.28	2.66
-15	(+ 5)	468	118	137	45	0.33	1.51	10.43	2.63	3.06
-10	(+14)	587	148	172	49	0.36	1.89	12.00	3.02	3.52

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)	124	31	36	27	0.21	0.43	4.67	1.18	1.37
-30	(-22)	176	44	51	32	0.24	0.61	5.51	1.39	1.61
-25	(-13)	240	60	70	38	0.28	0.83	6.36	1.60	1.86
-20	(- 4)	318	80	93	44	0.32	1.11	7.27	1.83	2.13
-15	(+ 5)	411	104	120	49	0.36	1.44	8.28	2.09	2.43
-10	(+14)	520	131	152	55	0.40	1.82	9.42	2.37	2.76

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)	95	24	28	26	0.21	0.36	3.65	0.92	1.07	
-30 (-22)	141	36	41	32	0.24	0.54	4.44	1.12	1.30	
-25 (-13)	198	50	58	38	0.28	0.76	5.18	1.31	1.52	
-20 (- 4)	268	68	79	45	0.33	1.02	5.91	1.49	1.73	
-15 (+ 5)	351	88	103	53	0.39	1.35	6.67	1.68	1.96	
-10 (+14)	449	113	132	60	0.44	1.72	7.50	1.89	2.20	

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)	228	57	67	41	0.31	0.73	5.59	1.41	1.64	
-30 (-22)	318	80	93	49	0.35	1.02	6.53	1.64	1.91	
-25 (-13)	429	108	126	57	0.41	1.38	7.55	1.90	2.21	
-20 (- 4)	561	141	164	65	0.47	1.80	8.68	2.19	2.54	
-15 (+ 5)	718	181	210	73	0.52	2.31	9.94	2.50	2.91	
-10 (+14)	901	227	264	80	0.58	2.91	11.33	2.86	3.32	

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)	190	48	56	41	0.32	0.66	4.63	1.17	1.36	
-30 (-22)	268	67	78	50	0.37	0.93	5.38	1.36	1.58	
-25 (-13)	365	92	107	59	0.43	1.27	6.19	1.56	1.81	
-20 (- 4)	484	122	142	68	0.50	1.69	7.07	1.78	2.07	
-15 (+ 5)	627	158	184	78	0.57	2.19	8.04	2.03	2.36	
-10 (+14)	795	200	233	87	0.63	2.78	9.13	2.30	2.67	

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)	159	40	46	42	0.31	0.60	3.80	0.96	1.11	
-30 (-22)	221	56	65	50	0.37	0.84	4.42	1.11	1.29	
-25 (-13)	302	76	89	60	0.44	1.15	5.06	1.28	1.48	
-20 (- 4)	406	102	119	71	0.52	1.55	5.75	1.45	1.69	
-15 (+ 5)	532	134	156	82	0.60	2.04	6.50	1.64	1.91	
-10 (+14)	684	172	200	93	0.68	2.63	7.33	1.85	2.15	

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)	364	92	107	67	0.49	1.16	5.38	1.36	1.58	
-30 (-22)	485	122	142	78	0.56	1.56	6.24	1.57	1.83	
-25 (-13)	619	156	181	88	0.62	1.99	7.11	1.79	2.08	
-20 (- 4)	780	196	228	97	0.68	2.50	8.05	2.03	2.36	
-15 (+ 5)	980	247	287	107	0.74	3.15	9.12	2.30	2.67	
-10 (+14)	1233	311	361	118	0.81	3.97	10.36	2.61	3.04	

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)	298	75	87	66	0.49	1.04	4.50	1.13	1.32	
-30 (-22)	423	107	124	80	0.58	1.47	5.25	1.32	1.54	
-25 (-13)	555	140	163	93	0.66	1.93	5.98	1.51	1.75	
-20 (- 4)	706	178	207	105	0.73	2.46	6.74	1.70	1.97	
-15 (+ 5)	891	224	261	118	0.80	3.11	7.57	1.91	2.22	
-10 (+14)	1122	283	329	131	0.87	3.93	8.53	2.15	2.50	

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)	225	57	66	62	0.46	0.86	3.66	0.92	1.07	
-30 (-22)	348	88	102	78	0.58	1.32	4.37	1.10	1.28	
-25 (-13)	471	119	138	94	0.68	1.79	5.00	1.26	1.47	
-20 (- 4)	608	153	178	108	0.76	2.32	5.62	1.42	1.65	
-15 (+ 5)	772	195	226	124	0.85	2.96	6.26	1.58	1.84	
-10 (+14)	976	246	286	140	0.93	3.75	6.99	1.76	2.05	

F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard VES		
2 Tray holder	Yes		
3 Connectors			
3.1 SUCTION	6.2 +0.05/+0.05	[mm]	(0.244" +0.002"/+0.002")
3.1.1 Material	Copper		
3.1.2 Shape	Slanted 5° out + 63° up		
3.2 DISCHARGE	5.1 +0.10/+0.00	[mm]	(0.201" +0.004"/+0.000")
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		