

COMPRESSOR DEFINITION

Designation	VEM X9C+
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513906166

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)	Static	-	-
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	9.04	[cm ³] (0.552 cu.in)
2.1 Bore [mm]	24.000	
2.2 Stroke [mm]	20.000	
3 Lubricant charge	210	[ml] (7.10 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	7.8	[kg] (17.20 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	VCC31156XXXX/VCC32456XXXX	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	VCC3 105628N01 SH4.2	
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 (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 - VDE	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V1200RPM			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]
162	41	47	36	0.29	0.62	4.55	1.15	1.33

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]
215	54	63	44	0.34	0.82	4.88	1.23	1.43

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]
271	68	79	54	0.41	1.03	5.01	1.26	1.47

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]
409	103	120	79	0.58	1.56	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]
573	144	168	115	0.83	2.18	4.97	1.25	1.46

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1200RPM		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]
-35	(-31)	112	28	33	21	0.18	0.35	5.55	1.40	1.62
-30	(-22)	187	47	55	28	0.23	0.61	6.36	1.60	1.86
-25	(-13)	246	62	72	33	0.27	0.81	7.31	1.84	2.14
-20	(- 4)	302	76	89	36	0.29	0.98	8.40	2.12	2.46
-15	(+ 5)	368	93	108	38	0.31	1.18	9.64	2.43	2.83
-10	(+14)	455	115	133	41	0.34	1.46	11.05	2.78	3.24

TEST CONDITIONS: @220V1200RPM		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]
-35	(-31)	124	31	36	25	0.21	0.44	4.79	1.21	1.40
-30	(-22)	156	39	46	29	0.25	0.55	5.25	1.32	1.54
-25	(-13)	191	48	56	33	0.28	0.66	5.85	1.47	1.71
-20	(- 4)	242	61	71	37	0.31	0.83	6.58	1.66	1.93
-15	(+ 5)	320	81	94	43	0.35	1.10	7.47	1.88	2.19
-10	(+14)	438	110	128	51	0.41	1.53	8.52	2.15	2.50

TEST CONDITIONS: @220V1200RPM		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]
-35	(-31)	92	23	27	25	0.18	0.35	3.62	0.91	1.06
-30	(-22)	107	27	31	29	0.23	0.41	3.98	1.00	1.17
-25	(-13)	143	36	42	34	0.28	0.55	4.47	1.13	1.31
-20	(- 4)	214	54	63	43	0.35	0.82	5.10	1.29	1.49
-15	(+ 5)	331	83	97	55	0.44	1.27	5.89	1.48	1.72
-10	(+14)	506	128	148	72	0.55	1.94	6.84	1.72	2.00

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]
-35	(-31)	165	41	48	27	0.20	0.52	6.18	1.56	1.81
-30	(-22)	241	61	71	35	0.27	0.78	6.94	1.75	2.03
-25	(-13)	317	80	93	40	0.31	1.03	7.94	2.00	2.33
-20	(- 4)	399	101	117	44	0.34	1.29	9.13	2.30	2.67
-15	(+ 5)	492	124	144	47	0.37	1.58	10.43	2.63	3.06
-10	(+14)	603	152	177	51	0.40	1.94	11.81	2.97	3.46

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)	160	40	47	31	0.25	0.56	4.98	1.25	1.46
-30	(-22)	199	50	58	36	0.29	0.69	5.45	1.37	1.60
-25	(-13)	249	63	73	41	0.33	0.86	6.15	1.55	1.80
-20	(- 4)	316	80	92	45	0.36	1.09	7.02	1.77	2.06
-15	(+ 5)	405	102	119	51	0.40	1.41	8.00	2.01	2.34
-10	(+14)	524	132	153	58	0.45	1.83	9.03	2.28	2.65

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)	118	30	35	30	0.24	0.45	3.94	0.99	1.16
-30	(-22)	148	37	43	36	0.29	0.57	4.26	1.07	1.25
-25	(-13)	201	51	59	43	0.34	0.77	4.79	1.21	1.40
-20	(- 4)	281	71	82	51	0.40	1.07	5.48	1.38	1.60
-15	(+ 5)	395	100	116	62	0.48	1.51	6.27	1.58	1.84
-10	(+14)	549	138	161	76	0.58	2.11	7.10	1.79	2.08

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)	221	56	65	35	0.26	0.70	6.24	1.57	1.83
-30	(-22)	290	73	85	42	0.31	0.93	7.00	1.76	2.05
-25	(-13)	378	95	111	48	0.36	1.22	7.97	2.01	2.33
-20	(- 4)	485	122	142	53	0.40	1.56	9.11	2.29	2.67
-15	(+ 5)	612	154	179	59	0.44	1.97	10.39	2.62	3.04
-10	(+14)	759	191	223	64	0.48	2.45	11.79	2.97	3.46

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)	191	48	56	38	0.30	0.66	5.03	1.27	1.48
-30	(-22)	248	62	73	44	0.35	0.86	5.64	1.42	1.65
-25	(-13)	322	81	94	51	0.40	1.12	6.38	1.61	1.87
-20	(- 4)	416	105	122	58	0.45	1.45	7.22	1.82	2.12
-15	(+ 5)	530	133	155	65	0.50	1.85	8.16	2.06	2.39
-10	(+14)	664	167	195	73	0.55	2.33	9.14	2.30	2.68

E - PERFORMANCE - CURVES

TEST CONDITIONS:		CECOMAF			(Condensing temperature 55°C (+131°F))					
@220V2000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	138	35	40	37	0.29	0.53	3.76	0.95	1.10	
-30 (-22)	193	49	57	45	0.35	0.74	4.36	1.10	1.28	
-25 (-13)	266	67	78	53	0.42	1.01	5.03	1.27	1.47	
-20 (- 4)	358	90	105	62	0.49	1.37	5.75	1.45	1.69	
-15 (+ 5)	470	118	138	72	0.56	1.80	6.49	1.64	1.90	
-10 (+14)	603	152	177	84	0.63	2.31	7.22	1.82	2.11	

TEST CONDITIONS:		CECOMAF			(Condensing temperature 35°C (+95°F))					
@220V3000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	328	83	96	55	0.42	1.05	5.93	1.49	1.74	
-30 (-22)	435	110	127	64	0.47	1.39	6.82	1.72	2.00	
-25 (-13)	573	144	168	73	0.54	1.84	7.83	1.97	2.29	
-20 (- 4)	741	187	217	83	0.61	2.38	8.94	2.25	2.62	
-15 (+ 5)	940	237	275	93	0.68	3.03	10.12	2.55	2.97	
-10 (+14)	1168	294	342	103	0.76	3.77	11.36	2.86	3.33	

TEST CONDITIONS:		CECOMAF			(Condensing temperature 45°C (+113°F))					
@220V3000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	283	71	83	56	0.43	0.98	5.03	1.27	1.47	
-30 (-22)	370	93	108	66	0.50	1.28	5.65	1.42	1.65	
-25 (-13)	487	123	143	76	0.58	1.69	6.37	1.61	1.87	
-20 (- 4)	634	160	186	88	0.66	2.21	7.18	1.81	2.10	
-15 (+ 5)	809	204	237	100	0.75	2.83	8.06	2.03	2.36	
-10 (+14)	1013	255	297	113	0.84	3.55	8.99	2.26	2.63	

TEST CONDITIONS:		CECOMAF			(Condensing temperature 55°C (+131°F))					
@220V3000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	220	55	64	55	0.41	0.84	4.05	1.02	1.19	
-30 (-22)	296	75	87	66	0.50	1.13	4.52	1.14	1.33	
-25 (-13)	401	101	117	79	0.60	1.53	5.10	1.29	1.49	
-20 (- 4)	534	135	156	92	0.70	2.04	5.76	1.45	1.69	
-15 (+ 5)	694	175	203	107	0.81	2.66	6.47	1.63	1.90	
-10 (+14)	881	222	258	122	0.91	3.38	7.22	1.82	2.11	

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)	468	118	137	82	0.58	1.50	5.76	1.45	1.69	
-30 (-22)	594	150	174	92	0.66	1.91	6.51	1.64	1.91	
-25 (-13)	740	187	217	101	0.74	2.38	7.35	1.85	2.15	
-20 (- 4)	917	231	269	110	0.83	2.95	8.28	2.09	2.43	
-15 (+ 5)	1134	286	332	121	0.91	3.64	9.32	2.35	2.73	
-10 (+14)	1399	353	410	133	1.00	4.51	10.47	2.64	3.07	

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)	418	105	123	85	0.61	1.45	4.87	1.23	1.43	
-30 (-22)	523	132	153	97	0.71	1.82	5.42	1.37	1.59	
-25 (-13)	642	162	188	107	0.80	2.24	6.03	1.52	1.77	
-20 (- 4)	785	198	230	118	0.89	2.74	6.71	1.69	1.97	
-15 (+ 5)	961	242	282	129	0.98	3.36	7.48	1.88	2.19	
-10 (+14)	1181	298	346	141	1.07	4.13	8.34	2.10	2.44	

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)	334	84	98	87	0.64	1.27	3.82	0.96	1.12	
-30 (-22)	440	111	129	101	0.74	1.67	4.34	1.09	1.27	
-25 (-13)	555	140	163	113	0.84	2.11	4.90	1.23	1.44	
-20 (- 4)	687	173	201	125	0.94	2.62	5.51	1.39	1.61	
-15 (+ 5)	846	213	248	137	1.05	3.24	6.18	1.56	1.81	
-10 (+14)	1042	262	305	150	1.15	4.00	6.93	1.75	2.03	

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EUEM		
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	Slanted 40° up + 45° 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 10° 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 40° up + 45° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		