

COMPRESSOR DEFINITION

Designation	VEM C9C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513906051

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	80 to 140 V	80 to 140 V
8.2 LBP (43°C Ambient temperature)	Static	80 to 140 V	80 to 140 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 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	[kg] (15.43 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	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	VCC31156XXXXX	
6 Start winding resistance	8.10	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	8.10	[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 - UL - VDE	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @115V1200RPM			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 54.4°C (129.92°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]
213	54	62	33	0.51	0.67	6.45	1.63	1.89

TEST CONDITIONS: @115V1600RPM			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 54.4°C (129.92°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]
292	74	86	44	0.64	0.92	6.65	1.68	1.95

TEST CONDITIONS: @115V2000RPM			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 54.4°C (129.92°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]
366	92	107	55	1.58	1.15	6.69	1.69	1.96

TEST CONDITIONS: @115V3000RPM			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 54.4°C (129.92°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]
543	137	159	81	1.13	1.70	6.70	1.69	1.96

TEST CONDITIONS: @115V4500RPM			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 54.4°C (129.92°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]
729	184	214	114	1.65	2.29	6.39	1.61	1.87

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V1200RPM		ASHRAE32 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]
-35	(-31)	122	31	36	20	0.30	0.38	5.98	1.51	1.75
-30	(-22)	166	42	49	24	0.39	0.52	6.92	1.74	2.03
-25	(-13)	220	55	64	28	0.43	0.69	7.98	2.01	2.34
-20	(- 4)	284	71	83	31	0.46	0.89	9.22	2.32	2.70
-15	(+ 5)	359	91	105	34	0.48	1.13	10.67	2.69	3.13
-10	(+14)	449	113	131	36	0.52	1.41	12.40	3.12	3.63

TEST CONDITIONS: @115V1200RPM		ASHRAE32 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]
-35	(-31)	109	28	32	21	0.31	0.34	5.12	1.29	1.50
-30	(-22)	154	39	45	26	0.38	0.48	5.93	1.50	1.74
-25	(-13)	207	52	61	30	0.42	0.65	6.80	1.71	1.99
-20	(- 4)	270	68	79	35	0.47	0.85	7.77	1.96	2.28
-15	(+ 5)	346	87	101	39	0.54	1.09	8.89	2.24	2.60
-10	(+14)	435	110	127	43	0.64	1.37	10.22	2.57	2.99

TEST CONDITIONS: @115V1200RPM		ASHRAE32 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]
-35	(-31)	94	24	27	21	0.34	0.29	4.37	1.10	1.28
-30	(-22)	138	35	40	27	0.39	0.43	5.16	1.30	1.51
-25	(-13)	191	48	56	32	0.44	0.60	5.95	1.50	1.74
-20	(- 4)	255	64	75	38	0.52	0.80	6.77	1.71	1.98
-15	(+ 5)	331	83	97	43	0.64	1.04	7.68	1.93	2.25
-10	(+14)	420	106	123	48	0.82	1.32	8.72	2.20	2.56

TEST CONDITIONS: @115V1600RPM		ASHRAE32 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]
-35	(-31)	169	43	50	26	0.49	0.53	6.37	1.61	1.87
-30	(-22)	228	58	67	31	0.53	0.72	7.25	1.83	2.12
-25	(-13)	300	76	88	36	0.56	0.94	8.24	2.08	2.41
-20	(- 4)	386	97	113	41	0.60	1.21	9.39	2.37	2.75
-15	(+ 5)	488	123	143	45	0.64	1.53	10.75	2.71	3.15
-10	(+14)	607	153	178	49	0.69	1.92	12.38	3.12	3.63

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@115V1600RPM		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)	153	38	45	28	0.43	0.48	5.50	1.39	1.61
-30	(-22)	212	54	62	34	0.48	0.67	6.31	1.59	1.85
-25	(-13)	284	72	83	40	0.53	0.89	7.15	1.80	2.09
-20	(- 4)	370	93	108	46	0.60	1.16	8.07	2.03	2.36
-15	(+ 5)	472	119	138	52	0.67	1.49	9.12	2.30	2.67
-10	(+14)	592	149	173	57	0.76	1.87	10.36	2.61	3.03

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@115V1600RPM		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)	134	34	39	29	0.42	0.42	4.66	1.17	1.36
-30	(-22)	194	49	57	35	0.49	0.61	5.52	1.39	1.62
-25	(-13)	266	67	78	42	0.58	0.83	6.33	1.60	1.86
-20	(- 4)	351	89	103	49	0.68	1.10	7.14	1.80	2.09
-15	(+ 5)	453	114	133	57	0.80	1.43	8.01	2.02	2.35
-10	(+14)	573	144	168	64	0.94	1.81	8.97	2.26	2.63

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@115V2000RPM		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)	213	54	62	33	0.51	0.67	6.45	1.63	1.89
-30	(-22)	287	72	84	39	0.60	0.90	7.31	1.84	2.14
-25	(-13)	376	95	110	46	0.67	1.18	8.26	2.08	2.42
-20	(- 4)	483	122	142	52	0.72	1.52	9.35	2.36	2.74
-15	(+ 5)	610	154	179	57	0.78	1.92	10.66	2.69	3.12
-10	(+14)	759	191	222	62	0.84	2.39	12.23	3.08	3.58

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@115V2000RPM		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)	194	49	57	35	0.49	0.61	5.61	1.41	1.64
-30	(-22)	269	68	79	42	0.60	0.84	6.41	1.62	1.88
-25	(-13)	358	90	105	49	0.68	1.12	7.22	1.82	2.12
-20	(- 4)	464	117	136	57	0.76	1.46	8.09	2.04	2.37
-15	(+ 5)	591	149	173	65	0.84	1.86	9.09	2.29	2.66
-10	(+14)	740	187	217	72	0.94	2.34	10.28	2.59	3.01

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@115V2000RPM		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)	171	43	50	36	0.50	0.54	4.74	1.19	1.39	
-30 (-22)	246	62	72	44	0.62	0.77	5.61	1.41	1.64	
-25 (-13)	335	84	98	52	0.72	1.05	6.41	1.62	1.88	
-20 (- 4)	442	111	129	62	0.83	1.39	7.20	1.81	2.11	
-15 (+ 5)	568	143	166	71	0.94	1.79	8.02	2.02	2.35	
-10 (+14)	717	181	210	80	1.07	2.26	8.95	2.26	2.62	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@115V3000RPM		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)	314	79	92	50	0.76	0.98	6.25	1.58	1.83	
-30 (-22)	426	107	125	60	0.86	1.33	7.03	1.77	2.06	
-25 (-13)	561	141	164	71	0.98	1.76	7.91	1.99	2.32	
-20 (- 4)	722	182	212	81	1.10	2.27	8.94	2.25	2.62	
-15 (+ 5)	913	230	268	90	1.23	2.87	10.18	2.56	2.98	
-10 (+14)	1138	287	334	98	1.36	3.59	11.66	2.94	3.42	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@115V3000RPM		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)	284	72	83	52	0.74	0.89	5.52	1.39	1.62	
-30 (-22)	396	100	116	64	0.88	1.24	6.22	1.57	1.82	
-25 (-13)	530	134	155	76	1.02	1.66	6.96	1.75	2.04	
-20 (- 4)	691	174	203	89	1.18	2.17	7.77	1.96	2.28	
-15 (+ 5)	883	222	259	101	1.34	2.78	8.71	2.19	2.55	
-10 (+14)	1108	279	325	113	1.50	3.50	9.83	2.48	2.88	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@115V3000RPM		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)	247	62	72	52	0.77	0.77	4.76	1.20	1.40	
-30 (-22)	359	90	105	65	0.92	1.12	5.52	1.39	1.62	
-25 (-13)	493	124	144	79	1.08	1.55	6.22	1.57	1.82	
-20 (- 4)	654	165	192	95	1.24	2.06	6.94	1.75	2.03	
-15 (+ 5)	846	213	248	110	1.41	2.66	7.71	1.94	2.26	
-10 (+14)	1071	270	314	125	1.59	3.38	8.58	2.16	2.51	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V4500RPM		ASHRAE32 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)	457	115	134	78	1.18	1.43	5.87	1.48	1.72
-30	(-22)	605	152	177	97	1.30	1.90	6.14	1.55	1.80
-25	(-13)	787	198	231	109	1.47	2.47	7.21	1.82	2.11
-20	(- 4)	1006	254	295	116	1.68	3.16	8.71	2.19	2.55
-15	(+ 5)	1265	319	371	124	1.91	3.98	10.24	2.58	3.00
-10	(+14)	1568	395	459	138	2.14	4.95	11.41	2.88	3.34

TEST CONDITIONS: @115V4500RPM		ASHRAE32 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)	429	108	126	78	1.16	1.34	5.53	1.39	1.62
-30	(-22)	574	145	168	97	1.35	1.80	5.93	1.49	1.74
-25	(-13)	755	190	221	108	1.57	2.37	7.07	1.78	2.07
-20	(- 4)	973	245	285	116	1.80	3.06	8.55	2.16	2.51
-15	(+ 5)	1233	311	361	127	2.05	3.88	10.00	2.52	2.93
-10	(+14)	1537	387	450	144	2.28	4.85	11.02	2.78	3.23

TEST CONDITIONS: @115V4500RPM		ASHRAE32 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)	389	98	114	86	1.17	1.22	4.49	1.13	1.31
-30	(-22)	532	134	156	107	1.38	1.67	4.78	1.20	1.40
-25	(-13)	712	179	209	123	1.62	2.23	5.74	1.45	1.68
-20	(- 4)	930	234	273	136	1.85	2.92	6.98	1.76	2.04
-15	(+ 5)	1192	300	349	153	2.08	3.75	8.10	2.04	2.37
-10	(+14)	1498	377	439	177	2.27	4.73	8.73	2.20	2.56

F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard AMEM		
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 12° out + 79° 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 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 42° up + 45° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		