

COMPRESSOR DEFINITION

Designation	VEM C5C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513906014

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	98 to 140 V	98 to 140 V
8.2 LBP (43°C Ambient temperature)	Static	98 to 140 V	98 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	1/10	[hp]
2 Displacement	5.19	[cm ³] (0.317 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	15.000	
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	
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		

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]
104	26	30	20	0.33	0.33	5.33	1.34	1.56

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]
144	36	42	24	0.38	0.45	5.95	1.50	1.74

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]
182	46	53	30	0.46	0.57	6.13	1.54	1.80

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]
239	60	70	43	0.65	0.75	5.55	1.40	1.63

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]
358	90	105	67	0.98	1.12	5.38	1.36	1.58

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]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	58	15	17	12	0.17	0.18	4.91	1.24	1.44	
-30 (-22)	85	21	25	14	0.20	0.26	6.01	1.52	1.76	
-25 (-13)	116	29	34	16	0.24	0.36	7.15	1.80	2.10	
-20 (- 4)	154	39	45	18	0.27	0.48	8.40	2.12	2.46	
-15 (+ 5)	198	50	58	20	0.29	0.62	9.83	2.48	2.88	
-10 (+14)	250	63	73	22	0.32	0.79	11.52	2.90	3.38	

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]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	46	12	13	12	0.18	0.14	3.73	0.94	1.09	
-30 (-22)	73	18	21	15	0.22	0.23	4.82	1.22	1.41	
-25 (-13)	104	26	30	18	0.26	0.33	5.86	1.48	1.72	
-20 (- 4)	142	36	41	20	0.30	0.44	6.93	1.75	2.03	
-15 (+ 5)	186	47	55	23	0.34	0.59	8.08	2.04	2.37	
-10 (+14)	238	60	70	25	0.37	0.75	9.41	2.37	2.76	

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]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	32	8	9	13	0.19	0.10	2.54	0.64	0.75	
-30 (-22)	58	15	17	16	0.23	0.18	3.75	0.94	1.10	
-25 (-13)	90	23	26	19	0.27	0.28	4.81	1.21	1.41	
-20 (- 4)	127	32	37	22	0.32	0.40	5.80	1.46	1.70	
-15 (+ 5)	172	43	50	25	0.36	0.54	6.80	1.71	1.99	
-10 (+14)	224	57	66	28	0.41	0.71	7.89	1.99	2.31	

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]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	80	20	23	15	0.21	0.25	5.36	1.35	1.57	
-30 (-22)	114	29	33	18	0.26	0.36	6.41	1.62	1.88	
-25 (-13)	155	39	45	20	0.30	0.49	7.56	1.91	2.22	
-20 (- 4)	204	51	60	23	0.34	0.64	8.86	2.23	2.60	
-15 (+ 5)	263	66	77	25	0.37	0.83	10.36	2.61	3.04	
-10 (+14)	331	84	97	27	0.39	1.05	12.11	3.05	3.55	

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)	66	17	19	15	0.23	0.21	4.27	1.08	1.25	
-30 (-22)	100	25	29	19	0.28	0.31	5.27	1.33	1.54	
-25 (-13)	141	35	41	22	0.33	0.44	6.28	1.58	1.84	
-20 (- 4)	190	48	56	26	0.38	0.60	7.35	1.85	2.16	
-15 (+ 5)	248	63	73	29	0.42	0.78	8.55	2.15	2.50	
-10 (+14)	317	80	93	32	0.46	1.00	9.91	2.50	2.90	

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)	49	12	14	16	0.23	0.15	3.15	0.79	0.92	
-30 (-22)	83	21	24	20	0.29	0.26	4.23	1.07	1.24	
-25 (-13)	124	31	36	24	0.35	0.39	5.25	1.32	1.54	
-20 (- 4)	173	44	51	28	0.40	0.54	6.24	1.57	1.83	
-15 (+ 5)	232	58	68	32	0.46	0.73	7.27	1.83	2.13	
-10 (+14)	300	76	88	36	0.51	0.95	8.38	2.11	2.45	

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)	105	26	31	19	0.27	0.33	5.55	1.40	1.63	
-30 (-22)	147	37	43	22	0.33	0.46	6.54	1.65	1.92	
-25 (-13)	198	50	58	26	0.38	0.62	7.69	1.94	2.25	
-20 (- 4)	259	65	76	29	0.42	0.81	9.02	2.27	2.64	
-15 (+ 5)	332	84	97	31	0.46	1.04	10.59	2.67	3.10	
-10 (+14)	417	105	122	34	0.50	1.32	12.43	3.13	3.64	

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)	89	22	26	19	0.29	0.28	4.62	1.16	1.35	
-30 (-22)	131	33	38	24	0.36	0.41	5.48	1.38	1.61	
-25 (-13)	182	46	53	28	0.42	0.57	6.43	1.62	1.88	
-20 (- 4)	243	61	71	32	0.48	0.76	7.49	1.89	2.20	
-15 (+ 5)	316	80	93	36	0.53	0.99	8.71	2.20	2.55	
-10 (+14)	401	101	118	40	0.58	1.27	10.13	2.55	2.97	

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)	70	18	21	19	0.27	0.22	3.74	0.94	1.10	
-30 (-22)	112	28	33	24	0.36	0.35	4.60	1.16	1.35	
-25 (-13)	163	41	48	30	0.44	0.51	5.47	1.38	1.60	
-20 (- 4)	224	57	66	35	0.52	0.70	6.39	1.61	1.87	
-15 (+ 5)	297	75	87	40	0.59	0.94	7.40	1.86	2.17	
-10 (+14)	382	96	112	45	0.66	1.21	8.53	2.15	2.50	

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)	159	40	47	27	0.40	0.50	5.81	1.46	1.70	
-30 (-22)	221	56	65	33	0.48	0.69	6.71	1.69	1.97	
-25 (-13)	295	74	86	38	0.55	0.92	7.68	1.94	2.25	
-20 (- 4)	383	97	112	44	0.63	1.20	8.77	2.21	2.57	
-15 (+ 5)	488	123	143	49	0.71	1.54	10.06	2.53	2.95	
-10 (+14)	612	154	179	53	0.77	1.93	11.59	2.92	3.40	

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)	139	35	41	28	0.42	0.43	4.92	1.24	1.44	
-30 (-22)	200	50	59	35	0.51	0.63	5.79	1.46	1.70	
-25 (-13)	274	69	80	41	0.61	0.86	6.63	1.67	1.94	
-20 (- 4)	362	91	106	48	0.71	1.14	7.52	1.90	2.20	
-15 (+ 5)	467	118	137	55	0.80	1.47	8.52	2.15	2.50	
-10 (+14)	591	149	173	61	0.90	1.86	9.68	2.44	2.84	

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)	114	29	33	29	0.42	0.36	3.95	0.99	1.16	
-30 (-22)	175	44	51	36	0.52	0.55	4.90	1.24	1.44	
-25 (-13)	249	63	73	43	0.63	0.78	5.76	1.45	1.69	
-20 (- 4)	338	85	99	51	0.74	1.06	6.58	1.66	1.93	
-15 (+ 5)	443	112	130	60	0.86	1.39	7.43	1.87	2.18	
-10 (+14)	566	143	166	68	0.98	1.79	8.37	2.11	2.45	

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]	[W/W]
-35 (-31)	233	59	68	41	0.68	0.73	5.64	1.42	1.65	
-30 (-22)	324	82	95	50	0.78	1.02	6.53	1.65	1.91	
-25 (-13)	434	109	127	58	0.87	1.36	7.44	1.88	2.18	
-20 (- 4)	566	143	166	67	0.96	1.78	8.44	2.13	2.47	
-15 (+ 5)	722	182	212	75	1.04	2.27	9.60	2.42	2.81	
-10 (+14)	906	228	265	83	1.14	2.86	10.99	2.77	3.22	

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]	[W/W]
-35 (-31)	201	51	59	44	0.70	0.63	4.64	1.17	1.36	
-30 (-22)	292	74	86	52	0.81	0.92	5.58	1.41	1.63	
-25 (-13)	402	101	118	62	0.91	1.26	6.44	1.62	1.89	
-20 (- 4)	534	134	156	73	1.01	1.68	7.30	1.84	2.14	
-15 (+ 5)	690	174	202	84	1.11	2.17	8.22	2.07	2.41	
-10 (+14)	874	220	256	94	1.22	2.76	9.28	2.34	2.72	

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]	[W/W]
-35 (-31)	163	41	48	47	0.63	0.51	3.49	0.88	1.02	
-30 (-22)	254	64	74	55	0.77	0.80	4.61	1.16	1.35	
-25 (-13)	364	92	107	66	0.90	1.14	5.56	1.40	1.63	
-20 (- 4)	495	125	145	78	1.03	1.56	6.41	1.61	1.88	
-15 (+ 5)	651	164	191	90	1.16	2.05	7.23	1.82	2.12	
-10 (+14)	835	210	245	103	1.29	2.63	8.09	2.04	2.37	

F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard EUEM		
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	6.2 +0.05/+0.05	[mm]	(0.244" +0.002"/+0.002")
3.3.1 Material	Copper		
3.3.2 Shape	Slanted 42° up + 45° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		