

COMPRESSOR DEFINITION

Designation	VEM X5C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513903017

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	85 to 140 V	85 to 140 V
8.2 LBP (43°C Ambient temperature)	Static	85 to 140 V	85 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	5.19	[cm ³] (0.317 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	15.000	
3 Lubricant charge	220	[ml] (7.44 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	7.59	[kg] (16.73 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	16.07	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	16.07	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (40/150 Hz)	2.10/2.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (40/150 Hz)	2.10/2.10	[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	CE - UKCA - UL	

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]
106	27	31	21	0.34	0.33	5.12	1.29	1.50

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]
149	38	44	27	0.42	0.47	5.52	1.39	1.62

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]
195	49	57	33	0.52	0.61	5.84	1.47	1.71

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]
302	76	88	51	0.75	0.95	5.97	1.50	1.75

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]
460	116	135	80	1.15	1.44	5.76	1.45	1.69

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]
-35	(-31)	65	16	19	12	0.17	0.20	5.38	1.36	1.58
-30	(-22)	91	23	27	14	0.21	0.28	6.31	1.59	1.85
-25	(-13)	122	31	36	17	0.25	0.38	7.32	1.84	2.14
-20	(- 4)	159	40	46	19	0.28	0.50	8.45	2.13	2.47
-15	(+ 5)	202	51	59	21	0.30	0.64	9.75	2.46	2.86
-10	(+14)	253	64	74	22	0.33	0.80	11.30	2.85	3.31

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]
-35	(-31)	57	14	17	13	0.19	0.18	4.53	1.14	1.33
-30	(-22)	82	21	24	15	0.23	0.26	5.39	1.36	1.58
-25	(-13)	113	28	33	18	0.27	0.35	6.24	1.57	1.83
-20	(- 4)	150	38	44	21	0.31	0.47	7.15	1.80	2.09
-15	(+ 5)	193	49	57	24	0.35	0.61	8.16	2.06	2.39
-10	(+14)	244	62	72	26	0.38	0.77	9.33	2.35	2.73

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]
-35	(-31)	46	12	13	13	0.19	0.14	3.55	0.90	1.04
-30	(-22)	71	18	21	16	0.24	0.22	4.49	1.13	1.31
-25	(-13)	102	26	30	19	0.29	0.32	5.34	1.35	1.57
-20	(- 4)	139	35	41	23	0.33	0.44	6.18	1.56	1.81
-15	(+ 5)	183	46	54	26	0.38	0.58	7.05	1.78	2.06
-10	(+14)	234	59	69	29	0.43	0.74	8.00	2.02	2.35

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]
-35	(-31)	88	22	26	16	0.23	0.27	5.53	1.39	1.62
-30	(-22)	123	31	36	19	0.28	0.38	6.48	1.63	1.90
-25	(-13)	164	41	48	22	0.32	0.51	7.49	1.89	2.19
-20	(- 4)	214	54	63	25	0.37	0.67	8.61	2.17	2.52
-15	(+ 5)	273	69	80	28	0.41	0.86	9.91	2.50	2.91
-10	(+14)	343	86	100	30	0.44	1.08	11.48	2.89	3.36

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%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	76	19	22	17	0.25	0.24	4.58	1.15	1.34	
-30 (-22)	111	28	33	20	0.29	0.35	5.51	1.39	1.61	
-25 (-13)	153	38	45	24	0.35	0.48	6.40	1.61	1.88	
-20 (- 4)	202	51	59	28	0.40	0.64	7.32	1.85	2.15	
-15 (+ 5)	261	66	77	31	0.46	0.82	8.35	2.10	2.45	
-10 (+14)	331	83	97	35	0.51	1.04	9.54	2.41	2.80	

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%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	62	16	18	17	0.25	0.19	3.57	0.90	1.04	
-30 (-22)	97	24	28	21	0.30	0.30	4.60	1.16	1.35	
-25 (-13)	138	35	41	25	0.36	0.43	5.51	1.39	1.61	
-20 (- 4)	188	47	55	30	0.43	0.59	6.36	1.60	1.86	
-15 (+ 5)	247	62	72	34	0.50	0.78	7.23	1.82	2.12	
-10 (+14)	316	80	93	39	0.57	1.00	8.19	2.06	2.40	

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%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	115	29	34	20	0.29	0.36	5.83	1.47	1.71	
-30 (-22)	158	40	46	23	0.35	0.49	6.72	1.69	1.97	
-25 (-13)	209	53	61	27	0.40	0.66	7.65	1.93	2.24	
-20 (- 4)	270	68	79	31	0.45	0.85	8.71	2.20	2.55	
-15 (+ 5)	343	86	101	35	0.50	1.08	9.96	2.51	2.92	
-10 (+14)	429	108	126	38	0.54	1.35	11.45	2.88	3.35	

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%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	102	26	30	21	0.31	0.32	4.94	1.25	1.45	
-30 (-22)	145	36	42	25	0.37	0.45	5.80	1.46	1.70	
-25 (-13)	196	49	57	29	0.44	0.62	6.63	1.67	1.94	
-20 (- 4)	257	65	75	34	0.50	0.81	7.50	1.89	2.20	
-15 (+ 5)	330	83	97	39	0.57	1.04	8.47	2.13	2.48	
-10 (+14)	416	105	122	43	0.63	1.31	9.59	2.42	2.81	

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)	86	22	25	22	0.33	0.27	3.94	0.99	1.15	
-30 (-22)	129	32	38	26	0.39	0.40	4.92	1.24	1.44	
-25 (-13)	180	45	53	31	0.46	0.57	5.78	1.46	1.69	
-20 (- 4)	241	61	71	37	0.53	0.76	6.60	1.66	1.93	
-15 (+ 5)	314	79	92	42	0.61	0.99	7.42	1.87	2.18	
-10 (+14)	400	101	117	48	0.69	1.26	8.33	2.10	2.44	

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)	176	44	52	30	0.44	0.55	5.79	1.46	1.70	
-30 (-22)	239	60	70	36	0.53	0.75	6.60	1.66	1.93	
-25 (-13)	315	79	92	42	0.61	0.99	7.50	1.89	2.20	
-20 (- 4)	405	102	119	47	0.69	1.27	8.54	2.15	2.50	
-15 (+ 5)	512	129	150	53	0.77	1.61	9.78	2.46	2.87	
-10 (+14)	639	161	187	57	0.83	2.01	11.26	2.84	3.30	

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)	159	40	47	32	0.46	0.50	5.00	1.26	1.47	
-30 (-22)	222	56	65	39	0.56	0.69	5.74	1.45	1.68	
-25 (-13)	297	75	87	46	0.67	0.93	6.50	1.64	1.90	
-20 (- 4)	388	98	114	53	0.77	1.22	7.33	1.85	2.15	
-15 (+ 5)	495	125	145	60	0.87	1.56	8.28	2.09	2.43	
-10 (+14)	621	156	182	66	0.96	1.96	9.41	2.37	2.76	

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)	139	35	41	33	0.48	0.43	4.25	1.07	1.24	
-30 (-22)	202	51	59	40	0.59	0.63	5.03	1.27	1.47	
-25 (-13)	277	70	81	48	0.71	0.87	5.76	1.45	1.69	
-20 (- 4)	368	93	108	57	0.83	1.16	6.49	1.63	1.90	
-15 (+ 5)	475	120	139	65	0.96	1.50	7.27	1.83	2.13	
-10 (+14)	601	151	176	74	1.08	1.90	8.15	2.05	2.39	

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)	263	66	77	48	0.69	0.82	5.50	1.39	1.61	
-30 (-22)	351	89	103	57	0.82	1.10	6.20	1.56	1.82	
-25 (-13)	457	115	134	66	0.95	1.43	6.96	1.75	2.04	
-20 (- 4)	584	147	171	75	1.09	1.83	7.84	1.98	2.30	
-15 (+ 5)	734	185	215	83	1.21	2.31	8.89	2.24	2.60	
-10 (+14)	911	229	267	90	1.32	2.87	10.15	2.56	2.97	

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)	244	61	72	51	0.75	0.76	4.79	1.21	1.40	
-30 (-22)	332	84	97	61	0.88	1.04	5.46	1.38	1.60	
-25 (-13)	438	110	128	71	1.04	1.37	6.13	1.54	1.80	
-20 (- 4)	565	142	165	82	1.20	1.77	6.83	1.72	2.00	
-15 (+ 5)	715	180	209	93	1.36	2.25	7.64	1.92	2.24	
-10 (+14)	892	225	261	104	1.51	2.81	8.59	2.16	2.52	

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)	222	56	65	55	0.80	0.70	4.04	1.02	1.18	
-30 (-22)	310	78	91	65	0.94	0.97	4.80	1.21	1.41	
-25 (-13)	416	105	122	76	1.11	1.30	5.47	1.38	1.60	
-20 (- 4)	542	137	159	89	1.29	1.70	6.12	1.54	1.79	
-15 (+ 5)	692	174	203	102	1.49	2.18	6.79	1.71	1.99	
-10 (+14)	869	219	255	115	1.68	2.74	7.53	1.90	2.21	

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EUEM		
2 Tray holder	No		
3 Connectors			
3.1 SUCTION	8.2 +0.12/-0.08	[mm]	(0.323" +0.005"/-0.003")
3.1.1 Material	Copper		
3.1.2 Shape	Straight		
3.2 DISCHARGE	4.94 +0.08/-0.08	[mm]	(0.194" +0.003"/-0.003")
3.2.1 Material	Copper		
3.2.2 Shape	Straight		
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	Straight		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		