

### COMPRESSOR DEFINITION

Designation	VEM X7C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513903003

### 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 <sup>2</sup> ] (98 psig)	/ °C - °F
9.2 Peak	7.8	[kgf/cm <sup>2</sup> ] (111 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/5	[hp]
2 Displacement	7.23	[cm <sup>3</sup> ] (0.441 cu.in)
2.1 Bore [mm]	24.000	
2.2 Stroke [mm]	16.000	
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 <sup>2</sup> ]

### 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	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]
154	39	45	28	0.48	0.48	5.48	1.38	1.61

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]
213	54	62	35	0.55	0.67	6.03	1.52	1.77

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]
272	69	80	44	0.69	0.85	6.22	1.57	1.82

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]
411	104	120	65	0.98	1.29	6.36	1.60	1.86

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]
608	153	178	98	1.43	1.91	6.19	1.56	1.81

### 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)	92	23	27	17	0.25	0.29	5.53	1.39	1.62
-30	(-22)	127	32	37	20	0.29	0.40	6.36	1.60	1.86
-25	(-13)	169	43	50	23	0.34	0.53	7.31	1.84	2.14
-20	(- 4)	219	55	64	26	0.38	0.69	8.41	2.12	2.47
-15	(+ 5)	279	70	82	29	0.42	0.88	9.73	2.45	2.85
-10	(+14)	349	88	102	31	0.46	1.10	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)	81	20	24	17	0.25	0.25	4.78	1.20	1.40
-30	(-22)	116	29	34	21	0.30	0.36	5.50	1.39	1.61
-25	(-13)	158	40	46	25	0.36	0.50	6.27	1.58	1.84
-20	(- 4)	208	52	61	29	0.42	0.65	7.13	1.80	2.09
-15	(+ 5)	267	67	78	33	0.48	0.84	8.14	2.05	2.39
-10	(+14)	338	85	99	36	0.53	1.07	9.34	2.35	2.74

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)	62	16	18	17	0.25	0.20	3.72	0.94	1.09
-30	(-22)	96	24	28	22	0.31	0.30	4.47	1.13	1.31
-25	(-13)	137	35	40	27	0.38	0.43	5.20	1.31	1.52
-20	(- 4)	187	47	55	31	0.45	0.59	5.97	1.51	1.75
-15	(+ 5)	246	62	72	36	0.52	0.77	6.82	1.72	2.00
-10	(+14)	315	79	92	40	0.59	0.99	7.80	1.97	2.29

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)	129	33	38	21	0.31	0.40	6.03	1.52	1.77
-30	(-22)	177	45	52	25	0.36	0.55	6.91	1.74	2.03
-25	(-13)	233	59	68	30	0.42	0.73	7.85	1.98	2.30
-20	(- 4)	301	76	88	34	0.48	0.94	8.92	2.25	2.61
-15	(+ 5)	380	96	111	37	0.54	1.20	10.18	2.57	2.98
-10	(+14)	473	119	139	41	0.59	1.49	11.70	2.95	3.43

### 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)	118	30	34	22	0.33	0.37	5.29	1.33	1.55	
-30 (-22)	164	41	48	27	0.39	0.51	6.08	1.53	1.78	
-25 (-13)	220	56	65	32	0.46	0.69	6.86	1.73	2.01	
-20 (- 4)	287	72	84	37	0.54	0.90	7.70	1.94	2.26	
-15 (+ 5)	366	92	107	42	0.61	1.15	8.65	2.18	2.54	
-10 (+14)	460	116	135	47	0.68	1.45	9.79	2.47	2.87	

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)	90	23	26	23	0.33	0.28	4.01	1.01	1.18	
-30 (-22)	135	34	39	28	0.41	0.42	4.86	1.22	1.42	
-25 (-13)	188	47	55	34	0.49	0.59	5.63	1.42	1.65	
-20 (- 4)	253	64	74	40	0.58	0.79	6.38	1.61	1.87	
-15 (+ 5)	330	83	97	46	0.67	1.04	7.18	1.81	2.10	
-10 (+14)	423	106	124	52	0.76	1.33	8.09	2.04	2.37	

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)	163	41	48	27	0.38	0.51	6.03	1.52	1.77	
-30 (-22)	221	56	65	32	0.46	0.69	6.90	1.74	2.02	
-25 (-13)	291	73	85	37	0.54	0.91	7.83	1.97	2.29	
-20 (- 4)	373	94	109	42	0.61	1.17	8.89	2.24	2.61	
-15 (+ 5)	471	119	138	47	0.67	1.48	10.18	2.57	2.98	
-10 (+14)	587	148	172	50	0.72	1.85	11.76	2.96	3.45	

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)	149	37	44	28	0.40	0.47	5.27	1.33	1.54	
-30 (-22)	206	52	60	34	0.49	0.65	6.06	1.53	1.78	
-25 (-13)	275	69	81	40	0.58	0.86	6.83	1.72	2.00	
-20 (- 4)	357	90	105	47	0.67	1.12	7.65	1.93	2.24	
-15 (+ 5)	455	115	133	53	0.75	1.43	8.62	2.17	2.53	
-10 (+14)	572	144	168	58	0.83	1.80	9.80	2.47	2.87	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V2000RPM		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)	120	30	35	28	0.40	0.38	4.26	1.07	1.25	
-30 (-22)	176	44	52	34	0.50	0.55	5.11	1.29	1.50	
-25 (-13)	244	61	71	42	0.61	0.77	5.86	1.48	1.72	
-20 (- 4)	326	82	95	50	0.71	1.02	6.59	1.66	1.93	
-15 (+ 5)	424	107	124	58	0.82	1.34	7.37	1.86	2.16	
-10 (+14)	541	136	159	65	0.93	1.71	8.30	2.09	2.43	

TEST CONDITIONS: @115V3000RPM		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)	244	61	71	41	0.57	0.76	6.02	1.52	1.76	
-30 (-22)	333	84	98	48	0.69	1.04	6.87	1.73	2.01	
-25 (-13)	438	110	128	56	0.81	1.38	7.75	1.95	2.27	
-20 (- 4)	564	142	165	65	0.92	1.77	8.73	2.20	2.56	
-15 (+ 5)	713	180	209	73	1.03	2.24	9.85	2.48	2.89	
-10 (+14)	889	224	261	80	1.12	2.81	11.18	2.82	3.28	

TEST CONDITIONS: @115V3000RPM		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)	215	54	63	41	0.59	0.67	5.21	1.31	1.53	
-30 (-22)	299	75	88	50	0.72	0.94	6.01	1.51	1.76	
-25 (-13)	400	101	117	59	0.85	1.25	6.79	1.71	1.99	
-20 (- 4)	521	131	153	68	0.98	1.64	7.62	1.92	2.23	
-15 (+ 5)	666	168	195	78	1.11	2.10	8.55	2.16	2.51	
-10 (+14)	839	211	246	87	1.23	2.65	9.64	2.43	2.83	

TEST CONDITIONS: @115V3000RPM		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)	179	45	52	41	0.61	0.56	4.31	1.09	1.26	
-30 (-22)	263	66	77	51	0.75	0.82	5.15	1.30	1.51	
-25 (-13)	364	92	107	61	0.90	1.14	5.93	1.49	1.74	
-20 (- 4)	486	122	142	72	1.06	1.53	6.71	1.69	1.97	
-15 (+ 5)	632	159	185	84	1.21	1.99	7.55	1.90	2.21	
-10 (+14)	806	203	236	95	1.37	2.54	8.50	2.14	2.49	

### 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)	360	91	106	62	0.88	1.13	5.83	1.47	1.71	
-30 (-22)	491	124	144	75	1.04	1.54	6.55	1.65	1.92	
-25 (-13)	648	163	190	88	1.21	2.03	7.34	1.85	2.15	
-20 (- 4)	835	210	245	101	1.40	2.62	8.25	2.08	2.42	
-15 (+ 5)	1057	266	310	114	1.57	3.33	9.30	2.34	2.73	
-10 (+14)	1317	332	386	125	1.73	4.15	10.54	2.66	3.09	

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)	316	80	93	63	0.88	0.99	5.01	1.26	1.47	
-30 (-22)	440	111	129	76	1.04	1.38	5.75	1.45	1.68	
-25 (-13)	590	149	173	91	1.25	1.85	6.49	1.64	1.90	
-20 (- 4)	771	194	226	106	1.46	2.42	7.28	1.83	2.13	
-15 (+ 5)	985	248	289	121	1.68	3.10	8.15	2.05	2.39	
-10 (+14)	1238	312	363	135	1.88	3.91	9.14	2.30	2.68	

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)	273	69	80	64	0.90	0.86	4.27	1.08	1.25	
-30 (-22)	401	101	117	78	1.09	1.26	5.11	1.29	1.50	
-25 (-13)	554	140	162	94	1.32	1.74	5.88	1.48	1.72	
-20 (- 4)	738	186	216	111	1.57	2.32	6.63	1.67	1.94	
-15 (+ 5)	956	241	280	129	1.84	3.01	7.40	1.87	2.17	
-10 (+14)	1211	305	355	147	2.09	3.82	8.23	2.07	2.41	

### F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard		
2 Tray holder	No		
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 28° up + 25° to Back		
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 parallel BP+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		