

COMPRESSOR DEFINITION

Designation	VEM Z7C
Nominal Voltage/Frequency	230 V 53-150 Hz
Engineering Number	513902005

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-600a		
3 Nominal voltage and frequency	230 / 53-150	[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	1/5	[hp]
2 Displacement	7.23	[cm ³] (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 ²]

C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	230 V 53-150 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 (53/15 Hz)	-	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (53/15 Hz)	-	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (53/15 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	CE - UKCA - UL	

D - PERFORMANCE - CHECK POINT DATA

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]	
248	62	73	40	0.59	0.78	6.22	1.57	1.82	

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]	
311	78	91	49	0.70	0.98	6.40	1.61	1.88	

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]	
463	117	136	73	1.01	1.45	6.37	1.61	1.87	

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]	
661	167	194	113	1.48	2.08	5.87	1.48	1.72	

E - PERFORMANCE - CURVES

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)	149	37	44	24	0.22	0.47	6.10	1.54	1.79
-30	(-22)	201	51	59	29	0.25	0.63	6.99	1.76	2.05
-25	(-13)	255	64	75	33	0.28	0.80	7.80	1.97	2.29
-20	(- 4)	318	80	93	37	0.30	1.00	8.67	2.19	2.54
-15	(+ 5)	398	100	117	41	0.32	1.25	9.75	2.46	2.86
-10	(+14)	502	127	147	45	0.35	1.58	11.18	2.82	3.27

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)	124	31	36	26	0.23	0.39	4.89	1.23	1.43	
-30 (-22)	180	45	53	30	0.27	0.57	5.91	1.49	1.73	
-25 (-13)	237	60	69	35	0.30	0.74	6.76	1.70	1.98	
-20 (- 4)	301	76	88	40	0.33	0.95	7.57	1.91	2.22	
-15 (+ 5)	380	96	111	45	0.37	1.20	8.48	2.14	2.49	
-10 (+14)	482	121	141	50	0.40	1.52	9.64	2.43	2.83	

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)	104	26	30	26	0.22	0.33	4.00	1.01	1.17	
-30 (-22)	162	41	48	32	0.27	0.51	5.07	1.28	1.48	
-25 (-13)	220	55	64	38	0.32	0.69	5.86	1.48	1.72	
-20 (- 4)	283	71	83	44	0.37	0.89	6.53	1.64	1.91	
-15 (+ 5)	359	90	105	50	0.41	1.13	7.20	1.81	2.11	
-10 (+14)	456	115	134	57	0.46	1.44	8.01	2.02	2.35	

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)	180	45	53	30	0.28	0.56	5.93	1.49	1.74	
-30 (-22)	245	62	72	35	0.30	0.77	6.95	1.75	2.04	
-25 (-13)	318	80	93	40	0.33	1.00	7.93	2.00	2.32	
-20 (- 4)	403	101	118	45	0.37	1.26	8.95	2.26	2.62	
-15 (+ 5)	500	126	147	50	0.41	1.57	10.09	2.54	2.96	
-10 (+14)	615	155	180	54	0.44	1.94	11.43	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)	159	40	47	32	0.27	0.50	5.07	1.28	1.48	
-30 (-22)	222	56	65	37	0.31	0.69	6.00	1.51	1.76	
-25 (-13)	292	74	86	43	0.35	0.92	6.84	1.72	2.01	
-20 (- 4)	374	94	110	49	0.41	1.18	7.68	1.94	2.25	
-15 (+ 5)	470	118	138	55	0.46	1.48	8.60	2.17	2.52	
-10 (+14)	583	147	171	60	0.50	1.84	9.66	2.43	2.83	

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)	135	34	40	32	0.27	0.42	4.15	1.05	1.22	
-30 (-22)	196	49	57	38	0.32	0.62	5.09	1.28	1.49	
-25 (-13)	266	67	78	45	0.37	0.84	5.90	1.49	1.73	
-20 (- 4)	348	88	102	52	0.44	1.09	6.66	1.68	1.95	
-15 (+ 5)	445	112	130	60	0.50	1.40	7.44	1.87	2.18	
-10 (+14)	559	141	164	67	0.55	1.76	8.32	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)	270	68	79	46	0.40	0.84	5.79	1.46	1.70	
-30 (-22)	370	93	108	54	0.46	1.16	6.74	1.70	1.98	
-25 (-13)	463	117	136	62	0.51	1.45	7.47	1.88	2.19	
-20 (- 4)	569	143	167	70	0.56	1.79	8.16	2.06	2.39	
-15 (+ 5)	706	178	207	78	0.61	2.22	9.05	2.28	2.65	
-10 (+14)	894	225	262	86	0.66	2.82	10.32	2.60	3.02	

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)	230	58	68	47	0.39	0.72	4.93	1.24	1.44	
-30 (-22)	335	85	98	56	0.46	1.05	5.93	1.49	1.74	
-25 (-13)	430	108	126	65	0.53	1.35	6.62	1.67	1.94	
-20 (- 4)	533	134	156	74	0.59	1.68	7.21	1.82	2.11	
-15 (+ 5)	665	168	195	84	0.66	2.09	7.92	1.99	2.32	
-10 (+14)	846	213	248	94	0.74	2.67	8.94	2.25	2.62	

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)	208	52	61	49	0.40	0.65	4.23	1.07	1.24	
-30 (-22)	315	79	92	58	0.47	0.99	5.32	1.34	1.56	
-25 (-13)	408	103	120	68	0.54	1.28	6.03	1.52	1.77	
-20 (- 4)	507	128	149	78	0.62	1.59	6.56	1.65	1.92	
-15 (+ 5)	632	159	185	89	0.71	1.99	7.13	1.80	2.09	
-10 (+14)	802	202	235	100	0.80	2.53	7.95	2.00	2.33	

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)	368	93	108	71	0.57	1.15	5.19	1.31	1.52	
-30 (-22)	497	125	146	80	0.64	1.56	6.19	1.56	1.81	
-25 (-13)	647	163	189	91	0.70	2.03	7.10	1.79	2.08	
-20 (- 4)	817	206	239	102	0.76	2.57	7.99	2.01	2.34	
-15 (+ 5)	1011	255	296	113	0.83	3.18	8.92	2.25	2.61	
-10 (+14)	1231	310	361	124	0.90	3.88	9.95	2.51	2.92	

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)	332	84	97	70	0.54	1.04	4.70	1.19	1.38	
-30 (-22)	458	115	134	82	0.65	1.44	5.55	1.40	1.63	
-25 (-13)	601	152	176	95	0.75	1.89	6.31	1.59	1.85	
-20 (- 4)	765	193	224	109	0.85	2.40	7.05	1.78	2.06	
-15 (+ 5)	950	239	278	122	0.95	2.99	7.81	1.97	2.29	
-10 (+14)	1159	292	340	134	1.04	3.66	8.67	2.19	2.54	

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)	286	72	84	70	0.55	0.90	4.07	1.03	1.19	
-30 (-22)	416	105	122	85	0.68	1.30	4.87	1.23	1.43	
-25 (-13)	561	141	164	100	0.80	1.76	5.59	1.41	1.64	
-20 (- 4)	724	183	212	116	0.90	2.28	6.27	1.58	1.84	
-15 (+ 5)	908	229	266	130	1.00	2.86	6.98	1.76	2.05	
-10 (+14)	1114	281	326	143	1.10	3.51	7.78	1.96	2.28	

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	4.94 +0.08/-0.08	[mm]	(0.194" +0.003"/-0.003")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted 90° 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		