

### COMPRESSOR DEFINITION

Designation	VEM Z4H
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513902027

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
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	14.2	[kgf/cm <sup>2</sup> ] (202 psig)	/ °C - °F
9.2 Peak	15.9	[kgf/cm <sup>2</sup> ] (226 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/10	[hp]
2 Displacement	4.25	[cm <sup>3</sup> ] (0.259 cu.in)
2.1 Bore [mm]	19.000	
2.2 Stroke [mm]	15.000	
3 Lubricant charge	220	[ml] (7.44 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO10	
4 Weight (with oil charge)	7.5	[kg] (16.53 lb.)
5 Nitrogen charge	0.2 to 0.3	[kgf/cm <sup>2</sup> ] (2.84 to 4.27 psig)

### 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	VCC3 1156 XX	
6 Start winding resistance	14.30	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	14.30	[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	CE - UKCA - UL	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: <b>@115V1200RPM</b>			<b>ASHRAELBP32</b> <b>Static</b>		Evaporating temperature (Condensing temperature)	<b>-23.3°C (-9.94°F)</b> <b>54.4°C (129.92°F)</b>		
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	32	0.47	1.03	5.71	1.44	1.67

TEST CONDITIONS: <b>@115V1600RPM</b>			<b>ASHRAELBP32</b> <b>Static</b>		Evaporating temperature (Condensing temperature)	<b>-23.3°C (-9.94°F)</b> <b>54.4°C (129.92°F)</b>		
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]
242	61	71	41	0.58	1.38	5.98	1.51	1.75

TEST CONDITIONS: <b>@115V2000RPM</b>			<b>ASHRAELBP32</b> <b>Static</b>		Evaporating temperature (Condensing temperature)	<b>-23.3°C (-9.94°F)</b> <b>54.4°C (129.92°F)</b>		
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]
301	76	88	51	0.70	1.71	5.95	1.50	1.74

TEST CONDITIONS: <b>@115V3000RPM</b>			<b>ASHRAELBP32</b> <b>Static</b>		Evaporating temperature (Condensing temperature)	<b>-23.3°C (-9.94°F)</b> <b>54.4°C (129.92°F)</b>		
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]
457	115	134	77	1.04	2.60	5.95	1.50	1.74

TEST CONDITIONS: <b>@115V4500RPM</b>			<b>ASHRAELBP32</b> <b>Static</b>		Evaporating temperature (Condensing temperature)	<b>-23.3°C (-9.94°F)</b> <b>54.4°C (129.92°F)</b>		
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]
642	162	188	116	1.51	3.65	5.54	1.40	1.62

### 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)	104	26	30	18	0.13	0.59	5.65	1.42	1.66
-30	(-22)	142	36	42	22	0.16	0.81	6.44	1.62	1.89
-25	(-13)	188	47	55	26	0.19	1.07	7.31	1.84	2.14
-20	(- 4)	244	61	71	29	0.22	1.39	8.31	2.09	2.44
-15	(+ 5)	310	78	91	33	0.24	1.77	9.51	2.40	2.79
-10	(+14)	388	98	114	36	0.26	2.22	10.95	2.76	3.21

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)	94	24	28	19	0.14	0.53	4.91	1.24	1.44
-30	(-22)	132	33	39	23	0.18	0.75	5.63	1.42	1.65
-25	(-13)	178	45	52	28	0.21	1.01	6.37	1.60	1.87
-20	(- 4)	233	59	68	32	0.24	1.33	7.17	1.81	2.10
-15	(+ 5)	299	75	88	37	0.27	1.71	8.08	2.04	2.37
-10	(+14)	377	95	111	41	0.30	2.16	9.17	2.31	2.69

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)	82	21	24	20	0.14	0.46	4.15	1.05	1.22
-30	(-22)	120	30	35	24	0.18	0.68	4.93	1.24	1.44
-25	(-13)	166	42	49	29	0.22	0.94	5.65	1.42	1.66
-20	(- 4)	221	56	65	35	0.26	1.26	6.36	1.60	1.86
-15	(+ 5)	287	72	84	40	0.30	1.64	7.12	1.79	2.09
-10	(+14)	365	92	107	46	0.34	2.09	7.98	2.01	2.34

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)	141	35	41	24	0.18	0.80	5.80	1.46	1.70
-30	(-22)	192	48	56	29	0.22	1.09	6.59	1.66	1.93
-25	(-13)	253	64	74	34	0.25	1.44	7.50	1.89	2.20
-20	(- 4)	328	83	96	38	0.29	1.87	8.58	2.16	2.51
-15	(+ 5)	417	105	122	42	0.32	2.38	9.86	2.48	2.89
-10	(+14)	522	132	153	46	0.35	2.99	11.39	2.87	3.34

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V1600RPM		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)	127	32	37	25	0.19	0.72	5.02	1.27	1.47
-30	(-22)	178	45	52	31	0.23	1.01	5.74	1.45	1.68
-25	(-13)	240	60	70	37	0.28	1.36	6.50	1.64	1.91
-20	(- 4)	314	79	92	43	0.32	1.79	7.35	1.85	2.15
-15	(+ 5)	403	102	118	48	0.36	2.30	8.34	2.10	2.44
-10	(+14)	508	128	149	53	0.40	2.91	9.51	2.40	2.79

TEST CONDITIONS: @115V1600RPM		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)	111	28	33	26	0.19	0.63	4.29	1.08	1.26
-30	(-22)	162	41	47	32	0.24	0.92	5.04	1.27	1.48
-25	(-13)	224	56	66	39	0.29	1.27	5.77	1.45	1.69
-20	(- 4)	298	75	87	46	0.35	1.70	6.51	1.64	1.91
-15	(+ 5)	387	98	113	53	0.40	2.21	7.31	1.84	2.14
-10	(+14)	492	124	144	60	0.45	2.82	8.22	2.07	2.41

TEST CONDITIONS: @115V2000RPM		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)	176	44	52	30	0.22	1.00	5.79	1.46	1.70
-30	(-22)	239	60	70	36	0.26	1.36	6.59	1.66	1.93
-25	(-13)	316	80	93	42	0.31	1.79	7.49	1.89	2.20
-20	(- 4)	408	103	120	48	0.36	2.32	8.55	2.15	2.51
-15	(+ 5)	518	131	152	53	0.40	2.96	9.81	2.47	2.87
-10	(+14)	648	163	190	57	0.43	3.71	11.31	2.85	3.31

TEST CONDITIONS: @115V2000RPM		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)	161	41	47	32	0.24	0.91	5.06	1.28	1.48
-30	(-22)	224	56	66	39	0.29	1.27	5.78	1.46	1.69
-25	(-13)	300	76	88	46	0.34	1.70	6.52	1.64	1.91
-20	(- 4)	392	99	115	53	0.40	2.23	7.35	1.85	2.15
-15	(+ 5)	502	126	147	60	0.45	2.86	8.31	2.09	2.44
-10	(+14)	632	159	185	67	0.50	3.62	9.45	2.38	2.77

### 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)	142	36	42	33	0.24	0.80	4.33	1.09	1.27	
-30 (-22)	205	52	60	40	0.30	1.16	5.07	1.28	1.49	
-25 (-13)	281	71	82	49	0.36	1.59	5.78	1.46	1.69	
-20 (- 4)	373	94	109	57	0.42	2.12	6.50	1.64	1.91	
-15 (+ 5)	482	122	141	66	0.49	2.75	7.29	1.84	2.14	
-10 (+14)	612	154	179	75	0.56	3.51	8.19	2.06	2.40	

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)	264	67	77	47	0.35	1.49	5.60	1.41	1.64	
-30 (-22)	359	91	105	57	0.42	2.04	6.34	1.60	1.86	
-25 (-13)	474	120	139	66	0.49	2.69	7.17	1.81	2.10	
-20 (- 4)	612	154	179	75	0.56	3.48	8.14	2.05	2.39	
-15 (+ 5)	777	196	228	84	0.62	4.43	9.30	2.34	2.72	
-10 (+14)	971	245	285	91	0.67	5.57	10.70	2.70	3.13	

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)	240	60	70	49	0.37	1.36	4.92	1.24	1.44	
-30 (-22)	335	84	98	60	0.45	1.90	5.59	1.41	1.64	
-25 (-13)	450	113	132	71	0.53	2.55	6.28	1.58	1.84	
-20 (- 4)	588	148	172	83	0.62	3.34	7.04	1.77	2.06	
-15 (+ 5)	752	190	220	95	0.70	4.29	7.92	2.00	2.32	
-10 (+14)	947	239	278	105	0.78	5.43	8.97	2.26	2.63	

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)	211	53	62	50	0.37	1.19	4.21	1.06	1.23	
-30 (-22)	306	77	90	62	0.46	1.74	4.93	1.24	1.44	
-25 (-13)	421	106	123	75	0.56	2.39	5.60	1.41	1.64	
-20 (- 4)	559	141	164	89	0.66	3.18	6.27	1.58	1.84	
-15 (+ 5)	723	182	212	103	0.76	4.13	6.99	1.76	2.05	
-10 (+14)	918	231	269	117	0.86	5.26	7.81	1.97	2.29	

### 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)	379	96	111	73	0.56	2.14	5.18	1.31	1.52	
-30 (-22)	518	131	152	89	0.68	2.94	5.83	1.47	1.71	
-25 (-13)	687	173	201	105	0.80	3.90	6.55	1.65	1.92	
-20 (- 4)	890	224	261	120	0.92	5.06	7.40	1.86	2.17	
-15 (+ 5)	1132	285	332	135	1.03	6.46	8.41	2.12	2.46	
-10 (+14)	1418	357	416	148	1.12	8.13	9.64	2.43	2.82	

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)	342	86	100	75	0.57	1.93	4.57	1.15	1.34	
-30 (-22)	481	121	141	93	0.71	2.73	5.17	1.30	1.51	
-25 (-13)	649	164	190	112	0.86	3.69	5.78	1.46	1.69	
-20 (- 4)	852	215	250	132	1.01	4.85	6.45	1.62	1.89	
-15 (+ 5)	1094	276	321	151	1.15	6.24	7.22	1.82	2.12	
-10 (+14)	1380	348	404	169	1.29	7.91	8.14	2.05	2.38	

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)	296	75	87	75	0.57	1.67	3.92	0.99	1.15	
-30 (-22)	435	110	127	95	0.72	2.46	4.57	1.15	1.34	
-25 (-13)	603	152	177	117	0.89	3.42	5.17	1.30	1.52	
-20 (- 4)	805	203	236	140	1.07	4.58	5.77	1.45	1.69	
-15 (+ 5)	1047	264	307	164	1.25	5.98	6.40	1.61	1.88	
-10 (+14)	1334	336	391	187	1.43	7.64	7.12	1.80	2.09	

### 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		