

COMPRESSOR DEFINITION

Designation	VEM Y3H
Nominal Voltage/Frequency	230 V 53-150 Hz
Engineering Number	513900052

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
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	103 to 140 V	103 to 140 V
8.2 LBP (43°C Ambient temperature)	Static	103 to 140 V	103 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 ²] (202 psig)	/ °C - °F
9.2 Peak	15.9	[kgf/cm ²] (226 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/10	[hp]
2 Displacement	3.00	[cm ³] (0.183 cu.in)
2.1 Bore [mm]	19.000	
2.2 Stroke [mm]	10.600	
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 ²] (2.84 to 4.27 psig)

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 - TUV - 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]
139	35	41	28	0.41	0.79	4.96	1.25	1.45

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]
180	45	53	34	0.50	1.02	5.28	1.33	1.55

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]
288	73	84	55	0.79	1.64	5.23	1.32	1.53

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]
429	108	126	85	1.17	2.44	5.06	1.28	1.48

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)	90	23	26	18	0.31	0.51	4.76	1.20	1.39
-30	(-22)	118	30	35	21	0.34	0.67	5.55	1.40	1.63
-25	(-13)	152	38	45	25	0.39	0.87	6.34	1.60	1.86
-20	(- 4)	197	50	58	28	0.44	1.12	7.27	1.83	2.13
-15	(+ 5)	258	65	75	31	0.49	1.47	8.50	2.14	2.49
-10	(+14)	339	85	99	33	0.53	1.94	10.18	2.57	2.98

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)	70	18	21	19	0.32	0.40	3.77	0.95	1.10
-30	(-22)	105	26	31	22	0.35	0.59	4.68	1.18	1.37
-25	(-13)	144	36	42	26	0.41	0.82	5.50	1.39	1.61
-20	(- 4)	192	48	56	30	0.47	1.09	6.38	1.61	1.87
-15	(+ 5)	254	64	75	34	0.53	1.45	7.47	1.88	2.19
-10	(+14)	336	85	99	38	0.58	1.93	8.93	2.25	2.62

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)	48	12	14	18	0.29	0.27	2.82	0.71	0.83
-30	(-22)	82	21	24	22	0.34	0.47	3.74	0.94	1.10
-25	(-13)	120	30	35	27	0.41	0.68	4.49	1.13	1.31
-20	(- 4)	166	42	49	31	0.48	0.94	5.21	1.31	1.53
-15	(+ 5)	225	57	66	36	0.55	1.28	6.06	1.53	1.78
-10	(+14)	302	76	89	41	0.62	1.73	7.19	1.81	2.11

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)	109	28	32	23	0.38	0.62	4.68	1.18	1.37
-30	(-22)	148	37	43	27	0.42	0.84	5.52	1.39	1.62
-25	(-13)	191	48	56	30	0.48	1.08	6.33	1.60	1.86
-20	(- 4)	243	61	71	34	0.53	1.38	7.24	1.82	2.12
-15	(+ 5)	309	78	91	37	0.59	1.76	8.34	2.10	2.44
-10	(+14)	394	99	116	41	0.63	2.26	9.75	2.46	2.86

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)	97	24	28	24	0.39	0.55	4.03	1.02	1.18
-30	(-22)	135	34	39	28	0.43	0.76	4.81	1.21	1.41
-25	(-13)	179	45	52	32	0.49	1.01	5.57	1.40	1.63
-20	(- 4)	234	59	69	36	0.56	1.33	6.41	1.62	1.88
-15	(+ 5)	306	77	90	41	0.62	1.75	7.46	1.88	2.19
-10	(+14)	400	101	117	45	0.68	2.29	8.83	2.23	2.59

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)	74	19	22	23	0.37	0.42	3.27	0.82	0.96	
-30 (-22)	106	27	31	28	0.42	0.60	3.90	0.98	1.14	
-25 (-13)	146	37	43	32	0.49	0.83	4.51	1.14	1.32	
-20 (- 4)	200	50	58	38	0.57	1.14	5.22	1.31	1.53	
-15 (+ 5)	272	68	80	43	0.65	1.55	6.13	1.55	1.80	
-10 (+14)	367	93	108	49	0.73	2.11	7.36	1.86	2.16	

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)	156	39	46	38	0.60	0.88	4.12	1.04	1.21	
-30 (-22)	227	57	67	44	0.67	1.29	5.12	1.29	1.50	
-25 (-13)	308	78	90	50	0.75	1.75	6.15	1.55	1.80	
-20 (- 4)	403	102	118	56	0.84	2.29	7.23	1.82	2.12	
-15 (+ 5)	513	129	150	62	0.93	2.93	8.38	2.11	2.46	
-10 (+14)	643	162	188	67	1.00	3.68	9.64	2.43	2.83	

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)	151	38	44	38	0.63	0.86	3.90	0.98	1.14	
-30 (-22)	210	53	62	45	0.70	1.19	4.67	1.18	1.37	
-25 (-13)	285	72	84	52	0.79	1.62	5.50	1.39	1.61	
-20 (- 4)	379	96	111	59	0.89	2.16	6.43	1.62	1.89	
-15 (+ 5)	496	125	145	66	0.99	2.83	7.49	1.89	2.19	
-10 (+14)	637	161	187	73	1.07	3.65	8.70	2.19	2.55	

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)	110	28	32	38	0.61	0.62	2.92	0.74	0.86	
-30 (-22)	152	38	44	44	0.68	0.86	3.52	0.89	1.03	
-25 (-13)	216	54	63	52	0.77	1.22	4.24	1.07	1.24	
-20 (- 4)	305	77	89	60	0.88	1.73	5.09	1.28	1.49	
-15 (+ 5)	422	106	124	68	1.00	2.41	6.12	1.54	1.79	
-10 (+14)	571	144	167	77	1.11	3.27	7.35	1.85	2.15	

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]
-35	(-31)	225	57	66	59	0.89	1.28	3.84	0.97	1.13
-30	(-22)	322	81	94	68	0.99	1.82	4.76	1.20	1.39
-25	(-13)	456	115	134	78	1.12	2.59	5.82	1.47	1.71
-20	(- 4)	618	156	181	88	1.26	3.52	6.99	1.76	2.05
-15	(+ 5)	801	202	235	98	1.39	4.57	8.21	2.07	2.41
-10	(+14)	995	251	292	106	1.49	5.70	9.46	2.38	2.77

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]
-35	(-31)	225	57	66	59	0.91	1.27	3.76	0.95	1.10
-30	(-22)	298	75	87	68	1.01	1.69	4.41	1.11	1.29
-25	(-13)	415	105	122	79	1.15	2.36	5.24	1.32	1.54
-20	(- 4)	569	143	167	91	1.30	3.24	6.21	1.57	1.82
-15	(+ 5)	750	189	220	103	1.44	4.28	7.28	1.84	2.13
-10	(+14)	950	239	278	113	1.57	5.44	8.41	2.12	2.47

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]
-35	(-31)	172	43	50	59	0.88	0.97	2.88	0.73	0.84
-30	(-22)	223	56	65	69	0.98	1.26	3.39	0.86	0.99
-25	(-13)	327	82	96	80	1.13	1.86	4.13	1.04	1.21
-20	(- 4)	474	119	139	93	1.30	2.70	5.04	1.27	1.48
-15	(+ 5)	656	165	192	107	1.47	3.74	6.09	1.53	1.78
-10	(+14)	864	218	253	119	1.63	4.95	7.23	1.82	2.12

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EUEM		
2 Tray holder	No		
3 Connectors			
3.1 SUCTION	6.5 +0.12/-0.08	[mm]	(0.256" +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		