

COMPRESSOR DEFINITION

Designation	VEM Y5H
Nominal Voltage/Frequency	230 V 53-150 Hz
Engineering Number	513900041

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	4.99	[cm ³] (0.305 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	14.400	
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]	
286	72	84	49	0.70	1.63	5.87	1.48	1.72	

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]	
343	86	101	57	0.81	1.95	6.02	1.52	1.76	

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]	
517	130	151	89	1.22	2.94	5.78	1.46	1.69	

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]	
704	177	206	129	1.72	4.00	5.47	1.38	1.60	

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%			
	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
°C (°F)	161	41	47	30	0.49	0.91	5.45	1.37	1.60	
-35 (-31)	229	58	67	35	0.54	1.30	6.47	1.63	1.90	
-30 (-22)	302	76	89	40	0.61	1.72	7.50	1.89	2.20	
-25 (-13)	388	98	114	45	0.68	2.21	8.59	2.16	2.52	
-20 (- 4)	492	124	144	50	0.75	2.81	9.79	2.47	2.87	
-15 (+ 5)	622	157	182	56	0.81	3.57	11.16	2.81	3.27	
-10 (+14)										

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)	143	36	42	29	0.45	0.81	4.92	1.24	1.44
-30	(-22)	213	54	62	36	0.52	1.21	5.86	1.48	1.72
-25	(-13)	289	73	85	43	0.61	1.64	6.75	1.70	1.98
-20	(- 4)	376	95	110	49	0.71	2.14	7.65	1.93	2.24
-15	(+ 5)	483	122	142	56	0.81	2.76	8.61	2.17	2.52
-10	(+14)	616	155	180	63	0.91	3.53	9.68	2.44	2.84

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)	110	28	32	30	0.48	0.62	3.72	0.94	1.09
-30	(-22)	181	46	53	38	0.56	1.02	4.69	1.18	1.37
-25	(-13)	257	65	75	46	0.66	1.46	5.57	1.40	1.63
-20	(- 4)	346	87	102	54	0.78	1.97	6.40	1.61	1.88
-15	(+ 5)	455	115	133	63	0.90	2.60	7.24	1.82	2.12
-10	(+14)	589	149	173	72	1.02	3.38	8.13	2.05	2.38

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)	208	52	61	37	0.57	1.18	5.62	1.42	1.65
-30	(-22)	281	71	82	43	0.66	1.59	6.53	1.64	1.91
-25	(-13)	367	92	108	49	0.74	2.08	7.49	1.89	2.19
-20	(- 4)	470	118	138	55	0.82	2.67	8.54	2.15	2.50
-15	(+ 5)	593	149	174	61	0.89	3.38	9.71	2.45	2.85
-10	(+14)	740	187	217	67	0.95	4.24	11.03	2.78	3.23

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)	166	42	49	36	0.56	0.94	4.64	1.17	1.36
-30	(-22)	243	61	71	44	0.65	1.38	5.54	1.40	1.62
-25	(-13)	334	84	98	51	0.75	1.90	6.46	1.63	1.89
-20	(- 4)	443	112	130	59	0.85	2.52	7.43	1.87	2.18
-15	(+ 5)	573	144	168	67	0.95	3.27	8.49	2.14	2.49
-10	(+14)	728	184	213	75	1.05	4.17	9.67	2.44	2.83

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)	157	40	46	37	0.57	0.89	4.27	1.08	1.25	
-30 (-22)	226	57	66	45	0.66	1.28	5.02	1.27	1.47	
-25 (-13)	309	78	91	54	0.77	1.75	5.76	1.45	1.69	
-20 (- 4)	411	104	120	63	0.89	2.34	6.52	1.64	1.91	
-15 (+ 5)	535	135	157	73	1.01	3.05	7.34	1.85	2.15	
-10 (+14)	686	173	201	83	1.14	3.93	8.25	2.08	2.42	

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)	310	78	91	59	0.91	1.75	5.23	1.32	1.53	
-30 (-22)	413	104	121	69	0.99	2.34	6.00	1.51	1.76	
-25 (-13)	532	134	156	78	1.08	3.02	6.87	1.73	2.01	
-20 (- 4)	680	171	199	87	1.18	3.87	7.85	1.98	2.30	
-15 (+ 5)	868	219	254	97	1.30	4.95	8.95	2.26	2.62	
-10 (+14)	1108	279	325	108	1.44	6.35	10.19	2.57	2.99	

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)	262	66	77	58	0.91	1.48	4.51	1.14	1.32	
-30 (-22)	369	93	108	70	1.02	2.09	5.25	1.32	1.54	
-25 (-13)	491	124	144	81	1.14	2.79	6.06	1.53	1.78	
-20 (- 4)	639	161	187	92	1.27	3.64	6.95	1.75	2.04	
-15 (+ 5)	825	208	242	104	1.42	4.71	7.93	2.00	2.32	
-10 (+14)	1061	267	311	117	1.59	6.08	9.02	2.27	2.64	

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)	243	61	71	58	0.90	1.38	4.15	1.05	1.22	
-30 (-22)	351	89	103	72	1.03	1.99	4.82	1.22	1.41	
-25 (-13)	472	119	138	85	1.17	2.68	5.53	1.39	1.62	
-20 (- 4)	617	155	181	98	1.33	3.51	6.29	1.58	1.84	
-15 (+ 5)	798	201	234	113	1.51	4.56	7.11	1.79	2.08	
-10 (+14)	1027	259	301	128	1.70	5.88	8.00	2.02	2.35	

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)	426	107	125	91	1.32	2.41	4.70	1.18	1.38
-30	(-22)	571	144	167	104	1.46	3.24	5.51	1.39	1.61
-25	(-13)	748	188	219	117	1.59	4.25	6.39	1.61	1.87
-20	(- 4)	960	242	281	131	1.73	5.46	7.35	1.85	2.15
-15	(+ 5)	1210	305	355	145	1.88	6.91	8.36	2.11	2.45
-10	(+14)	1502	379	440	160	2.06	8.61	9.42	2.37	2.76

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)	378	95	111	89	1.28	2.14	4.25	1.07	1.24
-30	(-22)	515	130	151	104	1.44	2.92	4.97	1.25	1.46
-25	(-13)	686	173	201	119	1.59	3.89	5.77	1.45	1.69
-20	(- 4)	894	225	262	134	1.75	5.09	6.64	1.67	1.95
-15	(+ 5)	1142	288	335	151	1.93	6.52	7.58	1.91	2.22
-10	(+14)	1434	361	420	167	2.13	8.21	8.56	2.16	2.51

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)	349	88	102	89	1.29	1.97	3.92	0.99	1.15
-30	(-22)	477	120	140	106	1.48	2.70	4.52	1.14	1.32
-25	(-13)	640	161	188	123	1.67	3.64	5.20	1.31	1.52
-20	(- 4)	843	212	247	141	1.86	4.80	5.96	1.50	1.75
-15	(+ 5)	1088	274	319	160	2.06	6.21	6.79	1.71	1.99
-10	(+14)	1378	347	404	180	2.29	7.90	7.67	1.93	2.25

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		