

COMPRESSOR DEFINITION

Designation	VEM Y4HM
Nominal Voltage/Frequency	47 V 53-150 Hz
Engineering Number	513900047

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	47 / 53-150	[V / Hz]	
4 Application type	Low-Medium-High Back Pressure		
4.1 Evaporating temperature range	-35°C to 15°C	(-31°F to 59°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/Fan	-	22 to 36 V
8.2 LBP (43°C Ambient temperature)	Static/Fan	-	22 to 36 V
8.3 HBP (32°C Ambient temperature)	Static/Fan	-	22 to 36 V
8.4 HBP (43°C Ambient temperature)	Static/Fan	-	22 to 36 V
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	3.97	[cm ³] (0.242 cu.in)
2.1 Bore [mm]	19.000	
2.2 Stroke [mm]	14.000	
3 Lubricant charge	350	[ml] (11.84 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	7.39	[kg] (16.29 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	47 V 53-150 Hz / DC (Three phase)	
2 Starting device type	Inverter	
2.1 Starting device	519307005/519307009	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	INVERSOR VCC DC 24V	
6 Start winding resistance	1.28	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	1.28	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (53/15 Hz)	7.70	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (53/15 Hz)	7.70	[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		

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @24V2000RPM			ASHRAEHBP32 Static		Evaporating temperature (Condensing temperature)		7.2°C (44.96°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]	
1163	293	341	123	5.14		9.48	2.39	2.78	

TEST CONDITIONS: @24V3000RPM			ASHRAEHBP32 Static		Evaporating temperature (Condensing temperature)		7.2°C (44.96°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]	
1682	424	493	181	7.50		9.28	2.34	2.72	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @24V2000RPM			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)	151	38	44	36	1.43	0.85	4.31	1.09	1.26
-30 (-22)	210	53	61	40	1.71	1.19	5.16	1.30	1.51
-25 (-13)	283	71	83	46	2.00	1.61	5.98	1.51	1.75
-20 (- 4)	374	94	110	53	2.30	2.13	6.86	1.73	2.01
-15 (+ 5)	486	122	142	61	2.59	2.77	7.86	1.98	2.30
-10 (+14)	620	156	182	69	2.86	3.55	9.07	2.29	2.66
-5 (+23)	780	197	229	75	3.09	4.49	10.56	2.66	3.09
0 (+32)	969	244	284	81	3.28	5.60	12.41	3.13	3.64
+5 (+41)	1188	299	348	84	3.41	6.92	14.70	3.70	4.31
+10 (+50)	1441	363	422	84	3.47	8.45	17.50	4.41	5.13
+15 (+59)	1731	436	507	81	3.44	10.22	20.89	5.26	6.12

TEST CONDITIONS: @24V2000RPM			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)	142	36	42	37	1.51	0.80	3.95	0.99	1.16
-30 (-22)	195	49	57	42	1.78	1.11	4.68	1.18	1.37
-25 (-13)	262	66	77	49	2.09	1.49	5.30	1.34	1.55
-20 (- 4)	346	87	101	57	2.43	1.97	5.89	1.48	1.73
-15 (+ 5)	450	113	132	67	2.79	2.57	6.52	1.64	1.91
-10 (+14)	577	145	169	77	3.16	3.30	7.27	1.83	2.13
-5 (+23)	728	183	213	87	3.53	4.18	8.21	2.07	2.41
0 (+32)	907	229	266	95	3.88	5.25	9.43	2.38	2.76
+5 (+41)	1117	281	327	102	4.19	6.50	10.99	2.77	3.22
+10 (+50)	1360	343	399	106	4.46	7.97	12.98	3.27	3.80
+15 (+59)	1639	413	480	108	4.68	9.68	15.48	3.90	4.54

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@24V2000RPM		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)	128	32	37	38	1.57	0.72	3.46	0.87	1.02	
-30 (-22)	178	45	52	43	1.83	1.01	4.27	1.08	1.25	
-25 (-13)	241	61	71	51	2.16	1.37	4.88	1.23	1.43	
-20 (- 4)	321	81	94	61	2.56	1.83	5.37	1.35	1.57	
-15 (+ 5)	421	106	123	73	3.00	2.40	5.81	1.46	1.70	
-10 (+14)	542	137	159	85	3.47	3.10	6.29	1.58	1.84	
-5 (+23)	688	173	202	97	3.97	3.95	6.87	1.73	2.01	
0 (+32)	861	217	252	109	4.48	4.98	7.64	1.93	2.24	
+5 (+41)	1064	268	312	120	4.99	6.19	8.67	2.19	2.54	
+10 (+50)	1299	327	381	128	5.48	7.62	10.04	2.53	2.94	
+15 (+59)	1570	396	460	134	5.94	9.27	11.83	2.98	3.47	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 65°C (+149°F))					
@24V2000RPM		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)	107	27	31	38	1.62	0.60	2.48	0.62	0.73	
-30 (-22)	157	40	46	44	1.87	0.89	3.55	0.89	1.04	
-25 (-13)	220	55	64	53	2.23	1.25	4.33	1.09	1.27	
-20 (- 4)	299	75	88	64	2.68	1.71	4.91	1.24	1.44	
-15 (+ 5)	397	100	116	78	3.20	2.26	5.35	1.35	1.57	
-10 (+14)	516	130	151	92	3.79	2.95	5.74	1.45	1.68	
-5 (+23)	659	166	193	107	4.42	3.79	6.16	1.55	1.80	
0 (+32)	829	209	243	122	5.10	4.79	6.67	1.68	1.95	
+5 (+41)	1028	259	301	137	5.80	5.98	7.36	1.85	2.16	
+10 (+50)	1259	317	369	149	6.51	7.38	8.30	2.09	2.43	
+15 (+59)	1525	384	447	160	7.22	9.00	9.57	2.41	2.80	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@24V3000RPM		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)	236	59	69	61	2.46	1.33	3.90	0.98	1.14	
-30 (-22)	332	84	97	67	2.87	1.89	4.85	1.22	1.42	
-25 (-13)	443	112	130	75	3.26	2.52	5.77	1.45	1.69	
-20 (- 4)	573	144	168	84	3.64	3.26	6.71	1.69	1.97	
-15 (+ 5)	728	183	213	94	3.99	4.15	7.73	1.95	2.26	
-10 (+14)	912	230	267	104	4.32	5.22	8.86	2.23	2.60	
-5 (+23)	1131	285	331	113	4.63	6.50	10.16	2.56	2.98	
0 (+32)	1390	350	407	121	4.92	8.04	11.67	2.94	3.42	
+5 (+41)	1693	427	496	128	5.18	9.86	13.45	3.39	3.94	
+10 (+50)	2047	516	600	132	5.42	12.00	15.54	3.92	4.55	
+15 (+59)	2455	619	719	135	5.64	14.49	17.98	4.53	5.27	

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@24V3000RPM		Static								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	214	54	63	62	2.53	1.21	3.52	0.89	1.03
-30	(-22)	303	76	89	69	2.94	1.72	4.33	1.09	1.27
-25	(-13)	405	102	119	79	3.37	2.31	5.06	1.28	1.48
-20	(- 4)	527	133	154	90	3.81	3.00	5.77	1.45	1.69
-15	(+ 5)	672	169	197	102	4.27	3.83	6.50	1.64	1.90
-10	(+14)	847	214	248	115	4.74	4.85	7.29	1.84	2.14
-5	(+23)	1057	266	310	128	5.22	6.07	8.20	2.07	2.40
0	(+32)	1305	329	382	140	5.71	7.55	9.28	2.34	2.72
+5	(+41)	1599	403	468	151	6.21	9.30	10.57	2.66	3.10
+10	(+50)	1941	489	569	161	6.73	11.38	12.12	3.05	3.55
+15	(+59)	2339	589	685	169	7.25	13.81	13.98	3.52	4.10

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@24V3000RPM		Static								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	187	47	55	62	2.60	1.05	3.06	0.77	0.90
-30	(-22)	271	68	79	71	3.01	1.54	3.87	0.98	1.13
-25	(-13)	369	93	108	82	3.47	2.10	4.55	1.15	1.33
-20	(- 4)	486	122	142	95	3.98	2.76	5.15	1.30	1.51
-15	(+ 5)	626	158	183	110	4.53	3.57	5.73	1.44	1.68
-10	(+14)	795	200	233	125	5.14	4.55	6.32	1.59	1.85
-5	(+23)	999	252	293	142	5.79	5.74	6.98	1.76	2.04
0	(+32)	1242	313	364	158	6.48	7.18	7.75	1.95	2.27
+5	(+41)	1528	385	448	173	7.22	8.89	8.69	2.19	2.55
+10	(+50)	1865	470	546	188	8.01	10.93	9.84	2.48	2.88
+15	(+59)	2255	568	661	202	8.84	13.31	11.24	2.83	3.29

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 65°C (+149°F))					
@24V3000RPM		Static								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	153	39	45	63	2.65	0.86	2.30	0.58	0.67
-30	(-22)	237	60	69	72	3.06	1.35	3.23	0.81	0.95
-25	(-13)	334	84	98	85	3.55	1.90	3.99	1.01	1.17
-20	(- 4)	450	113	132	100	4.13	2.56	4.62	1.17	1.36
-15	(+ 5)	589	148	173	117	4.79	3.36	5.18	1.30	1.52
-10	(+14)	756	191	222	135	5.53	4.33	5.70	1.44	1.67
-5	(+23)	958	241	281	154	6.35	5.50	6.24	1.57	1.83
0	(+32)	1198	302	351	174	7.24	6.93	6.84	1.72	2.00
+5	(+41)	1482	374	434	194	8.22	8.63	7.56	1.90	2.21
+10	(+50)	1816	458	532	213	9.28	10.64	8.44	2.13	2.47
+15	(+59)	2203	555	645	232	10.41	13.00	9.52	2.40	2.79

E - PERFORMANCE - CURVES

TEST CONDITIONS: @24V4500RPM		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)	342	86	100	88	3.49	1.93	3.98	1.00	1.17
-30	(-22)	428	108	125	87	3.62	2.43	4.99	1.26	1.46
-25	(-13)	577	146	169	97	4.10	3.28	5.90	1.49	1.73
-20	(- 4)	783	197	230	114	4.85	4.46	6.74	1.70	1.97
-15	(+ 5)	1040	262	305	136	5.79	5.93	7.51	1.89	2.20
-10	(+14)	1340	338	393	161	6.83	7.67	8.26	2.08	2.42
-5	(+23)	1678	423	492	188	7.90	9.65	9.01	2.27	2.64
0	(+32)	2048	516	600	213	8.92	11.84	9.78	2.46	2.86
+5	(+41)	2443	616	716	235	9.80	14.21	10.59	2.67	3.10
+10	(+50)	2856	720	837	252	10.47	16.73	11.47	2.89	3.36
+15	(+59)	3282	827	962	261	10.84	19.38	12.44	3.14	3.65

TEST CONDITIONS: @24V4500RPM		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)	307	77	90	89	3.75	1.74	3.44	0.87	1.01
-30	(-22)	386	97	113	92	3.90	2.19	4.29	1.08	1.26
-25	(-13)	529	133	155	105	4.45	3.01	5.04	1.27	1.48
-20	(- 4)	731	184	214	126	5.30	4.16	5.71	1.44	1.67
-15	(+ 5)	985	248	289	154	6.38	5.62	6.33	1.59	1.85
-10	(+14)	1285	324	377	184	7.61	7.36	6.91	1.74	2.03
-5	(+23)	1625	410	476	217	8.91	9.35	7.49	1.89	2.20
0	(+32)	1999	504	586	249	10.20	11.56	8.09	2.04	2.37
+5	(+41)	2400	605	703	278	11.40	13.96	8.73	2.20	2.56
+10	(+50)	2821	711	827	302	12.42	16.53	9.44	2.38	2.77
+15	(+59)	3257	821	954	319	13.19	19.23	10.25	2.58	3.00

TEST CONDITIONS: @24V4500RPM		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)	274	69	80	91	3.90	1.55	2.99	0.75	0.88
-30	(-22)	340	86	100	95	4.04	1.93	3.77	0.95	1.11
-25	(-13)	473	119	139	110	4.60	2.69	4.45	1.12	1.30
-20	(- 4)	666	168	195	133	5.52	3.79	5.04	1.27	1.48
-15	(+ 5)	914	230	268	163	6.71	5.22	5.58	1.41	1.64
-10	(+14)	1210	305	355	197	8.09	6.93	6.09	1.53	1.78
-5	(+23)	1548	390	454	233	9.58	8.90	6.59	1.66	1.93
0	(+32)	1921	484	563	268	11.09	11.11	7.11	1.79	2.08
+5	(+41)	2323	585	681	302	12.56	13.52	7.67	1.93	2.25
+10	(+50)	2748	693	805	331	13.90	16.10	8.29	2.09	2.43
+15	(+59)	3190	804	935	353	15.02	18.83	9.01	2.27	2.64

E - PERFORMANCE - CURVES

TEST CONDITIONS: @24V4500RPM		ASHRAE32 Static			(Condensing temperature 65°C (+149°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)	242	61	71	95	3.95	1.37	2.40	0.60	0.70
-30	(-22)	292	73	85	98	4.03	1.66	3.19	0.80	0.94
-25	(-13)	410	103	120	112	4.58	2.33	3.88	0.98	1.14
-20	(- 4)	591	149	173	134	5.52	3.36	4.49	1.13	1.31
-15	(+ 5)	828	209	243	164	6.77	4.72	5.04	1.27	1.48
-10	(+14)	1115	281	327	198	8.25	6.38	5.55	1.40	1.63
-5	(+23)	1446	364	424	235	9.89	8.31	6.06	1.53	1.78
0	(+32)	1814	457	532	273	11.60	10.49	6.58	1.66	1.93
+5	(+41)	2214	558	649	308	13.29	12.88	7.15	1.80	2.09
+10	(+50)	2638	665	773	340	14.90	15.46	7.78	1.96	2.28
+15	(+59)	3081	776	903	365	16.34	18.19	8.50	2.14	2.49

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal
2 Tray holder	No
3 Connectors	
3.1 SUCTION	6.2 +0.05/+0.05 [mm] (0.244" +0.002"/+0.002")
3.1.1 Material	Copper
3.1.2 Shape	Slanted 42° up + 45° to Back
3.2 DISCHARGE	6.1 +0.10/+0.00 [mm] (0.240" +0.004"/+0.000")
3.2.1 Material	Copper
3.2.2 Shape	Slanted parallel BP+24°to Back
3.3 PROCESS	8.2 +0.12/-0.08 [mm] (0.323" +0.005"/-0.003")
3.3.1 Material	Copper
3.3.2 Shape	Slanted 45° up + 45° to Back
3.4 Oil cooler (Copper)	No [mm]
3.5 Connector sealing	Rubber Plugs