

COMPRESSOR DEFINITION

Designation	VEM T5H
Nominal Voltage/Frequency	230 V 53-150 Hz
Engineering Number	513903027

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
8.2 LBP (43°C Ambient temperature)	Static	-	103 to 140 V
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing pressures/temperature			
9.1 Operating (gauge)	16.2	[kgf/cm ²] (230 psig)	/ °C - °F
9.2 Peak (gauge)	20.6	[kgf/cm ²] (293 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	22.58	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	22.58	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (53/150 Hz)	2.10/2.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (53/150 Hz)	2.10/2.10	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (53/150 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	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]
278	70	81	55	0.94	1.58	5.10	1.29	1.49

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]
328	83	96	63	1.07	1.86	5.25	1.32	1.54

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]
506	128	148	94	1.53	2.88	5.36	1.35	1.57

TEST CONDITIONS: @115V4000RPM			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]
645	163	189	124	1.95	3.66	5.21	1.31	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]
702	177	206	137	2.18	3.99	5.14	1.30	1.51

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)	159	40	47	31	0.51	0.90	5.17	1.30	1.51
-30	(-22)	222	56	65	38	0.63	1.26	5.84	1.47	1.71
-25	(-13)	297	75	87	45	0.74	1.69	6.69	1.69	1.96
-20	(- 4)	387	98	114	51	0.85	2.20	7.70	1.94	2.26
-15	(+ 5)	497	125	146	56	0.94	2.84	8.85	2.23	2.59
-10	(+14)	629	158	184	62	1.02	3.60	10.13	2.55	2.97

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]
-35	(-31)	139	35	41	32	0.55	0.79	4.32	1.09	1.27
-30	(-22)	201	51	59	41	0.68	1.14	4.95	1.25	1.45
-25	(-13)	276	70	81	48	0.80	1.57	5.69	1.43	1.67
-20	(- 4)	366	92	107	56	0.93	2.08	6.53	1.64	1.91
-15	(+ 5)	476	120	139	64	1.05	2.72	7.45	1.88	2.18
-10	(+14)	608	153	178	72	1.17	3.48	8.43	2.13	2.47

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]
-35	(-31)	114	29	33	33	0.58	0.64	3.46	0.87	1.01
-30	(-22)	174	44	51	42	0.71	0.99	4.12	1.04	1.21
-25	(-13)	247	62	72	51	0.84	1.40	4.82	1.22	1.41
-20	(- 4)	336	85	98	60	0.99	1.91	5.56	1.40	1.63
-15	(+ 5)	444	112	130	70	1.14	2.53	6.33	1.59	1.85
-10	(+14)	575	145	169	81	1.29	3.30	7.10	1.79	2.08

TEST CONDITIONS: @115V1600RPM		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]
-35	(-31)	83	21	24	33	0.61	0.47	2.48	0.62	0.73
-30	(-22)	140	35	41	43	0.73	0.79	3.23	0.81	0.95
-25	(-13)	210	53	61	53	0.87	1.19	3.97	1.00	1.16
-20	(- 4)	296	74	87	63	1.03	1.68	4.69	1.18	1.38
-15	(+ 5)	401	101	118	75	1.20	2.29	5.38	1.36	1.58
-10	(+14)	530	133	155	89	1.38	3.03	6.01	1.52	1.76

E - PERFORMANCE - CURVES

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)	198	50	58	38	0.63	1.12	5.21	1.31	1.53	
-30 (-22)	268	68	79	45	0.77	1.52	5.95	1.50	1.74	
-25 (-13)	355	89	104	53	0.87	2.02	6.79	1.71	1.99	
-20 (- 4)	461	116	135	60	0.95	2.62	7.76	1.96	2.27	
-15 (+ 5)	589	148	173	67	1.03	3.36	8.87	2.23	2.60	
-10 (+14)	742	187	217	73	1.12	4.25	10.14	2.56	2.97	

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)	174	44	51	41	0.66	0.98	4.25	1.07	1.25	
-30 (-22)	243	61	71	48	0.80	1.38	5.01	1.26	1.47	
-25 (-13)	328	83	96	56	0.92	1.86	5.80	1.46	1.70	
-20 (- 4)	431	109	126	65	1.02	2.46	6.64	1.67	1.95	
-15 (+ 5)	556	140	163	73	1.12	3.18	7.54	1.90	2.21	
-10 (+14)	706	178	207	83	1.25	4.04	8.53	2.15	2.50	

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)	143	36	42	44	0.69	0.81	3.31	0.83	0.97	
-30 (-22)	211	53	62	51	0.84	1.20	4.16	1.05	1.22	
-25 (-13)	294	74	86	59	0.97	1.67	4.96	1.25	1.45	
-20 (- 4)	395	100	116	69	1.09	2.25	5.73	1.44	1.68	
-15 (+ 5)	517	130	151	79	1.22	2.95	6.49	1.64	1.90	
-10 (+14)	663	167	194	91	1.37	3.80	7.26	1.83	2.13	

TEST CONDITIONS: @115V2000RPM		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)	107	27	31	46	0.72	0.60	2.31	0.58	0.68	
-30 (-22)	173	44	51	52	0.87	0.98	3.31	0.84	0.97	
-25 (-13)	254	64	74	61	1.01	1.44	4.19	1.06	1.23	
-20 (- 4)	352	89	103	72	1.15	2.00	4.95	1.25	1.45	
-15 (+ 5)	471	119	138	84	1.31	2.69	5.63	1.42	1.65	
-10 (+14)	612	154	179	98	1.50	3.51	6.24	1.57	1.83	

E - PERFORMANCE - CURVES

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%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	298	75	87	59	0.96	1.69	5.03	1.27	1.47	
-30 (-22)	406	102	119	70	1.12	2.30	5.80	1.46	1.70	
-25 (-13)	536	135	157	81	1.28	3.04	6.62	1.67	1.94	
-20 (- 4)	693	175	203	92	1.44	3.94	7.52	1.89	2.20	
-15 (+ 5)	884	223	259	104	1.60	5.05	8.52	2.15	2.50	
-10 (+14)	1115	281	327	115	1.74	6.39	9.66	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%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	267	67	78	62	1.02	1.51	4.31	1.09	1.26	
-30 (-22)	374	94	110	74	1.17	2.12	5.08	1.28	1.49	
-25 (-13)	502	126	147	86	1.34	2.85	5.84	1.47	1.71	
-20 (- 4)	655	165	192	99	1.52	3.73	6.62	1.67	1.94	
-15 (+ 5)	840	212	246	113	1.71	4.80	7.45	1.88	2.18	
-10 (+14)	1064	268	312	127	1.90	6.10	8.36	2.11	2.45	

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%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	221	56	65	63	1.05	1.25	3.50	0.88	1.03	
-30 (-22)	329	83	96	76	1.20	1.86	4.34	1.09	1.27	
-25 (-13)	455	115	133	89	1.38	2.58	5.11	1.29	1.50	
-20 (- 4)	605	153	177	104	1.58	3.44	5.84	1.47	1.71	
-15 (+ 5)	786	198	230	120	1.80	4.49	6.57	1.66	1.92	
-10 (+14)	1004	253	294	137	2.02	5.75	7.31	1.84	2.14	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 65°C (+149°F))					
@115V3000RPM		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)	161	41	47	64	1.08	0.91	2.53	0.64	0.74	
-30 (-22)	270	68	79	76	1.22	1.53	3.51	0.88	1.03	
-25 (-13)	395	100	116	90	1.40	2.24	4.36	1.10	1.28	
-20 (- 4)	543	137	159	107	1.62	3.09	5.11	1.29	1.50	
-15 (+ 5)	721	182	211	125	1.86	4.11	5.80	1.46	1.70	
-10 (+14)	933	235	273	145	2.12	5.35	6.44	1.62	1.89	

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@115V4000RPM		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)	383	97	112	81	1.21	2.17	4.73	1.19	1.39	
-30 (-22)	534	135	156	95	1.42	3.03	5.60	1.41	1.64	
-25 (-13)	706	178	207	111	1.66	4.01	6.38	1.61	1.87	
-20 (- 4)	911	230	267	128	1.91	5.18	7.15	1.80	2.10	
-15 (+ 5)	1158	292	339	146	2.18	6.61	7.97	2.01	2.34	
-10 (+14)	1457	367	427	164	2.45	8.35	8.90	2.24	2.61	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@115V4000RPM		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)	334	84	98	86	1.29	1.89	3.88	0.98	1.14	
-30 (-22)	481	121	141	99	1.48	2.73	4.83	1.22	1.41	
-25 (-13)	650	164	190	115	1.71	3.69	5.65	1.42	1.66	
-20 (- 4)	852	215	250	133	1.98	4.85	6.41	1.62	1.88	
-15 (+ 5)	1097	276	321	153	2.29	6.26	7.17	1.81	2.10	
-10 (+14)	1396	352	409	175	2.61	8.00	7.99	2.01	2.34	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@115V4000RPM		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)	266	67	78	91	1.35	1.51	2.95	0.74	0.86	
-30 (-22)	409	103	120	102	1.51	2.32	4.02	1.01	1.18	
-25 (-13)	576	145	169	117	1.74	3.27	4.91	1.24	1.44	
-20 (- 4)	776	195	227	136	2.03	4.41	5.69	1.43	1.67	
-15 (+ 5)	1019	257	299	159	2.37	5.82	6.41	1.62	1.88	
-10 (+14)	1317	332	386	184	2.75	7.54	7.15	1.80	2.09	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 65°C (+149°F))					
@115V4000RPM		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)	179	45	52	93	1.40	1.01	1.91	0.48	0.56	
-30 (-22)	319	80	94	103	1.54	1.81	3.12	0.79	0.92	
-25 (-13)	483	122	142	118	1.76	2.74	4.11	1.04	1.21	
-20 (- 4)	681	172	199	138	2.07	3.87	4.94	1.24	1.45	
-15 (+ 5)	923	233	270	163	2.44	5.27	5.67	1.43	1.66	
-10 (+14)	1220	307	357	192	2.87	6.99	6.35	1.60	1.86	

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		