

COMPRESSOR DEFINITION

Designation	VEM T7C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513903033

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-600a		
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	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	6.9	[kgf/cm ²] (98 psig)	/ °C - °F
9.2 Peak	7.8	[kgf/cm ²] (111 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/5	[hp]
2 Displacement	7.23	[cm ³] (0.441 cu.in)
2.1 Bore [mm]	24.000	
2.2 Stroke [mm]	16.000	
3 Lubricant charge	220	[ml] (7.44 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	7.05	[kg] (15.54 lb.)
5 Nitrogen charge	-	[kgf/cm ²]

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	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 (40/150 Hz)	2.10/2.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (40/150 Hz)	2.10/2.10	[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 - IMTRO - TUV - UKCA	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @115V1200RPM			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]
162	41	47	32	0.63	0.51	5.00	1.26	1.47

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]
215	54	63	39	0.74	0.68	5.47	1.38	1.60

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]
273	69	80	48	0.90	0.86	5.75	1.45	1.68

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]
400	101	117	68	1.26	1.26	5.92	1.49	1.73

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]
546	138	160	93	1.72	1.71	5.89	1.48	1.73

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]
599	151	176	104	1.89	1.88	5.78	1.46	1.69

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]	[W/W]
-35 (-31)	135	34	40	22	0.41	0.42	6.07	1.53	1.78	
-30 (-22)	182	46	53	28	0.52	0.57	6.65	1.68	1.95	
-25 (-13)	237	60	69	32	0.61	0.74	7.42	1.87	2.17	
-20 (- 4)	302	76	89	36	0.68	0.95	8.39	2.11	2.46	
-15 (+ 5)	379	96	111	40	0.74	1.19	9.56	2.41	2.80	
-10 (+14)	469	118	138	43	0.79	1.48	10.95	2.76	3.21	

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)	109	28	32	24	0.46	0.34	4.61	1.16	1.35	
-30 (-22)	159	40	47	30	0.57	0.50	5.35	1.35	1.57	
-25 (-13)	217	55	63	35	0.66	0.68	6.17	1.55	1.81	
-20 (- 4)	284	72	83	40	0.74	0.89	7.07	1.78	2.07	
-15 (+ 5)	362	91	106	44	0.82	1.14	8.07	2.03	2.36	
-10 (+14)	453	114	133	49	0.91	1.43	9.17	2.31	2.69	

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)	83	21	24	25	0.48	0.26	3.34	0.84	0.98	
-30 (-22)	134	34	39	31	0.60	0.42	4.27	1.08	1.25	
-25 (-13)	192	48	56	37	0.70	0.60	5.17	1.30	1.51	
-20 (- 4)	260	65	76	43	0.80	0.82	6.04	1.52	1.77	
-15 (+ 5)	338	85	99	49	0.90	1.06	6.89	1.74	2.02	
-10 (+14)	428	108	126	55	1.01	1.35	7.72	1.95	2.26	

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]	[W/W]
-35 (-31)	54	14	16	25	0.50	0.17	2.11	0.53	0.62	
-30 (-22)	105	26	31	32	0.62	0.33	3.25	0.82	0.95	
-25 (-13)	163	41	48	38	0.73	0.51	4.25	1.07	1.25	
-20 (- 4)	229	58	67	45	0.85	0.72	5.11	1.29	1.50	
-15 (+ 5)	306	77	90	53	0.98	0.96	5.84	1.47	1.71	
-10 (+14)	394	99	116	62	1.12	1.24	6.44	1.62	1.89	

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)	174	44	51	28	0.53	0.54	6.15	1.55	1.80	
-30 (-22)	230	58	67	34	0.64	0.72	6.76	1.70	1.98	
-25 (-13)	298	75	87	40	0.74	0.93	7.54	1.90	2.21	
-20 (- 4)	379	96	111	45	0.83	1.19	8.53	2.15	2.50	
-15 (+ 5)	476	120	140	49	0.90	1.50	9.74	2.45	2.85	
-10 (+14)	592	149	173	53	0.97	1.87	11.20	2.82	3.28	

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)	149	38	44	30	0.57	0.47	5.04	1.27	1.48	
-30 (-22)	206	52	60	36	0.69	0.65	5.67	1.43	1.66	
-25 (-13)	275	69	80	43	0.80	0.86	6.40	1.61	1.87	
-20 (- 4)	357	90	105	49	0.91	1.12	7.24	1.82	2.12	
-15 (+ 5)	456	115	134	55	1.01	1.43	8.22	2.07	2.41	
-10 (+14)	573	144	168	61	1.11	1.81	9.37	2.36	2.74	

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)	124	31	36	31	0.60	0.39	4.06	1.02	1.19	
-30 (-22)	179	45	52	38	0.72	0.56	4.77	1.20	1.40	
-25 (-13)	246	62	72	45	0.84	0.77	5.50	1.39	1.61	
-20 (- 4)	328	83	96	52	0.97	1.03	6.26	1.58	1.83	
-15 (+ 5)	426	107	125	60	1.10	1.34	7.07	1.78	2.07	
-10 (+14)	542	137	159	68	1.23	1.71	7.97	2.01	2.33	

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)	97	24	28	31	0.61	0.30	3.03	0.76	0.89	
-30 (-22)	148	37	43	38	0.74	0.47	3.90	0.98	1.14	
-25 (-13)	212	53	62	46	0.87	0.67	4.69	1.18	1.37	
-20 (- 4)	290	73	85	54	1.01	0.91	5.43	1.37	1.59	
-15 (+ 5)	385	97	113	63	1.16	1.21	6.13	1.55	1.80	
-10 (+14)	499	126	146	73	1.32	1.57	6.83	1.72	2.00	

E - PERFORMANCE - CURVES

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]
-35	(-31)	247	62	72	43	0.78	0.77	5.77	1.46	1.69
-30	(-22)	330	83	97	51	0.94	1.04	6.51	1.64	1.91
-25	(-13)	438	110	128	59	1.09	1.37	7.38	1.86	2.16
-20	(- 4)	570	144	167	68	1.24	1.79	8.39	2.12	2.46
-15	(+ 5)	725	183	212	76	1.38	2.28	9.53	2.40	2.79
-10	(+14)	903	228	265	84	1.50	2.85	10.77	2.71	3.16

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]
-35	(-31)	216	54	63	44	0.82	0.68	4.93	1.24	1.44
-30	(-22)	296	75	87	53	0.98	0.93	5.64	1.42	1.65
-25	(-13)	402	101	118	62	1.15	1.26	6.46	1.63	1.89
-20	(- 4)	533	134	156	72	1.32	1.68	7.38	1.86	2.16
-15	(+ 5)	689	174	202	82	1.49	2.17	8.37	2.11	2.45
-10	(+14)	869	219	255	92	1.66	2.74	9.42	2.38	2.76

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]
-35	(-31)	183	46	54	45	0.84	0.57	4.11	1.04	1.20
-30	(-22)	259	65	76	54	1.01	0.81	4.85	1.22	1.42
-25	(-13)	361	91	106	64	1.19	1.13	5.64	1.42	1.65
-20	(- 4)	489	123	143	75	1.38	1.54	6.49	1.64	1.90
-15	(+ 5)	643	162	188	87	1.58	2.03	7.37	1.86	2.16
-10	(+14)	822	207	241	99	1.78	2.60	8.28	2.09	2.43

TEST CONDITIONS: @115V3000RPM		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)	149	38	44	45	0.85	0.47	3.27	0.82	0.96
-30	(-22)	218	55	64	54	1.01	0.68	4.05	1.02	1.19
-25	(-13)	314	79	92	65	1.20	0.99	4.86	1.22	1.42
-20	(- 4)	437	110	128	77	1.41	1.37	5.67	1.43	1.66
-15	(+ 5)	587	148	172	91	1.63	1.85	6.47	1.63	1.90
-10	(+14)	764	192	224	105	1.87	2.41	7.26	1.83	2.13

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V4000RPM		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]
-35	(-31)	349	88	102	61	1.11	1.09	5.73	1.44	1.68
-30	(-22)	453	114	133	71	1.31	1.42	6.38	1.61	1.87
-25	(-13)	565	142	166	80	1.46	1.77	7.10	1.79	2.08
-20	(- 4)	699	176	205	88	1.58	2.19	7.93	2.00	2.32
-15	(+ 5)	866	218	254	97	1.71	2.73	8.89	2.24	2.61
-10	(+14)	1080	272	316	107	1.88	3.40	10.05	2.53	2.94

TEST CONDITIONS: @115V4000RPM		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]
-35	(-31)	308	78	90	63	1.15	0.96	4.88	1.23	1.43
-30	(-22)	423	106	124	75	1.38	1.32	5.65	1.42	1.66
-25	(-13)	543	137	159	85	1.56	1.70	6.40	1.61	1.88
-20	(- 4)	682	172	200	95	1.71	2.14	7.17	1.81	2.10
-15	(+ 5)	852	215	250	106	1.88	2.68	8.00	2.02	2.35
-10	(+14)	1066	269	312	119	2.09	3.36	8.93	2.25	2.62

TEST CONDITIONS: @115V4000RPM		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]
-35	(-31)	243	61	71	64	1.21	0.76	3.80	0.96	1.11
-30	(-22)	370	93	108	77	1.46	1.16	4.77	1.20	1.40
-25	(-13)	500	126	146	89	1.65	1.57	5.64	1.42	1.65
-20	(- 4)	646	163	189	101	1.83	2.03	6.44	1.62	1.89
-15	(+ 5)	820	207	240	114	2.02	2.58	7.22	1.82	2.12
-10	(+14)	1035	261	303	129	2.26	3.27	8.01	2.02	2.35

TEST CONDITIONS: @115V4000RPM		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]
-35	(-31)	154	39	45	64	1.28	0.48	2.41	0.61	0.71
-30	(-22)	294	74	86	78	1.53	0.92	3.67	0.93	1.08
-25	(-13)	435	110	128	91	1.74	1.37	4.75	1.20	1.39
-20	(- 4)	590	149	173	104	1.93	1.85	5.67	1.43	1.66
-15	(+ 5)	770	194	226	120	2.14	2.42	6.48	1.63	1.90
-10	(+14)	988	249	290	137	2.40	3.12	7.22	1.82	2.11

F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard
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	Slanted 28° up + 25° to Back
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	Slanted 42° up + 24° to Back
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	Slanted 42° up + 45° to Back
3.4 Oil cooler (Copper)	No [mm]
3.5 Connector sealing	Rubber Plugs