

COMPRESSOR DEFINITION

Designation	VES C7C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513907143

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	-	-
8.2 LBP (43°C Ambient temperature)	-	-	-
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	190	[ml] (6.42 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	6.45	[kg] (14.22 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	VCC3 1156 XXXXX/VES 2456 XX X X	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	VCC32456XXXXX	
6 Start winding resistance	13.40	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	13.40	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (46/133 Hz)	2.10/2.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (46/133 Hz)	2.10/2.10	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (46/133 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	CCC - VDE	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V1300RPM			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]
179	45	52	28	0.23	0.56	6.39	1.61	1.87

TEST CONDITIONS: @220V1600RPM			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]
223	56	65	34	0.28	0.70	6.56	1.65	1.92

TEST CONDITIONS: @220V2000RPM			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]
275	69	81	43	0.32	0.86	6.40	1.61	1.88

TEST CONDITIONS: @220V3000RPM			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]
426	107	125	65	0.49	1.34	6.55	1.65	1.92

TEST CONDITIONS: @220V4500RPM			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]
628	158	184	103	0.76	1.97	6.10	1.54	1.79

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1300RPM		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)	106	27	31	18	0.12	0.33	5.98	1.51	1.75	
-30 (-22)	142	36	42	20	0.15	0.45	6.93	1.75	2.03	
-25 (-13)	186	47	55	24	0.18	0.58	7.92	2.00	2.32	
-20 (- 4)	240	61	70	27	0.20	0.75	9.05	2.28	2.65	
-15 (+ 5)	306	77	90	30	0.22	0.96	10.38	2.61	3.04	
-10 (+14)	386	97	113	32	0.24	1.22	11.99	3.02	3.51	

TEST CONDITIONS: @220V1300RPM		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)	90	23	27	18	0.14	0.28	5.02	1.27	1.47	
-30 (-22)	126	32	37	21	0.16	0.39	5.93	1.49	1.74	
-25 (-13)	169	43	50	25	0.19	0.53	6.80	1.71	1.99	
-20 (- 4)	222	56	65	29	0.22	0.70	7.72	1.94	2.26	
-15 (+ 5)	286	72	84	33	0.24	0.90	8.76	2.21	2.57	
-10 (+14)	364	92	107	36	0.27	1.15	10.01	2.52	2.93	

TEST CONDITIONS: @220V1300RPM		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)	66	17	19	17	0.14	0.21	3.83	0.97	1.12	
-30 (-22)	103	26	30	21	0.17	0.32	4.84	1.22	1.42	
-25 (-13)	148	37	43	26	0.20	0.46	5.73	1.44	1.68	
-20 (- 4)	201	51	59	30	0.23	0.63	6.59	1.66	1.93	
-15 (+ 5)	265	67	78	35	0.26	0.83	7.49	1.89	2.19	
-10 (+14)	342	86	100	40	0.29	1.08	8.51	2.14	2.49	

TEST CONDITIONS: @220V1600RPM		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)	127	32	37	22	0.16	0.40	5.82	1.47	1.71	
-30 (-22)	175	44	51	25	0.19	0.55	6.89	1.74	2.02	
-25 (-13)	232	58	68	29	0.21	0.73	7.96	2.01	2.33	
-20 (- 4)	300	76	88	33	0.24	0.94	9.12	2.30	2.67	
-15 (+ 5)	382	96	112	37	0.26	1.20	10.46	2.64	3.06	
-10 (+14)	480	121	141	40	0.29	1.51	12.05	3.04	3.53	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1600RPM		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)	110	28	32	22	0.17	0.35	5.06	1.27	1.48
-30	(-22)	159	40	46	26	0.20	0.50	6.05	1.52	1.77
-25	(-13)	215	54	63	31	0.23	0.67	6.97	1.76	2.04
-20	(- 4)	281	71	82	36	0.26	0.88	7.89	1.99	2.31
-15	(+ 5)	360	91	105	40	0.30	1.13	8.91	2.25	2.61
-10	(+14)	454	114	133	45	0.33	1.43	10.11	2.55	2.96

TEST CONDITIONS: @220V1600RPM		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)	86	22	25	21	0.15	0.27	4.12	1.04	1.21
-30	(-22)	135	34	40	26	0.19	0.42	5.15	1.30	1.51
-25	(-13)	191	48	56	32	0.24	0.60	6.04	1.52	1.77
-20	(- 4)	257	65	75	38	0.28	0.81	6.85	1.73	2.01
-15	(+ 5)	334	84	98	43	0.32	1.05	7.68	1.94	2.25
-10	(+14)	425	107	125	49	0.36	1.34	8.61	2.17	2.52

TEST CONDITIONS: @220V2000RPM		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)	158	40	46	27	0.20	0.49	5.78	1.46	1.69
-30	(-22)	216	54	63	32	0.23	0.68	6.75	1.70	1.98
-25	(-13)	288	73	84	37	0.26	0.90	7.80	1.97	2.29
-20	(- 4)	375	95	110	42	0.30	1.18	8.98	2.26	2.63
-15	(+ 5)	479	121	140	47	0.33	1.51	10.32	2.60	3.02
-10	(+14)	600	151	176	51	0.36	1.89	11.88	2.99	3.48

TEST CONDITIONS: @220V2000RPM		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)	137	35	40	27	0.21	0.43	5.05	1.27	1.48
-30	(-22)	195	49	57	33	0.24	0.61	5.95	1.50	1.74
-25	(-13)	266	67	78	39	0.28	0.83	6.87	1.73	2.01
-20	(- 4)	353	89	103	45	0.32	1.11	7.84	1.98	2.30
-15	(+ 5)	456	115	134	51	0.36	1.44	8.91	2.25	2.61
-10	(+14)	577	145	169	57	0.40	1.82	10.13	2.55	2.97

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V2000RPM		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)	116	29	34	27	0.21	0.36	4.27	1.08	1.25	
-30 (-22)	171	43	50	33	0.24	0.54	5.21	1.31	1.53	
-25 (-13)	241	61	71	40	0.28	0.76	6.08	1.53	1.78	
-20 (- 4)	326	82	95	47	0.33	1.02	6.95	1.75	2.04	
-15 (+ 5)	427	108	125	54	0.39	1.35	7.85	1.98	2.30	
-10 (+14)	547	138	160	62	0.44	1.72	8.84	2.23	2.59	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@220V3000RPM		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)	233	59	68	42	0.31	0.73	5.60	1.41	1.64	
-30 (-22)	326	82	95	50	0.35	1.02	6.54	1.65	1.92	
-25 (-13)	439	111	129	58	0.41	1.38	7.55	1.90	2.21	
-20 (- 4)	574	145	168	66	0.47	1.80	8.67	2.18	2.54	
-15 (+ 5)	735	185	215	74	0.52	2.31	9.90	2.50	2.90	
-10 (+14)	921	232	270	82	0.58	2.91	11.28	2.84	3.31	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V3000RPM		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)	211	53	62	42	0.32	0.66	5.03	1.27	1.47	
-30 (-22)	297	75	87	51	0.37	0.93	5.84	1.47	1.71	
-25 (-13)	404	102	118	60	0.43	1.27	6.71	1.69	1.97	
-20 (- 4)	536	135	157	70	0.50	1.69	7.65	1.93	2.24	
-15 (+ 5)	695	175	204	80	0.57	2.19	8.68	2.19	2.54	
-10 (+14)	882	222	259	90	0.63	2.78	9.84	2.48	2.88	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V3000RPM		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)	193	49	56	43	0.31	0.60	4.52	1.14	1.32	
-30 (-22)	268	67	78	51	0.37	0.84	5.25	1.32	1.54	
-25 (-13)	367	92	108	61	0.44	1.15	6.01	1.51	1.76	
-20 (- 4)	493	124	144	72	0.52	1.55	6.81	1.72	2.00	
-15 (+ 5)	647	163	190	84	0.60	2.04	7.69	1.94	2.25	
-10 (+14)	832	210	244	96	0.68	2.63	8.65	2.18	2.54	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V4500RPM		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)	372	94	109	69	0.49	1.16	5.39	1.36	1.58
-30	(-22)	497	125	146	79	0.56	1.56	6.25	1.57	1.83
-25	(-13)	634	160	186	89	0.62	1.99	7.12	1.79	2.09
-20	(- 4)	797	201	234	99	0.68	2.50	8.06	2.03	2.36
-15	(+ 5)	1001	252	293	110	0.74	3.15	9.12	2.30	2.67
-10	(+14)	1260	318	369	121	0.81	3.97	10.35	2.61	3.03

TEST CONDITIONS: @220V4500RPM		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)	331	83	97	68	0.49	1.04	4.87	1.23	1.43
-30	(-22)	469	118	137	82	0.58	1.47	5.70	1.44	1.67
-25	(-13)	615	155	180	95	0.66	1.93	6.49	1.64	1.90
-20	(- 4)	784	198	230	107	0.73	2.46	7.31	1.84	2.14
-15	(+ 5)	989	249	290	120	0.80	3.11	8.21	2.07	2.41
-10	(+14)	1246	314	365	135	0.87	3.93	9.23	2.33	2.71

TEST CONDITIONS: @220V4500RPM		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)	274	69	80	63	0.46	0.86	4.35	1.10	1.27
-30	(-22)	420	106	123	80	0.58	1.32	5.17	1.30	1.52
-25	(-13)	570	144	167	96	0.68	1.79	5.93	1.49	1.74
-20	(- 4)	739	186	216	111	0.76	2.32	6.67	1.68	1.95
-15	(+ 5)	940	237	276	127	0.85	2.96	7.44	1.87	2.18
-10	(+14)	1189	300	348	143	0.93	3.75	8.29	2.09	2.43

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal VES		
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 45° up + 49° to Back		
3.2 DISCHARGE	4.9 +0.10/-0.05	[mm]	(0.193" +0.004"/-0.002")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted 0° 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 47° up + 59° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		