

### COMPRESSOR DEFINITION

Designation	VES G9C
Nominal Voltage/Frequency	230 V 32-150 Hz
Engineering Number	513907331

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-600a		
3 Nominal voltage and frequency	230 / 32-150	[ V / Hz ]	
4 Application type	Low-Medium Back Pressure (Fullmotion Compressors)		
4.1 Evaporating temperature range	-35°C to 0°C (-31°F to 32°F)		
5 Motor type	BPM		
6 Starting torque	LST - Low Starting Torque		
7 Expantion device	Capillary tube		
8 Compressor cooling		Operating voltage range	
		50 Hz	60 Hz
8.1 LBP (32°C Ambient temperature)	-	-	-
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/cm²] (98 psig)	/ °C - °F
9.2 Peak	7.8	[kgf/cm²] (111 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/5	[hp]
2 Displacement	9.04	[cm³] (0.552 cu.in)
2.1 Bore [mm]	24.000	
2.2 Stroke [mm]	20.000	
3 Lubricant charge	205	[ml] (6.93 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	6.8	[kg] (14.99 lb.)
5 Nitrogen charge	-	[kgf/cm²]

### C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	230 V 31.7-150 Hz 3~ (Three phase)	
2 Starting device type	Inverter	
2.1 Starting device	PFC CF02D02 M	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	PFC CF02D02 M	
6 Start winding resistance	9.30	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	9.30	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (32/150 Hz)	-	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (32/150 Hz)	-	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (32/150 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	CCC - VDE	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V950RPM			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	25	0.25	0.51	6.51	1.64	1.91

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]
226	57	66	34	0.30	0.71	6.73	1.70	1.97

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]
363	91	106	53	0.43	1.14	6.88	1.73	2.02

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]
563	142	165	83	0.64	1.77	6.78	1.71	1.99

TEST CONDITIONS: @220V4000RPM			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]
714	180	209	110	0.84	2.24	6.51	1.64	1.91

### E - PERFORMANCE - CURVES

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%		
		[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	179	45	52	26	0.26	0.56	6.75	1.70	1.98
-30	(-22)	237	60	69	31	0.29	0.74	7.67	1.93	2.25
-25	(-13)	307	77	90	35	0.31	0.96	8.72	2.20	2.55
-20	(- 4)	392	99	115	40	0.34	1.23	9.92	2.50	2.91
-15	(+ 5)	494	125	145	44	0.37	1.56	11.32	2.85	3.32
-10	(+14)	617	155	181	48	0.39	1.95	12.97	3.27	3.80
-5	(+23)	763	192	224	51	0.41	2.41	14.89	3.75	4.36
0	(+32)	935	236	274	54	0.43	2.96	17.14	4.32	5.02

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%		
		[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	165	42	48	27	0.26	0.52	6.03	1.52	1.77
-30	(-22)	222	56	65	33	0.30	0.70	6.81	1.72	2.00
-25	(-13)	291	73	85	38	0.34	0.91	7.65	1.93	2.24
-20	(- 4)	374	94	109	43	0.37	1.17	8.59	2.16	2.52
-15	(+ 5)	473	119	139	49	0.41	1.49	9.66	2.44	2.83
-10	(+14)	593	149	174	54	0.45	1.87	10.92	2.75	3.20
-5	(+23)	735	185	215	59	0.49	2.32	12.40	3.13	3.63
0	(+32)	902	227	264	64	0.53	2.86	14.15	3.56	4.15

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%		
		[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	144	36	42	27	0.26	0.45	5.25	1.32	1.54
-30	(-22)	201	51	59	33	0.30	0.63	6.00	1.51	1.76
-25	(-13)	269	68	79	40	0.35	0.84	6.76	1.70	1.98
-20	(- 4)	351	88	103	46	0.39	1.10	7.56	1.90	2.21
-15	(+ 5)	449	113	131	53	0.44	1.41	8.43	2.12	2.47
-10	(+14)	565	142	166	60	0.49	1.78	9.43	2.38	2.76
-5	(+23)	704	177	206	67	0.54	2.23	10.59	2.67	3.10
0	(+32)	868	219	254	73	0.59	2.75	11.94	3.01	3.50

### E - PERFORMANCE - CURVES

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%		
		[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	224	56	66	33	0.28	0.70	6.73	1.70	1.97
-30	(-22)	294	74	86	39	0.34	0.92	7.59	1.91	2.22
-25	(-13)	381	96	112	44	0.38	1.19	8.59	2.16	2.52
-20	(- 4)	486	123	143	50	0.41	1.53	9.75	2.46	2.86
-15	(+ 5)	614	155	180	55	0.44	1.93	11.10	2.80	3.25
-10	(+14)	767	193	225	61	0.48	2.42	12.67	3.19	3.71
-5	(+23)	949	239	278	65	0.52	3.00	14.48	3.65	4.24
0	(+32)	1162	293	341	70	0.58	3.68	16.57	4.18	4.85

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%		
		[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	205	52	60	35	0.30	0.64	5.93	1.49	1.74
-30	(-22)	274	69	80	41	0.36	0.86	6.67	1.68	1.95
-25	(-13)	358	90	105	48	0.40	1.12	7.49	1.89	2.19
-20	(- 4)	461	116	135	55	0.45	1.45	8.42	2.12	2.47
-15	(+ 5)	585	147	171	62	0.49	1.84	9.48	2.39	2.78
-10	(+14)	734	185	215	68	0.53	2.31	10.72	2.70	3.14
-5	(+23)	910	229	267	75	0.59	2.88	12.14	3.06	3.56
0	(+32)	1117	282	327	81	0.66	3.54	13.79	3.47	4.04

TEST CONDITIONS: @220V2000RPM		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%		
		[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	183	46	54	35	0.29	0.57	5.25	1.32	1.54
-30	(-22)	251	63	74	42	0.35	0.79	5.94	1.50	1.74
-25	(-13)	334	84	98	50	0.41	1.05	6.66	1.68	1.95
-20	(- 4)	434	109	127	58	0.46	1.36	7.44	1.88	2.18
-15	(+ 5)	555	140	163	67	0.51	1.75	8.30	2.09	2.43
-10	(+14)	700	176	205	75	0.57	2.21	9.28	2.34	2.72
-5	(+23)	871	220	255	84	0.64	2.76	10.39	2.62	3.05
0	(+32)	1073	270	314	92	0.73	3.40	11.68	2.94	3.42

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V3000RPM		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]
-35	(-31)	327	82	96	52	0.42	1.02	6.28	1.58	1.84
-30	(-22)	430	108	126	60	0.48	1.35	7.17	1.81	2.10
-25	(-13)	559	141	164	69	0.54	1.75	8.14	2.05	2.39
-20	(- 4)	715	180	210	78	0.61	2.25	9.20	2.32	2.70
-15	(+ 5)	903	228	265	87	0.68	2.84	10.37	2.61	3.04
-10	(+14)	1125	283	330	97	0.75	3.55	11.66	2.94	3.42
-5	(+23)	1384	349	406	106	0.82	4.38	13.11	3.30	3.84
0	(+32)	1683	424	493	114	0.88	5.34	14.74	3.71	4.32

TEST CONDITIONS: @220V3000RPM		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%		
		[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	305	77	89	54	0.43	0.95	5.65	1.42	1.66
-30	(-22)	405	102	119	63	0.50	1.27	6.42	1.62	1.88
-25	(-13)	530	134	155	73	0.57	1.66	7.23	1.82	2.12
-20	(- 4)	683	172	200	84	0.65	2.15	8.12	2.05	2.38
-15	(+ 5)	868	219	254	96	0.73	2.73	9.09	2.29	2.66
-10	(+14)	1087	274	318	107	0.81	3.43	10.17	2.56	2.98
-5	(+23)	1343	338	394	118	0.89	4.25	11.37	2.87	3.33
0	(+32)	1639	413	480	129	0.96	5.20	12.73	3.21	3.73

TEST CONDITIONS: @220V3000RPM		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%		
		[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	277	70	81	54	0.45	0.87	5.10	1.28	1.49
-30	(-22)	376	95	110	65	0.53	1.18	5.79	1.46	1.70
-25	(-13)	501	126	147	77	0.61	1.57	6.51	1.64	1.91
-20	(- 4)	654	165	192	90	0.70	2.05	7.28	1.83	2.13
-15	(+ 5)	838	211	246	103	0.80	2.64	8.11	2.04	2.38
-10	(+14)	1056	266	310	117	0.90	3.33	9.02	2.27	2.64
-5	(+23)	1312	331	384	131	0.99	4.15	10.04	2.53	2.94
0	(+32)	1608	405	471	144	1.08	5.10	11.19	2.82	3.28

### E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F) )					
@220V4500RPM		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)	444	112	130	75	0.58	1.39	5.91	1.49	1.73
-30	(-22)	580	146	170	87	0.67	1.82	6.70	1.69	1.96
-25	(-13)	749	189	219	98	0.76	2.35	7.61	1.92	2.23
-20	(- 4)	948	239	278	110	0.85	2.98	8.63	2.18	2.53
-15	(+ 5)	1177	297	345	121	0.93	3.70	9.72	2.45	2.85
-10	(+14)	1433	361	420	132	1.01	4.52	10.86	2.74	3.18
-5	(+23)	1715	432	503	143	1.07	5.42	12.00	3.02	3.52
0	(+32)	2021	509	592	153	1.12	6.41	13.12	3.31	3.85

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F) )					
@220V4500RPM		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)	412	104	121	76	0.59	1.29	5.39	1.36	1.58
-30	(-22)	543	137	159	90	0.69	1.70	6.07	1.53	1.78
-25	(-13)	708	178	207	103	0.80	2.22	6.88	1.73	2.02
-20	(- 4)	905	228	265	116	0.90	2.84	7.80	1.97	2.29
-15	(+ 5)	1133	286	332	129	0.99	3.57	8.79	2.22	2.58
-10	(+14)	1390	350	407	142	1.08	4.38	9.83	2.48	2.88
-5	(+23)	1674	422	491	154	1.15	5.29	10.88	2.74	3.19
0	(+32)	1984	500	581	166	1.21	6.29	11.91	3.00	3.49

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F) )					
@220V4500RPM		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)	366	92	107	75	0.57	1.15	4.89	1.23	1.43
-30	(-22)	490	123	144	90	0.69	1.54	5.45	1.37	1.60
-25	(-13)	649	164	190	105	0.80	2.04	6.16	1.55	1.81
-20	(- 4)	842	212	247	121	0.92	2.65	6.98	1.76	2.04
-15	(+ 5)	1068	269	313	136	1.03	3.36	7.87	1.98	2.31
-10	(+14)	1324	334	388	150	1.13	4.18	8.81	2.22	2.58
-5	(+23)	1608	405	471	165	1.22	5.09	9.77	2.46	2.86
0	(+32)	1920	484	562	179	1.30	6.09	10.71	2.70	3.14

## F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal VES		
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	Slanted 63° up + 5° to Front		
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		