

COMPRESSOR DEFINITION

Designation	VEM X9C+
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513906092

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)	Static	-	-
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	9.04	[cm ³] (0.552 cu.in)
2.1 Bore [mm]	24.000	
2.2 Stroke [mm]	20.000	
3 Lubricant charge	210	[ml] (7.10 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	7.3	[kg] (16.09 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/VCC32456XXXX	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	VCC3 115619N01SH2.0	
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 (40/150 Hz)	-	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (40/150 Hz)	-	[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	CCC	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V1200RPM			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]
220	55	64	38	0.30	0.69	5.84	1.47	1.71

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]
287	72	84	47	0.36	0.90	6.15	1.55	1.80

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]
364	92	107	57	0.43	1.14	6.41	1.62	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]
556	140	163	84	0.63	1.75	6.59	1.66	1.93

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]
757	191	222	120	0.87	2.38	6.30	1.59	1.85

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1200RPM		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)	221	56	65	35	0.26	0.69	6.24	1.57	1.83
-30	(-22)	290	73	85	42	0.31	0.91	7.00	1.76	2.05
-25	(-13)	378	95	111	48	0.36	1.19	7.97	2.01	2.33
-20	(- 4)	485	122	142	53	0.40	1.52	9.11	2.29	2.67
-15	(+ 5)	612	154	179	59	0.44	1.92	10.39	2.62	3.04
-10	(+14)	759	191	223	64	0.48	2.40	11.79	2.97	3.46

TEST CONDITIONS: @220V1200RPM		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)	191	48	56	38	0.30	0.60	5.03	1.27	1.48
-30	(-22)	248	62	73	44	0.35	0.78	5.64	1.42	1.65
-25	(-13)	322	81	94	51	0.40	1.01	6.38	1.61	1.87
-20	(- 4)	416	105	122	58	0.45	1.31	7.22	1.82	2.12
-15	(+ 5)	530	133	155	65	0.50	1.67	8.16	2.06	2.39
-10	(+14)	664	167	195	73	0.55	2.10	9.14	2.30	2.68

TEST CONDITIONS: @220V1200RPM		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)	138	35	40	37	0.29	0.43	3.76	0.95	1.10
-30	(-22)	193	49	57	45	0.35	0.61	4.36	1.10	1.28
-25	(-13)	266	67	78	53	0.42	0.84	5.03	1.27	1.47
-20	(- 4)	358	90	105	62	0.49	1.12	5.75	1.45	1.69
-15	(+ 5)	470	118	138	72	0.56	1.48	6.49	1.64	1.90
-10	(+14)	603	152	177	84	0.63	1.90	7.22	1.82	2.11

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]
-35	(-31)	166	42	49	27	0.20	0.52	6.32	1.59	1.85
-30	(-22)	249	63	73	35	0.27	0.78	7.10	1.79	2.08
-25	(-13)	328	83	96	40	0.31	1.03	8.13	2.05	2.38
-20	(- 4)	410	103	120	44	0.34	1.29	9.34	2.35	2.74
-15	(+ 5)	503	127	147	47	0.37	1.58	10.68	2.69	3.13
-10	(+14)	615	155	180	51	0.40	1.94	12.08	3.04	3.54

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V1600RPM		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)	179	45	52	31	0.25	0.56	5.52	1.39	1.62	
-30 (-22)	221	56	65	36	0.29	0.69	6.05	1.52	1.77	
-25 (-13)	275	69	81	41	0.33	0.86	6.82	1.72	2.00	
-20 (- 4)	348	88	102	45	0.36	1.09	7.78	1.96	2.28	
-15 (+ 5)	447	113	131	51	0.40	1.41	8.87	2.24	2.60	
-10 (+14)	579	146	170	58	0.45	1.83	10.02	2.52	2.94	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V1600RPM		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)	143	36	42	30	0.24	0.45	4.79	1.21	1.40	
-30 (-22)	181	46	53	36	0.29	0.57	5.18	1.31	1.52	
-25 (-13)	244	62	72	43	0.34	0.77	5.83	1.47	1.71	
-20 (- 4)	341	86	100	51	0.40	1.07	6.65	1.68	1.95	
-15 (+ 5)	480	121	141	62	0.48	1.51	7.61	1.92	2.23	
-10 (+14)	668	168	196	76	0.58	2.11	8.62	2.17	2.53	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°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)	225	57	66	35	0.26	0.70	6.38	1.61	1.87	
-30 (-22)	297	75	87	42	0.31	0.93	7.16	1.80	2.10	
-25 (-13)	387	98	114	48	0.36	1.22	8.14	2.05	2.39	
-20 (- 4)	496	125	145	53	0.40	1.56	9.31	2.35	2.73	
-15 (+ 5)	626	158	183	59	0.44	1.97	10.63	2.68	3.11	
-10 (+14)	777	196	228	64	0.48	2.45	12.07	3.04	3.54	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°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)	212	53	62	38	0.30	0.66	5.58	1.41	1.63	
-30 (-22)	275	69	81	44	0.35	0.86	6.25	1.58	1.83	
-25 (-13)	357	90	105	51	0.40	1.12	7.08	1.78	2.07	
-20 (- 4)	461	116	135	58	0.45	1.45	8.02	2.02	2.35	
-15 (+ 5)	587	148	172	65	0.50	1.85	9.06	2.28	2.65	
-10 (+14)	737	186	216	73	0.55	2.33	10.15	2.56	2.97	

E - PERFORMANCE - CURVES

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%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	168	42	49	37	0.29	0.53	4.57	1.15	1.34	
-30 (-22)	235	59	69	45	0.35	0.74	5.30	1.34	1.55	
-25 (-13)	323	81	95	53	0.42	1.01	6.11	1.54	1.79	
-20 (- 4)	435	110	127	62	0.49	1.37	6.98	1.76	2.05	
-15 (+ 5)	571	144	167	72	0.56	1.80	7.88	1.99	2.31	
-10 (+14)	733	185	215	84	0.63	2.31	8.77	2.21	2.57	

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%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	335	85	98	55	0.42	1.05	6.06	1.53	1.78	
-30 (-22)	444	112	130	64	0.47	1.39	6.96	1.76	2.04	
-25 (-13)	585	148	172	73	0.54	1.84	8.00	2.02	2.34	
-20 (- 4)	758	191	222	83	0.61	2.38	9.14	2.30	2.68	
-15 (+ 5)	962	242	282	93	0.68	3.03	10.36	2.61	3.04	
-10 (+14)	1195	301	350	103	0.76	3.77	11.63	2.93	3.41	

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%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	314	79	92	56	0.43	0.98	5.60	1.41	1.64	
-30 (-22)	410	103	120	66	0.50	1.29	6.27	1.58	1.84	
-25 (-13)	540	136	158	76	0.58	1.69	7.07	1.78	2.07	
-20 (- 4)	703	177	206	88	0.66	2.21	7.97	2.01	2.34	
-15 (+ 5)	898	226	263	100	0.75	2.83	8.95	2.26	2.62	
-10 (+14)	1125	283	330	113	0.84	3.55	9.98	2.51	2.92	

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%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	267	67	78	55	0.41	0.84	4.92	1.24	1.44	
-30 (-22)	359	90	105	66	0.50	1.13	5.49	1.38	1.61	
-25 (-13)	486	123	143	79	0.60	1.53	6.19	1.56	1.81	
-20 (- 4)	648	163	190	92	0.70	2.04	6.99	1.76	2.05	
-15 (+ 5)	844	213	247	107	0.81	2.66	7.86	1.98	2.30	
-10 (+14)	1072	270	314	122	0.91	3.38	8.78	2.21	2.57	

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]	[W/W]
-35 (-31)	479	121	140	82	0.58	1.50	5.89	1.48	1.73	
-30 (-22)	609	154	179	92	0.66	1.91	6.66	1.68	1.95	
-25 (-13)	759	191	222	101	0.74	2.38	7.52	1.89	2.20	
-20 (- 4)	938	236	275	110	0.83	2.95	8.47	2.14	2.48	
-15 (+ 5)	1158	292	339	121	0.91	3.64	9.53	2.40	2.79	
-10 (+14)	1430	360	419	133	1.00	4.51	10.71	2.70	3.14	

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]	[W/W]
-35 (-31)	463	117	136	85	0.61	1.45	5.40	1.36	1.58	
-30 (-22)	581	146	170	97	0.71	1.82	6.01	1.51	1.76	
-25 (-13)	713	180	209	107	0.80	2.24	6.69	1.68	1.96	
-20 (- 4)	871	220	255	118	0.89	2.74	7.45	1.88	2.18	
-15 (+ 5)	1067	269	313	129	0.98	3.36	8.30	2.09	2.43	
-10 (+14)	1310	330	384	141	1.07	4.13	9.25	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]	[W/W]
-35 (-31)	406	102	119	87	0.64	1.27	4.65	1.17	1.36	
-30 (-22)	534	135	156	101	0.74	1.67	5.27	1.33	1.54	
-25 (-13)	673	170	197	113	0.84	2.11	5.95	1.50	1.74	
-20 (- 4)	835	210	245	125	0.94	2.62	6.70	1.69	1.96	
-15 (+ 5)	1029	259	302	137	1.05	3.24	7.52	1.89	2.20	
-10 (+14)	1268	320	372	150	1.15	4.00	8.43	2.12	2.47	

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EUEM		
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 40° up + 45° 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 10° up + 24° to Back		
3.3 PROCESS	6.2 +0.05/+0.05	[mm]	(0.244" +0.002"/+0.002")
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		