COMPRESSOR DEFINITION

Designation	**VEM X11C+**
Nominal Voltage/Frequency	**230 V 40-150 Hz**
Engineering Number	**513906148**

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 Expantion device	Capillary tube		
8 Compressor cooling		Operating voltage range	
		50 Hz	60 Hz
8.1 LBP (32ºC Ambient temperature)	Static	187 to 255 V	187 to 255 V
8.2 LBP (43ºC Ambient temperature)	-	-	-
8.3 HBP (32ºC Ambient temperature)	-	-	-
8.4 HBP (43ºC Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	6.9	[kgf/cm²] (98 psig)	/ ºC - ºF
9.2 Peak	7.8	[kgf/cm²] (111 psig)	/ ºC - ºF
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/5	[hp]
2 Displacement	11.14	[cm³] (0.680 cu.in)
2.1 Bore [mm]	26.000	
2.2 Stroke [mm]	21.000	
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)	7.4	[kg] (16.31 lb.)
5 Nitrogen charge	-	[kgf/cm²]

C - ELECTRICAL 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	PFC CF02D01 M	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	SP(PFC CF02D01M)	
6 Start winding resistance	8.10	[Ω at 25ºC (77ºF)] +/- 8%
7 Run winding resistance	8.10	[Ω at 25ºC (77ºF)] +/- 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 - VDE	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS:			**ASHRAELBP32**		Evaporating temperature		**-23.3°C (-9.94°F)**	
@220V1200RPM			**Static**		(Condensing temperature		**54.4°C (129.92°F))**	
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
288	73	84	47	0.35	0.90	6.19	1.56	1.81

TEST CONDITIONS:			**ASHRAELBP32**		Evaporating temperature		**-23.3°C (-9.94°F)**	
@220V2000RPM			**Static**		(Condensing temperature		**54.4°C (129.92°F))**	
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
366	92	107	56	0.42	1.15	6.56	1.65	1.92

TEST CONDITIONS:			**ASHRAELBP32**		Evaporating temperature		**-23.3°C (-9.94°F)**	
@220V3000RPM			**Static**		(Condensing temperature		**54.4°C (129.92°F))**	
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
670	169	196	104	0.78	2.10	6.45	1.63	1.89

TEST CONDITIONS:			**ASHRAELBP32**		Evaporating temperature		**-23.3°C (-9.94°F)**	
@220V3900RPM			**Static**		(Condensing temperature		**54.4°C (129.92°F))**	
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
787	198	231	131	1.05	2.47	5.99	1.51	1.76

TEST CONDITIONS:			**ASHRAELBP32**		Evaporating temperature		**-23.3°C (-9.94°F)**	
@220V4300RPM			**Static**		(Condensing temperature		**54.4°C (129.92°F))**	
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
880	222	258	147	1.25	2.76	5.97	1.50	1.75

TEST CONDITIONS:			**ASHRAELBP32**		Evaporating temperature		**-23.3°C (-9.94°F)**	
@220V4500RPM			**Static**		(Condensing temperature		**54.4°C (129.92°F))**	
Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
911	230	267	155	1.34	2.86	5.88	1.48	1.72

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **35ºC (+95ºF))**
@220V1200RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	166	42	49	27	0.21	0.52	6.25	1.58	1.83
-30	**(-22)**	221	56	65	29	0.22	0.69	7.51	1.89	2.20
-25	**(-13)**	286	72	84	33	0.24	0.90	8.57	2.16	2.51
-20	**(- 4)**	364	92	107	38	0.27	1.14	9.57	2.41	2.80
-15	**(+ 5)**	456	115	134	43	0.30	1.44	10.63	2.68	3.12
-10	**(+14)**	566	143	166	48	0.33	1.79	11.91	3.00	3.49

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@220V1200RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	148	37	43	25	0.19	0.46	5.91	1.49	1.73
-30	**(-22)**	202	51	59	30	0.22	0.63	6.68	1.68	1.96
-25	**(-13)**	266	67	78	36	0.26	0.84	7.32	1.85	2.15
-20	**(- 4)**	343	87	101	43	0.30	1.08	7.96	2.01	2.33
-15	**(+ 5)**	435	110	128	50	0.34	1.37	8.74	2.20	2.56
-10	**(+14)**	545	137	160	56	0.38	1.72	9.79	2.47	2.87

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@220V1200RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	135	34	39	26	0.20	0.42	5.12	1.29	1.50
-30	**(-22)**	187	47	55	33	0.25	0.59	5.67	1.43	1.66
-25	**(-13)**	250	63	73	41	0.29	0.78	6.16	1.55	1.80
-20	**(- 4)**	325	82	95	48	0.34	1.02	6.70	1.69	1.96
-15	**(+ 5)**	416	105	122	55	0.38	1.31	7.45	1.88	2.18
-10	**(+14)**	525	132	154	61	0.42	1.66	8.52	2.15	2.50

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **65ºC (+149ºF))**
@220V1200RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	126	32	37	28	0.21	0.39	4.43	1.12	1.30
-30	**(-22)**	176	44	52	35	0.25	0.55	5.02	1.27	1.47
-25	**(-13)**	236	60	69	42	0.29	0.74	5.60	1.41	1.64
-20	**(- 4)**	310	78	91	49	0.34	0.97	6.31	1.59	1.85
-15	**(+ 5)**	398	100	117	55	0.37	1.25	7.28	1.84	2.13
-10	**(+14)**	505	127	148	59	0.40	1.59	8.65	2.18	2.53

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **35ºC (+95ºF))**
@220V2000RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	280	71	82	43	0.33	0.88	6.43	1.62	1.88
-30	**(-22)**	348	88	102	49	0.38	1.09	7.06	1.78	2.07
-25	**(-13)**	446	112	131	56	0.43	1.40	8.00	2.01	2.34
-20	**(- 4)**	575	145	169	63	0.48	1.81	9.15	2.31	2.68
-15	**(+ 5)**	736	186	216	71	0.54	2.32	10.43	2.63	3.06
-10	**(+14)**	930	234	272	79	0.60	2.93	11.76	2.96	3.44

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@220V2000RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	250	63	73	44	0.34	0.78	5.70	1.44	1.67
-30	**(-22)**	323	81	95	52	0.40	1.01	6.22	1.57	1.82
-25	**(-13)**	429	108	126	61	0.46	1.35	7.02	1.77	2.06
-20	**(- 4)**	568	143	167	70	0.53	1.79	8.03	2.02	2.35
-15	**(+ 5)**	742	187	218	81	0.61	2.34	9.15	2.31	2.68
-10	**(+14)**	951	240	279	93	0.70	3.00	10.29	2.59	3.01

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@220V2000RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	198	50	58	43	0.33	0.62	4.87	1.23	1.43
-30	**(-22)**	270	68	79	53	0.41	0.85	5.28	1.33	1.55
-25	**(-13)**	377	95	111	63	0.48	1.18	5.97	1.50	1.75
-20	**(- 4)**	521	131	153	76	0.57	1.64	6.84	1.72	2.00
-15	**(+ 5)**	702	177	206	89	0.68	2.21	7.81	1.97	2.29
-10	**(+14)**	920	232	270	104	0.80	2.90	8.78	2.21	2.57

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **65ºC (+149ºF))**
@220V2000RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	212	53	62	45	0.34	0.66	4.59	1.16	1.34
-30	**(-22)**	277	70	81	56	0.43	0.87	4.91	1.24	1.44
-25	**(-13)**	379	96	111	69	0.53	1.19	5.48	1.38	1.61
-20	**(- 4)**	521	131	153	84	0.64	1.64	6.23	1.57	1.83
-15	**(+ 5)**	702	177	206	100	0.77	2.21	7.06	1.78	2.07
-10	**(+14)**	923	232	270	118	0.92	2.91	7.87	1.98	2.31

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **35ºC (+95ºF))**
@220V3000RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	381	96	112	65	0.48	1.19	5.88	1.48	1.72
-30	**(-22)**	510	128	149	75	0.56	1.60	6.76	1.70	1.98
-25	**(-13)**	662	167	194	87	0.65	2.08	7.62	1.92	2.23
-20	**(- 4)**	843	213	247	100	0.77	2.65	8.48	2.14	2.48
-15	**(+ 5)**	1057	266	310	114	0.89	3.33	9.30	2.34	2.72
-10	**(+14)**	1309	330	383	130	1.01	4.13	10.08	2.54	2.95

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@220V3000RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	359	90	105	68	0.52	1.12	5.32	1.34	1.56
-30	**(-22)**	487	123	143	79	0.60	1.53	6.13	1.54	1.80
-25	**(-13)**	641	162	188	92	0.69	2.01	6.97	1.76	2.04
-20	**(- 4)**	825	208	242	105	0.80	2.59	7.82	1.97	2.29
-15	**(+ 5)**	1042	263	305	120	0.92	3.28	8.68	2.19	2.54
-10	**(+14)**	1299	327	381	136	1.04	4.10	9.52	2.40	2.79

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@220V3000RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	327	83	96	69	0.53	1.03	4.76	1.20	1.39
-30	**(-22)**	453	114	133	83	0.63	1.42	5.44	1.37	1.59
-25	**(-13)**	605	152	177	98	0.74	1.90	6.18	1.56	1.81
-20	**(- 4)**	788	199	231	113	0.87	2.48	6.97	1.76	2.04
-15	**(+ 5)**	1006	254	295	129	1.00	3.17	7.78	1.96	2.28
-10	**(+14)**	1265	319	371	147	1.13	3.99	8.62	2.17	2.53

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **65ºC (+149ºF))**
@220V3000RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	296	75	87	65	0.48	0.93	4.53	1.14	1.33
-30	**(-22)**	415	105	122	83	0.62	1.30	5.01	1.26	1.47
-25	**(-13)**	562	142	165	101	0.77	1.77	5.59	1.41	1.64
-20	**(- 4)**	742	187	217	119	0.93	2.33	6.23	1.57	1.83
-15	**(+ 5)**	959	242	281	138	1.09	3.02	6.94	1.75	2.03
-10	**(+14)**	1217	307	357	158	1.25	3.84	7.70	1.94	2.26

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **35ºC (+95ºF))**
@220V4500RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	542	137	159	99	0.73	1.70	5.44	1.37	1.59
-30	**(-22)**	661	166	194	108	0.95	2.07	6.13	1.54	1.80
-25	**(-13)**	866	218	254	129	1.19	2.71	6.70	1.69	1.96
-20	**(- 4)**	1129	285	331	155	1.40	3.55	7.27	1.83	2.13
-15	**(+ 5)**	1425	359	418	180	1.56	4.49	7.94	2.00	2.33
-10	**(+14)**	1726	435	506	197	1.65	5.44	8.81	2.22	2.58

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@220V4500RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	499	126	146	100	0.77	1.56	5.02	1.27	1.47
-30	**(-22)**	647	163	189	114	1.00	2.03	5.72	1.44	1.68
-25	**(-13)**	868	219	254	138	1.23	2.72	6.32	1.59	1.85
-20	**(- 4)**	1135	286	332	164	1.43	3.57	6.91	1.74	2.02
-15	**(+ 5)**	1421	358	416	188	1.57	4.47	7.60	1.92	2.23
-10	**(+14)**	1698	428	498	201	1.62	5.36	8.51	2.15	2.49

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@220V4500RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	455	115	133	101	0.77	1.42	4.53	1.14	1.33
-30	**(-22)**	620	156	182	120	1.03	1.94	5.19	1.31	1.52
-25	**(-13)**	845	213	247	147	1.28	2.65	5.74	1.45	1.68
-20	**(- 4)**	1103	278	323	174	1.49	3.47	6.30	1.59	1.85
-15	**(+ 5)**	1367	344	400	196	1.62	4.30	6.96	1.75	2.04
-10	**(+14)**	1609	406	472	207	1.66	5.08	7.85	1.98	2.30

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **65ºC (+149ºF))**
@220V4500RPM **Static**

Evaporating temperature		Cooling capacity (Qe) +/- 5%			Input power (We) +/- 5%	Electric current +/- 5%	Mass flow rate +/- 5%	Efficiency EER & COP +/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	**(-31)**	404	102	118	94	0.70	1.27	4.32	1.09	1.26
-30	**(-22)**	574	145	168	118	1.01	1.80	4.87	1.23	1.43
-25	**(-13)**	791	199	232	148	1.30	2.48	5.32	1.34	1.56
-20	**(- 4)**	1028	259	301	177	1.54	3.23	5.78	1.46	1.69
-15	**(+ 5)**	1259	317	369	198	1.69	3.96	6.36	1.60	1.86
-10	**(+14)**	1454	366	426	205	1.74	4.59	7.16	1.80	2.10

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EUEM		
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 79° up + 0° 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	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	Slanted 42º up + 45° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		