COMPRESSOR DEFINITION

Designation	**VES D13C**
Nominal Voltage/Frequency	**230 V 43-150 Hz**
Engineering Number	**513907428**

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-600a		
3 Nominal voltage and frequency	230 / 43-150	[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	-	-
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	1/4	[hp]
2 Displacement	13.27	[cm³] (0.810 cu.in)
2.1 Bore [mm]	26.000	
2.2 Stroke [mm]	25.000	
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)	6.75	[kg] (14.88 lb.)
5 Nitrogen charge	-	[kgf/cm²]

C - ELECTRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	230V 43-150 Hz 3~ (Three phase)	
2 Starting device type	Inverter	
2.1 Starting device	CF02B11 L XX XX/CF02B11 M XX XX/VCC31156UXXX	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	VCC31156XXXXX	
6 Start winding resistance	7.29	[Ω at 25ºC (77ºF)] +/- 8%
7 Run winding resistance	7.29	[Ω at 25ºC (77ºF)] +/- 8%
8 LRA - Locked rotor amperage (40/150 Hz)	2.90	[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	UL - VDE	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: **@115V1300RPM**			**ASHRAELBP32** **Static**		Evaporating temperature (Condensing temperature		**-23.3°C (-9.94°F)** **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]
348	88	102	54	0.78	1.09	6.44	1.62	1.89

TEST CONDITIONS: **@115V1600RPM**			**ASHRAELBP32** **Static**		Evaporating temperature (Condensing temperature		**-23.3°C (-9.94°F)** **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]
423	107	124	64	0.93	1.33	6.57	1.66	1.93

TEST CONDITIONS: **@115V2000RPM**			**ASHRAELBP32** **Static**		Evaporating temperature (Condensing temperature		**-23.3°C (-9.94°F)** **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]
539	136	158	82	1.14	1.69	6.58	1.66	1.93

TEST CONDITIONS: **@115V3000RPM**			**ASHRAELBP32** **Static**		Evaporating temperature (Condensing temperature		**-23.3°C (-9.94°F)** **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]
795	200	233	127	1.68	2.50	6.28	1.58	1.84

TEST CONDITIONS: **@115V4500RPM**			**ASHRAELBP32** **Static**		Evaporating temperature (Condensing temperature		**-23.3°C (-9.94°F)** **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]
1109	279	325	197	2.45	3.48	5.63	1.42	1.65

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **35ºC (+95ºF))**
@115V2000RPM **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)**	302	76	89	49	0.75	0.95	6.31	1.59	1.85
-30	**(-22)**	429	108	126	59	0.89	1.34	7.17	1.81	2.10
-25	**(-13)**	605	152	177	72	1.03	1.90	8.24	2.08	2.42
-20	**(- 4)**	810	204	237	84	1.17	2.55	9.43	2.38	2.76
-15	**(+ 5)**	1026	258	301	96	1.34	3.23	10.62	2.68	3.11
-10	**(+14)**	1232	310	361	106	1.55	3.88	11.74	2.96	3.44

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@115V2000RPM **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)**	284	72	83	51	0.77	0.89	5.65	1.42	1.66
-30	**(-22)**	360	91	106	60	0.90	1.13	6.23	1.57	1.82
-25	**(-13)**	501	126	147	72	1.04	1.57	7.04	1.77	2.06
-20	**(- 4)**	686	173	201	85	1.19	2.16	8.00	2.02	2.35
-15	**(+ 5)**	897	226	263	99	1.38	2.82	9.02	2.27	2.64
-10	**(+14)**	1114	281	326	111	1.62	3.51	9.99	2.52	2.93

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@115V2000RPM **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)**	285	72	84	53	0.78	0.89	5.20	1.31	1.52
-30	**(-22)**	322	81	94	61	0.92	1.01	5.53	1.39	1.62
-25	**(-13)**	439	111	129	74	1.08	1.38	6.14	1.55	1.80
-20	**(- 4)**	615	155	180	89	1.26	1.93	6.93	1.75	2.03
-15	**(+ 5)**	832	210	244	106	1.50	2.62	7.81	1.97	2.29
-10	**(+14)**	1070	270	314	123	1.79	3.38	8.69	2.19	2.55

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **35ºC (+95ºF))**
@115V3000RPM **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)**	463	117	136	77	1.15	1.45	5.98	1.51	1.75
-30	**(-22)**	609	153	178	91	1.29	1.91	6.69	1.69	1.96
-25	**(-13)**	794	200	233	106	1.47	2.49	7.50	1.89	2.20
-20	**(- 4)**	1019	257	299	122	1.69	3.20	8.35	2.10	2.45
-15	**(+ 5)**	1285	324	377	140	1.93	4.04	9.19	2.32	2.69
-10	**(+14)**	1594	402	467	160	2.21	5.03	9.98	2.51	2.92

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@115V3000RPM **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)**	429	108	126	79	1.12	1.34	5.47	1.38	1.60
-30	**(-22)**	573	144	168	95	1.30	1.80	6.07	1.53	1.78
-25	**(-13)**	756	191	222	112	1.51	2.37	6.78	1.71	1.99
-20	**(- 4)**	979	247	287	130	1.76	3.08	7.55	1.90	2.21
-15	**(+ 5)**	1243	313	364	149	2.04	3.91	8.34	2.10	2.44
-10	**(+14)**	1550	391	454	171	2.35	4.89	9.09	2.29	2.66

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@115V3000RPM **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)**	393	99	115	79	1.13	1.23	4.96	1.25	1.45
-30	**(-22)**	532	134	156	98	1.34	1.67	5.43	1.37	1.59
-25	**(-13)**	709	179	208	117	1.60	2.23	6.04	1.52	1.77
-20	**(- 4)**	926	233	271	138	1.88	2.91	6.73	1.70	1.97
-15	**(+ 5)**	1185	299	347	159	2.20	3.73	7.46	1.88	2.18
-10	**(+14)**	1487	375	436	182	2.54	4.69	8.17	2.06	2.39

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **35ºC (+95ºF))**
@115V4500RPM **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)**	594	150	174	114	1.56	1.86	5.21	1.31	1.53
-30	**(-22)**	768	194	225	136	1.90	2.41	5.70	1.44	1.67
-25	**(-13)**	1055	266	309	168	2.31	3.31	6.26	1.58	1.84
-20	**(- 4)**	1406	354	412	201	2.72	4.42	6.94	1.75	2.03
-15	**(+ 5)**	1777	448	521	229	3.04	5.59	7.78	1.96	2.28
-10	**(+14)**	2118	534	621	243	3.21	6.68	8.83	2.22	2.59

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@115V4500RPM **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)**	572	144	168	115	1.57	1.79	4.98	1.25	1.46
-30	**(-22)**	745	188	218	138	1.91	2.33	5.46	1.38	1.60
-25	**(-13)**	1021	257	299	171	2.33	3.20	5.97	1.50	1.75
-20	**(- 4)**	1352	341	396	206	2.74	4.25	6.54	1.65	1.92
-15	**(+ 5)**	1692	426	496	235	3.06	5.33	7.22	1.82	2.11
-10	**(+14)**	1994	503	584	250	3.24	6.29	8.05	2.03	2.36

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@115V4500RPM **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)**	497	125	146	114	1.58	1.56	4.39	1.11	1.29
-30	**(-22)**	682	172	200	139	1.93	2.14	4.97	1.25	1.46
-25	**(-13)**	961	242	282	174	2.35	3.02	5.51	1.39	1.62
-20	**(- 4)**	1286	324	377	211	2.77	4.04	6.07	1.53	1.78
-15	**(+ 5)**	1610	406	472	241	3.11	5.07	6.68	1.68	1.96
-10	**(+14)**	1886	475	553	257	3.29	5.95	7.39	1.86	2.17

F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard VES		
2 Tray holder	Yes		
3 Connectors			
3.1 SUCTION	6.1 +0.10/+0.00	[mm]	(0.240" +0.004"/+0.000")
3.1.1 Material	Copper		
3.1.2 Shape	Slanted 45° up + 15° 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 +0.08/-0.08	[mm]	(0.236" +0.003"/-0.003")
3.3.1 Material	Copper(OD)		
3.3.2 Shape	Slanted 47° up + 59° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		