COMPRESSOR DEFINITION

Designation	**VES A11C**
Nominal Voltage/Frequency	**230 V 40-150 Hz**
Engineering Number	**513907400**

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)	Static	187 to 255 V	187 to 255 V
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	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/cm²]

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	INVERTER VES 2456X	
6 Start winding resistance	13.40	[Ω at 25ºC (77ºF)] +/- 8%
7 Run winding resistance	13.40	[Ω at 25ºC (77ºF)] +/- 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**			**CECOMAFLBP** **Static**		Evaporating temperature (Condensing temperature		**-25°C (-13°F)** **55°C (131°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]
219	55	64	43	0.32	0.84	5.08	1.28	1.49

TEST CONDITIONS: **@220V1600RPM**			**CECOMAFLBP** **Static**		Evaporating temperature (Condensing temperature		**-25°C (-13°F)** **55°C (131°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]
273	69	80	53	0.39	1.04	5.15	1.30	1.51

TEST CONDITIONS: **@220V2000RPM**			**CECOMAFLBP** **Static**		Evaporating temperature (Condensing temperature		**-25°C (-13°F)** **55°C (131°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]
348	88	102	67	0.49	1.33	5.18	1.31	1.52

TEST CONDITIONS: **@220V3000RPM**			**CECOMAFLBP** **Static**		Evaporating temperature (Condensing temperature		**-25°C (-13°F)** **55°C (131°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]
528	133	155	104	0.74	2.01	5.06	1.28	1.48

TEST CONDITIONS: **@220V4500RPM**			**CECOMAFLBP** **Static**		Evaporating temperature (Condensing temperature		**-25°C (-13°F)** **55°C (131°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	151	1.00	2.72	4.72	1.19	1.38

E - PERFORMANCE - CURVES

TEST CONDITIONS: **CECOMAF** (Condensing temperature **35ºC (+95ºF))**
@220V1300RPM **Static**

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)**	174	44	51	28	0.22	0.56	6.15	1.55	1.80
-30	**(-22)**	231	58	68	33	0.26	0.74	6.98	1.76	2.05
-25	**(-13)**	302	76	88	38	0.29	0.97	7.88	1.99	2.31
-20	**(- 4)**	387	97	113	44	0.33	1.24	8.90	2.24	2.61
-15	**(+ 5)**	488	123	143	49	0.36	1.57	10.09	2.54	2.96
-10	**(+14)**	607	153	178	53	0.39	1.96	11.49	2.89	3.37

TEST CONDITIONS: **CECOMAF** (Condensing temperature **45ºC (+113ºF))**
@220V1300RPM **Static**

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)**	147	37	43	29	0.23	0.51	5.04	1.27	1.48
-30	**(-22)**	199	50	58	35	0.27	0.69	5.71	1.44	1.67
-25	**(-13)**	262	66	77	41	0.32	0.91	6.38	1.61	1.87
-20	**(- 4)**	340	86	100	48	0.36	1.18	7.12	1.79	2.08
-15	**(+ 5)**	432	109	127	54	0.40	1.51	7.95	2.00	2.33
-10	**(+14)**	541	136	158	60	0.44	1.89	8.94	2.25	2.62

TEST CONDITIONS: **CECOMAF** (Condensing temperature **55ºC (+131ºF))**
@220V1300RPM **Static**

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)**	119	30	35	30	0.23	0.45	3.94	0.99	1.16
-30	**(-22)**	164	41	48	36	0.27	0.62	4.54	1.14	1.33
-25	**(-13)**	219	55	64	43	0.32	0.84	5.08	1.28	1.49
-20	**(- 4)**	287	72	84	51	0.37	1.10	5.61	1.41	1.64
-15	**(+ 5)**	369	93	108	60	0.43	1.41	6.18	1.56	1.81
-10	**(+14)**	466	117	137	68	0.48	1.79	6.84	1.72	2.01

TEST CONDITIONS: **CECOMAF** (Condensing temperature **35ºC (+95ºF))**
@220V1600RPM **Static**

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)**	210	53	62	35	0.27	0.67	6.10	1.54	1.79
-30	**(-22)**	283	71	83	41	0.31	0.91	6.92	1.74	2.03
-25	**(-13)**	372	94	109	47	0.36	1.20	7.82	1.97	2.29
-20	**(- 4)**	480	121	141	54	0.40	1.54	8.86	2.23	2.60
-15	**(+ 5)**	608	153	178	61	0.44	1.96	10.05	2.53	2.94
-10	**(+14)**	759	191	222	67	0.48	2.45	11.44	2.88	3.35

E - PERFORMANCE - CURVES

TEST CONDITIONS: **CECOMAF** (Condensing temperature **45ºC (+113ºF))**
@220V1600RPM **Static**

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)**	184	46	54	36	0.29	0.64	5.07	1.28	1.49
-30	**(-22)**	246	62	72	43	0.33	0.86	5.70	1.44	1.67
-25	**(-13)**	324	82	95	51	0.38	1.13	6.35	1.60	1.86
-20	**(- 4)**	419	106	123	59	0.43	1.46	7.08	1.78	2.07
-15	**(+ 5)**	534	135	157	67	0.48	1.87	7.91	1.99	2.32
-10	**(+14)**	670	169	196	75	0.53	2.34	8.89	2.24	2.60

TEST CONDITIONS: **CECOMAF** (Condensing temperature **55ºC (+131ºF))**
@220V1600RPM **Static**

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)**	152	38	45	37	0.29	0.58	4.07	1.03	1.19
-30	**(-22)**	205	52	60	45	0.34	0.78	4.62	1.16	1.35
-25	**(-13)**	273	69	80	53	0.39	1.04	5.15	1.30	1.51
-20	**(- 4)**	358	90	105	63	0.46	1.37	5.69	1.43	1.67
-15	**(+ 5)**	461	116	135	73	0.52	1.76	6.28	1.58	1.84
-10	**(+14)**	583	147	171	84	0.59	2.24	6.97	1.76	2.04

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

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)**	266	67	78	45	0.33	0.85	5.97	1.50	1.75
-30	**(-22)**	354	89	104	52	0.38	1.14	6.79	1.71	1.99
-25	**(-13)**	465	117	136	60	0.44	1.49	7.69	1.94	2.25
-20	**(- 4)**	600	151	176	69	0.50	1.93	8.69	2.19	2.55
-15	**(+ 5)**	760	192	223	78	0.55	2.45	9.82	2.48	2.88
-10	**(+14)**	947	239	277	85	0.60	3.05	11.13	2.80	3.26

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

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)**	229	58	67	46	0.34	0.80	4.99	1.26	1.46
-30	**(-22)**	308	78	90	55	0.40	1.07	5.65	1.42	1.66
-25	**(-13)**	407	103	119	64	0.47	1.42	6.34	1.60	1.86
-20	**(- 4)**	529	133	155	75	0.54	1.84	7.07	1.78	2.07
-15	**(+ 5)**	673	170	197	85	0.61	2.35	7.90	1.99	2.32
-10	**(+14)**	842	212	247	95	0.67	2.95	8.85	2.23	2.59

E - PERFORMANCE - CURVES

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

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)**	189	48	55	47	0.35	0.72	4.03	1.02	1.18
-30	**(-22)**	259	65	76	56	0.41	0.99	4.62	1.16	1.35
-25	**(-13)**	348	88	102	67	0.49	1.33	5.18	1.31	1.52
-20	**(- 4)**	458	115	134	80	0.57	1.75	5.76	1.45	1.69
-15	**(+ 5)**	589	148	173	92	0.65	2.25	6.38	1.61	1.87
-10	**(+14)**	742	187	217	105	0.73	2.85	7.07	1.78	2.07

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

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)**	405	102	119	70	0.52	1.30	5.80	1.46	1.70
-30	**(-22)**	538	136	158	82	0.59	1.73	6.60	1.66	1.93
-25	**(-13)**	704	177	206	95	0.68	2.26	7.41	1.87	2.17
-20	**(- 4)**	904	228	265	109	0.78	2.91	8.26	2.08	2.42
-15	**(+ 5)**	1142	288	335	125	0.87	3.67	9.15	2.31	2.68
-10	**(+14)**	1419	357	416	140	0.97	4.58	10.10	2.54	2.96

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

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)**	342	86	100	71	0.52	1.19	4.80	1.21	1.41
-30	**(-22)**	464	117	136	85	0.61	1.61	5.46	1.38	1.60
-25	**(-13)**	615	155	180	100	0.71	2.14	6.12	1.54	1.79
-20	**(- 4)**	796	201	233	117	0.82	2.78	6.80	1.71	1.99
-15	**(+ 5)**	1010	254	296	134	0.94	3.53	7.52	1.89	2.20
-10	**(+14)**	1259	317	369	152	1.05	4.41	8.27	2.09	2.42

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

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)**	280	70	82	70	0.52	1.06	3.98	1.00	1.16
-30	**(-22)**	392	99	115	87	0.62	1.49	4.52	1.14	1.32
-25	**(-13)**	528	133	155	104	0.74	2.01	5.06	1.28	1.48
-20	**(- 4)**	690	174	202	123	0.86	2.63	5.61	1.41	1.64
-15	**(+ 5)**	880	222	258	143	0.99	3.37	6.18	1.56	1.81
-10	**(+14)**	1101	278	323	163	1.12	4.23	6.78	1.71	1.99

E - PERFORMANCE - CURVES

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

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)**	556	140	163	105	0.74	1.78	5.27	1.33	1.54
-30	**(-22)**	722	182	212	121	0.81	2.33	5.94	1.50	1.74
-25	**(-13)**	913	230	268	137	0.91	2.94	6.65	1.68	1.95
-20	**(- 4)**	1155	291	339	156	1.02	3.71	7.43	1.87	2.18
-15	**(+ 5)**	1477	372	433	177	1.11	4.74	8.33	2.10	2.44
-10	**(+14)**	1905	480	558	202	1.18	6.13	9.38	2.36	2.75

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

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)**	484	122	142	108	0.77	1.68	4.49	1.13	1.32
-30	**(-22)**	637	160	187	126	0.85	2.22	5.05	1.27	1.48
-25	**(-13)**	810	204	237	144	0.96	2.82	5.62	1.42	1.65
-20	**(- 4)**	1032	260	302	165	1.07	3.59	6.26	1.58	1.83
-15	**(+ 5)**	1328	335	389	190	1.17	4.64	6.98	1.76	2.05
-10	**(+14)**	1728	436	506	219	1.23	6.05	7.85	1.98	2.30

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

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)**	423	107	124	111	0.78	1.61	3.79	0.96	1.11
-30	**(-22)**	560	141	164	130	0.88	2.12	4.25	1.07	1.25
-25	**(-13)**	714	180	209	151	1.00	2.72	4.72	1.19	1.38
-20	**(- 4)**	912	230	267	176	1.11	3.49	5.22	1.32	1.53
-15	**(+ 5)**	1181	298	346	204	1.21	4.53	5.81	1.46	1.70
-10	**(+14)**	1550	391	454	238	1.26	5.96	6.50	1.64	1.91

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal VES		
2 Tray holder	No		
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 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 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 47° up + 59° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		