COMPRESSOR DEFINITION

Designation	**VES A9C**
Nominal Voltage/Frequency	**230 V 40-150 Hz**
Engineering Number	**513907125**

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	9.04	[cm³] (0.552 cu.in)
2.1 Bore [mm]	24.000	
2.2 Stroke [mm]	20.000	
3 Lubricant charge	200	[ml] (6.76 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	6.11	[kg] (13.47 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	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	11.50	[Ω at 25ºC (77ºF)] +/- 8%
7 Run winding resistance	11.50	[Ω at 25ºC (77ºF)] +/- 8%
8 LRA - Locked rotor amperage (40/150 Hz)	2.10/2.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (40/150 Hz)	2.10/2.10	[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: **@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]
168	42	49	36	0.30	0.64	4.71	1.19	1.38

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]
209	53	61	42	0.35	0.80	4.95	1.25	1.45

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]
264	67	77	53	0.43	1.01	5.02	1.27	1.47

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]
404	102	118	81	0.62	1.54	5.01	1.26	1.47

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]
573	144	168	124	0.95	2.18	4.61	1.16	1.35

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)**	134	34	39	24	0.21	0.43	5.67	1.43	1.66
-30	**(-22)**	177	45	52	27	0.24	0.57	6.52	1.64	1.91
-25	**(-13)**	232	58	68	31	0.28	0.74	7.35	1.85	2.15
-20	**(- 4)**	300	75	88	36	0.32	0.96	8.26	2.08	2.42
-15	**(+ 5)**	381	96	112	41	0.35	1.23	9.35	2.36	2.74
-10	**(+14)**	478	120	140	45	0.38	1.54	10.70	2.70	3.13

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)**	110	28	32	23	0.21	0.38	4.79	1.21	1.40
-30	**(-22)**	153	38	45	28	0.25	0.53	5.38	1.36	1.58
-25	**(-13)**	205	52	60	35	0.29	0.72	5.91	1.49	1.73
-20	**(- 4)**	270	68	79	41	0.34	0.94	6.46	1.63	1.89
-15	**(+ 5)**	347	87	102	48	0.39	1.21	7.14	1.80	2.09
-10	**(+14)**	438	110	128	54	0.44	1.53	8.02	2.02	2.35

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)**	91	23	27	24	0.21	0.35	3.72	0.94	1.09
-30	**(-22)**	125	32	37	29	0.25	0.48	4.27	1.08	1.25
-25	**(-13)**	168	42	49	36	0.30	0.64	4.70	1.18	1.38
-20	**(- 4)**	222	56	65	44	0.37	0.85	5.10	1.28	1.49
-15	**(+ 5)**	287	72	84	52	0.44	1.10	5.56	1.40	1.63
-10	**(+14)**	364	92	107	59	0.52	1.40	6.19	1.56	1.81

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)**	158	40	46	28	0.24	0.50	5.73	1.44	1.68
-30	**(-22)**	212	53	62	33	0.28	0.68	6.53	1.64	1.91
-25	**(-13)**	280	71	82	38	0.32	0.90	7.40	1.86	2.17
-20	**(- 4)**	365	92	107	43	0.36	1.17	8.41	2.12	2.46
-15	**(+ 5)**	468	118	137	49	0.40	1.50	9.59	2.42	2.81
-10	**(+14)**	590	149	173	54	0.44	1.90	10.99	2.77	3.22

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)**	144	36	42	29	0.27	0.50	4.94	1.25	1.45
-30	**(-22)**	191	48	56	35	0.31	0.67	5.53	1.39	1.62
-25	**(-13)**	250	63	73	41	0.35	0.87	6.11	1.54	1.79
-20	**(- 4)**	324	82	95	48	0.40	1.13	6.74	1.70	1.98
-15	**(+ 5)**	412	104	121	55	0.44	1.44	7.47	1.88	2.19
-10	**(+14)**	519	131	152	62	0.49	1.82	8.34	2.10	2.44

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)**	109	28	32	29	0.25	0.42	3.82	0.96	1.12
-30	**(-22)**	154	39	45	35	0.29	0.59	4.43	1.12	1.30
-25	**(-13)**	209	53	61	42	0.35	0.80	4.95	1.25	1.45
-20	**(- 4)**	276	69	81	51	0.41	1.05	5.44	1.37	1.59
-15	**(+ 5)**	356	90	104	60	0.48	1.36	5.93	1.50	1.74
-10	**(+14)**	451	114	132	69	0.55	1.73	6.49	1.64	1.90

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)**	201	51	59	35	0.30	0.64	5.75	1.45	1.69
-30	**(-22)**	275	69	81	41	0.34	0.88	6.61	1.67	1.94
-25	**(-13)**	365	92	107	48	0.38	1.17	7.53	1.90	2.21
-20	**(- 4)**	471	119	138	55	0.43	1.51	8.55	2.15	2.50
-15	**(+ 5)**	596	150	175	62	0.49	1.92	9.68	2.44	2.84
-10	**(+14)**	741	187	217	68	0.54	2.39	10.97	2.76	3.21

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)**	173	44	51	36	0.29	0.60	4.85	1.22	1.42
-30	**(-22)**	239	60	70	43	0.35	0.83	5.51	1.39	1.61
-25	**(-13)**	318	80	93	51	0.41	1.11	6.18	1.56	1.81
-20	**(- 4)**	414	104	121	60	0.47	1.44	6.89	1.74	2.02
-15	**(+ 5)**	528	133	155	68	0.54	1.84	7.69	1.94	2.25
-10	**(+14)**	663	167	194	77	0.61	2.32	8.59	2.16	2.52

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)**	143	36	42	36	0.29	0.54	3.96	1.00	1.16
-30	**(-22)**	196	49	58	44	0.36	0.75	4.50	1.14	1.32
-25	**(-13)**	264	67	77	53	0.43	1.01	5.02	1.27	1.47
-20	**(- 4)**	348	88	102	63	0.50	1.33	5.54	1.40	1.62
-15	**(+ 5)**	450	113	132	74	0.58	1.72	6.09	1.53	1.78
-10	**(+14)**	573	144	168	85	0.66	2.20	6.70	1.69	1.96

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)**	312	79	91	54	0.42	1.00	5.82	1.47	1.71
-30	**(-22)**	422	106	124	64	0.49	1.35	6.62	1.67	1.94
-25	**(-13)**	556	140	163	75	0.57	1.79	7.44	1.88	2.18
-20	**(- 4)**	716	181	210	86	0.66	2.30	8.32	2.10	2.44
-15	**(+ 5)**	907	229	266	98	0.75	2.92	9.28	2.34	2.72
-10	**(+14)**	1131	285	331	109	0.84	3.65	10.35	2.61	3.03

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)**	263	66	77	54	0.43	0.91	4.83	1.22	1.41
-30	**(-22)**	360	91	105	66	0.51	1.25	5.46	1.38	1.60
-25	**(-13)**	478	121	140	78	0.61	1.66	6.09	1.54	1.79
-20	**(- 4)**	622	157	182	92	0.71	2.17	6.76	1.70	1.98
-15	**(+ 5)**	795	200	233	106	0.81	2.78	7.48	1.89	2.19
-10	**(+14)**	999	252	293	120	0.92	3.50	8.30	2.09	2.43

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)**	218	55	64	55	0.43	0.83	3.98	1.00	1.17
-30	**(-22)**	301	76	88	67	0.52	1.14	4.51	1.14	1.32
-25	**(-13)**	404	102	118	81	0.62	1.54	5.01	1.26	1.47
-20	**(- 4)**	531	134	156	96	0.74	2.03	5.52	1.39	1.62
-15	**(+ 5)**	685	173	201	113	0.86	2.62	6.07	1.53	1.78
-10	**(+14)**	869	219	255	130	0.98	3.34	6.70	1.69	1.96

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)**	463	117	136	87	0.67	1.48	5.35	1.35	1.57
-30	**(-22)**	603	152	177	100	0.74	1.94	6.02	1.52	1.76
-25	**(-13)**	774	195	227	115	0.85	2.49	6.72	1.69	1.97
-20	**(- 4)**	984	248	288	132	0.99	3.16	7.46	1.88	2.19
-15	**(+ 5)**	1240	313	363	150	1.14	3.99	8.27	2.08	2.42
-10	**(+14)**	1552	391	455	170	1.28	5.00	9.15	2.31	2.68

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)**	400	101	117	89	0.69	1.39	4.47	1.13	1.31
-30	**(-22)**	524	132	154	105	0.79	1.82	5.00	1.26	1.47
-25	**(-13)**	676	170	198	122	0.93	2.35	5.57	1.40	1.63
-20	**(- 4)**	863	217	253	140	1.07	3.01	6.18	1.56	1.81
-15	**(+ 5)**	1093	275	320	160	1.21	3.82	6.86	1.73	2.01
-10	**(+14)**	1374	346	403	180	1.33	4.81	7.62	1.92	2.23

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)**	317	80	93	86	0.67	1.21	3.68	0.93	1.08
-30	**(-22)**	433	109	127	104	0.80	1.65	4.13	1.04	1.21
-25	**(-13)**	573	144	168	124	0.95	2.18	4.61	1.16	1.35
-20	**(- 4)**	745	188	218	145	1.10	2.84	5.14	1.30	1.51
-15	**(+ 5)**	956	241	280	167	1.22	3.66	5.74	1.45	1.68
-10	**(+14)**	1216	306	356	189	1.32	4.67	6.42	1.62	1.88

F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard VES		
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 45° up + 49° to Back		
3.2 DISCHARGE	4.2 +0.10/-0.05	[mm]	(0.165" +0.004"/-0.002")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted 47° 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		