COMPRESSOR DEFINITION

Designation	**VES A7H**
Nominal Voltage/Frequency	**230 V 46-133 Hz**
Engineering Number	**513907192**

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	230 / 46-133	[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	14.2	[kgf/cm²] (202 psig)	/ ºC - ºF
9.2 Peak	15.9	[kgf/cm²] (226 psig)	/ ºC - ºF
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation		[hp]
2 Displacement	7.15	[cm³] (0.436 cu.in)
2.1 Bore [mm]	22.500	
2.2 Stroke [mm]	18.000	
3 Lubricant charge	190	[ml] (6.42 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO10	
4 Weight (with oil charge)	6.6	[kg] (14.55 lb.)
5 Nitrogen charge	-	[kgf/cm²]

C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	230 V 46-133 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	VCC31156XXXXX	
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 - UL	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: **@115V1400RPM**			**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]
332	84	97	59	0.87	1.89	5.63	1.42	1.65

TEST CONDITIONS: **@115V1600RPM**			**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]
363	91	106	63	0.93	2.06	5.76	1.45	1.69

TEST CONDITIONS: **@115V2000RPM**			**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]
457	115	134	80	1.11	2.60	5.71	1.44	1.67

TEST CONDITIONS: **@115V3000RPM**			**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]
680	171	199	120	1.64	3.86	5.67	1.43	1.66

TEST CONDITIONS: **@115V4000RPM**			**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]
849	214	249	155	2.07	4.82	5.48	1.38	1.61

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **35ºC (+95ºF))**
@115V1400RPM **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)**	193	49	56	33	0.49	1.09	5.84	1.47	1.71
-30	**(-22)**	264	67	77	40	0.58	1.50	6.56	1.65	1.92
-25	**(-13)**	356	90	104	48	0.68	2.02	7.44	1.87	2.18
-20	**(- 4)**	471	119	138	56	0.80	2.68	8.47	2.13	2.48
-15	**(+ 5)**	615	155	180	64	0.92	3.51	9.67	2.44	2.83
-10	**(+14)**	791	199	232	71	1.03	4.53	11.07	2.79	3.24

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@115V1400RPM **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)**	167	42	49	34	0.51	0.94	4.97	1.25	1.46
-30	**(-22)**	239	60	70	43	0.62	1.35	5.61	1.41	1.65
-25	**(-13)**	330	83	97	52	0.75	1.87	6.32	1.59	1.85
-20	**(- 4)**	443	112	130	62	0.89	2.52	7.10	1.79	2.08
-15	**(+ 5)**	583	147	171	73	1.04	3.33	7.98	2.01	2.34
-10	**(+14)**	754	190	221	84	1.17	4.32	8.96	2.26	2.63

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@115V1400RPM **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)**	138	35	40	33	0.49	0.78	4.17	1.05	1.22
-30	**(-22)**	210	53	61	43	0.63	1.19	4.83	1.22	1.41
-25	**(-13)**	299	75	88	55	0.80	1.70	5.47	1.38	1.60
-20	**(- 4)**	409	103	120	67	0.97	2.33	6.10	1.54	1.79
-15	**(+ 5)**	544	137	160	81	1.14	3.11	6.75	1.70	1.98
-10	**(+14)**	709	179	208	96	1.31	4.06	7.42	1.87	2.17

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **35ºC (+95ºF))**
@115V1600RPM **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)**	190	48	56	37	0.55	1.08	5.14	1.29	1.50
-30	**(-22)**	260	65	76	45	0.65	1.47	5.80	1.46	1.70
-25	**(-13)**	363	91	106	53	0.76	2.06	6.79	1.71	1.99
-20	**(- 4)**	497	125	146	61	0.88	2.83	8.03	2.02	2.35
-15	**(+ 5)**	662	167	194	70	0.99	3.78	9.47	2.39	2.77
-10	**(+14)**	854	215	250	77	1.10	4.89	11.04	2.78	3.23

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@115V1600RPM **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)**	193	49	57	38	0.56	1.09	5.07	1.28	1.49
-30	**(-22)**	258	65	75	47	0.69	1.46	5.55	1.40	1.63
-25	**(-13)**	353	89	103	56	0.82	2.00	6.26	1.58	1.83
-20	**(- 4)**	477	120	140	67	0.96	2.72	7.14	1.80	2.09
-15	**(+ 5)**	628	158	184	77	1.09	3.59	8.14	2.05	2.38
-10	**(+14)**	805	203	236	88	1.22	4.61	9.18	2.31	2.69

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@115V1600RPM **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	37	0.52	0.89	4.23	1.06	1.24
-30	**(-22)**	225	57	66	48	0.67	1.28	4.75	1.20	1.39
-25	**(-13)**	320	81	94	59	0.83	1.82	5.42	1.37	1.59
-20	**(- 4)**	442	111	129	72	0.99	2.52	6.17	1.56	1.81
-15	**(+ 5)**	588	148	172	85	1.16	3.36	6.95	1.75	2.04
-10	**(+14)**	757	191	222	99	1.32	4.34	7.70	1.94	2.26

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **35ºC (+95ºF))**
@115V2000RPM **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)**	276	69	81	49	0.67	1.56	5.67	1.43	1.66
-30	**(-22)**	377	95	111	59	0.80	2.14	6.40	1.61	1.87
-25	**(-13)**	502	127	147	69	0.93	2.85	7.24	1.83	2.12
-20	**(- 4)**	656	165	192	80	1.06	3.73	8.22	2.07	2.41
-15	**(+ 5)**	842	212	247	90	1.19	4.80	9.34	2.35	2.74
-10	**(+14)**	1064	268	312	100	1.31	6.10	10.62	2.68	3.11

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@115V2000RPM **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)**	242	61	71	49	0.67	1.37	4.94	1.25	1.45
-30	**(-22)**	340	86	100	61	0.82	1.93	5.58	1.41	1.64
-25	**(-13)**	464	117	136	73	0.98	2.63	6.29	1.59	1.84
-20	**(- 4)**	616	155	180	87	1.15	3.50	7.09	1.79	2.08
-15	**(+ 5)**	802	202	235	100	1.31	4.58	7.99	2.01	2.34
-10	**(+14)**	1025	258	300	114	1.48	5.88	9.00	2.27	2.64

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@115V2000RPM **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)**	199	50	58	47	0.64	1.13	4.21	1.06	1.24
-30	**(-22)**	289	73	85	60	0.81	1.64	4.82	1.21	1.41
-25	**(-13)**	404	102	118	75	0.99	2.29	5.45	1.37	1.60
-20	**(- 4)**	550	139	161	90	1.19	3.13	6.12	1.54	1.79
-15	**(+ 5)**	730	184	214	107	1.39	4.17	6.85	1.73	2.01
-10	**(+14)**	949	239	278	124	1.59	5.44	7.65	1.93	2.24

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **35ºC (+95ºF))**
@115V3000RPM **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	75	1.00	2.29	5.40	1.36	1.58
-30	**(-22)**	561	141	164	90	1.19	3.18	6.21	1.56	1.82
-25	**(-13)**	747	188	219	107	1.39	4.24	7.02	1.77	2.06
-20	**(- 4)**	974	245	285	124	1.59	5.54	7.88	1.99	2.31
-15	**(+ 5)**	1248	314	366	142	1.80	7.12	8.81	2.22	2.58
-10	**(+14)**	1579	398	463	160	2.03	9.05	9.86	2.48	2.89

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@115V3000RPM **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)**	352	89	103	74	0.99	1.99	4.74	1.20	1.39
-30	**(-22)**	506	127	148	93	1.22	2.87	5.46	1.38	1.60
-25	**(-13)**	689	174	202	112	1.45	3.91	6.16	1.55	1.80
-20	**(- 4)**	909	229	266	132	1.69	5.17	6.88	1.73	2.02
-15	**(+ 5)**	1175	296	344	153	1.94	6.71	7.66	1.93	2.24
-10	**(+14)**	1494	376	438	175	2.19	8.56	8.52	2.15	2.50

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@115V3000RPM **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)**	298	75	87	71	0.95	1.69	4.21	1.06	1.23
-30	**(-22)**	453	114	133	92	1.22	2.57	4.88	1.23	1.43
-25	**(-13)**	634	160	186	115	1.49	3.60	5.51	1.39	1.62
-20	**(- 4)**	849	214	249	138	1.77	4.83	6.14	1.55	1.80
-15	**(+ 5)**	1107	279	324	163	2.06	6.32	6.81	1.72	1.99
-10	**(+14)**	1415	357	415	188	2.35	8.11	7.54	1.90	2.21

E - PERFORMANCE - CURVES

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **35ºC (+95ºF))**
@115V4000RPM **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)**	503	127	147	98	1.29	2.84	5.10	1.29	1.49
-30	**(-22)**	694	175	203	118	1.53	3.93	5.88	1.48	1.72
-25	**(-13)**	936	236	274	141	1.82	5.31	6.61	1.67	1.94
-20	**(- 4)**	1227	309	360	167	2.12	6.98	7.35	1.85	2.15
-15	**(+ 5)**	1567	395	459	193	2.43	8.94	8.14	2.05	2.38
-10	**(+14)**	1953	492	572	217	2.71	11.19	9.01	2.27	2.64

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **45ºC (+113ºF))**
@115V4000RPM **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)**	436	110	128	96	1.26	2.47	4.56	1.15	1.34
-30	**(-22)**	616	155	181	118	1.52	3.49	5.24	1.32	1.54
-25	**(-13)**	845	213	248	144	1.84	4.80	5.88	1.48	1.72
-20	**(- 4)**	1122	283	329	172	2.17	6.38	6.53	1.65	1.91
-15	**(+ 5)**	1445	364	423	200	2.50	8.25	7.23	1.82	2.12
-10	**(+14)**	1813	457	531	226	2.81	10.39	8.02	2.02	2.35

TEST CONDITIONS: **ASHRAE32** (Condensing temperature **55ºC (+131ºF))**
@115V4000RPM **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)**	371	93	109	91	1.20	2.10	4.10	1.03	1.20
-30	**(-22)**	541	136	158	115	1.50	3.06	4.69	1.18	1.37
-25	**(-13)**	758	191	222	144	1.84	4.30	5.25	1.32	1.54
-20	**(- 4)**	1021	257	299	175	2.20	5.81	5.81	1.47	1.70
-15	**(+ 5)**	1329	335	389	206	2.57	7.58	6.43	1.62	1.88
-10	**(+14)**	1680	423	492	235	2.90	9.62	7.14	1.80	2.09

F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard 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 45° up + 15° to Back		
3.2 DISCHARGE	5.1 +0.10/+0.00	[mm]	(0.201" +0.004"/+0.000")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted 47° 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		