

COMPRESSOR DEFINITION

Designation	VES A6H
Nominal Voltage/Frequency	230 V 46-150 Hz
Engineering Number	513907420

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	230 / 46-150	[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 Expansion device	Capillary tube		
8 Compressor cooling		Operating voltage range	
		50 Hz	60 Hz
8.1 LBP (32°C Ambient temperature)	Static	-	-
8.2 LBP (43°C Ambient temperature)	-	-	-
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	14.2	[kgf/cm ²] (202 psig)	/ °C - °F
9.2 Peak	15.9	[kgf/cm ²] (226 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/6	[hp]
2 Displacement	5.96	[cm ³] (0.364 cu.in)
2.1 Bore [mm]	22.500	
2.2 Stroke [mm]	15.000	
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)	6.5	[kg] (14.33 lb.)
5 Nitrogen charge	-	[kgf/cm ²]

C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	230 V 46-150 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	VCC31156XXXXX	
6 Start winding resistance	13.40	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	13.40	[Ω at 25°C (77°F)] +/- 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]
254	64	74	45	0.78	1.44	5.61	1.41	1.64

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]
282	71	83	50	0.85	1.60	5.70	1.44	1.67

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]
363	91	106	64	1.00	2.06	5.70	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]
542	137	159	95	1.54	3.08	5.68	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]
696	175	204	126	1.97	3.95	5.53	1.39	1.62

TEST CONDITIONS: @115V4500RPM			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]
747	188	219	137	1.93	4.24	5.44	1.37	1.59

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V1400RPM		ASHRAE32 Static			(Condensing temperature 35°C (+95°F))					
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]
-35	(-31)	158	40	46	28	0.53	0.90	5.60	1.41	1.64
-30	(-22)	222	56	65	34	0.62	1.26	6.55	1.65	1.92
-25	(-13)	299	75	88	40	0.72	1.70	7.50	1.89	2.20
-20	(- 4)	395	99	116	46	0.83	2.25	8.53	2.15	2.50
-15	(+ 5)	513	129	150	53	0.93	2.93	9.73	2.45	2.85
-10	(+14)	658	166	193	59	1.03	3.77	11.20	2.82	3.28

TEST CONDITIONS: @115V1400RPM		ASHRAE32 Static			(Condensing temperature 45°C (+113°F))					
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]
-35	(-31)	131	33	38	28	0.51	0.74	4.80	1.21	1.41
-30	(-22)	192	48	56	34	0.62	1.09	5.64	1.42	1.65
-25	(-13)	267	67	78	41	0.75	1.52	6.43	1.62	1.88
-20	(- 4)	361	91	106	50	0.89	2.05	7.24	1.82	2.12
-15	(+ 5)	477	120	140	58	1.02	2.72	8.16	2.06	2.39
-10	(+14)	621	157	182	67	1.16	3.56	9.28	2.34	2.72

TEST CONDITIONS: @115V1400RPM		ASHRAE32 Static			(Condensing temperature 55°C (+131°F))					
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]
-35	(-31)	115	29	34	28	0.52	0.65	4.03	1.01	1.18
-30	(-22)	171	43	50	35	0.65	0.97	4.85	1.22	1.42
-25	(-13)	242	61	71	44	0.79	1.37	5.56	1.40	1.63
-20	(- 4)	331	83	97	53	0.95	1.89	6.23	1.57	1.83
-15	(+ 5)	444	112	130	64	1.11	2.53	6.95	1.75	2.04
-10	(+14)	584	147	171	75	1.27	3.35	7.80	1.97	2.29

TEST CONDITIONS: @115V1600RPM		ASHRAE32 Static			(Condensing temperature 35°C (+95°F))					
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]
-35	(-31)	180	45	53	31	0.59	1.02	5.72	1.44	1.67
-30	(-22)	248	63	73	38	0.70	1.41	6.51	1.64	1.91
-25	(-13)	330	83	97	45	0.81	1.87	7.42	1.87	2.17
-20	(- 4)	430	108	126	51	0.91	2.45	8.47	2.13	2.48
-15	(+ 5)	553	139	162	57	1.01	3.15	9.72	2.45	2.85
-10	(+14)	702	177	206	62	1.10	4.02	11.21	2.82	3.28

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@115V1600RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	144	36	42	30	0.55	0.82	4.80	1.21	1.41	
-30 (-22)	215	54	63	38	0.70	1.22	5.60	1.41	1.64	
-25 (-13)	298	75	87	46	0.83	1.69	6.41	1.62	1.88	
-20 (- 4)	397	100	116	54	0.97	2.26	7.28	1.83	2.13	
-15 (+ 5)	518	130	152	63	1.10	2.95	8.24	2.08	2.42	
-10 (+14)	663	167	194	71	1.23	3.80	9.36	2.36	2.74	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@115V1600RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	106	27	31	28	0.53	0.60	3.73	0.94	1.09	
-30 (-22)	178	45	52	38	0.69	1.01	4.65	1.17	1.36	
-25 (-13)	260	65	76	47	0.85	1.47	5.48	1.38	1.61	
-20 (- 4)	357	90	104	57	1.01	2.03	6.27	1.58	1.84	
-15 (+ 5)	473	119	139	67	1.17	2.70	7.07	1.78	2.07	
-10 (+14)	613	154	180	77	1.33	3.51	7.92	2.00	2.32	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@115V2000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	227	57	67	41	0.73	1.29	5.61	1.41	1.64	
-30 (-22)	312	79	91	47	0.86	1.77	6.56	1.65	1.92	
-25 (-13)	414	104	121	55	1.00	2.35	7.47	1.88	2.19	
-20 (- 4)	540	136	158	64	1.13	3.07	8.42	2.12	2.47	
-15 (+ 5)	693	175	203	73	1.26	3.96	9.52	2.40	2.79	
-10 (+14)	881	222	258	81	1.38	5.05	10.87	2.74	3.18	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@115V2000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	192	48	56	39	0.71	1.09	4.97	1.25	1.46	
-30 (-22)	274	69	80	48	0.87	1.55	5.70	1.44	1.67	
-25 (-13)	373	94	109	59	1.03	2.12	6.38	1.61	1.87	
-20 (- 4)	495	125	145	70	1.19	2.82	7.11	1.79	2.08	
-15 (+ 5)	646	163	189	81	1.36	3.68	7.99	2.01	2.34	
-10 (+14)	829	209	243	91	1.52	4.75	9.11	2.30	2.67	

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@115V2000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	158	40	46	38	0.70	0.89	4.10	1.03	1.20	
-30 (-22)	235	59	69	49	0.88	1.33	4.82	1.21	1.41	
-25 (-13)	329	83	96	60	1.06	1.87	5.48	1.38	1.61	
-20 (- 4)	445	112	130	72	1.25	2.53	6.20	1.56	1.82	
-15 (+ 5)	589	148	173	83	1.45	3.36	7.07	1.78	2.07	
-10 (+14)	765	193	224	93	1.64	4.39	8.19	2.06	2.40	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@115V3000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	325	82	95	60	1.06	1.84	5.38	1.35	1.58	
-30 (-22)	454	114	133	73	1.25	2.57	6.24	1.57	1.83	
-25 (-13)	613	155	180	86	1.45	3.48	7.14	1.80	2.09	
-20 (- 4)	807	203	236	100	1.66	4.59	8.11	2.04	2.38	
-15 (+ 5)	1037	261	304	113	1.85	5.92	9.16	2.31	2.69	
-10 (+14)	1307	329	383	127	2.03	7.49	10.33	2.60	3.03	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@115V3000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	279	70	82	60	1.05	1.58	4.70	1.18	1.38	
-30 (-22)	401	101	118	74	1.27	2.28	5.45	1.37	1.60	
-25 (-13)	556	140	163	89	1.51	3.16	6.23	1.57	1.83	
-20 (- 4)	747	188	219	106	1.75	4.25	7.06	1.78	2.07	
-15 (+ 5)	975	246	286	123	2.00	5.57	7.95	2.00	2.33	
-10 (+14)	1245	314	365	139	2.24	7.13	8.93	2.25	2.62	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@115V3000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	233	59	68	58	1.03	1.32	4.03	1.02	1.18	
-30 (-22)	345	87	101	73	1.27	1.96	4.73	1.19	1.39	
-25 (-13)	491	124	144	91	1.53	2.79	5.43	1.37	1.59	
-20 (- 4)	674	170	198	110	1.82	3.84	6.15	1.55	1.80	
-15 (+ 5)	897	226	263	129	2.10	5.12	6.92	1.74	2.03	
-10 (+14)	1162	293	341	150	2.38	6.66	7.76	1.96	2.27	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V4000RPM		ASHRAE32 Static			(Condensing temperature 35°C (+95°F))					
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)	413	104	121	84	1.43	2.33	4.88	1.23	1.43	
-30 (-22)	563	142	165	100	1.66	3.19	5.65	1.42	1.65	
-25 (-13)	747	188	219	116	1.91	4.24	6.44	1.62	1.89	
-20 (- 4)	975	246	286	134	2.17	5.55	7.28	1.83	2.13	
-15 (+ 5)	1257	317	368	154	2.44	7.18	8.16	2.06	2.39	
-10 (+14)	1602	404	469	176	2.72	9.18	9.09	2.29	2.66	

TEST CONDITIONS: @115V4000RPM		ASHRAE32 Static			(Condensing temperature 45°C (+113°F))					
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)	364	92	107	82	1.39	2.06	4.43	1.12	1.30	
-30 (-22)	525	132	154	101	1.66	2.97	5.19	1.31	1.52	
-25 (-13)	717	181	210	120	1.95	4.07	5.97	1.50	1.75	
-20 (- 4)	951	240	279	141	2.25	5.41	6.77	1.71	1.98	
-15 (+ 5)	1237	312	362	163	2.57	7.06	7.61	1.92	2.23	
-10 (+14)	1584	399	464	186	2.88	9.07	8.49	2.14	2.49	

TEST CONDITIONS: @115V4000RPM		ASHRAE32 Static			(Condensing temperature 55°C (+131°F))					
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)	268	67	78	71	1.22	1.51	3.78	0.95	1.11	
-30 (-22)	430	108	126	95	1.57	2.44	4.49	1.13	1.31	
-25 (-13)	621	157	182	119	1.92	3.53	5.20	1.31	1.52	
-20 (- 4)	852	215	250	144	2.28	4.85	5.93	1.49	1.74	
-15 (+ 5)	1132	285	332	170	2.66	6.46	6.68	1.68	1.96	
-10 (+14)	1471	371	431	197	3.03	8.43	7.47	1.88	2.19	

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal VES		
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 0° up + 29° 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	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.3.1 Material	Copper		
3.3.2 Shape	Slanted 0° up + 59° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		