

COMPRESSOR DEFINITION

Designation	VES A5C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	800KY02

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 Expansion device	Capillary tube		
8 Compressor cooling	Operating voltage range		
		50 Hz	60 Hz
8.1 LBP (32°C Ambient temperature)	Static	187 to 254 V	187 to 254 V
8.2 LBP (43°C Ambient temperature)	Static	-	-
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	6.9	[kgf/cm ²] (98 psig)	/ °C - °F
9.2 Peak	7.8	[kgf/cm ²] (111 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation		[hp]
2 Displacement	5.19	[cm ³] (0.317 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	15.000	
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)	6.1	[kg] (13.45 lb.)
5 Nitrogen charge	-	[kgf/cm ²]

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 25°C (77°F)] +/- 8%
7 Run winding resistance	11.50	[Ω at 25°C (77°F)] +/- 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]
10 FLA - Full Load Amperage HBP (40/150 Hz)	-	[A]
11 Approval boards certification	VDE	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V1300RPM			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]
112	28	33	19	0.18	0.35	5.77	1.45	1.69

TEST CONDITIONS: @220V1600RPM			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]
142	36	42	24	0.21	0.45	6.04	1.52	1.77

TEST CONDITIONS: @220V2000RPM			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]
182	46	53	30	0.25	0.57	6.11	1.54	1.79

TEST CONDITIONS: @220V3000RPM			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]
274	69	80	46	0.37	0.86	6.02	1.52	1.76

TEST CONDITIONS: @220V4500RPM			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]
400	101	117	71	0.56	1.26	5.63	1.42	1.65

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@220V1300RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	57	14	17	13	0.12	0.18	4.60	1.16	1.35	
-30 (-22)	90	23	26	15	0.14	0.28	6.02	1.52	1.76	
-25 (-13)	125	31	36	17	0.16	0.39	7.22	1.82	2.12	
-20 (- 4)	163	41	48	19	0.18	0.51	8.39	2.11	2.46	
-15 (+ 5)	210	53	62	22	0.20	0.66	9.71	2.45	2.84	
-10 (+14)	269	68	79	24	0.21	0.85	11.36	2.86	3.33	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V1300RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	49	12	14	13	0.12	0.15	3.92	0.99	1.15	
-30 (-22)	79	20	23	15	0.14	0.25	5.15	1.30	1.51	
-25 (-13)	111	28	33	18	0.17	0.35	6.13	1.54	1.80	
-20 (- 4)	148	37	43	21	0.19	0.46	7.02	1.77	2.06	
-15 (+ 5)	193	49	56	24	0.21	0.61	8.01	2.02	2.35	
-10 (+14)	250	63	73	27	0.23	0.79	9.28	2.34	2.72	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V1300RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	39	10	11	12	0.12	0.12	3.23	0.81	0.95	
-30 (-22)	67	17	20	15	0.14	0.21	4.44	1.12	1.30	
-25 (-13)	97	25	29	18	0.17	0.31	5.34	1.35	1.56	
-20 (- 4)	133	33	39	22	0.20	0.42	6.10	1.54	1.79	
-15 (+ 5)	177	45	52	26	0.23	0.56	6.92	1.74	2.03	
-10 (+14)	234	59	69	29	0.26	0.74	7.97	2.01	2.33	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@220V1600RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	78	20	23	16	0.15	0.24	5.01	1.26	1.47	
-30 (-22)	114	29	33	18	0.17	0.36	6.22	1.57	1.82	
-25 (-13)	156	39	46	21	0.19	0.49	7.40	1.87	2.17	
-20 (- 4)	206	52	60	24	0.21	0.65	8.64	2.18	2.53	
-15 (+ 5)	265	67	78	26	0.23	0.83	10.02	2.53	2.94	
-10 (+14)	337	85	99	29	0.25	1.06	11.66	2.94	3.42	

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V1600RPM		Static								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	64	16	19	15	0.14	0.20	4.23	1.07	1.24
-30	(-22)	100	25	29	18	0.17	0.31	5.39	1.36	1.58
-25	(-13)	141	35	41	22	0.19	0.44	6.43	1.62	1.88
-20	(- 4)	189	48	55	25	0.22	0.59	7.43	1.87	2.18
-15	(+ 5)	247	62	72	29	0.25	0.78	8.50	2.14	2.49
-10	(+14)	318	80	93	33	0.27	1.00	9.74	2.45	2.85

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V1600RPM		Static								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	51	13	15	15	0.14	0.16	3.46	0.87	1.01
-30	(-22)	86	22	25	18	0.17	0.27	4.68	1.18	1.37
-25	(-13)	126	32	37	22	0.20	0.40	5.68	1.43	1.66
-20	(- 4)	174	44	51	27	0.23	0.55	6.56	1.65	1.92
-15	(+ 5)	231	58	68	31	0.26	0.73	7.43	1.87	2.18
-10	(+14)	301	76	88	36	0.30	0.95	8.37	2.11	2.45

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@220V2000RPM		Static								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	103	26	30	20	0.18	0.32	5.27	1.33	1.54
-30	(-22)	145	37	43	23	0.21	0.46	6.32	1.59	1.85
-25	(-13)	197	50	58	27	0.23	0.62	7.42	1.87	2.17
-20	(- 4)	260	66	76	30	0.26	0.82	8.62	2.17	2.53
-15	(+ 5)	335	84	98	33	0.28	1.05	10.01	2.52	2.93
-10	(+14)	425	107	124	36	0.30	1.34	11.66	2.94	3.42

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V2000RPM		Static								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35	(-31)	84	21	25	19	0.17	0.26	4.46	1.12	1.31
-30	(-22)	128	32	37	23	0.20	0.40	5.53	1.39	1.62
-25	(-13)	180	45	53	27	0.24	0.56	6.54	1.65	1.92
-20	(- 4)	242	61	71	32	0.27	0.76	7.55	1.90	2.21
-15	(+ 5)	316	80	93	37	0.30	1.00	8.63	2.17	2.53
-10	(+14)	404	102	118	41	0.33	1.27	9.86	2.49	2.89

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V2000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	66	17	19	19	0.17	0.21	3.51	0.89	1.03	
-30 (-22)	110	28	32	23	0.20	0.34	4.72	1.19	1.38	
-25 (-13)	161	41	47	28	0.24	0.51	5.74	1.45	1.68	
-20 (- 4)	222	56	65	34	0.28	0.70	6.66	1.68	1.95	
-15 (+ 5)	293	74	86	39	0.32	0.92	7.55	1.90	2.21	
-10 (+14)	377	95	111	45	0.36	1.19	8.47	2.13	2.48	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@220V3000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	156	39	46	30	0.25	0.49	5.22	1.32	1.53	
-30 (-22)	221	56	65	35	0.29	0.69	6.23	1.57	1.83	
-25 (-13)	302	76	89	41	0.34	0.95	7.29	1.84	2.14	
-20 (- 4)	401	101	117	48	0.38	1.26	8.44	2.13	2.47	
-15 (+ 5)	516	130	151	53	0.42	1.62	9.74	2.45	2.85	
-10 (+14)	649	164	190	58	0.46	2.05	11.22	2.83	3.29	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V3000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	137	35	40	30	0.26	0.43	4.56	1.15	1.34	
-30 (-22)	198	50	58	36	0.30	0.62	5.51	1.39	1.61	
-25 (-13)	275	69	81	43	0.35	0.86	6.45	1.62	1.89	
-20 (- 4)	371	93	109	50	0.40	1.17	7.43	1.87	2.18	
-15 (+ 5)	485	122	142	57	0.45	1.53	8.50	2.14	2.49	
-10 (+14)	617	156	181	64	0.49	1.95	9.69	2.44	2.84	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V3000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	115	29	34	30	0.26	0.36	3.82	0.96	1.12	
-30 (-22)	169	43	50	36	0.30	0.53	4.78	1.20	1.40	
-25 (-13)	242	61	71	43	0.35	0.76	5.67	1.43	1.66	
-20 (- 4)	334	84	98	51	0.41	1.05	6.55	1.65	1.92	
-15 (+ 5)	445	112	130	60	0.47	1.40	7.46	1.88	2.18	
-10 (+14)	576	145	169	68	0.53	1.82	8.44	2.13	2.47	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V4500RPM		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)	226	57	66	47	0.38	0.71	4.77	1.20	1.40
-30	(-22)	320	81	94	56	0.44	1.00	5.72	1.44	1.68
-25	(-13)	430	108	126	65	0.50	1.35	6.64	1.67	1.95
-20	(- 4)	564	142	165	74	0.57	1.77	7.60	1.92	2.23
-15	(+ 5)	728	184	213	84	0.64	2.29	8.69	2.19	2.55
-10	(+14)	929	234	272	93	0.70	2.93	9.99	2.52	2.93

TEST CONDITIONS: @220V4500RPM		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)	196	49	57	49	0.39	0.61	4.02	1.01	1.18
-30	(-22)	289	73	85	57	0.45	0.91	5.04	1.27	1.48
-25	(-13)	397	100	116	67	0.52	1.25	5.95	1.50	1.74
-20	(- 4)	527	133	154	77	0.60	1.66	6.82	1.72	2.00
-15	(+ 5)	686	173	201	88	0.68	2.16	7.74	1.95	2.27
-10	(+14)	880	222	258	100	0.75	2.78	8.79	2.21	2.57

TEST CONDITIONS: @220V4500RPM		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)	155	39	46	48	0.38	0.49	3.16	0.80	0.93
-30	(-22)	250	63	73	57	0.45	0.78	4.34	1.09	1.27
-25	(-13)	359	90	105	68	0.53	1.13	5.31	1.34	1.56
-20	(- 4)	487	123	143	79	0.62	1.53	6.17	1.55	1.81
-15	(+ 5)	643	162	188	92	0.72	2.02	6.99	1.76	2.05
-10	(+14)	832	210	244	106	0.81	2.63	7.85	1.98	2.30

F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard		
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	4.94 +0.08/-0.08	[mm]	(0.194" +0.003"/-0.003")
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		