

### COMPRESSOR DEFINITION

Designation	VES D11C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	513907356

### 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	-	-
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	6.9	[kgf/cm <sup>2</sup> ] (98 psig)	/ °C - °F
9.2 Peak	7.8	[kgf/cm <sup>2</sup> ] (111 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/4	[hp]
2 Displacement	11.14	[cm <sup>3</sup> ] (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)	6.79	[kg] (14.97 lb.)
5 Nitrogen charge	-	[kgf/cm <sup>2</sup> ]

### 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	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	VCC3 1156 XX	
6 Start winding resistance		[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance		[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (40/150 Hz)	-	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (40/150 Hz)	-	[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 - UL	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: <b>@115V1300RPM</b>			<b>ASHRAELBP32</b> <b>Static</b>		Evaporating temperature (Condensing temperature)		<b>-23.3°C (-9.94°F)</b> <b>54.4°C (129.92°F)</b>	
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]
294	74	86	45	0.66	0.92	6.59	1.66	1.93

TEST CONDITIONS: <b>@115V1600RPM</b>			<b>ASHRAELBP32</b> <b>Static</b>		Evaporating temperature (Condensing temperature)		<b>-23.3°C (-9.94°F)</b> <b>54.4°C (129.92°F)</b>	
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]
366	92	107	55	0.80	1.15	6.69	1.69	1.96

TEST CONDITIONS: <b>@115V2000RPM</b>			<b>ASHRAELBP32</b> <b>Static</b>		Evaporating temperature (Condensing temperature)		<b>-23.3°C (-9.94°F)</b> <b>54.4°C (129.92°F)</b>	
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]
467	118	137	69	1.02	1.47	6.75	1.70	1.98

TEST CONDITIONS: <b>@115V3000RPM</b>			<b>ASHRAELBP32</b> <b>Static</b>		Evaporating temperature (Condensing temperature)		<b>-23.3°C (-9.94°F)</b> <b>54.4°C (129.92°F)</b>	
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]
707	178	207	108	1.56	2.22	6.53	1.65	1.91

TEST CONDITIONS: <b>@115V4500RPM</b>			<b>ASHRAELBP32</b> <b>Static</b>		Evaporating temperature (Condensing temperature)		<b>-23.3°C (-9.94°F)</b> <b>54.4°C (129.92°F)</b>	
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]
942	237	276	156	2.08	2.96	6.06	1.53	1.78

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V1300RPM		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]
-35	(-31)	177	45	52	28	0.44	0.56	6.43	1.62	1.88
-30	(-22)	237	60	69	32	0.51	0.74	7.30	1.84	2.14
-25	(-13)	309	78	90	37	0.58	0.97	8.26	2.08	2.42
-20	(- 4)	396	100	116	42	0.65	1.24	9.36	2.36	2.74
-15	(+ 5)	499	126	146	47	0.72	1.57	10.64	2.68	3.12
-10	(+14)	621	156	182	51	0.77	1.96	12.15	3.06	3.56

TEST CONDITIONS: @115V1300RPM		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]
-35	(-31)	163	41	48	29	0.47	0.51	5.71	1.44	1.67
-30	(-22)	220	56	65	34	0.55	0.69	6.47	1.63	1.89
-25	(-13)	291	73	85	40	0.63	0.91	7.26	1.83	2.13
-20	(- 4)	377	95	110	46	0.72	1.18	8.14	2.05	2.38
-15	(+ 5)	479	121	140	52	0.80	1.51	9.13	2.30	2.68
-10	(+14)	600	151	176	58	0.88	1.89	10.30	2.60	3.02

TEST CONDITIONS: @115V1300RPM		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]
-35	(-31)	145	36	42	29	0.46	0.45	4.89	1.23	1.43
-30	(-22)	199	50	58	36	0.55	0.62	5.60	1.41	1.64
-25	(-13)	266	67	78	43	0.64	0.84	6.29	1.58	1.84
-20	(- 4)	349	88	102	50	0.75	1.10	7.00	1.76	2.05
-15	(+ 5)	449	113	131	58	0.86	1.41	7.78	1.96	2.28
-10	(+14)	567	143	166	65	0.97	1.79	8.68	2.19	2.54

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]	[kg/h]	[Btu/Wh]	[kcal/Wh]
-35	(-31)	215	54	63	34	0.53	0.67	6.39	1.61	1.87
-30	(-22)	289	73	85	40	0.62	0.91	7.25	1.83	2.13
-25	(-13)	381	96	112	46	0.71	1.20	8.23	2.07	2.41
-20	(- 4)	491	124	144	53	0.80	1.54	9.34	2.35	2.74
-15	(+ 5)	622	157	182	59	0.88	1.96	10.63	2.68	3.12
-10	(+14)	776	196	227	64	0.95	2.45	12.14	3.06	3.56

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V1600RPM		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)	204	51	60	35	0.57	0.64	5.76	1.45	1.69	
-30 (-22)	273	69	80	42	0.66	0.86	6.47	1.63	1.90	
-25 (-13)	359	91	105	49	0.76	1.13	7.25	1.83	2.12	
-20 (- 4)	465	117	136	57	0.86	1.46	8.12	2.05	2.38	
-15 (+ 5)	593	149	174	65	0.96	1.87	9.12	2.30	2.67	
-10 (+14)	743	187	218	72	1.06	2.34	10.29	2.59	3.01	

TEST CONDITIONS: @115V1600RPM		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)	185	47	54	36	0.57	0.58	5.06	1.28	1.48	
-30 (-22)	249	63	73	44	0.68	0.78	5.73	1.44	1.68	
-25 (-13)	332	84	97	52	0.79	1.04	6.40	1.61	1.88	
-20 (- 4)	435	110	127	61	0.91	1.37	7.13	1.80	2.09	
-15 (+ 5)	560	141	164	71	1.04	1.76	7.93	2.00	2.32	
-10 (+14)	710	179	208	80	1.18	2.24	8.86	2.23	2.60	

TEST CONDITIONS: @115V2000RPM		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)	272	69	80	43	0.66	0.85	6.26	1.58	1.83	
-30 (-22)	363	91	106	51	0.76	1.14	7.13	1.80	2.09	
-25 (-13)	476	120	140	59	0.87	1.49	8.08	2.04	2.37	
-20 (- 4)	614	155	180	67	0.99	1.93	9.14	2.30	2.68	
-15 (+ 5)	778	196	228	75	1.10	2.45	10.34	2.61	3.03	
-10 (+14)	968	244	284	83	1.21	3.05	11.73	2.95	3.44	

TEST CONDITIONS: @115V2000RPM		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)	254	64	74	45	0.68	0.80	5.68	1.43	1.66	
-30 (-22)	341	86	100	53	0.80	1.07	6.43	1.62	1.89	
-25 (-13)	452	114	132	63	0.93	1.42	7.22	1.82	2.12	
-20 (- 4)	587	148	172	72	1.07	1.84	8.08	2.04	2.37	
-15 (+ 5)	747	188	219	83	1.21	2.35	9.04	2.28	2.65	
-10 (+14)	935	236	274	92	1.35	2.95	10.14	2.55	2.97	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V2000RPM		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)	229	58	67	45	0.70	0.72	5.03	1.27	1.47	
-30 (-22)	314	79	92	55	0.83	0.99	5.74	1.45	1.68	
-25 (-13)	423	107	124	66	0.98	1.33	6.45	1.63	1.89	
-20 (- 4)	557	140	163	77	1.14	1.75	7.19	1.81	2.11	
-15 (+ 5)	716	180	210	89	1.30	2.25	7.99	2.01	2.34	
-10 (+14)	903	227	265	101	1.47	2.85	8.88	2.24	2.60	

TEST CONDITIONS: @115V3000RPM		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)	414	104	121	69	1.04	1.30	6.01	1.52	1.76	
-30 (-22)	551	139	161	80	1.19	1.73	6.85	1.73	2.01	
-25 (-13)	720	181	211	93	1.36	2.26	7.71	1.94	2.26	
-20 (- 4)	925	233	271	107	1.55	2.91	8.62	2.17	2.53	
-15 (+ 5)	1168	294	342	122	1.75	3.67	9.58	2.41	2.81	
-10 (+14)	1451	366	425	137	1.94	4.58	10.60	2.67	3.11	

TEST CONDITIONS: @115V3000RPM		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)	379	96	111	70	1.05	1.19	5.40	1.36	1.58	
-30 (-22)	515	130	151	84	1.23	1.61	6.15	1.55	1.80	
-25 (-13)	682	172	200	99	1.43	2.14	6.91	1.74	2.03	
-20 (- 4)	883	223	259	115	1.65	2.78	7.71	1.94	2.26	
-15 (+ 5)	1121	282	328	131	1.87	3.53	8.55	2.16	2.51	
-10 (+14)	1397	352	409	148	2.10	4.41	9.45	2.38	2.77	

TEST CONDITIONS: @115V3000RPM		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)	340	86	100	69	1.03	1.06	4.89	1.23	1.43	
-30 (-22)	475	120	139	85	1.24	1.49	5.57	1.40	1.63	
-25 (-13)	641	161	188	102	1.47	2.01	6.26	1.58	1.83	
-20 (- 4)	838	211	246	120	1.72	2.63	6.97	1.76	2.04	
-15 (+ 5)	1071	270	314	139	1.98	3.37	7.71	1.94	2.26	
-10 (+14)	1340	338	393	158	2.24	4.23	8.49	2.14	2.49	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V4500RPM		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)	567	143	166	104	1.49	1.78	5.45	1.37	1.60	
-30 (-22)	743	187	218	120	1.63	2.33	6.15	1.55	1.80	
-25 (-13)	938	236	275	136	1.82	2.94	6.90	1.74	2.02	
-20 (- 4)	1182	298	346	153	2.03	3.71	7.73	1.95	2.27	
-15 (+ 5)	1507	380	442	173	2.23	4.74	8.70	2.19	2.55	
-10 (+14)	1945	490	570	197	2.36	6.13	9.84	2.48	2.88	

TEST CONDITIONS: @115V4500RPM		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)	537	135	157	107	1.53	1.68	5.03	1.27	1.47	
-30 (-22)	707	178	207	124	1.70	2.22	5.67	1.43	1.66	
-25 (-13)	899	227	263	142	1.92	2.82	6.33	1.60	1.86	
-20 (- 4)	1144	288	335	162	2.15	3.59	7.07	1.78	2.07	
-15 (+ 5)	1473	371	432	185	2.34	4.64	7.93	2.00	2.32	
-10 (+14)	1917	483	562	213	2.47	6.05	8.96	2.26	2.63	

TEST CONDITIONS: @115V4500RPM		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)	514	130	151	110	1.56	1.61	4.66	1.17	1.36	
-30 (-22)	677	171	199	129	1.76	2.12	5.23	1.32	1.53	
-25 (-13)	865	218	254	149	2.00	2.72	5.82	1.47	1.71	
-20 (- 4)	1109	280	325	172	2.23	3.49	6.48	1.63	1.90	
-15 (+ 5)	1440	363	422	199	2.41	4.53	7.24	1.82	2.12	
-10 (+14)	1889	476	554	231	2.52	5.96	8.16	2.06	2.39	

### F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal VES		
2 Tray holder	No		
3 Connectors			
3.1 SUCTION	8.2 +0.12/-0.08	[mm]	(0.323" +0.005"/-0.003")
3.1.1 Material	Copper		
3.1.2 Shape	Slanted 63° up + 5° to Front		
3.2 DISCHARGE	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.2.1 Material	Copper		
3.2.2 Shape	Straight		
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 47° up + 59° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		