

COMPRESSOR DEFINITION

Designation	VES D13C
Nominal Voltage/Frequency	230 V 43-150 Hz
Engineering Number	513907428

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-600a		
3 Nominal voltage and frequency	230 / 43-150	[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 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	1/4	[hp]
2 Displacement	13.27	[cm ³] (0.810 cu.in)
2.1 Bore [mm]	26.000	
2.2 Stroke [mm]	25.000	
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)	6.75	[kg] (14.88 lb.)
5 Nitrogen charge	-	[kgf/cm ²]

C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	230V 43-150 Hz 3~ (Three phase)	
2 Starting device type	Inverter	
2.1 Starting device	VCC32456UXXX	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	VCC32456XXXXX	
6 Start winding resistance	7.29	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	7.29	[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	UL - 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]
348	88	102	54	0.43	1.09	6.44	1.62	1.89

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]
423	107	124	64	0.52	1.33	6.57	1.66	1.93

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]
539	136	158	82	0.65	1.69	6.58	1.66	1.93

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]
795	200	233	127	0.98	2.50	6.28	1.58	1.84

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]
1109	279	325	197	1.48	3.48	5.63	1.42	1.65

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V2000RPM		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)	302	76	89		0.00	0.95	0.00	0.00	0.00
-30	(-22)	429	108	126		0.00	1.34	0.00	0.00	0.00
-25	(-13)	605	152	177		0.00	1.90	0.00	0.00	0.00
-20	(- 4)	810	204	237		0.00	2.55	0.00	0.00	0.00
-15	(+ 5)	1026	258	301		0.00	3.23	0.00	0.00	0.00
-10	(+14)	1232	310	361		0.00	3.88	0.00	0.00	0.00

TEST CONDITIONS: @220V2000RPM		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)	284	72	83		0.00	0.89	0.00	0.00	0.00
-30	(-22)	360	91	106		0.00	1.13	0.00	0.00	0.00
-25	(-13)	501	126	147		0.00	1.57	0.00	0.00	0.00
-20	(- 4)	686	173	201		0.00	2.16	0.00	0.00	0.00
-15	(+ 5)	897	226	263		0.00	2.82	0.00	0.00	0.00
-10	(+14)	1114	281	326		0.00	3.51	0.00	0.00	0.00

TEST CONDITIONS: @220V2000RPM		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)	285	72	84		0.00	0.89	0.00	0.00	0.00
-30	(-22)	322	81	94		0.00	1.01	0.00	0.00	0.00
-25	(-13)	439	111	129		0.00	1.38	0.00	0.00	0.00
-20	(- 4)	615	155	180		0.00	1.93	0.00	0.00	0.00
-15	(+ 5)	832	210	244		0.00	2.62	0.00	0.00	0.00
-10	(+14)	1070	270	314		0.00	3.38	0.00	0.00	0.00

TEST CONDITIONS: @220V3000RPM		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)	463	117	136		0.00	1.45	0.00	0.00	0.00
-30	(-22)	609	153	178		0.00	1.91	0.00	0.00	0.00
-25	(-13)	794	200	233		0.00	2.49	0.00	0.00	0.00
-20	(- 4)	1019	257	299		0.00	3.20	0.00	0.00	0.00
-15	(+ 5)	1285	324	377		0.00	4.04	0.00	0.00	0.00
-10	(+14)	1594	402	467		0.00	5.03	0.00	0.00	0.00

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V3000RPM		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)	429	108	126		0.00	1.34	0.00	0.00	0.00
-30	(-22)	573	144	168		0.00	1.80	0.00	0.00	0.00
-25	(-13)	756	191	222		0.00	2.37	0.00	0.00	0.00
-20	(- 4)	979	247	287		0.00	3.08	0.00	0.00	0.00
-15	(+ 5)	1243	313	364		0.00	3.91	0.00	0.00	0.00
-10	(+14)	1550	391	454		0.00	4.89	0.00	0.00	0.00

TEST CONDITIONS: @220V3000RPM		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)	393	99	115		0.00	1.23	0.00	0.00	0.00
-30	(-22)	532	134	156		0.00	1.67	0.00	0.00	0.00
-25	(-13)	709	179	208		0.00	2.23	0.00	0.00	0.00
-20	(- 4)	926	233	271		0.00	2.91	0.00	0.00	0.00
-15	(+ 5)	1185	299	347		0.00	3.73	0.00	0.00	0.00
-10	(+14)	1487	375	436		0.00	4.69	0.00	0.00	0.00

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)	594	150	174		0.00	1.86	0.00	0.00	0.00
-30	(-22)	768	194	225		0.00	2.41	0.00	0.00	0.00
-25	(-13)	1055	266	309		0.00	3.31	0.00	0.00	0.00
-20	(- 4)	1406	354	412		0.00	4.42	0.00	0.00	0.00
-15	(+ 5)	1777	448	521		0.00	5.59	0.00	0.00	0.00
-10	(+14)	2118	534	621		0.00	6.68	0.00	0.00	0.00

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)	572	144	168		0.00	1.79	0.00	0.00	0.00
-30	(-22)	745	188	218		0.00	2.33	0.00	0.00	0.00
-25	(-13)	1021	257	299		0.00	3.20	0.00	0.00	0.00
-20	(- 4)	1352	341	396		0.00	4.25	0.00	0.00	0.00
-15	(+ 5)	1692	426	496		0.00	5.33	0.00	0.00	0.00
-10	(+14)	1994	503	584		0.00	6.29	0.00	0.00	0.00

E - PERFORMANCE - CURVES

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)	497	125	146		0.00	1.56	0.00	0.00	0.00
-30	(-22)	682	172	200		0.00	2.14	0.00	0.00	0.00
-25	(-13)	961	242	282		0.00	3.02	0.00	0.00	0.00
-20	(- 4)	1286	324	377		0.00	4.04	0.00	0.00	0.00
-15	(+ 5)	1610	406	472		0.00	5.07	0.00	0.00	0.00
-10	(+14)	1886	475	553		0.00	5.95	0.00	0.00	0.00

F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard VES		
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	4.9 +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 +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		