

COMPRESSOR DEFINITION

Designation	VES D9C
Nominal Voltage/Frequency	230 V 40-150 Hz
Engineering Number	800CY03

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	187 to 254 V	187 to 254 V
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	1/5	[hp]
2 Displacement	9.04	[cm ³] (0.552 cu.in)
2.1 Bore [mm]	24.000	
2.2 Stroke [mm]	20.000	
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	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	9.60	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	9.60	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (40/150 Hz)	2.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (40/150 Hz)	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			ASHRAE LBP-NOFAN 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]
223	56	65	35	0.31	0.70	6.32	1.59	1.85

TEST CONDITIONS: @220V1600RPM			ASHRAE LBP-NOFAN 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]
277	70	81	43	0.37	0.87	6.47	1.63	1.90

TEST CONDITIONS: @220V2000RPM			ASHRAE LBP-NOFAN 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]
345	87	101	53	0.49	1.08	6.51	1.64	1.91

TEST CONDITIONS: @220V4500RPM			ASHRAE LBP-NOFAN 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]
734	185	215	122	1.03	2.30	6.01	1.51	1.76

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1300RPM		ASHRAE32-NOFAN 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%		
	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
°C (°F)									
-35 (-31)	135	34	40	22	0.20	0.42	6.22	1.57	1.82
-30 (-22)	184	46	54	25	0.23	0.58	7.19	1.81	2.11
-25 (-13)	240	61	70	29	0.26	0.75	8.20	2.07	2.40
-20 (- 4)	308	78	90	33	0.29	0.97	9.32	2.35	2.73
-15 (+ 5)	389	98	114	37	0.32	1.22	10.63	2.68	3.11
-10 (+14)	487	123	143	40	0.35	1.54	12.21	3.08	3.58

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32-NOFAN			(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)	120	30	35	23	0.21	0.37	5.30	1.33	1.55
-30	(-22)	165	42	48	27	0.25	0.52	6.13	1.55	1.80
-25	(-13)	220	55	64	32	0.28	0.69	6.97	1.76	2.04
-20	(- 4)	286	72	84	36	0.32	0.90	7.87	1.98	2.31
-15	(+ 5)	367	92	108	41	0.36	1.16	8.93	2.25	2.62
-10	(+14)	467	118	137	46	0.39	1.47	10.22	2.58	3.00

TEST CONDITIONS:		ASHRAE32-NOFAN			(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)	102	26	30	23	0.22	0.32	4.47	1.13	1.31
-30	(-22)	146	37	43	28	0.26	0.46	5.28	1.33	1.55
-25	(-13)	200	50	59	33	0.31	0.63	6.04	1.52	1.77
-20	(- 4)	266	67	78	39	0.35	0.84	6.84	1.72	2.01
-15	(+ 5)	349	88	102	45	0.40	1.10	7.76	1.95	2.27
-10	(+14)	452	114	132	51	0.46	1.43	8.86	2.23	2.60

TEST CONDITIONS:		ASHRAE32-NOFAN			(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)	167	42	49	27	0.24	0.52	6.20	1.56	1.82
-30	(-22)	227	57	66	31	0.28	0.71	7.17	1.81	2.10
-25	(-13)	295	74	86	36	0.31	0.92	8.17	2.06	2.40
-20	(- 4)	376	95	110	41	0.34	1.18	9.30	2.34	2.73
-15	(+ 5)	476	120	139	45	0.38	1.50	10.62	2.68	3.11
-10	(+14)	598	151	175	49	0.41	1.89	12.20	3.07	3.57

TEST CONDITIONS:		ASHRAE32-NOFAN			(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)	146	37	43	27	0.26	0.46	5.33	1.34	1.56
-30	(-22)	204	51	60	33	0.30	0.64	6.18	1.56	1.81
-25	(-13)	271	68	79	38	0.34	0.85	7.03	1.77	2.06
-20	(- 4)	351	88	103	44	0.38	1.10	7.94	2.00	2.33
-15	(+ 5)	449	113	132	50	0.42	1.41	8.99	2.26	2.63
-10	(+14)	570	144	167	55	0.47	1.80	10.24	2.58	3.00

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32-NOFAN			(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)	131	33	38	28	0.26	0.41	4.66	1.17	1.37	
-30 (-22)	187	47	55	34	0.31	0.59	5.46	1.38	1.60	
-25 (-13)	251	63	73	41	0.35	0.79	6.20	1.56	1.82	
-20 (- 4)	328	83	96	47	0.40	1.03	6.96	1.75	2.04	
-15 (+ 5)	423	107	124	54	0.45	1.33	7.80	1.96	2.28	
-10 (+14)	541	136	159	61	0.51	1.71	8.79	2.22	2.58	

TEST CONDITIONS:		ASHRAE32-NOFAN			(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)	210	53	62	33	0.29	0.66	6.33	1.60	1.86	
-30 (-22)	283	71	83	39	0.35	0.89	7.17	1.81	2.10	
-25 (-13)	372	94	109	46	0.40	1.17	8.10	2.04	2.37	
-20 (- 4)	478	121	140	52	0.45	1.50	9.15	2.31	2.68	
-15 (+ 5)	605	152	177	59	0.50	1.90	10.37	2.61	3.04	
-10 (+14)	754	190	221	64	0.54	2.38	11.79	2.97	3.45	

TEST CONDITIONS:		ASHRAE32-NOFAN			(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)	188	47	55	35	0.31	0.59	5.44	1.37	1.59	
-30 (-22)	256	65	75	41	0.37	0.80	6.21	1.57	1.82	
-25 (-13)	342	86	100	49	0.43	1.07	7.02	1.77	2.06	
-20 (- 4)	446	112	131	56	0.48	1.40	7.91	1.99	2.32	
-15 (+ 5)	571	144	167	64	0.54	1.80	8.91	2.25	2.61	
-10 (+14)	721	182	211	71	0.60	2.27	10.08	2.54	2.95	

TEST CONDITIONS:		ASHRAE32-NOFAN			(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)	166	42	49	35	0.33	0.52	4.68	1.18	1.37	
-30 (-22)	230	58	67	42	0.39	0.72	5.44	1.37	1.60	
-25 (-13)	311	78	91	50	0.45	0.98	6.20	1.56	1.82	
-20 (- 4)	413	104	121	59	0.51	1.30	6.97	1.76	2.04	
-15 (+ 5)	538	136	158	69	0.58	1.69	7.82	1.97	2.29	
-10 (+14)	687	173	201	78	0.66	2.17	8.78	2.21	2.57	

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 5° out + 63° up		
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 0° up + 59° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		