

SIERRA02-0716Y3 R134a / R513A / R1234yf 12/24 V DC VARIABLE SPEED



Brushless DC Variable Speed Compressor Technical Data Sheet

General Information

Compressor Part Number	SIERRA00160	1/2" ID Suction - 5/16" ID Discharge
Compressor Drawing	DCMX25-002	#10-32 Threaded Terminal Connection
Compressor Part Number	SIERRA00134	1/2" ID Suction - 5/16" ID Discharge
Compressor Drawing	DCMX25-002	M5 Threaded Terminal Connection
Compressor Part Number with Fittings	SIERRA00151	#10 MIO Suction - #8 MIO Discharge
Compressor Drawing with Fittings	DCMX38-002	#10-32 Threaded Terminal Connection
Compressor Part Number with Fittings	SIERRA00238	#10 MIO Suction - #8 MIO Discharge
Compressor Drawing with Fittings	DCMX38-002	M5 Threaded Terminal Connection
Compressor Part Number with Fittings	SIERRA00156	M24 Suction - M22 Discharge
Compressor Drawing with Fittings	DCMX42-002	M5 Threaded Terminal Connection
Dual Compressor Part Number w/ Fittings	SIERRA00161	#10 MIO Suction - #8 MIO Discharge
Compressor Drawing with Fittings	DCMX41-002	#10-32 Threaded Terminal Connection
Controller Options (12/24V)	025F0200, 025F0218, 025F0348 (dual)	
Wiring Diagram Drawing	DEM00020, DEM00033 (dual)	

Application Information

Application	HBP, A/C
Refrigerant	R134a, R513A, R1234yf
Evaporator Temperature Range	-23.3°C to 12.8°C (-10°F to 55°F)
Condenser Temperature Range	26.7°C to 65.6°C (80°F to 150°F)
Maximum Discharge Temperature	130 °C (265 °F)
Maximum Compression Ratio	8:1
Minimum Airflow Over Compressor	425 cfm @ 6" from Outside Diameter of Housing

Design

Displacement	11.7 cm ³ (0.716 in ³)
Oil Quantity	355 cc
Dual Compressor Oil Quantity	455 cc
Oil Type	PVE 68cSt
Compressor Weight	6.6 kg / 14.7 lb
Compressor Weight with Fittings	6.8 kg / 15.0 lb
Dual Compressor Weight with Fittings	7.0 kg / 15.4 lb

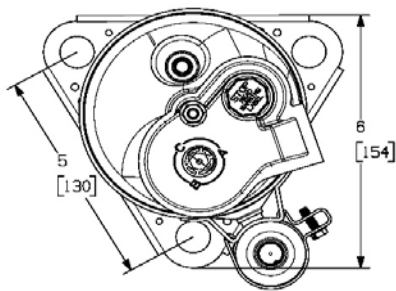
Packaging Options

- Single Pack (add -SP suffix to part number when ordering)
- Pallet Pack (25 piece multiples)

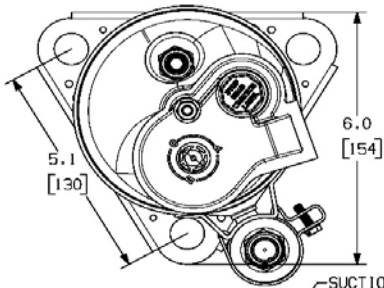
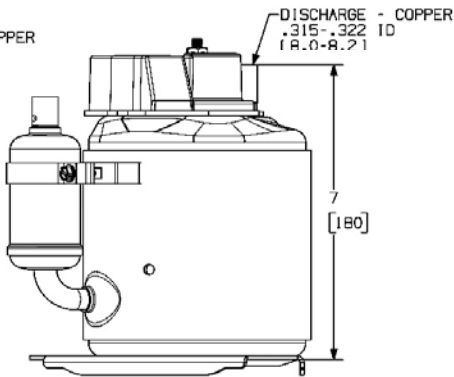
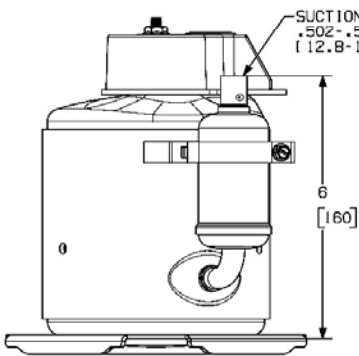
the Sierra

SIERRA02-0716Y3

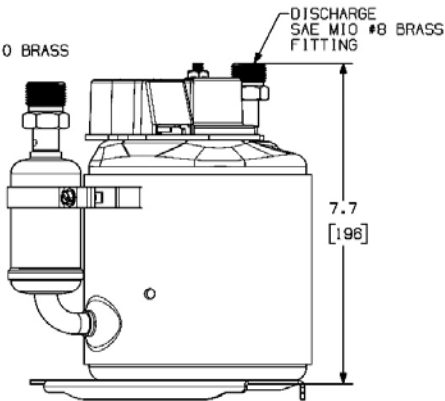
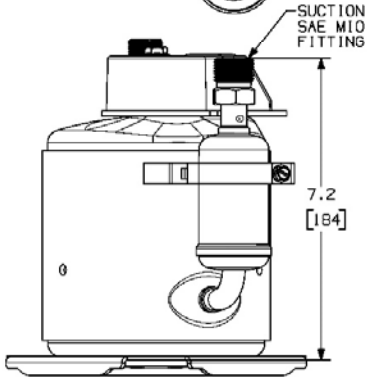
Compressor Dimensions



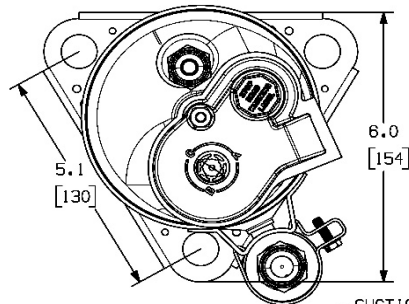
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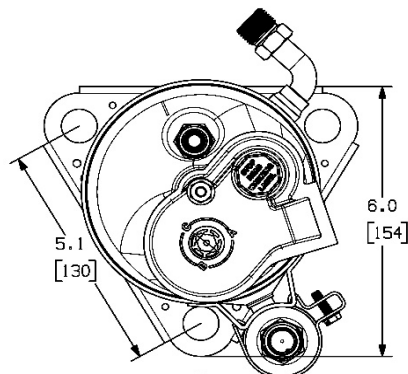
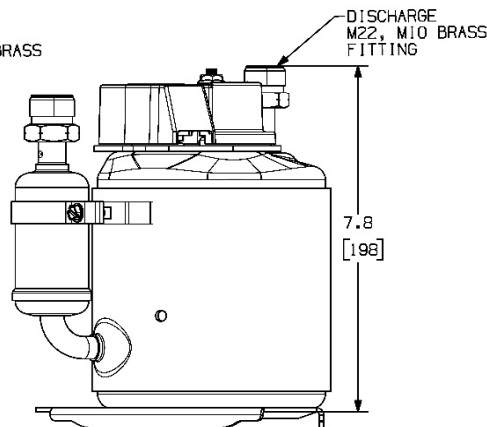
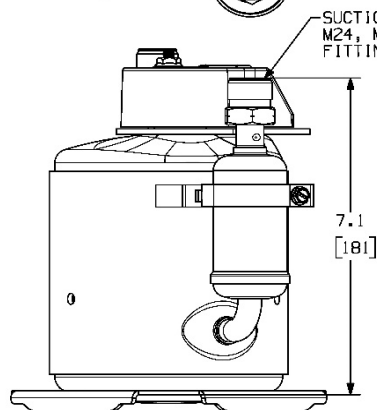
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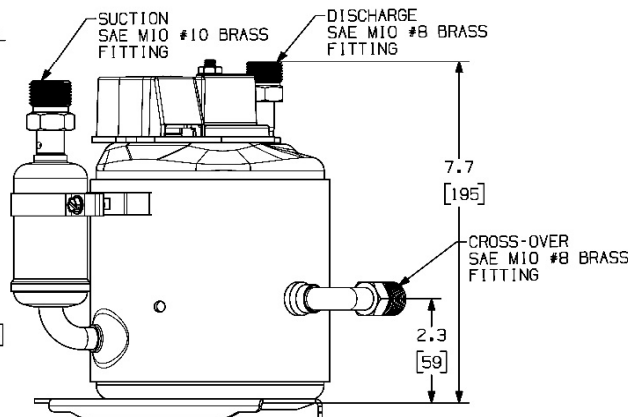
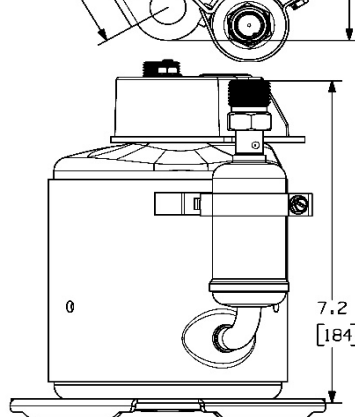
Compressor Dimensions



SIERRA00156

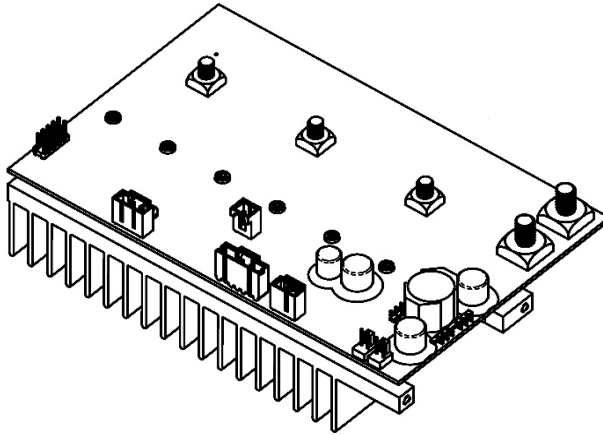


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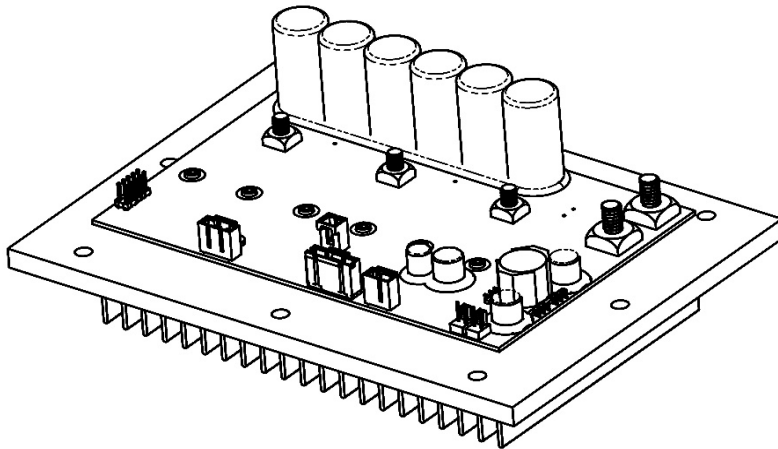


Controller Configurations

Custom controllers and configurations available



025F0200
025F0348



025F0218

Cooling Capacity (12V) - ARI HBP - R134a / R513A

BTU/hr (Watt)

RPM	Evaporator Temperature													
	-10°F	(-23°C)	10°F	(-12°C)	20°F	(-7°C)	30°F	(-1°C)	40°F	(4°C)	45°F	(7°C)	55°F	(13°C)
1800	762	(223)	1425	(417)	1683	(493)	1987	(582)	2407	(705)	2683	(786)	3411	(999)
2300	1137	(333)	1962	(575)	2332	(683)	2769	(811)	3344	(979)	3705	(1085)	4619	(1353)
2800	1432	(419)	2419	(709)	2903	(850)	3474	(1017)	4204	(1231)	4650	(1362)	5750	(1684)
3200	1622	(475)	2741	(803)	3315	(971)	3994	(1170)	4848	(1420)	5363	(1571)	6613	(1937)

Power Consumption (12V) - ARI HBP - R134a / R513A

Watt

Current (12V) - ARI HBP - R134a / R513A

Amp

RPM	Evaporator Temperature								Evaporator Temperature							
	-10°F	10°F	20°F	30°F	40°F	45°F	55°F		-10°F	10°F	20°F	30°F	40°F	45°F	55°F	
1800	214	282	329	369	387	385	348		17.84	23.49	27.45	30.74	32.29	32.08	29.01	
2300	299	345	389	429	452	454	428		24.88	28.76	32.39	35.71	37.67	37.79	35.68	
2800	381	410	451	493	523	529	517		31.78	34.16	37.59	41.08	43.57	44.10	43.08	
3200	447	464	504	549	585	596	595		37.25	38.63	42.00	45.72	48.74	49.64	49.59	

Efficiency (12V) - ARI HBP - R134a / R513A

BTU/hr/W (W/W)

RPM	Evaporator Temperature													
	-10°F	(-23°C)	10°F	(-12°C)	20°F	(-7°C)	30°F	(-1°C)	40°F	(4°C)	45°F	(7°C)	55°F	(13°C)
1800	3.56	(1.04)	5.06	(1.48)	5.11	(1.50)	5.39	(1.58)	6.21	(1.82)	6.97	(2.04)	9.80	(2.87)
2300	3.81	(1.11)	5.68	(1.66)	6.00	(1.76)	6.46	(1.89)	7.40	(2.17)	8.17	(2.39)	10.79	(3.16)
2800	3.75	(1.10)	5.90	(1.73)	6.44	(1.88)	7.05	(2.06)	8.04	(2.35)	8.79	(2.57)	11.12	(3.26)
3200	3.63	(1.06)	5.91	(1.73)	6.58	(1.93)	7.28	(2.13)	8.29	(2.43)	9.00	(2.64)	11.11	(3.25)

* all points are at 35°C (95°F) ambient temperature, 18.33°C (65°F) suction, 8.33°C (15°F) subcooling, 54.4°C (130°F) condenser

Performance Coefficients - 12V ARI HBP - R134a / R513A

Coefficient	Capacity (BTU/Hr)	Power (Watts)	Current (Amperes)	Mass Flow (Lbs/Hr)
C1	-1.033153E+04	-1.698335E+03	-1.415279E+02	-1.483158E+02
C2	2.128011E+00	4.406400E-01	3.672000E-02	2.038798E-02
C3	-2.210105E-04	-2.829929E-05	-2.358274E-06	-2.060251E-06
C4	2.310411E-08	1.690196E-09	1.408497E-10	1.821543E-10
C5	1.857528E+02	1.214128E+01	1.011774E+00	9.347110E-01
C6	-5.239591E-01	6.775406E-01	5.646171E-02	5.487287E-03
C7	1.181775E-02	-2.138803E-03	-1.782336E-04	8.662477E-05
C8	2.335838E+02	2.695180E+01	2.245983E+00	3.473073E+00
C9	-1.848048E+00	-9.211275E-02	-7.676063E-03	-2.799644E-02
C10	4.468548E-03	-1.315931E-04	-1.096609E-05	7.172634E-05
C11	1.106560E-03	1.418126E-05	1.181771E-06	1.045410E-05
C12	2.403155E-08	4.588341E-09	3.823617E-10	3.082013E-10
C13	-1.470773E-07	1.622297E-06	1.351914E-07	1.900305E-08
C14	-5.686612E-06	-4.921107E-07	-4.100923E-08	-5.285688E-08
C15	-3.199045E-02	3.021184E-03	2.517653E-04	-1.996686E-04
C16	-7.536697E-03	-5.182211E-03	-4.318509E-04	-5.578567E-05
C17	-3.254255E+00	-4.667353E-01	-3.889461E-02	-2.101449E-02
C18	-3.019147E-06	-2.722300E-07	-2.268583E-08	-4.133016E-08
C19	2.291952E-04	-1.668149E-04	-1.390124E-05	9.582807E-07
C20	-7.401176E-07	1.247966E-07	1.039972E-08	-2.238540E-09
C21	4.433078E-05	2.394167E-05	1.995139E-06	3.076486E-07
C22	-2.579103E-03	-5.144014E-03	-4.286678E-04	-8.081081E-05
C23	1.423428E-02	3.390527E-03	2.825439E-04	1.030777E-04

Performance Equation

$$Y = C_1 + C_2 X_1 + C_3 X_1^2 + C_4 X_1^3 + C_5 X_2 + C_6 X_2^2 + C_7 X_2^3 + C_8 X_3 + C_9 X_3^2 + C_{10} X_3^3 + C_{11} X_1 X_2 X_3 + C_{12} X_1^2 X_2 X_3 + C_{13} X_1 X_2^2 X_3 + C_{14} X_1 X_2 X_3^2 + C_{15} X_1 X_2^2 X_3 + C_{16} X_1 X_3^2 X_2 + C_{17} X_2 X_3^2 X_1 + C_{18} X_1^2 X_2 X_3 + C_{19} X_1 X_2^2 X_3 + C_{20} X_1^2 X_3 X_2 + C_{21} X_1 X_3^2 X_2 + C_{22} X_2^2 X_3 X_1 + C_{23} X_2 X_3^2 X_1$$

X₁ = RPMX₂ = E_t (°F)X₃ = C_t (°F)

Cooling Capacity (24V) - ARI HBP - R134a / R513A
BTU/hr (Watt)

RPM	Evaporator Temperature													
	-10°F	(-23°C)	10°F	(-12°C)	20°F	(-7°C)	30°F	(-1°C)	40°F	(4°C)	45°F	(7°C)	55°F	(13°C)
3200	1622	(475)	2741	(803)	3315	(971)	3994	(1170)	4848	(1420)	5363	(1571)	6613	(1937)
4000	1919	(562)	3302	(967)	4059	(1189)	4954	(1451)	6057	(1774)	6710	(1965)	8260	(2419)
4800	2164	(634)	3814	(1117)	4754	(1392)	5866	(1718)	7221	(2115)	8012	(2346)	9863	(2889)
5600	2427	(711)	4346	(1273)	5472	(1603)	6803	(1992)	8410	(2463)	9340	(2735)	11494	(3366)

Power Consumption (24V) - ARI HBP - R134a / R513A
Watt

RPM	Evaporator Temperature							Current (24V) - ARI HBP - R134a / R513A						
	-10°F	10°F	20°F	30°F	40°F	45°F	55°F	-10°F	10°F	20°F	30°F	40°F	45°F	55°F
3200	453	470	511	556	593	604	603	18.88	19.57	21.28	23.17	24.69	25.15	25.13
4000	588	586	629	683	736	757	783	24.49	24.43	26.21	28.46	30.65	31.56	32.64
4800	729	718	766	833	906	941	998	30.37	29.91	31.93	34.73	37.76	39.20	41.57
5600	882	869	928	1012	1109	1159	1251	36.74	36.23	38.67	42.18	46.23	48.28	52.12

Efficiency (24V) - ARI HBP - R134a / R513A
BTU/hr/W (W/W)

RPM	Evaporator Temperature													
	-10°F	(-23°C)	10°F	(-12°C)	20°F	(-7°C)	30°F	(-1°C)	40°F	(4°C)	45°F	(7°C)	55°F	(13°C)
3200	3.58	(1.05)	5.83	(1.71)	6.49	(1.90)	7.18	(2.10)	8.18	(2.40)	8.88	(2.60)	10.97	(3.21)
4000	3.27	(0.96)	5.63	(1.65)	6.45	(1.89)	7.25	(2.12)	8.23	(2.41)	8.86	(2.59)	10.54	(3.09)
4800	2.97	(0.87)	5.31	(1.56)	6.20	(1.82)	7.04	(2.06)	7.97	(2.33)	8.52	(2.49)	9.89	(2.90)
5600	2.75	(0.81)	5.00	(1.46)	5.90	(1.73)	6.72	(1.97)	7.58	(2.22)	8.06	(2.36)	9.19	(2.69)

* all points are at 35°C (95°F) ambient temperature, 18.33°C (65°F) suction, 8.33°C (15°F) subcooling, 54.4°C (130°F) condenser

Performance Coefficients - 24V ARI HBP - R134a / R513A

Coefficient	Capacity (BTU/Hr)	Power (Watts)	Current (Amperes)	Mass Flow (Lbs/Hr)
C1	-1.033153E+04	-1.721040E+03	-7.171001E+01	-1.483158E+02
C2	2.128011E+00	4.465310E-01	1.860546E-02	2.038798E-02
C3	-2.210105E-04	-2.867763E-05	-1.194901E-06	-2.060251E-06
C4	2.310411E-08	1.712792E-09	7.136635E-11	1.821543E-10
C5	1.857528E+02	1.230360E+01	5.126501E-01	9.347110E-01
C6	-5.239591E-01	6.865987E-01	2.860828E-02	5.487287E-03
C7	1.181775E-02	-2.167397E-03	-9.030823E-05	8.662477E-05
C8	2.335838E+02	2.731212E+01	1.138005E+00	3.473073E+00
C9	-1.848048E+00	-9.334422E-02	-3.889343E-03	-2.799644E-02
C10	4.468548E-03	-1.333524E-04	-5.556351E-06	7.172634E-05
C11	1.106560E-03	1.437085E-05	5.987853E-07	1.045410E-05
C12	2.403155E-08	4.649683E-09	1.937368E-10	3.082013E-10
C13	-1.470773E-07	1.643986E-06	6.849942E-08	1.900305E-08
C14	-5.686612E-06	-4.986898E-07	-2.077874E-08	-5.285688E-08
C15	-3.199045E-02	3.061574E-03	1.275656E-04	-1.996686E-04
C16	-7.536697E-03	-5.251493E-03	-2.188122E-04	-5.578567E-05
C17	-3.254255E+00	-4.729751E-01	-1.970730E-02	-2.101449E-02
C18	-3.019147E-06	-2.758695E-07	-1.149456E-08	-4.133016E-08
C19	2.291952E-04	-1.690451E-04	-7.043544E-06	9.582807E-07
C20	-7.401176E-07	1.264651E-07	5.269377E-09	-2.238540E-09
C21	4.433078E-05	2.426175E-05	1.010906E-06	3.076486E-07
C22	-2.579103E-03	-5.212785E-03	-2.171994E-04	-8.081081E-05
C23	1.423428E-02	3.435855E-03	1.431606E-04	1.030777E-04

Performance Equation

$$Y = C_1 + C_2 X_1 + C_3 X_1^2 + C_4 X_1^3 + C_5 X_2 + C_6 X_2^2 + C_7 X_2^3 + C_8 X_3 + C_9 X_3^2 + C_{10} X_3^3 + C_{11} X_1 X_2 X_3 + C_{12} X_1^2 X_2 X_3 + C_{13} X_1 X_2^2 X_3 + C_{14} X_1 X_2 X_3^2 + C_{15} X_1 X_2^2 X_3 + C_{16} X_1 X_3^2 X_2 + C_{17} X_2 X_3^2 X_1 + C_{18} X_1^2 X_2^2 X_3 + C_{19} X_1^2 X_2 X_3^2 + C_{20} X_1^2 X_3^2 X_2 + C_{21} X_1 X_3^2 X_2^2 + C_{22} X_2^2 X_3^2 X_1 + C_{23} X_2 X_3^2 X_1^2$$

 $X_1 = \text{RPM}$
 $X_2 = E_t (°F)$
 $X_3 = C_t (°F)$

Cooling Capacity (12V) - ARI HBP - R1234yf**BTU/hr (Watt)**

Evaporator Temperature														
RPM	-10°F	(-23°C)	10°F	(-12°C)	20°F	(-7°C)	30°F	(-1°C)	40°F	(4°C)	45°F	(7°C)	55°F	(13°C)
1800	812	(238)	1518	(445)	1793	(525)	2117	(620)	2564	(751)	2858	(837)	3633	(1064)
2300	1211	(355)	2090	(612)	2484	(728)	2950	(864)	3562	(1043)	3947	(1156)	4920	(1441)
2800	1525	(447)	2577	(755)	3092	(906)	3701	(1084)	4478	(1311)	4953	(1451)	6125	(1794)
3200	1728	(506)	2920	(855)	3531	(1034)	4254	(1246)	5164	(1512)	5713	(1673)	7044	(2063)

Power Consumption (12V) - ARI HBP - R1234yf**Watt****Current (12V) - ARI HBP - R1234yf****Amp**

RPM	Evaporator Temperature							Evaporator Temperature						
	-10°F	10°F	20°F	30°F	40°F	45°F	55°F	-10°F	10°F	20°F	30°F	40°F	45°F	55°F
1800	205	270	315	353	370	368	333	17.06	22.46	26.25	29.39	30.87	30.67	27.74
2300	286	330	372	410	432	434	409	23.80	27.51	30.97	34.15	36.02	36.14	34.12
2800	365	392	431	471	500	506	494	30.39	32.67	35.94	39.28	41.66	42.17	41.20
3200	428	443	482	525	559	570	569	35.63	36.94	40.16	43.72	46.61	47.47	47.42

Efficiency (12V) - ARI HBP - R1234yf**BTU/hr/W (W/W)**

	Evaporator Temperature													
RPM	-10°F	(-23°C)	10°F	(-12°C)	20°F	(-7°C)	30°F	(-1°C)	40°F	(4°C)	45°F	(7°C)	55°F	(13°C)
1800	3.97	(1.16)	5.63	(1.65)	5.69	(1.67)	6.00	(1.76)	6.92	(2.03)	7.77	(2.27)	10.91	(3.20)
2300	4.24	(1.24)	6.33	(1.85)	6.68	(1.96)	7.20	(2.11)	8.24	(2.41)	9.10	(2.66)	12.02	(3.52)
2800	4.18	(1.22)	6.58	(1.93)	7.17	(2.10)	7.85	(2.30)	8.96	(2.62)	9.79	(2.87)	12.39	(3.63)
3200	4.04	(1.18)	6.59	(1.93)	7.33	(2.15)	8.11	(2.37)	9.23	(2.70)	10.03	(2.94)	12.38	(3.62)

* all points are at 35°C (95°F) ambient temperature, 18.33°C (65°F) suction, 8.33°C (15°F) subcooling, 54.4°C (130°F) condenser

Performance Coefficients - 12V ARI HBP - R1234yf

Coefficient	Capacity (BTU/Hr)	Power (Watts)	Current (Amperes)	Mass Flow (Lbs/Hr)
C1	-1.100560E+04	-1.624058E+03	-1.353382E+02	-1.220542E+02
C2	2.266851E+00	4.213687E-01	3.511406E-02	1.677797E-02
C3	-2.354301E-04	-2.706162E-05	-2.255135E-06	-1.695452E-06
C4	2.461152E-08	1.616275E-09	1.346896E-10	1.499010E-10
C5	1.978721E+02	1.161029E+01	9.675238E-01	7.692060E-01
C6	-5.581443E-01	6.479084E-01	5.399237E-02	4.515678E-03
C7	1.258879E-02	-2.045263E-03	-1.704386E-04	7.128652E-05
C8	2.488237E+02	2.577306E+01	2.147755E+00	2.858112E+00
C9	-1.968622E+00	-8.808421E-02	-7.340351E-03	-2.303924E-02
C10	4.760094E-03	-1.258379E-04	-1.048649E-05	5.902609E-05
C11	1.178756E-03	1.356104E-05	1.130087E-06	8.603043E-06
C12	2.559946E-08	4.387670E-09	3.656392E-10	2.536295E-10
C13	-1.566732E-07	1.551346E-06	1.292789E-07	1.563827E-08
C14	-6.057629E-06	-4.705883E-07	-3.921569E-08	-4.349776E-08
C15	-3.407763E-02	2.889053E-03	2.407544E-04	-1.643142E-04
C16	-8.028420E-03	-4.955568E-03	-4.129640E-04	-4.590796E-05
C17	-3.466575E+00	-4.463227E-01	-3.719356E-02	-1.729355E-02
C18	-3.216128E-06	-2.603240E-07	-2.169367E-08	-3.401202E-08
C19	2.441488E-04	-1.595192E-04	-1.329327E-05	7.886023E-07
C20	-7.884057E-07	1.193387E-07	9.944888E-09	-1.842172E-09
C21	4.722309E-05	2.289458E-05	1.907882E-06	2.531747E-07
C22	-2.747374E-03	-4.919041E-03	-4.099201E-04	-6.650201E-05
C23	1.516298E-02	3.242243E-03	2.701869E-04	8.482619E-05

Performance Equation

$$Y = C_1 + C_2 X_1 + C_3 X_1^2 + C_4 X_1^3 + C_5 X_2 + C_6 X_2^2 + C_7 X_2^3 + C_8 X_3 + C_9 X_3^2 + C_{10} X_3^3 + C_{11} X_1 X_2 X_3 + C_{12} X_1^2 X_2 X_3 + C_{13} X_1 X_2^2 X_3 + C_{14} X_1 X_2 X_3^2 + C_{15} X_1 X_2^2 X_3 + C_{16} X_1 X_3^2 X_2 + C_{17} X_2 X_3^2 X_1 + C_{18} X_1^2 X_2 X_3 + C_{19} X_1 X_2^2 X_3 + C_{20} X_1^2 X_3 X_2 + C_{21} X_1 X_3^2 X_2 + C_{22} X_2^2 X_3 X_1 + C_{23} X_2 X_3^2 X_1$$

 $X_1 = \text{RPM}$ $X_2 = E_t (^\circ\text{F})$ $X_3 = C_t (^\circ\text{F})$

Cooling Capacity (24V) - ARI HBP - R1234yf
BTU/hr (Watt)

Evaporator Temperature														
RPM	-10°F	(-23°C)	10°F	(-12°C)	20°F	(-7°C)	30°F	(-1°C)	40°F	(4°C)	45°F	(7°C)	55°F	(13°C)
3200	1728	(506)	2920	(855)	3531	(1034)	4254	(1246)	5164	(1512)	5713	(1673)	7044	(2063)
4000	2044	(599)	3518	(1030)	4324	(1266)	5277	(1545)	6453	(1890)	7148	(2093)	8799	(2577)
4800	2305	(675)	4062	(1190)	5064	(1483)	6249	(1830)	7692	(2253)	8535	(2500)	10507	(3077)
5600	2585	(757)	4630	(1356)	5829	(1707)	7247	(2122)	8959	(2624)	9949	(2914)	12244	(3586)

Power Consumption (24V) - ARI HBP - R1234yf
Watt

RPM	Evaporator Temperature							Current (24V) - ARI HBP - R1234yf							Amp
	-10°F	10°F	20°F	30°F	40°F	45°F	55°F	-10°F	10°F	20°F	30°F	40°F	45°F	55°F	
3200	433	449	488	532	567	577	577	18.05	18.72	20.35	22.15	23.61	24.05	24.03	
4000	562	561	601	653	704	724	749	23.42	23.36	25.06	27.22	29.31	30.18	31.21	
4800	697	686	733	797	867	900	954	29.04	28.60	30.53	33.21	36.11	37.48	39.75	
5600	843	831	887	968	1061	1108	1196	35.13	34.64	36.97	40.34	44.21	46.17	49.84	

Efficiency (24V) - ARI HBP - R1234yf
BTU/hr/W (W/W)

Evaporator Temperature														
RPM	-10°F	(-23°C)	10°F	(-12°C)	20°F	(-7°C)	30°F	(-1°C)	40°F	(4°C)	45°F	(7°C)	55°F	(13°C)
3200	3.99	(1.17)	6.50	(1.90)	7.23	(2.12)	8.00	(2.34)	9.11	(2.67)	9.90	(2.90)	12.22	(3.58)
4000	3.64	(1.07)	6.27	(1.84)	7.19	(2.10)	8.08	(2.37)	9.17	(2.69)	9.87	(2.89)	11.74	(3.44)
4800	3.31	(0.97)	5.92	(1.73)	6.91	(2.02)	7.84	(2.30)	8.88	(2.60)	9.49	(2.78)	11.01	(3.23)
5600	3.07	(0.90)	5.57	(1.63)	6.57	(1.92)	7.49	(2.19)	8.44	(2.47)	8.98	(2.63)	10.24	(3.00)

* all points are at 35°C (95°F) ambient temperature, 18.33°C (65°F) suction, 8.33°C (15°F) subcooling, 54.4°C (130°F) condenser

Performance Coefficients - 24V ARI HBP - R1234yf

Coefficient	Capacity (BTU/Hr)	Power (Watts)	Current (Amperes)	Mass Flow (Lbs/Hr)
C1	-1.100560E+04	-1.645771E+03	-6.857379E+01	-1.220542E+02
C2	2.266851E+00	4.270021E-01	1.779175E-02	1.677797E-02
C3	-2.354301E-04	-2.742342E-05	-1.142642E-06	-1.695452E-06
C4	2.461152E-08	1.637884E-09	6.824515E-11	1.499010E-10
C5	1.978721E+02	1.176551E+01	4.902294E-01	7.692060E-01
C6	-5.581443E-01	6.565704E-01	2.735710E-02	4.515678E-03
C7	1.258879E-02	-2.072607E-03	-8.635861E-05	7.128652E-05
C8	2.488237E+02	2.611763E+01	1.088235E+00	2.858112E+00
C9	-1.968622E+00	-8.926183E-02	-3.719243E-03	-2.303924E-02
C10	4.760094E-03	-1.275203E-04	-5.313345E-06	5.902609E-05
C11	1.178756E-03	1.374234E-05	5.725975E-07	8.603043E-06
C12	2.559946E-08	4.446330E-09	1.852637E-10	2.536295E-10
C13	-1.566732E-07	1.572087E-06	6.550361E-08	1.563827E-08
C14	-6.057629E-06	-4.768797E-07	-1.986999E-08	-4.349776E-08
C15	-3.407763E-02	2.927677E-03	1.219865E-04	-1.643142E-04
C16	-8.028420E-03	-5.021820E-03	-2.092425E-04	-4.590796E-05
C17	-3.466575E+00	-4.522897E-01	-1.884540E-02	-1.729355E-02
C18	-3.216128E-06	-2.638044E-07	-1.099185E-08	-3.401202E-08
C19	2.441488E-04	-1.616519E-04	-6.735496E-06	7.886023E-07
C20	-7.884057E-07	1.209341E-07	5.038922E-09	-1.842172E-09
C21	4.722309E-05	2.320066E-05	9.666943E-07	2.531747E-07
C22	-2.747374E-03	-4.984805E-03	-2.077002E-04	-6.650201E-05
C23	1.516298E-02	3.285589E-03	1.368995E-04	8.482619E-05

Performance Equation

$$Y = C_1 + C_2 x_1 + C_3 x_1^2 + C_4 x_1^3 + C_5 x_2 + C_6 x_2^2 + C_7 x_2^3 + C_8 x_3 + C_9 x_3^2 + C_{10} x_3^3 + C_{11} x_1 x_2 x_3 + C_{12} x_1^2 x_2 x_3 + C_{13} x_1 x_2^2 x_3 + C_{14} x_1 x_2 x_3^2 + C_{15} x_1 x_2^2 x_3 + C_{16} x_1 x_3^2 x_2 + C_{17} x_2 x_3^2 x_1 + C_{18} x_1^2 x_2^2 x_3 + C_{19} x_1^2 x_2 x_3^2 + C_{20} x_1^2 x_3^2 x_2 + C_{21} x_1 x_3^2 x_2^2 + C_{22} x_2^2 x_3^2 x_1 + C_{23} x_2 x_3^2$$

 $x_1 = \text{RPM}$
 $x_2 = E_t (^\circ\text{F})$
 $x_3 = C_t (^\circ\text{F})$