

**SIERRA02-0434Y3**  
**R134a / R513A / R1234yf**  
**12/24 V DC**  
**VARIABLE SPEED**



**Brushless DC Variable Speed Compressor Technical Data Sheet**

**General Information**

Compressor Part Number	SIERRA00163	3/8" ID Suction - 5/16" ID Discharge
Compressor Drawing	DCMX33-001	#10-32 Threaded Terminal Connections
Compressor Part Number with Fittings	SIERRA00164	#10 MIO Suction - #8 MIO Discharge
Compressor Drawing with Fittings	DCMX27-001	#10-32 Threaded Terminal Connections
Voltage Range:	9-30 V DC	
Controller Options (12/24V)	025F0095, 025F0219	
Wiring Diagram Drawing	DEM0020	

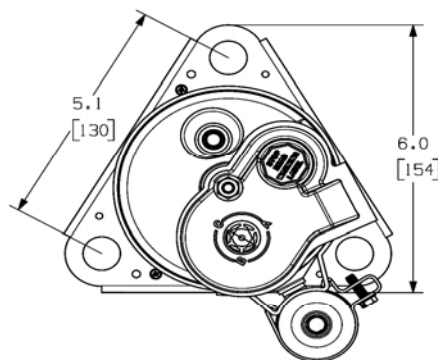
**Application Information**

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**

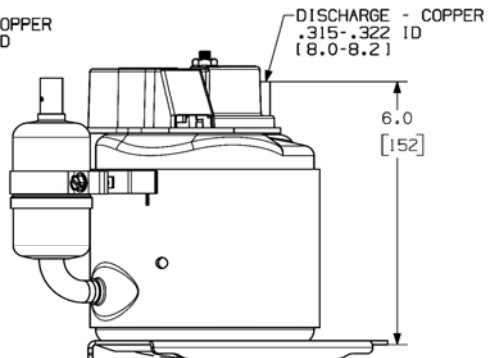
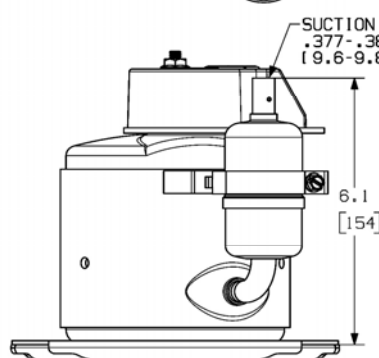
Displacement	7.1 cm <sup>3</sup> (0.434 in <sup>3</sup> )
Oil Quantity	290 cc
Oil Type	PVE 68cSt
Weight	4.8 kg / 10.5 lb
Weight with Fittings	4.9 kg / 10.8 lb

**Compressor Dimensions - SIERRA00163**



**Packaging Options**

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

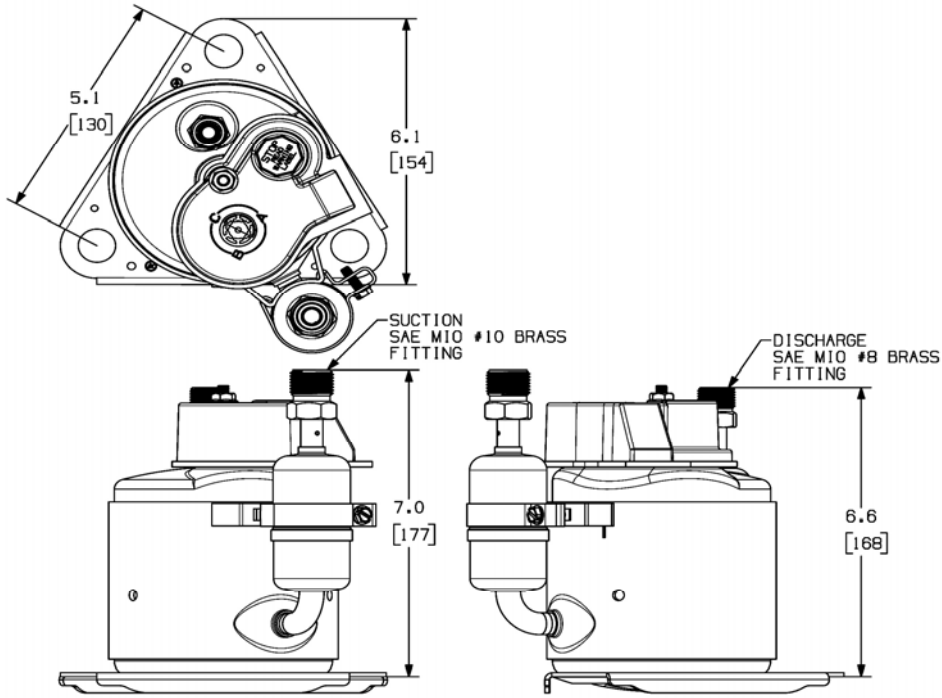


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# SIERRA02-0434Y3

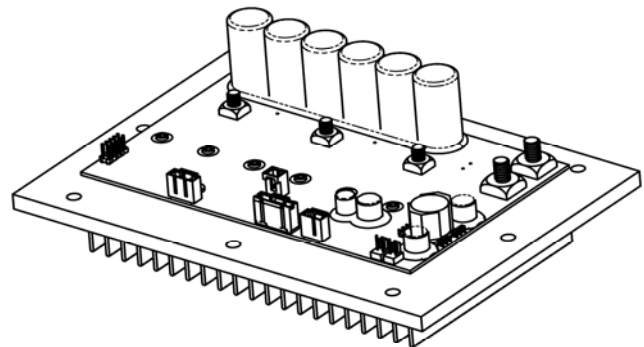
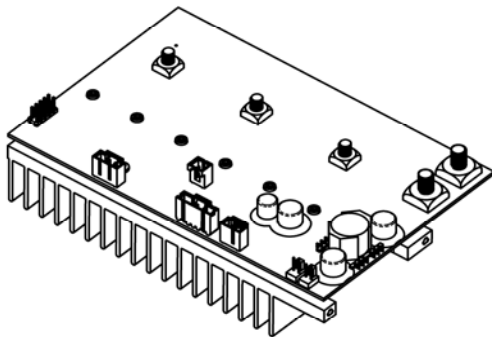


## Compressor Dimensions - SIERRA00164



## Controller Configurations

Custom controllers and configurations available



# SIERRA02-0434Y3



## 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	462 (135)	864 (253)	1020 (299)	1204 (353)	1459 (427)	1626 (476)	2068 (606)					
2400	728 (213)	1248 (366)	1486 (435)	1767 (518)	2134 (625)	2364 (692)	2940 (861)					
2800	868 (254)	1467 (430)	1760 (515)	2106 (617)	2548 (746)	2819 (825)	3486 (1021)					
3200	983 (288)	1661 (487)	2009 (589)	2421 (709)	2938 (861)	3251 (952)	4008 (1174)					

## 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	137	180	210	235	247	246	222	11.38	14.98	17.51	19.61	20.59	20.46	18.51
2400	201	228	256	281	297	299	284	16.76	19.03	21.31	23.44	24.75	24.88	23.67
2800	243	261	288	314	333	338	330	20.27	21.79	23.98	26.20	27.79	28.13	27.48
3200	285	296	321	350	373	380	380	23.76	24.64	26.79	29.17	31.09	31.67	31.63

## 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	3.38 (0.99)	4.81 (1.41)	4.86 (1.42)	5.12 (1.50)	5.90 (1.73)	6.62 (1.94)	9.31 (2.73)					
2400	3.62 (1.06)	5.47 (1.60)	5.81 (1.70)	6.28 (1.84)	7.19 (2.10)	7.92 (2.32)	10.35 (3.03)					
2800	3.57 (1.04)	5.61 (1.64)	6.12 (1.79)	6.70 (1.96)	7.64 (2.24)	8.35 (2.44)	10.57 (3.10)					
3200	3.45 (1.01)	5.62 (1.65)	6.25 (1.83)	6.92 (2.03)	7.88 (2.31)	8.55 (2.50)	10.56 (3.09)					

\* 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	-6.262409E+03	-1.083335E+03	-9.027791E+01	-8.990093E+01
C2	1.289884E+00	2.810757E-01	2.342298E-02	1.235807E-02
C3	-1.339645E-04	-1.805157E-05	-1.504297E-06	-1.248812E-06
C4	1.400445E-08	1.078143E-09	8.984526E-11	1.104119E-10
C5	1.125932E+02	7.744689E+00	6.453908E-01	5.665706E-01
C6	-3.175953E-01	4.321900E-01	3.601583E-02	3.326093E-03
C7	7.163275E-03	-1.364301E-03	-1.136918E-04	5.250719E-05
C8	1.415857E+02	1.719203E+01	1.432669E+00	2.105187E+00
C9	-1.120186E+00	-5.875694E-02	-4.896412E-03	-1.696991E-02
C10	2.708589E-03	-8.394070E-05	-6.995059E-06	4.347658E-05
C11	6.707360E-04	9.045948E-06	7.538290E-07	6.336705E-06
C12	1.456661E-08	2.926814E-09	2.439011E-10	1.868148E-10
C13	-8.915019E-08	1.034832E-06	8.623600E-08	1.151861E-08
C14	-3.446913E-06	-3.139079E-07	-2.615899E-08	-3.203895E-08
C15	-1.939086E-02	1.927154E-03	1.605962E-04	-1.210281E-04
C16	-4.568333E-03	-3.305632E-03	-2.754693E-04	-3.381422E-05
C17	-1.972551E+00	-2.977214E-01	-2.481012E-02	-1.273783E-02
C18	-1.830042E-06	-1.736502E-07	-1.447085E-08	-2.505208E-08
C19	1.389256E-04	-1.064080E-04	-8.867331E-06	5.808573E-07
C20	-4.486187E-07	7.960534E-08	6.633779E-09	-1.356880E-09
C21	2.687089E-05	1.527193E-05	1.272660E-06	1.864797E-07
C22	-1.563311E-03	-3.281267E-03	-2.734389E-04	-4.898309E-05
C23	8.628039E-03	2.162751E-03	1.802293E-04	6.248005E-05

## Performance Equation

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

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

# SIERRA02-0434Y3



## Cooling Capacity (12V) - ARI HBP - R1234yf 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	434	(127)	811	(238)	958	(281)	1131	(331)	1370	(401)	1527	(447)	1941	(568)
2400	684	(200)	1172	(343)	1395	(409)	1659	(486)	2004	(587)	2219	(650)	2760	(808)
2800	815	(239)	1377	(403)	1652	(484)	1977	(579)	2392	(701)	2646	(775)	3272	(958)
3200	923	(270)	1560	(457)	1886	(552)	2273	(666)	2758	(808)	3051	(894)	3763	(1102)

## 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	143	188	220	246	258	257	232	11.90	15.67	18.31	20.50	21.54	21.40	19.35
2400	210	239	267	294	311	312	297	17.52	19.90	22.28	24.52	25.88	26.02	24.75
2800	254	273	301	329	349	353	345	21.20	22.79	25.07	27.40	29.06	29.42	28.74
3200	298	309	336	366	390	397	397	24.85	25.77	28.01	30.50	32.51	33.12	33.08

## Efficiency (12V) - ARI HBP - R1234yf 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	3.04	(0.89)	4.31	(1.26)	4.36	(1.28)	4.60	(1.35)	5.30	(1.55)	5.95	(1.74)	8.36	(2.45)
2400	3.25	(0.95)	4.91	(1.44)	5.22	(1.53)	5.64	(1.65)	6.45	(1.89)	7.11	(2.08)	9.29	(2.72)
2800	3.20	(0.94)	5.03	(1.47)	5.49	(1.61)	6.01	(1.76)	6.86	(2.01)	7.50	(2.19)	9.49	(2.78)
3200	3.10	(0.91)	5.04	(1.48)	5.61	(1.64)	6.21	(1.82)	7.07	(2.07)	7.68	(2.25)	9.48	(2.78)

\* 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	-5.878850E+03	-1.132881E+03	-9.440678E+01	-1.092443E+02
C2	1.210881E+00	2.939307E-01	2.449423E-02	1.501708E-02
C3	-1.257594E-04	-1.887716E-05	-1.573097E-06	-1.517510E-06
C4	1.314671E-08	1.127452E-09	9.395434E-11	1.341686E-10
C5	1.056971E+02	8.098893E+00	6.749077E-01	6.884759E-01
C6	-2.981433E-01	4.519562E-01	3.766302E-02	4.041746E-03
C7	6.724540E-03	-1.426698E-03	-1.188915E-04	6.380482E-05
C8	1.329139E+02	1.797831E+01	1.498192E+00	2.558146E+00
C9	-1.051577E+00	-6.144419E-02	-5.120349E-03	-2.062121E-02
C10	2.542694E-03	-8.777974E-05	-7.314978E-06	5.283115E-05
C11	6.296549E-04	9.459665E-06	7.883054E-07	7.700132E-06
C12	1.367443E-08	3.060672E-09	2.550560E-10	2.270105E-10
C13	-8.368993E-08	1.082160E-06	9.018001E-08	1.399699E-08
C14	-3.235797E-06	-3.282645E-07	-2.735537E-08	-3.893256E-08
C15	-1.820321E-02	2.015293E-03	1.679411E-04	-1.470690E-04
C16	-4.288532E-03	-3.456815E-03	-2.880679E-04	-4.108980E-05
C17	-1.851737E+00	-3.113377E-01	-2.594481E-02	-1.547855E-02
C18	-1.717955E-06	-1.815921E-07	-1.513268E-08	-3.044237E-08
C19	1.304167E-04	-1.112745E-04	-9.272879E-06	7.058365E-07
C20	-4.211418E-07	8.324610E-08	6.937175E-09	-1.648831E-09
C21	2.522511E-05	1.597039E-05	1.330866E-06	2.266033E-07
C22	-1.467562E-03	-3.431336E-03	-2.859446E-04	-5.952246E-05
C23	8.099590E-03	2.261665E-03	1.884721E-04	7.592346E-05

## Performance Equation

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

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

# SIERRA02-0434Y3



## 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	983 (288)	1661 (487)	2009 (589)	2421 (709)	2938 (861)	3251 (952)	4008 (1174)					
4000	1163 (341)	2002 (586)	2460 (721)	3003 (879)	3672 (1075)	4067 (1191)	5007 (1466)					
4800	1311 (384)	2312 (677)	2882 (844)	3556 (1041)	4377 (1282)	4856 (1422)	5979 (1751)					
5600	1471 (431)	2634 (772)	3317 (971)	4124 (1208)	5098 (1493)	5661 (1658)	6967 (2040)					
6500	1717 (503)	3066 (898)	3876 (1135)	4833 (1416)	5981 (1752)	6639 (1944)	8152 (2388)					

## Power Consumption (24V) - ARI HBP - R134a / R513A Watt Current (24V) - 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
3200	309	321	349	379	404	412	412	12.88	13.36	14.52	15.81	16.85	17.17	17.15
4000	401	400	429	466	502	517	535	16.71	16.67	17.88	19.42	20.92	21.54	22.28
4800	497	490	523	569	618	642	681	20.73	20.41	21.79	23.70	25.77	26.75	28.37
5600	602	593	633	691	757	791	854	25.07	24.72	26.39	28.78	31.55	32.95	35.56
6500	733	731	782	856	944	991	1084	30.55	30.44	32.57	35.66	39.35	41.30	45.18

## 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	3.18 (0.93)	5.18 (1.52)	5.77 (1.69)	6.38 (1.87)	7.27 (2.13)	7.89 (2.31)	9.74 (2.85)					
4000	2.90 (0.85)	5.00 (1.46)	5.73 (1.68)	6.44 (1.89)	7.31 (2.14)	7.87 (2.30)	9.36 (2.74)					
4800	2.64 (0.77)	4.72 (1.38)	5.51 (1.61)	6.25 (1.83)	7.08 (2.07)	7.57 (2.22)	8.78 (2.57)					
5600	2.44 (0.72)	4.44 (1.30)	5.24 (1.53)	5.97 (1.75)	6.73 (1.97)	7.16 (2.10)	8.16 (2.39)					
6500	2.34 (0.69)	4.20 (1.23)	4.96 (1.45)	5.65 (1.65)	6.33 (1.85)	6.70 (1.96)	7.52 (2.20)					

\* 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	-6.262409E+03	-1.174465E+03	-4.893604E+01	-8.990093E+01
C2	1.289884E+00	3.047198E-01	1.269666E-02	1.235807E-02
C3	-1.339645E-04	-1.957007E-05	-8.154194E-07	-1.248812E-06
C4	1.400445E-08	1.168837E-09	4.870152E-11	1.104119E-10
C5	1.125932E+02	8.396172E+00	3.498405E-01	5.665706E-01
C6	-3.175953E-01	4.685458E-01	1.952274E-02	3.326093E-03
C7	7.163275E-03	-1.479066E-03	-6.162776E-05	5.250719E-05
C8	1.415857E+02	1.863822E+01	7.765926E-01	2.105187E+00
C9	-1.120186E+00	-6.369957E-02	-2.654149E-03	-1.696991E-02
C10	2.708589E-03	-9.100180E-05	-3.791742E-06	4.347658E-05
C11	6.707360E-04	9.806893E-06	4.086205E-07	6.336705E-06
C12	1.456661E-08	3.173017E-09	1.322090E-10	1.868148E-10
C13	-8.915019E-08	1.121882E-06	4.674509E-08	1.151861E-08
C14	-3.446913E-06	-3.403138E-07	-1.417974E-08	-3.203895E-08
C15	-1.939086E-02	2.089276E-03	8.705278E-05	-1.210281E-04
C16	-4.568333E-03	-3.583702E-03	-1.493209E-04	-3.381422E-05
C17	-1.972551E+00	-3.227657E-01	-1.344857E-02	-1.273783E-02
C18	-1.830042E-06	-1.882577E-07	-7.844070E-09	-2.505208E-08
C19	1.389256E-04	-1.153590E-04	-4.806626E-06	5.808573E-07
C20	-4.486187E-07	8.630175E-08	3.595906E-09	-1.356880E-09
C21	2.687089E-05	1.655660E-05	6.898583E-07	1.864797E-07
C22	-1.563311E-03	-3.557287E-03	-1.482203E-04	-4.898309E-05
C23	8.628039E-03	2.344682E-03	9.769508E-05	6.248005E-05

## Performance Equation

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

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

# SIERRA02-0434Y3



## Cooling Capacity (24V) - ARI HBP - R1234yf 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	923 (270)	1560 (457)	1886 (552)	2273 (666)	2758 (808)	3051 (894)	3763 (1102)					
4000	1092 (320)	1879 (550)	2310 (676)	2819 (826)	3447 (1009)	3818 (1118)	4700 (1377)					
4800	1231 (361)	2170 (636)	2705 (792)	3338 (978)	4109 (1203)	4559 (1335)	5612 (1644)					
5600	1381 (404)	2473 (724)	3114 (912)	3871 (1134)	4786 (1402)	5314 (1556)	6540 (1916)					
6500	1612 (472)	2879 (843)	3639 (1066)	4537 (1329)	5614 (1644)	6232 (1825)	7653 (2241)					

## Power Consumption (24V) - ARI HBP - R1234yf Watt Current (24V) - 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
3200	323	335	364	397	423	431	430	13.47	13.97	15.19	16.53	17.62	17.95	17.93
4000	419	418	449	487	525	541	559	17.48	17.44	18.70	20.31	21.88	22.52	23.29
4800	520	512	547	595	647	671	712	21.67	21.34	22.79	24.78	26.95	27.97	29.66
5600	629	620	662	722	792	827	893	26.22	25.85	27.59	30.10	32.99	34.46	37.19
6500	767	764	817	895	988	1036	1134	31.94	31.83	34.06	37.29	41.15	43.19	47.24

## Efficiency (24V) - ARI HBP - R1234yf 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	2.85 (0.84)	4.65 (1.36)	5.18 (1.52)	5.73 (1.68)	6.52 (1.91)	7.08 (2.07)	8.74 (2.56)					
4000	2.60 (0.76)	4.49 (1.31)	5.15 (1.51)	5.78 (1.69)	6.57 (1.92)	7.06 (2.07)	8.41 (2.46)					
4800	2.37 (0.69)	4.24 (1.24)	4.95 (1.45)	5.61 (1.64)	6.35 (1.86)	6.79 (1.99)	7.88 (2.31)					
5600	2.19 (0.64)	3.99 (1.17)	4.70 (1.38)	5.36 (1.57)	6.04 (1.77)	6.43 (1.88)	7.33 (2.15)					
6500	2.10 (0.62)	3.77 (1.10)	4.45 (1.30)	5.07 (1.48)	5.69 (1.66)	6.01 (1.76)	6.75 (1.98)					

\* 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	-5.878850E+03	-1.228179E+03	-5.117414E+01	-1.092443E+02
C2	1.210881E+00	3.186562E-01	1.327734E-02	1.501708E-02
C3	-1.257594E-04	-2.046510E-05	-8.527127E-07	-1.517510E-06
C4	1.314671E-08	1.222293E-09	5.092889E-11	1.341686E-10
C5	1.056971E+02	8.780172E+00	3.658405E-01	6.884759E-01
C6	-2.981433E-01	4.899748E-01	2.041562E-02	4.041746E-03
C7	6.724540E-03	-1.546711E-03	-6.444631E-05	6.380482E-05
C8	1.329139E+02	1.949064E+01	8.121101E-01	2.558146E+00
C9	-1.051577E+00	-6.661288E-02	-2.775537E-03	-2.062121E-02
C10	2.542694E-03	-9.516377E-05	-3.965157E-06	5.283115E-05
C11	6.296549E-04	1.025541E-05	4.273088E-07	7.700132E-06
C12	1.367443E-08	3.318135E-09	1.382556E-10	2.270105E-10
C13	-8.368993E-08	1.173191E-06	4.888298E-08	1.399699E-08
C14	-3.235797E-06	-3.558781E-07	-1.482825E-08	-3.893256E-08
C15	-1.820321E-02	2.184819E-03	9.103414E-05	-1.470690E-04
C16	-4.288532E-03	-3.747602E-03	-1.561501E-04	-4.108980E-05
C17	-1.851737E+00	-3.375274E-01	-1.406364E-02	-1.547855E-02
C18	-1.717955E-06	-1.968677E-07	-8.202819E-09	-3.044237E-08
C19	1.304167E-04	-1.206350E-04	-5.026457E-06	7.058365E-07
C20	-4.211418E-07	9.024876E-08	3.760365E-09	-1.648831E-09
C21	2.522511E-05	1.731382E-05	7.214090E-07	2.266033E-07
C22	-1.467562E-03	-3.719979E-03	-1.549991E-04	-5.952246E-05
C23	8.099590E-03	2.451916E-03	1.021632E-04	7.592346E-05

## Performance Equation

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

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