

**SIERRA02-0434Z1  
R404A  
12/24 V DC  
VARIABLE SPEED**



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

**General Information**

Compressor Part Number	SIERRA00168	3/8" ID Suction - 5/16" ID Discharge
Compressor Drawing	DCMX33-001	#10-32 Threaded Terminal Connections
Dual Compressor Part Number	SIERRA00169	#10 MIO Suction - #8 MIO Discharge
Compressor Drawing	DCMX34-001	#10-32 Threaded Terminal Connections
Voltage Range:	9-30V DC	
Controller Options (12/24V)	025F0095, 025F0219	
Wiring Diagram Drawing	DEM0020	
Dual Comp. Controller Option (12/24V)	025F0348	
Dual Comp. Wiring Diagram Drawing	DEM0033	

**Application Information**

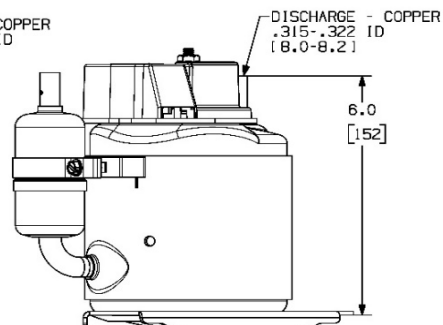
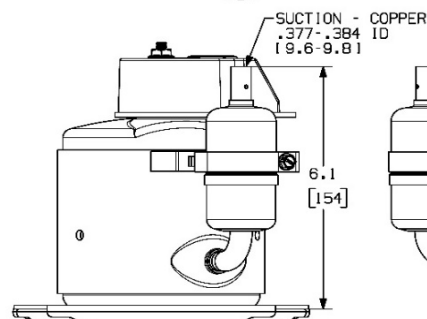
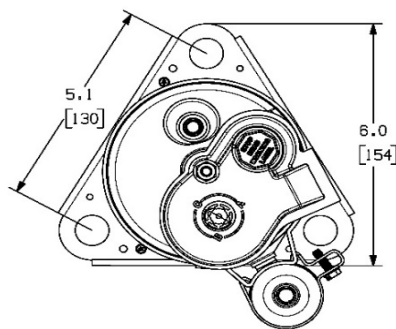
Application	LBP, Refrigerator, Freezer
Refrigerant	R404A
Evaporator Temperature Range	-40° C to -12.2° C (-40° F to 10° F)
Condenser Temperature Range	26.7° C to 60° C (80° F to 140° F)
Maximum Discharge Temperature	126.7° C (260° F) (D2I) providing maximum motor temperature is not exceeded
Maximum Compression Ratio	16.7:1
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 Type	PVE 68cSt
Oil Quantity	290 cc
Weight	4.8 kg / 10.5 lb
Dual Compressor Oil Quantity (each)	390 cc
Dual Compressor Weight (each)	5.2 kg / 11.3 lb



**Compressor Dimensions**



**Packaging Options**

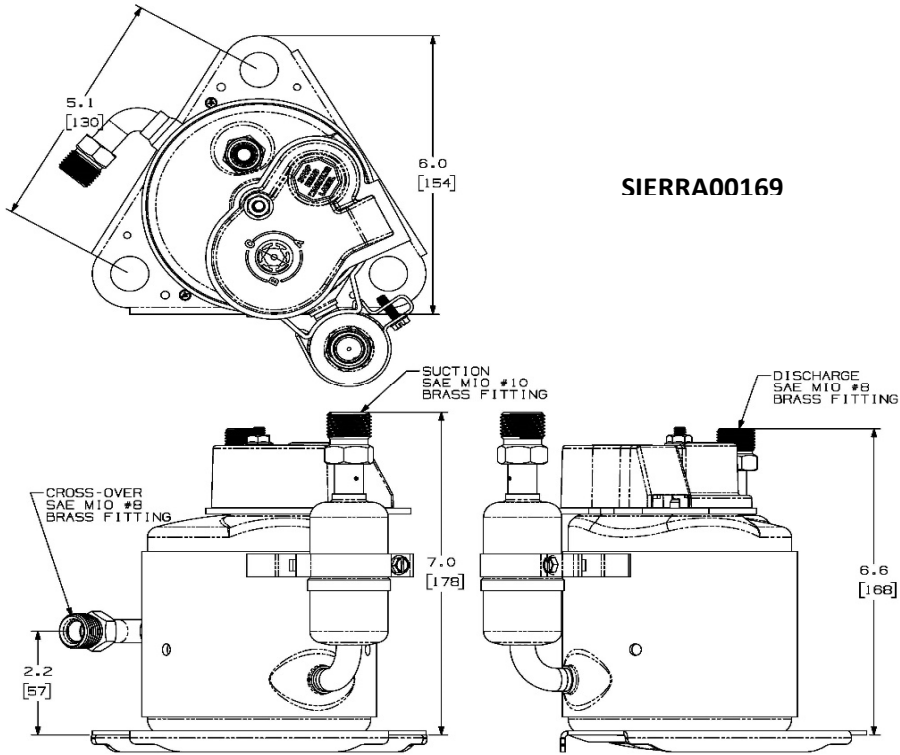
- Single Pack (add -SP suffix to part number when ordering)
- Pallet Pack (25 piece multiples)

**SIERRA00168**

the Sierra

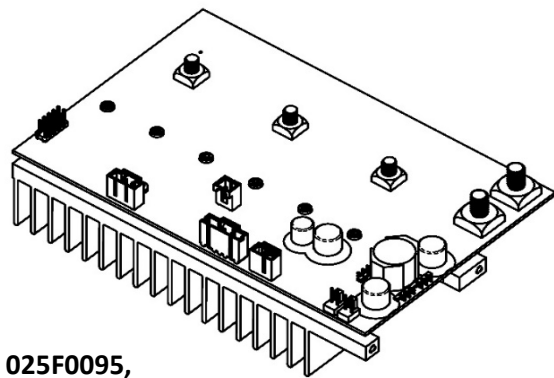
# SIERRA02-0434Z1

## Compressor Dimensions

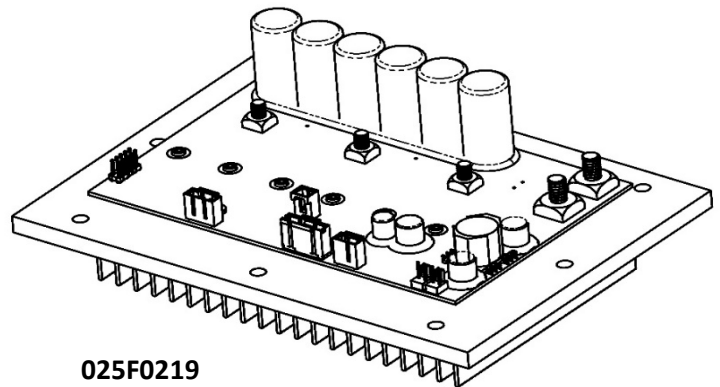


## Controller Configurations

Custom controllers and configurations available



**025F0095,  
025F0348**



**025F0219**

12V

rpm	Evaporator Temperature (° C)									
	-40.0	-34.4	-31.7	-28.9	-26.1	-23.3	-20.6	-17.8	-15.0	-12.2
<b>Capacity (49° C Condenser)</b>										
	watt									
1800	111	134	152	174	200	230	262	296	333	372
2300	141	171	194	223	256	293	334	379	426	475
2800	172	208	237	271	312	357	407	461	518	578
3200	197	238	270	310	356	408	465	527	592	661
<b>Power Consumption (49° C Condenser)</b>										
	watt									
1800	206	231	243	255	267	279	291	302	313	324
2300	263	295	311	326	341	356	371	386	400	414
2800	320	359	378	397	415	434	452	470	487	504
3200	366	410	432	454	475	496	516	537	557	576
<b>Current (49° C Condenser)</b>										
	amp									
1800	17.14	19.23	20.28	21.29	22.25	23.26	24.23	25.17	26.09	27.02
2300	21.90	24.57	25.91	27.18	28.45	29.69	30.94	32.14	33.35	34.50
2800	26.67	29.94	31.51	33.06	34.62	36.17	37.68	39.16	40.59	42.03
3200	30.48	34.18	36.01	37.80	39.58	41.32	43.03	44.73	46.41	48.03
<b>COP (49° C Condenser)</b>										
	watt/watt									
1800	0.54	0.58	0.62	0.68	0.75	0.82	0.90	0.98	1.06	1.15
2300	0.54	0.58	0.63	0.68	0.75	0.82	0.90	0.98	1.06	1.15
2800	0.54	0.58	0.63	0.68	0.75	0.82	0.90	0.98	1.06	1.15
3200	0.54	0.58	0.63	0.68	0.75	0.82	0.90	0.98	1.06	1.15
<b>Mass Flow (49° C Condenser)</b>										
	kg/hr									
1800	3.76	4.67	5.34	6.15	7.08	8.14	9.32	10.61	12.00	13.49
2300	4.81	5.96	6.82	7.85	9.05	10.41	11.91	13.56	15.34	17.24
2800	5.85	7.26	8.30	9.56	11.02	12.67	14.50	16.51	18.67	20.98
3200	6.69	8.30	9.49	10.93	12.59	14.48	16.57	18.86	21.34	23.98

24V

rpm	Evaporator Temperature (° C)									
	-40.0	-34.4	-31.7	-28.9	-26.1	-23.3	-20.6	-17.8	-15.0	-12.2
<b>Capacity (49° C Condenser)</b>										
	watt									
3500	215	260	296	339	390	446	509	576	648	723
4000	246	297	338	388	445	510	582	659	740	826
4500	277	334	380	436	501	574	654	741	833	929
5000	307	372	422	484	557	638	727	823	925	1032
<b>Power Consumption (49° C Condenser)</b>										
	watt									
3500	400	449	473	496	520	543	565	587	609	633
4000	457	513	540	567	594	620	646	671	696	720
4500	514	577	608	638	668	698	726	755	783	811
5000	571	647	675	709	742	775	807	839	870	900
<b>Current (49° C Condenser)</b>										
	amp									
3500	16.67	18.71	19.69	20.68	21.65	22.61	23.55	24.46	25.38	26.36
4000	19.04	21.36	22.50	23.64	24.75	25.83	26.92	27.96	29.00	30.01
4500	21.42	24.04	25.33	26.59	27.83	29.07	30.27	31.45	32.63	33.78
5000	23.81	23.19	28.14	29.55	30.92	32.29	33.64	34.95	36.25	37.50
<b>COP (49° C Condenser)</b>										
	watt/watt									
3500	0.54	0.58	0.63	0.68	0.75	0.82	0.90	0.98	1.06	1.14
4000	0.54	0.58	0.63	0.68	0.75	0.82	0.90	0.98	1.06	1.15
4500	0.54	0.58	0.63	0.68	0.75	0.82	0.90	0.98	1.06	1.15
5000	0.54	0.67	0.63	0.68	0.75	0.82	0.90	0.98	1.06	1.15
<b>Mass Flow (49° C Condenser)</b>										
	kg/hr									
3500	7.32	9.08	10.38	11.95	13.77	15.84	18.13	20.63	23.34	26.23
4000	8.36	10.37	11.86	13.66	15.74	18.10	20.72	23.58	26.67	29.98
4500	9.41	11.67	13.35	15.37	17.71	20.36	23.31	26.53	30.00	33.73
5000	10.45	12.97	14.83	17.07	19.68	22.62	25.90	29.47	33.34	37.47

\* all data points are with 11.1° C superheat and 8.3° C subcooling

\* performance is per compressor for dual compressor configuration

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12V

rpm	Evaporator Temperature (° F)									
	-40.0	-30.0	-25.0	-20.0	-15.0	-10.0	-5.0	0.0	5.0	10.0
<b>Capacity (120° F Condenser)</b>										
	<b>BTU/hr</b>									
1800	378	457	519	596	684	784	894	1012	1138	1269
2300	483	584	664	761	874	1002	1142	1293	1454	1622
2800	588	711	808	927	1065	1220	1390	1574	1770	1974
3200	672	812	923	1059	1217	1394	1589	1799	2022	2256
<b>Power Consumption (120° F Condenser)</b>										
	<b>watt</b>									
1800	206	231	243	255	267	279	291	302	313	324
2300	263	295	311	326	341	356	371	386	400	414
2800	320	359	378	397	415	434	452	470	487	504
3200	366	410	432	454	475	496	516	537	557	576
<b>Current (120° F Condenser)</b>										
	<b>amp</b>									
1800	17.14	19.23	20.28	21.29	22.25	23.26	24.23	25.17	26.09	27.02
2300	21.90	24.57	25.91	27.18	28.45	29.69	30.94	32.14	33.35	34.50
2800	26.67	29.94	31.51	33.06	34.62	36.17	37.68	39.16	40.59	42.03
3200	30.48	34.18	36.01	37.80	39.58	41.32	43.03	44.73	46.41	48.03
<b>EER (120° F Condenser)</b>										
	<b>BTU/h/watt</b>									
1800	1.84	1.98	2.13	2.33	2.56	2.81	3.07	3.35	3.63	3.91
2300	1.84	1.98	2.13	2.33	2.56	2.81	3.08	3.35	3.63	3.92
2800	1.84	1.98	2.14	2.34	2.56	2.81	3.08	3.35	3.63	3.91
3200	1.84	1.98	2.14	2.33	2.56	2.81	3.08	3.35	3.63	3.91
<b>Mass Flow (120° F Condenser)</b>										
	<b>lb/hr</b>									
1800	8.30	10.29	11.77	13.55	15.62	17.96	20.55	23.39	26.46	29.74
2300	10.60	13.15	15.04	17.31	19.96	22.94	26.26	29.89	33.81	38.00
2800	12.91	16.01	18.31	21.08	24.29	27.93	31.97	36.39	41.16	46.26
3200	14.75	18.30	20.92	24.09	27.76	31.92	36.54	41.59	47.04	52.87

24V

<b>Capacity (120° F Condenser)</b>										
	<b>BTU/hr</b>									
3500	735	888	1010	1158	1331	1525	1738	1968	2212	2468
4000	840	1015	1154	1324	1521	1743	1986	2249	2528	2820
4500	945	1142	1298	1489	1711	1960	2235	2530	2844	3173
5000	1050	1269	1443	1655	1901	2178	2483	2811	3160	3525
<b>Power Consumption (120° F Condenser)</b>										
	<b>watt</b>									
3500	400	449	473	496	520	543	565	587	609	633
4000	457	513	540	567	594	620	646	671	696	720
4500	514	577	608	638	668	698	726	755	783	811
5000	571	557	675	709	742	775	807	839	870	900
<b>Current (120° F Condenser)</b>										
	<b>amp</b>									
3500	16.67	18.71	19.69	20.68	21.65	22.61	23.55	24.46	25.38	26.36
4000	19.04	21.36	22.50	23.64	24.75	25.83	26.92	27.96	29.00	30.01
4500	21.42	24.04	25.33	26.59	27.83	29.07	30.27	31.45	32.63	33.78
5000	23.81	23.19	28.14	29.55	30.92	32.29	33.64	34.95	36.25	37.50
<b>EER (120° F Condenser)</b>										
	<b>BTU/h/watt</b>									
3500	1.84	1.98	2.14	2.33	2.56	2.81	3.08	3.35	3.63	3.90
4000	1.84	1.98	2.14	2.33	2.56	2.81	3.07	3.35	3.63	3.92
4500	1.84	1.98	2.14	2.33	2.56	2.81	3.08	3.35	3.63	3.91
5000	1.84	2.28	2.14	2.33	2.56	2.81	3.08	3.35	3.63	3.92
<b>Mass Flow (120° F Condenser)</b>										
	<b>lb/hr</b>									
3500	16.13	20.01	22.89	26.35	30.37	34.91	39.96	45.48	51.45	57.83
4000	18.44	22.87	26.16	30.11	34.70	39.90	45.67	51.98	58.80	66.09
4500	20.74	25.73	29.42	33.88	39.04	44.89	51.38	58.48	66.15	74.35
5000	23.05	28.59	32.69	37.64	43.38	49.88	57.09	64.98	73.50	82.61

\* all data points are with 20° F superheat and 15° F subcooling

\* performance is per compressor for dual compressor configuration

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