

ATLAS18-0444Y4
R134a
24 V DC
VARIABLE SPEED (1800-6000 rpm)



Brushless DC Variable Speed Compressor Technical Data Sheet

General Information

Compressor Part Number	ATLAS00001	3/8" (9.64mm) ID Suction 5/16" (8.15mm) ID Discharge
Compressor Drawing	DCMX45	
Controller	025F0367	
Controller Drawing	DGMX0091	
Wiring Diagram	DEMX0060	

Design

Number of Cylinders	1
Total Displacement	0.444 in ³ (7.3 cm ³)
Oil Quantity	210 cc
Oil Type	POE - 68 cSt
Weight	9.48 lb / 4.30 kg

Application Information

HIGH BACK PRESSURE (HBP)	
Evaporator Temperature Range	-13° F to 53.6° F (-25° C to 12° C)
Condenser Temperature Range	82.4° F to 164.3° F (28° C to 73.5° C)
LOW BACK PRESSURE (LBP)	
Evaporator Temperature Range	-40° F to 10° F (-40° C to -12.2° C)
Condenser Temperature Range	100° F to 140° F (37.8° C to 60° C)
Maximum Discharge Temperature	239° F (115° C)
Maximum Compression Ratio	8:1
Minimum Compressor Cooling	1 m/s airflow over compressor

Rating Condition

	HBP		LBP	
Condensing Temperature	130°F	(54.4°C)	130°F	(54.4°C)
Evaporating Temperature	45°F	(7.2°C)	-10°F	(-23.3°C)
Return Gas Temperature	95°F	(35.0°C)	90°F	(32.2°C)
Liquid Temperature	115°F	(46.1°C)	90°F	(32.2°C)
Ambient Temperature	95°F	(35.0°C)	90°F	(32.2°C)
Compressor Cooling	1 m/s air cooling			
Controller	025F0367			

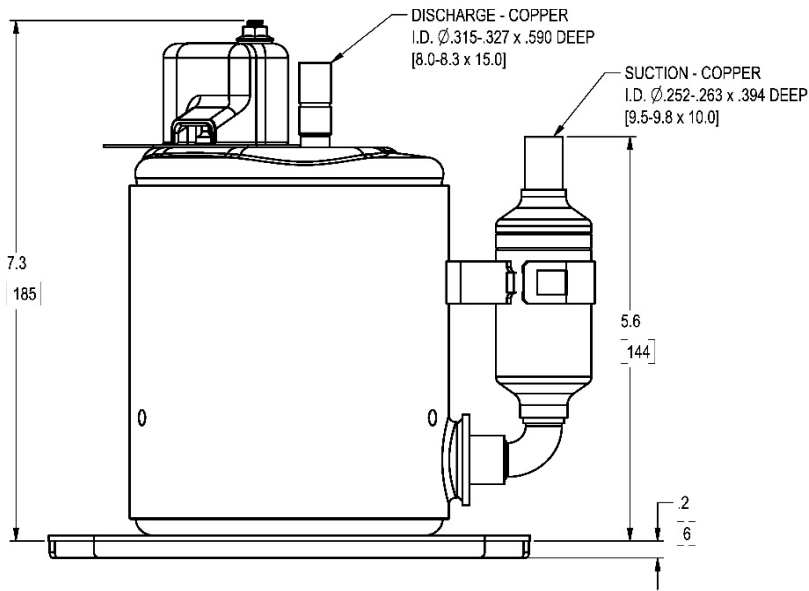
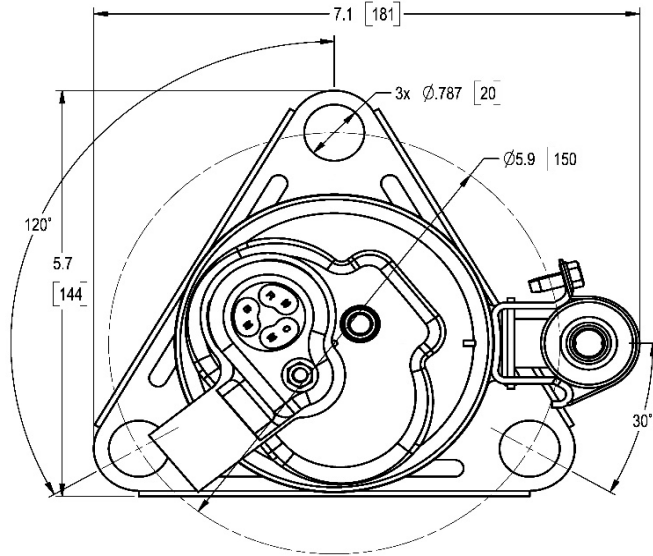
Packaging Options

- Single Pack (add -SP suffix to part number when ordering)
- Pallet Pack (30 piece multiples) (add -FP suffix to part number when ordering)

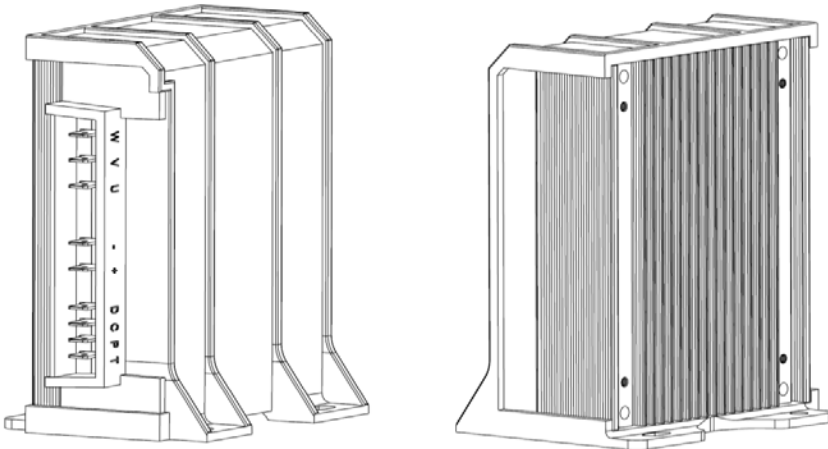
ATLAS18-0444Y4



Compressor Dimensions



Controller Configuration



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

RPM	Evaporator Temperature													
	0°F	(-17.8°C)	10°F	(-12.2°C)	20°F	(-6.7°C)	30°F	(-1.1°C)	45°F	(7.2°C)	55°F	(12.8°C)	68°F	(20°C)
1800	430	(126)	689	(202)	934	(274)	1197	(350)	1692	(496)	2135	(625)	2907	(851)
3000	842	(247)	1216	(356)	1617	(474)	2077	(608)	2946	(863)	3691	(1081)	4915	(1439)
4000	1194	(350)	1668	(489)	2204	(645)	2833	(830)	4020	(1177)	5019	(1470)	6627	(1941)
5000	1550	(454)	2128	(623)	2802	(821)	3604	(1056)	5116	(1498)	6374	(1867)	8370	(2451)
6000	1906	(558)	2592	(759)	3409	(998)	4389	(1285)	6230	(1825)	7752	(2270)	10141	(2970)

Power Consumption (24V) - ASHRAE HBP Watt Current (24V) - ASHRAE HBP Amp

RPM	Evaporator Temperature							Evaporator Temperature						
	0°F	10°F	20°F	30°F	45°F	55°F	68°F	0°F	10°F	20°F	30°F	45°F	55°F	68°F
1800	113	126	138	148	159	164	167	4.70	5.25	5.74	6.15	6.62	6.82	6.94
3000	182	205	225	242	259	266	270	7.59	8.56	9.38	10.07	10.81	11.10	11.23
4000	252	285	312	335	360	369	374	10.51	11.86	13.01	13.96	14.98	15.39	15.58
5000	335	377	414	443	476	489	496	13.95	15.72	17.23	18.48	19.84	20.39	20.69
6000	431	485	531	569	610	628	639	17.97	20.20	22.11	23.69	25.44	26.18	26.62

Efficiency (24V) - ASHRAE HBP BTU/hr/W (W/W)

RPM	Evaporator Temperature													
	0°F	(-17.8°C)	10°F	(-12.2°C)	20°F	(-6.7°C)	30°F	(-1.1°C)	45°F	(7.2°C)	55°F	(12.8°C)	68°F	(20°C)
1800	3.82	(1.12)	5.47	(1.60)	6.79	(1.99)	8.11	(2.37)	10.65	(3.12)	13.05	(3.82)	17.44	(5.11)
3000	4.63	(1.35)	5.92	(1.73)	7.18	(2.10)	8.60	(2.52)	11.36	(3.33)	13.85	(4.06)	18.23	(5.34)
4000	4.74	(1.39)	5.86	(1.72)	7.06	(2.07)	8.46	(2.48)	11.18	(3.27)	13.59	(3.98)	17.72	(5.19)
5000	4.63	(1.36)	5.64	(1.65)	6.78	(1.98)	8.13	(2.38)	10.74	(3.15)	13.02	(3.81)	16.86	(4.94)
6000	4.42	(1.29)	5.35	(1.57)	6.43	(1.88)	7.72	(2.26)	10.21	(2.99)	12.34	(3.61)	15.87	(4.65)

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

Performance Coefficients (24V) - ASHRAE HBP

Coefficient	Capacity (BTU/Hr)	Power (Watts)	Current (Amperes)	Mass Flow (Lbs/Hr)
C1	-3.105433E+03	-3.785374E+03	-1.577239E+02	
C2	5.902715E-01	-7.747435E-02	-3.228098E-03	
C3	1.139230E-05	-8.231749E-07	-3.429895E-08	
C4	-5.556172E-10	2.365628E-10	9.856785E-12	
C5	8.197826E+00	-5.278857E+00	-2.199524E-01	
C6	-5.571279E-01	2.652502E-02	1.105209E-03	
C7	5.223850E-03	-2.517102E-05	-1.048793E-06	
C8	7.053022E+01	9.206662E+01	3.836109E+00	
C9	-5.632929E-01	-7.373970E-01	-3.072488E-02	
C10	1.501948E-03	1.962771E-03	8.178211E-05	
C11	-1.234899E-04	-6.905713E-06	-2.877380E-07	
C12	-1.039229E-09	1.423182E-09	5.929923E-11	
C13	-7.092560E-07	1.335331E-07	5.563881E-09	
C14	3.056446E-07	1.651046E-08	6.879358E-10	
C15	1.776312E-02	1.319795E-03	5.499145E-05	
C16	-1.700799E-03	1.443594E-03	6.014974E-05	
C17	9.903921E-02	6.150920E-02	2.562884E-03	
C18	3.376720E-07	-1.429440E-07	-5.955998E-09	
C19	2.643885E-04	-2.458552E-05	-1.024397E-06	
C20	-2.161617E-08	3.293762E-08	1.372401E-09	
C21	-3.370505E-06	-4.328346E-06	-1.803478E-07	
C22	1.635495E-04	-1.594373E-04	-6.643220E-06	
C23	-3.831767E-04	-1.607499E-04	-6.697914E-06	

TO BE DETERMINED

Performance Equation

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

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

Cooling Capacity (24V) - ASHRAE LBP BTU/hr (Watt)

RPM	Evaporator Temperature													
	-40°F (-40°C)	-30°F (-34.4°C)	-20°F (-28.9°C)	-10°F (-23.3°C)	0°F (-17.8°C)	5°F (-15°C)	10°F (-12.2°C)							
1200				125 (37)	270 (79)	369 (108)	412 (121)	456 (134)						
2400				361 (106)	648 (190)	907 (265)	1035 (303)	1170 (343)						
3600	150 (44)		598 (175)	1002 (293)	1394 (408)	1596 (467)	1807 (529)							
4800	287 (84)		810 (237)	1305 (382)	1805 (529)	2067 (605)	2343 (686)							
6000	398 (117)		971 (284)	1531 (449)	2114 (619)	2424 (710)	2752 (806)							

Power Consumption (24V) - ASHRAE LBP Watt Current (24V) - ASHRAE LBP Amp

RPM	Evaporator Temperature							Evaporator Temperature						
	-40°F	-30°F	-20°F	-10°F	0°F	5°F	10°F	-40°F	-30°F	-20°F	-10°F	0°F	5°F	10°F
1200			66	65	70	73	77			2.74	2.70	2.91	3.06	3.20
2400			124	131	143	150	156			5.16	5.46	5.97	6.25	6.52
3600	174		181	197	216	226	235	7.26		7.56	8.20	9.00	9.41	9.80
4800	222		238	261	287	300	313	9.25		9.91	10.88	11.97	12.51	13.03
6000	268		293	323	357	373	388	11.16		12.19	13.48	14.86	15.53	16.16

Efficiency (24V) - ASHRAE LBP BTU/hr/W (W/W)

RPM	Evaporator Temperature													
	-40°F (-40°C)	-30°F (-34.4°C)	-20°F (-28.9°C)	-10°F (-23.3°C)	0°F (-17.8°C)	5°F (-15°C)	10°F (-12.2°C)							
1200				1.91 (0.56)	4.16 (1.22)	5.28 (1.54)	5.61 (1.64)	5.94 (1.74)						
2400				2.92 (0.85)	4.94 (1.45)	6.32 (1.85)	6.90 (2.02)	7.48 (2.19)						
3600	0.86 (0.25)		3.30 (0.97)	5.09 (1.49)	6.45 (1.89)	7.06 (2.07)	7.68 (2.25)							
4800	1.29 (0.38)		3.40 (1.00)	5.00 (1.46)	6.28 (1.84)	6.88 (2.02)	7.50 (2.19)							
6000	1.49 (0.44)		3.32 (0.97)	4.73 (1.39)	5.93 (1.74)	6.50 (1.90)	7.10 (2.08)							

* all points are at 32.2°C (90°F) ambient temperature, 32.2°C (90°F) suction, 22.2°C (40°F) subcooling, 54.4°C (130°F) condenser

Performance Coefficients (24V) - ASHRAE LBP

Coefficient	Capacity (BTU/Hr)	Power (Watts)	Current (Amperes)	Mass Flow (Lbs/Hr)
C1	-6.252895E+03	-4.800896E+02	-2.000373E+01	
C2	7.395048E-01	2.534866E-02	1.056194E-03	
C3	-6.056295E-06	8.872542E-07	3.696892E-08	
C4	-2.502885E-09	-6.495490E-11	-2.706454E-12	
C5	-8.258790E+01	-2.356231E+00	-9.817630E-02	
C6	1.162955E-01	-1.948092E-03	-8.117049E-05	
C7	5.521708E-03	-6.820388E-04	-2.841828E-05	
C8	1.626969E+02	1.256288E+01	5.234532E-01	
C9	-1.460600E+00	-1.088612E-01	-4.535885E-03	
C10	4.366782E-03	3.109725E-04	1.295719E-05	
C11	8.472870E-04	9.238676E-06	3.849448E-07	
C12	-3.418041E-09	4.917878E-11	2.049116E-12	
C13	1.065786E-06	-7.983661E-08	-3.326525E-09	
C14	-3.368272E-06	-9.556392E-09	-3.981830E-10	
C15	-3.607884E-02	-4.696141E-04	-1.956726E-05	
C16	-3.301109E-03	5.817272E-05	2.423863E-06	
C17	1.312639E+00	4.166666E-02	1.736111E-03	
C18	-4.408118E-07	-9.714582E-09	-4.047743E-10	
C19	-6.873987E-05	6.539642E-06	2.724851E-07	
C20	5.124582E-08	-5.102906E-09	-2.126211E-10	
C21	9.501861E-06	1.662456E-06	6.926899E-08	
C22	-2.004383E-03	1.189047E-04	4.954364E-06	
C23	-5.833719E-03	-1.819432E-04	-7.580968E-06	

TO BE DETERMINED

Performance Equation

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

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