MESA20-0085Y3
R134a
220 V AC
VARIABLE SPEED (2100-6000 rpm)

MASTERFLUX

Brushless DC Variable Speed Compressor Technical Data Sheet

General Information

Compressor Part Number	MESA00003	1/4" (6.54 mm) ID Suction 3/16" (4.95 mm) ID Discharge
Compressor Drawing	DCMX44	
Controller	025F0364	
Controller Drawing	DGMX0090	
Wiring Diagram	DEMX0059	

Design

Number of Cylinders	1
Total Displacement	0.085 in^3 (1.4 cm^3)
Oil Quantity	40 cc
Oil Type	POE - 170 cSt
Weight	2.25 lb / 1.02 kg

Application Information

Application	HBP, A/C
Refrigerant	R134a
Evaporator Temperature Range	-13° F to 68° F (-25° C to 20° C)
Condenser Temperature Range	47.5° F to 162° F (8.6° C to 72° C)
Maximum Discharge Temperature	239° F (115° C)
Maximum Compression Ratio	13:1
Minimum Compressor Cooling	1 m/s airflow over compressor

Rating Condition

	HBP	
Condensing Temperature	130°F	(54.4°C)
Evaporating Temperature	45°F	(7.2°C)
Return Gas Temperature	95°F	(35.0°C)
Liquid Temperature	115°F	(46.1°C)
Ambient Temperature	95°F	(35.0°C)
Compressor Cooling	1 m/s air cooling	
Controller	025F0364	

Packaging Options

- Single Pack (add -SP suffix to part number when ordering)
- Pallet Pack (77 piece multiples) (add -FP suffix to part number when ordering)

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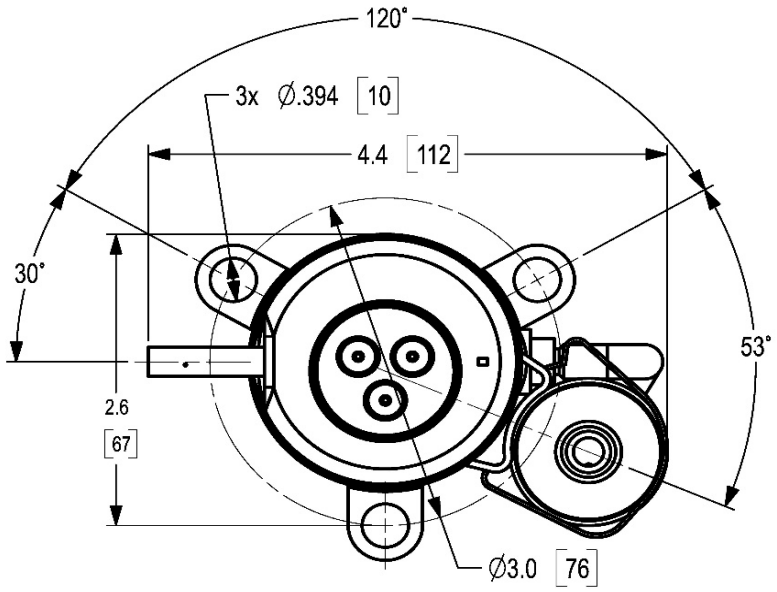
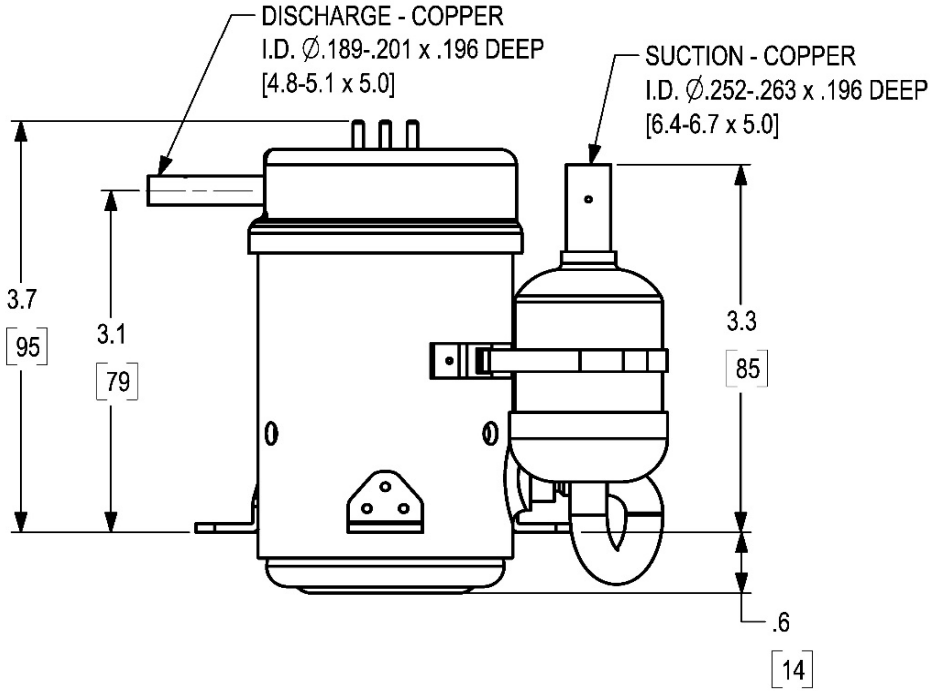
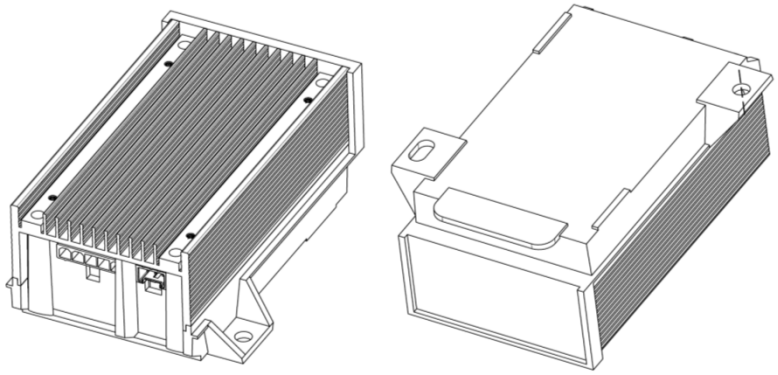
MESA20-0085Y3

Compressor Dimensions





Controller Configuration



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Cooling Capacity (220V) - ASHRAE HBP — BTU/hr (Watt)

	Evaporator Temperature												
RPM	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)
2100	102	(30)	138	(41)	187	(55)	247	(72)	361	(106)	452	(132)	589	(173)
3000	154	(45)	210	(62)	284	(83)	377	(110)	549	(161)	686	(201)	892	(261)
4000	202	(59)	278	(82)	379	(111)	504	(148)	737	(216)	924	(270)	1202	(352)
5000	251	(73)	344	(101)	468	(137)	624	(183)	914	(268)	1146	(336)	1494	(437)
6000	309	(90)	417	(122)	562	(165)	744	(218)	1088	(319)	1363	(399)	1776	(520)

Power Consumption (220V) - ASHRAE HBP — Watt

	Evaporator Temperature						
RPM	0°F	10°F	20°F	30°F	45°F	55°F	68°F
2100	36	40	43	46	50	51	51
3000	43	48	53	56	61	62	62
4000	53	59	65	70	75	77	77
5000	64	72	78	84	90	93	93
6000	75	84	92	99	107	109	110

Current (220V) - ASHRAE HBP — Amp

	Evaporator Temperature						
RPM	0°F	10°F	20°F	30°F	45°F	55°F	68°F
2100	0.16	0.18	0.20	0.21	0.23	0.23	0.23
3000	0.20	0.22	0.24	0.26	0.28	0.28	0.28
4000	0.24	0.27	0.29	0.32	0.34	0.35	0.35
5000	0.29	0.33	0.36	0.38	0.41	0.42	0.42
6000	0.34	0.38	0.42	0.45	0.48	0.50	0.50

Efficiency (220V) - ASHRAE HBP — BTU/hr/W (W/W)

	Evaporator Temperature												
RPM	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)
2100	2.85	(0.84)	3.49	(1.02)	4.31	(1.26)	5.32	(1.56)	7.22	(2.11)	8.84	(2.59)	11.59	(3.39)
3000	3.56	(1.04)	4.37	(1.28)	5.41	(1.58)	6.67	(1.95)	9.04	(2.65)	11.04	(3.23)	14.41	(4.22)
4000	3.80	(1.11)	4.70	(1.37)	5.84	(1.71)	7.24	(2.12)	9.85	(2.88)	12.05	(3.53)	15.69	(4.59)
5000	3.90	(1.14)	4.80	(1.41)	5.97	(1.75)	7.41	(2.17)	10.10	(2.96)	12.36	(3.62)	16.06	(4.70)
6000	4.09	(1.20)	4.94	(1.45)	6.09	(1.78)	7.51	(2.20)	10.20	(2.99)	12.45	(3.65)	16.12	(4.72)

*** 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 (220V) - ASHRAE HBP

Coefficient	Capacity (BTU/Hr)	Power (Watts)	Current (Amperes)	Mass Flow (Lbs/Hr)
C1	4.612708E+03	-6.183829E+02	-2.810831E+00	
C2	2.548038E-01	-1.243190E-02	-5.650865E-05	
C3	-2.236940E-05	1.937916E-06	8.808711E-09	
C4	1.592397E-09	-1.516403E-10	-6.892739E-13	
C5	-7.903501E+00	-4.466434E-01	-2.030197E-03	
C6	-6.398987E-03	-1.584543E-04	-7.202466E-07	
C7	4.805053E-06	-3.822596E-05	-1.737543E-07	
C8	-1.123362E+02	1.509428E+01	6.861037E-02	
C9	8.884358E-01	-1.181477E-01	-5.370350E-04	
C10	-2.325979E-03	3.101686E-04	1.409857E-06	
C11	3.965778E-06	2.545386E-06	1.156994E-08	
C12	-7.509768E-11	1.416299E-10	6.437724E-13	
C13	-1.424988E-07	1.382917E-08	6.285986E-11	
C14	-5.140162E-08	-8.913032E-09	-4.051378E-11	
C15	2.979489E-03	-7.664682E-05	-3.483947E-07	
C16	-1.305014E-03	1.282637E-04	5.830167E-07	
C17	9.162342E-02	5.434298E-03	2.470135E-05	
C18	-1.259063E-07	-1.380631E-08	-6.275595E-11	
C19	5.042843E-05	-2.776962E-06	-1.262255E-08	
C20	2.549019E-08	3.161661E-09	1.437119E-11	
C21	2.234097E-06	-3.002857E-07	-1.364935E-09	
C22	2.476788E-06	1.884300E-05	8.565001E-08	
C23	-3.505034E-04	-6.841049E-06	-3.109568E-08	

TO BE DETERMINED

Performance Equation

$$Y=C_1+C_2x_1+C_3x_1^2+C_4x_1^3+C_5x_2+C_6x_2^2+C_7x_2^3+C_8x_3+C_9x_3^2+C_{10}x_3^3+C_{11}x_1x_2x_3+C_{12}x_1^2x_2x_3+C_{13}x_1x_2^2x_3+C_{14}x_1x_2x_3^2+C_{15}x_1x_2+C_{16}x_1x_3+C_{17}x_2x_3+C_{18}x_1^2x_2+C_{19}x_1x_2^2+C_{20}x_1^2x_3+C_{21}x_1x_3^2+C_{22}x_2^2x_3+C_{23}x_2x_3^2$$

x_1 = RPM
x_2 = E_t (°F)
x_3 = C_t (°F)