

SINGLE PIECE FAN COIL/AIR HANDLER

FOR USE WITH SPLIT SYSTEM COOLING ONLY ELECTRIC OR
HYDRONIC HEAT AND HEAT PUMP

MODELS

MSVT (Constant Torque Motor)

MSVE (ECM Motor)

SEE PAGE 2 FOR MODEL NUMBER NOMENCLATURE



Due to continuous product improvements, these specifications are subject to change without notice.

Visit us at www.mortx.com (click Suntherm logo) For the most up to date technical information.

DESCRIPTION:

This fan coil/air handler provides the flexibility for installation in any upflow or horizontal application. These versatile models may be used for split system cooling or heat pump operation. Compact cabinets along with return air options in both the upflow and horizontal positions allow this unit to fit into tight spaces such as closets, attics, and crawl spaces.

NOTE:

MS Series air handlers are AHRI rated with most manufacturer's condensing units and heat pumps. Contact the point of purchase or factory for certified performance ratings.

FEATURES:

CABINET-The cabinet is constructed of heavy gauge galvanized steel. Standard cabinets are pre-painted steel for the top, coil and blower doors, the cabinet wrapper is heavy gauge embossed galvanized steel. Options are available for fully painted cabinets. The cabinet is insulated with 1" R-4.5 insulation to prevent sweating and to improve efficiency. Units can be ordered to meet 2% air leakage codes where required.

BLOWERS-Blowers are sized to both circulate air quietly and efficiently. All blower/motor combinations are fully factory tested in our labs to optimize air flow and power usage. Available motors include 5 tap constant torque motors and full variable speed electronically commutated motors (ECM).

COILS-Mortex Products, Inc. has manufactured its own coils for over 50 years. Using the latest in heat transfer technology, our rifled copper tube/aluminum fin coils produce high performance ratings and provide long lasting quality. All coils are pressure tested with nitrogen at 500 psig underwater. All copper coils are UL certified at 2500 psig burst test pressure. All coils are fully tested in our own Psychometric environmental chambers. Contact factory for other tube and fin options.

TXV'S-Factory or field mounted, bolt on Thermostat Expansion Valves are available in R-410A, R-32, or R-454B variants. The TXV's are all non-adjustable and have been optimized per Mortex specifications for performance and efficiency.

ELECTRIC HEATERS-Electric heaters are available from 5 to 20 KW with or without circuit breakers, NOTE: Circuit breakers are required per UL over 10 KW. Electric heaters can be factory installed or provided as a field installed accessory.

HYDRONIC HEAT-Optional hot water coils are available for all models. These coils are also manufactured at Mortex and are available in 2,3,4 rows, see heating performance tables for further data.

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For more information contact Customer Service 817-624-0820
or your SunTherm Representative.

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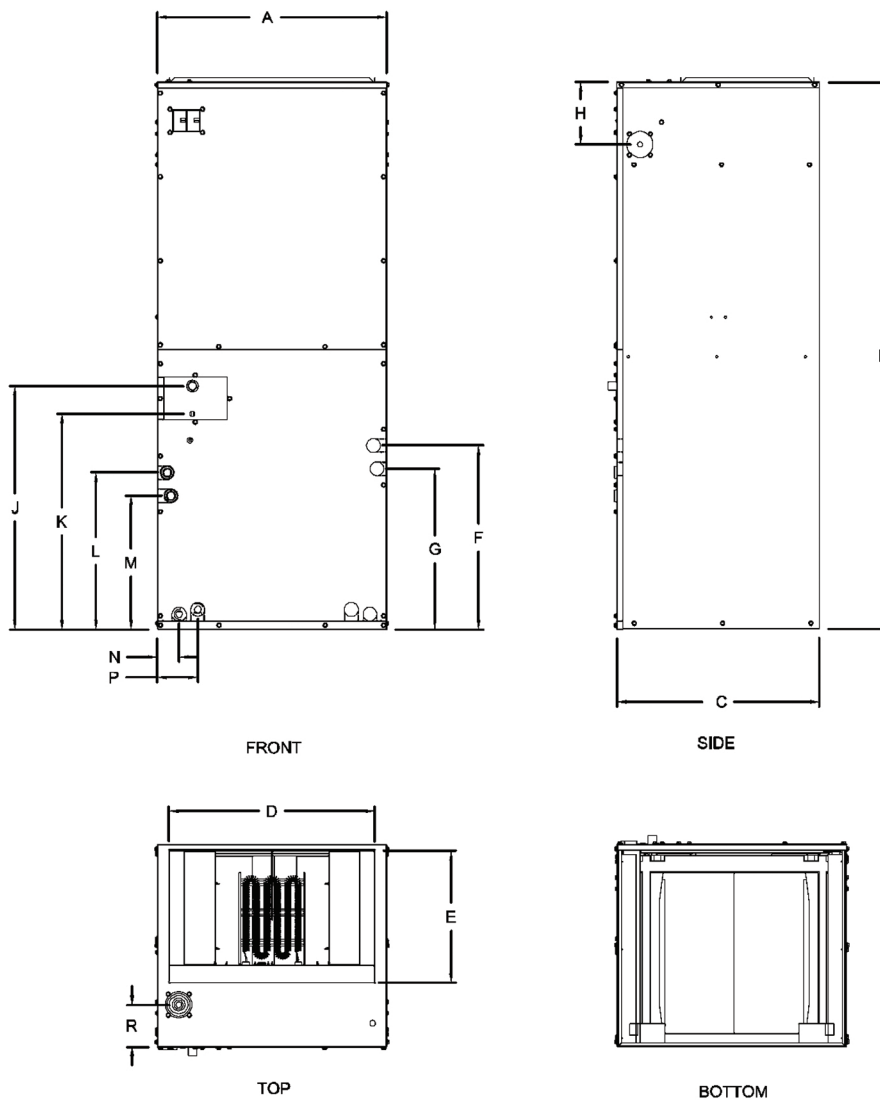
MODEL NUMBER NOMENCLATURE

MS	VE	36	15	B	862T	AA
I	II	III	IV	V	VI	VII
I	Series: MS=Multi-Position Single-Piece US=Upflow Single-Piece					
II	Motor Type: VT=Constant Torque ECM VE=Variable Speed ECM					
III	Unit Size (Capacity In MBTUH): 12 Thru 24 Small Cabinet 25 Thru 36 Medium Cabinet 37 Thru 60 Large Cabinet OS=No Cooling Small Cabinet OM=No Cooling Medium Cabinet OL=No Cooling Large Cabinet					
IV	Heating Configuration: 00=Cooling Only XX=Electric Heating Capacity In KW 2P=2 Row HW Coil With Pump 3P=3 Row HW Coil With Pump 4P=4 Row HW Coil With Pump 2N=2 Row HW Coil No Pump 3N=3 Row HW Coil No Pump 4N=4 Row HW Coil No Pump					
V	Voltage: A=120v 1 Ph. 50/60 Hz. B=208/240v 1 Ph. 50/60 Hz. Contact Factory For Other Voltage Availability					
VI	Evaporator Coil Configuration: 862T=DX Coil Geometry And Metering Device (Refer To Coil Nomenclature) 8K2N=CW Coil Geometry (Refer To Coil Nomenclature)					
VII	Option Code: AA= Standard Configuration					

FIELD INSTALLED ELECTRIC HEAT KIT MODEL NUMBER NOMENCLATURE

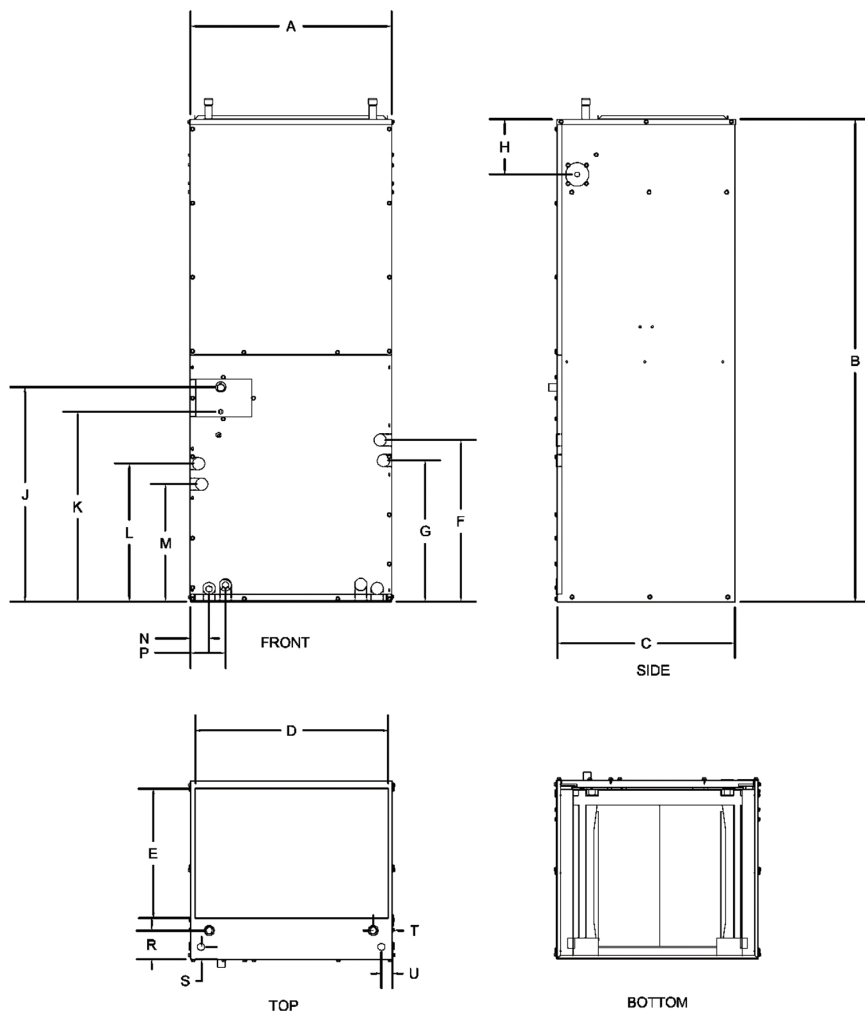
I	II	III	IV	V
B	SE	HK	05	B
I	TYPE B=Breaker S=No Breaker			
II	SERIES SE=Small Cabinet ECM Motor MSVE18,24 ME=Medium Cabinet ECM Motor MSVE25,30,36 LE=Large Cabinet ECM Motor MSVE37,42,48,60 SX=Small Cabinet Constant Torque Motor MSVT18,24 MX=Medium Cabinet Constant Torque Motor MSVT25,30,36 LX=Large Cabinet Constant Torque Motor MSVT37,42,48,60			
III	ACCESSORY HK=Electric Heat Kit			
IV	HEATING CAPACITY KW @ 240V/1PH. 05=5 KW 10=10KW 15=15KW 20=20KW			
V	VOLTAGE C=208/240V 1PH 50/60HZ			

DIMENSIONAL DATA COOL ONLY OR ELECTRIC HEAT



DIMENSIONAL DATA MULTI-POSITION AIR HANDLER COOL ONLY OR ELECTRIC HEAT															
Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
MS**18, 24	17.50	43.00	21.00	15.63	12.50	13.50	11.00	6.75	16.75	14.00	11.00	10.75	2.00	1.50	5.00
MS**25, 30, 36	21.00	48.00	21.00	19.00	12.50	14.50	13.00	6.75	20.00	17.00	12.75	10.30	2.30	4.35	5.00
MS**37, 42, 48, 60	24.50	58.88	21.75	22.25	14.25	19.75	17.25	6.75	26.00	23.00	16.75	14.35	2.30	4.35	4.50

DIMENSIONAL DATA HYDRONIC HEAT



DIMENSIONAL DATA MULTI-POSITION AIR HANDLER HYDRONIC HEAT									
Model	A	B	C	D	E	F	G	H	J
MS** 18, 24	17.50	43.00	21.00	15.63	12.50	13.50	11.00	6.75	16.75
MS** 25, 30, 36	21.00	48.00	21.00	19.00	12.50	14.50	13.00	6.75	20.00
MS** 37, 42, 48, 60	24.50	58.88	21.75	22.25	14.25	19.75	17.25	6.75	26.00
Model	K	L	M	N	P	R	S	T	U
MS** 18, 24	14.00	11.00	11.00	2.00	1.50	3.30	1.00	1.50	1.00
MS** 25, 30, 36	17.00	13.00	10.30	2.30	4.35	3.75	1.75	2.50	1.50
MS** 37, 42, 48, 60	23.00	16.75	14.35	2.30	4.35	3.75	1.50	2.25	1.25

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Model Number	Motor HP	Volts 1 Ph. 60 Hz	Motor Code	Blower Wheel	Speed Tap	CFM @ 0.10" ESP	CFM @ 0.20" ESP	CFM @ 0.30" ESP	CFM @ 0.40" ESP	CFM @ 0.50" ESP	CFM @ 0.60" ESP
MSVT18 Electric Heat	0.33	208/240	VD1	10 X 7	1	699	639	565	536	451	402
					2	741	676	592	517	527	458
					3	908	849	777	679	745	655
					4	1022	963	905	840	761	703
					5	1102	1054	996	928	884	812
MSVT24 Electric Heat	0.33	208/240	VD1	10 X 7	1	861	786	708	638	547	615
					2	924	872	814	726	663	656
					3	1067	1013	963	894	826	758
					4	1139	1093	1042	982	918	857
					5	1220	1157	1105	1049	985	893
MSVT25 Electric Heat	0.50	208/240	VE1	10 X 8	1	995	934	855	793	712	649
					2	1047	994	926	876	782	700
					3	1146	1075	1019	957	880	811
					4	1224	1161	1099	1030	972	904
					5	1300	1247	1186	1115	1058	996
MSVT30 Electric Heat	0.50	208/240	VE1	10 X 8	1	898	829	784	741	691	604
					2	999	962	918	888	847	811
					3	1164	1120	1087	1060	1022	990
					4	1260	1222	1197	1162	1131	1098
					5	1353	1321	1289	1258	1229	1197
MSVT36 Electric Heat	0.50	208/240	VE1	10 X 8	1	1161	1135	1086	1056	1027	992
					2	1261	1228	1198	1153	1129	1100
					3	1361	1310	1286	1262	1227	1201
					4	1478	1431	1405	1383	1351	1309
					5	1568	1536	1507	1470	1440	1400
MSVT37 Electric Heat	0.75	208/240	VF1	12 X 9	1	1466	1406	1249	1198	1150	1075
					2	1487	1454	1383	1328	1291	1231
					3	1516	1508	1462	1415	1365	1319
					4	1588	1600	1569	1520	1471	1423
					5	1672	1672	1657	1619	1557	1520
MSVT42 Electric Heat	0.75	208/240	VF1	12 X 9	1	1483	1458	1370	1315	1267	1238
					2	1524	1503	1445	1392	1343	1286
					3	1587	1607	1556	1512	1466	1423
					4	1671	1648	1667	1607	1572	1532
					5	1707	1685	1722	1678	1633	1599
MSVT48 Electric Heat	0.75	208/240	VF1	12 X 9	1	1579	1560	1544	1491	1445	1397
					2	1685	1671	1626	1587	1544	1507
					3	1739	1746	1711	1674	1629	1579
					4	1802	1778	1809	1764	1718	1682
					5	1876	1870	1896	1870	1836	1782
MSVT60 Electric Heat	0.75	208/240	VF1	12 X 9	1	1579	1560	1544	1491	1445	1397
					2	1685	1671	1626	1587	1544	1507
					3	1745	1734	1745	1712	1656	1616
					4	1958	1953	1943	1919	1874	1828
					5	2038	2015	2010	2005	1977	1934
MSVT72 Electric Heat	1.00	208/240	VV	12 X 10	1	1910	1865	1826	1787	1750	1715
					2	2088	2054	2019	1969	1932	1895
					3	2240	2201	2162	2129	2088	2050
					4	2370	2339	2290	2246	2208	2170
					5	2504	2470	2441	2393	2351	2310

Single-Stage Cooling MSVT Performance Chart - Electric Heat Models - Constant Torque Motors - Without Air Filter

Note: 1) Minimum CFM for Electric Heat: 5 - 10kW = 650 CFM; 15kW = 1000 CFM; 20 kW = 1400 CFM

Model Number	Nominal Tons	Motor HP	Volts 1 Ph. 50/60 Hz.	Motor Code	Blower Wheel	Jumper	CFM @ 0.10"	CFM @ 0.20"	CFM @ 0.30"	CFM @ 0.40"	CFM @ 0.50"
M*VE18,24 Electric Heat	1.5 - 2.0	1/3	208/240	VA	9 X 6	A	837	837	824	817	806
						B	744	733	721	717	713
						C	705	697	689	681	677
						D	634	620	615	611	602
M*VE25,30,36 Electric Heat	1.5 - 3.0	1/2	208/240	VB	10 X 7	A	1422	1421	1421	1416	1416
						B	1215	1214	1214	1214	1208
						C	898	989	989	982	969
						D	865	865	865	866	858
M*VE37,42,48,60 Electric Heat	5.0	3/4	208/240	VC	12 X 9	A	1957	1919	1900	1871	1847
						B	1576	1565	1547	1517	1487
						C	1495	1482	1451	1432	1409
						D	1411	1385	1372	1338	1311
M*VE72 Electric Heat	6.0	1	208/240	VU	12 X 10	A	2393	2393	2393	2393	2388
						B	2227	2227	2221	2221	2221
						C	2012	2012	2005	2005	2005
						D	1795	1795	1795	1795	1795

MSVE Blower Performance Chart - Electric Heat Models - ECM Motors (Y1+Y2, W1, or W2) Without Air Filter

- Notes: 1) For single-stage cooling/heat pump systems, connect the wire from the "Y" thermostat terminal to both the "Y1" and "Y2" air handler low voltage pigtails to assure full nominal airflow.
2) "Y1" CFM (1st stage cooling/heat pump heating) is approximately 70% of the values shown in Table 19.
3) Continuous fan CFM is approximately 50% of the values shown in Table 19.
4) Minimum CFM for Electric Heat: 5 - 10kW = 650 CFM; 15kW = 1000 CFM; 20 kW = 1400 CFM

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Model Number	Motor HP	Volts 1 Ph. 50/60 Hz	Blower Code	Blower Wheel	Speed Tap Descriptions	Speed Tap	CFM @ 0.10" E.S.P	CFM @ 0.20" E.S.P	CFM @ 0.30" E.S.P	CFM @ 0.40" E.S.P	CFM @ 0.50" E.S.P	CFM @ 0.60" E.S.P	CFM @ 0.70" E.S.P
MSVT18**B MSVT24**B Electric Heat	1/3	208/240	VD2	10 X 7	2nd Stage - 2.0 Tons	5	1062	999	938	873	799	785	707
					2nd Stage - 1.5 Tons	4	880	835	771	726	653	577	509
					1st Stage - 2.0 Tons	3	744	679	628	538	511	442	348
					1st Stage - 1.5 Tons	2	634	546	464	403	348	292	209
					All Heating kW's	1	962	906	836	768	776	704	646
MSVT25**B Electric Heat	1/2	208/240	VE2	10 X 8	2nd Stage - 2.0 Tons	5	1072	1015	952	880	810	776	700
					2nd Stage - 1.5 Tons	4	929	871	821	737	683	589	589
					1st Stage - 2.0 Tons	3	816	706	634	558	527	434	347
					1st Stage - 1.5 Tons	2	786	635	482	404	338	264	200
					All Heating kW's	1	980	933	860	791	720	709	627
MSVT30**B MSVT36**B Electric Heat	1/2	208/240	VE2	10 X 8	2nd Stage - 3.0 Tons	5	1467	1415	1356	1286	1272	1196	1095
					2nd Stage - 2.5 Tons	4	1280	1210	1140	1060	988	995	915
					1st Stage - 3.0 Tons	3	1061	1001	934	865	794	766	682
					1st Stage - 2.5 Tons	2	908	849	779	702	676	611	596
					All Heating kW's	1	1302	1221	1141	1065	982	992	923
MSVT37**B Electric Heat	3/4	208/240	VF2	12 X 9	2nd Stage - 3.0 Tons	5	1541	1500	1425	1349	1262	1172	1083
					2nd Stage - 2.5 Tons	4	1458	1320	1194	1088	1065	998	814
					1st Stage - 3.0 Tons	3	1319	1178	946	588	558	445	354
					1st Stage - 2.5 Tons	2	1306	1094	928	425	220	---	---
					All Heating kW's	1	1451	1320	1198	1097	1062	989	860
MSVT42**B MSVT48**B Electric Heat	3/4	208/240	VF2	12 X 9	2nd Stage - 4.0 Tons	5	1950	1896	1858	1801	1711	1611	1515
					2nd Stage - 3.5 Tons	4	1775	1726	1669	1600	1487	1384	1378
					1st Stage - 4.0 Tons	3	1464	1411	1260	1170	1062	978	945
					1st Stage - 3.5 Tons	2	1478	1352	1131	995	967	852	848
					All Heating kW's	1	1793	1759	1697	1623	1522	1464	1406
MSVT60**B Electric Heat	3/4	208/240	VF2	12 X 9	2nd Stage - 5.0 Tons	5	2100	2054	2016	1942	1865	1780	1681
					2nd Stage - 4.5 Tons	4	1942	1920	1870	1795	1696	1586	1485
					1st Stage - 5.0 Tons	3	1546	1480	1402	1295	1200	1182	1082
					1st Stage - 4.5 Tons	2	1498	1371	1226	1126	1026	1034	1026
					All Heating kW's	1	1663	1625	1545	1466	1368	1273	1170

2-Stage Cooling MSVT Blower Performance Chart - Electric Heat Models - Constant Torque Motors - Without Air Filter

Notes:

- 1) Minimum CFM for Electric Heat: 5 - 10kW = 650 CFM; 15kW = 1000 CFM; 20 kW = 1400 CFM
- 2) The motor speed tap for electric heat is connected to Speed Tap 1 on the motor terminal block from the factory.
Speed tap 1 is designed to provide sufficient CFM for all kW's available in a specific model, but may result in a lower than desired supply temperature for lower kW heaters. The heating speed tap on the motor terminal block may be moved to another available speed tap with lower CFM as long as the minimum CFM requirement for the installed electric heater kW is met.

Model Number	Motor HP	Volts 1 Ph. 50/60 Hz.	Motor Code	Blower Wheel	Speed Tap	CFM @ 0.10" ESP	CFM @ 0.20" ESP	CFM @ 0.30" ESP	CFM @ 0.40" ESP	CFM @ 0.50" ESP	CFM @ 0.60" ESP
MSVT18 MSVT24 Hydronic Heat	0.50	115	VJ1	10 X 8	1	710	626	552	436	429	376
					2	848	788	732	646	552	537
					3	908	844	789	747	678	570
					4	1076	1020	972	899	808	667
					5	1187	1111	1040	962	842	691
MSVT25 Hydronic Heat	0.75	115	VK1	10 X 8	1	911	839	788	717	695	590
					2	1030	909	909	842	766	761
					3	1080	1023	976	920	849	780
					4	1158	1104	1038	985	917	861
					5	1254	1203	1146	1093	1035	973
MSVT30 Hydronic Heat	0.75	115	VK1	10 X 8	1	1018	973	935	902	858	808
					2	1065	1022	989	958	923	880
					3	1154	1118	1082	1051	1020	984
					4	1269	1231	1191	1166	1135	1111
					5	1358	1326	1294	1270	1237	1210
MSVT36 Hydronic Heat	0.75	115	VK1	10 X 8	1	1158	1121	1086	1053	1024	994
					2	1267	1236	1199	1166	1140	1105
					3	1358	1327	1290	1260	1236	1204
					4	1608	1545	1483	1414	1332	1255
					5	1643	1589	1512	1431	1351	1279
MSVT37 Hydronic Heat	1.00	115	VX1	12 X 10	1	1240	1202	1145	1088	1027	975
					2	1344	1307	1254	1202	1161	1096
					3	1409	1369	1324	1278	1237	1175
					4	1504	1453	1414	1373	1312	1273
					5	1589	1558	1504	1462	1409	1373
MSVT 42 Hydronic Heat	1.00	115	VX1	12 X 10	1	1445	1395	1354	1306	1251	1215
					2	1522	1479	1440	1391	1344	1296
					3	1603	1571	1518	1484	1431	1381
					4	1692	1650	1615	1575	1530	1484
					5	1805	1758	1722	1681	1638	1595
MSVT48 Hydronic Heat	1.00	115	VX1	12 X 10	1	1592	1560	1511	1473	1430	1376
					2	1691	1658	1627	1576	1540	1494
					3	1789	1750	1717	1677	1631	1592
					4	1888	1847	1817	1771	1739	1695
					5	2162	2091	2031	1950	1880	1796
MSVT60 Hydronic Heat	1.00	115	VX1	12 X 10	1	1564	1523	1482	1421	1381	1336
					2	1653	1607	1564	1511	1477	1435
					3	1734	1701	1653	1618	1572	1523
					4	1895	1849	1818	1773	1730	1683
					5	2151	2085	2015	1939	1870	1776

M*VT Blower Performance Chart – Hydronic Heat Models - Constant Torque Motors With Hot Water Coil - Without Air Filter
Note: For MMVT Series modular air handlers, the ESP in the table assumes a typical cooling coil has been installed on the air handler.

Model Number	Nominal Tons	Motor HP	Volts 1 Ph. 50/60 Hz	Motor Code	Blower Wheel	Jumper	CFM @ 0.10"	CFM @ 0.20"	CFM @ 0.30"	CFM @ 0.40"	CFM @ 0.50"
MSVE18,24 Hydronic Heat	1.5 & 2.0	0.33	115	VG	10X7	A	884	884	884	880	880
						B	799	792	789	789	789
						C	691	691	691	691	690
						D	589	589	589	589	584
MSVE25,30,36 Hydronic Heat	1.5 Thru 3.0	0.50	115	VH	10 X 7	A	1294	1255	1200	1137	1058
						B	1131	1104	1075	1082	1023
						C	974	942	909	853	831
						D	808	769	736	702	657
MSVE37,42,48,60 Hydronic Heat	3.0 Thru 5.0	1.00	115	VI	12 X 9	A	2001	1994	1994	1987	1972
						B	1820	1820	1820	1804	1796
						C	1587	1599	1604	1604	1604
						D	1385	1385	1385	1385	1385
MSVE72 Hydronic Heat	6.0	1.00	115	VW	12 X 10	A	2132	2119	2091	2077	2063
						B	1921	1901	1901	1886	1886
						C	1724	1724	1724	1724	1707
						D	1508	1508	1508	1488	1488

M*VE Blower Performance Chart – Hydronic Heat Models - ECM Motors (Y1+Y2, W) With Hot Water Coil - Without Air Filter

Notes: 1) For single-stage cooling/heat pump systems, connect the wire from the "Y" thermostat terminal to both the "Y1" and "Y2" air handler low voltage pigtail to assure full nominal airflow.
2) "Y1" CFM (1st stage cooling/heat pump heating) is approximately 70% of the values shown in Table 22.
3) Continuous fan CFM is approximately 50% of the values shown in Table 22.

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AIR HANDLER MODELS														
	M*VE 18, 24			M*VT 18, 24			M*VE 25, 30, 36				M*VT 25, 30, 36			
5 kw Heater Amps - 208/240 VAC	18.0/20.8			18.0/20.8			18.0/20.8				18.0/20.8			
10 kW Heater Amps - 208/240 VAC	36.1/41.7			36.1/41.7			36.1/41.7				36.1/41.7			
15 kW Heater Amps - 208/240 VAC	N/A			N/A			54.1/62.5				54.1/62.5			
Indoor Blower Motor Type	ECM			CONSTANT TORQUE			ECM				CONSTANT TORQUE			
Indoor Blower Amps – 208/240 VAC	3.81/4.40			2.43/2.80			4.33/5.00				3.55/4.10			
Heater - kW	0	5	10	0	5	10	0	5	10	15	0	5	10	15
Minimum Circuit Ampacity	5.50	31.54	56.48	3.50	29.54	55.58	6.25	32.29	58.33	84.37	5.13	31.17	57.21	83.25
Min. Wire Size (90°C)	#14	#12	#8	#14	#12	#8	#14	#12	#8	#4	#14	#12	#8	#4
Minimum Wire Size (75°C)	#14	#10	#6	#14	#10	#6	#14	#10	#6	#4	#14	#10	#6	#4
Minimum Wire Size (60°C)	#14	#10	#6	#14	#10	#6	#14	#10	#6	#3	#14	#10	#6	#3
Ground Wire Size	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Maximum Overcurrent Protection Amps **	15	35	60	15	30	60	15	35	60	90	15	35	60	90

Electrical Data: 18-36 kBTU Models - Single Branch Circuit

15kW and 20 kW models may have a dual or single power supply. Single power supply requires a jumper bar or a jumper wire.

+ Refer to the National Electrical Code Table 250-95 for Non-Sheathed Conductor Ground Wire.

* Ground conductor must be the same size and temperature rating as the other conductors listed in the above table.

** Circuit breakers must be HACR type.

AIR HANDLER MODELS																				
	M*VE 37, 42, 48, 60					M*VT 37, 42, 48, 60					M*VE 72					M*VT 72				
5 kW Heater Amps - 208/240 VAC	18.0/20.8					18.0/20.8					18.0/20.8					18.0/20.8				
10 kW Heater Amps - 208/240 VAC	36.1/41.7					36.1/41.7					36.1/41.7					36.1/41.7				
15 kW Heater Amps - 208/240 VAC	54.1/62.5					54.1/62.5					54.1/62.5					54.1/62.5				
20 kW Heater Amps - 208/240 VAC	72.2/83.4					72.2/83.4					72.2/83.4					72.2/83.4				
Indoor Blower Motor Type	ECM					CONSTANT TORQUE					ECM					CONSTANT TORQUE				
Indoor Blower Amps – 208/240 VAC	5.46/6.30					5.37/6.20					5.98/6.32					5.46/6.30				
Heater - kW	0	5	10	15	20	0	5	10	15	20	0	5	10	15	20	0	5	10	15	20
Minimum Circuit Ampacity	7.88	33.92	59.96	86.00	112.04	7.75	33.79	59.83	85.67	111.91	7.90	33.94	59.98	86.02	112.06	7.88	33.92	59.96	86.00	112.04
Min. Wire Size (90°C)	#14	#12	#6	#4	#3	#14	#12	#6	#4	#3	#14	#10	#6	#4	#3	#14	#10	#6	#4	#2
Minimum Wire Size (75°C)	#14	#10	#6	#4	#2	#14	#10	#6	#4	#2	#14	#10	#6	#4	#2	#14	#10	#6	#3	#2
Minimum Wire Size (60°C)	#14	#10	#4	#3	#1	#14	#10	#4	#3	#1	#14	#8	#4	#3	#1	#14	#8	#4	#2	#1
Ground Wire Size	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Maximum Overcurrent Protection Amps **	15	35	60	90	120	15	35	60	90	120	15	35	60	90	110	15	35	60	90	120

Electrical Data: 37-72 kBTU Models - Single Branch Circuit

15kW and 20kW models may have a dual or single power supply. Single power supply requires a jumper bar or a jumper wire.

+ Refer to the National Electrical Code Table 250-95 for Non-Sheathed Conductor Ground Wire.

* Ground conductor must be the same size and temperature rating as the other conductors listed in the above table.

** Circuit breakers must be HACR type.

AIR HANDLER MODELS																	
	M*VE 37, 42, 48, 60				M*VT 37, 42, 48, 60				M*VE 72				M*VT 72				
Circuit Number	1		2		1		2		1		2		1		2		
15 kW Heater Amps - 208/240 VAC	36.1/41.7		18.0/20.8		36.1/41.7		18.0/20.8		36.1/41.7		18.0/20.8		36.1/41.7		18.0/20.8		
20 kW Heater Amps - 208/240 VAC	36.1/41.7		36.1/41.7		36.1/41.7		36.1/41.7		36.1/41.7		36.1/41.7		36.1/41.7		36.1/41.7		
Indoor Blower Motor Type	ECM				CONSTANT TORQUE				ECM				CONSTANT TORQUE				
Indoor Blower Amps	5.46/6.30				5.37/6.20				5.48/6.32				5.46/6.30				
Heater - kW	15		20		15		20		15		20		15		20		
Circuit Number	1 (10kW)	2 (5kW)	1 (10kW)	2 (10kW)	1 (10kW)	2 (5kW)	1 (10kW)	2 (10kW)	1 (10kW)	2 (5kW)	1 (10kW)	2 (10kW)	1 (10kW)	2 (5kW)	1 (10kW)	2 (10kW)	
Minimum Circuit Ampacity	59.96	26.04	59.96	52.08	59.83	26.04	59.83	52.08	59.98	26.04	59.98	52.08	59.96	26.04	59.96	52.08	
Minimum Wire Size (90°C)	#8	#12	#8	#8	#8	#12	#8	#8	#8	#12	#8	#8	#8	#12	#6	#8	
Minimum Wire Size (75°C)	#6	#10	#6	#6	#6	#10	#6	#6	#6	#10	#6	#6	#6	#10	#6	#6	
Minimum Wire Size (60°C)	#6	#10	#6	#6	#6	#10	#6	#6	#6	#10	#6	#6	#6	#10	#4	#6	
Ground Wire Size	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Maximum Overcurrent Protection Amps **	60	30	60	60	60	30	60	60	60	30	60	60	60	30	60	60	

Electrical Data: 37-72 kBTU Models - Dual Branch Circuit

+ Refer to the National Electrical Code Table 250-95 for Non-Sheathed Conductor Ground Wire.

* Ground conductor must be the same size and temperature rating as the other conductors listed in the above table.

** Circuit breakers must be HACR type.

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AIR HANDLER MODELS				
	M*VE 18, 24	M*VT 18, 24	M*VE 25, 30, 36	M*VT 25, 30, 36
Indoor Blower Type	ECM	Constant Torque	ECM	Constant Torque
Indoor Blower Amps	7.30	4.80	8.40	8.40
Minimum Circuit Ampacity	9.13	6.00	10.50	10.50
Minimum Wire Size (90°C)	#14	#14	#14	#14
Minimum Wire Size (75°C)	#14	#14	#14	#14
Minimum Wire Size (60°C)	#14	#14	#14	#14
Ground Wire Size	*	*	*	*
Maximum Overcurrent Protection Amps**	15	15	15	15
Water Pump Amps	0.57	0.57	0.57	0.57
MCA with Water Pump	9.84	6.71	11.21	11.21

Table 16: Wiring Requirements – 115 VAC Hydronic 18-36 kBTU Models - Single Branch Circuit - Single Stage Cooling Airflow Version

+ Refer to the National Electrical Code Table 250-95 for Non-Sheathed Conductor Ground Wire.

* Ground conductor **must be the same size and temperature rating** as the other conductors listed in the above table.

** Circuit breakers must be HACR type.

AIR HANDLER MODELS			
	M*VE 37,42,48,60	MS*T 37, 42, 48, 60	M*VE 72
Indoor Blower Type	ECM	Constant Torque	ECM
Indoor Blower Amps	12.80	10.90	12.80
Minimum Circuit Ampacity	16.00	13.63	16.00
Minimum Wire Size (90°C)	#12	#14	#12
Minimum Wire Size (75°C)	#12	#14	#12
Minimum Wire Size (60°C)	#12	#14	#12
Ground Wire Size	*	*	*
Maximum Overcurrent Protection Amps**	20	15	20
Water Pump Amps	0.57	0.57	0.57
CA with Water Pump	16.71	14.34	16.71

Table 17: Wiring Requirements – 115 VAC Hydronic 37-72k BTU Models - Single Branch Circuit - Single Stage Cooling Airflow Version

+ Refer to the National Electrical Code Table 250-95 for Non-Sheathed Conductor Ground Wire.

* Ground conductor **must be the same size and temperature rating** as the other conductors listed in the above table.

Cabinet or cabinet must be permanently grounded in accordance with the National Electrical Code or other applicable codes.

** Circuit breakers must be HACR type.

HOT WATER CAPACITY-WITH FACTORY PUMP 65°F EAT @ ST ATED EWT											
MODEL	CFM	GPM	"BTUH 120°F"	"BTUH 130°F"	"BTUH 140°F"	"BTUH 150°F"	"BTUH 160°F"	"APD IWC"	ROWS	FPI	
SMALL CABINET 1.5 & 2.0 TON											
MS**18	500	4	13600	16200	18840	21510	24200	0.07	2	12	
	600		14890	17760	20660	23600	26570	0.09			
	700		15990	19090	22230	25410	28620	0.12			
MS**24	600		14890	17760	20660	23600	26570	0.09	2		
	800		16960	20250	23600	26990	30420	0.15			
	900		17810	21280	24810	28390	32010	0.19			
MEDIUM CABINET 2.0, 2.5, 3.0 TON											
MS**25	600	4	16210	16320	22460	25630	28820	0.07	2	12	
	800		18620	22220	25860	29540	33260	0.11			
	900		19620	23420	27270	31170	35110	0.13			
	600		21010	25000	29030	33090	37190	0.10	3		
	800		24490	29180	33930	38720	43560	0.16			
	900		25940	30920	35960	41060	46210	0.20			
MS**30	900		19620	23420	27270	31170	35110	0.13	2		
	1000		20510	24500	28540	32630	36770	0.16			
	1200		22050	26350	30720	35150	39630	0.22			3
	900		25940	30920	35960	41060	46210	0.20			
	1000		27230	32470	37780	43160	48580	0.24			
	1200		29440	35140	40910	46760	52670	0.33			
MS**36	1000		20510	24500	28540	32630	36770	0.16	2		
	1200		22050	26350	30720	35150	39630	0.22			
	1400		23340	27910	32550	37260	42040	0.29			3
	1000		27230	32470	37780	43160	48580	0.24			
	1200		29440	35140	40910	46760	52670	0.33			
	1400		31270	37350	43510	49750	56070	0.43			
LARGE CABINET 3.0, 3.5, 4.0, 5.0 TON											
MS**37	1000	7	26320	31350	36430	41570	46740	0.09	2	12	
	1200		28770	34300	39900	45550	51260	0.12			
	1400		30880	36840	42880	48980	55140	0.15	3		
	1000		34230	40720	47280	53890	60550	0.13			
	1200		37800	45010	52290	59640	67050	0.18			
	1400		40860	48690	56600	64590	72660	0.23	4		
	1000		39630	47090	54620	62190	69810	0.17			
	1200		44170	52530	60960	69460	78020	0.23			
	1400		48080	57220	66440	75750	85130	0.31			
	MS**42		1200	28770	34300	39900	45550	51260	0.12		2
1400			30880	36840	42880	48980	55140	0.15			
1600			32720	39050	45470	51970	58540	0.19	3		
1200			37800	45010	52290	59640	67050	0.18			
1400			40860	48690	56600	64590	72660	0.23	4		
1600			43530	51890	60360	68910	77550	0.29			
1200			44170	52530	60960	69460	78020	0.23			
1400			48080	57220	66440	75750	85130	0.31			
1600			51490	61310	71230	81250	91340	0.39			
MS**48			1400	30880	36840	42880	48980	55140	0.15		2
	1600		32720	39050	45470	51970	58540	0.19			
	1800		34340	41010	47770	54620	61550	0.24	3		
	1400		40860	48690	56600	64590	72660	0.23			
	1600		43530	51890	60360	68910	77550	0.29	4		
	1800		45870	54710	63670	72720	81870	0.36			
	1400		48080	57220	66440	75750	85130	0.31			
	1600		51490	61310	71230	81250	91340	0.39			
	1800		54490	64910	75450	86090	96820	0.47			
	MS**60		1800	34340	41010	47770	54620	61550	0.24		2
2000			35780	42750	49820	56990	64240	0.28			
2100			36450	43550	50770	58080	65480	0.31	3		
1800			45870	54710	63670	72720	81870	0.36			
2000			47960	57220	66610	76110	85710	0.43			
2100			48920	58380	67970	77670	87480	0.46			
1800			54490	64910	75450	86090	96820	0.47			
2000			57160	68120	79200	90400	101710	0.57			4
2100			58380	69590	80930	92390	103750	0.62			

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HOT WATER CAPACITY-WITH FACTORY PUMP 65°F EAT @ ST ATED EWT										
MODEL	CFM	GPM	BTUH	LAT °F	LWT °F	APD IWC	WPD IWC	ROWS	FPI	
SMALL CABINET 1.5 & 2.0 TON										
MS**18	500	2.7	26290	116.5	160	0.07	1.2	3	12	
	600	3.0	29630	113.5		0.09	1.5			
	700	3.4	32690	111.1		0.12	1.8			
MS**24	600	3.0	29630	113.5		0.09	1.5			
	800	3.6	35510	108.9		0.15	2.1			
	900	3.9	38140	107.1		0.19	2.4			
MEDIUM CABINET 2.0, 2.5, 3.0 TON										
MS**25	600	3.4	33080	118.8	160	0.07	1.8	2	12	
	800	4.1	40000	114.1		0.11	1.1			
	900	4.4	43120	112.2		0.13	1.2			
	600	4.7	45530	138.0		0.10	1.5	3		
	800	5.7	56060	132.6		0.16	2.2			
	900	6.2	60880	130.4		0.20	2.6			
MS**30	900	4.4	42780	111.8		0.14	1.2	2		
	1000	4.7	45680	110.1		0.16	1.4			
	1200	5.2	51.01	107.2		0.23	1.7			3
	900	6.2	60500	130.0		0.21	2.5			
	1000	6.7	65020	128.0		0.25	2.9			
	1200	7.5	73410	124.4		0.34	3.7			
MS**36	1000	4.7	45680	110.1		0.16	1.4	2		
	1200	5.2	51010	107.2		0.23	1.7			
	1400	5.7	55830	104.8		0.29	2.1			3
	1000	6.7	65020	128.0		0.25	2.9			
	1200	7.5	73410	124.4		0.34	3.7			
	1400	8.3	81080	121.4		0.44	1.4			
	LARGE CABINET 3.0, 3.5, 4.0, 5.0 TON									
	MS**37	1000	5.4	52500	116.4	160	0.09	1.6	2	12
1200		6.1	59100	113.4	0.12		2.0			
1400		6.7	65130	110.9	0.15		2.4			
1000		7.5	72930	135.2	0.13		3.1	3		
1200		8.5	83040	131.8	0.18		1.1			
1400		9.5	92390	128.9	0.23		1.4			
1000		8.8	85910	147.2	0.17		1.3	4		
1200		10.1	98890	144.0	0.23		1.7			
1400		11.4	111020	141.1	0.31		2.1			
MS**42	1200	6.1	59100	113.4	0.12		2.0	2		
	1400	6.7	65130	110.9	0.15		2.4			
	1600	7.3	70690	108.7	0.19		2.8		3	
	1200	8.5	83040	131.8	0.18		1.1			
	1400	9.5	92390	128.9	0.23		1.4			
	1600	10.4	101100	126.3	0.29		1.6	4		
	1200	10.1	98890	144.0	0.23		1.7			
	1400	11.4	111020	141.1	0.31		2.1			
	1600	12.6	122430	138.6	0.39		2.5			
MS**48	1400	6.7	65130	110.9	0.15		2.4	2		
	1600	7.3	70690	108.7	0.19		2.8			
	1800	7.8	75860	106.9	0.24		3.2		3	
	1400	9.5	92390	128.9	0.23		1.4			
	1600	10.4	101100	126.3	0.29		1.6			
	1800	11.2	109250	124.0	0.36		1.9	4		
	1400	11.4	111020	141.1	0.31		2.1			
	1600	12.6	122430	138.6	0.39		2.5			
	1800	13.7	133200	136.2	0.47		3.0			
MS**60	1800	7.8	75860	106.9	0.24		3.2	2		
	2000	8.3	80690	105.2	0.28		1.1			
	2100	8.5	83000	104.4	0.31		1.0		3	
	1800	9.5	92390	128.9	0.36		1.9			
	2000	12.0	116930	121.9	0.43		2.1			
	2100	12.4	120600	121.0	0.46		2.3	4		
	1800	13.7	133200	136.2	0.47		3.0			
	2000	14.7	143400	134.1	0.57		3.4			
	2100	12.4	120600	121.0	0.46		2.3			

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CORRECTION FACTORS FOR GLYCOL

CORRECTION FACTORS CALCULATED AT NOMINAL CFM

EWT °F	Ethylene Glycol Correction Factors (Percent Of Concentration)						
	20%	30%	40%	50%	60%	70%	80%
100	0.990	0.960	0.930	0.890	0.850	0.810	0.760
120	0.990	0.960	0.932	0.888	0.854	0.815	0.765
130	0.990	0.960	0.934	0.886	0.858	0.819	0.769
140	0.990	0.960	0.936	0.884	0.863	0.824	0.775
150	0.990	0.960	0.940	0.870	0.870	0.830	0.780
160	0.990	0.962	0.940	0.880	0.872	0.834	0.786
170	0.990	0.964	0.940	0.888	0.874	0.837	0.791
180	0.990	0.966	0.940	0.899	0.876	0.841	0.797
190	0.990	0.968	0.940	0.909	0.878	0.846	0.804
200	0.990	0.970	0.940	0.920	0.880	0.850	0.810

"EWT °F"	Propylene Glycol Correction Factors (Percent Of Concentration)						
	20%	30%	40%	50%	60%	70%	80%
100	0.941	0.912	0.884	0.846	0.808	0.770	0.722
120	0.941	0.912	0.885	0.844	0.812	0.774	0.727
130	0.941	0.912	0.887	0.842	0.815	0.778	0.731
140	0.941	0.912	0.889	0.840	0.819	0.783	0.736
150	0.941	0.912	0.893	0.827	0.827	0.789	0.741
160	0.941	0.914	0.893	0.836	0.828	0.792	0.747
170	0.941	0.915	0.893	0.844	0.830	0.795	0.751
180	0.941	0.917	0.893	0.854	0.832	0.799	0.757
190	0.941	0.919	0.893	0.864	0.834	0.803	0.763
200	0.941	0.922	0.893	0.874	0.836	0.808	0.770

CHILLED WATER "A" COIL COOLING CAPACITIES 80/67°F EAT 45°F EWT

MODEL NO.	CFM	TOTAL	SENS	LATENT	LDB	LWB	GPM	"WPD FT."	APD
CW018A8K3	600	26650	17680	8970	52.7	48.5	3.0	1.6	0.021
CW024A8K3	800	32350	22190	10160	54.3	54.0	3.5	2.1	0.036
CW036A8K5	1200	41540	30430	11110	56.5	56.1	4.0	3.3	0.049
CW048A9K9	1600	51940	38600	13340	57.6	56.8	5.5	5.5	0.132
CW060A9K9	2000	63750	47340	16410	58.0	57.0	7.0	8.4	

4 ROW "A" COIL HEATING CAPACITIES

MODEL NO.	120°F EWT 20°F Δt 68°F EDB					140°F EWT 20°F Δt 68°F EDB				
	BTUH	LAT	GPM	APD	WPD	BTUH	LAT	GPM	APD	WPD
CW018A8K3	23330	103.8	2.3	0.13	1.3	35700	122.9	3.6	0.13	2.9
CW024A8K3	30340	103.0	3.1	0.16	1.9	46660	121.8	4.7	0.16	2.1
CW036A8K5	42790	100.9	4.3	0.25	1.6	66370	119.0	6.7	0.25	3.6
CW048A9K9	58080	101.5	5.9	0.22	2.2	89870	119.8	9.1	0.22	1.8
CW060A9K9	75600	102.9	7.6	0.21	3.8	115190	121.1	11.7	0.21	3.1

MODEL NO.	160°F EWT 20°F Δt 68°F EDB					180°F EWT 20°F Δt 68°F EDB				
	BTUH	LAT	GPM	APD	WPD	BTUH	LAT	GPM	APD	WPD
CW018A8K3	47790	141.5	4.9	0.13	2.5	59730	159.8	6.1	0.13	3.8
CW024A8K3	62590	140.1	6.4	0.16	3.6	78340	158.3	8.0	0.16	2.4
CW036A8K5	89480	136.8	9.1	0.25	2.5	112340	154.3	11.5	0.25	3.8
CW048A9K9	120990	137.7	12.3	0.22	3.1	151770	155.5	15.6	0.22	2.8
CW060A9K9	153970	139.0	15.7	0.21	3.2	192360	156.7	19.7	0.21	4.7