SunTherm™
HEATING PRODUCTS

MORTEX PRODUCTS, INC.
501 TERMINAL ROAD
FORT WORTH, TEXAS 76106
Phone 817-624-0820 Fax 817-624-8581

INSTALLATION AND OWNERS MANUAL

SINGLE PIECE AIR HANDLER
DX and Chilled Water Cooling / Electric and Hot Water Heating

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SINGLE PIECE AIR HANDLER INSTALLATION INSTRUCTIONS
DX and Chilled Water Cooling / Electric and Hot Water Heating

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:** **PS=Standard PSC** **VT=Variable Speed Constant Torque** **VE=Variable ECM (Electronic Commutated Motor)**
III	**Unit Size (Capacity In MBTUH):** **12 Thru 24 Small Cabinet (42)** **25 Thru 36 Medium Cabinet (45)** **37 Thru 60 Large Cabinet (18)** **OS=No Cooling Small Cabinet (42)** **OM=No Cooling Medium Cabinet (42)** **OL=No Cooling Large Cabinet(18)**
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=208/230v 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** • **Motor Code** • **Pre-Painted Gray Top & Front, Embossed Galvanized Wrapper** • **Standard Coil** • **1" Insulation**

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GENERAL INFORMATION
This single piece air handler provides the flexibility for installation in any upflow, downflow, or horizontal application. These versatile models may be used with or without electric or hot water heat. The direct drive 3 speed or optional ECM or CT variable speed motors provide a selection of air volume to match any application.
The unit can be positioned for bottom return air in the upflow position, top return air in the downflow position and end return air in the horizontal position.
NOTE: See field installed down flow conversion kit installation instructions.

INSPECTION
As soon as a unit is received, it should be inspected for possible damage during transit. If damage is evident, the extent of the damage should be noted on the carrier's delivery receipt. A separate request for inspection by the carrier's agent should be made in writing. See local Distributor for more information. Summit Manufacturing assumes no liability for freight damage.
Installation of accessories or field conversion should be accomplished before setting the unit in place or connection any wiring, electric heat, duct, or piping.

REFERENCE
This instruction should be used in conjunction with instructions supplied with each field installed accessory as well as outdoor section.
Installer should pay particular attention to the words; ***NOTE***, ***CAUTION***, and ***WARNING***.
NOTES are intended to clarify or make the installation easier.
A CAUTION identifies procedure which, if not followed carefully, could result in personal injury, property damage or product damage.
A WARNING is given to alert the installer that sever personal injury, death or equipment damage may result if installation procedures are not handled properly.

LIMITATIONS
These units must be wired and installed in accordance with all national and local codes. Voltage limits are as follows.

Air Handler Voltage	Voltage Code	Normal Oper. Voltage Range
120/60/1	A	104-126
208/230/60/1	B	187-253

LOCATION
Location is usually predetermined. Check with owner's or dealer's installation plans. If location has not been decided, consider the following in choosing a suitable location.

1. Select a location with adequate structural support, space for service access, clearance for return and supply duct connections.

NOTE: Service access is generally specified by local codes.

2. Normal operating sound levels may be objectionable if the air handler is placed directly over some rooms such as bedrooms, study, etc.
3. Precautions should be taken to locate the unit and duct work so that supply air does not short circuit to the return air.
4. Select a location that will permit installation of condensate drain line to an open drain.

NOTE: When the coil is installed in a draw-thru application, it is recommended to trap the primary and secondary drain line. If the secondary drain is not used, it must be capped.

5. When the evaporator coil is installed in an attic or above a finished ceiling, an auxiliary drain pan should be provided under the coil as is specified by most local building codes.
6. Proper electrical supply must be available.
7. Clearances must also be taken into consideration, and provided for as follows:
    a. Refrigerant piping and connections are located in the front.
    b. Maintenance and servicing through the front or access side of the unit with both sides and rear of unit having zero clearance.
    c. Condensate drain lines are connected in the front (clear of filter).
    d. When no electric heat is used, the unit as well as all duct work and plenum are designed for zero clearance to combustible materials.

CAUTION
If electric heat is used, a minimum clearance of 1" Must be maintained on all sides of the supply air Duct and/or plenum continuously for up to 3'

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INSTALLATION/OPERATION SAFETY RULES:

1. Read these rules and instructions carefully. Failure to follow these rules and the installation instructions could cause a malfunction of the unit, and a possible safety hazard. Keep these instructions nearby the unit for future reference.
2. While this unit has been designed and manufactured to comply with National codes, it is the installer's responsibility to install this unit to comply with National codes and/or prevailing local codes and regulations. Suntherm assumes no responsibility for units installed in violation of any code or regulation.
3. Before servicing, allow unit to cool. ***WARNING: ALWAYS SHUT OFF ELECTRICITY WHEN WORKING ON UNIT***. This will prevent any electrical shocks or burns.
4. Ground the unit to prevent electric shock. All electrical wiring should be in accordance with the National Electric Code.
5. Duct work must be installed in accordance with the standards of the National Fire Protection Association (NFPA) for the installation of Air Conditioning, Warm Air Heating and Ventilating Systems (NFPA 90A and 90B). Duct work in non-conditioned spaces must be insulated to prevent formation of condensate and for maximum efficiency.
6. The safety testing agency label appearing on these units covers the unit and factory installed coil (if provided) only. It does not cover any other equipment. Exterior surface of cabinet may sweat when units is installed in a non-conditioned space such as an attic or garage. Installer must provide protection such as full size auxiliary drain pan on all units installed in a non-conditioned space to prevent damage from condensation runoff. It is recommended that units installed in non-conditioned spaces be insulated with 1" thick fiberglass with the vapor barrier on the outside.
7. While designed to operate quietly when properly installed, several steps should be taken insure this. Use of isolation pads when mounting unit, flexible duct collars for discharge, and use of acoustical duct liners are all good installation practices that promote quite operation.
8. Cabinet insulation is rated for R-4.2 (standard). Some jurisdictions require R-6.0 on installations in a non-conditioned space. Add insulation 1" thick to exterior of unit to comply in these jurisdictions, putting the vapor barrier on the outside.

WARNING:

Hot water can scald. Water heated to a temperature which will satisfy space heating can scald and permanently injure a person upon contact. Some people are more likely to be permanently injured by hot water than others. These include the elderly, children, the infirm, physically or mentally handicapped.

Check local, State, and National codes requiring a certain temperature water at the hot water tap. Special precautions must be used in addition to using the lowest possible temperature setting that satisfies your hot water needs. A Tempering device such as a mixing valve, should be used at the hot water taps, or water heater.

UNPACKING THE UNIT:

The unit should be unpacked on receipt and if any damage is found, follow the instructions under "**INSPECTION"** on page 1.

This air handler is completely assembled. (NOTE: Electric heat can be ordered as factory or field installed, if field installed, refer to the separate installation instructions provided with the heat kit.) Only electrical power, thermostat wiring, hot water piping (if applicable) and duct connections are needed for installation. DX coils will also require refrigerant and condensate drain connections. Some units may have motor supports over the motor shaft. Remove these supports as necessary.

MINIMUM CLEARENCES:

These units have a 0" minimum clearance to combustible materials rating from all cabinet surfaces. The unit should be installed with serviceability clearance of 30" from the front of the unit. The unit can be services entirely from the front, including replacing the filter. Be sure to route primary and secondary condensate drain piping so as not to obstruct replacement of filter.

ARRANGEMENT:

Unit is shipped from the factory arranged to be installed in a vertical upflow or horizontal right to left air flow position (standard) or field convertible to a horizontal left to right air flow position.

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UPFLOW APPLICATION:
In an upflow installation the discharge outlet is at the top. Care should be taken to insure unit is level to permit proper condensate drainage. Normal upflow installation will be in a closet or basement. If installed in a closet, the closet should have a platform framed in, with an opening at the top of the platform centered in the closet. Connect the supply air outlet to a plenum. Install return air grilles from outside the closet to space below the platform. Platform must be at least 12" above the floor. If installed in a basement, run supply and return duct work in accordance with local codes.

HORIZONTAL APPLICATION:
Horizontal applications will normally be used in an attic or crawl space. This type of installation requires a return air duct be attached to the unit inlet. The opposite end of the return air duct is attached to a return air filter grille through the ceiling or wall. Remove air filter from unit if filter grille is used. The unit is shipped in right to left configuration. For left to right applications (before connecting drains, refrigerant or water piping) remove coil and doors and move horizontal pan to right side. Reinstall coil and doors.

DOWNFLOW APPLICATION:
Contact distributor for proper downflow conversion kit.
Hydronic heat units cannot be used in the down flow position.

CAUTION:
It is mandatory to use an emergency auxiliary drain pan with any coil or air handler installed in an attic or above a finished ceiling.

ELECTRICAL WIRING:
Refer to the unit nameplate for specific electrical data.

CAUTION:
Disconnect power at main fuse or circuit breaker distribution panel before wiring unit to prevent shock or fire hazard.

POWER WIRING:
Unit is suitable for use with copper conductors. Tighten all wire connectors. Take care not to damage heater ceramic insulators on electric heat models. For correct field wire size see unit nameplate and field wiring table inside electrical compartment door. Use 75°C minimum wire in unit wiring compartment. Units larger than 10 KW will require multiple sets of power conductors.

NOTE: See unit for complete wiring diagram located on blower housing.

CONTROL WIRING:
Field connections to the low voltage leads are made using appropriate field supplied wiring connectors. Consult installation instructions provided with accessory items for specific information on control wiring. Use 18 AWG minimum copper conductors for control wiring up to 50' between units. 16 AWG control conductors are recommended for lengths between 50' and 100'. Class 2 wiring is acceptable. ***Take care not to short control leads, transformer burnout could result***. Some manufacturer's outdoor units are equipped with a 24 volt control transformer. If this type of outdoor unit is used with this air handler, use a thermostat with isolating contacts to prevent inter-connection of two separate Class 2 circuits. Set thermostat heat anticipator at 0.15 amps for units 12KW or smaller, set at .30 amps for 15 KW and larger.

BLOWER MOTOR:
CONSTANT SPEED MOTOR:
Two factory selected motor speed leads are connected to the blower relay to provide automatic speed change for heating and cooling airflow volumes. The pre-selected motor speeds would normally not have to be changed in the field. All models contain a blower time delay relay (TDR 10-30 seconds) that delays the blower turning on and off when the thermostat calls for "Fan Only" or "Cooling". The TDR improves energy efficiency.

VARIABLE SPEED MOTORS:
Electronic commutated and constant torque motors are factory programmed and cannot be re-programmed in the field. ECM motors have (4) jumper settings, and CT motors have (5) speed taps. Refer to blower performance data located in the SunTherm Technical Guide for selection of jumper or tap settings that best fits this application.
NOTE: All 208/230 volt motors are factory programmed for "0" second fan "ON" delay for use with electric heat. Motor must energize with electric heat. All 115 volt motors are factory programmed for "30" second fan "ON" delay for use with hydronic heat.

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PIPING:

DX REFRIGERANT PIPING:

Air handlers with DX type evaporator coils require liquid and suction piping sized in accordance with condensing unit manufacturer's recommendations. The evaporator coils have sweat copper connections. Refrigerant lines should be soldered with silver solder or other high temperature brazing alloy. The suction must be insulated for satisfactory operation. An oil trap must be installed in all vertical suction risers. An additional oil trap must be installed every 15' for risers over 15' in height. If the condensing unit is located over the evaporator coil, an "inverted" oil trap must be installed at the top of the suction riser. Horizontal suction line runs should be sloped 1" every 20' toward the condensing unit. The manufacturer recommends that dry nitrogen be flowed through the refrigerant lines during the soldering operation. Liquid line is capped. NOTE: Pressure drop in liquid must not exceed 30 psi or erratic operation and thermostatic expansion damage will occur.

CHILLED WATER PIPING:

All piping must be supported independent of coils to prevent vibration and stress on coil headers. Swing joints or flexible fittings must be provided to absorb expansion and contraction strains. Rigid piping reduces the effectiveness of vibration isolators.

Water piping should always be connected so that the entering water is on the leaving side of the coil. Coils must be adequately vented in order to prevent air binding. Units are provided with manual air vents mounted through the manifold panel.

HOT WATER PIPING:

If a residential water heater is used for space heating water, do not exceed a distance of 70' between the air handler and the water heater. The water heater should be the quick recovery type. Air handler and water heater must be located indoors and not subject to freezing temperatures.

WARNING:

Air handler must be located so that if any connections should leak, water will not cause damage to the adjacent area. When such locations can't be avoided, a suitable drain pan should be installed under the air handler, not over 1-1/2" deep, with minimum length and width at least 2" greater than the air handler dimensions and connected to an adequate drain. Under no circumstances is the manufacturer to be held libel for any water damage in connection with this air handler.

HOT WATER PIPING: Continued).

Total piping should not exceed 140'. All piping should be ¾" copper or approved PVC. It is recommended that the water shut-off valve for the water heater be located close to the water heater. Isolation valves are also recommended.

It is recommended that any devices installed, which could create a closed system, have a by-pass and/or the system have an expansion tank to relieve the pressure built up by thermal expansion in the water system.

WARNING:

Toxic chemicals such as used for treatment of boilers or non-potable water heating appliances shall never be introduced into a potable water space heating system.

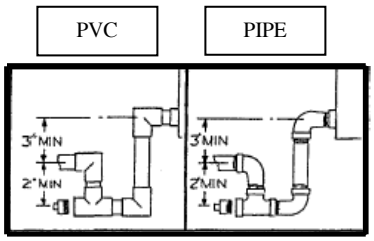
WARNING:

When the system required water at temperatures higher than required for other uses, a means such as a mixing valve shall be installed to temper the water for those uses in order to reduce the scald hazard potential.

After piping has been installed, allow the system to fill with water and check connections for leaks. To insure complete filling of the system, follow start-up procedure.

CONDENSATE DRAIN PIPING:

The air handler "A" coil drain pan has two ¾" NPT female primary and two secondary connections (left or right hand). Horizontal pan has two ¾" NPT female, one primary and one secondary. Piping from each fitting used is to have 1-1/2 minimum trap and each run in such a manner as to provide enough slope for adequate drainage to a visible area. Do not pipe these two fittings together into a common drain. Cap unused connection.



Typical Condensate Traps

AIR FILTER:

A clean, appropriately sized filter must be used or system damage will occur. Filters are not supplied with this air handler, a field installed filter accessory is available.

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CHECK TEST AND START UP:

UNITS WITH ELECTRIC HEAT:
The unit should be tested after the system has been completely installed to determine proper operation. Unit is equipped with heater time delay controls. All heating elements should turn on within one minute.

NOTE:
Circuit breakers are equipped with a visual "visi-trip" red flag indicator. If red indicator shows that circuit breaker has tripped, this indicated that a problem exists in your system which should be corrected before resetting breaker.

UNITS WITH HOT WATER HEATING:

NOTE:
Heating system should not be switched on until system is filled and hot water coil vented.

1. Fill and pressurize the water heater and air handler.
2. The water heater should be started.
3. Vent air from the water tank by opening a hot water spigot.
4. Vent and flush the supply and return lines by attaching a hose to the volume purge valve and running purge water to a safe location. Run approximately 5 gallons of water at a high flow rate to purge.
5. Energize the unit by switching on the line voltage source and the thermostat. The fan and pump should start simultaneously. The water coil should become warm after a few minutes of operation.
6. Units are rated at temperatures of 130° -180° F. Set water source temperature at design temperature and take proper safeguards for water usage at supply points as per local codes and safety considerations.

SYSTEM SHUT-DOWN:
For short periods of time during freezing temperatures if the system is to be left unused, to prevent freezing of the air handler and piping, do the following. Do not turn the system off, and the air handlers thermostat left on the heat setting. If the water heater and air handler must be shut down for extended periods, a qualified service technician should insure that the air handler and coil are completely drained of water

PERIODIC MAINTENANCE:
The filter must be changed monthly to permit proper airflow for safe and efficient operation. All other maintenance should be performed by a licensed technician.

⚠WARNING

ELECRICAL SHOCK or UNIT DAMAGE HAZARD

Failure to follow this warning could result in personal injury, or death.
Turn off the main (remote) disconnect device before working on incoming (field) wiring. Incoming (field) wires on the line side of the disconnect found in the fan coil unit remain live, even when the pull out is removed. Service and maintenance to incoming (field) wiring cannot be performed until the main disconnect switch (remote to the unit) is turned off.

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SINGLE PIECE AIR HANDLER INSTALLATION INSTRUCTIONS
Field Installed Thermal Expansion Valve Kit Non-Bleed.

INTRODUCTION:
Thermal expansion valve (TXV) can be used on both heat pump and air conditioning applications. All TXV's have a built in check valve making them heat pump capable. All are externally equalized with non-adjustable superheat and are available with 15% bleed construction. Hard start capability for outdoor units is not normally required when 15% bleed valve is used. The external equalizer line attached to the TXV has a female flare nut with built in Schrader valve depressor that attaches to the Schrader valve port provided on coils.

APPLICATION DATA:
R72DB0005 (R-22) 15% Bleed 1.5-3.0 tons
R72DB0003 (R-410A)
Outlet male Rotalock. Outlet female swivel nut.

R72DB0006 (R-22) 15% Bleed 3.0-5.0 tons
R72DB0004 (R-410A)
Outlet male Rotalock. Outlet female swivel nut.

INSTALLATION NOTES:
With reference to the figure at right, the TXV assembly is to be installed between the flowrator distributor and the existing liquid line attached to the flowrator distributor.

WARNING:
Coil is pressurized with nitrogen. Relieve pressure before installing TXV by depressing Schrader valve on coil manifold.

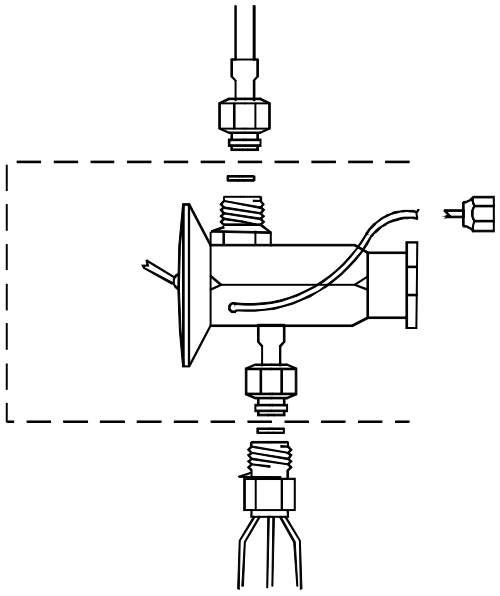
INSTALLATION STEPS:

1. After coil pressure has been relieved, turn the female swivel nut counter-clockwise to remove.
2. 2. Remove the piston from the flowrator distributor fitting using a small diameter wire or paper clip. ***ALWAYS REMOVE PISTON FROM DISTRIBUTOR BODY WHEN TXV IS INSTALLED).***
3. Attach the TXV by connecting the female swivel nut on TXV outlet to the flowrator distributor (aligning Teflon seal first) and torque swivel nut to 10-30 ft. lbs.
4. Attach liquid line with female swivel nut to male rotalock fitting on TXV inlet (Aligning Teflon seal first) and torque swivel nut to 10-30 ft. lbs.
5. Remove the cap on Schrader valve port on coil manifold. Attach equalizer tubing with ¼" female flare nut that includes depressor to this male Schrader port. Torque nut to 10-30 ft. lb.

INSTALLATION STEPS: (Continued).

6. Install the TXV bulb to the suction manifold of coil or the suction line using the two bulb clamps furnished with kit.
   a. Bulb should be installed on a horizontal run of the manifold if possible. On line less than 7/8" OD the bulb may be installed on top of the line. With 7/8" OD and over, the bulb should be installed in a position at about 4 or 8 o'clock.
   b. If bulb installation is made on a vertical run, the bulb should be located at least 6 inches from any bend, and on the tubing side opposite the plane of the bend. On vertical bulb installations, the bulb should be positioned with the bulb capillary tube at the top.
   c. The bulb should be insulated using thermal insulation to protect it from the effect of the surrounding ambient temperature.

7. After completing installation of TXV (including equalizer tube), it will be necessary to leak check the coil and evacuate the coil through the service access fittings of liquid and suction line valves.



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BLOWER PERFORMANCE ECM-2.3 MOTOR AIR FLOW

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 Electric	1.5 & 2.0	0.33	240	VA	9 X 6	A	839	832	818	811	801
						B	743	728	716	712	704
						C	704	688	679	672	663
						D	628	619	610	596	586
MSVE18,24 Hydronic	1.5 & 2.0	0.33	120	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 Electric	1.5 Thru 3.0	0.50	240	VB	10 X 7	A	1422	1421	1421	1416	1415
						B	1215	1214	1214	1214	1208
						C	898	989	989	982	969
						D	865	865	865	864	858
MSVE25,30,36 Hydronic	1.5 Thru 3.0	0.50	120	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 Electric	3.0 Thru 5.0	0.75	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
MSVE37,42,48,60 Hydronic	3.0 Thru 5.0	1.00	120	VI	12 X 9	A	2014	2007	1992	1968	1952
						B	1856	1839	1806	1788	1761
						C	1651	1632	1603	1584	1564
						D	1461	1440	1407	1396	1385

BLOWER PERFORMANCE ECM-2.3 MOTOR AMPS

Model Number	Nominal Tons	Motor HP	Volts 1 Ph. 50/60 Hz.	Motor Code	Blower Wheel	Jumper	AMPS @ 0.10"	AMPS @ 0.20"	AMPS @ 0.30"	AMPS @ 0.40"	AMPS @ 0.50"
MSVE18,24 Electric	1.5 & 2.0	0.33	240	VA	9 X 6	A	0.530	0.610	0.650	0.710	0.780
						B	0.430	0.470	0.490	0.520	0.560
						C	0.370	0.430	0.470	0.500	0.530
						D	0.310	0.350	0.380	0.420	0.450
MSVE18,24 Hydronic	1.5 & 2.0	0.33	120	VG	10X7	A	3.120	3.470	3.730	4.060	4.370
						B	2.440	2.710	2.950	3.240	3.620
						C	1.760	2.090	2.400	2.690	2.910
						D	1.270	1.530	1.810	2.090	2.310
MSVE25,30,36 Electric	1.5 Thru 3.0	0.50	240	VB	10 X 7	A	1.690	1.730	1.790	1.950	2.030
						B	1.020	1.110	1.190	1.270	1.390
						C	0.580	0.640	0.710	0.780	0.850
						D	0.440	0.510	0.570	0.640	0.690
MSVE25,30,36 Hydronic	1.5 Thru 3.0	0.50	120	VH	10 X 7	A	3.700	3.800	3.700	3.500	3.400
						B	2.700	2.800	3.000	3.100	3.200
						C	1.900	2.000	2.100	2.100	2.300
						D	1.200	1.300	1.500	1.600	1.700
MSVE37,42,48,60 Electric	3.0 Thru 5.0	0.75	240	VC	12 X 9	A	1.900	1.900	2.100	2.300	2.500
						B	1.100	1.200	1.400	1.500	1.600
						C	0.800	0.900	1.100	1.200	1.200
						D	0.900	1.000	1.200	1.300	1.400
MSVE37,42,48,60 Hydronic	3.0 Thru 5.0	1.00	120	VI	12 X 9	A	6.240	6.400	6.690	7.110	6.310
						B	4.970	5.130	5.320	5.510	5.650
						C	3.540	3.750	3.860	4.120	4.330
						D	2.580	2.720	2.850	3.070	3.290

SunTherm™
HEATING PRODUCTS

MORTEX PRODUCTS, INC.
501 TERMINAL ROAD
FORT WORTH, TEXAS 76106
Phone 817-624-0820 Fax 817-624-8581

BLOWER PERFORMANCE X-13 MOTOR AIR FLOW

Model Number	Nominal Tons	Motor HP	Volts 1 Ph. 50/60 Hz.	Motor Code	Blower Wheel	Motor Tap	CFM @ 0.10"	CFM @ 0.20"	CFM @ 0.30"	CFM @ 0.40"	CFM @ 0.50"
MSVT18,24 Electric	1.5 & 2.0	0.33	240	VD	9 X 6	1	795	783	726	709	691
						2	872	865	806	790	775
						3	1002	970	929	884	827
						4	1088	1048	998	938	872
						5	1114	1073	1018	960	888
MSVT18,24 Hydronic	1.5 & 2.0	0.33	120	VJ	9 X 6	1	693	666	657	618	598
						2	753	745	711	693	675
						3	785	753	745	720	702
						4	838	816	808	777	753
						5	874	860	846	816	769
MSVT25,30,36 Electric	1.5 Thru 3.0	0.50	240	VE	10 X 7	1	814	791	752	711	658
						2	846	828	799	768	711
						3	1059	1036	1007	982	957
						4	1152	1136	1104	1087	1053
						5	1247	1213	1192	1167	1136
MSVT25,30,36 Hydronic	1.5 Thru 3.0	0.50	120	VK	10 X 7	1	714	668	639	587	517
						2	872	845	806	782	732
						3	1082	1046	1015	793	951
						4	1156	1122	1094	1065	1028
						5	1313	1262	1226	1156	1077
MSVT37,42,48,60 Electric	3.0 Thru 5.0	0.75	240	VF	12 X 9	1	1339	668	639	587	517
						2	1467	845	806	782	732
						3	1556	1046	1015	793	951
						4	1661	1122	1094	1065	1028
						5	2070	1262	1226	1156	1077
MSVT37,42,48,60 Hydronic	3.0 Thru 5.0	1.00	120	VL	12 X 9	1	1479	1448	1416	1373	1341
						2	1558	1529	1499	1459	1438
						3	1641	1614	1596	1548	1510
						4	1783	1749	1723	1670	1625
						5	1935	1879	1764	1764	1694

BLOWER PERFORMANCE X-13 MOTOR AMPS

Model Number	Nominal Tons	Motor HP	Volts 1 Ph. 50/60 Hz.	Motor Code	Blower Wheel	Motor Tap	AMPS @ 0.10"	AMPS @ 0.20"	AMPS @ 0.30"	AMPS @ 0.40"	AMPS @ 0.50"
MSVT18,24 Electric	1.5 & 2.0	0.33	240	VD	9 X 6	1	0.370	0.400	0.420	0.430	0.450
						2	0.440	0.470	0.480	0.490	0.520
						3	0.490	0.500	0.530	0.540	0.550
						4	0.510	0.530	0.550	0.580	0.590
						5	0.660	0.670	0.700	0.710	0.720
MSVT18,24 Hydronic	1.5 & 2.0	0.33	120	VJ	9 X 6	1	0.900	0.900	1.000	1.100	1.200
						2	1.100	1.200	1.200	1.200	1.300
						3	1.200	1.200	1.300	1.300	1.310
						4	1.400	1.400	1.500	1.510	1.600
						5	1.600	1.700	1.700	1.710	1.800
MSVT25,30,36 Electric	1.5 Thru 3.0	0.50	240	VE	10 X 7	1	0.650	0.670	0.700	0.720	0.750
						2	0.810	0.840	0.870	0.900	0.940
						3	1.120	1.150	1.180	1.220	1.210
						4	1.350	1.380	1.410	1.440	1.450
						5	1.590	1.610	1.620	1.630	1.660
MSVT25,30,36 Hydronic	1.5 Thru 3.0	0.50	120	VK	10 X 7	1	1.500	1.500	1.600	1.700	1.710
						2	2.300	2.400	2.400	2.410	2.410
						3	2.600	2.600	2.600	2.610	2.620
						4	2.600	2.600	2.610	2.620	2.630
						5	2.700	2.700	2.710	2.710	2.720
MSVT37,42,48,60 Electric	3.0 Thru 5.0	0.75	240	VF	12 X 9	1	0.640	0.640	0.690	0.730	0.770
						2	0.820	0.860	0.900	0.940	1.000
						3	0.960	1.000	1.050	1.090	1.140
						4	1.080	1.120	1.170	1.210	1.290
						5	2.000	2.050	2.090	2.140	2.250
MSVT37,42,48,60 Hydronic	3.0 Thru 5.0	1.00	120	VL	12 X 9	1	2.920	2.970	3.060	3.140	3.250
						2	3.440	3.480	3.590	3.660	3.740
						3	3.950	4.050	4.120	4.210	4.270
						4	5.050	5.120	5.180	5.240	5.270
						5	6.830	6.580	6.260	5.990	5.710

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501 TERMINAL ROAD
FORT WORTH, TEXAS 76106
Phone 817-624-0820 Fax 817-624-8581

BLOWER PERFORMANCE PSC MOTOR AIR FLOW

Model Number	Nominal Tons	Motor HP	Volts 1 Ph. 50/60 Hz.	Motor Code	Blower Wheel	Motor Tap	CFM @ 0.10"	CFM @ 0.20"	CFM @ 0.30"	CFM @ 0.40"	CFM @ 0.50"
MSPS18,24 Electric	1.5 & 2.0	0.33	240	SA	9 X 6	Low	859	822	776	735	674
						Med	925	881	835	779	726
						High	982	931	885	828	757
MSPS18,24 Hydronic	1.5 & 2.0	0.33	120	SJ	9 X 6	Low	772	731	683	635	569
						Med	815	764	718	665	598
						High	836	791	739	678	612
MSPS25,30,36 Electric	2.0 Thru 3.0	0.50	240	SB	10 X 7	Low	1087	1070	1035	999	941
						Med	1280	1230	1169	1115	1035
						High	1448	1378	1304	1222	1154
MSPS25,30,36 Hydronic	2.0 Thru 3.0	0.50	120	SK	10 X 7	Low	930	956	969	950	917
						Med	1206	1190	1154	1105	1043
						High	1412	1355	1281	1217	1139
MSPS37,42,48,60 Electric	3.0 Thru 5.0	0.75	240	SC	12 X 9	Low	1462	1452	1432	1402	1371
						Med	1756	1723	1689	1664	1612
						High	2092	2029	1979	1898	1852
MSPS37,42,48,60 Hydronic	3.0 Thru 5.0	0.75	120	SM	12 X 9	Low	1091	1091	1091	1078	1051
						Med	1456	1446	1446	1446	1426
						High	2231	2171	2103	2040	1989

BLOWER PERFORMANCE PSC MOTOR AMPS

Model Number	Nominal Tons	Motor HP	Volts 1 Ph. 50/60 Hz.	Motor Code	Blower Wheel	Motor Tap	AMPS @ 0.10"	AMPS @ 0.20"	AMPS @ 0.30"	AMPS @ 0.40"	AMPS @ 0.50"
MSPS18,24 Electric	1.5 & 2.0	0.33	240	SA	9 X 6	Low	1.50	1.40	1.30	1.20	1.10
						Med	1.60	1.50	1.40	1.30	1.20
						High	1.80	1.80	1.70	1.60	1.60
MSPS18,24 Hydronic	1.5 & 2.0	0.33	120	SJ	9 X 6	Low	2.80	2.60	2.50	2.30	2.20
						Med	3.10	2.90	2.80	2.70	2.50
						High	3.70	3.60	3.50	3.40	3.30
MSPS25,30,36 Electric	2.0 Thru 3.0	0.50	240	SB	10 X 7	Low	2.70	2.40	2.30	2.10	1.90
						Med	2.80	2.60	2.40	2.30	2.10
						High	3.20	3.10	3.00	2.80	2.70
MSPS25,30,36 Hydronic	2.0 Thru 3.0	0.50	120	SK	10 X 7	Low	5.90	5.30	5.10	4.70	4.30
						Med	6.50	5.90	5.50	5.10	4.70
						High	6.70	6.30	6.00	5.70	5.40
MSPS37,42,48,60 Electric	3.0 Thru 5.0	0.75	240	SC	12 X 9	Low	3.70	3.50	3.40	3.30	3.20
						Med	4.40	4.10	4.00	3.90	3.70
						High	5.10	4.60	4.50	4.30	4.20
MSPS37,42,48,60 Hydronic	3.0 Thru 5.0	0.75	120	SM	12 X 9	Low	7.60	7.30	7.00	6.90	6.50
						Med	9.80	9.30	8.90	8.70	8.20
						High	13.40	12.90	12.60	12.10	11.90

ELECTRICAL DATA																						
Cabinet Size	Motor Data					Electric Heater Data							Minimum Circuit Ampacity					Maximum Overcurrent Protection				
	Motor Code	Motor HP	Volts 1 Ph	Motor Type	Motor Amps (1)	No Circuits	Kw (2)	Amps 115V Cr 1	Amps 208V Cr 1	Amps 208V Cr 2	Amps 240V Cr 1	Amps 240V Cr 2	MCA 115V Cr 1	MCA 208V Cr 1	MCA 208V Cr 2	MCA 240V Cr 1	MCA 240V Cr 2	MOCP 115V (3,4) Cr 1	MOCP 208V (3,4) Cr 1	MOCP 208V (3,4) Cr 2	MOCP 240V (3,4) Cr 1	MOCP 240V (3,4) Cr 2
(42) SMALL CABINET-NOMINAL 1.5 & 2.0 TONS-0 TO 10 Kw																						
MSVE18, 24	VA	0.33	208/240	ECM	2.8	0	0	-	-	-	-	-	-	3.5	-	3.5	-	-	10.0	-	10.0	-
						1	5	-	18.0	-	20.8	-	-	25.3	-	28.8	-	-	35.0	-	35.0	-
						1	10	-	36.1	-	41.7	-	-	47.9	-	54.9	-	-	60.0	-	60.0	-
	VG	0.33	115	ECM	5.0	0	0	5.0	-	-	-	-	6.3	-	-	-	-	10.0	-	-	-	-
MSVT18,24	VD	0.33	208/240	CTM	2.8	0	0	-	0	-	0	-	-	3.5	-	3.5	-	-	10.0	-	10.0	-
						1	5	-	18.0	-	20.8	-	-	25.3	-	28.8	-	-	35.0	-	35.0	-
						1	10	-	36.1	-	41.7	-	-	47.9	-	54.9	-	-	60.0	-	60.0	-
	VJ	0.33	115	CTM	5.0	0	0	5.0	-	-	-	-	6.3	-	-	-	-	10.0	-	-	-	-
MSPS18,24	SA	0.33	208/240	PSC	2.0	0	0	-	-	-	-	-	-	2.5	-	2.5	-	-	10.0	-	10.0	-
						1	5	-	18.0	-	20.8	-	-	24.5	-	28.0	-	-	35.0	-	35.0	-
						1	10	-	36.1	-	41.7	-	-	47.1	-	54.1	-	-	60.0	-	60.0	-
	SJ	0.33	115	PSC	4.4	0	0	4.4	-	-	-	-	5.5	-	-	-	-	10.0	-	-	-	-
(45) MEDIUM CABINET-NOMINAL 2.0, 2.5, 3.0 TONS-0 TO 15 Kw																						
MSVE25, 30, 36	VB	0.50	208/240	ECM	4.3	0	0	-	-	-	-	-	-	5.4	-	5.4	-	-	10.0	-	10.0	-
						1	5	-	18.0	-	20.8	-	-	26.8	-	30.3	-	-	35.0	-	40.0	-
						1	10	-	36.1	-	41.7	-	-	49.4	-	56.4	-	-	60.0	-	60.0	-
						2	15	-	18.0	36.1	20.8	41.7	-	26.8	49.4	30.3	56.4	-	35.0	60.0	40.0	60.0
	VH	0.50	115	ECM	7.7	0	0	7.7	-	-	-	-	9.6	-	-	-	-	15.0	-	-	-	-
MSVT25, 30, 36	VE	0.50	208/240	CTM	4.1	0	0	-	-	-	-	-	-	5.1	-	5.1	-	-	10.0	-	10.0	-
						1	5	-	18.0	-	20.8	-	-	26.6	-	30.1	-	-	35.0	-	40.0	-
						1	10	-	36.1	-	41.7	-	-	49.2	-	56.2	-	-	60.0	-	70.0	-
						2	15	-	18.0	36.1	20.8	41.7	-	26.6	49.2	30.1	56.2	-	35.0	60.0	40.0	60.0
	VK	0.50	115	CTM	6.8	0	0	6.8	-	-	-	-	8.5	-	-	-	-	15.0	-	-	-	-
MSPS25, 30, 36	SB	0.5	208/240	PSC	3.0	0	0	-	-	-	-	-	-	3.8	-	3.8	-	-	10.0	-	10.0	-
						1	5	-	18.0	-	20.8	-	-	25.5	-	29.0	-	-	35.0	-	35.0	-
						1	10	-	36.1	-	41.7	-	-	48.1	-	55.1	-	-	60.0	-	60.0	-
	SK	0.50	115	PSC	7.7	0	0	7.7	-	-	-	-	9.6	-	-	-	-	15.0	-	-	-	-
(18) LARGE CABINET-NOMINAL 3.0, 3.5, 4.0, 5.0 TONS-0 TO 20 Kw																						
MSVE37, 42, 48, 60	VC	0.75	208/240	ECM	6.8	0	0	-	-	-	-	-	-	8.5	-	8.5	-	-	15.0	-	15.0	-
						1	5	-	18.0	-	20.8	-	-	29.3	-	32.8	-	-	35.0	-	40.0	-
						1	10	-	36.1	-	41.7	-	-	51.9	-	58.9	-	-	60.0	-	70.0	-
						2	15	-	18.0	36.1	20.8	41.7	-	29.3	51.9	32.8	58.9	-	35.0	60.0	40.0	70.0
						2	20	-	36.1	36.1	41.7	41.7	-	51.9	51.9	58.9	58.9	-	60.0	60.0	70.0	70.0
	VI	1.00	115	ECM	12.8	0	0	12.8	-	-	-	-	16.0	-	-	-	-	20.0	-	-	-	-
MSVT37, 42, 48, 60	VF	0.75	208/240	CTM	6.8	0	0	-	-	-	-	-	-	8.5	-	8.5	-	-	15.0	-	15.0	-
						1	5	-	18.0	-	20.8	-	-	29.3	-	26.0	-	-	35.0	-	35.0	-
						1	10	-	36.1	-	41.7	-	-	45.1	-	52.1	-	-	50.0	-	60.0	-
						2	15	-	18.0	36.1	20.8	41.7	-	29.3	51.9	32.8	58.9	-	40.0	60.0	40.0	70.0
						2	20	-	36.1	36.1	41.7	41.7	-	51.9	51.9	58.9	58.9	-	60.0	60.0	70.0	70.0
	VL	1.00	115	CTM	10.9	0	0	10.9	-	-	-	-	13.6	-	-	-	-	20.0	-	-	-	-
MSPS37, 42, 48, 60	SC	0.75	208/240	PSC	3.6	0	0	-	-	-	-	-	-	4.5	-	4.5	-	-	10.0	-	10.0	-
						1	5	-	18.0	-	20.8	-	-	26.1	-	29.6	-	-	35.0	-	35.0	-
						1	10	-	36.1	-	41.7	-	-	48.7	-	55.7	-	-	60.0	-	60.0	-
						2	15	-	18.0	36.1	20.8	41.7	-	26.1	48.7	29.6	55.7	-	40.0	60.0	40.0	70.0
						2	20	-	36.1	36.1	41.7	41.7	-	48.7	48.7	55.7	55.7	-	60.0	60.0	70.0	70.0
	SM	0.75	115	PSC	11.0	0	0	11.0	-	-	-	-	13.8	-	-	-	-	20.0	-	-	-	-

(1) Motor Nameplate Amps

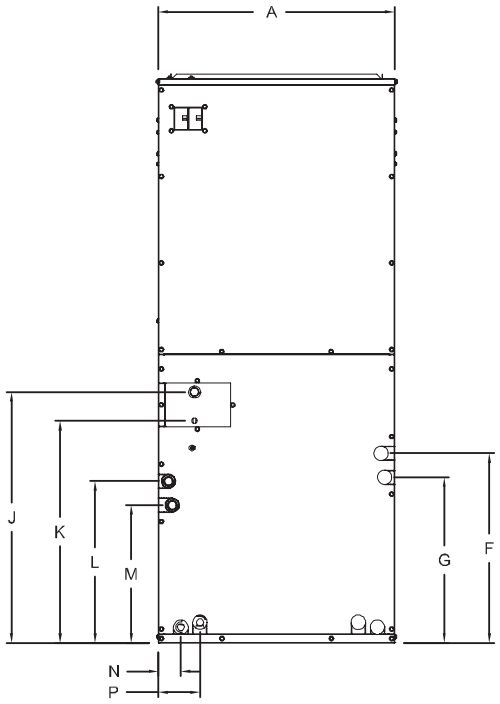
(2) Nominal Kw At 240V (Derate 25% For 208V)

(3) Fuse or HACR Breaker

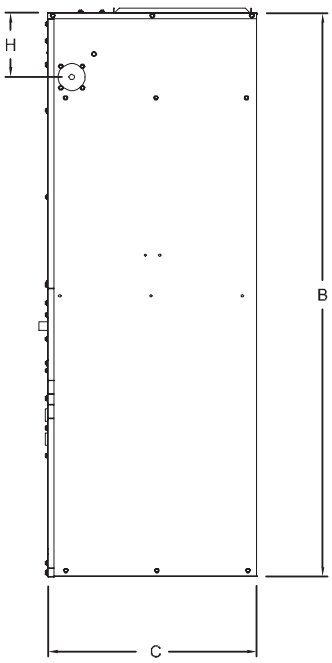
(4) Maximum Overcurrent Device, Overcurrent Protection Installed On Breaker Models Are Sized Per MCA

MORTEX PRODUCTS, INC.
501 TERMINAL ROAD
FORT WORTH, TEXAS 76106
Phone 817-624-0820 Fax 817-624-8581

DIMENSIONAL DATA COOL ONLY OR ELECTRIC HEAT



FRONT



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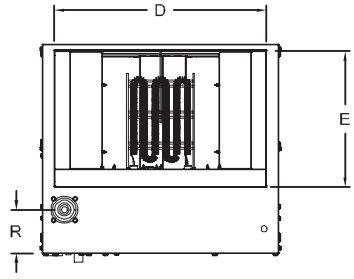
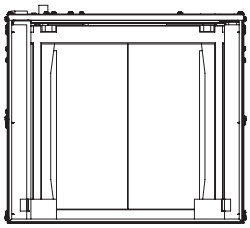


TOP



BOTTOM

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	15.50	12.50	13.50	11.00	6.75	16.75	14.00	11.00	10.75	2.00	1.50	5.00
MS**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	58.75	21.75	23.35	21.25	19.75	17.25	6.75	26.00	23.00	16.75	14.35	2.30	4.35	4.50

Note: All Dimension Are Approximate. All Dimensions Are Rounded.

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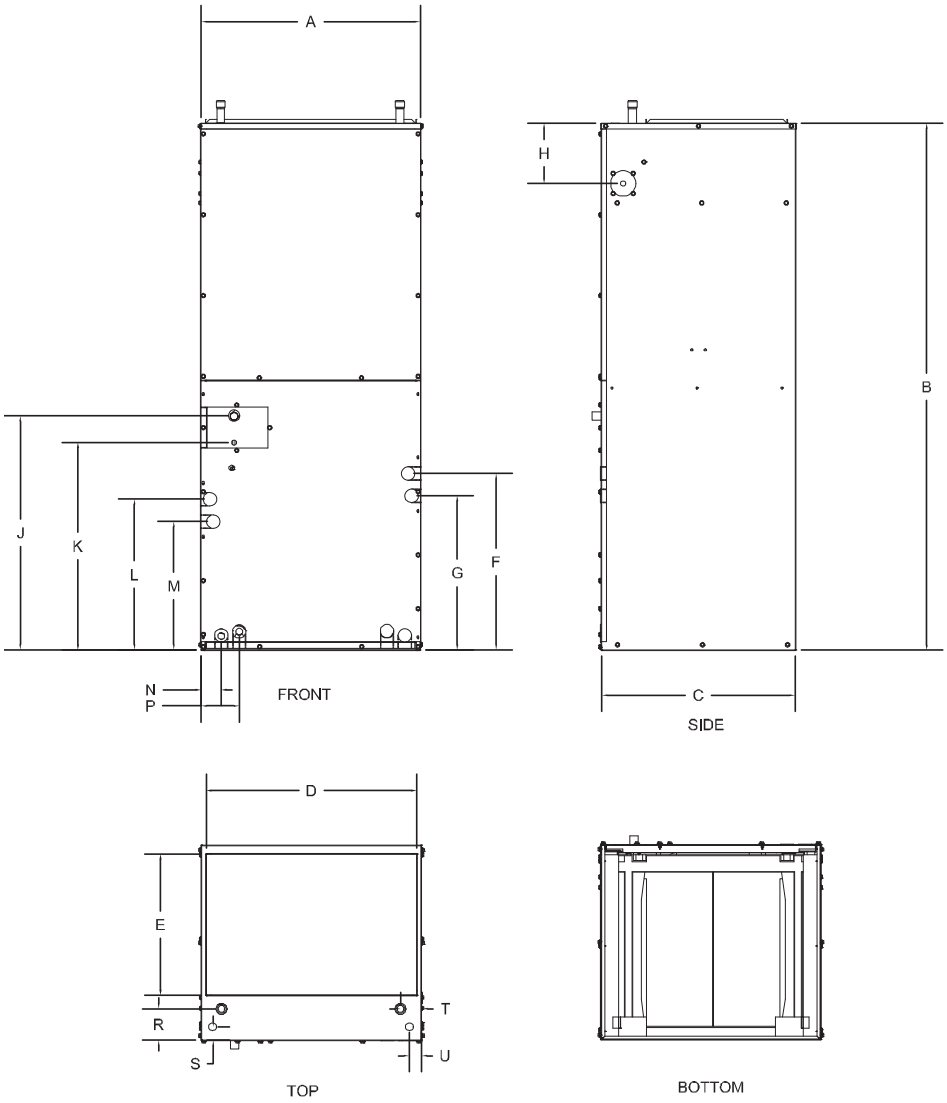
DIMENSIONAL DATA HYDRONIC HEAT



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	16.00	15.00	13.50	11.00	6.75	16.75
MS**30,36	21.00	48.00	21.00	19.00	15.00	14.50	13.00	6.75	20.00
MS--37,42,48,60	24.50	58.75	21.75	23.50	15.75	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**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	3.50	1.50	2.25	1.25

Note: All Dimension Are Approximate. All Dimensions Are Rounded

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HOT WATER CAPACITY-BOILER LOOP 65℉ EAT 180℉ EWT 20℉ Δt (NO PUMP)									
MODEL	CFM	GPM	BTUH	LAT ℉	LWT ℉	APD IWC	WPD FT	ROWS	FPI
SMALL CABINET 1.5 & 2.0 TON									
MS**18	500	2.7	26290	116.5	160	0.07	1.2	2	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		
	900	6.2	60500	130.0		0.21	2.5	3	
	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		
	1000	6.7	65020	128.0		0.25	2.9	3	
	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		
	1200	8.5	83040	131.8		0.18	1.1	3	
	1400	9.5	92390	128.9		0.23	1.4		
	1600	10.4	101100	126.3		0.29	1.6		
	1200	10.1	98890	144.0		0.23	1.7	4	
	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		
	1400	9.5	92390	128.9		0.23	1.4	3	
	1600	10.4	101100	126.3		0.29	1.6		
	1800	11.2	109250	124.0		0.36	1.9		
	1400	11.4	111020	141.1		0.31	2.1	4	
	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		
	1800	9.5	92390	128.9		0.36	1.9	3	
	2000	12.0	116930	121.9		0.43	2.1		
	2100	12.4	120600	121.0		0.46	2.3		
	1800	13.7	133200	136.2		0.47	3.0	4	
	2000	14.7	143400	134.1		0.57	3.4		
	2100	12.4	120600	121.0		0.46	2.3		

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501 TERMINAL ROAD
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HOT WATER CAPACITY-WITH FACTORY PUMP 65℉ EAT @ STATED EWT										
MODEL	CFM	GPM	BTUH 120℉	BTUH 130℉	BTUH 140℉	BTUH 150℉	BTUH 160℉	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		
	900		25940	30920	35960	41060	46210	0.20	3	
	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		
	1000		27230	32470	37780	43160	48580	0.24	3	
	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		
	1000		34230	40720	47280	53890	60550	0.13	3	
	1200		37800	45010	52290	59640	67050	0.18		
	1400		40860	48690	56600	64590	72660	0.23		
	1000		39630	47090	54620	62190	69810	0.17	4	
	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		
	1200		37800	45010	52290	59640	67050	0.18	3	
	1400		40860	48690	56600	64590	72660	0.23		
	1600		43530	51890	60360	68910	77550	0.29		
	1200		44170	52530	60960	69460	78020	0.23	4	
	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		
	1400		40860	48690	56600	64590	72660	0.23	3	
	1600		43530	51890	60360	68910	77550	0.29		
	1800		45870	54710	63670	72720	81870	0.36		
	1400		48080	57220	66440	75750	85130	0.31	4	
	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		
	1800		45870	54710	63670	72720	81870	0.36	3	
	2000		47960	57220	66610	76110	85710	0.43		
	2100		48920	58380	67970	77670	87480	0.46		
	1800		54490	64910	75450	86090	96820	0.47	4	
	2000		57160	68120	79200	90400	101710	0.57		
	2100		58380	69590	80930	92390	103750	0.62		

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BASIC REPLACEMENT PARTS

Contact Factory For Parts Not Listed

MS**18, 24 COOL ONLY OR ELECTRIC HEAT		
Qty.	**Part #**	**Description**
1	R69AD0001	9 X 6 Blower Assembly
1	R65BV0001	1/3 HP 208/240V ECM Motor 208/240V
1	R65BV0025	1/3 HP 208/240V X-13 Motor 208/240V
1	R65BU0168	1/3 HP 208/240V PSC Motor 208/240V
1	R68AE0003	ECM Motor Control Board
1	R68DE0001	10 MFD/370V Capacitor
1	R68DE0002	15 MFD/370V Capacitor
1	R68DE0003	5 MFD/370V Capacitor
1	R68DE0004	25 MFD/370V Capacitor
1	R68AA0003	208/240-24V Transformer
1	R68DC0001	Ground Lug
1	R68DC0018	Power Terminal Block
1	R68AB0001	Fan Relay for X-13 and PSC Motor
		5 KW Electric Heat MS18,24**
1	R86CG0073	5 KW Element
1	R68CA0003	Limit Switch
1	R68AD0003	Single Pole Heat Sequencer
1	R68BAD013	30 Amp Circuit Breaker
		10 KW Electric Heat MS18,24**
1	R86CG0074	10 KW Element
2	R68CA0003	Limit Switch
1	R68AD0002	Double Pole Heat Sequencer
1	R68BAD018	60 Amp Circuit Breaker

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BASIC REPLACEMENT PARTS

Contact Factory For Parts Not Listed

MS**25, 30, 36 COOL ONLY OR ELECTRIC HEAT		
Qty.	**Part #**	**Description**
1	R69AD0002	10 X 7 Blower Assembly
1	R65BV0002	1/2 HP 208/240V ECM Motor 208/240V
1	R65BV0026	1/2 HP 208/240V X-13 Motor 208/240V
1	R65BU0159	1/2 HP 208/240V PSC Motor 208/240V
1	R68AE0003	ECM Motor Control Board
1	R68DE0001	10 MFD/370V Capacitor
1	R68DE0002	15 MFD/370V Capacitor
1	R68DE0003	5 MFD/370V Capacitor
1	R68DE0004	25 MFD/370V Capacitor
1	R68AA0003	208/240-24V Transformer
1	R68DC0001	Ground Lug
1	R68DC0018	Power Terminal Block
1	R68AB0001	Fan Relay for X-13 and PSC Motor
5 KW Electric Heat MS25, 30, 36**		
1	R86CG0073	5 KW Element
1	R68CA0003	Limit Switch
1	R68AD0003	Single Pole Heat Sequencer
1	R68BAD013	30 Amp Circuit Breaker
10 KW Electric Heat MS25, 30, 36**		
1	R86CG0074	10 KW Element
2	R68CA0003	Limit Switch
1	R68AD0002	Double Pole Heat Sequencer
1	R68BAD018	60 Amp Circuit Breaker
15 KW Electric Heat MS25, 30, 36**		
1	R86CG0075	15 KW Element
3	R68CA0003	Limit Switch
1	R68AD0002	Double Pole Heat Sequencer
1	R68AD0003	Single Pole Heat Sequencer
1	R68BAD018	60 Amp Circuit Breaker
1	R68BAD013	30 Amp Circuit Breaker

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BASIC REPLACEMENT PARTS

Contact Factory For Parts Not Listed

MS**37, 42, 48, 60 COOL ONLY OR ELECTRIC HEAT		
Qty.	**Part #**	**Description**
1	R69AD0017	12 X 9 Blower Assembly
1	R65BV0003	3/4 HP 208/240V ECM Motor 208/240V
1	R65BV0027	3/4 HP 208/240V X-13 Motor 208/240V
1	R65BU0160	3/4 HP 208/240V PSC Motor 208/240V
1	R68AE0003	ECM Motor Control Board
1	R68DE0001	10 MFD/370V Capacitor
1	R68DE0002	15 MFD/370V Capacitor
1	R68DE0003	5 MFD/370V Capacitor
1	R68DE0004	25 MFD/370V Capacitor
1	R68AA0003	208/240-24V Transformer
1	R68DC0001	Ground Lug
1	R68DC0018	Power Terminal Block
1	R68AB0001	Fan Relay for X-13 and PSC Motor
10 KW Electric Heat MS37, 42, 48, 60**		
1	R86CG0074	10 KW Element
2	R68CA0003	Limit Switch
1	R68AD0002	Double Pole Heat Sequencer
1	R68BAD018	60 Amp Circuit Breaker
15 KW Electric Heat MS25, 30, 36**		
1	R86CG0075	15 KW Element
3	R68CA0003	Limit Switch
1	R68AD0002	Double Pole Heat Sequencer
1	R68AD0003	Single Pole Heat Sequencer
1	R68BAD018	60 Amp Circuit Breaker
1	R68BAD013	30 Amp Circuit Breaker
20 KW Electric Heat MS37, 42, 48, 60**		
2	R86CG0074	10 KW Element
4	R68CA0003	Limit Switch
2	R68AD0002	Double Pole Heat Sequencer
2	R68BAD018	60 Amp Circuit Breaker

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BASIC REPLACEMENT PARTS

Contact Factory For Parts Not Listed

MS**18, 24 HYDRONIC HEATING		
Qty.	**Part #**	**Description**
1	R69AD0002	10 X 7 Blower Assembly
1	R65BV0001	1/3 HP 208/240V ECM Motor 120/V
1	R65BV0021	1/3 HP 208/240V X-13 Motor 120V
1	R65BU0162	1/3 HP 208/240V PSC Motor 120V
1	R68AE0003	ECM Motor Control Board
1	R68DE0001	10 MFD/370V Capacitor
1	R68DE0002	15 MFD/370V Capacitor
1	R68DE0003	5 MFD/370V Capacitor
1	R68DE0004	25 MFD/370V Capacitor
1	R68AA0003	208/240-24V Transformer
1	R68DC0001	Ground Lug
1	R68DC0018	Power Terminal Block
1	R68AB0001	Fan Relay for X-13 and PSC Motor
1	R86CH0017	2 Row Hydronic Coil 14.75X16
1	R86CH0018	3 Row Hydronic Coil 14.75X16
1	R78AA0007	3 GPM Pump

MS**25, 30, 36 HYDRONIC HEATING		
Qty.	**Part #**	**Description**
1	R69AD0002	10 X 7 BlowerAssembly
1	R65BV0002	1/2 HP 208/240V ECM Motor 120/V
1	R65BV0022	1/2 HP 208/240V X-13 Motor 120V
1	R65BU0163	1/2 HP 208/240V PSC Motor 120V
1	R68AE0003	ECM Motor Control Board
1	R68DE0001	10 MFD/370V Capacitor
1	R68DE0002	15 MFD/370V Capacitor
1	R68DE0003	5 MFD/370V Capacitor
1	R68DE0004	25 MFD/370V Capacitor
1	R68AA0003	208/240-24V Transformer
1	R68DC0001	Ground Lug
1	R68DC0018	Power Terminal Block
1	R68AB0001	Fan Relay for X-13 and PSC Motor
1	R86CH0019	2 Row Hydronic Coil 14.75X20
1	R86CH0020	3 Row Hydronic Coil 14.75X20
1	R86CH0021	4 Row Hydronic Coil 14.75X20
1	R78AA0007	3 GPM Pump

MS**37, 42, 48, 60 HYDRONIC HEATING		
Qty.	**Part #**	**Description**
1	R69AD0017	12 X 9 Blower Assembly
1	R65BV0004	1.0 HP 208/240V ECM Motor 120/V
1	R65BV0024	1.0 HP 208/240V X-13 Motor 120V
1	R65BU0165	1.0 HP 208/240V PSC Motor 120V
1	R68AE0003	ECM Motor Control Board
1	R68DE0001	10 MFD/370V Capacitor
1	R68DE0002	15 MFD/370V Capacitor
1	R68DE0003	5 MFD/370V Capacitor
1	R68DE0004	25 MFD/370V Capacitor
1	R68AA0003	208/240-24V Transformer
1	R68DC0001	Ground Lug
1	R68DC0018	Power Terminal Block
1	R68AB0001	Fan Relay for X-13 and PSC Motor
1	R68AA0004	Choke
1	R86CH0022	2 Row Hydronic Coil 15.75X24
1	R86CH0023	3 Row Hydronic Coil 15.75X24
1	R86CH0024	4 Row Hydronic Coil 15.75X24
1	R78AA0008	7 GPM Pump