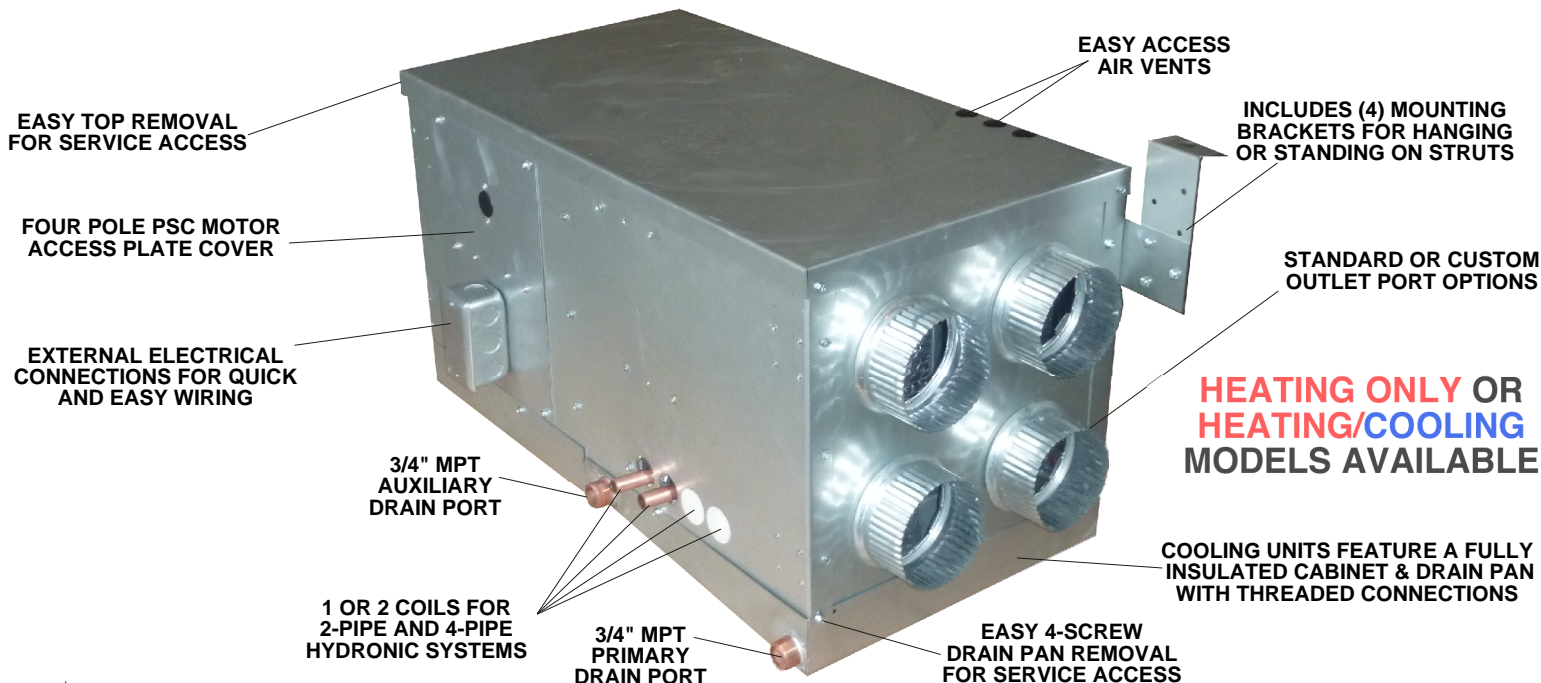


MACRO-ZONAL™ HYDRONIC MID-VELOCITY™ BLOWERS



★ MACRO-ZONAL™ TECHNOLOGY

With Turbonics Macro-Zonal™ Hydronic Mid-Velocity™ Blowers, each room or area of the home has thermostatic control capable of heating or cooling each area efficiently and conveniently providing perfect human thermal comfort. Macro-Zonal™ systems are designed to provide an economical & cost effective alternative to Standard Ducted HVAC, Expensive High Velocity Ducted Systems and Costly Ductless Mini-Splits.

★ HYDRONIC HEATING AND HEATING/COOLING

MVB Series units are the only Hydronic Mid-Velocity™ Blowers in the industry. With Built-In 4", 6" or 8" collars ready to connect to Flexible Insulated Ducting, installation is a snap. Units come either Heating Only or Heating Cooling with either 1 or 2 state of the art copper/aluminum cores specially designed to extract the maximum amount of energy. Connects to 2-pipe or 4-pipe Heating Only or any type Heating/Cooling system.

★ GREEN ENERGY POWER+PLUS™ TECHNOLOGY

Specifically designed to be used with every type of alternative energy system under the sun, including Solar, Geothermal, Reverse Cycle Chillers, Waste Heat Recovery, Off-Peak Thermal Storage and other alternative fuel systems. Using Dual Power+Plus™ double coils piped in parallel, MVB units can provide from 12,000 to 83,800 Btu/Hr of heating and from 1 to nearly 3.5 tons of cooling, while delivering the most favorable supply air temperatures of any hydronic fan coil system in the industry. Comfort Heating & Cooling, Controlled humidity, and Low Energy Bills illustrate just how significant the Dual Power+Plus advantage is.

LEAVING AIR TEMP COMPARISON (Single Standard Coil versus Dual Power+Plus™)

MODEL NUMBER-->	MVB 8-H/HC	W/POWER+PLUS™	MVB 20-H/HC	W/POWER+PLUS™
ENTERING FLUID 120 DEG. F	94.0 Deg. F	109.8 Deg. F	89.2 Deg. F	102.8 Deg. F
ENTERING FLUID 45 DEG. F	62.0 Deg. F	52.9 Deg. F	63.7 Deg. F	56.2 Deg. F

DUAL POWER+PLUS COILS ALLOW YOU TO INCREASE THE AMOUNT OF ENERGY YOU CAN DELIVER TO A SPACE WITH LOWER FLUID TEMPERATURES. BECAUSE THE COILS ARE PIPED IN PARALLEL YOU CAN DOUBLE THE FLOW WITHOUT INCREASING THE PRESSURE DROP ON THE COIL. NOW WE CAN DESIGN ENERGY SYSTEMS THAT CAN PROVIDE MORE BTU/HR WITH LOWER FLUID TEMPERATURES WITHOUT INCREASING THE AIR FLOW OR SACRIFICING COMFORT. LOWER OPERATING COSTS, HIGHER EFFICIENCY AND GREATER FLEXIBILITY MAKE THE MVB SERIES VIRTUALLY UNBEATABLE.

MACRO-ZONAL™ SYSTEM DESIGN PARAMETERS AND FEATURES

Turbonics MVB Series Mid-Velocity™ Blowers are unique hydronic, or water based Heating and Cooling systems, designed to provide comfort and performance from a single cabinet. When connected to Chillers, Boilers, Water Heaters or other alternative energy systems, they delivery Heated or Chilled air to a home or business using Macro-Zonal™ MVB Technology, delivering the perfect balance of comfort, control and convenience.

Unlike conventional HVAC systems or typical High Velocity systems, MVB Series units deliver the best of both worlds, allowing for several thermostatically controlled zones areas throughout the structure. Each zone is independently operated, allowing the occupants to realize perfect thermal comfort as well as reduced energy bills. MVB Series units also provide the unique benefits of "Strato-Thermic Control™" using conventional methods and materials to deliver the energy to each space, making this system, not only user/installer friendly, but economical to operate as well.

DIFFERENCES IN BASIC THEORY

It is important to understand the differences between conventional HVAC, High Velocity and Mid-Velocity™ system designs. Conventional systems have been around for years and typically use large bulky ducting to deliver conditioned air to a space at relatively low velocity and pressure. These systems are popular because they are generally the lowest cost, but are also considered to be the least comfortable of the options available, primarily because they usually have only a single thermostat to control the temperature of an entire home or other structure. With these systems one usually has to heat every room in the house just to have one

room or area comfortable. This not only sacrifices comfort but carries an energy penalty as well.

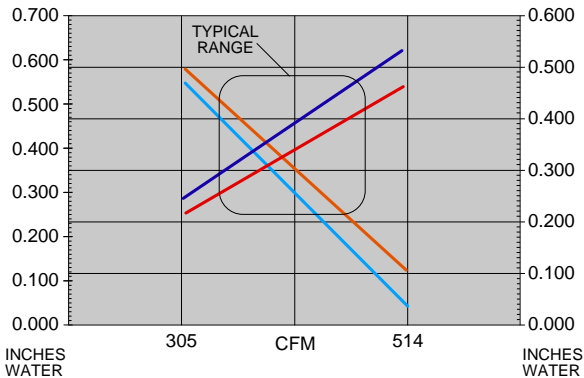
In comparison well thought out designs for some High Velocity systems may provide room conditioning in two areas of a two story home. For example one system for the second floor and one system for the lower floor. This is a step in the right direction, but tends to miss the mark when you consider that occupants usually tend to use various areas of the home at different times of the day and life styles may require even more desired zoning than just upper and lower floors.

In the example floor plan on the next page you will note that with Macro-Zonal™ MVB Technology it's easy to provide thermostatic control for (5) separate rooms or zone areas. One zone for the Master Bedroom and Bath, one zone for the Kitchen, Mud, Laundry and Bath, and one zone for the daylight basement. Also the MVB20 Series unit has the distinct feature of being able to provide (2) zones of Heating or Cooling with only one unit as it incorporates two independently controlled blowers in one cabinet, so the Entry, Living and Dining can be controlled separately from the Bedroom and Play area.

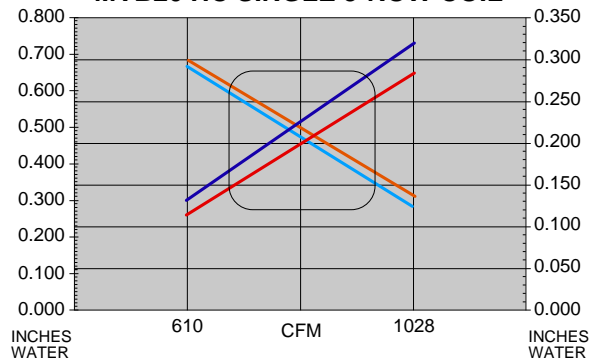
MVB Series units can connect to conventional type ducting systems and are able to provide satisfactory performance in standard Floor, Ceiling or Wall registers, delivering up 90 Cfm through small 4" flexible or rigid Mid-Velocity™ ducting. Comfort, convenience and lower energy cost are but a few of the advantages of the competitively priced Macro-Zonal™ MVB Series.

PRESSURE DROP OF MVB UNITS WITH DUCTING ALLOWANCE

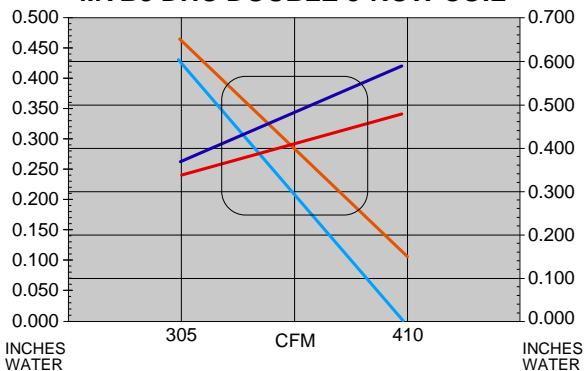
MVB8 HC SINGLE 3-ROW COIL



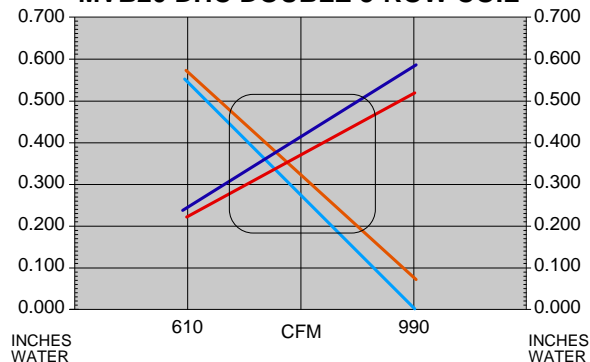
MVB20 HC SINGLE 3-ROW COIL



MVB8 DHC DOUBLE 3-ROW COIL



MVB20 DHC DOUBLE 3-ROW COIL

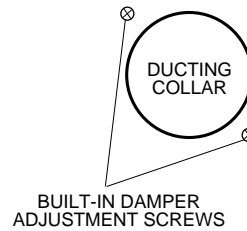
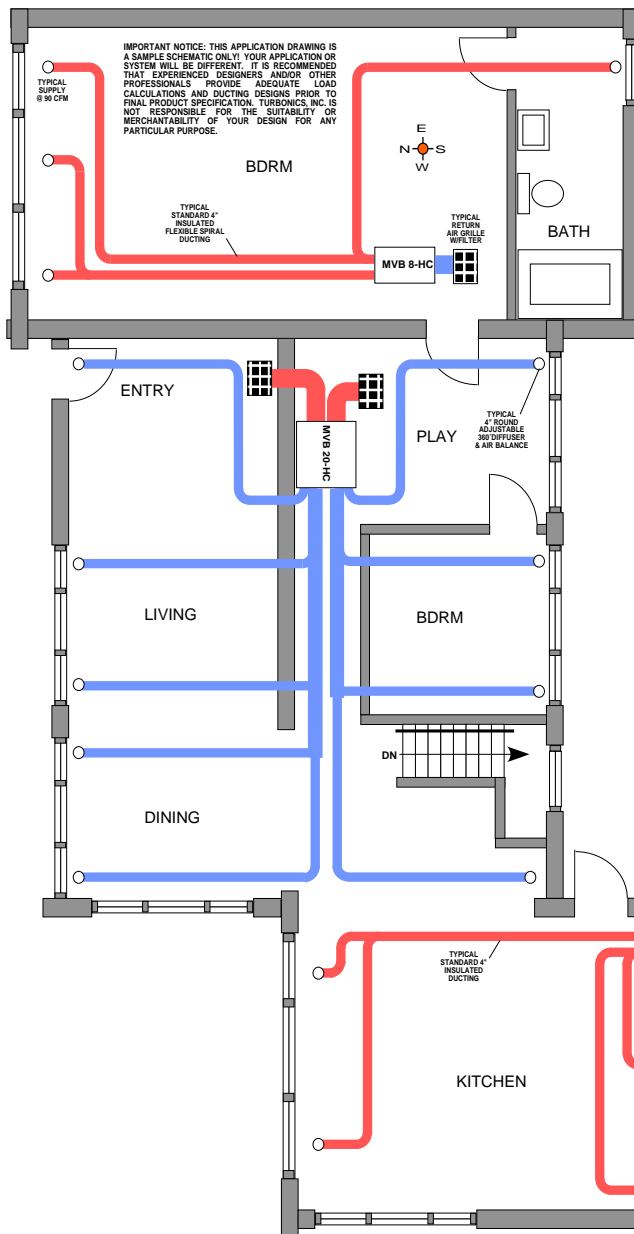
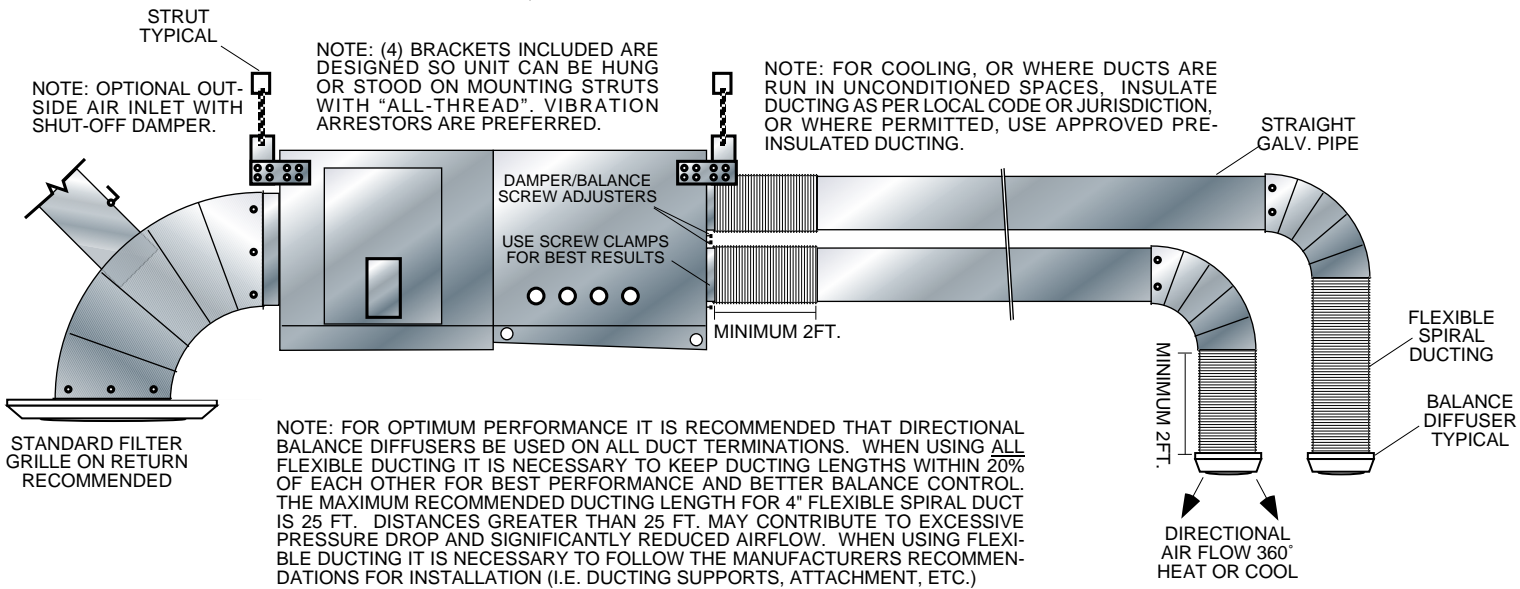


READ COLUMN TO RIGHT { — HEATING PRESSURE DROP
 — COOLING PRESSURE DROP
 READ COLUMN TO LEFT { — DUCTING ALLOWANCE HEATING
 — DUCTING ALLOWANCE COOLING

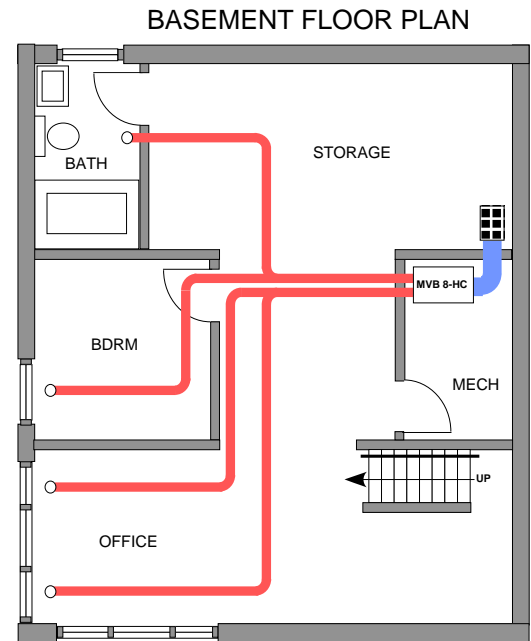
NOTE: DATA IS BASED ON CHILLED WATER SUPPLY AT 45° DEG. F AND HOT WATER SUPPLY OF 120° DEG. F. CALCULATED FROM MANUFACTURERS DATA SUBJECT TO CHANGE WITHOUT NOTICE.

MACRO-ZONAL™ INSTALLATION DETAILS AND RECOMMENDATIONS

THE BLOWER BOX, HEATING COIL AND COOLING COIL ARE UNIQUELY CONTAINED IN ONE COMPACT CABINET.



NOTE: EACH OUTLET ALSO INCLUDES A BUILT-IN FLAT PLATE DAMPER CONTROL TO ALLOW QUICK AND EASY BALANCE OF MULTIPLE PORTS RIGHT FROM THE FRONT OF THE UNIT AND PROVIDE A SOLID REFERENCE FOR THREAD-BY-THREAD ADJUSTMENT. THE FLAT PLATE DESIGN ALSO PROVIDES PROTECTION AGAINST COIL OVER SPRAY OR MIST INTO THE CONDITIONED SPACE.



NOTE: NOT ALL EQUIPMENT OR DETAILS ARE SHOWN. THIS IS A CONCEPT SCHEMATIC ONLY AND YOUR APPLICATION WILL VARY.

MAIN FLOOR PLAN

I. INSTALLATION INSTRUCTIONS: General

A. The MVB series of fan coils are designed to be mounted anywhere there is access to the unit and where ducts can be run. These areas include, but are not limited to, basements, attics, crawl spaces, closets, etc., They are suitable for connection to fluid supply at any pressure up to 125 P.S.I. Maximum water temperature should not exceed 200°F. The amount and temperature of water and air flowing through the unit determines heating / cooling outputs. (See Performance Chart Below)

B. Building codes, plumbing codes and local regulations may vary. Check local codes and jurisdictions before determining proper application and installation.

C. Secure unit with four mounting brackets (provided) to a solid and safe mounting surface, extension beam, or strut support etc. Note some codes may require the use of a secondary drain pan

II. PIPING: General

A. The piping to the unit will usually be 1/2" Pex, 1/2" or 3/4" copper or any other locally approved piping. Accessible 1/2" sweat connections are made outside the unit.

B. All piping system should be designed by a technician with experience in the various piping arrangements that work with this type of unit. (for example boilers, chillers, geothermal heat pumps, solar thermal, reverse cycle chillers, etc.)

C. As with any system employing circulated fluids, the pipes passing through unconditioned spaces should be insulated to prevent freezing, condensation leakage and/or energy losses.

D. When piping double coils in 2-pipe systems it is important that the piping flow is in parallel not series. Provide main pipe size adequate to carry the rated flow of both coils i.e. for MVB 20-DHC piping to unit should be minimum 3/4" and flow split to feed both coils at the unit (4 gpm for Heating and 8 gpm for Cooling).

E. When using mono-flo or "venturi" fittings, we suggest placement of a ball valve just after the supply take-off and before the return is connected.

III. DUCTING CONNECTIONS

A. Ducting systems should be designed by a technician or other professional with experience in proper ducting design based upon floor layout, load calculations and desired zoning.

B. When connecting to the outlet collars of the MVB unit, and the ducting termination diffuser, a minimum of 2 ft. of Flexible ducting should be used to facilitate the installation, while providing reduced sound attenuation or undesirable vibration.

C. Each outlet includes a Built-In "Flat Plate" Damper Control to allow quick and easy balance of multiple ports. There are (2) adjustment screws for each outlet port. Screwing them all the way in opens the Damper Plate all the way, and screwing them out closes off the damper. The damper is designed to allow the minimum amount of air when completely closed, so it will not damage the motor. Both screws for each outlet should be adjusted similarly to the same distance for best results.

D. For optimum performance using "Strato-Thermic Control™" ducting, directional balance diffusers should be used on all duct terminations. When connecting to standard ducting terminations, use a minimum of 3 ft. of ducting the same size as the register adapter prior to the register connection.

E. When using all Flexible ducting throughout, it is necessary to keep the ducting lengths within 20% of each other for best performance and balancing. The maximum recommended ducting length is 25 ft. Distances greater than 25 ft. may contribute to excessive pressure drop and significantly reduced airflow. When using Flexible ducting, follow the manufacturers recommendations for installation.

F. All ducting shall be installed as per local codes and jurisdictions. All ducting used for cooling, or installed in unconditioned areas, should be adequately insulated to prevent heat loss or condensation.

IV. WIRING THE UNIT

A. Connect wires ONLY at the field wiring box provided on the side of the unit. All units should be wired to conform with local and National codes. Unit is factory wired for 115 VAC but can be field wired to operate with 208-230 VAC. See Fig. 1 for wiring diagram schematic. Unit may be controlled by a variety of field wired Fan Relay controls, aquastats and/or remote mounted variable speed fan controls, etc...

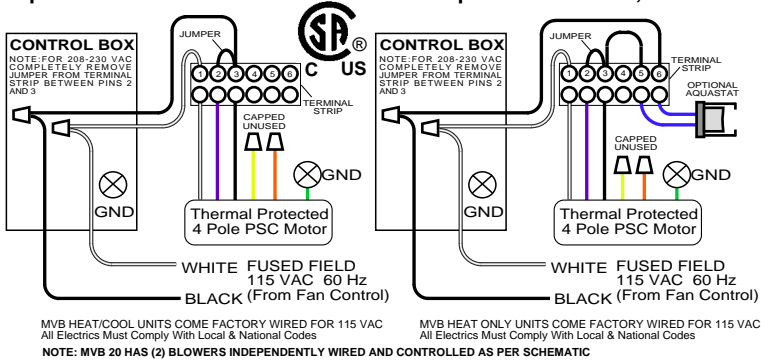


FIG. 1 CONTROL WIRING HEATING & HEATING/COOLING



MODEL SHOWN
MVB 20 DHC

SPECIAL FEATURES:

- Four Pole PSC Motor
- Copper/Aluminum Coil
- 115 VAC or 208-230 VAC
- External Electrical connections
- Non-Fibrous insulation for cooling
- Easy Service Access to all equipment
- Cooling Units Insulated with Drain Pan
- Sweat Pipes extend outside the unit
- 4" Standard Ports Custom Options
- Includes (4) Mounting Brackets
- 2-Pipe or 4-Pipe and Dual Power+Plus
- Operates at up to .6" Static Pressure
- Full 5 year Limited Factory Warranty
- Positive Pressure Drain Pan location
- Primary and Auxiliary Drain Port
- Mid-Velocity™ Range Blower System

DIMENSIONAL DETAILS

NOTE: PORT CONFIGURATIONS SHOWN ARE FOR STANDARD CONNECTIONS. OPTIONAL PORT SIZES AND CONFIGURATIONS ARE AVAILABLE. PLEASE CONTACT FACTORY. ALL SPECIAL REQUESTS WILL BE CONSIDERED.

NOTE: ALLOW 2" FOR DUCTING COLLARS AT FRONT AND BACK. HEATING ONLY UNITS DO NOT FEATURE ANY DRAIN PAN

STANDARD MVB 8 REAR VIEW FRONT VIEW

STANDARD MVB 20 SERIES FRONT VIEW

OPTIONAL MVB 20 SERIES (6) 4" and (2) 6" Ports Optional FRONT VIEW

D = NUMBER & SIZE OF RETURN PORTS
E = NUMBER & SIZE OF SUPPLY PORTS
F = SUPPLY & RETURN STANDARD COIL
F+ = SUPPLY & RETURN DUAL POWER+PLUS™
G = CONDENSATE DRAIN PORT CONNECTION
H = NUMBER OF BLOWER MOTORS
I = WEIGHT OF UNIT IN LBS.

NOTE: DUE TO CONTINUING PRODUCT DEVELOPMENTS AND IMPROVEMENTS, THE SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

MODEL	"A"	"B"	"C"	"D"	"E"	"F/F+"	"G"	"H"	"I"
MVB 8 HC SERIES	14.25"	27.5"	15.3"	(1) 10"	(4) 4"	5/8"	3/4"	(1)	60
MVB 20 HC SERIES	30.25"	27.5"	15.3"	(2) 10"	(10) 4"	5/8"	3/4"	(2)	120
MVB 8 H SERIES	14.25"	27.5"	13.3"	(1) 10"	(4) 4"	5/8"	3/4"	(1)	60
MVB 20 H SERIES	30.25"	27.5"	13.3"	(2) 10"	(10) 4"	5/8"	3/4"	(2)	120

MACRO-ZONAL™ MVB™ SERIES PERFORMANCE

*Ratings and Motor Data			Pressure Drop - Ft. Wtr		Heating Output Ratings ¹			Cooling Output Ratings ²			
Model #	Amps 115V	Amps 230V	CFM	2 GPM	4 GPM	120 Deg	150 Deg	180 Deg	45 Deg	42 Deg	40 Deg
MVB 8-H & HC ³	2.8	1.5	380	1.08'	4.37'	12,050	18,945	25,950	9,800	11,000	11,840
MVB 20-H & HC	5.6	3.0	900	1.58'	6.37'	25,400	39,700	54,100	21,080	23,460	25,070
DUAL POWER+PLUS™ RATING					4 GPM	8 GPM					
MVB 8-DH & DHC ⁴	2.8	1.5	360	1.08'	4.37'	15,000	24,000	33,000	14,000	15,300	16,400
MVB 20-DH & DHC	5.6	3.0	800	1.58'	6.37'	39,200	61,300	83,800	34,200	38,300	41,100

¹Heat Ratings based on 2 GPM and 65°F Entering Air
²Cool Ratings based on 4 GPM and 80/67°F Entering Air
(Note: 40% Glycol reduces output by as much as 15%)

³H & HC Series Data is for Single Coil 2 or 4-Pipe.
⁴Power-Plus™ Series Data with Double Coil 2-Pipe only, piped in parallel, and standard rated flow per coil.