



Scholar II™ Unit Ventilator

800 to 2000 CFM
Models SVI 1000 - 2000

General Description

The Scholar II™ unit ventilator is designed to provide comfortable, quiet and efficient heating and cooling for school classrooms. The Scholar II unit ventilator is installed inside the classroom against an exterior wall. The vandal resistant outdoor air box goes through the exterior wall. This unique design makes it ideal for both new construction and renovation projects. The Scholar II unit ventilator whispers cooling, heating, and ventilation comfort throughout the classroom with efficiencies that excel in comfort system design. The Scholar II unit ventilator can provide ventilation to meet ASHRAE 62-1999 standards.

The cabinet is constructed of corrosion resistant galvanized steel with a mark and scratch resistant polyester finish. The standard cabinet color is silver grey (optional colors are available for special request), with the supply and return grilles in clear brushed aluminum.

The Scholar II™ unit ventilator occupies little floor space and can be controlled by an internal thermostat, a standard room thermostat, or interfaced with an energy management system. The exterior louver/collar assembly blends in an architecturally pleasing manner, conforming with the building exterior in color and form.

All Scholar II™ unit ventilator models are available with voltage rating for 115V - 1ø, 230/208V - 1ø or 3ø, or 460V - 3ø electric supply.

The Scholar II™ unit ventilator is available in a SVI 1000 model with air delivery capacities of 800 to 1200 cfm, and a SVI 2000 model with air delivery capacities of 1400 to 2000 cfm. The unit can be equipped with electric heat, steam or hot water heating options, and chilled water or direct expansion coil cooling options.



Scholar II™ Unit Ventilator

Benefits

Quiet Operation is the result of using a thick, acoustical/thermal insulation applied internally to the panels of the Scholar II™ unit ventilator. A quiet, indoor air mover further reduces the sound level. Finally, extra large air supply outlet and return reduce the sound of air motion in the classroom.

Fresh Air Ventilation. The Scholar II™ unit ventilator offers a number of ventilation configurations to address fresh air requirements.

- *Manual (std) or Motorized Two-Position (opt) Damper with Pressure Relief.* Up to 40% of the rated air flow, with a maximum of 550 cfm, can be outside air through the use of a manual or motorized damper.
- *GreenWheel® ERV(optional).* The Marvair™ GreenWheel ERV is a total energy recovery wheel that can recover both sensible and latent heat with efficiencies of up to 75%. By transferring heat from the classroom air to the incoming air, heating and cooling costs can be kept to a minimum. Up to 40% of the rated air flow, with a maximum of 550 cfm, can be introduced into the classroom and exhausted from the classroom.
- *Power Vent with Motorized Damper (optional).* Up to 40% of classroom air, with a maximum of 550 cfm, can be power ventilated to assure fresh air circulation with motorized damper.

Humidity Control. Reheat dehumidification (optional) permits dehumidification of fresh air and room air without over cooling the classroom. When cooling is satisfied and the humidity controller calls for dehumidification, the heating coil is energized to add heat to the air supplied to the classroom. For optimal humidity control, reheat dehumidification should be used with the GreenWheel® ERV.

Low Operating Costs are the result of a highly efficient system. The Scholar II™ unit ventilator offers the option of supplemental electric resistance, steam, or hot water heat, thus allowing the choice of the lowest cost heat energy source.

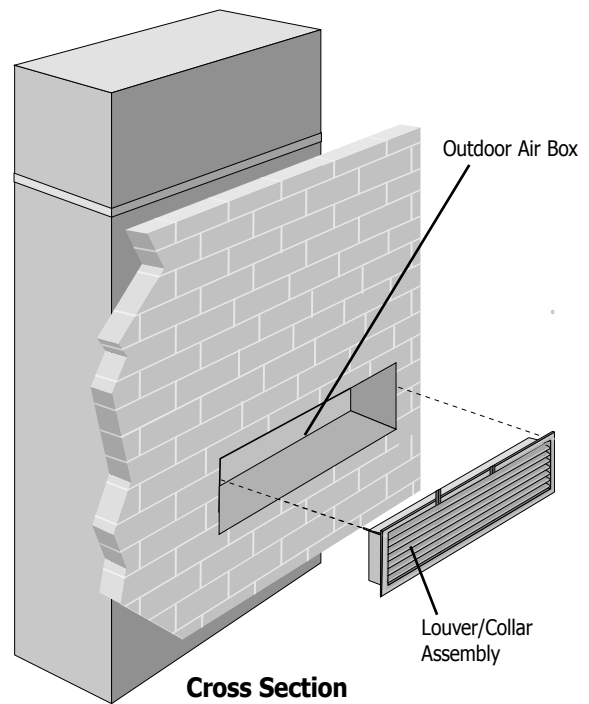
Ease of Service is a major feature of the Scholar II™ unit ventilator's design, with full access to parts, air filters and controls from the room side with quick access through the front panels.

Ease of Installation

The outdoor air box is slid into the rectangular wall opening and the louver/collar assembly is fastened directly to the outdoor air box with self tapping screws. Standard wall thickness for Scholar II™ unit ventilator installation is 14". For thinner walls (less than 14"), the louver/collar assembly may be flush with the outside wall, and the Scholar II unit ventilator can stand away from the interior wall. The appropriate accessory free standing trim piece is available to provide an attractive, color coordinated decorative panel between the Scholar II unit ventilator and the wall.

If it is desirable to elevate the Scholar II™ unit ventilator from the finished floor surface for custodial reasons, a 4", 5", 6" or 8" high base is available.

The Scholar II™ unit ventilator can be installed as a freeblow or ducted system with accessories to provide easy installations. If the open area between the top of the unit and the ceiling is to be enclosed, an extended plenum may be ordered up to 40" in height.

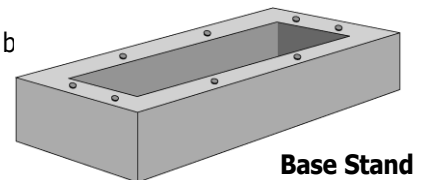


Field Installed Accessories

Trim Piece. When the Scholar II™ unit ventilator must be installed a distance from the inside of the finished wall, the trim piece will provide a color coordinated panel between the cabinet and the wall. Order in the same color as the cabinet and specify the distance from the back of the cabinet to the inside of the finished wall and the color. Trim pieces come in five foot lengths of variable widths.

Base Stand. A 4", 5", 6" or 8" high base is the same dimension as the Scholar II™ unit ventilator cabinet and raises the cabinet off the floor for custodial purposes. The color is black.

1ø or 3ø Single Point Power Entry. Dual circuit units connect to a single power entry.

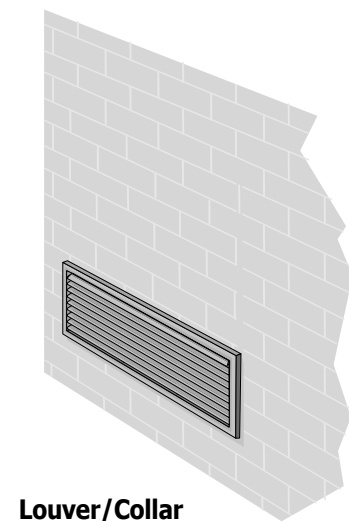


Outdoor Louver and Collar Options

Louver/Collar Assembly. Aluminum, preassembled at the factory to cover outside wall opening. The louver with 2" collar assembly is to be used when the louver is flush with the outside wall and is the preferred method of filling and sealing the outside wall. Available in various painted or anodized colors. See the Marvair™ Louver Brochure for a full description of the louver and the standard and custom colors. Exterior louver includes 1/2" x 1/2" screen.

Louver Collar. Aluminum collar to enclose louver and provide finished appearance over wall opening. Fits flush with outer wall surface. Normally used when wall depth is less than 14" and louver is not flush with the outside wall.

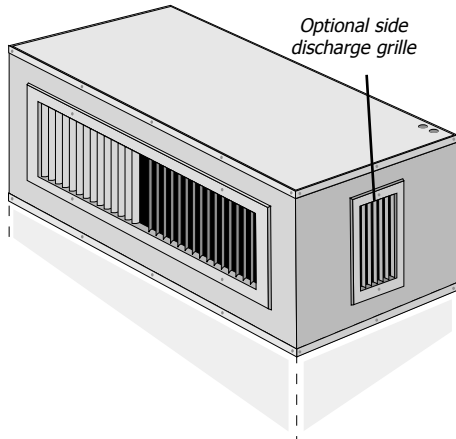
Louver. Aluminum louver for covering the outside wall opening. Used with collar when louver is not flush with the outside wall. Exterior louver includes 1/2" x 1/2" screen.



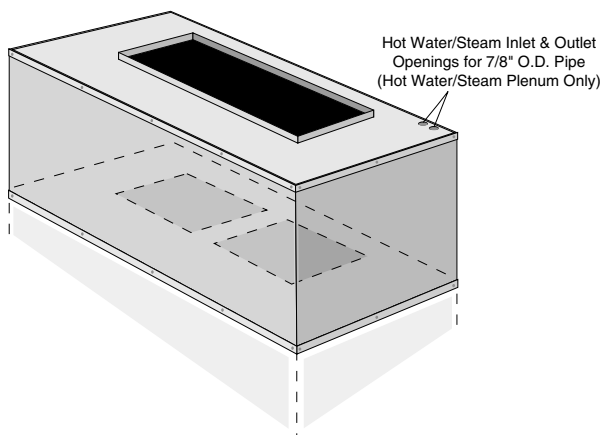
Air Distribution Options

Freeblow Air Distribution is provided with the freeblow plenum. The front grille has individually adjustable vertical and horizontal louvers that provide a full range of airflow direction. An optional accessory side grille that has the same vertical and horizontal adjustment louvers as the front grille is also available.

The side grille can be installed on one or both sides and provides an "air washing" effect to the adjacent wall or window. All grilles have a clear brushed aluminium finish. The freeblow plenum is to be used with units with no heat or electric resistance heat. Note: plenum height available up to 40".

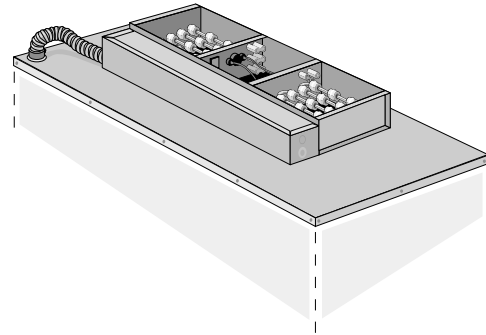


Ducted Air Distribution is provided with the ducted plenum. Because of various ceiling heights, the ducted air plenum may be ordered in various heights. The plenum is available in heights up to 40". Duct can be easily installed

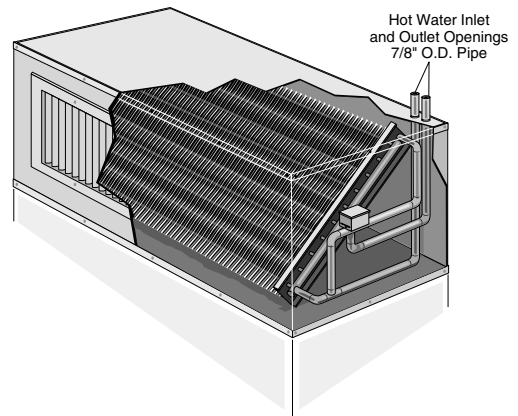


Heat Options

Electric Resistance Heat, is installed above the indoor blower outlets. Electric heater sizes for the models are shown on page 5. Electric heat can be used with the freeblow plenum or with ducted air distribution options.



Steam or Hot Water Heat. The coil is installed within the Scholar II™ unit ventilator cabinet. Steam or hot water coil capacities for the Scholar II unit ventilator models are shown on page 6. A diverter valve is factory installed with the hot water coil. Steam or hot water heat is factory installed in the freeblow or the ducted plenums. Hot water heat is plumbed from the top right side of the plenum. Steam heat connections are site specific. As a standard safety feature, each hot water coil has a protective 24 volt thermostat embedded within it to shut off air flow across the water coil.



Ventilation Options

Manual Fresh Air Damper with Pressure Relief. (Std.) Manually adjustable to a fixed position up to 40% outside air, with a maximum of 550 cfm. Includes fresh air filter. Factory installed. Ventilation Configuration "N".

Motorized Fresh Air Damper. (Opt.) This configuration is a 24 volt actuated motor and allows fresh air to enter, as a function of an external input; e.g., time clock, CO² sensor, energy management system, or manual switch. Includes fresh air filter. Factory installed. Ventilation Configuration "B".

Motorized Fresh Air Damper with Power Vent. (Opt.) A 24 volt actuated motor and allows fresh air to enter, as a function of an external input; e.g., time clock, CO² sensor, energy management system, or manual switch. Includes fresh air filter. Vents up to 40% of classroom air, with a maximum of 550 cfm, to assure fresh air circulation. Factory installed. Ventilation Configuration "J".

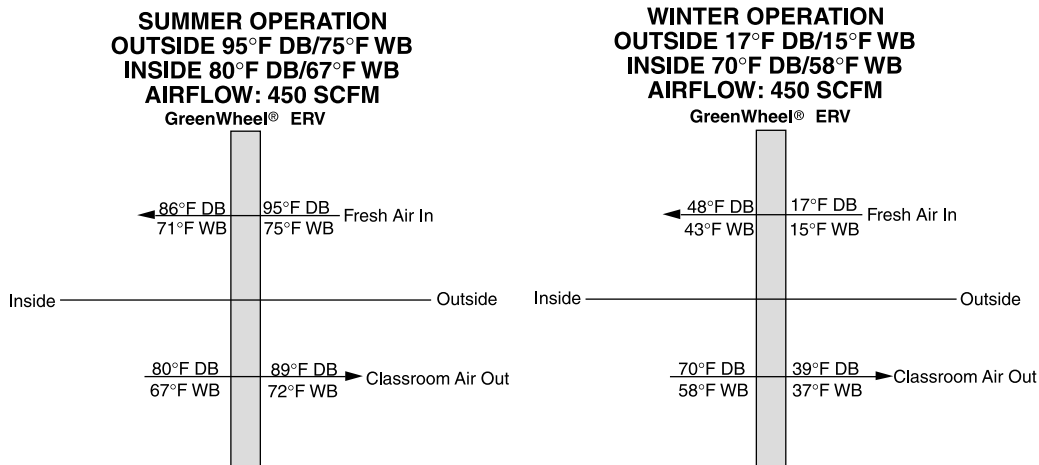
GreenWheel® ERV Ventilation. (Opt.) The Marvair™ GreenWheel ERV is a total energy (both sensible and latent) ventilator that reduces both construction and operating cost while ventilating the classroom to ASHRAE 62-1999 requirements. The use of the GreenWheel ERV reduces the energy load of the outside air. Exhausting stale, inside air keeps indoor pollutants and harmful gases to a minimum. The Marvair GreenWheel ERV has been tested and certified according to ARI Standard 1060. Ventilation Configuration "H".

How It Works - During the summer, cool dry air from the classroom is exhausted through the GreenWheel® ERV to the

outside. As the air passes through the rotating wheel, the desiccant becomes cooler and drier. Simultaneously, hot humid air is being pulled across the rotating wheel. The cool, dry desiccant absorbs moisture and heat from the incoming air. The cooler, drier air is mixed with the return air from the classroom and distributed throughout the room.

In the winter, warm moist air is exhausted through the GreenWheel® ERV to the outside. As the air passes through the rotating wheel, the desiccant becomes warmer and absorbs moisture. Simultaneously, cold dry air is being pulled across the rotating wheel. The cold, dry air absorbs heat and moisture from the desiccant. The warmed air is mixed with the return air from the classroom and distributed throughout the room.

Quality Components - The GreenWheel® ERV cassette consists of the wheel, two blowers and the drive motor and belt. The two blowers simultaneously pull fresh air from outside and exhaust air from the classroom through the rotating wheel. The air streams are separated by an insulated partition so that the incoming fresh air is not mixed with the exhaust air. Two variable speed blowers ensure that up to 550 CFM of outside air can be brought into the room and the indoor air is properly exhausted. Variable speed blowers permit that the desired quantity of outside air is delivered into the room. Optional independent exhaust air blower control allows positive pressurization of the classroom, i.e., more outside air can be introduced through the GreenWheel ERV than is exhausted.



GreenWheel® ERV Performance

SCFM* of Outside Air	90° DB/74° WB Outside 75° DB/64° WB Inside Energy Conserved, BTUH			80° DB/70° WB Outside 75° DB/64° WB Inside Energy Conserved, BTUH			60° DB/54° WB Outside 70° DB/58° WB Inside Energy Conserved, BTUH		
	Sensible	Latent	Total	Sensible	Latent	Total	Sensible	Latent	Total
225	2800	3600	6400	900	2800	2700	1900	200	2100
250	3000	3800	6800	1000	3000	4000	2000	200	2200
325	3600	4500	8100	1200	3500	4700	2400	200	2600
400	4100	4900	9000	1400	3800	5200	2700	300	3000
450	4300	5200	9500	1400	4000	5400	2900	300	3200

SCFM* of Outside Air	40° DB/36° WB Outside 70° DB/58° WB Inside Energy Conserved, BTUH			20° DB/18° WB Outside 70° DB/58° WB Inside Energy Conserved, BTUH			0° DB/7° WB Outside 70° DB/58° WB Inside Energy Conserved, BTUH		
	Sensible	Latent	Total	Sensible	Latent	Total	Sensible	Latent	Total
225	5600	3300	8900	9300	4900	14200	13000	5700	18700
250	6000	3600	9600	10000	5300	15300	14000	6100	14100
325	7200	4200	11400	12000	6200	18200	16700	7100	23800
400	8100	4600	12700	13500	6800	20300	18900	7900	26800
450	8600	4800	13400	14400	7100	21500	20100	8200	28300

*SCFM = Standard Cubic Feet per Minute

Thermostat Options

One Piece Mechanical Thermostat. 2 stage heat, 1 stage cool, fan switch: auto on, system selector switch with emergency heat position, emergency heat and compressor fault indicator lights.

Internal Digital Thermostat. Two stage heat, one stage cool. Eliminates need for external, wall mounted thermostat and sub-base. To be used with units that have electric strip heat or a hot water heat.

Electronic Control Center with Humidistat.

Note: Refer to price pages for part numbers for thermostats.

Cabinet Construction Options

Sound Reduction Panel. To minimize the sound level in the classroom, an optional sound reduction panel may be utilized. The two part panel provides an additional baffle between the Scholar II™ unit ventilator and the classroom. The hinged panels are field installed to the front of the unit. Easy and quick access to the return air filter is provided by the hinged panels - removal of the panels are not required for filter access. The sound reduction panel can reduce the sound level up to 2 dbA and can be used with any ventilation or ducting option.



Freeblow Scholar II™
Unit Ventilator
with Sound Panels

16 Gauge Cabinet. For increased vandal resistance, the front and side panels can be manufactured using 16 gauge sheet metal. Note: cabinet weights shown are for the standard 20 gauge cabinet.

Standard Controls

BAS Control Relay. Available with 24, 120, or 240 VAC coils to control operation from an Energy Management System (EMS).

Ventilation Controls. The motorized fresh air damper with PowerVent and GreenWheel® ERV ventilation options are equipped with a Fresh Air Fan Speed Control. The fresh air fan controls both the ventilation intake and exhaust blowers together, automatically balancing the intake exhaust cfm up to 550 cfm.

Indoor Blower Fan Speed Control. Provides adjustable air volume from indoor blower. (Warning: Minimum air flow is required for proper operation.)

Optional Controls

Spring Wound Timer. Used to enable operation of the ventilator or override building automation system. Field Installed.

Ventilation Controls. The motorized fresh air damper with PowerVent and GreenWheel™ ERV ventilation options can be equipped with an exhaust air fan speed control which controls the ventilation exhaust blower independent of the fresh air intake blower.

Model Identification

SVI

Scholar II™
Ventilator
Indoor



Nominal Air Delivery
1000 = 800 - 1200 cfm
2000 = 1400 - 2000 cfm



Power Supply
A = 208/230V,1ø,60Hz
B = 115V,1ø,60Hz
C = 208/230V,3ø,60Hz
D = 460V,3ø,60Hz



Heat - kW
00 15
05 98 (Steam)
7.5 99 (Hot Water)
10



Configuration
N = Manual Damper (std)
H = GreenWheel® ERV
B = Motorized Damper
J = Power Vent with
Motorized Damper



Configuration
II = Scholar II™

Cooling
CW = Chilled Water Coil
DX = Direct Expansion

Hot Water Coil Capacities

MODEL	TOTAL CFM	EXTERNAL STATIC (IN W.G.)	MIN. O.A. CFM	R.A. CFM	HEATING CAP. BTU/HR	HEATING WATER	
						EWT	GPM
SVI-1000	1000	0.35	250	750	58,000	180°F	8 to 12
SVI-2000	2000	0.35	500	1500	110,000	180°F	15 to 20

Summary Ratings (Wire Sizing)

OPTIONS B, C, N

	00 = None		05 = 5 kW		7.5 = 7.5 kW		10 = 10 kW		15 = 15 kW	
BASIC MODEL	Circuit #1		Circuit #1		Circuit #1		Circuit #1		Circuit #1	
	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS
SVI1000A	3.2	15	29.2	30	42.3	45	55.3	60	---	---
SVI2000A	6.5	15	32.5	35	45.7	50	58.7	60	---	---
SVI1000C	3.2	15	18.2	20	25.7	30	33.3	35	48.3	50
SVI2000C	6.5	15	21.5	25	29.0	30	36.7	40	51.7	60
SVI1000D	2.0	15	9.5	15	13.3	15	17.0	20	24.5	25
SVI2000D	3.3	15	10.8	15	14.5	15	18.3	20	25.8	30

OPTION H - GREENWHEEL® ERV

	00 = None		05 = 5 kW		7.5 = 7.5 kW		10 = 10 kW		15 = 15 kW	
BASIC MODEL	Circuit #1		Circuit #1		Circuit #1		Circuit #1		Circuit #1	
	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS
SVI1000A	4.7	15	30.7	35	43.8	45	56.8	60	---	---
SVI2000A	8.0	15	34.0	35	47.2	50	60.2	60	---	---
SVI1000C	4.7	15	19.7	20	27.2	30	34.8	35	49.8	50
SVI2000C	8.0	15	23.0	25	30.5	35	38.2	40	53.2	60
SVI1000D	2.8	15	10.3	15	14.0	15	17.8	20	25.3	30
SVI2000D	4.0	15	11.5	15	15.3	20	19.0	20	26.5	30

OPTION J - POWERVENT

	00 = None		05 = 5 kW		7.5 = 7.5 kW		10 = 10 kW		15 = 15 kW	
BASIC MODEL	Circuit #1		Circuit #1		Circuit #1		Circuit #1		Circuit #1	
	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS
SVI1000A	4.4	15	30.4	35	43.5	45	56.5	60	---	---
SVI2000A	7.8	15	33.8	35	46.9	50	59.9	60	---	---
SVI1000C	4.4	15	19.4	20	26.9	30	34.5	35	49.5	50
SVI2000C	7.8	15	22.8	25	30.3	35	37.9	40	52.9	60
SVI1000D	2.7	15	10.2	15	13.9	15	17.7	20	25.2	30
SVI2000D	3.9	15	11.4	15	15.2	20	18.9	20	26.4	30

The Summary Ratings chart should be used as a general guideline for estimating conductor size and overcurrent protection for the unit models listed. For specific requirements, refer to the data label attached to the unit cabinet. Heat kW shown at 240V for A and C models. Heat kW shown at 480V for D models. MCA and MFS calculated at 240V for HPA and HPC models and at 480V for HPD models.

MCA = Minimum Circuit Ampacity (Wiring Size Amps)

MFS = Maximum External Fuse or External HACR Circuit Breaker Size.

Unit Load Amps

ELECT. HEAT		VENTILATOR AMPS (max.)				LOAD OF RESISTIVE HEATING ELEMENTS				TOTAL HEATING AMPS (max.)										
BASIC MODEL	VOLTAGE Ph-Hz	OPTIONS B, C, N	POWERVENT J	GRN WHEEL® ERV H	ONLY (in amps)				OPTIONS B, C, N				POWERVENT (J)				GREENWHEEL® ERV (H)			
					5kW	7.5kW	10kW	15kW	5kW	7.5kW	10kW	15kW	5kW	7.5kW	10kW	15kW	5kW	7.5kW	10kW	15kW
SVI1000A	208-230/1/60	2.5	3.5	3.7	20.8	31.3	41.7	n/a	23.3	33.8	44.2	n/a	24.3	34.8	45.2	n/a	24.5	35.0	45.4	n/a
SVI2000A	208-230/1/60	5.2	6.2	6.4	20.8	31.3	41.7	n/a	26.0	36.5	46.9	n/a	27.0	37.5	47.9	n/a	27.2	37.7	48.1	n/a
SVI1000C	208-230/3/60	2.5	3.5	3.7	12.0	18.0	24.1	36.1	14.5	20.5	26.6	38.6	15.5	21.5	27.6	39.6	15.7	21.7	27.8	39.8
SVI2000C	208-230/3/60	5.2	6.2	6.4	12.0	18.0	24.1	36.1	17.2	23.2	29.3	41.3	18.2	24.2	30.3	42.3	18.4	24.4	30.5	42.5
SVI1000D	460/3/60	1.6	2.1	2.2	6.0	9.0	12.0	18.0	7.6	10.6	13.6	19.6	8.1	11.1	14.1	20.1	8.2	11.2	14.2	20.2
SVI2000D	460/3/60	2.6	3.1	3.2	6.0	9.0	12.0	18.0	8.6	11.6	14.6	20.6	9.1	12.1	15.1	21.1	9.2	12.2	15.2	21.2

Heating kW shown for 240V for all A and C models. Derate by 25% for 208V service. Heating kW shown for 480V for all D models. NOTE: Three phase equipment (C and D models) contain single-phase motor loads. Values shown are maximum phase loads. Loads are not equally balanced on each phase. Total heating amps includes motor loads.

Electrical Characteristics - Ventilation System Motors

Configuration	Exhaust Air Motor (EXM)				Outdoor Air Motor (OAM)				GreenWheel® ERV Drive Motor			
	Volts	Hz/Ph	FLA	Watts	Volts	Hz/Ph	FLA	Watts	Volts	Hz/Ph	FLA	Watts
Economizer	n/a	n/a	n/a	n/a	230	60/1	1.0	127	n/a	n/a	n/a	n/a
Manual Damper	n/a	n/a	n/a	n/a	230	60/1	1.0	127	n/a	n/a	n/a	n/a
Motorized Damper	n/a	n/a	n/a	n/a	230	60/1	1.0	127	n/a	n/a	n/a	n/a
PowerVent	230	60/1	1.0	127	230	60/1	1.0	127	n/a	n/a	n/a	n/a
GreenWheel® ERV	230	60/1	1.0	127	230	60/1	1.0	127	230	60/1	0.2	7.5

FLA = Full Load Amps

Electric Heat Table

OUTPUT	HEATER KW			
	5	7.5	10.0	15.0
115 Volt (BTUH)	16,380	---	---	---
240 Volt (BTUH)	16,380	24,500	32,670	49,150
208 Volt (BTUH)	12,290	18,420	24,570	36,860
460 Volt (BTUH)	16,380	24,500	32,670	49,150

NOTE: Electric heaters for SVI 2000 are field installed.

Electrical Characteristics - Indoor Fan Motor

MODEL	INDOOR FAN MOTOR				
	VOLTS	HZ/PH	RPM	FLA	HP
SVI1000A	208/230	60/1	825	1.5	1/4
SVI2000A	208/230	60/1	1075	4.2	1/2
SVI1000C	208/230	60/1	825	1.5	1/4
SVI2000C	208/230	60/1	1075	4.2	1/2
SVI1000D	460	60/1	825	1.1	1/4
SVI2000D	208/230	60/1	1075	4.2	1/2

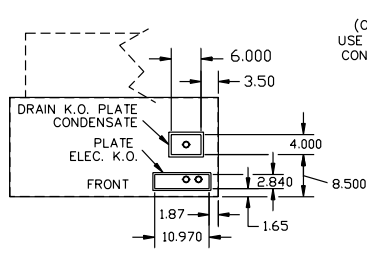
FLA = Full Load Amps

Cooling Capacities - Chilled Water

MODEL	COOLING CAP. TOTAL	BTU/HR SENSIBLE	CHILLED WATER	
			EWT	GPM
SVI-1000	42,000	28,000	45°F	12
SVI-2000	75,000	54,000	45°F	22

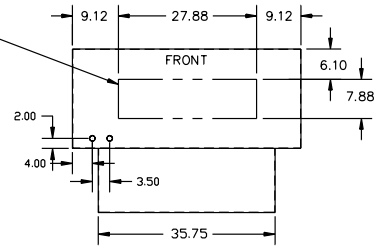
Dimensional Data –SVI1000 (in inches)

Note: Dimensional tolerance ± 0.125"

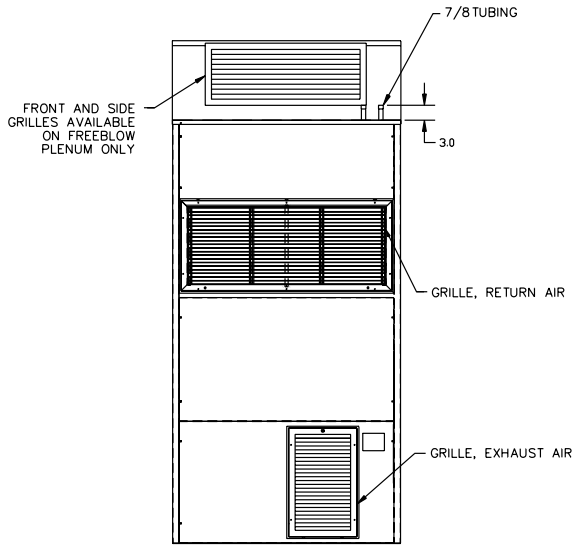


BASE VIEW

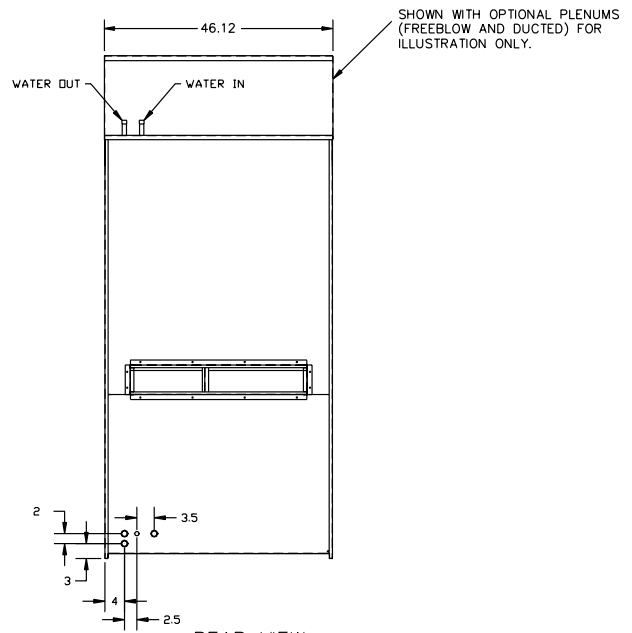
OUTLET DUCT
(ON DUCTED PLENUM ONLY)
USE 28" X 8" DUCT WORK TO
CONNECT TO DUCTED PLENUM



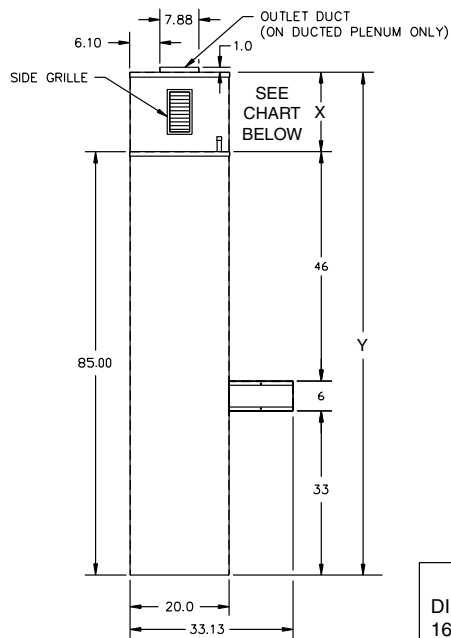
TOP VIEW



FRONT VIEW



REAR VIEW

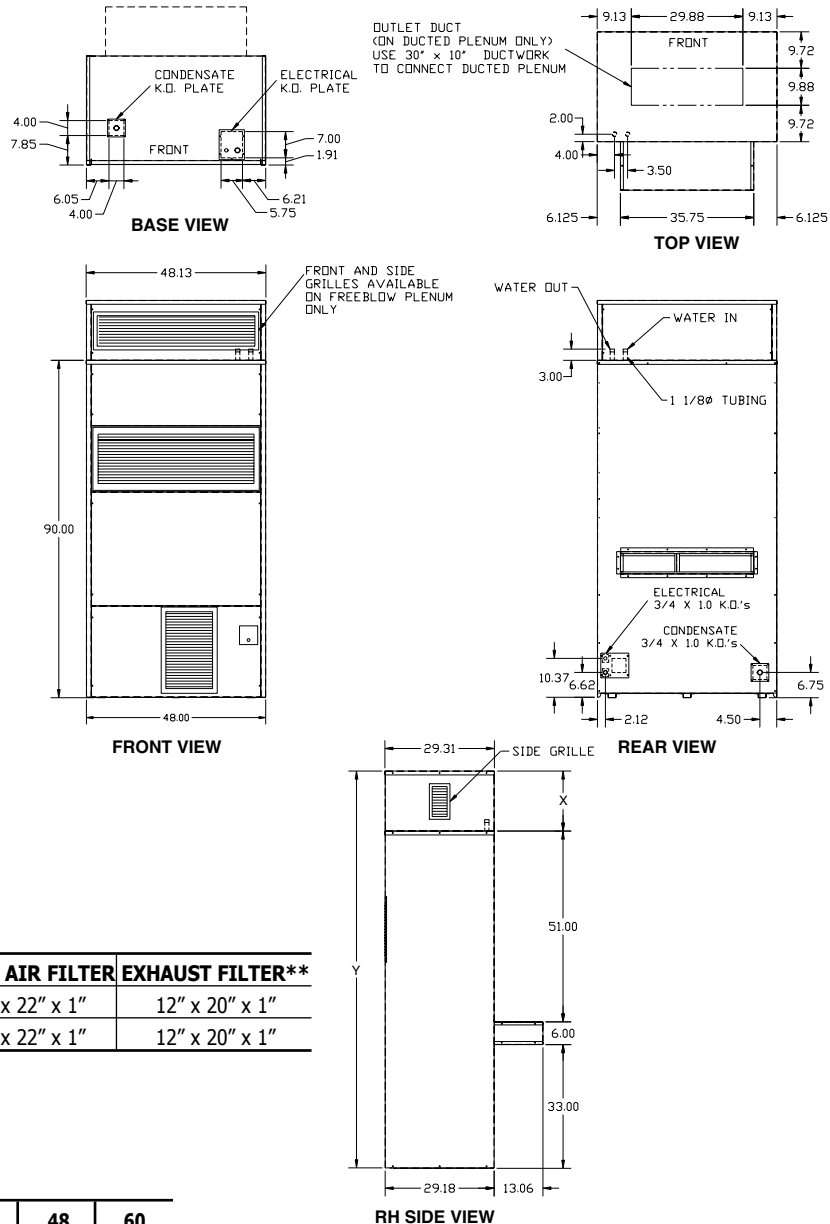


RIGHT SIDE VIEW

MINIMUM PLENUM HEIGHT		
DIM "X"	DIM "Y"	PLENUM TYPE
16.0	101.0	STANDARD PLENUM, ELEC OR NO HEAT
18.0	103.0	HOT WATER OR STEAM PLENUM

Dimensional Data – SVI2000 (in inches)

Note: Dimensional tolerance $\pm 0.125"$



Filter Size

MODEL	RETURN AIR FILTER*	FRESH AIR FILTER	EXHAUST FILTER**
SVI-1000	16" x 16" x 1" ①	11" x 22" x 1"	12" x 20" x 1"
SVI-2000	20" x 15" x 1" ①	11" x 22" x 1"	12" x 20" x 1"

*Two (2) return air filters are required for each unit.

**With GreenWheel® ERV.

① Optional 2" Filter

Ship Weight

MODEL	24	30	36	40	48	60
115 Voltage	325 lbs.	415 lbs.	425 lbs.	440 lbs.	595 lbs.	835 lbs.
230 Voltage	300 lbs.	390 lbs.	400 lbs.	415 lbs.	570 lbs.	810 lbs.
460 Voltage	325 lbs.	415 lbs.	425 lbs.	440 lbs.	595 lbs.	835 lbs.

Ship weights are for 20 gauge cabinets.

Complete installation instructions are in the Scholar Installation and Start-Up Manual. Detailed dimensional data is available upon request. A complete warranty statement can be found in each product's Installation/Operation Manual, on our website at www.marvair.com or by contacting Marvair at 229-273-3636. As part of the Marvair continuous improvement program, specifications are subject to change without notice.

MINIMUM PLENUM HEIGHT		
DIM "X"	DIM "Y"	PLENUM TYPE
16.0	101.0	STANDARD PLENUM, ELEC. OR NO HEAT
18.0	103.0	HOT WATER OR STEAM PLENUM



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