



# GreenSource iSeries Water Source Heat Pumps

SV Model

Made in Florida  
[boschheatingandcooling.com](http://boschheatingandcooling.com)



**BOSCH**

Invented for life

## About the Bosch Group



The Bosch Group has been a leading global supplier of technology and services in the areas of Automotive, Industrial Technology, Consumer Goods and Building Technology for over 100 years. Every Bosch product is built with one goal in mind; to enhance the quality of life by providing innovative technological solutions. Bosch is a leader in the development of next generation technologies that deliver improved performance and peace of mind while conserving and sustaining natural resources. Bosch is highly regarded for its development of automotive braking and steering safety systems (ABS) which have been improving automotive performance for over 30 years, helping reduce the number of accidents on North America's roads and highways. Environmental stewardship inspires and drives Bosch product development. Bosch is a leader in the development of next generation technologies that deliver improved performance and efficiency while conserving natural resources. In the area of sustainable mobility, we're helping reduce the fuel consumption and CO<sub>2</sub> emissions of new vehicles. Energy efficiency and environmental protection are also shaping our Industrial Technology, Consumer Goods and Building

Technology products. Green technologies, such as gas tankless water heaters, heat pump electric water heaters, solar thermal systems, photovoltaics, wind power and geothermal heat pumps are perhaps the best examples of smart technologies growing in demand and shaping the future of Bosch.

### About Bosch Thermotechnology in **North America**

Bosch Thermotechnology is a leading source of high quality water heating and comfort heating systems in North America. The company offers Bosch tankless, point-of-use water heaters, Bosch solar thermal systems, Buderus and Bosch wall-hung boilers, Buderus floor-standing boilers, Bosch heat pump water heaters, Bosch geothermal heat pumps as well as controls and accessories for every product line. Bosch Thermotechnology is committed to reinventing energy efficiency by offering smart products that work together as integrated systems, which enhance quality of life in an ultra efficient and environmentally friendly manner.



**Made in  
the U.S.A.**

### Proven and tested technologies

Bosch heat pumps are made by highly trained and skilled workers in our factory based in Fort Lauderdale, Florida. They are manufactured with rigorous standards and factory testing ensuring high efficient operation over the life of the unit. Bosch's ISO 9001 and ISO 14001 certified facilities provide consistent quality in every unit built.



# SV

## iSERIES

The iSeries Greensource water source heat pump comes equipped with the quality and innovative technology that only Bosch can provide.



### Standard Features & Benefits:

- ▶ Low installation costs – Saving you money
- ▶ Easy to service – Saving you time
- ▶ Energy efficient – Meets ASHRAE 90.1 compliance
- ▶ Space saving technology – Small footprint cabinet
- ▶ Whisper quiet operation
- ▶ Specifically designed for replacement applications
- ▶ Available in Vertical, Horizontal and Counterflow
- ▶ Standard copper evaporator coil with aluminum fins
- ▶ Standard PSC motor
- ▶ High and low pressure switches
- ▶ Electronic circuit board with alert display which can also be displayed via the thermostat
- ▶ 75 VA transformer
- ▶ G90 galvanized steel cabinet
- ▶ 1/2", 1 1/2 lb. Dual density fiberglass insulation
- ▶ Condensate overflow switch
- ▶ Water coil freeze protection
- ▶ Evaporator coil freeze protection
- ▶ Brown out low voltage protection
- ▶ Standard 1" glass fiber filter and 1" filter rack

### Factory Installed Options:

- ▶ ECM constant CFM motor (variable speed)
- ▶ ECM fixed torque motor
- ▶ Tin-plated evaporator with coated fin coil – Providing environmental corrosion protection
- ▶ Compressor sound blanket
- ▶ Pump valve relay
- ▶ 40 Amp disconnect switch (single and three phase)
- ▶ Cupro-nickel coax coil
- ▶ Two position water valve
- ▶ TXV (Thermal Expansion Valve)
- ▶ Closed-cell foam insulation (coming soon)
- ▶ MERV 8 or 13 filters with 2" filter rack
- ▶ Energy management switch relay
- ▶ Hot gas reheat
- ▶ DDC control (field or factory installed)

### Field Installed Accessories:

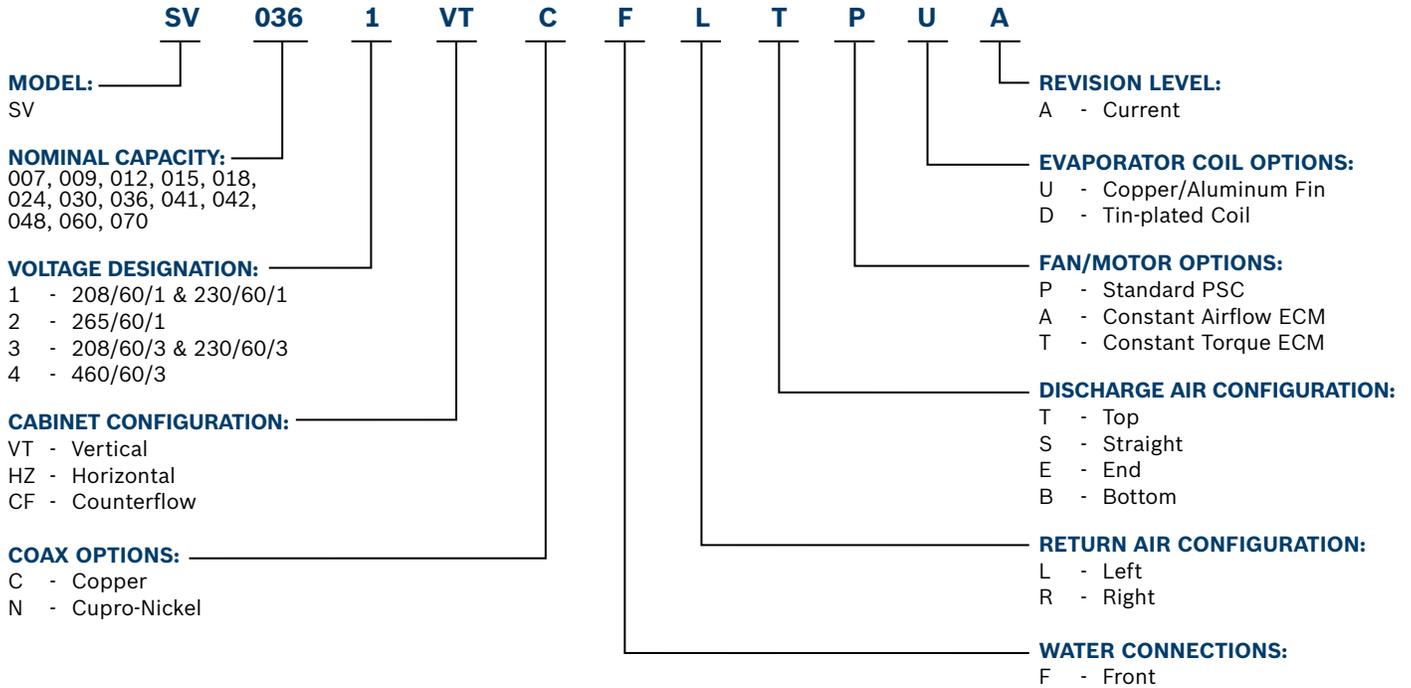
- ▶ Smart Start (coming soon)

### Warranty:

- ▶ 1 year parts limited warranty
- ▶ 5 year compressor limited warranty

Subject to change without prior notice.

## Model Nomenclature



## GreenSource iSeries SV Model 007 – 070

- ▶ 13 Models from 1/2 through 6 tons
- ▶ Vertical, Horizontal and Counterflow Configurations

The SV Model is a cost-effective single stage water source heat pump designed for commercial retrofit and new construction applications.

Know your Series	
<b>CDi</b>	<b>Complete Design with Innovation</b>
<b>Si</b>	<b>Select Innovation</b>
<b>i</b>	<b>Innovation</b>

## Standard Features

### Cabinet

The SV unit cabinetry is constructed using heavy-gauge, G90 galvanized steel. This steel provides superior corrosion protection for units located indoors.

All interior surfaces are lined with 1/2" thick, 1.5 lb./cu.ft. density, Micromat insulation for thermal insulation and acoustical attenuation. This insulation is non-combustible, non-hydroscopic and does not support fungal growth. Insulation meets NFPA 90A and 90B for fire protection and is certified to meet the GREENGUARD Indoor Air Quality Standard for Low Emitting Products.



## Quiet Operation

All panels are insulated with 1/2" thick, 1.5 lb./cu.ft. density Micromat fiberglass insulation as standard for both thermal insulation and noise reduction.

Noise reduction is a critical consideration of the unit design. All SV units have a unique floating base compressor that is mounted on a heavy steel plate which rests on a high density rubber pad on the base of the unit. In addition, compressors are mounted on rubber grommets. This double isolation, which is unique to Bosch, is standard in all SV units and helps prevent vibration and noise transmission from the compressor to the unit structure resulting in exceptionally quiet operation.

For additional sound attenuation, factory installed closed cell foam insulation provides whisper-quiet operation and improved IAQ. A field installed optional compressor blanket is also available on unit sizes 024 and above.



**2" MERV 8 or MERV 13  
Filter Option**



**2" 4-Sided Filter  
Rack Option**



**Water Connectors**



**Hanging Brackets  
(Standard for Horizontal units)**



**ECM Constant Airflow  
Motor Option**



**ECM Constant Torque  
Motor Option**

## Serviceability

All units are designed to be serviced from the front of the unit. Schrader valves for high and low pressure gauges and the electrical box components are easily accessible for diagnosing and servicing the unit.

## Unit Configurations

All units are available in vertical, horizontal and counterflow configurations. Additionally, several options of return air and supply air are offered as standard, providing configuration flexibility.

## Filter Racks and Unit Options

Units come standard with a 1" filter rack and 1" construction filter. Filter doors allow for easy routine maintenance and changing of the air filter. A 1" return duct collar is integral to the filter rack eliminating the need for field mounted duct collars.

Optional:

- ▶ 2" MERV 8 Filter
- ▶ 2" MERV 13 Filter

## Fan Motor Options

### Permanent Split Capacitor Motors (PSC)

The standard motor for all SV model heat pumps is a PSC motor.

### ECM Constant Torque Motor

The SV's ECM constant torque blower motor option offers improved efficiency (up to 33%) over the standard PSC motor. The ECM constant-torque motors are similar in function to a PSC, but can handle up to 1 in.w.g. external static pressure making it a wise choice for high filtration applications. These motors are available in unit sizes 015 to 070. This ECM motor option is an excellent choice for retrofit. Note: On a Constant Torque ECM it is not necessary to supply a neutral wire on 460 volt units.

## ECM Constant Airflow Motor

The SV's new high efficiency ECM variable speed motor option, available in 1/3hp to 1hp, provides constant airflow in a wide static pressure range up to 1 in.w.g. Available in unit sizes 015 to 070, the variable speed motor is a great choice in high filtration applications. The ECM variable speed motor has a soft start/stop feature, keeping noise to a minimum. SV units that are outfitted with these motors can see an efficiency boost up to 1.8 EER points. Note: On Constant CFM ECM a neutral wire has to be on all 460 volt units.

Cool-to-Dehumidify can be achieved with the variable speed motor by reducing nominal airflow by 15%. This control feature lowers air coil temperature and prevents over-cooling of the space when in dehumidification mode.

## Hanging Brackets

All horizontal units come standard with hanging bracket kits for suspending the unit from field supplied hanger rods. These kits include heavy duty steel brackets and rubber grommets for sound and vibration isolation from the building structure.

## Water Connections

All water connections are heavy duty bronze 3/4" or 1" FPT fittings securely fastened to the unit corner post. This allows connecting to a flexible hose kit without the use of a backup wrench making for easier, faster installation.

## Refrigerant Circuit

SV Model units are designed using the optimum combination of compressor, water and air coils to provide peak performance.

Heavy duty heat pump compressors are used in all units. Rotary, reciprocating and scroll compressors offer optimum performance for each unit size.



Coax Coil



2-Way Valve with Actuator



Compressors

Refrigerant to water heat exchangers are coaxial tube-in-tube copper/copper type providing a robust construction, ensuring years of trouble free operation. Optional Cupro-Nickel coils are available for applications where the water is of lower quality.

In geothermal applications where fluid temperatures can drop below the dew point of the surrounding air, optional insulation is available to prevent water coils and refrigerant piping from sweating.

Evaporator coils are state of the art, employing lanced fin and rifled tubing for maximum heat transfer. Large face areas result in lower face velocity, reducing sound while ensuring high latent heat removal for maximum dehumidification in the cooling mode.

### Evaporator Coil Corrosion Protection

Available as an option is the tin-plated coil protection. Tin Electro-Plated Copper Tubing with High-Tech Polymer Coated Aluminum Fins will protect the evaporator coil from all forms of corrosive elements in the airstream.

### Blower Housing

A removable inlet ring is a standard feature of the blower housing on all unit sizes. The removable inlet ring helps facilitate motor removal without having to remove the fan housing from the cabinet.

### Unit Protection Module

Each SV unit is factory provided with a Unit Protection Module (UPM) that controls the unit operation and monitors the safety controls that protect the unit. The UPM interfaces with the thermostat or direct digital controller. The main purpose of the UPM is to protect the compressor by monitoring the different states of switches and sensors.

This module provides time delays and protects the unit against freezing of the water coil and evaporator coil.

### UPM Control Board Features

- ▶ Anti-Short Cycle Timer— 5 minute delay
- ▶ High and low pressure protection
- ▶ Water and evaporator freeze protection
- ▶ Condensate overflow protection
- ▶ Brownout/Surge/Power Interruption Protection
- ▶ Unit Alerts — The controller has a set of contacts for remote fault indication.
- ▶ With a Bosch Communicating Thermostat alerts can be conveniently displayed without having to go to the unit and removing the door on your heat pump.

### Safety controls include the following:

- ▶ High pressure switch located in the refrigerant discharge line.
- ▶ Low pressure switch located in the unit refrigerant suction line.
- ▶ Standard low fluid temperature (freeze) protection sensor. The freeze protection sensor is designed to disable compressor operation when the unit is in the heating mode, should the refrigerant temperature fall below either 30°F (-1.1°C) or 15°F (-9.4°C).
- ▶ Condensate overflow protection sensor is standard and factory mounted in the drain pan of the unit.
- ▶ Low air coil temperature (freeze) protection sensor disables the compressor when the refrigerant entering the air coil drops below 30°F (-1.1°C).

### LED Fault Indication

Two LED indicators are provided on the circuit board:

- ▶ Green: Power
- ▶ Red: Fault indicator with blink codes:
  - ▶ High pressure
  - ▶ Low pressure
  - ▶ Freeze protection
  - ▶ Condensate overflow
  - ▶ Brownout condition

These alerts can be displayed with a Bosch thermostat.



**Tin Plated Coated Fin  
Evaporator Coil**



**TXV Valve (Optional)**



**Blower Housing  
(with Removable Inlet Ring)**



**UPM Control Board**

## Unit Dimensions

### Vertical Top Discharge Water Source Heat Pump

Overall unit dimensions do not include filter rack or duct flanges.

Model	Unit Overall Dimensions			Supply Air Duct Connection		Return Air Duct Connection		Condenser Water Connections	Recommended Replacement Nominal Filter Size
	Height	Width	Depth	Discharge Width	Discharge Height	R/A Duct Flange Height	R/A Duct Width		
SV007	24.25	19.0	19.0	8.0	10.0	8.0	16.0	3/4" FPT	10 × 16 × 1
SV009	24.25	19.0	19.0	8.0	10.0	8.0	16.0	3/4" FPT	10 × 16 × 1
SV012	24.25	19.0	19.0	8.0	10.0	8.0	16.0	3/4" FPT	10 × 16 × 1
SV015	32.25	21.5	21.5	8.0	10.0	14.0	20.0	3/4" FPT	16 × 20 × 1
SV018	32.25	21.5	21.5	14.0	14.0	14.0	20.0	3/4" FPT	16 × 20 × 1
SV024	39.25	21.5	21.5	14.0	14.0	18.0	20.0	3/4" FPT	20 × 20 × 1
SV030	39.25	21.5	21.5	14.0	14.0	18.0	20.0	3/4" FPT	20 × 20 × 1
SV036	43.25	21.5	26.0	14.0	15.5	22.0	24.0	3/4" FPT	24 × 24 × 1
SV041	39.25	21.5	21.5	14.0	15.5	18.0	20.0	3/4" FPT	20 × 20 × 1
SV042	43.25	21.5	26.0	14.0	15.5	22.0	24.0	3/4" FPT	24 × 24 × 1
SV048	45.25	24.0	32.5	14.0	18.0	22.0	30.0	1" FPT	24 × 30 × 1
SV060	45.25	24.0	32.5	14.0	18.0	22.0	30.0	1" FPT	24 × 30 × 1
SV070	58.25	26.0	33.25	15.5	18.0	30.0	30.0	1" FPT	16 × 30 × 1 (2)

### Horizontal Water Source Heat Pump

Model	Unit Overall Dimensions			Supply Air Duct Connection		Return Air Duct Connection		Condenser Water Connections	Recommended Replacement Nominal Filter Size
	Height	Width	Depth	Discharge Width	Discharge Height	R/A Duct Flange Height	R/A Duct Width		
SV007	11.5	19.0	33.0	5.8	3.6	16.15	8.6	3/4" FPT	10 × 16 × 1
SV009	11.5	19.0	33.0	5.8	3.6	16.15	8.6	3/4" FPT	10 × 16 × 1
SV012	11.5	19.0	33.0	5.8	3.6	16.15	8.6	3/4" FPT	10 × 16 × 1
SV015	17.0	22.0	43.0	6.0	9.15	20.15	15.0	3/4" FPT	16 × 20 × 1
SV018	17.0	22.0	43.0	8.6	9.15	20.15	15.0	3/4" FPT	16 × 20 × 1
SV024	17.0	22.0	43.0	8.6	9.15	25.15	15.0	3/4" FPT	16 × 25 × 1
SV030	17.0	22.0	43.0	8.6	9.15	25.15	15.0	3/4" FPT	16 × 25 × 1
SV036	19.0	22.0	54.5	8.6	9.8	30.0	17.0	3/4" FPT	18 × 30 × 1
SV042	19.0	22.0	54.5	8.6	9.8	30.0	17.0	3/4" FPT	18 × 30 × 1
SV048	21.0	25.0	54.5	10.0	10.86	34.6	19.0	1" FPT	20 × 34.5 × 5 × 1
SV060	21.0	25.0	54.5	10.0	10.86	34.6	19.0	1" FPT	20 × 34.5 × 5 × 1
SV070	21.0	25.0	65.0	11.3	12.0	48.1	19.0	1" FPT	20 × 24 × 1 (2)

### Counterflow Water Source Heat Pump

Model	Unit Overall Dimensions			Supply Air Duct Connection		Return Air Duct Connection		Condenser Water Connections	Recommended Replacement Nominal Filter Size
	Height	Width	Depth	Discharge Width	Discharge Height	R/A Duct Flange Height	R/A Duct Width		
SV015	32.25	21.5	21.5	6.4	4.1	14.0	20.0	3/4" FPT	16 × 20 × 1
SV018	32.25	21.5	21.5	9.0	9.7	14.0	20.0	3/4" FPT	16 × 20 × 1
SV024	39.25	21.5	21.5	9.0	9.7	18.0	20.0	3/4" FPT	20 × 20 × 1
SV030	39.25	21.5	21.5	9.0	9.7	18.0	20.0	3/4" FPT	20 × 20 × 1
SV036	43.25	21.5	26.0	9.2	10.3	22.0	24.0	3/4" FPT	24 × 24 × 1
SV042	43.25	21.5	26.0	10.5	11.3	22.0	24.0	3/4" FPT	24 × 24 × 1
SV048	45.25	24.0	32.5	10.5	11.4	22.0	30.0	1" FPT	24 × 30 × 1
SV060	45.25	24.0	32.5	11.7	12.5	22.0	30.0	1" FPT	24 × 30 × 1
SV070	58.25	26.0	33.25	11.7	12.5	30.0	30.0	1" FPT	16 × 30 × 1 (2)

NOTES: All dimensions within +– 0.125". All condensate drain connections are 3/4" FPT. Horizontal models can be field converted between end blow and straight through supply air configurations. Specifications subject to change without notice. 1" filter rack extends 1.23" beyond the side of the unit. 2" filter rack extends 2.89" beyond the side of the unit. The 2" filter rack is 4 sided with a filter access door on each end and can accept either a 1" or 2" filter.

Subject to change without prior notice.

Model	Fluid Flow Rate	AHRI/ANSI 13256-1 Performance Data							
		Entering Water Temperatures							
		86 °F		68 °F		77 °F		32 °F	
		WATER LOOP				GROUND LOOP			
		Capacity and Efficiency Data – PSC Motor (Standard)							
		Cooling Capacity (WLHP)	EER (WLHP)	Heating Capacity (WLHP)	COP (WLHP)	Cooling Capacity (GLHP)	EER (GLHP)	Heating Capacity (GLHP)	COP (GLHP)
SV007	2.0	6,100	12.20	7,800	5.30	6,800	15.10	4,900	3.40
SV009	2.5	8,200	12.40	9,900	4.70	8,700	14.60	5,700	3.20
SV012	3.0	10,900	11.80	13,000	4.30	11,800	14.00	8,700	3.10
SV015	4.0	13,400	12.10	16,100	4.20	14,200	14.00	11,300	3.10
SV018	5.0	19,400	13.40	22,200	4.60	21,200	15.80	14,300	3.50
SV024	6.0	23,400	13.40	26,600	4.40	25,000	15.50	17,000	3.40
SV030	7.5	29,200	13.10	33,400	4.30	31,000	15.30	20,900	3.20
SV036	9.0	37,900	14.70	41,800	4.60	39,900	16.90	26,900	3.50
SV041	10.0	39,500	13.60	44,600	4.20	41,200	15.60	29,400	3.30
SV042	10.0	40,000	12.60	46,300	4.20	42,600	14.50	31,000	3.20
SV048	12.0	45,900	12.90	56,400	4.30	48,800	14.90	35,400	3.40
SV060	15.0	57,900	13.20	67,200	4.20	60,100	15.00	46,900	3.20
SV070	16.0	64,000	13.30	72,800	4.40	66,400	15.00	50,800	3.40
<b>ECM Motor (Option)</b>									
SV015	4.0	13,700	13.90	15,500	4.40	14,400	16.20	10,700	3.30
SV018	5.0	19,700	14.20	21,900	4.70	21,500	17.00	14,100	3.60
SV024	6.0	23,800	14.30	26,200	4.60	25,400	16.50	16,700	3.50
SV030	7.5	30,000	14.80	32,800	4.60	31,600	17.40	20,400	3.40
SV036	9.0	38,200	15.40	41,400	4.70	40,200	17.70	26,500	3.60
SV041	10.0	40,500	15.70	43,700	4.40	42,200	17.70	28,500	3.60
SV042	10.0	40,900	14.10	45,300	4.40	43,500	16.30	30,100	3.50
SV048	12.0	46,800	14.10	55,600	4.50	49,600	16.20	34,600	3.60
SV060	15.0	59,000	14.10	66,400	4.20	61,100	16.40	46,200	3.30
SV070	16.0	65,200	14.60	71,800	4.60	67,600	16.60	50,000	3.50

**Bosch Thermotechnology Corp.**

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