

GreenSource i Series Model SV Water Source Heat Pump 1/2 to 6 Ton

Engineering
Submittal
Sheet



BOSCH

Overview and Certifications



Standard Features, Factory Installed Options, and Field Installed Accessories

Standard Features

▶ SV Model 007 - 070

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

▶ Cabinet

- Cabinetry is constructed using heavy-gauge, G90 galvanized steel

▶ Quiet Operation

- All panels are insulated with ½" thick, 1.5 lb./cu.ft. density micromat fiberglass insulation for both thermal insulation and noise reduction

▶ Serviceability

- All units are designed to be serviced from the front of the unit
- Insulated bulkheads allow the unit to be serviced during operation.

▶ Unit Configurations

- All units are available in horizontal, vertical and counterflow configurations

▶ Filter Racks

- Units come standard with a 1" filter rack and construction filter

▶ Fan Motor

- The standard motor for all SV series heat pumps is a permanent split capacitor (PSC) motor.

▶ Hanging Brackets

- All horizontal units come standard with hanging bracket kits for suspending the unit from field supplied hanger rods

▶ Water Connections

- All water connections are heavy duty bronze FPT fittings securely fastened to the unit corner post

▶ Refrigerant Circuit

- SV Series units are designed using the optimum combination of compressor, water and copper aluminum-fin evaporator coils with capillary tubes to provide peak performance.

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



BOSCH

Standard Features, Factory Installed Options, and Field Installed Accessories continued..

- ▶ **Copper Coax Coil**
- ▶ **75 VA Transformer**
- ▶ **Standard Range (WLS / Towers / Boiler)**
- ▶ **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
 - Water and Air coil freeze protection
 - Condensate Overflow Sensor
 - Brown-out Protection
 - Low and High Pressure Protection
- ▶ **Optional Filter Rack**
 - A 2" four-sided filter rack and pleated filter is optional and greatly improves air filtration
- ▶ **Optional 2" MERV 8 and MERV 13 Filter**
 - The MERV 8 and MERV 13 filter is a cost effective way of upgrading air quality while maintaining low pressure drop and sustaining long service life
- ▶ **Hot Gas Reheat**
 - Passive Dehumidification
- ▶ **Compressor Sound Blanket**
 - Whisper quiet operation
- ▶ **Smart Start (Coming Soon)**
 - Factory or Field installed
 - Ease in starting
 - Increased start-up efficiency
 - Helps reduce light dimming

Factory and Field Installed Options

- ▶ **ECM Constant Torque**
 - The constant-torque blower motor option offers improved efficiency (up to 33%) over the standard PSC motor
- ▶ **ECM Constant CFM (Variable Speed)**
 - The new high efficiency ECM motor option, available in 1/3hp to 1hp, provides constant airflow in a wide static pressure range up to 1 in.w.g.
 - Improved efficiency up to 33% over the standard PSC motor
- ▶ **Tin Plated Evaporator Coil**
 - 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
- ▶ **Closed Cell Foam Insulation (Coming Soon)**
 - Sound levels as low as 52 Db
- ▶ **EMS Relay**
 - Energy management relay to tie into a building's energy management system
- ▶ **Disconnect Switch**
 - 40 amp external box, 1 phase, 8AWG
 - 40 amp external box, 3 phase, 8AWG
- ▶ **Cupro-nickel Coil:**
 - Recommended in conditions anticipating moderate scale formation or in brackish water
- ▶ **Pump Interlock Relay**
 - Helps ensure the external flow/pump center operates when unit is operating
- ▶ **Extended Range Option**
- ▶ **Two-Position Water Valve**
 - The optional two-position motorized water valve opens to allow 100% fluid flow through the coaxial heat exchanger only when there is a call for cooling or heating
- ▶ **DDC Controls**
 - The factory and field installed DDC Controller is preprogrammed and installed in the unit with the Unit Protection Module
 - The unit will operate in a 100% stand-alone control mode or connect to a Building Automation System (BAS) using open protocols BACnet, Modbus and N2
- ▶ **TXV (Thermal Expansion Valve)**
 - Improves refrigerant management and efficiencies

Model Nomenclature

SV 018 - 1 VTC - F L T - P U A

SERIES
SV

SIZE

- 007
- 009
- 012
- 015
- 018
- 024
- 030
- 036
- 041
- 042
- 048
- 060
- 070

VOLTAGE

- 1 208-230/60/1
- 2 277/60/1
- 3 208-230/60/3
- 4 460/60/3

CABINET CONFIGURATION

- HZ - Horizontal
- VT - Vertical
- CF - Downflow/Counterflow
(sizes 015 - 070 only)

REVISION LEVEL

- A - Current

EVAPORATOR COIL

- U - Copper / Aluminum Fin
- D - Tin Plated

FAN/MOTOR OPTIONS

- P - Standard PSC
- A - Constant Airflow ECM
- T - Constant Torque ECM

DISCHARGE AIR CONFIGURATION

- T - Top
- S - Straight
- E - End
- B - Bottom

RETURN AIR CONFIGURATION

- L - Left
- R - Right

WATER CONNECTIONS

- F - Front

COAX OPTIONS

- C - Copper
- N - Cupro-Nickel

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



BOSCH

AHRI/ANSI 13256-1 Capacity and Efficiency Data – PSC Motor (Standard)

Models	Water Loop Heat Pump				Ground Loop Heat Pump			
	Cooling 86 °F		Heating 68 °F		Cooling 77 °F		Heating 32 °F	
	Capacity (Btuh)	EER (Btuh/W)	Capacity (Btuh)	COP	Capacity (Btuh)	EER (Btuh/W)	Capacity (Btuh)	COP
SV007	6100	12.2	7800	5.3	6800	15.1	4900	3.4
SV009	8200	12.4	9900	4.7	8700	14.6	5700	3.2
SV012	10900	11.8	13000	4.3	11800	14.0	8700	3.1
SV015	13400	12.1	16100	4.2	14200	14.0	11300	3.1
SV018	19400	13.4	22200	4.6	21200	15.8	14300	3.5
SV024	23400	13.4	26600	4.4	25000	15.5	17000	3.4
SV030	29200	13.1	33400	4.3	31000	15.3	20900	3.2
SV036	37900	14.7	41800	4.6	39900	16.9	26900	3.5
SV041	39500	13.6	44600	4.2	41200	15.6	29400	3.3
SV042	40000	12.6	46300	4.2	42600	14.5	31000	3.2
SV048	45900	12.9	56400	4.3	48800	14.9	35400	3.4
SV060	57900	13.2	67200	4.2	60100	15.0	46900	3.2
SV070	64000	13.3	72800	4.4	66400	15.0	50800	3.4

AHRI/ANSI 13256-1 Capacity and Efficiency Data – Constant Torque or Constant CFM ECM

Models	Water Loop Heat Pump				Ground Loop Heat Pump			
	Cooling 86 °F		Heating 68 °F		Cooling 77 °F		Heating 32 °F	
	Capacity (Btuh)	EER (Btuh/W)	Capacity (Btuh)	COP	Capacity (Btuh)	EER (Btuh/W)	Capacity (Btuh)	COP
SV015	13700	14.0	15500	4.4	14400	16.2	10700	3.3
SV018	19700	14.2	21900	4.7	21500	17.0	14100	3.6
SV024	23800	14.3	26200	4.6	25400	16.5	16700	3.5
SV030	30000	14.8	32800	4.6	31600	17.4	20400	3.4
SV036	38200	15.4	41400	4.7	40200	17.7	26500	3.6
SV041	40500	15.7	43700	4.4	42200	17.7	28500	3.6
SV042	40900	14.1	45300	4.4	43500	16.3	30100	3.5
SV048	46800	14.1	55600	4.5	49600	16.2	34600	3.6
SV060	59000	14.1	66400	4.2	61100	16.4	46200	3.3
SV070	65200	14.6	71800	4.6	67600	16.6	50000	3.5

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



BOSCH

Physical Data								
Description	Unit	Value						
		SV007	SV009	SV012	SV015	SV018	SV024	SV030
Compressor Type (Qty 1)	—	Rotary	Rotary	Rotary	Rotary	Reciprocating	Reciprocating	Reciprocating
Max Water Working Pressure	PSIG/kPa	400	400	400	400	400	400	400
PSC Fan Motor & Blower								
Fan Motor Type/Speeds	—	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3
Fan Motor	HP	1/10	1/10	1/10	1/10	1/4	1/4	1/4
Blower Wheel Size	Inch (Dia. x W)	4.5 x 4.5	4.5 x 4.5	5.5 x 4.5	5.5 x 4.5	9 x 7	9 x 7	9 x 7
ECM Fan Motor & Blower								
Fan Motor Type/Speeds	—	PSC/3	PSC/3	PSC/3	X13 / EON	X13 / EON	X13 / EON	X13 / EON
Fan Motor	HP	N/A	N/A	N/A	1/3	1/3	1/3*/ 1/3	1/3*/ 1/3
Blower Wheel Size	Inch (Dia. x W)	4.5 x 4.5	4.5 x 4.5	5.5 x 4.5	9 x 7	9 x 7	9 x 7	9 x 7
Water Connection Size								
FPT	Inch	¾	¾	¾	¾	¾	¾	¾
Coaxial Coil Volume	Gal	0.04	0.06	0.08	0.09	0.14	0.14	0.24
Condensate Connection	Inch FPT	¾	¾	¾	¾	¾	¾	¾
Vertical Cabinet								
Refrigeration Charge	Oz	14	15	18	19	28	29	37
Air Coil Dimensions	Inch (H x W)	10 x 14	10 x 14	10 x 14	12 x 16.5	16 x 16.5	20 x 16.5	20 x 16.5
Standard Filter - 1"	Inch (L x H)	10 x 16	10 x 16	10 x 16	16 x 20	16 x 20	20 x 20	20 x 20
Optional Filter - 2" MERV 7 or 13	Inch (L x H)	10 x 16	10 x 16	10 x 16	16 x 20	16 x 20	20 x 20	20 x 20
Weight - Operating	lbs	98	103	105	123	173	177	190
Weight - Shipping	lbs	126	130	132	151	201	205	217
Horizontal Cabinet								
Refrigeration Charge	Oz	17	19	19	19	29	29	37
Air Coil Dimensions	Inch (H x W)	10 x 14	10 x 14	10 x 14	12 x 16.5	16 x 16.5	16 x 20.5	16 x 20.5
Standard Filter - 1"	Inch (L x H)	10 x 16	10 x 16	10 x 16	16 x 20	16 x 20	16 x 25	16 x 25
Optional Filter - 2" MERV 7 or 13	Inch (L x H)	10 x 16	10 x 16	10 x 16	16 x 20	16 x 20	16 x 25	16 x 25
Weight - Operating	lbs	96	100	105	136	174	181	190
Weight - Shipping	lbs	128	132	134	158	208	212	224

i Unit sizes 024 & 030 with -4 voltage (460/3/60), the X13 motor will be 1/2 HP rather than 1/3 HP.

i 460/3/60 units with a constant Torque ECM does not require a neutral wire.

i 460/3/60 units with a constant CFM ECM requires a neutral wire in addition to the power wires and ground wires.

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



BOSCH

Physical Data							
Description	Unit	Value					
		SV036	SV041	SV042	SV048	SV060	SV070
Compressor Type (Qty 1)	—	Reciprocating	Reciprocating	Reciprocating	Scroll	Scroll	Scroll
Max Water Working Pressure	PSIG/kPa	400	400	400	400	400	400
PSC Fan Motor & Blower							
Fan Motor Type/Speeds	—	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3
Fan Motor	HP	1/2	1/2	1/2	3/4	3/4	3/4
Blower Wheel Size	Inch (Dia. x W)	9 x 7	10 x 8	10 x 8	10 x 8	11 x 9	11 x 9
ECM Fan Motor & Blower							
Fan Motor Type/Speeds	—	X13 / EON	X13 / EON	X13 / EON	X13 / EON	X13 / EON	X13 / EON
Fan Motor	HP	1/2	1/2	1/2	3/4	1.0	1.0
Blower Wheel Size	Inch (Dia. x W)	9 x 7	10 x 8	10 x 8	10 x 8	11 x 9	11 x 9
Water Connection Size							
FPT	Inch	¾	¾	¾	1	1	1
Coaxial Coil Volume	Gal	0.27	0.27	0.27	0.49	0.62	0.62
Condensate Connection	Inch FPT	¾	¾	¾	¾	¾	¾
Vertical Cabinet							
Refrigeration Charge	Oz	48	48	48	52	59	73
Air Coil Dimensions	Inch (H x W)	24x20.2	20x16	24x20.2	24x26.75	24x26.75	32x26.2
Standard Filter - 1"	Inch (L x H)	24x24	20x20	24x24	24x30	24x30	16x30 @2
Optional Filter - 2" MERV 7 or 13	Inch (L x H)	24x24	20x20	24x24	24x30	24x30	16x30 @2
Weight - Operating	lbs	229	217	239	287	307	336
Weight - Shipping	lbs	255	243	265	312	331	360
Horizontal Cabinet							
Refrigeration Charge	Oz	46	N/A	43	44	64	61
Air Coil Dimensions	Inch (H x W)	18x27.5	N/A	18x27.5	20x32	20x32	20x42
Standard Filter - 1"	Inch (L x H)	18x30	N/A	18x30	20x34.5	20x34.5	20x24 @2
Optional Filter - 2" MERV 7 or 13	Inch (L x H)	18x30	N/A	18x30	20x34.5	20x34.5	20x24 @2
Weight - Operating	lbs	236	N/A	231	274	288	316
Weight - Shipping	lbs	270	N/A	264	299	318	365

i 460/3/60 units with a constant CFM ECM requires a neutral wire in addition to the power wires and ground wires.

i 460/3/60 units with a constant Torque ECM does not require a neutral wire.

GreenSource i Series Model SV
Water Source Heat Pump ½ to 6 Ton



Operating Limits - Cooling & Heating		
Description	Standard Unit	Extended Range Option
COOLING		
Minimum ambient air temperature °F	50	50
Maximum ambient air temperature °F	100	100
Minimum evaporator entering air db/wb °F	68/57	68/57
Rated air coil entering air db/wb °F	80/67	80/67
Maximum evaporator entering air db/wb °F	95/85	95/85
Minimum water coil entering fluid temperature °F	50	50
Water loop typical coil entering fluid range temperature °F	70/90	70/90
Maximum water coil entering fluid temperature °F	110	110
HEATING		
Minimum ambient air temperature °F	50	40
Maximum ambient air temperature °F	100	85
Minimum evaporator entering air db °F	50	50
Rated air coil entering air °F	68	68
Maximum evaporator entering air db °F	80	80
Normal water coil entering fluid range °F	50-80	25-80*
Minimum water coil entering Fluid °F	50	20*

* antifreeze solution is required at these fluid temperatures.

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



BOSCH

Electrical Data - PSC Standard Blower Motor											
Model	Voltage Code	Voltage/Hz/Phase	Voltage Min/Max	Compressor			Blower Motor			Min Circuit Amps	Max Fuse/HACR
				QTY	RLA	LRA	FLA	HP	Total Unit FLA		
SV007	1	208-230/60/1	196/253	1	2.6	17.7	0.96	0.1	3.56	4.2	15
	2	265/60/1	238/292	1	2.6	13.5	0.96	0.1	3.56	4.2	15
SV009	1	208-230/60/1	196/253	1	3.4	22.2	0.96	0.1	4.36	5.2	15
	2	265/60/1	238/292	1	2.9	18.8	0.85	0.1	3.75	4.5	15
SV012	1	208-230/60/1	196/253	1	4.6	28	0.96	0.1	5.56	6.7	15
	2	265/60/1	238/292	1	3.8	22.2	0.85	0.1	4.65	5.6	15
SV015	1	208-230/60/1	196/253	1	5.6	29	0.96	0.1	6.56	8	15
	2	265/60/1	238/292	1	4.6	20	0.85	0.1	5.45	6.6	15
SV018	1	208-230/60/1	196/253	1	6.5	43	1.8	0.25	8.3	9.9	15
	2	265/60/1	238/292	1	5.8	46	1.6	0.25	7.4	8.9	15
SV024	1	208-230/60/1	196/253	1	7.4	43	1.8	0.25	9.2	11.1	15
	2	265/60/1	238/292	1	6.7	46	1.6	0.25	8.3	10	15
	3	208-230/60/3	196/253	1	5.9	63	1.8	0.25	7.7	9.2	15
	4	460/60/3	414/506	1	2.9	30	0.9	0.25	3.8	4.5	15
SV030	1	208-230/60/1	196/253	1	9.9	54	1.8	0.25	11.7	14.2	20
	2	265/60/1	238/292	1	8.5	46	1.6	0.25	10.1	12.2	20
	3	208-230/60/3	196/253	1	6.9	63	1.8	0.25	8.7	10.4	15
	4	460/60/3	414/506	1	5.4	30	0.9	0.25	6.3	7.7	15
SV036	1	208-230/60/1	196/253	1	13	74	4.4	0.5	17.4	20.7	30
	2	265/60/1	238/292	1	11.3	67	3.3	0.5	14.6	17.4	25
	3	208-230/60/3	196/253	1	7.8	68	4.4	0.5	12.2	14.2	20
	4	460/60/3	414/506	1	3.9	34	1.8	0.5	5.7	6.7	15
SV041	1	208-230/60/1	196/253	1	13.6	88	4.4	0.5	18	21.4	35
	3	208-230/60/3	196/253	1	8.8	68	4.4	0.5	13.2	15.4	20
	4	460/60/3	414/506	1	4.4	34	1.8	0.5	6.2	7.3	15
SV042	1	208-230/60/1	196/253	1	13.6	88	4.4	0.5	18	21.4	35
	3	208-230/60/3	196/253	1	8.8	68	4.4	0.5	13.2	15.4	20
	4	460/60/3	414/506	1	4.4	34	1.8	0.5	6.2	7.3	15
SV048	1	208-230/60/1	196/253	1	15.7	84	4.4	0.75	20.1	24	35
	3	208-230/60/3	196/253	1	11	88	4.4	0.75	15.4	18.2	25
	4	460/60/3	414/506	1	5.4	44	2.8	0.75	8.2	9.6	15
SV060	1	208-230/60/1	196/253	1	26.3	134	5.5	0.75	31.8	38.4	60
	3	208-230/60/3	196/253	1	15.6	110	5.5	0.75	21.1	25	40
	4	460/60/3	414/506	1	7.8	52	2.8	0.75	10.6	12.6	20
SV070	1	208-230/60/1	196/253	1	28.3	178	5.5	0.75	33.8	40.9	60
	3	208-230/60/3	196/253	1	19.2	136	5.5	0.75	24.7	29.5	45
	4	460/60/3	414/506	1	8.7	66.1	2.8	0.75	11.5	13.7	20

Greensource i Series Model SV
Water Source Heat Pump ½ to 6 Ton



Electrical Data - Constant Torque ECM											
Model	Voltage Code	Voltage/Hz/Phase	Voltage Min/Max	Compressor			Blower Motor			Min Circuit Amps	Max Fuse/HACR
				QTY	RLA	LRA	FLA	HP	Total Unit FLA		
SV015	1	208-230/60/1	196/253	1	5.6	29.0	2.8	0.3	8.4	9.8	15
	2	265/60/1	238/292	1	4.6	20.0	2.6	0.3	7.2	8.4	15
SV018	1	208-230/60/1	196/253	1	6.5	43.0	2.8	0.3	9.3	10.9	15
	2	265/60/1	238/292	1	5.8	46.0	2.6	0.3	8.4	9.9	15
SV024	1	208-230/60/1	196/253	1	7.4	43.0	2.8	0.3	10.2	12.1	15
	2	265/60/1	238/292	1	6.7	46.0	2.6	0.3	9.3	11.0	15
	3	208-230/60/3	196/253	1	5.9	63.0	2.8	0.3	8.7	10.2	15
	4	460/60/3	414/506	1	2.9	30.0	2.1	0.5	5.0	5.7	15
SV030	1	208-230/60/1	196/253	1	9.9	54.0	2.8	0.3	12.7	15.2	25
	2	265/60/1	238/292	1	8.5	46.0	2.6	0.3	11.1	13.2	20
	3	208-230/60/3	196/253	1	6.9	63.0	2.8	0.3	9.7	11.4	15
	4	460/60/3	414/506	1	5.4	30.0	2.1	0.5	7.5	8.9	15
SV036	1	208-230/60/1	196/253	1	13.0	74.0	4.1	0.5	17.1	20.4	30
	2	265/60/1	238/292	1	11.3	67.0	3.9	0.5	15.2	18.0	25
	3	208-230/60/3	196/253	1	7.8	68.0	4.1	0.5	11.9	13.9	20
	4	460/60/3	414/506	1	3.9	34.0	2.1	0.5	6.0	7.0	15
SV041	1	208-230/60/1	196/253	1	13.6	88.0	6.0	0.8	19.6	23.0	35
	3	208-230/60/3	196/253	1	8.8	68.0	6.0	0.8	14.8	17.0	25
	4	460/60/3	414/506	1	4.4	34.0	4.6	0.8	9.0	10.1	15
SV042	1	208-230/60/1	196/253	1	13.6	88.0	6.0	0.8	19.6	23.0	35
	3	208-230/60/3	196/253	1	8.8	68.0	6.0	0.8	14.8	17.0	25
	4	460/60/3	414/506	1	4.4	34.0	4.6	0.8	9.0	10.1	15
SV048	1	208-230/60/1	196/253	1	15.7	84.0	6.0	0.8	21.7	25.6	40
	3	208-230/60/3	196/253	1	11.0	88.0	6.0	0.8	17.0	19.8	30
	4	460/60/3	414/506	1	5.4	44.0	4.6	0.8	10.0	11.4	15
SV060	1	208-230/60/1	196/253	1	26.3	145.0	7.6	1.0	33.9	40.5	60
	3	208-230/60/3	196/253	1	15.6	123.0	7.6	1.0	23.2	27.1	40
	4	460/60/3	414/506	1	7.8	70.0	4.0	1.0	11.8	13.8	20
SV070	1	208-230/60/1	196/253	1	28.3	158.0	7.6	1.0	35.9	43.0	70
	3	208-230/60/3	196/253	1	19.2	155.0	7.6	1.0	26.8	31.6	50
	4	460/60/3	414/506	1	8.7	75.0	4.0	1.0	12.7	14.9	20

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



Electrical Data - Constant CFM ECM (Variable Speed)											
Model	Voltage Code	Voltage/Hz/Phase	Voltage Min/Max	Compressor			Blower Motor			Min Circuit Amps	Max Fuse/HACR
				QTY	RLA	LRA	FLA	HP	Total Unit FLA		
SV015	1	208-230/60/1	196/253	1	5.6	29.0	2.8	0.3	8.4	9.8	15
	2	265/60/1	238/292	1	4.6	20.0	2.6	0.3	7.2	8.4	15
SV018	1	208-230/60/1	196/253	1	6.5	43.0	2.8	0.3	9.3	10.9	15
	2	265/60/1	238/292	1	5.8	46.0	2.6	0.3	8.4	9.9	15
SV024	1	208-230/60/1	196/253	1	7.4	43.0	2.8	0.3	10.2	12.1	15
	2	265/60/1	238/292	1	6.7	46.0	2.6	0.3	9.3	11.0	15
	3	208-230/60/3	196/253	1	5.9	63.0	2.8	0.3	8.7	10.2	15
	4	460/60/3	414/506	1	2.9	30.0	2.6	0.3	5.5	6.2	15
SV030	1	208-230/60/1	196/253	1	9.9	54.0	2.8	0.3	12.7	15.2	25
	2	265/60/1	238/292	1	8.5	46.0	2.6	0.3	11.1	13.2	20
	3	208-230/60/3	196/253	1	6.9	63.0	2.8	0.3	9.7	11.4	15
	4	460/60/3	414/506	1	5.4	30.0	2.6	0.3	8.0	9.4	15
SV036	1	208-230/60/1	196/253	1	13.0	74.0	4.3	0.5	17.3	20.6	30
	2	265/60/1	238/292	1	11.3	67.0	4.1	0.5	15.4	18.2	25
	3	208-230/60/3	196/253	1	7.8	68.0	4.3	0.5	12.1	14.1	20
	4	460/60/3	414/506	1	3.9	34.0	4.1	0.5	8.0	9.0	15
SV041	1	208-230/60/1	196/253	1	13.6	88.0	6.8	0.8	20.4	23.8	35
	3	208-230/60/3	196/253	1	8.8	68.0	6.8	0.8	15.6	17.8	25
	4	460/60/3	414/506	1	4.4	34.0	5.5	0.8	9.9	11.0	15
SV042	1	208-230/60/1	196/253	1	13.6	88.0	6.8	0.8	20.4	23.8	35
	3	208-230/60/3	196/253	1	8.8	68.0	6.8	0.8	15.6	17.8	25
	4	460/60/3	414/506	1	4.4	34.0	5.5	0.8	9.9	11.0	15
SV048	1	208-230/60/1	196/253	1	15.7	84.0	6.8	0.8	22.5	26.4	40
	3	208-230/60/3	196/253	1	11.0	88.0	6.8	0.8	17.8	20.6	30
	4	460/60/3	414/506	1	5.4	44.0	5.5	0.8	10.9	12.3	15
SV060	1	208-230/60/1	196/253	1	26.3	145.0	9.1	1.0	35.4	42.0	60
	3	208-230/60/3	196/253	1	15.6	123.0	9.1	1.0	24.7	28.6	45
	4	460/60/3	414/506	1	7.8	70.0	6.9	1.0	14.7	16.7	20
SV070	1	208-230/60/1	196/253	1	28.3	158.0	9.1	1.0	37.4	44.5	70
	3	208-230/60/3	196/253	1	19.2	155.0	9.1	1.0	28.3	33.1	50
	4	460/60/3	414/506	1	8.7	75.0	6.9	1.0	15.6	17.8	25

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



BOSCH

Blower Performance CFM (PSC Standard Motor Blower)														
Model	Available External Static Pressure (in. wc. Wet coil and filter included)													
	Motor Speed	Rated Airflow	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20
SV007	Low	300	370	340	295	250	-	-	-	-	-	-	-	-
	Medium		390	360	330	300	260	-	-	-	-	-	-	-
	High		410	380	350	315	280	210	-	-	-	-	-	-
SV009	Low	350	370	340	295	250	-	-	-	-	-	-	-	-
	Medium		390	360	330	300	260	-	-	-	-	-	-	-
	High		410	380	350	315	280	210	-	-	-	-	-	-
SV012	Low	400	300	290	290	300	-	-	-	-	-	-	-	-
	Medium		380	380	360	330	290	-	-	-	-	-	-	-
	High		420	400	380	360	340	320	-	-	-	-	-	-
SV015	Low	500	320	300	280	-	-	-	-	-	-	-	-	-
	Medium		380	370	360	340	330	-	-	-	-	-	-	-
	High		520	500	480	460	430	400	340	-	-	-	-	-
SV018	Low	650	630	590	560	-	-	-	-	-	-	-	-	-
	Medium		810	790	760	730	680	590	-	-	-	-	-	-
	High		1010	970	920	870	800	680	530	-	-	-	-	-
SV024	Low	850	650	610	570	540	510	-	-	-	-	-	-	-
	Medium		830	820	800	770	720	620	-	-	-	-	-	-
	High		1050	1000	950	910	840	710	570	-	-	-	-	-
SV030	Low	950	740	730	700	660	610	-	-	-	-	-	-	-
	Medium		830	810	770	730	680	620	-	-	-	-	-	-
	High		1000	950	900	830	750	690	630	-	-	-	-	-
SV036	Low	1200	1290	1250	1200	1150	1080	1000	-	-	-	-	-	-
	Medium		1410	1350	1290	1220	1150	1060	900	-	-	-	-	-
	High		1500	1440	1370	1290	1210	1120	1000	900	-	-	-	-
SV041	Low	1200	990	990	970	950	920	860	-	-	-	-	-	-
	Medium		1220	1190	1150	1120	1080	1020	940	-	-	-	-	-
	High		1450	1380	1320	1250	1190	1120	1040	960	-	-	-	-
SV042	Low	1400	1210	1210	1190	1160	1120	1080	-	-	-	-	-	-
	Medium		1460	1450	1430	1390	1330	1250	1160	-	-	-	-	-
	High		1750	1710	1670	1620	1560	1460	1330	1210	1080	-	-	-
SV048	Low	1600	1450	1440	1420	1400	1360	1320	-	-	-	-	-	-
	Medium		1700	1670	1630	1580	1530	1470	1400	-	-	-	-	-
	High		1930	1870	1810	1740	1670	1600	1520	1430	1340	-	-	-
SV060	Low	2000	1560	1550	1540	1530	1505	1475	1440	1400	-	-	-	-
	Medium		1890	1880	1870	1860	1825	1790	1730	1670	1590	1500	-	-
	High		2220	2200	2150	2100	2050	2000	1940	1870	1800	1700	1590	-
SV070	Low	2100	1570	1560	1550	1540	1530	1505	1475	1440	1400	-	-	-
	Medium		1900	1890	1880	1870	1860	1825	1790	1730	1670	1590	1500	-
	High		2240	2220	2200	2150	2100	2050	2000	1940	1870	1800	1700	1590

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



BOSCH

Blower Performance Constant Torque ECM															
Model	Fan Speed	Rated Airflow	Available External Static Pressure (in. wc. Wet coil and filter included)												
			0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	
SV015	1	500	480	440	410	370	340	-	-	-	-	-	-	-	
	2		530	490	450	420	380	340	-	-	-	-	-	-	
	3		600	560	510	470	440	410	370	-	-	-	-	-	
	4		650	600	560	520	500	480	440	380	-	-	-	-	
	5		710	660	620	580	550	520	490	470	-	-	-	-	
SV018	1	650	630	590	560	530	490	-	-	-	-	-	-	-	
	2		720	700	670	630	600	560	-	-	-	-	-	-	
	3		790	770	750	710	670	620	560	-	-	-	-	-	
	4		910	890	850	810	740	670	590	520	-	-	-	-	
	5		1010	970	920	860	810	750	660	530	-	-	-	-	
SV024	1	850	650	610	580	560	520	-	-	-	-	-	-	-	
	2		740	720	690	660	620	570	-	-	-	-	-	-	
	3		850	830	800	770	730	690	630	-	-	-	-	-	
	4		950	920	890	870	840	820	770	650	-	-	-	-	
	5		1160	1110	1050	990	920	800	670	560	-	-	-	-	
SV030	1	950	620	600	570	540	490	-	-	-	-	-	-	-	
	2		730	710	670	640	610	550	-	-	-	-	-	-	
	3		820	790	760	740	710	670	630	-	-	-	-	-	
	4		940	910	880	850	800	740	660	-	-	-	-	-	
	5		1070	1010	950	900	840	760	670	-	-	-	-	-	
SV036	1	1200	1120	1090	1055	1030	1000	-	-	-	-	-	-	-	
	2		1260	1230	1200	1170	1140	1080	-	-	-	-	-	-	
	3		1330	1293	1253	1210	1167	1100	1030	-	-	-	-	-	
	4		1400	1357	1307	1250	1193	1120	1040	963	-	-	-	-	
	5		1470	1420	1360	1290	1220	1140	1050	970	890	-	-	-	
SV041	1	1200	985	955	920	890	-	-	-	-	-	-	-	-	
	2		1130	1100	1070	1030	1000	-	-	-	-	-	-	-	
	3		1210	1180	1143	1100	1060	1010	-	-	-	-	-	-	
	4		1290	1260	1217	1170	1120	1050	977	-	-	-	-	-	-
	5		1370	1340	1290	1240	1180	1090	1000	920	-	-	-	-	-
SV042	1	1400	1270	1250	1230	1210	-	-	-	-	-	-	-	-	
	2		1440	1420	1410	1410	1400	1380	1340	-	-	-	-	-	
	3		1540	1530	1510	1500	1490	1470	1430	1350	-	-	-	-	
	4		1650	1630	1610	1600	1580	1530	1460	1360	1240	-	-	-	
	5		1730	1720	1700	1670	1620	1570	1490	1380	1260	1100	-	-	
SV048	1	1600	1390	1370	1350	1320	-	-	-	-	-	-	-	-	
	2		1600	1580	1550	1530	1510	-	-	-	-	-	-	-	
	3		1730	1700	1670	1650	1630	1600	1580	1540	-	-	-	-	
	4		1830	1810	1780	1760	1740	1710	1670	1600	1520	-	-	-	
	5		1930	1910	1880	1860	1830	1780	1720	1640	1540	1420	-	-	
SV060	1	2000	1900	1880	1860	1820	-	-	-	-	-	-	-	-	
	2		2000	1970	1950	1920	1890	1860	-	-	-	-	-	-	
	3		2110	2090	2060	2030	2010	1970	1940	1910	1880	-	-	-	
	4		2220	2200	2170	2140	2110	2080	2050	2060	2050	2000	1920	-	
	5		2340	2320	2290	2260	2230	2210	2180	2150	2110	2070	2000	1930	
SV070	1	2100	2050	2010	1970	1930	-	-	-	-	-	-	-	-	
	2		2150	2120	2080	2030	1990	1960	-	-	-	-	-	-	
	3		2270	2230	2200	2160	2120	2080	2040	2010	1980	-	-	-	
	4		2390	2350	2320	2280	2250	2200	2160	2130	2100	2070	2030	-	
	5		2520	2480	2450	2420	2380	2330	2290	2260	2220	2170	2100	2020	

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



Blower Performance Constant CFM ECM																	
Model	Rated Airflow	Tap	Adjust Settings	Fan Only	Available External Static Pressure (in. wc. Wet coil and filter included)												
					0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	
SV015	500	A	-	315	450	450	450	450	450	450	450	440	440	430	-	-	
			Norm	350	500	500	500	500	500	500	500	500	480	470	460	-	-
			+	400	580	580	580	580	580	580	580	580	570	560	550	-	-
SV018	650	B	-	385	550	540	540	540	540	540	540	530	520	500	-	-	
			Norm	450	650	650	650	650	650	640	630	610	590	-	-		
			+	525	750	750	750	750	750	740	730	710	690	-	-		
SV024	850	C	-	500	720	720	720	720	720	720	720	700	650	560	-	-	
			Norm	600	850	850	850	850	850	850	850	800	700	-	-		
			+	675	960	960	960	960	960	960	960	880	790	-	-		
SV030	950	D	-	570	810	810	810	810	810	810	810	810	810	810	-	-	
			Norm	650	950	950	950	950	950	950	950	950	950	950	-	-	
			+	760	1090	1090	1090	1090	1090	1090	1090	1090	1090	1090	-	-	
SV036	1200	A	-	715	1020	1020	1020	1020	1020	1020	1020	1020	1020	1020	-	-	
			Norm	850	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	-	-	
			+	960	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380	-	-	
SV041	1200	A	-	715	1020	1020	1020	1020	1020	1020	1020	1020	1020	1020	-	-	
			Norm	840	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	-	-	
			+	960	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380	-	-	
SV042	1400	B	-	830	1190	1190	1190	1190	1190	1190	1190	1190	1190	1190	-	-	
			Norm	980	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	-	-	
			+	1140	1630	1630	1630	1630	1630	1630	1630	1630	1630	1630	-	-	
SV048	1600	A	-	950	1360	1360	1360	1360	1360	1360	1360	1360	1360	1360	-	-	
			Norm	1120	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	-	-	
			+	1290	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	-	-	
SV060	2000	A	-	1200	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	-	
			Norm	1400	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	-	
			+	1550	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220	-	
SV070	2200	B	-	1300	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	-	
			Norm	1550	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	-	
			+	1625	2330	2330	2330	2330	2330	2330	2330	2330	2330	2330	2330	-	

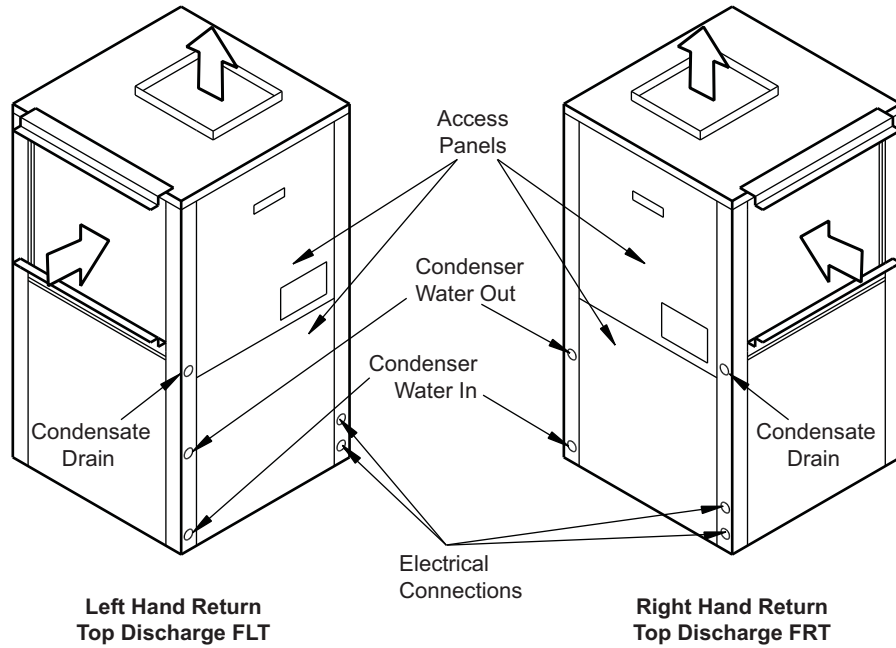
GreenSource i Series Model SV
Water Source Heat Pump ½ to 6 Ton



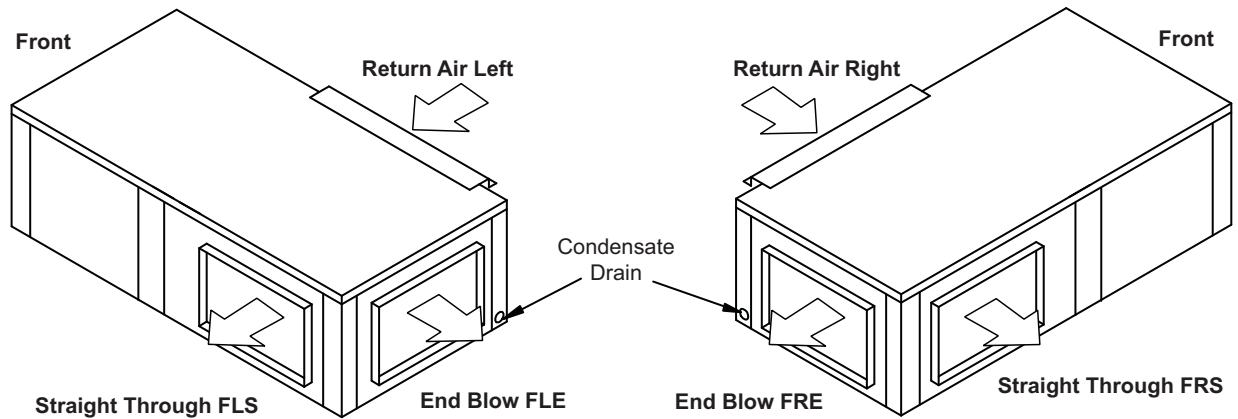
BOSCH

Horizontal Cabinet Corner Weights										
Configuration			Left Hand Evaporator				Right Hand Evaporator			
Model	Unit	Total	Left Front*	Right Front*	Left Back	Right Back	Left Front*	Right Front*	Left Back	Right Back
SV 007	Lbs	98	28	21	25	24	21	28	24	25
	kg	45	13	10	11	11	10	13	11	11
SV 009	Lbs	103	29	23	26	25	23	29	25	26
	kg	47	13	10	12	11	10	13	11	12
SV 012	Lbs	105	29	24	26	26	24	29	26	26
	kg	48	13	11	12	12	11	13	12	12
SV 015	Lbs	127	36	28	34	29	28	36	29	34
	kg	58	16	13	15	13	13	16	13	15
SV 018	Lbs	177	57	36	48	37	36	57	37	48
	kg	80	26	16	22	17	16	26	17	22
SV 024	Lbs	181	58	37	48	38	37	58	38	48
	kg	82	26	17	22	17	17	26	17	22
SV 030	Lbs	194	61	41	52	41	41	61	41	52
	kg	88	28	18	23	19	18	28	19	23
SV 036	Lbs	237	71	49	66	52	49	71	52	66
	kg	108	32	22	30	24	22	32	24	30
SV 042	Lbs	231	70	47	64	50	47	70	50	64
	kg	105	32	21	29	23	21	32	23	29
SV 048	Lbs	268	87	60	62	60	60	87	60	62
	kg	122	39	27	28	27	27	39	27	28
SV 060	Lbs	288	88	65	69	66	65	88	66	69
	kg	131	40	29	31	30	29	40	30	31
SV 070	Lbs	316	98	72	76	70	72	98	70	76
	kg	143	44	32	35	32	32	44	32	35

Vertical Unit Configurations



Horizontal Unit Configurations



Greensource i Series Model SV

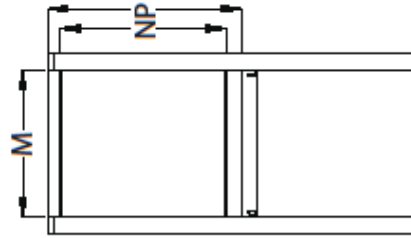
Water Source Heat Pump 1/2 to 6 Ton



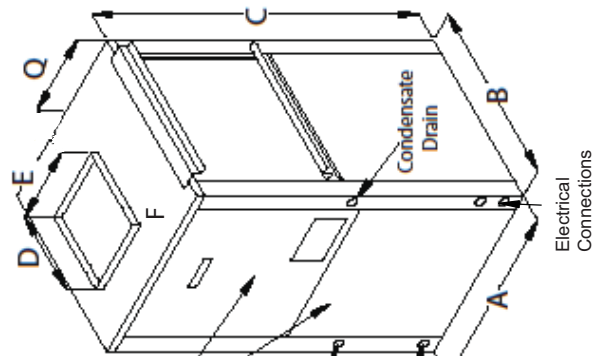
SV Vertical Unit Dimensions and Connections

MODEL	A		B	C	D	E	F	G	H	J	K	M	N	P	Q	Condenser Water Connections	Recommended Standard Replacement Nominal Filter Size
	Width	Depth	Height	Discharge Depth	Discharge Width	Cabinet edge to Discharge	Left side to Discharge	Water Inlet	Water Outlet	Condensate Drain	R/A Duct Fig Width	R/A Duct Fig Height	Filter Rack				
SV007	19	19	24.25	10	8	4.5	9.5	2.44	9.68	13.87	16	8	10	5.6	3/4" F.P.T.	10x16x1	
SV009	19	19	24.25	10	8	4.5	9.5	2.44	9.68	13.87	16	8	10	5.6	3/4" F.P.T.	10x16x1	
SV012	19	19	24.25	10	8	4.5	9.5	2.44	9.68	13.87	16	8	10	5.6	3/4" F.P.T.	10x16x1	
SV015	21.5	21.5	32.25	10	8	5.75	12.1	2.85	8.45	15.87	20	14	16	8.1	3/4" F.P.T.	16x20x1	
SV018	21.5	21.5	32.25	14	14	3.6	4.8	2.85	8.45	15.87	20	14	16	4.8	3/4" F.P.T.	16x20x1	
SV024	21.5	21.5	39.25	14	14	3.6	4.8	2.8	14.95	18.87	20	18	20	4.8	3/4" F.P.T.	20x20x1	
SV030	21.5	21.5	39.25	14	14	3.6	4.8	2.8	14.95	18.87	20	18	20	4.8	3/4" F.P.T.	20x20x1	
SV036	21.5	26	43.25	15.5	14	6.5	4.2	2.75	10.77	18.87	24	22	24	4.2	3/4" F.P.T.	24x24x1	
SV041	21.5	21.5	39.25	15.5	14	2	4.2	2.8	14.95	18.87	20	18	20	4.2	3/4" F.P.T.	20x20x1	
SV042	21.5	26	43.25	15.5	14	6.5	4.2	2.75	10.77	18.87	24	22	24	4.2	3/4" F.P.T.	24x24x1	
SV048	24	32.5	45.25	18	14	10	6	3.26	13.2	20.87	30	22	24	6	1" F.P.T.	24x30x1	
SV060	24	32.5	45.25	18	14	10	6	3.26	13.2	20.87	30	22	24	6	1" F.P.T.	24x30x1	
SV070	26	33.25	58.25	18	15.5	10.8	7	2.92	13.36	25.87	30	30	32	7	1" F.P.T.	16x30x1 (2)	

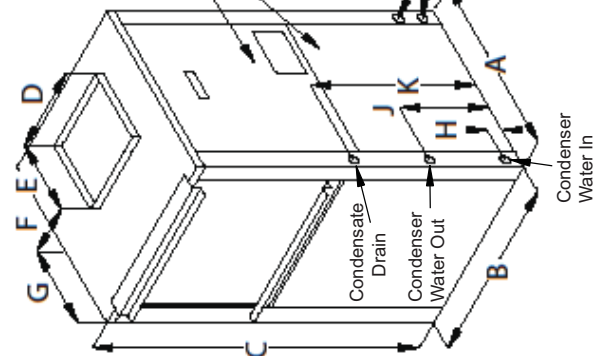
Return Air (Filter) View



Right Hand Return (FRT)



Left Hand Return (FLT)



NOTE: All dimensions within + - 0.125". All condensate drain connections are 3/4" FPT. Specifications subject to change without notice.

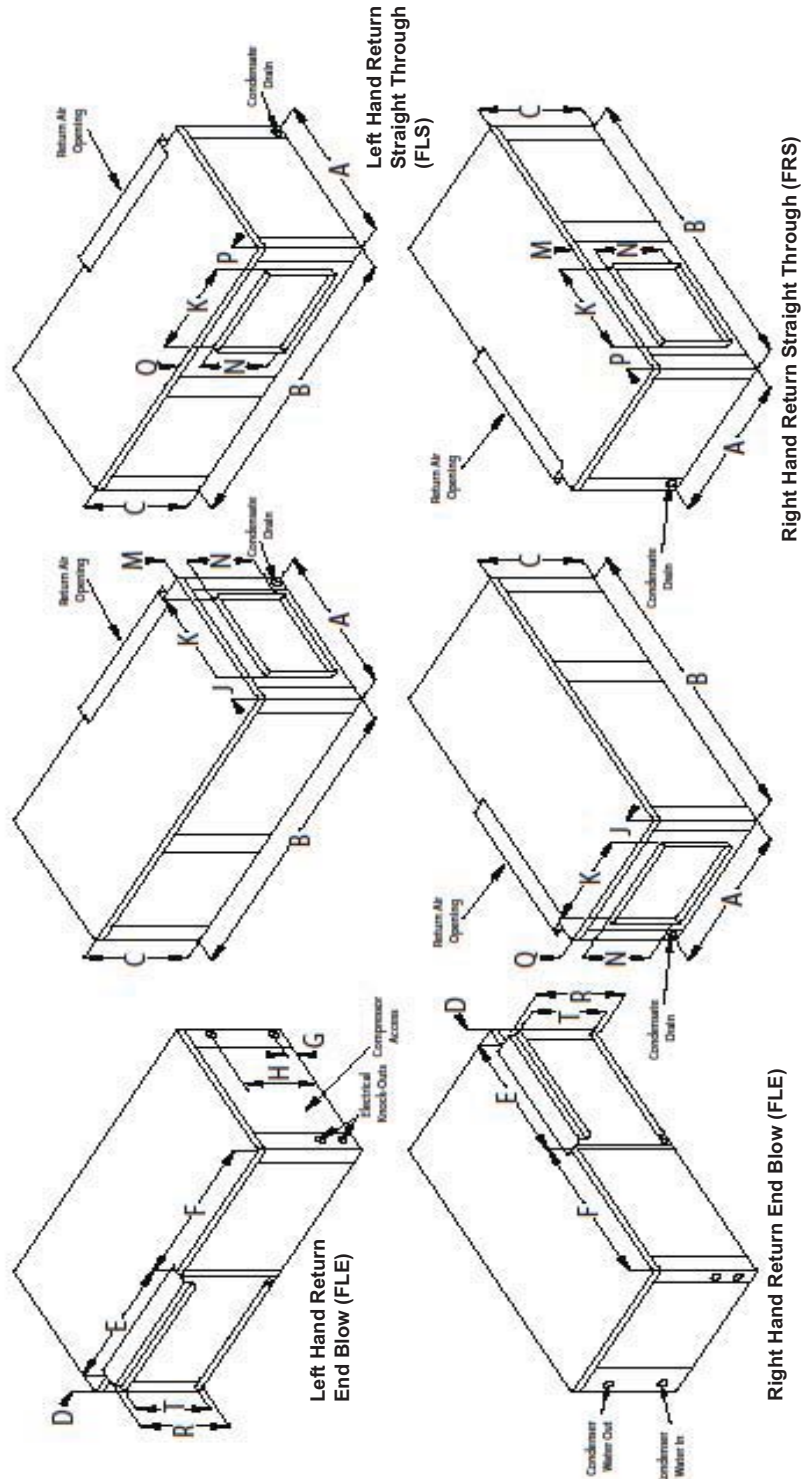
Greensource i Series Model SV

Water Source Heat Pump 1/2 to 6 Ton



SV Horizontal Unit Dimensions and Connections

MODEL	A	B	C	D	E	F	G	H	J	K	M	N	P	Q	R	T	Condenser Water Connections	Recommended Standard Replacement Nominal Filter Size
SV007	19	33	11.5	1.5	16.15	15.35	2.38	9.625	5.13	5.8125	6.22	3.6	5.13	1.66	14.5	8.6	3/4" F.P.T.	10x16x1
SV009	19	33	11.5	1.5	16.15	15.35	2.38	9.625	5.13	5.8125	6.22	3.6	5.13	1.66	14.5	8.6	3/4" F.P.T.	10x16x1
SV012	19	33	11.5	1.5	16.15	15.35	2.38	9.625	5.13	5.8125	6.22	3.6	5.13	1.66	14.5	8.6	3/4" F.P.T.	10x16x1
SV015	22	43	17	1.5	20.15	21.35	2.86	15.38	6.9	5.95	9.8	3.6	6.4	3.64	18.5	15	3/4" F.P.T.	16x20x1
SV018	22	43	17	1.5	20.15	21.35	2.86	15.38	5.7	8.6	6.36	9.15	5.2	1.5	18.5	15	3/4" F.P.T.	16x20x1
SV024	22	43	17	1.5	25.15	16.35	2.86	14.13	5.7	8.6	6.36	9.15	5.2	1.5	23.5	15	3/4" F.P.T.	16x25x1
SV030	22	43	17	1.5	25.15	16.35	2.86	14.13	5.7	8.6	6.36	9.15	5.2	1.5	23.5	15	3/4" F.P.T.	16x25x1
SV036	22	54.5	19	1.5	30	23	2.85	16.13	6.9	8.63	7.75	9.8	6.4	1.46	28.5	17	3/4" F.P.T.	18x30x1
SV041	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SV042	22	54.5	19	1.5	30	23	2.85	16.13	6.9	8.63	7.75	9.8	6.4	1.46	28.5	17	3/4" F.P.T.	18x30x1
SV048	25	54.5	21	1.5	34.6	18.4	2.86	18.13	7.5	10	7.7	10.86	7	2.4	33	19	1" F.P.T.	20x34.5x1
SV060	25	54.5	21	1.5	34.6	18.4	2.86	18.13	7.5	10	7.7	10.86	7	2.4	33	19	1" F.P.T.	20x34.5x1
SV070	25	66	21	1.5	48.1	15.4	2.86	18.13	6.5	11.26	7	12	6	1.93	46.5	19	1" F.P.T.	20x24x1 (2)



NOTE: All dimensions within +/- 0.125". All condensate drain connections are 3/4" FPT. Specifications subject to change without notice.

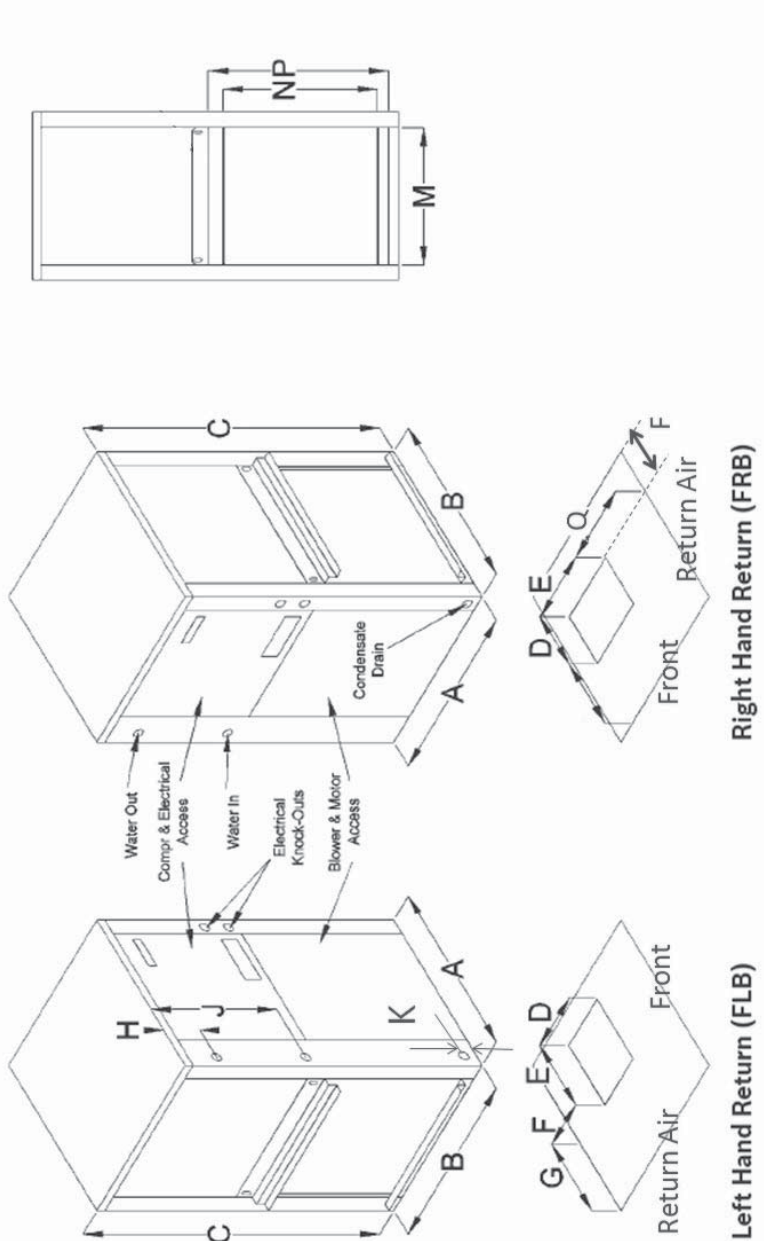
Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



SV Counterflow Unit Dimensions and Connections

MODEL	A Width	B Depth	C Height	D	E	F	G	H Water out	J Water in	K Drain	M R/A Duct Fig Width	N R/A Duct Fig Height	P Filter Rack Height	Q	Water Connections	Replacement Nominal Filter Size
SV015	21.5	21.5	32.25	4.1	6.4	8.7	7.6	6.7	12.3	1.0	20.0	14.0	16.0	7.6	3/4" F.P.T.	16x20x1
SV018	21.5	21.5	32.25	9.7	9.0	5.9	6.8	6.7	12.3	1.0	20.0	14.0	16.0	6.7	3/4" F.P.T.	16x20x1
SV024	21.5	21.5	39.25	9.7	9.0	5.9	6.8	3.2	15.4	1.0	20.0	18.0	20.0	6.7	3/4" F.P.T.	20x20x1
SV030	21.5	21.5	39.25	9.7	9.0	5.9	6.8	3.2	15.4	1.0	20.0	18.0	20.0	6.7	3/4" F.P.T.	20x20x1
SV036	21.5	26	43.25	10.3	9.2	7.8	6.2	7.4	15.4	1.0	24.0	22.0	24.0	6.2	3/4" F.P.T.	24x24x1
SV042	21.5	26	43.25	11.3	10.5	7.4	5.9	7.4	15.4	1.0	24.0	22.0	24.0	5.9	3/4" F.P.T.	24x24x1
SV048	24	32.5	45.25	11.4	10.5	10.5	6.7	7.0	17.0	1.0	30.0	22.0	24.0	6.7	1" F.P.T.	24x30x1
SV060	24	32.5	45.25	12.5	11.7	10.0	6.1	7.0	17.0	1.0	30.0	22.0	24.0	6.1	1" F.P.T.	24x30x1
SV070	26	33.25	58.25	12.5	11.7	10.3	7.2	11.8	22.3	1.0	30.0	30.0	32.0	7.1	1" F.P.T.	16x30x1 (2)



GreenSource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



SV007 (300 CFM) Capacity Data														
COOLING									HEATING					
Entering Fluid Temp (F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (F)	Entering Air Temp (F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
50	1	0.3 (0.6)	75/63	7.0	6.3	8.3	0.42	16.9	30*	60	4.5	3.2	0.42	3.1
			80/67	7.5	6.5	8.8	0.42	18.1		70	4.4	3.0	0.45	2.8
			85/71	7.9	6.7	9.2	0.42	19.0		80	4.3	2.8	0.48	2.6
	2	1.2 (2.77)	75/63	7.5	6.5	8.6	0.37	20.3		60	4.9	3.6	0.43	3.3
			80/67	8.0	6.7	9.1	0.37	21.9		70	4.8	3.4	0.46	3.0
			85/71	8.5	6.9	9.7	0.36	23.5		80	4.6	3.1	0.49	2.7
	3	2.5 (5.77)	75/63	7.6	6.5	8.8	0.35	21.6		60	5.1	3.8	0.43	3.4
			80/67	8.1	6.8	9.3	0.35	23.4		70	5.0	3.5	0.46	3.2
			85/71	8.7	7.0	9.8	0.34	25.5		80	4.8	3.2	0.49	2.8
60	1	0.3 (0.6)	75/63	6.6	6.1	8.0	0.45	14.6	40*	60	5.3	3.9	0.43	3.6
			80/67	7.1	6.3	8.5	0.46	15.7		70	5.1	3.7	0.46	3.2
			85/71	7.5	6.6	8.9	0.46	16.5		80	5.0	3.4	0.50	2.9
	2	1.2 (2.77)	75/63	7.1	6.3	8.3	0.41	17.4		60	5.8	4.4	0.44	3.9
			80/67	7.5	6.5	8.8	0.41	18.4		70	5.6	4.1	0.47	3.5
			85/71	8.0	6.8	9.3	0.41	19.8		80	5.4	3.8	0.50	3.1
	3	2.4 (5.54)	75/63	7.2	6.4	8.5	0.40	18.3		60	6.0	4.6	0.44	4.0
			80/67	7.7	6.6	9.0	0.39	19.8		70	5.8	4.3	0.47	3.6
			85/71	8.2	6.8	9.5	0.39	21.3		80	5.6	4.0	0.51	3.2
70	1	0.3 (0.6)	75/63	6.2	6.0	7.7	0.49	12.7	50	60	6.5	4.7	0.44	4.0
			80/67	6.7	6.2	8.2	0.50	13.6		70	5.9	4.4	0.47	3.6
			85/71	7.1	6.5	8.6	0.50	14.3		80	5.7	4.1	0.51	3.3
	2	1.1 (2.54)	75/63	6.6	6.1	8.0	0.45	14.7		60	6.7	5.3	0.44	4.4
			80/67	7.1	6.4	8.5	0.45	15.8		70	6.5	4.9	0.48	4.0
			85/71	7.6	6.6	9.0	0.45	17.0		80	6.3	4.6	0.52	3.6
	3	2.3 (5.31)	75/63	6.8	6.2	8.1	0.44	15.6		60	6.9	5.5	0.44	4.5
			80/67	7.3	6.4	8.6	0.44	16.8		70	6.7	5.2	0.48	4.1
			85/71	7.8	6.7	9.1	0.43	18.1		80	6.5	4.8	0.52	3.7
80	1	0.3 (0.6)	75/63	5.9	5.6	7.4	0.53	11.2	60	60	6.9	5.5	0.44	4.5
			80/67	6.3	6.1	7.8	0.54	11.8		70	6.7	5.2	0.48	4.1
			85/71	6.7	6.3	8.3	0.54	12.5		80	6.5	4.9	0.52	3.7
	2	1.1 (2.54)	75/63	6.2	6.0	7.7	0.50	12.6		60	7.6	6.2	0.45	5.0
			80/67	6.7	6.2	8.2	0.50	13.6		70	7.4	5.8	0.49	4.4
			85/71	7.1	6.5	8.6	0.50	14.4		80	7.1	5.4	0.53	3.9
	3	2.3 (5.31)	75/63	6.4	6.0	7.8	0.48	13.4		60	7.9	6.5	0.45	5.2
			80/67	6.8	6.3	8.3	0.48	14.2		70	7.7	6.1	0.49	4.6
			85/71	7.3	6.5	8.7	0.48	15.3		80	7.4	5.7	0.53	4.1
85	1	0.3 (0.6)	75/63	5.7	5.5	7.3	0.55	10.4	70	60	7.7	6.3	0.45	5.0
			80/67	6.1	5.8	7.7	0.56	11.0		70	7.6	6.0	0.49	4.6
			85/71	6.4	6.3	8.1	0.56	11.5		80	7.4	5.6	0.53	4.1
	2	1.1 (2.54)	75/63	6.0	5.7	7.6	0.52	11.7		60	8.6	7.2	0.45	5.6
			80/67	6.4	6.1	8.0	0.52	12.4		70	8.3	6.8	0.49	4.9
			85/71	6.9	6.4	8.4	0.52	13.4		80	8.1	6.3	0.53	4.4
	3	2.2 (5.07)	75/63	6.1	5.9	7.6	0.50	12.2		60	9.0	7.6	0.45	5.9
			80/67	6.6	6.2	8.1	0.50	13.2		70	8.7	7.1	0.49	5.2
			85/71	7.0	6.4	8.6	0.50	14.0		80	8.4	6.6	0.53	4.6
90	1	0.3 (0.6)	75/63	5.5	5.4	7.1	0.57	9.7	80	60	8.6	7.2	0.45	5.6
			80/67	5.9	5.7	7.5	0.58	10.3		70	8.4	6.9	0.49	5.0
			85/71	6.2	6.0	8.0	0.58	10.7		80	8.2	6.5	0.53	4.5
	2	1.1 (2.54)	75/63	5.8	5.6	7.4	0.54	10.8		60	9.6	8.2	0.45	6.3
			80/67	6.2	6.0	7.8	0.54	11.6		70	9.3	7.7	0.49	5.5
			85/71	6.6	6.3	8.3	0.54	12.3		80	9.0	7.3	0.54	4.9
	3	2.2 (5.07)	75/63	5.9	5.7	7.5	0.53	11.3		60	10.0	8.6	0.45	6.5
			80/67	6.3	6.1	7.9	0.53	12.0		70	9.7	8.1	0.49	5.8
			85/71	6.8	6.4	8.4	0.53	13.0		80	9.3	7.6	0.54	5.0
100	1	0.3 (0.6)	75/63	5.1	5.1	6.9	0.62	8.4	* Extended Range - Anti-freeze required	<ul style="list-style-type: none"> AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating. Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings. Unit performance may be interpolated. Extrapolation is not allowed. For conditions other than rating conditions provided, consult the FHP BST selection software. Ratings below 40°F are with a methanol solution. Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time. Continuous research and development to improve our products may result in a change to the current design and specifications without notice. 				
			80/67	5.4	5.4	7.2	0.62	8.8						
			85/71	5.8	5.8	7.6	0.63	9.3						
	2	1 (2.31)	75/63	5.4	5.4	7.1	0.58	9.3						
			80/67	5.8	5.7	7.5	0.59	10.0						
			85/71	6.2	5.9	7.9	0.59	10.6						
	3	2.1 (4.84)	75/63	5.5	5.4	7.1	0.57	9.7						
			80/67	5.9	5.7	7.6	0.58	10.3						
			85/71	6.3	6.0	8.0	0.58	11.0						
110	1	0.3 (0.6)	75/63	4.7	4.7	6.6	0.66	7.2						
			80/67	5.0	5.0	7.0	0.67	7.5						
			85/71	5.4	5.4	7.3	0.68	8.0						
	2	1 (2.31)	75/63	5.0	5.0	6.8	0.63	8.0						
			80/67	5.3	5.3	7.2	0.64	8.4						
			85/71	5.7	5.7	7.6	0.64	9.0						
	3	2.1 (4.84)	75/63	5.1	5.1	6.8	0.62	8.3						
			80/67	5.4	5.4	7.2	0.62	8.7						
			85/71	5.8	5.8	7.6	0.63	9.3						

Greensource i Series Model SV

Water Source Heat Pump 1/2 to 6 Ton



BOSCH

SV009 (350 CFM) Capacity Data														
Entering Fluid Temp (F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	COOLING						HEATING					
			Entering Air Temp (db/wb) F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (F)	Entering Air Temp (F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
50	1	0.5 (1.1)	75/63	9.1	7.7	10.6	0.52	17.6	30*	60	5.8	4.2	0.54	3.1
			80/67	9.6	8	11.2	0.52	18.6		70	5.7	3.9	0.58	2.9
			85/71	10.2	8.2	11.8	0.52	19.8		80	5.6	3.7	0.63	2.6
	2	1.8 (4.15)	75/63	9.6	8	11	0.44	21.6		60	6.4	4.7	0.55	3.4
			80/67	10.3	8.2	11.7	0.44	23.6		70	6.3	4.4	0.59	3.1
			85/71	10.9	8.5	12.3	0.43	25.4		80	6.1	4.1	0.64	2.8
	3	3.8 (8.77)	75/63	9.8	8	11.1	0.42	23.5		60	6.7	5	0.55	3.6
			80/67	10.5	8.3	11.8	0.41	25.7		70	6.5	4.6	0.6	3.2
			85/71	11.2	8.6	12.5	0.4	28.2		80	6.4	4.3	0.64	2.9
60	1	0.5 (1.1)	75/63	8.6	7.5	10.4	0.57	15.1	40*	60	6.8	5.1	0.55	3.6
			80/67	9.2	7.8	10.9	0.57	16.1		70	6.7	4.8	0.6	3.3
			85/71	9.7	8.1	11.5	0.57	16.9		80	6.5	4.5	0.65	2.9
	2	1.8 (4.15)	75/63	9.2	7.8	10.7	0.5	18.3		60	7.5	5.7	0.56	3.9
			80/67	9.8	8	11.3	0.5	19.7		70	7.3	5.4	0.61	3.5
			85/71	10.4	8.3	11.9	0.49	21.2		80	7.1	5	0.66	3.2
	3	3.6 (8.30)	75/63	9.4	7.8	10.8	0.48	19.7		60	7.8	6	0.57	4.1
			80/67	10	8.1	11.5	0.47	21.2		70	7.6	5.6	0.61	3.6
			85/71	10.6	8.4	12.1	0.46	22.9		80	7.4	5.2	0.67	3.3
70	1	0.5 (1.1)	75/63	8.2	7.2	10	0.62	13.1	50	60	7.7	6	0.57	4
			80/67	8.7	7.6	10.6	0.63	13.8		70	7.6	5.7	0.61	3.6
			85/71	9.3	7.9	11.2	0.63	14.7		80	7.5	5.3	0.67	3.3
	2	1.7 (3.92)	75/63	8.7	7.5	10.4	0.56	15.5		60	8.6	6.8	0.57	4.4
			80/67	9.3	7.9	11	0.56	16.6		70	8.4	6.4	0.62	4
			85/71	9.9	8.1	11.6	0.56	17.8		80	8.2	6	0.68	3.6
	3	3.5 (8.07)	75/63	8.9	7.6	10.5	0.54	16.5		60	9	7.2	0.57	4.6
			80/67	9.5	7.9	11.1	0.53	17.8		70	8.7	6.7	0.63	4.1
			85/71	10.1	8.2	11.8	0.53	19.1		80	8.5	6.3	0.68	3.7
80	1	0.5 (1.1)	75/63	7.7	7	9.7	0.68	11.3	60	60	8.8	7	0.57	4.5
			80/67	8.2	7.3	10.3	0.69	11.9		70	8.6	6.6	0.63	4
			85/71	8.7	7.5	10.8	0.69	12.6		80	8.5	6.2	0.68	3.7
	2	1.6 (3.69)	75/63	8.2	7.2	10.1	0.62	13.2		60	9.8	8	0.58	5
			80/67	8.8	7.6	10.6	0.62	14.1		70	9.5	7.5	0.63	4.4
			85/71	9.3	7.9	11.2	0.62	15		80	9.3	7	0.69	3.9
	3	3.4 (7.61)	75/63	8.4	7.2	10.2	0.6	14		60	10.2	8.4	0.58	5.2
			80/67	9	7.7	10.8	0.6	15		70	9.9	7.8	0.64	4.6
			85/71	9.6	8	11.4	0.6	16.1		80	9.6	7.3	0.7	4.1
85	1	0.5 (1.1)	75/63	7.5	6.9	9.6	0.71	10.6	70	60	9.8	8	0.58	5
			80/67	8	7.2	10.1	0.72	11.2		70	9.6	7.6	0.63	4.4
			85/71	8.5	7.4	10.7	0.72	11.8		80	9.4	7.2	0.69	4
	2	1.6 (3.69)	75/63	8	7.1	9.9	0.65	12.2		60	11	9.2	0.58	5.6
			80/67	8.5	7.3	10.5	0.65	13		70	10.7	8.6	0.64	4.9
			85/71	9.1	7.8	11	0.65	13.9		80	10.4	8.1	0.7	4.3
	3	3.3 (7.61)	75/63	8.1	7.1	10	0.63	12.8		60	11.6	9.7	0.58	5.9
			80/67	8.7	7.4	10.6	0.63	13.7		70	11.1	9	0.64	5.1
			85/71	9.3	7.9	11.2	0.63	14.8		80	10.8	8.5	0.71	4.5
90	1	0.5 (1.1)	75/63	7.3	6.7	9.4	0.74	9.9	80	60	10.9	9.1	0.58	5.5
			80/67	7.8	7	10	0.75	10.4		70	10.7	8.6	0.64	4.9
			85/71	8.2	7.3	10.5	0.75	10.9		80	10.4	8.2	0.7	4.3
	2	1.6 (3.69)	75/63	7.7	7	9.7	0.68	11.2		60	12.3	10.5	0.58	6.2
			80/67	8.2	7.3	10.3	0.69	11.9		70	11.8	9.8	0.65	5.4
			85/71	8.8	7.5	10.8	0.69	12.8		80	11.5	9.3	0.71	4.7
	3	3.3 (7.61)	75/63	7.8	7	9.8	0.67	11.7		60	12.9	11.1	0.58	6.5
			80/67	8.4	7.3	10.4	0.67	12.6		70	12.3	10.2	0.65	5.6
			85/71	9	7.8	11	0.66	13.6		80	12	9.8	0.72	4.9
100	1	0.4 (0.9)	75/63	6.8	6.5	9.1	0.8	8.5	* Extended Range - Anti-freeze required	<ul style="list-style-type: none"> AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating. Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings. Unit performance may be interpolated. Extrapolation is not allowed. For conditions other than rating conditions provided, consult the FHP BST selection software. Ratings below 40°F are with a methanol solution. Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time. Continuous research and development to improve our products may result in a change to the current design and specifications without notice. 				
			80/67	7.2	6.8	9.6	0.81	8.9						
			85/71	7.7	7.1	10.1	0.82	9.4						
	2	1.5 (3.47)	75/63	7.2	6.7	9.4	0.75	9.6						
			80/67	7.7	7.1	9.9	0.75	10.2						
			85/71	8.2	7.3	10.5	0.75	10.9						
	3	3.2 (7.39)	75/63	7.3	6.8	9.5	0.73	10						
			80/67	7.9	7.1	10	0.73	10.8						
			85/71	8.4	7.3	10.6	0.73	11.4						
110	1	0.4 (0.9)	75/63	6.3	6.3	8.8	0.86	7.3						
			80/67	6.7	6.6	9.3	0.87	7.7						
			85/71	7.2	6.9	9.8	0.88	8.1						
	2	1.5 (3.47)	75/63	6.7	6.5	9	0.82	8.2						
			80/67	7.1	6.8	9.6	0.82	8.6						
			85/71	7.6	7.1	10.1	0.83	9.2						
	3	3.1 (7.15)	75/63	6.8	6.6	9.1	0.8	8.5						
			80/67	7.3	6.9	9.6	0.8	9.1						
			85/71	7.8	7.2	10.2	0.81	9.7						

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



BOSCH

SV012 (400 CFM) Capacity Data

COOLING									HEATING					
Entering Fluid Temp (F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (F)	Entering Air Temp (F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
50	1.5	1.1 (2.54)	75/63	12.5	9.7	14.6	0.67	18.8	30*	60	8.2	5.8	0.75	3.2
			80/67	13.3	10	15.4	0.67	19.9		70	8	5.5	0.8	2.9
			85/71	14.1	10.2	16.3	0.67	21		80	7.9	5.1	0.86	2.7
	2.5	2.8 (6.46)	75/63	12.9	9.9	14.9	0.61	21.3		60	8.6	6.2	0.75	3.3
			80/67	13.8	10.2	15.8	0.6	22.9		70	8.4	5.9	0.81	3
			85/71	14.7	10.4	16.7	0.6	24.6		80	8.3	5.5	0.87	2.8
	3.5	5.1 (11.7)	75/63	13.1	10	15	0.58	22.6		60	9	6.5	0.76	3.5
			80/67	14	10.3	15.9	0.57	24.4		70	8.7	6.1	0.82	3.1
			85/71	15	10.6	16.9	0.57	26.6		80	8.5	5.6	0.87	2.8
60	1.5	1.1 (2.54)	75/63	11.9	9.4	14.2	0.74	16.1	40*	60	9.4	6.9	0.76	3.6
			80/67	12.7	9.7	15	0.75	17.1		70	9.2	6.5	0.83	3.3
			85/71	13.5	10	15.9	0.75	18		80	9	6.1	0.89	3
	2.5	2.7 (6.23)	75/63	12.3	9.6	14.5	0.69	18		60	9.9	7.5	0.77	3.8
			80/67	13.2	9.9	15.4	0.68	19.4		70	9.7	7	0.84	3.4
			85/71	14.1	10.2	16.3	0.68	20.8		80	9.5	6.6	0.9	3.1
	3.5	4.9 (11.2)	75/63	12.5	9.7	14.6	0.66	18.9		60	10.3	7.8	0.77	3.9
			80/67	13.4	10	15.5	0.66	20.5		70	10	7.3	0.84	3.5
			85/71	14.3	10.3	16.4	0.65	22		80	9.7	6.8	0.91	3.1
70	1.5	1 (2.3)	75/63	11.3	9.2	13.8	0.82	13.9	50	60	10.6	8.1	0.78	4
			80/67	12	9.5	14.6	0.82	14.6		70	10.4	7.7	0.85	3.6
			85/71	12.8	9.8	15.4	0.83	15.4		80	10.2	7.2	0.92	3.2
	2.5	2.6 (5.9)	75/63	11.7	9.4	14.1	0.76	15.3		60	11.4	8.8	0.79	4.2
			80/67	12.5	9.7	14.9	0.77	16.4		70	11.1	8.3	0.86	3.8
			85/71	13.3	10	15.8	0.76	17.4		80	10.9	7.8	0.93	3.4
	3.5	4.8 (11.0)	75/63	11.8	9.4	14.2	0.75	15.9		60	11.7	9.2	0.79	4.3
			80/67	12.7	9.8	15.1	0.74	17.2		70	11.4	8.6	0.86	3.9
			85/71	13.6	10	15.9	0.74	18.4		80	11.2	8.1	0.94	3.5
80	1.5	1 (2.3)	75/63	10.7	8.9	13.5	0.89	12	60	60	12	9.4	0.79	4.4
			80/67	11.4	9.2	14.2	0.9	12.6		70	11.8	8.9	0.87	4
			85/71	12.1	9.5	15	0.91	13.3		80	11.5	8.4	0.95	3.6
	2.5	2.5 (5.7)	75/63	11.1	9.1	13.7	0.85	13.1		60	12.9	10.3	0.8	4.7
			80/67	11.8	9.4	14.5	0.85	13.9		70	12.5	9.7	0.88	4.2
			85/71	12.6	9.7	15.3	0.85	14.8		80	12.2	9.1	0.96	3.7
	3.5	4.6 (10.6)	75/63	11.2	9.2	13.8	0.83	13.5		60	13.3	10.7	0.81	4.8
			80/67	12	9.4	14.6	0.83	14.5		70	12.9	10.1	0.89	4.3
			85/71	12.8	9.7	15.5	0.83	15.5		80	12.6	9.4	0.97	3.8
85	1.5	1 (2.3)	75/63	10.4	8.8	13.3	0.93	11.2	70	60	13.4	10.8	0.81	4.9
			80/67	11.1	9.1	14	0.94	11.8		70	13.1	10.2	0.89	4.3
			85/71	11.8	9.4	14.8	0.95	12.4		80	12.8	9.7	0.97	3.9
	2.5	2.5 (5.7)	75/63	10.7	9	13.5	0.89	12.1		60	14.4	11.8	0.82	5.2
			80/67	11.5	9.3	14.3	0.89	12.9		70	14	11.1	0.9	4.5
			85/71	12.2	9.6	15.1	0.9	13.6		80	13.7	10.4	0.99	4.1
	3.5	4.5 (10.3)	75/63	10.9	9	13.5	0.87	12.6		60	14.9	12.3	0.82	5.3
			80/67	11.6	9.3	14.4	0.87	13.3		70	14.5	11.5	0.91	4.7
			85/71	12.4	9.6	15.2	0.88	14.2		80	14.1	10.8	1	4.1
90	1.5	1 (2.3)	75/63	10.1	8.7	13.1	0.98	10.4	80	60	14.9	12.2	0.82	5.3
			80/67	10.7	9	13.8	0.99	10.9		70	14.5	11.6	0.91	4.7
			85/71	11.5	9.3	14.6	1	11.6		80	14.2	11	1	4.2
	2.5	2.4 (5.5)	75/63	10.4	8.8	13.3	0.93	11.2		60	16	13.3	0.83	5.6
			80/67	11.1	9.1	14.1	0.94	11.9		70	15.6	12.6	0.93	4.9
			85/71	11.9	9.4	14.8	0.94	12.6		80	15.2	11.9	1.02	4.4
	3.5	4.5 (9.9)	75/63	10.5	8.8	13.4	0.92	11.4		60	16.6	13.9	0.84	5.8
			80/67	11.3	9.2	14.1	0.91	12.4		70	16.1	13.1	0.93	5.1
			85/71	12.1	9.5	14.9	0.92	13.2		80	15.6	12.3	1.03	4.5
100	1.5	0.9 (2.0)	75/63	9.4	8.4	12.6	1.06	8.9	* Extended Range - Anti-freeze required	AHR/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.				
			80/67	10.1	8.8	13.4	1.07	9.4		Tabulated unit performance does not include fan or pump power corrections required for AHR/ISO standard performance ratings.				
			85/71	10.8	9	14.1	1.08	10		Unit performance may be interpolated. Extrapolation is not allowed.				
	2.5	2.4 (5.5)	75/63	9.7	8.5	12.8	1.02	9.5		For conditions other than rating conditions provided, consult the FHP BST selection software.				
			80/67	10.4	8.8	13.6	1.03	10.1		Ratings below 40°F are with a methanol solution.				
			85/71	11.1	9.2	14.3	1.03	10.7		Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time.				
	3.5	4.3 (9.9)	75/63	9.8	8.6	12.9	1.01	9.8		Continuous research and development to improve our products may result in a change to the current design and specifications without notice.				
			80/67	10.5	8.9	13.6	1.01	10.5						
			85/71	11.3	9.3	14.4	1.01	11.2						
110	1.5	0.9 (2.0)	75/63	8.8	8.1	12.2	1.15	7.7						
			80/67	9.4	8.5	12.9	1.16	8.1						
			85/71	10	8.8	13.6	1.17	8.6						
	2.5	2.3 (5.3)	75/63	9	8.3	12.4	1.11	8.1						
			80/67	9.7	8.5	13.1	1.12	8.7						
			85/71	10.4	8.9	13.9	1.13	9.2						
	3.5	4.2 (9.6)	75/63	9.1	8.3	12.5	1.1	8.3						
			80/67	9.8	8.7	13.2	1.1	8.9						
			85/71	10.5	9	13.9	1.11	9.5						

- * Extended Range - Anti-freeze required
- ▶ AHR/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
- ▶ Tabulated unit performance does not include fan or pump power corrections required for AHR/ISO standard performance ratings.
- ▶ Unit performance may be interpolated. Extrapolation is not allowed.
- ▶ For conditions other than rating conditions provided, consult the FHP BST selection software.
- ▶ Ratings below 40°F are with a methanol solution.
- ▶ Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time.
- ▶ Continuous research and development to improve our products may result in a change to the current design and specifications without notice.

Bosch Thermotechnology Corp.
Londonderry, NH • Ft. Lauderdale, FL

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



BOSCH

SV015 (500 CFM) Capacity Data

COOLING										HEATING				
Entering Fluid Temp (F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (F)	Entering Air Temp (F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
50	2	2 (4.62)	75/63	15.2	11.5	17.7	0.77	19.8	30*	60	10.1	7.1	0.93	3.2
			80/67	16.3	11.9	18.7	0.76	21.5		70	9.9	6.7	1	2.9
			85/71	17.3	12.3	19.8	0.75	23.2		80	9.9	6.2	1.08	2.7
	3	4.2 (9.6)	75/63	15.6	11.7	17.9	0.71	21.9		60	10.5	7.5	0.94	3.3
			80/67	16.7	12.1	19	0.7	24		70	10.3	7.1	1.01	3
			85/71	17.9	12.5	20.1	0.68	26.4		80	10.3	6.5	1.09	2.8
	4.5	8.6 (19.8)	75/63	15.9	11.9	18.1	0.67	23.6		60	10.8	7.8	0.94	3.4
			80/67	17.1	12.3	19.2	0.65	26.2		70	10.6	7.3	1.02	3
			85/71	18.3	12.7	20.4	0.63	29		80	10.6	6.7	1.1	2.8
60	2	1.9 (4.3)	75/63	14.5	11.2	17.3	0.86	16.8	40*	60	11.6	8.5	0.96	3.6
			80/67	15.5	11.6	18.3	0.86	18.1		70	11.3	8	1.04	3.2
			85/71	16.6	12	19.3	0.85	19.6		80	11.1	7.5	1.12	2.9
	3	4 (9.2)	75/63	14.9	11.4	17.5	0.81	18.4		60	12	9	0.96	3.6
			80/67	16	11.8	18.6	0.8	20.1		70	11.8	8.4	1.05	3.3
			85/71	17.1	12.2	19.6	0.78	21.9		80	11.6	7.9	1.13	3
	4.5	8.3 (19.1)	75/63	15.2	11.5	17.7	0.77	19.6		60	12.5	9.4	0.97	3.8
			80/67	16.3	11.9	18.7	0.76	21.5		70	12.2	8.8	1.06	3.4
			85/71	17.4	12.3	19.8	0.74	23.6		80	12.1	8	1.14	3.1
70	2	1.9 (4.3)	75/63	13.8	11	16.8	0.96	14.4	50	60	13.2	9.9	0.98	3.9
			80/67	14.8	11.3	17.8	0.96	15.5		70	13.2	9.3	1.07	3.6
			85/71	15.8	11.7	18.8	0.95	16.6		80	12.7	8.7	1.16	3.2
	3	3.9 (8.9)	75/63	14.2	11.1	17	0.91	15.6		60	13.7	10.7	0.99	4
			80/67	15.2	11.5	18.1	0.9	16.9		70	13.4	10	1.08	3.7
			85/71	16.3	11.9	19.1	0.89	18.3		80	13.1	9.3	1.17	3.3
	4.5	8.1 (18.6)	75/63	14.4	11.2	17.2	0.88	16.4		60	14.2	11.1	1	4.2
			80/67	15.5	11.6	18.2	0.86	18		70	13.9	10.3	1.08	3.8
			85/71	16.6	12	19.3	0.85	19.6		80	13.5	9.7	1.17	3.4
80	2	1.8 (4.1)	75/63	13	10.6	16.4	1.06	12.3	60	60	14.8	11.6	1	4.3
			80/67	14	11.1	17.3	1.06	13.2		70	14.5	11	1.09	3.9
			85/71	14.9	11.4	18.3	1.06	14.1		80	14.1	10.3	1.18	3.5
	3	3.8 (8.7)	75/63	13.4	10.7	16.6	1.01	13.2		60	15.8	12.2	1.01	4.6
			80/67	14.4	11.2	17.5	1.01	14.3		70	15.4	11.4	1.1	4.1
			85/71	15.4	11.6	18.6	1	15.4		80	14.8	10.9	1.19	3.6
	4.5	7.8 (17.9)	75/63	13.6	10.9	16.7	0.98	13.8		60	16.4	12.7	1.01	4.7
			80/67	14.6	11.2	17.7	0.97	15		70	16	11.8	1.11	4.2
			85/71	15.7	11.7	18.7	0.96	16.3		80	15.3	11.3	1.2	3.7
85	2	1.8 (4.1)	75/63	12.7	10.4	16.1	1.11	11.4	70	60	16.5	13.4	1.02	4.8
			80/67	13.6	10.9	17	1.11	12.2		70	16.5	12.4	1.11	4.4
			85/71	14.5	11.3	18	1.11	13.1		80	16	11.7	1.21	3.9
	3	3.7 (8.5)	75/63	13	10.6	16.3	1.07	12.2		60	17.7	14	1.02	5.1
			80/67	13.9	11.1	17.3	1.06	13.1		70	17.5	13	1.12	4.6
			85/71	15	11.4	18.3	1.05	14.2		80	17.1	12.1	1.22	4.1
	4.5	7.7 (17.7)	75/63	13.2	10.7	16.4	1.04	12.7		60	18	14.8	1.02	5.2
			80/67	14.2	11.1	17.4	1.03	13.8		70	17.9	13.6	1.13	4.7
			85/71	15.2	11.5	18.5	1.02	14.9		80	17.4	12.7	1.23	4.2
90	2	1.8 (4.1)	75/63	12.3	10.3	15.9	1.16	10.6	80	60	18.4	14.9	1.03	5.3
			80/67	13.2	10.7	16.8	1.16	11.3		70	18.2	14.1	1.13	4.7
			85/71	14.1	11.1	17.8	1.16	12.1		80	18	13	1.23	4.3
	3	3.6 (8.3)	75/63	12.6	10.4	16.1	1.12	11.3		60	19.6	15.9	1.03	5.6
			80/67	13.5	10.9	17	1.12	12.1		70	19.1	15	1.14	4.9
			85/71	14.5	11.3	18	1.11	13.1		80	18.9	13.9	1.24	4.5
	4.5	7.6 (17.5)	75/63	12.8	10.6	16.2	1.09	11.7		60	20.4	16.5	1.03	5.8
			80/67	13.8	10.9	17.2	1.09	12.7		70	19.8	15.6	1.14	5.1
			85/71	14.8	11.4	18.2	1.08	13.8		80	19.5	14.4	1.25	4.6
100	2	1.7 (3.9)	75/63	11.5	9.9	15.4	1.27	9.1	* Extended Range - Anti-freeze required	<ul style="list-style-type: none"> ▶ AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating. ▶ Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings. ▶ Unit performance may be interpolated. Extrapolation is not allowed. ▶ For conditions other than rating conditions provided, consult the FHP BST selection software. ▶ Ratings below 40°F are with a methanol solution. ▶ Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time. ▶ Continuous research and development to improve our products may result in a change to the current design and specifications without notice. 				
			80/67	12.3	10.4	16.3	1.27	9.7						
			85/71	13.2	10.8	17.2	1.27	10.4						
	3	3.5 (8.0)	75/63	11.8	10	15.6	1.23	9.6						
			80/67	12.7	10.5	16.5	1.23	10.4						
			85/71	13.6	10.9	17.5	1.23	11.1						
	4.5	7.3 (16.8)	75/63	12	10.1	15.7	1.21	9.9						
			80/67	12.9	10.6	16.6	1.2	10.8						
			85/71	13.9	11	17.6	1.2	11.6						
110	2	1.7 (3.9)	75/63	10.7	9.6	15	1.38	7.8						
			80/67	11.5	10	15.8	1.38	8.3						
			85/71	12.4	10.4	16.7	1.39	8.9						
	3	3.4 (7.8)	75/63	11	9.7	15.1	1.34	8.2						
			80/67	11.8	10.2	16	1.34	8.8						
			85/71	12.7	10.6	16.9	1.34	9.5						
	4.5	7.1 (16.3)	75/63	11.1	9.8	15.2	1.32	8.4						
			80/67	12	10.3	16.1	1.32	9.1						
			85/71	12.9	10.7	17	1.31	9.8						

- * Extended Range - Anti-freeze required
- ▶ AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
- ▶ Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.
- ▶ Unit performance may be interpolated. Extrapolation is not allowed.
- ▶ For conditions other than rating conditions provided, consult the FHP BST selection software.
- ▶ Ratings below 40°F are with a methanol solution.
- ▶ Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time.
- ▶ Continuous research and development to improve our products may result in a change to the current design and specifications without notice.

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



BOSCH

SV018 (650 CFM) Capacity Data																				
COOLING									HEATING											
Entering Fluid Temp (F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (F)	Entering Air Temp (F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP						
50	2.5	1.2 (2.7)	75/63	22.3	15.9	26.1	1.24	18	30*	60	12.3	9	1.11	3.2						
			80/67	24.1	16.5	27.9	1.25	19.3		70	11.6	8.3	1.15	3						
			85/71	25.9	17	29.8	1.26	20.6		80	10.9	7.5	1.18	2.7						
	4	2.9 (6.6)	75/63	23.5	16.3	27.1	1.15	20.4		60	13.1	9.8	1.14	3.4						
			80/67	25.4	16.9	29	1.15	22.1		70	12.3	8.9	1.18	3.1						
			85/71	27.4	17.4	31	1.15	23.9		80	11.6	8	1.21	2.8						
	5	4.3 (9.9)	75/63	23.9	16.5	27.4	1.12	21.3		60	13.4	10.1	1.15	3.4						
			80/67	25.8	17.1	29.4	1.12	23.1		70	12.6	9.2	1.19	3.1						
			85/71	27.9	17.6	31.4	1.11	25.3		80	11.8	8.2	1.22	2.8						
	60	2.5	1.2 (2.7)	75/63	21.1	15.3	25.1	1.33		15.9	40*	60	14.7	11.2	1.19	3.6				
				80/67	22.8	15.9	26.9	1.34		17		70	14	10.3	1.24	3.3				
				85/71	24.5	16.4	28.7	1.36		18.1		80	13.3	9.5	1.28	3				
4		2.8 (6.4)	75/63	22.2	15.8	26	1.25	17.8	60	15.8		12.1	1.22	3.8						
			80/67	24	16.4	27.9	1.26	19.1	70	15		11.2	1.27	3.5						
			85/71	25.9	16.9	29.8	1.26	20.6	80	14.2		10.2	1.31	3.2						
5		4.1 (9.4)	75/63	22.6	16	26.3	1.22	18.5	60	16.2		12.5	1.23	3.8						
			80/67	24.5	16.5	28.2	1.22	20.1	70	15.3		11.5	1.28	3.5						
			85/71	26.4	17.1	30.3	1.22	21.7	80	14.5		10.5	1.33	3.2						
70		2.5	1.1 (2.54)	75/63	19.8	14.8	24	1.42	14	50		60	17.6	13.4	1.26	4.1				
				80/67	21.4	15.3	25.7	1.44	14.9			70	16.8	12.4	1.32	3.7				
				85/71	23.1	15.7	27.6	1.46	15.9			80	15.8	11.6	1.38	3.4				
	4	2.7 (6.2)	75/63	20.8	15.2	24.9	1.35	15.5	60		18.9	14.5	1.3	4.3						
			80/67	22.6	15.8	26.7	1.36	16.7	70		18	13.4	1.36	3.9						
			85/71	24.5	16.2	28.7	1.37	17.9	80		17.1	12.3	1.42	3.5						
	5	4 (9.2)	75/63	21.2	15.4	25.2	1.32	16.1	60		19.1	15.2	1.31	4.3						
			80/67	23	16	27	1.33	17.3	70		18.5	13.8	1.37	3.9						
			85/71	24.9	16.4	29.1	1.33	18.7	80		17.5	12.6	1.43	3.6						
	80	2.5	1.1 (2.54)	75/63	18.5	14.1	22.9	1.5	12.4		60	60	20.3	15.9	1.33	4.5				
				80/67	20.1	14.6	24.6	1.53	13.2			70	19.5	14.8	1.4	4.1				
				85/71	21.6	15.3	26.2	1.55	13.9			80	18.4	13.9	1.47	3.7				
4		2.6 (5.9)	75/63	19.5	14.5	23.7	1.44	13.6	60	21.6		17.5	1.37	4.6						
			80/67	21.1	15.1	25.5	1.46	14.5	70	20.9		16	1.45	4.2						
			85/71	22.9	15.6	27.4	1.47	15.6	80	19.9		14.7	1.52	3.8						
5		3.9 (8.9)	75/63	19.8	14.7	24	1.42	14	60	22.1		18.1	1.39	4.7						
			80/67	21.5	15.3	25.8	1.43	15	70	21.5		16.4	1.46	4.3						
			85/71	23.4	15.8	27.7	1.44	16.2	80	20.4		15.1	1.53	3.9						
85		2.5	1.1 (2.54)	75/63	17.8	13.8	22.3	1.54	11.6	70		60	23.2	18.4	1.4	4.8				
				80/67	19.3	14.5	23.9	1.57	12.3			70	22	17.5	1.49	4.3				
				85/71	20.8	15	25.6	1.6	13			80	21.1	16.3	1.56	3.9				
	4	2.6 (5.9)	75/63	18.8	14.2	23.1	1.49	12.7	60		25	20	1.44	5.1						
			80/67	20.3	14.9	24.8	1.51	13.5	70		23.9	18.6	1.53	4.6						
			85/71	22	15.5	26.6	1.53	14.4	80		22.8	17.2	1.61	4.1						
	5	3.8 (8.7)	75/63	19.1	14.3	23.4	1.47	13	60		25.3	21	1.46	5.1						
			80/67	20.8	14.9	25.2	1.49	14	70		24.5	19.1	1.54	4.6						
			85/71	22.5	15.5	27	1.5	15	80		23.4	17.7	1.63	4.2						
	90	2.5	1.1 (2.54)	75/63	17.1	13.6	21.7	1.58	10.8		80	60	26	21.1	1.46	5.2				
				80/67	18.6	14.2	23.3	1.62	11.5			70	24.8	20	1.56	4.7				
				85/71	20.1	14.7	25	1.65	12.2			80	23.8	18.7	1.65	4.2				
4		2.5 (5.7)	75/63	18	13.8	22.5	1.53	11.8	60	28.1		22.9	1.5	5.5						
			80/67	19.6	14.6	24.1	1.56	12.6	70	26.9		21.4	1.6	4.9						
			85/71	21.2	15.1	25.9	1.58	13.5	80	25.5		20.1	1.7	4.4						
5		3.8 (8.7)	75/63	18.3	14	22.7	1.51	12.1	60	28.5		24	1.52	5.5						
			80/67	19.9	14.6	24.5	1.53	13	70	27.6		21.9	1.62	5						
			85/71	21.6	15.3	26.3	1.55	13.9	80	25.9		20.7	1.71	4.4						
100		2.5	1 (2.3)	75/63	15.6	13	20.3	1.65	9.5	* Extended Range - Anti-freeze required		▶ AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating. ▶ Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings. ▶ Unit performance may be interpolated. Extrapolation is not allowed. ▶ For conditions other than rating conditions provided, consult the FHP BST selection software. ▶ Ratings below 40°F are with a methanol solution. ▶ Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time. ▶ Continuous research and development to improve our products may result in a change to the current design and specifications without notice.								
				80/67	17	13.6	21.9	1.7	10											
				85/71	18.5	14.1	23.6	1.74	10.7											
	4	2.4 (5.5)	75/63	16.5	13.3	21.1	1.61	10.2												
			80/67	18	14	22.8	1.65	10.9												
			85/71	19.6	14.5	24.5	1.68	11.7												
	5	3.6 (8.3)	75/63	16.8	13.5	21.4	1.6	10.5												
			80/67	18.3	14.1	23.1	1.63	11.3												
			85/71	20	14.6	24.9	1.66	12.1												
	110	2.5	1 (2.3)	75/63	14.1	12.3	18.9	1.72	8.2											
				80/67	15.4	12.9	20.4	1.77	8.7											
				85/71	16.7	13.7	21.9	1.81	9.2											
4		2.4 (5.5)	75/63	14.9	12.6	19.6	1.69	8.8												
			80/67	16.4	13.2	21.3	1.73	9.5												
			85/71	17.8	13.9	23	1.77	10.1												
5		3.5 (8.0)	75/63	15.1	12.8	19.8	1.68	9												
			80/67	16.7	13.3	21.6	1.72	9.7												
			85/71	18.2	14	23.3	1.75	10.4												

Greensource i Series Model SV
Water Source Heat Pump ½ to 6 Ton



BOSCH

SV024 (850 CFM) Capacity Data														
COOLING									HEATING					
Entering Fluid Temp (F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (F)	Entering Air Temp (F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
50	3	1.8 (4.1)	75/63	25.6	18.6	30	1.44	17.8	30*	60	15.3	11.2	1.37	3.3
			80/67	27.5	19.2	32	1.45	19		70	14.6	10.3	1.43	3
			85/71	29.5	19.8	34	1.45	20.4		80	13.9	9.3	1.48	2.7
	5	4.5 (10.3)	75/63	26.9	19.1	31	1.33	20.2		60	16.3	12	1.42	3.4
			80/67	28.9	19.8	33.1	1.33	21.8		70	15.5	11.1	1.47	3.1
			85/71	31.1	20.4	35.3	1.31	23.7		80	14.7	10	1.52	2.8
	7	8.2 (18.9)	75/63	27.5	19.4	31.5	1.28	21.5		60	16.8	12.5	1.44	3.4
			80/67	29.6	20.1	33.6	1.27	23.4		70	15.9	11.5	1.5	3.1
			85/71	31.8	20.7	35.8	1.25	25.5		80	15.1	10.4	1.55	2.9

* Extended Range - Anti-freeze required

- AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
- Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.
- Unit performance may be interpolated. Extrapolation is not allowed.
- For conditions other than rating conditions provided, consult the FHP BST selection software.
- Ratings below 40°F are with a methanol solution.
- Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time.
- Continuous research and development to improve our products may result in a change to the current design and specifications without notice.

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



SV030 (950 CFM) Capacity Data

COOLING									HEATING					
Entering Fluid Temp (F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (F)	Entering Air Temp (F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
50	3.5	1.7 (3.9)	75/63	34.3	25.3	39.4	1.65	20.8	30*	60	18.3	13.9	1.46	3.7
			80/67	36.8	26.1	42	1.66	22.2		70	17.5	12.8	1.53	3.4
			85/71	39.4	26.9	44.6	1.66	23.8		80	16.6	11.6	1.59	3.1
	6	4.5 (10.3)	75/63	36.1	26.1	40.8	1.5	24.1		60	19.8	15.3	1.51	3.8
			80/67	38.8	27	43.5	1.48	26.2		70	18.8	14	1.58	3.5
			85/71	41.7	27.8	46.4	1.46	28.6		80	17.8	12.6	1.64	3.2
	9	9.3 (21.4)	75/63	37	26.5	41.5	1.42	26		60	20.7	16	1.54	3.9
			80/67	39.8	27.4	44.3	1.4	28.5		70	19.6	14.7	1.62	3.6
			85/71	42.8	28.2	47.2	1.36	31.5		80	18.4	13.3	1.68	3.2
60	3.5	1.6 (3.7)	75/63	32.5	24.5	38	1.8	18.1	40*	60	21.7	16.9	1.58	4
			80/67	34.9	25.4	40.5	1.81	19.3		70	20.8	15.7	1.66	3.7
			85/71	37.3	26.1	43	1.82	20.5		80	19.8	14.5	1.74	3.3
	6	4.3 (9.9)	75/63	34.2	25.3	39.3	1.66	20.6		60	23.6	18.6	1.64	4.2
			80/67	36.9	26.2	42	1.65	22.3		70	22.5	17.2	1.73	3.8
			85/71	39.6	27	44.8	1.64	24.2		80	21.3	15.8	1.81	3.5
	9	8.9 (20.5)	75/63	35.1	25.6	40	1.59	22.1		60	24.7	19.5	1.68	4.3
			80/67	37.8	26.6	42.8	1.57	24.1		70	23.5	18	1.77	3.9
			85/71	40.7	27.4	45.6	1.54	26.3		80	22.2	16.5	1.85	3.5
70	3.5	1.6 (3.7)	75/63	30.6	23.7	36.5	1.94	15.7	50	60	25.4	20.1	1.7	4.4
			80/67	33	24.4	39	1.97	16.8		70	24.5	18.7	1.8	4
			85/71	35.3	25.4	41.4	1.99	17.8		80	23.3	17.4	1.89	3.6
	6	4.2 (9.6)	75/63	32.2	24.4	37.8	1.82	17.7		60	27.7	22.2	1.76	4.6
			80/67	34.8	25.3	40.4	1.82	19.1		70	26.6	20.7	1.87	4.2
			85/71	37.4	26.1	43.1	1.82	20.5		80	25.4	19.1	1.97	3.8
	9	8.6 (19.8)	75/63	33	24.7	38.4	1.75	18.8		60	29.1	23.5	1.8	4.7
			80/67	35.7	25.7	41.1	1.75	20.4		70	27.8	21.8	1.9	4.3
			85/71	38.4	26.5	43.9	1.73	22.1		80	26.5	20.1	2	3.9
80	3.5	1.5 (3.4)	75/63	28.7	22.7	35	2.09	13.7	60	60	29.7	23.5	1.8	4.8
			80/67	30.9	23.6	37.4	2.12	14.5		70	28.2	22.3	1.92	4.3
			85/71	33.2	24.4	39.8	2.15	15.4		80	27.2	20.8	2.03	3.9
	6	4 (9.2)	75/63	30.2	23.3	36.2	1.98	15.3		60	32.1	26.3	1.87	5
			80/67	32.6	24.3	38.8	1.99	16.3		70	30.8	24.6	1.99	4.5
			85/71	35.1	25.1	41.3	2	17.5		80	29.6	22.8	2.11	4.1
	9	8.4 (19.3)	75/63	30.9	23.6	36.8	1.92	16		60	33.6	27.7	1.9	5.2
			80/67	33.4	24.8	39.3	1.93	17.3		70	32.3	25.9	2.03	4.7
			85/71	36	25.7	42	1.93	18.7		80	30.8	24	2.15	4.2
85	3.5	1.5 (3.4)	75/63	27.7	22.4	34.1	2.15	12.8	70	60	33.7	27.3	1.9	5.2
			80/67	29.8	23.3	36.4	2.2	13.6		70	32.2	25.9	2.03	4.7
			85/71	32	24.1	38.8	2.23	14.3		80	31	24.2	2.16	4.2
	6	4 (9.2)	75/63	29.2	22.9	35.4	2.05	14.2		60	36.5	30.4	1.96	5.5
			80/67	31.5	23.9	37.8	2.08	15.2		70	35.1	28.6	2.11	4.9
			85/71	33.9	24.8	40.4	2.09	16.2		80	33.7	26.7	2.24	4.4
	9	8.2 (18.9)	75/63	29.8	23.4	35.9	2	14.9		60	38.3	32.1	1.99	5.6
			80/67	32.3	24.3	38.4	2.02	16		70	36.8	30.1	2.14	5
			85/71	34.8	25.1	41.1	2.02	17.2		80	35.2	28	2.29	4.5
90	3.5	1.5 (3.4)	75/63	26.7	21.9	33.3	2.22	12	80	60	37.8	31.1	1.98	5.6
			80/67	28.7	22.8	35.6	2.27	12.6		70	36.2	29.6	2.13	5
			85/71	30.9	23.5	38	2.31	13.3		80	35	27.7	2.28	4.5
	6	3.9 (8.9)	75/63	28	22.5	34.4	2.13	13.1		60	41	34.7	2.03	5.9
			80/67	30.3	23.4	36.9	2.16	14		70	39.5	32.6	2.2	5.3
			85/71	32.7	24.2	39.4	2.18	15		80	38	30.5	2.36	4.7
	9	8.1 (18.6)	75/63	28.7	22.9	34.9	2.08	13.8		60	43.1	36.7	2.06	6.1
			80/67	31.1	23.8	37.5	2.11	14.8		70	41.4	34.3	2.23	5.4
			85/71	33.6	24.6	40.1	2.12	15.8		80	39.7	32	2.4	4.8
100	3.5	1.4 (3.2)	75/63	24.6	21	31.6	2.36	10.4	* Extended Range - Anti-freeze required	▶ AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.				
			80/67	26.6	21.8	33.8	2.42	11		▶ Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.				
			85/71	28.5	22.8	36	2.47	11.5		▶ Unit performance may be interpolated. Extrapolation is not allowed.				
	6	3.8 (8.7)	75/63	25.9	21.4	32.6	2.28	11.3		▶ For conditions other than rating conditions provided, consult the FHP BST selection software.				
			80/67	28	22.5	34.9	2.32	12.1		▶ Ratings below 40°F are with a methanol solution.				
			85/71	30.2	23.4	37.4	2.36	12.8		▶ Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time.				
	9	7.9 (18.2)	75/63	26.4	21.7	33.1	2.24	11.8		▶ Continuous research and development to improve our products may result in a change to the current design and specifications without notice.				
			80/67	28.6	22.8	35.5	2.28	12.6						
			85/71	31	23.8	38	2.3	13.4						
110	3.5	1.4 (3.2)	75/63	22.6	19.9	29.9	2.48	9.1						
			80/67	24.3	21	31.9	2.55	9.5						
			85/71	26.1	21.9	34	2.62	10						
	6	3.7 (8.5)	75/63	23.6	20.4	30.8	2.42	9.7						
			80/67	25.6	21.4	33	2.48	10.3						
			85/71	27.6	22.5	35.2	2.53	10.9						
	9	7.6 (17.5)	75/63	24	20.6	31.1	2.39	10						
			80/67	26.1	21.7	33.4	2.44	10.7						
			85/71	28.3	22.5	35.8	2.49	11.4						

Greensource i Series Model SV

Water Source Heat Pump 1/2 to 6 Ton



BOSCH

SV036 (1200 CFM) Capacity Data														
Entering Fluid Temp (F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	COOLING					HEATING						
			Entering Air Temp (db/wb) F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Air Temp (F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP	
50	4	1.3 (2.9)	75/63	40.8	30	47.7	2.16	18.9	30*	60	23.5	17	2	3.5
			80/67	43.7	31	50.7	2.17	20.1		70	22.4	15.7	2.09	3.2
			85/71	46.7	31.9	53.7	2.18	21.4		80	20.9	13.5	2.15	2.9
	7.5	4.2 (9.6)	75/63	43.4	31	49.7	1.96	22.1		60	25.2	18.7	2.07	3.6
			80/67	46.7	32	53	1.95	24		70	24	17.3	2.17	3.2
			85/71	50	32.9	56.3	1.93	25.9		80	22.7	15.7	2.25	3
	11	8.3 (19.1)	75/63	44.4	31.5	50.4	1.88	23.6		60	26.5	19.6	2.11	3.7
			80/67	47.8	32.4	53.8	1.86	25.7		70	25	18.1	2.21	3.3
			85/71	51.3	33.5	57.2	1.83	28		80	23.7	16.5	2.3	3
60	4	1.3 (2.9)	75/63	38.7	29.1	46	2.33	16.6	40*	60	27.2	20.5	2.15	3.7
			80/67	41.5	30	49	2.35	17.6		70	26.3	18.9	2.26	3.4
			85/71	44.5	30.8	52	2.37	18.8		80	25.5	16.8	2.35	3.2
	7.5	4 (9.6)	75/63	41.2	30.1	47.9	2.14	19.3		60	29.9	22.7	2.24	3.9
			80/67	44.3	31.1	51.1	2.13	20.8		70	28.6	21	2.35	3.6
			85/71	47.6	32	54.4	2.12	22.4		80	27.2	19.2	2.45	3.3
	11	8 (18.4)	75/63	42.1	30.5	48.7	2.06	20.4		60	31	23.7	2.27	4
			80/67	45.4	31.5	51.9	2.05	22.2		70	29.6	22	2.39	3.6
			85/71	48.8	32.4	55.3	2.02	24.1		80	28.3	20.3	2.5	3.3
70	4	1.3 (2.9)	75/63	36.5	28	44.4	2.51	14.5	50	60	31.9	24.2	2.29	4.1
			80/67	39.3	28.9	47.2	2.54	15.5		70	30.8	22.6	2.42	3.7
			85/71	42	29.8	50.1	2.56	16.4		80	29.3	21.1	2.54	3.4
	7.5	3.9 (8.9)	75/63	38.9	29	46.2	2.33	16.7		60	35	27.2	2.29	4.3
			80/67	41.9	30	49.3	2.33	18		70	33.9	25.2	2.52	3.9
			85/71	45	31.1	52.4	2.32	19.3		80	32.2	22.8	2.64	3.6
	11	7.8 (17.9)	75/63	39.8	29.4	46.9	2.25	17.7		60	36.9	28.3	2.42	4.5
			80/67	42.9	30.4	50	2.25	19.1		70	35.6	25.8	2.56	4.1
			85/71	46.2	31.3	53.3	2.23	20.7		80	33.1	24.8	2.69	3.6
80	4	1.2 (2.7)	75/63	34.3	27	42.6	2.69	12.8	60	60	36.6	28.3	2.42	4.4
			80/67	36.9	28	45.4	2.73	13.5		70	35.4	26.6	2.57	4
			85/71	39.4	29.1	48.1	2.76	14.3		80	33.8	24.9	2.71	3.7
	7.5	3.8 (8.7)	75/63	36.5	27.9	44.3	2.52	14.5		60	40.2	32	2.52	4.7
			80/67	39.3	29	47.3	2.53	15.5		70	37.4	29	2.66	4.1
			85/71	42.3	30.1	50.3	2.54	16.7		80	36.9	27.9	2.83	3.8
	11	7.5 (17.2)	75/63	37.3	28.3	45	2.45	15.2		60	41.9	33.9	2.56	4.8
			80/67	40.3	29.5	48	2.46	16.4		70	40.7	31.1	2.72	4.4
			85/71	43.4	30.3	51.2	2.45	17.7		80	38.3	29.3	2.88	3.9
85	4	1.2 (2.7)	75/63	33.1	26.5	41.7	2.77	11.9	70	60	41.4	32.7	2.54	4.8
			80/67	35.6	27.5	44.4	2.82	12.6		70	39.9	30.9	2.71	4.3
			85/71	38.2	28.4	47.1	2.86	13.4		80	38.7	29	2.88	3.9
	7.5	3.7 (8.5)	75/63	35.2	27.5	43.3	2.61	13.5		60	46	36.9	2.64	5.1
			80/67	38	28.4	46.3	2.64	14.4		70	44.4	34.6	2.82	4.6
			85/71	41	29.4	49.3	2.65	15.5		80	42.9	32	3	4.2
	11	7.4 (17.0)	75/63	36	27.7	44	2.55	14.1		60	48.1	38.7	2.67	5.3
			80/67	39	28.8	47	2.56	15.2		70	46.7	35.7	2.86	4.8
			85/71	42	30	50	2.56	16.4		80	44.7	33.2	3.04	4.3
90	4	1.2 (2.7)	75/63	31.9	26.1	40.6	2.86	11.1	80	60	46.3	37.3	2.64	5.1
			80/67	34.3	27.2	43.3	2.91	11.8		70	44.6	35.2	2.83	4.6
			85/71	36.8	28.2	46	2.95	12.5		80	43.3	33.1	3.02	4.2
	7.5	3.6 (8.3)	75/63	34	26.9	42.3	2.71	12.5		60	51.5	42.1	2.73	5.5
			80/67	36.6	28.1	45.2	2.74	13.4		70	49.2	39.5	2.94	4.9
			85/71	39.5	28.9	48.2	2.76	14.3		80	47.2	37	3.13	4.4
	11	7.3 (16.8)	75/63	34.7	27.2	42.9	2.65	13.1		60	53.8	44.2	2.76	5.7
			80/67	37.5	28.4	45.9	2.67	14		70	52.3	40.8	2.97	5.2
			85/71	40.5	29.5	48.9	2.68	15.1		80	49.3	39	3.18	4.5
100	4	1.1 (2.5)	75/63	29.5	25	38.7	3.03	9.7	*Extended Range - Anti-freeze required	▶ AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.				
			80/67	31.7	26.3	41.2	3.09	10.2		▶ Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.				
			85/71	34.1	27.2	43.9	3.15	10.8		▶ Unit performance may be interpolated. Extrapolation is not allowed.				
	7.5	3.5 (8.0)	75/63	31.3	26	40.2	2.9	10.8		▶ For conditions other than rating conditions provided, consult the FHP BST selection software.				
			80/67	34	26.9	43.1	2.94	11.5		▶ Ratings below 40°F are with a methanol solution.				
			85/71	36.6	27.9	45.9	2.97	12.3		▶ Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time.				
	11	7.1 (16.3)	75/63	32.1	26.1	40.8	2.85	11.2		▶ Continuous research and development to improve our products may result in a change to the current design and specifications without notice.				
			80/67	34.8	27.2	43.7	2.88	12.1						
			85/71	37.6	28.2	46.6	2.9	12.9						
110	4	1.1 (2.5)	75/63	27	24.1	36.7	3.18	8.5						
			80/67	29.1	25.2	39.1	3.26	8.9						
			85/71	31.4	26	41.7	3.34	9.4						
	7.5	3.4 (7.8)	75/63	28.7	24.7	38.1	3.08	9.3						
			80/67	31.1	25.8	40.8	3.14	9.9						
			85/71	33.6	27.1	43.4	3.18	10.5						
	11	6.9 (15.9)	75/63	29.3	24.9	38.6	3.04	9.6						
			80/67	31.8	26.1	41.3	3.09	10.3						
			85/71	34.4	27.3	44.1	3.12	11						

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



SV041 (1150 CFM) Capacity Data

COOLING									HEATING							
Entering Fluid Temp (F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (F)	Entering Air Temp (F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP		
50	5	2.1 (4.8)	75/63	44.8	32	52.9	2.52	17.8	30*	60	27.1	19.3	2.44	3.3		
			80/67	48.1	33	56.3	2.53	19		70	25.9	17.6	2.54	3		
			85/71	51.4	33.9	59.7	2.54	20.2		80	24.6	16	2.62	2.8		
	9	6.1 (14.0)	75/63	47.2	33	54.8	2.33	20.3		60	29	20.9	2.52	3.4		
			80/67	50.7	34.1	58.3	2.32	21.9		70	27.6	19.2	2.62	3.1		
			85/71	54.5	35	62	2.3	23.7		80	26.1	17.4	2.71	2.8		
	13	11.9 (27.4)	75/63	48.2	33.5	55.5	2.25	21.4		60	29.9	21.7	2.55	3.4		
			80/67	51.8	34.5	59.2	2.23	23.2		70	28.4	19.8	2.66	3.1		
			85/71	55.7	35.5	63	2.2	25.3		80	26.8	18	2.75	2.9		
	60	5	2.1 (4.8)	75/63	42.5	31	51.2	2.71		15.7	40*	60	31.4	23	2.61	3.5
				80/67	45.6	32	54.4	2.73		16.7		70	30.1	21.3	2.74	3.2
				85/71	48.9	32.9	57.8	2.75		17.8		80	28.8	19.6	2.85	3
9		5.9 (13.6)	75/63	44.8	32	52.9	2.52	17.7	60	33.8		25.1	2.7	3.7		
			80/67	48.2	33	56.4	2.52	19.1	70	32.4		23.2	2.83	3.4		
			85/71	51.8	34	60	2.51	20.6	80	30.8		21.3	2.95	3.1		
13		11.5 (26.5)	75/63	45.7	32.4	53.6	2.45	18.7	60	35		26.1	2.74	3.7		
			80/67	49.3	33.5	57.2	2.44	20.2	70	33.5		24.1	2.87	3.4		
			85/71	53	34.5	60.9	2.41	22	80	31.7		21.9	3	3.1		
70		5	2 (4.6)	75/63	40.1	29.9	49.3	2.91	13.8	50		60	36.2	27.1	2.78	3.8
				80/67	43.1	31	52.5	2.94	14.6			70	34.9	25.4	2.92	3.5
				85/71	46.2	31.9	55.7	2.97	15.6			80	33.7	23.4	3.07	3.2
	9	5.7 (13.1)	75/63	42.3	30.8	51	2.73	15.5	60		39.2	29.8	2.87	4		
			80/67	45.6	31.9	54.4	2.74	16.6	70		37.6	27.9	3.02	3.6		
			85/71	49	32.9	57.8	2.74	17.9	80		36.2	25.7	3.17	3.4		
	13	11.1 (25.6)	75/63	43.2	31.2	51.7	2.66	16.2	60		40.5	31.1	2.91	4.1		
			80/67	46.6	32.3	55.1	2.66	17.5	70		38.8	29	3.07	3.7		
			85/71	50.1	33.4	58.7	2.65	18.9	80		37.3	26.7	3.21	3.4		
	80	5	1.9 (4.3)	75/63	37.6	28.8	47.4	3.11	12.1		60	60	41.2	31.7	2.93	4.1
				80/67	40.5	29.9	50.5	3.15	12.8			70	39.9	29.8	3.1	3.8
				85/71	43.5	30.8	53.6	3.19	13.6			80	38.5	27.8	3.26	3.5
9		5.6 (12.9)	75/63	39.7	29.7	49	2.95	13.5	60	44.8		34.9	3.03	4.3		
			80/67	42.8	30.8	52.3	2.97	14.4	70	43.1		32.6	3.21	3.9		
			85/71	46.1	31.8	55.7	2.98	15.5	80	42		29.9	3.38	3.6		
13		10.8 (24.9)	75/63	40.5	30	49.6	2.88	14	60	46.4		36.4	3.06	4.4		
			80/67	43.8	31.2	53	2.89	15.1	70	44.5		33.9	3.25	4		
			85/71	47.2	32.2	56.5	2.89	16.3	80	43.3		30.9	3.42	3.7		
85		5	1.9 (4.3)	75/63	36.3	28.2	46.4	3.21	11.3	70		60	46.5	36.5	3.07	4.4
				80/67	39.2	29.3	49.5	3.26	12			70	45	34.3	3.26	4
				85/71	42.1	30.2	52.6	3.3	12.8			80	43.5	32.1	3.45	3.7
	9	5.5 (12.6)	75/63	38.3	29.1	48	3.06	12.5	60		50.5	40.2	3.16	4.7		
			80/67	41.4	30.2	51.2	3.08	13.4	70		48.7	37.6	3.36	4.2		
			85/71	44.6	31.2	54.5	3.1	14.4	80		46.8	35.1	3.56	3.9		
	13	10.6 (24.4)	75/63	39.1	29.4	48.6	2.99	13.1	60		52.3	41.9	3.19	4.8		
			80/67	42.3	30.5	51.9	3.01	14	70		50.3	39.1	3.4	4.3		
			85/71	45.7	31.6	55.3	3.02	15.1	80		48.2	36.3	3.6	3.9		
	90	5	1.9 (4.3)	75/63	35	27.7	45.4	3.31	10.6		80	60	51.5	41.4	3.18	4.8
				80/67	37.8	28.9	48.3	3.36	11.2			70	50.2	39	3.4	4.3
				85/71	40.5	29.9	51.4	3.41	11.9			80	48.5	36.6	3.61	3.9
9		5.4 (12.4)	75/63	37	28.5	46.9	3.16	11.7	60	56.2		45.6	3.26	5.1		
			80/67	40	29.6	50.1	3.2	12.5	70	54.2		42.8	3.49	4.6		
			85/71	43	30.8	53.3	3.22	13.4	80	52.1		39.9	3.71	4.1		
13		10.4 (23.9)	75/63	37.7	28.8	47.5	3.11	12.1	60	58.2		47.5	3.28	5.2		
			80/67	40.9	29.9	50.8	3.13	13.1	70	56		44.4	3.52	4.7		
			85/71	44	31.1	54.1	3.14	14	80	53.7		41.3	3.75	4.2		
100		5	1.8 (4.1)	75/63	32.3	26.7	43.2	3.5	9.2	* Extended Range - Anti-freeze required		▶ AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.				
				80/67	35	27.6	46.2	3.57	9.8			▶ Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.				
				85/71	37.6	28.7	49.1	3.63	10.4			▶ Unit performance may be interpolated. Extrapolation is not allowed.				
	9	5.2 (11.9)	75/63	34.1	27.2	44.7	3.38	10.1	▶ For conditions other than rating conditions provided, consult the FHP BST selection software.							
			80/67	37	28.4	47.8	3.42	10.8	▶ Ratings below 40°F are with a methanol solution.							
			85/71	39.9	29.7	50.8	3.46	11.5	▶ Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time.							
	13	10.1 (23.2)	75/63	34.8	27.5	45.2	3.33	10.5	▶ Continuous research and development to improve our products may result in a change to the current design and specifications without notice.							
			80/67	37.7	28.9	48.3	3.36	11.2								
			85/71	40.9	29.8	51.6	3.39	12								
	110	5	1.8 (4.1)	75/63	29.6	25.3	41	3.69	8							
				80/67	32	26.7	43.8	3.76	8.5							
				85/71	34.5	27.8	46.6	3.84	9							
9		5.1 (11.7)	75/63	31.2	26	42.3	3.58	8.7								
			80/67	33.9	27.2	45.3	3.64	9.3								
			85/71	36.6	28.5	48.3	3.7	9.9								
13		9.8 (22.6)	75/63	31.8	26.5	42.8	3.54	9								
			80/67	34.6	27.5	45.9	3.6	9.6								
			85/71	37.4	28.8	48.9	3.64	10.3								

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



SV042 (1500 CFM) Capacity Data

COOLING									HEATING							
Entering Fluid Temp (F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (F)	Entering Air Temp (F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP		
50	5	2.1 (4.8)	75/63	45.2	33	53.8	2.72	16.6	30*	60	27.6	19.2	2.61	3.1		
			80/67	48.6	34.1	57.3	2.73	17.8		70	26.2	17.6	2.71	2.8		
			85/71	52	35.1	60.8	2.73	19		80	25.1	15.9	2.8	2.6		
	10	7.4 (17.0)	75/63	48.1	34.2	56.2	2.49	19.3		60	29.8	21.2	2.69	3.2		
			80/67	51.7	35.4	59.9	2.48	20.9		70	28.3	19.4	2.8	3		
			85/71	55.6	36.2	63.9	2.45	22.7		80	26.9	17.5	2.9	2.7		
	13	11.8 (27.0)	75/63	48.8	34.6	56.8	2.44	20		60	30.4	21.8	2.71	3.3		
			80/67	52.5	35.7	60.6	2.41	21.7		70	28.9	19.9	2.83	3		
			85/71	56.5	36.6	64.6	2.38	23.7		80	27.5	17.9	2.92	2.8		
	60	5	2 (4.6)	75/63	42.9	32	51.8	2.91		14.7	40*	60	31.9	23	2.77	3.4
				80/67	46.1	33.1	55.2	2.93		15.7		70	30.6	21.4	2.9	3.1
				85/71	49.4	34.1	58.7	2.94		16.8		80	29.4	19.7	3.01	2.9
10		7.1 (16.3)	75/63	45.6	33.1	54.1	2.69	16.9	60	34.8		25.7	2.86	3.6		
			80/67	49.2	34.1	57.8	2.68	18.3	70	33.9		23.4	3	3.3		
			85/71	52.8	35.3	61.6	2.67	19.8	80	32		21.7	3.12	3		
13		11.4 (26.2)	75/63	46.2	33.4	54.7	2.64	17.5	60	35.7		26.3	2.88	3.6		
			80/67	49.9	34.4	58.5	2.62	19	70	34.6		24	3.02	3.4		
			85/71	53.7	35.6	62.3	2.6	20.7	80	32.6		22.3	3.15	3		
70		5	2 (4.6)	75/63	40.4	30.9	49.8	3.1	13	50		60	36.7	27.3	2.92	3.7
				80/67	43.5	31.9	53.1	3.13	13.9			70	35.5	25.6	3.07	3.4
				85/71	46.7	32.9	56.6	3.16	14.8			80	34.2	23.6	3.21	3.1
	10	6.9 (15.9)	75/63	43	31.9	52	2.9	14.8	60		40.2	30.7	3.01	3.9		
			80/67	46.4	33.1	55.5	2.9	16	70		39.3	28.2	3.17	3.6		
			85/71	50	34.1	59.2	2.9	17.3	80		37.1	26.1	3.32	3.3		
	13	11.1 (25.6)	75/63	43.6	32.2	52.5	2.85	15.3	60		41.8	31.1	3.04	4		
			80/67	47.1	33.4	56.1	2.85	16.5	70		40.2	28.9	3.2	3.7		
			85/71	50.8	34.4	59.9	2.83	17.9	80		38	26.7	3.35	3.3		
	80	5	1.9 (4.3)	75/63	37.9	29.7	47.7	3.3	11.5		60	60	41.8	32	3.05	4
				80/67	40.9	30.8	51	3.35	12.2			70	40.6	30.1	3.23	3.7
				85/71	43.8	32	54.1	3.38	13			80	39.7	27.9	3.4	3.4
10		6.7 (15.4)	75/63	40.3	30.7	49.7	3.12	12.9	60	46		36.1	3.15	4.3		
			80/67	43.6	31.8	53.2	3.13	13.9	70	45		33.2	3.33	4		
			85/71	47	33	56.8	3.14	15	80	43.3		30.9	3.52	3.6		
13		10.7 (24.7)	75/63	40.9	31	50.2	3.07	13.3	60	47.8		36.5	3.17	4.4		
			80/67	44.3	32.1	53.8	3.08	14.4	70	46		34.1	3.36	4		
			85/71	47.7	33.3	57.4	3.07	15.5	80	45.2		30.6	3.54	3.7		
85		5	1.9 (4.3)	75/63	36.6	29.1	46.6	3.4	10.7	70		60	47.1	36.9	3.17	4.4
				80/67	39.4	30.5	49.7	3.45	11.4			70	45.8	34.8	3.37	4
				85/71	42.4	31.3	53	3.49	12.1			80	44.9	32.4	3.57	3.7
	10	6.6 (15.2)	75/63	38.9	30.1	48.6	3.23	12	60		52.5	41.1	3.25	4.7		
			80/67	42	31.4	51.9	3.25	12.9	70		50.8	38.5	3.47	4.3		
			85/71	45.3	32.6	55.4	3.26	13.9	80		48.9	35.9	3.68	3.9		
	13	10.5 (24.2)	75/63	39.5	30.3	49.1	3.18	12.4	60		53.9	42.3	3.27	4.8		
			80/67	42.7	31.7	52.5	3.2	13.4	70		52	39.5	3.49	4.4		
			85/71	46.1	32.8	56	3.2	14.4	80		51.1	35.5	3.71	4		
	90	5	1.9 (4.3)	75/63	35.1	28.7	45.4	3.5	10		80	60	52.5	42.1	3.26	4.7
				80/67	38	29.9	48.5	3.55	10.7			70	50.9	39.8	3.49	4.3
				85/71	40.9	30.8	51.8	3.6	11.4			80	49.3	37.2	3.71	3.9
10		6.5 (14.9)	75/63	37.5	29.4	47.4	3.34	11.2	60	58.5		46.8	3.33	5.2		
			80/67	40.6	30.7	50.8	3.36	12.1	70	56.6		43.9	3.57	4.6		
			85/71	43.8	31.8	54.2	3.38	13	80	54.6		41	3.81	4.2		
13		10.4 (23.9)	75/63	38	29.7	47.9	3.3	11.5	60	59.5		48.7	3.34	5.2		
			80/67	41.2	30.9	51.3	3.32	12.4	70	57.9		45.1	3.59	4.7		
			85/71	44.5	32.1	54.8	3.33	13.4	80	56.9		40.5	3.83	4.4		
100		5	1.8 (4.1)	75/63	32.5	27.5	43.1	3.69	8.8	* Extended Range - Anti-freeze required		▶ AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating. ▶ Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings. ▶ Unit performance may be interpolated. Extrapolation is not allowed. ▶ For conditions other than rating conditions provided, consult the FHP BST selection software. ▶ Ratings below 40°F are with a methanol solution. ▶ Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time. ▶ Continuous research and development to improve our products may result in a change to the current design and specifications without notice.				
				80/67	35.1	28.8	46.1	3.76	9.3							
				85/71	37.9	29.7	49.2	3.82	9.9							
	10	6.3 (14.5)	75/63	34.5	28.4	44.9	3.55	9.7								
			80/67	37.5	29.7	48.1	3.59	10.4								
			85/71	40.6	30.7	51.5	3.63	11.2								
	13	10.1 (23.2)	75/63	35	28.6	45.3	3.51	10								
			80/67	38	29.9	48.6	3.55	10.7								
			85/71	41.2	30.9	52	3.58	11.5								
	110	5	1.8 (4.1)	75/63	29.7	26.2	40.7	3.88	7.7							
				80/67	32.2	27.4	43.6	3.96	8.1							
				85/71	34.7	28.6	46.6	4.03	8.6							
10		6.1 (14.0)	75/63	31.5	27.2	42.3	3.76	8.4								
			80/67	34.3	28.5	45.4	3.82	9								
			85/71	37.1	29.7	48.6	3.86	9.6								
13		9.8 (22.6)	75/63	32	27.3	42.7	3.73	8.6								
			80/67	34.8	28.7	45.8	3.78	9.2								
			85/71	37.8	29.7	49.1	3.82	9.9								

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



SV048 (1600 CFM) Capacity Data

COOLING									HEATING					
Entering Fluid Temp (F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (F)	Entering Air Temp (F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
50	6	0.9 (2.0)	75/63	52.8	38	62.5	2.95	17.9	30*	60	34.3	25.4	2.69	3.7
			80/67	56.3	39.1	66	2.97	19		70	32	22.6	2.79	3.4
			85/71	59.9	40.1	69.8	2.99	20.1		80	29.8	19.6	2.89	3
	12	3 (6.9)	75/63	56.5	39.7	65.2	2.63	21.5		60	36.9	27.5	2.81	3.8
			80/67	60.3	40.7	68.9	2.61	23.1		70	34.4	24.9	2.92	3.4
			85/71	64.3	41.6	72.9	2.58	24.9		80	32	21.9	3.02	3.1
	16	5.1 (11.7)	75/63	57.5	40.1	65.9	2.54	22.7		60	37.7	28.2	2.85	3.9
			80/67	61.4	41.1	69.8	2.51	24.5		70	35.2	25.5	2.96	3.5
			85/71	65.5	42.1	73.8	2.46	26.6		80	32.6	22.6	3.06	3.1
60	6	0.8 (1.8)	75/63	49.9	36.8	60.3	3.19	15.6	40*	60	38.5	28.9	2.88	3.9
			80/67	53.3	37.9	63.8	3.23	16.5		70	36.5	26.5	3.02	3.5
			85/71	56.9	39	67.5	3.26	17.5		80	34.4	23.5	3.14	3.2
	12	2.9 (6.6)	75/63	53.4	38.3	62.9	2.91	18.4		60	41.8	31.8	3.01	4.1
			80/67	57.1	39.3	66.6	2.9	19.7		70	39.6	29.3	3.16	3.7
			85/71	61	40.4	70.6	2.89	21.1		80	37.3	26.5	3.29	3.3
	16	4.9 (11.3)	75/63	54.3	38.6	63.6	2.83	19.2		60	42.9	32.7	3.05	4.1
			80/67	58.1	39.7	67.4	2.81	20.7		70	40.6	30.2	3.2	3.7
			85/71	62.1	40.8	71.4	2.79	22.3		80	38.2	27.2	3.33	3.4
70	6	0.8 (1.8)	75/63	46.9	35.5	57.9	3.43	13.7	50	60	43.5	33.3	3.07	4.1
			80/67	50.3	36.6	61.6	3.48	14.5		70	41.5	30.7	3.23	3.8
			85/71	53.8	37.7	65.2	3.52	15.3		80	39.3	28.3	3.38	3.4
	12	2.8 (6.4)	75/63	50.2	36.8	60.5	3.18	15.8		60	47.4	36.5	3.21	4.3
			80/67	53.8	38	64.2	3.19	16.9		70	45.3	33.7	3.37	3.9
			85/71	57.6	39.1	68.1	3.19	18		80	43.2	31	3.54	3.6
	16	4.7 (10.8)	75/63	51	37.1	61.1	3.11	16.4		60	48.7	37.5	3.24	4.4
			80/67	54.7	38.3	64.9	3.11	17.6		70	46.6	35.5	3.42	4
			85/71	58.7	39.5	68.9	3.1	18.9		80	44.3	32.3	3.59	3.6
80	6	0.8 (1.8)	75/63	43.9	34.1	55.6	3.67	12	60	60	48.8	37.8	3.25	4.4
			80/67	47.2	35.2	59.2	3.73	12.7		70	47	35.3	3.43	4
			85/71	50.5	36.7	62.7	3.78	13.4		80	45.3	32.8	3.62	3.7
	12	2.7 (6.2)	75/63	46.8	35.3	57.9	3.44	13.6		60	53.7	42.2	3.39	4.6
			80/67	50.4	36.5	61.7	3.47	14.5		70	51.6	39.2	3.59	4.2
			85/71	54.2	37.7	65.6	3.49	15.5		80	49.5	37	3.79	3.8
	16	4.6 (10.6)	75/63	47.6	35.6	58.5	3.38	14.1		60	55.2	44	3.43	4.7
			80/67	51.3	36.9	62.3	3.4	15.1		70	53	41.1	3.64	4.3
			85/71	55.1	38	66.3	3.41	16.2		80	50.8	38.3	3.84	3.9
85	6	0.8 (1.8)	75/63	42.3	33.3	54.4	3.78	11.2	70	60	54.6	43.2	3.41	4.7
			80/67	45.5	34.9	57.8	3.85	11.8		70	52.8	40.7	3.63	4.3
			85/71	48.9	35.7	61.6	3.92	12.5		80	51	38.1	3.84	3.9
	12	2.7 (6.2)	75/63	45.2	34.5	56.6	3.57	12.7		60	60.3	48.3	3.56	5
			80/67	48.7	35.8	60.4	3.61	13.5		70	58.2	45.2	3.79	4.5
			85/71	52.3	37.2	64.2	3.64	14.4		80	56	42.8	4.02	4.1
	16	4.5 (10.3)	75/63	45.9	34.9	57.2	3.51	13.1		60	62.1	50.4	3.6	5.1
			80/67	49.5	36.1	61	3.54	14		70	59.8	47.3	3.84	4.6
			85/71	53.3	37.5	64.9	3.56	15		80	57.5	44.3	4.07	4.1
90	6	0.8 (1.8)	75/63	40.7	32.9	53.1	3.9	10.5	80	60	60.7	48.9	3.57	5
			80/67	44	33.9	56.7	3.98	11.1		70	58.9	46.2	3.81	4.5
			85/71	47.3	35.2	60.3	4.05	11.7		80	57	43.5	4.06	4.1
	12	2.6 (5.9)	75/63	43.5	33.7	55.3	3.7	11.8		60	67.3	54.7	3.7	5.3
			80/67	46.9	35.3	59	3.75	12.5		70	65	51.4	3.97	4.8
			85/71	50.6	36.3	62.9	3.79	13.4		80	62.8	48.1	4.23	4.4
	16	4.4 (10.1)	75/63	44.2	34.1	55.9	3.65	12.1		60	70	56.7	3.74	5.5
			80/67	47.7	35.6	59.6	3.68	13		70	66.8	53.8	4.02	4.9
			85/71	51.5	36.7	63.5	3.72	13.9		80	64.3	50.5	4.28	4.4
100	6	0.7 (1.6)	75/63	37.5	31.5	50.6	4.12	9.1	* Extended Range - Anti-freeze required	<ul style="list-style-type: none"> ▶ AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating. ▶ Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings. ▶ Unit performance may be interpolated. Extrapolation is not allowed. ▶ For conditions other than rating conditions provided, consult the FHP BST selection software. ▶ Ratings below 40°F are with a methanol solution. ▶ Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time. ▶ Continuous research and development to improve our products may result in a change to the current design and specifications without notice. 				
			80/67	40.6	32.9	54.1	4.22	9.6						
			85/71	43.7	34.2	57.6	4.31	10.2						
	12	2.6 (5.9)	75/63	40	32.3	52.6	3.95	10.1						
			80/67	43.3	33.9	56.2	4.02	10.8						
			85/71	46.9	35	60	4.08	11.5						
	16	4.3 (9.9)	75/63	40.6	32.6	53.1	3.91	10.4						
			80/67	44	34.2	56.7	3.96	11.1						
			85/71	47.7	35.3	60.7	4.02	11.9						
110	6	0.7 (1.6)	75/63	34.4	30.2	48.2	4.35	7.9						
			80/67	37.2	31.7	51.4	4.46	8.3						
			85/71	40.2	33	54.8	4.57	8.8						
	12	2.5 (5.7)	75/63	36.5	30.9	49.8	4.2	8.7						
			80/67	39.6	32.5	53.3	4.29	9.2						
			85/71	43	34	57	4.36	9.9						
	16	4.2 (9.6)	75/63	37	31.1	50.2	4.17	8.9						
			80/67	40.3	32.5	53.9	4.25	9.5						
			85/71	43.7	34.3	57.5	4.31	10.2						

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



SV060 (2000 CFM) Capacity Data

COOLING									HEATING					
Entering Fluid Temp (F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (F)	Entering Air Temp (F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
50	8	1.7 (3.9)	75/63	65.6	47	77.2	3.52	18.7	30*	60	45.2	30.8	3.98	3.3
			80/67	70	48.3	81.8	3.56	19.7		70	45.7	27.9	4.35	3.1
			85/71	74.5	49.6	86.6	3.62	20.6		80	44.4	27	4.77	2.7
	13	4 (9.2)	75/63	67.6	47.9	78.5	3.28	20.6		60	47.4	32.6	4.03	3.4
			80/67	72.2	49.2	83.3	3.31	21.8		70	47.4	30	4.4	3.2
			85/71	77.1	50.5	88.3	3.35	23.1		80	46.9	27.9	4.81	2.9
	20	8.6 (19.8)	75/63	68.7	48.4	79.2	3.14	21.9		60	48.8	33.7	4.06	3.5
			80/67	73.5	49.8	84.1	3.16	23.2		70	48.2	31.4	4.43	3.2
			85/71	78.6	51.1	89.3	3.19	24.7		80	46.6	30.2	4.84	2.8
60	8	1.6 (3.6)	75/63	63	45.9	75.6	3.83	16.5	40*	60	49.7	35.9	4.1	3.6
			80/67	67.2	47.2	80.1	3.88	17.3		70	51.5	33	4.48	3.4
			85/71	71.7	48.5	84.7	3.93	18.2		80	49.9	32	4.91	3
	13	3.8 (8.7)	75/63	64.9	46.7	76.8	3.59	18.1		60	53.7	38.3	4.16	3.8
			80/67	69.4	48.1	81.5	3.62	19.2		70	52.9	36.2	4.54	3.4
			85/71	74.2	49.3	86.4	3.66	20.3		80	53	33.4	4.96	3.1
	20	8.3 (19.1)	75/63	66	47.2	77.5	3.46	19.1		60	54.8	41	4.2	3.8
			80/67	70.7	48.6	82.3	3.48	20.3		70	54.6	37.5	4.57	3.5
			85/71	75.6	49.9	87.3	3.51	21.6		80	53.9	35.2	5	3.2
70	8	1.5 (3.4)	75/63	60.2	44.7	74	4.17	14.4	50	60	57.4	41.8	4.23	4
			80/67	64.4	46.1	78.3	4.22	15.3		70	55.7	40	4.62	3.5
			85/71	68.7	47.2	82.9	4.28	16.1		80	55.1	37.8	5.06	3.2
	13	3.7 (8.5)	75/63	62.1	45.5	75.1	3.93	15.8		60	60.7	44.8	4.3	4.1
			80/67	66.5	46.8	79.7	3.96	16.8		70	59.8	42.4	4.69	3.7
			85/71	71.1	48.1	84.4	4	17.8		80	58.9	39.9	5.13	3.4
	20	8.1 (18.6)	75/63	63.2	46	75.8	3.8	16.6		60	62.9	46.6	4.34	4.2
			80/67	67.7	47.3	80.4	3.82	17.7		70	61.8	44	4.74	3.8
			85/71	72.5	48.6	85.3	3.85	18.8		80	60.8	41.2	5.18	3.4
80	8	1.5 (3.4)	75/63	57.4	43.5	72.4	4.56	12.6	60	60	64.2	48.2	4.37	4.3
			80/67	61.5	44.8	76.6	4.61	13.4		70	63.4	45.8	4.78	3.9
			85/71	65.6	45.9	81	4.66	14.1		80	61.6	43.8	5.23	3.5
	13	3.6 (8.3)	75/63	59.3	44.2	73.4	4.31	13.8		60	68.3	51.7	4.46	4.5
			80/67	63.5	45.6	77.8	4.34	14.6		70	67.1	49	4.87	4
			85/71	67.9	46.8	82.4	4.38	15.5		80	66.1	46.3	5.32	3.6
	20	7.8 (17.9)	75/63	60.2	44.6	74	4.17	14.4		60	70.2	55.1	4.53	4.5
			80/67	64.6	46	78.5	4.2	15.4		70	68.5	51.4	4.93	4.1
			85/71	69.2	47.3	83.2	4.22	16.4		80	68.3	48.1	5.38	3.7
85	8	1.5 (3.4)	75/63	56	42.7	71.7	4.77	11.8	70	60	72.7	54.2	4.54	4.7
			80/67	60	44.1	75.8	4.82	12.5		70	71.7	51.6	4.95	4.2
			85/71	64	45.5	80	4.87	13.1		80	69.5	49.6	5.42	3.8
	13	3.5 (8.0)	75/63	57.8	43.5	72.6	4.51	12.8		60	76.2	59	4.65	4.8
			80/67	62	44.9	76.9	4.55	13.6		70	74.8	56	5.07	4.3
			85/71	66.3	46.1	81.5	4.58	14.5		80	73.5	53	5.53	3.9
	20	7.7 (17.7)	75/63	58.7	43.9	73.1	4.38	13.4		60	79.3	61.6	4.73	4.9
			80/67	63	45.4	77.6	4.4	14.3		70	76.6	58.8	5.15	4.4
			85/71	67.5	46.6	82.2	4.43	15.3		80	75	55.4	5.61	3.9
90	8	1.5 (3.4)	75/63	54.6	42.1	70.9	4.99	10.9	80	60	79.2	61.9	4.73	4.9
			80/67	58.5	43.4	75	5.04	11.6		70	79.1	58.3	5.15	4.5
			85/71	62.4	44.7	79.2	5.1	12.2		80	76.7	56	5.63	4
	13	3.5 (8.0)	75/63	56.3	42.8	71.8	4.73	11.9		60	84.5	66.6	4.87	5.1
			80/67	60.4	44.2	76.1	4.76	12.7		70	82.8	63.2	5.3	4.6
			85/71	64.5	45.8	80.3	4.8	13.5		80	81.3	59.9	5.77	4.1
	20	7.6 (17.5)	75/63	57.2	43.2	72.3	4.6	12.4		60	88	69.5	4.97	5.2
			80/67	61.4	44.7	76.6	4.62	13.3		70	85	66.4	5.39	4.6
			85/71	65.7	46.2	81.1	4.64	14.2		80	83	62.6	5.86	4.1
100	8	1.4 (3.2)	75/63	51.7	40.7	69.6	5.49	9.4	* Extended Range - Anti-freeze required	▶ AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.				
			80/67	55.3	42.2	73.5	5.54	10		▶ Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.				
			85/71	59.1	43.5	77.4	5.59	10.6		▶ Unit performance may be interpolated. Extrapolation is not allowed.				
	13	3.4 (7.8)	75/63	53.2	41.4	70.3	5.22	10.2		▶ For conditions other than rating conditions provided, consult the FHP BST selection software.				
			80/67	57.1	42.9	74.4	5.25	10.9		▶ Ratings below 40°F are with a methanol solution.				
			85/71	61.2	44.2	78.5	5.28	11.6		▶ Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time.				
	20	7.3 (16.8)	75/63	54.1	41.8	70.7	5.08	10.6		▶ Continuous research and development to improve our products may result in a change to the current design and specifications without notice.				
			80/67	58	43.5	74.7	5.1	11.4						
			85/71	62.2	44.9	79	5.12	12.2						
110	8	1.4 (3.2)	75/63	48.5	39.4	68.4	6.08	8						
			80/67	52	40.9	72.1	6.12	8.5						
			85/71	55.6	42.3	75.8	6.17	9						
	13	3.3 (7.6)	75/63	50	40	68.9	5.79	8.6						
			80/67	53.6	41.8	72.7	5.81	9.2						
			85/71	57.4	43.3	76.6	5.84	9.8						
	20	7.1 (16.3)	75/63	50.7	40.5	69.1	5.65	9						
			80/67	54.5	42.2	73	5.65	9.6						
			85/71	58.4	43.7	77.1	5.67	10.3						

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



SV070 (2200 CFM) Capacity Data

COOLING										HEATING				
Entering Fluid Temp (F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (F)	Entering Air Temp (F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
50	10	2.6 (5.9)	75/63	72.2	53.9	85.4	3.96	18.3	30*	60	49.4	35.1	4.19	3.5
			80/67	77.1	55.5	90.5	4.01	19.3		70	49.4	32.6	4.56	3.2
			85/71	82.2	57	95.9	4.06	20.2		80	48.8	30.5	4.97	2.9
	15	5.4 (12.4)	75/63	74	54.7	86.6	3.76	19.7		60	51.3	36.8	4.23	3.6
			80/67	79.2	56.3	91.9	3.8	20.9		70	50.2	34.6	4.59	3.2
			85/71	84.5	57.9	97.4	3.84	22		80	49.4	32.4	5	2.9
	20	9.1 (20.9)	75/63	74.9	55.1	87.2	3.66	20.5		60	52.1	37.7	4.24	3.6
			80/67	80.2	56.7	92.6	3.69	21.8		70	51.1	35.5	4.6	3.3
			85/71	85.7	58.3	98.2	3.72	23		80	50	32.9	5.01	2.9
60	10	2.5 (5.7)	75/63	69.2	52.5	83.5	4.29	16.1	40*	60	55.7	41	4.3	3.8
			80/67	74	54.2	88.4	4.34	17.1		70	55.6	38.3	4.66	3.5
			85/71	78.9	55.8	93.6	4.39	18		80	54.9	36.1	5.08	3.2
	15	5.2 (11.9)	75/63	71	53.3	84.6	4.09	17.3		60	57.9	43.2	4.33	3.9
			80/67	75.9	55	89.7	4.13	18.4		70	56.8	40.9	4.7	3.5
			85/71	81	56.9	95	4.17	19.4		80	55.9	38.5	5.12	3.2
	20	8.7 (20.0)	75/63	71.8	53.7	85.2	4	18		60	59.2	44.5	4.35	4
			80/67	76.9	55.4	90.4	4.03	19.1		70	58	42	4.72	3.6
			85/71	82.1	57.3	95.7	4.06	20.2		80	56.9	39.3	5.14	3.2
70	10	2.4 (5.5)	75/63	66.1	51.2	81.5	4.65	14.2	50	60	62.6	47.7	4.4	4.2
			80/67	70.6	52.9	86.2	4.7	15		70	61.6	45.6	4.78	3.8
			85/71	75.4	54.5	91.2	4.76	15.9		80	60.8	42.9	5.21	3.4
	15	5 (11.5)	75/63	67.7	51.9	82.5	4.45	15.2		60	65.5	50.5	4.45	4.3
			80/67	72.4	53.9	87.4	4.49	16.1		70	64.2	47.8	4.83	3.9
			85/71	77.5	55.3	92.7	4.53	17.1		80	63.1	45.2	5.26	3.5
	20	8.5 (19.6)	75/63	68.5	52.5	82.9	4.35	15.7		60	67.1	52	4.47	4.4
			80/67	73.4	54.3	88	4.38	16.8		70	65.7	49.2	4.86	4
			85/71	78.5	56	93.3	4.42	17.8		80	64.4	46.4	5.28	3.6
80	10	2.4 (5.5)	75/63	62.8	49.8	79.5	5.05	12.4	60	60	71.1	54.5	4.53	4.6
			80/67	67.2	51.6	84.1	5.1	13.2		70	69.1	52.7	4.92	4.1
			85/71	71.6	53.6	88.7	5.15	13.9		80	67.6	49.5	5.35	3.7
	15	4.9 (11.3)	75/63	64.3	50.7	80.3	4.85	13.3		60	73.7	58.3	4.59	4.7
			80/67	68.9	52.6	85.1	4.88	14.1		70	72.2	55.3	4.98	4.2
			85/71	73.6	54.3	90	4.92	15		80	70.8	52.4	5.42	3.8
	20	8.2 (18.9)	75/63	65.1	51.1	80.8	4.75	13.7		60	75.8	60.2	4.62	4.8
			80/67	69.8	52.9	85.7	4.78	14.6		70	73.6	57	5.01	4.3
			85/71	74.7	54.7	90.7	4.81	15.5		80	72.4	53.8	5.45	3.9
85	10	2.3 (5.3)	75/63	61	49.4	78.4	5.27	11.6	70	60	79.3	62.2	4.67	5
			80/67	65.3	51.2	82.9	5.32	12.3		70	76.8	59.5	5.07	4.4
			85/71	69.7	52.9	87.5	5.37	13		80	75.4	56.4	5.52	4
	15	4.8 (11.0)	75/63	62.7	49.8	79.4	5.07	12.4		60	82.7	66.6	4.75	5.1
			80/67	67.2	51.6	84.1	5.1	13.2		70	80.4	63.4	5.15	4.6
			85/71	71.7	53.6	88.8	5.14	14		80	80	59	5.6	4.2
	20	8.1 (18.6)	75/63	63.5	50.1	79.9	4.97	12.8		60	84.8	68.7	4.79	5.2
			80/67	68.1	51.9	84.6	5	13.6		70	82.8	64.6	5.2	4.7
			85/71	72.7	54	89.4	5.02	14.5		80	80.4	61.7	5.64	4.2
90	10	2.3 (5.3)	75/63	59.5	48.4	77.6	5.51	10.8	80	60	87.9	70.2	4.84	5.3
			80/67	63.5	50.5	81.9	5.55	11.4		70	85	67.3	5.25	4.7
			85/71	68	51.9	86.6	5.61	12.1		80	83.8	64.1	5.71	4.3
	15	4.7 (10.8)	75/63	60.8	49.3	78.3	5.29	11.5		60	92	75.2	4.94	5.5
			80/67	65.4	50.9	83	5.33	12.3		70	89.2	71.7	5.35	4.9
			85/71	69.8	52.9	87.6	5.37	13		80	88.5	66.8	5.81	4.5
	20	7.9 (18.2)	75/63	61.6	49.6	78.7	5.19	11.9		60	94.3	77.6	4.99	5.5
			80/67	66.1	51.5	83.4	5.22	12.7		70	91.9	73.9	5.41	5
			85/71	70.9	52.9	88.3	5.26	13.5		80	89.2	69.8	5.86	4.5
100	10	2.2 (5.0)	75/63	55.9	47.4	75.7	6.02	9.3	* Extended Range - Anti-freeze required	▶ AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.				
			80/67	59.9	49.2	79.9	6.07	9.9		▶ Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.				
			85/71	64.1	50.6	84.3	6.13	10.5		▶ Unit performance may be interpolated. Extrapolation is not allowed.				
	15	4.6 (10.6)	75/63	57.3	47.8	76.4	5.81	9.9		▶ For conditions other than rating conditions provided, consult the FHP BST selection software.				
			80/67	61.5	49.8	80.7	5.84	10.5		▶ Ratings below 40°F are with a methanol solution.				
			85/71	65.8	51.5	85.2	5.87	11.2		▶ Due to variations in installation, actual performance may vary from the tabulated data. Performance contained herein are as a result of extensive testing by FHP and are not express warranties between the parties and may be changed at any time.				
	20	7.7 (17.7)	75/63	57.9	48.1	76.7	5.71	10.2		▶ Continuous research and development to improve our products may result in a change to the current design and specifications without notice.				
			80/67	62.2	50.3	81.1	5.72	10.9						
			85/71	66.8	51.5	85.9	5.76	11.6						
110	10	2.1 (4.8)	75/63	52.3	45.8	74.1	6.64	7.9						
			80/67	56	47.8	78	6.68	8.4						
			85/71	59.9	49.5	82.1	6.73	8.9						
	15	4.5 (10.3)	75/63	53.7	46.1	74.8	6.41	8.4						
			80/67	57.7	48	78.9	6.43	9						
			85/71	61.6	50.3	82.9	6.46	9.5						
	20	7.5 (17.2)	75/63	54.2	46.7	74.9	6.3	8.6						
			80/67	58.3	48.5	79.1	6.32	9.2						
			85/71	62.5	50.3	83.4	6.34	9.9						

Greensource i Series Model SV
Water Source Heat Pump ½ to 6 Ton



BOSCH

Antifreeze Correction							
Antifreeze Type	Antifreeze %	Cooling			Heating		WPD Correction Factor EWT 30 °F
		EWT 90 Deg.F			EWT 30 Deg. F		
		Total Cap.	Sens. Cap	Power	Htg. Cap	Power	
Water	0	1.000	1.000	1.000	1.000	1.000	1.000
Propylene Glycol	5	0.997	0.997	1.004	0.989	0.997	1.060
	10	0.994	0.994	1.006	0.986	0.995	1.125
	15	0.990	0.990	1.009	0.978	0.988	1.190
	25	0.983	0.983	1.016	0.960	0.979	1.300
	5	0.997	0.997	1.003	0.990	0.997	1.060
Methanol	10	0.996	0.996	1.005	0.979	0.993	1.100
	15	0.994	0.994	1.008	0.970	0.990	1.140
	5	0.998	0.998	1.002	0.981	0.994	1.160
Ethanol	10	0.996	0.996	1.004	0.960	0.988	1.230
	15	0.992	0.992	1.006	0.944	0.983	1.280
	25	0.986	0.986	1.009	0.917	0.974	1.400
	5	0.997	0.997	1.003	0.993	0.998	1.060
Ethylene Glycol	10	0.995	0.995	1.004	0.986	0.996	1.120
	15	0.992	0.992	1.005	0.980	0.993	1.190
	25	0.988	0.988	1.009	0.970	0.990	1.330
	30	0.985	0.985	1.012	0.965	0.987	1.400

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



BOSCH

Casing Radiated Sound Power - Octave Band Sound Power Levels dB, re 10-12 Watts										
Model	Load	Center Frequency - Hz								Overall (dBA)
		63	125	250	500	1000	2000	4000	8000	
SV007-1VTC	Cooling Full	73	58	55	49	45	37	31	29	53*
	Heating Full	79	59	54	48	45	37	32	34	55
	FAN Only	70	57	51	47	43	36	28	26	50*
SV009-1VTC	Cooling Full	74	57	58	49	46	39	32	30	54*
	Heating Full	72	57	55	48	45	37	31	29	52*
	FAN Only	67	54	49	46	43	38	31	29	49*
SV012-1VTC	Cooling Full	73	64	58	50	46	40	34	29	55
	Heating Full	73	64	61	50	46	39	35	31	56
	FAN Only	73	61	55	49	45	39	33	30	53
SV015-1VTC	Cooling Full	78	60	56	50	47	42	41	38	56*
	Heating Full	79	62	55	50	46	42	37	35	56
	FAN Only	73	58	52	49	45	41	35	31	53
SV018-1VTC	Cooling Full	68	65	56	52	52	48	38	31	56
	Heating Full	72	65	56	53	51	46	38	34	57*
	FAN Only	66	61	52	49	49	42	34	26	53
SV024-1VTC	Cooling Full	82	63	59	55	53	47	43	35	60
	Heating Full	79	70	58	54	53	48	46	39	60
	FAN Only	72	60	54	53	51	44	36	29	55
SV030-1VTC	Cooling Full	84	64	57	54	53	52	42	35	61
	Heating Full	80	81	57	55	53	49	44	39	66
	FAN Only	68	58	56	53	51	47	39	32	56
SV036-1VTC	Cooling Full	74	63	65	57	56	50	43	37	61
	Heating Full	74	76	65	58	56	53	46	42	64
	FAN Only	69	60	58	56	56	49	41	32	59
SV041-1VTC	Cooling Full	79	65	63	57	54	51	47	42	61
	Heating Full	77	71	59	59	54	51	46	43	61
	FAN Only	75	63	57	55	52	49	44	38	58
SV042-1VTC	Cooling Full	80	67	63	56	52	48	47	40	61
	Heating Full	77	73	60	56	54	49	47	41	61
	FAN Only	70	67	57	54	51	47	39	33	57

* Denotes background noise level is too high for the A-weighted value to be valid. Actual levels are less than or equal to stated values.

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



BOSCH

Casing Radiated Sound Power Continued - Octave Band Sound Power Levels dB, re 10-12 Watts										
Model	Load	Center Frequency - Hz								Overall (dBA)
		63	125	250	500	1000	2000	4000	8000	
SV048-1VTC	Cooling Full	80	64	62	59	60	55	46	39	64
	Heating Full	76	67	63	60	61	56	47	41	64
	FAN Only	78	65	61	58	60	55	47	39	64
SV060-1VTC	Cooling Full	74	72	64	59	58	54	45	36	63
	Heating Full	82	73	67	59	57	53	47	40	64
	FAN Only	71	70	60	58	57	53	44	36	62
SV070-1VTC	Cooling Full	80	67	62	59	54	49	43	37	62
	Heating Full	81	68	64	57	53	50	44	39	61
	FAN Only	73	65	60	55	53	49	43	37	59
SV012-1HZC	Cooling Full	84	61	55	48	47	42	40	35	59
	Heating Full	85	62	56	49	47	43	40	38	60
	FAN Only	67	54	51	47	46	40	34	30	51
SV024-1HZC	Cooling Full	80	62	59	56	54	48	43	37	60
	Heating Full	81	63	59	55	54	48	44	41	60
	FAN Only	68	59	58	54	53	45	40	33	57
SV030-1HZC	Cooling Full	80	69	64	56	54	47	47	40	61
	Heating Full	82	74	64	57	54	48	47	42	63
	FAN Only	72	69	64	55	50	44	37	29	59
SV042-1HZC	Cooling Full	83	72	64	59	55	50	45	41	63
	Heating Full	83	74	65	59	56	52	47	46	64
	FAN Only	83	72	64	58	55	49	43	37	63
SV060-1HZC	Cooling Full	79	67	62	58	57	48	42	37	61
	Heating Full	80	68	63	60	56	53	47	47	63
	FAN Only	73	66	61	56	54	47	41	36	59
SV070-1HZC	Cooling Full	83	72	67	65	60	53	43	41	66
	Heating Full	83	74	66	63	61	53	47	43	66
	FAN Only	76	71	66	64	60	51	42	43	65

* Denotes background noise level is too high for the A-weighted value to be valid. Actual levels are less than or equal to stated values.

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



BOSCH

Ducted Discharge Sound Power - Octave Band Sound Power Levels dB, re 10-12 Watts										
Model	Load	Center Frequency - Hz								Overall (dBA)
		63	125	250	500	1000	2000	4000	8000	
SV007-1VTC	Cooling Full	82	65	57	58	60	52	53	54	64
	Heating Full	84	65	58	58	60	52	52	54	64*
	FAN Only	72	65	58	58	60	53	53	54	63
SV009-1VTC	Cooling Full	75	66	61	59	60	53	54	55	64
	Heating Full	79	66	61	59	59	53	54	55	64
	FAN Only	72	66	61	60	60	54	55	56	64
SV012-1VTC	Cooling Full	75	68	62	59	60	53	53	54	64
	Heating Full	80	70	66	62	61	54	53	55	66
	FAN Only	79	70	66	62	62	54	54	56	66
SV015-1VTC	Cooling Full	79	69	65	63	62	57	56	52	67
	Heating Full	80	70	65	63	63	57	57	53	68
	FAN Only	75	72	65	63	64	57	57	54	68
SV018-1VTC	Cooling Full	75	67	61	62	58	54	54	49	64
	Heating Full	78	71	61	62	58	53	53	50	64
	FAN Only	76	68	61	62	58	54	54	50	64
SV024-1VTC	Cooling Full	80	72	64	67	71	65	61	57	73
	Heating Full	80	73	65	68	72	65	62	58	74
	FAN Only	75	72	65	68	71	65	62	58	73
SV030-1VTC	Cooling Full	79	70	65	68	63	57	58	55	69
	Heating Full	76	73	66	67	63	57	58	56	69
	FAN Only	77	71	66	67	64	57	59	56	69
SV036-1VTC	Cooling Full	76	73	67	71	74	69	65	62	77
	Heating Full	79	79	68	71	75	70	66	63	78
	FAN Only	77	74	69	72	75	70	66	63	78
SV041-1VTC	Cooling Full	77	75	67	66	65	61	61	59	70
	Heating Full	79	80	67	66	66	62	62	60	71
	FAN Only	80	73	67	67	67	62	62	61	71
SV042-1VTC	Cooling Full	80	80	67	70	74	70	68	65	78
	Heating Full	82	82	67	70	73	70	68	65	77
	FAN Only	79	83	68	70	74	71	69	66	78

* Denotes background noise level is too high for the A-weighted value to be valid. Actual levels are less than or equal to stated values.

Greensource i Series Model SV
Water Source Heat Pump ½ to 6 Ton



Ducted Discharge Sound Power Continued - Octave Band Sound Power Levels dB, re 10-12 Watts										
Model	Load	Center Frequency - Hz								Overall (dBA)
		63	125	250	500	1000	2000	4000	8000	
SV048-1VTC	Cooling Full	83	75	69	72	75	71	69	66	79
	Heating Full	82	76	69	71	75	71	69	66	78
	FAN Only	82	75	69	72	76	72	70	67	79
SV060-1VTC	Cooling Full	80	75	65	68	71	67	65	61	75
	Heating Full	78	75	66	68	71	67	65	61	75
	FAN Only	77	77	67	69	73	68	65	62	76
SV070-1VTC	Cooling Full	85	79	74	73	73	70	67	63	78
	Heating Full	86	78	74	73	74	70	67	63	78
	FAN Only	86	80	75	74	74	70	68	64	79
SV012-1HZC	Cooling Full	82	66	62	56	60	55	54	55	65
	Heating Full	78	67	63	57	59	55	54	56	64
	FAN Only	83	67	63	57	60	55	54	56	65*
SV024-1HZC	Cooling Full	82	72	67	68	71	58	59	56	73
	Heating Full	78	73	68	69	69	60	61	58	72
	FAN Only	75	72	68	68	68	60	61	58	71
SV030-1HZC	Cooling Full	82	71	67	67	65	60	60	57	70
	Heating Full	79	72	68	68	68	60	61	58	71
	FAN Only	74	72	68	68	67	61	61	59	71
SV042-1HZC	Cooling Full	88	84	72	73	74	70	68	64	78
	Heating Full	90	84	74	74	73	70	68	64	78
	FAN Only	91	84	74	74	74	70	68	65	79
SV060-1HZC	Cooling Full	81	78	69	71	72	69	66	61	76
	Heating Full	81	79	70	71	73	69	66	62	76
	FAN Only	79	80	70	71	73	69	66	62	77
SV070-1HZC	Cooling Full	80	81	66	69	70	67	65	61	75
	Heating Full	79	76	68	69	70	67	65	61	75
	FAN Only	77	80	68	69	71	68	66	62	75

* Denotes background noise level is too high for the A-weighted value to be valid. Actual levels are less than or equal to stated values.

Greensource i Series Model SV

Water Source Heat Pump ½ to 6 Ton



Factory Installed Options and Applicable Models	
Description	Applicable Model Numbers
ECM Constant Torque	SV015 to SV070
ECM Constant CFM	SV015 to SV070
Tin Plated Coil w/ Fin Coating	All Models
Fan/Pump Interlock Relay	All Models
Disconnect Switch, 40A Single Phase	All Models
Disconnect Switch, 40A Three Phase	All Models
EMS Relay	All Models
Control -DDC	All Models
Hot Gas Reheat (HGRH)	SV015 to SV070
Extended Range	All Models
MERV 8 Filter	All Models
MERV 13 Filter	All Models
Two-Way Water Valve	All Models
Compressor Blanket	SV024 to SV070

Specification Guide

1.0 General

Furnish and install BOSCH SV series water source heat pumps as indicated on the plans with capacities and characteristics as listed in the schedule and the specifications that follow. The units shall be manufactured in an ISO 9001:2000 certified facility.

2.0 Horizontal/Vertical/CounterFlow Water Source Heat Pumps

Units shall be designed to operate throughout the range of entering fluid temperature of 50°F to 100°F in the cooling mode and 50°F to 80°F in the heating mode. Units shall have an operating range of entering fluid temperature between 40°F and 120°F in cooling and between 20°F to 90°F in the heating mode when equipped with the optional extended range package. Equivalent units from other manufacturers can be proposed provided approval to bid is given 10 days prior to bid closing. All equipment with a nominal capacity of 134,000 BTUH Total Cooling or lower must be listed in the current AHRI Applied Equipment Directory under the AHRI Standard ISO- 13256-1 Rating. All equipment in this section must meet or exceed the national standard minimum EER and COP as listed in ASHRAE 90.1 All units shall conform to UL1995 standard and certified to CAN/CSA C22.1 No 236 by Intertek-ETL. All units shall have ARI-13256-1 labels, and ETL/UL or NRTL or CSA labels.

2.01 Basic Construction

- A. Units shall have the air flow arrangement as shown on the plans. If units with these arrangements are not used, the contractor supplying the water source heat pumps is responsible for any extra costs incurred by other trades and must submit detailed mechanical drawings showing duct work requirements and changes or relocation of any other mechanical or electrical system. If other arrangements make servicing difficult the contractor must provide access panels and clear routes to ease service. The architect must approve all changes 10 days prior to bid.
- B. All units shall have stainless steel drain pans to comply with this project's IAQ requirements. No exceptions shall be allowed.
- C. All water source heat pumps shall be fabricated from sheet metal finished with G90 galvanized steel. All interior surfaces shall be lined with 1/2 inch thick, multi density acoustic insulation. All insulation must meet NFPA 90A and be certified to meet the GREENGUARD Indoor Air Quality Standard for Low Emitting Products. One blower access panel and one compressor compartment access panels shall be removable with supply and return air duct work in place.

Bosch Thermotechnology Corp.
Londonderry, NH • Ft. Lauderdale, FL

Specification Guide Continued

- D.** Unit shall have a floating base pan consisting of a ½" (12 mm) thick high density rubber pad between the compressor base plate and the unit base pan to prevent transmission of vibration to the structure.
- E.** All units shall have a factory installed two sided filter rack capable of accepting one inch filters. Units shall have a 1 inch thick throwaway type glass fiber filter as standard. The filter rack shall incorporate a 1 inch duct flange. The contractor shall purchase one spare set of filters and replace factory-shipped filters upon completion of start-up.
- Option to E: All units shall have a factory installed four sided filter rack with 2" MERV7 filters.
 - Option to E: All units shall have a factory installed four sided filter rack with 2" MERV13 filters.
- F.** Cabinets shall have separate holes and knockouts for entrance of line voltage and low voltage control wiring. Supply and return water connections shall be brass FPT fittings and shall be securely mounted flush to the cabinet allowing for connection to a flexible hose without the use of a back-up wrench. Water connections which protrude through the cabinet shall not be allowed.
- G.** Hanging brackets shall be provided as standard for horizontal units.
- H.** All units shall have condensate overflow switch , Air-coil and water-coil freeze sensor as standard.

2.02 Fan and Motor Assembly

- A.** Units shall have a direct-drive centrifugal fan. The fan motor shall be a high efficiency PSC type. The fan motor shall be isolated from the fan housing by torsionally flexible isolation.
- Option for A: The fan motor shall be a pre-programmed high efficiency constant CFM ECM type
 - Option for A: The fan motor shall be a pre-programmed high efficiency constant torque ECM type
- B.** The fan and motor assembly must be capable of overcoming the external static pressures as shown on the schedule. External static pressure rating of the unit shall be based on a wet coil. Ratings based on a dry coil shall NOT be acceptable.
- C.** All units shall have removable blower inlet ring as standard for ease of service and maintenance.

2.03 Refrigerant Circuit

Units shall use R-410A refrigerant. All units shall have a factory sealed and fully charged refrigerant circuit with the following components:

- A.** Compressors shall be hermetic single stage rotary, reciprocating or scroll type specifically designed for heat pump operation and shall be internally sprung, externally isolated (rotary), with thermal overload protection and mounted on rubber vibration isolators.
- B.** Refrigerant metering capillary tubes.
- Option for B Units shall be equipped with the extended range package for low fluid temperature in the heating mode. The extended range package shall incorporate bi-directional refrigerant metering thermal expansion valves and an option insulated coaxial water coil for extended arrange application.
- C.** Finned tube refrigerant to air heat exchanger not exceeding 14 16 fins per inch. Refrigerant to air heat exchangers shall utilize enhanced aluminum fins and rifled copper tube construction rated to withstand 600 PSIG refrigerant working pressure. All air coils shall have non-ferrous aluminum end plates.
- Option for C Coils shall have Duo-Guard tin electroplated copper tubing with polymer coated Aluminum Fins coating for enhanced protection against formicary and other types of corrosion. Copper tubes shall be tin coated and aluminum fins coated to pass 1000 hour ASTM B117 salt fog testing.
- D.** Reversing valve. Reversing valves shall be four way solenoid activated refrigerant valves which shall fail to the heating operation should the solenoid fail to function. Reversing valves which fail to the cooling operation shall not be allowed.
- E.** Coaxial (tube in tube) refrigerant to water heat exchanger. Refrigerant to water heat exchangers with copper inner water tube and steel outer refrigerant tube design rated to withstand 600 PSIG working refrigerant pressure and 400 PSIG working water pressure. Shell and Tube style refrigerant to water heat exchangers shall be treated as pressure vessels and shall require refrigerant pressure relief valves piped to the exterior of the building. The contractor supplying the water source heat pumps with Shell and Tube heat exchangers shall be responsible for any additional installation costs. Brazed Plate water to refrigerant heat exchangers shall require additional centrifugal separators added to the supply water piping at each unit. Each separator shall have an automated clean out valve piped to a waste line. The contractor supplying water source heat pumps with Brazed

Specification Guide Continued

Plate heat exchangers shall be responsible for any additional costs.

- Option for E: Cupro-Nickel water coil – The refrigerant to water heat exchanger shall be of cupro-nickel inner water tube construction.

- F.** Safety controls including both a high pressure and low pressure switch. Temperature sensors shall not replace these safety switches. See the controls section of this specification for additional information.
- G.** Access fittings shall be factory installed on high and low pressure refrigerant lines to facilitate field service.
- H.** Activation of any safety device shall prevent compressor operation via a lockout circuit. The lockout circuit shall be reset at the thermostat or at the contractor supplied disconnect switch. Units which may be reset at the disconnect switch only shall not be acceptable. Refer to solid state safety circuit below.

2.04 Electrical

A control box shall be located within the unit and shall contain a transformer, controls for the compressor, reversing valve and fan motor operation and shall have a terminal block for low voltage field wiring connections. The transformer shall be rated for a minimum 75 VA and shall have a push button reset circuit breaker on the secondary power.

All units shall be name-plated for use with time delay fuses or HACR circuit breakers. Unit controls shall be 24 volts.

2.05 Solid State Safety Circuit

All units shall have a solid-state UPM safety control circuit with the following features:

1. Anti-short cycle time delay on compressor operation.
2. Random start on power up mode.
3. Brown out/Surge/Power Interruption protection.
4. Low Pressure Switch 120 second bypass timer.
5. Shutdown on the following fault indications:
 - a. high or low refrigerant pressure safety switches inputs.
 - b. Freeze sensors shall monitor refrigerant temperature to the water coil in the heating mode and refrigerant to air coil in the cooling mode.
6. Alarm output which closes for selectable dry contact closure or 24 VAC remote fault indication.
7. Alarm output selectable for constant output for general alarm notification, or pulse output for annunciation of the specific fault alarm.
8. Selectable reset of unit at thermostat or disconnect.

9. Automatic intelligent reset. Unit shall automatically reset after a safety shut down and restart the unit after the anti-short cycle timer and random start timer expire. Should the same fault re-occur within 60 minutes after reset, then a permanent lockout will occur. Reset attempts shall be selectable for either 2 or 4 tries. A condensate overflow will place the unit in an immediate hard lockout.
10. Ability to defeat time delays for servicing.
11. A light emitting diode (LED) to indicate safety alarms. The LED shall annunciate the following alarms:
 - a. high refrigerant pressure,
 - b. low refrigerant pressure,
 - c. low refrigerant temperature to the water coil in the heating operation,
 - d. Low refrigerant temperature to the air coil in the cooling mode,
 - e. high level of condensate in the drain pan,
 - f. brown out/surge/ power interruption.
12. The LED will display each fault condition as soon as the fault occurs. If a permanent lockout occurs, then the fault LED will display the type of fault until the unit is reset.
13. UL listed, CUL listed, and RFI, ESD, and transient protected.

Freeze Protection: A freeze stat shall sense the entering refrigerant temperature to the coaxial coil (in the heating mode) and shall activate the compressor lockout circuit when the refrigerant temperature drops below either 15°F or 30°F. The factory default is 30°F and the temperature setting may be set at 15°F by cutting the resistor (R42) located above dip switch. The freeze stat may not provide protection in the case of loss of flow in the heating mode. A flow switch or pressure differential switch is recommended to prevent unit operation in case of loss of flow. A second freeze sensor shall be mounted at the refrigerant inlet to the air coil. Should the refrigerant temperature drop below 30°F the unit will go into a soft lockout.

Condensate overflow protection: A condensate sensor shall activate the lockout circuit upon sensing a high level of condensate in the drain pan and immediately put the unit into a hard lockout. COP shall be standard on horizontal units

2.06 Options

- A.** Extra quiet construction: Optional compressor blanket shall be provided on units having a capacity above 24,000 BTUH.
- B.** Hot Gas Reheat: Units as noted on the schedule shall be equipped with optional Hot Gas Reheat (HGRH). On/Off HGRH shall be controlled by a humidistat connected to the

Specification Guide Continued

unit H terminal and shall start the unit in the reheat mode should the humidity be above set point once the thermostat control is satisfied. Cooling or heating requirements shall take precedent over HGRH.

- C.** DDC Controls: Unit shall be equipped with a factory installed DDC control capable of interfacing with BacNet, Modbus, and N2 and Lonworks. When choosing Lonworks, a separate Lon card must be purchased. The controller shall be pre-programmed to control the unit and monitor the safety controls. The unit shall be able to operate as a standalone or be incorporated into the building management system. A leaving water and leaving air sensor shall be installed in the unit. Wall sensors shall be available for controlling zone temperature.
- D.** Unit mounted disconnect. A non fused factory mounted disconnect shall be installed on the unit.
- F.** Two Way Motorized Water valve: A two way motorized water valve shall be mounted in the interior of the unit. The valve shall cycle open whenever there is a call for compressor operation. The valve shall be equipped with an end switch.
- G.** The following relays shall be factory installed in the unit
 - a) EMS Relay for remote enabling of the unit.
 - b) Auxiliary pump or valve relay to enable a pump or valve operation when calling for compressor operation.
- H.** A Comfort Alert Module can be ordered separately for Scroll compressors. This device assist in service diagnostics. shall be installed in the units to assist in service diagnostics.

3.0 Hose Kits

All units shall be connected with hoses. The hoses shall be either 2 or 3 feet long, braided stainless steel, fire rated hoses. Non fire rated hoses are not acceptable. Optional ball valves with P/T ports, flow controller, Y strainer and electric valve shall be included as specified in the schedule.