

GreenSource CDI series

Model SM

Residential Geothermal Heat Pump

Engineering
Submittal
Sheet



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Overview and Certifications



Standard Features and Field Installed Accessories

Standard Features

- ▶ **White Pre-Painted Sheet Metal Cabinets**
 - Appliance White for a Clean - Durable Look
 - Door Handles - for Easy Removal for Service
 - LCD Display - for Easy View of Unit Operation
- ▶ **High Efficiency**
 - Up to 4.7 COP @ PL GLHP
 - Up to 4.0 COP @ FL GLHP
 - Up to 32.0 EER @ PL GLHP
 - Up to 22.0 EER @ FL GLHP
- ▶ **Electronically Commutated Motors**
 - Constant CFM Variable Speed High Efficiency ECM
- ▶ **Closed Cell (Fiber Free) Insulation**
 - Improved Indoor Air Quality
 - Floating Base Pan
- ▶ **Reliability - Durability - Serviceability**
 - Evaporator Coil - Tin-plated copper tubing hair pins with high-tech polymer coated aluminum fins (DuoGuard™)*
 - Alert Communicating Electronic Circuit Board
- ▶ **Electronic Circuit Board**
 - Low Pressure Switch Protection
 - High Pressure Switch Protection
 - Alarm Output
 - Condensate overflow protection
 - Anti-Short Cycling
 - Low Pressure Bypass at Start Up
 - Random Start of Unit
 - Brown Out Protection
 - Evaporator Freeze Protection
 - Water Coil/Coaxial Coil/Condenser Freeze Protection
 - Connections for a communicating thermostat and unit external status LCD for easy view of unit operation

* Available only for Vertical models. For Horizontal models, tin-plated copper tubing hair pins only is available.



Standard Features and Field Installed Accessories continued..

► **Standard Warranty**

- 10 Year All Parts Limited Warranty
- 10 Year Labor Limited Warranty

► **Domestic Hot Water Heat Recovery Package (Desuperheater):**

- Utilizes the compressor's superheated discharge gas to preheat domestic hot water, reducing the amount of electricity or fossil fuels otherwise used for hot water.

► **Cupro-nickel Coils:**

- Cupro-Nickel coils are recommended for applications where the water is of lower quality. Only coils are cupro-nickel. All fittings and straight lengths of pipe will be copper.

Field Installed Accessories

► **Thermostats:**

- Bosch thermostats are fully customized to meet your individual needs. Bosch offers communicating thermostats that can display alert messages without having to go to the unit.
- Passive dehumidification can be achieved via ECM fan controls paired with optional Bosch thermostat with humidity control

► **Internally Mounted Electric Heat Kits:**

- A field installed option for back up heat. Available in 5, 10, 15, or 20 kW depending on the size of the geothermal heat pump.

► **Stainless Steel Hose Kits:**

- Available in various lengths and diameters depending on the need for your application.

► **SmartStart Assist Kit:**

- An option which provides a means of reducing inrush currents at compressor startup. Light flickering is eliminated, and a smooth start is achieved.

► **Horizontal Discharge Air Conversion Kit:**

- The horizontal conversion kit allows end blow to straight through conversion of discharge air, as the straight through configuration for horizontal is no longer available.

► **Pump/Valve Relay Kit:**

- This relay is used to energize a supply pump or solenoid valve when there is a call for compressor operation. This relay can be used to switch either high or low voltage power.

► **Externally Mounted Duct Heater Kits**

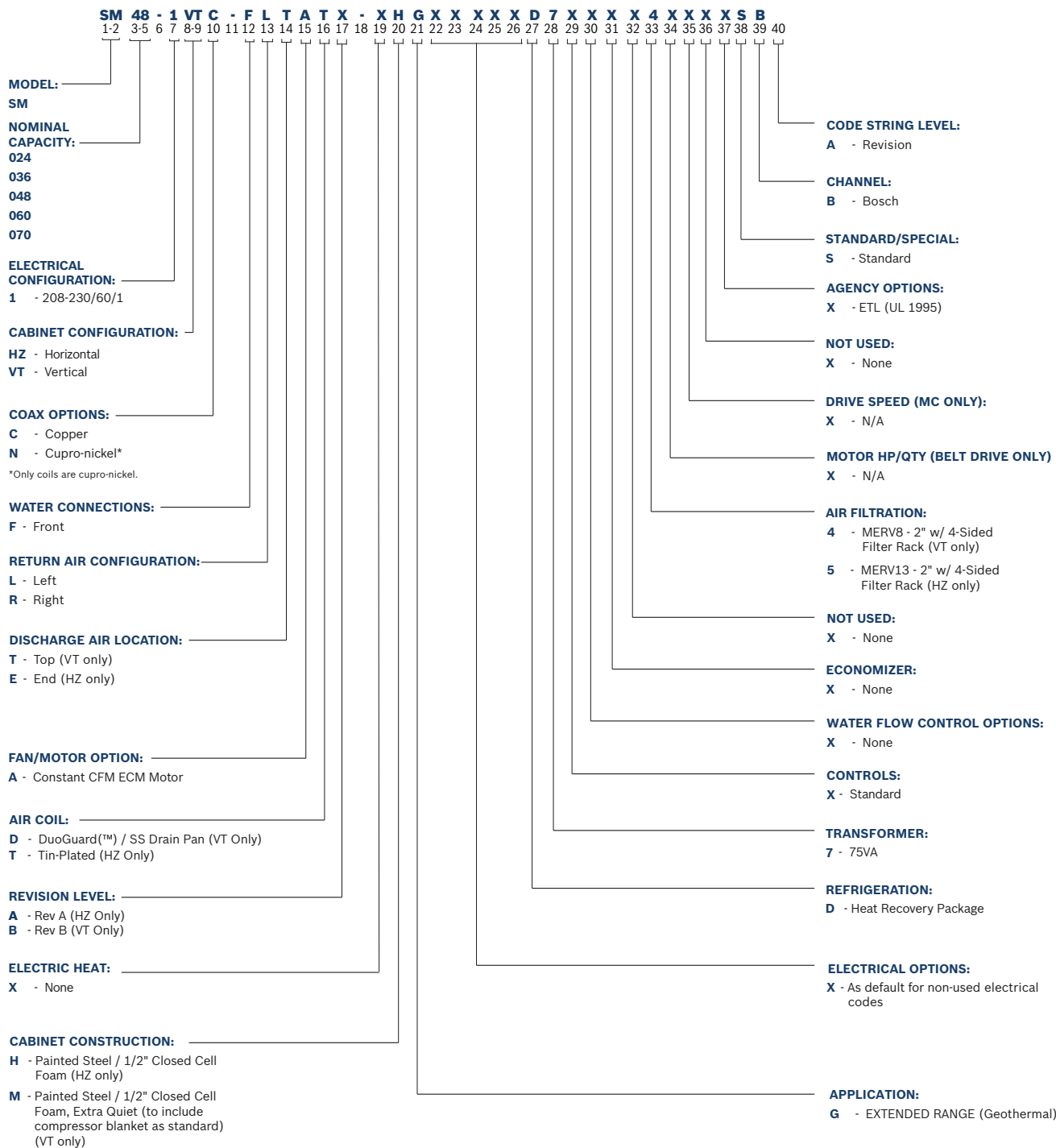
► **Flow Center Kits**

GreenSource SM Series - Residential Geothermal Heat Pumps



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Model Nomenclature



GreenSource SM Series - Residential Geothermal Heat Pumps



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Physical Data						
Description	Unit	Value				
		SM024	SM036	SM048	SM060	SM070
Compressor Type (Qty 1)	—	Scroll	Scroll	Scroll	Scroll	Scroll
Refrigeration Charge VT	Oz.	45	73	75	98	94
Refrigeration Charge HZ only	Oz.	58	85	77	100	114
Max Water Working Pressure	PSIG/kPa	450/3100	450/3100	450/3100	450/3100	450/3100
Max Water Working Pressure w/ Swivel fittings	PSIG/kPa	125/861	125/861	125/861	125/861	125/861
Fan Motor and Blower						
Fan Motor Type/Speeds	—	ECM Const Air Flow	ECM Const Air Flow	ECM Const Air Flow	ECM Const Air Flow	ECM Const Air Flow
Fan Motor (HP)	HP	0.33	0.75	0.75	1.00	1.00
Blower Wheel Size VT	Inch (Dia. x W)	9 X 7	11 X 11	11 X 11	11 X 11	11 X 11
Blower Wheel Size HZ only	Inch (Dia. x W)	10 X 8	11 X 9	11 X 9	11 X 11	11 X 11
Water Connection Size						
FPT VT (Factory brazed non-swivel type)	Inch	3/4	1.0	1.0	1.0	1.0
FPT HZ only (Factory brazed swivel)	Inch	1.0	1.0	1.0	1.0	1.0
Field installed Swivel fittings (Shipped loose with unit)	Inch	1.0	1.0	1.0	1.0	1.0
Coaxial Coil Volume VT	Gal	0.43	0.73	0.64	1.08	1.08
Coaxial Coil Volume HZ only(gal)	Gal	0.33	1.18	0.62	1.07	1.12
Vertical Cabinet						
Air Coil Dimensions (H x W)	Inch (H x W)	24 x 21	32x28.3	32x28.3	36x28.3	36x28.3
Air Coil Fin Density	Fins/Inch	14	14	14	14	14
Nominal size of Standard Filter - 2" MERV 8 (L x H)	Inch (L x H)	24 X 24	16 X 30 (2)	16 X 30 (2)	20 X 30 (2)	20 X 30 (2)
Weight - Operating (lbs)*	lbs	220	360	340	375	375
Weight - Shipping (lbs)*	lbs	300	460	450	500	500
Horizontal Cabinet						
Air Coil Dimensions (H x W)	Inch (H x W)	18 X 31.5	20 X 42	20 X 42	20 X 49	20 X 49
Air Coil Fin Density	Fins/Inch	14	14	14	14	14
Nominal size of Standard Filter - 2" MERV13 (L x H)	Inch (L x H)	18 X 18 (2)	20 X 24 (2)	20 X 24 (2)	18 X 20 (3)	18 X 20 (3)
Weight - Operating (lbs)*	lbs	260	375	355	430	460
Weight - Shipping (lbs)*	lbs	360	495	470	550	580

* This data reflects standard unit weights only. Additional options may cause differences in listed weights.

GreenSource SM Series - Residential Geothermal Heat Pumps



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ASHRAE/AHRI/ISO 13256-1. English (I-P) Units

Models	Orientation	Fluid Flow Rate	Load	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
				Cooling 86 deg.F		Heating 68 deg.F		Cooling 59 deg.F		Heating 50 deg.F		Cooling Full Load 77 °F Part Load 68 °F		Heating Full Load 32 °F Part Load 41 °F	
				Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
SM024	VT	6.0	Full	26200	16.2	30300	5.6	29400	24.9	24700	4.9	26900	18.9	18700	4.1
	VT	6.0	Part	19600	18.3	22800	6.5	22400	32.1	18200	5.2	21300	27.8	15500	4.4
	HZ	6.0	Full	25500	17.4	29200	5.6	29000	26.5	23500	4.9	26600	19.9	18000	3.8
	HZ	6.0	Part	18500	18.9	21200	6.5	21700	30.4	16700	5.1	21000	28.1	14400	4.2
SM036	VT	10.0	Full	39300	18.6	46300	6.2	44300	27.1	36700	5.4	40200	21.0	28200	4.4
	VT	10.0	Part	28900	20.4	33100	7.2	32800	35.0	26000	5.5	31600	30.0	22000	4.7
	HZ	9.0	Full	39000	18.2	42800	5.1	43300	26.8	35900	4.6	40800	20.7	28400	4.0
	HZ	9.0	Part	29000	20.8	31000	5.6	32600	34.9	25200	4.7	31900	29.2	22400	4.1
SM048	VT	12.0	Full	50500	16.7	60300	5.6	56900	25.2	49200	4.9	51800	19.3	38200	4.2
	VT	12.0	Part	37100	18.3	44200	6.2	42600	32.2	35500	5.0	40100	26.8	30600	4.5
	HZ	12.0	Full	49200	15.7	56100	5.1	55300	25.2	46300	4.6	51300	19.3	36900	3.9
	HZ	12.0	Part	36700	18.0	40900	5.7	42000	32.2	33700	4.8	39900	26.8	29800	4.4
SM060	VT	15.0	Full	62500	15.4	78300	5.4	71600	24.0	62400	4.7	63900	18.6	48600	4.0
	VT	15.0	Part	46400	17.7	57600	6.0	53500	30.6	45900	4.9	51100	25.2	39900	4.4
	HZ	15.0	Full	63800	16.1	73300	4.9	70200	24.4	60300	4.6	65100	18.9	45500	3.9
	HZ	15.0	Part	47500	18.7	53600	5.8	53300	31.2	44300	4.8	51600	26.5	37200	4.1
SM070	VT	18.0	Full	69700	14.3	88900	5.0	78900	22.1	72600	4.4	71500	17.3	56000	3.8
	VT	18.0	Part	52900	16.4	67700	5.5	61200	26.9	53800	4.6	58100	23.3	46100	4.1
	HZ	18.0	Full	71600	14.8	84000	5.0	78700	21.2	70000	4.5	73700	16.9	55300	3.8
	HZ	18.0	Part	55200	16.7	64900	5.4	60800	27.9	52900	4.7	60300	23.4	46900	4.3



Electrical Data (ECM Blower Motor)

Models	Voltage Code	Voltage/Phase/Hz	Voltage Min/Max	Compressor			Total Unit Variable Speed Constant CFM High Efficiency Motor		
				QTY	RLA	LRA	FLA	Min Circuit Amps	Max Fuse/HACR
SM024	1	208-230/1/60	197/253	1	11.7	58.3	2.8	17.4	25
SM036	1	208-230/1/60	197/253	1	15.3	83.0	6.8	25.9	40
SM048	1	208-230/1/60	197/253	1	21.2	104.0	6.8	33.3	50
SM060	1	208-230/1/60	197/253	1	27.1	152.9	9.1	43.0	70
SM070	1	208-230/1/60	197/253	1	29.7	179.2	9.1	46.2	70

i Values shown above do not include electric heat option.

i Units with Factory Installed Electric Heat option will have two separate data plates for each electrical circuit.

GreenSource SM Series - Residential Geothermal Heat Pumps



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1st Data plate for units with EH field installed kit - compressor power connection

Models	Voltage Code	Voltage/Phase/ Hz	Voltage Min/ Max	Compressor				
				QTY	RLA	LRA	Min Circuit Amps	Max Fuse/ HACR
SM024	1	208-230/1/60	197/253	1	11.7	58.3	14.6	25
SM036	1	208-230/1/60	197/253	1	15.3	83.0	19.1	30
SM048	1	208-230/1/60	197/253	1	21.2	104.0	26.5	45
SM060	1	208-230/1/60	197/253	1	27.1	152.9	33.9	60
SM070	1	208-230/1/60	197/253	1	29.7	179.2	37.1	60

2nd data plate for units with EH field installed kit - Constant Airflow ECM motor

Model	Electric Heater Rated kW	Stage	Heater Watts		Heater Amps		Motor FLA (A)	Circuit	MCA		MOCP	
			240V	208V	240V	208V		Fuses	240V	208V	240V	208V
SM024	4.8	1	4,800	3,600	20.0	17.3	2.8	-	28.5	25.1	30	30
SM036	4.8	1	4,800	3,600	20.0	17.3	6.8	-	33.5	30.1	35	35
SM036	9.6	1	9,600	7,200	40.0	34.6	6.8	-	58.5	51.8	60	60
SM048	4.8	1	4,800	3,600	20.0	17.3	6.8	-	33.5	30.1	35	35
SM048	9.6	1	9,600	7,200	40.0	34.6	6.8	-	58.5	51.8	60	60
SM048	14.4	2	14,400	10,800	60	51.9	6.8	F1/F2	83.5	73.4	90	80
								F3/F4				
SM060	4.8	1	4,800	3,600	20.0	17.3	9.1	-	36.4	33.0	40	35
SM060	9.6	1	9,600	7,200	40.0	34.6	9.1	-	61.4	54.6	70	60
SM060	14.4	2	14,400	10,800	60	51.9	9.1	F1/F2	86.4	76.3	90	80
								F3/F4				
SM060	19.2	2	19,200	14,000	80	69.2	9.1	F1/F2	111.4	97.9	125	100
								F3/F4				
SM070	4.8	1	4,800	3,600	20.0	17.3	9.1	-	36.4	33.0	40	35
SM070	9.6	1	9,600	7,200	40.0	34.6	9.1	-	61.4	54.6	70	60
SM070	14.4	2	14,400	10,800	60	51.9	9.1	F1/F2	86.4	76.3	90	80
								F3/F4				
SM070	19.2	2	19,200	14,000	80	69.2	9.1	F1/F2	111.4	97.9	125	100
								F3/F4				

GreenSource SM Series - **Residential Geothermal Heat Pumps**

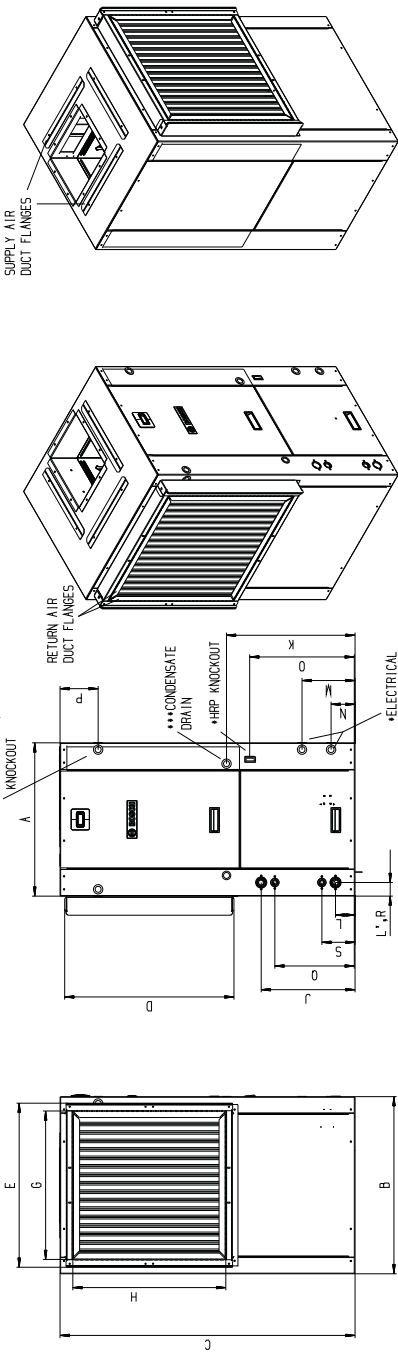


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SM-VT Dimensions and Connections

MODEL	A	B	C	D	E	F	G	H	J	K	L	L'	M	N	O	P	SUPPLY AIR DUCT OPENING							WATER CONNECTIONS		FILTER SIZE (Qty/Unit)			
	WIDTH	DEPTH	HEIGHT	HEIGHT	WIDTH	DEPTH	WIDTH	HEIGHT	WATER DRAIN OUT PORT	WATER IN	WATER IN/OUT	ELECTRICAL KNOCKOUT	HP KNOCKOUT	HP KNOCKOUT	HEATER KNOCKOUT	HP CONNECTIONS	HP CONNECTIONS	HP CONNECTIONS	HP CONNECTIONS	HP CONNECTIONS	HP CONNECTIONS	HP CONNECTIONS	HP CONNECTIONS	HP CONNECTIONS	HP CONNECTIONS	HP CONNECTIONS	HP CONNECTIONS	HP CONNECTIONS	HP CONNECTIONS
SM024-VT	22.5	26	43.3	24.4	24.1	2.8	21.8	22.5	13.8	18.9	2.9	2	7.8	3.5	15.5	5.6	11.8	2	4.9	6.1	6.1	13.7	13.7	1.4	3.1	15.6	13.1	3/4" F.P.T.	24x24x2(1)
SM036-VT	24.5	33.3	54	32.4	30.6	2.8	28.3	30.4	16.5	25.9	2.9	2	7.8	3.5	15.5	5.6	13.5	2	5.9	8.1	7.8	17.8	1.4	4	17.6	15.6	1" F.P.T.	16x30x2(2)	
SM048-VT	24.5	33.3	54	32.4	30.6	2.8	28.3	30.4	16.5	25.9	2.9	2	7.8	3.5	15.5	5.6	13.5	2	5.9	8.1	7.8	17.8	1.4	4	17.6	15.6	1" F.P.T.	16x30x2(2)	
SM060-VT	26	33.3	60.1	40.8	30.6	2.8	28.4	36.9	15.3	23.9	2.9	2	7.8	3.5	15.5	5.6	12.3	2	5.9	8.1	7.8	17.8	2	5.4	17.6	15.6	1" F.P.T.	20x30x2(2)	
SM070-VT	26	33.3	60.1	40.8	30.6	2.8	28.4	36.9	15.3	23.9	2.9	2	7.8	3.5	15.5	5.6	12.3	2	5.9	8.1	7.8	17.8	2	5.4	17.6	15.6	1" F.P.T.	20x30x2(2)	

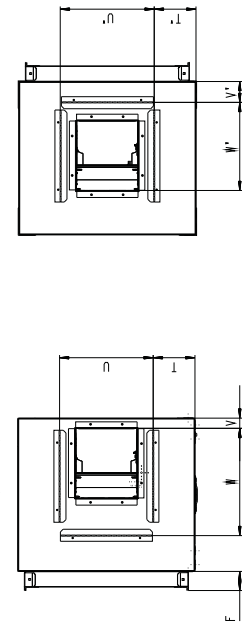
(FIELD INSTALLED
ELECTRIC HEAT KIT)



LEFT HAND RETURN SHOWN

RIGHT HAND RETURN

LEFT HAND RETURN



- NOTES:
- HRP & ELECTRICAL HEAT ARE OPTIONAL FEATURES
 - HRP WATER CONNECTIONS - 1/2" FPT
 - CONDENSATE DRAIN CONNECTION - 3/4" FPT
 - ALL DIMENSIONS WITHIN +/- 0.125"
 - RETURN & SUPPLY AIR DUCT FLANGES SHIPPED UNFOLDED
 - ALL DIMENSIONS ARE IN INCHES
 - SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE
 - SWIVEL TYPE WATER FITTINGS PROVIDES 1.5" FROM PANEL
 - UNIT SHIPPED WITH SWIVEL FITTING 1.00" FPT FOR FIELD INSTALLATION

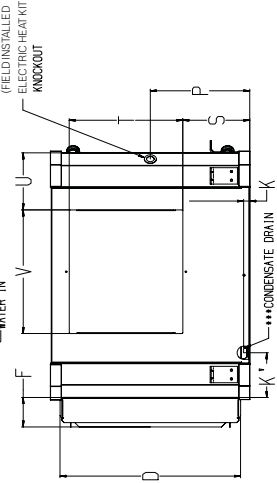
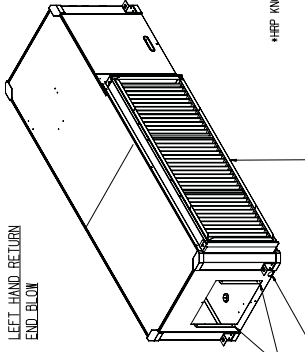
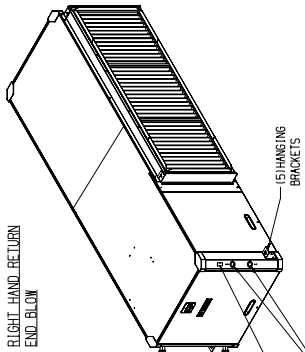
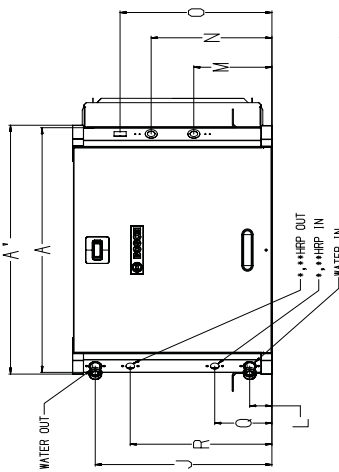
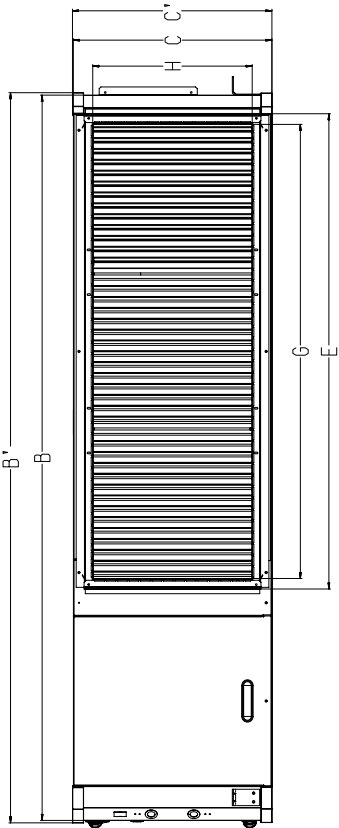
GreenSource SM Series - Residential Geothermal Heat Pumps



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SM-HZ End Blow Dimensions and Connections

Model	A (A")	B (B")	C (C")	D	E	F	G	H	J	K	L	M	N	O	P	R	S (RH)	T (LH)	U (RH)	V (LH)	WATER CONNECTIONS (S/WEL TYPE)	FILTER SIZE
SM024-HZ 25.1 (25.5)	64.1 (64.5)	19.7 (19.82)	18.7 (18.82)	34.0	16.2	17.2	1.3	5.1	2.5	8.9	13.8	17.4	11.4	6.5	16.2	7.5	2.0	11.7	9.0	7.7	13.0	1" F.P.T., 18X18X2 (2)
SM036-HZ 28.0 (28.4)	76.0 (76.4)	22.7 (22.82)	20.7 (20.82)	46.0	18.2	20.2	1.3	5.1	2.5	8.9	13.8	17.4	11.4	6.5	16.2	7.5	2.0	11.7	9.0	7.7	13.0	1" F.P.T., 20X24X2 (2)
SM048-HZ 28.0 (28.4)	76.0 (76.4)	22.7 (22.82)	20.7 (20.82)	46.0	18.2	20.2	1.3	5.1	2.5	8.9	13.8	17.4	11.4	6.5	16.2	7.5	2.0	11.7	9.0	7.7	13.0	1" F.P.T., 20X24X2 (2)
SM060-HZ 28.0 (28.4)	83.0 (83.4)	22.7 (22.82)	20.7 (20.82)	52.0	18.3	20.2	1.3	5.1	2.5	8.9	13.8	17.4	11.4	6.5	16.2	7.5	2.0	14.2	6.5	6.5	13.0	1" F.P.T., 18X20X2 (3)
SM070-HZ 28.0 (28.4)	83.0 (83.4)	22.7 (22.82)	20.7 (20.82)	52.0	18.3	20.2	1.3	5.1	2.5	8.9	13.8	17.4	11.4	6.5	16.2	7.5	2.0	14.2	6.5	6.5	13.0	1" F.P.T., 18X20X2 (3)



NOTES

- HRP AND ELECTRIC HEAT ARE OPTIONAL FEATURES
- HRP WATER CONNECTIONS - 1/2" FPT
- ALL DIMENSIONS WITHIN 1/8" UNLESS OTHERWISE SPECIFIED
- RETURN AIR & SUPPLY AIR DUCT FLANGES SHIPPED UNTOOLED
- ALL DIMENSIONS ARE IN INCHES
- (A), (B), (C) = MEASUREMENT WITH PLASTIC CAPS ATTACHED
- (A'), (B'), (C') = MEASUREMENT WITH PLASTIC CAPS REMOVED
- AND 0.5" TO THE HEIGHT FOR BASE SUPPORT RAILS (NOT SHOWN)
- EXTERNALLY MOUNTED FEATURES, OPTIONS AND ACCESSORIES MAY ALTER SHOWN DIMENSIONS
- PLEASE CONTACT CUSTOMER SERVICE FOR FURTHER INFORMATION
- SHIP THE WATER FITTING PROTRUSING 1.5" FROM POST

SUPPLY AIR CONFIGURATION: END BLOW

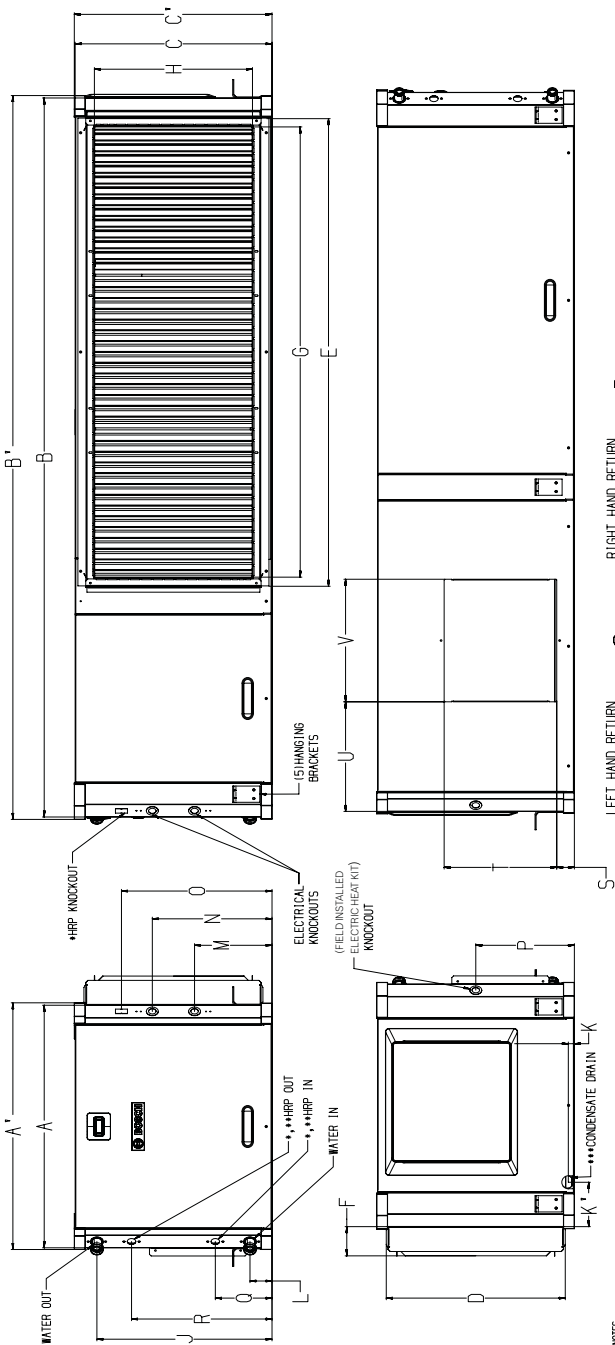
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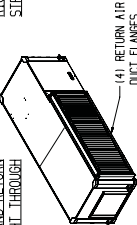
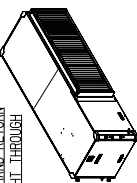
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SM-HZ Straight Through Dimensions and Connections

Model	A (A")	B (B")	C (C")	D	E	F	G	H	J	K	K"	L	M	N	O	P	Q	R	S (RH) S' (LH)	T	U (RH) U' (LH)	V	WATER CONNECTIONS (S/M VEL TYPE)	FILTER SIZE	
SM024-HZ	25.1 (25.5)	64.1 (64.5)	19.7 (19.82)	18.7 (36.4)	3.4	34.0	16.2	17.2	1.3	5.1	2.5	7.4	12.3	15.9	9.9	6.5	13.2	2.0	6.5	10.0	11.8	11.8	10.8	1" F.P.T.	18X18X2 (2)
SM036-HZ	28.0 (28.4)	76.0 (76.4)	22.7 (22.82)	20.7 (46.0)	3.4	46.0	18.2	20.2	1.3	5.1	2.5	8.9	13.8	17.4	11.4	6.5	16.2	2.0	7.5	11.7	12.9	12.9	13.0	1" F.P.T.	20X24X2 (2)
SM048-HZ	28.0 (28.4)	76.0 (76.4)	22.7 (22.82)	20.7 (46.0)	3.4	46.0	18.2	20.2	1.3	5.1	2.5	8.9	13.8	17.4	11.4	6.5	16.2	2.0	7.5	11.7	12.9	12.9	13.0	1" F.P.T.	20X24X2 (2)
SM060-HZ	28.0 (28.4)	83.0 (83.4)	22.7 (22.82)	20.7 (54.4)	3.4	52.0	18.3	20.2	1.3	5.1	2.5	8.9	13.8	17.4	11.4	6.5	16.2	2.0	7.5	14.2	15.1	15.1	13.0	1" F.P.T.	18X20X2 (3)
SM070-HZ	28.0 (28.4)	83.0 (83.4)	22.7 (22.82)	20.7 (54.4)	3.4	52.0	18.3	20.2	1.3	5.1	2.5	8.9	13.8	17.4	11.4	6.5	16.2	2.0	7.5	14.2	15.1	15.1	13.0	1" F.P.T.	18X20X2 (3)



SUPPLY AIR CONFIGURATION:
STRAIGHT THROUGH

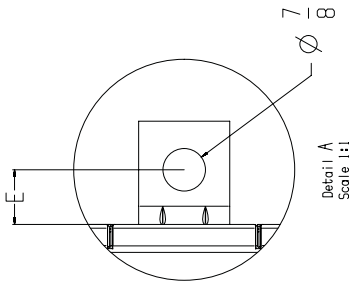


- NOTES**
- HRP AND ELECTRIC HEAT ARE OPTIONAL FEATURES
 - HRP WATER CONNECTIONS - 1/2" PPT
 - CONDENSATE DRAIN CONNECTION - 3/4" PPT
 - RETURN AIR DUCT FLANGES ARE SHIPPED UNFOLD
 - RETURN AIR & SUPPLY AIR DUCT FLANGES SHIPPED UNFOLD
 - ALL DIMENSIONS ARE IN INCHES
 - SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE
 - DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED
 - ADD 0.5" TO THE HEIGHT FOR BASE SUPPORT RAILS (NOT SHOWN)
 - UNITS CAN BE FIELD CONVERTED BETWEEN END BLOW AND STRAIGHT THROUGH SUPPLY
 - AIR CONFIGURATION FEATURES, OPTIONS AND ACCESSORIES MAY ALTER SHOWN DIMENSIONS
 - PLEASE CONTACT CUSTOMER SERVICE FOR FURTHER INFORMATION
 - SN/VEL TYPE WATER FITTING PROVIDES 1.5" FROM POST



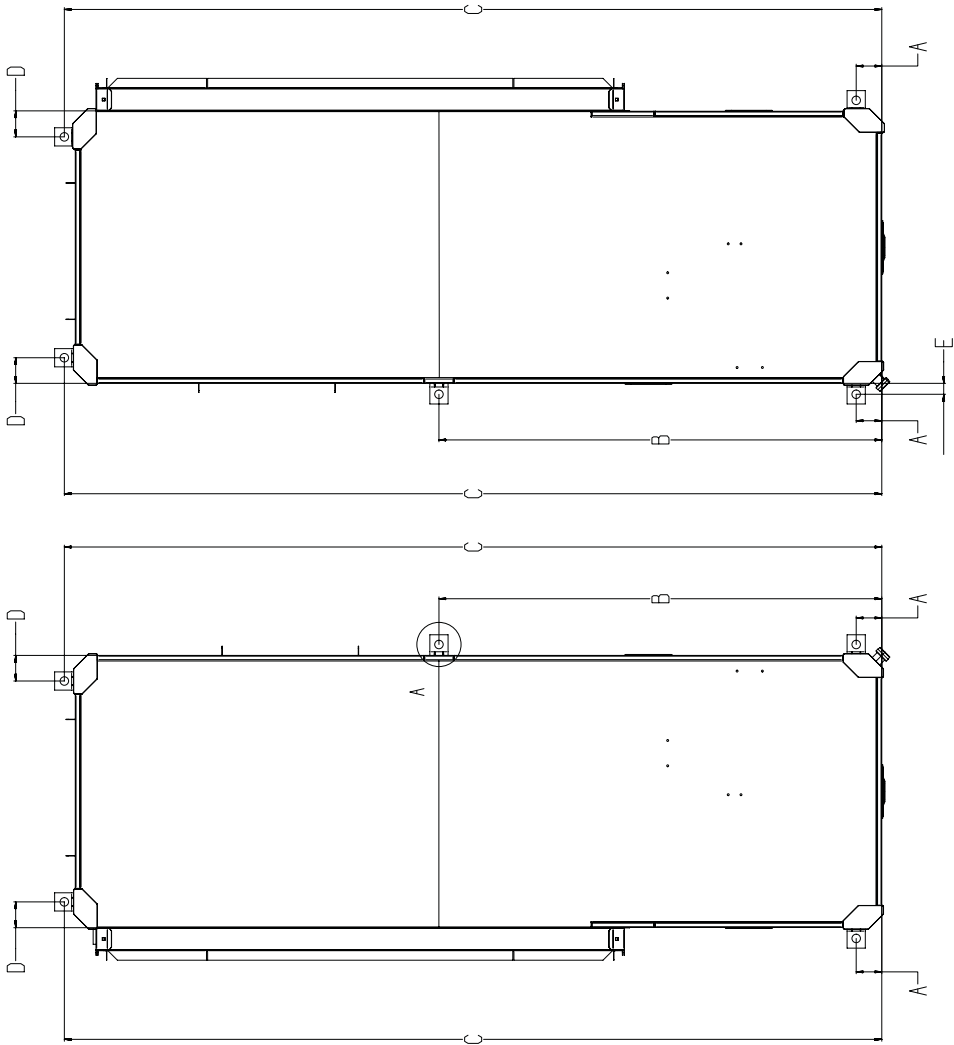
SM-HZ Hanging Bracket Dimensions and Connections

Model	A	B	C	D	E
SM024-HZ	2.634	32.817	65.225	2.634	1.125
SM036-HZ	2.634	33.972	77.125	2.634	1.125
SM048-HZ	2.634	33.972	77.125	2.634	1.125
SM060-HZ	2.634	45.573	84.125	2.634	1.125
SM070-HZ	2.634	45.573	84.125	2.634	1.125



NOTES
 -ALL DIMENSIONS WITHIN +/- 0.125"
 -ALL DIMENSIONS ARE IN INCHES
 -SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE
 -DIMENSION "E" IS TYPICAL FOR ALL MODELS,
 CONFIGURATION AND BRACKET POSITIONS

HANGING BRACKET LOCATION SPECIFICATIONS



GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM024 Full Load Cooling Performance Data - 900 SCFM 254 Fan Watts .6 ESP									
Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB / °F WB	Total KBtu/hr.	Latent Capacity Kbtu/hr	SHR	Power kW	EER
20	3.0	2.4	1.0	Operation Not Recommended					
	5.0	5.9	2.5						
	7.0	10.6	4.5						
30	3.0	2.4	1.0						
	5.0	5.7	2.4						
	7.0	10.4	4.4						
40	3.0	2.1	0.9	75/63	28.6	19.2	0.67	1.3	21.5
				80.6/66.2	30.3	23.3	0.77	1.3	22.6
				85/71	35.0	21.4	0.61	1.4	25.6
	5.0	5.4	2.3	75/63	29.9	19.6	0.66	1.2	25.1
				80.6/66.2	31.7	23.9	0.75	1.2	26.4
				85/71	36.7	21.9	0.60	1.2	29.8
	7.0	10.1	4.3	75/63	30.5	19.8	0.65	1.1	27.2
				80.6/66.2	32.3	24.1	0.75	1.1	28.5
				85/71	37.4	22.2	0.59	1.2	32.3
50	3.0	2.1	0.9	75/63	27.4	18.8	0.69	1.1	24.4
				80.6/66.2	29.0	22.9	0.79	1.1	25.6
				85/71	33.5	21.0	0.63	1.2	28.9
	5.0	5.4	2.3	75/63	28.7	19.2	0.67	1.4	19.8
				80.6/66.2	30.4	23.3	0.77	1.5	20.8
				85/71	35.1	21.4	0.61	1.5	23.5
	7.0	9.9	4.2	75/63	29.3	19.4	0.66	1.3	22.1
				80.6/66.2	31.0	23.6	0.76	1.3	23.2
				85/71	35.9	21.7	0.60	1.4	26.3
60	3.0	2.1	0.9	75/63	26.1	18.5	0.71	1.3	20.7
				80.6/66.2	27.7	22.4	0.81	1.3	21.7
				85/71	32.0	20.6	0.64	1.3	24.6
	5.0	5.2	2.2	75/63	26.1	18.4	0.71	1.7	15.3
				80.6/66.2	27.6	22.4	0.81	1.7	16.0
				85/71	32.0	20.6	0.64	1.8	18.1
	7.0	9.4	4.0	75/63	26.6	18.6	0.70	1.6	16.9
				80.6/66.2	28.2	22.6	0.80	1.6	17.7
				85/71	32.6	20.8	0.64	1.6	20.0
70	3.0	2.1	0.9	75/63	24.9	18.0	0.72	1.7	14.6
				80.6/66.2	26.4	21.9	0.83	1.7	15.3
				85/71	30.5	20.1	0.66	1.8	17.3
	5.0	5.2	2.2	75/63	26.1	18.4	0.71	1.6	16.5
				80.6/66.2	27.6	22.4	0.81	1.6	17.4
				85/71	32.0	20.6	0.64	1.6	19.6
	7.0	9.4	4.0	75/63	26.6	18.6	0.70	1.5	17.5
				80.6/66.2	28.2	22.6	0.80	1.5	18.4
				85/71	32.6	20.8	0.64	1.6	20.8
80	3.0	2.1	0.9	75/63	23.7	17.5	0.74	1.5	15.6
				80.6/66.2	25.1	21.3	0.85	1.5	16.3
				85/71	29.0	19.6	0.67	1.6	18.5
	5.0	5.2	2.2	75/63	24.8	18.0	0.72	1.9	13.3
				80.6/66.2	26.3	21.9	0.83	1.9	14.0
				85/71	30.4	20.1	0.66	1.9	15.8
	7.0	9.4	4.0	75/63	25.3	18.2	0.72	1.7	14.7
				80.6/66.2	26.8	22.1	0.82	1.7	15.4
				85/71	31.0	20.3	0.65	1.8	17.5
90	3.0	2.1	0.9	75/63	22.5	17.1	0.76	1.7	13.5
				80.6/66.2	23.8	20.7	0.87	1.7	14.2
				85/71	27.5	19.1	0.69	1.7	16.0
	5.0	4.9	2.1	75/63	23.5	17.5	0.75	2.0	11.5
				80.6/66.2	24.9	21.3	0.86	2.1	12.1
				85/71	28.8	19.6	0.68	2.1	13.7
	7.0	9.2	3.9	75/63	24.0	17.7	0.74	1.9	12.7
				80.6/66.2	25.4	21.5	0.85	1.9	13.4
				85/71	29.4	19.8	0.67	1.9	15.1
100	3.0	1.9	0.8	75/63	21.2	16.8	0.79	1.8	11.6
				80.6/66.2	22.4	20.4	0.91	1.8	12.2
				85/71	25.9	18.7	0.72	1.9	13.8
	5.0	4.9	2.1	75/63	22.2	17.1	0.77	2.2	10.0
				80.6/66.2	23.5	20.8	0.88	2.2	10.4
				85/71	27.1	19.1	0.70	2.3	11.8
	7.0	9.0	3.8	75/63	22.6	17.1	0.76	2.1	10.9
				80.6/66.2	24.0	20.8	0.87	2.1	11.5
				85/71	27.7	19.1	0.69	2.1	13.0
110	3.0	1.9	0.8	75/63	20.0	16.3	0.82	2.0	10.0
				80.6/66.2	21.2	19.8	0.94	2.0	10.5
				85/71	24.5	18.2	0.74	2.1	11.8
	5.0	4.7	2.0	75/63	20.9	16.7	0.80	2.5	8.5
				80.6/66.2	22.1	20.3	0.92	2.5	8.9
				85/71	25.5	18.6	0.73	2.5	10.1
	7.0	8.7	3.7	75/63	21.3	16.7	0.78	2.3	9.3
				80.6/66.2	22.5	20.3	0.90	2.3	9.8
				85/71	26.1	18.7	0.72	2.4	11.1

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM024 Full Load Heating Performance Data - 900 SCFM 254 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB	Total KBtu/hr.	Heat of Absp kBtu/hr	Power kW	COP
20	3.0	2.4	1.0	60	15.6	10.1	1.40	3.3
				68	15.9	10.8	1.49	3.1
				80	16.2	11.3	1.55	3.0
	5.0	5.9	2.5	60	16.5	10.7	1.41	3.4
				68	16.8	11.4	1.51	3.3
				80	17.0	11.9	1.57	3.2
	7.0	10.6	4.5	60	16.9	11.0	1.42	3.5
				68	17.2	11.7	1.52	3.3
				80	17.4	12.2	1.58	3.2
30	3.0	2.4	1.0	60	17.8	11.8	1.44	3.6
				68	18.1	12.6	1.54	3.5
				80	18.4	13.1	1.60	3.4
	5.0	5.7	2.4	60	18.8	12.6	1.45	3.8
				68	19.2	13.5	1.56	3.6
				80	19.5	14.1	1.62	3.5
	7.0	10.4	4.4	60	19.3	13.1	1.46	3.9
				68	19.7	14.0	1.57	3.7
				80	20.0	14.5	1.63	3.6
40	3.0	2.1	0.9	60	20.1	13.7	1.48	4.0
				68	20.5	14.7	1.58	3.8
				80	20.8	15.3	1.65	3.7
	5.0	5.4	2.3	60	21.4	14.8	1.51	4.2
				68	21.8	15.9	1.61	4.0
				80	22.1	16.5	1.68	3.9
	7.0	10.1	4.3	60	22.1	15.4	1.52	4.3
				68	22.4	16.4	1.62	4.0
				80	22.8	17.1	1.69	3.9
50	3.0	2.1	0.9	60	22.6	15.8	1.53	4.3
				68	22.9	16.9	1.63	4.1
				80	23.3	17.6	1.70	4.0
	5.0	5.4	2.3	60	24.2	17.3	1.56	4.5
				68	24.6	18.5	1.67	4.3
				80	25.0	19.2	1.74	4.2
	7.0	9.9	4.2	60	25.0	17.9	1.58	4.6
				68	25.4	19.1	1.69	4.4
				80	25.8	19.9	1.76	4.3
60	3.0	2.1	0.9	60	25.2	18.1	1.58	4.7
				68	25.6	19.4	1.69	4.4
				80	26.1	20.1	1.76	4.3
	5.0	5.2	2.2	60	27.0	19.6	1.62	4.9
				68	27.5	21.0	1.73	4.7
				80	27.9	21.8	1.80	4.5
	7.0	9.4	4.0	60	28.1	20.5	1.64	5.0
				68	28.5	21.9	1.75	4.8
				80	29.0	22.8	1.82	4.7
70	3.0	2.1	0.9	60	27.9	20.4	1.64	5.0
				68	28.4	21.9	1.75	4.8
				80	28.9	22.7	1.82	4.6
	5.0	5.2	2.2	60	30.1	22.3	1.67	5.3
				68	30.7	23.9	1.78	5.0
				80	31.1	24.8	1.86	4.9
	7.0	9.4	4.0	60	31.4	23.5	1.69	5.5
				68	31.9	25.2	1.80	5.2
				80	32.4	26.2	1.88	5.1
80	3.0	2.1	0.9	60	30.8	23.0	1.68	5.4
				68	31.4	24.6	1.79	5.1
				80	31.9	25.6	1.87	5.0
	5.0	5.2	2.2	60	33.3	25.2	1.72	5.7
				68	33.9	26.9	1.84	5.4
				80	34.4	28.0	1.91	5.3
	7.0	9.4	4.0	60	34.6	26.2	1.74	5.8
				68	35.2	28.1	1.86	5.5
				80	35.7	29.2	1.94	5.4
90	3.0	2.1	0.9	Operation Not Recommended				
	5.0	4.9	2.1					
	7.0	9.2	3.9					
100	3.0	1.9	0.8					
	5.0	4.9	2.1					
	7.0	9.0	3.8					
110	3.0	1.9	0.8					
	5.0	4.7	2.0					
	7.0	8.7	3.7					

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM024 Partial Load Cooling Performance Data - 800 SCFM 197 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB / °F WB	Total Kbtu/hr.	Latent Capacity Kbtu/hr	SHR	Power kW	EER
20	3.0	2.4	1.0	Operation Not Recommended					
	5.0	5.7	2.4						
	7.0	10.4	4.4						
30	3.0	2.1	0.9						
	5.0	5.7	2.4						
	7.0	10.1	4.3						
40	3.0	2.1	0.9	75/63	22.3	16.1	0.72	0.8	27.4
				80.6/66.2	23.6	19.5	0.83	0.8	28.7
				85/71	27.3	17.9	0.66	0.8	32.5
	5.0	5.4	2.3	75/63	23.2	16.4	0.71	0.8	30.8
				80.6/66.2	24.5	19.9	0.81	0.8	32.3
				85/71	28.4	18.3	0.64	0.8	36.5
	7.0	9.9	4.2	75/63	23.6	16.5	0.70	0.7	32.3
				80.6/66.2	25.0	20.1	0.80	0.7	33.9
				85/71	28.9	18.4	0.64	0.8	38.4
50	3.0	2.1	0.9	75/63	21.3	15.7	0.74	0.9	23.6
				80.6/66.2	22.5	19.0	0.84	0.9	24.8
				85/71	26.1	17.5	0.67	0.9	28.1
	5.0	5.4	2.3	75/63	22.1	16.0	0.72	0.8	26.7
				80.6/66.2	23.4	19.4	0.83	0.8	28.0
				85/71	27.1	17.8	0.66	0.9	31.7
	7.0	9.7	4.1	75/63	22.5	16.1	0.72	0.8	28.1
				80.6/66.2	23.8	19.6	0.82	0.8	29.5
				85/71	27.5	18.0	0.65	0.8	33.4
60	3.0	2.1	0.9	75/63	20.5	15.5	0.76	1.0	20.4
				80.6/66.2	21.7	18.8	0.87	1.0	21.4
				85/71	25.1	17.3	0.69	1.0	24.2
	5.0	5.2	2.2	75/63	21.3	15.7	0.74	0.9	23.2
				80.6/66.2	22.6	19.1	0.85	0.9	24.3
				85/71	26.1	17.5	0.67	0.9	27.5
	7.0	9.4	4.0	75/63	21.4	15.7	0.73	0.9	24.1
				80.6/66.2	22.7	19.1	0.84	0.9	25.2
				85/71	26.2	17.5	0.67	0.9	28.6
70	3.0	2.1	0.9	75/63	19.4	15.1	0.78	1.1	17.2
				80.6/66.2	20.5	18.4	0.90	1.1	18.1
				85/71	23.7	16.9	0.71	1.2	20.5
	5.0	5.2	2.2	75/63	20.2	15.4	0.76	1.0	19.5
				80.6/66.2	21.4	18.7	0.87	1.0	20.5
				85/71	24.7	17.2	0.70	1.1	23.2
	7.0	9.4	4.0	75/63	20.5	15.5	0.75	1.0	20.6
				80.6/66.2	21.8	18.8	0.87	1.0	21.7
				85/71	25.2	17.3	0.69	1.0	24.5
80	3.0	2.1	0.9	75/63	19.4	15.1	0.78	1.1	17.2
				80.6/66.2	20.5	18.4	0.90	1.1	18.1
				85/71	23.7	16.9	0.71	1.2	20.5
	5.0	4.9	2.1	75/63	20.2	15.4	0.76	1.0	19.5
				80.6/66.2	21.4	18.7	0.87	1.0	20.5
				85/71	24.7	17.2	0.70	1.1	23.2
	7.0	9.2	3.9	75/63	20.5	15.5	0.75	1.0	20.6
				80.6/66.2	21.8	18.8	0.87	1.0	21.7
				85/71	25.2	17.3	0.69	1.0	24.5
90	3.0	1.9	0.8	75/63	18.3	14.7	0.80	1.3	14.5
				80.6/66.2	19.4	17.9	0.92	1.3	15.2
				85/71	22.4	16.4	0.73	1.3	17.2
	5.0	4.9	2.1	75/63	19.0	15.0	0.79	1.2	16.4
				80.6/66.2	20.1	18.2	0.90	1.2	17.2
				85/71	23.3	16.7	0.72	1.2	19.4
	7.0	9.0	3.8	75/63	19.4	15.1	0.78	1.1	17.3
				80.6/66.2	20.5	18.4	0.90	1.1	18.1
				85/71	23.7	16.9	0.71	1.2	20.5
100	3.0	1.9	0.8	75/63	17.2	14.3	0.83	1.4	12.1
				80.6/66.2	18.2	17.4	0.96	1.4	12.7
				85/71	21.0	16.0	0.76	1.5	14.4
	5.0	4.7	2.0	75/63	17.9	14.6	0.81	1.3	13.6
				80.6/66.2	18.9	17.7	0.93	1.3	14.3
				85/71	21.9	16.3	0.74	1.4	16.2
	7.0	8.7	3.7	75/63	18.2	14.7	0.81	1.3	14.3
				80.6/66.2	19.3	17.8	0.93	1.3	15.1
				85/71	22.3	16.4	0.74	1.3	17.0
110	3.0	9.2	3.9	75/63	16.1	13.7	0.85	1.6	10.1
				80.6/66.2	17.1	16.6	0.97	1.6	10.6
				85/71	19.7	15.3	0.77	1.6	12.0
	5.0	9.7	4.1	75/63	16.7	14.1	0.84	1.5	11.3
				80.6/66.2	17.7	17.2	0.97	1.5	11.8
				85/71	20.5	15.8	0.77	1.5	13.4
	7.0	9.7	4.1	75/63	17.0	14.3	0.84	1.4	11.8
				80.6/66.2	18.0	17.3	0.96	1.5	12.4
				85/71	20.8	15.9	0.76	1.5	14.1

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM024 Partial Load Heating Performance Data - 800 SCFM 197 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB	Total KBtu/hr.	Heat of Absp kBtu/hr	Power kW	COP
20	3.0	2.4	1.0	60	11.3	7.1	1.09	3.0
				68	11.5	7.6	1.17	2.9
				80	11.7	7.9	1.22	2.8
	5.0	5.7	2.4	60	11.9	7.5	1.10	3.2
				68	12.1	8.1	1.18	3.0
				80	12.3	8.4	1.22	2.9
	7.0	10.4	4.4	60	12.2	7.8	1.10	3.2
				68	12.4	8.3	1.18	3.1
				80	12.6	8.6	1.23	3.0
30	3.0	2.1	0.9	60	13.3	8.8	1.11	3.5
				68	13.5	9.4	1.19	3.3
				80	13.7	9.8	1.24	3.2
	5.0	5.7	2.4	60	14.0	9.4	1.12	3.7
				68	14.2	10.1	1.20	3.5
				80	14.4	10.5	1.25	3.4
	7.0	10.1	4.3	60	14.3	9.7	1.12	3.7
				68	14.5	10.4	1.20	3.5
				80	14.8	10.8	1.25	3.5
40	3.0	2.1	0.9	60	15.3	10.7	1.13	4.0
				68	15.6	11.4	1.21	3.8
				80	15.9	11.9	1.26	3.7
	5.0	5.4	2.3	60	16.3	11.4	1.13	4.2
				68	16.5	12.2	1.21	4.0
				80	16.8	12.6	1.26	3.9
	7.0	9.9	4.2	60	16.7	11.7	1.14	4.3
				68	17.0	12.6	1.22	4.1
				80	17.2	13.1	1.27	4.0
50	3.0	2.1	0.9	60	17.5	12.6	1.14	4.5
				68	17.8	13.4	1.22	4.3
				80	18.0	14.0	1.27	4.2
	5.0	5.4	2.3	60	18.5	13.5	1.15	4.7
				68	18.8	14.4	1.23	4.5
				80	19.1	15.0	1.28	4.4
	7.0	9.7	4.1	60	19.1	13.9	1.15	4.9
				68	19.4	14.9	1.23	4.6
				80	19.7	15.5	1.28	4.5
60	3.0	2.1	0.9	60	19.7	14.6	1.15	5.0
				68	20.0	15.6	1.23	4.8
				80	20.3	16.2	1.28	4.7
	5.0	5.2	2.2	60	20.9	15.7	1.15	5.3
				68	21.3	16.8	1.23	5.1
				80	21.6	17.5	1.28	4.9
	7.0	9.4	4.0	60	21.6	16.2	1.15	5.5
				68	21.9	17.3	1.23	5.2
				80	22.3	18.0	1.28	5.1
70	3.0	2.1	0.9	60	21.9	16.6	1.15	5.6
				68	22.3	17.8	1.23	5.3
				80	22.6	18.5	1.29	5.2
	5.0	5.2	2.2	60	23.3	17.9	1.16	5.9
				68	23.7	19.2	1.24	5.6
				80	24.1	20.0	1.29	5.5
	7.0	9.4	4.0	60	24.1	18.5	1.16	6.1
				68	24.5	19.8	1.24	5.8
				80	24.9	20.6	1.29	5.7
80	3.0	2.1	0.9	60	24.2	18.7	1.16	6.1
				68	24.6	20.0	1.24	5.8
				80	25.0	20.8	1.29	5.7
	5.0	4.9	2.1	60	25.8	20.2	1.16	6.5
				68	26.3	21.6	1.24	6.2
				80	26.7	22.5	1.29	6.1
	7.0	9.2	3.9	60	26.7	20.9	1.16	6.8
				68	27.2	22.3	1.24	6.4
				80	27.6	23.2	1.29	6.3
90	3.0	1.9	0.8	Operation Not Recommended				
	5.0	4.9	2.1					
	7.0	9.0	3.8					
100	3.0	1.9	0.8					
	5.0	4.7	2.0					
	7.0	8.7	3.7					
110	3.0	9.2	3.9					
	5.0	9.7	4.1					
	7.0	9.7	4.1					

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Greensource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM036 Full Load Cooling Performance Data - 1350 SCFM 311 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB / °F WB	Total KBtu/hr.	Latent Capacity Kbtu/hr	SHR	Power kW	EER
20	5.0	8.7	3.7	Operation Not Recommended					
	7.5	9.0	3.8						
	10.0	9.2	3.9						
30	5.0	2.8	1.2						
	7.5	5.9	2.5						
	10.0	9.7	4.1						
40	5.0	2.8	1.2	75/63	44.4	29.5	0.66	1.9	23.9
				80.6/66.2	47.0	35.8	0.76	1.9	25.0
				85/71	54.4	32.9	0.61	1.9	28.3
	7.5	5.7	2.4	75/63	45.9	30.0	0.65	1.8	25.7
				80.6/66.2	48.6	36.5	0.75	1.8	26.9
				85/71	56.2	33.5	0.60	1.8	30.5
	10.0	9.7	4.1	75/63	46.7	30.2	0.65	1.8	26.6
				80.6/66.2	49.5	36.7	0.74	1.8	27.9
				85/71	57.2	33.7	0.59	1.8	31.6
50	5.0	2.8	1.2	75/63	42.5	28.8	0.68	1.8	24.2
				80.6/66.2	45.0	35.0	0.78	1.8	25.4
				85/71	52.0	32.2	0.62	1.8	28.7
	7.5	5.7	2.4	75/63	44.0	29.2	0.66	2.0	22.3
				80.6/66.2	46.6	35.5	0.76	2.0	23.4
				85/71	53.9	32.6	0.60	2.0	26.4
	10.0	9.4	4.0	75/63	44.7	29.6	0.66	1.9	23.7
				80.6/66.2	47.4	35.9	0.76	1.9	24.9
				85/71	54.8	33.0	0.60	1.9	28.2
60	5.0	2.6	1.1	75/63	40.5	28.1	0.69	1.8	22.0
				80.6/66.2	42.9	34.2	0.80	1.9	23.1
				85/71	49.6	31.4	0.63	1.9	26.1
	7.5	5.4	2.3	75/63	42.1	28.5	0.68	2.1	19.8
				80.6/66.2	44.5	34.6	0.78	2.1	20.8
				85/71	51.5	31.8	0.62	2.2	23.5
	10.0	9.2	3.9	75/63	42.7	28.9	0.67	2.0	21.2
				80.6/66.2	45.3	35.1	0.77	2.0	22.3
				85/71	52.3	32.2	0.62	2.1	25.2
70	5.0	2.6	1.1	75/63	37.7	28.4	0.75	2.0	19.2
				80.6/66.2	39.9	34.5	0.87	2.0	20.2
				85/71	46.1	31.7	0.69	2.0	22.8
	7.5	5.4	2.3	75/63	39.9	28.0	0.70	2.3	17.4
				80.6/66.2	42.2	34.0	0.81	2.3	18.3
				85/71	48.8	31.2	0.64	2.4	20.7
	10.0	9.0	3.8	75/63	40.7	28.1	0.69	2.2	18.7
				80.6/66.2	43.1	34.2	0.79	2.2	19.7
				85/71	49.8	31.4	0.63	2.2	22.2
80	5.0	2.6	1.1	75/63	36.0	27.4	0.76	2.1	17.1
				80.6/66.2	38.2	33.2	0.87	2.1	17.9
				85/71	44.1	30.6	0.69	2.2	20.3
	7.5	5.2	2.2	75/63	38.6	26.1	0.68	2.5	15.4
				80.6/66.2	40.8	31.7	0.78	2.5	16.1
				85/71	47.2	29.1	0.62	2.6	18.3
	10.0	8.7	3.7	75/63	38.0	28.1	0.74	2.4	16.0
				80.6/66.2	40.3	34.1	0.85	2.4	16.8
				85/71	46.6	31.3	0.67	2.4	19.0
90	5.0	2.6	1.1	75/63	34.3	26.2	0.77	2.3	14.9
				80.6/66.2	36.3	31.9	0.88	2.3	15.7
				85/71	41.9	29.3	0.70	2.4	17.7
	7.5	5.2	2.2	75/63	36.4	25.5	0.70	2.8	13.2
				80.6/66.2	38.5	31.0	0.80	2.8	13.9
				85/71	44.5	28.5	0.64	2.8	15.7
	10.0	8.7	3.7	75/63	36.0	27.2	0.75	2.6	13.8
				80.6/66.2	38.1	33.0	0.87	2.6	14.5
				85/71	44.1	30.3	0.69	2.7	16.4
100	5.0	2.4	1.0	75/63	32.7	25.0	0.77	2.5	13.0
				80.6/66.2	34.6	30.4	0.88	2.5	13.6
				85/71	40.0	27.9	0.70	2.6	15.4
	7.5	5.2	2.2	75/63	33.7	25.6	0.76	3.0	11.1
				80.6/66.2	35.7	31.1	0.87	3.1	11.7
				85/71	41.2	28.6	0.69	3.1	13.2
	10.0	8.5	3.6	75/63	34.4	25.7	0.75	2.9	12.0
				80.6/66.2	36.4	31.3	0.86	2.9	12.6
				85/71	42.1	28.7	0.68	3.0	14.2
110	5.0	2.4	1.0	75/63	30.7	24.2	0.79	2.8	11.0
				80.6/66.2	32.5	29.5	0.91	2.8	11.6
				85/71	37.6	27.1	0.72	2.9	13.1
	7.5	4.9	2.1	75/63	31.7	24.7	0.78	3.3	9.5
				80.6/66.2	33.6	30.0	0.89	3.4	10.0
				85/71	38.8	27.6	0.71	3.4	11.3
	10.0	8.2	3.5	75/63	32.3	24.9	0.77	3.2	10.2
				80.6/66.2	34.2	30.3	0.89	3.2	10.7
				85/71	39.6	27.8	0.70	3.3	12.1

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM036 Full Load Heating Performance Data - 1350 SCFM 311 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB	Total KBTu/hr.	Heat of Absp kBTu/hr	Power kW	COP
20	5.0	8.7	3.7	60	23.3	15.2	1.96	3.5
				68	23.8	16.3	2.09	3.3
				80	24.1	17.0	2.18	3.2
	7.5	9.0	3.8	60	24.1	16.1	1.97	3.6
				68	24.5	17.2	2.11	3.4
				80	24.9	17.9	2.19	3.3
	10.0	9.2	3.9	60	24.8	16.7	1.98	3.7
				68	25.3	17.9	2.12	3.5
				80	25.7	18.6	2.21	3.4
30	5.0	2.8	1.2	60	27.1	18.3	2.01	3.9
				68	27.6	19.6	2.15	3.7
				80	28.0	20.4	2.24	3.7
	7.5	5.9	2.5	60	28.1	19.2	2.03	4.1
				68	28.6	20.6	2.17	3.9
				80	29.1	21.4	2.26	3.8
	10.0	9.7	4.1	60	28.9	20.0	2.05	4.1
				68	29.4	21.4	2.19	3.9
				80	29.9	22.3	2.28	3.8
40	5.0	2.8	1.2	60	30.8	21.6	2.08	4.3
				68	31.3	23.2	2.22	4.1
				80	31.8	24.1	2.31	4.0
	7.5	5.7	2.4	60	31.9	22.8	2.10	4.5
				68	32.5	24.4	2.24	4.2
				80	33.0	25.4	2.34	4.1
	10.0	9.7	4.1	60	33.0	23.7	2.12	4.6
				68	33.6	25.4	2.27	4.3
				80	34.1	26.4	2.36	4.2
50	5.0	2.8	1.2	60	34.8	25.1	2.14	4.8
				68	35.4	26.9	2.29	4.5
				80	35.9	28.0	2.39	4.4
	7.5	5.7	2.4	60	36.3	26.7	2.17	4.9
				68	37.0	28.6	2.33	4.7
				80	37.5	29.7	2.42	4.5
	10.0	9.4	4.0	60	37.6	27.7	2.20	5.0
				68	38.3	29.7	2.35	4.8
				80	38.9	30.9	2.45	4.7
60	5.0	2.6	1.1	60	38.9	28.8	2.22	5.1
				68	39.5	30.8	2.37	4.9
				80	40.1	32.1	2.47	4.8
	7.5	5.4	2.3	60	40.7	30.5	2.25	5.3
				68	41.4	32.7	2.41	5.0
				80	42.1	34.0	2.51	4.9
	10.0	9.2	3.9	60	42.5	32.0	2.28	5.5
				68	43.2	34.2	2.44	5.2
				80	43.9	35.6	2.54	5.1
70	5.0	2.6	1.1	60	43.3	32.7	2.29	5.5
				68	44.0	35.0	2.45	5.3
				80	44.7	36.4	2.55	5.1
	7.5	5.4	2.3	60	45.6	34.7	2.33	5.7
				68	46.4	37.1	2.49	5.4
				80	47.1	38.7	2.60	5.3
	10.0	9.0	3.8	60	47.5	36.4	2.36	5.9
				68	48.3	39.0	2.53	5.6
				80	49.1	40.6	2.63	5.5
80	5.0	2.6	1.1	60	47.9	36.7	2.37	5.9
				68	48.7	39.3	2.54	5.6
				80	49.5	40.9	2.64	5.5
	7.5	5.2	2.2	60	50.5	39.0	2.42	6.1
				68	51.4	41.8	2.59	5.8
				80	52.2	43.5	2.69	5.7
	10.0	8.7	3.7	60	52.8	41.4	2.46	6.3
				68	53.7	44.3	2.63	6.0
				80	54.6	46.1	2.74	5.8
90	5.0	2.6	1.1	Operation Not Recommended				
	7.5	5.2	2.2					
	10.0	8.7	3.7					
100	5.0	2.4	1.0					
	7.5	5.2	2.2					
	10.0	8.5	3.6					
110	5.0	2.4	1.0					
	7.5	4.9	2.1					
	10.0	8.2	3.5					

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Greensource SM Series - Residential Geothermal Heat Pumps



SM036 Partial Load Cooling Performance Data - 1223 SCFM -260 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB / °F WB	Total KBtu/hr.	Latent Capacity Kbtu/hr	SHR	Power kW	EER
20	5.0	8.7	3.7	Operation Not Recommended					
	7.5	9.0	3.8						
	10.0	9.2	3.9						
30	5.0	2.8	1.2						
	7.5	5.9	2.5						
	10.0	9.7	4.1						
40	5.0	2.8	1.2	75/63	33.3	24.5	0.74	1.1	30.0
				80.6/66.2	35.2	29.7	0.84	1.1	31.5
				85/71	40.7	27.3	0.67	1.1	35.7
	7.5	5.7	2.4	75/63	34.2	24.8	0.73	1.1	31.9
				80.6/66.2	36.2	30.2	0.83	1.1	33.5
				85/71	41.8	27.7	0.66	1.1	37.9
	10.0	9.7	4.1	75/63	34.6	25.0	0.72	1.1	32.9
				80.6/66.2	36.7	30.4	0.83	1.1	34.5
				85/71	42.4	27.9	0.66	1.1	39.0
50	5.0	2.8	1.2	75/63	31.7	23.9	0.75	1.2	26.5
				80.6/66.2	33.6	29.1	0.87	1.2	27.8
				85/71	38.8	26.7	0.69	1.2	31.5
	7.5	5.7	2.4	75/63	32.6	24.2	0.74	1.1	28.6
				80.6/66.2	34.5	29.4	0.85	1.2	30.0
				85/71	39.9	27.1	0.68	1.2	33.9
	10.0	9.4	4.0	75/63	33.1	24.4	0.74	1.1	29.6
				80.6/66.2	35.0	29.7	0.85	1.1	31.1
				85/71	40.5	27.2	0.67	1.2	35.2
60	5.0	2.6	1.1	75/63	30.1	23.4	0.78	1.3	22.9
				80.6/66.2	31.9	28.4	0.89	1.3	24.0
				85/71	36.8	26.1	0.71	1.4	27.1
	7.5	5.4	2.3	75/63	31.0	23.7	0.76	1.2	24.8
				80.6/66.2	32.8	28.8	0.88	1.3	26.1
				85/71	37.9	26.4	0.70	1.3	29.5
	10.0	9.2	3.9	75/63	31.5	23.8	0.76	1.2	25.9
				80.6/66.2	33.3	28.9	0.87	1.2	27.2
				85/71	38.5	26.6	0.69	1.3	30.8
70	5.0	2.6	1.1	75/63	28.4	22.9	0.80	1.5	19.4
				80.6/66.2	30.1	27.8	0.92	1.5	20.3
				85/71	34.8	25.5	0.73	1.5	23.0
	7.5	5.4	2.3	75/63	29.4	23.0	0.78	1.4	21.2
				80.6/66.2	31.1	28.0	0.90	1.4	22.2
				85/71	35.9	25.7	0.72	1.4	25.2
	10.0	9.0	3.8	75/63	29.8	23.2	0.78	1.3	22.1
				80.6/66.2	31.5	28.2	0.89	1.4	23.2
				85/71	36.5	25.9	0.71	1.4	26.3
80	5.0	2.6	1.1	75/63	26.8	22.2	0.83	1.7	16.3
				80.6/66.2	28.4	27.0	0.95	1.7	17.1
				85/71	32.8	24.8	0.76	1.7	19.3
	7.5	5.2	2.2	75/63	27.6	22.5	0.81	1.6	17.7
				80.6/66.2	29.2	27.3	0.93	1.6	18.6
				85/71	33.8	25.1	0.74	1.6	21.1
	10.0	9.0	3.8	75/63	28.0	22.6	0.81	1.5	18.5
				80.6/66.2	29.7	27.5	0.93	1.5	19.4
				85/71	34.3	25.3	0.74	1.6	22.0
90	5.0	2.6	1.1	75/63	25.3	21.3	0.84	1.9	13.6
				80.6/66.2	26.8	25.9	0.97	1.9	14.3
				85/71	31.0	23.8	0.77	1.9	16.1
	7.5	5.2	2.2	75/63	26.0	21.7	0.84	1.8	14.8
				80.6/66.2	27.5	26.4	0.96	1.8	15.5
				85/71	31.8	24.3	0.76	1.8	17.5
	10.0	8.7	3.7	75/63	26.4	21.9	0.83	1.7	15.4
				80.6/66.2	27.9	26.7	0.95	1.7	16.1
				85/71	32.3	24.5	0.76	1.8	18.3
100	5.0	2.4	1.0	75/63	23.9	20.3	0.85	2.1	11.3
				80.6/66.2	25.3	24.6	0.97	2.1	11.9
				85/71	29.2	22.6	0.77	2.2	13.5
	7.5	5.2	2.2	75/63	24.4	20.7	0.85	2.0	12.2
				80.6/66.2	25.9	25.2	0.97	2.0	12.8
				85/71	29.9	23.2	0.77	2.1	14.5
	10.0	8.5	3.6	75/63	24.8	20.9	0.85	1.9	12.7
				80.6/66.2	26.2	25.5	0.97	2.0	13.3
				85/71	30.3	23.4	0.77	2.0	15.1
110	5.0	2.4	1.0	75/63	22.3	19.0	0.85	2.4	9.4
				80.6/66.2	23.6	23.1	0.97	2.4	9.9
				85/71	27.3	21.2	0.77	2.4	11.2
	7.5	4.9	2.1	75/63	22.9	19.5	0.85	2.3	10.1
				80.6/66.2	24.3	23.7	0.97	2.3	10.6
				85/71	28.1	21.7	0.77	2.3	12.0
	10.0	8.2	3.5	75/63	23.2	19.7	0.85	2.2	10.5
				80.6/66.2	24.6	24.0	0.97	2.2	11.0
				85/71	28.4	22.0	0.77	2.3	12.5

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM036 Partial Load Heating Performance Data - 1223 SCFM -260 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB	Total Kbtu/hr.	Heat of Absp kbtu/hr	Power kW	COP
20	5.0	8.7	3.7	60	16.4	10.4	1.38	3.5
				68	16.7	11.1	1.48	3.3
				80	17.0	11.5	1.54	3.2
	7.5	9.0	3.8	60	16.9	10.8	1.38	3.6
				68	17.2	11.5	1.48	3.4
				80	17.5	12.0	1.54	3.3
	10.0	9.2	3.9	60	17.3	11.2	1.38	3.7
				68	17.6	11.9	1.48	3.5
				80	17.9	12.4	1.54	3.4
30	5.0	2.8	1.2	60	19.4	12.7	1.39	4.1
				68	19.8	13.6	1.49	3.9
				80	20.1	14.2	1.55	3.8
	7.5	5.9	2.5	60	19.9	13.5	1.39	4.2
				68	20.3	14.4	1.49	4.0
				80	20.6	15.0	1.55	3.9
	10.0	9.7	4.1	60	20.5	14.0	1.39	4.3
				68	20.8	14.9	1.49	4.1
				80	21.1	15.6	1.55	4.0
40	5.0	2.8	1.2	60	22.4	15.8	1.40	4.7
				68	22.8	16.9	1.49	4.5
				80	23.1	17.6	1.55	4.4
	7.5	5.7	2.4	60	23.2	16.3	1.40	4.9
				68	23.6	17.5	1.49	4.6
				80	24.0	18.2	1.56	4.5
	10.0	9.7	4.1	60	23.8	17.1	1.40	5.0
				68	24.2	18.3	1.50	4.7
				80	24.6	19.1	1.56	4.6
50	5.0	2.8	1.2	60	25.8	18.7	1.40	5.4
				68	26.2	20.1	1.50	5.1
				80	26.6	20.9	1.56	5.0
	7.5	5.7	2.4	60	26.9	19.6	1.40	5.6
				68	27.4	21.0	1.50	5.4
				80	27.8	21.8	1.56	5.2
	10.0	9.4	4.0	60	27.5	20.5	1.40	5.7
				68	28.0	21.9	1.50	5.5
				80	28.4	22.8	1.56	5.3
60	5.0	2.6	1.1	60	29.5	21.9	1.41	6.1
				68	30.0	23.4	1.51	5.8
				80	30.4	24.4	1.57	5.7
	7.5	5.4	2.3	60	30.6	23.0	1.41	6.4
				68	31.2	24.6	1.51	6.1
				80	31.7	25.6	1.57	5.9
	10.0	9.2	3.9	60	31.4	24.2	1.41	6.5
				68	31.9	25.9	1.51	6.2
				80	32.4	26.9	1.57	6.1
70	5.0	2.6	1.1	60	33.1	25.2	1.41	6.9
				68	33.6	27.0	1.51	6.5
				80	34.2	28.1	1.57	6.4
	7.5	5.4	2.3	60	34.5	26.5	1.41	7.2
				68	35.1	28.4	1.51	6.8
				80	35.6	29.5	1.57	6.6
	10.0	9.0	3.8	60	35.7	27.6	1.41	7.4
				68	36.3	29.5	1.51	7.0
				80	36.8	30.7	1.57	6.9
80	5.0	2.6	1.1	60	36.8	28.6	1.41	7.6
				68	37.5	30.6	1.51	7.3
				80	38.0	31.9	1.58	7.1
	7.5	5.2	2.2	60	38.2	30.2	1.41	7.9
				68	38.9	32.3	1.51	7.5
				80	39.5	33.7	1.57	7.4
	10.0	9.0	3.8	60	39.6	31.7	1.41	8.2
				68	40.3	33.9	1.51	7.8
				80	40.9	35.3	1.57	7.6
90	5.0	2.6	1.1	Operation Not Recommended				
	7.5	5.2	2.2					
	10.0	8.7	3.7					
100	5.0	2.4	1.0					
	7.5	5.2	2.2					
	10.0	8.5	3.6					
110	5.0	2.4	1.0					
	7.5	4.9	2.1					
	10.0	8.2	3.5					

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM048 Full Load Cooling Performance Data - 1600 SCFM -445 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB / °F WB	Total Kbtu/hr.	Latent Capacity Kbtu/hr	SHR	Power kW	EER
20	6.0	10.6	4.5	Operation Not Recommended					
	9.0	10.8	4.6						
	12.0	11.1	4.7						
30	6.0	3.3	1.4						
	9.0	7.1	3.0						
	12.0	11.8	5.0						
40	6.0	3.3	1.4	75/63	55.8	35.8	0.64	2.5	22.5
				80.6/66.2	59.1	43.4	0.74	2.5	23.6
				85/71	68.4	39.9	0.58	2.6	26.7
	9.0	6.8	2.9	75/63	58.0	36.5	0.63	2.3	25.3
				80.6/66.2	61.4	44.4	0.72	2.3	26.6
				85/71	71.0	40.8	0.57	2.4	30.1
	12.0	11.5	4.9	75/63	59.0	37.0	0.63	2.2	27.0
				80.6/66.2	62.5	45.0	0.72	2.2	28.3
				85/71	72.3	41.3	0.57	2.3	32.1
50	6.0	3.3	1.4	75/63	53.6	35.0	0.65	2.7	19.8
				80.6/66.2	56.7	42.5	0.75	2.7	20.7
				85/71	65.6	39.0	0.60	2.8	23.5
	9.0	6.8	2.9	75/63	55.6	35.7	0.64	2.5	22.2
				80.6/66.2	58.9	43.4	0.74	2.5	23.3
				85/71	68.1	39.9	0.59	2.6	26.3
	12.0	11.3	4.8	75/63	56.6	36.1	0.64	2.4	23.6
				80.6/66.2	60.0	43.9	0.73	2.4	24.7
				85/71	69.3	40.3	0.58	2.5	28.0
60	6.0	3.3	1.4	75/63	51.1	34.3	0.67	3.0	17.3
				80.6/66.2	54.1	41.7	0.77	3.0	18.1
				85/71	62.5	38.3	0.61	3.0	20.5
	9.0	6.6	2.8	75/63	53.2	34.9	0.66	2.7	19.4
				80.6/66.2	56.3	42.4	0.75	2.8	20.4
				85/71	65.1	39.0	0.60	2.8	23.0
	12.0	11.1	4.7	75/63	54.2	35.3	0.65	2.6	20.6
				80.6/66.2	57.4	42.9	0.75	2.7	21.6
				85/71	66.4	39.4	0.59	2.7	24.4
70	6.0	3.1	1.3	75/63	48.7	33.4	0.69	3.2	15.1
				80.6/66.2	51.6	40.6	0.79	3.3	15.8
				85/71	59.7	37.3	0.62	3.3	17.9
	9.0	6.6	2.8	75/63	50.7	34.0	0.67	3.0	16.9
				80.6/66.2	53.7	41.3	0.77	3.0	17.7
				85/71	62.1	38.0	0.61	3.1	20.0
	12.0	10.8	4.6	75/63	51.8	34.3	0.66	2.9	17.9
				80.6/66.2	54.9	41.7	0.76	2.9	18.8
				85/71	63.4	38.3	0.60	3.0	21.3
80	6.0	3.1	1.3	75/63	46.4	32.4	0.70	3.6	13.1
				80.6/66.2	49.1	39.4	0.80	3.6	13.7
				85/71	56.8	36.2	0.64	3.7	15.5
	9.0	6.4	2.7	75/63	48.3	33.0	0.68	3.3	14.6
				80.6/66.2	51.1	40.1	0.79	3.3	15.3
				85/71	59.1	36.9	0.62	3.4	17.3
	12.0	10.6	4.5	75/63	49.2	33.5	0.68	3.2	15.5
				80.6/66.2	52.1	40.7	0.78	3.2	16.2
				85/71	60.2	37.4	0.62	3.3	18.3
90	6.0	3.1	1.3	75/63	44.4	30.4	0.68	3.9	11.3
				80.6/66.2	47.1	37.0	0.79	4.0	11.9
				85/71	54.4	34.0	0.62	4.1	13.4
	9.0	6.4	2.7	75/63	45.6	32.2	0.71	3.6	12.5
				80.6/66.2	48.3	39.1	0.81	3.7	13.1
				85/71	55.9	36.0	0.64	3.8	14.9
	12.0	10.4	4.4	75/63	46.6	32.6	0.70	3.5	13.2
				80.6/66.2	49.3	39.7	0.80	3.5	13.9
				85/71	57.0	36.5	0.64	3.6	15.7
100	6.0	3.1	1.3	75/63	41.9	29.6	0.71	4.3	9.6
				80.6/66.2	44.3	36.0	0.81	4.4	10.1
				85/71	51.3	33.1	0.65	4.5	11.4
	9.0	6.1	2.6	75/63	42.3	32.4	0.77	4.0	10.5
				80.6/66.2	44.8	39.4	0.88	4.1	11.0
				85/71	51.7	36.2	0.70	4.2	12.4
	12.0	10.4	4.4	75/63	43.9	31.7	0.72	3.9	11.2
				80.6/66.2	46.5	38.5	0.83	3.9	11.8
				85/71	53.8	35.4	0.66	4.0	13.3
110	6.0	2.8	1.2	75/63	38.7	30.0	0.77	4.8	8.0
				80.6/66.2	41.0	36.5	0.89	4.9	8.4
				85/71	47.4	33.5	0.71	5.0	9.5
	9.0	6.1	2.6	75/63	39.8	31.2	0.78	4.5	8.8
				80.6/66.2	42.2	38.0	0.90	4.6	9.3
				85/71	48.8	34.9	0.71	4.7	10.5
	12.0	10.1	4.3	75/63	41.7	29.6	0.71	4.4	9.5
				80.6/66.2	44.2	36.0	0.82	4.4	10.0
				85/71	51.1	33.1	0.65	4.5	11.3

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM048 Full Load Heating Performance Data - 1600 SCFM -445 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB	Total KBtu/hr.	Heat of Absp kBtu/hr	Power kW	COP
20	6.0	10.6	4.5	60	30.3	19.2	2.65	3.4
				68	30.8	20.5	2.83	3.2
				80	31.3	21.4	2.95	3.1
	9.0	10.8	4.6	60	31.5	20.3	2.67	3.5
				68	32.0	21.7	2.86	3.3
				80	32.5	22.6	2.98	3.2
	12.0	11.1	4.7	60	32.3	20.9	2.69	3.5
				68	32.9	22.3	2.88	3.3
				80	33.4	23.3	3.00	3.3
30	6.0	3.3	1.4	60	34.8	23.0	2.74	3.7
				68	35.4	24.6	2.93	3.5
				80	35.9	25.6	3.05	3.4
	9.0	7.1	3.0	60	36.5	24.4	2.78	3.8
				68	37.1	26.1	2.97	3.7
				80	37.7	27.2	3.09	3.6
	12.0	11.8	5.0	60	37.5	25.3	2.80	3.9
				68	38.1	27.0	3.00	3.7
				80	38.7	28.1	3.12	3.6
40	6.0	3.3	1.4	60	39.6	27.0	2.84	4.1
				68	40.3	28.9	3.04	3.9
				80	40.9	30.0	3.17	3.8
	9.0	6.8	2.9	60	41.7	28.8	2.89	4.2
				68	42.4	30.8	3.09	4.0
				80	43.1	32.1	3.22	3.9
	12.0	11.5	4.9	60	42.8	29.8	2.92	4.3
				68	43.5	31.9	3.12	4.1
				80	44.2	33.2	3.25	4.0
50	6.0	3.3	1.4	60	44.5	31.2	2.95	4.4
				68	45.2	33.4	3.15	4.2
				80	46.0	34.7	3.28	4.1
	9.0	6.8	2.9	60	47.2	33.6	2.99	4.6
				68	48.0	35.9	3.21	4.4
				80	48.8	37.4	3.34	4.3
	12.0	11.3	4.8	60	48.7	34.9	3.02	4.7
				68	49.6	37.3	3.24	4.5
				80	50.4	38.9	3.37	4.4
60	6.0	3.3	1.4	60	49.8	35.8	3.04	4.8
				68	50.7	38.3	3.26	4.6
				80	51.5	39.8	3.39	4.5
	9.0	6.6	2.8	60	53.0	38.6	3.10	5.0
				68	54.0	41.3	3.32	4.8
				80	54.8	43.0	3.46	4.6
	12.0	11.1	4.7	60	54.8	40.1	3.14	5.1
				68	55.7	42.9	3.36	4.9
				80	56.6	44.7	3.49	4.7
70	6.0	3.1	1.3	60	55.5	40.6	3.15	5.2
				68	56.5	43.5	3.37	4.9
				80	57.3	45.2	3.50	4.8
	9.0	6.6	2.8	60	59.1	43.6	3.21	5.4
				68	60.1	46.6	3.44	5.1
				80	61.0	48.5	3.58	5.0
	12.0	10.8	4.6	60	61.2	45.7	3.25	5.5
				68	62.3	48.9	3.48	5.2
				80	63.3	50.9	3.62	5.1
80	6.0	3.1	1.3	60	61.2	45.6	3.25	5.5
				68	62.3	48.8	3.48	5.2
				80	63.3	50.8	3.62	5.1
	9.0	6.4	2.7	60	65.4	49.0	3.33	5.8
				68	66.5	52.4	3.56	5.5
				80	67.6	54.6	3.71	5.3
	12.0	10.6	4.5	60	67.9	51.5	3.38	5.9
				68	69.0	55.1	3.61	5.6
				80	70.1	57.3	3.76	5.5
90	6.0	3.1	1.3	Operation Not Recommended				
	9.0	6.4	2.7					
	12.0	10.4	4.4					
100	6.0	3.1	1.3					
	9.0	6.1	2.6					
	12.0	10.4	4.4					
110	6.0	2.8	1.2					
	9.0	6.1	2.6					
	12.0	10.1	4.3					

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM048 Partial Load Cooling Performance Data - 1263 SCFM -294 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB / °F WB	Total KBtu/hr.	Latent Capacity Kbtu/hr	SHR	Power kW	EER
20	6.0	10.6	4.5	Operation Not Recommended					
	9.0	11.1	4.7						
	12.0	11.1	4.7						
30	6.0	3.5	1.5						
	9.0	7.1	3.0						
	12.0	11.8	5.0						
40	6.0	3.3	1.4	75/63	43.8	28.6	0.65	1.4	32.4
				80.6/66.2	46.3	34.7	0.75	1.4	34.0
				85/71	53.6	31.9	0.60	1.4	38.4
	9.0	6.8	2.9	75/63	45.3	29.1	0.64	1.2	37.0
				80.6/66.2	48.0	35.4	0.74	1.2	38.8
				85/71	55.5	32.5	0.59	1.3	44.0
50	6.0	3.3	1.4	75/63	46.2	29.4	0.64	1.2	39.8
				80.6/66.2	48.9	35.7	0.73	1.2	41.8
				85/71	56.5	32.8	0.58	1.2	47.3
	9.0	6.8	2.9	75/63	41.5	27.9	0.67	1.5	26.8
				80.6/66.2	43.9	33.9	0.77	1.6	28.2
				85/71	50.8	31.2	0.61	1.6	31.9
60	6.0	3.3	1.4	75/63	43.0	28.4	0.66	1.4	30.4
				80.6/66.2	45.5	34.5	0.76	1.4	32.0
				85/71	52.6	31.7	0.60	1.5	36.2
	9.0	6.8	2.9	75/63	43.8	28.6	0.65	1.3	32.6
				80.6/66.2	46.4	34.7	0.75	1.4	34.2
				85/71	53.7	31.9	0.59	1.4	38.7
70	6.0	3.3	1.4	75/63	39.2	27.1	0.69	1.8	22.3
				80.6/66.2	41.5	33.0	0.79	1.8	23.4
				85/71	48.0	30.3	0.63	1.8	26.5
	9.0	6.6	2.8	75/63	40.7	27.5	0.68	1.6	25.1
				80.6/66.2	43.1	33.5	0.78	1.6	26.3
				85/71	49.8	30.8	0.62	1.7	29.8
80	6.0	3.1	1.3	75/63	41.4	27.9	0.67	1.5	26.7
				80.6/66.2	43.8	33.9	0.77	1.6	28.0
				85/71	50.7	31.2	0.61	1.6	31.7
	9.0	6.4	2.7	75/63	36.8	26.4	0.72	2.0	18.5
				80.6/66.2	39.0	32.0	0.82	2.0	19.4
				85/71	45.1	29.4	0.65	2.1	21.9
90	6.0	3.1	1.3	75/63	38.2	26.8	0.70	1.8	20.7
				80.6/66.2	40.5	32.5	0.80	1.9	21.7
				85/71	46.8	29.9	0.64	1.9	24.5
	9.0	6.4	2.7	75/63	39.0	27.1	0.69	1.8	22.0
				80.6/66.2	41.3	32.9	0.80	1.8	23.1
				85/71	47.7	30.2	0.63	1.8	26.1
100	6.0	3.1	1.3	75/63	34.5	25.6	0.74	2.3	15.3
				80.6/66.2	36.5	31.1	0.85	2.3	16.0
				85/71	42.2	28.6	0.68	2.3	18.1
	9.0	6.4	2.7	75/63	35.7	26.0	0.73	2.1	17.0
				80.6/66.2	37.8	31.6	0.84	2.1	17.8
				85/71	43.7	29.1	0.66	2.2	20.1
110	6.0	2.8	1.2	75/63	36.7	25.9	0.71	2.0	18.1
				80.6/66.2	38.9	31.5	0.81	2.0	19.0
				85/71	44.9	28.9	0.64	2.1	21.5
	9.0	6.1	2.6	75/63	32.2	24.7	0.77	2.5	12.7
				80.6/66.2	34.1	30.0	0.88	2.6	13.3
				85/71	39.4	27.6	0.70	2.6	15.0
120	6.0	3.1	1.3	75/63	33.4	25.2	0.76	2.4	14.0
				80.6/66.2	35.3	30.6	0.87	2.4	14.7
				85/71	40.9	28.2	0.69	2.5	16.6
	9.0	6.4	2.7	75/63	34.0	25.4	0.75	2.3	14.7
				80.6/66.2	36.0	30.9	0.86	2.3	15.4
				85/71	41.6	28.4	0.68	2.4	17.5
130	6.0	3.1	1.3	75/63	30.0	24.0	0.80	2.8	10.5
				80.6/66.2	31.8	29.2	0.92	2.9	11.1
				85/71	36.7	26.8	0.73	2.9	12.5
	9.0	6.1	2.6	75/63	31.1	24.3	0.78	2.7	11.5
				80.6/66.2	32.9	29.5	0.90	2.7	12.1
				85/71	38.1	27.1	0.71	2.8	13.7
140	6.0	2.8	1.2	75/63	31.7	24.4	0.77	2.6	12.1
				80.6/66.2	33.5	29.7	0.89	2.6	12.7
				85/71	38.8	27.3	0.70	2.7	14.4
	9.0	6.1	2.6	75/63	27.8	23.1	0.83	3.2	8.7
				80.6/66.2	29.4	28.1	0.95	3.2	9.2
				85/71	34.0	25.8	0.76	3.3	10.4
150	6.0	3.5	1.5	75/63	28.8	23.5	0.82	3.0	9.5
				80.6/66.2	30.5	28.5	0.94	3.1	10.0
				85/71	35.3	26.2	0.74	3.1	11.3
	9.0	6.1	2.6	75/63	29.3	23.8	0.81	3.0	9.9
				80.6/66.2	31.0	28.9	0.93	3.0	10.4
				85/71	35.8	26.5	0.74	3.0	11.8

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM048 Partial Load Heating Performance Data - 1263 SCFM -294 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB	Total KBTu/hr.	Heat of Absp kBTu/hr	Power kW	COP
20	6.0	10.6	4.5	60	22.5	14.2	2.06	3.2
				68	22.8	15.2	2.21	3.0
				80	23.2	15.9	2.30	3.0
	9.0	11.1	4.7	60	23.2	14.8	2.07	3.3
				68	23.6	15.9	2.21	3.1
				80	24.0	16.5	2.30	3.1
	12.0	11.1	4.7	60	23.6	15.1	2.07	3.3
				68	24.0	16.2	2.21	3.2
				80	24.4	16.8	2.31	3.1
30	6.0	3.5	1.5	60	25.7	17.3	2.08	3.6
				68	26.2	18.5	2.23	3.4
				80	26.6	19.2	2.32	3.4
	9.0	7.1	3.0	60	26.7	18.1	2.09	3.7
				68	27.2	19.4	2.24	3.6
				80	27.6	20.2	2.33	3.5
	12.0	11.8	5.0	60	27.2	18.6	2.10	3.8
				68	27.7	19.9	2.24	3.6
				80	28.2	20.7	2.33	3.5
40	6.0	3.3	1.4	60	29.4	20.5	2.11	4.1
				68	29.9	22.0	2.26	3.9
				80	30.3	22.9	2.35	3.8
	9.0	6.8	2.9	60	30.6	21.7	2.12	4.2
				68	31.1	23.2	2.27	4.0
				80	31.6	24.1	2.36	3.9
	12.0	11.5	4.9	60	31.3	22.3	2.12	4.3
				68	31.8	23.9	2.27	4.1
				80	32.3	24.9	2.37	4.0
50	6.0	3.3	1.4	60	33.2	24.1	2.14	4.6
				68	33.8	25.7	2.29	4.3
				80	34.3	26.8	2.38	4.2
	9.0	6.8	2.9	60	34.7	25.5	2.15	4.7
				68	35.3	27.3	2.30	4.5
				80	35.9	28.4	2.39	4.4
	12.0	11.3	4.8	60	35.7	26.1	2.15	4.9
				68	36.3	27.9	2.30	4.6
				80	36.9	29.1	2.40	4.5
60	6.0	3.3	1.4	60	37.3	27.8	2.16	5.1
				68	37.9	29.7	2.31	4.8
				80	38.5	30.9	2.41	4.7
	9.0	6.6	2.8	60	39.1	29.5	2.17	5.3
				68	39.8	31.6	2.32	5.0
				80	40.4	32.9	2.42	4.9
	12.0	11.1	4.7	60	40.3	30.3	2.17	5.4
				68	41.0	32.4	2.33	5.2
				80	41.7	33.8	2.42	5.0
70	6.0	3.1	1.3	60	41.6	31.7	2.18	5.6
				68	42.3	34.0	2.33	5.3
				80	43.0	35.3	2.43	5.2
	9.0	6.6	2.8	60	43.8	33.8	2.19	5.9
				68	44.6	36.2	2.34	5.6
				80	45.3	37.7	2.44	5.4
	12.0	10.8	4.6	60	45.2	34.8	2.19	6.0
				68	46.0	37.2	2.35	5.7
				80	46.7	38.7	2.44	5.6
80	6.0	3.1	1.3	60	46.1	35.9	2.20	6.1
				68	46.9	38.4	2.35	5.8
				80	47.6	39.9	2.45	5.7
	9.0	6.4	2.7	60	48.7	38.3	2.21	6.5
				68	49.5	41.0	2.37	6.1
				80	50.3	42.7	2.46	6.0
	12.0	10.6	4.5	60	50.2	39.6	2.22	6.6
				68	51.1	42.4	2.37	6.3
				80	51.9	44.1	2.47	6.2
90	6.0	3.1	1.3	Operation Not Recommended				
	9.0	6.4	2.7					
	12.0	10.6	4.5					
100	6.0	3.1	1.3					
	9.0	6.1	2.6					
	12.0	10.4	4.4					
110	6.0	2.8	1.2					
	9.0	6.1	2.6					
	12.0	10.1	4.3					

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM060 Full Load Cooling Performance Data - 1950 SCFM -592 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB / °F WB	Total KBtu/hr.	Latent Capacity Kbtu/hr	SHR	Power kW	EER
20	7.0	4.2	1.8	Operation Not Recommended					
	12.0	10.8	4.6						
	15.0	16.0	6.8						
30	7.0	4.0	1.7						
	12.0	10.4	4.4						
	15.0	15.6	6.6						
40	7.0	4.0	1.7	75/63	66.6	44.3	0.66	3.2	20.8
				80.6/66.2	70.5	53.8	0.76	3.2	21.9
				85/71	81.5	49.4	0.61	3.3	24.7
	12.0	10.1	4.3	75/63	69.4	45.3	0.65	3.0	23.4
				80.6/66.2	73.5	55.1	0.75	3.0	24.6
				85/71	85.0	50.6	0.60	3.1	27.8
50	7.0	3.8	1.6	75/63	70.2	45.6	0.65	2.9	24.2
				80.6/66.2	74.3	55.4	0.75	2.9	25.4
				85/71	85.9	50.9	0.59	3.0	28.8
	12.0	10.1	4.3	75/63	64.1	43.3	0.68	2.9	22.1
				80.6/66.2	67.8	52.7	0.78	2.9	23.2
				85/71	78.5	48.4	0.62	3.0	26.2
60	7.0	3.8	1.6	75/63	66.8	44.4	0.66	3.4	19.5
				80.6/66.2	70.8	53.9	0.76	3.5	20.4
				85/71	81.8	49.6	0.61	3.5	23.1
	12.0	9.9	4.2	75/63	67.6	44.7	0.66	3.2	21.3
				80.6/66.2	71.6	54.3	0.76	3.2	22.4
				85/71	82.8	49.9	0.60	3.3	25.3
70	7.0	3.8	1.6	75/63	61.5	42.4	0.69	3.1	19.8
				80.6/66.2	65.1	51.5	0.79	3.1	20.8
				85/71	75.3	47.3	0.63	3.2	23.5
	12.0	9.9	4.2	75/63	64.2	43.3	0.68	3.7	17.3
				80.6/66.2	68.0	52.7	0.77	3.7	18.1
				85/71	78.6	48.4	0.62	3.8	20.5
80	7.0	3.5	1.5	75/63	65.0	43.6	0.67	3.4	19.0
				80.6/66.2	68.8	53.0	0.77	3.5	19.9
				85/71	79.5	48.7	0.61	3.5	22.5
	12.0	9.4	4.0	75/63	59.0	41.1	0.70	3.3	17.6
				80.6/66.2	62.4	50.0	0.80	3.4	18.5
				85/71	72.2	45.9	0.64	3.5	20.9
90	7.0	3.8	1.6	75/63	61.5	42.2	0.69	4.0	15.2
				80.6/66.2	65.2	51.3	0.79	4.1	16.0
				85/71	75.4	47.1	0.63	4.2	18.1
	12.0	9.7	4.1	75/63	62.3	42.5	0.68	3.7	16.8
				80.6/66.2	65.9	51.6	0.78	3.8	17.6
				85/71	76.2	47.4	0.62	3.8	19.9
100	7.0	3.5	1.5	75/63	56.1	40.4	0.72	3.6	15.4
				80.6/66.2	59.4	49.1	0.83	3.7	16.2
				85/71	68.7	45.1	0.66	3.7	18.3
	12.0	9.4	4.0	75/63	58.8	41.1	0.70	4.4	13.3
				80.6/66.2	62.2	49.9	0.80	4.4	14.0
				85/71	71.9	45.9	0.64	4.5	15.8
110	7.0	3.5	1.5	75/63	59.4	41.3	0.70	4.1	14.6
				80.6/66.2	62.9	50.2	0.80	4.1	15.4
				85/71	72.8	46.2	0.63	4.2	17.4
	12.0	9.2	3.9	75/63	53.5	39.2	0.73	4.0	13.5
				80.6/66.2	56.6	47.6	0.84	4.0	14.1
				85/71	65.5	43.7	0.67	4.1	16.0
120	7.0	3.3	1.4	75/63	55.9	40.0	0.72	4.8	11.6
				80.6/66.2	59.2	48.6	0.82	4.9	12.1
				85/71	68.4	44.7	0.65	5.0	13.7
	12.0	9.0	3.8	75/63	56.5	40.2	0.71	4.5	12.7
				80.6/66.2	59.8	48.9	0.82	4.5	13.3
				85/71	69.2	44.9	0.65	4.6	15.0
130	7.0	3.5	1.5	75/63	50.5	38.4	0.76	4.4	11.6
				80.6/66.2	53.5	46.7	0.87	4.4	12.1
				85/71	61.9	42.9	0.69	4.5	13.7
	12.0	9.2	3.9	75/63	52.9	39.0	0.74	5.3	10.0
				80.6/66.2	56.0	47.4	0.85	5.4	10.5
				85/71	64.8	43.5	0.67	5.5	11.8
140	7.0	3.3	1.4	75/63	53.5	39.1	0.73	4.9	10.9
				80.6/66.2	56.6	47.6	0.84	5.0	11.4
				85/71	65.5	43.7	0.67	5.1	12.9
	12.0	9.0	3.8	75/63	47.7	37.5	0.79	4.8	9.9
				80.6/66.2	50.5	45.5	0.90	4.9	10.4
				85/71	58.4	41.8	0.72	5.0	11.7
150	7.0	3.3	1.4	75/63	49.7	38.1	0.77	5.8	8.5
				80.6/66.2	52.6	46.3	0.88	5.9	8.9
				85/71	60.8	42.6	0.70	6.0	10.1
	12.0	9.0	3.8	75/63	50.3	38.3	0.76	5.5	9.2
				80.6/66.2	53.2	46.5	0.87	5.5	9.7
				85/71	61.5	42.7	0.69	5.6	10.9

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM060 Full Load Heating Performance Data - 1950 SCFM -592 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB	Total KBtu/hr.	Heat of Absp kBtu/hr	Power kW	COP
20	7.0	4.2	1.8	60	39.6	25.0	3.34	3.5
				68	40.3	26.8	3.57	3.3
				80	40.9	27.9	3.72	3.2
	12.0	10.8	4.6	60	41.8	26.9	3.38	3.6
				68	42.6	28.7	3.62	3.4
				80	43.2	29.9	3.77	3.4
	15.0	16.0	6.8	60	42.6	27.3	3.40	3.7
				68	43.3	29.2	3.64	3.5
				80	44.0	30.4	3.78	3.4
30	7.0	4.0	1.7	60	44.8	29.3	3.45	3.8
				68	45.6	31.4	3.69	3.6
				80	46.3	32.7	3.84	3.5
	12.0	10.4	4.4	60	47.6	31.7	3.51	4.0
				68	48.5	34.0	3.75	3.8
				80	49.2	35.3	3.91	3.7
	15.0	15.6	6.6	60	48.6	32.5	3.53	4.0
				68	49.4	34.8	3.78	3.8
				80	50.2	36.2	3.93	3.7
40	7.0	4.0	1.7	60	50.4	34.0	3.57	4.1
				68	51.3	36.4	3.82	3.9
				80	52.1	37.9	3.98	3.8
	12.0	10.1	4.3	60	54.0	37.1	3.64	4.4
				68	55.0	39.7	3.90	4.1
				80	55.8	41.4	4.05	4.0
	15.0	15.3	6.5	60	55.3	38.0	3.66	4.4
				68	56.3	40.6	3.92	4.2
				80	57.2	42.3	4.08	4.1
50	7.0	3.8	1.6	60	56.7	39.3	3.69	4.5
				68	57.6	42.0	3.95	4.3
				80	58.6	43.8	4.11	4.2
	12.0	10.1	4.3	60	61.4	42.9	3.78	4.8
				68	62.4	45.9	4.04	4.5
				80	63.4	47.8	4.21	4.4
	15.0	14.8	6.3	60	62.4	44.3	3.81	4.8
				68	63.5	47.4	4.07	4.6
				80	64.5	49.3	4.24	4.5
60	7.0	3.8	1.6	60	63.4	45.0	3.82	4.9
				68	64.5	48.1	4.09	4.6
				80	65.5	50.1	4.26	4.5
	12.0	9.9	4.2	60	68.4	49.1	3.93	5.1
				68	69.6	52.5	4.20	4.9
				80	70.7	54.7	4.38	4.7
	15.0	14.6	6.2	60	70.2	50.5	3.96	5.2
				68	71.4	54.0	4.24	4.9
				80	72.5	56.2	4.42	4.8
70	7.0	3.8	1.6	60	70.5	50.9	3.97	5.2
				68	71.7	54.4	4.25	4.9
				80	72.8	56.7	4.42	4.8
	12.0	9.7	4.1	60	76.5	56.0	4.10	5.5
				68	77.8	59.9	4.39	5.2
				80	79.0	62.3	4.57	5.1
	15.0	14.4	6.1	60	78.4	57.6	4.14	5.5
				68	79.8	61.7	4.43	5.3
				80	81.0	64.2	4.62	5.1
80	7.0	3.5	1.5	60	77.7	57.0	4.13	5.5
				68	79.1	61.0	4.42	5.2
				80	80.3	63.5	4.60	5.1
	12.0	9.4	4.0	60	84.7	62.8	4.28	5.8
				68	86.1	67.2	4.59	5.5
				80	87.5	70.0	4.77	5.4
	15.0	14.1	6.0	60	86.9	64.7	4.34	5.9
				68	88.4	69.2	4.64	5.6
				80	89.8	72.1	4.83	5.4
90	7.0	3.5	1.5	Operation Not Recommended				
	12.0	9.2	3.9					
	15.0	13.9	5.9					
100	7.0	3.5	1.5					
	12.0	9.2	3.9					
	15.0	13.4	5.7					
110	7.0	3.3	1.4					
	12.0	9.0	3.8					
	15.0	13.2	5.6					

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM060 Partial Load Cooling Performance Data - 1571 SCFM -395 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB / °F WB	Total KBtu/hr.	Latent Capacity Kbtu/hr	SHR	Power kW	EER
20	7.0	4.2	1.8	Operation Not Recommended					
	12.0	10.8	4.6						
	15.0	16.0	6.8						
30	7.0	4.0	1.7						
	12.0	10.4	4.4						
	15.0	15.6	6.6						
40	7.0	4.0	1.7	75/63	51.9	35.7	0.69	1.8	29.6
				80.6/66.2	55.0	43.4	0.79	1.8	31.0
				85/71	63.6	39.9	0.63	1.8	35.1
	12.0	10.4	4.4	75/63	54.2	36.5	0.67	1.6	34.1
				80.6/66.2	57.4	44.4	0.77	1.6	35.8
				85/71	66.3	40.8	0.61	1.6	40.5
	15.0	15.3	6.5	75/63	54.8	36.7	0.67	1.5	35.6
				80.6/66.2	58.0	44.6	0.77	1.6	37.3
				85/71	67.1	41.0	0.61	1.6	42.2
50	7.0	3.8	1.6	75/63	49.4	34.7	0.70	2.0	25.0
				80.6/66.2	52.3	42.2	0.81	2.0	26.2
				85/71	60.4	38.8	0.64	2.0	29.7
	12.0	10.1	4.3	75/63	51.6	35.4	0.69	1.8	28.8
				80.6/66.2	54.6	43.0	0.79	1.8	30.2
				85/71	63.1	39.6	0.63	1.8	34.2
	15.0	15.1	6.4	75/63	52.2	35.7	0.68	1.7	30.0
				80.6/66.2	55.3	43.3	0.78	1.8	31.5
				85/71	63.9	39.8	0.62	1.8	35.7
60	7.0	3.8	1.6	75/63	46.8	33.6	0.72	2.2	21.1
				80.6/66.2	49.5	40.9	0.83	2.2	22.1
				85/71	57.3	37.6	0.66	2.3	25.0
	12.0	9.7	4.1	75/63	48.8	33.5	0.69	2.0	24.1
				80.6/66.2	51.7	40.8	0.79	2.0	25.3
				85/71	59.8	37.5	0.63	2.1	28.7
	15.0	14.4	6.1	75/63	49.4	33.7	0.68	2.0	25.1
				80.6/66.2	52.3	41.0	0.78	2.0	26.4
				85/71	60.5	37.7	0.62	2.0	29.8
70	7.0	3.5	1.5	75/63	44.1	31.9	0.72	2.5	17.6
				80.6/66.2	46.7	38.8	0.83	2.5	18.5
				85/71	54.0	35.6	0.66	2.6	20.9
	12.0	9.4	4.0	75/63	46.0	32.5	0.71	2.3	20.1
				80.6/66.2	48.7	39.5	0.81	2.3	21.1
				85/71	56.4	36.3	0.64	2.4	23.9
	15.0	14.1	6.0	75/63	46.6	32.7	0.70	2.2	20.9
				80.6/66.2	49.3	39.7	0.81	2.3	21.9
				85/71	57.1	36.5	0.64	2.3	24.8
80	7.0	3.5	1.5	75/63	41.3	30.7	0.74	2.8	14.7
				80.6/66.2	43.7	37.3	0.85	2.8	15.4
				85/71	50.5	34.3	0.68	2.9	17.4
	12.0	9.2	3.9	75/63	43.2	31.5	0.73	2.6	16.6
				80.6/66.2	45.7	38.3	0.84	2.6	17.5
				85/71	52.9	35.2	0.67	2.7	19.8
	15.0	13.9	5.9	75/63	43.7	31.7	0.73	2.5	17.3
				80.6/66.2	46.3	38.5	0.83	2.6	18.1
				85/71	53.5	35.4	0.66	2.6	20.5
90	7.0	3.5	1.5	75/63	38.6	29.9	0.78	3.2	12.2
				80.6/66.2	40.9	36.4	0.89	3.2	12.8
				85/71	47.3	33.4	0.71	3.3	14.5
	12.0	9.2	3.9	75/63	40.3	30.5	0.76	2.9	13.7
				80.6/66.2	42.6	37.0	0.87	3.0	14.4
				85/71	49.3	34.0	0.69	3.0	16.3
	15.0	13.7	5.8	75/63	40.8	30.6	0.75	2.9	14.2
				80.6/66.2	43.2	37.2	0.86	2.9	14.9
				85/71	49.9	34.2	0.69	3.0	16.8
100	7.0	3.3	1.4	75/63	35.9	29.0	0.81	3.5	10.1
				80.6/66.2	38.0	35.2	0.93	3.6	10.6
				85/71	43.9	32.3	0.74	3.7	12.0
	12.0	9.0	3.8	75/63	37.4	29.5	0.79	3.3	11.3
				80.6/66.2	39.6	35.8	0.90	3.4	11.8
				85/71	45.8	32.9	0.72	3.4	13.4
	15.0	13.2	5.6	75/63	37.9	29.6	0.78	3.3	11.6
				80.6/66.2	40.1	36.0	0.90	3.3	12.2
				85/71	46.4	33.1	0.71	3.4	13.8
110	7.0	3.3	1.4	75/63	47.7	37.5	0.79	4.8	9.9
				80.6/66.2	50.5	45.5	0.90	4.9	10.4
				85/71	58.4	41.8	0.72	5.0	11.7
	12.0	9.0	3.8	75/63	49.7	38.1	0.77	5.8	8.5
				80.6/66.2	52.6	46.3	0.88	5.9	8.9
				85/71	60.8	42.6	0.70	6.0	10.1
	15.0	13.2	5.6	75/63	50.3	38.3	0.76	5.5	9.2
				80.6/66.2	53.2	46.5	0.87	5.5	9.7
				85/71	61.5	42.7	0.69	5.6	10.9

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM060 Partial Load Heating Performance Data - 1571 SCFM -395 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB	Total KBTu/hr.	Heat of Absp kBTu/hr	Power kW	COP
20	7.0	4.2	1.8	60	28.3	17.7	2.46	3.4
				68	28.8	19.0	2.63	3.2
				80	29.3	19.7	2.74	3.1
	12.0	10.8	4.6	60	29.6	18.9	2.47	3.5
				68	30.2	20.2	2.64	3.3
				80	30.6	21.0	2.75	3.3
	15.0	16.0	6.8	60	30.1	19.2	2.47	3.6
				68	30.6	20.6	2.64	3.4
				80	31.1	21.4	2.75	3.3
30	7.0	4.0	1.7	60	32.6	21.4	2.49	3.8
				68	33.2	22.9	2.67	3.6
				80	33.7	23.8	2.78	3.6
	12.0	10.4	4.4	60	34.1	23.0	2.51	4.0
				68	34.7	24.6	2.68	3.8
				80	35.3	25.6	2.79	3.7
	15.0	15.6	6.6	60	34.7	23.4	2.51	4.1
				68	35.3	25.0	2.69	3.9
				80	35.9	26.1	2.80	3.8
40	7.0	4.0	1.7	60	37.3	25.5	2.53	4.3
				68	38.0	27.3	2.71	4.1
				80	38.5	28.4	2.82	4.0
	12.0	10.4	4.4	60	39.3	27.3	2.55	4.5
				68	40.0	29.2	2.73	4.3
				80	40.6	30.4	2.84	4.2
	15.0	15.3	6.5	60	39.9	27.8	2.56	4.6
				68	40.6	29.8	2.74	4.3
				80	41.3	31.0	2.85	4.2
50	7.0	3.8	1.6	60	42.3	30.3	2.58	4.8
				68	43.0	32.4	2.77	4.6
				80	43.7	33.7	2.88	4.4
	12.0	10.1	4.3	60	44.7	32.1	2.61	5.0
				68	45.5	34.4	2.79	4.8
				80	46.2	35.8	2.90	4.7
	15.0	15.1	6.4	60	45.5	32.8	2.61	5.1
				68	46.3	35.1	2.80	4.9
				80	47.0	36.6	2.91	4.7
60	7.0	3.8	1.6	60	47.5	34.6	2.63	5.3
				68	48.3	37.0	2.81	5.0
				80	49.1	38.5	2.92	4.9
	12.0	9.7	4.1	60	50.5	37.3	2.64	5.6
				68	51.4	40.0	2.83	5.3
				80	52.2	41.6	2.95	5.2
	15.0	14.4	6.1	60	51.5	38.2	2.65	5.7
				68	52.4	40.9	2.84	5.4
				80	53.2	42.6	2.95	5.3
70	7.0	3.5	1.5	60	53.0	39.5	2.66	5.8
				68	53.9	42.3	2.84	5.5
				80	54.7	44.0	2.96	5.4
	12.0	9.4	4.0	60	56.5	42.8	2.68	6.2
				68	57.5	45.8	2.87	5.9
				80	58.4	47.7	2.98	5.7
	15.0	14.1	6.0	60	57.7	43.8	2.69	6.3
				68	58.7	46.9	2.87	6.0
				80	59.6	48.8	2.99	5.8
80	7.0	3.5	1.5	60	58.6	44.6	2.69	6.4
				68	59.6	47.7	2.88	6.1
				80	60.5	49.7	3.00	5.9
	12.0	9.2	3.9	60	62.7	48.4	2.71	6.8
				68	63.8	51.8	2.90	6.4
				80	64.8	53.9	3.02	6.3
	15.0	13.9	5.9	60	64.0	49.6	2.72	6.9
				68	65.1	53.1	2.91	6.6
				80	66.2	55.2	3.03	6.4
90	7.0	3.5	1.5	Operation Not Recommended				
	12.0	9.2	3.9					
	15.0	13.7	5.8					
100	7.0	3.3	1.4					
	12.0	9.0	3.8					
	15.0	13.2	5.6					
110	7.0	3.3	1.4					
	12.0	9.0	3.8					
	15.0	13.2	5.6					

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM070 Full Load Cooling Performance Data - 2230 SCFM -799 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB / °F WB	Total KBtu/hr.	Latent Capacity Kbtu/hr	SHR	Power kW	EER
20	9.0	6.6	2.8	Operation Not Recommended					
	12.0	10.8	4.6						
	18.0	22.2	9.4						
30	9.0	6.1	2.6						
	15.0	15.6	6.6						
	18.0	21.4	9.1						
40	9.0	6.1	2.6	75/63	66.6	44.3	0.66	3.2	20.8
				80.6/66.2	70.5	53.8	0.76	3.2	21.9
				85/71	81.5	49.4	0.61	3.3	24.7
	15.0	15.3	6.5	75/63	69.4	45.3	0.65	3.0	23.4
				80.6/66.2	73.5	55.1	0.75	3.0	24.6
				85/71	85.0	50.6	0.60	3.1	27.8
50	9.0	5.9	2.5	75/63	70.2	45.6	0.65	2.9	24.2
				80.6/66.2	74.3	55.4	0.75	2.9	25.4
				85/71	85.9	50.9	0.59	3.0	28.8
	15.0	14.8	6.3	75/63	64.1	43.3	0.68	2.9	22.1
				80.6/66.2	67.8	52.7	0.78	2.9	23.2
				85/71	78.5	48.4	0.62	3.0	26.2
60	9.0	5.9	2.5	75/63	66.8	44.4	0.66	3.4	19.5
				80.6/66.2	70.8	53.9	0.76	3.5	20.4
				85/71	81.8	49.6	0.61	3.5	23.1
	15.0	14.6	6.2	75/63	67.6	44.7	0.66	3.2	21.3
				80.6/66.2	71.6	54.3	0.76	3.2	22.4
				85/71	82.8	49.9	0.60	3.3	25.3
70	9.0	5.7	2.4	75/63	61.5	42.4	0.69	3.1	19.8
				80.6/66.2	65.1	51.5	0.79	3.1	20.8
				85/71	75.3	47.3	0.63	3.2	23.5
	15.0	14.4	6.1	75/63	64.2	43.3	0.68	3.7	17.3
				80.6/66.2	68.0	52.7	0.77	3.7	18.1
				85/71	78.6	48.4	0.62	3.8	20.5
80	9.0	5.7	2.4	75/63	65.0	43.6	0.67	3.4	19.0
				80.6/66.2	68.8	53.0	0.77	3.5	19.9
				85/71	79.5	48.7	0.61	3.5	22.5
	15.0	14.1	6.0	75/63	59.0	41.1	0.70	3.3	17.6
				80.6/66.2	62.4	50.0	0.80	3.4	18.5
				85/71	72.2	45.9	0.64	3.5	20.9
90	9.0	5.4	2.3	75/63	61.5	42.2	0.69	4.0	15.2
				80.6/66.2	65.2	51.3	0.79	4.1	16.0
				85/71	75.4	47.1	0.63	4.2	18.1
	15.0	13.7	5.8	75/63	62.3	42.5	0.68	3.7	16.8
				80.6/66.2	65.9	51.6	0.78	3.8	17.6
				85/71	76.2	47.4	0.62	3.8	19.9
100	9.0	5.7	2.4	75/63	56.1	40.4	0.72	3.6	15.4
				80.6/66.2	59.4	49.1	0.83	3.7	16.2
				85/71	68.7	45.1	0.66	3.7	18.3
	15.0	14.1	6.0	75/63	58.8	41.1	0.70	4.4	13.3
				80.6/66.2	62.2	49.9	0.80	4.4	14.0
				85/71	71.9	45.9	0.64	4.5	15.8
110	9.0	5.2	2.2	75/63	59.4	41.3	0.70	4.1	14.6
				80.6/66.2	62.9	50.2	0.80	4.1	15.4
				85/71	72.8	46.2	0.63	4.2	17.4
	15.0	13.2	5.6	75/63	53.5	39.2	0.73	4.0	13.5
				80.6/66.2	56.6	47.6	0.84	4.0	14.1
				85/71	65.5	43.7	0.67	4.1	16.0
120	9.0	5.4	2.3	75/63	55.9	40.0	0.72	4.8	11.6
				80.6/66.2	59.2	48.6	0.82	4.9	12.1
				85/71	68.4	44.7	0.65	5.0	13.7
	15.0	13.4	5.7	75/63	56.5	40.2	0.71	4.5	12.7
				80.6/66.2	59.8	48.9	0.82	4.5	13.3
				85/71	69.2	44.9	0.65	4.6	15.0
130	9.0	5.4	2.3	75/63	50.5	38.4	0.76	4.4	11.6
				80.6/66.2	53.5	46.7	0.87	4.4	12.1
				85/71	61.9	42.9	0.69	4.5	13.7
	15.0	13.4	5.7	75/63	52.9	39.0	0.74	5.3	10.0
				80.6/66.2	56.0	47.4	0.85	5.4	10.5
				85/71	64.8	43.5	0.67	5.5	11.8
140	9.0	5.4	2.3	75/63	53.5	39.1	0.73	4.9	10.9
				80.6/66.2	56.6	47.6	0.84	5.0	11.4
				85/71	65.5	43.7	0.67	5.1	12.9
	15.0	13.2	5.6	75/63	47.7	37.5	0.79	4.8	9.9
				80.6/66.2	50.5	45.5	0.90	4.9	10.4
				85/71	58.4	41.8	0.72	5.0	11.7
150	9.0	5.2	2.2	75/63	49.7	38.1	0.77	5.8	8.5
				80.6/66.2	52.6	46.3	0.88	5.9	8.9
				85/71	60.8	42.6	0.70	6.0	10.1
	15.0	13.2	5.6	75/63	50.3	38.3	0.76	5.5	9.2
				80.6/66.2	53.2	46.5	0.87	5.5	9.7
				85/71	61.5	42.7	0.69	5.6	10.9

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

Bosch Thermotechnology Corp. reserves the right to make changes without notice due to continuing engineering and technological advances | BTC 760108306 H | 12.2018

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM070 Full Load Heating Performance Data - 2230 SCFM -799 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB	Total KBtu/hr.	Heat of Absp kBtu/hr	Power kW	COP
20	9.0	6.6	2.8	60	39.6	25.0	3.34	3.5
				68	40.3	26.8	3.57	3.3
				80	40.9	27.9	3.72	3.2
	12.0	10.8	4.6	60	41.8	26.9	3.38	3.6
				68	42.6	28.7	3.62	3.4
				80	43.2	29.9	3.77	3.4
	18.0	22.2	9.4	60	42.6	27.3	3.40	3.7
				68	43.3	29.2	3.64	3.5
				80	44.0	30.4	3.78	3.4
30	9.0	6.1	2.6	60	44.8	29.3	3.45	3.8
				68	45.6	31.4	3.69	3.6
				80	46.3	32.7	3.84	3.5
	15.0	15.6	6.6	60	47.6	31.7	3.51	4.0
				68	48.5	34.0	3.75	3.8
				80	49.2	35.3	3.91	3.7
	18.0	21.4	9.1	60	48.6	32.5	3.53	4.0
				68	49.4	34.8	3.78	3.8
				80	50.2	36.2	3.93	3.7
40	9.0	6.1	2.6	60	50.4	34.0	3.57	4.1
				68	51.3	36.4	3.82	3.9
				80	52.1	37.9	3.98	3.8
	15.0	15.3	6.5	60	54.0	37.1	3.64	4.4
				68	55.0	39.7	3.90	4.1
				80	55.8	41.4	4.05	4.0
	18.0	21.0	8.9	60	55.3	38.0	3.66	4.4
				68	56.3	40.6	3.92	4.2
				80	57.2	42.3	4.08	4.1
50	9.0	5.9	2.5	60	56.7	39.3	3.69	4.5
				68	57.6	42.0	3.95	4.3
				80	58.6	43.8	4.11	4.2
	15.0	14.8	6.3	60	61.4	42.9	3.78	4.8
				68	62.4	45.9	4.04	4.5
				80	63.4	47.8	4.21	4.4
	18.0	20.7	8.8	60	62.4	44.3	3.81	4.8
				68	63.5	47.4	4.07	4.6
				80	64.5	49.3	4.24	4.5
60	9.0	5.9	2.5	60	63.4	45.0	3.82	4.9
				68	64.5	48.1	4.09	4.6
				80	65.5	50.1	4.26	4.5
	15.0	14.6	6.2	60	68.4	49.1	3.93	5.1
				68	69.6	52.5	4.20	4.9
				80	70.7	54.7	4.38	4.7
	18.0	20.3	8.6	60	70.2	50.5	3.96	5.2
				68	71.4	54.0	4.24	4.9
				80	72.5	56.2	4.42	4.8
70	9.0	5.7	2.4	60	70.5	50.9	3.97	5.2
				68	71.7	54.4	4.25	4.9
				80	72.8	56.7	4.42	4.8
	15.0	14.4	6.1	60	76.5	56.0	4.10	5.5
				68	77.8	59.9	4.39	5.2
				80	79.0	62.3	4.57	5.1
	18.0	19.8	8.4	60	78.4	57.6	4.14	5.5
				68	79.8	61.7	4.43	5.3
				80	81.0	64.2	4.62	5.1
80	9.0	5.7	2.4	60	77.7	57.0	4.13	5.5
				68	79.1	61.0	4.42	5.2
				80	80.3	63.5	4.60	5.1
	15.0	14.1	6.0	60	84.7	62.8	4.28	5.8
				68	86.1	67.2	4.59	5.5
				80	87.5	70.0	4.77	5.4
	18.0	19.6	8.3	60	86.9	64.7	4.34	5.9
				68	88.4	69.2	4.64	5.6
				80	89.8	72.1	4.83	5.4
90	9.0	5.4	2.3	Operation Not Recommended				
	15.0	13.7	5.8					
	18.0	19.1	8.1					
100	9.0	5.4	2.3					
	15.0	13.4	5.7					
	18.0	18.6	7.9					
110	9.0	5.2	2.2					
	15.0	13.2	5.6					
	18.0	18.4	7.8					

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM070 Partial Load Cooling Performance Data - 1770 SCFM -516 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB / °F WB	Total KBtu/hr.	Latent Capacity Kbtu/hr	SHR	Power kW	EER
20	9.0	6.6	2.8	Operation Not Recommended					
	12.0	10.8	4.6						
	18.0	22.2	9.4						
30	9.0	6.1	2.6						
	15.0	15.6	6.6						
	18.0	21.4	9.1						
40	9.0	6.1	2.6	75/63	51.9	35.7	0.69	1.8	29.6
				80.6/66.2	55.0	43.4	0.79	1.8	31.0
				85/71	63.6	39.9	0.63	1.8	35.1
	15.0	15.3	6.5	75/63	54.2	36.5	0.67	1.6	34.1
				80.6/66.2	57.4	44.4	0.77	1.6	35.8
				85/71	66.3	40.8	0.61	1.6	40.5
	18.0	21.0	8.9	75/63	54.8	36.7	0.67	1.5	35.6
				80.6/66.2	58.0	44.6	0.77	1.6	37.3
				85/71	67.1	41.0	0.61	1.6	42.2
50	9.0	5.9	2.5	75/63	49.4	34.7	0.70	2.0	25.0
				80.6/66.2	52.3	42.2	0.81	2.0	26.2
				85/71	60.4	38.8	0.64	2.0	29.7
	15.0	14.8	6.3	75/63	51.6	35.4	0.69	1.8	28.8
				80.6/66.2	54.6	43.0	0.79	1.8	30.2
				85/71	63.1	39.6	0.63	1.8	34.2
	18.0	20.7	8.8	75/63	52.2	35.7	0.68	1.7	30.0
				80.6/66.2	55.3	43.3	0.78	1.8	31.5
				85/71	63.9	39.8	0.62	1.8	35.7
60	9.0	5.9	2.5	75/63	46.8	33.6	0.72	2.2	21.1
				80.6/66.2	49.5	40.9	0.83	2.2	22.1
				85/71	57.3	37.6	0.66	2.3	25.0
	15.0	14.6	6.2	75/63	48.8	33.5	0.69	2.0	24.1
				80.6/66.2	51.7	40.8	0.79	2.0	25.3
				85/71	59.8	37.5	0.63	2.1	28.7
	18.0	20.3	8.6	75/63	49.4	33.7	0.68	2.0	25.1
				80.6/66.2	52.3	41.0	0.78	2.0	26.4
				85/71	60.5	37.7	0.62	2.0	29.8
70	9.0	5.7	2.4	75/63	44.1	31.9	0.72	2.5	17.6
				80.6/66.2	46.7	38.8	0.83	2.5	18.5
				85/71	54.0	35.6	0.66	2.6	20.9
	15.0	14.4	6.1	75/63	46.0	32.5	0.71	2.3	20.1
				80.6/66.2	48.7	39.5	0.81	2.3	21.1
				85/71	56.4	36.3	0.64	2.4	23.9
	18.0	19.8	8.4	75/63	46.6	32.7	0.70	2.2	20.9
				80.6/66.2	49.3	39.7	0.81	2.3	21.9
				85/71	57.1	36.5	0.64	2.3	24.8
80	9.0	5.7	2.4	75/63	41.3	30.7	0.74	2.8	14.7
				80.6/66.2	43.7	37.3	0.85	2.8	15.4
				85/71	50.5	34.3	0.68	2.9	17.4
	15.0	14.1	6.0	75/63	43.2	31.5	0.73	2.6	16.6
				80.6/66.2	45.7	38.3	0.84	2.6	17.5
				85/71	52.9	35.2	0.67	2.7	19.8
	18.0	19.6	8.3	75/63	43.7	31.7	0.73	2.5	17.3
				80.6/66.2	46.3	38.5	0.83	2.6	18.1
				85/71	53.5	35.4	0.66	2.6	20.5
90	9.0	5.4	2.3	75/63	38.6	29.9	0.78	3.2	12.2
				80.6/66.2	40.9	36.4	0.89	3.2	12.8
				85/71	47.3	33.4	0.71	3.3	14.5
	15.0	13.7	5.8	75/63	40.3	30.5	0.76	2.9	13.7
				80.6/66.2	42.6	37.0	0.87	3.0	14.4
				85/71	49.3	34.0	0.69	3.0	16.3
	18.0	19.1	8.1	75/63	40.8	30.6	0.75	2.9	14.2
				80.6/66.2	43.2	37.2	0.86	2.9	14.9
				85/71	49.9	34.2	0.69	3.0	16.8
100	9.0	5.4	2.3	75/63	35.9	29.0	0.81	3.5	10.1
				80.6/66.2	38.0	35.2	0.93	3.6	10.6
				85/71	43.9	32.3	0.74	3.7	12.0
	15.0	13.4	5.7	75/63	37.4	29.5	0.79	3.3	11.3
				80.6/66.2	39.6	35.8	0.90	3.4	11.8
				85/71	45.8	32.9	0.72	3.4	13.4
	18.0	18.6	7.9	75/63	37.9	29.6	0.78	3.3	11.6
				80.6/66.2	40.1	36.0	0.90	3.3	12.2
				85/71	46.4	33.1	0.71	3.4	13.8
110	9.0	5.2	2.2	75/63	47.7	37.5	0.79	4.8	9.9
				80.6/66.2	50.5	45.5	0.90	4.9	10.4
				85/71	58.4	41.8	0.72	5.0	11.7
	15.0	13.2	5.6	75/63	49.7	38.1	0.77	5.8	8.5
				80.6/66.2	52.6	46.3	0.88	5.9	8.9
				85/71	60.8	42.6	0.70	6.0	10.1
	18.0	18.4	7.8	75/63	50.3	38.3	0.76	5.5	9.2
				80.6/66.2	53.2	46.5	0.87	5.5	9.7
				85/71	61.5	42.7	0.69	5.6	10.9

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GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM070 Partial Load Heating Performance Data - 1770 SCFM -516 Fan Watts .6 ESP

Entering Water Temp °F	Water flow GPM	Pressure Drop (FOH)	Pressure Drop (PSI)	EAT °F DB	Total KBtu/hr.	Heat of Absp kBtu/hr	Power kW	COP
20	9.0	6.6	2.8	60	28.3	17.7	2.46	3.4
				68	28.8	19.0	2.63	3.2
				80	29.3	19.7	2.74	3.1
	12.0	10.8	4.6	60	29.6	18.9	2.47	3.5
				68	30.2	20.2	2.64	3.3
				80	30.6	21.0	2.75	3.3
	18.0	22.2	9.4	60	30.1	19.2	2.47	3.6
				68	30.6	20.6	2.64	3.4
				80	31.1	21.4	2.75	3.3
30	9.0	6.1	2.6	60	32.6	21.4	2.49	3.8
				68	33.2	22.9	2.67	3.6
				80	33.7	23.8	2.78	3.6
	15.0	15.6	6.6	60	34.1	23.0	2.51	4.0
				68	34.7	24.6	2.68	3.8
				80	35.3	25.6	2.79	3.7
	18.0	21.4	9.1	60	34.7	23.4	2.51	4.1
				68	35.3	25.0	2.69	3.9
				80	35.9	26.1	2.80	3.8
40	9.0	6.1	2.6	60	37.3	25.5	2.53	4.3
				68	38.0	27.3	2.71	4.1
				80	38.5	28.4	2.82	4.0
	15.0	15.3	6.5	60	39.3	27.3	2.55	4.5
				68	40.0	29.2	2.73	4.3
				80	40.6	30.4	2.84	4.2
	18.0	21.0	8.9	60	39.9	27.8	2.56	4.6
				68	40.6	29.8	2.74	4.3
				80	41.3	31.0	2.85	4.2
50	9.0	5.9	2.5	60	42.3	30.3	2.58	4.8
				68	43.0	32.4	2.77	4.6
				80	43.7	33.7	2.88	4.4
	15.0	14.8	6.3	60	44.7	32.1	2.61	5.0
				68	45.5	34.4	2.79	4.8
				80	46.2	35.8	2.90	4.7
	18.0	20.7	8.8	60	45.5	32.8	2.61	5.1
				68	46.3	35.1	2.80	4.9
				80	47.0	36.6	2.91	4.7
60	9.0	5.9	2.5	60	47.5	34.6	2.63	5.3
				68	48.3	37.0	2.81	5.0
				80	49.1	38.5	2.92	4.9
	15.0	14.6	6.2	60	50.5	37.3	2.64	5.6
				68	51.4	40.0	2.83	5.3
				80	52.2	41.6	2.95	5.2
	18.0	20.3	8.6	60	51.5	38.2	2.65	5.7
				68	52.4	40.9	2.84	5.4
				80	53.2	42.6	2.95	5.3
70	9.0	5.7	2.4	60	53.0	39.5	2.66	5.8
				68	53.9	42.3	2.84	5.5
				80	54.7	44.0	2.96	5.4
	15.0	14.4	6.1	60	56.5	42.8	2.68	6.2
				68	57.5	45.8	2.87	5.9
				80	58.4	47.7	2.98	5.7
	18.0	19.8	8.4	60	57.7	43.8	2.69	6.3
				68	58.7	46.9	2.87	6.0
				80	59.6	48.8	2.99	5.8
80	9.0	5.7	2.4	60	58.6	44.6	2.69	6.4
				68	59.6	47.7	2.88	6.1
				80	60.5	49.7	3.00	5.9
	15.0	14.1	6.0	60	62.7	48.4	2.71	6.8
				68	63.8	51.8	2.90	6.4
				80	64.8	53.9	3.02	6.3
	18.0	19.6	8.3	60	64.0	49.6	2.72	6.9
				68	65.1	53.1	2.91	6.6
				80	66.2	55.2	3.03	6.4
90	9.0	5.4	2.3	Operation Not Recommended				
	15.0	13.7	5.8					
	18.0	19.1	8.1					
100	9.0	5.4	2.3					
	15.0	13.4	5.7					
	18.0	18.6	7.9					
110	9.0	5.2	2.2					
	15.0	13.2	5.6					
	18.0	18.4	7.8					

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Greensource SM Series - Residential Geothermal Heat Pumps



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
Methanol	5	0.997	0.997	1.003	0.990	0.997	1.060
	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
Ethanol	5	0.998	0.998	1.002	0.981	0.994	1.160
	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
Ethylene Glycol	5	0.997	0.997	1.003	0.993	0.998	1.060
	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 SM Series - Residential Geothermal Heat Pumps



BOSCH

SM024-1VT Octave Band Sound Power Levels dB, re 10-12 Watts

Description	Load	Center Frequency - Hz								A weighted overall (dBA)	A weighted overall (dBA)
		63	125	250	500	1000	2000	4000	8000	"ARI-260:2011 (50Hz-10kHz)"	"ARI-260:2001 (100hz-10kHz)"
Casing Radiated	Cooling Part	85	58	56	53	50	40	40	32	60	55
	Cooling Full	85	60	57	53	51	44	44	39	60	56
	Heating Part	84	62	56	54	49	41	41	33	60	55
	Heating Full	84	64	59	55	51	45	46	40	60	57
	FAN Only	67	55	50	48	38	34	36	26	48	48
Ducted Discharge	Cooling Part	82	63	51	56	54	48	43	35	60	58
	Cooling Full	83	64	53	58	56	51	47	38	62	60
	Heating Part	85	66	52	57	55	49	45	36	62	59
	Heating Full	84	67	55	60	57	53	49	40	63	62
	FAN Only	76	62	52	61	54	49	45	37	60	60

SM024-1HZ Octave Band Sound Power Levels dB, re 10-12 Watts

Description	Load	Center Frequency - Hz								A weighted overall (dBA)	A weighted overall (dBA)
		63	125	250	500	1000	2000	4000	8000	"ARI-260:2011 (50Hz-10kHz)"	"ARI-260:2001 (100hz-10kHz)"
Casing Radiated	Cooling Part	79	66	60	54	53	44	38	31	59	58
	Cooling Full	80	63	60	54	54	47	40	37	59	58
	Heating Part	74	66	59	54	52	43	38	31	58	57
	Heating Full	74	65	61	53	54	45	39	34	58	58
	FAN Only	73	61	56	51	48	43	38	30	54	53
Ducted Discharge	Cooling Part	75	67	60	67	63	59	56	49	68	63
	Cooling Full	76	68	62	68	65	61	58	52	70	67
	Heating Part	77	67	60	65	63	58	56	49	67	63
	Heating Full	77	70	62	68	65	61	59	53	70	67
	FAN Only	75	67	60	66	63	59	56	49	67	63

SM036-1VT Octave Band Sound Power Levels dB, re 10-12 Watts

Description	Load	Center Frequency - Hz								A weighted overall (dBA)	A weighted overall (dBA)
		63	125	250	500	1000	2000	4000	8000	"ARI-260:2011 (50Hz-10kHz)"	"ARI-260:2001 (100hz-10kHz)"
Casing Radiated	Cooling Part	75	57	53	49	44	35	31	31	52	50
	Cooling Full	72	60	54	49	46	38	42	42	53	53
	Heating Part	78	61	51	48	44	36	33	31	54	50
	Heating Full	80	63	55	49	47	39	40	39	56	53
	FAN Only	66	54	45	41	38	31	24	23	45	44
Ducted Discharge	Cooling Part	80	64	52	56	55	49	43	35	60	59
	Cooling Full	81	65	65	58	58	53	47	40	62	62
	Heating Part	82	66	53	57	57	50	44	35	61	60
	Heating Full	81	67	56	59	60	54	49	39	64	63
	FAN Only	76	65	52	57	55	50	45	36	60	59

GreenSource SM Series - Residential Geothermal Heat Pumps



BOSCH

SM036-1HZ Octave Band Sound Power Levels dB, re 10-12 Watts

Description	Load	Center Frequency - Hz								A weighted overall (dBA)	A weighted overall (dBA)
		63	125	250	500	1000	2000	4000	8000	"ARI-260:2011 (50Hz-10kHz)"	"ARI-260:2001 (100hz-10kHz)"
Casing Radiated	Cooling Part	75	61	53	50	45	39	34	31	53	52
	Cooling Full	75	65	55	52	49	43	41	40	56	55
	Heating Part	74	60	52	50	44	38	33	30	53	52
	Heating Full	73	66	57	51	48	42	39	36	56	55
	FAN Only	66	53	48	45	42	36	29	24	48	47
Ducted Discharge	Cooling Part	78	65	56	61	59	55	53	46	64	63
	Cooling Full	89	71	59	63	62	59	57	51	68	67
	Heating Part	79	65	56	61	59	56	53	46	64	63
	Heating Full	80	68	59	63	62	59	58	52	67	67
	FAN Only	79	66	56	61	59	55	53	46	64	63

SM048-1VT Octave Band Sound Power Levels dB, re 10-12 Watts

Description	Load	Center Frequency - Hz								A weighted overall (dBA)	A weighted overall (dBA)
		63	125	250	500	1000	2000	4000	8000	"ARI-260:2011 (50Hz-10kHz)"	"ARI-260:2001 (100hz-10kHz)"
Casing Radiated	Cooling Part	71	59	55	53	46	41	35	33	54	53
	Cooling Full	75	63	58	55	49	44	40	38	57	56
	Heating Part	77	62	56	53	46	40	35	32	55	54
	Heating Full	78	64	58	54	48	42	38	35	57	56
	FAN Only	68	54	46	44	40	35	27	23	47	46
Ducted Discharge	Cooling Part	78	64	53	57	57	52	46	38	61	60
	Cooling Full	80	67	58	60	62	57	52	46	65	65
	Heating Part	79	68	56	59	59	53	47	39	62	62
	Heating Full	81	72	60	62	63	59	54	48	67	67
	FAN Only	77	65	54	59	59	54	50	41	63	63

SM048-1HZ Octave Band Sound Power Levels dB, re 10-12 Watts

Description	Load	Center Frequency - Hz								A weighted overall (dBA)	A weighted overall (dBA)
		63	125	250	500	1000	2000	4000	8000	"ARI-260:2011 (50Hz-10kHz)"	"ARI-260:2001 (100hz-10kHz)"
Casing Radiated	Cooling Part	75	69	56	52	50	43	36	32	57	57
	Cooling Full	77	75	60	53	53	48	40	36	62	61
	Heating Part	77	69	58	52	51	43	35	31	58	57
	Heating Full	76	75	69	53	53	47	39	34	63	63
	FAN Only	69	56	56	49	48	43	35	27	53	52
Ducted Discharge	Cooling Part	82	70	59	63	63	59	58	52	67	67
	Cooling Full	88	75	64	67	66	64	62	58	72	71
	Heating Part	81	69	60	64	63	60	58	53	68	67
	Heating Full	83	74	64	67	66	64	63	58	71	71
	FAN Only	86	70	60	63	62	60	58	52	68	67

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SM060-1VT Octave Band Sound Power Levels dB, re 10-12 Watts

Description	Load	Center Frequency - Hz								A weighted overall (dBA)	A weighted overall (dBA)
		63	125	250	500	1000	2000	4000	8000	"ARI-260:2011 (50Hz-10kHz)"	"ARI-260:2001 (100hz-10kHz)"
Casing Radiated	Cooling Part	83	60	54	53	51	48	39	36	59	56
	Cooling Full	85	63	57	54	54	51	42	38	62	58
	Heating Part	78	63	54	52	51	47	38	36	57	55
	Heating Full	84	65	58	53	54	52	43	36	61	59
	FAN Only	68	56	48	48	47	44	33	24	51	51
Ducted Discharge	Cooling Part	77	65	57	60	61	57	52	45	64	64
	Cooling Full	80	70	62	63	65	63	59	54	69	69
	Heating Part	81	68	60	61	62	59	54	46	66	66
	Heating Full	82	72	65	65	67	64	60	54	71	71
	FAN Only	77	67	57	63	62	59	56	48	67	67

SM060-1HZ Octave Band Sound Power Levels dB, re 10-12 Watts

Description	Load	Center Frequency - Hz								A weighted overall (dBA)	A weighted overall (dBA)
		63	125	250	500	1000	2000	4000	8000	"ARI-260:2011 (50Hz-10kHz)"	"ARI-260:2001 (100hz-10kHz)"
Casing Radiated	Cooling Part	82	66	58	55	51	45	42	37	59	57
	Cooling Full	79	72	62	58	55	49	47	42	62	61
	Heating Part	76	67	62	57	52	47	47	47	60	60
	Heating Full	82	74	63	58	56	49	46	42	63	62
	FAN Only	71	60	57	53	49	44	39	29	55	55
Ducted Discharge	Cooling Part	89	73	63	67	63	61	60	54	70	69
	Cooling Full	94	79	68	70	68	66	66	61	75	74
	Heating Part	88	74	63	67	64	61	60	54	70	70
	Heating Full	94	79	68	70	68	66	66	61	75	74
	FAN Only	87	73	63	67	64	62	60	54	70	70

SM070-1VT Octave Band Sound Power Levels dB, re 10-12 Watts

Description	Load	Center Frequency - Hz								A weighted overall (dBA)	A weighted overall (dBA)
		63	125	250	500	1000	2000	4000	8000	"ARI-260:2011 (50Hz-10kHz)"	"ARI-260:2001 (100hz-10kHz)"
Casing Radiated	Cooling Part	77	62	57	56	55	52	45	39	60	60
	Cooling Full	81	65	61	58	61	58	51	43	65	64
	Heating Part	79	64	60	54	52	49	42	40	59	58
	Heating Full	82	67	60	56	56	55	48	41	62	61
	FAN Only	70	57	52	51	49	48	40	29	55	54
Ducted Discharge	Cooling Part	80	71	63	68	67	64	62	56	72	72
	Cooling Full	81	76	68	73	74	70	69	64	78	78
	Heating Part	82	73	63	64	66	63	58	51	70	70
	Heating Full	85	78	70	72	72	68	67	61	76	76
	FAN Only	78	71	62	68	67	63	62	55	71	71

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SM070-1HZ Octave Band Sound Power Levels dB, re 10-12 Watts

Description	Load	Center Frequency - Hz								A weighted overall (dBA)	
		63	125	250	500	1000	2000	4000	8000	"ARI-260:2011 (50Hz-10kHz)"	"ARI-260:2001 (100hz-10kHz)"
Casing Radiated	Cooling Part	82	68	61	57	52	49	44	36	61	59
	Cooling Full	80	72	63	59	54	51	46	39	62	61
	Heating Part	75	71	63	59	52	48	44	40	61	61
	Heating Full	77	74	64	60	55	50	45	37	63	63
	FAN Only	73	63	61	55	51	49	44	42	58	58
Ducted Discharge	Cooling Part	92	78	67	69	68	66	64	59	74	73
	Cooling Full	97	83	72	72	73	70	69	64	78	77
	Heating Part	92	79	68	70	69	66	64	59	74	74
	Heating Full	96	82	73	73	74	70	69	64	79	78
	FAN Only	93	79	68	70	69	66	64	59	74	74



Casing radiated sound power represents the sound a person would hear if they were standing directly in front of the unit. Ducted discharge sound power levels represent the sound a person would hear through air vents in a room when the heat pump is installed elsewhere.

Blower Performance Data

Model	Rated Airflow at default 400 CFM/Ton	Fan Only Ventilation 50%	DeHum Reduction Percent	Effective DeHum Airflow	Most efficient effective Airflow Config SCT	Min Airflow/ton Heater	Static in. WC
SM024 Full Load	800	400	15.00%	680	800	400	0-0.8
SM024 Part Load	704	352	15.00%	598	704	400	0-0.8
SM036 Full Load	1200	600	15.00%	1020	1350	400	0-1.2
SM036 Part Load	1056	528	15.00%	898	1188	400	0-1.2
SM048 Full Load	1600	800	15.00%	1360	1600	400	0-1.2
SM048 Part Load	1408	704	15.00%	1197	1408	400	0-1.2
SM060 Full Load	2000	1000	15.00%	1700	2050	400	0-1.2
SM060 Part Load	1760	880	15.00%	1496	1804	400	0-1.2
SM070 Full Load	2400	1200	15.00%	2040	2250	400	0-1.2
SM070 Part Load	2112	1056	15.00%	1795	1980	400	0-1.2

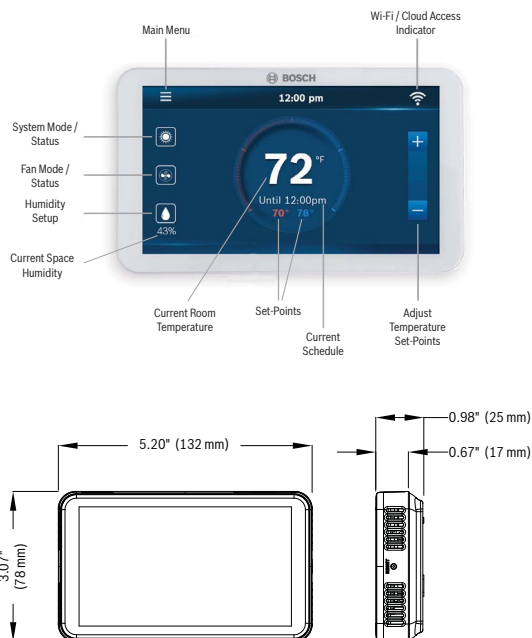


Min CFM/ton in cooling is 270 CFM/ton; If calculated values fall below this limit, the control will default to this minimum limit.

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Field Install Accessory - Bosch Connected Control Wi-Fi Thermostat



Description	Part Number	Heat	Cool	Humidity
Bosch Connected Control (BCC100)	8-733-948-009	4	2	Yes

Specifications

- 5 Inch Touch Screen 854 x 480 Pixels
- 7 Relay Outputs (Terminals) G, Y1, Y2, W1, W2, O/B, H/dH
- 1 Data Input (Pulse signals from Bosch WSHP)
- Displays Bosch Water Source Heat Pump Fault Messages
- Wi-Fi (802.11a/b/g/n) 2.4GHz (not compatible with 5GHz)
- FCC and IC Certification
- 5 Year Limited Warranty (see website for details)

Compatibility

- Conventional (Gas, Oil, Electric): Up to 2 Heat / 2 Cool
- Heat Pump (O/B to energize reversing valve in cool/heat): Up to 4 Heat / 2 Cool
- Supports up to 1 Accessory Unit: Humidifier or Dehumidifier (not provided by Bosch)
- Unit Modes: Heat, Cool, Auto, Off, Emergency Heat
- Fan Modes: Auto, On, Circulate
- Supports 2 Transformer Systems (Rh and Rc)
- C-Wire Required for Installation
- Supports Active and Passive Dehumidification without the need for external relays, such as Bosch Water Source Heat Pump products equipped with a Hot Gas Reheat Coil and/or ECM motor

Field Install Accessory - SmartStart Assist Kit

Part Number	SM024		SM036		SM048		SM060		SM070	
	VT	HZ	VT	HZ	VT	HZ	VT	HZ	VT	HZ
8733920430	•	•	•	•	•	•	•	•	•	•

Field Install Accessory - Internally Mounted Electric Heat Kits

Part Number	Kilowatt Heater - 208/230V	Availability per Unit				
		SM024	SM036	SM048	SM060	SM070
7738003204	Electric Heat - 3.6/4.8 kW	•	•	•	•	•
7738003205	Electric Heat - 7.8/9.6 kW	•	•	•	•	•
7738003206	Electric Heat - 10.8/14.4 kW		•	•	•	•
7738003207	Electric Heat - 14.4/19.2 kW			•	•	•

Field Install Accessory - Pump/Valve Relay Kit

Part Number	SM024		SM036		SM048		SM060		SM070	
	VT	HZ	VT	HZ	VT	HZ	VT	HZ	VT	HZ
8733951906	•	•	•	•	•	•	•	•	•	•

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Field Install Accessory - Duct Mounted Electric Heaters 208/230V

Nominal BTUH	Order #				Nominal CFM	Duct Flange Connection in Inches	Nominal Dimension in Inches
	5 kW	10 kW	15 kW	20 kW			
18000	7738002745	N/A	N/A	N/A	600	13.75 x 13.75	14 x 14
24000	7738002746	7738002747	N/A	N/A	800	13.75 x 13.75	14 x 14
30000	7738002748	7738002749	N/A	N/A	1000	15.75 x 15.75	16 x 16
36000	7738002748	7738002749	N/A	N/A	1200	15.75 x 15.75	16 x 16
42000	7738002747	7738002751	7738002752	N/A	1400	17.75 x 17.75	18 x 18
48000	7738002747	7738002751	7738002752	N/A	1600	17.75 x 17.75	18 x 18
60000	7738002747	7738002751	7738002752	7738002753	2000	17.75 x 17.75	18 x 18
70000	7738002747	7738002751	7738002752	7738002753	2200	17.75 x 17.75	18 x 18



Duct mounted heaters are only available in single phase 208/230 V. Please refer to Manufacturer's Installation and Operation Manual for proper installation and guidelines. It is recommended to use a seven (7) conductor cables for thermostat interface. It is required for the duct mounted heater to have an independent power supply. In fiberglass duct systems, a metal sleeve MUST be used as an insert and support to the heater.

Field Install Accessory - Swivel Connector Kit (two connectors shipped loose with each unit)

Order Number	Type and Size	SM024		SM036		SM048		SM060		SM070	
		VT	HZ	VT	HZ	VT	HZ	VT	HZ	VT	HZ
8733927179	Male 3/4" NPT MPT to 1" swivel FPT	●									
8733927180	Male 1" NPT MPT to 1" swivel FPT		●	●	●	●	●	●	●	●	●



Swivel fittings are used in typical residential installations where water pressure ratings are below 125 psi. For higher pressure ratings which are typical to commercial installations, swivel fittings MUST NOT be used.

Replacement Air Filter Information

Nominal Filter Size (MERV8 filters recommended MERV13 filters used only with horizontal units)	SM024		SM036		SM048		SM060		SM070	
	VT	HZ	VT	HZ	VT	HZ	VT	HZ	VT	HZ
	Quantity Need per Unit									
16 X 30 X 2			2		2					
18 X 18 X 2		2								
18 X 20 X 2							3		3	
20 X 24 X 2				2	2					
20 X 30 X 2						2		2		
24 X 24 X 2	1									

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Field Install Accessory - Stainless Steel Hose Kits

Options	Option 1	Option 2	Option 3**	Option 4**,***	Option 5**, ***	Option 6**, ***
Hose Size (Length, Diameter)	Hoses Only with Swivel	Hose Kit Hoses with Ported Ball Valves, Swivel and One P/T*	Hose Kit with Automatic Flow Valve (AFV)*	Hose kit with AFV, Y-Strainer & Blow Down Valve*	Hose Kit with AFV and Electric Valve*	Hose Kit with AFV, Y-Strainer, BDV and Electric Valve*
	Part #	Part #	Part #	Part #	Part #	Part #
12 Inch						
1/2" L	T111H02121	T111H02122	T111H02123	T111H02124	T111H02125	T111H02126
24 Inch						
3/4" S	T111H03241	T111H03242	T111H03243	T111H03244	T111H03245	T111H03246
1" L	T111H04241	T111H04242	T111H04243	T111H04244	T111H04245	T111H04246
1" S	T111H04241	T111H04242	T111H04247	T111H04248	T111H04249	T111H04240
1 - 1/4" S	T111H05241	T111H05242	T111H05243	T111H05244	T111H05245	T111H05246
1 - 1/2" L	T111H06241	T111H06242	T111H06243	T111H06244	T111H06245	T111H06246
1 - 1/2" S	T111H06241	T111H06242	T111H06247	T111H06248	T111H06249	T111H06240
2" S	T111H08241	T111H08242	T111H08243	T111H08244	T111H08245	T111H08246
36 Inch						
3/4" S	T111H03361	T111H03362	T111H03363	T111H03364	T111H03365	T111H03366
1" L	T111H04361	T111H04362	T111H04363	T111H04364	T111H04365	T111H04366
1" S	T111H04361	T111H04362	T111H04367	T111H04368	T111H04369	T111H04360
1 - 1/4" S	T111H05361	T111H05362	T111H05363	T111H05364	T111H05365	T111H05366
1 - 1/2" L	T111H06361	T111H06362	T111H06363	T111H06364	T111H06365	T111H06366
1 - 1/2" S	T111H06361	T111H06362	T111H06367	T111H06368	T111H06369	T111H06360
2" S	T111H08361	T111H08362	T111H08363	T111H08364	T111H08365	T111H08366

* All Hose Kits include S/R ported ball valves with swivel and P/T port.

** 'L' and 'S' only apply to kit options 3 through 6

*** GMP's are required for hose kits in options 3-6

Hose Kit Flow Rates by Size

Please see Technical Service Bulletin: Heat Pump Hose Kits – Water Flow Rates.

This document is located at www.bosch-climate.us under Support Center > Downloads > Downloads for Bosch Products > Service Bulletins.