



# G E O T H E R M A L   H E A T   P U M P S

VARIABLE CAPACITY HEATING | COOLING | HOT WATER

[www.geostar-geo.com](http://www.geostar-geo.com)



AFFORDABLE   RENEWABLE   CLEAN

SYCAMORE SERIES

## WHAT IS GEOTHERMAL?

Geothermal units use the solar energy stored just below our feet to provide heating, air conditioning and hot water. The earth acts as a giant solar panel absorbing roughly half of the sun's heat energy. A series of pipes called a "loop" (see next page for more) is buried just below the frost line to tap into that stored energy. In the winter, heat is brought

in through the loop, concentrated, and delivered throughout your home. During summer, the excess heat in your home is removed and delivered back to the earth completing the cycle. Because geothermal units use the earth's natural heat, they are among the most efficient and comfortable heating and cooling technologies currently available.

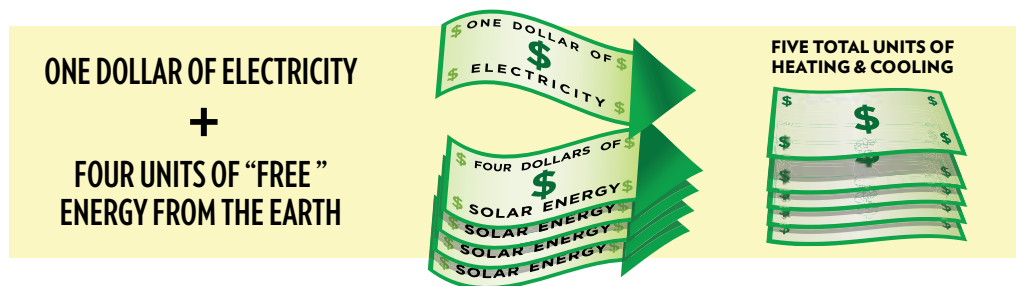
*The Sycamore runs at the exact capacity needed to condition your home rather than the one or two speeds of traditional equipment.*



## GEOSTAR BENEFITS

*Thanks to the unique way geothermal units operate, they provide a host of exciting benefits to you and our environment.*

**AMAZING ENERGY EFFICIENCY:** Geothermal heat pumps don't create energy, they simply move it. Only a small amount of electricity is used to circulate heat to and from your home. This allows GeoStar units to provide \$5 of heating for every \$1 of electricity used, while current "high-efficiency" fossil fuel furnaces provide only 98¢. Our units are far more efficient than any conventional furnace!



**COST EFFECTIVENESS:** Though geothermal systems can be more expensive to purchase up front, the cost difference will be returned through drastically lower energy bills. Most GeoStar owners see savings up to 70% on their utility bills!

**GREATER COMFORT:** The Sycamore from GeoStar runs only at the level needed by utilizing a variable capacity compressor, variable speed motor, and variable speed loop pumps. It'll slowly ramp up to speed rather than "roaring" to life like a traditional unit - resulting in even, consistent comfort. You won't experience the large temperature fluctuations associated with other heating and cooling solutions.

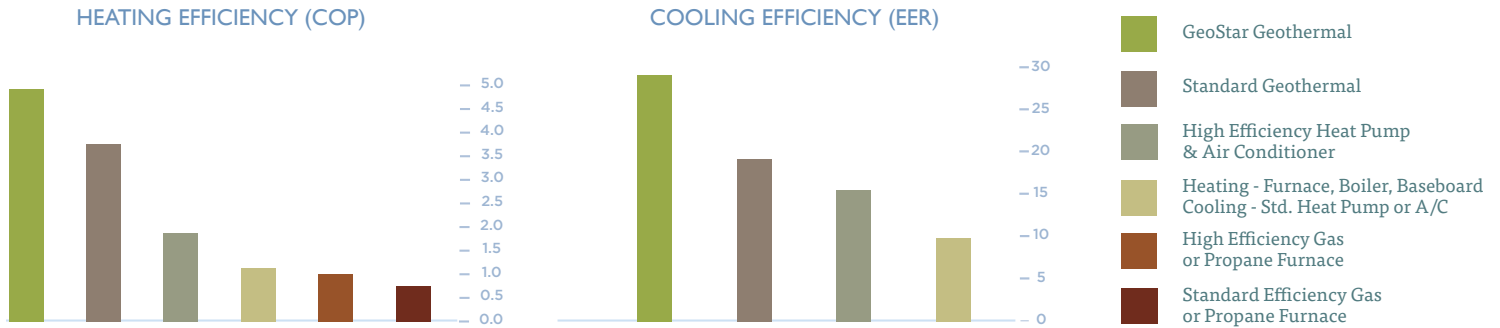
**QUIET:** With our unit, there's no noisy outdoor equipment to disturb the peace or clutter your yard. GeoStar units are so quiet, some homeowners have reported checking the unit to see if it's even running!

**LONGER LIFE AND RELIABILITY:** Because GeoStar units don't require any outdoor equipment, they are protected from the rain, snow, environmental contaminants and abuse that hinders the efficiency of traditional air conditioners and heat pumps.

**ENVIRONMENTALLY FRIENDLY:** Geothermal units don't burn any fossil fuels or create carbon monoxide. This reduces our dependence on foreign oil while it works to reduce greenhouse gas emissions. One GeoStar geothermal unit is the environmental equivalent of taking two cars off the road forever. In fact, the Environmental Protection Agency (EPA) says geothermal heat pumps are the most environmentally friendly and cost effective way to condition our homes.

## COMPARE THE PERFORMANCE

A GeoStar unit can reduce your annual costs for heating, cooling and hot water by as much as 70% per year. No other gas furnace, air conditioner or heat pump comes close to GeoStar's efficiency. With continuous and dramatic increases in the cost of fossil fuels like natural gas, propane and fuel oil, the savings possibilities are even greater in the future. Your GeoStar dealer can use software modeling tools to estimate the heating and cooling costs for your home based on square footage, construction style, and climate.



## GEOHERMAL LOOP TYPES:

There are four main loop types used in the geothermal industry today. Your GeoStar dealer can provide you with guidance and advice for your specific situation.



### VERTICAL LOOP

Used when space is limited. Holes are bored approximately 125 to 250 ft. deep using a drilling rig. A pair of polyethylene pipes with a u-bend fitting is inserted into the holes. A typical home requires three to five bores with roughly a 15-foot separation between the holes.



### HORIZONTAL LOOP

Used where adequate land is available. Horizontal loops involve one or more trenches dug using a backhoe or chain trencher. Polyethylene pipes are inserted, and the trenches are backfilled. A typical home requires 1/4 to 3/4 of an acre for the trenches.



### POND LOOP

If an adequately sized body of water is close to your home, a pond loop can be installed. A series of closed loops are coiled and sunk to the bottom of the pond or lake. A 1/2 acre, 8-foot-deep pond is usually sufficient for the average home.



### OPEN LOOP

An open loop is used where there is an abundant supply of quality well water. The well must have enough capacity to provide adequate flow for both domestic use and the GeoStar unit. GeoStar units require 3 - 10 GPM, depending on size.

# SYCAMORE SERIES TECHNOLOGY

GeoStar products are designed to heat and cool while saving you money and protecting our environment. We combine innovative technology and components to achieve the highest levels of performance and peace of mind, and our Sycamore Series is the most impressive system yet. A variable capacity compressor works in concert with a variable speed blower motor and variable speed loop pump to provide the utmost in comfort. Now the entire system can ramp itself up or down to provide exactly the output your home needs at any given time. Add in the Aurora family of controls for two-way communication, and you have one of the most advanced heating and cooling systems on the planet.

## SYCAMORE SERIES FEATURES

**VARIABLE CAPACITY COMPRESSOR:** Variable capacity compressors offer soft start capabilities and gently ramp up to speed for quiet operation while also eliminating light flicker.

**CONTROLS:** Powerful Aurora controls offer two-way communication between components, industry-leading operating logic, and thorough troubleshooting capabilities. An expansion board adds true energy monitoring capabilities, extended hot water generation control and more.

**BLOWER MOTOR:** A variable speed ECM motor runs at only the speed needed for maximum efficiency and savings. When Active Dehumidification is enabled, our Aurora Controls optimize the blower to remove the maximum amount of moisture.

**ADVANCED HOT WATER GENERATION:** With an optional hot water assist, the Sycamore preheats your water and delivers it to your water heater. A sophisticated microprocessor controls and monitors heat pump conditions and determines when there is excess heat available to route to the hot water heater. This allows you to utilize heat in the most efficient way possible.

**AURORA INTERFACE DIAGNOSTIC PORT:** An external communication port allows service and diagnosis of our units without ever having to open them.

**COATED COAXIAL HEAT EXCHANGER:** Our coating protects the coaxial heat exchanger against condensation for temperatures below 50 °F, which will extend its life.

**COATED AIR COIL:** A corrosion resistant air coil increases equipment life. Its large size improves efficiency and provides better dehumidification during cooling.

**CABINET:** The cabinet comes with a durable powder-coat finish for long-lasting beauty and protection. The system is fully insulated for quiet operation with cleanable foil-backed insulation.

**FILTER AND FILTER RACK:** Pleated MERV 11 filter is standard while an optional pleated MERV 13 is available for improved air quality. Filter rack holds 1" or 2" filters and is field convertible.

**R-410A:** All Sycamore units utilize environmentally friendly R-410A refrigerant.



Brought to you by:

### AHRI / ISO / ASHRAE PERFORMANCE RATINGS (13256-1)

Model & Size			Closed Loop		Open Loop	
			Cooling (EER)	Heating (COP)	Cooling (EER)	Heating (COP)
Dual Capacity	036	Full Load	22.0	3.5	31.5	4.6
		Part Load	37.0	5.3	47.2	5.9
	048	Full Load	21.7	3.6	31.7	4.3
		Part Load	41.0	5.3	53.2	5.9
	060	Full Load	19.4	3.5	28.6	4.3
		Part Load	36.0	5.1	45.8	6.0



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