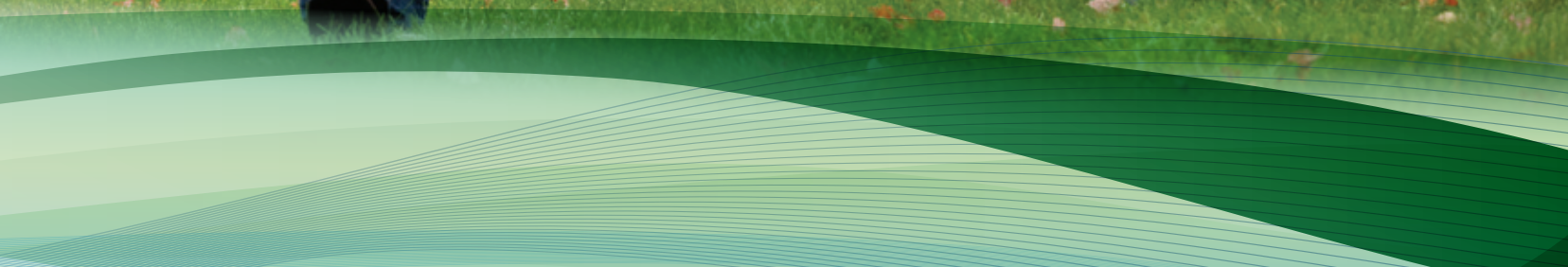


GEO EXCEL

GEO THERMAL SYSTEMS

Go Green, Get Geo!



RESIDENTIAL



SERIES	AP	ES2	ES	WT
Water to Air	Yes	Yes	Yes	N/A
Water to Water	N/A	N/A	N/A	Yes
Size Range	AP025 - AP071	ES025 - ES071	ES018 - ES070	WT025 - WT071
Sizes Available (Tons)	2, 3, 4, 5, 6	2, 3, 4, 5, 6	1.5, 2, 2.5, 3, 3.5, 4, 5, 6	2, 3, 4, 5, 6
Efficiency (GLHP)	EER: 18.0 - 28.5 COP: 4.1 - 4.8	EER: 15.5 - 24.5 COP: 3.6 - 4.0	EER: 15.6 - 19.6 COP: 3.3 - 3.5	EER: 14.5 - 22.1 COP: 2.7 - 3.2
Efficiency (GWHP)	EER: 21.8 - 34.0 COP: 4.6 - 5.5	EER: 19.0 - 30.0 COP: 4.0 - 4.6	EER: 20.1 - 27.4 COP: 3.7 - 4.4	EER: 18.8 - 25.7 COP: 3.4 - 3.8
Efficiency (WLHP)	EER: 16.0 - 20.0 COP: 5.1 - 6.5	EER: 13.5 - 17.5 COP: 4.4 - 5.4	EER: 13.6 - 16.0 COP: 4.3 - 5.6	EER: 12.4 - 14.7 COP: 4.1 - 4.7
Stages	2 Stage	2 Stage	1 Stage	2 Stage
Configuration	VT, HZ, CF, CS	VT, HZ, CF, CS	VT, HZ, CF, CS	Water to Water
Compressor	Ultra Tech Scroll	Ultra Tech Scroll	Scroll	Ultra Tech Scroll
ECM Motor	Yes	Yes	Yes	N/A
Electric Heater	Optional	Optional	Optional	N/A
Hot Gas Reheat	N/A	Optional	Optional	N/A
Hot Gas Bypass	N/A	Optional	Optional	N/A
Coated Evaporator Coil	Yes	Yes	Yes	N/A
Desuperheater	Optional	Optional	Optional	Optional
Floating Base	Yes	Yes	Yes	Yes
Stainless Steel Drain Pan	Yes	Yes	Yes	N/A
Energy Star Rated - Tier 3 (Single Phase; -1)	Closed/Open Loop: AP025-071 (VT, HZ, CF, CS)	Closed Loop: ES025 - ES061 (VT, HZ, CF, CS) Open Loop: ES025 - ES071 (VT, HZ, CF) ES025, 035, 061 (CS)	Closed Loop: ES018, 030, 036 (VT, HZ, CF, CS) Open Loop: ES018 - ES048 (VT, HZ, CF) ES030, 036, 042, 048 (CS)	Closed/Open Loop: WT025-071 (CS, US)

COMMERCIAL



EP	EC	CA	WW
Yes	Yes	Yes	N/A
N/A	N/A	N/A	Yes
EP007 - EP070	EC007 - EC360	CA009 - CA018	WW024 - WW420
0.5, 0.75, 1, 1.25, 1.5, 2, 2.5, 3, 3.5, 4, 5, 6	0.5, 0.75, 1, 1.25, 1.5, 2, 2.5, 3, 3.25, 3.5, 4, 4.25, 5, 6, 8, 10, 12.5, 15, 17.5, 20, 25, 30	0.75, 1, 1.25, 1.5	2, 3, 4, 5, 6, 10, 15, 17.5, 20, 30, 35
EER: 17.5 - 21.2 COP: 3.6 - 4.3	EER: 14.0 - 17.9 COP: 3.1 - 4.2	EER: 14.0 - 16.0 COP: 3.1 - 3.3	AHRI has no rating for the WW Series according to (ARI/ISO 13256-1)
EER: 22.7 - 28.8 COP: 4.3 - 5.2	EER: 16.1 - 24.0 COP: 3.6 - 5.0	EER: 17.6 - 22.3 COP: 3.4 - 3.8	AHRI has no rating for the WW Series according to (ARI/ISO 13256-1)
EER:14.9 - 18.2 COP: 5.1 - 5.9	EER:12.5 - 16.0 COP: 4.2 - 5.6	EER:12.0 - 13.3 COP: 4.2 - 4.6	AHRI has no rating for the WW Series according to (ARI/ISO 13256-1)
1 Stage	1 Stage EC007-070, 2 Stage EC072-360	1 Stage	1 Stage WW024-072, WW120, WW180, WW210 2 Stage WW122, WW240-420
VT, HZ	VT, HZ, CF, CS	Console	Water to Water
Rotary EP007 - EP018 Scroll EP024 - EP070	Rotary EC007 - EC015 Recip EC018 - EC042, EC072 Scroll EC048 - EC360	Rotary	Scroll
EP015-EP070	N/A	N/A	N/A
N/A	N/A	N/A	N/A
Optional	Optional	N/A	N/A
Optional	Optional	N/A	N/A
Optional	Yes	Yes	N/A
Field Install Only	Optional on Select Sizes	N/A	Optional on Select Sizes
Yes	Yes EC007-070, Optional EC072-360	N/A	Yes WW024-072, N/A WW120-WW420
Yes	Yes	Yes	N/A
Closed/Open Loop: EP007-EP070 (VT, HZ)	Not Rated	Not Rated	Not Rated

Geothermal Advantages

Safe, Clean Operation, Environment Friendly

No flue, no flame, no dangerous carbon monoxide and a factory-sealed R410a refrigerant circuit make Geothermal technology an attractive alternative for safe, clean and environmentally friendly comfort for your home.

Energy Efficient

Geothermal units operate more efficiently than ordinary heating and cooling systems, saving you up to 70% and providing virtually free hot water.

Durable Design

Geothermal heat pumps last longer because they are housed indoors and protected from harsh weather conditions. No defrost cycles are needed, which means less stress on critical components and no loss of operating efficiency.

Better Comfort

Geothermal systems provide constant, even temperatures. Gone are the uneven temperatures experienced with ordinary furnaces and poor dehumidification you get from standard central air units.

GeoExcel Series Description

All systems listed use Environmentally Friendly R410a Refrigerant

AP: Residential unit using a state of the art unloading compressor and ECM2 fan motor. Many standard features and an attractive, durable vinyl cabinet.

ES: Used primarily in residential applications, ECM2 fan motor, many standard features including reliable scroll compressors as standard, and an optional 2-speed scroll compressor.

EP: Commercial/Industrial Series. Primarily for the water source or boiler/tower market. High efficiency, ½ to 6 ton, single stage water source heat pump. Extended Range option available.

EC: Commercial/Industrial Series. Primarily for the water source or boiler/tower market. Extended Range option available. Sizes from 7,000 BTU through 30 tons.

WT: Two stage reverse cycle chiller water heater used in residential applications for pool heating and in-floor radiant heat.

WW: Hydronic heating and chilling system, used in residential, commercial, and industrial applications for pool heating, in-floor radiant heat, industrial process fluids, car washes, and many other applications.

CA: The answer to provide heating and cooling where space is limited. CA console units are perfect for geothermal or boiler/tower applications in residences, schools, hotels/motels, and assisted living complexes.

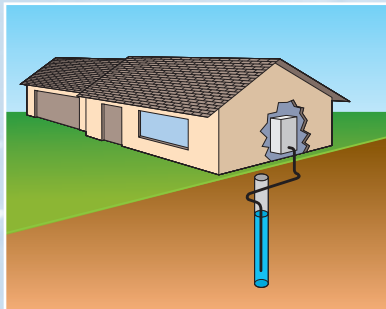
Standard Features:

1. Easy to understand, reliable controls
2. Stainless steel condensate drain pans
3. Many configurations including horizontal, vertical, down flow, and split systems
4. Acrylic Coated Galvalume steel cabinet, or Vinyl-Coat galvanized steel
5. Optional ECM2 motor, can be custom programmed for your application
6. Baked epoxy-coated air coils



Geothermal Loop Types

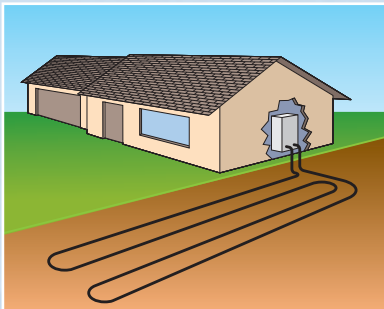
Enjoy all these benefits by simply tapping into the energy already present in your backyard



Ground Water System

Ground Water Systems (Open Loop) have been utilizing the earth's natural heat source/heat sink ability for over 40 years. Ground Water Systems draw water from an aquifer via a supply well, pass through the Geothermal heat pump's heat exchanger where heat is exchanged with the refrigerant inside your GeoExcel unit, then returned to the aquifer per local code.

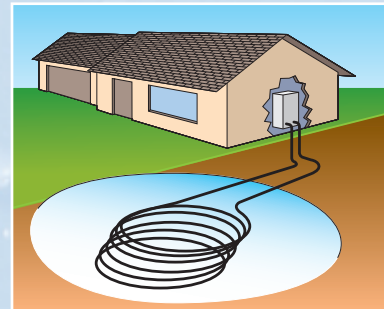
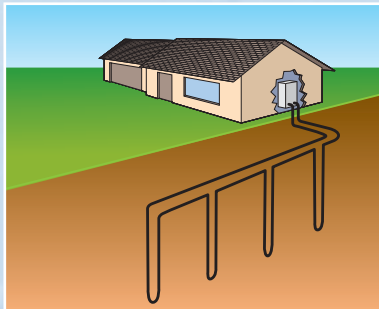
Ground water temperatures remain very constant (usually within a degree) throughout the year despite wide variations in outside air temperature, therefore your GeoExcel unit will maintain it's super high efficiency no matter how hot or cold it is outside. Ground Water Systems are ideally suited for homes that have existing water wells available or a good potential source for well water. When ground water is available this system usually has the lowest installed cost.



Horizontal and Vertical systems

Horizontal and Vertical Systems (Closed Loop) also utilize the Earth's plentiful and renewable thermal characteristics. Horizontal Systems circulate water or an antifreeze solution through a closed loop network of sealed and pressurized pipe that is buried or bored into the ground.

The Horizontal System is pipe installed in a horizontal trench typically 4 to 6 feet deep and at a length of 75-125' per ton. Vertical Closed Loop Systems are typically drilled into the ground at a depth of 100-200'. Generally one bore hole per ton is used. Recent innovations in Horizontal and Vertical Closed Loop Systems have made these systems particularly attractive in first cost as well as operating efficiency. Typically a little more land is required to install a Horizontal System. The same energy saving characteristics are enjoyed with the GeoExcel Horizontal and Vertical Systems as with the Ground Water Systems.



Pond/Lake Systems

Pond or Lake Systems (Closed Loop) may be the most economical closed loop system to install and has many advantages for producing energy savings. This system utilizes a nearby body of water such as a lake or a pond.

As with the Horizontal Systems it is a closed loop of sealed and pressurized pipe and water or an antifreeze fluid solution. Instead of laying the pipe in a horizontal trench the pipe is submerged into a body of water (pond or lake) where it can utilize the consistent temperature and outstanding heat transfer characteristics of the water. No wells and very little trenching are required cutting installation costs. Once again the GeoExcel Pond or Lake System is not subject to the cruel outside air temperatures that all air-to-air heat pumps are subject to year after year.



GEOEXCEL: ULTIMATE PERFORMANCE AND RELIABILITY



GeoExcel is a superior line of geothermal equipment with ultimate performance and reliability as the standard. This product line is unmatched in overall efficiency and dependable service with system simplicity as the cornerstone in product design.

GeoExcel has an extensive line of single and two-speed geothermal heating, cooling, and water heating units available for residential and commercial applications. GeoExcel is manufactured under strict quality control guidelines, and all products are safety listed by Underwriters Laboratories, Inc. (UL) and performance certified by the Air Conditioning and Refrigeration Institute (ARI) for your peace of mind.

GeoExcel models are available in a wide range of equipment sizes, cabinet configurations, and factory installed options that provide the versatility to meet your needs. GeoExcel "AP" and "ES" series models feature two-stage scroll compressors with shift-on-the-fly technology. These systems will provide you with many years of comfort and energy savings.

Dependable Solid State Controls At An Affordable Price

The CCM Solid State controller is designed to enhance the operation and add to the features of traditional electromechanical controls. The CCM controller incorporates the standard functions of the electromechanical controls while adding several useful features commonly needed in water source and geothermal heat pump applications.

- **Random Start** - Each controller has a unique random start feature programmed into its microprocessor ranging from 30 - 60 seconds.
- **Anti-Short Cycle Timer** - 5 minute delay on break timer to prevent compressor short cycling.
- **Low Pressure Bypass Timer** - Bypasses the low pressure switch for 90 seconds to avoid nuisance lockouts during cold start up.
- **High Pressure Switch Delay** - One (1) second delay provides switch stabilization on start up to prevent nuisance lockouts.
- **Brownout/Surge/Power Interruption Protection** - A 20 millisecond window is monitored for the above condition. After the condition is detected the 5-minute delay on break timer is initiated in conjunction with the random start timer before a restart is allowed. This allows for the water pumps to restart and establish water flow to prevent nuisance lockouts during brief power interruptions.
- **Malfunction Output** - The controller has a set of wet contacts for remote fault indication.
- **Test/Service PIN** - A jumper PIN is provided to reduce all time delay settings to 6 seconds during troubleshooting or operation verification.
- **L.E.D. Indicators** - Two L.E.D. Indicators are provided as follows:
Green: Power L.E.D. indicates voltage is present at the board.
Red: Fault indicator will blink code.
- **Intelligent Reset** - If a fault condition is initiated the 5 - minute delay on break time period and the random start timer are initiated and the unit will restart after the delays expire. If the same fault condition is initiated a second time, the unit will be locked out and require a lockout reset.
- **Lockout Reset** - Power must be removed from the controller then reapplied for the reset. This can be achieved via the thermostat or by the unit disconnect.

For more information and to download literature visit www.geoexcel.com or contact: