



# RESIDENTIAL PRODUCT GUIDE

**CLIMATEMASTER®** GEOTHERMAL HEATING & COOLING

SMART | RESPONSIBLE | COMFORTABLE

## THE GEOTHERMAL ADVANTAGE



According to the U.S. Environmental Protection Agency (EPA) geothermal systems are, "the most energy-efficient, environmentally clean, and cost-effective space conditioning systems available today." Extremely high levels of efficiency are possible because a geothermal heat pump only uses electricity to move heat, not produce it. A geothermal unit typically supplies 4 kilowatts of heat for every kilowatt of electricity used. Three of these kilowatts of heat come directly from

the earth itself, and are clean, free and renewable. Geothermal heat pumps also take advantage of the mild ground temperature for extremely high efficiency cooling. Most systems also include a hot water generator, which diverts a portion of the supplied heat to the domestic water heater. This provides a substantial portion of a family's hot water needs at a very low cost. Overall, geothermal technology offers the highest cooling and heating efficiencies of any system available today.

Geothermal systems transfer heat from your home to the earth in the cooling mode, or from the earth to your home in the heating mode. Water is used as the heat transfer medium through a closed-loop piping system buried in the ground. By using this stable thermal source, geothermal heat pumps provide energy efficient comfort year round with a factory-tested and sealed packaged unit, without the need for a noisy outdoor fan, or a flue.

The environmental advantages of geothermal systems have caught the eye of governmental agencies such as the Environmental Protection Agency (EPA) and the Department of Energy (DOE).

Because geothermal technology is lowest in CO<sub>2</sub> emissions, it provides a solution to global warming by primarily using the natural energy of the earth. EarthPure® (HFC-410A) zero ozone depletion refrigerant is available for ClimateMaster Geothermal Heat Pumps for an even friendlier system.



Tranquility® 30 Vertical Geothermal Heat Pump with EarthPure® Zero Ozone Depletion Refrigerant

There are two types of geothermal systems commonly installed in North America, closed-loop geothermal, and open-loop (well water systems) geothermal. Both types of systems work well and achieve very similar operating costs. An open-loop system is less expensive to install, but over time could require more maintenance. A closed-loop system is more expensive up front, but requires almost no maintenance.

Closed-loop systems use a network of buried high-density polyethylene (plastic) pipe, circulating a water/antifreeze solution from the ground to the heat pump. These systems are sealed and pressured, and thus recirculate the fluid, eliminating any water usage. Polyethylene pipe is always utilized to ensure long life and system reliability. Milk jugs are made from polyethylene. Polyethylene is a very tough plastic, especially when considering the wall thickness of a milk jug (pipe wall thickness is many times greater), but it is also extremely flexible, which allows the pipe to avoid damage even as the ground shifts. All connections are heat fused, which is a welding process, whereby the pipe and fitting are heated up to the melting point, around 500°F [260°C]. The two pieces are joined together while the plastic is still in its molten state. Once cooled, the joint is stronger than the pipe itself. Therefore, leak potential of the in-ground piping is nearly nonexistent. Properly installed, loop piping will last more than 50 years.

Closed-loop systems may be installed in a variety of configurations, depending upon the size of the yard and local excavation costs. A horizontal loop is typically installed with a trencher or backhoe. Trenches are normally four to six feet deep [1.2 - 1.8 meters]. One of the advantages of a horizontal loop system is being able to lay the trenches according to the shape of the land. As a rule of thumb, 125 - 300 feet of trench is required per ton of heat pump capacity [11 - 27 meters per kW of capacity], depending on geographic location. Anywhere from 1 to 6 pipes per trench may be used, depending upon the optimal design for the yard. More pipe per trench shortens the total amount of trench required.

For smaller yards, the loops can be installed vertically using a drill rig, much like a water well installation. Holes are bored to about 150 - 300 feet per ton of heat pump capacity [13 - 27 meters per kW of capacity]. U-shaped loops of pipe are inserted in the holes. The holes are then backfilled with a sealing solution (grouting material). Vertical and horizontal loops perform very similarly, and therefore are selected based upon the individual preference and yard layout.

Pond or lake loops are another type of closed-loop system, which is very cost effective, since excavation is limited to the trenching between the home and the pond/lake. Pond loops are still closed-loop systems. Polyethylene pipe is sunk at the bottom of the pond, and fluid is circulated through the pipe to exchange heat between the geothermal heat pump and the body of water. Using pond water directly is never recommended. A minimum of 8 - 10 feet [2.5 - 3 meters] in depth at its lowest level during the year is needed for a pond to be considered. Generally, a minimum of 1/2 acre [0.2 hectare] pond is required to provide adequate surface area for heat transfer.

The antifreeze solution in closed-loop system will keep it from freezing down to about 15°F [-9°C]. In the U.S. and Canada, three types of antifreeze solution are acceptable: propylene glycol, methyl alcohol, and ethyl alcohol. Some states/provinces may require one type over another.

# THE GEOTHERMAL ADVANTAGE

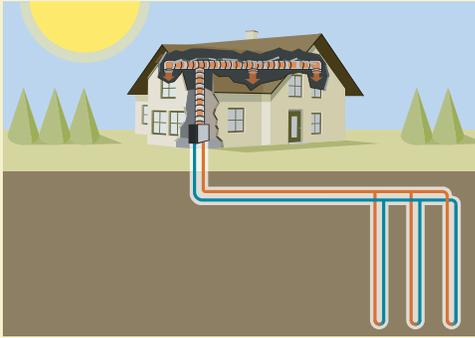
The term "Open-loop" is commonly used to describe a geothermal heat pump system that uses groundwater from a conventional well as a heat source in winter and a heat sink in summer. The groundwater is pumped through the heat pump where heat is extracted (in winter) or rejected (in summer), then the water is disposed of in an appropriate manner. Since groundwater is at a relatively constant temperature year-round, it is an excellent heat source/heat sink.

There are a number of ways to dispose of water after it has passed through the heat pump in an open-loop application. The open discharge method is the easiest and least expensive. Open discharge simply involves releasing the water into a stream, river, lake, pond, ditch, or drainage tile. Obviously, one of these alternatives must be readily available and must possess the capacity to accept the amount of water used by the heat pump before open discharge is feasible.

A second means of water discharge is the return well. A return well is a second well bore that returns the water to the ground aquifer. A return well must have enough capacity to dispose of the water passed through the heat pump. A new return well should be installed by a qualified well driller. Likewise, a professional should test the capacity of an existing well before it is used as a return.

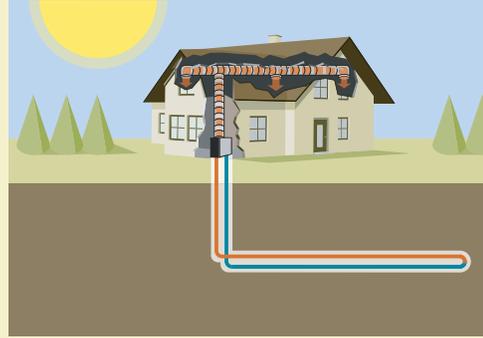
No matter which type of geothermal system is installed, homeowners benefit from the most comfortable system available, while saving money on operating costs and helping the environment. Today's geothermal systems are unmatched in comfort. State-of-the-art two-stage compressors, variable speed fans and microprocessor controls adjust the heating and cooling capacity based upon the current weather conditions. No matter what the temperature is outside, geothermal systems are always taking advantage of the mild ground temperature year round.

## Vertical (Drilled) Closed Loop



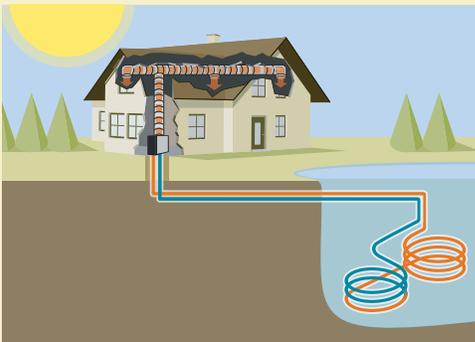
Vertical Loops are used extensively where land area is limited or soil conditions prohibit digging horizontal loops. A pair of pipes with a special U-Bend assembly at the bottom are inserted into a bore hole that averages between 150 to 300 feet deep per ton [13 to 27 meters per kW] of equipment. These holes are then backfilled with a special grout solution to ensure good contact with the earth.

## Horizontal (Trenched or Bored) Loop



Horizontal Loops are installed in areas where the soil conditions allow for economical excavation. Taking up more land area than any other loop type, they are used where space permits. Trenches are normally about 4 to 6 feet [1.2 to 1.8 meters] deep with multiple pipes placed in the trench at different depths. Normally, several hundred feet [over 100 meters] of trench is required, but where space permits these loops are considered desirable.

## Pond/Lake Loop



Pond Loops are usually very economical to install. If a pond or lake at least eight feet [2.5 meters] deep is available, pond loops can utilize the water (rather than soil) to transfer heat to and from the pond. A coiled pipe is placed in the water, which should cover about 1/2 acre [0.2 hectare]. An average home would require about 900 feet [27 meters] of pipe. Reduced installation costs and high performance are characteristic of this type of loop.

## Open Loop



Open-loop installations actually pump water from an underground aquifer through the geothermal unit and then discharge that water to a drainage ditch or pond. The geothermal unit processes the heat energy from the water just like a closed-loop installation. Discharging water to a "return" well is sometimes effective, but sending water to a pond or lake is considered more reliable.

## THE CLIMATEMASTER ADVANTAGE

### Who is ClimateMaster?

ClimateMaster emerged from the marriage of several water-source heat pump companies in a blending of strengths to form a focused organization. For over 50 years, we have been focused on enhancing business and home environments around the world. Our mission as the world's largest and most progressive leader in the water-source and geothermal heat pump industry reveals our commitment to excellence - not only in the design and manufacture of our products, but in our people and services.

### Made in the USA

All of ClimateMaster's 610,000 square feet in facilities operate in Oklahoma City, Oklahoma, which means ClimateMaster units are manufactured in the United States using American labor. While the trend nationally is to outsource labor outside the United States, ClimateMaster has made the commitment to remain proudly American made.

### ClimateMaster Design

From concept to product, ClimateMaster's Integrated Product Development Team brings a fusion of knowledge and creativity that is unmatched in the industry today. Drawing from every aspect of our business: Engineering, Sales, Marketing, and Manufacturing, our Development Team has created some of the most advanced, efficient, and versatile products available.

### Innovation, Concept, Needs

Great products are born from necessity. Whether it is a need to reduce sound, fit in a smaller space, make easier to service, achieve better efficiencies, or due to changing technologies, or new government regulations, ClimateMaster leads the industry in advancing the form, fit and function of water-source and geothermal heat pumps. Our design team continually strives for even the slightest improvement to our products. It is this continual drive for excellence that sets ClimateMaster apart from all other manufacturers.



### Start To Finish

At ClimateMaster, every product development project begins with a comprehensive set of specifications. These specifications are a culmination of input from the market, a specific need, or a number of other factors. From these detailed specifications, prototypes are constructed and testing begins. After a rigorous testing period in ClimateMaster's own state-of-the-art lab facility, the data is compared to the project specifications. Once the design team is satisfied that all of the specs are met, the unit is sent to the Production Department for pilot runs. After the pilot runs are completed, unit literature is finalized and the product is released to the marketplace.

### ClimateMaster Production

Innovative products demand innovative manufacturing processes. ClimateMaster's integrated production process combines every aspect of the manufacturing of our equipment into an organized, balanced, and controlled whole.

### Fabrication

Every sheet-metal component of a ClimateMaster unit is produced in our fabrication department. Panels are precisely constructed of galvanized or stainless steel using computerized cutting, punching, and forming equipment. This precise fabrication means a tighter fit that makes for a more solid unit and reduced vibration, which equals reduced noise. On certain series, a polyester powder coating is then applied to increase corrosion resistance and enhance the look of the unit. The final step is the addition of fiberglass insulation to the inside as an additional layer of sound deadening. This insulation meets stringent NFPA regulations, and includes antibacterial material.



### Assembly

ClimateMaster's 610,000 square foot facilities use the most stringent quality control standards in the industry. Each unit is assembled under the close supervision of our Integrated Process Control System or Procix. This multi-million dollar computer system watches each unit as it comes down the assembly line. In addition, our quality department is stationed on each line and performs random audits not only on the units, but also on component parts. All component parts must pass each and every quality checkpoint before a unit is packaged and shipped. These systems and processes are maximized due to the comprehensive and ongoing training every employee receives from the date they are hired.



### Component Parts

To produce a quality unit, you have to start with quality components. ClimateMaster's Purchasing Department is relentless in its search for the best components for our products - while securing these components at prices that keep costs low. Any new component must go through a grueling testing phase before it ever sees the production line. Working closely with vendors and their engineers, we continually find new ways to not only improve our units, but to ensure component quality as well. Sister companies like KOAX, who produce our coaxial heat exchangers, allow ClimateMaster to provide components specifically designed for our applications.

# THE CLIMATEMASTER ADVANTAGE

## ISO 9001:2008 Certification

International Organization for Standardization (ISO) is a network of the national standards institutes of over 150 countries, on the basis of one member per country, with a Central Secretariat of Geneva, Switzerland, that coordinates the system. ISO is a non-governmental organization that occupies a special position between the public and private sectors whose goal is to create, maintain, and improve standards worldwide. ISO standards contribute to making the development, manufacturing, and supply of products and services more efficient, safer, and cleaner. ISO certification demonstrates ClimateMaster's commitment to quality and continuous improvement.



## ClimateMaster Awards

ClimateMaster leads the industry in product awards and certifications. From 100% Air-Conditioning, Heating and Refrigeration Institute (AHRI) performance ratings to industry awards for innovation, ClimateMaster applies cutting-edge technology to every product we design and manufacture.



ClimateMaster's Tranquility® Series has won multiple awards and ClimateMaster is widely accepted as a leader in the industry. You know you are doing great things when a lot of people tell you.

## Engineering Lab Facilities

ClimateMaster has one of the largest testing facilities of any water-source heat pump manufacturer, including the reverberant, ISO 3741 Certified sound testing room in the industry. Innovation and product improvements are a mainstay of the ClimateMaster Engineering Lab. Our people are what make the difference in the development of superior products in a timely manner. Our certified facility has seven automated test cells capable of testing a wide variety of unit types under varying conditions. These cells are capable of producing data twenty four hours a day, seven days a week. The development time of equipment is significantly reduced allowing ClimateMaster Engineers and Lab Technicians to spend more time on the actual development process. This team effort has allowed us to maintain a high degree of competence in our industry. Our test cells and test equipment are calibrated and certified periodically, per recognized industry standards, to ensure the data is accurate and repeatable. In addition to testing new concept units, the lab continually audits production units throughout the year to ensure quality performance and reliability.

## Industry Affiliations and Associations

ClimateMaster works closely with the International Standards Organization (ISO), the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), and the Electrical Testing Laboratories (ETL), to ensure that our equipment not only meets the highest performance standards, but meets the highest industry standards as well. ClimateMaster has celebrated many consecutive years of 100% success rate in AHRI's performance certification program. An uncommon feat in the industry, this is a testament to the craftsmanship, design, and construction of every ClimateMaster unit.



## Customer Service

ClimateMaster has gone to great lengths to meet our customers' business-to-business needs. ClimateMaster provides great products and our customer support is second to none. Our highly trained and experienced Customer Service Department is available to assist you. Visit our online Business Center or contact Tech Services for any information you may need.

## ClimateMaster.com

Our web site has become the central hub for all of our customers' information needs. Current literature, specifications, presentations, and other resources are readily available in an intuitive, easy-to-navigate format. At the click of a mouse, our new web site, [climatemaster.com](http://climatemaster.com), gives consumers, dealers and distributors a specific area to get the information they need when they need it.

## Literature

At ClimateMaster, innovation never sleeps. As new advances are made, and new products are released, the need for accurate literature becomes critical. Every piece of technical literature that ClimateMaster produces is printed in our state-of-the-art on-demand printing facility. What this means is that we print only the literature we need at the time we need it. This ensures that only the most current and accurate data is in the field.

## The Future of ClimateMaster

Our long history of innovation has paved the way for future endeavors with a solid platform of success. Growing markets in Europe and Asia demand a different way of not only manufacturing our products, but also successfully marketing them. Government regulations have phased out R-22 refrigerant at the beginning of 2010 paving the way for new HFC-410A, a much more environmentally friendly refrigerant. In looking ahead, we continually strive for better processes, better designs, and better innovations that will keep ClimateMaster as the global leader in water-source and geothermal heat pumps.

## TRANQUILITY® DIGITAL TECHNOLOGY

ClimateMaster has applied decades of experience and invested years of research to create two innovative technologies that maximize energy savings, reliability and comfort... and they can only be found in the new Tranquility® Digital Systems.

### iGate™ Communicating Controls

iGate™ technology represents the next generation in intelligent controls by using 2-way communication to provide a gateway into your system. The iGate™ control system allows you and your dealer to monitor the performance of your unit, custom tailor its operation, and diagnose any issues, all from your thermostat.

The iGate™ communications hub is the new DXM2 intelligent controller, which analyzes the status of sensors and smart components (also 2-way communicating) to determine how best to operate your system for optimal comfort, efficiency and long-term reliability. All of this information is passed to the iGate™ thermostat (or dealer diagnostic tool), where it can be displayed in plain English. And since communication is both ways, the iGate™ thermostat can also be used to configure and tailor your system without touching your unit.

Future accessories will enable iGate™ communication over the internet, allowing you (and your dealer if you so choose) to access your system from a PC or smart phone.

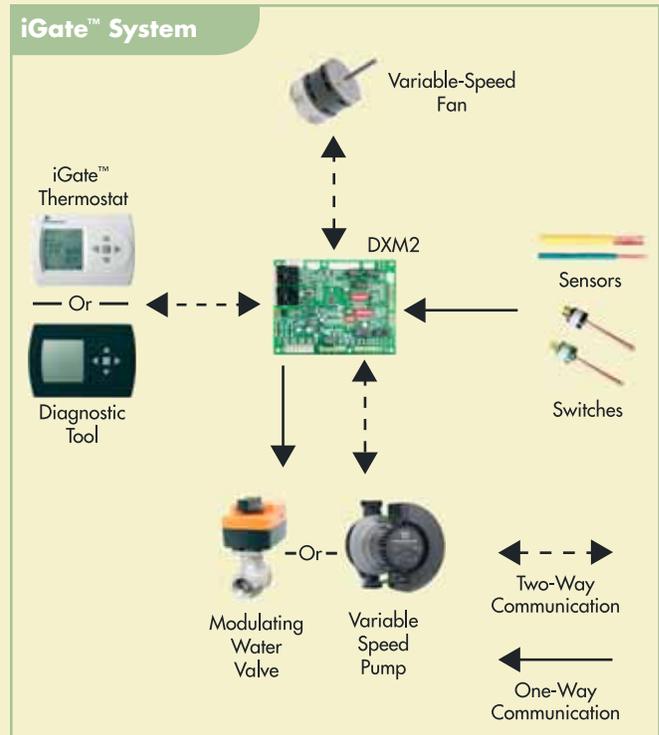
### vFlow™ Variable Water Flow

vFlow™ variable water flow technology is a major advance in geothermal system performance made possible through the iGate™ system. vFlow™ not only builds the major water circulation components into the unit for a clean installation, it also intelligently varies the water flow to minimize pump energy consumption and improve the reliability of your system.

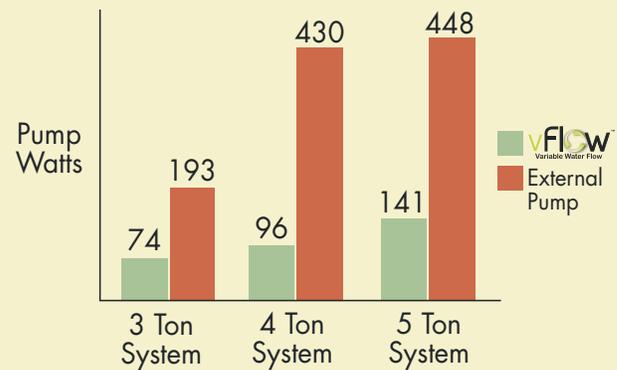
The heart of vFlow™ is either a variable-speed pump (for ground loops) or modulating water valve (for ground water) directly linked into the iGate™ system. Water flow is automatically varied based on changes in unit capacity level (stage) and source water temperature to maintain optimum system performance.

vFlow™ systems reduce water pumping power by 60-80% compared to traditional external pumping modules, which can save over \$100 per year in an average 2,000 square foot home. In addition, vFlow™ protects the unit against extreme operating conditions, extending the life of the compressor and air coil. Since vFlow™ is built inside the unit, it also saves on installation time and makes for a very clean and compact installation.

**There's no need for bulky external pumping modules any more.**



### vFlow™ Operating Cost Savings



### vFlow™ Eliminates External Pumps



## TRANQUILITY® DIGITAL PACKAGED SYSTEMS

### TRANQUILITY® 30 DIGITAL SERIES (TE)

The Tranquility® 30 Digital offers vFlow™ variable water flow and iGate™ information gateway with a two-stage compressor and variable speed fan to deliver higher efficiency (from 30 EER\* to 35 EER\*\*) and the lowest operating cost of any home heating and cooling system. These systems are so sophisticated that they automatically adjust to provide the optimum and consistent indoor air temperatures and humidity regardless of the weather extremes. Designed for both new construction and retrofit applications, the narrow cabinet design allows for easy movement through doorways, crawl spaces, and attic access.

\* Rated at Ground Loop Conditions ISO 13256-1

\*\* Rated at Ground Water Conditions ISO 13256-1



#### Standard Features

- Five Capacities 026, 038, 049, 064, & 072
- 30 EER/4.8 COP
- Two-Stage upflow, downflow, and horizontal right or left return
- vFlow™ Built-in Variable Water Flow for 60-80% lower pumping cost, easier/quicker “plug & play” installation
- iGate™ information gateway to configure, control, monitor and diagnose the unit on the thermostat, in plain English.
- Noise reduction features include: dual level compressor isolation; insulated compressor compartment; interior cabinet insulation using 1/2” coated glass fiber and variable speed fan
- Extended range operation (20-120°F EWT) and flow rates automatically controlled inside the unit
- EarthPure® HFC-410A zero ozone depletion refrigerant
- Exceeds federal requirements for 30% tax credit on installation costs
- Standard 10-year limited warranty on all parts with 5 year labor allowance; Optional Warranty to extend labor allowance from the standard 5 years to 10 years.

#### Options

- Hot water generator with internally mounted pump
- vFlow™ for Closed loop, Open loop and Closed loop – central pumping
- Communicating Programmable thermostat (ATC32) / Communicating Configuration / Diagnostic Tool (ACD)

### TRANQUILITY® 22 DIGITAL SERIES (TZ)

The Tranquility® 22 Digital offers vFlow™ variable water flow and iGate™ information gateway with a two-stage compressor and variable speed fan to deliver high comfort in a compact, affordable package for home heating, cooling and hot water. These systems are so sophisticated that they automatically adjust to provide the optimum and consistent indoor air temperatures and humidity and the highest reliability. Designed for both new construction and retrofit applications, the compact cabinet design allows for installation in tight areas.

#### Standard Features

- Six Capacities 024, 030, 036, 042, 048 & 060
- 22 EER/4.1 COP
- Two-Stage upflow, and horizontal right or left return
- vFlow™ Built-in Variable Water Flow for 60-80% lower pumping cost, easier/quicker “plug & play” installation
- iGate™ information gateway to configure, control, monitor and diagnose the unit on the thermostat, in plain English.
- Noise reduction features include: dual level compressor isolation; insulated compressor compartment; interior cabinet insulation using 1/2” coated glass fiber and variable speed fan
- Extended range operation (20-120°F EWT) and flow rates automatically controlled inside the unit
- EarthPure® HFC-410A zero ozone depletion refrigerant
- Exceeds federal requirements for 30% tax credit on installation costs
- Standard 10-year limited warranty on all parts with 5 year labor allowance; Optional Warranty to extend labor allowance from the standard 5 years to 10 years.



#### Options

- Hot water generator with internally mounted pump
- vFlow™ for Closed loop, Open loop and Closed loop – central pumping
- Communicating Programmable thermostat (ATC32) / Communicating Configuration / Diagnostic Tool (ACD)

## TRANQUILITY® PACKAGED SYSTEMS

### TRANQUILITY® 30 SERIES (TT)

The Tranquility® 30 with a two-stage compressor and variable speed fan offers the latest in geothermal heat pump technology. These systems are so sophisticated that they automatically adjust to provide the optimum and consistent indoor air temperatures regardless of the weather extremes. The Tranquility® 30 Series was designed for both new construction and retrofit applications. The narrow cabinet design for easy movement through doorways, crawl spaces, and attic access. The Tranquility® 30 Series offers extremely high efficiencies from 30 EER\* to 35 EER.\*\*

\* Rated at Ground Loop Conditions ISO 13256-1

\*\* Rated at Ground Water Conditions ISO 13256-1

#### Standard Features

- Five Capacities 026, 038, 049, 064, & 072
- 30 EER/4.8 COP
- Two-Stage upflow, downflow, and horizontal right or left return
- Extended range operation (20-120°F EWT) and flow rates as low as 1.5 gpm per ton
- EarthPure® HFC-410A zero ozone depletion refrigerant
- Noise reduction features include: dual level compressor isolation; insulated compressor compartment; interior cabinet insulation using 1/2" coated glass fiber and variable speed fan
- Exceeds federal requirements for 30% tax credit on installation costs
- Standard 10-year limited warranty on all parts with 5 year labor allowance; Optional extended 5-year limited labor allowance available



#### Options

- Hot water generator with internally mounted pump
- Cupro-Nickel coaxial heat exchanger
- ClimaDry™ Whole House Dehumidification
- Electronic auto-changeover thermostat with 3-stage heat, 2-stage cool and indicator LED's (non-communicating)

### TRANQUILITY® 20 SERIES (TS)

The Tranquility® 20 Series utilizes EarthPure® HFC-410A refrigerant along with advanced scroll compressor technology and microprocessor controls allow the Tranquility® 20 to operate at the most efficient level for all weather conditions. The Tranquility® 20 Series was designed for both new construction and retrofit applications. The narrow cabinet design for easy movement through doorways, crawl spaces and attic access. At 21.9 EER, the Tranquility® 20 has some of the industry's highest single stage efficiency ratings.\*

\* Rated at Ground Loop Conditions ISO 13256-1

#### Standard Features

- Eight Capacities 018, 024, 030, 036, 042, 048, 060 & 070
- 21.9 EER/4.3 COP
- Single-Stage upflow, downflow, and horizontal right or left return
- Extended range operation (20-120°F EWT) and flow rates as low as 1.5 gpm per ton
- EarthPure® HFC-410A zero ozone depletion refrigerant
- Noise reduction features include: dual level compressor isolation; insulated compressor compartment; interior cabinet insulation using 1/2" coated glass fiber and optional variable speed fan
- Exceeds federal requirements for 30% tax credit on installation costs
- Standard 10-year limited warranty on all parts with 5 year labor allowance; Optional extended 5-year limited labor allowance available



#### Options

- Hot water generator with internally mounted pump
- Cupro-Nickel coaxial heat exchanger
- ClimaDry™ Whole House Dehumidification
- Extended 5-year limited labor allowance
- Electronic auto-changeover thermostat with 3-stage heat, 2-stage cool and indicator LED's

## TRANQUILITY® WATER-TO-WATER SYSTEMS

### TRANQUILITY® HIGH TEMP WATER-TO-WATER SERIES (THW)

The THW Series offers an extended range refrigeration circuit, capable of ground loop (geothermal) applications as well as open-loop (well water) applications. Unique application-specific controls make the THW Series ideal for hydronic heating and domestic hot water generation. The heating-only refrigeration circuit is optimized for high water temperatures, heating efficiencies, and capacities.

#### Standard Features

- Capacities 10kW [32,600 Btuh]
- Ultra high efficiencies (4.2 COP at ground loop conditions; up to 5.5 COP at ground water conditions)
- High temperature scroll compressor, up to 145°F [63°C] leaving water temperature
- Rugged coaxial (tube-in-tube) "Source" heat exchanger (copper or Cupro-Nickel)
- Close approach temperature brazed plate stainless steel "Load" heat exchanger
- EarthPure® HFC-410A zero ozone depletion refrigerant
- "Euro-style" cabinet for attractive look
- Standard 10-year limited warranty on all parts with 5 year labor allowance; Optional extended 5-year limited labor allowance available

#### Options

- Full Condensing Hot Water Generation With Internal Secondary Heat Exchanger and Potable Water Circulating Pump
- Factory Installed "Load" and "Source" Pumps
- Factory Installed Expansion Tanks
- Cupro-Nickel Source Water Coil
- Extended 5-year limited labor allowance



### TRANQUILITY® MEDIUM TEMP WATER-TO-WATER SERIES (TMW)

The TMW Series offers a wide range of units for most any installation with an extended range refrigerant circuit, capable of ground loop (geothermal) as well as water loop (boiler-tower) applications. As ClimateMaster's most adaptable EarthPure® HFC-410A refrigerant units, the TMW Series can be used for radiant floor heating, snow/ice melt, chilled water for fan coils, potable hot water generation, hot/chilled water for make-up air, and many other types of HVAC applications.

#### Standard Features

- Three Capacities 036 [8.7 kW], 060 [13.5 kW], & 120 [26.9 kW]
- Extended range (20 to 120°F, -6.7 to 48.9°C) operation
- Compressor "run" and "fault" lights on the front of the cabinet
- Optional double-wall load heat exchanger and HWG (hot water generator - desuperheater)
- EarthPure® HFC-410A zero ozone depletion refrigerant
- Up to 130°F entering water temperature (load)
- Standard 10-year limited warranty on all parts with 5 year labor allowance; Optional extended 5-year limited labor allowance available

#### Options

- Cupro-Nickel coaxial heat exchanger
- Hot water generator with internal pump
- Extended 5-year limited labor allowance



## TRANQUILITY® DIGITAL SPLIT SYSTEMS

### TRANQUILITY® DIGITAL INDOOR SPLIT SERIES (TES)

The Tranquility® Digital Indoor Split Series delivers the ultimate in efficiency, comfort, reliability and serviceability – intelligently driven by the iGate™, the industry's first two-way communicating control, two-stage compressor, and industry-first vFlow™ internal variable water flow components. The Tranquility® Splits also deliver reliable operation, lower operating costs and compact installation. The Tranquility® Digital Indoor Split Series easily connects to new or existing fossil fuel and electric furnaces. Ideal for remote applications with a 2nd floor or crawl spaces.

#### Standard Features

- Four Capacities 026, 038, 049, & 064
- 26.3 EER/4.6 COP
- Two-Stage operation for ultra high efficiencies
- vFlow™ Built-in Variable Water Flow for 60-80% lower pumping cost, easier/quicker “plug & play” installation
- iGate™ information gateway to configure, control, monitor and diagnose the unit on the thermostat, in plain English.
- Highest efficiencies in AHRI/ISO/ASHRAE/ANSI 13256-1 ratings
- Extended range operation (20-120°F EWT)
- AHRI matched and rated with TAC and TAH
- EarthPure® HFC-410A zero ozone depletion refrigerant
- Noise reduction features include dual level compressor isolation
- Standard 10-year limited warranty on all parts with 5 year labor allowance; Optional extended 5-year limited labor allowance available



#### Options

- Hot water generator
- Cupro-Nickel coaxial heat exchanger
- Extended 5-year limited labor allowance

### TRANQUILITY® DIGITAL OUTDOOR SPLIT SERIES (TEP)

The Tranquility® Digital Outdoor Split Series delivers the ultimate in efficiency, comfort, reliability and serviceability – intelligently driven by the iGate™, the industry's first two-way communicating control, two-stage compressor, and industry-first vFlow™ internal variable water flow components. The Tranquility® Splits also deliver reliable operation, lower operating costs and compact installation. The Tranquility® Digital Outdoor Split Series easily connects to new or existing fossil fuel and electric furnaces. Designed for the replacement market, quiet outdoor installations with weather and sound insulated cabinets make it the perfect fit. Includes built-in earth loop circulating pump, flushing valves, expansion tank and hose kit for easy ground loop connection.

#### Standard Features

- Four Capacities 026, 038, 049, & 064
- 26.3 EER/4.6 COP
- Two-Stage operation for ultra high efficiencies
- vFlow™ Built-in Variable Water Flow for 60-80% lower pumping cost, easier/quicker “plug & play” installation
- iGate™ information gateway to configure, control, monitor and diagnose the unit on the thermostat, in plain English.
- Highest efficiencies in AHRI/ISO/ASHRAE/ANSI 13256-1 ratings
- Extended range operation (20-120°F EWT)
- AHRI matched and rated with TAC and TAH
- Noise reduction features include dual level compressor isolation
- Built-in earth loop circulating pump, flushing valves, hose kit and loop expansion tank for easy loop connection
- Standard 10-year limited warranty on all parts with 5 year labor allowance; Optional extended 5-year limited labor allowance available



#### Options

- External hot water generator with internally mounted pump
- Cupro-Nickel coaxial heat exchanger
- Extended 5-year limited labor allowance

## TRANQUILITY® SPLIT SYSTEMS

### TRANQUILITY® INDOOR SPLIT SERIES (TTS)

The Tranquility® Indoor Split Series has among the highest efficiency ratings of any geothermal split system in the industry when matched with ClimateMaster Tranquility® Indoor Air Handlers or Cased Coils. The Tranquility® Indoor Split Series easily connect to new or existing fossil fuel and electric furnaces. Ideal for remote applications with a 2nd floor or crawl spaces.

#### Standard Features

- Four Capacities 026, 038, 049, & 064
- 26 EER/4.6 COP
- Two-Stage operation for ultra high efficiencies
- Highest efficiencies in AHRI/ISO/ASHRAE/ANSI 13256-1 ratings
- Extended range operation (20-120°F EWT)
- AHRI matched and rated with TAC and TAH
- EarthPure® HFC-410A zero ozone depletion refrigerant
- Noise reduction features include dual level compressor isolation
- Standard 10-year limited warranty on all parts with 5 year labor allowance;  
Optional extended 5-year limited labor allowance available

#### Options

- Hot water generator
- Cupro-Nickel coaxial heat exchanger
- Extended 5-year limited labor allowance



## TRANQUILITY® SPLIT SYSTEMS

### TRANQUILITY® DIGITAL AIR HANDLER SERIES (TAH)

The Tranquility® Digital Air Handler Series has among the highest efficiency ratings of any geothermal split system in the industry when matched with ClimateMaster Tranquility® Indoor and Outdoor units. Tranquility® Digital Air Handlers are specifically designed and matched for use with Tranquility® Indoor and Outdoor geothermal split units. Tranquility® Digital Air Handlers are available in vertical upflow or downflow, and horizontal left or horizontal right airflow. Designed for new or retrofit geothermal installations/applications, ideal for remote applications like a 2nd floor, crawl spaces, and attics.

#### Standard Features

- Four Capacities 026, 038, 049, & 064
- Fully convertible vertical upflow, downflow, horizontal left and horizontal right airflow
- Variable speed ECM fan motor adapts to various duct systems
- Highest efficiencies in AHRI/ISO/ASHRAE/ANSI 13256-1 ratings for heating COP's, cooling EER's with low water flow rates when matched with TEP/TES/TTP/TTS models
- EarthPure® HFC-410A zero ozone depletion refrigerant
- AHRI matched and rated with TEP, TES, TTP and TTS products
- 230v and 115v compatible
- Condensate over-flow protection
- Exceeds federal requirements for 30% tax credit on installation costs\*
- Standard 10-year limited warranty on all parts with 5 year labor allowance; Optional extended 5-year limited labor allowance available



#### Options

- Internal electric heat for easy field installation
- Dehumidification mode for high latent cooling (when matched with ATP32UO4 thermostat)
- Extended 5-year limited labor allowance
- Electronic auto-changeover thermostat with 3-stage heat, 2-stage cool and indicator LED's

\*When matched with ClimateMaster Tranquility® Digital or Non-Digital Split compressor section

### TRANQUILITY® CASED AIR COIL SERIES (TAC)

The Tranquility® Cased Coil Series has among the highest efficiency ratings of any geothermal split system in the industry when matched with ClimateMaster Tranquility® Indoor or Outdoor units. Tranquility® Cased Coils are specifically designed and matched for use with Tranquility® Indoor and Outdoor geothermal split units. This series is available in vertical upflow or downflow, and horizontal left or horizontal right airflow. Designed for retrofit geothermal installations, the Tranquility® Cased Coil Series is ideal for dual fuel geothermal add-on applications.

#### Standard Features

- Four Capacities 026, 038, 049, & 064
- Fully convertible vertical upflow or downflow, and horizontal left or horizontal right airflow
- Highest efficiencies in AHRI/ISO/ASHRAE/ANSI 13256-1 ratings for heating COP's, cooling EER's with low water flow rates when matched with TEP/TES/TTP/TTS models
- AHRI matched and rated with TEP, TES, TTP and TTS products
- Easily connects to a new or existing fossil fuel furnace
- Exceeds federal requirements for 30% tax credit on installation costs\*
- Large removable access panel provides an open service-friendly cabinet
- Standard 10-year limited warranty on all parts with 5 year labor allowance; Optional extended 5-year limited labor allowance available



#### Options

- Extended 5-year limited labor allowance
- Electronic auto-changeover thermostat with 3-stage heat, 2-stage cool and indicator LED's

\*When matched with ClimateMaster Tranquility® Digital or Non-Digital Split compressor section

## SYSTEM COMPARISON

| <b>Packaged Series</b><br>● Standard ○ Optional   |                   | Tranquility®<br>30 Digital (TE) | Tranquility®<br>22 Digital (TZ) | Tranquility®<br>30 (TT) | Tranquility®<br>20 (TS) |
|---|-------------------|---------------------------------|---------------------------------|-------------------------|-------------------------|
|   |                   | Efficiency                      | Cooling                         | 29.6 EER                | 22.0 EER                |
|   | Heating           | 4.8 COP                         | 4.1 COP                         | 4.8 COP                 | 4.3 COP                 |
| ENERGY STAR Designation                           |                   | Most Efficient                  |                                 | Tier 3                  |                         |
| 30% Federal Tax Credit Eligible                   |                   | Yes                             | Yes                             | Yes                     | Yes                     |
| Compressor  |                   | Two Stage                       | Two Stage                       | Two Stage               | One Stage               |
| Front Panels                                      |                   | Stainless Steel                 | Painted                         | Stainless Steel         | Stainless Steel         |
| Air Filter  |                   | 2" MERV 11                      | 1" MERV 8                       | 2" MERV 11              | 2" MERV 11              |
| vFlow™ Internal Variable Water Flow               |                   | ●                               | ●                               |                         |                         |
| External Fixed-Speed Flow Controller              |                   |                                 |                                 | ○                       | ○                       |
| iGate™ Communicating System                       |                   | ●                               | ●                               |                         |                         |
| Non-Communicating Electronic Controls             |                   |                                 |                                 | ○                       | ○                       |
| Indoor Fan  | Variable Speed    | ●                               | ●                               | ●                       | ○                       |
|   | Single Speed      |                                 |                                 |                         | ●                       |
| Configuration                                     | Vertical Upflow   | ○                               | ○                               | ○                       | ○                       |
|   | Horizontal        | ○                               | ○                               | ○                       | ○                       |
|   | Vertical Downflow | ○                               |                                 | ○                       | ○                       |
| Hot Water Generator                               |                   | ○                               | ○                               | ○                       | ○                       |
| Tin-Plated Air Coil                               |                   | ●*                              | ●                               | ●                       | ●                       |
| ClimaDry™ Whole House Dehumidification            |                   |                                 |                                 | ○                       | ○                       |
| Warranty - 10-Year Parts; 5-Year Labor Allowance  |                   | ●                               | ●                               | ●                       | ●                       |
| Warranty - 10-Year Parts; 10-Year Labor Allowance |                   | ○                               | ○                               | ○                       | ○                       |

\*TE038 uses microchannel aluminum coil

## SYSTEM COMPARISON

| <b>Tranquility® Split Series</b><br>● Standard ○ Optional |           | Tranquility® 27<br>Digital (TES) | Tranquility® 27<br>(TTS) | Tranquility® 27<br>Digital (TEP) |
|---|-----------|----------------------------------|--------------------------|----------------------------------|
| Tranquility® Compressor Section                           |           | Indoor Split                     |                          | Outdoor Split                    |
| Efficiency*   | Cooling   | 26.3                             | 26.3                     | 26.3                             |
|   | Heating   | 4.6                              | 4.6                      | 4.6                              |
| ENERGY STAR Designation                                   |           | Most Efficient                   | Tier 3                   | Most Efficient                   |
| 30% Federal Tax Credit Eligible                           |           | Yes                              | Yes                      | Yes                              |
| Compressor  |           | Two Stage                        | Two Stage                | Two Stage                        |
| Front panel   |           | Stainless Steel                  | Stainless Steel          | Painted                          |
| vFlow™ Internal Variable Water Flow                       |           | ●                                |                          | ●                                |
| External Fixed Speed Flow Controller                      |           |                                  | ○                        |                                  |
| iGate™ Communicating System                               |           | ●                                |                          | ●                                |
| Non-Communicating Electronic Controls                     |           |                                  | ○                        |                                  |
| Hot Water Generator                                       | Built-in  | ○                                | ○                        |                                  |
|   | Accessory |                                  |                          | ○                                |
| Warranty - 10-Year Parts; 5-Year Labor Allowance          |           | ●                                | ●                        | ●                                |
| Warranty - 10-Year Parts; 10-Year Labor Allowance         |           | ○                                | ○                        | ○                                |

\* When matched With Tranquility® Air Handler

| <b>Tranquility® Air Handler</b><br>● Standard ○ Optional |          | Tranquility® Digital<br>Air Handler (TAH) |
|--|----------|---|
| iGate™ Communicating System                              |          | ●   |
| Non-Communicating Electronic Controls                    |          |   |
| Multi-Positional   |          | ●   |
| Variable-Speed Indoor Fan                                |          | ●   |
| Air Filter (Field Installed)                             | 1" or 2" |   |
| Warranty - 10-Year Parts; 5-Year Labor Allowance*        |          | ●   |
| Warranty - 10-Year Parts; 10-Year Labor Allowance*       |          | ○   |

\*When matched with ClimateMaster Splits (TES, TTS, TEP)

## SYSTEM COMPARISON

| <b>Water-to-Water Series</b><br>● Standard ○ Optional |         | Tranquility® Medium Temperature (TMW) | Tranquility® High Temperature (THW) |
|---|---------|---------------------------------------|-------------------------------------|
| Efficiency  | Cooling | 16.4                                  | N/A                                 |
|   | Heating | 3.1                                   | 3.3                                 |
| ENERGY STAR Designation                               |         | Tier 3                                |                                     |
| 30% Federal Tax Credit Eligible                       |         | Yes                                   | Yes                                 |
| Generates Hot Water up to 130°F EWT                   |         | ●                                     |                                     |
| Generates Hot Water up to 145°F LWT                   |         |                                       | ●                                   |
| Generates Chilled Water                               |         | ●                                     |                                     |
| Single-Stage Compressor                               |         | Yes                                   | Yes                                 |
| Source Heat Exchanger                                 |         | Coaxial                               | Coaxial                             |
| Load Heat Exchanger                                   |         | Coaxial                               | Brazed Plate                        |
| Thermal Expansion Valve (TXV)                         |         | ●                                     | ●                                   |
| Dual-Level Compressor Isolation                       |         | ●                                     | ●                                   |
| Stainless Steel Front Panels                          |         | ●                                     | ●                                   |
| Non-Communicating Electronic Controls                 |         | ●                                     |                                     |
| Communicating Electronic Controls                     |         |                                       | ●                                   |
| External Fixed-Speed Flow Controller                  |         | ○                                     | ○                                   |
| Warranty - 10-Year Parts; 5-Year Labor Allowance      |         | ●                                     | ●                                   |
| Warranty - 10-Year Parts; 10-Year Labor Allowance     |         | ○                                     | ○                                   |

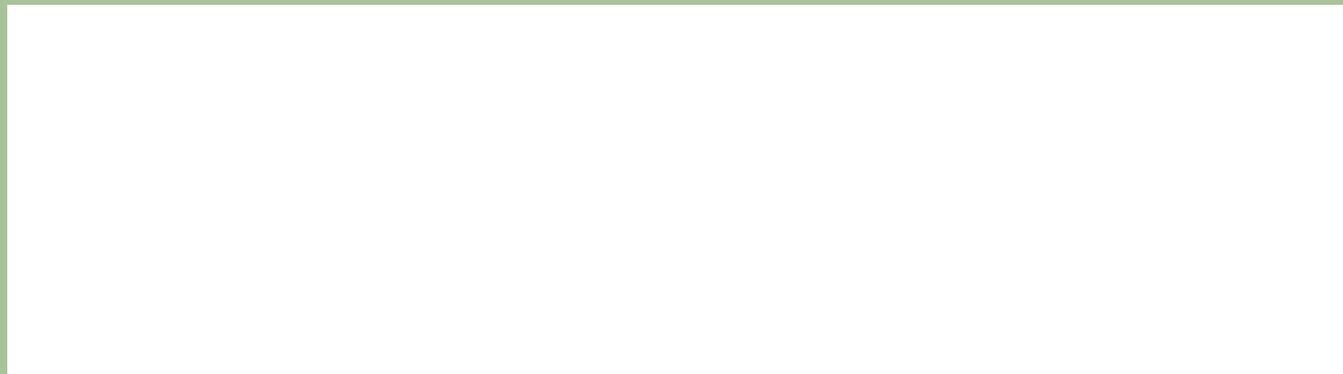
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