



GEO-TRIO® High Efficiency Geothermal/Water Source Step-Capacity Heat Pump — R-410A

Ground Water Application: Water Temp 40° to 100°

Ground Loop Application: Temp Range 25° to 110°

The Bard GEO-TRIO® Geothermal/Water Source Heat Pump delivers economical year-round comfort by utilizing nature's most abundant and efficient solar energy collector – the earth. The GEO-TRIO® Series heat pumps are designed for low water flow rates and offer cooling efficiencies up to 29.4 EER and heating efficiencies up to 4.8 COP on ground water, and cooling efficiencies up to 24.9 EER and heating efficiencies up to 4.4 COP on ground loop.

All units are shipped prewired for fast, easy installation in residential or commercial buildings.

TYPICAL INSTALLATION APPLICATIONS

Compressor, Blower and A Coil Sections stack vertically for upflow and counterflow installations. Vertical installations may include use in closets or other areas with unit clearance. Blower and A Coil Sections can be remotely mounted in attics or crawl spaces providing horizontal right or left opportunities.



Engineered Features

Steel Cabinet:

Galvanized 20 gauge zinc coated steel cabinet with baked-on, textured enamel which allows it to withstand 1000 hours of salt spray exposure.

Multi-Capacity Two-Stage:

Simple thermostatic control seamlessly stages the compressor and indoor airflow rate between full and part load capacity operation without cycling the compressor. This helps to maximize comfort, humidity control, energy efficiency and overall reduction in compressor cycling for improved system life.

Step Capacity Compressor:

Copeland step-capacity (2-stage) scroll compressors are designed for increased efficiency, quieter operation and improved reliability for longer life.

Compressor Sound Reduction:

Compressor is mounted on full floating base with double grommets and is equipped with discharge muffler.

R-410A Refrigerant:

Designed with R-410A (HFC) non-ozone depleting refrigerant in compliance with the Montreal protocol and 2010 EPA requirements.

Liquid Line Drier:

Protects system against moisture.

Thermostatic Expansion Valve:

For wide range refrigerant control (2-way operation).

High Pressure Switch:

Provides additional protection for the system.

Low Pressure Switch:

Two switches provided. Factory wired switch is for ground water applications, alternate switch is field connected for ground loop applications.

Fluid Flow Switches:

Provided for both source and load coils to assure proper flow for safe operation.

Control Panel:

Mid-level for easy access. Blower section includes transformer and blower control.

High Efficiency Coaxial Water Coil in either Copper or Cupronickel

Water to refrigerant coil is completely insulated to prevent frost build-up at low temperature operation.

NOTE: Copper water coils are not warranted for ground water/open loop installations.

Indoor Air Coil:

Grooved copper tubing and enhanced louvered aluminum fin for maximum heat transfer and energy efficiency.

Coil coating is black E-Coat electrostatic coating on complete coil.

Cased Indoor Air Coils for Fossil Fuel (Dual Fuel):

Insulated cased coils to fit standard 17.5" and 21" width furnaces.

Lockout Circuit:

Built-in lockout circuit resets from the room thermostat. Provides commercial quality protection to the compressor.

ECM Blower Motor:

- High Efficiency
- Soft starting - low noise on start up
- Continuous fan - will operate at 50% of rated Stage 2 airflow

Mild Weather Operation:

Part Load Cooling Operation will operate at 20% reduced airflow for the first 5 minutes of operation. This results in 32% increased applied moisture removal during this 5-minute period, and helps humidity control during short-run conditions. This is seamlessly controlled internal of the unit controls with no required user intervention.

Water Connections:

All water connections on outside of cabinet. Brass full swivel double o-ring connection with 1" full flow ports.

Refrigerant Connections:

Special self-sealing fittings are used with 3' line set for stacked upflow or downflow applications, and line sets up to 50' available for horizontal or dual-fuel applications.

Service Access Ports:

Permits service pressure check of discharge and suction pressures.

Geothermal Logic Control:

With diagnostic lights for ease of troubleshooting.

Filter Rack (Optional):

Accessory kit with 1" filter (reversible for left or right side access for upflow installations).

Accessory Electric Duct Heater Option:

5, 10, 15 and 20KW nominal size. Field installed external to unit. For upflow and horizontal duct installation.

Counterflow Heater Accessory:

10KW and 20KW nominal size. Installed between the unit and floor surface, the GTCFHK counterflow heater accessory includes electric heat strips, heater contactors and circuit breakers.

Optional Accessories:

Room thermostat - Water accessory kit - Waterflow controls.

Domestic Hot Water Heat Exchanger System:

Double wall vented heat exchanger and pump with ECM motor and operating controls, factory installed on all 1-phase models.

Hot Water Heating Performance and Operating Cost Savings:

The actual amount of hot water (gallons of hot water per day) generated and resultant operating cost savings can vary greatly because of several factors: heat pump system size, hours per day of operation of the heat pump, mode of operation (cooling vs. heating), hot water usage patterns, heat pump water supply system (ground water, ground or pond loop, etc.), and climatic conditions. The gallons of hot water per day are dependent upon the above variables, and in general can range up to 125 gallons per day for a nominal 24,000 BTU heat pump system, and up to 375 gallons per day for a nominal 60,000 BTU heat pump system in the cooling mode, offering a 100% energy savings over conventional electric water heaters. During the winter months when the heat pump is operating in the heating mode, less hot water is available, but at the same time, the electric water heater will consume less electricity.

Ground Water/Water Loop Accessories

Heat Pump Model	Bard Part Number	Required Quantity	Description
All	GWK-1	1	Ground Water Kit containing: (2) 1" MPT 90° double o-ring elbows with 1/4" FPT ports and 8603-026 pressure/temperature test plugs (for heat pump connection). See DORMP1-90 for reference (1) 3/4" FPT 24V brass motorized slow open/close ball valve w/end switch—See 8603-033 for reference.
NOTE: Order correct constant flow valve for rated GPM of heat pump, 1 required per unit			
GTC36	CFV-6	1	Constant flow valve, 6 GPM, 3/4" FPT
GTC48	CFV-7	1	Constant flow valve, 7 GPM, 3/4" FPT
GTC60	CFV-9	1	Constant flow valve, 9 GPM, 3/4" FPT



Elbow, 1" MPT X Double
O-ring with 1/4" Port and Pressure/
Temperature Test Plugs
DORMP1-90



8603-033 (3/4" FPT)
8603-038 (1" FPT)



8603-006

Water Supply Valves			
8603-033	Each	3/4" FPT 24V brass slow open/close ball valve with end switch	
8603-038	Each	1" FPT 24V brass slow open/close ball valve with end switch	
8603-006	Each	1" FPT 24V PVC solenoid valve with flow control and internal manual bleed lever	

Individual Double O-Ring Fitting Packs (Qty. 2 per pack)	
DORB1-90-4HC	(2) 1" barbed 90° double o-ring elbows with 1/4" FPT ports, 8603-026 pressure/temperature test plugs, and (4) SS 1" hose clamps
DORB1-S-4HC	(2) 1" barbed straight double o-ring fittings with (4) 1" SS hose clamps
DORMP1-90	(2) 1" MPT 90° double o-ring elbows with 1/4" FPT ports and 8603-026 pressure/temperature test plugs
DORMP1-S	(2) 1" MPT straight double o-ring fittings
DORFP1-S	(2) 1" FPT straight double o-ring fittings
DORS1-S	(2) 1" copper sweat straight double o-ring fittings with 1/4" FPT ports and 8603-026 pressure/temperature test plugs



1" MPT X Double O-ring
DORMP1-S



1" FPT X Double O-ring
DORFP1-S



1" Copper Sweat X Double O-ring with 1/4"
FPT Port & Pressure/Temperature Test Plugs
DORS1-S

Ground Water/Water Loop Service Accessories

All	8603-012	Each	Flow Meter, 1-10 GPM, 3/4" FPT
All	8603-017	Each	Flow Meter, 1-17 GPM, 1" FPT
All	8603-026	Each	1/4" pressure/temperature test plug
All	8603-027	Each	1/4" FPT gauge adapter w/ 1/8" heavy duty probe
All	8603-028	Each	1/4" MPT 0-100 PSI gauge
All	8603-029	Each	Pocket thermometer, 1/8" probe, 0 to +220F



8603-017



8603-026



8603-027



8603-028



8603-029