

Geothermal heat pumps

Maritime Geothermal Ltd. of Canada offers Nordic® line of geothermal heat pumps that provide efficiency and reliability. The Nordic systems are specifically designed for water well applications, vertical and horizontal groundloops as well as the latest earth coupling technique, the “direct expansion” heat pumps. Consisting of 10 production styles, with four capacities within each model, Nordic can handle any geothermal application. Some standard features of the Nordic heat pumps include:

- Oversized water coils to obtain maximum performance even at well temperatures as low as 4°C;
- Water coil can withstand an occasional freeze-up without rupturing;
- Oversized condenser coils to maintain low head pressure;
- Electrical, slow-closing water valves to avoid water hammer;
- Belt-drive blower for easy maintenance and versatility;
- External service valves;
- Double-walled domestic hot water generator coil;
- Hot water circulator with bronze head;
- Electronic auto changeover thermostat;
- Removable panels on three sides for easy access; and
- Rugged baked enamel cabinet with acoustic insulation.

Brief descriptions of the different heat pumps are given below.

- The “O” series passive units contain both compressor and blower sections of the heat pump in a single cabinet. The package heat pump can operate only in an open loop environment where water is pumped from the ground. Heating capacity ranges from 40,000 to 65,000 Btu while air-conditioning is accomplished with a separate air coil in which well water is circulated. The amount of cooling can vary from 0 to 48,000 Btu, depending on the ground water temperature and flow.
- The “R” series has been specifically developed for geothermal groundloop operation or well water operation where full capacity dehumidification and air-conditioning are required. This series, featuring compressor operated cooling, is ideal for buildings with high cooling needs or a closed ground loop situation where passive cooling cannot meet the cooling demand.
- The “W” series is a “liquid-to-liquid” heat pump with full capacity water heating and cooling. It can work as an open loop or a closed loop system. Its compact design and versatility makes it ideal for applications that require high volumes of hot or cold water. It is very popular with radiant floor heating systems, swimming pools and aquaculture.
- The “DX” series has full capacity air heating and cooling. This patented design operates without a source of water by burying copper tubing directly in the ground. Refrigerant circulates through the copper tubing and extracts heat from the ground in the winter and rejects its heat to the ground in the summer. The overall seasonal efficiency is slightly higher than either “R” or “O” systems.
- The “DXS” series is a “DX” in a two part split design. Its installation and operation are similar to the “DX”, but one benefit is that the compressor section can be placed at a convenient location by the user.
- The “DXW” series has hot water heating and cooling as its output. It operates in the same manner as the “DX”.
- The “DC” series can produce either full capacity hot air or hot water. Cooling is provided by groundwater directly, therefore, it must operate as an open loop system.
- The “PC” series are designed to heat and dehumidify an indoor pool space and pool water. It does not require any water source or ground loops but utilizes the pool water and air as its source and sink.

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