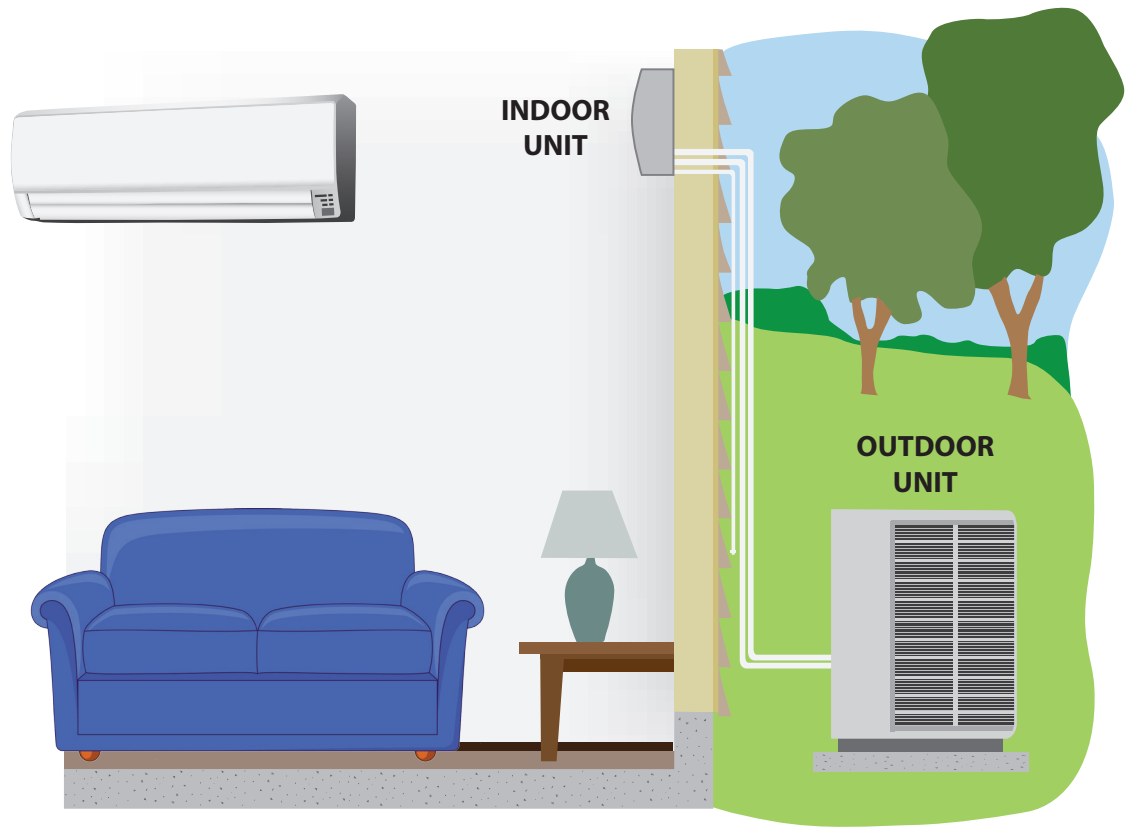


# Ductless System



## What Is A Ductless Heating And Cooling System?

Ductless heating and cooling systems are highly efficient heat pumps that deliver warm or cool air directly into different zones in your home, instead of routing it through ducts first. You may also hear them called mini-split, multi-split, or variable refrigerant flow (VRF) heat pump systems. They are an increasingly popular, cost-effective solution to replace less efficient types of heating and cooling systems in our homes and businesses. They are also used in new construction, home additions, multi-family (condo or apartment) housing, commercial applications, churches, and to improve comfort in poorly heated or cooled rooms.

## How does it work?

Like central systems, ductless heating and cooling systems have two main components: an outdoor compressor/condenser, and an indoor air-handling unit. A conduit, which houses the power cable, refrigerant tubing, suction tubing, and a condensate drain, links the outdoor and indoor units.

Ductless heating and cooling systems are reversible, two-way heat pumps that simply take heat energy from one place and move it to another by compressing and expanding refrigerant.

**Outdoor unit:** connects to the indoor unit by a small bundle of cables, including a refrigerant line. The unit is placed outside of the building on the ground, wall, or roof.

**Indoor unit:** mounted on a centrally located wall, ceiling, or floor. One ductless heat pump system with multiple indoor units may be enough to heat and cool an average-sized home.

**Remote control:** allows occupants to adjust the settings for maximum efficiency, comfort and control.



## What Are The Benefits Of A Ductless System

Besides being very energy efficient, one of the main advantages of ductless heating and cooling systems are their small size and flexibility for zoning or heating and cooling individual rooms. Inverter driven units provide the most efficient system. Each of the zones will have its own thermostat, so you only need to condition that space when it is occupied, saving energy and money.

Ductless heating and cooling systems are also often easier to install than other types of space conditioning systems, and can be installed in as little as a half day. For example, the hook-up between the outdoor and indoor units generally requires only a three-inch hole through a wall for the connections.

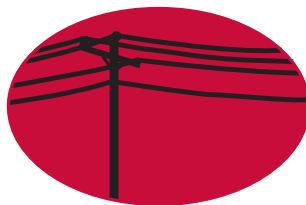
Since ductless heating and cooling systems have no ducts, they avoid the energy losses associated with ductwork of central forced air systems. Duct losses can account for more than 30% of energy consumption for space conditioning, especially if the ducts are in an unconditioned space such as an attic.

Compared with other add-on systems, ductless heating and cooling systems offer more flexibility in interior design options. The indoor air handlers can be suspended from a ceiling, mounted flush into a drop ceiling, or hung on a wall. Floor-standing models are also available.

## Next Steps To Installing A Ductless Heating & Cooling System

- Pick a qualified heating/cooling contractor that has experience installing ductless heat pumps. North American Technician Excellence (NATE) contractors are recommended.
- Ask your heating/cooling contractor to accurately evaluate your home for the installation and capacity requirements of a ductless heat pump system. The installer, using a Manual J calculation, must correctly size each indoor unit and judge the best location for its installation. This evaluation should consist of a computer generated analysis showing the amount of heating and cooling needed to condition the rooms in your home for winter and summer.
- When requesting bids from qualified dealers, consider options such as: qualifications for the utility incentives, mechanical ventilation and air filtration.
- Once you receive the bids, have your contractor explain the EFFICIENCY of the heat pump. One of the most common efficiency ratings for the heat pump air conditioning cycle is called the Seasonal Energy Efficiency Rating or SEER. The SEER rating can range from 13 to 30+ SEER.
- Another efficiency rating is called the Energy Efficiency Rating or EER. The EER ratings more accurately represent your system's ability to provide cool comfort and energy efficiency during the hottest days of the summer. More importantly, a unit with a high SEER doesn't always have a high EER rating as well.
- The efficiency rating for the heat pump heating cycle is called Heating Seasonal Performance Factor or HSPF. The HSPF rating can range from 7.0 to 13.5 HSPF. The important thing to remember is: the larger the SEER, EER, and HSPF rating, the more efficient your heat pump will be. ***It is recommended that you purchase the most efficient system that you can afford. As time goes on, the more efficient heating system that you buy today will save you money tomorrow.***

If you have questions, contact your local dealer, power supplier or your local Nebraska Public Power District Office.



Polk County RPPD