

WATTSMART® TECHNOLOGY OVERVIEW

DUCTLESS HEAT PUMPS



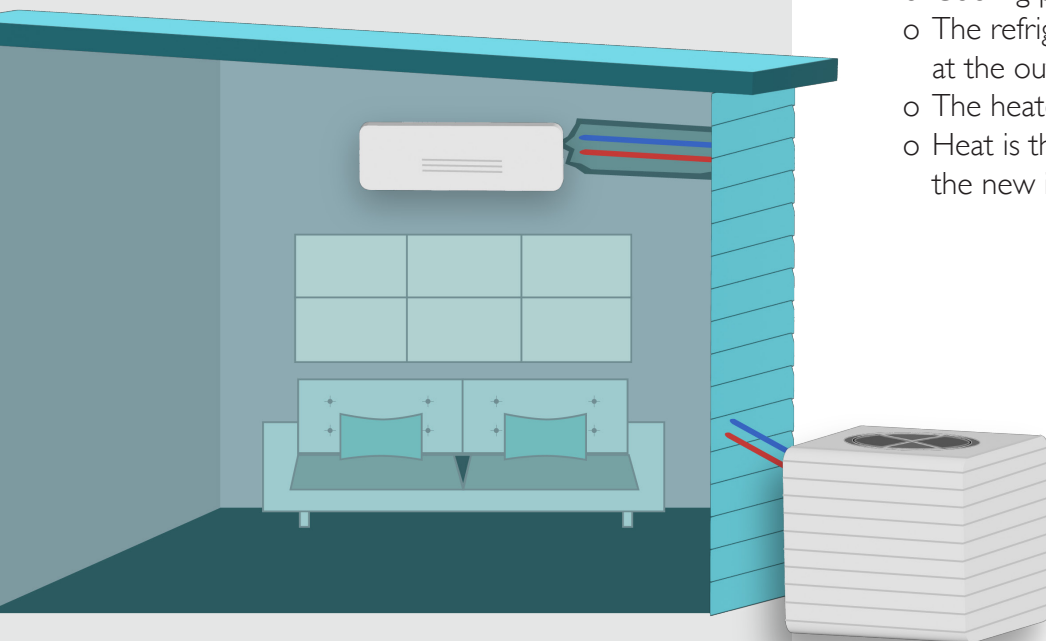
WHAT IS A DUCTLESS HEAT PUMP?

A ductless heat pump (DHP) is a heating and cooling system that uses an electric heat pump to condition the air directly in the space where it's installed, allowing for the elimination of ducts.

The system has five main components:

- An outdoor compressor/condenser
- An indoor air-handling unit
- A conduit housing the power cable
- Refrigerant and suction tubing
- A condensate drain

Installing a DHP is easy and affordable. The upgrade is far more efficient than baseboards and wall heaters, saving up to 50% on heating and cooling costs.



HOW DO THEY WORK?

Ductless heat pumps use variable speed compressors to continually match the heating and cooling load. This avoids the on/off cycling of conventional heating systems, which results in fluctuating temperatures and high energy consumption.

The heat pump process

- DHPs provide both heating and cooling
- Cooling mode
 - Air passes within the space over indoor coil
 - Heat from indoor air is transferred into refrigerant
 - Refrigerant flows through line set to the outdoor unit
 - Heat absorbed by refrigerant is rejected to the outside air.
- Heating mode
 - Cooling process is reversed
 - The refrigerant absorbs the heat from outside air at the outdoor unit
 - The heated refrigerant flows through line set
 - Heat is then pushed back into the space through the new indoor unit

General breakdown of system usage

CIRCUMSTANCE	DHP RESPONSE
Thermostat calls for cooling	Functions like an air conditioner for the space(s) installed
Thermostat calls for heating	Reverse refrigerant flow, providing warm air to the home in the space(s) installed

TYPES OF DUCTLESS HEAT PUMPS

There are three types of solutions offered by the Wattsmart Homes program: single-head, multi-head, supplemental.

Single-head ductless heat pumps (Mini-split systems)

Single-head DHPs have only one indoor unit and are used to condition a single space. To qualify for a rebate, the previous primary heat source must have been a permanently installed electric resistance heating system (e.g., electric baseboard, electric ceiling/wall heat) serving at least 80% of the home's conditioned living space. Rebates for the Wattsmart Homes program for this type of system are only applicable to a home that is considered an "all-electric" home where there is no natural gas/propane used to heat the home.

Multi-head ductless heat pumps (Multi-split systems)

A multi-head DHP can have two or more indoor units used to condition multiple spaces. To qualify for a rebate, the previous primary heat source must have been a permanently installed electric resistance heating system (e.g., electric baseboard, electric ceiling/wall heat) serving at least 80% of the home's conditioned living space.

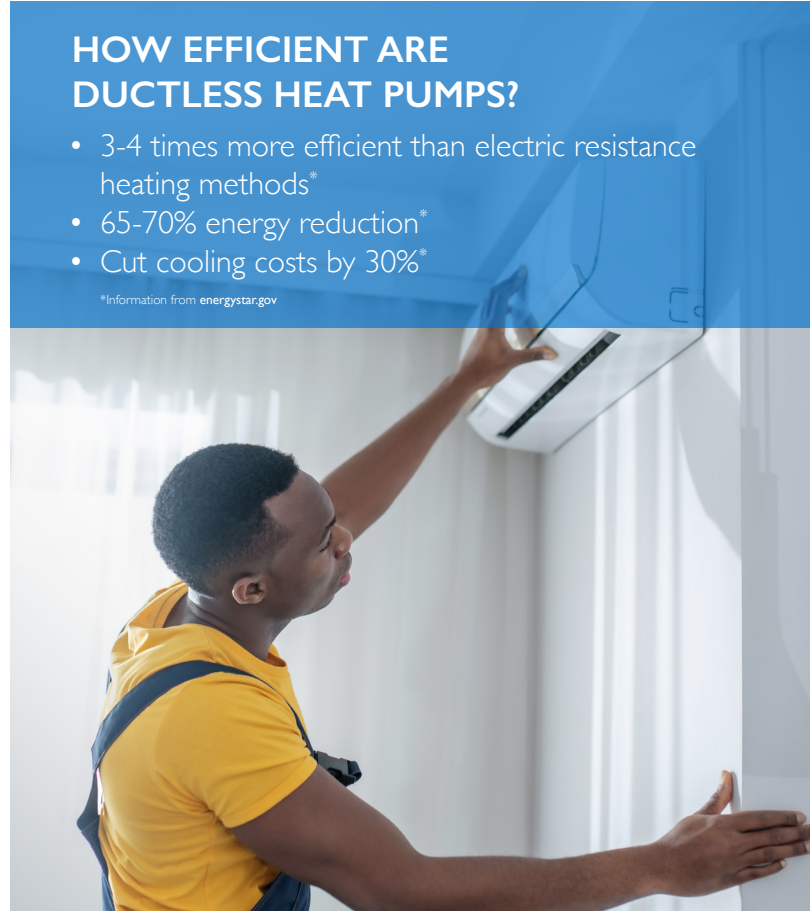
Supplemental ductless heat pump

Supplemental DHPs can be used to control the temperature in individual rooms or spaces as needed, without having to impact the entire home. **Gas and propane heated homes qualify for a supplemental rebate with the Wattsmart Homes program** when using a ductless heat pump system to condition bonus rooms, additions, or under conditioned spaces.

HOW EFFICIENT ARE DUCTLESS HEAT PUMPS?

- 3-4 times more efficient than electric resistance heating methods*
- 65-70% energy reduction*
- Cut cooling costs by 30%*

*Information from energystar.gov



LEARN MORE

To learn more visit WattsmartHomes.com or check out the direct links below:

- [Application & Rebate Information](#)
- [Wattsmart Learning Center](#)

Questions? We're here to help.

Contact: RMPResi@evergreen-efficiency.com

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