

Choosing a Mini-Split Heat Pump

With so many manufacturers and models of mini-split air-source heat pumps to choose from, how do you decide which one is best for your home and budget?

Maritime Electric Recommends the Following 3 Steps...

- 1** Choose an authorized mini-split dealer that only employs certified installers licensed to handle refrigerants and work with electrical connections. By following this step you will ensure your new heat pump works correctly and your warranty is not made void due to incorrect installation.
- 2** Choose the right size heat pump. A mini-split heat pump is usually intended to supply most of the heat for one area in your home. Your installer will probably recommend a unit with a rating (at 8.3 °C) in the 15,000 – 18,000 Btu/h range.
- 3** Choose an ENERGY STAR® rated “Most Efficient” heat pump that is capable of operating at temperatures as low as -25 °C.



How much can I expect to save by installing an ENERGY STAR® Most Efficient heat pump in my home?

	Oil-Fired Furnace without Heat Pump	Oil-Fired Furnace with “Most Efficient” Mini-Split	Electricity for “Most Efficient” Mini-Split	Net Saving with “Most Efficient” Mini-Split
Estimated Annual Usage for Space Heating	2,500 litres*	1,250 litres	4,250 kWh	
Fuel Price	\$0.80 litre	\$0.80 litre	\$0.1605/kWh	
Annual Cost	\$2,000	\$1,000	\$682	\$318
	Electric Baseboard without Heat Pump	Electric Baseboard with “Most Efficient” Mini-Split	Electricity for “Most Efficient” Mini-Split	Net Saving with “Most Efficient” Mini-Split
Estimated Annual Usage for Space Heating	21,250 kWh	10,625 kWh	4,250 kWh	6,375 kWh
Fuel Price	\$0.1605/kWh	\$0.1605/kWh	\$0.1605/kWh	\$0.1605/kWh
Annual Cost	\$3,410	\$1,705	\$682	\$1,023

* Energy cost per year based on Maritime Electric residential first block energy charge of \$0.1396/kWh and HST of 15%.

Not all heat pumps are created equal!

While heat pumps are the most efficient way of using electricity to heat your home, some are much more efficient than others.

The ENERGY STAR® “Most Efficient” mark is only awarded to the most efficient heat pumps on the market. You’ll find the blue ENERGY STAR® label on qualified products.



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How do Air-Source Heat Pumps Work?

Air-source heat pumps use electricity to extract heat from the outside air and transfer it to the interior of a building. They do this through the use of a compressor and a working fluid called a refrigerant. Refrigerators and air conditioners are both common examples of heat pump technology.

Energy Efficiency Measures for Air-Source Heat Pumps

The annual heating and cooling efficiency of an air-source heat pump is affected by the manufacturer's choice of features and components and the minimum energy performance standards (MEPS) set and regulated by the federal government. The following is an explanation of the most common measures of an air-source heat pump's heating and cooling efficiency.

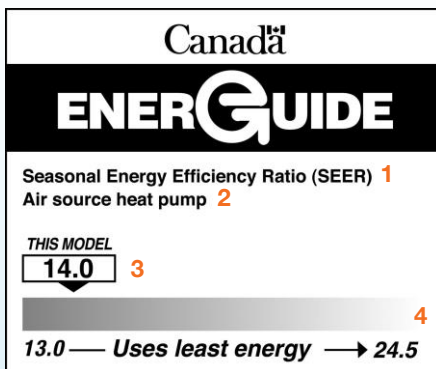
Seasonal Energy Efficiency Ratio (SEER) – The SEER is the ratio of the total cooling delivered by a heat pump in Btu over the entire cooling season divided by the total electric energy input in watt-hours consumed during the same period.

Heating Seasonal Performance Factor (HSPF) – The HSPF is the ratio of the total heat output in Btu of a heat pump over the entire heating season divided by the total energy in watt-hours it uses during that time. The higher the HSPF, the more efficient the heat pump. An HSPF rating of >8.7 for climate region 5 qualifies for the ENERGY STAR® Most Efficient rating (PEI is in climate region 5). If the HSPF rating does not specifically say for climate region 5, then the HSPF value is probably for climate region 4. Divide by 1.15 to convert the region 4 HSPF value to the region 5 HSPF value.

Coefficient of Performance (COP) – The COP is the ratio of heat energy delivered to electrical energy supplied at a specific temperature. A COP of three means the heat pump delivers three units of heat energy for every one unit of electricity it consumes. The HSPF can be converted to a seasonally-averaged COP by dividing the HSPF value by 3.412 Btu / watt-hour.

Canada's EnerGuide Rating for Air-Source Heat Pumps

All air-source heat pumps sold in Canada include an EnerGuide rating. EnerGuide is the official Government of Canada mark for labelling and rating the energy consumption of appliances including heat pumps. EnerGuide tells consumers about a heat pump's energy performance and helps them compare among similar products. A typical EnerGuide label for an air-source heat pump is shown below. Currently the EnerGuide label only provides information about a heat pump's cooling performance.



- 1 **Seasonal Energy Efficiency Ratio (SEER)** – Is a measure of a heat pump's cooling efficiency.
- 2 **Air Source Heat Pump** – Identifies the appliance as an air-source heat pump.
- 4 **This Model** – Indicates the SEER rating for this model. The higher the SEER, the more efficient the heat pump.
- 3 **The Indicator Bar** – Tells you how this model compares to the least and most efficient models in the same class.

Potential Sources of HSPF Values

An HSPF rating of >8.7 for climate region 5 qualifies for the ENERGY STAR Most Efficient rating. To find the correct HSPF value for a mini-split heat pump you may do the following:

- Consult the manufacturer's brochure
- Locate the nameplate on unit
- Visit the Natural Resources Canada (NRCAN) Website and search for Energy Efficiency Ratings: <http://oee.nrcan.gc.ca>
- Ask your authorized heat pump dealer to provide the HSPF region 5 value for the unit you are considering

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