



GAS HEAT PUMP (GHP)

FREQUENTLY ASKED QUESTIONS (FAQs)

• WHAT IS A GAS HEAT PUMP (GHP)?

GHPs move heat from an external heat source to a heat sink (indoors) using natural gas as the primary energy source to drive the thermodynamic cycle. Heat pumps extract heat from air, water or the ground, and then move (pump) this heat to the inside space. Heat pumps are incredibly efficient, exceeding the 100% efficiency barrier, something conventional HVAC equipment cannot achieve.

• HOW DO GHPs WORK?

Heat pumps in heating mode are effectively air conditioners running in reverse, extracting heat from outdoors and efficiently moving it indoors. Engine-driven GHPs work very similar to electric heat pumps, with the electric motor replaced by a natural gas engine. Absorption GHPs replace the motor and compressor with a generator and absorber running on natural gas.

• WHAT ARE THE BENEFITS OF A GHP?

GHPs lower heating and cooling costs, reduce Greenhouse Gas Emissions (GHG) and provide a reliable system that does not require a back-up heating source.

• ARE GHPs ENERGY EFFICIENT?

Yes. For heating, GHPs offer Coefficient of Performance (COP) ratings between 1.2 to 1.4 or greater. For cooling, COP is typically 1.3 for an engine-driven GHP or 0.6 for absorption. Even at 0.6, absorption GHPs still tend to save money over conventional cooling systems. When simultaneously cooling and heating, COP's can reach as high as 3.0.

• HOW WILL A GHP IMPACT MY GAS BILL?

GHPs reach 140% heating efficiency compared to 80% for a typical gas furnace or boiler, which leads to savings of 30-50%. When using a GHP for cooling, gas bills increase during cooling season, but are offset by significantly reduced electric bills.

• DO GHPs STILL USE ELECTRICITY?

Yes. Like a gas furnace, GHPs use electricity for controls, fans, pumps, etc. Electric usage is negligible and does not require costly electric upgrades.

• CAN I REPLACE MY EXISTING ELECTRIC HEAT PUMP WITH A GHP?

Absolutely. When natural gas is available a GHP saves money, provides warm comfortable heat and does not require a backup/emergency heat system like electric heat pumps do.

• DO GHPs OPERATE BELOW 35°F (1.7°C)?

Yes. Heat recovered from the combustion process allows GHPs to operate below 0°F (-17.8°C) without the need for back-up heating. In comparison, standard electric heat pumps typically switch over to electric resistance or emergency heat mode when the outside temperature drops below 35°F (1.7°C).

• WHAT IS THE AVERAGE LIFESPAN OF A GHP?

GHPs typically have a lifespan of 20 years.

• WHAT MARKETS & APPLICATIONS ARE BEST FOR GHPs?

GHPs work well in commercial and residential space and ventilation heating, DHW heating and space cooling. GHPs are already available for commercial markets.

• WHO MAKES GHPs?

Search manufacturers at <https://gasairconditioning.com/technologies/heat-pumps/resources/>

• WHEN WILL RESIDENTIAL GHPs BE AVAILABLE FOR PURCHASE?

GHPs are already available for larger homes, with smaller units under development and commercialization.

• CAN GHPs OPERATE ON RENEWABLE GAS?

Yes. GHPs can run on renewable gas (RNG) and blends of hydrogen for significant greenhouse gas reductions.

For more information on GHPs such as sizing, availability, and case studies, please visit www.gasheatpumps.com.

THE TRUTH ABOUT GAS HEAT PUMP (GHP) MYTHS



Everyone is talking about Gas Heat Pumps (GHPs) these days, but not everything you hear is accurate. Here are seven GHP myths you can ignore – and the truth behind the claim.

GHPs ARE NOT ENERGY EFFICIENT



FALSE

GHPs offer heating and/or water heating efficiencies around 140% and save consumers money over conventional gas or electric systems.

GHPs CAN'T BE INTEGRATED WITH BOILERS, WATER HEATERS, CHILLERS, AND OTHER EQUIPMENT



FALSE

As hydronic equipment, GHPs are easily integrated into existing systems to support both space and water heating. Some GHPs even offer heat recovery for water heating during cooling season.

GHPs ARE DIFFICULT AND EXTREMELY EXPENSIVE TO MAINTAIN



FALSE

Engine-driven heat pumps have similar maintenance requirements to electric heat pumps with the addition of maintenance on the engine itself. Absorption GHPs require simple annual maintenance that often costs less than servicing a condensing boiler. Components requiring service include the burner, fan, and fin coils.

HEAT PUMPS ARE ONLY SUITABLE FOR INSTALLATION IN WARM CLIMATES



FALSE

GHPs perform well in both warm climates and cold climates, with ratings to perform below 0°F without significant capacity reduction. Offering the advantage of a gas burner, GHPs can act like a condensing boiler in sub-zero temperatures maintaining optimal efficiencies for space and water heating with no backup required.

GHPs ARE LOUD



FALSE

Most absorption and engine-driven GHPs operate at the same low noise level as an electric heat pump, which is typically less than 60dB. To compare, a vacuum cleaner operates between 71-75dB.

GHPs OFFER A SHORT LIFESPAN



FALSE

Absorption GHPs typically last well over 20 years. An engine-driven GHP has an expected lifespan of 14 years that can extend to 20 years with proper maintenance.

THERE ARE FEW OPTIONS FOR GHPs



FALSE

Depending on existing infrastructure, GHPs are available in air-to-air, hydronic, or geothermal systems. Many offer a modular design feature with the option to scale and expand if needed, and indoor units are available with options similar to electric heat pumps. Variable Refrigerant Flow (VRF) type GHPs are capable of providing simultaneous cooling and heating function.

FOR MORE INFORMATION VISIT: WWW.GASHEATPUMPS.COM