

Case Studies / References

POLABSKÉ MLÉKÁRNY a.s., Branch Varnsdorf, ČR

- Installation date: December 2013
- Refrigerant: R507
- Chilled water preparation 34 °F
- Temperature drop of the heating circuits: 122/104 °F (H1), 194/158 °F (H2)
- Year-round operation



Evaporator output – cooling (C)	26 RT
Condenser output – heat (H1)	271,000 Btu
Engine and exhaust gas output – heat (H2)	146,000 Btu
Fuel input	242,000 Btu

$t_e = 23\text{ °F}$, $t_c = 126\text{ °F}$

Gas heat pump utilizes the waste heat from the cooling of dairy technology and introduces the heat back into the production process and central heating.

Aquapark ESPACE AQUATIQUE, Perpignan, Francie

- Installation date: Sept 2014
- Refrigerant: R407C
- Dehumidification and air-conditioning of the swimming pool area and service background
- Temperature drop 46/54 °F – evaporator (C)
126/108 °F – condenser (H1)
194/158 °F – engine and exhaust gases (H2)
- Year-round operation



Evaporator output – cooling (C)	31 RT
Condenser output – heat (H1)	307,000 Btu
Engine and exhaust gas output – heat (H2)	151,000 Btu
Fuel input	248,000 Btu

$t_e = 36\text{ °F}$, $t_c = 129\text{ °F}$

The energy obtained from the air treatment unit is re-used to heat the swimming pool water.

Due to the utilization of natural gas to operate the heat pump, the machine room reconstruction allowed reduced demand of the building's electric energy.

TEDOM

technology
... in harmony
with nature

Gas Heat Pump TEDOM Polo 100



...inspired by TEDOM
CHP Units

TEDOM a.s., Výčapy 195, 674 01 Třebíč, Czech Republic

for combined production of heat and cold | NATURAL GAS - LPG - BIOGAS

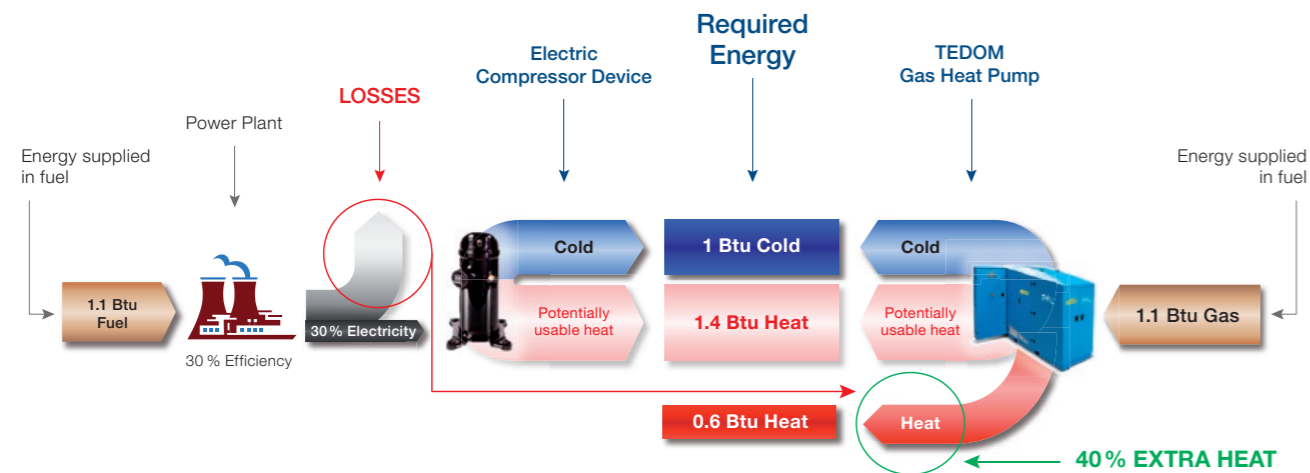


What is the gas heat pump?

The gas heat pump is a device allowing combined production of heat and cold. Technically, it is a combination of gas engine, compressor, heat exchangers, and a control system that function as one unit. The gas heat pump operates on the same principle as common heat pumps. The difference consists in replacing the electric engine that drives a compressor with a gas engine from which extra heat can be utilized like in the CHP unit.

Comparing the production of cold and heat from electrical power or gas

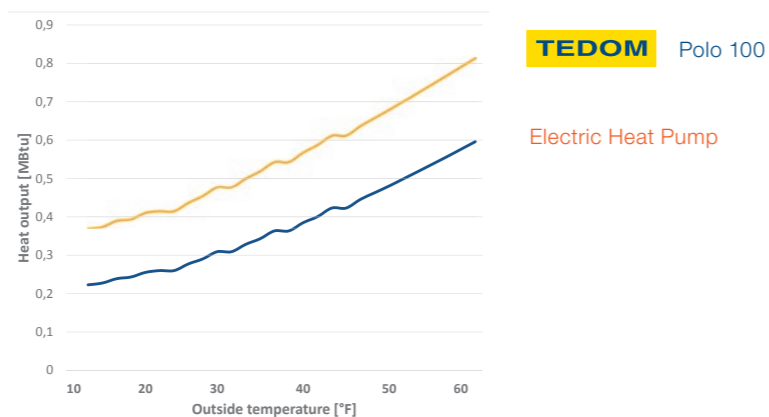
The gas heat pump can utilize the heat which would be otherwise lost in the production of electric power.



Do you want to know more? Take a look at our video presentation or visit <http://cogeneration.tedom.com/videoblog.html>

Comparing the output between electric and gas heat pump

The diagram depicts the TEDOM gas heat pump's output in the air-water connection depending on the external air temperature. When compared with a common electric heat pump, the gas heat pump has a higher heat output at any temp. level. This is possible by utilizing the heat output of the combustion engine.



For whom is the gas heat pump designed?

- Facilities that consume heat and cold at the same time
- Facilities with higher cold consumption in summer months and heat in winter
- Facilities with a permanent need for cold
- Facilities with a high demand for heat

Recommended applications include: food industry plants and industrial establishments, aquaparks, winter stadiums, office buildings, schools, hospitals, hotels, and similar facilities.

The main parts of the gas heat pump

Engine part

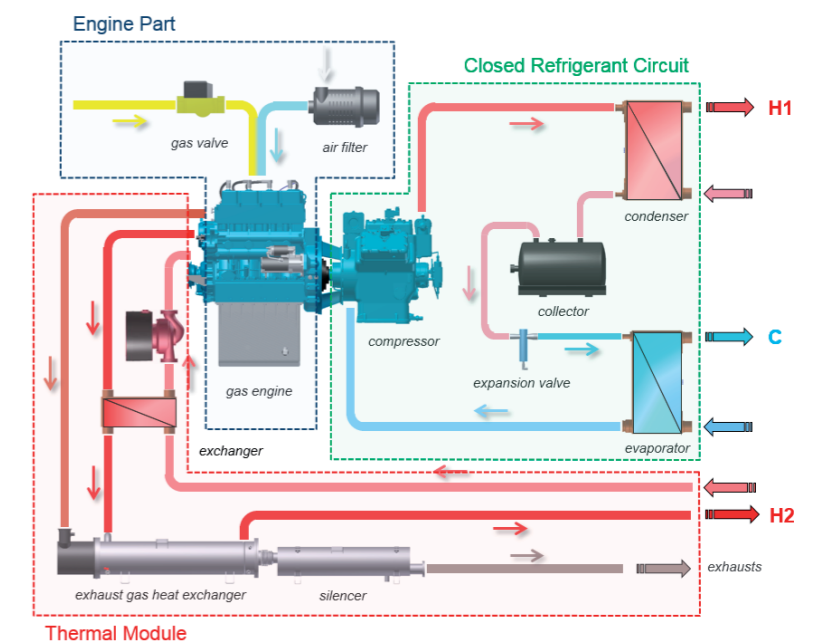
- Consists of fuel preparation and a gas engine that drives the compressor and generates heat

Closed refrigerant circuit

- Circuit where coolant circulates through the specified application
- Heat can be drawn from the condenser and cold from evaporator

Thermal module

- Consists of the system of heat exchangers that draw heat from engine block and exhaust gases
- Extraction of heat from this assures cooling of combustion engine



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TEDOM Polo 100 – output parameters capabilities

TEDOM Polo 100	Air-water heat pump refrigerant R507*	Waste heat recuperation refrigerant R134a**
Evaporator output (C)	26.98 RT	27.24 RT
Condenser output (H1)	467,463 Btu	450,402 Btu
Engine and exhaust gas output (H2)	212,567 Btu	183,232 Btu
Fuel input	392,396 Btu	339,166 Btu

* $t_o = 23\text{ }^\circ\text{F}$, $t_c = 122\text{ }^\circ\text{F}$; ** $t_o = 53\text{ }^\circ\text{F}$, $t_c = 149\text{ }^\circ\text{F}$