

BLUE H[♥]RT

TECHNOLOGY FOR A BETTER PLANET

Thermoacoustic Heat Pump Engine

The industry's choice for 2027 and beyond.



Safe: No refrigerants, non-flamable, GWP=0



Extraordinary wide temperature range



Instant performance, Immediate start/stop



Long lifetime & low maintenance



Compact



Silent

"The heart of next generation heating- and cooling applications."

"A game changing solution for safe and sustainable heating & cooling."

Groundbreaking technology

Blue Heart Energy is a deep cleantech company which has developed and sells a thermoacoustic heat engine, named "BlueHeart", which radically improves performance of heating- and cooling applications.

BlueHeart is the core component for our clients. Systems are safe and can operate across a wide range of temperatures. The BlueHeart engine is a versatile solution for a large variety of applications without the need for HFC- or flammable refrigerants which make it a future proof solution.



Industrial application by our clients

- Gas & Air treatment
- Precision temperature control for processes and equipment
- Explosive environments with ATEX, IECEx restrictions
- Capacities with stacked Blueheart units (up to 60 kW)
- Plus many other...



Advantages for our clients and end-users



High temperatures, enabling versatile applications

Wide operating window. Source -20°C to 40°C, Sink: 25°C to 80°C.



Silent

Less than 35dB; similar to a modern fridge.



Improved lifetime

Low maintenance and 20 years of lifetime.



Easy to install

Simplified and fail-proof installation.



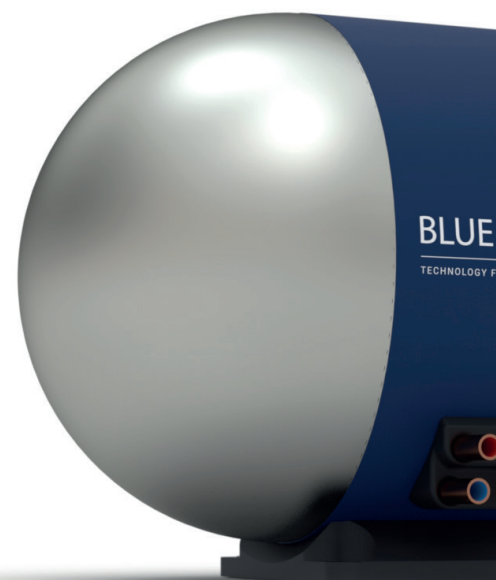
Compact

With a footprint of only 55 x 55 cm.



Multi-source

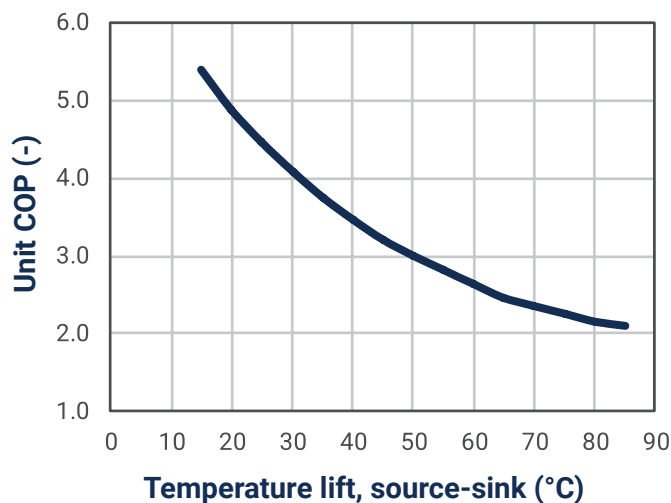
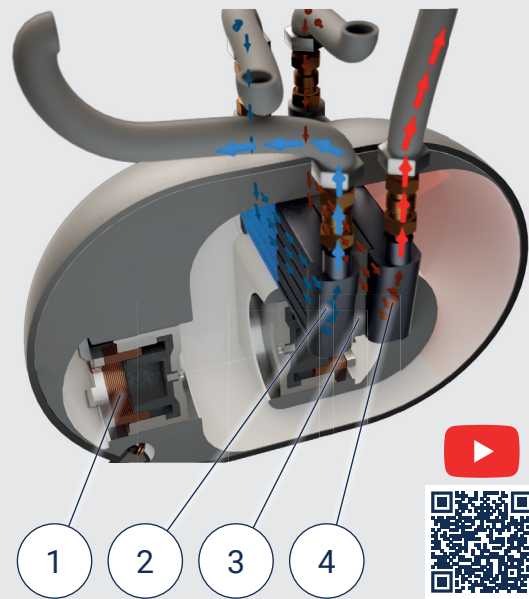
Can easily work with multiple sources. BlueHeart cools/heats liquid flows (water, brines, optional oils).



How it works

BlueHeart's engine concentrates heat through sound waves inside a sealed and pressurized helium loop. Two linear drivers create pressure oscillations, expanding and compressing the gas at precise locations. This process absorbs and transfers energy efficiently, silently and across a wide temperature range.

1. Electric drive (generates pressure wave)
2. Internal heat exchanger
3. Regenerator
4. Internal heat exchanger



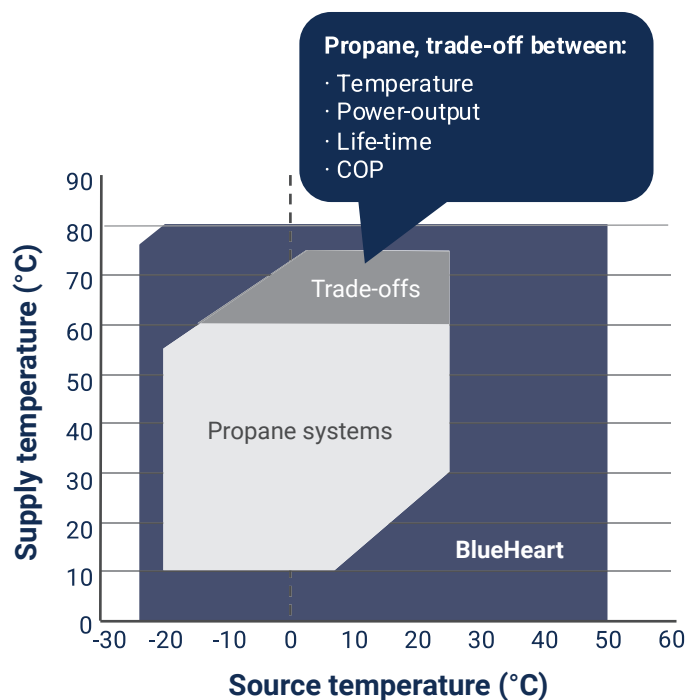
Superb performance at high lifts

BlueHeart thermoacoustic engine delivers a consistent performance without conventional limitations found in vapor-compression based applications.

A wider operating envelope

BlueHeart operates across a wide temperature range efficiently.

This is what makes BlueHeart an award-winning and a versatile solution for a broad range of applications.



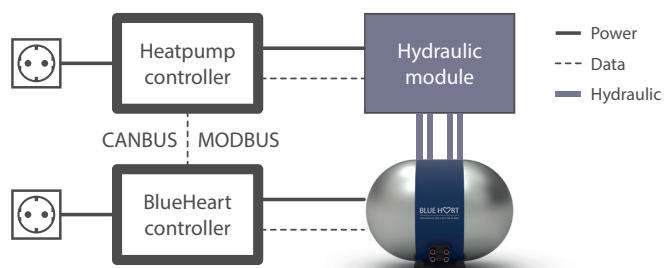
Technical data ^[1]

Heating capacity	1-6 kW + stackable up to 60 kW
Maximum temperature	80°C
Source brine(s)	Water / Detoxified Ethylene Glycol / Propylene Glycol / Optional oils
Working medium	Helium
Nominal pressure BH unit	Up to 60 bar
Weight BH unit	60 kg
Place of installation	Inside / Outside
Installation orientation	Horizontal / Vertical
Footprint (L x W)	55 x 55 cm
Communication	MODBUS, CANBUS
Energy class ^[2]	A++/A+++ (SCOP55/SCOP35)

[1] Specifications are based on current development and may be subject to change in the final market model.

[2] This is the energy class attainable; actual energy label will depend on efficiency of OEM's source and sink systems.

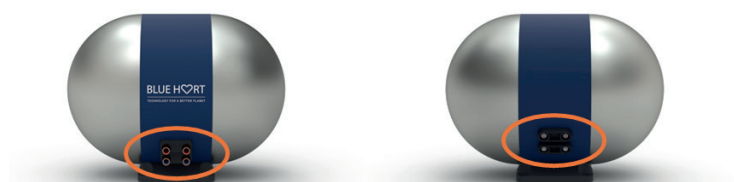
Controller overview



HP Controller sends power request to BH Controller as % of max power

BH Controller sets power target in BH Unit (voltage modulated)

Connecting points



2x Supply liquid connections (hot)
2x Source liquid connections (cold)

Power cable
Data cable

We invite you to learn together how BlueHeart can make your heating- and cooling application safe and sustainable!

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