



TECHNOLOGY FOR A BETTER PLANET

## Thermoacoustic Heat Pump Engine

The industry's choice for 2027 and beyond.



**Safe: No refrigerants, non-flammable, 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, IECEEx 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.



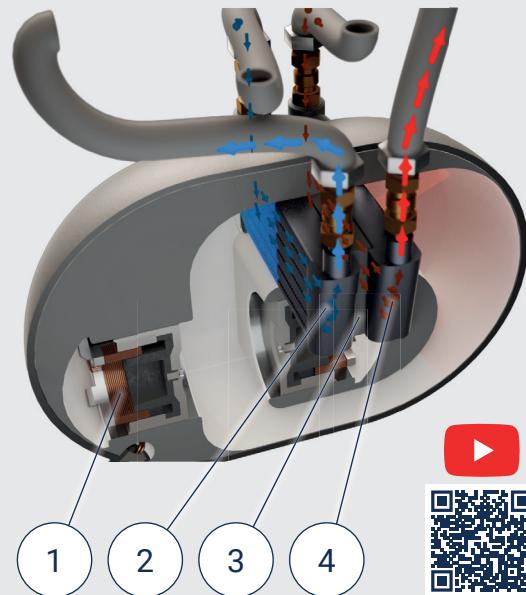
### Multi-source

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

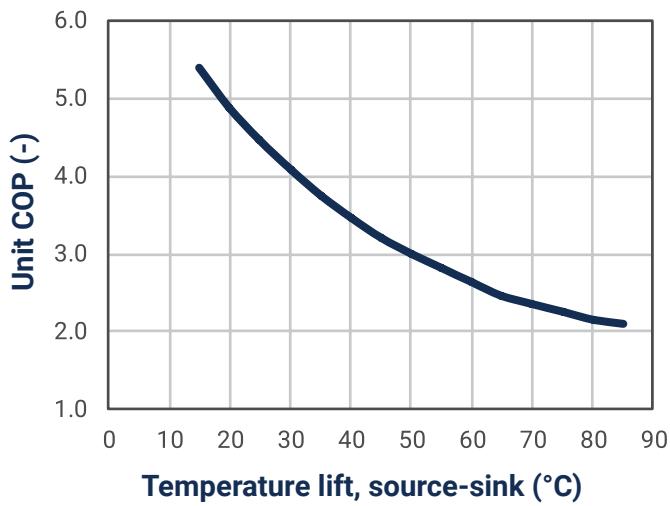


## How it works

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*



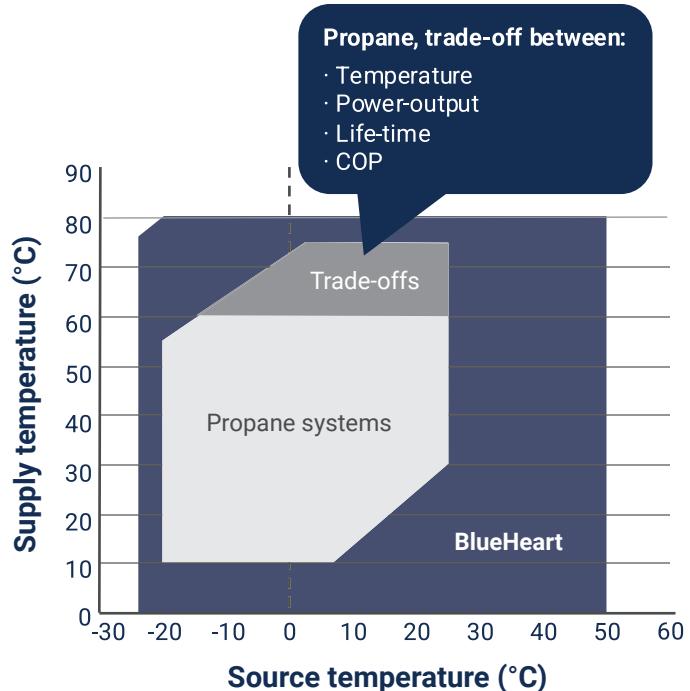
## A wider operating envelope

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.

## Superb performance at high lifts

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



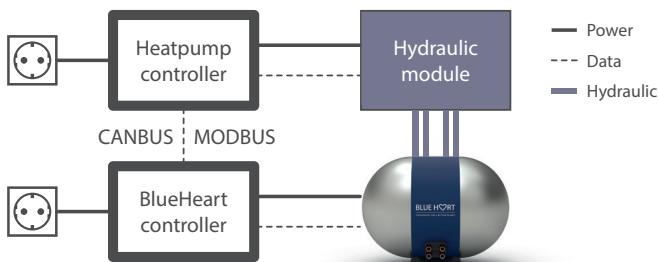
# Technical data [1]

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



Power cable  
Data cable

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

**BLUE H<sup>♥</sup>RT**

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