

The most visionary hydrocarbon systems in the world



APPLICATIONS

Data centres
Carbon capture utilisation & storage
Biogas
Geothermal
Mechanical sub-cooler
Booster in district heating systems
Industrial processes

HCI-RANGE

- heat pumps, chillers and combined systems

The HCI-range reaches capacities from 500 kW to 2,000 kW heat per unit and can be used for heat pump, chiller and combined water-water operation. They are designed as modular units that can be used independently or in series. The modular concept allows the units to be connected in series on the water side – up to three units can be connected, providing up to 3 or 6 MW per series. Multiple rows of connected units can also be installed, enabling us to deliver virtually unlimited capacity according to project needs.

All HCI units are designed as water-to-water systems, ensuring a low refrigerant charge. Using the natural refrigerant isobutane, HCI units can reach supply temperatures up to 95°C, regardless of the return temperature.

The HCI-range is typically used for high-temperature heat pump applications in data centres, the energy sector (CCUS, biogas, geothermal) and industrial processes, as well as a mechanical sub-cooler or as a booster in district heating systems. The systems can also be used as water-sourced heat pumps for district heating or heat networks and for normal water-cooled chiller applications.

Easy installation with a ventilated cabinet

All HCI-range systems are supplied in a reach-in cabinet for installation in a machine room. The cabinet is continuously ventilated by an EX-fan, which maintains negative pressure and ensures optimal internal temperature in accordance with EN 378. The cabinet's insulated walls are equipped with sound-dampening panels for quiet operation.

On request, we can supply solutions for outdoor installation where the HCI cabinet is installed inside a technical enclosure from the factory. The technical enclosure is a fully-approved machine room with lighting, ventilation, exhaust fan, gas detector, alarms and sound dampening panels.

HCI-1000



CAPACITY: Up to 1,000 kW PU

DIMENSIONS (H/L/W):
2.7/2.75/2.12 m

REFRIGERANT: R600a

Several units can be connected in series and/or parallel

HCI-2000

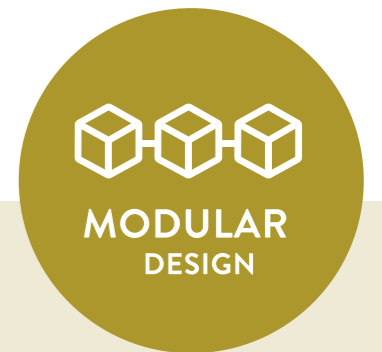


CAPACITY: 2,000 kW PU

DIMENSIONS (H/L/W):
2.95/3.45/2.10 m

REFRIGERANT: R600a

Several units can be connected in series and/or parallel



Three HCI-2000 units connected in series – each in a ventilated cabinet.



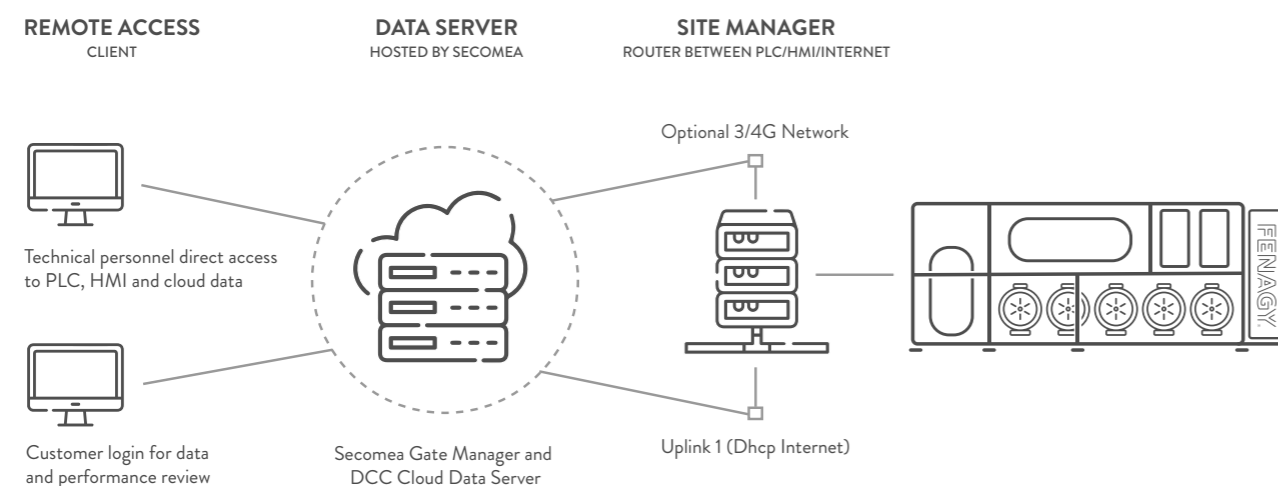
Technical specifications

HCI-RANGE		HCI-1000	HCI-2000
Compressor type	-	Screw	Screw
Compressors	qty	1	1
Capacity control	-	3 steps (50, 75, 100%) or VSD	Stepless reg. between 25-100% on each compressor
Refrigerant charge	kg	50	100
Electrical supply	-	690V	690V
Heating capacity range	kW	500-1,000	500-2,000
COP range	-	3.0-6.0	3.2-6.4
Dimensions (H/L/W)	m	2.7/2.75/2.12	2.95/3.45/2.10
Weight	kg	3,500	7,300
Connection, hot side	DN	100	125
Connection, cold side	DN	100	150
Controller type	-	Siemens PLC	
Communication protocol	-	MODBUS / PROFINET	
Heat source/sink	-	Water/water	
Refrigerant	-	R600a	
Cabinet	-	Standard for installation in a machine room	

Control systems

The complete range uses a standard Siemens PLC controller, and Fenagy has developed its own PLC algorithms for the most essential functions to ensure optimal control and monitoring. Our PLC solutions can communicate with most of the platforms the customer will need to communicate with. The onboard HMI panel offers direct monitoring of the system and its operating conditions. Furthermore, our PLC solutions support several communication protocols and can integrate with the overall SCADA system.

For all systems, Fenagy aspires to minimise start-up and shutdown times, enabling the system to help balance the electrical grid in a future with an increasing demand for such functions. Last, but not least, the system can deliver high supply temperatures, and Fenagy is continuously pushing the boundaries with new functions and features in the PLC development.



Key features

- High-capacity screw compressor technology
- Unique for applications with high temperature on the heat source
- Available for heat pump and chiller applications
- Fast start and stop for balancing the electrical grid
- Industrial design with stainless steel piping
- PLC control of the entire system





We only work with natural refrigerants

R744 - CO₂ **APPLICATIONS** District heating, heat networks, industrial processes, food industry, greenhouses, data centres, logistics centres, offices, hospitals and HVAC in general

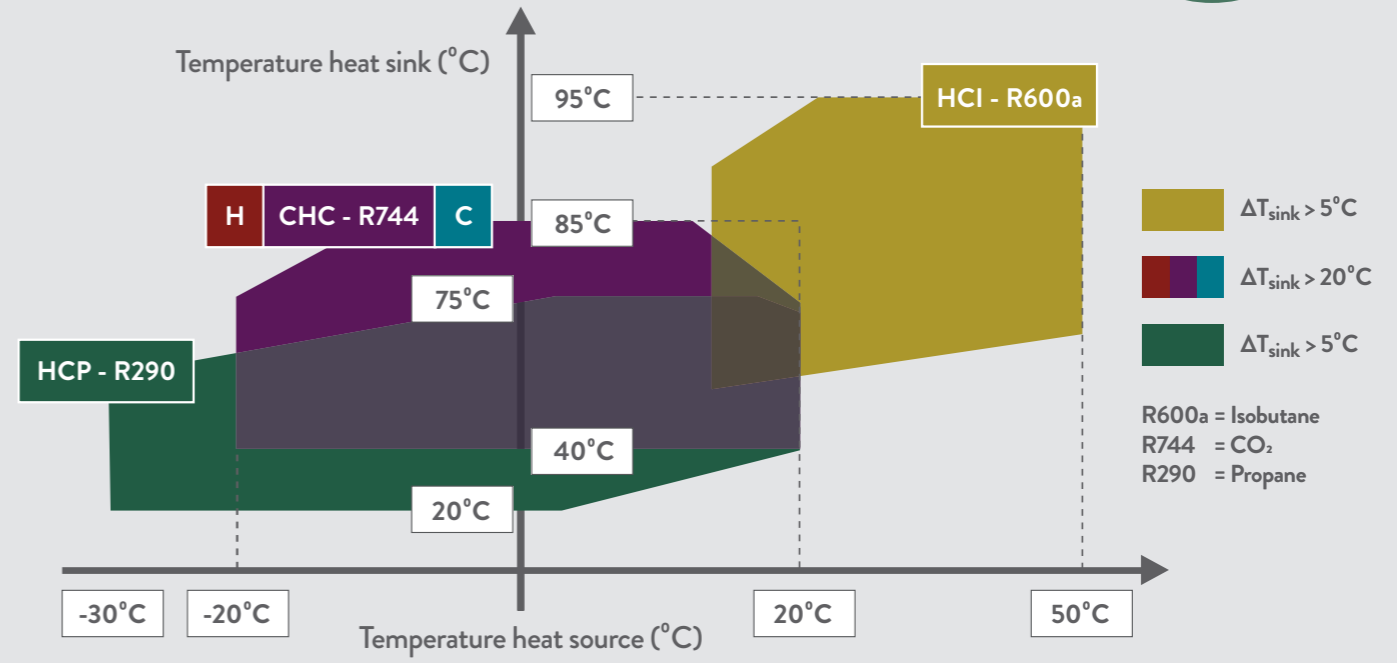
- Natural refrigerant with a wide temperature range
- Non-toxic and non-flammable
- Excellent choice for air-sourced heat pumps for direct use in the energy collectors and with high delta T on the heat sink side
- Optimal for medium-temperature water-sourced heat pumps, chillers and combined heating and cooling applications
- Medium-high temperature level on heat sink (up to 85°C supply temp) with high delta T on the heat sink (dT: 30-40K)

R600a - Isobutane **APPLICATIONS** Data centres, CCUS, biogas, geothermal, PtX, industrial processes, CO₂ heat pump sub-cooler and as booster in district heating systems

- High-temperature natural refrigerant
- Suitable for water-sourced heat pumps and chillers
- Can be used in a wide temperature range on both the heat source and heat sink sides
- Robust operation under various operating conditions
- Use of efficient screw compressors and high COP of the cycle
- High temperature level on heat source (up to 40°C evap. temp)
- High temperature level on heat sink (up to 95°C supply temp) and ideal with low delta T on heat sink - serial coupling on water side at higher delta T

R290 - Propane **APPLICATIONS** Heat networks, industrial processes, food industry, data centres, offices, hospitals and HVAC in general

- Low-temperature natural refrigerant
- Suitable for lower temperature water-sourced heat pumps and chillers
- Low temperature level on heat source (down to -30°C evap. temp)
- Medium temperature level on heat sink (up to 75°C supply temp)
- Ideal with low delta T on sink and heat source
- High refrigeration capacity ensures compact solutions with small footprint
- Can be combined with isobutane in serial hydraulic couplings



Developing and manufacturing future energy solutions



TØNDER BIOGAS
3 x HCI-3000 · 5-7 MW

Fenagy develops and manufactures industrial heat pumps and refrigeration systems based on the natural refrigerants CO₂ and hydrocarbons. We use only natural refrigerants - because of their high efficiency and because they have no harmful effects on the environment, unlike synthetic alternatives. Natural refrigerants are the refrigerants of the future.

We are continuously developing new solutions and services that play an active role in future energy systems based on renewable power sources such as solar and wind. These energy systems place high demands on the power grid and electricity-consuming devices, which must be able to respond quickly. This is exactly what Fenagy machines are designed to do.

Fenagy systems can also recover waste heat from data centres or industrial processes and feed it into district heating networks. This is already happening, and with the enormous amounts of excess heat being generated by the growing number of large-scale data centres, this represents a significant new source of sustainable heat for district energy systems. We aim to utilise both the cooling and heating capabilities of our solutions – either separately or in combination.

Fenagy is not only an OEM but also a project-oriented company, ensuring professional and close cooperation with our partners from the initial quotation to the final handover of our systems.

Fenagy holds several certifications that demonstrate our commitment to quality, safety, sustainability and security.

