

# ENGIE Refrigeration GmbH

Innovative  
Kältemaschinen  
für Rechenzentren



# ENGIE Refrigeration GmbH

## Company Snapshot Figures & Facts

AROUND 300 EMPLOYEES

NATIONWIDE SALES AND SERVICE NETWORK / INTERNATIONAL SALES AND SERVICE WITH CERTIFIED DISTRIBUTORS

PART OF THE GLOBAL ENGIE GROUP

TURNOVER 2023: 116 MILLION €

The infographic features four circular icons connected by a horizontal line. From left to right: 1. A group of people icon representing employees. 2. A network of people and nodes icon representing a service network. 3. A globe with nodes icon representing a global group. 4. A bar chart with an upward arrow icon representing turnover.

# ENGIE Refrigeration GmbH

## Market positioning and portfolio

### Market position

- ENGIE a key cooling & heating expert in the B2B area in Germany for >180 years
- TOP 1 for oil free technology in Germany
- TOP 3 market position in Germany
- Cutting-edge technology superior to competition
- Growing market (high demand for chillers & heat pumps)
- Cooling expertise crucial for winning B2B projects
- Expertise in high requirement applications (NPP, maritime, data center)

### Portfolio overview

#### Chillers



#### Quantum / Pensum

#1 energy efficient  
50 - 8.500 kW

#### Heat Pumps



#### thermeco<sub>2</sub> / Spectrum

high temperature heat pump  
50 - 3.000 KW

#### Services



24/7 OEM Service  
Long-term Maintenance  
Energy Efficiency Mgmt.  
Spare parts  
Rental services

# QUANTUM Air



✓ **Energy-saving options**

Green Heat Recovery [GHR]  
Free Cooling (very early activation)

✓ **3 operation modes:**

chiller mode  
chiller mode with GHR  
heat pump mode

✓ **NG (Non-Glycol) & Hydraulic Modules optional**



**ATS**

Automatic Transfer Switch

Up to

**5**

Oil free Turbo Compressors

**SILENT Packages**

**200 to 2,200 kW**

Cooling capacity

**EC-Fans**

EER-Auto-Controlled

**Fast Restart**

<180s

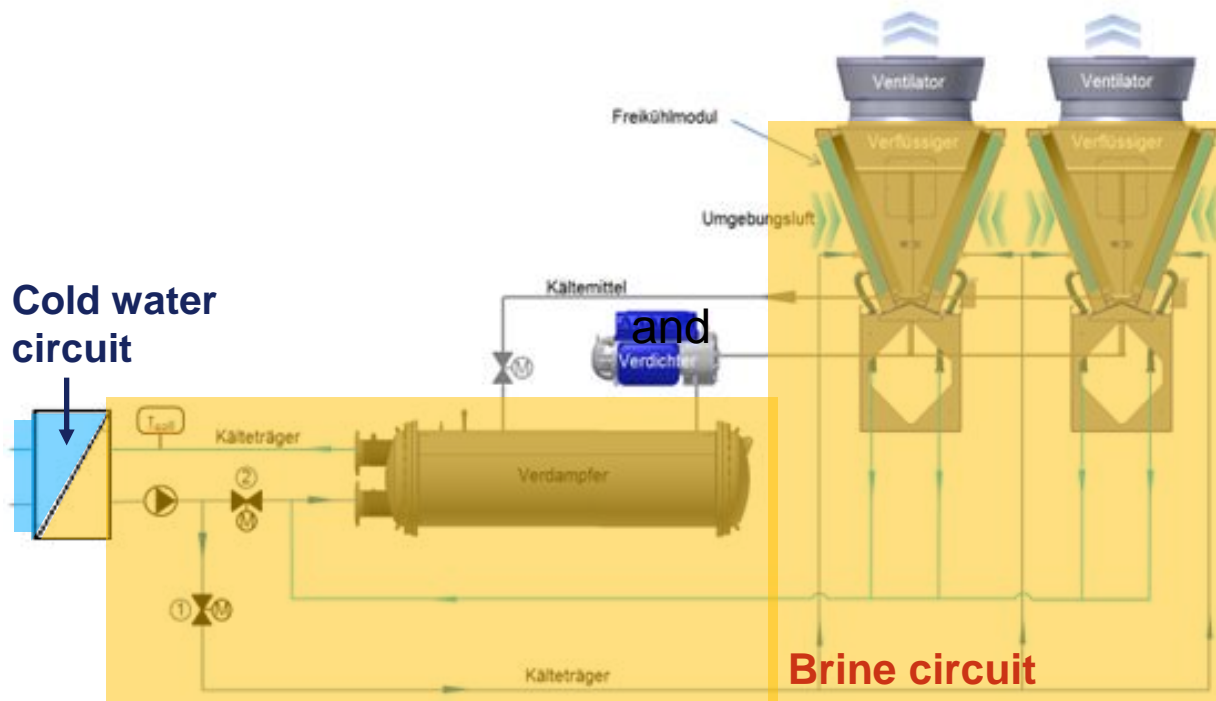
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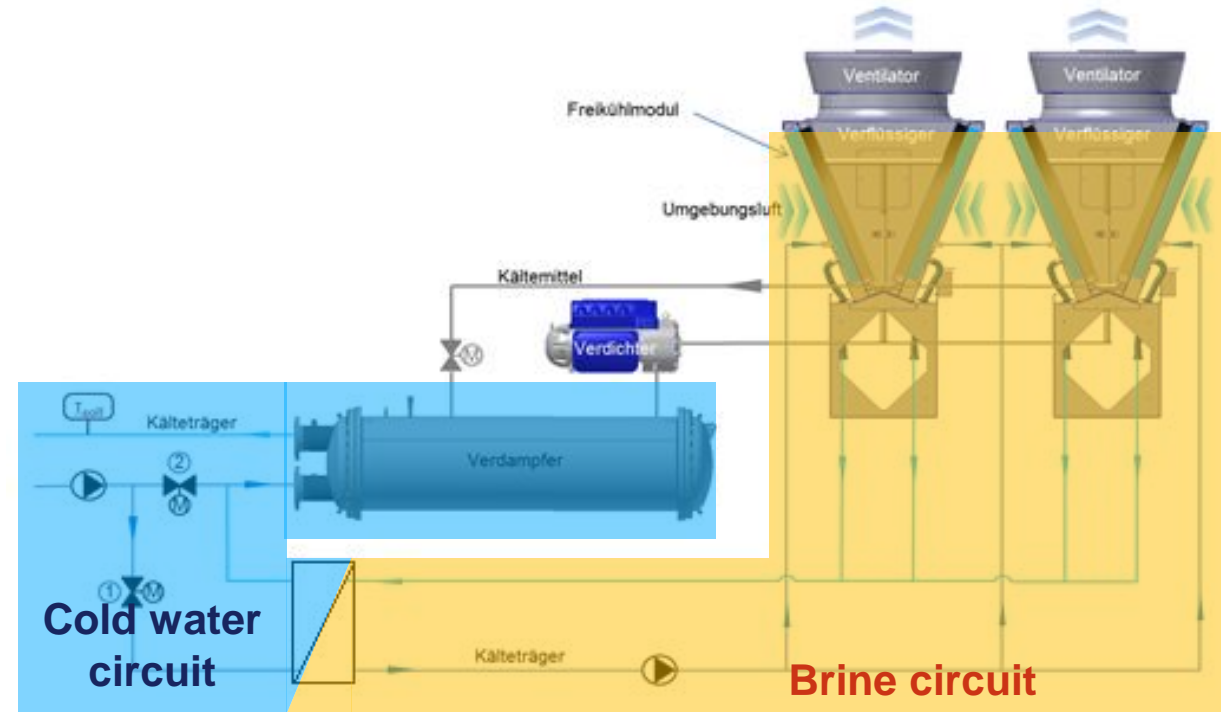
# Quantum Air - Facelift

## Non-glycol modules (NG modules)

### Competition



### eNGie modules



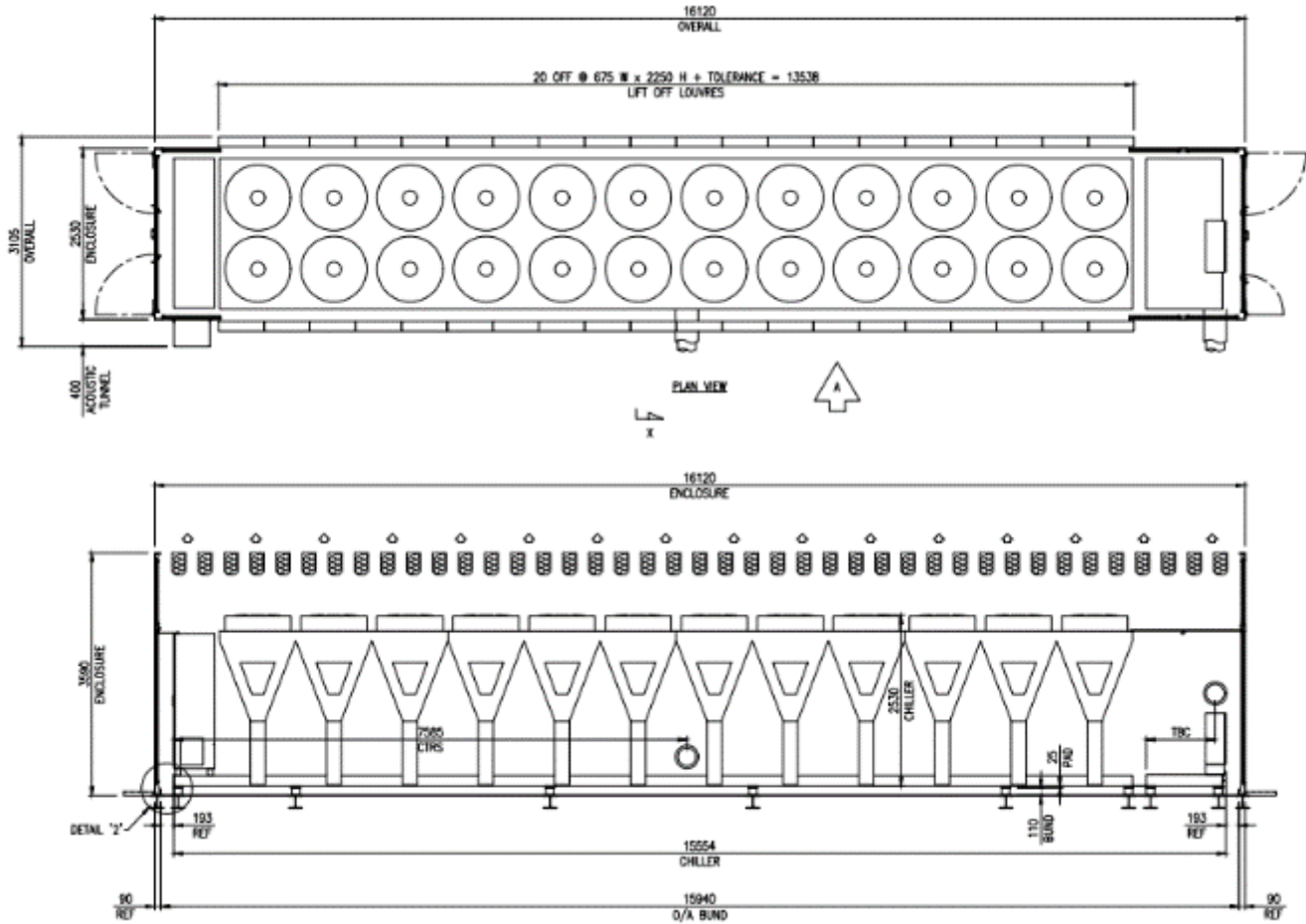
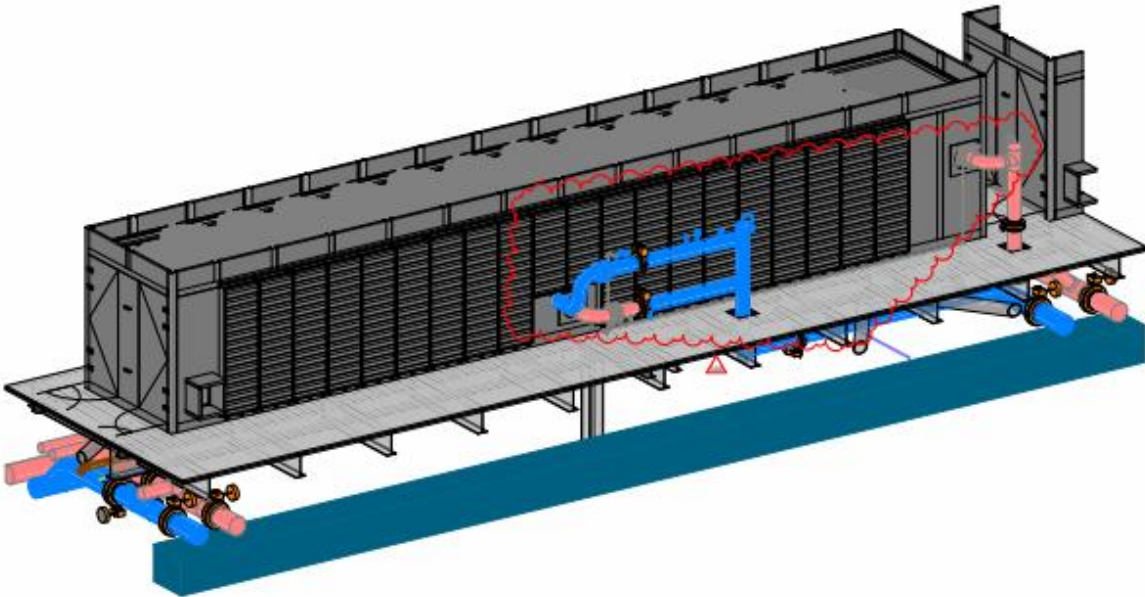
The competitive advantage of the eNGie module lies in the arrangement of the plate heat exchanger. This ensures that the evaporator can be operated with cold water, thus increasing the efficiency of compression and mixing operation while minimising the brine content.

# Quantum Air - Facelift

Incl. on-site sound enclosure

Self-supporting on-site acoustic enclosure to minimise noise emissions

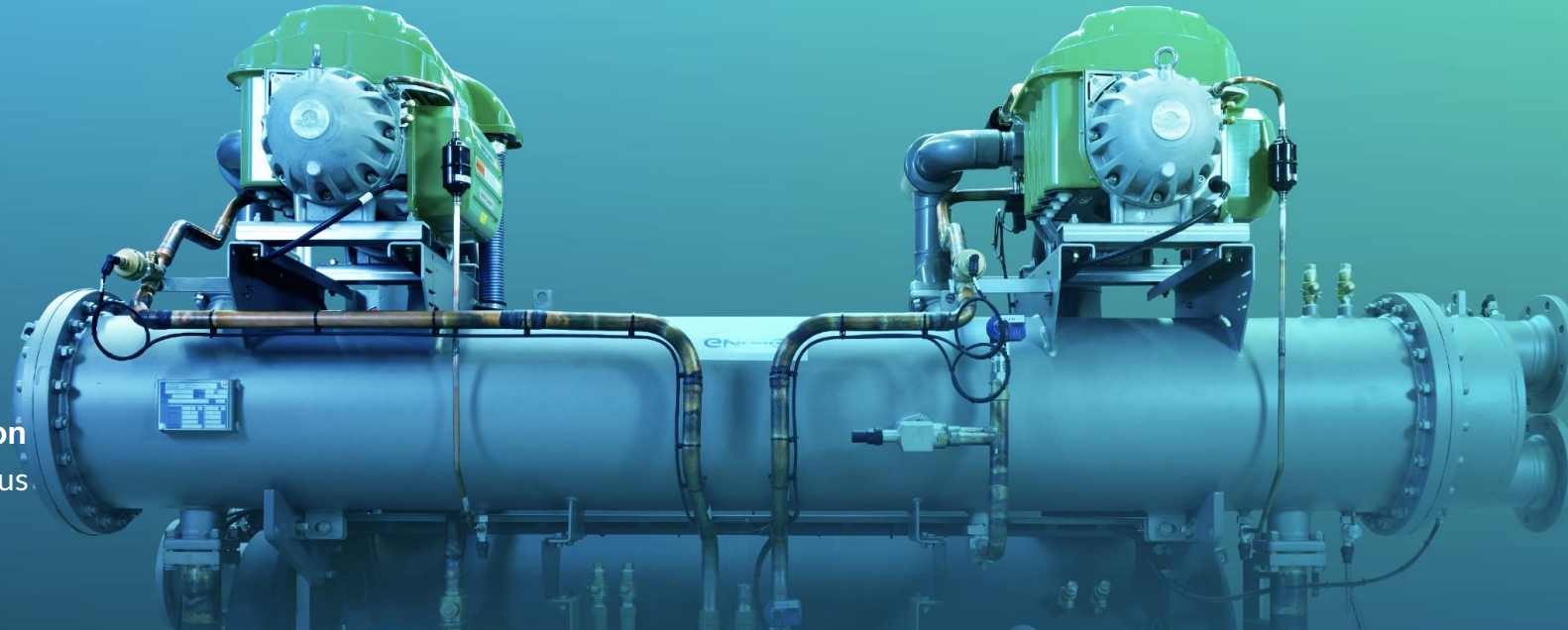
- Insertion loss: ~ 15 dB(A) depending on the operating point



# QUANTUM Water



- ✓ **Hydraulically**  
Reversible Heat Pump or Chiller
- ✓ **Low-GWP-/A1-Safety**  
Refrigerants R-1234ze, R-515B, R-513A, R-134a
- ✓ **Our containment solution**  
PROTECT & PROTECT Plus



**ATS**

Automatic Transfer Switch

Up to  
**6**

Oil free Turbo Compressors

**GHR**  
Q1 2025

Green Heat Recovery

**3**  
Up to  
**62**  
°C

Working-temperature

**200**  
Up to  
**4,000**  
kW

Cooling capacity

low  
**THDi**

Active Filter available

# GENIUM cooling container

- ✓ **TURNKEY SOLUTION**

An entire machine room with all the safety equipment required for the application, space-saving and fully equipped

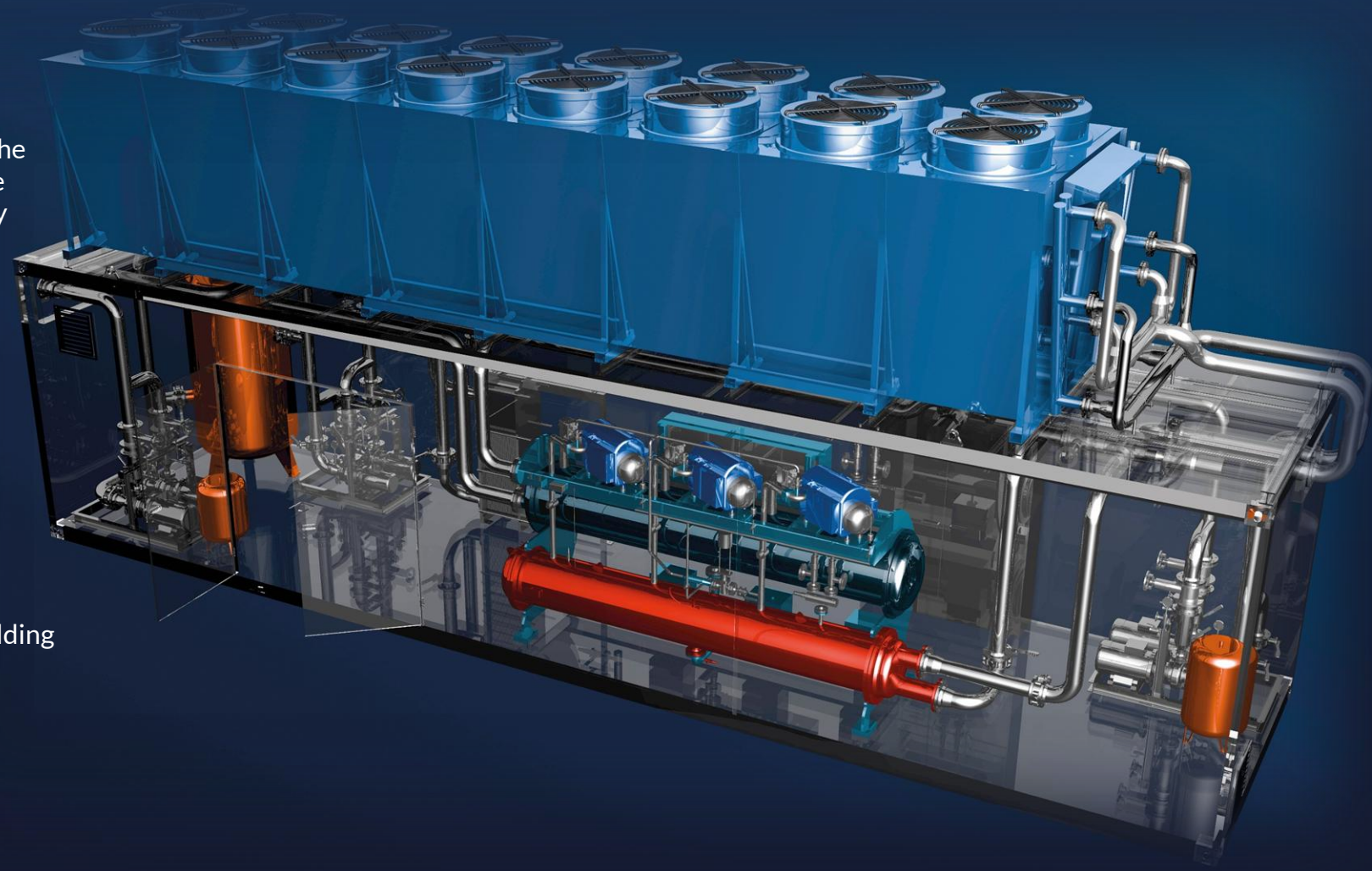
- ✓ **SMART**

Easy customisation to your individual requirements and flexible use

- ✓ **SILENT**

- ✓ **CAN BE SET UP ALMOST ANYWHERE**

easily and efficiently outside a building







# Requirements of Data Centers



## Hyperscaler-Collocator

Maximum energy efficiency and power density (kW/m<sup>2</sup>)



## Edge

Compact, flexible solutions with heat recovery



## HPC Liquid Cooling

Maximum energy density

# Data Center Excellence

## Our success figures



### Units worldwide

> 650



### Installed cooling capacity worldwide

> 800 MW



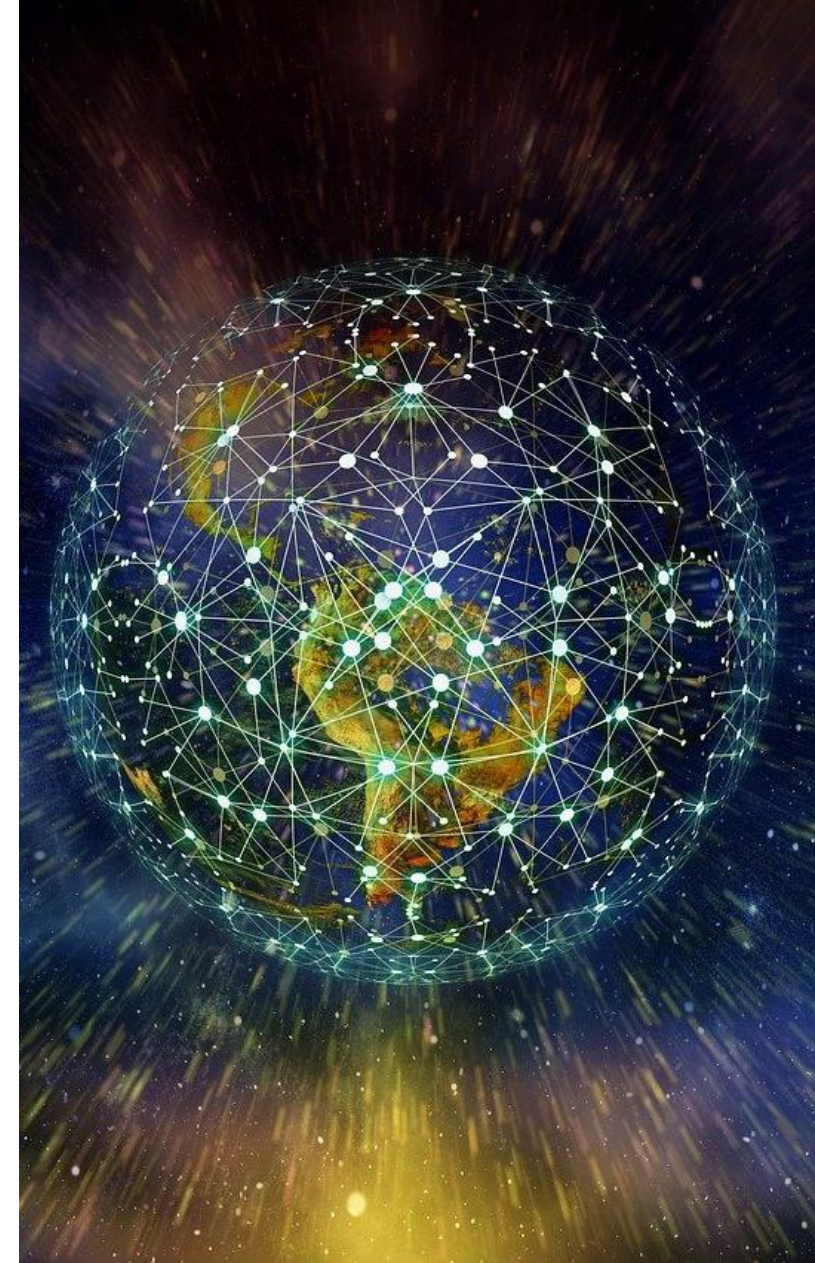
### Highest efficiency on the market

Maximum free cooling capacity



### High power density

kW/m<sup>2</sup>



# Data Center Excellence

## Our References

Project	Products	Highlights
<a href="#">Global colocation provider</a>	16x GENIUM	Sound power level: 70 dB Turnkey container solution
<a href="#">Data Centers London</a>	17x QUANTUM A1700	Sound power level: 94 dB
<a href="#">Edge Data Centers Germany</a>	12x QUANTUM A0680 with Free Cooling or GHR 7x SPECTRUM SPH W1080 as GENIUM	Waste heat recovery: 6,3 MW
<a href="#">Frankfurt Data Center</a>	37x QUANTUM A1020	Glycol-free installation
<a href="#">Seoul Data Centers</a>	21x Quantum A1900 2x Quantum A0560 1x Quantum W2430 1x Quantum P550	Super silent version for air-cooled chillers



# Leadership in action:

## Top performance for a leading global colocation provider

- High performance requirements for data centre cooling
- Air-cooled chillers, water-cooled chillers, containerized solutions
- "More than just" efficiency standards and long-term 24/7 maintenance support

### Project AMS Containersolution:

- Projects: 66
- Units: 307
- Cooling capacity: 328 MW



For over a decade, we have earned the trust of our customer and are proud to be listed as a preferred partner.

# Data Centers London

- Environmentally friendly refrigerant R-1234ze
- Specials: Super Silent, NG module, glycol retention system, active filter
- Service provider throughout the entire life cycle to optimise energy efficiency and maintenance

## Project London :

- Green data centre
- Units: 17x Quantum A1700
- Cooling capacity: 31 MW
- Delivery in 2023



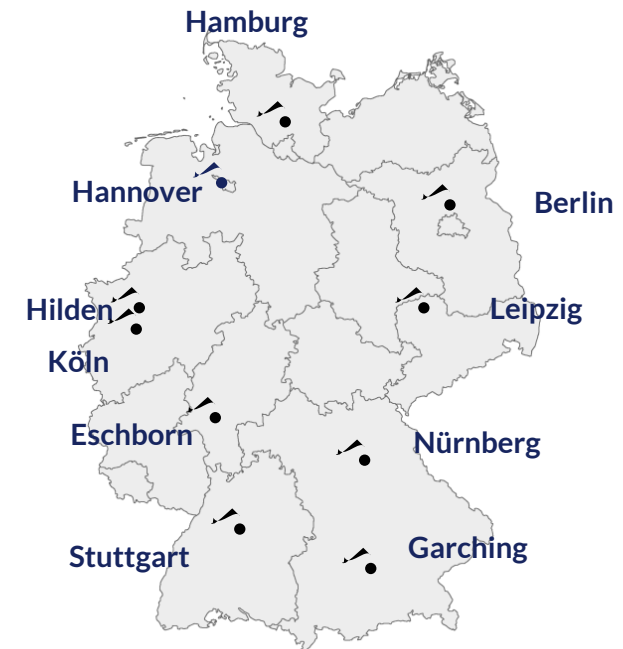
Our machines in the data centre area of a collocator saved the customer 1,183 tons of CO<sub>2</sub> per year. This proves our company's commitment to sustainable technologies and its contribution to climate protection.

# Edge Data Centers Germany

- Planning, installation, cooling, heating, heat recovery of waste heat, services and energy supply
- Long-term service > 5 years

## Project data:

- Units: 12x chillers, 7 heat pumps (Genium)
- Cooling capacity: 14.3 MW
- Heating capacity @65°C: 8.1 MW



Our comprehensive portfolio of cooling and heating solutions for data centres, our strategic partnership with this new customer, and the cross-divisional cooperation between ENGIE's business units will undoubtedly satisfy the customer's needs in the long term.

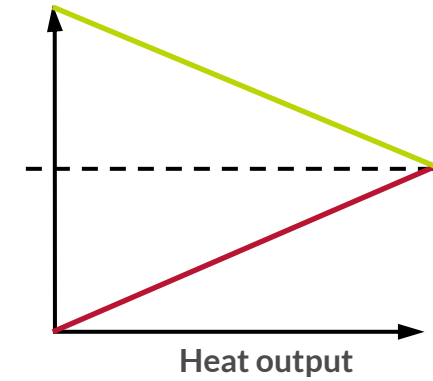
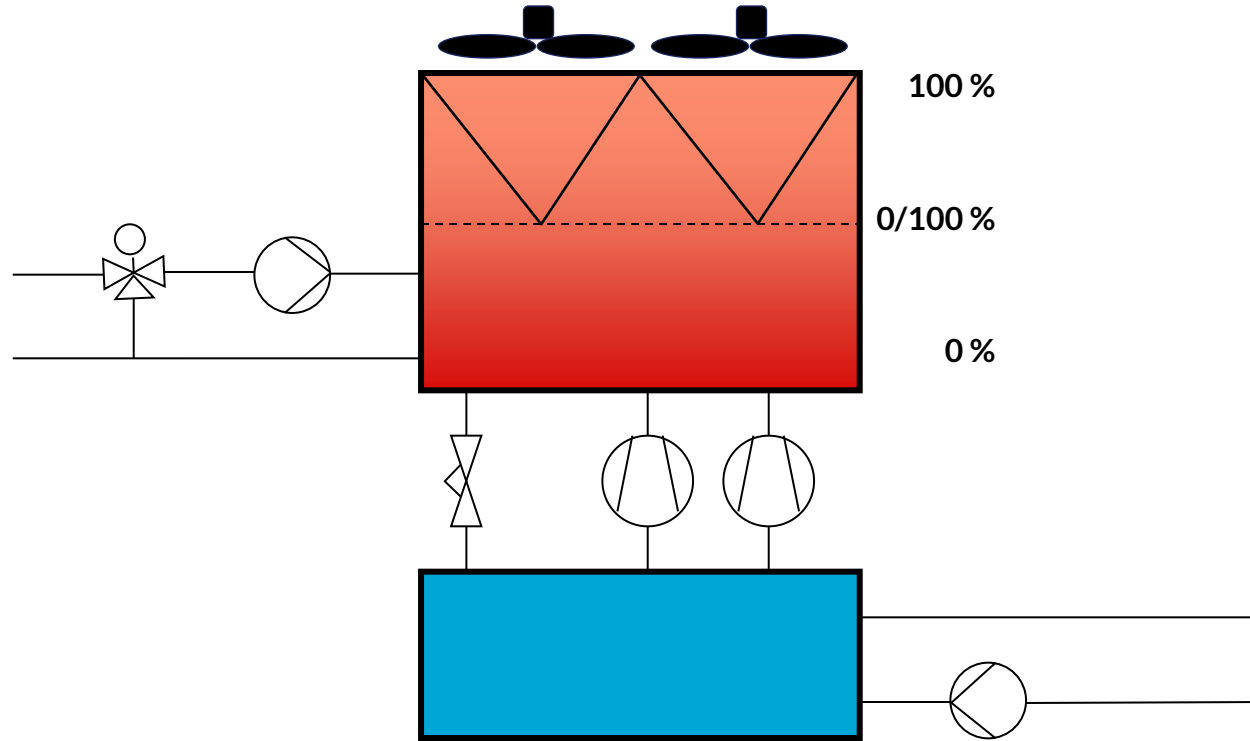
# Quantum Air - Facelift

with integrated heat recovery "GREEN HEAT RECOVERY"

## Hydraulic integration

Air-cooled condenser

GHR - Circuit



Refrigerant circuit

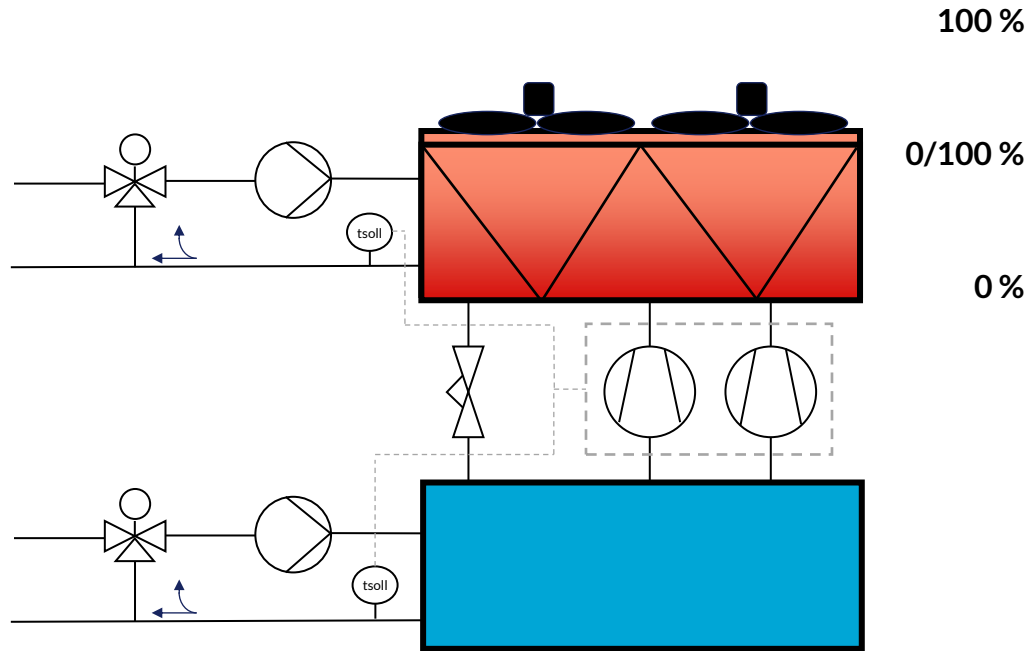
Heat output can be regulated from 0 - 100 % independently and without impairing the provision of cooling (cooling capacity).

# Quantum Air - facelift

3 operating modes (chiller mode, chiller mode with Green Heat Recovery, heat pump mode)



Heat pump operation



Chiller operation with GHR

Chiller operation





# Frankfurt Data Center

- Environmentally friendly refrigerant R-1234ze
- Specials: Super Silent, glycol-free installation
- Long-term 24/7 maintenance support
- Ambient temperature 46 °C

Project DC FRA01 :

- PUE < 1.2
- Green data centre
- Units: 37 Quantum Chiller
- Cooling capacity: 42,5 MW
- Delivery in 2024



The customer's goal was to increase energy efficiency values in part-load performance.  
Our QUANTUM solution enables him to achieve the target

# South Korean-Data-Centers

- Various installations in South Korea (Bundang, Yangju, Kyongpook)
- Optimized footprint with reduced sound data applying the super silent execution for the air-cooled chillers
- Water-cooled chillers with optimized efficiency in variable demand

## Project data :

- Units: 25 (23 air-cooled and 2 water-cooled chillers)
- Cooling capacity: 49 MW
- Delivered between 2022 and 2024



High-efficiency cooling for various Internet Operators.