

# REFRIGERATION IN EVERY DIMENSION

The new generation of **water-cooled**  
**QUANTUM** chillers

Facts at a glance

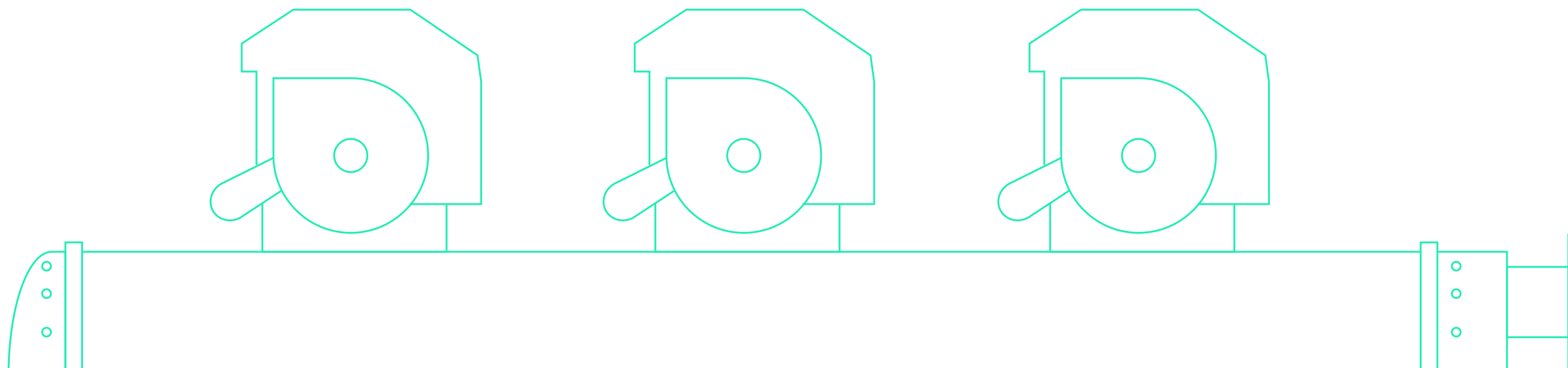
Product features

Exploded view

Efficiency values

Contact and imprint

## CONTENTS



# AT A GLANCE:

## THAT IS QUANTUM WATER!

### Refrigeration capacity

**200** kW – **4** MW

### Refrigerants

R-515B  
R-134a  
R-513A  
R-1234ze

**4**



### Compressors

**1 – 6**



### Effective temperatures

**3**°C – **57**°C



### Models

**47**



# EFFICIENCY IN REFRIGERATION TECH- NOLOGY **HAS A NAME:** **QUANTUM.**

## **Know-how and experience for maximum technological performance.**

ENGIE Refrigeration has been making its highly efficient QUANTUM chillers for more than 18 years; in this time, it has repeatedly created milestones with its capacity for technological innovation. Our ambition is to continue this tradition and satisfy our customers with the best possible refrigeration solutions in the future as well:

## **The new QUANTUM Water is the most efficient chiller of its type - anywhere in the world.**

With a broad capacity range, a future-proof selection of refrigerants and the ability to be used as a heat pump, the QUANTUM Water is the right machine for almost any situation.



**PRODUCT 04**  
FEATURES

# IT HAS NEVER BEEN EASIER **TO CHOOSE THE RIGHT CHILLER.**

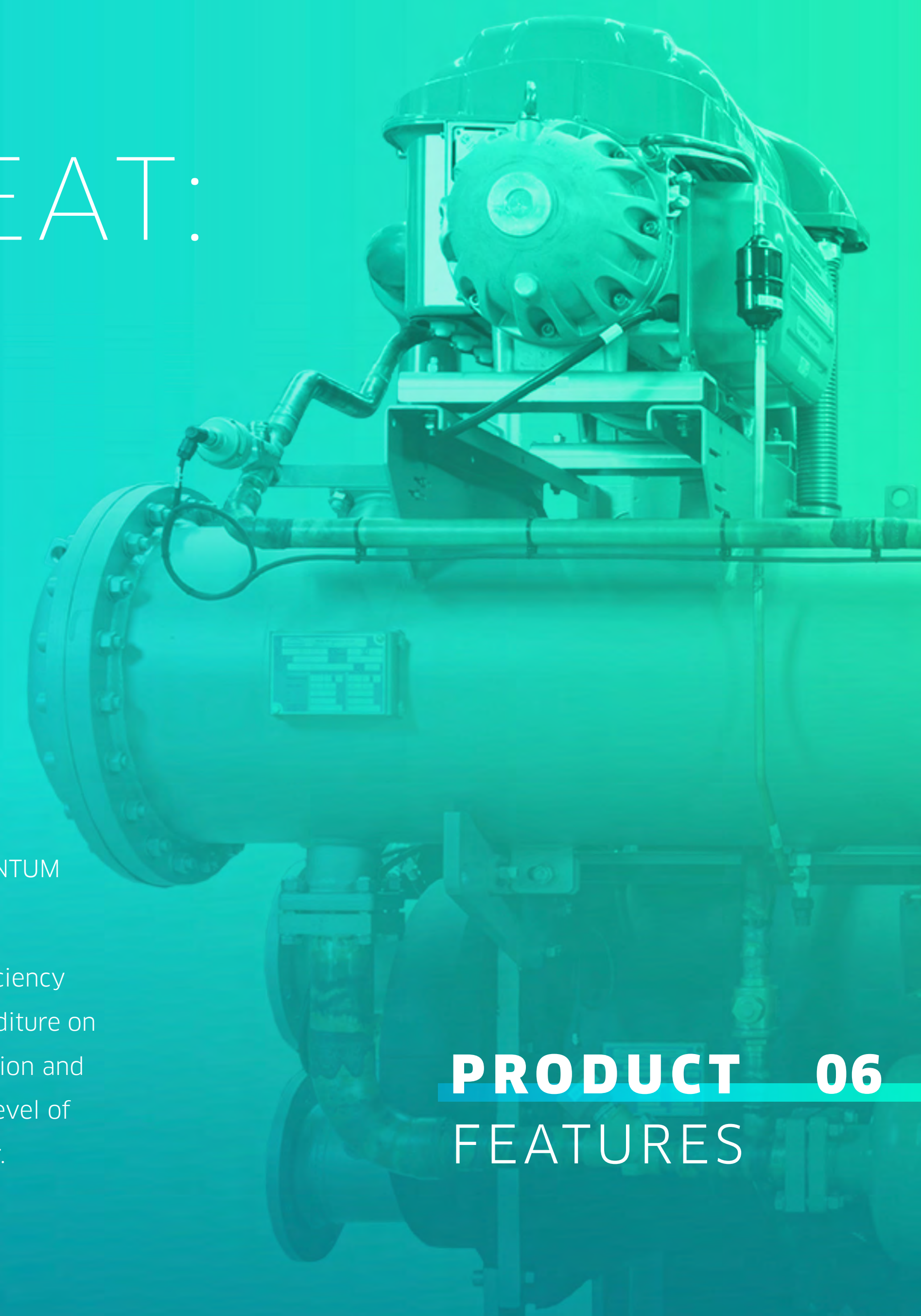
**If a chiller is up to any task, it is simply always the right one.** Like the new QUANTUM Water. Its capacity range reaches from 200 kilowatts to four megawatts.

The QUANTUM Water replaces the previous water-cooled QUANTUM W, QUANTUM B, QUANTUM X and QUANTUM G series. Capacity ranges up to 8 megawatts are covered by the QUANTUM Power, which will of course remain available for customer-specific requirements.



**PRODUCT 05**  
FEATURES

# WHETHER COLD OR HEAT: **QUANTUM IS YOUR SOLUTION!**



## **Today, when you say refrigeration, you should also think of heat.**

That is because heat pumps provide an interesting alternative to conventional heating systems.

As the heating capacity requires no additional energy such as electricity or fossil fuels, overall energy demand drops considerably. The QUANTUM Water is an excellent heat pump; no modification of its hardware is required.

## **Things that were good will remain good:**

The typical properties that turn a chiller into a QUANTUM have been retained in the new QUANTUM Water.

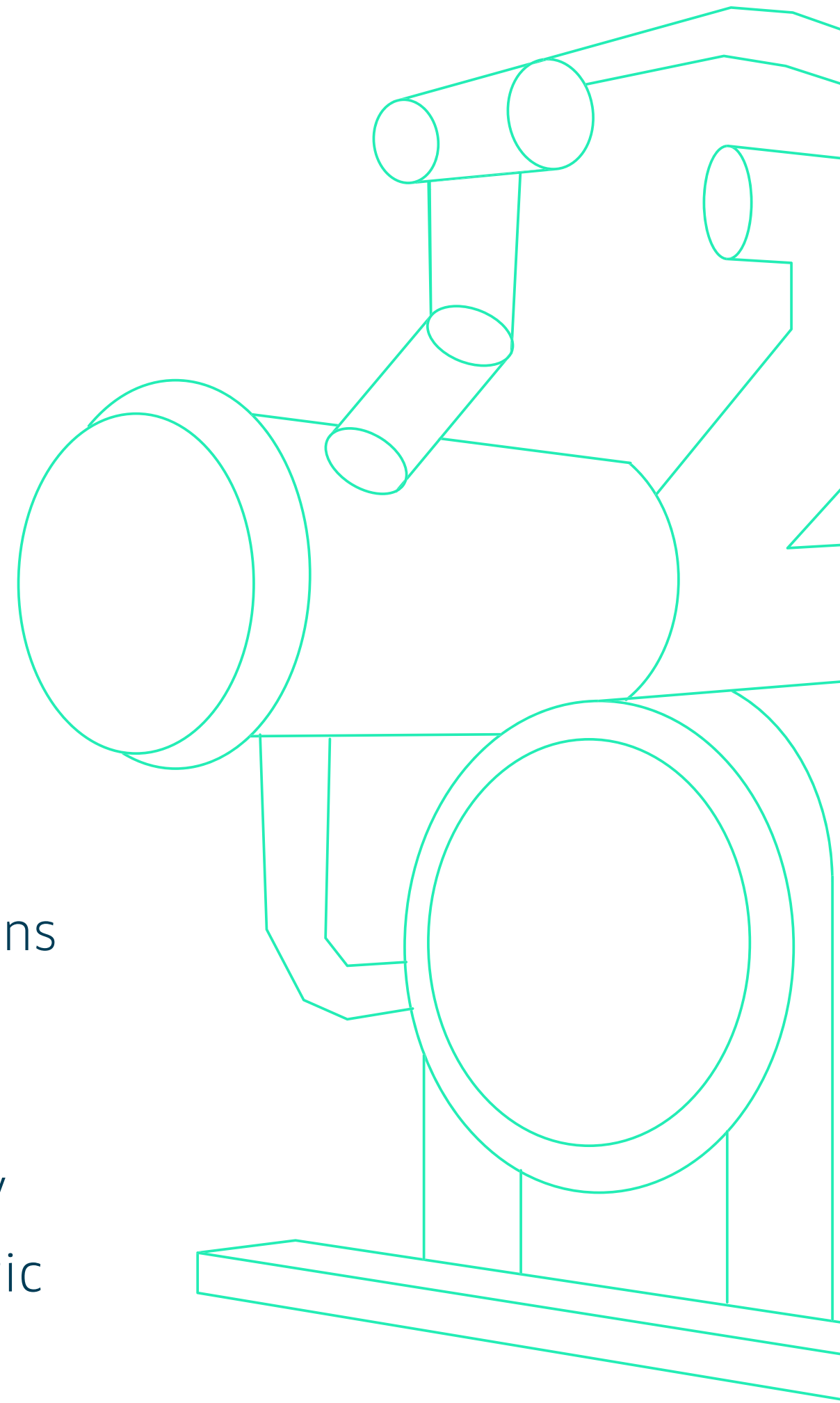
The new QUANTUM Water features exceptional efficiency throughout its service life, durability, and low expenditure on maintenance and service – thanks to oil-free operation and contact-free magnetic bearings – as well as a high level of operational reliability and gentle starting behaviour.

**PRODUCT 06**  
FEATURES

# ONE FOR ALL CASES.

**Our promise: We have the right QUANTUM Water  
for your application.**

ENGIE Refrigeration can offer you 47 model versions for your ideal refrigeration solution. The smart modular principle makes it possible to design the most efficient machine for any application and any requested re-cooling system (open, hybrid, adiabatic or closed).



**PRODUCT 07**  
FEATURES

# YOU CAN'T GET MORE QUANTUM THAN THAT. DISCOVER THE PRODUCT FEATURES!

## HIGH-END TECHNOLOGY

Fewer components, more quality: Innovation down to the smallest detail characterises every new QUANTUM generation and ensures outstanding heat transfer behaviour and particularly high efficiency with low material usage. All installed components are state of the art and of high quality.

## INTELLIGENT CONTROL AND REGULATION

Precise control and regulation of your chillers has a major effect on efficiency. With ultra-modern control and regulation technology, the QUANTUM Water achieves even greater efficiency than its predecessor models, especially under partial load. QUANTUM Water chillers can thus help you reduce your company's carbon footprint.

## OPEN-FLASH ECONOMIZER

All QUANTUM Water chillers are equipped as standard with an original ENGIE Refrigeration open-flash economizer. This increases the EER value of the machine at all operating points, as well as the maximum potential refrigeration capacity of the entire machine - and you benefit from reduced operating costs.

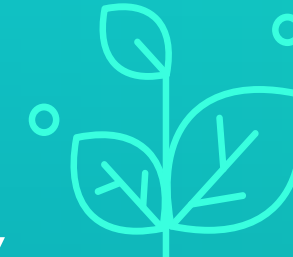




## ENCLOSURE

Providing an enclosure for your chiller has many advantages – it can serve as an additional machine room, or as a noise-insulating unit for noise-sensitive set-up conditions. It also increases your flexibility as a tenant: you can easily set up your QUANTUM Water outside and take it with you when you move. All enclosures are of course tailored to your requirements and designed to make service and maintenance easy.

## SUSTAINABILITY



Achieve more with less: the new QUANTUM Water needs even less refrigerant than its predecessor series. You can choose your refrigerant: R-515B, R-134a, R-513A or R-1234ze.

A newly developed compressor generation is available for R-1234ze, which has an especially low greenhouse potential.

As a result, the QUANTUM Water provides efficient and high-performance refrigeration while reducing direct and indirect emissions.

## INTUITIVE OPERATION

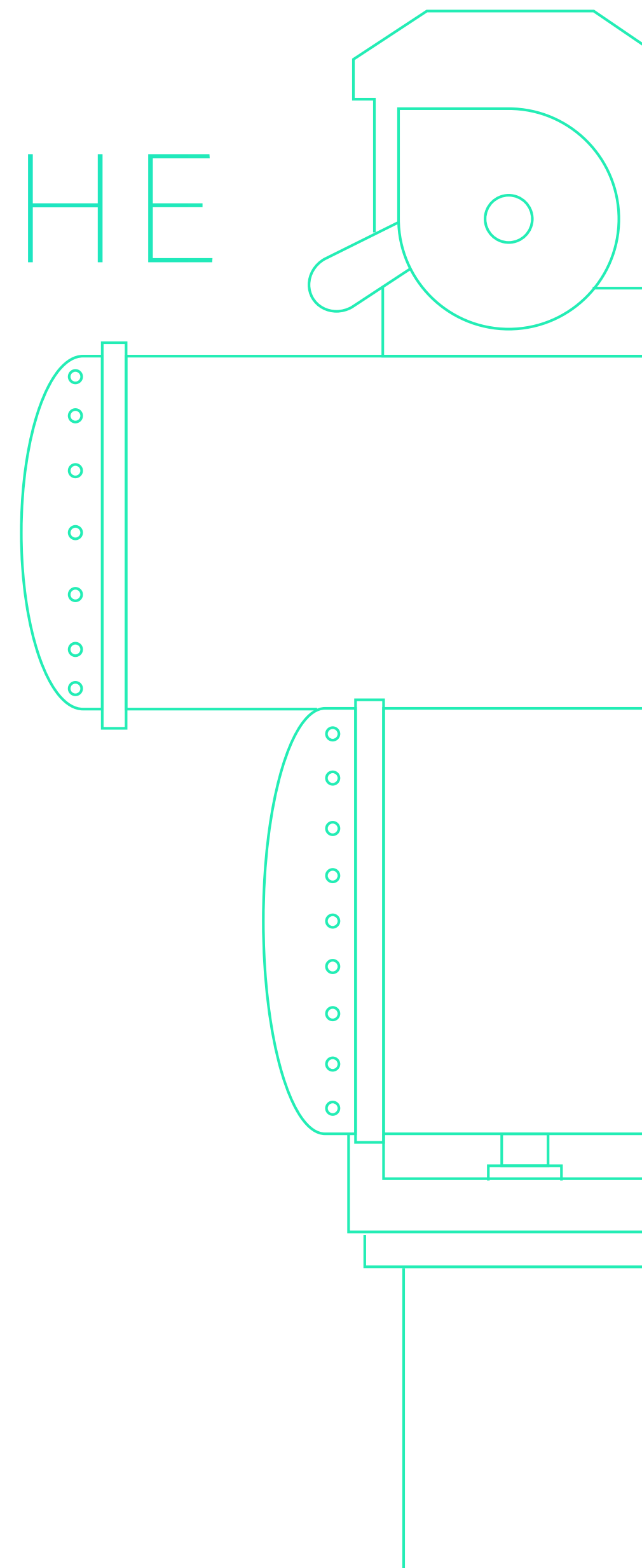
More freedom for operating companies: a new intuitive operating concept now offers even more ways for you to operate your QUANTUM Water and check individual functions. You can do this on the machine display – or your own tablet. The new smart-control function via a Wi-Fi access point significantly increases ease of use, as you can move freely around the machine and view the relevant components at all times.



# WELL THOUGHT OUT DOWN TO THE LAST DETAIL.

## Right down to the smallest detail.

Because the QUANTUM water chiller incorporates the concentrated expertise of our team of specialists. That's why the innovative design principle is unrivalled on the market.



**EXPLODED** **10**  
VIEW

### Smart Control

- ° New intuitive operating concept on a 10.1-inch display
- ° Web-based visualisation allows operation from any end device with a web browser
- ° Smart control: Wi-Fi access point enables flexible operation, for example via tablet



### Switch Cabinet

- ° Quality "made in Germany"
- ° Compact design with a versatile and modular range of options
- ° Data archiving for measurements and messages
- ° Remote control via DSL/4G possible



### Compressor (with magnetic bearing)

- ° Tried-and-tested compressor technology
- ° Intelligent connection
- ° Finely graded capacity range
- ° Optionally available with sound-insulating enclosure for maximum reduction in noise emissions



### Condenser

- ° Modular condenser concept
- ° Precise assignment with ultra-modern inner tube technology for maximum efficiency during heat transfer - accompanied by low pressure loss
- ° Refrigerant filling capacities optimised through compact design



### Evaporator

Modular evaporator concept

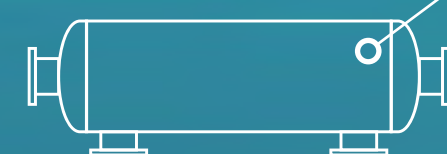
- ° Precise assignment with ultra-modern inner tube technology for maximum efficiency during heat transfer - accompanied by low pressure loss
- ° With integrated drift eliminator
- ° Refrigerant filling capacities optimised through compact design



### Economizer

Original ENGIE Refrigeration open-flash economizer

- ° Increased EER value
- ° Increased maximum refrigeration capacity at all points of operation
- ° Lower operating costs
- ° Lower specific investment costs (€/kW)



### Refrigerant

- ° 4 refrigerant versions available for use in the oil-free refrigerant circuit
- ° R-134a, R-513A, R-515B: [A1 safety refrigerant]
- ° R-1234ze: [low-GWP refrigerant (<1)]

### Power Quality Unit





Coordinated solution with high-quality power-loss-optimised filter elements that increase the service life while reducing total harmonic distortion (THDI) and circuit feedback



**EXPLODED**  
VIEW

# SAVE WITH QUANTUM WATER!

Compared to the Tier 2 specifications in the Ecodesign directive [SEER Profile], calculated for two selected models.

Annual savings based on:	W0940-T2000-0505	W1410-T3000-0808
 Power consumption [kWh]	58,547	67,913
 Relative power consumption [%]	34.2	28.5
 Electricity costs [€]*	11,124	12,903
 CO <sub>2</sub> emissions [kg]**	27,810	32,259

\* at 0.19 €/kWh \*\* at 0.475 kgCO<sub>2</sub>/kWh



**EFFICIENCY 12**  
VALUES

# QUANTUM WATER IS WORTH IT.

**-7,300 €** 

## Energy savings per year (operating costs)

Energy costs (operating costs) approx. € 7,300 lower on average than for the predecessor model (under full load operation with 8,760 operating hours per year) - between € 1,000 and € 25,000, depending on model size.

**-20 %** 

## Refrigerant filling capacity

On average approx. 20 % refrigerant filling capacity [kg] of the predecessor model.

**-20 t** 

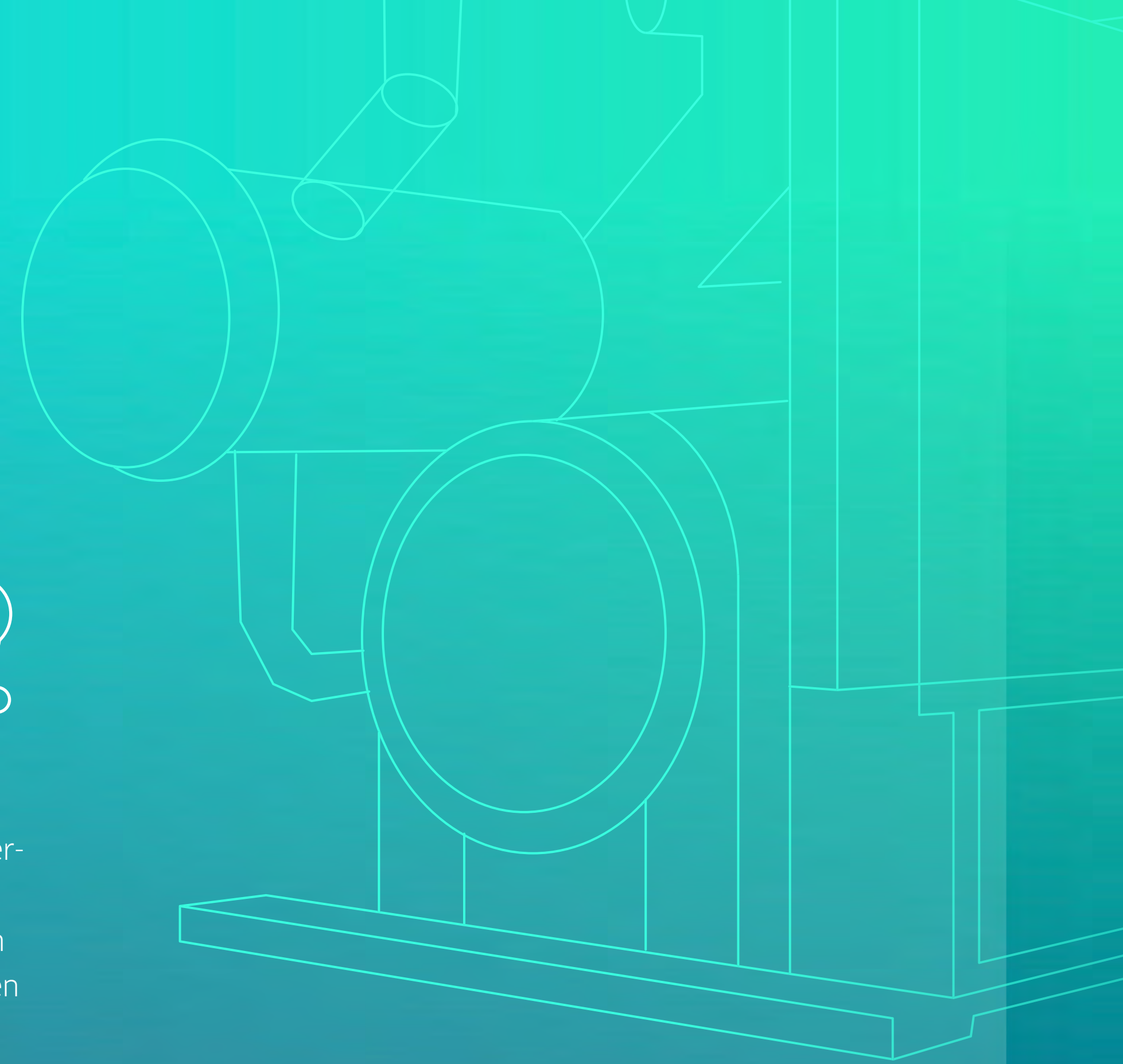
## CO<sub>2</sub> emissions per year

Annual CO<sub>2</sub> emissions approx. 20 t lower on average than the predecessor model (due to lower energy consumption (under full load operation with 8,760 operating hours per year) - between 3 t and 60 t, depending on model size.

**-2.8 %** 

## Energy demand

On average approx. 2.8 % less electricity consumption (energy demand) than the predecessor model (average).



**EFFICIENCY 13**  
VALUES

# READY FOR THE **COOLING** OF THE **FUTURE?**

ENGIE Refrigeration ensures the right temperature for every process. Around the world, our heat pumps and chillers stand for maximum technical expertise, economy, efficiency and sustainability.

Our aim: to provide our customers with the best solutions for their path towards climate neutrality. To achieve this, we rely on individual consultation, customised concepts and comprehensive services.

As a member of the worldwide ENGIE Group, we have a global network of specialists at our disposal and can realise our refrigeration and heating solutions for you, both at home and abroad.

## **The experts at ENGIE Refrigeration are here for you:**

National/International Service

National/International Sales

With eleven branch offices and around 130 service employees, we are always nearby and available around the clock, anywhere in Germany:

We are happy to  
**ADVISE YOU!**

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