



Efficient District Cooling with Power.

A High-Performance Quantum P (Powerline) from ENGIE Refrigeration in use for the Karlsruher Institut für Technologie (KIT).

It is one of the largest research and teaching institutes in the world: The Karlsruher Institut für Technologie (KIT) was created in 2009 with the merger of the Forschungszentrum Karlsruhe and the Universität Karlsruhe. More than 9000 employees work here. For years the KIT Campus operating company has been a satisfied customer.

Efficient even in the future

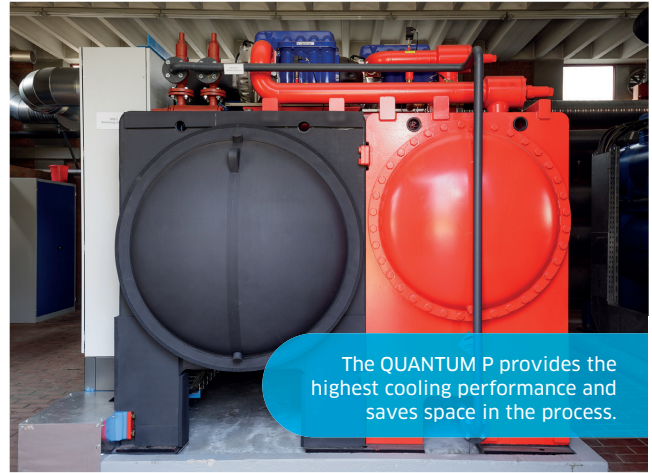
At KIT there are already two ENGIE Refrigeration QUANTUM cooling machines cooling the campus data centre. The customer was highly satisfied with their performance, the excellent energy efficiency and the low costs for maintenance and decided to continue to back QUANTUM district cooling in the future.

The energy requirement at the KIT campus has increased considerably over the past few years and the ageing ammonia chiller machine was no longer efficient. In 2014 it was therefore replaced by a QUANTUM P chiller with a refrigeration power of four megawatts (MW).

The QUANTUM P has since been supplying multiple consumers with cooling power through a far-reaching ramified pipeline system from its position at the centre of the district cooling network. The consumers, i.e. the individual institutes, only have a single transfer station. This is where the required cold can be extracted at a temperature level of 6 °C. The waste heat with a return temperature of 12 °C is in turn fed directly. This waste heat is then cooled back down to 6 °C in the central cooling plant. The QUANTUM P chiller is responsible for supplying the complete KIT southern campus where it provides building air conditioning and process cooling.

Compact and strong – QUANTUM P

The new chiller in the district cooling network has many benefits for the KIT campus: QUANTUM P provides the highest cooling performance with the smallest space requirement. In addition, the QUANTUM P of course has all the benefits of ENGIE Refrigeration's proven QUANTUM series: Oil-free operation means an oil separator is superfluous to requirements, thus saving space, making the QUANTUM P particularly low-maintenance. An optional open-flash-economizer makes for maximum energy efficiency. The QUANTUM P chiller at the KIT campus was engineered with a particularly space-saving design: Marine water chambers on the heat exchangers - i.e. water-side connections through piping on the ceiling and sides - means that piping at the front is omitted.



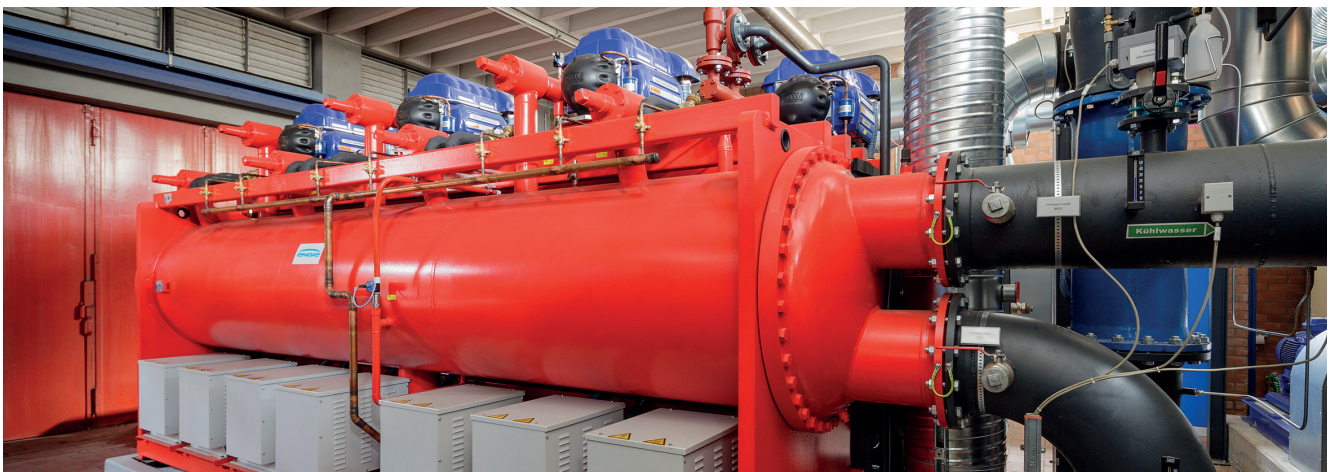
Supplying cold energy quietly and reliably

QUANTUM chillers are distinguished by very quiet running and a high level of operational reliability. Both aspects were particularly important for KIT when it came deciding on a new chiller. The old ammonia chiller was so loud that the institutes directly next to the central district cooling plant had complained. The redundancy of the compressors makes for a high level of operational reliability. Safety was also important: In some laboratories long-term trials are conducted which are dependent on a constant cool temperature.



The benefits for the KIT at a glance

- The highest cooling performance with the smallest space requirement
- Maintenance-friendly oil-free operation
- Operational reliability due to redundant design of seven compressors
- Very quiet running and low vibration levels
- Excellent energy efficient



ENGIE Refrigeration GmbH
Josephine-Hirner-Strasse 1 & 3 | D-88131 Lindau
Fon: +49 8382 706-1 | Fax: +49 8382 706-410

refrigeration@de.engie.com
engie-refrigeration.de