The path towards a healthy climate

Energy efficient chillers and services for clinics and hospitals

Over 120 hospitals and clinics worldwide place their trust in QUANTUM chillers

Optimal use of energies.
ENGIE Refrigeration: Know-how for the correct cooling-factor

"Optimal cooling" is always just a factor in the overall context - it is a means to purpose. Our task is to provide the cooling factor as efficiently as possible for your hospital processes.

Our specialists advise you, plan, build and install your cooling system. Of course, we also cover service and maintenance work and know our products right down to the smallest detail – important system components come from our own production.

When selecting a chiller, temperature should not be the only decisive factor. The oil-free QUANTUM chillers are almost always the right choice: Available in numerous variants, a QUANTUM can be used in a wide range of applications, each variant is fail-safe, quiet, electromagnetic compatible, energy efficient as well as cost effective and low maintenance in operation.

QUANTUM chillers made for hospitals

QUANTUM chillers are cooling hospitals worldwide: From homebase Germany to Iran, from Great Britain to La Réunion.

ENGIE Refrigeration has more than 10 years of experience with QUANTUM chillers in hospitals

More than 120 hospitals worldwide are using the QUANTUM chiller technology from ENGIE Refrigeration

More than 170 QUANTUM chillers are on duty for hospitals worldwide and are producing a cooling capacity of 91,000 kW
The QUANTUM advantages at a glance

- Highest energy efficiency
  - Best cooling efficiency – save up to 50% on operating costs

- Continuous power control
  - Smaller memory dimensioning, less starts, better temperature consistency, quiet consumer network

- Oil free compressor and non-contact magnetic bearing
  - Sustainable cooling, no material wear, reduced maintenance costs, consideration of the water legislation is unnecessary

- Gentle start-up
  - Staggered start, no power peaks, stable supply network

- Low sound and vibration
  - No vibration damping, sound damping, leakage or vibration damage

- Reduced CO₂-output
  - Best environmental balance, drastically reduced energy costs

- No reactive current compensation
  - Reduced costs – no power factor decrease in partial load

- Operational safety
  - No failure of the entire system, compressor change during operation

- Service and maintenance
  - Simple design, less components, hardly any maintenance – affordable in the long run

- No power peaks

A modern hospital not only accommodates patients, whose recovery requires a suitable room climate, it is also important that the various sensitive medical equipment is functioning under the suitable conditions. Impeccable operation is also temperature-dependent. The QUANTUM provides for security in two ways: No starting current peaks are generated, and the operation of EMC filters protects against electromagnetic interference.

A hospital should be a place of recovery – difficult to imagine that this can occur with constant noise pollution. Therefore, in the case of a cooling concept, attention must also be paid to the arising body and air sound. If you opt for a QUANTUM, you have again one worry less, as it is particularly quiet.

Do the energy costs from 24-hours of operation worry you as an operator or bearer of a facility? Convince yourself with the QUANTUM’s maximum efficiency with maximum duration.

Figure 1: Starting current behaviour compared to conventional drives and QUANTUM. There are no startup current peaks during initialization of the QUANTUM chillers.
Hospital Complex: Professor Samii International Neurology Institute, Tehran (Iran)

Schön Klinik Vogtareuth (Germany)

REFERENCE

Schön Klinik is a privately-funded clinic group that specialises in orthopaedics, neurology, psychosomatic medicine, surgery and internal medicine. At 17 locations in Bavaria, Schleswig-Holstein, Wessen and Hamburg, 3,400 doctors, nursing staff and therapists treat 120,000 patients from all corners of the world every year.

For healthy finances:

Schön Klinik Vogtareuth (Germany)

Project description

- Intensive consulting on the components integrated into the cooling process, such as pumps, re-cooling systems and buffer storages
- ENGIE Refrigeration is the service partner of Schön Klinik
- Analyses the ongoing operation and works consistently on the energy optimization concept

Scope of the project

- 3 x QUANTUM chillers W330 E3G HH, delivering 10 MW of cooling capacity
- Local spare parts stock: Recommended parts for 5 years operation
- Chillers commissioning/start-up

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Hospital Complex: Professor Samii International Neurology Institute, Tehran (Iran)

Project description

- Premises
  - District cooling application, servicing general hospital building, clinic and surgery, infirmary, hotel, from a centralised chiller plant. It will be the largest neurology hospital in the world.
  - Segment
    - Healthcare & Hospitals. Professor Samii Hospital complex belongs to the International Neurology Institute. It has been promoted by Iran Charity, Tehran Town Council and Health care Ministry. It will provide neurology assistance to Iranian and International patients.
  - Customer compelling events
    - Energy efficient chilled water production technology.
    - Flexible solution to match chilled water production capacity with fluctuating building cooling demand.
    - Standards of quality and equipment sourcing.
    - Close service support by local ENGIE partner.

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ENGIE chillers care for a healthy climate

The QUANTUM is already in use in over 120 hospitals – here is an excerpt from our references:

<table>
<thead>
<tr>
<th>Project</th>
<th>Chillers</th>
<th>Cooling Capacity</th>
<th>Compressor Quantity</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Center Salzburg</td>
<td>1 x QUANTUM B120-P4C-LH</td>
<td>1.2 MW</td>
<td>4 x TT300</td>
<td>Austria</td>
</tr>
<tr>
<td>Clinical Center Feldkirch</td>
<td>1 x QUANTUM X030-P1C-HH</td>
<td>300 kW</td>
<td>1 x TT300</td>
<td>Austria</td>
</tr>
<tr>
<td>Hospital Hohenems</td>
<td>2 x QUANTUM X030-P1C-HH</td>
<td>300 kW</td>
<td>2 x TT300</td>
<td>Austria</td>
</tr>
<tr>
<td>Hospital Feldkirch</td>
<td>1 x QUANTUM X030-P1C-LL</td>
<td>300 kW</td>
<td>1 x TT300</td>
<td>Austria</td>
</tr>
<tr>
<td>Hospital St. Johann</td>
<td>1 x QUANTUM X060-P2C-HH, 2 x QUANTUM X060-S2C-LL</td>
<td>600 kW, 600 kW</td>
<td>2 x TT300, 4 x TT300</td>
<td>Austria</td>
</tr>
<tr>
<td>Hospital Zell am See</td>
<td>2 x QUANTUM X060-P2C-LL</td>
<td>600 kW</td>
<td>4 x TT300</td>
<td>Austria</td>
</tr>
<tr>
<td>BSC Hospital La Réunion</td>
<td>2 x QUANTUM A160-E4E</td>
<td>1.4 MW</td>
<td>8 x TT350</td>
<td>La Réunion</td>
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<tr>
<td>Women Hospital Liverpool</td>
<td>1 x QUANTUM A070-E2C-L3</td>
<td>600 kW</td>
<td>2 x TT300</td>
<td>Great Britain</td>
</tr>
<tr>
<td>Elisha Hospital Israel</td>
<td>1 x QUANTUM 2 EXT</td>
<td>600 kW</td>
<td>2 x TT300</td>
<td>Israel</td>
</tr>
<tr>
<td>Naharih Hospital Israel</td>
<td>2 x QUANTUM W165-V3G-HH</td>
<td>1.2 MW</td>
<td>6 x TT400</td>
<td>Israel</td>
</tr>
<tr>
<td>Maayane Yeshua Hospital</td>
<td>1 x QUANTUM W110-P2G-LL</td>
<td>800 kW</td>
<td>2 x TT400</td>
<td>Israel</td>
</tr>
<tr>
<td>Clinical Center Wiiltz</td>
<td>1 x QUANTUM X060-S2C-LL</td>
<td>600 kW</td>
<td>2 x TT300</td>
<td>Luxemburg</td>
</tr>
<tr>
<td>Hospital Niederkorn</td>
<td>1 x QUANTUM X080-S2E-HH</td>
<td>700 kW</td>
<td>2 x TT350</td>
<td>Luxemburg</td>
</tr>
<tr>
<td>Clinical Center Schuthess</td>
<td>2 x QUANTUM X060-P2C-LL</td>
<td>1.2 MW</td>
<td>4 x TT300</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Clinical Center Birshof Münchenstein</td>
<td>1 x QUANTUM X030-P1C-LH</td>
<td>300 kW</td>
<td>1 x TT300</td>
<td>Switzerland</td>
</tr>
</tbody>
</table>
ENGIE Refrigeration supplies the right cooling for every process: from efficient chillers, environmentally friendly heat pumps and modular re-cooling systems to turnkey solutions such as refrigeration containers or modules. Efficiency, sustainability, cost effectiveness and first-class expertise in technical solutions are hallmarks of every ENGIE Refrigeration project. Our individualised advice and comprehensive services are centred around our customers and their requirements. As a member of the worldwide ENGIE Group, we have a global network of specialists at our disposal and can realise our refrigeration solutions both at home and abroad.

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