heatXchange

Issue 17

The Güntner Customer Magazine

Quiet and efficient with R723
Ottenbräu Brewery with the very latest technology

Practical test:
finoox® vs. microox®: Two technologies compared

Warehouse in Vietnam
Penthouse concept for seafood

Wherever you are, we are always to hand.

Personally.

Dear Readers,

Ever since I started work at Güntner more than 20 years ago I have been impressed by how persistently and continuously we focus on our customers and our personal commitment. This is one of our strengths. In any context it is important to find the right answers to the right questions, and in our case that always was and still is the question: What do our customers want, what do they need?

It is precisely to our circumspect and purposeful 80-years' pursuit of this question that we owe our present outstanding market position. This applies from our company's earliest beginnings in a Munich backyard right up to the present day; from the first heat exchangers constructed in response to customers' requests down to the very latest benchmarks set by our innovative equipment and technologies. This strength is the company's driving force, with which we create the innovations that will be tomorrow's traditions.

And both this drive and the resultant technological developments exist thanks to the power of personal commitment. This applies not only to our contacts with customers but also to our teamwork. Over time we have developed the philosophy "Think global – act local", and this is the basis for the way in which we design and complete our innovative products, always with one eye on the local situation.
Day by day, the personality of our team, its commitment, innovative power and worldwide dependability make a massive contribution to our customers' success – any time, any place. And our ambition is to maintain this course.

That's why we can safely reiterate: wherever you are, we are always to hand – personally.

Robert Gerle, Managing Director

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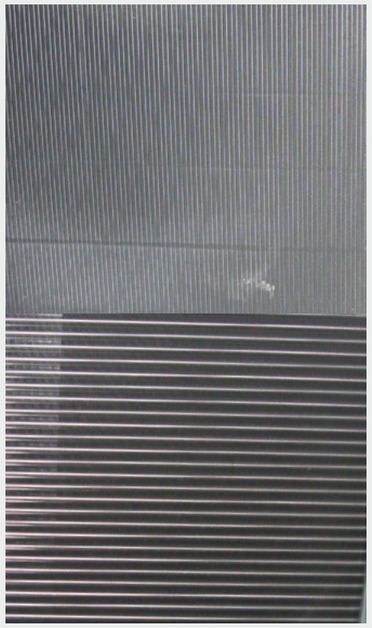
in a classic supermarket application



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A history of customer-orientation

This year, Güntner is celebrating its 80th anniversary.

For 80 years now, Güntner has been a familiar name in the world of refrigeration and air-conditioning.
From the very beginning, dynamic and ingenious engineering and the willingness to try something new have been essential driving forces of the company's development.

This innovative power will continue to determine our future. By maintaining close contact with our customers and staying close to the market we are in a position to pick up coming trends and implement them. On the one hand, that means innovative products, but it also means that we take responsibility for our industry by involving ourselves with various committees and other bodies so as to play our part in future developments.

From its foundation in 1931 up to our current position as an established SME the company has been making progress for and with our customers. With your help we will continue to do so in the future. Many thanks, and here's to the next 80 years!

Company headquarters in Germering (until 1982)

Company headquarters and factory in Fürstenfeldbruck (since 1982)

In-house training course at Güntner on Industrial Refrigeration

Güntner top of the form

Güntner holds regular in-house training courses on technical questions. One of the strengths of the Güntner team is the breadth of their advisory skills. But they didn't acquire this by chance: to consolidate this high standard and maintain it for the foreseeable future we regularly hold internal training courses on the widest possible range of technical questions.

In these courses the in-house technical experts function as multipliers for their own specialist topics. Detailed and complex problems and situations are dealt with very thoroughly. The continual discussion of specialised topics means that the entire team is always up to date. In many cases these discussions prompt an article that is subsequently published in a technical journal and online.

This implementation of the frequently invoked maxim of lifelong learning not only offers employees the opportunity to acquire technical qualifications, their personal development is also encouraged. Most employees have their own special topic that they know particularly well. This means that training courses can often enable different team members to practice their lecturing and chairmanship skills. For some of them this is an entirely new experience. If you ask them afterwards how it went, the answer is almost always: useful practice. After all, knowledge and skills transfer also has to be learned.

Warehouse program for short delivery times

Your daily situation: A new refrigeration plant is to be constructed or a component in an old plant is to be replaced. The matter is urgent. You must have the equipment. If not at once then within a few days.

Güntner has an excellent solution for this, especially for standard applications: the warehouse program. Here you will find various product series such as small-scale evaporators (e.g. GDM) and supermarket condensers (e.g. GVH) that can be obtained ex works in only four working days. Altogether the warehouse program covers 125 unit types. You can tell whether or not a desired product type is covered by the warehouse program from its listing in the GPC (Güntner product calculator): The available types carry a warehouse symbol.

Series available in the warehouse program:

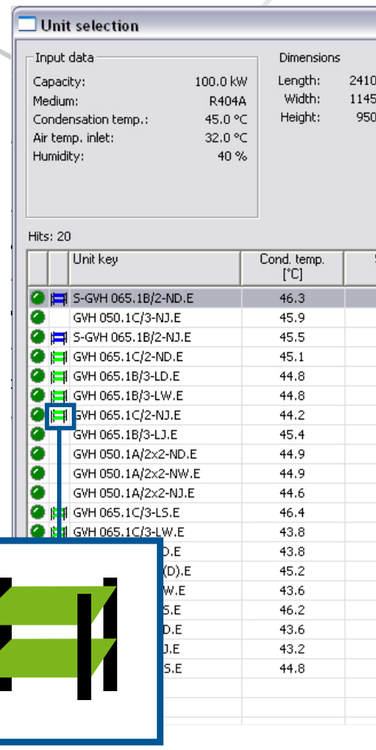
Evaporators:
GDF, GDM, DHF, GHF, GMH, GWH
Condensers:
GVM, GVH, GVV, GVVX, GVHX

The warehouse symbol shows you whether or not a suitable unit is available within a few days. A green warehouse symbol indicates that the exact selected type is in the warehouse; a blue warehouse symbol indicates that a variant of the selected type is in the warehouse.

The situation gets a bit more complicated for project-specific equipment. Over the last few years the demand for our products has increased by leaps and bounds. We immediately reacted to this by optimising our production processes so as to increase our production figures. Over the last few months, continuing high demand has naturally led to delivery times that do not always fulfil project demands. The growing market share of microox® and our process units optimisations have enabled us to reduce our delivery times by, in some case, almost 50%. Since last June, our average delivery period has been five weeks.
So we have bounced back from this problem and are ready for new challenges.

Quick and safe
Calculate thermodynamically & prepare offers

System Design Software
GPC – Güntner Product Calculator 2011



What lies behind fresh vegetables?

Have you noticed any Güntner trucks recently? If not, you will certainly see some of them quite soon.
You'll be wondering what we mean. After all, Güntner is a force to be reckoned with in refrigeration and its name is very well known. But most people who don't have anything to do with refrigeration will normally know neither our equipment nor the Güntner brand. How could they? They almost never see it! To counteract this we are going to advertise – sort of: We have supplied the carriers who transport our goods with tarpaulins to make our applications visible.
We are concentrating on applications that use Güntner's evaporators or aircoolers. Pictures of the equipment in the appropriate application plus suitable questions, such as "Do you like juicy steaks?", will demonstrate even to outsiders just how many areas of our everyday lives rely on Güntner equipment. This will reveal at least part of the complex technology that lies behind services that so many take for granted.
Naturally, those in the know will see the point straightaway…
And by the way: the picture shows our high-performance GHN evaporator.

Practical test: finoox® vs. microox®: Two technologies compared

The microox® technology developed by Güntner from conventional micro channelling has been very successful in its first three years on the market for stationary refrigeration equipment. The technical advantages of this new technology are already sufficiently well known and researched.

In the spring of 2010, to determine whether there are any differences in practical use between this and traditional finoox® technology (finned tube heat exchangers), particularly as regards contamination and cleaning, Güntner's testing department launched a comprehensive series of tests which ran for over 16 months.

The tests compared soiling and contamination for finoox® and microox®, because after all, contamination on the air side of a heat exchanger is a significant parameter affecting the thermal performance of a drycooler or condenser.
To study the contamination and soiling of microox® (microchannel) und finoox® (finned tube) heat exchangers, a number of dual-fan test units were each equipped with one microox® and one finoox® coil, and set up at different locations within Germany. The units were not connected to a refrigeration system, but the fans were run continuously.

When selecting the locations for the equipment we took care to choose situations that as far as possible reflected typical applications, so that we could document realistic stress conditions.
For example, one unit was set up on the North Sea coast to enable us to compare soiling behaviour near the sea. Another one was placed in the grounds of an active steelworks in the Ruhr region to register realistic heavy-industry conditions.
A third unit was in a gravel works, where the high levels of dust and dirt simulated desert conditions. The fourth unit was in the countryside in order to record soiling levels among fields, meadows and farmland.
Two more units were placed in a city in order to simulate conditions with traffic congestion and high levels of dust.

The soiling was evaluated regularly both visually and by measuring the pressure drop across the heat exchanger coils.

After recording the type and degree of soiling, additional test series were performed to compare wet and dry cleaning in order to establish which method promises optimum results for which type of dirt.
The investigations lasted until the autumn. The detailed results were then presented at the annual meeting of the DKV (German refrigeration and air-conditioning association) which was held in Aachen on November 17 and 18.

Brief summary: Once again it is confirmed that the growing season is a major factor in the level of soiling. Comparative scrutiny of the finoox® and microox® units show that the construction of the heat exchanger is less significant for the soiling. The mat-like soiling exhibited no major differences in consistency or thickness.

You will find the full report and detailed results at www.guentner.eu

Specially customized dual-fan test device, in each case with one microox® and one finoox® coil

Example of soiling in a city location

Reliability with class A energy efficiency

In the previous edition of heatXchange we introduced the new GVHX, the first flat-beed condenser to use microox® technology. Since series production began at the beginning of the year the series has made good progress and is already well established in the market. Now we would like to tell you about one of the first projects to use this new flat-bed condenser.
The project is refrigeration for a supermarket, a standard application for commercial refrigeration that is eminently suitable for Güntner's new series.

These GVHX condensers are equipped with particularly quiet and energy efficient EC fans.

Background info on Denner:

Denner is Switzerland's leading discount food store with over 440 branches all over Switzerland and employs ca. 3,600 people. There are also a further 320 "Denner Satellites" (independent detail traders in rural areas) which offer additional products over and above Denner's range. (Source: www.denner.ch)

Two of the first GVHX condensers were used in a Denner supermarket in Altstätten, Switzerland. The company engaged for the planning and construction, Celsio AG, from Dällikon in Switzerland, has been active in Switzerland for eight years, primarily in shopfitting. They decided to use two highly energy-efficient units from the new GVHX condenser series.

One crucial factor in this decision was the desire to keep the refrigerant charge as low as possible. In view of the relatively long conduits between the compressor and the condenser, it was important to select units requiring a relatively low charge of refrigerant, for example, to reduce the size of the necessary liquid receiver.
Noise was another important factor, so the extremely low sound pressure level of the two chosen units was particularly significant. That they were also able to offer class A energy efficiency was an additional bonus.

The new Denner supermarket in Altstätten has the usual cooling requirements of a supermarket, i.e. both freezers and normal refrigeration. The refrigeration circuit for the freezers uses R404A; the GVHX needed for this circuit has energy efficiency class A, and a sound pressure level of 31dB (A) at a distance of 5 metres. The condensing temperature is +39°C. The installed compressor is a ZF Copeland 13K4-RG.
The refrigeration circuit for the normal refrigeration uses R134a; the GVHX needed for this circuit also has energy efficiency class A, and a sound pressure level of 34dB (A) at a distance of 5 metres. The condensing temperature is +44°C. Two Bitzer 4CC-6.2Y compressors were used here.

Since the condensers are installed on a flat roof they were configured for an air inlet temperature of 34°C. They were naturally installed with extra long feet so that when the flat roof heats up in the sun the fans do not take in the resultant hot air.

Penthouse concept for seafood in Vietnam

The refrigeration requirements for warehouses are much the same the world over, but as usual it's the details that count. It takes experience and expertise to find the optimum solution for each particular application.

This also applies to the Anpha AG Cold Storage project, a logistics centre that was set up in 2009 near the new SPCT container port near Ho Chi Minh City. Among other goods, the logistics centre stores and transships seafood. At 98m long, 97m wide and 12m high, this warehouse is one of the three largest in Vietnam.

The contracted refrigeration plant constructor RECOM Co. Ltd., who also took on maintenance of the cold storage facility following its completion, contacted Güntner to find a good solution for the stipulated requirements for the facility, particularly the evaporator. The most important points were these:
- Maximum utilization of the storage space
- Good temperature distribution in the warehouse
- Reliability and operational safety
- Energy-optimised equipment
- As easy and straightforward as possible to service and maintain

The penthouse concept was chosen as a good way of fulfilling these requirements. This approach sites the aircoolers in an insulated penthouse on the roof of the warehouse, outside the actual storage areas. The cold air is blown into the warehouse via short ducts. Placing the evaporators in the penthouse makes it possible to use the storage space to the full, and there is no danger of the conveyor systems damaging them or the installed pipework. The coolers are also accessible at all times for servicing and maintenance without disrupting the logistics operations.

In view of the facility's tropical location it was decided to use a house-in-house construction: The outer building is constructed with a pitched roof to screen it from solar radiation and provide runoff for tropical rainstorms.

The insulated cold storage is located inside this. Between the ceiling of the cold storage and the pitched roof are the penthouses containing the aircoolers. For this project the weight of the penthouses is borne by wire cables attached to the roof supports.

The positioning of the evaporators and the penthouses depends on the dimensions and arrangement of the cold stores. In this case the penthouses are arranged off-centre and the cold air is emitted by ducts on either side. This provides for an even temperature distribution.

The penthouses are located on the roof of the insulated cold storage facility, underneath the protective pitched roof.

The evaporators are provided with service hatches for easy access to the fans

The ducts provide for the necessary air distribution

Since the beginning of 2010 there has been a new container port in Ho Chi Minh City, the Saigon Premier Container Terminal (SPCT). Up to 1.5 million TEUs per year can be dealt with on an area of 23 hectares. (The abbreviation TEU stands for Twenty-foot Equivalent Unit, which is an internationally standardised unit for counting containers and the handling capacity of container terminals.))

Storage details:
- L x W x H = 98m x 97m x 12m
- Storage capacity: 20,000 pallets
- Goods stored: Seafood, meat, poultry and other foodstuffs
- 5 low temperature storage areas (-25°C)
- 1 cool room (+10°C)
- 2 picking rooms
- 22 container loading docks

Refrigeration plant:
- Refrigerating capacity: 1841 kW
- Refrigerant NH_3
- Operating mode: Pumped operation

Compressors:
- 5 Mycom rotary screw compressors for operation at full load
- 1 Mycom rotary screw compressor for better regulation of partial load operation

Condenser:
- 4 BAC evaporative condensers CXV 338

Evaporators:
- 12 x S-GANP 080.2J/212
- 12 x S-GANP 080.2H/212
- 8 x S-GANP 080.2I/212
- 4 x S-AGHN 080.2F/27

Defrosting: Hot gas
Designed as penthouse cooler, 90° downblow; service hatches in the air connection ducts

Dipl.-Ing. Hong Quang Nguyen

manages Güntner's office in Ho Chi Minh City and is responsible for the Vietnam sales area. Quang is a member of the Güntner Global Expert Team, GET, a network of experts from all the sales areas of the Güntner Organisation who regularly exchange technical information and experience.
This network of experts enables Güntner to achieve a uniform high level of technical competence in all the world's markets and advise its customers with truly international expertise.

Traditionally the very latest equipment

The Ottenbräu brewery in Abensberg has installed a completely new brewing plant which uses the refrigerant R723.

You don't know Abensberg? Then you should. Abensberg is a traditional brewing centre in the hop-growing area Hallertau. The local Ottenbräu brewery is by no means the largest in the town, but that doesn't detract from the quality of its beer, on the contrary: At the "European Beer Star Award" competition in 2008, Ottenbräu's "1348 Dunkel Lager" was awarded the gold medal in the category "European style dark".

Experience does tell after all: The brewery has been in existence since 1609 which makes it one of the oldest breweries in Germany, and the Neumaier family has been brewing here for almost 200 years. To continue being able to manufacture outstanding beer the current owner, Robert Neumaier, who is a seventh generation brewer, decided to build a completely new brewing plant.

His great-grandfather had already carried out a general refurbishment of the brewery in 1906, after which it was one of the most modern brewing installations in the world. Pioneer spirit seems to run in the family.

Admittedly, various parts of the equipment have been replaced since then, but for the most part the technology was 1900 vintage. For Robert Neumaier, who likes to describe the old brewery as a "productive museum", it was clear that only an entirely new building would enable him to bring the technology properly up to date. But even here he was unconventional.
Ammonia is the refrigerant of choice for brewery applications, but it is unusual to use the equally natural mixture of ammonia with dimethylether (refrigerant R723) in the power range 3 to 15kW, with direct expansion at 8°C and an air-cooled condenser.

For the professional implementation of the refrigeration plant Robert Neumaier turned to Karl Huber from HKT Huber-Kälte-Technik GmbH in Halfing, who has many years' experience in the construction of special plants, including those for natural refrigerants, and especially when the requirements are as specific as these. Mr Huber has this to say about the implementation: "The order from the Ottenbräu brewery was a welcome opportunity for us to demonstrate the performance of R723, if only because of the great success that HKT has had with the R723 cold-water chiller that has been cooling our own production facility since 2002.

And the numerous installations that are now running in the field tell the same story. The requirements for efficiency, sustainability and quiet running led to this customised brine chiller that was tailor-made for the customer."

The Hundertwasser Tower has become one of Abensberg's famous landmarks.

External view of the old Ottenbräu brewery; the wooden building (on the right-hand edge of the picture) contains the "coolship", which can hold 4000 litres of beer.

New brewery with the very latest technology

The mash house and malt store were completely rebuilt and equipped with the latest plant technology. The new brewery can process two mashes per day, together that makes 4000 litres. Around 2000 litres are made up for each mashing, and a complete mashing cycle takes about eight hours. A plate heat-exchanger has the task of cooling the hot wort from boiling point (95°C) to the proper temperature for the fermentation tanks (7°C). There yeast is added to begin the fermentation process; the main fermentation at 7 to 9°C takes eight days. The beer is then stored for 8 to 10 weeks to mature. The grains are used as livestock feed for dairy cattle.

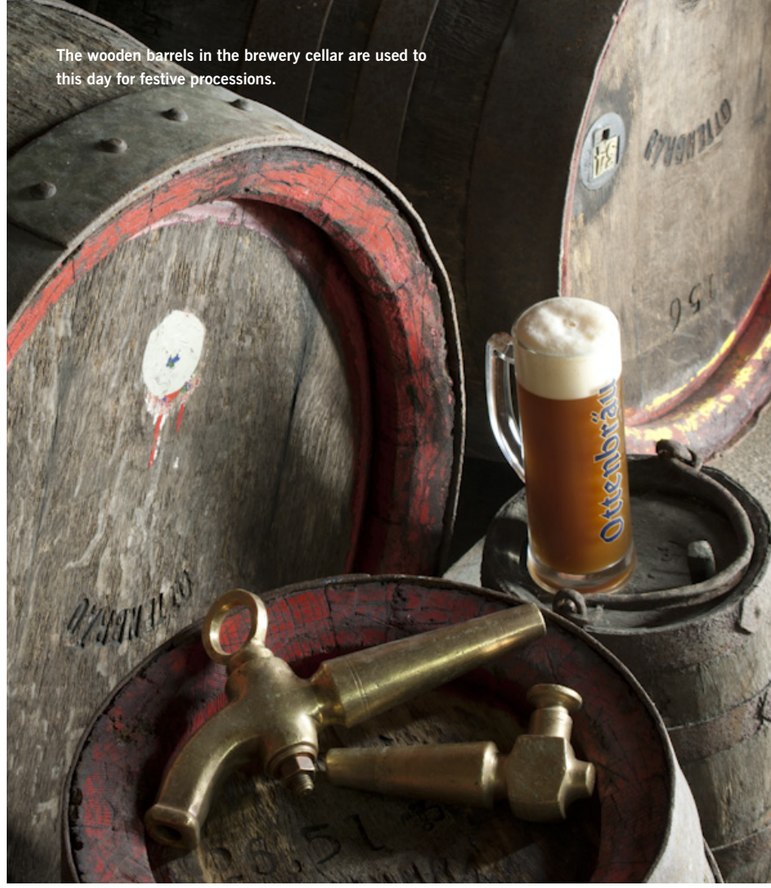
New R723 refrigeration system: quiet and efficient

For the design of the new brewery the focus was on energy efficiency and sustainability. Naturally, this also applied to the refrigeration system and was the basis for the decision to use R723 as refrigerant.
R723 is a mixture of the two natural refrigerants NH_3 and dimethylether (DME) in the proportions 60% to 40%. The addition of DME reduces the discharge temperature by up to 25K and renders the refrigerant oil-soluble. This makes it possible to construct reliable directly expanding chillers with air-cooled compressors, even where the ambient temperature is as high as 35 °C. Conventional cooling systems for breweries often need to use water-cooled condensers or evaporative cooling towers, which gives rise to very high operating costs. The higher suction gas density of R723 also produces 3% better efficiency than pure ammonia.
This circulation model is also able to dispense with costly components such as ammonia separators and secondary pumps. In this way, refrigeration systems drawing less than 20kW can realistically be operated with a natural refrigerant.

The brewer Robert Neumaier has this to say about it: "We can already quantify our energy savings due to the new technology. Switching from masonry fermentation vats to free-standing directly-cooled stainless-steel tanks, converting the storage tanks' air-conditioning to direct glycol cooling, converting ice bank storage to single-stage plate heat exchangers circulating precooled brewing water, plus converting to R723, together produces energy savings of approx. 40%."

Brewery owner Robert Neumaier (left) and chiller manufacturer Karl Huber (right) assessing the quietness of the glycol brine chiller. To improve the air flow and further reduce noise, the space between the condenser and the opening in the outer wall was also enclosed.

The new brine chiller cools a 750 litre buffer tank (15% glycol brine) to within the range 2°C to +3°C. This is then used to cool the brewing process via the plate heat-exchangers and the storage tanks via their jackets.
Due to the difficult structural situation the chiller not only had to be modified to fit in the available space, it also had to be designed to be extremely quiet. They decided to use an AGVV series condenser made entirely of stainless steel, with a sound pressure level of 36dB (A) at 10m, which was mounted on a special base frame above the compressor on the suction side. The design of the frame was governed by the second major factor affecting the refrigeration plant: sound emissions.
Since the brewery is situated in the city with its nearest neighbour living only a few feet away, every effort was made to keep the plant as quiet as possible.
That is why the compressor was mounted on a separate frame that itself rested on shock-absorbers on the base frame of the motor unit.



The wooden barrels in the brewery cellar are used to this day for festive processions.

Separate frame construction for the compressor

The frame construction for the condenser and compressor prevents vibration from the compressor being transferred to the condenser and other components; the pressure and suction tubes of the compressor each included an additional anaconda (a pipe section that functions as a vibration damper).
Care was also taken to use fans that were as quiet as possible, and in addition, the condenser was housed in a wooden casing to prevent the installation room functioning as an additional resonance chamber.

The energy-efficient approach also includes the small CHP plant that not only makes the brewery 100% self-supporting but also generates excess power to feed into the grid.
The CHP runs on natural gas and is in operation for a total of 8,700 hours per year. Its electrical power rating is 20kW, with a thermal rating of 43kW. The subsequent installation of a second flue gas heat exchanger brings the temperature of the exhaust gas down below 60°C, giving the unit an overall efficiency rating of over 97%. The generated heat is stored in a 10,000 litre buffer tank which feeds the brewery's own district heating network. An additional 400kW wood chip boiler is operated during the heating period, providing the neighbouring primary and secondary school complex, a kindergarten, an old people's home operated by the Red Cross and a bank with heating energy all the year round.

Around 2,000 hectolitres of beer per annum are now brewed in Abensberg on this principle.

	Ammonia	Azeotropic mixture	Dimethylether (DME)
Chemical formula	NH_3	60 / 40	CH_3-O-CH_3
Designation	R717	Schick R723	RE170
Molar mass g/mol	17	23	46
Boiling point °C	-33,4	-36,6	-24,9
Melting point °C	-77,9	< -90	-141
Critical temp. °C	132	131	227
Critical pressure in bar	113	110	50

Physical and chemical properties of R723 compared to NH_3 and pure DME (Source: ILK Dresden)

View of the drycoolers after installation of the sight screen

The 20 drycoolers installed in the pitched roof; in the background you can see the towers of Dresden's Kreuzkirche and the town hall

View of the roof after installing the sight screen

Key figures for refrigeration plant:

Two CLIMAVENETA FOCS W 8404 refrigeration plants are installed, each with a capacity of 1752kW, plus one CLIMAVENETA NECS C 0152/ B radial refrigeration plant with a capacity of 36kW as a partial load unit for the server rooms

- Cold water temperature 12°C / 6°C
- Cooling water temperature 44°C/ 49°C
- Four refrigeration circuits on each machine
- One continuously controlled CSH 9581-210 screw compressor per circuit
- 20 Güntner S-GFH 102B/2x2-LS drycoolers each with a capacity of 237kW

Cool heads from the pitched roof

Dresden's Altmarkt Gallery has been a significant commercial and social centre for the city for almost ten years. It is named after the city's old market street and runs parallel to its length on the western side, behind the building complex at Altmarkt 13–25.

Back in 1993, the design for what became the Altmarkt Gallery was declared the winner of the competitive tender for the rebuilding of the old marketplace. After its completion in 2002 the shopping centre gained a further prize: the Saxony State Ministry for Environment and Agriculture awarded it first prize in the competition "Gardens in the City 2000 – 2004".

Since then the three-building complex has become an important commercial and social centre. In view of its commercial success the shopping centre was extended by a further 18,000m^2, completed in March 2011, so that it now has 48,000m^2 retail space available. In addition to enlarging the shopping centre, the alterations included the construction of a hotel over the mall plus additional office space.

In keeping with the expansion of the building complex it also became necessary to enlarge the existing refrigerating plant. The planning office IPRO Dresden contacted Güntner. Together they found a solution for the rather unusual positioning of the drycoolers that was made necessary by the design of the building. The contracted plant construction company, YIT Germany GmbH, Dresden branch, then implemented this plan.

Twenty drycoolers were required to provide the necessary 4740kW of drycooling power, and these were not set up on a horizontal surface but tilted 25° to the left to match the inclination of the roof. The GFH series drycoolers were positioned on broad-based substructures to ensure an adequate air supply. The entire roof surface was used for air intake and outlet. The drycoolers supply two cold water chillers that are installed in the basement.

The visual aspect of the installation was also a consideration in this case, because the hotel that was built when the shopping centre was extended has a number of its rooms facing the drycoolers. A sight screen was therefore constructed to conceal the units without spoiling the view of the historic city.

Another important consideration for the additional plant was its energy efficiency: The decision to use EC fans for the drycoolers resulted in marked energy savings. The power consumption of each motor is 290W less than for comparable asynchronous motors. For the total number of 80 fans that amounts to a reduced power consumption of 23.2kW. Assuming the fans to be in operation for 4,000 hours per year, that is a total annual saving of 92,800 kWh.

Güntner implements ErP directive

Güntner is well-prepared for these more stringent minimum energy efficiency requirements for fans.

Since the adoption of the 1997 Kyoto Protocol, which aims to reduce CO_2 emissions by 2020, increasingly stringent directives have also been passed for energy-using and energy-related products. The EuP directive (energy-using products, 2005/32/EC, dated July 6, 2005) was followed by the ecodesign directive (2009/125/EG), also called the ErP directive (energy-related products).

This further extended the scope of the directive: the stipulations no longer related only to energy-using products but were extended to cover energy-related products.

At the end of May 2011 the German Federal Cabinet approved a draft amendment to the energy-using products act (EBPG) in order to transpose this more stringent ErP directive into German law.

Significance for refrigeration and air-conditioning technology

But how does that affect us in the refrigeration and air-conditioning sector?
Minimum efficiency levels for fans were already stipulated in June 2010 to come into force in 2013 and 2015. These limits apply whether or not the fans are used on their own or as a component in some other device or machine. These regulations naturally also affect our industry, but misunderstandings frequently arise because there are two draft regulations that create confusion.

Firstly there is the so-called “IE code” that applies to standard motors (IE = international efficiency). It stipulates minimum efficiency levels for motors and is documented in the IEC 60034-30 / EC 640/2009 standard. This part of the standard not only specifies requirements for standard motors, it also defines exceptional cases to which this standard may not be applied (see IE info panel). These exceptions include motors that are fully enclosed within a product (e.g. pumps, fans, compressors).

The fans typically used for Güntner products contain such integrated motors, and the IE code may therefore not be applied to our heat-exchangers. Instead they are subject to the more comprehensive ErP directive. This directive considers the efficiency of the system as a whole – from the motor to the fan blades – i.e. all the components of the fan system. This produces a considerably more precise efficiency assessment. For example: if the fan system incorporated a V-belt, then its efficiency would also be factored into the assessment.

The implementation deadlines for the minimum efficiency levels in the ErP directive are staggered. For the cooling and air-conditioning industry this means that increasingly stringent requirements will come into effect on 01.01.2013 and on 01.01.2015. Güntner is well-prepared for these new requirements because we have been addressing this question for years. Some of our units have long been complying with even the most stringent requirements. Since Chillventa 2008 we have been marketing an EC system that achieves the required level of efficiency.

This important topic has also long been a factor in our internal communications, and appropriate training courses have already been held under our internal further education program. Assessment of the previously used fans has been completed for our product series; some series are already equipped with fans that fulfil the minimum requirements that will come into force in 2013 and 2015.

IE

Required minimum efficiency levels for motors

Norm: IEC 60034-30 / EC 640/2009

Included are:
- three phase squirrel cage induction motors
- motors with internal or external rotors
- 50Hz or 60Hz motors
- 2, 4 or 6-pole motors
- Rated voltage up to 1,000V
- Rated output power between 0.75kW and 375kW

Excluded are:
- motors that are fully enclosed within a product (e.g. pumps, fans, compressors)
- motors specifically designed for use in potentially explosive atmospheres

ErP

Required minimum efficiency levels for fans

Directive 2009/125/EC LOT11

Included are:
Products with built-in fans, provided their optimum electrical input power is higher than 125W

Consequences of the EuP Directive for refrigeration and air-conditioning

First stage: **from 01.01.2013**
Second stage: **from 01.01.2015**

Affected products:
Products with built-in fans, if their optimum electrical input power is higher than 125W; if they do not fulfill the efficiency requirements they must be replaced with more efficient fans.

Existing systems:
Existing systems do not need to be converted. The ruling affects only fans and units with built-in fans that are marketed within the European Union on or after 01.01.2013.

Transition period:
A transitional period until 01.01.2015 applies to serviced goods that were marketed prior to 01.01.2013. In the case of a replacement fan the replacement must be one-to-one and must be labeled as such.

Labeling:
Fans that comply with the regulation can be recognized by their CE mark, for which energy efficiency is then just as significant as compliance with the low voltage or EMC directives.

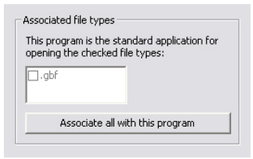
Validity:
All ErP requirements are binding on components and products that are marketed within the EU. This applies equally to products that are produced within the EU and imports from countries outside the EU. Products that are destined for export are NOT covered by the regulations.

What is the GPC offering in the latest updates?

In the latest GPC releases we have implemented some new functions that should make it easier for you to calculate your units and give you access to additional information. You will also find an overview of the latest features in the Know-How area of our website:

Positively polyglot!

Since last autumn, the GPC has been offering an additional informative function: we have integrated links to make our complete documentation available in a large number of languages, from data sheets through operating instructions right down to informatory brochures and associated material.
You can access this information in two ways: Firstly, by clicking on the "i" button in the device selection function. If you are not connected to the internet, this button will take you to the available Help pages for evaporators and aircoolers; as soon as there is an internet connection it will show you the corresponding internet product page for the appropriate series. This is where you will find the integrated link.
You can also find the link in the display of the product calculator's data sheet, where it is on a separate menu item under "View". The documentation is arranged according to type and language. In particular, under the listed operating instructions you will not only find documents compliant with the new Machinery Directive (which came into force at the end of 2009), versions for older equipment compliant with older Machinery Directives are also available. And all of it in up to 15 languages – what more could you ask!

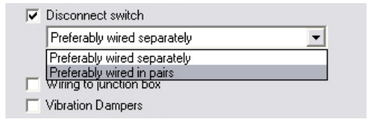


File type link to the selection program

In the Settings dialogue you can now link the appropriate document file (.gbf) with the selection program. This means that you no longer need to tell the computer which program to use to open the file. It will recognise that these files should be opened using the GPC and launch the program automatically. As you see below, the dialogue indicates whether or not the file name extension is linked to the program. Click on "Associate all with this program" to link these file name extensions to the program.

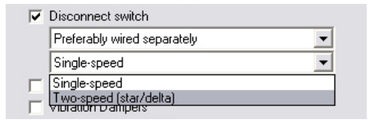
Safety switch selection revised

Instead of separate checkboxes for the various safety switch designs, wired "singly" and "pairwise", there is now only one checkbox in the device selection and accessories dialogues. You can now select the preferred type of wiring (single or pairwise) from a combo-box (see picture). If the desired wiring type is not available for a unit then the available type will be selected.



Single-throw or double-throw safety switches

You can use the combo-box shown below to choose whether the safety switch should be single-throw (7-pole) or double-throw (9-pole, switchable star/delta).



Drycooler as subcooler version for 41/32 bar

The drycooler series GFH can be used as a subcooler. The subcooler design options are available for pressures of 32 or 41 bar. The program calculates the necessary high pressure version depending on the selected refrigerant.

microox® condenser 32/41bar

As for finoox® units, accessories for a maximum operating pressure of 41 bar are now also displayed for microox® condensers if the refrigerant R410A is selected.

Uniform subcooler selection for finoox® and microox® condensers

The subcooler option for condensers can now be uniformly selected by checking the following checkbox on the unit selection page for both finoox® and microox®.
You will also need to specify the minimum subcooling. The proposed value is 3K, which microox® subcoolers can also achieve under standard conditions. For microox® you should then also select a separate subcooler, for finoox® an integrated one.

Subcoolers for GVHX

Units of the GVHX series are now available with subcoolers.

New accessory 1/2" ball valve for venting/emptying

This accessory is now available for all current drycoolers.

Tender texts for modbus have been added

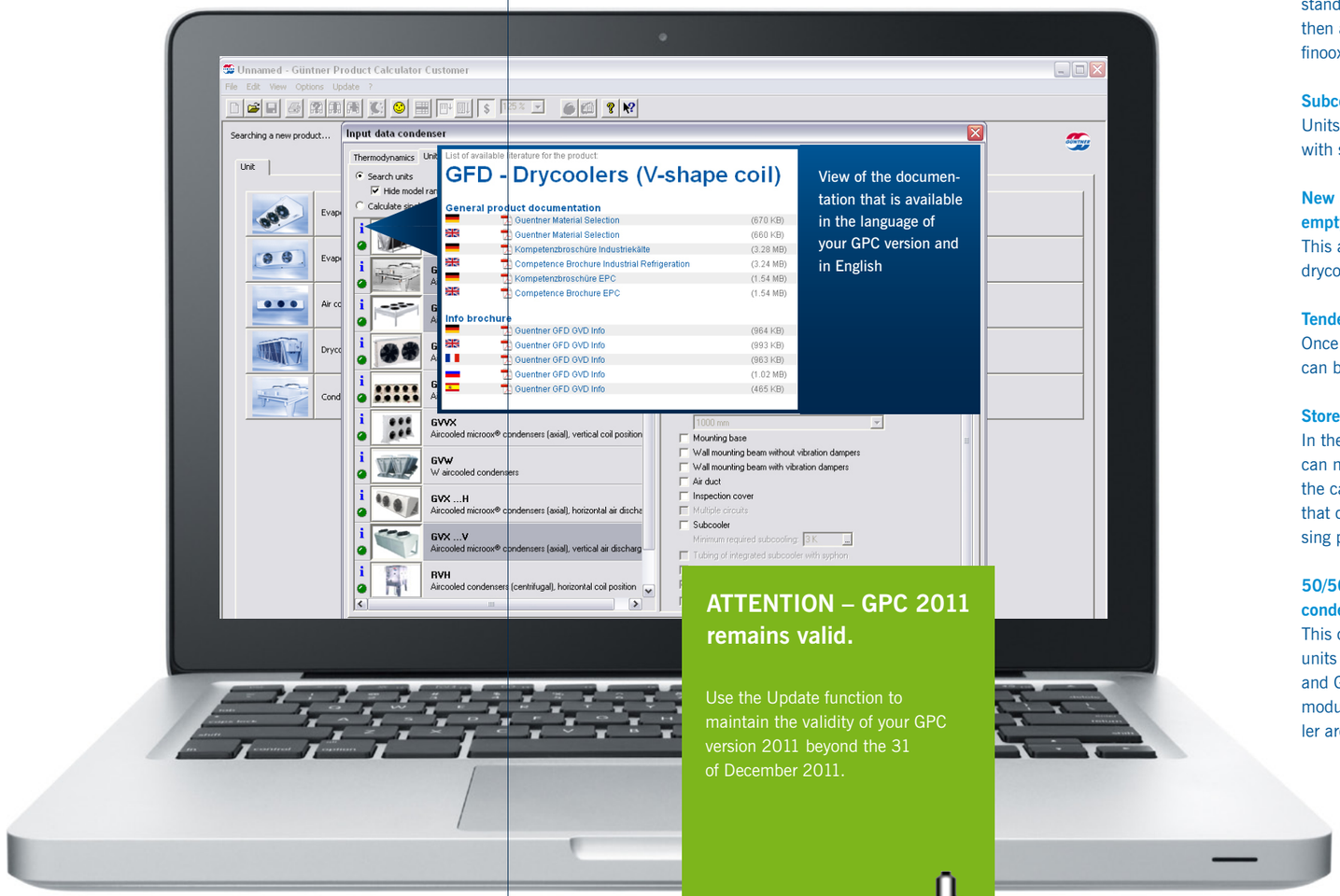
Once you have selected a unit, these texts can be called up from the "View" menu.

Store partial load calculation as RTF

In the Partial Load Calculation dialogue you can now use the "Save as RTF …" to store the calculation in RTF format. RTF is a format that can be read by all standard text processing programs, such as Microsoft Word.

50/50 cycle subdivision with microox® condensers

This option is now available for all two-row units in the microox® ranges GVX.2, GVHX and GVVX. In units with only one subcooler module, 50/50 cycle subdivision and subcooler are mutually exclusive.



View of the documentation that is available in the language of your GPC version and in English

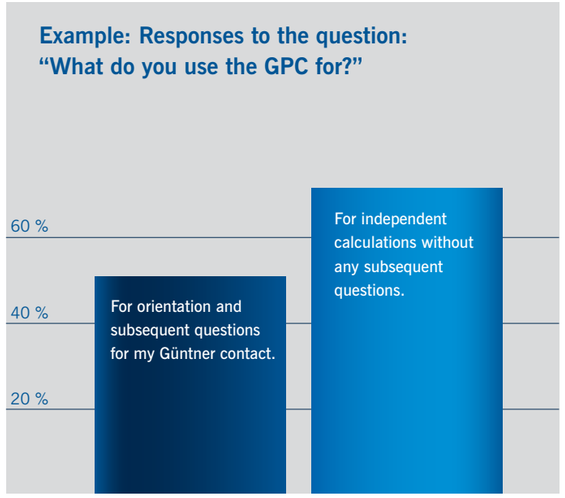
ATTENTION – GPC 2011 remains valid.

Use the Update function to maintain the validity of your GPC version 2011 beyond the 31 of December 2011.

Top marks for GPC

Almost 800 users took the time to tell us their opinion.

From 01.01.2011 to 31.03.2011 we asked our customers to participate in an online survey and rate our product calculator, tell us what they thought about it and give us their suggestions.



Numerous responses

The response was impressive: almost 800 users took part and gave us their personal impressions including some extremely detailed feedback. We would like to take this opportunity to thank them once again for their efforts.

Wide geographical distribution

Alongside numerous responses from German-speaking countries (33%) we received a gratifying number of Russian assessments (17%). A further 6% of the responses came from France and Spanish-speaking countries. The large proportion of English-language responses (44%) came from European countries that were not covered by the other available languages.

Usage: calculation and orientation

To the question “What do you use the GPC for?”, 52% replied “For orientation and subsequent questions for my Güntner contact”. This question permitted multiple responses, and 72% also stated that they used the GPC for independent calculations without posing any subsequent questions. This is a clear indication of the level of detail available for calculations and accessories, serving to facilitate rapid processing.

Detailed suggestions

Over and above answering our questions, many participants took the time to give us their personal impressions and desires. Besides numerous valuable detailed suggestions it was clear that better usability was desired. With the activation of our new website we have taken the first step in this direction by providing the GPC with active links to our document database. There you will find the complete documentation of each individual product in all the available languages.
We have naturally read all the submitted suggestions with great interest and will implement as many of them as possible in future versions of the GPC. Our own software development team is constantly and resourcefully working on further development of the GPC, on average bringing out a new release once a week.

GET – Concentrated competence in the industrial refrigeration sector

The Global Expert Team provides competent answers to application problems in the field of industrial refrigeration.

Güntner maintains branches and factories all over the world, and everywhere it has highly qualified and committed people working on problems from the various business areas. A number of these people belong to a special team that is addressing the task of setting up a global network of experts from the business areas Industrial Refrigeration and Energy & Process Cooling (EPC) in order to facilitate continuous knowledge transfer.
The GET team comprises 16 people in 13 countries on 5 continents. Its members are global contacts for particularly complex applications and also function as multipliers and trainers for Güntner’s other employees.

Good communication provides for numerous synergies here. Once a particular requirement has been successfully resolved for one project we can ensure that this solution is known to all our colleagues all over the world in case the same requirement occurs in some other project or a different country.
The exchange of information between old hands and their younger colleagues is especially important for shortening the learning curve and ensuring that our customers all over the world are given the same highly competent advice, even for extremely specialized applications. An active exchange of information within this global network also provides strategic advantages.

Naturally, the existence of such a team also gives our customers an information advantage: for international projects it is especially useful to know that the customer’s contact is familiar with the requirements of the geographical region and will be able to advise them accordingly.
The team members meet regularly to exchange views and to ensure that they are up to date with the latest trends and projects.

Are you a customer of the business areas Industrial Refrigeration or EPC and interested in this topic? We have prepared a brochure that illustrates Güntner’s comprehensive competence in this field. If you are interested, please ask your Güntner sales representative for a copy.

Güntner has its own YouTube channel

www.youtube.com/user/GuentnerAG

Product presentation
at EuroShop in Düsseldorf

Güntner microox® production

GVHX: The very first flat-bed condenser
with microox® technology

Our contributions on the YouTube video platform offer lots of interesting information about our company, our technology and our equipment.

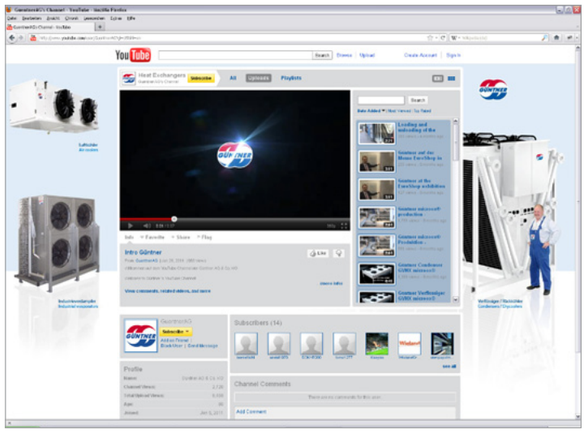
In recent years the company has expanded its marketing options many times over by using up-to-the-minute media such as the internet. The more at-home a company is with multimedia the better will be its customers' and potential customers' awareness of its brands and offers. This is why, on January 5, 2011, Güntner AG & Co. KG launched its own channel with a number of selected videos on the world's leading video portal.

Since the launch we have continually been releasing more and more videos about Güntner and our products. For example, one of our videos shows YouTube users the right way to load and unload a GFD drycooler in a marine freight container. Since its inception we have already reworked and modernized the design of our channel.

Our aim is to offer YouTube users interesting videos about industrial fairs, new products and specific product features. We plan to continue extending the range of available material.

You will find the Güntner YouTube channel at the following address:

www.youtube.com/user/GuentnerAG



The Güntner YouTube channel offers
videos in German and English

Imprint

heatXchange
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Editorial Staff:
Bernd Oehlerking, Stefanie Neuhs,
Roland Handschuh, Leslie Faust

Publisher:
Güntner AG & Co. KG
Hans-Güntner-Str. 2 – 6
82256 FÜRSTENFELDBRUCK
GERMANY
Telefon +49 8141 242-0
Telefax +49 8141 242-155
www.guentner.de
info@guentner.de

"Clean and hygienic in a moment!"

The GHN aircooler with the HACCP Certificate of Hygiene.

Heinz Jackmann, Business line Industrial Refrigeration

Dear Readers,

The application areas in industrial refrigeration are many and diverse, so we can well use the knowledge, experience and skills of a powerful hand.
Güntner has had more than 80 years' experience in the construction of heat exchangers for the refrigeration industry. With targeted application expertise and innovative products we cooperate with planners and plant technicians to create the best possible design for each application and supply the most suitable products.
Many areas of the food industry have particularly stringent hygienic requirements, so a lot of Güntner's evaporators and aircoolers carry the HACCP Certificate of Hygiene. Our fast delivery times, even for stainless steel equipment, add the finishing touch to our portfolio.

Heinz Jackmann, Business line Industrial Refrigeration

Further information at **www.guentner.eu**

KAT 916.2 / 29.11.2011

Competent. Reliable. Personal.