3.2 MW condensing capacity for a kitchen

Europe's biggest kitchen processes fresh food every day

Line of Business:	Industrial Refrigeration
Application:	Food Cooling
Country / City:	Austria / Vienna
Fluid:	R404A, R507, Glycol
Product:	Drycooler GFH, Wall/ceiling unit cooler GHN, Ceiling unit cooler DHN

So the refrigeration requirements are great! The laying of the foundation stone in June 2005 marked the start of the construction of Europe's biggest kitchen for fresh food in the middle of Vienna. From September 2006 onwards the kitchens belonging to Verkehrsbüro Kulinarik, a company which specialises in the delivery of ready meals, which were previously separate, will prepare and serve their specialities on the same site.

All the managers in the affiliated companies are well versed in all areas, such as event, business and public catering, quality and the good service coming out of this large scale kitchen in the district of Liesing in Vienna. A team of

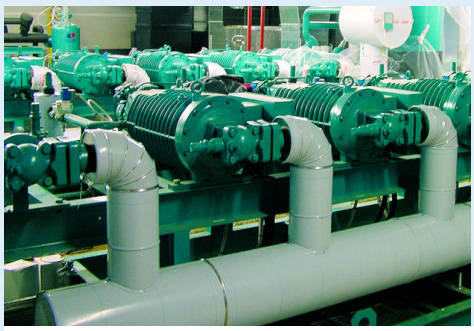
experienced chefs, nutritionists and dieticians creates a wide diversity of menus with special gearing towards the individual needs of their target groups.

On a total floor space of around 18.000 m^2 more than 200 employees prepare from fresh and deliver up to 100,000 meals and culinary delicacies daily.

The children of employees in the affiliated companies themselves enjoy their lunchtime meal of healthy and nutritionally-conscious dishes here. In a kitchen of this size many dishes are prepared hours or days in advance and a refrigeration plant for fast chilling or for freezing is absolutely essential and is part of the standard equipment for this modern catering kitchen. The products are produced in advance according to the menu, dished up, packaged in portion units and taken manually into the refrigerated air locks on shelf trolleys. For this large-scale refrigeration project a decision was made to put their trust in the many years of experience and the know-how of Axima Kältetechnik GmbH. With around 160 employees in Austria, Axima is the leader here in commercial and industrial refrigeration and is best qualified and employs excellent staff for such a large-scale project.

Planning and design

The planning and design of the refrigeration plant, including the electrical equipment, naturally began a number of months before the construction of the building complex started. At the Axima head office in Lauterach (Austria), the interconnected plants were pre-assembled and tested under pressure. The whole building complex has two technical centres on the top floor, where a total of six interconnected plants are accommodated to provide refrigeration. For the normal cooling systems and freezer systems for commercial refrigeration, Bitzer reciprocating compressors were installed, some of them of tandem design. All air coolers are operated with electronic expansion valves in direct expansion. Software makes it possible to monitor centrally all data such as evaporating pressure, superheating and defrosting from every cold store. R404A is the refrigerant used.



The machine room with shock freezer combined system at the front and fast chill combined system at the back

Cooling tunnel system 1

- Five Bitzer screw compressors t_0 = –22 °C
- +2 °C chilled goods temperature
- Refrigerant R507
- Refrigerating capacity 557 kW

Cooling tunnel system 2

- Seven Bitzer screw compressors t_0 = –45 °C for rapid freezing
- –18 °C frozen goods temperature
- Refrigerant R507
- Refrigerating capacity 300 kW

Güntner S-DHN

But the centrepiece of the refrigeration technology is the cooling tunnel plant, in which the cooked meals are fast chilled or shock frozen as necessary. Two interconnected plants with

different evaporation temperatures take care of providing the refrigeration for this. In plant 1's cooling tunnel the dishes are chilled on dual tracks to a temperature of +2 °C and after the daily delivery to the demanding clientele are reheated to serving temperature and served. In parallel up to 48 shelf trolleys with food in closed containers can be chilled within a short period to a mean temperature of +2 °C.

Güntner S-GHN

As both interconnected plants work with screw compressors, additional oil cooling is necessary, which is undertaken for both by the Güntner brine aircooler, type GFH 080.1A/-2X2-M with 300 kW capacity. Both cooling tunnel systems work in flooded pump mode, in which the liquid refrigerant is delivered to the tunnel system, is partly evaporated in the tunnel plant's evaporators and gets to the liquid separator via the return pipe. In the separator both circuits are divided by a dividing wall, so that the liquid is split into separate amounts and each circuit can suck in its own share of the steam. The speed of the automatic delivery system in the tunnel is automatically adjusted to the requirements of the chilled goods and at the same time the speed of the ventilating fans is raised or lowered.

Storage and Refrigeration

In the whole complex of buildings 29 cold rooms were laid out to store and chill the fresh foodstuffs, requiring approx. 450 kW of chilling capacity to be allotted to normal refrigeration and another 115 kW to freezing. To achieve this 45 Güntner high power air coolers from the GHN and DHN series were installed in the rooms and connected to the refrigeration system. The total liquefaction capacity of all refrigeration plants is about 3,200 kW and discharge is on the roof by means of various Güntner axial condensers from the GVH series.