



ENERGY-EFFICIENT COOLING AND HEAT GENERATION AT BVB - FANWELT

CHALLENGE

ENERGY-EFFICIENT COOLING AND HEAT GENERATION AT BVB - FANWELT

The aim was to find a reliable, energy-efficient generation system to provide the energy required for cooling and heating the new BVB - FanWelt, with a floor space of around 2,000 square metres. The system also has to cope with the major challenge of rapidly dissipating the waste heat from several hundred football fans when there are football matches, especially during the summer.

KKU Concept, a specialist in designing and selling resource-efficient cooling and heating systems, and Yanmar, a Japanese engineering company which was one of the sponsors of BVB in the 2011/2012 and 2012/2013 seasons, proved to be strong partners in this project, too.

The commitment of the two companies is distinguished by efficiency, reliability and quality, which are the top priorities for both partners and which helped BVB to transform its new meeting place into a black and yellow experience centre.



SOLUTION

AN OPTIMAL ENERGY SYSTEM

The heating and cooling in the new BVB - FanWelt building is carried out by three split air-to-water gas heat pumps which can be switched between the two modes at a ratio of 2:1. The energy system consists of a combination of outdoor units, hydroboxes and heat exchanger stations. One of the outdoor units, which is the first to be triggered when cooling is required, has an additional heat exchanger to recover the waste heat from the motor, so that in transitional periods the required heat output can be provided for free. In addition, the energy from the waste heat recovered from the motor can be extracted for water heating. The indoor ventilation system, with static heating surfaces, air curtains and ceiling circulation units, ensures that cooling and heating are energy-efficient and resource-efficient.

OUTCOME

REDUCED COSTS THROUGH THE USE OF MONOVALENT NATURAL GAS SYSTEMS

The use of gas motor heat pumps, operated with the primary energy source of natural gas, permanently reduces energy costs and is also environmentally friendly, as the pumps use environmental heat from the air as well as the vast quantities of engine waste heat available. KKU Concept developed a logical concept that meets the requirements of the current legal positions relating to EnEV (German Energy Saving Regulation) and EEWärmeGesetz (German Renewable Energy Heat Act) combined with the desire for energy-efficient cooling and heating. The customer is extremely pleased with the outcome.

OVERVIEW

Project:	BVB Fanwelt Dortmund
Construction time:	4 weeks
Completion date:	August 2014
Products:	3 gas motor heat pumps 3 KKU hydroboxes
Refrigeration-capacity:	3x 77 kW
Heating capacity:	3 x 85 kW (plus 30 kW motor heat recovery unit)
Construction area:	2,000 m ²
Competition:	Traditional with reciprocator chiller and condensing boiler

YANMAR

Energy System Europe GmbH
Elbestraße 2-4, 45768 Marl

T. +49 (0)2365 92490-44
F. +49 (0)2365 92490-59

info@energysystem-yanmar.com
www.energysystem-yanmar.com