



A SIDE DISH OF ENEV AND EEWÄRMEG

CHALLENGE

RESTAURANT COOLING AND HEATING INCLUDING STEAK GRILL WITH JUST ONE GAS LINE

The latest project by apeiron GmbH is "The ASH – The American Steak House". Building owner and CEO Kent Hahne had to explore new territory to bring the brand's latest restaurant onto the market. This is because the electrical power supply on the construction site would have been overwhelmed if a conventional setup had been pursued, not least due to the high cooling and heating load caused by the open kitchen, the lava grill, multiple fireplaces in the dining space for more than 300 guests and the large window areas.

To render construction at the site at all possible and reduce the energy costs (which were expected to be high), an energy-efficient all-in-one concept had to be devised, with the requirements set out by EnEV and EEWärmeG becoming something of a secondary issue.



SOLUTION

HEATING AND COOLING WITH GAS ENGINE HEAT PUMPS

Two YANMAR gas engine heat pump hybrid chillers produce the necessary heating and cooling capacity, providing a supply of hot and cold water which is fed into two buffer tanks via a hydrobox each. A higher-level control system ensures that the hydroboxes are activated for cooling or heating operation (depending on load distribution) and the buffer temperatures are specified. The latter is independently recorded by the hydroboxes. The efficient variable speed water pumps within the hydroboxes are responsible for delivering water to the buffer tanks on the primary side. The control valves for heating and cooling are directly activated by the hydroboxes.

The integrated engine heat recovery unit also heats the utility water for the kitchen to up to 65°C. This recovered energy reduces operating costs and CO2 emissions, which are harmful to the environment. It also means that the provisions of EnEV and EEWärmeG are effectively exceeded.

OUTCOME

ENERGY EFFICIENCY FOR CONNOISSEURS

The combination of cheap natural gas and motor heat recovery units enables operating costs to be reduced by up to 50% in comparison to an electrically operated heat pump. Meanwhile, CO2 emissions are cut by up to 10%. As a result, the American Steak House operated by Kent Hahne saves up to EUR 7,500 per year and is environmentally friendly.

OVERVIEW

Project:	The Ash – Cologne
Products:	2x Yanmar Gas Heat Pump Units, model ENCP850J, with DHW heat recovery facility. 2x Yanmar Hydroboxes, model HB850 2x Engine Heat Recovery units
Refrigeration-capacity:	156 kW
Heating capacity:	132 kW (plus 60 kW engine heat recovery unit)
Contributor:	Theisen Gebäudetechnik GmbH
Air volumes:	12,000 m³/h
Construction area:	3,000 m²
EnEV:	✓
EEWärmeG:	✓
Savings:	approx. EUR 7,500 / year

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