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PHE for process and industry

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Central air conditioning according to individual needs

The ZCK (Zintegrowane Centrum Komunikacji) in Poznan, Poland, is the largest mall in the region. 250 shops and service points attract visitors from afar. A system of water source heat pumps in conjunction with thermowave plate heat exchangers is used for air conditioning.

Plate heat exchangers play main role in climate concept

It was one of the largest construction projects in Poland and, accordingly, one of the largest projects in the HVAC sector: the Integrated Communication Center ZCK in Poznan. The shopping centre covers a total area of 60,000 m² and has a direct connection to the train station and bus stations to serve the huge catchment area. Challenge here: 250 shops and service points need to be air-conditioned. The demands on the selection and the design of the refrigeration components were correspondingly great. In close consultation between thermowave and the plant engineering company Instal Lublin, an individual solution was found which is precisely tailored to this specific application.

Given the tremendous cooling and heating demand – 18.4 MW for cooling and 6.8 MW for hot water, a total of more than 25 MW – the building was divided into two independent water supply systems. Each plant has its own machine room on the roof of the complex. Right next to it, there are the cooling towers dissipating the excess heat.



▲ thermowave plate heat exchangers in operation...



▲ ...more than 25 MW must be provided

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Technical data

Business Line:	HVAC
Application:	District Cooling, District Heating
Country:	Polen / Poznan
Refrigerant:	Ethylenglykol (40%), Water
Product:	thermolineVario TL 1100 KBLL thermolineEco EL 650 EBIL

The entire system is centrally controlled, covering all system parameters. Heat pumps in every shop or office ensure that each of the rooms can be heated or cooled independently of the others. This allows for setting the parameters for the supply air according to individual needs. The single heat pumps are powered by the two central WLHPs (Water Loop Heat Pumps). thermowave plate heat exchangers of the thermolineVario and thermolineEco series provide the link between WSHP and piping system. Due to their enormous capacity, they can reliably provide the consumers with constant temperatures – even under extremely fluctuating conditions (inlet temperature of fluids, pressure fluctuations).

For the entire project, thermowave supplied 8 plate heat exchanger units with 121 to 251 plates for water/water and glycol/water applications respectively. The units were lifted onto the building's roof by crane and then were integrated into the machine rooms.

Throughout the project, the good co-operation between planners, the plant contractor Instal Lublin and the Polish thermowave representative proved valuable.

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