

New building: Huaneng Plaza, Peking

A project of huge dimensions: ELCO provides 40,000 liter warm water every day

The Huaneng Plaza is the company headquarters of the Chinese Huaneng Group. The corporate group is the largest electricity producer in China and employs some 1,500 staff, with numbers rising. The provision of warm water for a building of these dimensions presented a special challenge for any kind of heating system. ELCO had the right solution ready on hand – a state-of-the-art and highly efficient solar plant for water heating.

A total of 126 AURON 20 DF collectors are located on the roof of the building. The four water storage tanks, the water pump and the associated components are housed in the machine room on the 10th storey. Heat is constantly generated by means of electromagnetic induction, the daily capacity for water heating is 40,000 liter. The use of the sustainable product series from ELCO in the



Huaneng office building is not least proof of the company's commitment to energy-saving measures and environmental protection.

Customer

China Huaneng Group,
No. 23 of Jia, Fuixin Road,
Haidian district, Beijing,
100088, PR China

Planning

East China Architectural
Design & Research Institute
Co., Ltd., No. 246 Middle
JiangXi Road, Shanghai
200002, PR China

Installation

Liangji Tianhui Refrigeration Technology Co., Ltd.
Room 906, B zuo, 16th floor, Block 1 of Fang Chengyuan,
Fang Zhuang, Fengtai District
Beijing 100078, PR China

BENEFITS

Efficiency

- Maximum use of solar energy thanks to the ultra-modern row solution
- Integrated boiler always ensures the right temperature
- Intelligent series connection works highly energy-efficiently

Convenience

- Constant water temperature of 50°C all day
- Warm water is immediately available

- Heat preserving system adapts in line with the water demand
- Hygienic and safe: antibacterial equipment against legionella bacteria
- Multi-stage protective mechanism against overheating, freezing and pressure overload

Savings

- Generally: lower running costs, since heat storage tanks are used
- Total energy saving 530,000 kWh
- Reduction of CO₂ emissions by 55 % (149 tonnes)

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Solar energy used intelligently - reliable, clean and highly efficient

The new system

The solar plant used for water heating was designed as a closed circuit, which uses the solar energy directly to generate large quantities of hot water. With sufficient exposure to sunlight, the heat inside the collector is collected and, with the help of the water pump, pumped into the water storage unit on the 10th storey. In the absence of enough solar radiation, the mains-operated boiler is switched on.

The system uses a solution in stages to preserve the solar heat. Depending on the water consumption, it is designed for three different temperature levels, each with a water storage tank for stages 1, 2 and 3. This allows the heat generated inside the solar collector to heat up the water depending on demand until the required temperature is reached. The heat source, which serves as a storage system, is supplied overnight by an electromagnetically operated boiler. This saves running costs, uses less electricity and, in doing so, preserves the grid capacities.

Technical data AURON	15 DF	20 DF
Number of vacuum tubes	15	20
Effective absorber area	1.5 m ²	2.0 m ²
Gross collector area	2.6 m ²	3.5 m ²
Heat carrier volume (incl. tubes)	4.3 l	5.7 l
Dimensions (W x H)	1,380 x 1,910 mm	1,840 x 1,910 mm
Weight	51 kg	68 kg

AURON DF - the innovative vacuum tube collector from ELCO

The vacuum insulation of the highly efficient collector tubes ensures an energy yield that is significantly higher than that of conventional flat collectors. Thanks to the vacuum insulation, heat losses are largely avoided and the absorber coating protected. The highly effective selective coating of the aluminium absorber has excellent absorption properties. The reflection losses are less than 5 %.



Huaneng Building in Peking

The company headquarters of the Huaneng Group, including its numerous subsidiaries, is an eleven-storey building measuring 55 m high. Five of these storeys are underground. The overall office space is 128,580 m², the site itself measures 17,611 m². The foundation was laid in plot No. 8-2 in the old Peking district of Fuxing Men Xicheng. The site boundaries are the Dongtiejiang side street to the South, Funei Street to the North, Jiaoyu Street to the West and West Caoping Road to the East.

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