

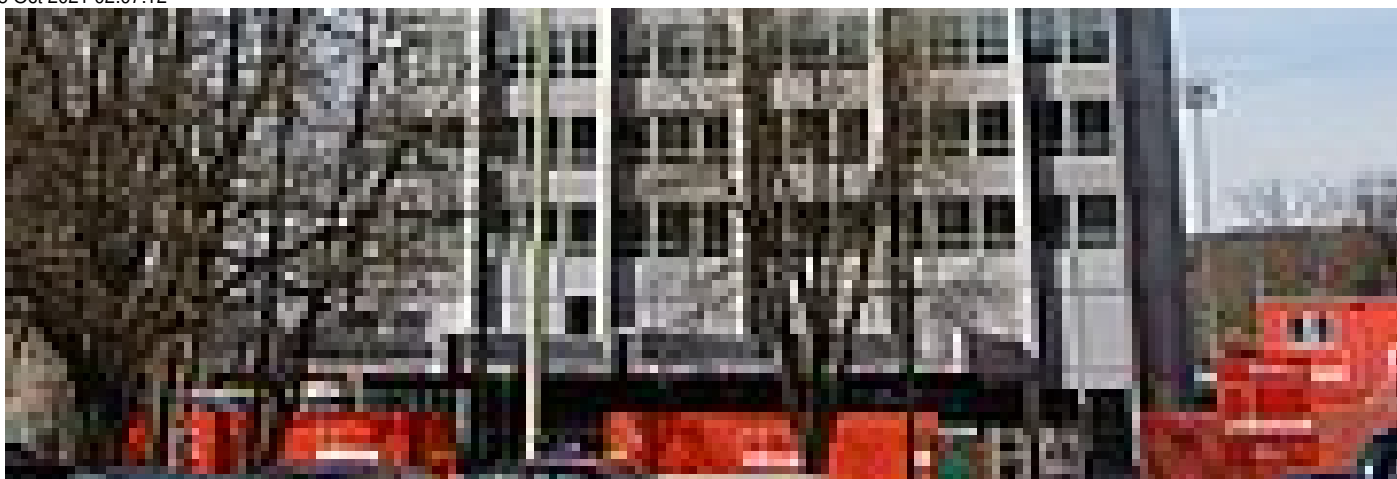
[Home](#) ■ [HUBER Report](#) ■ [First HUBER ThermWin plant for wastewater heat recovery in Switzerland](#)

## First HUBER ThermWin plant for wastewater heat recovery in Switzerland

[HUBER ThermWin® process](#)

*HUBER ThermWin® process*





*The Wintower in Winterthur*

The city of Winterthur situated in the Swiss Canton Zurich is certainly not known as much as Bern, Zurich or Geneva but it is Switzerland's sixth largest city with a very special landmark. The Wintower, erected 1966 by the Swiss company Sulzer AG, was nearly 40 years long the highest high-rise building in Switzerland. When the whole building was renovated recently, this included also the heating and cooling system. The [HUBER ThermWin system](#) was selected for wastewater heat utilisation.

The Wintower has about 22,000 m<sup>2</sup> office space distributed on 28 storeys. Due to the complete refurbishment of the building interior and its exterior facade the Swiss MINERGIE standards can be met. These standards demand an extremely low specific thermal heat consumption of approx. 30 W/m<sup>2</sup>. The low flow temperature of the heating circuit is ideal for the application of heat pumps. Ambient air or geothermal energy have previously been used as energy sources for this type of heating systems.

The HUBER ThermWin system uses a different energy source: The energy required for the climatisation of the Wintower is recovered from the wastewater available in the public sewer networks. The proximity to the main interceptor is another aspect that is advantageous for the use of heat recovered from wastewater.

The approach to solution of the HUBER ThermWin process lies in the above-ground exchange of heat. The [HUBER Heat Exchanger RoWin](#) is installed in the basement of the almost 100 metres high building and is fed by a submersible pump in a shaft directly beside the sewer. This shaft is connected with the sewer and serves as intermediate storage for the wastewater pump. Also the vertically installed [HUBER Pumping Stations Screen ROTAMAT® RoK4](#) is installed there. Within the heat exchanger, an exchange takes place between the energy of the screened wastewater and intermediate circuit medium of the heat pump. This system arrangement allows for easy access to all plant components and ensures easy and low-cost maintenance.

With a dry weather flow of approx. 160 l/s, about 50 l/s are taken out of the sewer and pre-treated prior to being fed to the heat exchanger plant. Approximately 440 kW are withdrawn from the municipal wastewater through cooling by approx. 2.1 kelvin. A heat pump uses this energy source to generate about 590 kW heat with a electrical power input of approx. 150 kw. The resulting COP (coefficient of performance) of the heat pump is approx. 4.0. This means that about 75% of Winterthur's energy demand is delivered through its wastewater.

The system of HUBER RoWin wastewater heat exchanger and heat pump is not only able to supply cheap and eco-friendly thermal energy during the heating period but can also generate cold during summer owing to the HUBER ThermWin system. About 600 kW cold are necessary to cool the Wintower in summer. Through simple switching the heat pump becomes a cooling engine and the heat withdrawn from the building can be given off to the wastewater. The energy required for this process makes up only a fractional amount of the effective output. The HUBER ThermWin system therefore provides an all the year round saving potential in terms of operating costs and harmful emissions, such as carbon dioxide.

Maximum heating and cooling of the wastewater has been limited by the responsible project managers to 0.16 K during winter and 0.26 K in summer. As these limits are met, any impact on the function of the sewage treatment plant can be excluded.

Due to the owner's sustainable thinking the Wintower shines in its old splendour after extensive renovation. The HUBER ThermWin system is contributing its share.

### **A member of the HUBER Group**

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