

Güntner drycoolers in huge heating and power system



Line of Business:	EPC
Application:	Energy and Process Cooling
Country / City:	Germany / Hamburg
Fluid:	Glycol
Product:	Drycooler (W-shape) GFW

Vattenfall is operating two coal-fired power station blocks to generate power and long-distance heating at Tiefstack, Hamburg. A new gas and steam turbine system has been added to the portfolio.

A high efficiency level for maximum utilisation of the primary energy source and environmentally friendly operation are no longer contradictory. Vattenfall Europe AG has shown how these requirements can be combined on the example of the heating and power system at Tiefstack, Hamburg.

The Tiefstack heating and power station is operated by Vattenfall Europe AG, Europe's fourth largest power producer and Europe's largest heat producer. The operator is actively promoting environmentally friendly, resource-protecting power generation, and makes use of the extreme efficiency of power/heat coupling at the Tiefstack heating and power system. A state-of-the-art gas and steam turbine power sta-

tion, which has been equipped by Standardkessel GmbH, among others, generates power in two stages and long-distance heat in a third stage. Two gas turbines, each of which drives a generator, are operated using the primary energy source of gas. The power station uses the turbine's exhaust heat to generate steam, which drives a second generator to produce electricity. The exhaust heat from the steam turbine is then used to generate electricity and long-distance heating water.

Efficiency level of more than 90 %

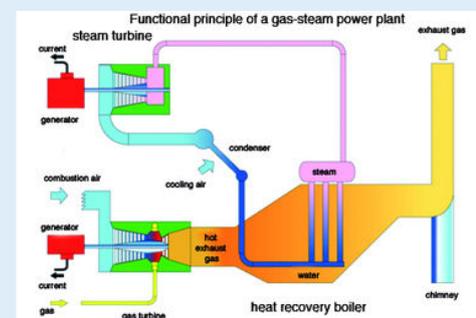
The advantage: modern power stations like this one achieve maximum yield from the primary energy that is used. Efficiency levels of more than 90 % can be achieved, whereas a power station without power/heat coupling usually achieves an efficiency level of about 40 %. Compared to separate generation of electricity and heat, power/heat coupling achieves fuel savings of up to 30 % and therefore makes an important contribution to providing additional supply reliability, resource protection and combating climate change.



Güntner drycoolers and control systems

In spite of the high efficiency level of this system, it still needs additional cooling. Six Güntner S-GFW 080.1/8_N(D) drycoolers and a GSS large switch cabinet with the latest control technology from Güntner Controls are used to cool all of the drives and system components. The drycoolers are axial drycoolers with a V-shaped design, which represent a combination of an extremely space-saving design and a high rated output. The compact drycoolers often provide about 50 % more output in relation to the area, and can be arranged adjacent to each other in a space-saving way because of their special design. Güntner adapt-

ed the performance profile of the GFW drycoolers to the special conditions of the Tiefstack heating and power station and combined the system with state-of-the-art control technology that has been developed by Güntner Controls. In order to ensure that the drycooler system operates reliably at all times, Güntner Controls also integrated an Ethernet communication interface, which makes round-the-clock monitoring possible.



Function diagram of a gas-steam power station (two-shaft system)