

Silberhorn Group Lupburg.

# Energy saving solution.

For industrial applications.

## Energy-saving concept for cooling, heating, waste heat recovery and hot water generation.

In 2016, the innovative, medium-sized Silberhorn Group started the construction of its third company location for the Sheet Metal Technology division on a greenfield site. Near Regensburg, work started on 5,500 m<sup>2</sup> of production and 250 m<sup>2</sup> of office space in September 2017. Since November 2017, the energy-saving solution from Riedel Kooling has also been in operation there. This ensures precise cooling capacity for the production processes, maximum redundancy in the cooling system and also supplies the entire heating requirements of the buildings via the waste heat generated. And that highly efficient. The total solution for cooling, heating and hot water preparation, tailored to the customer's specific requirements, pays off in many ways.

### Sustainable, redundand energy-efficient.

#### Space-saving building services and hydraulics.

The entire energy saving system was planned and executed very compactly. Heating during production is provided by the specially developed hydraulic station.

#### Highly efficient cooling and heating performance.

Through the targeted use of waste heat, 430 kW of heat and 362 kW of cooling are generated with less than 66 kW of electrical power. Precise cooling for laser applications ensures high product quality, while heating in winter and cooling in summer ensure pleasant working temperatures and a balanced production climate in the halls and offices.

#### 100 % waste heat recovery and redundancy.

All the waste heat is re-integrated into the energy process, ensuring high efficiency and savings in electricity and CO<sub>2</sub>.

#### Significant reduction in noise.

This was achieved with the centralization of the chillers in the laser hall.

Reduction of operating costs as well as maintenance and servicing costs.



Amortisation

< 1,4  
Jahre

High Return  
On Invest.

Savings.

364 t  
CO<sub>2</sub>  
per year.

Up to

360.000  
kWh

less  
Power consumption.

# Future-proof. Efficient and economical.

## Energy saving system for metal processing industry.

Riedel Kooling develops the energy saving solutions holistically and individually according to the customer's requirements. From the analysis of the overall operational processes in manufacturing areas, to the design and planning of the energy-saving system, to the coordination of installation. Each plant is commissioned by its own experienced experts.

### The management of Silberhorn confirms:

Riedel Kooling's energy-saving concept maximizes the efficient use of cooling and heating in our plant. Experienced experts offer innovative system solutions from a single source, from concept development and coordination of planners and plant mechanics to commissioning - all tailored to our individual requirements.



Diane Silberhorn.



The energy-saving system was designed on the basis of a thorough analysis of the existing systems with the aim of achieving the highest possible efficiencies and reductions in electricity and CO<sub>2</sub> emissions. During the planning phase of the construction of the new production hall, the buildings, production and processes were to be cooled by adsorption cooling and conventional cooling systems were to be used.

With refrigeration experts from Riedel Kooling, this concept could be redesigned into an even more efficient system.

In addition to precise and efficient process cooling, production halls and offices are also heated through the targeted use of waste heat. With the well-thought-out hydraulic planning, even additional applications could be implemented in an energy-saving manner, such as cooling of the server room and production via concrete core activation.

Up to  
**30 %**

Promotion  
on the  
investment  
costs.

### Planning of the overall energy concept.

Constant, precise cold supply whenever it is needed.  
In summer and winter operation.

### Concept development and coordination of all trades.

### Advice and support.

During the implementation and installation of the plant.

### Commissioning by Riedel Kooling factory customer service.

### Cooling of the processes and laser cooling systems:

Preconnection of a system interface to reduce the high level of hydraulic complexity.

### Heating of the halls and offices:

**Heating capacity** with targeted waste heat utilization. **ca. 430 kW**

**1x Duo hydraulic station** consisting of  
**2x heat pumps** W180TU incl. pump package.

**Central - cooling system/hydraulic station.** **ca. 300 kW**

At 18 °C process water temperature including  
one heating generation.

The **waste heat – heat sink** of the heat pump  
is released to the environment via the recooling  
when the heating circuit is saturated.

The project was supported by **BAFA**.



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