# Chiller Plant in a Container by ENGIE Refrigeration.

## Smooth production processes courtesy of an energy-efficient and reliable cooling-system.

Alongside mounting and welding work, Paul Bippus GmbH also produces precision turned parts for breaking and steering systems, emission control systems and diesel fuel injection systems from materials which are difficult to cut. Due to ever-increasing demand for precision turned parts, this supplier to the automobile industry decided to build a new production site in Oberndorf in 2004. In this case, the technology for cooling the production processes proved to be a particular challenge for Bippus. With automatic lathes which produce precision turned parts, the chiller plant is usually assigned to individual machines. Such a procedure does not just mean higher levels of investment, but also higher energy costs compared to a more centralised system. In addition, the waste heat in this case is directly transferred to the production site and not transported away.

### Energy efficiency courtesy of centralised refrigeration

The company was therefore looking for an energy-efficient solution for its new production site where the cooling process could be centralised at a specific location outside of the production facility. The prospective partner to offer such cooling technology in this case would not only have to supply a suitable chiller, but also develop an integrated and energy-efficient cooling concept that is customised to the particular requirements of this manufacturer of precision turned parts. Due to the rapid progress being made with the construction of the new facility, the solution had to be implemented as soon as possible. ENGIE Refrigeration was able to impress by creating a complete refrigeration concept that was custom-made and with the aim of providing an energy-efficient operation. It included a refrigeration container with cooling towers supplying a free-cooling system, a QUANTUM chiller and refrigeration modules as the central refrigeration generator. The QUANTUM oil-free and therefore environmentally friendly operation was not the only important criteria for making the choice - the potential to cool very efficiently with the free-cooling system was also important.

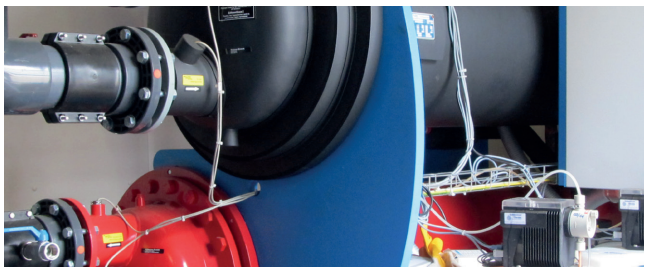
### Flexible and ready to use

The installation of the refrigeration container did not require any complex or time-consuming preparatory processes. As complicated and lengthy processes for gaining a building permit and static testing are generally not required on container systems, the administrative expense is also kept to a minimum. Courtesy of its space-saving construction, the container required very little space to be set up and could be flexibly installed in line with the requirements of the location and connected to the refrigeration system within a short space of time. ENGIE Refrigeration took on laying the pipes to the machines itself. Concrete slabs were used for the installation surface. The refrigeration specialist provided the container system, including the pipe installations for the hall, to the customer with an output of 950 kW ready for use. The system already contained all of the components necessary for trouble-free refrigeration. ENGIE Refrigeration provided Bippus with an integrated multi-chamber system to make the refrigeration system's operation particularly energy-efficient. The cooling tower ensures a high level of cooling so that the QUANTUM chiller only has to be switched on

when it is absolutely necessary. In order to prevent users becoming contaminated, an automatic full-flow filter has been integrated into the container. A further advantage of the container unit is that Bippus is able to relocate the container with a great deal of flexibility if the need arises due to a change in their requirements, such as reconstruction work for example. The container itself serves as the transport packaging in this case, which protects against damage caused by transportation and also offers the integrated system effective protection against environmental influences or a hostile environment.

## Procedural reliability due to redundancy

Bippus benefits from an exceptionally high level of energy efficiency due to the centralised refrigeration in the container and the integrated multi-chamber system. As the container unit for the supplier of precision turned parts has proved its value over the last few years with its countless benefits, Bippus has again decided to use ENGIE Refrigeration's cooling technology on their new expansion project for their production facility. Bippus commissioned the refrigeration specialist to deliver a second refrigeration container unit, this time with an 810 kW output. The cooling system's redundancy was of particular importance to Bippus. In case of one of the containers failing, the second container would take over the cooling and prevent a complete production breakdown.



## Your benefits at a glance

### COMPLETE

Everything comes from one source and is assembled ready to use. This gives you complete control over the cost and confidence in your cost estimation.

### COMPACT

Cool modules in our containers require little space and form a closed system outside the building: the unit, therefore, does not take up any production space and a building permit is not usually required.

### PRACTICAL

Containers do not just save space, but they are practical too: at the same time the container serves as the substructure for a re-cooling system. No additional installation is required.

### SIMPLE

Delivery takes place with wires and piping already installed. After connecting to an electrical power supply and connecting the coolant supply and return pipes, your cool module is ready to operate. Saving time and installation costs.

### MOBILE

The system is not stationary and the container forms the perfect "transport packaging" - it can quickly be transferred for use at another location.

### SAFE

Cool modules feature inner and outer safetythanks to integrates safety devices such as gas warning system and escape routes. The container also protects against environmental influences and hostile or „frosty" environments.

## Container | Dimensions and weight

| CONTAINER DESCRIPTION | 12 | MTR. |
|---|---|---|
| Length (exterior) | 12.192 | mm |
| Width (exterior) | 3.500 | mm |
| Height (exterior) | 2.920 | mm |
| Operating weight | 45.000 | kg |

All measurements are approximate values.

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