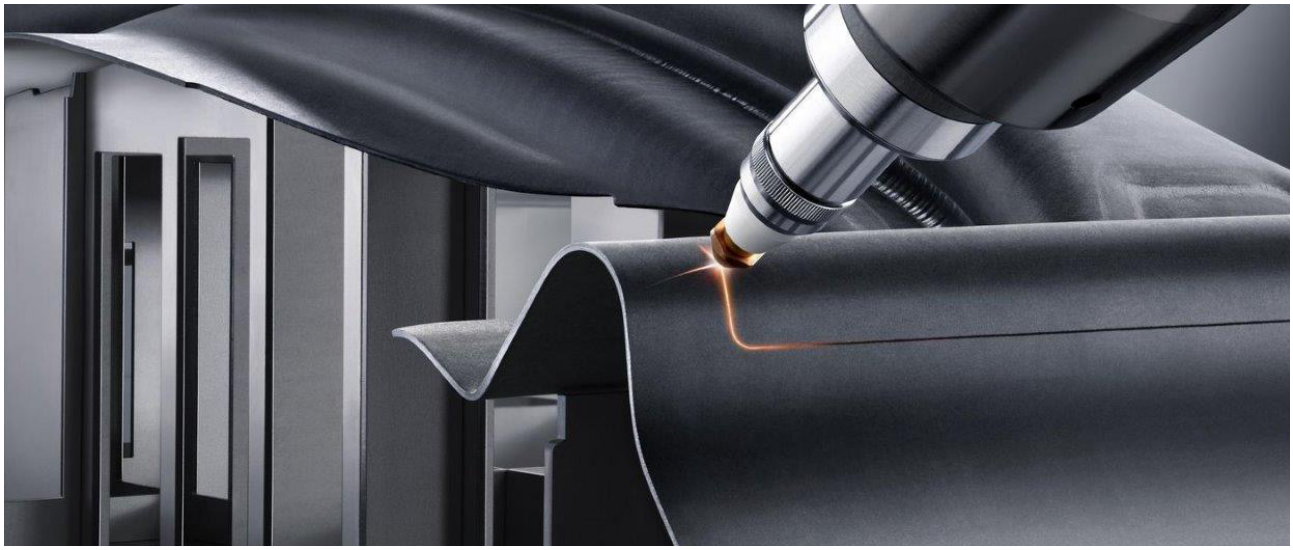
Automotive industry

Composite cooling of laser cutting machines

Installation of three interconnected eChiller35 at GEDIA Automotive Group for cooling laser cutting machines for sheet metal processing of car body parts.



Project and implementation

The task was to replace the originally required cooler for each laser with a compound solution. The cooling solution was to have a free-cooling option, as the waste heat was previously fed into the production hall. In addition, the temperature accuracy (previously switching hysteresis +/- 2.5 K) was to be increased and the operational reliability improved for fail-safe operation.

An extra evaporator installed directly next to the container with a heat exchanger for pre-cooling via droplet temperatures produces about 9 kW as additional „cash-in“ due to the extra cooling.

Customer:

GEDIA Automotive Group Attendorn / Germany

Requirements:

- Maximum energy efficiency
- Fail-safe due to redundancy
- Low temperature fluctuations/control accuracy
- Low service and maintenance effort

Outcome

Due to smart control, a temperature accuracy of 1 K is secured, which has an impact on the quality of the cutting processes by the laser machines and thus on the resulting products. GEDIA was able to reduce its ecological footprint and save refrigerant costs. It is planned to extend the cluster solution to other production sites.

‘The cluster solution is a charming solution for the cooling needs of our laser cutting machines: future-oriented, space-saving and maximally energy-efficient. The very good control accuracy contributes to the great quality of the manufactured parts.‘ **Stephan Gante, Group Director Machine and building management**

90 kW
Cooling capacity (kW)

20 °C
Target temperature

R718 (water)
Refrigerant

24 °C
Cooling water inlet

120 kW
Recooling