

SIGNIFICANTLY REDUCED CUTTING TIMES

CHEMET with
ambitious goals



Integrated production steps and optimised processes with the highest cutting quality

Continuous innovation is the order of the day at the CHEMET Group - Europe's largest manufacturer of pressure vessels, cylinders, road tankers and rail tank cars for various types of liquefied gases. A major and ambitious project to build tank wagons has now led to the renewal and expansion of the machinery at the site in Poland. Supported by the European Union (EU) with funding, CHEMET is obliged to carry out a deep technical analysis of the production process needs and new machinery.

High demands on the laser machine

Therefore the demands on the new laser machine and its manufacturer were correspondingly high. The new cutting machine not only had to be state-of-the-art. The list of requirements included numerous features such as:

- + Fiber laser with at least 6000 watts of power,
- + Dynamic, automatic adjustment of laser power according to cutting speed
- + Infinitely continuous rotation of the rotating bevel head type "I", "V"; "Y", "X" and "K",
- + Continuous adjustment of the bevel angle from $\pm 50^\circ$,
- + Adaptive optics
- + Maximum head lift of 300 mm,
- + Magnetic head holder with collision protection,

Exceptional quality of the cutting results

Specifically, burr-free cuts should be possible on steel sheets up to 3 x 10 m and up to 20 mm thick with bevels up to 15 mm. 90% of the bevel parts should have a maximum angle of $\pm 50^\circ$ and a tolerance of less than 0.5 mm on the V, Y, X and K seams.

SOLUTION AND IMPLEMENTATION

Because the quality of the manufactured parts is very high

“We chose the PowerBlade from Messer Cutting Systems because the quality of the produced parts is remarkably high. Our choice was underpinned by the good experience we have had with the Messer machines in our company,” says Dawid Krawczyk, CHEMET’s technologist responsible for the implementation of Messer Cutting Systems solutions.

In March 2022, the laser cutting system was installed at CHEMET in the newly built production hall. The bevel unit works with a 6kW IPG laser and, like the OmniMat, uses the OmniScript marking system.

The OmniBevel software solution is used for bevel cutting and as a post-processor for third-party software. The OmniFab Machine Insight module is designed to provide key information about the cutting in real time during operation.



Caption: The PowerBlade laser machine with housing in the new production hall in Tarnowskie Góry
© CHEMET Spółka Akcyjna

RESULTS

Integrate production steps and optimize processes



Caption: The PowerBlade laser machine with 6kW bevel cutting head and OmniScript pin marker.
© CHEMET Spółka Akcyjna

Improved cutting and processing times

The results are truly impressive: CHEMET not only cuts 95% of all workpieces with the PowerBlade laser machine without additional chamfering. Cutting times have been significantly reduced compared to the plasma cutting process for the same assemblies. The employees are satisfied. The range of structural and stainless grades of steel with different surface qualities has been expanded.

Prozesse optimiert

CHEMET has succeeded in integrating several production steps with the PowerBlade and thus optimizing processes. Whereas before the implementation there were the steps of “cutting”, “machining” and “grinding”, quality is now achieved in a single step. The machine cuts around the clock, six to seven days a week. “We now automatically cut a wide variety of structural and stainless grades of steel, even with different surface finishes, without the need for manual intervention,” explains Dawid Krawczyk.

Zufriedene Mitarbeiter

“The safety of our employees at work is very important to us. The PowerBlade also has first-class safety features.,” explains Paweł Pachniak, Maintenance Manager at CHEMET. “Our operators and technicians are pleased with the improved working conditions in terms of pollution and noise, and they enjoy working with the new machine and its innovative control system,” adds Mirosław Soremba, Product Manager.

Faster, better, more independent

“The new laser machine has brought us a number of improvements,” says Maciej Petrolewicz, Production Department Manager. “We have significantly reduced cutting times compared to plasma cutting process for the same assemblies and eliminated time-consuming beveling operations. The additional chamfering process is no longer necessary for 95% of the cut workpieces. We now also cut bevels for high alloy steels (CrNi). This has significantly expanded our capabilities and made us independent of subcontractors who supply us with steel parts.”

OUTLOOK

CHEMET makes the Messer Experience

“The purchase of the Messer laser machine is part of a larger project at CHEMET. The laser has enabled us to implement our high-quality and detailed requirements. In addition to meeting the technical requirements, we were impressed by the quality of the technical advice, the exceptionally good test results for the sample cuts and the experienced team on site with efficient service,” explains CHEMET’s Technical Director, Katarzyna Głowik-Popiół.



Caption: Maciej Petrolewicz, Paweł Pachniak, Dawid Krawczyk and Mirosław Soremba (from left) inspect the cutting results of the PowerBlade

© CHEMET Spółka Akcyjna

“We would choose Messer again at any time. Based on in-depth market analysis and our experience, Messer is a leader in the production of lasers with a bevel function.”

Despite the current challenges, Katarzyna Głowik-Popiół is already thinking about the future: “We hope to offer cutting services in our region soon. To achieve this, we will probably invest in a second laser cutting machine from Messer Cutting Systems.”