



SIGNIFICANTLY REDUCED CUTTING TIMES CHEMET with ambitious goals

Tarnowskie Góry (Poland), January 17, 2024

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. In addition to a modern production hall, this also includes a PowerBlade from Messer Cutting Systems.

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.

Old acquaintance

They have known each other for a long time. Back in 2007, CHEMET invested in a MultiTherm, an oxyfuel cutting machine with three ALFA torches from Messer Cutting Systems. "Satisfied with the machine, but quickly in need of more power, CHEMET received an OmniMat with Plasma HPR 260 XD including a PKS bevel unit for vertical contour and bevel cuts and the OmniScript pin marking system in 2011," recalls Artur Szygula, Technical Advisor at Messer Cutting Systems Polska and responsible for the customer.

There is also a good relationship with Messer Gases Polska. CHEMET gets the necessary technical gases from Messer and in return manufactures large gas tanks and pressure vessels for Messer. Ten years later, after the purchase of the OmniMat, CHEMET's increasing demand for performance led to the investment in the PowerBlade fiber laser cutting system for large area processing.

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However, despite the good experience and personal support of Messer Cutting Systems Polska at CHEMET, the machine supplier was not automatically selected for the delivery of the new equipment. The current rail tank car project is supported by the European Union (EU) with substantial funding, and this obliged CHEMET to carry out a deep technical analysis of the production process needs and perform a wide market research in terms of the solutions available on the market in 2021.

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 (for fine contours and small details),
- 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, e.g., change of focal length during piercing,
- Maximum head lift of 300 mm,
- Magnetic head holder with collision protection,
- Ability to integrate into existing nesting software.

Tests passed

Extensive testing preceded the final decision. The CHEMET team wanted to see for themselves that the PowerBlade's bevel unit could achieve an angle of 50 degrees, so a team went to Messer Cutting Systems located in Groß-Umstadt, Germany.

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.

Together with the laser specialists Oliver Trunk and Marek Lipiński, the high requirements were implemented with sample cuts. CHEMET then made the final decision:

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“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.

Processes optimized

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.

Especially the change-over table has led to further savings and optimizations. The sheet metal is now changed, and the finished cut parts are unloaded while the machine is running. This saves a lot of time.

Vibration trays are installed under the table system. Slag, cutting waste and small parts are conveyed out of the machine housing and unloading area. Everything falls into easily accessible collection bins. Fishing for small parts in the cutting table is outdated. Time-consuming production stops to empty and clean slag tanks are eliminated.

Satisfied employees

“The safety of our employees at work is very important to us. The PowerBlade also has first-class safety features. All openings in the laser protection enclosure are monitored for safety. The laser is locked while the cutting pallet is being changed. When the table change is complete, safety is restored by closing the pallet gate. The machine automatically starts the next processing operation,” explains Pawel Pachniak, Maintenance Manager at CHEMET.



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“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.”

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. “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.”

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Image 1: The PowerBlade laser machine with housing in the new production hall in Tarnowskie Góry © CHEMET Spółka Akcyjna



Image 2: The PowerBlade laser machine with 6kW bevel cutting head and OmniScript pin marker. © CHEMET Spółka Akcyjna

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Image 3: Maciej Petrolewicz, Paweł Pachniak, Dawid Krawczyk and Mirosław Soremba (from left) inspect the cutting results of the PowerBlade © CHEMET Spółka Akcyjna



Image 4: Dawid Krawczyk, technologist at CHEMET and responsible for the implementation of Messer Cutting Systems solutions © CHEMET Spółka Akcyjna

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Image 5: Paweł Pachniak, Maintenance Manager © CHEMET Spółka Akcyjna



Image 6: Mirosław Soremba, Production Manager © CHEMET Spółka Akcyjna



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Image 7: Maciej Petrolewicz, Head of Production Department © CHEMET Spółka Akcyjna

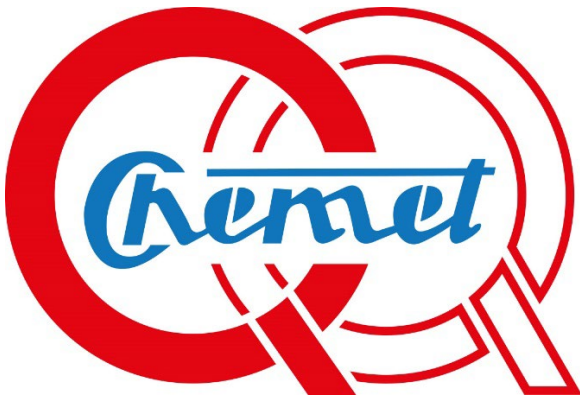


Image 8: Logo © CHEMET Spółka Akcyjna

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WHAT WE STAND FOR

CREATING SOLUTIONS BEYOND MACHINES

Messer Cutting Systems is a global supplier of cutting-edge technology for the metalworking industry. With over 900 employees worldwide in over 50 countries, we maintain a constant dialogue with our customers to achieve sustainable user-oriented innovation.

Our portfolio embraces the themes PRODUCT, DIGITAL, SERVICES, AUTOMATION and KNOW-HOW. We will live up to our claim "Creating Solutions Beyond Machines" not just with the most modern cutting systems and solutions for oxyfuel technology.

Appropriate services and training, our own software applications as well as the integration of solutions from our technology partners, e. g. in the field of automation, complete the machine to give forward looking total solutions.

Our Know-how combined with our customer-oriented attitude and actions make us the world-wide partner of choice for innovative total solutions on all aspects of cutting systems for 125 years.

TOGETHER. BETTER. QUALITY MATTERS. For your success!

CHEMET is one of the leading European manufacturers of stationary and transportable pressure vessels for liquefied gases such as LPG, LNG, LIN, LOX, LAR, chlorine, ammonia, and refrigerants. CHEMET offers turnkey solutions for LPG as well as cryogenic regasification stations for LNG and atmospheric gases.

CHEMET S.A., founded in 1945, has been in the pressure equipment industry for nearly 80 years, designing, manufacturing and selling high quality pressure vessels worldwide (Europe, Middle East, East Asia, Africa and USA).



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Since 2020, CHEMET S.A. in Poland and CHEMET GLI SAS in France, form the largest manufacturer of pressure equipment for liquid gases in the European Union.

The company employs nearly 1,200 people at four production sites in Poland and France. With sales of 140 million euros planned for 2023, the company relies on its strong service network and numerous international distributors.