Elmo Rietschle

ENHANCING PRECISION & SUSTAINABILITY

for CNC Machine manufacturer
with Elmo Rietschle's Vacuum Solution

VACUUM

CUSTOMER
Wissner Maschinenbau GmbH

LOCATION
Germany

SOLUTION
C-VLU 301 Claw Vacuum Pump

Computer Numerical Control (CNC) - Milling is a sophisticated manufacturing process where pre-programmed computer software dictates the movement of factory tools and machinery, thus enabling the automated, accurate, consistent, and efficient creation of complex parts. Extensively used across a myriad of industries including aerospace, automotive, and electronics, CNC machining is critical for producing intricate, high-precision components essential for the functionality and advancement of modern technology.

In the highly specialized domain of CNC machine manufacturing, where precision is the absolute pillar of success, the role of vacuum pumps becomes paramount. These pumps are the driving force behind vacuum clamping systems, which are indispensable for securely holding workpieces in place during high-speed milling processes. Vacuum clamping allows for rapid set-up and flexibility, catering to various material shapes and sizes. It helps to achieve the tight tolerances and precise detail that CNC machining demands.

Building upon this foundation of innovative manufacturing, Wissner Maschinenbau GmbH emerges as a distinguished player within the CNC industry. Based in Göttingen, Germany, the company has carved out a niche for itself by engineering and producing state-of-the-art CNC and laser-cutting machines. Their expertise has made them a preferred manufacturer for a diverse range of sectors, including machine building and aviation, showcasing a relentless pursuit of advanced manufacturing techniques and a commitment to client needs.

WISSNER
CNC TECHNOLOGIES

Ingersoll Rand

Despite their strong market position and reputation for high-quality products, Wissner has embraced the opportunity to further enhance the performance and eco-friendliness of the CNC machines they produce. Each machine, meticulously assembled and tested at Wissner's own manufacturing plant, will now benefit from the integration of advanced vacuum pump technology, which aligns with the company's commitment to continuous improvement and environmental responsibility.

The Challenge

Recognizing the opportunity to upgrade their equipment, Wissner proactively sought a solution that would address and improve several key aspects of their operation. The primary focus was to enhance the work environment by reducing the noise associated with the existing oil-lubricated pumps, thereby supporting employee comfort and well-being. Additionally, the company aimed to eliminate the risk of oil contamination in their precision-crafted components, reinforcing their dedication to environmental sustainability. Wissner's requirements for a new vacuum pump solution were multifaceted. First and foremost, they sought technology that could operate at significantly reduced noise levels to foster a more conducive and safer workplace. In addition, the manufacturer aimed to eliminate the oil-related complications of their existing setup, which included the handling and disposal of oil waste and the need for oil mist extraction systems. The ideal solution would also offer enhanced energy efficiency to reduce operational costs.

The search for the new pumps led Wissner to Elmo Rietschle, a leading global provider of vacuum solutions for diverse industrial applications. The brand stood out in the marketplace for their innovative approach to vacuum systems and their expertise in applications requiring oil-free operations. This expertise, coupled with a strong industry reputation and a proven track record of reliability and performance, aligned perfectly with Wissner's needs, making Elmo Rietschle a prime candidate for the manufacturer's meticulous selection process.
The selection process involved detailed consultations with Elmo Rietschle experts, who demonstrated a deep understanding of Wissner's challenges and expectations. One of the deciding factors was Elmo Rietschle's willingness to customize their equipment to the customer's specific needs. The ability to adjust the suction volume, for instance, was particularly appealing as it enabled optimal vacuum clamping for a variety of part sizes and shapes, which could enhance the precision of the machining process.

The Solution

Having thoroughly assessed Wissner's specific application requirements, Elmo Rietschle experts were confident that the VLU 301 Frequency Converter integrated version claw vacuum pump, which operates at an absolute pressure of 30 mbar and offers a suction capacity of 320 m^3/h, would provide the manufacturer with the optimal solution. This cutting-edge pump was selected for its remarkable features that directly addressed the company's concerns about noise, oil contamination and energy efficiency, and which included:

Low Noise Levels
Engineered for quiet operation, the C-VLU 301 significantly reduces noise pollution, creating a more pleasant work atmosphere for employees.

Oil-Free Operation
The C-VLU's oil-free design eliminates oil mist and excess, aligning with users' sustainability goals and ensuring a cleaner work environment.

Adjustable Suction Volume
Flexibility is provided by the ability to adjust suction volume, allowing users to fine-tune the vacuum to their specific process requirements.

Ease of Maintenance
Based on 4,000 operational hours per year, the C-VLU series ensures up to 96% lower annual service costs compared to traditional pump systems.

Energy Efficiency
With up to 49% less energy consumption compared to an equivalent liquid ring solution, the C-VLU leads to substantial operational savings.

Long-Term Savings:
The C-VLU is designed to provide up to a 25% reduction in total cost of ownership compared to the traditional oil-lubricated rotary vane pump.

Wissner's in-factory testing of the C-VLU 301 confirmed the superior performance of the pump. The successful test, combined with Elmo Rietschle's technological edge, the long-standing trust built between the brand and the manufacturer and the competitive pricing of the solution, cemented the customer's decision.

The Result

The integration of the Elmo Rietschle C-VLU 301 vacuum pumps into Wissner's CNC machines has brought about a host of improvements to their operations. The transition to these advanced pumps has resulted in a significant reduction in noise levels within the production area and the elimination of oil-related issues, ensuring a cleaner production process. Additionally, the pumps have delivered tangible efficiencies, with these advantages not only benefiting the manufacturer but also extending to the end users of their products.

Markus Oels from Wissner, reflecting on the substantial improvements, provided a compelling testimonial that encapsulates the positive impact of the Elmo Rietschle solution. He said:

> **THE IMPLEMENTATION OF THE ELMO RIETSCHLE VLU 301 VACUUM PUMP HAS BEEN TRANSFORMATIVE FOR OUR OPERATIONS.**
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> **The noise level reduction has been substantial, which is invaluable in our work environment. This system is particularly well-suited to our processes that involve a significant amount of air leakage, such as contour milling. Furthermore, the exhaust air is now substantially less oily compared to what we experienced with oil-sealed rotary vane pumps. Additionally, the integration of a frequency converter allows us to precisely regulate the pump's power to match our momentary needs, enhancing efficiency and performance.**

The successful implementation of the Elmo Rietschle vacuum pump solution marks a milestone in Wissner's commitment to technological advancement and sustainable practices. By choosing Elmo Rietschle, the company has not only addressed their immediate operational concerns but has also reinforced their position as a leader in providing high-precision CNC machines. The partnership demonstrates how investment in innovative technology can yield significant benefits for both the manufacturer and their clientele.