



Materials, Manufacturing

High-Performance Pump for Previously Unachievable Performance Requirements in the Chemical Industry

A company in the chemical industry faced the challenge of safely and reliably conveying aggressive substances under extreme pressure. Existing pumping systems neither provided the required pressure resistance nor the necessary material durability and delivery performance. The goal was a solution capable of withstanding these special requirements reliably, even under the most demanding operating conditions.

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Challenge

When systems operate under high pressure with aggressive media, precisely manufactured components made from highly resistant materials are required to function reliably under extreme conditions:

- Ensure operational stability under extreme pressure.
- Use highly resistant materials to withstand abrasive and chemically aggressive substances.
- Maintain precise tolerances for optimal functionality.
- Integrate complex welding and surface treatment processes.

Solution

METZEN Industrie Service implemented a bespoke high-performance pump using the latest manufacturing and surface technologies. The solution included:

- **Analysis and Concept Development:** Detailed requirements analysis forming the basis for a customised solution.
- **Component Design and Construction:** Development of robust components with precise fit.
- **Innovative Manufacturing Technologies:** Application of advanced welding and surface techniques to ensure the highest quality.
- **Quality Throughout the Process:** Continuous testing to maintain technical standards.
- **Comprehensive Implementation:** Project support from planning through to commissioning.

Result

High load, extreme operating conditions, and individual requirements – this project demonstrates how reliable pumping technology excels even under the most demanding conditions. By using high-quality materials, intelligent control systems, and a bespoke implementation, a solution was achieved that successfully combines efficiency, durability, and customer satisfaction:

- **Reliable Operation Under Extreme Load:** High pressure resistance and material durability ensure maximum operational safety.
- **Efficient Flow Control:** Optimised control enables demand-oriented and stable processes.
- **Longevity Through Material Selection:** Robust materials guarantee long-term performance.
- **Custom Implementation and Support:** Tailored solution with customer-focused project and service approach.

Project Conclusion

The bespoke high-performance pump from METZEN Industrie Service represents a forward-looking solution for the chemical industry. It exceeds all previous performance limits and proves itself as a reliable system for the most demanding applications.

Highlights

- **Increased Pressure Resistance:** Development of a pump that operates safely and reliably even under extreme pressure conditions.
- **Durability:** High resistance to abrasive materials and chemically aggressive substances.
- **Optimised Delivery Performance:** Improved control of flow rates and precise tolerance adherence for optimal function.
- **High-Quality Manufacturing:** Use of complex welded constructions and precise surface treatment to meet the highest performance standards.
- **Custom Solution:** Tailored development based on the specific requirements of the customer.

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