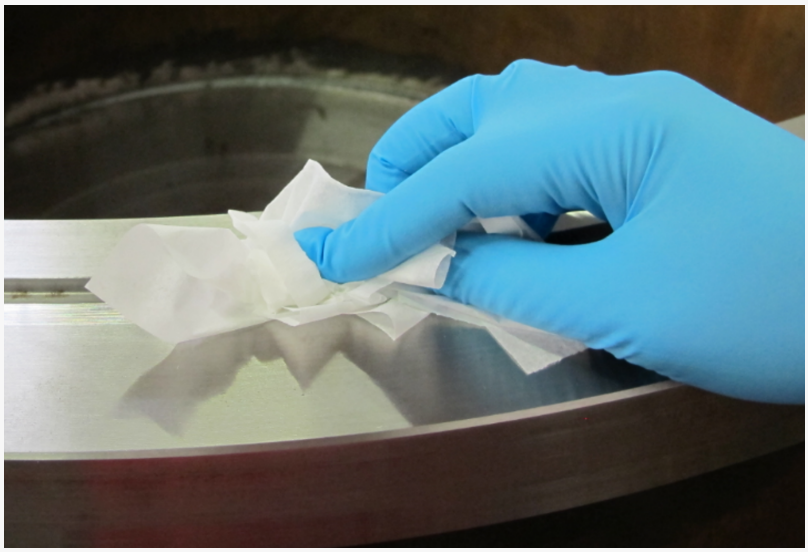
Professional Welding Fabrication from Openex: Setting a New Standard

XIAMEN, FUJIAN, CHINA, October 27, 2025 /EINPresswire.com/ --



Openex is a company at the forefront of this transformation. It is not only keeping up with the changes, but is also actively setting new standards for Professional Fabrication of Metals from Openex. Openex delivers complex solutions by combining its specialized knowledge of large-scale metal parts with an unwavering pursuit of engineering excellence. Openex's commitment to tackling complex projects and use of cutting edge technology makes it an essential partner for industries that require high quality, precision and reliability.

Openex Core Strengths: Fusion of Expertise and Technology

Openex is a specialist in welding fabrication which require precise metal forming and high quality welding. We provide bespoke solutions to industries such as precision machinery and energy equipment. Its main advantage is its ability to handle projects too large or complex to most of other fabricators. This ability is built on a combination of advanced equipment and highly-skilled workers, well selected partnerships as well as Openex’s commitment of quality.

Openex's investment in high quality welding fabrication is a cornerstone of its success. Openex's

facilities house specialized equipment including CNC machine centers such as 3D laser cutting machines, Robotic torch cutters□no need further chamfering□, Robotic welding machines, and some imported welding machines of high performance.

But the good machine fleet alone cannot bring about excellence. Openex's team of experienced professionals is the second strength. The company's methodical approach to complex problems was demonstrated by a high-profile recent project. Openex has a team of experienced senior staff who are dedicated to the most challenging tasks. Each of them has over 7-8 year's experience. They oversee each production phase. The depth of experience ensures that each detail is treated with care, from the initial design process to the final inspection. Openex is defined by the powerful synergy created when this human element is combined with technology prowess.

Case study: Precision Fabrication &Machining for High-Complexity Chambers

Openex's capabilities are perfectly illustrated by a recent project that involved the manufacture of large vacuum chambers with diameter over 1.35meters. The project was different from the usual work and presented a unique set challenges that required innovative approaches as well as a high level of technical expertise. These vacuum chambers, which weighed more than one ton. It requires:
□High precision metal forming—plate rolling
□High quality welding which requires helium test for no leakage
□High precision machining of the groove with surface roughness under 1.6Microns, so that the O-ring on it can have good performance to stop leakage
□High quality of painting finish

Background and Requirements□

Openex was commissioned by a leading fly wheel energy storage developer to fabricate these vacuum chambers. The fly wheels inside the chamber rotates at high speed over 10000 rpm, if the chamber is not in high vacuum, the fly wheels will stop for a while due to air friction□therefore, the roundness of the chamber wall and the end rings must be very precise, and there must not be even the slightest welding defect in the longitudinal welding seam to

prevent external air from entering the chamber through the welding seam. In addition, the chamber and the top plate are sealed with an O-ring, the groove where the O-ring is placed must be smooth turning to below 1.6microns enough to avoid air leakage.

Challenges and Solutions

The project was unique, in part because it had spatial and interdependent dimensions. It meant that any error in one dimension would cascade to affect the entire structure. This complexity required a high level of expertise both in programming and operation.

Process Design and Programming:

Openex's team used advanced software to create an exact programming blueprint for this intricate machining process. Toolpath simulations have been conducted to reduce the risk of error, especially for the delicate slots in the dovetail joints. The team also implemented compensation strategies that counter the deformation often associated with welded structure, thus ensuring the integrity of the final product.

Tooling and Equipment:

Mitsubishi MVR40 was the keystone of the project. The robustness and precision of the machine provided the foundation needed for this complex project. The team chose high-rigidity and wear-resistant drills and milling tools to complement the machine. This ensured sustained performance during the long machining operations.

Operation and Coordination:

At every stage, meticulous execution was crucial. Operators used standardized workflows to collect real-time data, collaborate with programmers, and make immediate adjustments. To ensure safety and precision, the team closely monitored how auxiliary heads were used.

Process & Results
The machining of the vacuum chamber took 4.5 days due to a thorough plan and coordinated coordination. The process included a sequence of meticulous preparation, rough machining and precision machining. The first chamber met all the customer's requirements, and achieved industry-leading standards in both perpendicularity as well as flatness. The success of this project not only met the customer's requirements, but also gave the Openex team valuable experience that will be used in future batches to improve processing efficiency. This case study is a testament to Openex's technical abilities, showing that they are leaders in complex welded structures machining.
Inspection and Measurment
The inspection is conducted by a specially designed and configured device to check the leakage

The dimension tolerance is measured by a large and precision CMM

The success of this project reflects broader trends in the manufacturing industry. Globally, the welding and precision machining industry is experiencing a robust growth period, driven by an increasing demand for tight-tolerance, specialized components from key industries. This growth comes with significant challenges and trends which will define the future of this industry.

1. Automation and robotics: Robots are taking on repetitive, dangerous jobs while humans focus on complex tasks. Openex, with its advanced equipment, and expert team of engineers, is one company that has successfully integrated this human-machine cooperation.

2. Digitalization and smart manufacturing: Industry 4.0 has transformed the factory floor. The real-time data collected by sensors on welding equipment and machining machines can be used for monitoring processes, predicting maintenance needs and optimizing production. This digital approach is essential for a project as complex as the vacuum chambers. Openex's rigorous testing and process design aligns perfectly with this trend.

3. Materials of the Future and Specializations: As industries such as aerospace and energy progress, so too does the need for components made with new high-performance alloys. To maintain the unique properties of these materials, they often require specialized techniques for welding and precision machining. This shift in the industry is moving away from a model that is commoditized and towards one of high-value specialized work. Openex's experience in handling large, complex components allows it to perfectly meet the needs for clients who work with these advanced materials.

4. Quality Assurance and Certification - In a global marketplace, compliance and quality are of paramount importance. ISO 3834 is a great example, as they open doors to European markets while providing a guarantee of quality and safety. The reputation of a company for strict quality control is more important than formal certifications. This was demonstrated in the case studies with their meticulous inspections and close tolerances.

The vacuum chamber is more than a success story. It is an example of how Openex has tackled the most challenging challenges in manufacturing and seized the best opportunities. The company's focus on professionalism is demonstrated by combining advanced technology with a skilled workforce and a customer-centric attitude. Openex, as the industry continues its evolution, is prepared to lead, bringing visions to life with unmatched precision and expertise.

Explore Openex’s capabilities and request a consultation at https://www.cncmetalworking.com/. Let their team transform your vision into a flawless reality.

Openex

Openex
+ +86 186 5928 0806
sales3@openex.com.cn