



Custom & Complex Cylinder SpecialistsSM



A QUALITY SUPPLIER OF COMPLEX HYDRAULIC CYLINDERS



Clover Industries, Inc. is a quality driven, customer focused, engineered products company. Our specialty is complex hydraulic cylinders and we believe nobody designs and manufactures them better.

We take pride in the work that goes into every cylinder we produce.

ENGINEERING STRENGTHS

Clover is committed to ongoing investment in engineering resources and capabilities to increase value for our customers. Our engineering team includes engineers with a wide range of experience, including mechanical engineers, metallurgical engineers, hydraulic engineers, electrical engineers, civil engineers, designers, drafters and certified fluid power specialists. These professionals hold a variety of degrees and licenses including doctoral degrees, master's degrees, bachelor's degrees and professional engineer (PE) licenses.

Clover's extensive engineering experience is enhanced by the technological tools available to the engineers at Clover. These tools allow them to apply their knowledge at the highest possible level. Clover's analytical capabilities include: 3D Solidworks for product design, Finite Element Analysis (FEA) capabilities, software to perform complex engineering calculations, fluid flow capabilities, and internal software to support the quality control process in the engineering area. Design reviews, engineering change orders, product design authorizations and other processes help control the quality of our engineering work.



MANUFACTURING STRENGTHS

Clover Industries designs and manufactures product from our new 128,000 sq. ft. facility in Wausau, WI. Our manufacturing capabilities include state-of-the-art CNC and multiple-axis high-speed machining centers, manual and automated welding equipment, multiple medium and large CNC lathes, heavy duty material handling capabilities (up to 20 tons) and a paint booth equipped to handle an unlimited variety of exterior finishes. We see the value in investing in equipment that allows us to serve our customers with constantly increasing efficiency and degrees of quality. To that end Clover recently invested in two large mill/turn machining centers with live tooling, capable of machining parts over 42 inches in diameter and 157 inches in length. The Mori Seiki NT 6600/3000 and Mori Seiki NT 6600/4000 were purchased in late 2008 and installed in the new facility.

At the heart of all the high tech machinery is a highly skilled and knowledgeable workforce with decades of experience in design, manufacturing, assembly and testing of custom made hydraulic cylinders and integrated cylinder systems.

CYLINDER TESTING CAPABILITIES

- Clover tests 100% of the products produced at a minimum of 1.5 times the design pressure per Clover Hydrostatic Test Procedures.
- Our testing capabilities allow us to test up to 20,000 psi.
- We've designed a proprietary test fixture capable of testing cylinders up to 30 inches in diameter, with extended lengths up to 68 feet.
- We have numerous hydraulic power units utilized in testing cylinders for our military, offshore and commercial customers.
- We utilize a sophisticated data collection and monitoring system to measure all cylinders during testing.



QUALITY

Clover Industries has an ISO Quality System pursuant to ISO 9001:2008 which includes a robust non-conforming product and corrective action system. Clover's quality system has been reviewed and approved by the U.S. Navy for the manufacture of specific critical safety and critical application items.

ASME Certification – Clover has obtained ASME certification to apply the “U” and “R” stamp on pressure vessels.

Design flexibility and certification – Clover has experience and flexibility to work with many design codes such as AWS, ASME, DNV, API, ABS, etc. Our design process allows for use of any design code requested by our customers. Clover has experience working with several certifying organizations used in the oil and gas, and marine industries, including ABS and DNV.

Certified welders and welding process – Clover welders are highly skilled and experienced, and we believe in ongoing education and training to keep current with the latest innovations and technology. Welders are certified to AWS D1.1 in a variety of material including but not limited to carbon steel materials such as A106B/C, 4140, 4340 and other carbon steel alloys. Clover has the ability to provide welding on other alloys, such as stainless steel.

Material traceability program – Clover Industries has a rigorous, full material traceability program through which mill certificates, heat number for raw materials, quality records, inspection and test reports and other key information can be traced by serial number to Clover's products and finished parts.

Clover Industries is capable of manufacturing:

- Cylinders with diameters 5 inches to 48 inches.
- Single stage cylinders with extended lengths over 60 feet.
- Telescopic cylinders with total extended length in excess of 70 feet.
- Cylinders with position sensors and other complex design features to meet the needs of our customers' end applications.
- Cylinders with a variety of coating systems to address harsh operating environments including the highly corrosive salt water environment associated with the offshore oil/gas and marine industries.



Serving a variety of industries including but not limited to:

- oil and gas
- military
- construction
- civil
- marine
- mining
- industrial

Clover Industries understands the importance of reducing downtime on your project or line. It is for that reason we are committed to doing everything we can to achieve on-time delivery for your cylinder order.

Now a part of the Oilgear family of companies, Clover Industries and Oilgear are able to be the single point provider for your complete hydraulic system package including hydraulic cylinders, piston accumulators, intensifiers, hydraulic power units, manifolds, valves, pumps and other components.

Contact us for all your complex hydraulic cylinder needs.

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