



HANNA
MOBILE



**MOBILE EQUIPMENT
& MACHINERY**



*Linear Actuation for
Agriculture, Construction,
Military, & Waste Disposal*

Est. 1901



DESIGNING AND BUILDING ACTUATION FOR DEMANDING 21ST CENTURY APPLICATIONS

Today, many mobile cylinder applications such as agricultural and construction equipment, garbage and tow trucks, military transport vehicles, and the entertainment industry demand more from hydraulic actuators than ever before.

Greater pressures. Higher speeds. Closer tolerances. Zero leakage performance. Extreme temperature ranges. Harsh climate conditions. High shock and vibration. Electronic positional feedback. The need for greater machine and operator productivity.

Meeting these high performance demands requires true premium-quality actuators — such as the mobile product lines offered by Hanna Mobile.



For over a century Hanna, a small business, has earned a reputation as an industry innovator. We continually strive to stay on the leading edge of motion control technology by utilizing the latest in state-of-the-art designs and materials in our products.

What's more, only Hanna offers a single source for safety-related and commercial tie-rod, mill-type, rotary and custom-welded actuators, ASME-U Stamped certified pressure vessels, and valve manifolds.

With over 100 years of experience engineering and manufacturing custom actuators, whether your application is one-off or high volume; or reverse engineering of long-obsolete actuator designs or new

projects, we can make any standard, custom, or private-labeled actuator from 1.50" to 40.00" bore with stroke lengths up to 400", and pressures to 10,000 psi. **We can — AND WILL — do it all.**

Our ability to design and manufacture mobile linear actuators to meet your needs comes from over 30 years of mobile-actuation experience, a long relationship with John Deere, an extensive installed base, and know-how we acquired from T.J. Brooks Company in 1994.

Our 108,000 ft² state-of-the-art facility has 3D CAD and ERP systems, large machining centers, boring mills, honing equipment, in-house painting, and special packaging. All of these capabilities along with our quality assurance program, which meets 10 CFR 50 Appendix B requirements, ensures that all of our products meet industry standards and your specifications.

From harsh environment applications to complex actuators, **we can design and build an actuator to meet all of your requirements.**

When it comes to quality, delivery, and technical support, **WE'RE 2ND TO NO ONE!**



PROVEN. RELIABLE. CERTIFIED. MOBILE ACTUATION.



Your Choice of Warranty

Hanna believes strongly in providing our consumers the best quality actuators. As such, we offer a 2-year warranty standard, but you can upgrade to a 3-year or 5-year warranty. Contact your Hanna representative for details.

Certification/Qualification

All of our mobile actuators are designed and built to exacting standards to maximize longevity and reliability. Some of these standards include the following:

- AS9100
- ASME Section 9 (Coming Soon)
- ASME N Stamp (Coming Soon)
- AWS D1.1
- CAGE Code 7D4J9
- IEEE Qualification
- MIL-I-45208
- MIL-Q-9858
- US NRC 10 CFR 50 Appendix B*

Customers We Served

The following is a sampling of many end users and OEMs we have built mobile actuators for:

- | | |
|---------------------|-------------------------------|
| • Boss Snowplow | • Metso |
| • CNH | • Mi-Jack |
| • Caterpillar | • NASA |
| • Dana | • Nordco |
| • Deere & Company | • Oshkosh |
| • Hollister-Whitney | • US Military |
| • IPS | • Walt Disney Parks & Resorts |
| • Joy Global Inc. | |
| • Kamatsu | |

*US NRC 10 CFR 50 Appendix B quality control management is a derivative of ISO 9001 with greater emphasis on part traceability.

Industries & Applications

Since 1901, we have built millions of mobile linear actuators to meet the needs of hundreds, if not thousands, of applications in the following industries. These include, but are not limited to:

- Agriculture/Forestry
- Construction
- Material Handling
- Mining
- Commercial Vehicles
 - Airport Equipment
 - Buses
 - Trucks
 - Utility & Aerial Work Platforms
 - Waste Disposal

Applications like:

- Rough terrain fork lift boom and side shift cylinders
- Tractor, all-terrain, and other vehicle steering cylinders
- Garbage truck slope tank & boom cylinders
- Dump door lift cylinders
- Cylinders for lifting/moving construction structures and equipment
- Forestry cutting arms and grippers
- Disney safety restraints and other ride actuation
- Other entertainment industries including Broadway plays and Las Vegas shows

... and many more.



ACTUATION PRODUCTS & SERVICES

Hanna offers the agricultural, construction, military, recycling, and many other markets a wide array of products, services and capabilities.

Services and Capabilities

- Like-for-like Reverse Engineering
- OEM Inventory Management
- Actuator Repair/Refurbishment
- Special Packaging
- Design and Manufacture Manifold Panels
- Precision Machining
- Custom Materials
- Plumbed/Fixtured per Customer Specifications

NEW STANDARD PRODUCT LINES

Made of high-strength carbon steel with a welded base, a hard chrome-plated piston rod, and a threaded, ductile-iron rod gland for long life and field repairability. Engineered to interchange with many mobile cylinder manufacturers; our double-acting MS and MH series mobile linear actuators pack a punch.

We've designed these actuators to be a cost-effective, 'off-the-shelf' solution for your specific application — with a quick delivery, unmatched quality, lifetime technical support, and a standard 2-year warranty.

MS Series

Standard-duty Double-acting

- Bore Sizes:** 1.50" – 5.00"
- Rod Diameter:** 0.75" – 3.00" - depending on bore size
- Stroke Lengths:** Per Design Specifications
- Port Sizes:** Per Design Specifications
- Pressure Rating:** Up to 2,500 psi
- Thrust:** Up to 50,000 lbs
- Mounting Options:** No Mounting
Cross-tube
Clevis
Pivot
Spherical Bearing

MH Series

Heavy-duty Double-acting

- Bore Sizes:** 3.00" – 8.00"
- Rod Diameter:** 1.75" – 4.50" - depending on bore size
- Stroke Lengths:** Per Design Specifications
- Port Sizes:** Per Design Specifications
- Pressure Rating:** Up to 3,000 psi
- Thrust:** Up to 150,000 lbs
- Mounting Options:** No Mounting
Cross-tube
Clevis
Pivot
Spherical Bearing



FOR MOBILE APPLICATIONS



Custom Welded Mobile Actuators

Heavy-duty Construction

Bore Sizes:	1.00" – 24.00"
Stroke Lengths:	Per Design Specifications
Pressure Rating:	Up to 10,000 psi
Thrust:	Up to 2,000,000 lbs
Options:	Single- or Double-acting Cylinders Single- or Double-rod Cylinders Piggyback Cylinders Telescoping Cylinders Integrated Accumulator Cylinders Integrated Valve Cylinders Position Sensing Cylinders Special Coatings

DW Series

Double-welded Lift & Steering Cylinders

Bore Sizes:	1.00" – 3.00" Larger sizes available upon request
Stroke Lengths:	Per Design Specifications
Pressure Rating:	Up to 3,000 psi
Thrust:	Up to 21,000 lbs
Options:	Single- or Double-acting Cylinders Single- or Double-rod Cylinders Integrated Fittings & Plumbing per Specification



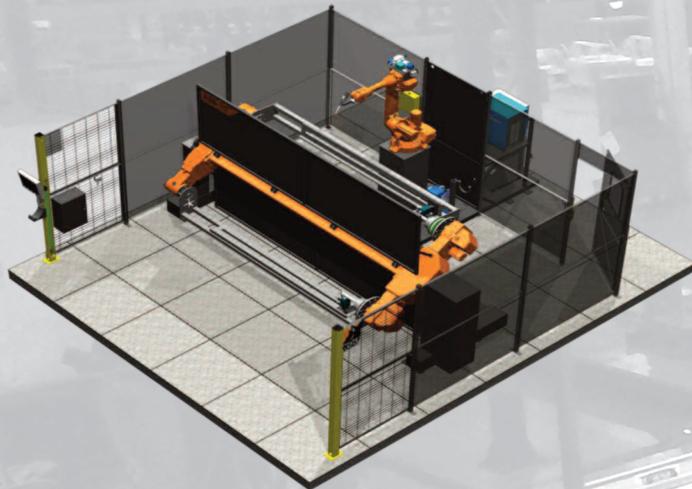
Military Cylinders

Designed for extreme-duty applications, Hanna's military cylinders help support vehicles required in a variety of applications. Whether replacement or new, we have the expertise and knowledge required to provide you with the solution that you seek.



FURTHER IMPROVING EFFICIENCY, PRODUCTIVITY, AND QUALITY

Throughout our history, Hanna has been known for its continuous improvements in efficiency, productivity, and quality. We are taking another step in improving these areas with the addition of our automated welding cell.



Added Capabilities

- Abrasive blaster that cleans the tubes of scale
- 5-axis robot with CMM functionality
 - Weld diameter up to 30"
 - Weld lengths up to 10'
 - 1250 lb capacity
- Ferris wheel design reduces down time
- Non-destructive weld testing

Benefits to Our Customers

- Smooth, consistent, aesthetically-pleasing, stronger, and longer-lasting welds
- Better paint finish and durability
- Reduced lead times from offline weld programming and increased throughput

Our welders are currently ASME GMAW certified along with AWS D1.1 qualified. Soon, we will be expanding on these certifications with the addition of ASME Section 9 and ASME N-stamp certification, which will enhance and broaden our welding capabilities.

All Cylinders are 100% Tested.

To ensure our mobile actuator customers get the utmost quality product, we test each and every cylinder before it is painted and shipped.

It isn't until each and every actuator meets our quality standards that it receives the Hanna — or your — product identification label.

PREP

WELD

**TEST &
VERIFY**





WHAT SETS US APART

Speed of Delivery

Why wait nearly a month to receive your mobile actuator, when Hanna can provide our standard MS and MH series actuators in just over a week?

Hanna provides customers with industry-leading speed of delivery while designing and manufacturing actuators tailored to your exact specifications. We're able to do this by having nearly every aspect of production in one location — and having a 10 CFR 50 quality assurance program optimized for speed and efficiency.

In-house Manufacturing

By having our 108,000 ft² facility full of multiple machining centers, welding machines, assembly stations, paint booths, and testing benches all under one roof, we're able to control all of the actuator manufacturing processes and throughput resulting in reduced lead time.

As an additional benefit, it gives us the flexibility to offer OEM customers inventory logistics — enabling them to have greater just-in-time control as orders expand due to demand.

Product Repairs

Maintaining actuators is essential to the operation and safety of heavy machinery and vehicles. Hanna has designed its mobile actuators to be field serviceable, and we can supply seal kits and other components within days to get you back up and running quickly. Also, we can perform cylinder refurbishment at our factory.

Product Range

When it comes to type of actuator, bore size, stroke length, or available options, Hanna provides original equipment manufacturers and mobile actuator end users with the widest range of actuation products and services — period.

Quality From Start to Finish

Hanna takes pride in providing our customers with the highest quality mobile actuators possible. We start by using the finest material, check quality at each step of the manufacturing process, and then, unlike others, we test each and every actuator we make.

Call or email us, or visit our website, to learn more about our mobile actuator manufacturing capabilities.



OUR CUSTOMERS COME FIRST!

Since 1901, Hanna has been striving to have the highest quality product on the market that can be delivered as quickly as possible with the right personnel on staff to assist our customers in any means necessary for technical support and assistance on any past and current jobs, or future inquiries. It's our belief, if we can provide those three things — **quality, delivery, and technical support** — everything else will fall into place.

We've instituted a quality management system that seeks continuous improvement in our machinery, equipment, software, procedures, and employee skills to provide products that satisfy — **and exceed** — customer and regulatory requirements.

Our Live Design platform allows customers to draw, model, and obtain a quote on basic actuators in about 10 minutes. For your more complex applications our sales and design team are available via phone, fax, email, or web-based conferencing — and we turn-around quotes within 24 hours and approval drawings and models within 1 – 3 business days.

When it comes to quality, delivery, and technical support, **Hanna strives to be 2nd to no one!**

Major Industries Served



MOBILE



INDUSTRIAL



MILITARY



NUCLEAR



OIL + GAS

Proud members of:



HANNA
MOBILE

8901 102nd St | Pleasant Prairie, WI 53158
T: +1 262 764 8300 | F: +1 262 764 8290
sales@hannacylinders.com | www.hannacylinders.com

Hanna

