



# Cylinder Solutions for Defense



ENGINEERING YOUR SUCCESS.





# Parker Hannifin is the world's largest manufacturer of Hydraulic, Pneumatic, Electro-Hydraulic and Electric cylinders.



With our global presence in 50 countries, we are perfectly suited to provide superior customer service to any location.

## Here is a short list of what you can expect from Parker:

- Design and Application Experience
- Responsiveness
- Fast Product Delivery
- System Integration Capabilities
- Ingenuity and Creativity
- Organizational Integrity
- Highest Quality
- Competitive Pricing
- Financial Stability
- Worldwide Support

Partner with the best – contact Parker Hannifin for all of your cylinder needs.

We are always

**Engineering Your Success.**

## Military Applications:

- Aircraft Carriers
- LHA/LHD Amphibious Assault Ships
- LCS Littoral Combat Ships
- DDX/DDG Destroyers
- LPD Landing Platform Dock Ships
- LCM/LCU Landing Craft
- SSN/SSBN/SSGN/LA Submarines
- LSD Landing Ship
- Coast Guard Cutters
- JHSV Joint High Speed Vessels
- M1A1 Abrams Tanks
- ACV Amphibious Combat Vehicles
- MRAP Mine Resistant Ambush Protected Vehicles
- Husky Mine Detection Systems
- SMET Small Multi-Purpose Equipment Transports
- MRIC Trailers
- Stryker Armored Combat Vehicles
- M9 ACE Armored Combat Earthmovers



## Innovation

Parker continues to innovate new products and technologies to meet the ever-changing demands of the market. Some of these innovations include:

**Series XFC** – The electromechanical cylinder for hydraulic cylinder replacement or high force electromechanical applications up to 80,000 lbs-force. Drop-in functionality with 100% duty cycles.

**Series CHE/CHD** – Heavy duty performance from the most compact hydraulic cylinders in the world.

**Series RDH** – Heavy-duty, industrial-grade repairable welded cylinder that is truly aligned to industrial market demands. We combined robust design, advanced sealing technology and proven exterior toughness into a cost-effective, catalog-standard platform product with short lead times appropriate for industrial customers.

**Corrosion Resistant Series** – All stainless steel 3000 psi rated hydraulic cylinder from a standard platform with standard deliveries.

**Piston Sensing** – When you need to sense piston rod position in carbon steel cylinders, we have the most inexpensive solution in the industry: a magnetic piston with sensors that can be positioned anywhere along the stroke. Continuous feedback options are also available.

## Rod Coatings

Applications exist where typical rod coatings are inappropriate to meet the expected cylinder service life. Parker offers a myriad of **enhanced rod coatings** which are tailor-made for these situations. We have recorded the relative performance of these coatings via life testing in actual applications and the following standardized tests:

- **Salt Spray (ASTM B117 and ISO 9227)**
- **Copper-Accelerated Acetic Acid Salt Spray (ASTM B368)**
- **Acid Mud Immersion Test**  
Solution contains 13.5% HCL and 1.5% HF acids

To record the relative wear resistance of each coating, all tests were performed on stressed (side-loaded) and unstressed material.



Our typical rod coating options include:

- **Hard Chrome Plating**
- **Nickel Chrome Plating**
- **Global Shield**
- **Nitrotec/Nitride**
- **Ceramic Coatings**
- **Laser Clad Coatings**  
Including Ultimet®, CCW®, Stellite®, Inconel®, stainless steel and other alloys.







## Many Abilities, One Company: Parker

In order to focus on customers, Parker is organized into market-based operating groups and business units. The Parker brand permeates throughout the entire company, without the need for ambiguous cylinder subsidiaries or private label sub-brands. We have one name: **Parker**.

## We Make Cylinders

Cylinders come in all shapes and sizes. They also range from the very standard to the extremely custom. Parker manufactures all types of cylinders. Please see the table below to review the breadth of our capabilities.

Features	Construction Type					
	Tie Rod	Compact Extruded (Profile)	Bolted Mill-Type or Welded	Telescopic	Hybrid	Custom (all styles)
Hydraulic	✓	✓	✓	✓	✓	✓
Electro-Hydraulic	✓		✓		✓	✓
Pneumatic	✓	✓	✓	✓		✓
Electric	✓	✓			✓	✓
Bore Sizes	3/4" to 30" 25 to 762 mm	3/4" to 5" 20 to 100 mm	1-1/2" to 48" 38 to 1219 mm	1-1/2" to 48" 38 to 1219 mm	2" to 8" 50 to 203 mm	1-1/2" to 48" 38 to 1219 mm
Max. Stroke Length (typical)	300" 7620 mm	120" 100-150 mm	876" 22250 mm	480" 12192 mm	120" 3048 mm	876" 22250 mm
Max. Pressure Rating - Hydraulic	5000 psi 345 Bar	3000 psi 140-207 Bar	5000 psi 345 Bar	3000 psi 207 Bar	3000 psi 207 Bar	15000 psi 1034 Bar
Max. Pressure Rating - Pneumatic	250 psi 17 Bar	250 psi 17 Bar	250 psi 17 Bar	250 psi 17 Bar		3000 psi 207 Bar
Carbon Steels	✓	✓	✓	✓	✓	✓
Stainless Steels	✓		✓	✓	✓	✓
Exotic Steels	✓		✓	✓	✓	✓
Aluminum	✓	✓				✓
Composite	✓					✓
Standards	NFPA ISO/DIN VDMA, JIS Other Industry Interchange	ISO 16656:2004	NFPA ISO/DIN JOHS Other Industry Interchange	Open Design (any standard)	Open Design (any standard)	Open Design (any standard) May use any construction style

## Parker Engineering Your Success

When you consider the hydraulic or electronic system for the cylinder, think of us as your one-stop shop. Parker manufactures a full line of seals, filtration, fluid connectors, valves, accumulators, sensors, servomotors, drives and other products that can be **seamlessly integrated to the cylinder, functionally tested and then shipped as an entire assembly from one location.** Other mechanical features, such as external bearings, frames and supports are common requests that can be easily accommodated. With intra-company product development as a key strength, we can provide you with a complete Parker solution. From the basic to the most complex, cylinder assemblies and systems are our specialty.

## Testing, Certifications and Specifications

All Parker cylinders are 100% tested to meet or exceed customer expectations. Test Certificates and Certificates of Conformance are available upon customer request.

We also have the following Third Party Approvals and Certifications:

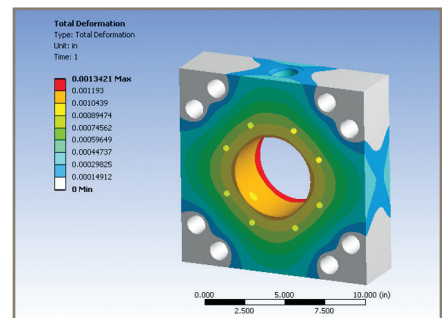
- **ABS (American Bureau of Shipping)**
- **DNV (Det Norske Veritas)**
- **BV (Bureau Veritas)**
- **USCG (U.S. Coast Guard)**
- **Lloyd's Register**
- **ASME**
- **ISO 9001-2000**
- **Nuclear (NUPIC-Approved Commercial Grade Supplier)**
- **Military Specification MIL-STD-167 TYPE 1**
- **Military Specification MIL-S-901C Grade A**



Parker is a leader in establishing National Fluid Power Association (NFPA), DIN and ISO standards that are utilized worldwide. The industry follows our lead.

## Software

To provide the optimum design for your application, we utilize the best available 3D modeling and functional analysis software. Tailor-made programs and Finite Element Analysis (FEA) verify our design, while customized reporting of your exact cylinder model will support your confidence in our product.







### I Am Parker

Customers have the highest importance, and Parker is on a continuing journey to a pure customer service culture. Our company-wide goal is exceeding our customers' expectations everyday, in everything we do. "I Am Parker" is our way of saying that we are all accountable for customer service. Contact any Parker representative to benefit from the way that we work to Engineer Your Success.

### Worldwide Support

Parker is an international company with headquarters in the USA, Europe and Asia. Our **cylinder manufacturing and service locations** span the globe while nearly every country has a Parker Sales Office to provide local support for you and your customers.

### At Your Fingertips...

Information is readily available!  
[www.parker.com/cylinder-accumulator](http://www.parker.com/cylinder-accumulator)

### North and South America

Des Plaines, IL (USA HQ)  
Benton, AR, USA  
Corona, CA, USA  
Eugene, OR, USA  
Goodland, IN, USA  
Lithia Springs, GA, USA  
Machesney Park, IL, USA  
Plymouth, MI, USA  
Santa Fe Springs, CA, USA  
St. Marys, OH, USA  
Milton, Ontario, Canada  
Monterrey, Mexico  
Toluca, Mexico  
Cachoeirinha, Brazil

### Europe

Warwick, UK  
(Europe HQ)  
Arsago, Italy  
Cologne, Germany  
Stuhr, Germany  
Falköping, Sweden

### Asia and Australia

Shanghai, China  
(China HQ and Manufacturing)  
Tianjin, China  
Osaka, Japan  
Nara, Japan  
Yamaguchi, Japan  
Seoul, South Korea  
Navi Mumbai, India  
Castle Hill, Australia  
(Australasia HQ and Manufacturing)

Parker Hannifin Corporation  
**Cylinder and Accumulator Division**  
500 South Wolf Road  
Des Plaines, IL 60016 USA  
phone (847) 298-2400  
fax (800) 892-1008  
[www.parker.com/cylinder-accumulator](http://www.parker.com/cylinder-accumulator)

