HYDRAULIC CYLINDERS
RAM Industries Inc. was established in 1973 in Yorkton, Saskatchewan. In the early years, the Company focused on meeting demand for hydraulic and pneumatic cylinders from agricultural manufacturers across the region. RAM’s reputation as a reliable cylinder supplier quickly grew. Today, more than forty years and four factory expansions later, custom cylinder design and manufacturing remains at the core of RAM’s operations and expertise. RAM Industries now serves a diverse range of clients in industries that include oil & gas, construction, mining, forestry, transportation, agriculture, material handling, and industrial equipment manufacturers across North America.

As a custom manufacturer, RAM establishes a close technical rapport with every client to share ideas and gather information regarding cylinder fit and performance requirements. RAM has extensive experience working with purchasers, procurement experts, engineering teams, consultants, manufacturing specialists, maintenance managers, and entrepreneurs developing new product innovations that require custom cylinders.

RAM can supply cylinder products from pre-engineered cylinder drawings; however, complete design services are often the norm. Designs may evolve from a basic list of technical specifications or a Customer’s conceptual idea. RAM has extensive experience delivering cylinder solutions to meet requirements such as cost reduction objectives, hydraulic system space limitations, or performance improvements. Reverse engineering for replacement or repair cylinders, and re-engineering foreign cylinders to meet North American dimensional and material standards are also available. Our technical sales and engineering teams will work closely with you to design and build a cylinder solution for your specific needs.

RAM’s flexible manufacturing setup simultaneously accommodates multiple cylinder designs, low and high volume orders, basic to sophisticated machining, and a wide range of cylinder sizes. RAM uses ERP tracking to closely monitor production progress of your order. We are committed to ensuring the right number of cylinders are shipped on time, every time, at the cost and quality standards you expect.

RAM is a proud supporter of many local initiatives that benefit our employees and their families. RAM was recently named the Yorkton Chamber of Commerce “Business of the Year” and was a finalist in the prestigious Saskatchewan Chamber of Commerce ABEX Awards for its achievements in growth and expansion.

RAM has become synonymous with quality built, reliable cylinder solutions. Join the growing list of companies that trust their reputation and equipment performance on the RAM name!
RAM has extensive experience serving a wide range of original equipment manufacturers and industries. Examples of our cylinder expertise includes designs for the following applications:

- Oil & Gas Drilling Rigs and Equipment
- Gravel Crushing Equipment
- Solar Panel Arrays
- Brush Cutters
- Construction Cranes
- Wheelchair Lifts
- Press Brakes
- Seeding & Tillage Equipment
- Saw Mill Equipment
- Mining Equipment
- On-Board Truck Weigh Scales
- Airport Runway Snow Plows
- Door Opening Cylinders
- Vehicle Recovery and Towing Systems
- Hay Rakes
- River Dredging Equipment
- Harvest Equipment
- Heavy Equipment Trailers
- Warehouse Grapple & Lifting Devices
- Aggregate Conveyors & Stackers
- Skid Steer Attachments
- Warehouse Grapple & Lifting Devices

Tree Shaker Equipment
Construction Equipment Attachments
Cellular Communication Towers
Oil Pumping Equipment
Waste Management Equipment
Plastic Molding Equipment
Golf Course Equipment
Road Building Equipment
Personal Lifting Systems
Boat Cranes
Hammer Mills
Mine Crusher Equipment
Scrapers
Highway Snow Plows
Material Handling Equipment
Opera House Prop Moving Devices
Tool & Die Forming Fixtures
Street Sweepers
Rail Line Repair Equipment
Log Splitters
Tree Spades

Since 2000, RAM Industries Inc. has maintained ISO 9001 Certification for cylinder manufacturing and custom machining services. ISO is defined by the International Organization for Standardization as standards that “ensure products and services are safe, reliable and of good quality.” The ISO 9001:2008 standards specifically set out criteria by which RAM developed its Quality System. It is based on a number of ISO management principles that retains a strong focus on the customer throughout all processes in the organization.

At the start of each relationship, field sales personnel and RAM’s experienced engineering team will guide clients through the technical specifications of their cylinder and machining needs. Engineering services use 2D and 3D modeling to provide critical dimensions and simulated images of each cylinder design. These files can be integrated into equipment engineering files, and are beneficial tools for final design verification. On-site visits, meetings, technical support, and prototype services are also available to confirm cylinder fit and function with your equipment before full orders proceed to production.

The RAM Quality System continues through all manufacturing stages up to final assembly where 100% of cylinders are tested before they are individually packaged and shipped.

After every delivery, customers continue to receive support in the form of installation and technical guidance, parts, warranty and repair assistance as part of RAM’s full service approach to every relationship.

RAM’s Quality Committee oversees a regular schedule of internal and external quality audits. The audit process provides valuable feedback to the entire organization for continuous improvement of the Quality System. This ultimately benefits the many RAM customers who rely on consistent delivery of quality cylinders custom manufactured to their needs.

RAM is also very experienced meeting quality requirements specific to other quality standards or independent bodies (ex: API - American Petroleum Institute standards, Mill Certifications, etc.).

The RAM team recognizes your equipment and reputation demands cylinders that meet your unique needs. Trust RAM to deliver the Quality product and service you expect.
Customers rely on RAM manufacturing services to meet lean productivity objectives, simplify their manufacturing processes, manage labor shortages, supply overflow work, or to increase capacity for their core operations and expertise.

RAM's vast line up of modern manufacturing equipment and factory facilities are well suited to provide custom services to industrial clients. Subcontracted services for machined components, precision parts, subassemblies, machined castings (iron, ductile, grey) and custom fabricated metal products are available. These services can be supplied based on pre-existing drawings or RAM can assist with the engineering of new design requirements. The RAM team has capabilities and experience with multiple materials including carbon steel, stainless steel, aluminum, bronze and a variety of plastics and exotic metals.

Custom work orders flow through RAM's engineering services, skilled technical workforce and quality processes to ensure your custom orders consistently meet quality requirements and shipping deadlines.

RAM facilities and extensive capabilities include:

- CNC turning centers with robot load and unload systems
- CNC turning centers with automatic bar-feed systems
- CNC tube processing turning centers with automatic load/upload systems and live tooling
- CNC shaft processing turning centers with automatic load and unload systems
- CNC 4 axis vertical and horizontal machining centers
- Manual turning, milling and drilling equipment
- GMAW, GTAW, SAW, SAW welding including the latest in pulse welding technology
- Specialized quick set up assembly stations
- Multi cylinder automatic testing station
- Overhead continuous loop, paint, wash and dry system
- Up to 5 ton - 25 foot under hook crane capacity, with 10 ton maximum lift
- Maximum spindle bore up to 14.12"
- Maximum swing over bed up to 39"
- Maximum turn diameter 30"
- Maximum turn length 150"
- Maximum through spindle length 40 feet
- Maximum Part Size
  - X 23.6"
  - Y 22.8"
  - Z 22.0"
  - 4th axis 360 degrees (0.001 degree resolution) positional only
  - Maximum weight: 880 lbs (400 kg)
- Maximum Part Size
  - Table capacity 51.2" x 19.7/"" 20" maximum part height 4th axis; 12" diameter
  - Maximum weight: 2205 lbs (1000 kg)
CUSTOM HEAVY DUTY

RAM Heavy Duty cylinders are characterized as a robust cylinder design capable of handling harsh operating environments. The cylinder design typically incorporates a bolted gland configuration for increased strength, and specialty seals to handle higher operating pressures and potential pressure spikes common in these applications. Cylinder components, including barrels, shafts and mounts, may be designed with exotic metals and/or heavier materials to ensure stability and longevity of the cylinder under tougher conditions. Examples of applications where a heavy duty design is used include BOP (blowout preventers), excavators and attachments, land scrapers, paving equipment, pay loaders and attachments, gravel crushers, log skidders, catwalks, and hydraulic wrenches. RAM has the expertise and experience to design and build your unique heavy duty cylinder requirements.

BUILT TO YOUR SPECIFICATIONS
- Rated Pressure: Up to 5000 PSI
- Barrel Size: 2” to 8” bore size
- Rod Size: 1 3/8” to 5 1/2” diameter
- Barrel Material: High tensile cold drawn tube, precision honed for extended seal life
- Piston: Ductile Iron 65-45-12 (ASTM A536) or Steel (A1026)
- End Mounts: Trunnion, clevis, tang, cross tube, spherical bearing, custom bushing, flange, cross drilled holes
- Gland: Ductile Iron 65-45-12 (ASTM A536) or Steel (A1026)
- All Seals: North American seals with special or custom sealing arrangements available for high or low temperature, high cycle continuous duty

CUSTOM BIG BORE

RAM Big Bore cylinders are characterized as large diameter hydraulic cylinders built for specialty applications where significant force is required. Typically, these cylinders are 10” to 18” in bore size; however, larger diameter cylinders may be accommodated. A wide range of equipment relies on this type of cylinder design. Big bore cylinders are used in building moving equipment, hydroelectric dams, ferry platforms, rail running gear, rig moving platforms and walking systems, bridge installations, hay compressors, suspension systems, and industrial presses. Rely on RAM for a big bore design that complements your specific application.

BUILT TO YOUR SPECIFICATIONS
- Rated Pressure: Up to 5000 PSI
- Barrel Size: 10” to 18” bore size
- Rod Size: up to 12” diameter
- Stroke: up to 10 feet
- Rod Material: High tensile cold drawn tube, precision honed for extended seal life
- Piston: Ductile Iron 65-45-12 (ASTM A536) or Steel (A1026)
- Gland: Ductile Iron 65-45-12 (ASTM A536) or Steel (A1026)
- End Mounts: Trunnion, clevis, tang, cross tube, spherical bearing, custom bushing, flange, cross drilled holes
- Head Style: Flange type heads secured with SAE Grade 9 bolts
- Ports: ORB, NPT, Code 61 or 62 4-Bolt flange porting options available
- All Seals: North American seals with special or custom sealing arrangements available for high or low temperature, high cycle continuous duty
- Port Plugs: (shipping) Steel • Paint: Black (custom available) • Testing: 100% Hydraulic test

HEAVY DUTY

[Image of heavy duty cylinder]

BIG BORE

[Image of big bore cylinder]
RAM Smart Cylinders are designed to incorporate position sensing technologies for end user applications. Referred to by many names such as: electronic position-sensing, electro-hydraulic control, intelligent cylinders and smart cylinders; this technology utilizes linear transducers (sensors) to communicate the cylinder’s piston position back to the overall hydraulic system.

Increased control, functionality and sensor-instrumented cylinders are becoming more important and more common in heavy industrial, mobile, and agricultural equipment.

RAM can incorporate position sensing technologies in any custom designed hydraulic cylinder.

A variety of bore sizes, stroke lengths, and mounting options can be configured to meet your overall design and industry needs.

Some applications where Smart Cylinder technologies have been implemented include:

- Height control on spray booms
- Height control on manlift booms
- GPS controlled steering
- GPS controlled steering
- Bucket position control
- Street sanding sensing
- Trailer outriggers
- Cylinder staging
- Snowplow control sensing
- Mold injection applications
- Stabilize cranes
- Wheelchair lifts

**EXTERNAL SENSOR SOLUTION**
An external sensor option involves mounting a transducer externally onto a standard carbon steel cylinder. The cylinder position is measured when a pre-fitted permanently embedded magnet in the piston is moved by hydraulic pressure. The externally mounted transducer allows equipment operators and maintenance personnel to access and replace the sensor if necessary, and needs no deep drilling costs. This method is recommended for cylinders that are not exposed to harsh environments.

**INTERNAL SENSOR SOLUTION**
An internal sensor option involves the transducer being configured for mounting inside a cylinder. This internal configuration features a hole drilled down the center of the shaft rod. The cylinder end cap is machined to accommodate the transducer. This method usually consumes the least amount of space, however, the transducer is less accessible than mounting it externally. This method of a protective enclosure shields the transducer from certain environmental conditions, thus increasing its life span.

**OPTIONAL FEATURES**
- Operational pressures up to 4750 PSI
- Stroke range 2" to 120"
- Temperature & velocity output optional
- 0.02" standard output resolution
- High cycle life
- High vibration & shock resistance
- ATEX and IEC external approved linear transducer available

- Minimum barrel bore size 2.50" diameter
- Minimum 1" rod diameter
- 0.02" standard resolution
- M12 connector
- Analogue or digital output
- Various input power

- Asphalt depth control
STANDARD FEATURES

- **Intended Use:** Leveling and outrigger applications
- **Rated Pressure:** 3000 PSI
- **Barrel:** High tensile cold drawn tube, precision honed for extended seal life
- **Rod:** High Tensile cold drawn tube, chrome OD for extended seal life
- **Piston:** Ductile Iron 65-45-12 (ASTM A536)
- **Piston Locknut:** Grade C, high tensile
- **Gland:** Ductile Iron 65-45-12 (ASTM A536)
- **Port Plugs:** [shipping] Steel
- **Ports:** NPTF
- **Locking Thread:** 4 TPI Acme
- **Gland:** Ductile Iron 65-45-12 (ASTM A536)
- **Testing:** 100% Hydraulic test

OPTIONAL FEATURES

- Ball end mounts
- Internal pilot operated check valve
- Split locking nuts
- Internal counterbalance valve
- Jacking pads
- ORB ports
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
- Custom stroke length
- Custom bone sizes
- Custom paint color
- Custom bore sizes
- Custom paint color
### Standard Features

- **Intended Use:** Leveling and outrigger applications
- **Rated Pressure:** 3000 PSI
- **Barrel:** High tensile cold drawn tube, precision honed for extended seal life
- **Rod:** High Tensile cold drawn tube, chrome OD for extended seal life
- **Piston:** Ductile Iron BS-45-12 (ASTM A536)
- **Piston Locknut:** Grade C, high tensile
- **Gland:** Ductile Iron BS-45-12 (ASTM A536)
- **Port Plugs:** (shipping) Steel
- **Ports:** NPTF
- **Locking Thread:** 4 TPI Acme
- **Testing:** 100% Hydraulic test

### Optional Features

- **Ball end mounts**
- **Split locking nuts**
- **Jacking pads**
- **Custom mounts**
- **Side ports**
- **Internal pilot operated check valve**
- **Internal counterbalance valve**
- **ORB ports**
- **Custom bore sizes**
- **Custom paint color**
- **Custom stroke length**
- **Custom ports**

### Specifications

<table>
<thead>
<tr>
<th>Bore (inches)</th>
<th>RAM Part Number</th>
<th>Stroke (inches)</th>
<th>Rod Diameter (inches)</th>
<th>Overall Length (inches)</th>
<th>Ports</th>
<th>Pin Diameter Nominal (inches)</th>
<th>Cylinder Push* (lbf)</th>
<th>Maximum Load** (lbf)</th>
<th>Shipping Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.00</td>
<td>RH007700</td>
<td>12</td>
<td>3.50</td>
<td>Retracted: 28.38</td>
<td></td>
<td>40.38</td>
<td>4.000</td>
<td>28.38</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Extended: 30.81</td>
<td></td>
<td>45.56</td>
<td>40.00</td>
<td>37700</td>
<td>128000</td>
</tr>
<tr>
<td>4.00</td>
<td>RH007701</td>
<td>14.75</td>
<td></td>
<td>4.000</td>
<td>128</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007702</td>
<td>20</td>
<td>3.50</td>
<td>Retracted: 30.81</td>
<td></td>
<td>45.56</td>
<td>4.000</td>
<td>30.81</td>
<td>138</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Extended: 40.06</td>
<td></td>
<td>56.06</td>
<td>45.56</td>
<td>20</td>
<td>138</td>
</tr>
<tr>
<td>5.00</td>
<td>RH007703</td>
<td>24</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007704</td>
<td>20</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007705</td>
<td>24</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007706</td>
<td>20</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007707</td>
<td>24</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007708</td>
<td>20</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007709</td>
<td>24</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007710</td>
<td>20</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007711</td>
<td>24</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007712</td>
<td>20</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Port plugs are subject to change without notice. **Maximum load is based on a SF of 2, and is applicable when the stabilizer is in the locked position.

### HYDRAULIC CYLINDERS

**Ball End Stabilizer**

- **Rated Pressure:** 3000 PSI
- **Barrel:** High tensile cold drawn tube, precision honed for extended seal life
- **Rod:** High Tensile cold drawn tube, chrome OD for extended seal life
- **Piston:** Ductile Iron BS-45-12 (ASTM A536)
- **Gland:** Ductile Iron BS-45-12 (ASTM A536)
- **Port Plugs:** (shipping) Steel
- **Ports:** NPTF
- **Locking Thread:** 4 TPI Acme
- **Testing:** 100% Hydraulic test

### BALL END STABILIZER

- **Rated Pressure:** 3000 PSI
- **Barrel:** High tensile cold drawn tube, precision honed for extended seal life
- **Rod:** High Tensile cold drawn tube, chrome OD for extended seal life
- **Piston:** Ductile Iron BS-45-12 (ASTM A536)
- **Gland:** Ductile Iron BS-45-12 (ASTM A536)
- **Port Plugs:** (shipping) Steel
- **Ports:** NPTF
- **Locking Thread:** 4 TPI Acme
- **Testing:** 100% Hydraulic test

### Standard Features

- **Intended Use:** Leveling and outrigger applications
- **Rated Pressure:** 3000 PSI
- **Barrel:** High tensile cold drawn tube, precision honed for extended seal life
- **Rod:** High Tensile cold drawn tube, chrome OD for extended seal life
- **Piston:** Ductile Iron BS-45-12 (ASTM A536)
- **Piston Locknut:** Grade C, high tensile
- **Gland:** Ductile Iron BS-45-12 (ASTM A536)
- **Port Plugs:** (shipping) Steel
- **Ports:** NPTF
- **Locking Thread:** 4 TPI Acme
- **Testing:** 100% Hydraulic test

### Optional Features

- **Ball end mounts**
- **Split locking nuts**
- **Jacking pads**
- **Custom mounts**
- **Side ports**
- **Internal pilot operated check valve**
- **Internal counterbalance valve**
- **ORB ports**
- **Custom bore sizes**
- **Custom paint color**
- **Custom stroke length**
- **Custom ports**

### Specifications

<table>
<thead>
<tr>
<th>Bore (inches)</th>
<th>RAM Part Number</th>
<th>Stroke (inches)</th>
<th>Rod Diameter (inches)</th>
<th>Overall Length (inches)</th>
<th>Ports</th>
<th>Pin Diameter Nominal (inches)</th>
<th>Cylinder Push* (lbf)</th>
<th>Maximum Load** (lbf)</th>
<th>Shipping Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.00</td>
<td>RH007711</td>
<td>12</td>
<td>3.50</td>
<td>Retracted: 28.38</td>
<td></td>
<td>40.38</td>
<td>4.000</td>
<td>28.38</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Extended: 30.81</td>
<td></td>
<td>45.56</td>
<td>40.00</td>
<td>37700</td>
<td>128000</td>
</tr>
<tr>
<td>4.00</td>
<td>RH007714</td>
<td>14.75</td>
<td></td>
<td>4.000</td>
<td>128</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007715</td>
<td>20</td>
<td>3.50</td>
<td>Retracted: 30.81</td>
<td></td>
<td>45.56</td>
<td>4.000</td>
<td>30.81</td>
<td>138</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Extended: 40.06</td>
<td></td>
<td>56.06</td>
<td>45.56</td>
<td>20</td>
<td>138</td>
</tr>
<tr>
<td>5.00</td>
<td>RH007716</td>
<td>24</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007717</td>
<td>20</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007718</td>
<td>24</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007719</td>
<td>20</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007720</td>
<td>24</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007721</td>
<td>20</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007722</td>
<td>24</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007723</td>
<td>20</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007724</td>
<td>24</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007725</td>
<td>20</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>RH007726</td>
<td>24</td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.000</td>
<td>172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Port plugs are subject to change without notice. **Maximum load is based on a SF of 2, and is applicable when the stabilizer is in the locked position.
STANDARD FEATURES
- Intended Use: Double-acting applications
- Rated Pressure: 3000 PSI
- Barrel: High tensile cold drawn tube, precision honed for extended seal life
- Rod: High tensile SAE C1045, ground & polished hard chrome plated
- Piston: Ductile Iron 65-45-12 (ASTM A536)
- Piston Locknut: Grade C, high tensile
- Gland: Ductile Iron 65-45-12 (ASTM A536)
- End Mounts: Female rod clevis with pins & clips included
- Pin & Pin Clip: High tensile zinc-plated steel
- Clevis Clamp Nut, Bolt: Grade B
- All Seals: Manufactured to North American specifications
### Dimensions in inches. All Specifications are subject to change without notice.

<table>
<thead>
<tr>
<th>Bore (inches)</th>
<th>RAM Part Number</th>
<th>Stroke (inches)</th>
<th>Rod Diameter (inches)</th>
<th>Retracted Length</th>
<th>Ports</th>
<th>Pin Diameter (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.00</td>
<td>R4507588</td>
<td>8</td>
<td>1.375</td>
<td>20.25</td>
<td>SAE-8</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>R4507589</td>
<td>8</td>
<td>1.500</td>
<td>20.25</td>
<td>SAE-8</td>
<td>1.000</td>
</tr>
<tr>
<td>4.25</td>
<td>R4507677</td>
<td>10</td>
<td>1.500</td>
<td>22.25</td>
<td>SAE-8</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>R4507687</td>
<td>12</td>
<td>1.500</td>
<td>24.25</td>
<td>SAE-8</td>
<td>1.000</td>
</tr>
<tr>
<td>4.50</td>
<td>R4507698</td>
<td>16</td>
<td>1.500</td>
<td>28.25</td>
<td>SAE-8</td>
<td>1.000</td>
</tr>
<tr>
<td>4.75</td>
<td>R4507747</td>
<td>16</td>
<td>1.500</td>
<td>28.25</td>
<td>SAE-8</td>
<td>1.000</td>
</tr>
<tr>
<td>5.00</td>
<td>R4507749</td>
<td>16</td>
<td>1.500</td>
<td>28.25</td>
<td>SAE-8</td>
<td>1.000</td>
</tr>
</tbody>
</table>

### RAM SYNCHRONIZING CYLINDER Components

<table>
<thead>
<tr>
<th>Bore (inches)</th>
<th>RAM Part Number</th>
<th>Rod Diameter (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.50</td>
<td>R3021982</td>
<td>1.125</td>
</tr>
<tr>
<td>2.75</td>
<td>R3021983</td>
<td>1.125</td>
</tr>
<tr>
<td>3.00</td>
<td>R3021984</td>
<td>1.250</td>
</tr>
<tr>
<td>3.25</td>
<td>R3021985</td>
<td>1.250</td>
</tr>
<tr>
<td>3.50</td>
<td>R3021986</td>
<td>1.250</td>
</tr>
<tr>
<td>3.75</td>
<td>R3021987</td>
<td>1.250</td>
</tr>
<tr>
<td>4.00</td>
<td>R3021988</td>
<td>1.250</td>
</tr>
<tr>
<td>4.25</td>
<td>R3021989</td>
<td>1.250</td>
</tr>
<tr>
<td>4.50</td>
<td>R3021990</td>
<td>1.250</td>
</tr>
<tr>
<td>4.75</td>
<td>R3021991</td>
<td>1.250</td>
</tr>
<tr>
<td>5.00</td>
<td>R3021992</td>
<td>1.250</td>
</tr>
</tbody>
</table>

### RAM SYNCHRONIZING CYLINDER Seal Kits

<table>
<thead>
<tr>
<th>Bore (inches)</th>
<th>RAM Part Number</th>
<th>Item</th>
<th>Size</th>
<th>Shipping Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.50</td>
<td>R3005481</td>
<td>Shaft Clevis Fits 1 1/8&quot; Shaft</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>2.75</td>
<td>R3005482</td>
<td>Shaft Clevis Fits 1 1/4&quot; Shaft</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>3.00</td>
<td>R3005483</td>
<td>Shaft Clevis Fits 1 3/8&quot; Shaft</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>3.25</td>
<td>R3005484</td>
<td>Shaft Clevis Fits 1 1/2&quot; Shaft</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>3.50</td>
<td>R3005485</td>
<td>Pin 1&quot; x 2 7/8&quot;</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>3.75</td>
<td>R3005486</td>
<td>Pin 1&quot; x 2 1/4&quot;</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>4.00</td>
<td>R3005487</td>
<td>Clip Hairpin Clip</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>4.25</td>
<td>R3005488</td>
<td>Hydraulic Depth Control Valve Repair Kit</td>
<td>0.02</td>
<td></td>
</tr>
</tbody>
</table>

### RAM SYNCHRONIZING CYLINDER Components

<table>
<thead>
<tr>
<th>Bore (inches)</th>
<th>RAM Part Number</th>
<th>Item</th>
<th>Size</th>
<th>Shipping Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.50</td>
<td>R3005456</td>
<td>Shaft Clevis Fits 1 1/8&quot; Shaft</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>2.75</td>
<td>R3005457</td>
<td>Shaft Clevis Fits 1 1/4&quot; Shaft</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>3.00</td>
<td>R3005458</td>
<td>Shaft Clevis Fits 1 3/8&quot; Shaft</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>3.25</td>
<td>R3005459</td>
<td>Shaft Clevis Fits 1 1/2&quot; Shaft</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>3.50</td>
<td>R3005460</td>
<td>Pin 1&quot; x 2 7/8&quot;</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>3.75</td>
<td>R3005461</td>
<td>Pin 1&quot; x 2 1/4&quot;</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>4.00</td>
<td>R3005462</td>
<td>Clip Hairpin Clip</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>4.25</td>
<td>R3005463</td>
<td>Hydraulic Depth Control Valve Repair Kit</td>
<td>0.02</td>
<td></td>
</tr>
</tbody>
</table>

**All Specifications are subject to change without notice. All weights are approximate shipping weights.**
Telescopic cylinders provide a long stroke from a very compact retracted length. RAM has experience designing telescopics for a number of industries and applications and can work with you to design a single acting, a single acting/double acting combination, or a double acting design.

Contact RAM Engineering to custom design a telescopic cylinder to fit your specific needs.

**CUSTOM TELESCOPIC BUILT TO YOUR SPECIFICATIONS**

**OPTIONAL FEATURES**

- **Working Pressure:** Up to 5000 PSI
- **Barrel Size:** Up to 20” diameter
- **Barrel Material:** Alternative tube stage coatings available including nitrided, chrome over nickel, plasma spray
- **Rod Size:** Stroke lengths up to 480”
- **Rod Material:** Carbon steel, precision honed, hard chrome plated stages
- **Piston:** Optional integrated machined piston design
- **Gland:** Steel or ductile internally threaded
- **End mounts:** Trunnion, clevis, tang, cross tube, spherical bearing, custom bushing, cross drilled hole
- **Valves:** Optional integrated valves
- **Ports:** Custom arrangements for size, type and location options
- **Seal Options:** Urethane wiper seals, modern urethane lipped shaft seal, modern urethane one piece static seals, glass filled nylon gland bearing rings, glass filled nylon piston bearing rings, cast iron piston rings, interlocking step-cut reinforced heat stabilized thermoplastic zero leak piston rings, and custom sealing arrangements for high or low temperature, high cycle or continuous duty

**TELESCOPIC DESIGN OPTIONS**

**SINGLE ACTING** Telescopic cylinders are the simplest telescopic design. A single acting cylinder is extended using hydraulic pressure but is retracted using external forces (usually gravity), once the hydraulic pressure is removed.

**SINGLE/Doubles COMBINATION** Telescopic cylinders are a single acting telescopic cylinder where one or more of the smaller stages are double acting. A typical application is a mast raising design on a drilling rig where the load must be pulled over center until gravity can take over to retract the cylinder.

**DOUBLE ACTING** Telescopic cylinder designs are extended and retracted using hydraulic pressure. A double acting telescopic cylinder is a more complex design and involves additional sealing within the internal body of the cylinder to seal off the different stages. Passageways are machined into the internal components of the cylinder to allow for proper staging. This type of design is usually utilized when gravity is not available to retract the cylinder.
RAM Industries produces Mast Raising Telescopic Cylinders to accommodate the needs of the oil and gas industry. These featured RAM designs are interchangeable with accepted current industry standards. They are available for quick shipping turnaround - important to an industry where time matters.

RAM offers 40 years of cylinder design and manufacturing experience to accommodate customized hydraulic solutions for your application.

**STANDARD FEATURES**
- **Intended Use:** Single-Acting with Double-Acting assist
- **Rated Pressure:** 2500 PSI
- **Barrel:** High tensile cold drawn tube, precision honed for extended seal life
- **Rod:** High tensile SAE C1045, ground and polished hard chrome plated
- **Piston:** Ductile Iron, 65-45-12 (ASTM A536), or Steel (AISI 1026)
- **Gland:** Ductile Iron, 65-45-12 (ASTM A536), or Steel (AISI 1026)
- **End Mounts:** Tang mounting on rod & base with standard grease zerk
- **Ports:** NPTF
- **Port Plugs:** (shipping) Steel
- **All Seals:** North American
- **Paint:** Black (custom available)
- **Testing:** 100% Hydraulic test

**STAGE PUSH** (lbf) | **PULL** (lbf) | **STROKE** (inches)
---|---|---
1 | 125600 | 42.25
2 | 89400 | 44.00
3 | 76700 | 45.25

All specifications are subject to change without notice.

**MAST RAISING**

**TELESCOPIC**

Model: CW-8.50-131.50-8.00
Part Number: R4507986

**OPERATING PARAMETERS @ 2500 PSI**

<table>
<thead>
<tr>
<th>STAGE</th>
<th>PUSH (lbf)</th>
<th>PULL (lbf)</th>
<th>STROKE (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>125600</td>
<td>-</td>
<td>42.25</td>
</tr>
<tr>
<td>2</td>
<td>89400</td>
<td>-</td>
<td>44.00</td>
</tr>
<tr>
<td>3</td>
<td>76700</td>
<td>49050</td>
<td>45.25</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS (inches)**
- Single Acting with Double Acting First Stage
- Pressure Rating: 2500 PSI
- Bore Sizes: 8.50/7.25/6.25
- Shaft Sizes: 8.00/6.75/3.75
- Stroke Length: 131.50

---

Model: CW-8.50-132.00-8.00
Part Number: R4507888

**SPECIFICATIONS (inches)**
- Single Acting with Double Acting First Stage
- Pressure Rating: 2500 PSI
- Bore Sizes: 8.50/7.25/6.25
- Shaft Sizes: 8.00/6.75/3.75
- Stroke Length: 132

---

**OPERATING PARAMETERS @ 2500 PSI**

<table>
<thead>
<tr>
<th>STAGE</th>
<th>PUSH (lbf)</th>
<th>PULL (lbf)</th>
<th>STROKE (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>125600</td>
<td>-</td>
<td>42.25</td>
</tr>
<tr>
<td>2</td>
<td>89400</td>
<td>-</td>
<td>44.00</td>
</tr>
<tr>
<td>3</td>
<td>76700</td>
<td>49050</td>
<td>45.25</td>
</tr>
</tbody>
</table>

---

**HYDRAULIC CYLINDERS**

RAM Industries produces Mast Raising Telescopic Cylinders to accommodate the needs of the oil and gas industry. These featured RAM designs are interchangeable with accepted current industry standards. They are available for quick shipping turnaround - important to an industry where time matters.

RAM offers 40 years of cylinder design and manufacturing experience to accommodate customized hydraulic solutions for your application.

---

**MAST RAISING**

**TELESCOPIC**
### Standard Features

- **Rated Pressure:** 3000 PSI
- **Barrel:** High tensile cold drawn tube, precision honed for extended seal life
- **Rod:** High tensile SAE C1045, ground & polished hard chrome plated
- **Pin & Pin Clip:** High tensile zinc-plated steel
- **End Mounts:** Cross tube
- **Intended Use:** Double-acting applications
- **Paint:** Black [custom available]
- **Testing:** 100% Hydraulic test

#### YORK CROSS TUBE SERIES

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Stroke (inches)</th>
<th>Rod Diameter (inches)</th>
<th>Pin Center to Center (inches)</th>
<th>Maximum Rated Pressure &amp; Column Load on Full Extension (inches)</th>
<th>Shipping Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>480750000</td>
<td>4</td>
<td>1.500</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>17</td>
</tr>
<tr>
<td>480750001</td>
<td>6</td>
<td>2.000</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>19</td>
</tr>
<tr>
<td>480750002</td>
<td>8</td>
<td>2.500</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>21</td>
</tr>
<tr>
<td>480750003</td>
<td>10</td>
<td>3.000</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>23</td>
</tr>
<tr>
<td>480750004</td>
<td>12</td>
<td>3.500</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>25</td>
</tr>
<tr>
<td>480750005</td>
<td>14</td>
<td>4.000</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>27</td>
</tr>
<tr>
<td>480750006</td>
<td>16</td>
<td>4.500</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>29</td>
</tr>
<tr>
<td>480750007</td>
<td>18</td>
<td>5.000</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>31</td>
</tr>
<tr>
<td>480750008</td>
<td>20</td>
<td>6.000</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>33</td>
</tr>
<tr>
<td>480750009</td>
<td>22</td>
<td>6.500</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>35</td>
</tr>
<tr>
<td>480750010</td>
<td>24</td>
<td>7.000</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>37</td>
</tr>
<tr>
<td>480750011</td>
<td>26</td>
<td>7.500</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>39</td>
</tr>
<tr>
<td>480750012</td>
<td>28</td>
<td>8.000</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>41</td>
</tr>
<tr>
<td>480750013</td>
<td>30</td>
<td>8.500</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>43</td>
</tr>
<tr>
<td>480750014</td>
<td>32</td>
<td>9.000</td>
<td>SAE-G 0.750</td>
<td>3000 1325</td>
<td>45</td>
</tr>
</tbody>
</table>

All specifications are subject to change without notice. All weights are approximate shipping weights. Conforms to ASAE (American Society of Agricultural Engineers) specifications. All Specifications are subject to change without notice. All weights are approximate shipping weights.
# YORK CLEVIS SERIES

**Standard Features**
- **Intended Use:** Double-acting applications
- **Rated Pressure:** 3000 PSI
- **Barrel:** High tensile cold drawn tube, precision honed for extended seal life
- **Rod:** High tensile SAE C1045, ground & polished hard chrome plated
- **Piston & Gland:** Ductile Iron 65-45-12 (ASTM A536)
- **Piston Locknut:** Grade C, high tensile
- **End Mounts:** Female rod clevis with pins & clips included
- **Pin & Pin Clip:** High tensile zinc-plated steel
- **All Seals:** Manufactured to North American specifications
- **Paint:** Black [custom available]
- **Testing:** 100% Hydraulic test

## Pressure Testing:

**YORK CLEVIS SERIES**

- **Piston Locknut:** Female rod clevis with pins & clips included
- **Pin & Pin Clip:** High tensile zinc-plated steel
- **All Seals:** Manufactured to North American specifications

## Parts
- **Ports:** SAE
- **Clevis Clamp Nut, Bolt:** Grade B
- **Port Plugs:** [shipping] Steel
- **Double-acting applications**

## Rated Pressure

- **High tensile cold drawn tube, precision honed for extended seal life**
- **High tensile zinc-plated steel**
- **Grade C, high tensile**
- **SAE C1045, ground & polished hard chrome plated**
- **Ductile Iron 65-45-12 (ASTM A536)**

## Diameter

- **Diameter (inches):**
  - 1.250
  - 1.000

## Pin Center to Center

- **Pin Center to Center (inches):**
  - 3.00
  - 2.50

## Stroke

- **Stroke (inches):**
  - 2.00
  - 3.50
  - 4.00

## Pin Diameter Nominal (inches)

- **Pin Diameter Nominal (inches):**
  - 0.500
  - 0.750

## Load on Full Extension

- **Load on Full Extension (PSI):**
  - 3000
  - 21205
  - 37700

## Pressure & Column

- **Pressure & Column (PSI):**
  - 1.000

## Shipping Weight (lbs)

- **Shipping Weight (lbs):**
  - 5024
  - 1056
  - 1757

## Bore (inches)

- **Bore (inches):**
  - 3.00
  - 2.50
  - 4.00

---

### Table: CLEVIS SAE B

<table>
<thead>
<tr>
<th>Bore (inches)</th>
<th>RAM Part Number</th>
<th>Stroke (inches)</th>
<th>Pin Center to Center (inches)</th>
<th>Rod Diameter Nominal (inches)</th>
<th>Pin Center to Center (inches)</th>
<th>Ports</th>
<th>Pin Diameter Nominal (inches)</th>
<th>Maximum Rated Pressure &amp; Column Load on Full Extension</th>
<th>Shipping Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.00</td>
<td>RH4501732</td>
<td>4</td>
<td>14.25</td>
<td>18.25</td>
<td></td>
<td>18.25</td>
<td></td>
<td>3000/21205</td>
<td>19</td>
</tr>
<tr>
<td>2.50</td>
<td>RH4501733</td>
<td>6</td>
<td>16.25</td>
<td>20.25</td>
<td></td>
<td>20.25</td>
<td>32.25</td>
<td>2500/250</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>RH4501736</td>
<td>14</td>
<td>28.25</td>
<td>32.25</td>
<td></td>
<td>32.25</td>
<td>44.25</td>
<td>3000/3000</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>RH4501737</td>
<td>16</td>
<td>32.25</td>
<td>36.25</td>
<td></td>
<td>36.25</td>
<td>48.25</td>
<td>3000/3000</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>RH4501738</td>
<td>20</td>
<td>36.25</td>
<td>40.25</td>
<td></td>
<td>40.25</td>
<td>50.25</td>
<td>3000/3000</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>RH4501739</td>
<td>24</td>
<td>40.25</td>
<td>44.25</td>
<td></td>
<td>44.25</td>
<td>54.25</td>
<td>3000/3000</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>RH4501740</td>
<td>30</td>
<td>44.25</td>
<td>48.25</td>
<td></td>
<td>48.25</td>
<td>58.25</td>
<td>3000/3000</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>RH4501741</td>
<td>32</td>
<td>48.25</td>
<td>52.25</td>
<td></td>
<td>52.25</td>
<td>60.25</td>
<td>3000/3000</td>
<td>46</td>
</tr>
</tbody>
</table>

*Conforms to ASAE (American Society of Agricultural Engineers) specifications. All Specifications are subject to change without notice. All weights are approximate shipping weights.
**CROSS TUBE SERIES DIMENSIONS**

<table>
<thead>
<tr>
<th>Bore (inches)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.50</td>
<td>8.000</td>
<td>0.765</td>
<td>1.250</td>
<td>1.250</td>
<td>2.250</td>
<td>2.000</td>
<td>1.880</td>
<td>0.630</td>
<td>4.060</td>
<td>SAE-6</td>
</tr>
<tr>
<td>2.00</td>
<td>8.000</td>
<td>1.015</td>
<td>1.750</td>
<td>1.500</td>
<td>2.750</td>
<td>2.250</td>
<td>2.380</td>
<td>0.750</td>
<td>2.810</td>
<td>SAE-6</td>
</tr>
<tr>
<td>2.50</td>
<td>8.000</td>
<td>1.015</td>
<td>1.750</td>
<td>1.500</td>
<td>3.250</td>
<td>2.250</td>
<td>2.880</td>
<td>0.750</td>
<td>2.560</td>
<td>SAE-6</td>
</tr>
<tr>
<td>3.00</td>
<td>8.000</td>
<td>1.015</td>
<td>1.750</td>
<td>1.500</td>
<td>3.750</td>
<td>2.250</td>
<td>3.380</td>
<td>0.750</td>
<td>2.440</td>
<td>SAE-6</td>
</tr>
<tr>
<td>3.50</td>
<td>8.000</td>
<td>1.015</td>
<td>1.750</td>
<td>2.000</td>
<td>4.250</td>
<td>2.250</td>
<td>3.880</td>
<td>1.000</td>
<td>2.130</td>
<td>SAE-8</td>
</tr>
<tr>
<td>4.00</td>
<td>8.000</td>
<td>1.265</td>
<td>2.000</td>
<td>2.250</td>
<td>4.750</td>
<td>2.750</td>
<td>4.500</td>
<td>1.130</td>
<td>1.810</td>
<td>SAE-8</td>
</tr>
</tbody>
</table>

Dimensions in inches. All Specifications are subject to change without notice.

**CROSS TUBE SERIES DIMENSIONS**

<table>
<thead>
<tr>
<th>Bore (inches)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00</td>
<td>10.25</td>
<td>1.015</td>
<td>1.13</td>
<td>2.00</td>
<td>3.25</td>
<td>2.38</td>
<td>1.13</td>
<td>1.13</td>
<td>2.00</td>
<td>2.75</td>
</tr>
<tr>
<td>2.50</td>
<td>10.25</td>
<td>1.015</td>
<td>1.13</td>
<td>2.00</td>
<td>3.25</td>
<td>2.88</td>
<td>1.13</td>
<td>1.13</td>
<td>2.00</td>
<td>2.75</td>
</tr>
<tr>
<td>3.00</td>
<td>10.25</td>
<td>1.015</td>
<td>1.13</td>
<td>2.00</td>
<td>3.25</td>
<td>3.38</td>
<td>1.13</td>
<td>1.13</td>
<td>2.00</td>
<td>2.75</td>
</tr>
<tr>
<td>3.50</td>
<td>10.25</td>
<td>1.015</td>
<td>1.13</td>
<td>2.00</td>
<td>3.25</td>
<td>3.88</td>
<td>1.13</td>
<td>1.13</td>
<td>2.00</td>
<td>2.75</td>
</tr>
<tr>
<td>4.00</td>
<td>10.25</td>
<td>1.015</td>
<td>1.13</td>
<td>2.00</td>
<td>3.25</td>
<td>4.50</td>
<td>1.13</td>
<td>1.13</td>
<td>2.00</td>
<td>2.75</td>
</tr>
</tbody>
</table>

Dimensions in inches. All Specifications are subject to change without notice.

*For the standard ASAE (8" stroke) cylinders this dimension is 12.25".*

**RAM YORK CYLINDER Seal Kits**

<table>
<thead>
<tr>
<th>Bore (inches)</th>
<th>RAM Part Number</th>
<th>Rod Diameter (inches)</th>
<th>Shipping Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.50</td>
<td>R3607500</td>
<td>1.000</td>
<td>0.03</td>
</tr>
<tr>
<td>2.00</td>
<td>R3607507</td>
<td>1.250</td>
<td>0.04</td>
</tr>
<tr>
<td>2.50</td>
<td>R3607522</td>
<td>1.500</td>
<td>0.06</td>
</tr>
<tr>
<td>3.00</td>
<td>R3607537</td>
<td>1.500</td>
<td>0.07</td>
</tr>
<tr>
<td>3.50</td>
<td>R3607552</td>
<td>1.750</td>
<td>0.08</td>
</tr>
<tr>
<td>4.00</td>
<td>R3607567</td>
<td>2.000</td>
<td>0.08</td>
</tr>
</tbody>
</table>

All Specifications are subject to change without notice. All weights are approximate shipping weights.

**RAM YORK CYLINDER Components**

<table>
<thead>
<tr>
<th>RAM Part Number</th>
<th>Item</th>
<th>Size</th>
<th>Shipping Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R7600455</td>
<td>Shaft Clevis</td>
<td>Fits 1 1/4&quot; Shaft</td>
<td>3.30</td>
</tr>
<tr>
<td>R7600455</td>
<td>Shaft Clevis</td>
<td>Fits 1 1/2&quot; Shaft</td>
<td>3.30</td>
</tr>
<tr>
<td>R7600455</td>
<td>Shaft Clevis</td>
<td>Fits 1 3/4&quot; Shaft</td>
<td>3.30</td>
</tr>
<tr>
<td>R7600455</td>
<td>Shaft Clevis</td>
<td>Fits 2&quot; Shaft</td>
<td>3.30</td>
</tr>
<tr>
<td>R3006631</td>
<td>Pin</td>
<td>1&quot; x 2 7/8&quot;</td>
<td>0.80</td>
</tr>
<tr>
<td>R3006632</td>
<td>Pin</td>
<td>1&quot; x 2 1/4&quot;</td>
<td>0.60</td>
</tr>
<tr>
<td>R3006300</td>
<td>Clip</td>
<td>Hairpin Clip</td>
<td>0.02</td>
</tr>
</tbody>
</table>

All Specifications are subject to change without notice. All weights are approximate shipping weights.
The RAM Lok uses two internal high tensile spring steel rings to securely lock the cylinder barrel to the head and base. With a 3000 PSI operating pressure, these cylinders are a viable alternative to Tyrod and Welded designs.

### RAMLOK™ CYLINDERS

**Features**
- **Intended Use:** Double-acting applications
- **Rated Pressure:** 3000 PSI
- **Barrel:** High tensile cold drawn tube, precision honed for extended seal life
- **Rod:** High tensile SAE C1045, ground & polished hard chrome plated
- **Piston, Gland, Cap, Rod Clevis:** Ductile Iron 85-45-12 (ASTM A536)
- **Piston Locknut, Clamp Bolt, Clevis Clamp Nut:** Grade 8
- **End Mounts:** Female clevises with pins & clips included
- **All Seals:** Manufactured to North American specifications
- **Pin & Pin Clip:** High tensile zinc-plated steel
- **Ports:** SAE
- **Port Plugs:** (shipping) Steel
- **Paint:** Black
- **Testing:** 100% Hydraulic test

### RAMLOK™ SERIES DIMENSIONS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.50</td>
<td>10.25</td>
<td>1.015</td>
<td>1.88</td>
<td>2.00</td>
<td>1.00</td>
<td>1.13</td>
<td>1.13</td>
<td>2.50</td>
<td>1.13</td>
<td>1.13</td>
<td>2.75</td>
<td>SAE-6</td>
<td>1.125 - 12 UNF</td>
</tr>
<tr>
<td>2.50</td>
<td>10.25</td>
<td>1.015</td>
<td>1.88</td>
<td>2.00</td>
<td>1.00</td>
<td>1.13</td>
<td>1.13</td>
<td>2.63</td>
<td>1.13</td>
<td>1.13</td>
<td>2.75</td>
<td>SAE-6</td>
<td>1.125 - 12 UNF</td>
</tr>
<tr>
<td>2.50</td>
<td>10.25</td>
<td>1.015</td>
<td>1.88</td>
<td>2.00</td>
<td>1.00</td>
<td>1.13</td>
<td>1.13</td>
<td>2.63</td>
<td>1.13</td>
<td>1.13</td>
<td>2.75</td>
<td>SAE-6</td>
<td>1.250 - 12 UNF</td>
</tr>
</tbody>
</table>

*For the standard ASAE (8” stroke) cylinders this dimension is 12.25”

### STANDARD FEATURES

- **Pressure & Column Pressure (PSI):**
  - 2.00: 14726
  - 2.50: 2928

### RAMLOK™ SERIES PARTS

#### RAMLOK™ CYLINDER Seal Kits

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Diameter (in)</th>
<th>Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R305545</td>
<td>1.125</td>
<td>0.03</td>
</tr>
<tr>
<td>R305561</td>
<td>1.125</td>
<td>0.05</td>
</tr>
<tr>
<td>R305568</td>
<td>1.250</td>
<td>0.04</td>
</tr>
<tr>
<td>R305574</td>
<td>1.250</td>
<td>0.08</td>
</tr>
<tr>
<td>R305581</td>
<td>1.500</td>
<td>0.09</td>
</tr>
<tr>
<td>R305587</td>
<td>1.500</td>
<td>0.07</td>
</tr>
<tr>
<td>R305594</td>
<td>1.500</td>
<td>0.07</td>
</tr>
<tr>
<td>R305660</td>
<td>1.750</td>
<td>0.08</td>
</tr>
</tbody>
</table>

#### RAMLOK™ CYLINDER Components

<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
<th>Shipping Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R7600455</td>
<td>Shaft Clevis</td>
<td>3.30</td>
</tr>
<tr>
<td>R7600455</td>
<td>Fits 1 1/8&quot;</td>
<td></td>
</tr>
<tr>
<td>R7600455</td>
<td>Shaft Clevis</td>
<td>3.30</td>
</tr>
<tr>
<td>R7600455</td>
<td>Fits 1 1/4&quot;</td>
<td></td>
</tr>
<tr>
<td>R7600455</td>
<td>Shaft Clevis</td>
<td>3.30</td>
</tr>
<tr>
<td>R7600455</td>
<td>Fits 1 1/2&quot;</td>
<td></td>
</tr>
<tr>
<td>R7600455</td>
<td>Shaft Clevis</td>
<td>3.30</td>
</tr>
<tr>
<td>R7600455</td>
<td>Fits 1 3/4&quot;</td>
<td></td>
</tr>
<tr>
<td>R305631</td>
<td>Pin</td>
<td>0.80</td>
</tr>
<tr>
<td>R305632</td>
<td>1&quot; x 2 7/8&quot;</td>
<td></td>
</tr>
<tr>
<td>R305630</td>
<td>Clip</td>
<td>0.02</td>
</tr>
</tbody>
</table>

*All Specifications are subject to change without notice. All weights are approximate shipping weights.*
Tyrod Cylinders

Standard Features

- Intended Use: Double-acting applications
- Rated Pressure: 2500 PSI
- Barrel: High tensile cold drawn tube, precision honed for extended seal life
- Rod: High tensile SAE C1045, ground & polished hard chrome plated
- Piston, Gland, Cap, Rod Clevis: Ductile Iron 65-45-12 (ASTM A536)
- Piston Locknut, Clamp Bolt, Clevis Clamp Nut, Tie Rod Nut: Grade 8
- End Mounts: Female clevises with pins & clips included
- Tie Rod: ASTM 5140, high tensile, rolled threads for durability
- All Seals: Manufactured to North American specifications
- Testing: 100% Hydraulic test

<table>
<thead>
<tr>
<th>Bore (inches)</th>
<th>Ramsey Number</th>
<th>Stroke (inches)</th>
<th>Rod Diameter (inches)</th>
<th>Pin Center to Center (inches)</th>
<th>Ports</th>
<th>Pin Diameter Nominal (inches)</th>
<th>Maximum Rated Pressure &amp; Column Load on Full Extension</th>
<th>Shipping Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00</td>
<td>R4507023 8</td>
<td>1.125</td>
<td>2.00</td>
<td>1/8 NPTF 1.00</td>
<td>1/8</td>
<td>2500</td>
<td>7855</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>R4507020 12</td>
<td>1.125</td>
<td>2.50</td>
<td>1/8 NPTF 1.00</td>
<td>1/8</td>
<td>2500</td>
<td>7855</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>R4507018 24</td>
<td>1.125</td>
<td>3.50</td>
<td>1/8 NPTF 1.00</td>
<td>1/8</td>
<td>2500</td>
<td>7855</td>
<td>27</td>
</tr>
<tr>
<td>2.50</td>
<td>R4507017 10</td>
<td>1.125</td>
<td>2.00</td>
<td>1/8 NPTF 1.00</td>
<td>1/8</td>
<td>2500</td>
<td>7855</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>R4507016 12</td>
<td>1.125</td>
<td>2.50</td>
<td>1/8 NPTF 1.00</td>
<td>1/8</td>
<td>2500</td>
<td>7855</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>R4507052 18</td>
<td>1.250</td>
<td>2.00</td>
<td>1/8 NPTF 1.00</td>
<td>1/8</td>
<td>2500</td>
<td>7855</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>R4507051 24</td>
<td>1.250</td>
<td>2.50</td>
<td>1/8 NPTF 1.00</td>
<td>1/8</td>
<td>2500</td>
<td>7855</td>
<td>28</td>
</tr>
<tr>
<td>3.00</td>
<td>R4507027 8</td>
<td>1.250</td>
<td>2.00</td>
<td>1/2 NPTF 1.00</td>
<td>1/2</td>
<td>3250</td>
<td>8450</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>R4507026 10</td>
<td>1.250</td>
<td>2.50</td>
<td>1/2 NPTF 1.00</td>
<td>1/2</td>
<td>3250</td>
<td>8450</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>R4507025 12</td>
<td>1.250</td>
<td>3.50</td>
<td>1/2 NPTF 1.00</td>
<td>1/2</td>
<td>3250</td>
<td>8450</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>R4507024 24</td>
<td>1.500</td>
<td>1.00</td>
<td>1/2 NPTF 1.00</td>
<td>1/2</td>
<td>3250</td>
<td>8450</td>
<td>37</td>
</tr>
<tr>
<td>3.50</td>
<td>R4507043 10</td>
<td>1.250</td>
<td>2.00</td>
<td>1/2 NPTF 1.00</td>
<td>1/2</td>
<td>3250</td>
<td>8450</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>R4507042 12</td>
<td>1.250</td>
<td>2.50</td>
<td>1/2 NPTF 1.00</td>
<td>1/2</td>
<td>3250</td>
<td>8450</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>R4507041 18</td>
<td>1.500</td>
<td>2.00</td>
<td>1/2 NPTF 1.00</td>
<td>1/2</td>
<td>3250</td>
<td>8450</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>R4507040 24</td>
<td>1.500</td>
<td>2.50</td>
<td>1/2 NPTF 1.00</td>
<td>1/2</td>
<td>3250</td>
<td>8450</td>
<td>45</td>
</tr>
<tr>
<td>4.00</td>
<td>R4507053 8</td>
<td>1.500</td>
<td>2.00</td>
<td>1/2 NPTF 1.00</td>
<td>1/2</td>
<td>3250</td>
<td>8450</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>R4507052 10</td>
<td>1.500</td>
<td>2.50</td>
<td>1/2 NPTF 1.00</td>
<td>1/2</td>
<td>3250</td>
<td>8450</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>R4507051 12</td>
<td>1.500</td>
<td>3.50</td>
<td>1/2 NPTF 1.00</td>
<td>1/2</td>
<td>3250</td>
<td>8450</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>R4507050 16</td>
<td>1.500</td>
<td>1.00</td>
<td>1/2 NPTF 1.00</td>
<td>1/2</td>
<td>3250</td>
<td>8450</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>R4507049 24</td>
<td>2.000</td>
<td>1.00</td>
<td>1/2 NPTF 1.00</td>
<td>1/2</td>
<td>3250</td>
<td>8450</td>
<td>55</td>
</tr>
</tbody>
</table>

RAM TyRod™ Cylinder Seal Kits

<table>
<thead>
<tr>
<th>Bore (inches)</th>
<th>Ramsey Number</th>
<th>Rod Diameter (inches)</th>
<th>Shipping Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00</td>
<td>R4507027</td>
<td>1.125</td>
<td>0.04</td>
</tr>
<tr>
<td>2.50</td>
<td>R3607013</td>
<td>1.250</td>
<td>0.05</td>
</tr>
<tr>
<td>3.00</td>
<td>R3607026</td>
<td>1.500</td>
<td>0.07</td>
</tr>
<tr>
<td>3.50</td>
<td>R3607033</td>
<td>1.500</td>
<td>0.07</td>
</tr>
<tr>
<td>4.00</td>
<td>R3607052</td>
<td>1.500</td>
<td>0.07</td>
</tr>
</tbody>
</table>

RAM TyRod™ Cylinder Components

<table>
<thead>
<tr>
<th>Ramsey Number</th>
<th>Item</th>
<th>Size</th>
<th>Shipping Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R76000456</td>
<td>Shaft Clevis</td>
<td>Fits 1 1/8&quot; Shaft</td>
<td>3.30</td>
</tr>
<tr>
<td>R76000455</td>
<td>Shaft Clevis</td>
<td>Fits 1 1/4&quot; Shaft</td>
<td>3.30</td>
</tr>
<tr>
<td>R76000454</td>
<td>Shaft Clevis</td>
<td>Fits 1 1/2&quot; Shaft</td>
<td>3.30</td>
</tr>
<tr>
<td>R76000453</td>
<td>Shaft Clevis</td>
<td>Fits 2&quot; Shaft</td>
<td>3.30</td>
</tr>
<tr>
<td>R3006301</td>
<td>Pin</td>
<td>1&quot; x 2 7/8&quot;</td>
<td>0.80</td>
</tr>
<tr>
<td>R3006300</td>
<td>Clip</td>
<td>Harpin Clip</td>
<td>0.02</td>
</tr>
</tbody>
</table>

All Specifications are subject to change without notice. All weights are approximate shipping weights.
RAM ONLINE can be found at www.ramindustries.com.
View information about our organization, product offerings and manufacturing capabilities.

- Online Quote Form
- Cylinder Products
- Machining Capabilities
- Industries Served
- Electronic Brochures
- Company History
- ISO Quality System
- Contact Information
- Product updates

website: www.ramindustries.com
email: sales@ramindustries.com, estimating@ramindustries.com
phone: toll free: 1.877.799.1005, direct: 306.786.2677
fax: direct: 306.786.2651
mail: RAM Industries Inc.
33 York Rd E
PO Box 5007
Yorkton, SK S3N 3Z4
CANADA

www.ramindustries.com