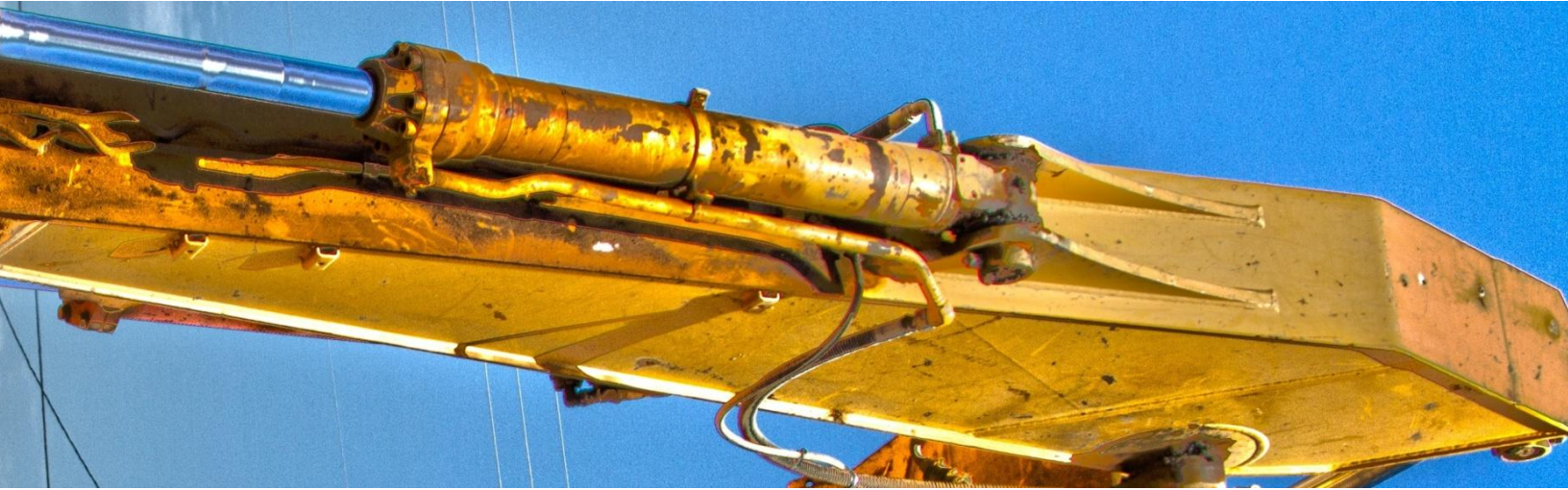




# INTEROCEAN

*Investment Bank for the Manufacturing Sector <sup>SM</sup>*



## Hydraulic Cylinder Industry Report

April 2016

InterOcean Advisors LLC

225 West Washington Street

Suite 1400

Chicago, IL 60606

[www.ioadvisors.com](http://www.ioadvisors.com)

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*\*Please note – data quoted in this report are from multiple sources and, in each case, InterOcean has used the most current information available. However, certain content is no more recent than 2014. Recipients of this document must conduct their own appraisal and due diligence procedures before acting or refraining from acting on reliance on this document.*

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## Executive Summary

Power and reliability, coupled with low operating costs, result in hydraulic cylinders being the preferred choice for a host of mobile and industrial applications. Although potentially challenged by alternative technologies such as electrical actuators, hydraulic cylinders remain the most efficient method for maximizing output, particularly in high force applications such as metal stamping, compaction and heavy mobile equipment applications.

The North American hydraulic cylinders market is mature with pockets of potential growth in a few major segments. Although stabilizing, the U.S. economy is expected to positively affect mobile hydraulic cylinders in the compaction, construction and aerospace sectors. Due to the global collapse in commodity prices, the agriculture, mining and oil & gas sectors have all seen significant declines with no near-term turn-around in sight. Looking at the hydraulic cylinder market as a whole, the losses from the commodity linked industries are expected to be offset by growth opportunities in other sectors, yielding overall net positive growth in the industry.

### Key Findings

- Some manufacturers are increasingly offering complete hydraulic cylinder systems and sub-system assemblies to differentiate themselves and obtain profitable maintenance and aftermarket service business. Customers are embracing such solutions to simplify their supply channel management and reduce overall operational costs.
- A trend in the hydraulics industry is to combine hydraulic cylinders and electronics, generating increased accuracy, enhanced functionality, improved ease-of-use and controlled performance. This integration has expanded the scope of applications and helped stave off competition from alternative technologies.
- Manufacturers have been experiencing a shortage of the availability of skilled workers. In efforts to narrow this gap, some manufacturers are taking a proactive approach and promoting the use of apprenticeship programs and partnering with local trade education providers.
- Hydraulic cylinder manufacturers in North America face competition from low cost imports, but quality issues continue to impede broad acceptance by U.S. original equipment manufacturers ("OEM"). Nonetheless, U.S. imports of hydraulic cylinders grew over 9% in 2014, while the total U.S. market experienced a nominal 4% growth rate.
- Exports present a persistent growth opportunity for North American hydraulic cylinder manufacturers. U.S. exports of hydraulic cylinders experienced a robust compound annual growth rate ("CAGR") of 17% over the past seven years. However, this trend may reverse if the U.S. dollar retains its strength.
- The domestic hydraulic cylinder market is poised to benefit from expected growth in the overall economy and industrial production. After registering a sharp decline during the recession, the U.S. GDP has since recovered registering 2.4% growth in both 2014 and 2015 (according to the World Bank). As such, the North American hydraulic cylinders industry is expected to outpace the general economy growing at a CAGR of 4.8% through 2020.
- The current state of the hydraulic cylinder market is fragmented, and the continued need to become competitive on a global scale is expected to fuel further strategic M&A consolidation. In addition, we believe interest from private equity sponsors will favorably impact M&A activity.

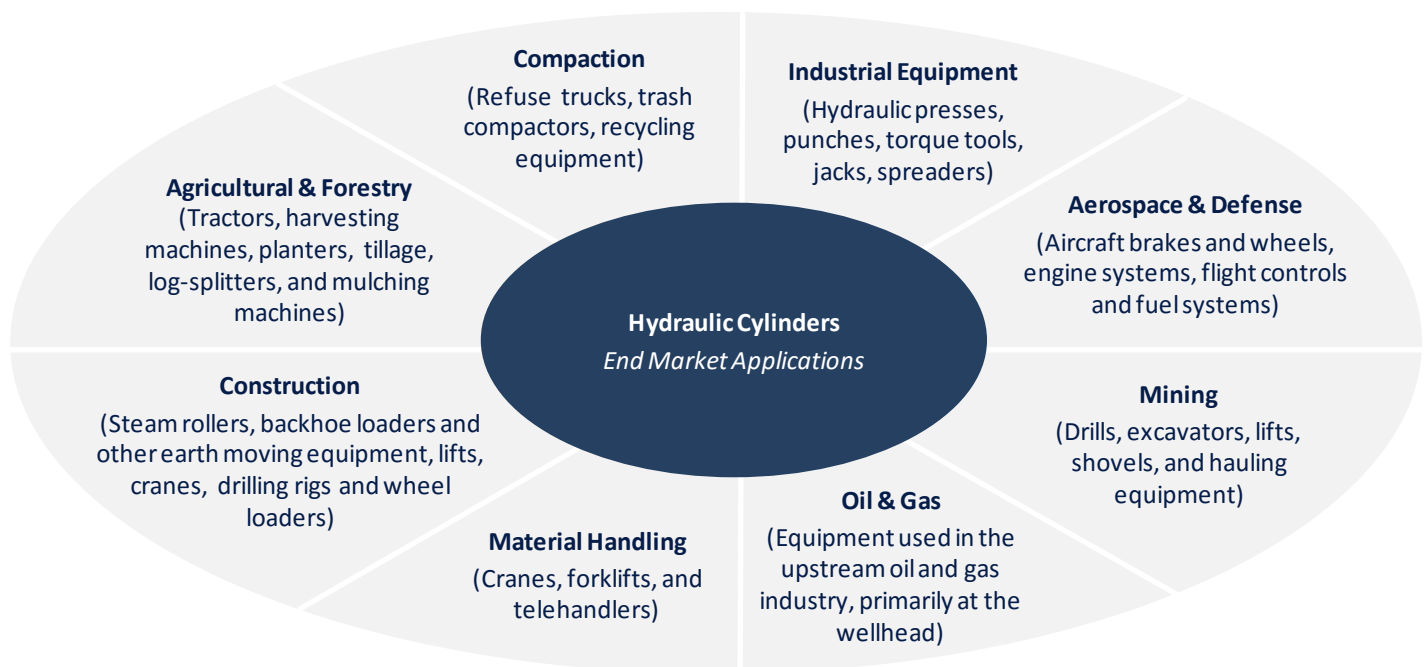
# Introduction to Hydraulic Cylinders

## Meaning and Definition

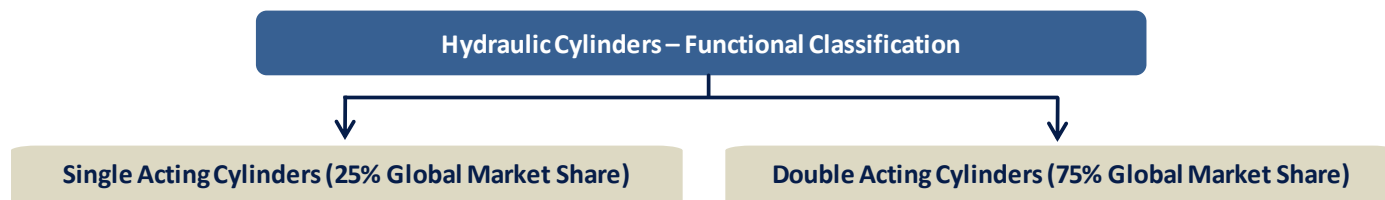
Hydraulic equipment relies on the efficient conversion of hydraulic energy into mechanical energy. Over the past several decades, the importance of and demand for hydraulic equipment in mobile, industrial and other applications has continued to benefit from its unique ability to provide a high level of force in a relatively small package. The size, type and style of hydraulic devices vary based on the intended application and purpose. Hydraulic cylinder technology has evolved to include complex linear and multi-stage telescopic cylinders and rotary actuators, allowing for a wide range of motion that is not possible with a traditional hydraulic cylinder designs.

## Select Applications

Though not comprehensive, we have identified eight key end markets for the production of hydraulic cylinders with examples of specific equipment applications listed below. Among all the end market segments, approximately 60% of the global hydraulic equipment market is designed for mobile applications.

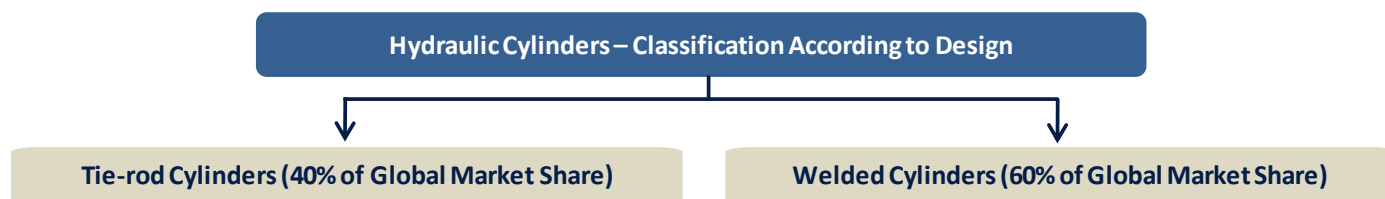


## Types of Hydraulic Cylinders by Function



Double acting hydraulic cylinders comprise approximately 75% of the total global market for hydraulic cylinders and are mostly used in mobile, hydraulic lifting applications, including waste management, earth moving equipment and heavy trucks. Single acting cylinders perform a single-direction power operation. Although they are used in many industries, they actually have fewer applications. Thus, the market share of single acting cylinders is materially less than that of double acting cylinders.

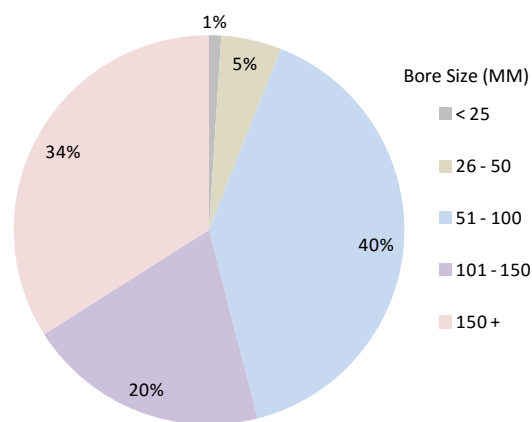
## Types of Hydraulic Cylinders by Design



Welded style cylinders, comprise approximately 60% of the global hydraulic cylinder market share. Tie rod cylinders, which comprise the other 40%, are generally used in light to medium applications. They offer the advantages of being relatively easy to repair and have standardized specifications and off the shelf availability.

## Types of Hydraulic Cylinders – by Bore Size

Smaller bore size cylinders (<50 mm) are typically used for single push-pull operations and are generally viewed as a more commoditized product – used in much simpler applications which do not require strong lifting capacity. While there are certainly numerous exceptions, manufacturers in this size range often compete on price, while much larger bore size cylinders typically involve complex designs and customizations to fit the intended applications and are less price sensitive. The majority of the hydraulic cylinder market consists of cylinders with larger bore sizes (>100 mm), accounting for approximately 53% of the market.



Source: Global Industry Analyst Inc.

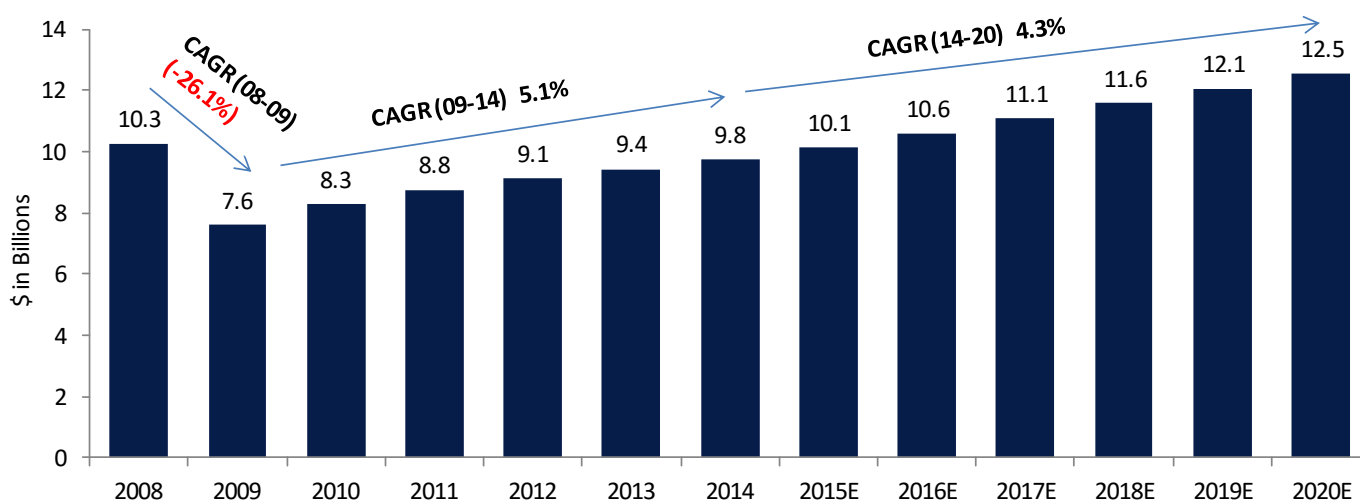
# Global Hydraulic Cylinder Industry

## Market Size

The global hydraulic cylinders market was estimated to be \$9.8 billion in 2014 by Global Industry Analyst Inc. and is forecast to reach \$12.5 billion by 2020, representing a CAGR of 4.3%. Despite the steady growth trend, the market is only now forecasted to return to pre-recessionary levels in 2016. Key factors driving growth are increased investment in material handling, aerospace & defense equipment and infrastructure.

In addition, the expansion of the end-user operating base, driven by the increase in construction activities and industrialization, is expected to have an important positive effect on the demand for hydraulic cylinders. Notwithstanding the existence of the current global macroeconomic headwinds, hydraulic cylinders are expected to outpace the growth of the general overall global economy.

**Global Hydraulic Cylinders Market**

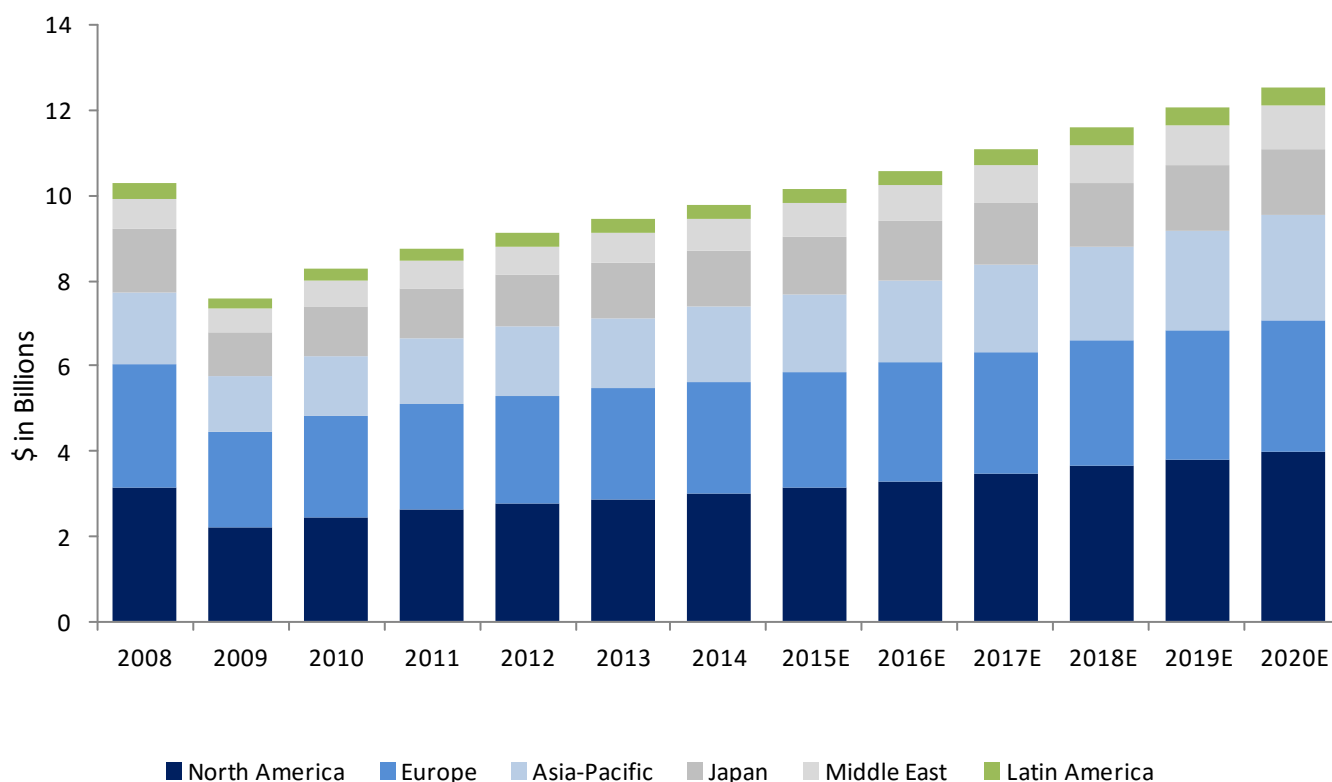


Source: Global Industry Analyst Inc.

North America is the largest regional subsector with an estimated 31% market share in 2015, followed by Europe at 27%. The European market, which continues to experience particularly sluggish economic expansion, is expected to witness muted growth of 2.3% through 2020. Retrofits remain a key contributor to these mature markets, as economically sensitive companies have postponed their new equipment purchases.

The Asia-Pacific market is the third largest regional subsector with an 18% market share. It is expected to have the greatest rate of growth, approximately 5.1% over the period of 2014-2020. China and India, with their skilled and low-cost labor, have become outsourcing hubs for some global hydraulic cylinder manufacturers. With the strong U.S. Dollar, low-cost imports from Asia-Pacific countries are becoming increasingly more cost-competitive and are impacting businesses in North America and Europe. However, as most of the products being manufactured in the APAC region are standard low-tech components, this may have limited effect on North American and European hydraulic cylinder producers that focus on highly engineered customized components.

**Global Hydraulic Cylinders Market by Geographic Region**

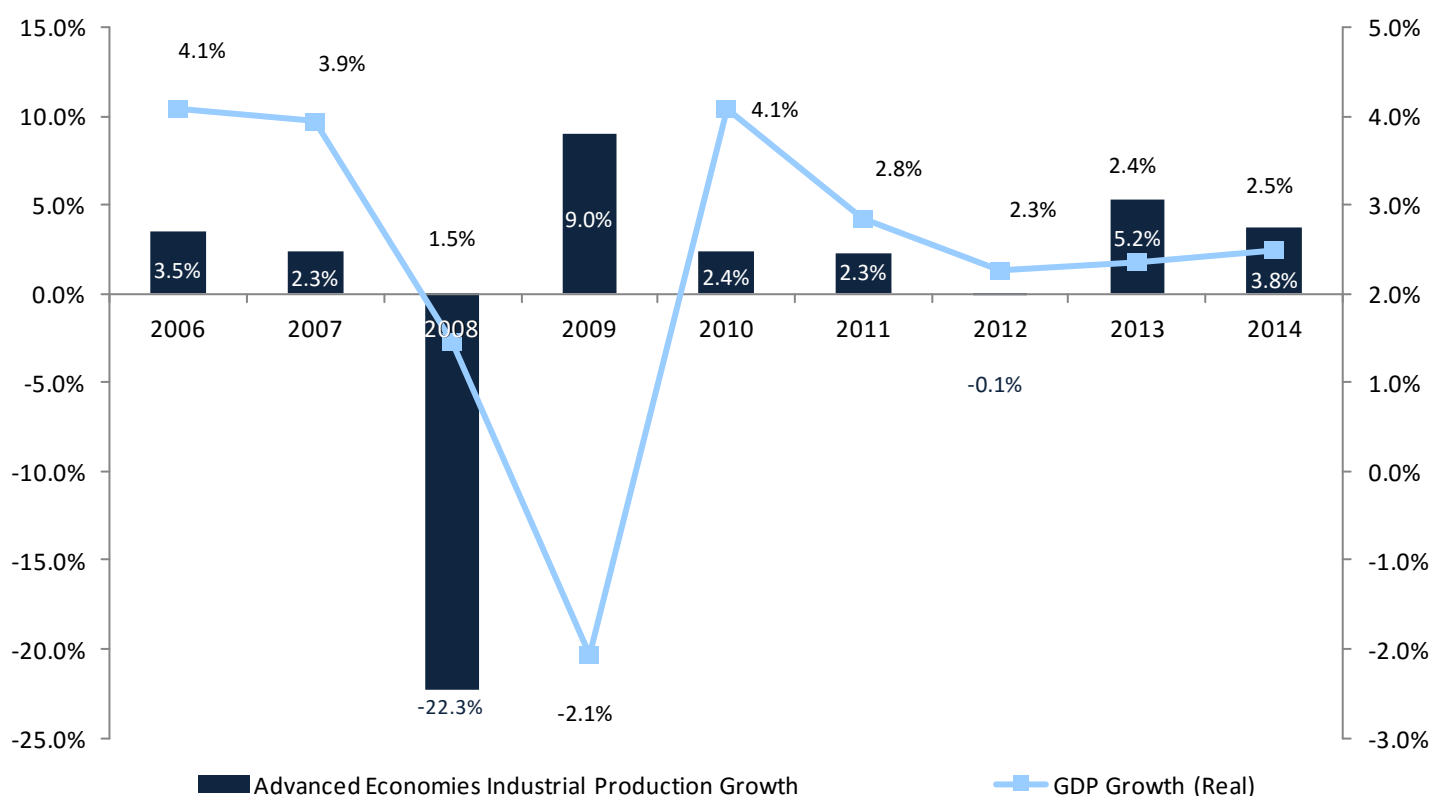


Source: Global Industry Analyst Inc.

## Lackluster Global Growth

The global hydraulic cylinder market is generally correlated to the broader economic environment. The global economy has struggled to regain traction and has continued its tepid recovery through 2015. The lack of economic growth is due to several factors, including weakening of emerging markets (particularly China and Brazil), more cautious capital investment growth in developed economies and the decline in commodity prices. Gains in mature economies have somewhat offset softness elsewhere. The direction of the global economy is unlikely to change as the Conference Board is estimating 2016 global GDP will grow 2.4 percent (up from the estimated 2.3 percent in 2015), offering some optimism for recovery despite volatility and risks of a relapse. As noted earlier, the challenging macroeconomic environment may have less impact on manufacturers of custom engineered hydraulic components.

**Global Economic Growth and Industrial Production**



Source: IMF World Economic Outlook, World Bank World Development Indicators

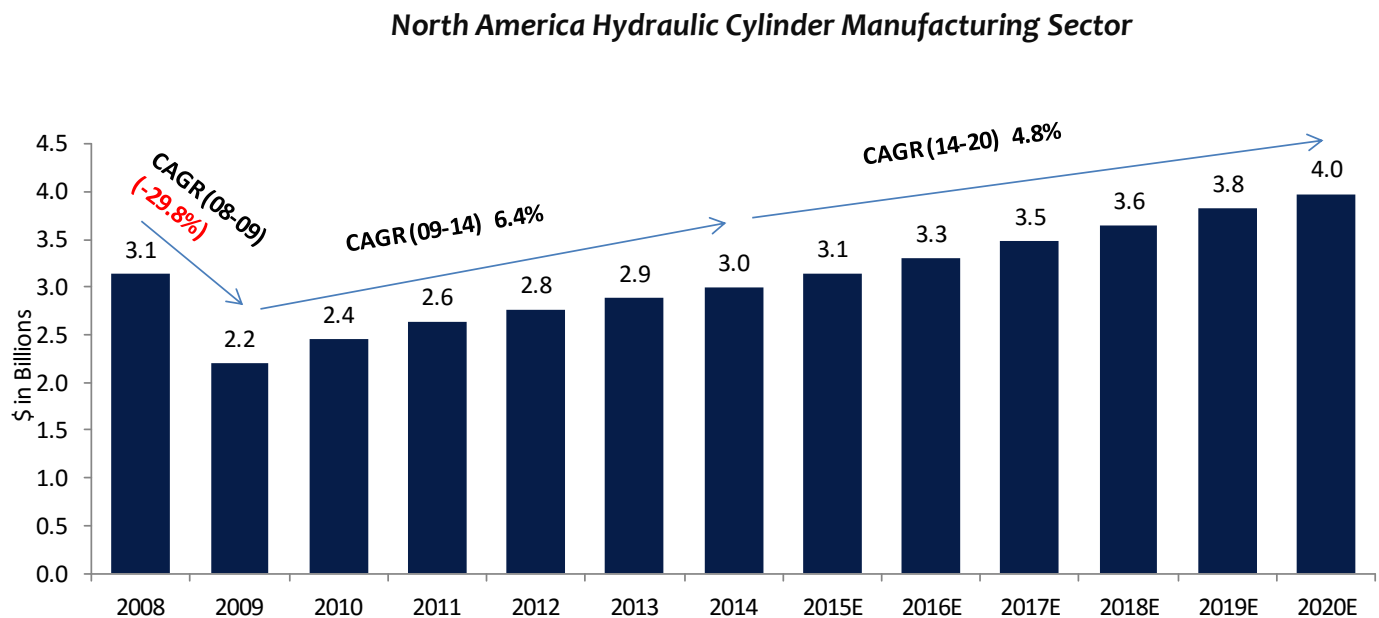


# North America Hydraulic Cylinder Industry

## Market Size

Growth in the hydraulic equipment industry depends on overall economic expansion and, in particular, growth in industrial production. Similar to other industrial segments, the hydraulic cylinder industry experienced a significant downturn during the 2008-2009 economic recession but has gradually recovered. With fears of another recession subsiding, growth prospects for 2016 and beyond look promising and have been corroborated by recent GDP growth, industrial production and consumer confidence data. In fact, the North American hydraulic cylinders market generated revenue of an estimated \$3.0 billion in 2014 and is forecast by Global Industry Analyst to reach nearly \$4.0 billion by 2020, a 4.8% CAGR.

Experts believe the positive outlook for certain end user markets such as material handling equipment and construction machinery is a promising sign that the industry will achieve a steady overall growth rate. Also, the industry is poised to benefit from the export potential for agricultural and aerospace equipment to the Asia-Pacific region. Adoption of mechanized agriculture and increased spending on infrastructure in developing countries such as China and India will likely benefit North American equipment vendors, who have the capability to cater to these markets. Whether this is truly sufficient to offset soft domestic agricultural, mining and energy markets is unclear. Also, despite the promising outlook, the industry will continue to face some challenges from imports which are having some success penetrating cost sensitive markets.

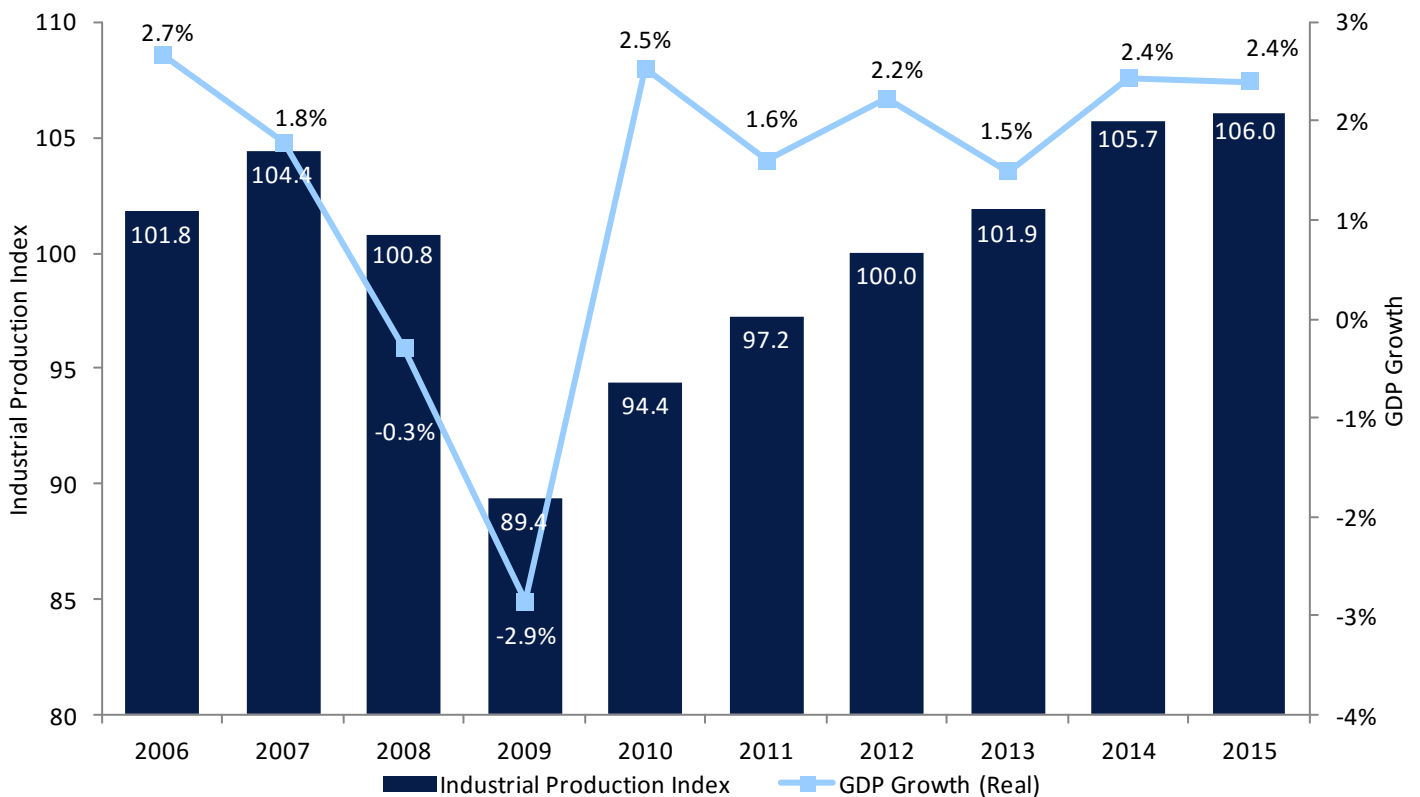


Source: Global Industry Analyst Inc.

## Reviving U.S. Economy

U.S. economic growth and industrial production have been on a steady uptrend since the 2008-2009 recession and have helped support growth in the hydraulic cylinder industry. After registering a 2.9% contraction in 2009, U.S. GDP grew 2.5% in 2010 and hovered around 2% growth per year through 2013. Displaying signs of some acceleration, 2014 registered growth of 2.4%. This trend continued through 2015, with GDP growth of 2.4%. The Industrial Production Index reached 106 from a low of 89 in 2009. According to the World Bank, the U.S. economy is expected to grow 2.8% in 2016.

**U.S. Economic Growth and Industrial Production**



*Source: Industrial output – Federal Reserve. Base year for Industrial Output index is 2012; GDP Growth - Bureau of Economic Analysis*

## End Market Segmentation – Market Drivers and Forecast

### Agriculture & Forestry

Hydraulic cylinders are broadly used in the production of agricultural equipment including; tractors, combine harvesters, harvesting machines, loaders, planters, tillage machines, log-splitters, fertilizer spreaders, front-wheel packers, front-power lifts, seed-conveyors, mulching machines and various lawn and garden equipment.

The global agriculture and farm machinery market is projected to reach \$282 billion (USD) by 2022, an 8.7% CAGR from the estimated 2014 market value of \$144 billion. Within the global market, the farm tractor segment dominated the application of hydraulic cylinders, accounting for a 33% share.

The replacement of used farming equipment, which normally follows a 7-8 year cycle and was expected to occur in 2008-2009, was postponed by the uncertain economic conditions caused by the financial crisis. However, farming equipment purchases surged in 2010 and 2011. Hence, sales expected for the early phase of the next replacement cycle commencing after 2016 are forecasted by some industry pundits to be below-average.

Having a compounding effect, the USDA predicted that the profitability of the United States farming sector was expected to have significantly weakened in 2015 due to depressed commodity prices. Net farm income (calculated by the USDA as receipts from livestock and farm-related goods and services less expenses) is expected to fall by 38%, marking the largest annual percentage decline since 1983 and a drop of 55% from the recent high of \$123 billion in 2013.

The world's population is projected to expand to nine billion by 2050. The bulk of the demand for agricultural machinery and, in turn, hydraulic cylinders will come from countries with the highest population growth rates – emerging and frontier markets – looking to increase food production to sustain their populations.

With a rapidly mechanizing economy and a growing populace, China's agricultural needs are evolving and becoming more expansive and dependent on sophisticated production equipment. The domestic Chinese agricultural market is estimated to be nearly \$9 billion. However, 98% of Chinese agricultural equipment is domestically manufactured, creating challenges for U.S. hydraulic cylinder manufacturers to penetrate the market. Moreover, the Chinese government classifies agricultural equipment as a priority industry within its "Strategic Emerging Industries" initiative, which entails policies that favor domestically manufactured equipment over imports.

Nonetheless, while American agricultural machinery exports to China as a whole fell by 23% in 2014, part exports grew on average 27% annually from 2009 to 2014. China's production of agricultural equipment consists primarily of low-technology and less complex devices. Thus, to support an evolution of producing more complex and efficient Chinese equipment, China must source highly-engineered components elsewhere. This need for specialized, highly-engineered components in a growing Chinese agricultural equipment manufacturing sector provides an opportunity for U.S. or European agricultural cylinder manufacturers with advanced capabilities.

India's agricultural production is not only growing to meet internal demand to feed its increasing population but has the highest annual growth rate for agricultural exports, growing from \$5 billion in 2003 to over \$39 billion in 2013. In turn, a dramatic increase in production for both domestic use and exports is expected to increase demand for agricultural equipment components such as hydraulic cylinders.

## Compaction

The compaction segment can be split into three primary categories: Mobile Compaction, Post-Consumer Compaction, and Landfill Compaction.

The mobile compaction sub-segment includes hydraulic cylinder applications in waste management and trash compaction vehicles, such as garbage trucks and other refuse vehicles, and extends to hydraulic plate compactors and street sweepers. Waste management vehicles utilize hydraulic cylinders in both their tipping and compacting mechanisms, generally in the ejector, slide, sweep and tailgate mechanisms.

Demand for refuse collection vehicles is cyclical, being impacted by 1) the strength of the economy in general, 2) the size of municipal tax receipts, and 3) the scale and timing of capital expenditures by large waste-hauling companies. A lower number of housing starts in the United States since the economic downturn in 2008, as compared to historical levels, have yielded lower municipal tax revenues, which has undermined demand for refuse collection and compaction equipment. However, the current positive trend in housing starts should bolster demand in the future.

There have been increasing purchases of refuse trucks with split-body (multi-compartment) loaders, which store and compact two different commodities independently. These types of compactors have separate hydraulic systems in each compartment, which allows each commodity to be handled and compressed as needed. These new types of refuse collection vehicles require a larger number of hydraulic cylinders and more complex hydraulic systems. As these loaders become more prevalent, cylinder usage will be favorably impacted.

Small-scale self-contained compactors for commercial waste applications generally deploy hydraulic cylinders as the driving force in packing and compressing waste. The largest post-collection application of hydraulic cylinders is balers used for recycling scrap products such as cardboard, paper, plastic, foam, textiles and metals.

As a sub-category, landfill and post-collection compaction overlap. The landfill compaction process varies but typically includes multiple stages including pre-compaction, shredding, compacting/bailing and waste handling. Each step requires a separate set of capital equipment used to reduce the volume of the waste and increase the stability of landfill piles.

## Construction Machinery

The construction end-market includes vehicles such as excavators, compactors, backhoe loaders, concrete and cement machines, drilling rigs, and wheel loaders used during the construction of various infrastructure projects such as roads, bridges, buildings or tunnels.

The demand for construction equipment is highly dependent on the state of the U.S. economy. Aided by economic expansion and the growth in residential construction activity, shipments of construction machinery by U.S. producers grew 23% YTD (as of October) in 2015 to \$35 billion, compared to \$29 billion for the same time period in 2014.

The values of private nonresidential, residential and utilities construction are key indicators in the construction machinery segment. Utilities construction - defined by both public and private spending on the construction of power, sewage, and water supply infrastructure - totaled nearly \$590 billion in the United States in 2014, a growth rate of 9% from 2013. Both public and private non-utilities construction totaled over \$1 trillion YTD as of August 2015, with roughly 72% of that revenue being attributed to the private sector. Government funding for highway construction grew 3.5% from \$8.1 billion in 2013 to \$8.4 billion in 2014. Passage of the new five-year, \$305 billion funding bill for highway construction should create additional impetus for contractors to invest in new construction equipment.

Additionally, the rising value of the U.S. dollar has continued to deflate the price of imports of foreign construction machinery while also constraining exports by making them comparatively more expensive on the global market. Exports reached nearly \$23.2 billion in 2011 and peaked at over \$25.7 billion in 2012. Exports fell to \$18.6 billion in 2013 and then to \$15.5 billion in 2014. This trend is expected to continue into 2015 through 2020 with exports hovering between \$12 and \$15 billion.

Some of the sectors largest consumers of hydraulic cylinders (i.e., Caterpillar and John Deere) manufacture hydraulic cylinders in house, deeming them to be critical components and competitive differentiators requiring strict control and oversight.

## Industrial Equipment

This segment includes hydraulic presses and other machine tools used for metal forming, casting, forging, milling, drilling shaping and sheering. Industrial machine tools are widely used in a variety of applications where the end purpose is transforming raw metal (e.g., sheet, bar, wire, powder) into forms that are generally subject to secondary finishing processes.

This segment is highly sensitive to the state of the broader economy. Changes in industrial production, capacity utilization, capacity expansions and the level of business confidence strongly influence demand in the marketplace.

According to a January 2015 survey by Gardner Research, world machine tool consumption and production contracted in 2012 and 2013 after witnessing positive growth from 2010 through 2013. The poor economic environment and tight credit conditions forced manufacturers to defer previously planned capital expenditures, while the spikes in 2010 and

2011 demonstrated the pent-up backlog and general optimism to invest into the future. The national growth trajectories in automotive and construction are expected to positively impact the industrial equipment market and, in turn, hydraulic cylinder demand. The survey estimated world machine tool consumption to end 2015 with nominal growth over 2014 reaching \$75 billion – indicating positive recovery of industrial output. This trend will likely have a strong influence on hydraulic cylinders, as fluid-power products and actuators are estimated to comprise 8% of the total equipment manufacturing market (the largest single sub group).

Exports, which account for nearly 40% of industry revenue, are expected to drive growth of 2% through 2020. However, if the U.S. dollar remains high, the relative price (in foreign currencies) of U.S. produced goods will increase and have the potential to constrain exports.

As global competitive pressures force manufacturers to continue to optimize their facilities, there is an increasing trend to adopt automation and internet interconnected facilities. This requires OEMs to install a variety of sensors and data tracking devices on the equipment deployed throughout their manufacturing infrastructure. These sensors are designed to collect data on temperatures, pressure (e.g., for hydraulics, fluids, air, etc.), cycles, weight, leaks, closures and vibrations. Retrofitting the current equipment will require the replacement of certain critical parts that facilitate these processes including, for example, hydraulic components that have fully integrated data portals and sensors. Due to the significant upfront investment, Rockwell Automation estimates that only approximately 10% of industrial operations are currently utilizing these technologies. With stable credit conditions, an improving economy, steady to rising industrial production and consistent/rising corporate profits, plant operators will likely increase investment in enhanced automation.

## **Material Handling**

The material handling hydraulic cylinder market is dependent upon equipment such as cranes, forklifts, telehandlers and production line conveyors.

According to industry sources, the material handling products industry is poised for significant growth for the next several years. The proliferation of SKUs in the e-commerce market has resulted in the growth in the number and size of distribution centers. Warehouse construction has returned to pre-recession levels. In addition, at the end of 2014 developers were completing construction on an estimated 50 million square feet of new warehouse and light industrial space.

The most recent market research report (released in September 2015) from *World Material Handling Products* forecasted that global demand for material handling equipment will rise 5% annually to 2018. In addition, the 2015 State of Warehouse/DC Equipment Survey (released April 2015) found that 43% of total planned warehouse/DC spending over the subsequent 12 months will go toward material handling equipment.

Further evidencing the market potential, new orders for material handling equipment grew 5% YTD (as of October) in 2015 to \$21.4 billion and shipments increased 6% to \$20.2 billion.

Additionally, the growing trend to improve warehouse space utilization and storage density has proliferated the need for automated storage and retrieval systems (“AS/RS”). AS/RS systems fully automate the warehouse replacing traditional isles and lift trucks with additional material handling conveyors integrated with storage retrieval lift systems. The AS/RS market was valued at \$4.5 billion in 2013 and is expected to reach \$7.3 billion by 2020, a CAGR of 7%.

## **Oil & Gas**

Hydraulic dependent equipment employed in the oil & gas industry is primarily used in upstream applications located near the wellhead. The equipment includes jacking systems used to raise and lower oil well drilling and service platforms, excavators, off-road dump trucks and rigs.

Hydraulic cylinders are the preferred actuators for oil and gas applications due to key characteristics of high power-to-size ratio, constantly held force and torque, and durability in harsh environments. For example, the small and compact form of hydraulic cylinders enables the effective utilization of powerful, heavy-duty, and lightweight equipment to conduct narrow hole drilling and efficient pipe handling.

Capital expenditures for global exploration and production (“E&P”) companies in the energy sector are highly linked to the price of oil. Due to the massive drop in oil prices, Baker Hughes has estimated the number of current active rigs in the United States to have dropped to 767, down by more than 70% from 2014.

Capex for global E&P is expected to have fallen to \$590 billion in 2015, a 20% decrease from 2014. Goldman Sachs estimates that Capex spending in the energy sector will fall another 20% in 2016. This estimate is based on an expectation of Brent crude oil prices hovering at or below the \$50 per barrel level. According to ISI’s industry survey, the current market dynamics would require the price of oil to reach or exceed \$65 to \$70 per barrel in order to reverse this downward Capex trend.

## **Aerospace & Defense**

This end market includes hydraulic equipment used in aircraft (e.g., landing gears, engines, ramp, door actuation, brakes and wheels, flight controls and fuel systems), as well as ground service equipment (e.g., ground support equipment, baggage handling equipment and specialty aircraft repair equipment). The segment is split into three key subsectors: commercial aerospace, business jets and defense applications.

The commercial aerospace segment as a whole consumes a significant amount of the total hydraulic and pneumatic cylinders manufactured in the U.S. It has always been a major consumer of heavy duty hydraulic cylinders, and this segment held steady for manufacturers even during the recession period. While the number of new commercial aircraft orders in the global market dropped from a peak of 2,500 in 2007 to just 400 in 2009, the number of new orders in 2014 has recovered and surpassed the peak, reaching roughly 2,700. The annual production of commercial aircraft is estimated to grow steadily from 1,400 per year in 2014 to roughly 1,500 in 2018. In contrast to order volumes, production has steadily increased for the past 10 years, including through the 2009 recession.

Airbus forecasts global market production of 32,600 commercial airliners from 2015 to 2034. When taking into account aircraft retirement and current aircraft still in service, the net effect would more than double the global fleet to over 35,000 aircraft by 2034, with 39% of these new orders being shipped to the APAC region, 20% going to Europe and 17% going to North America.

The business jet subsector is projected to maintain a steady growth rate from 2015 through 2025. Honeywell projects up to 9,200 new business jet deliveries globally over that period, worth an estimated \$270 billion (3% CAGR). Global deliveries in 2016 are expected to be lower than in 2015, reflecting weaker emerging market demand but slightly offset by the growth of the fractional operator programs.

Sluggish European economic growth and political tension may limit purchases of new business jets, but while OEMs may suffer, repairs and upgrades to used and existing aircraft are expected to create improved aftermarket opportunities. In contrast, IBISWorld, predicts only 2% annual growth in the near future for the domestic aircraft maintenance, repair, and overhaul (“MRO”) industry. The amount of revenue generated by the MRO industry is primarily driven by the number of commercial flights annually (as more flying time generally leads to more wear and tear to aircraft) and is secondarily driven by federal defense funding (as the military often outsources its aircraft maintenance, repair and overhaul services to third parties). While the global number of flights is expected to increase, U.S. military withdrawal from overseas operations could hinder the rate at which the industry grows over the next several years.

The global aircraft ground support equipment market is estimated to grow from \$339 million to \$526 million from 2014 to 2022, a CAGR of 5%. This subsector is largely dependent on global air traffic and expansion and creation of airports, which generates similar growth estimates.

The global defense subsector is heavily driven by U.S. military expenditures. The United States devoted \$675 billion to defense in 2015, accounting for 39% of global spending. Due to limited overseas operations, U.S. military spending has been decreasing. However, domestic based spending is expected to stay relatively constant between 2015 and 2020.

While there is congressional pressure to lower the defense budget, the reductions are a very small percentage of the total budget and are almost entirely derived from funding contracts and personnel salaries. In general, military acquisition spending follows a “bow wave” pattern, alternating peaks and troughs due to budgeting constraints and planning. Acquisition spending hit its most recent peak in 2007 and reached a trough in 2015. Based on this pattern, equipment spending should rise steadily until around 2024 and then dip into another trough.

Within the Navy and Marine Corps budget (which is more than triple that of the Army), aircraft acquisitions are predicted to grow in proportion to total spending, rising from \$10 billion in 2015 to nearly \$17 billion in 2022. In 2015 alone, the Navy was allocated \$9 billion to procure 103 new aircraft, and it plans to procure new unmanned surveillance aircraft starting in 2016.



## Mining

The global mining equipment market is divided into six sub-segments: mining drills and breakers; crushing, pulverizing and screening equipment; mineral processing machinery; surface mining equipment; underground mining machinery; and other mining equipment.

Mining equipment sales in North America and globally have declined over the past two years due to falling commodity demand. Shipments of mining, combined with oil field, and gas field machinery in the U.S., decreased 33% in 2015 to \$14.8 billion, while new orders dropped over 43% to \$13.2 billion.

According to a recent research report by Grand View Research, Inc., the global mining equipment market is expected to reach \$95.14 billion by 2022 from the estimated \$73.12 billion in 2014, translating into a CAGR of 4%. However, in the near term the research firm further suggests continued sluggish market conditions (due to reduced investments and weak demand from commodity rich economies) with recovery in the mining industry beginning post 2017. Similarly, the World Bank predicts that while metals-based raw material commodity prices will rise gradually from 2015 to 2020, they will remain markedly below 2010 – 2014 levels, potentially supporting a continued slump in mining equipment Capex.

## Trends

### **Integrated Solutions and Services**

Manufacturers are increasingly offering integrated hydraulic cylinder systems and solutions to differentiate themselves. This differentiation tactic allows manufacturers to add value by delivering systems or subsystems containing cylinders and ancillary products such as valves and pumps. Such integrated offerings also enhance the ability to generate profitable maintenance and aftermarket service revenue.

For users, this translates into more efficient design, engineering and purchasing solutions and, ideally, lower overall operational costs and lead times. Hydraulic cylinders are a critical component for most applications, and customers are inclined to react favorably to solutions offering better outcomes and enhanced performance of the overall equipment. Offering a pre-tested subsystem allows customers to focus on their core competencies while saving time and supply chain costs.

As part of an integrated solution, all components for assembling a hydraulic system (e.g., cylinders, valves, filters, hoses, connectors and pumps) are sold to end users as a single unit or kitted item. Manufacturers that are horizontally integrated and have a complete hydraulic equipment product line are benefiting from this trend.

### **Electro-hydraulic Cylinders Expanding Application Scope**

Combining hydraulic cylinders and electronics has led to increased accuracy, enhanced functionality, improved ease-of-use and controlled performance. The so-called “smart cylinder” (electro-hydraulic cylinders) incorporates servo valves and electronic controls such as transducers to provide rod position feedback and electrically controlled valves to ensure efficient machine operations. This has not only expanded the scope of applications, but also helped stave off competition from alternative technologies such as electric actuators.

The next wave of manufacturing technology innovation including digitalization, automation and use of smart devices within an interconnected manufacturing facility will further accelerate this trend. SAP estimates that 50 billion devices will be connected to networks by the year 2020, with the majority of them being tools, machines, vehicles and production equipment, all integrated within a manufacturing facility. Through this development, intelligent connectivity and communication, including cyberphysical (machine-to-machine communication) systems, will arise. This will allow systems and sub-systems to exchange information and initiate actions without human intervention or assistance.

In addition, this technology enables sophisticated control and automation of speed and position of loads in several applications ranging from machine tools and material handling to steel mill actuators, nuclear power plant controls and elevators. Integration with electronics has also expanded hydraulic cylinder applications for entertainment simulators and markets in renewable energy such as wind and solar.

## Technology Research and Development

Volatile energy costs and regulations in the U.S. and EU are driving the popularity and rise in demand for energy-efficient hydraulic cylinders. In the U.S., the Center for Compact and Efficient Fluid Power, a National Science Foundation engineering research center, was established in 2006 to encourage and support research in the fluid power industry. The U.S. Department of Energy's Industrial Program also partners with the National Fluid Power Association to fund research projects that encourage more efficient practices among industrial users of hydraulic equipment. However, most of this research affects the peripheral components (i.e., pumps, drives and motors) rather than the cylinder itself.

For example, energy efficiency technology is being tested to optimize load and speed characteristics. Thus, more advanced cylinder actuators will generate lower energy consumption. The most important sources of flow losses are in valves, hoses and compressors. Accordingly, further research is being conducted to configure the hydraulic module to enhance efficiency.

Within actuator devices, one of the key areas of focus for improvement is sealing technology. A more recent development addressing this area has been the advent of pressure-activated hydraulic seals. These are designed to minimize both friction and leakage, even as operating pressure increases. Other advancements related to energy efficiency have included retrofitting the fluid power system with a hydraulic accumulator for energy storage/recovery and re-disposition capabilities.

By improving compactness and minimizing size and weight, fluid power systems can migrate from heavy equipment to human scale assistive devices. This development will enable fluid power components to perform tasks that are not presently possible and generate entirely new applications and end market usages.

While the basic design and concept of hydraulic cylinders has not fundamentally changed, innovation surrounding the peripheral parts and components has experienced significant technological innovation. Companies not embracing these advanced concepts may find it increasingly difficult to differentiate their products in the market. Although integrated solutions are increasingly being used for product differentiation, further technology innovation utilizing progressive materials, enhancing product design and developing proprietary process technology is necessary to help sustain a healthy growth rate and expand market share in the future.

## Increasing use of E-Commerce

Companies are increasingly adopting omni-channel strategies via e-commerce and website enhancements. The online marketplace is continuously expanding and, as such, will force hydraulic cylinder manufacturers to adapt e-commerce as a fundamental part of the basic sales infrastructure. Manufacturers are responding to the changing buyer environment by offering more content driven websites enhanced with self-service tools (e.g., design tools, product estimators, specification modification and instant order access). The research firm Oliver Wyman forecasts B2B U.S. e-commerce to grow an average of 8% a year to 2020, topping over \$1.1 trillion.

E-commerce strategies have recently evolved from simple order processing to full supply chain integration utilizing web-connected procurement software linked directly to a customer's enterprise resource planning system. This enhancement allows manufacturers to better prepare for and manage inventory, reducing working capital requirements and better manage manufacturing expenses and overhead.

As customers shift to online research-based decision making, websites are being designed to create and drive direct client interaction tracked with intelligent analytics. Manufacturers have developed client portals that allow their customers to create profiles listing product preferences, specifications, buying habits and other general characteristics. Capturing this data allows for more transparency and customer usability, accelerating the customer acquisition and sale process. Manufacturers can also use this data to fine tune their marketing approach, reinforce company image and increase brand awareness.

Complexity of the product presents a new challenge for manufacturers of hydraulic cylinders. Because of complications in integrating operations (i.e., engineering, design, manufacturing and logistics), online selling has been particularly suitable for standard hydraulic cylinders with relatively low technical complexity and for those where customers need minimal customization.

Conversely, e-commerce strategies and direct customer contact inherently alienate current distributor partners. This dilemma has forced manufacturers to develop strategies to co-exist with their traditional channels to avoid conflicts. As one would expect, this issue has a more resounding effect on standardized, less custom products. The growth in e-commerce is expected to transform the traditional business model.

## **Education and Training – Bridge the Skilled Labor Gap**

An increasing challenge for manufacturing companies has been the availability of skilled labor. This challenge has been especially prevalent to manufacturers that utilize advanced technologies and/or produce highly engineered products, including hydraulic cylinders. An analysis produced by Gallup Research estimates that 600,000 U.S. manufacturing jobs went unfulfilled in 2011 due to lack of qualified candidates. The Manufacturing Institute estimates that by 2025, the skills gap could widen to two million. To address this concern, industry organizations are developing partnerships with each other as well as with secondary and higher education establishments to offer fluid power focused curriculums. The National Fluid Power Association is emphasizing this strategy through its Education Partners initiative. This program includes a substantial list of educators and schools across the U.S.

In addition, the Fluid Power Educational Foundation regularly produces educational content and promotional resources designed for the integration of fluid power focused STEM (science, technology, engineering and math) opportunities in elementary, primary and secondary educational institutions.

Independently, hydraulic cylinder manufacturers are developing apprenticeship programs. These programs enable manufacturers to control training content, drive internal labor demand and tie employee compensation to performance and knowledge rather than seniority. U.S. apprenticeship programs (defined by the Department of Labor as registered, non-military) experienced significant declines from 2008 – 2013, decreasing more than 26%. However,

from 2013 – 2015, apprenticeship programs saw an increase of over 22%. Manufacturing is the second largest industry offering these programs.

Notably, Bosch Rexroth has implemented an apprenticeship program in their Fountain Inn, South Carolina plant to focus on manufacturing hydraulic systems for Caterpillar and John Deere. Also, EATON Hydraulics – in the Eden Prairie Minnesota plant – developed three separate apprenticeship programs based on National Institute Metalworking Skills guidelines gaining the approval of the International Association of Machinists and Aerospace Workers. EATON developed these programs in cooperation with the Minnesota Office of Apprenticeship and the U.S. Department of Labor.

### **Re-shoring of Manufacturing**

The changing dynamics in the market place coupled with demographic shifts in the outsourcing regions have forced manufacturers to revisit and reassess their off-shoring initiatives. The original decision to adopt an off-shoring strategy allowed manufacturers to swap variable manufacturing costs for a fixed rate cost per product structure. The drawback, however, was less control over quality, exposure of intellectual property risks and over dependence on delivery schedules. In efforts to minimize supply chain disruptions, selectively companies are trending towards re-shoring their manufacturing.

For example, Caterpillar recently invested \$120mm relocating a hydraulic excavator manufacturing facility to Texas from Japan; Freeman Schwabe re-shored the manufacturing of its hydraulic and pneumatic presses from Taiwan; and, after experiencing quality issues, Bailey Hydraulics moved its manufacturing to West Knoxville, Tennessee from Chennai, India.

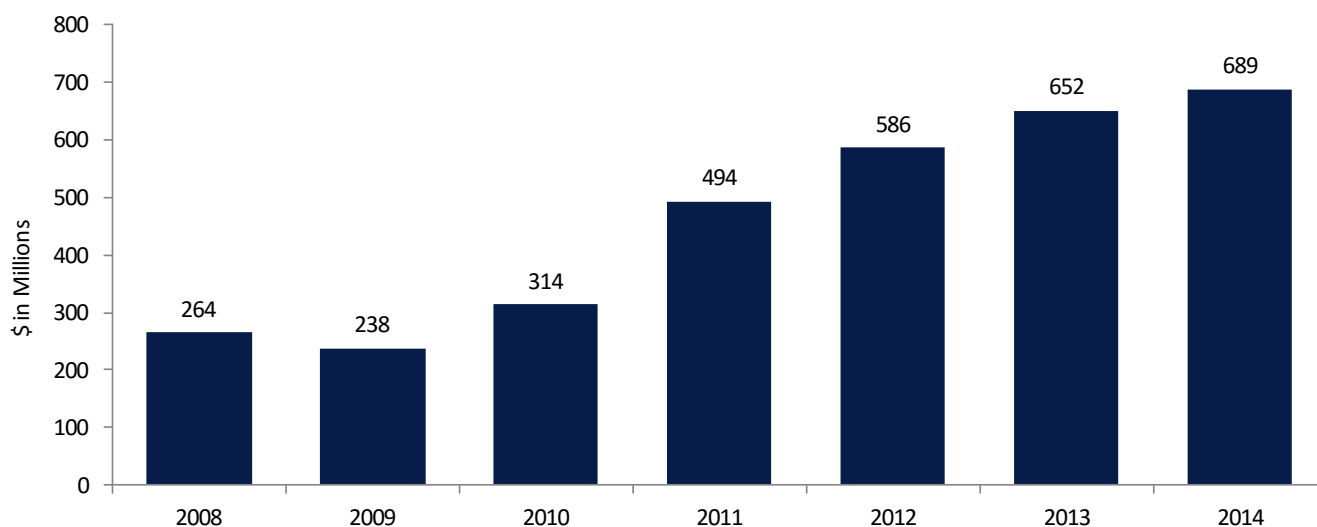
## Competitive Landscape

### Export Potential

Exports appear to present a new growth opportunity for North American hydraulic cylinder manufacturers. U.S. exports of hydraulic cylinders reached \$689 million in 2014, up from \$264 million in 2008. The majority of the U.S. trading partners for hydraulic cylinders have historically been developed countries (including Australia, Belgium and Canada), in which the top five trading partners account for an average of 19% of all hydraulic cylinder exports. However, there has been an increase in exports to developing and emerging countries. For example, hydraulic cylinder exports to Brazil have doubled since 2010 to represent approximately 5% of total hydraulic cylinder exports in 2014. This trend indicates an important opportunity in the global market.

Overseas demand for hydraulic cylinders is primarily driven by the need for high quality and heavy-duty components. Despite the increased strength of the U.S. dollar, demand for specialized, highly engineered components such as hydraulic cylinders may not be as affected as other more commoditized items. Price competitiveness may play a smaller role in the purchasing decision from foreign buyers, as these products consist of larger heavy-duty units designed to take on more complex and demanding tasks.

**U.S. Exports of Hydraulic Cylinders**



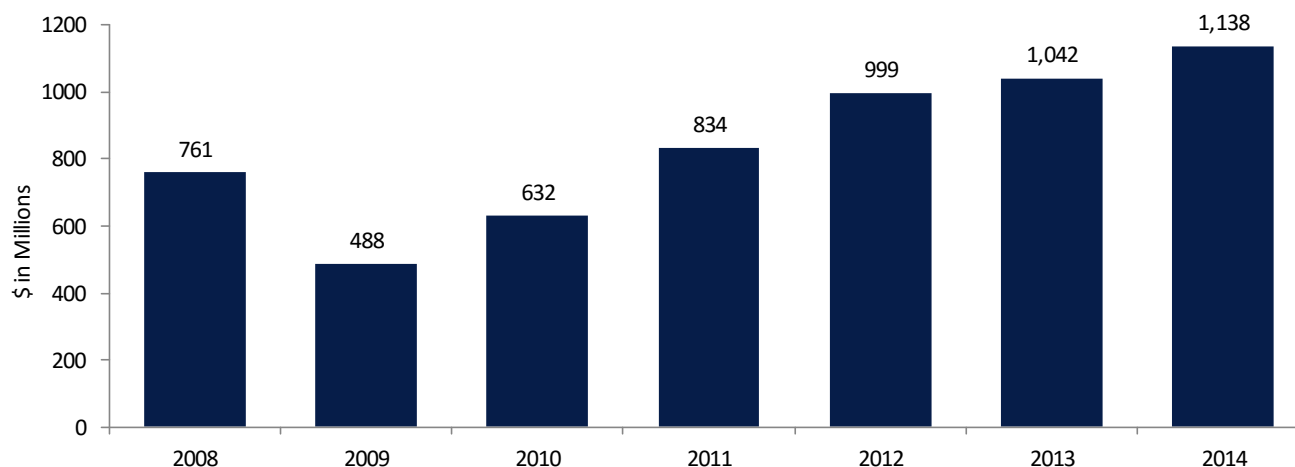
Source: U.S. Census Bureau

## Growing Market Penetration of Low-Cost Imports

Hydraulic cylinder manufacturers in North America and Europe are facing increased competition from low cost imports from developing countries. Imports of hydraulic cylinders reached \$1.1 billion in 2014 from \$761 million in 2008, representing a CAGR of 7%. Over the same time period, Chinese exports of hydraulic cylinders to the U.S. has increased an average of 28% per year, making the U.S. China's largest trading partner for hydraulic cylinders. The U.S. accounts for approximately 37% of China's total hydraulic cylinder exports.

Imports from developing countries often consist of smaller, low-quality units for less demanding applications. In general, there still appears to be a technological gap between foreign and domestic products in terms of quality and durability. Contributing to this is the inconsistency of quality materials and parts across the cylinder supply chain, eroding the general quality of finished products. However, foreign manufacturers are addressing these concerns by improving their technology and enhancing their manufacturing capabilities by locating and developing improved sources of materials and components.

### *U.S. Imports of Hydraulic Cylinders*



Source: U.S. Census Bureau

## **OEM Supply Chain Consolidation Increases Supplier M&A**

Competition is intensifying in the North American hydraulic cylinder market as the key customers of complex hydraulic components continue to consolidate their supply chains, limiting the base number of vendors. The pressure to deliver improved quality, increased production and enhanced service at lower prices is driving this trend. Given these customer requirements, suppliers with a more complete hydraulic product offering (e.g., cylinders, valves, pumps) would seem to be at a distinct competitive advantage.

As a protective strategy, hydraulic cylinder manufacturers that are well financed (access to capital) and possess global presence and strong manufacturing capabilities may opportunistically use acquisition strategies to participate in OEM driven supplier consolidation. In turn such strategic acquisitions will allow manufacturers to improve economies of scale by gaining the ability to tap into new markets, expand customer bases and open new revenue opportunities previously inaccessible.

Although there has been M&A consolidation in the industry, it is still fragmented. We believe that a rising level of M&A activity can be expected in future years. The desire to maintain a competitive presence, expand geographically, broaden product lines, diversify industry coverage, enhance engineering support, increase purchasing power and build a more a diversified customer base will encourage M&A activity in the industry.

## **Geographic Expansion**

With global macroeconomic uncertainties, foreign companies are increasingly looking to the U.S. as an important global export platform. The IMF is expecting world economic growth to contract in 2015 and experience nominal growth through 2017, with the U.S. significantly outpacing the Eurozone growth rate.

With the increase in global market volatility and economic uncertainty, foreign domiciled manufacturers are seeking to be less reliant on their local markets. These companies are viewing the U.S. as an ideal platform for growth due to more stable economic conditions, solid infrastructure, access to technology and quality parts, readily available public and private capital markets and a stable regulatory regime. Foreign direct investments (“FDI”) into the U.S. (defined by the BEA as net financial transactions) approached all-time highs through the first three quarters of 2015, reaching levels not seen since the year 2000. The manufacturing sector has historically benefited the most from foreign investment, consuming on average half of the total amount. Through Q3 2015, investment into the manufacturing sector nearly doubled from the annual 2014 level, contributing to more than 75% of the total FDI. Interestingly enough, the value of the U.S. dollar has drastically appreciated through the same time period – suggesting a preference by manufacturers for investing in a strong economy, despite the currency volatility. Conversely, the higher dollar valuation presents unique investing opportunities for U.S. based manufacturers looking to expand overseas.

Recent M&A activity in the hydraulic actuator industry is provided commencing on page 26 of this report.



## **Advent of Electric Drives**

Rapid technological development in other motion control technologies such as electric drives and actuators could impact the application of hydraulic cylinders in the future. Electric drives offer a clean and environmentally-friendly solution by eliminating the need for hydraulic oil. Moreover, electric actuators excel in applications that require stricter control tolerances and lower torque/force output.

Certain electro-mechanical actuators are engineered around planetary roller screw technology and offer a viable alternative to hydraulic cylinders for certain applications. In fact, mechanized processes will likely see increased use of electrically-operated drives and motors that offer very accurate performance and reprogrammable digital control and settings. Electric drives may also replace hydraulics in other industrial applications in the long-term, owing to their efficiency, cost and environmental-friendliness. Compared to hydraulics, electric actuators require fewer parts (e.g., pumps, hoses, valves) and in some application may be viewed as offering cost savings to OEMs.

A key advantage for electric drives is flexibility in interfacing with control systems. This technology provides a wide range of new features and capabilities including the ability to interface with the controller for complex motions (such as cycling for a specified number of times) resulting in improved performance and productivity.

Fortunately, the integration of electronics with hydraulic equipment has expanded the scope of hydraulic applications to include new markets (e.g., renewable energy sectors), successfully achieving the same capabilities being developed with electric actuators. These advancements have helped stave off competition from electric drives to an extent.

## **In-House Manufacturing of Hydraulic Cylinders**

In efforts to have more design, engineering, logistical, cost and quality control of critical components, a number of significant OEMs remain committed to in-house production. The proliferation of in-house manufacturing impacts the dynamics of the industry, as many of the biggest consumers of hydraulic cylinders are also the largest manufacturers (by unit volume).

This strategy has long been adopted by Caterpillar, particularly through its Construction Industries group. Caterpillar seeks to maintain a reputation for providing customers the lowest overall lifetime operating costs, which in turn heavily influences its strategy to vertically integrate production. Deere & Company has followed suit and is in the middle of a \$46 million expansion to its cylinder operation based in Moline, Illinois.

This may create the appearance of a consolidated industry, as a few firms are producing a vast quantity of hydraulic cylinder products. However, these companies are internally consuming these products and not offering them to the primary or secondary market. As a consequence, the largest OEM manufacturers of hydraulic cylinders are not an independent competitive factor in the overall market.

## Global Market Participants

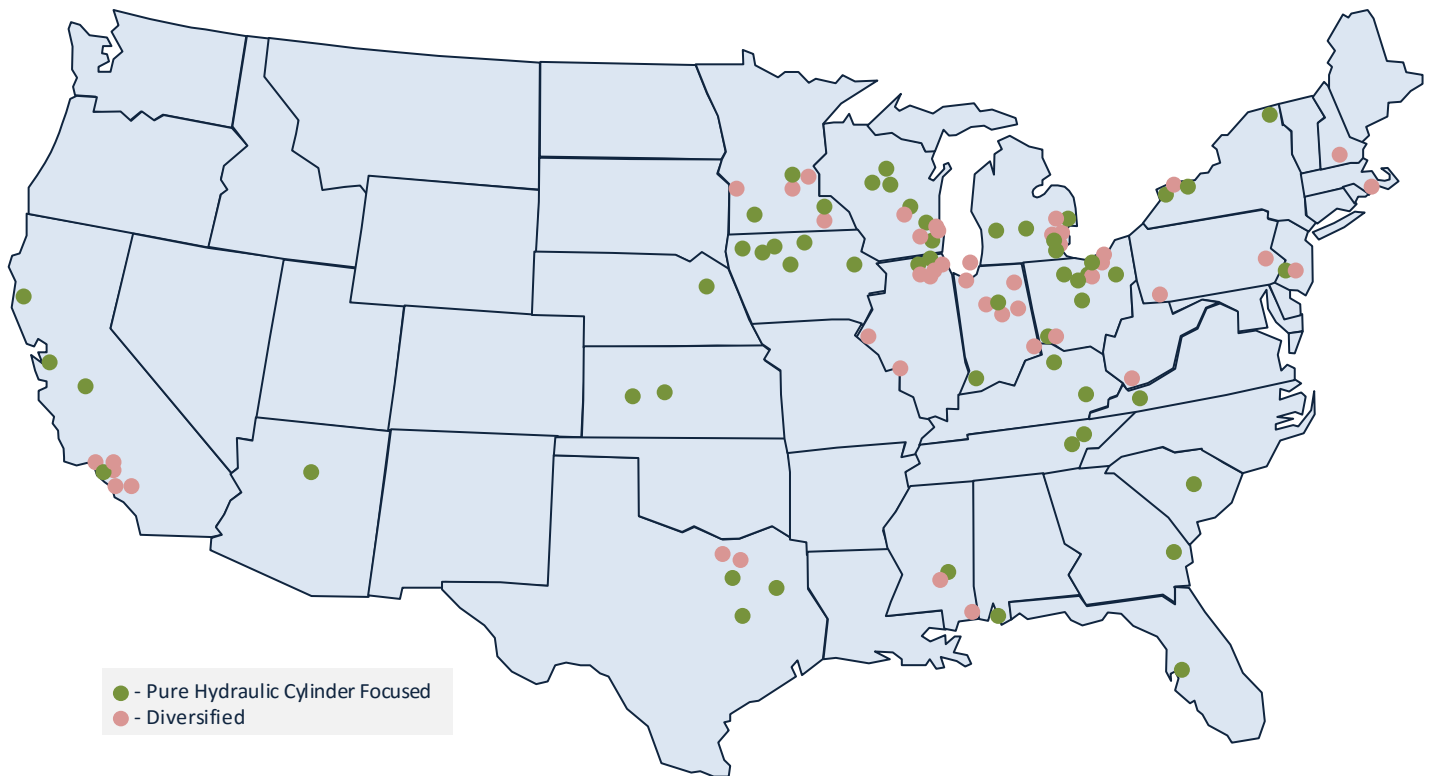
The vendors of hydraulic cylinders on a global scale are typically found to fit within one of two categories: diversified industrial or original equipment manufacturers.

Diversified Industrial with Significant Hydraulic Cylinder and Component Segment	Vertically Integrated Original Equipment Manufacturers
	

## U.S. Middle Market Hydraulic Cylinder Universe

As with almost every industry, the competitive environment, coupled with macro influences, continues to drive industry dynamics. The InterOcean research and data analytic team identified a core list of over 100 North American Middle Market manufacturers of hydraulic cylinders. Based on this research, we found that manufacturers fell into three groups consisting of 1) pure hydraulic cylinder producers; 2) suppliers of diversified hydraulic actuator products often integrated into full hydraulic systems; and 3) providers of value-added services (i.e., re-manufacturing, maintenance and aftermarket support). As a general rule, the more diversified manufacturers of hydraulic components tended to be the largest players in the Middle Market. However, manufacturers that emphasize custom solutions driven by strong technical capabilities to produce a variety of cylinders for multiple applications exhibited success characteristics similar to those of more product diversified firms.

## Geographic Representation of Select Middle Market Hydraulic Cylinder Manufacturers



This Graphic may not be representative of the middle market universe as a whole; however, this sample suggests that the majority of geographic concentration lies within the Midwestern states. Within the concentration of companies based in Wisconsin and Illinois, we found that the industrial equipment, agriculture and construction equipment sectors were a common overlapping end markets. It was also interesting to observe that refuse and garbage collection seemed to be a common end market for companies based in California, especially within close proximity to Los Angeles. We also discovered parallels with companies focusing on the oil & gas sector also offering repair and maintenance services and, in some cases, equipment rental.

### Select U.S. Middle Market Firms



## Select M&A Transactions

Date Closed	Target	Acquirer	Target Description
Feb-16	Texas Hydraulics, Inc.	Wynnchurch Capital	Manufactures custom fluid power components for original equipment manufacturers. The Company serves construction, mining, utility, aerial, fire/emergency, municipal, waste/refuse/environmental, and road building industries.
Oct-15	Serta Groupe	MAT Capital, Stags Participations, Stephens Capital Partners, Oceans Participations	Supplier of highly engineered hydraulic components based in La Roche Sur Yon, France. The company specializes in mobile applications, serving the construction, agriculture, vehicle, and handling end markets.
Oct-15	KMF - Kemptener Maschinenfabrik GmbH	Hydraulik Nord GmbH	Supplies hydraulic cylinders. The company was founded in 1961 and is based in Kempten, Germany.
Oct-15	Garrison Manufacturing, Inc.	Salt Creek Capital II, LLC	Offers welded hydraulic cylinders, steering linkage components, steering control valves, hydraulic power units, steering cylinders, draglinks, accessories, and other products. Its products are used for various applications including off-highway equipment, industrial equipment, mining and construction equipment and refuse.
Aug-15	Ram Reman Ltd	Rotec Hydraulics Ltd.	Designs, manufactures, and supplies hydraulic cylinders and power units for agriculture, industrial, offshore, marine, and industrial applications. The company was incorporated in 1984 and is headquartered in West Moors, United Kingdom.
Aug-15	OCS S.r.l.	Diplomatic Oleodinamica S.p.A.	Designs and produces telescopic hydraulic cylinders for medium and heavy-duty lifting and stabilizing requirements. Its products are used in various applications ranging from lorry-mounted and self-propelled cranes to concrete mixers, aerial platforms, tele-handlers and construction equipment.
Aug-15	Bifold Group Limited	Rotork plc	Manufactures hydraulic and pneumatic stainless steel control valves and accessories.
Jul-15	Norrhydro Oy	Private Investor Group	Designs, manufactures, and sells hydraulic cylinders and energy saving hydraulic systems for mobile, marine, and industrial sectors. The company also provides hydraulic cylinder repair, maintenance and modification services.
Jul-15	Niagara LaSalle, Operating And Commercial Assets Related To Chrome Plated Bar Product Line	Enduro Industries, Inc. (PTC Alliance Holdings Corp)	Niagara LaSalle assets used in the production of chrome plated steel bar and tubes for piston rods in hydraulic and pneumatic cylinders, construction and material handling equipment, farm equipment and industrial applications.
Jul-15	Safety & Technical Hydraulics Ltd.	Aberdeen Tool Rental Limited	Distributes and rents high-pressure hydraulic tools and instrumentation equipment to the oil and gas industry. The company provides a range of hydraulic tools, single and double acting hydraulic cylinders and lifting products, pumps and valves, hydraulic presses, special tools, system components and bolting tools.
Jun-15	Columbus Hydraulics Company	Northstar Capital, LLC, Arctic Capital, LLC	Designs and manufactures hydraulic cylinders including double action, single action, double ended, custom and smart cylinders. The company serves various industries including construction, utility, agriculture, turf care and railroad.
Apr-15	DY Power Corporation	National Pension Service	Produces and sells hydraulic cylinders for construction equipment. Its products include excavators, aerial lifts, forklifts, wheel loaders and backhoe loaders.
Jan-15	Ortman Fluid Power	Lehigh Fluid Power, Inc.	Manufacturer's hydraulic and pneumatic cylinders, valves and actuators.

Date Closed	Target	Acquirer	Target Description
Oct-14	Micromat Spannhdraulik GmbH	Ste des Usines QUIRI & Cie	Develops, constructs and manufactures hydraulic cylinders. The company was founded in 1989 and is based in Rutesheim, Germany.
Oct-14	WDH Machinefabriek BV	Berk Partners	Develops and manufactures hydraulic cylinders. The company focuses on special projects in the industry, marine/offshore, and plant engineering sectors. In addition, it provides repair and maintenance services for hydraulic cylinders; repair, modification and replacement services.
Aug-14	Sewon Cellontech Company Limited	SC Engineering Co. Ltd	Manufactures and exports various process and hydraulic equipment worldwide. It produces pressure vessels, drums, reactors, heat exchangers, industrial hydraulic and air pressure products, including cylinders, valves, and pumps and various other products for construction heavy machinery, agricultural machinery, machine tool and industrial tool applications.
Jul-14	Tulakes Aero, Inc.	GlobalParts.aero	The company manufactures wing and empennage components, fuselage components, metallic and composite fairings, nacelle components, landing gear and doors, and its electromechanical parts including actuators and hydraulic cylinders.
Jul-14	Industrial Seal Inc.	Engineered Seal Products, Inc.	Distributes fluid power seals and components in the United States. It offers hydraulic and fluid seals, rotary shaft seals, hydraulic and pneumatic telescopic cylinders and pneumatic seals.
Jun-14	Hydro-Service GmbH & Co KG	WATZ Hydraulik GmbH	Manufactures hydraulic cylinders. The company was founded in 1964 and is based in Kamen, Germany.
Jun-14	GE Aviation, Hydraulic Actuation Business	Triumph Aerospace Systems Group LLC	Hydraulic Actuation Business of GE Aviation comprises three facilities located in Yakima, Washington; Cheltenham, United Kingdom.
May-14	Precision Hydraulic Cylinders Inc.	Owner Resource Group, LLC	Designs, develops, manufactures and supplies hydraulic cylinders for original equipment manufacturers in the lift-truck, material handling and mobile equipment markets.
May-14	Bradford Cylinders Limited	Cyrus - RW Group Ltd.	Engages in the design, manufacture and sale of heavy-duty hydraulic and pneumatic cylinders. The company also offers repair, servicing and overhaul services.
May-14	Hytec Holdings, Ltd.	Bosch Rexroth AG	Bosch Rexroth acquired a 50 percent stake in its sales partner Hytec Holdings Limited, a wholly owned subsidiary of the Tesuco Group. Hytec Group is the largest manufacturer and supplier of hydraulic and automation components in southern Africa.
Apr-14	RN Motion Technologies, LLC	Swanson Industries, Inc.	Designs and manufactures custom production and drilling equipment for offshore, land and oil field applications. The company's products include drilling riser tensioners and other equipment and cylinders. It offers systems and cylinder repairs.
Apr-14	Gertsen & Olufsen A/S	Erhvervsinvest Management A/S	Manufactures and distributes equipment to the marine industry. The company offers small craft equipment, water treatment and pumping systems, engine and deck equipment, gear boxes, hydraulic cylinders and jacks.
Apr-14	Spotton Corporation	Plaintree Systems Inc.	Designs, manufactures and markets hydraulic and pneumatic cylinders, components and valves. The Company serves the mining, industrial, refuse/waste disposal, marine and material handling sectors. In addition, the company offers a range of seal kits and parts and equipment repair services.
Apr-14	Hydronic Lift S.p.A.	Private Investor	Manufactures hydraulic and mechanical lift and elevator components. The Company also offers technical advisory services.

Date Closed	Target	Acquirer	Target Description
Mar-14	Cromsteel Industries S.A.	ASO Siderurgica S.r.l.	Manufactures precision steel shafts, tubes and bars for use in linear motion and hydraulic systems.
Mar-14	Certified Power Inc.	Brinkmere Capital Partners, LLC	Manufactures and distributes hydraulic, pneumatic and electronic components and controls for industrial and mobile applications. Further, it repairs and rebuilds hydraulic pumps, motors, cylinders and valves.
Dec-13	Jiangxi Huawu Heavy Industry Co., Ltd.	Jiangxi Zhaohui Urban Construction Engineering Co., Ltd	Develops, manufactures and sells electro-hydraulic brake cylinders and other industrial devices for coal mine, metallurgy and engineering industries.
Oct-13	Wayne-Burt Petro Chemicals Private Limited	Pennar Industries Limited	The company manufactures tie-rod cylinders, wastech cylinders, piggy back cylinders, hydraulic cylinders and telescopic cylinders.
Oct-13	IMECA SAS	REEL SAS	Designs and manufactures hydraulic/electric lifting and laying equipment.
Sep-13	Agros Impex India Pvt Ltd	Frost International Limited	Manufactures and exports hydraulic equipment including pumps, motors, cylinders, filters and brakes.
Sep-13	Hydro-Lek Ltd	Saab Seaeye Limited	Manufactures and supplies hydraulic fittings, valves, pumps, hydraulic components, hydraulic cylinders, hydraulic manipulators as well as integrated telemetry controlled robotic manipulator systems for integration onto ROVs and remote access platforms.
Aug-13	Marrel SAS	Fassi Gru S.p.A.	Manufactures and assembles industrial vehicle mounted equipment. Its products include hook lifts, tippers, cranes, skip loaders, hydraulic cylinders and tipper scissors.
Jul-13	Gulf Controls Company, LLC	Employee Owned Holdings Incorporated	Distributes pneumatic, hydraulic, and electro-mechanical motion control products. The company's product lines include automation, mechanical, electrical, connector and complementary products. It is also involved in the repair and rebuilding of hydraulic cylinders, pumps, motors and valves.
Jun-13	Rockfin Sp. z o.o.	Tar Heel Capital	Design, production and servicing for hydraulic oil systems. Included in these are lubrication systems, drive and control systems, industrial oil filtration, hydraulic cylinders and maintenance systems.
Apr-13	Energy Manufacturing Company, Inc.	Ligon Industries, LLC	Engages in the design and manufacture of hydraulic cylinders, fluid power components and systems.
May-13	HYDROCONTROL Spa	Interpump Hydraulics S.p.A.	The Company manufactures hydraulic components for use in the tele-handlers, forestry, marine, truck, agricultural and construction sectors.
Feb-13	Euro Forming Services GmbH	Management	Manufactures tubular steel products. The company's products include air bag cylinders, shock absorbers, truck axles, gas dampening systems, cam shafts and hydraulic aircraft cylinders.
Jan-13	Hydraulic Energy Products, Inc.	Motion and Flow Control Products, Inc.	Distributes and services new and remanufactured hydraulic components including hydraulic pumps and motors, cylinders, valves, professional automotive jacks and lifting equipment. The company also provides repair, field and preventive maintenance.

## Source Listing

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1, Round Point Maurice  
31707 Blagnac Cedex, France  
+33 5 61 93 33 33  
[www.airbus.com](http://www.airbus.com)

### **American Machinist**

1300 E. 9th Street  
Cleveland, OH 44114  
+1 216 696 7000  
[www.americanmachinist.com](http://www.americanmachinist.com)

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EC4Y 0AN, United Kingdom  
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Chicago, IL 60611  
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Houston, TX 77019  
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[www.bakerhughes.com](http://www.bakerhughes.com)

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49 Walnut Park, Bld. 2  
Wellesley, Ma 01481  
+1 866 285 7215  
[www.bccresearch.com](http://www.bccresearch.com)

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100 N. Riverside  
Chicago, IL 60606  
+1 312 544 2000  
[www.boeing.com](http://www.boeing.com)

### **Bucher Industries, AG**

Murzlenstrasse 80  
CH-8166 Niederweningen  
+41 43 815 80 80  
[www.bucherindustries.com](http://www.bucherindustries.com)

### **BEA**

1441 L St. NW  
Washington, DC 20230  
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[www.bea.gov](http://www.bea.gov)

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Washington, DC 20212  
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[www.spcapitaliq.com](http://www.spcapitaliq.com)

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[www.ccefp.org](http://www.ccefp.org)

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+1 651 686 5552  
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+1 202 2602  
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+1 309 765 8000  
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[www.deloitte.com](http://www.deloitte.com)

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[www.dol.gov](http://www.dol.gov)

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New York, NY 10036  
+1 212 773 6350  
[www.ey.com](http://www.ey.com)

### **Economist Intelligence Unit**

750 third Ave. 5<sup>th</sup> Floor  
New York, NY 10017  
+1 212 698 9717  
[www.eiu.com](http://www.eiu.com)

### **EDF**

257 Park Avenue S.  
New York, NY 10010  
+1 800 684 3322  
[www.edf.org](http://www.edf.org)

### **U.S. EPA**

1200 Pennsylvania Ave., NW  
Washington, DC 20460  
+1 202 272 0667  
[www.epa.gov](http://www.epa.gov)



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55 E 52nd St.  
New York, NY 10055  
+1 212 857 3100  
www.evercore.com

**Federal Reserve**

1 Federal reserve Plaza  
St. Louis, Mo 63102  
+1 314 444 8444  
www.stlouisfed.org

**FPEF**

P.O. Box 1420  
Cherry Hill, NJ 08003  
+1 856 424 8998  
www.fpef.org

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3245 Freemansburg Ave.  
Palmer, PA 18045  
+1 610 923 0380  
www.fluidpowerjournal.com

**Fluid Power World**

6555 Carnegie Ave., #300  
Cleveland, OH 44103  
+1 888 543 2447  
www.fluidpowerworld.com

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www.forbesmedia.com

**FIMA**

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+358 40 820 4605  
www.hermiagroup.fi

**Freedonia Group, Inc.**

767 Beta Dr.  
Cleveland, OH 44143  
+1 440 684 9600  
www.freedoniagroup.com

**Gardner Research**

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Cincinnati, OH 45244  
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www.gardnerweb.com

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**IHS Engineering 360**

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East Greenbush, NY 12061  
+1 518 880 0200  
www.globalspec.com

**Honeywell International**

101 Columbia Rd.  
Morris Township, NJ 07962  
+1 973 455 2000  
www.honeywell.com

**Hydraulics & Pneumatics**

1166 Avenue of the Americas  
New York, NY 10036  
+1 212 204 4200  
www.hydraulicspneumatics.com

**IBISWorld**

40 Wall St., 15<sup>th</sup> Floor  
New York, NY 10005  
+1 917 267 0283  
www.ibisworld.com

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700 19th St., NW  
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+1 202 623 7000  
www.imf.org

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**Manufacturing.net**

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Charlotte, NC 28217  
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+1 212 446 8575  
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**Modern Material Handling**

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Farmington, MA 01701  
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www.mmh.com

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+1 414 778 3344  
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www.nist.gov

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2 Rue Andre Pascal  
75775 Paris Cedex 16, France  
+33 1 45 24 82 00  
www.oecd.org

**Oliver Wyman**

1166 Ave. of the Americas  
New York, NY 10036  
+1 212 345 8000  
www.oliverwyman.com

**Org. For Int. Investment**

1225 19th St., #501  
Washington, DC 20036  
+1 202 659 1903  
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6035 Parkland Blvd.  
Cleveland, OH 44124  
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www.parker.com

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Kildeer, IL 60047  
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www.reshorennow.org

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14531 FM 529, # 225  
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+1 281 345 4040  
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1201 S 2nd St.  
Milwaukee, WI 53204  
+1 414 382 2000  
www.rockwellautomation.com

**SAP**

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Waldorf, 69190 Germany  
+49 6227 747474  
www.sap.com

**SME**

1 SME Dr.  
Dearborn, MI 48128  
+1 313 425 3000  
www.sme.org

**Tata Consultancy**

TCS House Raveline St.  
Mumbai, Maharashtra India  
+91 22 6778 9999  
www.tcs.com

**Transparency Market Res.**

90 State St., #700  
Albany, NY 12207  
+1 518 618 1030  
www.transparencymarketresearch

**UNCTAD**

Palais des Nations, 8-14  
Av. de la Paix, 1211, Geneva  
+41 22 917 1234  
www.unctad.org

**USDA Econ. Research**

355 E St., NW  
Washington, DC 20024  
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www.ers.usda.gov

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Washington, DC 20433  
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www.worldbank.org

**World Economic Forum**

91-93 route de la Capite  
CH-1223 Cologny, Geneva  
+41 22 868 1212  
www.weforum.org

**World Material Handling**

32 Forestwood Dr.  
Romeoville, IL 60446  
+1 888 650 9473  
www.wwmh.net

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3 Overlook Point  
Lincolnshire, IL 60069  
+1 847 634 6700  
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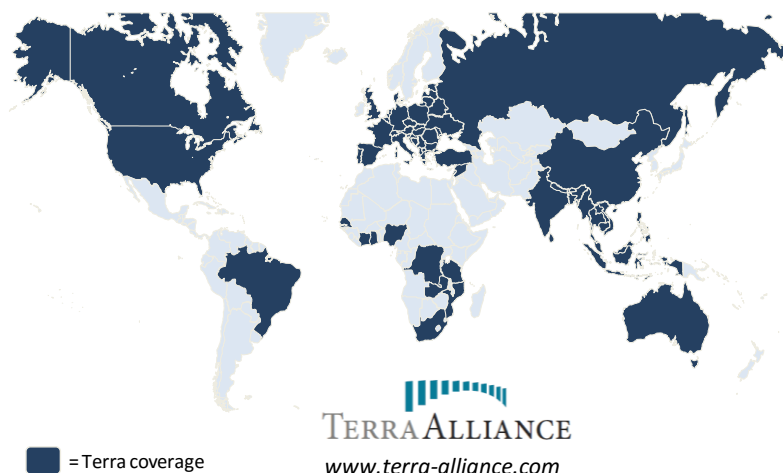
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## Executive Team

**William Doepke \***

Email: [wdoepke@ioadvisors.com](mailto:wdoepke@ioadvisors.com)

Phone: +1 312.698.6906

**Nicholas Newlin \***

Email: [nnewlin@ioadvisors.com](mailto:nnewlin@ioadvisors.com)

Phone: +1 312.698.6918

**Robert Wujtowicz \***

Email: [rwujtowicz@ioadvisors.com](mailto:rwujtowicz@ioadvisors.com)

Phone: +1 312.698.6904

**Mark Harvey \***

Email: [mharvey@ioadvisors.com](mailto:mharvey@ioadvisors.com)

Phone: +1 312.698.6915

*\*Registered Representative*

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