Oil & Gas Market Penetration Initiative
Sales Company France

Customer Presentation
Who are we?
Who is Parker?

Parker designs & delivers innovative products and sub-systems for the Oil & Gas market.

We are a globally diversified manufacturer of motion and control technologies and systems, providing precision-engineered solutions for a wide variety of off shore, on shore, mid stream, transfer and down stream applications.
Parker Hannifin Corporation

Headquartered in Cleveland, OH

- $13.1 billion sales
- 9 core technologies
- 58,000 empowered employees
- Globally focused
60 000 employees serving 500 000 clients avec
1 000 000 products in almost 50 countries
around the world.
Parker Hannifin Today

**Vital Statistics**

- $13.1 Billion Sales
- 8 Business Groups
- 9 Technologies
- 138 Divisions
- 321 Plants - Worldwide
- 3,200 Product Lines
- 1,200 Markets
- 12,000 Distributors Worldwide
- 58,000 Employees
- 489,000 Customers
- 980,000 Products
Strategic Market Focus

Parker is strategically focused on providing engineered solutions to the following key markets:

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<th>Market</th>
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<tr>
<td>Oil &amp; Gas</td>
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<td>Fluid Power</td>
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<td>Aerospace</td>
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<td>Power Generation</td>
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<td>Military</td>
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<td>Heavy Duty Mobile</td>
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<td>Life Sciences</td>
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<td>Semiconductor</td>
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<td>Other Transportation</td>
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<td>Telecommunications</td>
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Strategic Market Focus

Solutions Portfolios

- Offshore Upstream
- Onshore Upstream
- Midstream/Transfer
- Downstream
Key Parker Technologies

Helping to speed development and reduce risk for Life Sciences applications.

- aerospace
- climate control
- electromechanical
- filtration
- fluid & gas handling
- hydraulics
- pneumatics
- process control
- sealing & shielding

Parker
An unrivaled Products range
An unrivaled Products range

Hydraulics

Automation

Fluid Connectors

Instrumentation

Seal

Climate & Industrial Controls

Filtration

Aerospace
A Sample of our Oil & Gas Customer / Users
Parker Capabilities
... from Components to Sub Systems
Why do we win?
Why do we win?

Uniquely Positioned to Address The Challenges of Mankind

Energy
Defense
Food
Life Sciences
Water
Infrastructure
Environment
Transportation
FY12- FY16 Strategy

Expanding Focus on 6 key Market Growth Platforms

Market-Facing BU’s

- Oil & Gas
- Power Gen
- Renewable Energy
- Mobile
- Life Sciences
- In-Plant Automotive
O&G Market Structure knowledge

High Level

- Offshore Upstream
  - Exploration
  - Production
  - Field Services

- Onshore Upstream
  - Exploration
  - Production
  - Field Services

- Midstream/ Transfer
  - Mobile
  - Pipeline
  - Storage

- Downstream
  - Refining
  - PowerGen
  - Chem/ Petro-Chem
  - Distribution
Our Business Development Strategy

- Global Rig Services
- Global Coverage
- Product Breadth
- Upstream Segment
- Oil Companies
- Drilling Contractors
- Service Providers
- Equipment Suppliers
- Global Service
- Global Technical Support
- Improving Technology & Innovation
- Capital Project Management
- Global Alignment
- Customer Relationship Management
Our Expertise in the Oil & Gas industry

Oil & Gas Innovation Brochure
Oil and Gas Innovation:
Upstream. Worldwide.
Your Needs:
OFFSHORE...

- Aircraft fueling hose
- Crane hydraulics
- Deployment baskets
- Intervention Workover Control Systems (IWDCS)
- Material handling equipment
- Mooring - long-term and temporary
- Nitrogen generation
- Rotary seals
- Top drives
- Water making and conditioning
SUBSEA...

DRILLING SYSTEMS:
- Accumulators – piston, bladder, composite, and stainless steel
- Connector plates
- Connector systems – titanium and stainless
- Engineered laminated elastomeric flexible bearings
- Explosion-proof directional valves (ATEX)
- Extruded and precision-machined packer elements
- Fluid filtration cartridges and ASME-certified vessels
- Full range fittings
- High-temperature, high-pressure O-rings
- Hotlines
- Multi-couplers
- Phasite® push-fit connectors
- Radial-seat flange adapters (seat side)
- Riser adapters
- Riser clamps
- Riser diverters
- Riser end caps
- Riser flexible joints
- Riser shims
- Subsea hydraulic cylinders
- Triplex hydraulic pumps
- Wellhead connector seals

BLOW OUT PREVENTER (BOP):
- BOP hose bundles
- Control lines
- High collapse-resistant hoses (HCR)
- High-pressure thermoplastic hoses
- Hose bundle repair kits and service
- Hose, fittings, and valves
- Integrated composite BOP sealing systems
- Parker Intervention Clamping System (PICS)
- Seals, O-rings, and wipers
PARKER IS THERE.

3-D structural scanning
3-D structure
Accumulator technology—bladder and piston
Chemical injection hose
Connecting systems
Control umbilicals
Custom subsea hydraulic cylinders
Dynamic metal and elastomeric sealing systems
High-pressure filtration
High-temperature, high-pressure sealing systems

Hydraulic and electrical flying leads
IWOC umbilicals
Multi-Camera Metrology System (MCMAS)
Power cables
Single Camera Metrology System (SCMST™)
Stab plates
Steel tube and thermoplastic umbilicals
Ultra-high-temperature metallic seals
Our Advantages:

Parker has been an integral part of oil and gas exploration and production for more than five decades. This experience has made us valued partners and technology experts, leading the way with the engineered solutions today’s energy companies are looking for. From deepwater mooring systems, advanced filtration and particle detection systems, and custom umbilicals to dynamic metal seals, stainless steel piston accumulators, subsea cylinders, and literally hundreds of other certified, advanced technology components, Parker can help you keep exploring and producing at peak efficiency.

Worldwide availability.
With over 50,000 employees serving nearly 500,000 customers in almost 50 countries, Parker is everywhere you need us to be. Working with Parker provides you access to an integrated network of 312 manufacturing plants, 13,000 distribution and MRO outlets, and over 1,700 ParkerStores. That’s the kind of network global businesses demand.

Reliability.
National and international certifications verify that our systems and solutions offer the highest possible quality for the most efficient performance. These include the following:

- ABS
- A.S.1210
- ASME
- ATEX/IECEx
- B31.1/B31.3
- CE
- CRN
- DNV
- DNV
- GOST
- KHK
- NACE
- NORSOK
- PED
- PM
- SELO

Flexibility.
As the world’s motion control expert, Parker offers you a complete range of proven, off-the-shelf products. These products deliver streamlined systems and subsystems with exceptional quality and durability, reducing costs and advancing performance. Not only that: our technicians and market-specific engineers are ready to help you with system or subsystem design, on- or off-site.

Innovation.
Nobody does it better than Parker. Our mandate for continuous improvement drives us to partner with our customers to create solutions that are smaller, lighter, sustainable, more energy efficient, and highly reliable.
New Parker Technologies and Innovations in...

INNOVATION

Sealing application with severe shock and momentary pressure spikes?

Think Resilon® 4300 polyurethane, the most wear-resistant polyurethane on the market. The temperature resistance, compression set resistance, and rebound/resilience of this compound give it major advantages over other urethane formulations, and clear benefits for oil and gas applications. Right now, Resilon® 4300 polyurethane is being used for injection-molded mud piston cups. The Resilon® 4300 polyurethane cups last longer and resist degradation better than other elastomer piston cups. Resilon® polyurethane is also being used for flexible boots on drilling tools to increase service life.

EXPLOSION-PROOF

Non-electric air dryers eliminate danger, protect valves

Potentially explosive, oil and gas analyzer sheds require dry compressed air for optimal instrument and stream selector valve performance. Competing explosion-proof desiccant air dryers are heavy and expensive. Parker’s manifold air dryers are smaller and lighter. And they’re inherently explosion-proof because they use no electricity.

FASTER, MORE ACCURATE RESULTS

Single Camera Metrology System (SICAMS®)

SICAMS® services can be applied to subsea surveying where dimensions and angles are required. Factors that determine the accuracy of photogrammetric subsea metrology include image resolution, camera calibration, angles between photos, photo orientation quality, photo redundancy, and target recognition. Parker's SICAMS® successfully addresses all of these factors. SICAMS® captures images from many angles, producing a more accurate 3D model of the object being measured. In addition, enhanced blunder detection and a reporting tool built into the processing software provide a cluster image and more reliable 3D model. Accurate results, guaranteed at 1 in 5,000 - with even higher accuracy having been achieved - are delivered onsite, making SICAMS® a highly cost- and time-effective service.

CUSTOMIZED SOLUTION

Intervention Workover Control System (IWOC): Custom-designed solution for well completions, P&A, and workovers

Used for well completions, subsea tree installations, workovers, as well as plug and abandonment (P&A) of obsolete wells, Parker’s IWOCs Open Water Package can operate to water depths up to 701 meters (2,300 ft). The leased system components include an IWOCs reel with hydraulic umbilical, a hydraulic power unit (HPU), a gang box/workover container, a particle counting scope kit, and various other components. IWOCs umbilicals are designed to safely provide direct hydraulic control to the tree-running tool (TRT) and other subsea tree functions. Each umbilical contains up to 20 lines with a maximum working pressure of 862 bar (12,500 psi) and is equipped with an emergency shutdown system (ESS).

RELIABLE

Code 62 Dual-Seat subsea adapters and fittings

The new sealing technology of our Code 62 Dual-Seat flange adapters provides major advantages in pressure capability, vibration resistance, impulse resistance, reduced side loading sensitivity, and increased ingress pressure resistance over standard Code 62 adapters. The only manufacturer to offer both an adapter line and complimentary hose assembly with this technology, Parker’s unique design and metallurgy of the 90- and 45-degree adapters, as well as the direct crimp hose end, provide increased strength, pressure, safety, and reliability. Because of this improved non-weld design, all fittings and adapters in sizes -8 (1/4”) through -24 (2”) are certified to 517 bar (7,500 psi) and are NACE compliant for H2S environments.
Oil and Gas

MORE THAN 50 PERCENT SAVINGS

Nitrogen gas generators eliminate cylinders, bulk liquid systems

Used for underbalanced drilling, inserting of storage vessels and gas seals, weld
workovers, enhanced oil recovery, and myriad stand-alone other operations,
nitrogen is critical to oil and gas operations. But nitrogen in cylinders is costly
and bulk liquid systems are large, expensive, and potentially hazardous.

Parker’s PSA and membrane Nitrogen Gas Generators are a smarter choice, saving more
than 50 percent over cylinders and liquid systems. Parker Nitrogen Gas Generators eliminate
unexpected shutdowns due to empty cylinders or truck delivery delays, avoid contamination
from possible liquid spills, and protect the environment with no greenhouse gas emissions.
Plus their compact size frees up valuable floor space when compared to cylinders.

These superior Nitrogen Gas Generators can be integrated into turnkey nitrogen systems with
air compressors, boosters, and more to deliver extremely cost-effective and highly reliable performance.

NEWEST LEAD TIMES

New Roundline cylinders really deliver

Sooner rather than later. The new Series RDH15 is a catalog-based hydraulic cylinder platform that combines the fastest
delivery with the greatest design flexibility for unprecedented customer satisfaction. Plus advanced sealing and bearing
technologies deliver longer cycle life and reduced downtime. In a smaller, lighter footprint. Onshore in catheads and torque wrenches . . .
offshore in top drives and material handling . . . or subsea in running tools and BOP actuators, our industrial grade Roundline cylinders offer the safe,
superior performance the oil and gas industry demands.

SAFETY

Oil and gas elastomers tested and certified to NORSOK standards

Developed by the Norwegian Petroleum Industry,
NORSOK M-710 specifies standards for rapid gas decompression (RGD), also known as explosive decompression
(ED), and sour gas (H2S) aging on elastomers and thermoplastics. These
tests give insight regarding the performance and life expectancy of a seal in
various oil and gas applications. Parker’s materials passed the challenging
expectations and requirements set by the NORSOK standard.

LIGHTER

Losing the weight

Time may be money in the oil and gas industry, but so is weight. That's why
Parker's custom shapes, sealing systems, and components in a broad range of
thermoplastic elastomers, advanced polyurethanes, fluoropolymers, and
performance resins are in such high demand. For instance:

- Lighter, more buoyant
  HPDE riser clamps and
  riser shims are replacing heavier metal
  or urethane clamps, reducing the
  number of buoyancy modules needed
  on a riser string.

- Parker's flowlme seals offer a 40 percent
  weight reduction by replacing steel
  backup rings.

- Using an engineered thermoplastic
  material, telescoping joint packers
  are now replacing steel ring inserts
  for 50 percent less weight.
New Parker Technologies and Innovations in

**INVENTORY CONTROL**

**Thousands of parts – one part number**

Parker’s custom seal kits offer a smart alternative to the complexity and cost of expendable components for oil and gas equipment and tools. The sophisticated repair kits, used for complicated equipment like blow-out preventers and MWD downhole tools, are used by some of the largest players in the industry as a way to speed, simplify, and improve MRO operations.

**GREATER CONTROL**

**Proportional and directional control valves**

In top drives, drill floor, pipe and material handling equipment, Parker’s proportional and directional control valves provide strong metering characteristics in all standard flow sizes for improved hydraulic control. Plus ATEX coils inside certify the valves for use in potentially explosive atmospheres.

**LONGER LIFE**

**HCS rotary manifolds offer superior sealing**

Used in crane swivel joints, HCS rotary manifolds solve the problems of seal extrusion, poor mounting, and hose fatigue in high duty cycle rotation applications. Even under continuous rotation at high pressure, Parker’s unique step shaft, lock-in seal, and custom mounting designs ensure extensive service life. Plus, a compact envelope enables easier installation and alleviates hose routing issues.

**SHORTER LEAD TIMES**

**Energy management systems**

Utilizing our engineering expertise in elastomer material science, product design, and validation, including FEA, Parker is able to deliver highly engineered, large-scale energy management systems with shorter lead times. These extremely large and complex elastomer/metal assemblies for offshore drilling safeguard multimillion dollar drilling operations.

- **Subsea and surface flexible joints** absorb side load and wave action to allow for flexing of the riser system during offshore drilling.
- **Flexible elements** in tethering systems are critical in anchoring production platforms to the seabed.
- **Gimbal bearings** safeguard drilling equipment and maintain optimal load distribution under stresses of pitch and roll.

**CV6 control group for offshore cranes**

Used for heavy offshore cranes with flows of 260 to 1,883 lpm (70 to 500 gpm), this proportional control valve group is the only technology on the market to offer accurate control of high flows up to 1,200 lpm (331 gpm) as well as extreme high flow capacity at low pressure drops. Its compact size is a plus inside the crane king, replacing a massive sub-plate manifold, while its robust design makes it less sensitive to contamination in aggressive environments.

**HPU manifolds for oil and gas hydraulic systems**

Offering a compact size, optimized layout, high flow capacity at low pressure drops, and robust design for offshore conditions, Parker’s custom-engineered HPU manifolds are a smart choice for hydraulic drilling machines. The manifold shown here houses 333 valves, delivering the flow of 16 pumps to different actuators in the drilling tower.

**Steerable thruster**

Parker provides the lubrication of filtering, pitch control, and clutch control systems in this 360 degree rotating steerable thruster used in the dynamic positioning of drilling vessels and semi-submersible drilling rigs.
Oil and Gas

CLEAN WATER

For quality of life – and quality of operations
Operating offshore includes the effective delivery of clean water for the many uses of the team - from drinking, cooking, and cleaning to wash down and drilling mud water. Storing large quantities of potable fresh water on offshore platforms and service vessels is expensive and cumbersome. An effective alternative solution is a seawater desalination system using proven Parker filtration and reverse osmosis technologies. The CC Series Watermakers are self-contained units that can produce up to 100 m³/day (26,000 gpd) at a low cost per unit. Various pre-treatment and post-treatment options are also available.

CORROSION RESISTANCE

Modular ATEX- and IECEx-certified electrical parts
Parker has developed a wide range of ATEX electrical parts covering all ATEX zone applications. This includes a stainless steel chemical, petrochemical, refinery (CPI) range of “a” and “d” class parts for more aggressive applications prone to corrosion. Designed for process actuator and valve control, the modular parts are fully interchangeable with a wide variety of current Parker valves, and offer a lightweight and compact design.

Corrosion-resistant compression tube fittings with Suparcase® treatment cover range of pressure
Parker’s proprietary Suparcase® is a metallurgical process for the treatment of stainless steel, high-nickel alloys, and titanium. Suparcase® is not a coating, but a surface treatment process that provides hardness and resistance to abrasion, erosion, corrosion, and fatigue.

Parker’s single ferrule CPI® compression tube fittings and medium pressure MPS® compression tube fittings, both with Suparcase® ferrules, cover pressures up to 1034 bar (15,000 psi), and are corrosion resistant, easy to install, and perform well in high vibration applications.

Parker recently collaborated on one of the most advanced diving support vessels in the world. Parker's new solution for the vessel included prefabricated pipe assemblies as large as 190 mm x 20 mm (7/4” x 3/4”). These 350 bar (5,076 psi) assemblies improved installation efficiency and reduced flushing time by 50 percent.

MORE GLOBAL CONNECTIONS

Service centers offer customized, turnkey piping system solutions
The Parflange® F37 non-welded hydraulic piping system is the foundation for Parker's global network of Complete Piping Solutions (CPS) centers. These centers can provide customized, turnkey solutions including project consultation, piping design, pre-fabricated assemblies, and installation services for oil and gas applications on land and offshore. The CPS centers offer single-source piping solutions that can be complemented with the full breadth of Parker technologies. Currently there are centers in the United States, Norway, Brazil, Singapore, and South Korea, with additional locations soon to open in Germany, China, and Poland.
Our key products by sub segment and product Groups
Market Products  Potential

Hydraulics Group:
- Crane Controls & Integrated Manifolds
- Hydraulic Power Units
- Accumulators
- Control Valves
- Motion Compensation Cylinders
- Heave Cylinders
- Piston Pumps
- Hydraulic Drive Motors

Offshore
Upstream
Top Side
Market Products Potential

Instrumentation Group:
- Valves
- Fittings
- Tubing
- Manifolds
- Sample Monitoring

Filtration Group:
- Nitrogen Generators
- Water-Makers / Desalination Systems
- Hydraulic Filtration
- Process Filtration
Market Products  Potential

**Fluid Connectors Group:**
- Hydraulic Hose
- Industrial Hose
- Tube Fittings
- Weld-less Connection Systems
- Thermoplastic Hose Bundles

**Automation Group:**
- DC / Servo Drives
- FRLs
- Cylinders
- Control Valves
- Electro-Mechanical Systems
Market Products Potential

Fluid Connectors Group:
• BOP Bundles
• Quick Disconnect Plates
• Thermoplastic Hose
• Weld-less Connection Systems

Instrumentation Group:
• Valves
• Fittings
• Tubing
• Manifolds

Climate & Industrial Controls Group:
• Subsea Control Valves
• Explosion Proof Valves
Market Products Potential

Hydraulics Group:
- Accumulators
- Subsea Control Valves
- Cylinders
- Integrated Manifolds

Seal Group:
- Riser Clamps
- Elastomers for Well Head Connectors
- Flexible Joints
- BOP Sealing Systems
- Integrated Composite Sealing Systems
- O rings and BUP rings
Market Products Potential

Fluid Connectors Group:
• Mooring Systems
• Umbilicals
• Transfer Hose
• BLOMs Ship Positioning Control System

Hydraulics Group:
• HPUs
• Actuators
• Thrusters
Market Products  Potential

Filtration Group:
• Water Makers
• Nitrogen Generators
• Filtration Systems

Instrumentation Group:
• Analytics
• Fittings
• Valves
• Sample Systems

Seal Group:
• Packers
• Molded Systems
• Composite Seals
• O rings

Midstream Transfer
Market Products Potential

Instrumentation Group:
• Manifolds
• Fittings
• Tubing
• Valves
• Sample Systems

Hydraulics Group:
• Manifolds
• Valves
• Hydraulic Systems
How can we help you?
Questions ?
Thank You