

Industrial Revolution

Filtration Technology and Condition Monitoring

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



ENGINEERING YOUR SUCCESS.

Parker Hydraulic Filtration



For more than 50 years, Parker Filtration has been designing and manufacturing hydraulic filtration solutions to a wide variety of industrial market sectors including pulp & paper, metal processing, machinery & tooling and energy & power generation.

Parker's Hydraulic Filter Division looks beyond the customary solutions to a flexible approach in preventing breakdowns and extending the life time of components in hydraulic, lubrication, process and fuel systems.

Together, with our customers, we break new ground to provide innovative design, reducing costs in various areas such as new build system maintenance, energy consumption, disposal and weight.

Our patented filter solutions and innovations are adopted by leading global equipment manufacturers and end users.

Parker's technology development closely follows the future demand of mankind. Environmental responsibility towards society implicates providing components and systems reducing the impact of operation in public and industrial places, maximizing safety and reliability.

Parker Filtration Solutions	Filtration Technology
Filtration for working hydraulic and control systems	Full flow filtration (Fibre type and metal mesh media) Off-line & Bypass filtration Electrostatic fluid conditioning Oil Purifiers Back Flush Filtration Magnetic Filtration
Drive train filtration system	
Energy transfer systems	
Lubrication systems	
System fluid & filter condition monitoring	
Process filtration	



- breaking new ground



Engineering your success

Our principles and internal structures are based on dedicated market teams to provide demanding markets, customers and partners with maximum values, tailor-made solutions and innovations.

In Parker, we call it “**Engineering your success**”.

Our solutions focus on value areas:

1. System design & manufacturing

- System matched filtration
- Compact solutions through component integration
- System design & manufacturing support
- Cleanliness management control
- System & fluid condition monitoring

2. System performance

Improvement of systems;

- Productivity
- Controllability
- Reliability
- Safety

3. System sustainability

- Life cycle cost
- Predictable maintenance
- Extended service intervals
- Oil lifetime extension
- Component lifetime extension

4. Sustainable environment

Impact of equipment to environment

- Minimise waste of oil and filter elements
- Reduce number of leakage points
- Noise & vibration reduction

5. Energy control

- Reduction of energy consumption
- Energy recovery

6. Recycling

- Disposal cost and material management

7. Aftermarket

- Protected OEM spare element market
- Training and technical back-up
- Global spare parts back-up
- Extended warranty

With courtesy of Wärtsilä Corporation



Quality products reduce down



Duplex High Pressure Filter
type WDPF



Electrostatic Filtration Units
type SMR



PVS Fluid Purifier System



In-line Filters with Magnetic
Pre-Filtration (type shown BGAH)

Our philosophy is to improve the productivity, controllability and reliability of industrial equipment without sacrificing safety.

Modern industrial application calls for solutions often capable of remote operation without the need for servicing between scheduled maintenance events. At the same time, the demands for improved overall productivity puts forward

more stringent demand related to filtration.

It is not only the higher level of productivity that counts. As equipment more often operates in hazardous or unmanned areas, higher levels of reliability are needed to improve safety.

This is directly influenced by system contamination proven to be

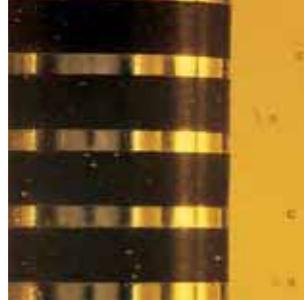
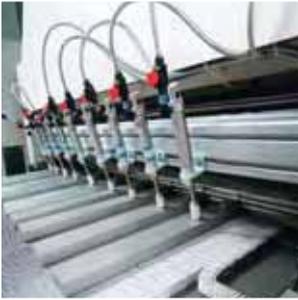
responsible typically for over 80% of downtime or malfunction of systems. In this respect, filtration and condition monitoring fulfil a vital role.

Parker Filtration continues to develop high quality filtration solutions. A core competence is to develop dedicated technology to condition the fluid. Parker's Microglass filter media sets the benchmark for the industry.

Design →	Sourcing →	Manufacturing →	Assembly →	Testing →	Value Added Services →	Aftermarket
Common system development with OEM's	Global Logistic OEM support	Quantity and cost reduction of system components	Reduction of assembly cost and manufacturing time		Protected aftermarket for filter elements	
Technology development	Reduction of parts	Reduction of system components.	Cleanliness control of new equipment		Reduction of warranty claims	
Analysis of system function	Supply system synchronized with OEM need	Breadman service	Training & consultancy		Transparency of spare element consumption	
	Reduction of points of purchase	Supply of pre-assembled units	Commissioning & testing support		Cost reduction of service	
		Outsourcing of non-core activities			System analysis support	
					Renewable parts programme	
					Real time system condition	
					Training programme for dealers	



Uptime in industrial markets



Magnetic pre-filtration has proven to be an effective method to remove Fe-particles from hydraulic and lubrication fluids. Parker's magnetic pre-filtration removes Fe-particles smaller than 2 micron plus extends the life time of the filter element by an average of 20%.

Important aspects of our filtration solutions are:

Improve system productivity & controllability

- Stable removal efficiency of the filter media during flow & pressure fluctuations
- Low pressure drop across the filter media & housing for improved system response

Ecology & Economy

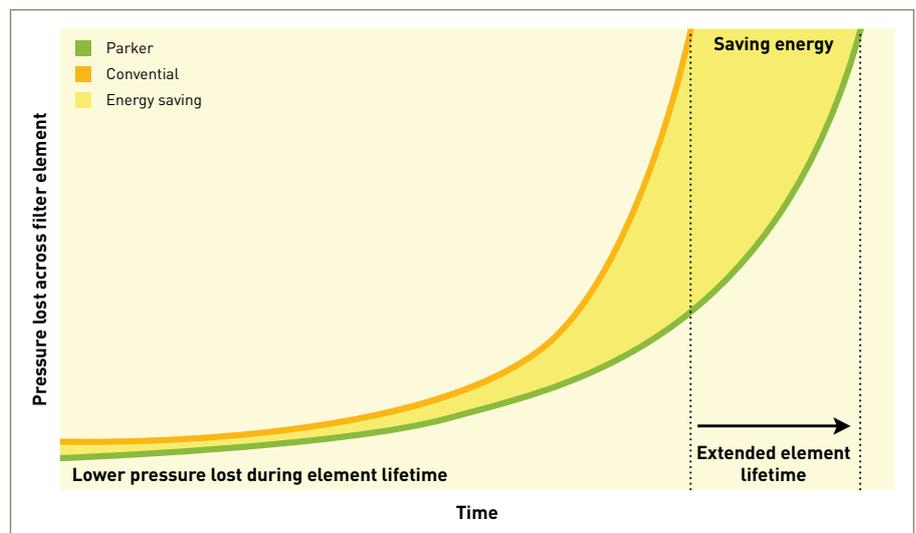
- Reduction of pressure lost across the filter saves energy & fuel
- Parker green elements reduce waste by over 50% compared to conventional solutions
- System-matched filter element lifetime

Reliability & Safety

- Guaranteed quality of filtration
- System-matched filter element lifetime

Contaminated fluid reduces overall system efficiency. Parker's engineered solutions focus on system requirements, reliability and safety.

Energy efficiency and savings



Monitoring critical systems



Moisture Sensor MS300 with ATEX Certification



FMU Filter Condition Indicator



The icount ACM20 particle analyser for jet fuel



icount PD continuous on-line fluid cleanliness level measurement with H2O detection

Requirements with regard to hydraulic and oil lubrication systems emphasise reliability, safety, long lifetime and reduced energy. Depending on the circumstances, over 80% of system failures are due to contamination levels. System monitoring is essential to prevent reduced performance, equipment failure, downtime costs and negative quality perception by end users.

Catastrophic failures

Occurring suddenly and without warning; catastrophic failures are typically of a permanent nature. They are often caused by larger particles obstructing the relative movement between

surfaces, resulting in seizure of the component. Real-time condition monitoring is advisable for applications where catastrophic failures can affect the safety of operation. Trend analysis allows Parker to provide a dedicated package of pre-warnings to ensure that predictive corrective actions can be taken.

Transient failures

This type of failure is short-lived and goes unnoticed, although the consequences rarely do. It is caused by particles that momentarily lodge in a critical clearance between matching parts, only to be washed away during the next operation cycle. As a

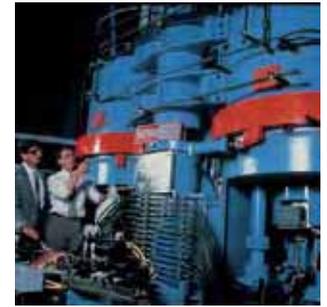
result components become less predictable and potentially unsafe.

Degradation failures

This failure is caused by the effect of wear induced by contamination. Additional generated contamination can lead to catastrophic failure and necessity to repair and replacement of the component.



is essential



The extended package of Parker's Fluid Condition Monitoring equipment is based on a modular architecture, enabling designers to select the sensors needed for real-time analysis of important system and fluid parameters.

Parker's integrated solutions include diagnostics and smart decision making processes, communication status reports or warnings to the machine operator or service organisation.

Monitoring critical systems

Predictable maintenance		Fluid conditioning		Fluid condition monitoring	
Condition Monitoring	Element pressure drop measurement	Productivity Controllability	Guaranteed oil cleanliness	Reliability & safety	Quality index of system oil and system condition
	Temperature measurement		Oil lifetime extension		Intelligent interface with vehicle operator
	Fluid cleanliness level measurement		Component lifetime extension		
	Fluid viscosity measurement				
	Other fluid system parameters				



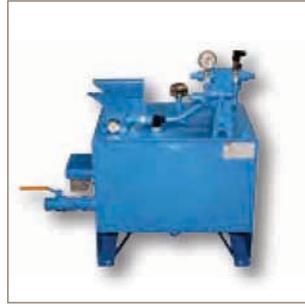
Reducing costs by innovative



Customized Compact Valve Unit with Manifold mounted High Pressure Filter



Lubrication Skid with Customized Filter and Fluid Condition Monitoring Unit



Customized Hydraulic Power Pack



Customized Lubrication Fluid Duplex Filter

Solutions for the future require a different approach.

Parker's philosophy underlines our ability to support our customers with the design and realisation of new generation equipment.

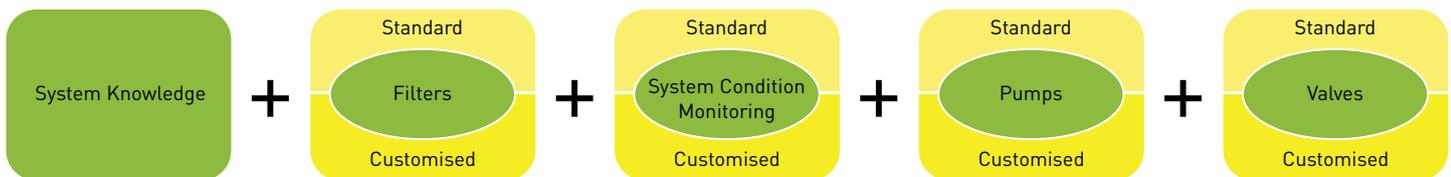
Parker offers the unique possibility to integrate various system functions into single components. This can result in cost reduction of the application in manufacturing and maintenance; can realise more compact solutions and lower impact for the environment by means of

reduced leakage points. In addition to the integrated patented filters, this guarantees the quality of filtration for maximum protection of the system components.

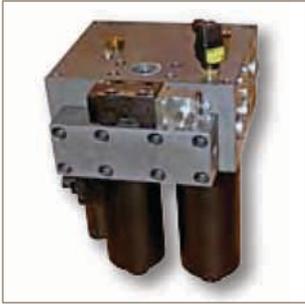
As a complete supplier of motion & control solutions, Parker is able to support extended warranty; a valuable proposal to OEM's providing long term reliability and safety towards their customers in the market.

Parker's experience in industrial markets for more than five decades is focused for our customers through the dedicated Industrial System Team and divisional engineering staff.

Application and system specialists for hydraulic and lubrication filtration systems are available "at your service".



system integration



Duplex Filter with Automatic Change-Over Flow Control



Ultra Compact Powerpack

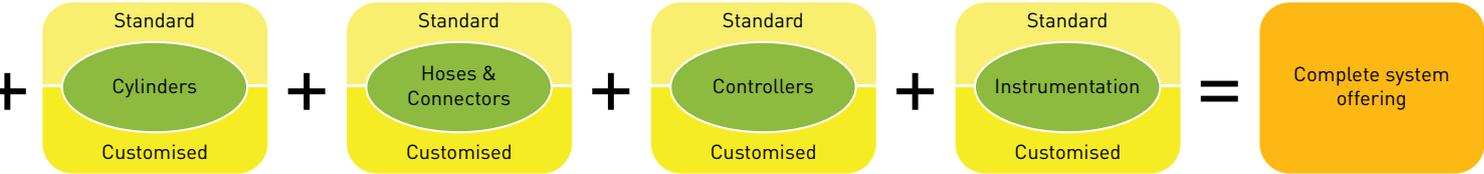


ParTrap Back-Flush Filters for Continuous Filtration of Fuel or Lubrication Oil



Parker designs and manufactures complete turn-key system solutions.

Parker's back-flush technology is based on the usage of cleanable metal or plastic mesh filter elements. The ParTrap filter family includes filters for both lube and fuel oil applications and ensures continuous filtration of heavy fuel oil for ships and powerplants. Self-actuated continuous back-flushing filters meet the latest demands of diesel engine manufacturers. This technology is also to reduce the load of main filtration on heavy contaminated systems like tooling machine cooling liquids.



A partnership in ecology and



Our aim is always to develop long term relationships with our customers. As partners we can work together to provide the most effective solutions for hydraulic filtration. But our aim is not only to provide low cost, extended reliability and performance.

Today's markets call for environmentally friendly solutions. We call that Ecology & Economy and we often step beyond traditional conventions to take responsibility for society and take the environment into account.

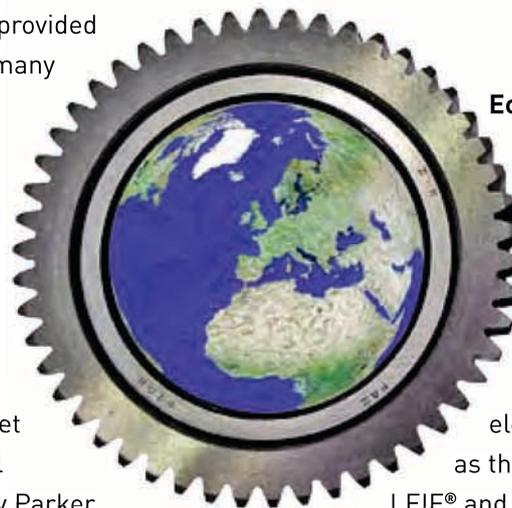
Dedicated support is implicit in a good partnership: for example, making quality spare parts

available to our partners and end users. Direct or through dedicated distribution networks.

Complete sub-systems or other aftermarket parts like filter elements are provided by Parker, in many cases from Parker's own central distribution warehouses the EDCs.

Protection of the aftermarket is an essential element in any Parker partnership that is developed for and with an OEM customer.

Guaranteed filtration quality, improved connection with end users, extended warranty provision and transparency in the aftermarket are basics in any Parker partnership.



Ecology & Economy and LEIF® and Ecoglass III

Parker provides complete sub-systems or other aftermarket parts like filter elements such as the eco-friendly

LEIF® and Ecoglass III, making spare parts available to our customers and end users direct or



economy

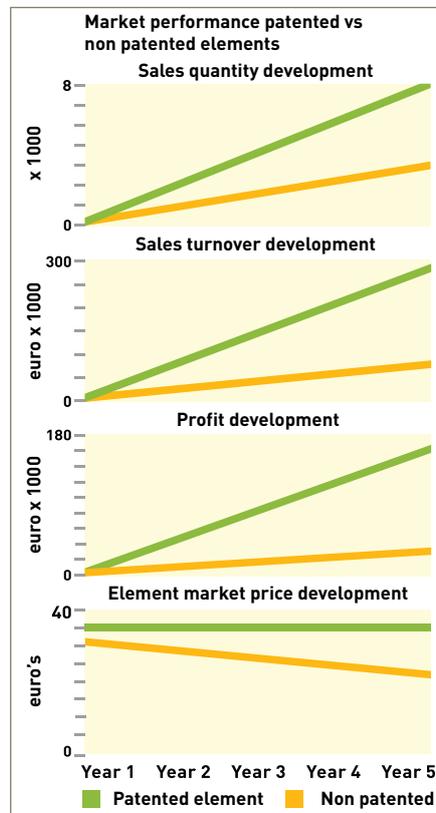


Parker patented green elements reduce the waste typically by over 50%

through a dedicated distribution network via our Europe-wide Sales Companies operating on a country by country basis.

Benefits of Parker's patented elements:

- OEM protected aftermarket excludes piracy
- Guaranteed quality of filtration
- System user fits genuine (Parker) OEM spare parts
- Typically, a reduction of warranty claims
- Extended warranty provision
- OEM contact with end users and service organisations is improved
- Improved aftermarket share and revenue



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