



# Safety is a process that never stops

Hydraulic Filter Division Europe

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



ENGINEERING YOUR SUCCESS.



# Safety is a process that never stops

For more than 50 years, Parker Filtration has been designing and manufacturing hydraulic filtration solutions to a wide variety of mobile and industrial market sectors including Power Generation, Oil & Gas, Mining, Shipbuilding and Chemical.

Parker's hydraulic filter division looks beyond the customary solutions to a flexible approach in preventing breakdowns and extending the lifetime of components in hydraulic, lubrication and fuel systems.

Together with our customers, we break new ground to provide innovative product design, reducing cost in various areas such as system maintenance, energy consumption, element disposal and weight. Our patented filter solutions and innovations are adopted by leading global equipment manufacturers and end users.

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 7 value areas:

Parker is proud to practice their responsibility towards the industry by offering ATEX certified products, our contribution to improved safety. With our relations we design dedicated system solutions, realizing ground-breaking innovations by focusing on 7 value areas. Each value area represents important aspects and opportunities where filtration and condition monitoring can improve the performance and economics of systems without sacrificing the safety of our environment.

## 1. System design & manufacturing

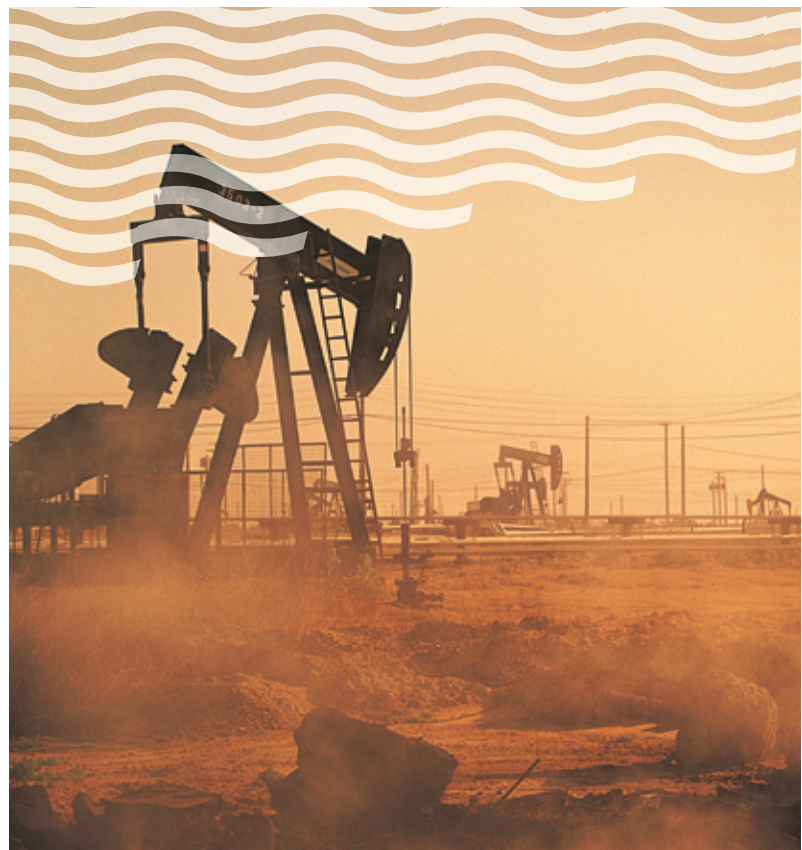
- System matched filtration
- Compact solutions through component integration
- System design and manufacturing support
- Cleanliness management control

## 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 on the environment
- Minimise risk of filtration and condition monitoring equipment in potential explosive atmospheres
- Reduction of waste of oil and filter elements
- Reduce number of leakage points
- Noise and vibration

#### 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



Contamination is responsible for over 80% of standstill of hydraulic systems. Besides solid contamination and fluid oxidation products, the fluid's water content has direct consequences for the efficiency of the system and fluid life time. Parker's MS300 moisture sensor continuously measures the water content in fluids, enabling system operators to initiate action before system failures occur.



# Safety First

ATEX is a European Directive (94/9/EC) valid for products intended for use within an explosive atmosphere.

In various industries the application present in an atmosphere with the potential to become an explosive atmosphere during operating conditions and/or under the influence of the surroundings, is defined as a potentially explosive atmosphere. Products covered by directive 94/9/EC are defined as intended for use in potentially explosive atmospheres.

The European Union has adopted two harmonized directives in the field of health and safety. The directives are known as ATEX 100a and ATEX 137.

Directive ATEX 100a (94/9/EC) defines minimum safety requirements for products intended for use in potentially explosive atmospheres in

European Union member states.

Directive ATEX 137 (99/92/EC) defines minimum requirements for health and safety at the workplace, for working conditions and for the handling of products and materials in potentially explosive atmospheres.

This directive divides the workplace into zones and defines criteria by which products are categorized within these zones.



Following ATEX 100a (94/9/EC), Parker is proud to practice their responsibility towards the industry to offer products being certified for usage in defined zones based on their category classification.

### The Zones in an Application

Table I. describes the zones in an installation where there is a potential for explosive atmospheres.

The owner of the installation must analyse and assess the area in which the explosive gas/dust mixture may occur, and if necessary must divide into zones.



This process of zoning then allows the correct plant and equipment to be selected for use in that particular area.

Parker designs and supplies complete solution, ranging from high pressure duplex filters with customized manifold & instrumentation to complete sub-systems for gas turbines.

### Type of risk and zone classification

Zones		Presence of potentially explosive atmosphere	type of risk
Gas	Dust		
0	20	Present continuously or for long periods	Permanent
1	21	Likely to occur in normal operation occasionally	Potential
2	22	Not likely to occur in normal operation but, if it does occur, will persist for a short period only.	Minimal



# Levels of protection for the various equipment categories

The various equipment categories must be capable of operating in accordance with the manufacturer's operating specification at defined levels of protection.

With regard to the Machinery directive 98/37/EC, note that a number of external requirements in 94/9/EC refer to hazards arising from potentially explosive atmospheres, where the Machinery

directive only contains general requirements to explosion safety (Annex I 1.5.7).

As a result, directive 94/9/EC (ATEX 100a) takes precedence over the Machinery directive

with regard to explosion protection in potentially explosive atmospheres.

The requirements in the Machinery directive are applicable to all other risk relating to machinery.

Level of Protection	Category		Type of protection	Operating specifications
	Group I	Group II		
Very High	M1		Two independent means of protection or safety, ensuring that the equipment remains functional even in the event of two faults occurring independently of each other	The equipment remains energised and functional even with an explosive atmosphere present
Very High		1	Two independent means of protection or safety, ensuring that the equipment remains functional even in the event of two faults occurring independently of each other	The equipment remains energised and functional in zones 0, 1, 2 (G) and/or zones 20, 21, 22 (D)
High	M2		Protection suitable for normal operating and severe operation conditions	The equipment is de-energised and in the event of an explosive atmosphere
High		2	Protection suitable for normal operation and frequent faults, or equipment in which faults normally have to be taken into account	The equipment remains energised and functional in zones 1, 2 (G) and/or zones 21, 22 (D)
Normal		3	Protection suitable for normal operation	The equipment remains energised and functional in zones 2 (G) and/or zones 22 (D)

Definition of groups (EN 1127-1)

## Group I

Equipment intended for use in underground parts of mines as well as those parts of

surface installations of such mines likely to be endangered by flammable vapours and/or flammable dust.

## Group II

Equipment intended for use in other places exposed to explosive atmospheres

## Classifying of Ex-equipment according to the ATEX-directive

Group	I Mines, combustible vapours		II Other potentially explosive atmospheres gases, dusts, mists and vapours				
	M1	M2	1	2	3		
Category			G	D	G	D	
Atmosphere			0	20	1	21	2
Zone							22

G = Gas

D = Dust


## Temperature Class


Flammable gases and vapours are classified on the basis of ignition temperature

Temperature Classes	Maximum allowed surface temperature on the material in °C
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

## Product Label

Parker products certified in accordance with ATEX directive 94/9/C are identified with a dedicated product label.

Filter Division Metamora, Ohio OH 4540, USA		Hyd Filter Dy Europe 31700 Ujala As. Finland
© II 2Gc15 Tech. file ref. Parker BK 0/08		
Cartridge No. M.A.O.P. Serial No.		

Model Number	MAOP	Serial Number	
Parker Hannifin Corporation Hydraulic Filter Division 16810 Filton County Road #2 Metamora, Ohio 4640 USA (419) 864-3211 hydraulicfilter@parker.com			Parker Hannifin Oy Hydraulic Filter Division Europe Salmentie 20 FIN 31700 Ujala as. FINLAND +358 21 55 3500 filtration.finland@parker.com
II 2Gc15			Tech. file ref. Parker BK 0/08



The Ex marking states the product fulfils the ATEX directive.

- II refers to the Equipment group
- 2 refers to the Category
- G refers to Atmosphere (G= Gas)
- c refers to States safe design (prEN13463-5)
- T5 refers to temperature class

In this example the product can be applied for Zone 1 and 2, based on complete classification of the system in accordance with ATEX directive 94/9/C

## Important Notes

Ex-components as defined in the European standard EN 50014 are components in the sense of the ATEX directive 94/9/EC as well. Components must not bear the CE marking affixed unless otherwise required by other directives.

The declaration is only valid in conjunction with the instructions contained in the installation manual related to the safe use of the product throughout its service life.

For any questions about the usability of our products in conjunction with explosive atmospheres please consult Parker Filtration.

No rights can be obtained from the information provided in this brochure.

# Market opportunities

In many markets the demand to meet future specific levels of safety insurance is evident. Parker has developed filtration solutions based on standard and customized products.

## Example of markets where ATEX certification can be required are:

- Oil & Gas
- Power Generation
- Mining & Drilling
- Construction
- Chemistry
- Process
- Marine
- Aviation

Parker's quality hydraulic & lubrication filtration products are used today for a wide variety of applications. For continuous monitoring of the fluid condition Parker offers an extended range of conditioning monitoring equipment.

## Material handling & Control systems

### Typical applications are:

- Deck Cranes
- Davits
- Anchor Equipment
- Winches
- Heave Compensation
- Thrusters
- Gearbox lubrication systems

## Drilling & Process equipment

### Typical applications are:

- Pipe connection & positioning systems
- Pipe handling equipment
- Actuator Control
- Well Head Control

## Sub-Sea equipment

### Typical applications are:

- ROV
- Actuator Control
- Well Head Control

## Aviation

### Typical applications are:

- Jet fuel condition monitoring equipment
- Airport Utility & Service equipment

## Mobile equipment

### Typical applications are:

- Hydraulic operation systems
- Vehicle drive systems
- Fan drive systems
- Steering & Brake systems

## Power Generation

### Typical applications are:

- Engines and propulsion
- Power units
- Compressors
- Ringline Hydraulics

## Flushing Rigs & Chemical Injection

### Typical applications are:

- Actuator control
- Instrument protection
- Fluid recovery systems



Parker's innovative solutions created new opportunities for the civil and military aviation industry. Instead of visual inspection of jet fuel Parker's ACM20 portable particle counter provides real-time accurate information about the condition of the jet fuel.



High Pressure Filters	Type	Port Configuration	Nominal flow (l/min)	MAOP (bar)	ATEX Category	ATEX Product group	ATEX Product Sub Group
	70P	T- & L- Type	450	414	2	Ex equipment	Non-Electrical
	70P	Manifold B-Type	450	414	2	Ex equipment	Non-Electrical
	18P/28/38P	T-Type	700	414	2	Ex equipment	Non-Electrical
	100P	L-Type	1000	414	2	Ex equipment	Non-Electrical
High Pressure Duplex Filters	22/32PD	Manifold	260	210	2	Ex equipment	Non-Electrical
Stainless Steel High Pressure Filters	FF7121/7122	T-Type	60	420	2	Ex equipment	Non-Electrical
	AWHP	T-Type	60	690	2	Ex equipment	Non-Electrical
Medium Pressure Filters	45M	T-Type			2	Ex equipment	Non-Electrical
	15/40/80 CN	T-Type		70	2	Ex equipment	Non-Electrical
	AGS50/100	T-Type	100	50	2	Ex equipment	Non-Electrical
Low Pressure Filters	TTF	TTM	500	10	2	Ex equipment	Non-Electrical
	BGT	TTM	2400	10	2	Ex equipment	Non-Electrical
	STF	TTM	500	10	2	Ex equipment	Non-Electrical
Indicators Visual differential	FMU M3	NA	NA	420	2	Ex equipment	Non-Electrical
					<b>ATEX Marking</b>		
Electronic differential	FMU F	NA	NA	420	II 2 GD Eex mII T6		Electrical

TTM = TankTop Mounted



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