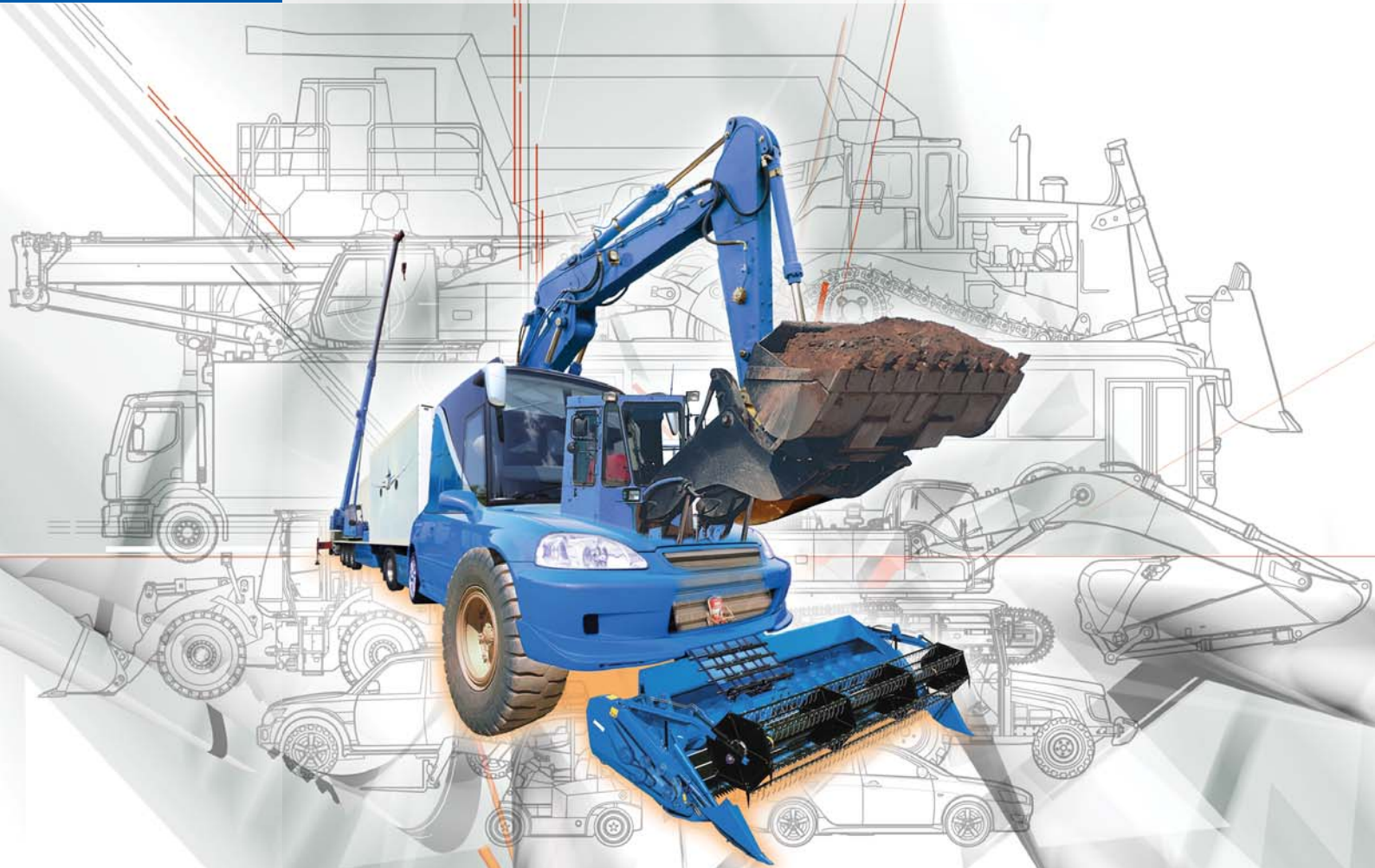




Pall Corporation



Transportation

Group

Problem Solvers for Original
Equipment Manufacturers

Filtration. Separation. Solution.SM

“One Day, all fluids will
pass through a Pall filter”

- Operations in 30 countries
employing 10,000 people
- Annual sales exceeding \$2.5 billion
- \$72 million investment in R&D
- Operating in two broad markets -
'Industrial' and 'Life Sciences'
- Dedicated to the advancement in filtration
and separation technology and
development of fluid clarification systems

Pall Aerospace and Transportation (A&T) is part
of the Pall Industrial business of Pall Corporation.

A&T has a global reputation for technical
leadership in its products and extensive
development experience with the market
leaders in Aerospace, Powertrain, Construction,
Agricultural and Mining industries.

Fuels, Lubrication, and Hydraulic fluids, Air and
other exhaust gases are typical of the fluids
Pall Transportation clean and separate for
sustainable reliability and performance, improved
environment and reduced cost of ownership for
equipment users.

Introduction to Pall Corporation

Developing and validating filtration solutions enable
leading edge technologies to be employed with
confidence in demanding applications in optimized
product configurations.

Pall Transportation is able to adopt technologies
from both the Industrial (typically particulate and
separation capability) and Life Sciences (microbial
and bacterial removal capability) employing our

broad portfolio of proprietary materials to meet the
most complex of challenges from OEM's.

Pall supports OEM customers with a commitment
to early design feasibility, prototyping, performance
evaluation in the laboratory and the field,
and continuous improvement cost reduction
programmes. Pall operates to TS16949 for its
Powertrain products and adapts compliant practices
for mobile equipment solutions.



Cleanliness for fluid and system performance - delivering reduced **‘cost of ownership’**

Transmissions

- CVT, IVT, and double clutch DCT
- High temperature applications
- Brake Fluid systems



Engine Products

- Fuel (Diesel, Gasoline, CNG) filters
- Air, Closed Crankcase Ventilation (CCV)
- Particulate oil filtration
- Water removal-fuel



Construction

- Dump trucks
- Excavators
- Road planers
- Rollers
- Cranes



Pall **Transportation** Group

Agriculture

- Tractors
- Material handling
- Harvesters



Mining

- Drilling rigs
- Tunnelling machines
- Longwall
- Material handling



Railway

- Engine fuel oil
- Track maintenance vehicles
- Transmissions
- Tilt systems



Production Test Rigs

- System reliability
- Reliable pass-offs
- Diagnostics and Monitoring



Marine Equipment

- Cargo delivery systems
- Cranes
- Steering systems
- Winch systems



“taking out what the eye can’t see”



Powertrain

filtration solutions

CCV Blow-by Filters

- Turbo-charger protection
- Patented media solutions
- Innovative packaging for engine integration
- Consistent high performance
- 'Fit for life' opportunities
- Continuous running separation technology (marine, gensets)
- Oil retention for reduced consumption



Fuel

- Particulate control of fuels to meet the high cleanliness standard for performance and reliability of diesel high pressure common rail systems
- Particulate and water separation for fuel delivery systems
- Gasoline FDM filter in-tank fit-for-life



Transmissions

- Fit-for-life options
- Tailored designs for integration
- Validation and test service
- High temperature continuous operation



Engine Lubrication Filters

- Achieves extended oil life and long filter service intervals for operators
- Green, long life high performance engine lube filtration for heavy duty and automotive vehicle engines
- Variable valve protection



Chassis Mounted Components

- Brake Systems
- Suspension systems
- Headlamp venting membranes
- Instrument venting membranes



Achieving high customer satisfaction requires equipment performance with long term reliability and state-of-the-art technology. Pall Transportation has applied its expertise in close cooperation with the original equipment designers and production teams to achieve high performance, economic solutions.

To ensure such goals are met economically, technically advanced filtration solutions are required to provide consistent cleanliness in the fluid systems throughout the expected life cycle.

filtration solutions for Construction

Filter Solutions

- Hydraulic filters
- Fuel filters
- Air filters
- Integrated filter solutions
- Cabin air filters

Applications

- Dump trucks
- Excavators
- Road planers
- Drilling rigs

Hydraulic System Reliability

- High performance particulate removal
- Extended pump and component life
- Elimination of the 'Chain reaction of wear'
- Rapid contaminant clean-up

Fuel System Reliability

- High pressure common rail protection
- Injector wear reduction
- Bulk fuel delivery filtration

Cabin Air

- Cabin / operator air filter solutions

Applications

- Tractors
- Harvesters
- Material Handlers

filtration solutions for

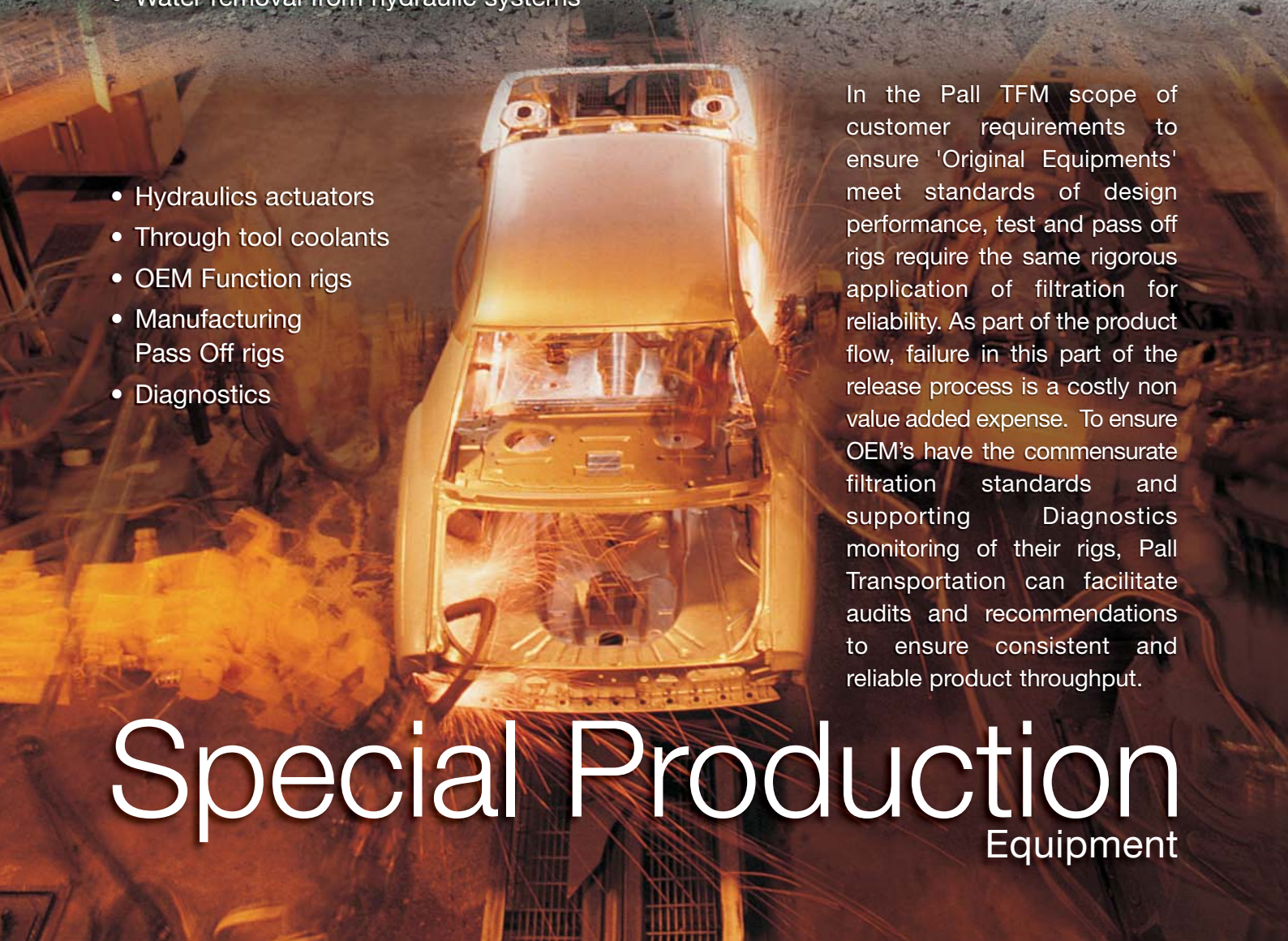
Agriculture

Mining



In the arduous mining environments Pall provides filters for open cast and underground vehicles, drilling rigs, tunnelling machines and shearers.

- Hydraulic Systems - Hydraulic pressure and in-tank filters, reservoir breathers.
- Fuel Systems - On-board and fuel delivery systems
- On-board diagnostics - switches and cleanliness monitoring
- Aluminium free products for underground applications
- Specific fluid compatibility
- Explosion proof switches
- Water removal from hydraulic systems

- Hydraulics actuators
 - Through tool coolants
 - OEM Function rigs
 - Manufacturing Pass Off rigs
 - Diagnostics
- 

In the Pall TFM scope of customer requirements to ensure 'Original Equipments' meet standards of design performance, test and pass off rigs require the same rigorous application of filtration for reliability. As part of the product flow, failure in this part of the release process is a costly non value added expense. To ensure OEM's have the commensurate filtration standards and supporting Diagnostics monitoring of their rigs, Pall Transportation can facilitate audits and recommendations to ensure consistent and reliable product throughput.

Special Production

Equipment

Design & Consultancy

Pall Transportation has broad technical capability focused through its advanced engineering teams combining the expertise of design, process, and testing personnel. Dedicated to hydraulic and lubrication fluids, fuels, water, process fluids and cabin air to name but a few, these specialist personnel provide unrivalled experience in this market. Design support for OEM engineers responsible for lube, fuel, and CCV systems, coupled with modelling and rapid prototyping, provides OEM's with a partner for sustaining optimized solutions.

- CATIA
- FEA
- Computational Fluid Dynamics (CFD)
- Simulation Modelling

With a global reach and all the necessary tools for effective and efficient transfer of design models and data communication, we offer a comprehensive service to reduce design times.

Ensuring the performance of the filtration solution to meet the vehicle's design reliability, working performance and life expectancy demands equally well designed test and validation protocols.

Test & Validation

Pall guarantees to support core development teams by participation anywhere in the world commensurate with the requirements of an OEM's development programme. With some 38 Pall Laboratory Support Service centres in the world and offices in 30 countries, Pall can respond positively to assist field development programmes and regional development requirements. Participation at the early concept and design stage can provide significant savings and assist faster programme introductions.

Production Operations

Worldwide

- International test standards
- Specification development
- Tests facilities in USA, Europe and Asia
- Fluid and material analysis
- Product development validation

TS16949
ISO9001
ISO14001

Global manufacturing in USA, Europe and Asia.
Global logistics and supply chain to leverage
and optimise economics.

Consult Pall for details of applicability to individual plants.



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Pall Corporation has offices and plants throughout the world. For Pall representatives in your area, please go to www.pall.com/contact

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