GENUINE PERKINS PARTS

The importance of filtration

The difference is in the detail.

perkins.com/filters

Together, we power ahead.

Perkins®

The importance of filtration.

45% of parts unit volume is filters.

Filters are used at least once a year.

Filters are 17% of the engine lifetime parts spend.

Regular touchpoint with end user and servicing customers.

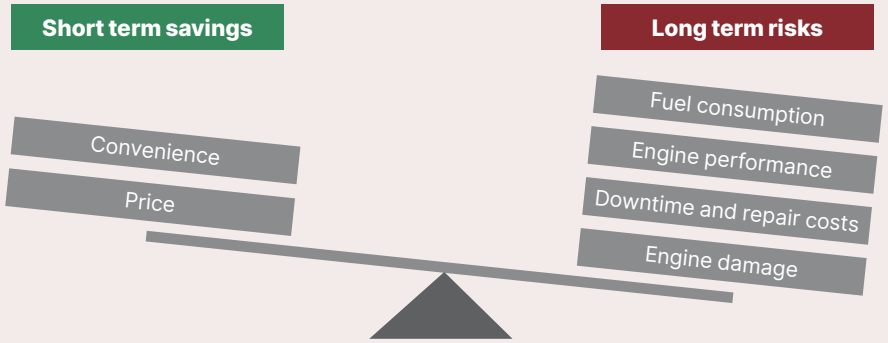
Confirms the place to buy genuine parts.

Seeds for future parts opportunity.

Builds brand awareness of Perkins and distributor.

Opportunity for pull through parts.

Will-fit suppliers sell based on specifications to fit as many engines and applications as possible, and do not validate on engines.



Our goal is to provide a solution that provides the lowest overall owning and operating cost.

Perkins designs and tests filters as part of the whole engine system.

PERKINS FILTERS KEY MESSAGES

The importance of using genuine fuel filters.

GENUINE PARTS.

Manufactured to meet fuel flow and pressure specifications.

High quality media, seals and water separation design.

Undergo extensive testing to ensure fuel flow and pressure matched to the engine's requirements and real world vibration conditions.

Media design matched to engine design requirements and real-world operating conditions and applications.

YOUR BENEFIT.

Correct fuel flow maintained for fast, easy starting and smooth running.

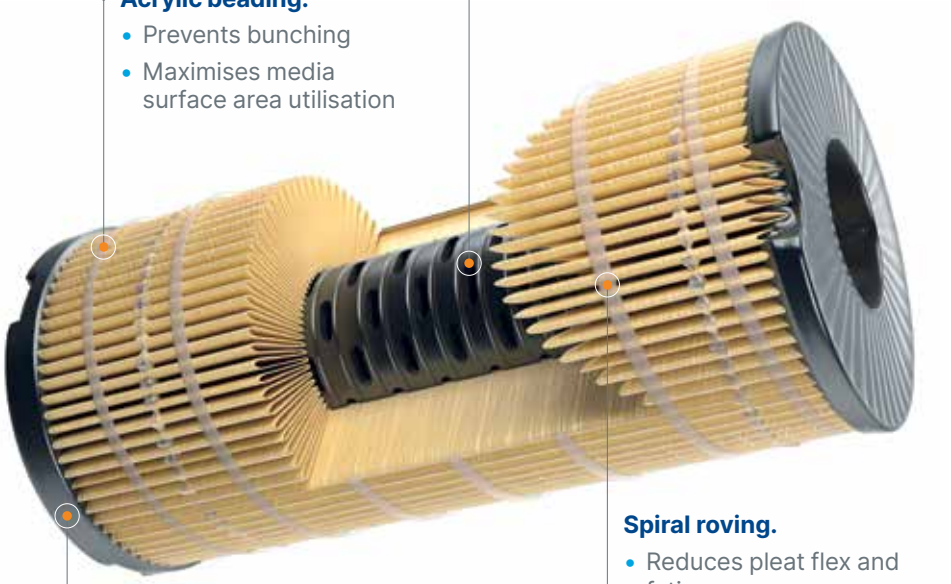
Protects injectors and fuel pumps to prevent early life failures.

Offers the best in service period protection, to prevent reduced service periods.

Ensures fuel system protection in real-world fuel conditions.

Contaminated fuel and ineffective filtration can damage fuel injection pumps and injectors, leading to reduced engine performance, higher fuel consumption and increased engine emissions and ultimately lead to costly injector and pump replacement.

Perkins® Ecoplus fuel filter design.



Non-metallic centre tube.
- Stronger than metal
- Maximum cleanliness

Acrylic beading.
- Prevents bunching
- Maximises media surface area utilisation

Spiral roving.
- Reduces pleat flex and fatigue
- Maximises media surface utilisation
- Increases contaminate retention

Urethane end caps.
- One-piece design
- Media molded into urethane
- Eliminates possible leak paths

Improved features on Tier 4 engines.

Multi-layer media.
- Improved efficiency
- Increased media capacity

Pre-fill deterrent.
- Provides clean fuel at installation
- Integrated seal
- Easy installation

Housing drain.
- Bowless water separator
- No bowl to crack
- No seals between bowl and filter to fail

Coalescing pre filter.
- Improved water separation by 3 times
- Improved filter efficiency
- Same change interval
- Reverse flow (outer is clean side)

Perkins fuel filters are designed to protect the fuel system components including injectors and fuel pumps against the rigors of differing world standards of fuel quality.

Did you know?
Fuel filters pass 1.5L of fuel every minute as fuel cycles continually through the filter. Filtering 45,000L of fuel throughout its service life.

Perkins Ecoplus filters are designed for better performance.

	400 SERIES	854 SERIES	904 SERIES	1100 SERIES	1200 SERIES	2000 SERIES	4000 SERIES
Spin-on	4362258 4429491 130306360	–	–	26561118 2656F843	–	Ecoplus design inside 4650996 4587260	4759205 SE429
Ecoplus	4906245	3611274 3577745	4981344 5181457	4816636 4816635 4461492	3611276 4794132	CH10930 CH10931	–

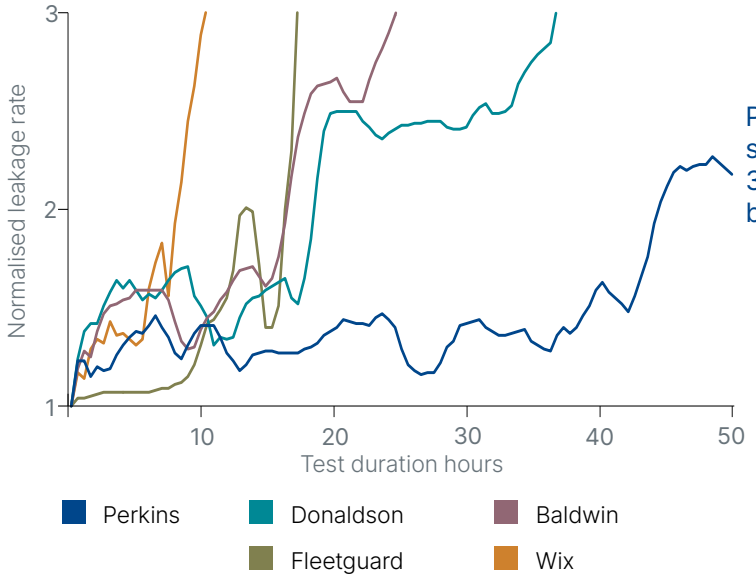
Ecoplus filters also bring sustainability benefits. As there is no metal can to be manufactured and recycled cartridge elements mean less waste at disposal, lowering costs and lowering impact on the environment.

Not all filters are the same – real life tests show the difference.

Injector performance comparison.

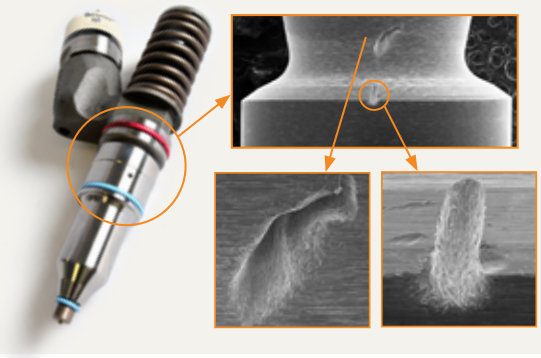
Accelerated wear test simulates harsh operating environment for a 2000 Series using an Ecoplus 4650996 filter with a factory fitted fuel system.

- Tested against 4 competitor filters
- Measures injector wear or leakage
- Test terminated when injector reaches 3 times leakage rate or 50 hours

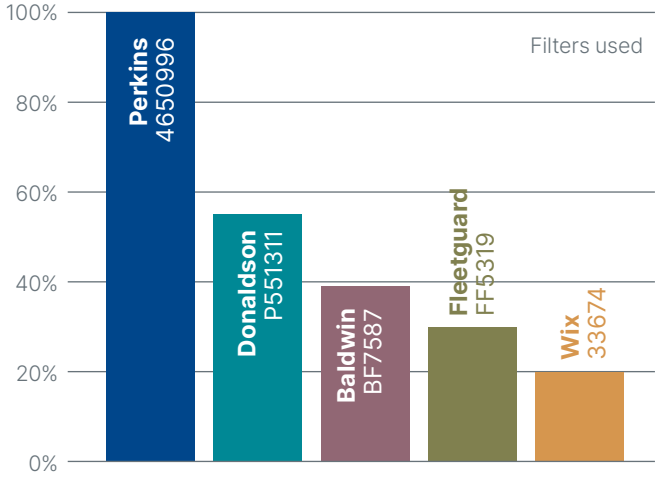


Perkins filter still not achieved 3 times leakage before end of test.

Injector valve seat.
Abrasive erosion of the injector valve seats at the end of the test seen using an electron microscope.



Average expected injector life.



Injectors last up to 45% longer with Ecoplus filters.

Abrasive wear from particles is the number one reason for premature fuel injector replacement, followed by supply pressure and water damage. Five micron particles and emulsified water can cause significant damage if they pass through the fuel injector.

The risks and costs of a non-genuine fuel filter.

Filter savings +£90

30% saving on £15 per filter, with 2 changes a year, over 10 years is total cost £300.

Fuel consumption -£3,000

3% increase in fuel consumption over 10 years, 1104 engine, working 4 hours a day at 50% power.

Repair costs -£520

£120 mechanical injectors (4 x £30)

£700 electric injectors (4 x £170)

£700 fuel pump

£60 lift pump

£400 engineering time (8 hours at £50/hr).

Residual value -£££££

Lower price when you sell on your used machine.

The long-term costs of pump and injector replacement together with increased fuel costs can outweigh the savings made by buying will-fit filters.

The importance of using genuine oil filters.

GENUINE PARTS.

Manufactured to meet engine flow and pressure specifications.

High quality media, seals and robust bypass valve.

Undergo extensive testing to ensure oil flow and pressure matched to the engine requirements.

Media design with particulate holding capacity matched to engine design and requirements.

YOUR BENEFIT.

Ensuring efficient lubrication throughout the engine's life.

Ensures no leaks, and fast lubrication at engine start up.

Offers the best in service period protection, to prevent reduced service periods, and avoid costly repairs.

Ensures least time to prime, protecting sensitive parts such as turbochargers.

Contaminated oil and ineffective oil filtration can lead to bearing and rotating component wear, oil starvation and cause turbocharger wear and failure. With a potential for increase in engine emissions, core component replacement and the risk of major engine failure.

Oil filter design.

Ultra strong adhesive.
- Ensures perfect seal of filter media to end cap
- Prevents unfiltered oil entering the engine
- Prevents failure in cold climates

Anti-drain back valve.
- Prevents oil drain back while engine is not running, thereby protects engine components at start-up
- Ensures engine always contains oil to prevent engine seizure

High quality filter media.
- Exact quantity and quality to Perkins specified micron rating to give required debris trapping performance
- Clean, even oil flow for optimum engine protection throughout service life

High quality steel canister.
- Withstands even most strenuous vibration in application
- Leak free performance. Ensures trouble-free servicing

Bypass valve.
- If filter becomes blocked the valve will open to allow oil to the engine to prevent seizure. OE design ensures this feature only operates when essential
- Built in protection

Non genuine filters can cause long term and lasting damage through inadequate particle removal; high levels of wear on core components, impaired circulation which can reduce lubrication, reduced flow to turbochargers, and blockages in galleries leading to hot spots and heat damage.

Did you know?
Every 12-15 seconds the whole engine oil capacity is filtered.

Consequences of using non-genuine oil filters.

	GENUINE	NON-GENUINE	CONSEQUENCES
MEDIA	Compact media, equally spaced strong and robust.	Loose media, widely spaced.	Media twists and deforms leading to reduced media available for filtration. With a consequence of exceeding filter load and reduced filtration.
	100% media filling canister.	45% less media.	Reduced filtration and particulate capture.
END CAPS	Ultra strong adhesive bonded to metal end caps.	Cardboard end caps, weak adhesive.	Particulates bypass filter and circulate to block sensitive engine galleries.
ANTI-DRAIN VALVE	Robust rubber valve, continues to be flexible for the full service life. Holds oil in place.	Weak material allowing oil to drain back through filter.	Oil is delayed in reaching sensitive components, especially at start up when more wear is likely.
BYPASS VALVE	Bypass spring tensioned for the start up oil pressure and flow of the engine fitted to.	Weak spring in bypass, allowing oil to bypass the filter most of the time.	Reduced filtration as oil circulates past the filter frequently. Particulates bypass filter and circulate to block sensitive engine galleries.
SEALS	High quality fuel resistant seal.	Likely to harden or not withstand system pressures.	Potential for oil leaks, causing engine contamination and loss of lubricant.

Example of issues found in will-fit oil filters

The importance of using genuine air filters.

GENUINE PARTS.

Manufactured to meet engine flow and pressure specifications.

High quality media and radial seals.

Undergo extensive testing to ensure oil flow and pressure are matched to engine requirements.

Media design with particulate holding capacity matched to engine design and requirements.

YOUR BENEFIT.

Ensuring efficient engine operation by balancing filtration with air flow management.

Ensures high levels of protection for engines working in industrial environments.

Offers the best in service period protection, to maximise the service periods, and avoid costly repairs.

Ensures free flow of air whilst protecting sensitive parts such as turbochargers, valves, piston rings and cylinder liners.

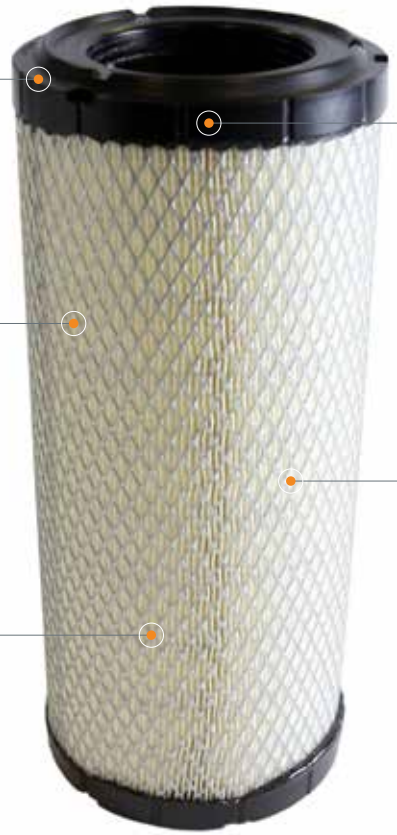
Ineffective air filtration can lead to severe core component wear, such as piston rings, valves and cylinder wear, as well as potential damage to turbochargers and exhaust systems. Leading to rough running, loss of power, and may affect fuel consumption.

Air filter design.

Radial seal.
- Larger area seal resist air bypass for a more durable and efficient seal

High quality filter media.
- Exact quantity and quality to Perkins specified micron rating to give required debris trapping performance
- Clean, even air flow for optimum engine protection throughout service life

High quality galvanized wrap.
- Protects the canister from rust damage
- Provides structural strength for the filter to resist collapse



Moulded urethan end cap.
- Ensures perfect seal of filter media to end cap and prevents air bypass of filter

High performance filter media.
- Designed for heavy dust environment and high water resistance
- Embossed media and evenly spaced pleats provide maximum surface area, optimum flow and particle capture
- Prevents pleat bunching and maximised media use

Ineffective air filtration can lead to severe core component wear, such as piston rings, valves and cylinder wear, as well as potential damage to exhaust systems, leading to a rough running, loss of power, and may affect fuel consumption.

Did you know?
A 4.4L diesel engine uses 70,000 gallons of air an hour to combust fuel.

PERKINS FILTERS KEY MESSAGES

99.99 percent makes all the difference.

Typically, a Perkins air filter stops over 99.99 percent of particles – so what is the difference between 99 percent and 99.99 percent?

Extremely dirty environments may have up to 600 micrograms/m^3 of dirt and dust in the air. With an engine intake of 500 m^3 of air an hour or 250,000 m^3 in 500 hours, the air filter would be subjected to 150 grams of dirt every 500 hours.

The difference between a 99 percent air filter and a 99.99 percent air filter would be 1.485 grams entering your engine every 500 hours. That's more than one-third of a teaspoon, and a significantly higher chance of damage.

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