



How can you ensure maximum performance and engine protection?

Genuine spare parts for genuine protection

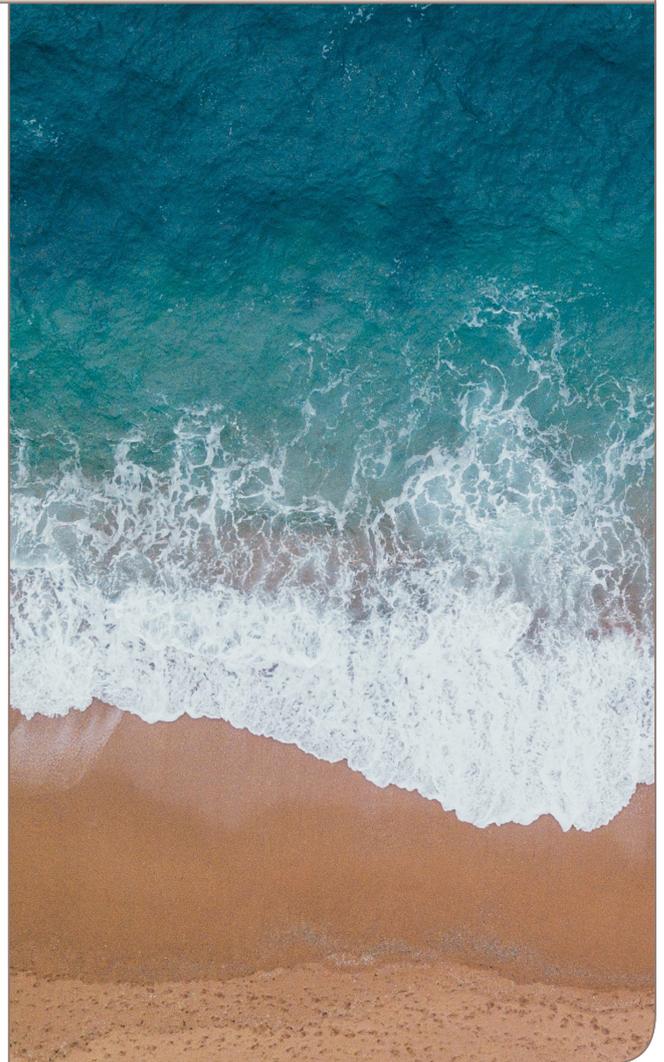
On the open oceans, it's a fine line between break-even and breakdown. Delays are disastrous for business, and equipment failure is a serious risk to your operations – and the safety of your crew. When small failures have major consequences, how can you ensure maximum performance and engine protection?

Cat fines and engine damage

Cat fine levels are on the rise. Today's bunker fuel contains cat fines at up to 60 ppm, well above the 10-15 ppm recommendation from engine makers. From 2020, under the new IMO fuel regulations the challenge of maintaining safe levels will only get harder. Cat fines are microscopic particles with catastrophic effects. If not removed effectively from your fuel, they can gouge through metal surfaces with every piston stroke, quickly doing massive and costly damage to your engine.

Separation performance stands for engine protection

In the low-sulphur era, high-performance fuel separators are more important than ever before. Alfa Laval separators are a critical part of the fuel line, fine-tuned to protect your engine from cat fines and other damaging contaminants. Our separators are built to deliver the best possible separation performance for fuel oil and lube oil. To maintain that level of performance across the separator's lifetime, it's vital to follow service recommendations and use only genuine spare parts.



The cost of failure

As separator performance falls, the risk of cat fines damage rises. Typical costs of engine repair can include:

| | |
|----------------------|--------------------------|
| Cylinder liners | EUR 40,000 (per liner)* |
| Piston rings | EUR 5,000 (per ring)* |
| Pistons | EUR 16,000 (per piston)* |
| Vessel off-hire cost | EUR 20,000 (per day)** |

Alfa Laval genuine spare parts are engineered to maintain high levels of separation performance between maintenance intervals. With non-genuine parts, you can never know what to expect.

Cost estimates assume a 6S80ME-C (or equivalent) engine wearing at twice normal rate.

* source: MAN Diesel & Turbo, Cat Fines, 29-11-2017/DOJA

** source: Alfa Laval

The best separation performance

The market is awash with non-genuine parts. If you hold one in your hand, it might look right, it might feel right.

But what's inside? What's the rubber compound? Which alloy is used? How will it respond to pressure? How much

will it swell at high temperature? Will it crack when it's cold? What were the engineering tolerances?

The truth is, there's no way of knowing until it's put to the test under real conditions – a test that may come during a storm on the high seas, four days out of port.

Just a simple O-ring?

Take one of the O-rings in our high-speed separators. It may look like a simple rubber ring in place to form a basic seal. But in fact, this O-ring plays a vital role in an incredibly demanding environment, inside an Alfa Laval high speed separator, which cleans complex fuels by generating more than 6000g of force under varying temperatures and high pressures.

O-rings need to fit precisely in the grooves of metal parts, withstanding temperature changes and high pressure, not only to form a seal for the best separation performance, but also to protect the precision metal parts from wear. Maximum performance relies on the O-ring swelling by exactly the right amount.

It's an amazing juggling act of precision performance in extreme conditions. Creating the right rubber compound for the job means selecting the exact polymers, curing agents, fillers, processing aids, and anti-degradants. Hundreds of variables, literally trillions of possible combinations.

The rubber compound should swell no more, no less, but exactly according to the equipment requirements.



Maximum engine protection

There is a simple reason non-genuine parts are cheaper. It's one thing to make a product that fits superficially. But guaranteeing operational performance across a spectrum of conditions takes another level of knowledge. It takes research, development, advanced material science, and extremely precise manufacturing.

Nothing is generic – every part has a specific purpose. Each part we make is engineered by decades of experience, working closely with customers, servicing separators in the most demanding of conditions.

The bottom line – Can you afford to use non-genuine parts?

With Alfa Laval genuine spare parts, you can be certain we spare no effort to protect your engine, crew, operations, and budget. With non-genuine parts, all you can be certain of is risk.

| | Uptime | Performance | OPEX | Availability |
|---|------------------------------|---------------------------|---------------------------|-----------------------------|
| Genuine | All time | 80–100% | Predictable | All time |
| Genuine spare parts keeps your ... | ✓ Separator protected | ✓ Engine protected | ✓ Budget protected | ✓ Business protected |

Alfa Laval genuine spare parts – protection without compromise.