Strip steel for shock absorber shims

SANDVIK

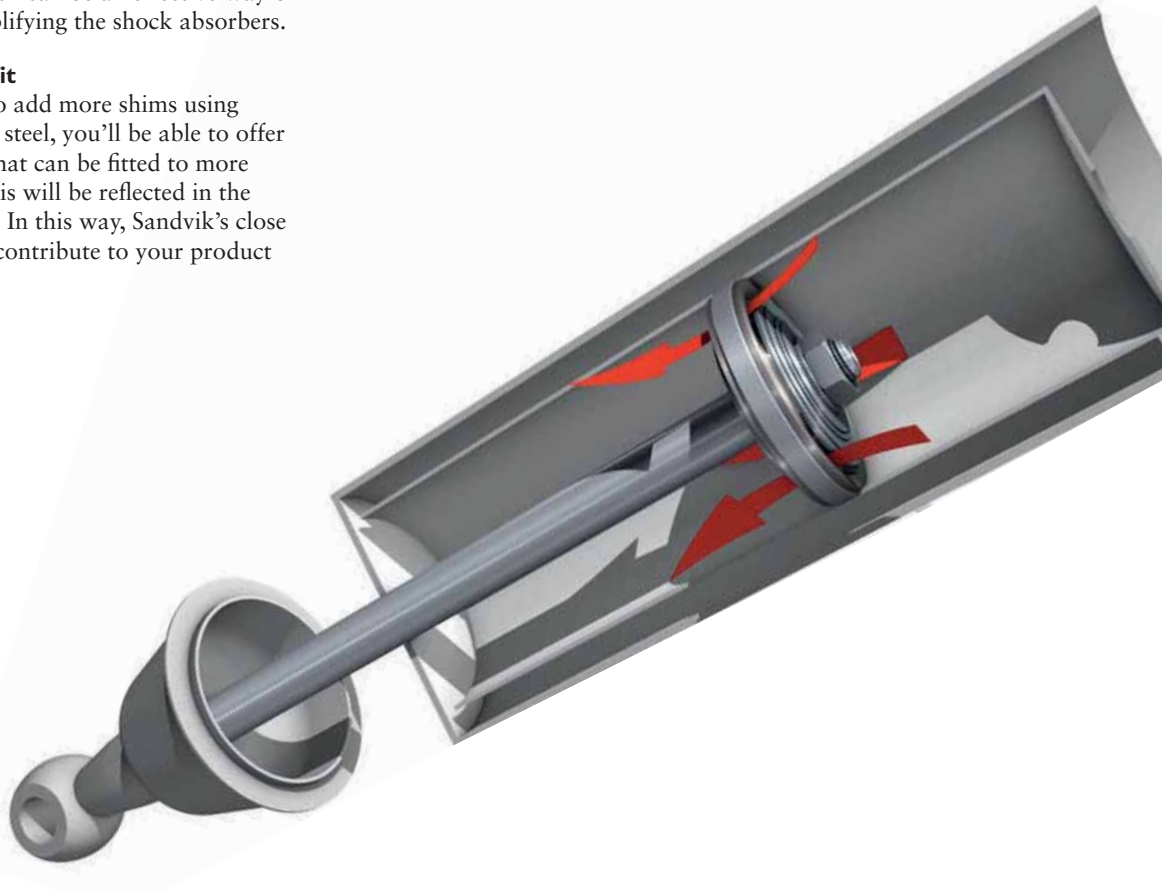
Switch to Sandvik shock absorber steel and bring your shock absorbers up to superior standard

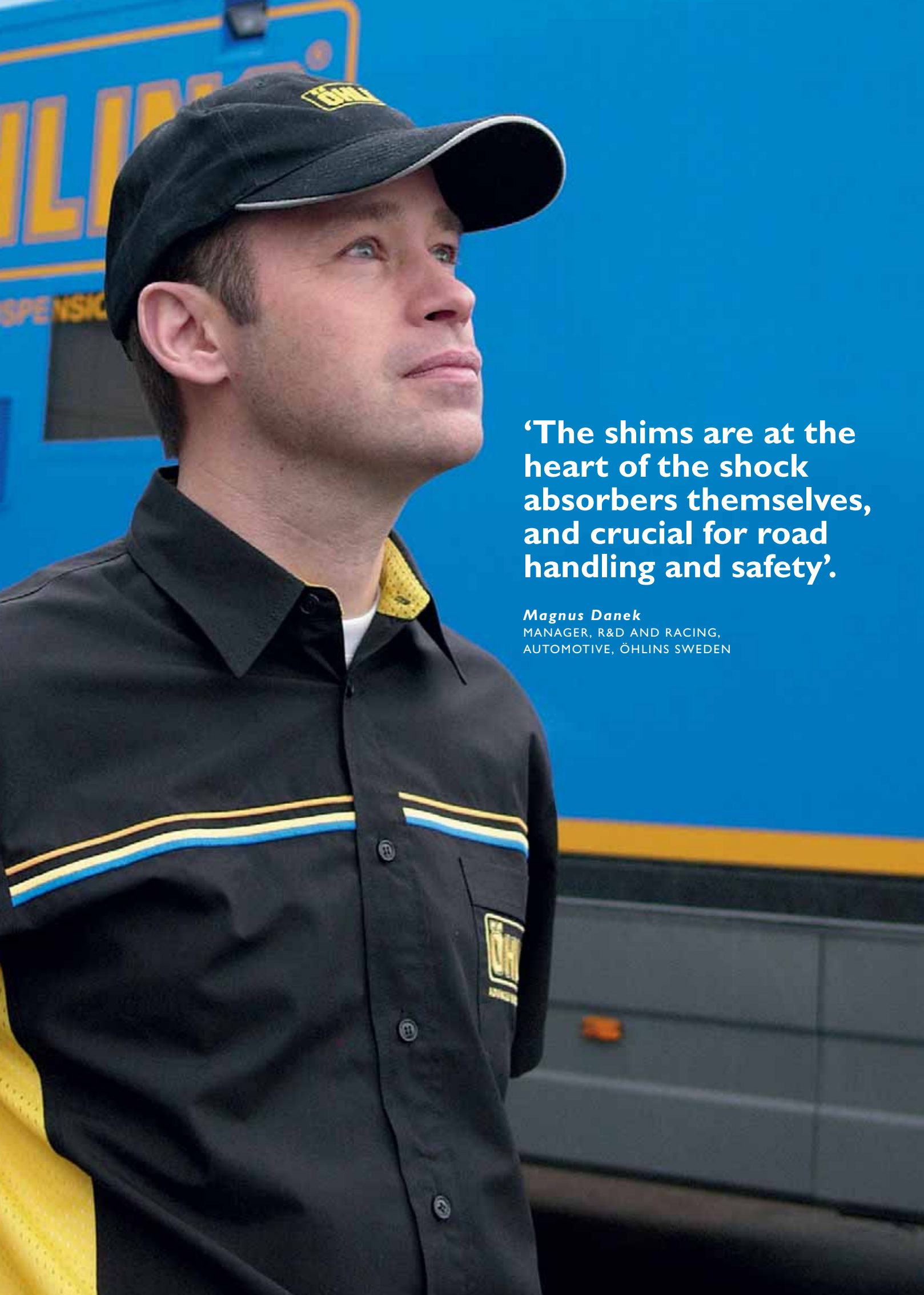
Switching to Sandvik shock absorber steel is often the easiest way to improve the condition of your shock absorbers. The closer the tolerances of the shock absorber steel, the more control you have over the oil flow and the damping curve.

When each shim is of the same thickness and flatness, all the shock absorbers will have consistent performance, even if they are not manufactured at exactly the same time. In other words, you get better control over the damping curve, while your customers enjoy a more comfortable ride, improved road holding and enhanced safety.

Fewer shims, same damping
Thanks to Sandvik's close tolerances, you can have fewer shims in the stack without losing any shock absorbing capability, which can be an effective way of reducing costs while simplifying the shock absorbers.

More shims, more profit
However, if you choose to add more shims using Sandvik's shock absorber steel, you'll be able to offer a better shock absorber that can be fitted to more advanced vehicles, and this will be reflected in the price your customers pay. In this way, Sandvik's close tolerances can indirectly contribute to your product development.





‘The shims are at the heart of the shock absorbers themselves, and crucial for road handling and safety’.

Magnus Danek
MANAGER, R&D AND RACING,
AUTOMOTIVE, ÖHLINS SWEDEN

For more than 30 years, Öhlins has been manufacturing shock absorbers for various sports cars and is now market leader in the fields of racing, rally, road racing and motocross. Its strong reputation on the race track means that its bright yellow springs can now be seen on high-end road cars such as Lotus and Pagani Zonda.

The shims are at the heart of the shock absorbers themselves, and Öhlins imposes extremely stringent tolerance requirements to ensure that all the shock absorbers on a single vehicle behave identically. In terms of thickness, the specified tolerance is T4, which means that a shim with a thickness of 0.200 mm must have a maximum variation of plus or minus four thousandths of a millimetre!

'We have tried several shock absorber steel suppliers throughout the years, but so far only Sandvik has succeeded in satisfying our requirements', explains Magnus Danek, Head of R&D and racing, Automotive, Öhlins Sweden.

Having spent 18 years at Öhlins, Magnus Danek knows how important it is for theory and practice to go hand in hand. Even if you have the best project engineer in the world, no model alone can tell you how a vehicle will behave when it hits a specific pothole in a dirt track or in a sand dune out in the desert. Therefore, practical tests must be carried out on the road or track before the final product goes to market.

'If I go out to a forest, for example, to test shock absorption in a rally car, I must be able to rely on the shim thickness being correct. A hundredth of a millimetre either way can cause leakage, which in turn can affect road holding and safety'.

However, bearing in mind that a component as important as the shims represents such a small part of the shock absorber's total cost, Öhlins sees no reason to choose an inferior steel.

'On the contrary', says Magnus. 'A good steel with close tolerances gives us scope to increase or decrease the number of shims in the stack as required, without compromising on quality'.

When it comes to close tolerances, no one beats Sandvik

The shims are among the most important components for the operation of the shock absorbers, while representing a relatively small proportion of their total cost. Therefore, choosing a shock absorber steel that guarantees optimal shock absorber performance is virtually a matter of course.

Sandvik is a world leading steel company, and the only steel manufacturer able to supply shock absorber steel with a T4* thickness tolerance and P2* flatness tolerance. This means that each shim is of identical thickness and flatness, allowing the oil to flow precisely where you want it.

* T4 means that a shim with a thickness of, for example, 0.20-0.25 mm, has a thickness tolerance of ± 0.004 mm. P2 corresponds to a tolerance of 0.3% of the bandwidth.

Sandvik Group
The Sandvik Group is a global high technology enterprise with around 300 subsidiary companies, 38,000 employees and activities in more than 130 countries. Sandvik's operations are concentrated on its three core businesses of Tooling, Mining and Construction and Sandvik Materials Technology – areas in which the group holds leading global positions in selected niches.

Sandvik Materials Technology
Sandvik Materials Technology is a worldleading supplier of products with extensive added value in advanced stainless steels, special alloys, metallic and ceramic resistance materials as well as process plants based on steel conveyor belts, and sorting systems.

Quality assurance
Sandvik Materials Technology has a quality management system approved by internationally recognised organisations. We hold for example: ASME Quality System Certificate as Material Organisation, approvals to ISO 9001 and QS 9000 as well as approvals from TÜV, JIS and other organisations as a materials manufacturer.

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