



NTN-SNR: NEW GENERATION OF ECO-FRIENDLY AND RECYCLABLE SUSPENSION STRUT BEARINGS MADE OF ALUMINUM

While other manufacturers use plastic to furnish lightweight, flexible parts, the world leading automotive manufacturer NTN-SNR flips the script and develops a suspension strut bearing with spring support made of aluminum: more rigid and easy to recycle.

ORIGINS OF AN AMBITIOUS PROJECT

While the axle weight of motor vehicles is increasing (especially for electric vehicles and the weight of the batteries), recyclability constraints are constantly being reinforced, notably with regard to plastics and elastomers. With these two challenges in mind, NTN-SNR decided to use aluminum for the part that serves as the interface between the bearing and the suspension spring of its new suspension strut bearing. This is because even if plastic offers attractive design freedom and several advantages for parts subject to low loads, it soon reaches its mechanical limits for the heavy-duty application of the suspension strut bearing. That's why NTN-SNR is distancing itself from the reflexive use of plastic that requires reinforcement, and is turning instead to aluminum, which provides much better everyday and long-term performance while increasing the recyclability value of the part.

Bearing experts, NTN-SNR has a 38% share of the OE market in Europe, all brands combined. Also present on the aftermarket, the automotive supplier set itself the objective of creating a more axially compact bearing with a spring support that is more tolerant of spring manufacturing variance.

BENEFITS OF AN ALUMINUM SUSPENSION STRUT BEARING

Conceptual work on this bearing project yielded an original design that saves money while fulfilling all its promises.

- More robust and rigid than parts made of plastic, aluminum enables this new bearing to be less sensitive to variations in spring production. Unlike its plastic counterparts, there is no risk of deformation and eventual contact with the cover, causing noise and loss of function.
- Thanks to a weight savings of 80 g, which represents 13% of the total weight of a

reference strut bearing with plastic support, NTN-SNR's aluminum bearing helps indirectly address the increasingly strict CO₂ emissions regulations imposed on automakers.

- And finally, the use of aluminum makes it easier to recycle this bearing, thereby offering a substantive response to current trends and European standards that stipulate a high rate of component recyclability. Whereas the incineration of traditional suspension strut bearings made of nylon 66 (reinforced with glass fibers and metal inserts) is particularly polluting and allows for very little material recovery, aluminum recycles very well. Benefiting likewise from a short distribution chain, the aluminum recycling circuit (recycling, injection, recovery, recycling and reinjection) can remain entirely within national boundaries.

A MARKET-READY INNOVATION

This aluminum strut bearing was developed for heavy vehicles (categories C and D, utility vehicles), hybrids and electric vehicles, whose battery is heavier than a gasoline or diesel engine. The higher force on the bearing increases the risk of deformation of the support, so it requires a more compact strut bearing. Intended for original equipment, this innovation also applies to the aftermarket, where it could appear very soon, thanks to an R&D team dedicated exclusively to the aftermarket.

The suspension strut bearing with aluminum support has now achieved sufficient technical maturity and customer interest to consider transitioning to the development phase in the very near future.

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