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SUBLIME®

For high speeds in gear cutting

voestalpine eifeler Coating GmbH
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Planetary gears must be extremely accurate and smooth-running, as well as absolutely reliable. High-precision, long-lasting tools for making them are thus indispensable. A durable tool coating provides the basis for the high-quality manufacture of these gears.

Planetary gear unit from Neugart (source: Neugart GmbH)

WITH SUBLIME®, SMALL TOOLS ACCOMPLISH GREAT THINGS

Planetary gears are used in a wide array of applications, including robotics and automation as well as biomedical engineering and the pharmaceutical industry. In all of these areas, maximum precision, accuracy and stability in round-the-clock use are critical. Since its establishment in 1928, Neugart GmbH has been focussing on the development and manufacture of gearing parts. In 1975 the first planetary gear unit for stepper motors was developed in-house. Since then Neugart GmbH has been developing, manufacturing and selling both standard catalogue planetary gears and custom-made special gears.
The family-run company based in Southern Baden is one of the world's foremost gear manufacturers, with a workforce of 700 people at the company headquarters in Kippenheim and 800 in total around the globe.
In an epicyclic, or planetary, gear unit, multiple spur gears, uniformly spaced around the circumference, move between an internally toothed outer ring and an externally toothed central gear in a circular orbit. The spur gears move around the centre gear like planets moving around the sun. This working principle gives the planetary gear unit its name.
Extremely delicate tools made of cemented carbide with diameters of 18 to 50 mm and modules of just 0.4 to 1.5 mm are used in the manufacture of these gears.
A long tool life is essential if high quality demands are to be met without the cost efficiency getting out of hand. With voestalpine eifeler Coating, Neugart has found a partner that has developed a coating meeting these high demands for the tools. The new SUBLIME® coating has an optimised coating architecture and composition, which lends it an outstanding wear resistance, even at the high temperatures often arising during gear cutting.

'The smaller and more delicate the tools are, the more important a perfect tool surface is, but at the same time the more difficult handling becomes. We have succeeded in fully adapting the processes to these tools,' summarises Alexandra Hollweck, product manager at voestalpine eifeler Coating GmbH.
The SUBLIME® coating increased the life of the tools by 80% without compromising the manufacturing quality. Neugart doesn't just profit from the coating in new tools. Even after several resharpenings, the high tool life and the profile are maintained – as is the consistently high quality of the finished gears.
Moritz Kölble, head of process development at Neugart GmbH, sums it up: 'The SUBLIME® coating already showed fantastic performance in pre-production trials. Through this we can guarantee a constantly high gear cutting quality, even with optimised cutting parameters and increased tool life.'

Hob (0.4 mm module) coated with SUBLIME®
(Source: Neugart GmbH)

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