

Honing with small axis intersection angles

Our new 150SPH Spheric® Honing Machine is used, among other things, for machining gear teeth with an interference contour. Results are now being achieved here that were previously unimaginable.

Workpieces of this kind can only be finished by shaving or honing. Normally, axis intersection angles of 10 to approximately 20 degrees are used for honing, since this process only requires a small tool overtravel and, despite this, an adequate cutting speed is achieved.

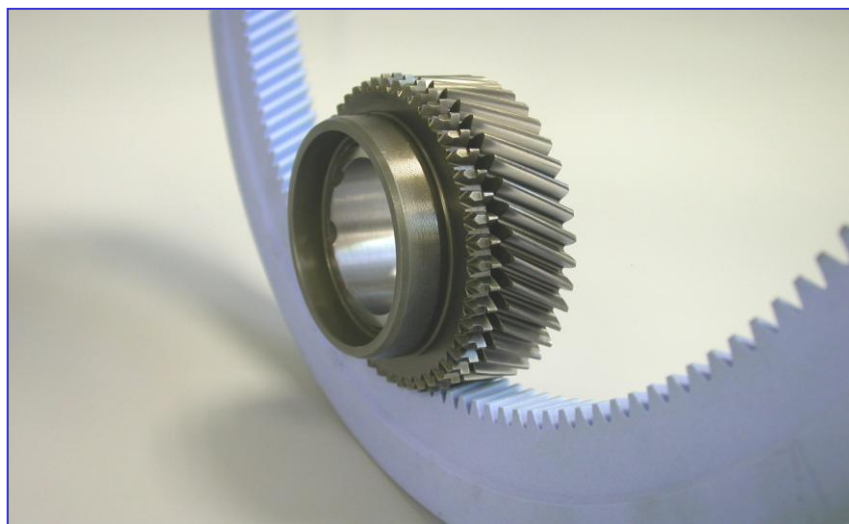
However, as a rule, only an axis intersection angle of approx. 3 to 3.5 degrees is technically feasible for parts with adjacent gear-shift toothings, which means that the cutting speeds achievable are reduced.

However, the 150SPH opens up new possibilities. Of course, this machine is also subject to the geometric limitations of the workpiece but since the 150SPH works at workpiece revolutions of up to 3000 rpm and is also very stable in its structure, it can also run at cutting speeds, which result in a highly economic process.

While dressing cycles of approximately 50 parts were previously normal for parts of this kind, 180 to 200 parts can be processed without any dressing using the 150SPH, which means that the tooling costs are reduced by up to 75%.

A workpiece with a module of 1.5 mm and 35 teeth only requires 29 seconds floor-to-floor-time. At the same time, the removal rate per flank amounts to 70 $\mu\text{m}/\text{flank}$ at an axis intersection angle of 3.4 degrees.

This success is, however, not solely attributable to the machine. Our honing rings also play an important role here. Changes to their composition have resulted in improved cutting conditions, which contribute to an increase in the dressing intervals.



Workpiece with interference contour machined by honing process.

[Would you like to download a brochure for the 150SPH Spheric Honing Machine? Click here](#)