SAMPUTENSILI

INNO Tools

High performance gear manufacturing

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The pursuit of higher productivity and reduced costs pushes the manufacturing processes in the gear industry to its limits.

Due to that, the role of the tool manufacturer as a technology supplier is getting more and more important. With the new series of higher performance tools for gear manufacturing, SAMPUTENSILI is exactly doing that.

The products INNOhob™, INNOshave™ and INNOchamfer™ offer a solution to the gear and transmission industry which raises the level of tool life significantly.

Our new high-performance tool family, combined with our technological assistance regarding tool and process design, helps our customers to meet their daily challenges successfully.

INNOHOB™

INNOSHAVE™

INNOCHAMFER™

INNOHOB™

Samputensili has several decades of experience in the production of hobs out of different material and coating combinations.

The hobs designed and manufactured by Samputensili are well-known for their precision and long tool life.

Our experts are constantly working to offer our customers the best quality hobs which are able to meet the challenges of today's production environments.

The newest generation of high-performance hobs called INNOhob™ offers our customers a tool with a new level of performance in the field of high-speed steel hobs.

At Samputensili, experts are using the newest technologies available to generate the new INNOhob™ tools. All process steps during hob production have been carefully analyzed and improved.

The most critical process step during hob production is the surface finishing of the hob teeth themselves. By using improved grinding cycles during hob profiling, the surface roughness of the new INNOhob™ are at a minimum level.

Close to the cutting edges, the wear begins on the peaks of the grinding marks of the hob profiling processes.

With the new finishing cycle, Samputensili is able to almost avoid wear critical grinding marks on the clearance faces.

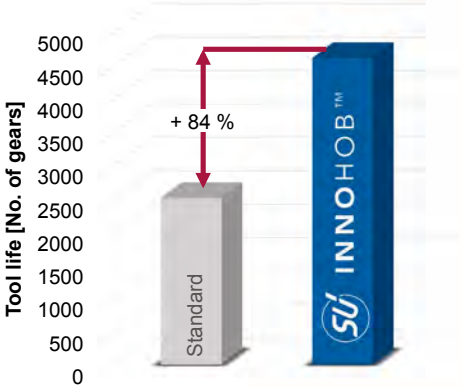
The start of tool wear during hobbing is therefore postponed significantly, which translates in a higher tool life.

Tests in Automotive Gear Production

Tool Data

Hob S390 (AlCrN)		
Module	m_n	= 2 mm
Pressure Angle	α_0	= 16°
OD	d_{a0}	= 90 mm
Starts	z_0	= 3
Gashes	n_i	= 19

Tool Life criteria:
0,2 mm wear on tip



Furthermore, the INNOhob™ combines the very low surface roughness with a dedicated cutting-edge geometry.

The cutting-edge shape is generated by a blasting process as the last step before coating.

Depending on the loads during hobbing, different cutting-edge shapes and radii are possible.

The choice of the cutting-edge radius is always a compromise between cutting capability and edge stability.

Our experts analyze the customer´s application in detail and decide for a dedicated radius to achieve the highest tool life possible.

The cutting trials show a significant higher tool life which is also characterized by a much more even wear width.

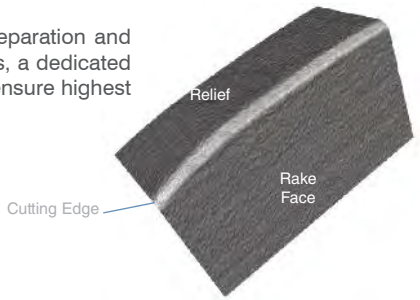
Our customers have reported a tool life increase by up to 80% compared with the standard hob technology.

The higher performance of the INNOhob™ helps our customers to reduce their tool costs per part.

What is more, in several applications the INNOhob™ tools can replace other, more expensive technologies, like for example carbide hobs.

High-precision cutting edge
3D cutting edge scan

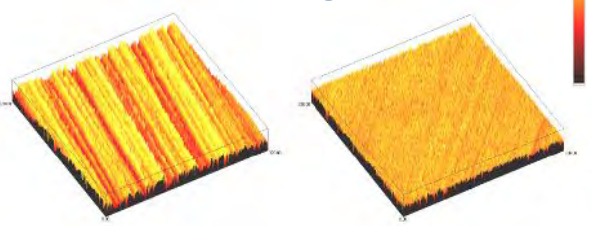
With the latest preparation and scanning methods, a dedicated cutting edge will ensure highest tool life.



Low roughness for smooth surfaces

Standard

INNOHOB™



INNOSHAVE™

Since many years, shaving is known as a big batch production gear finishing process in the automotive and truck industry.

Samputensili has several decades of experience in the design and manufacture of shaving cutters. Here also, the rising demands in precision and high tool life have led to continuous improvements of the existing technology.

The introduction of the latest shaving cutter generation, the INNOshave™, offers our customers a new level of highly productive shaving cutters.

At Samputensili, experts are using the newest technologies available to generate the new INNOshave™ tools, which ensure superior performances compared to standard shaving cutters.

The INNOshave™ features a very sharp and precise cutting edge along the serrations, thanks to which the tool cuts the workpiece much more easily.

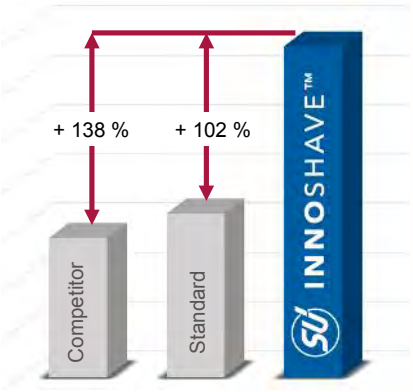
Furthermore, the chip evacuation is improved and the load on the tool decreases.

If, after a standard sharpening process, the shaving cutter wears out, the INNOshave™ presents a new precise cutting edge with the same high quality.

Tests in Automotive Gear Production

Tool Data

Shaving Cutter	
Module	m_n = 1,5 mm
Pressure Angle	α = 18°
No.of Teeth	z = 151
OD	d_a = 228 mm
Width	b = 25 mm



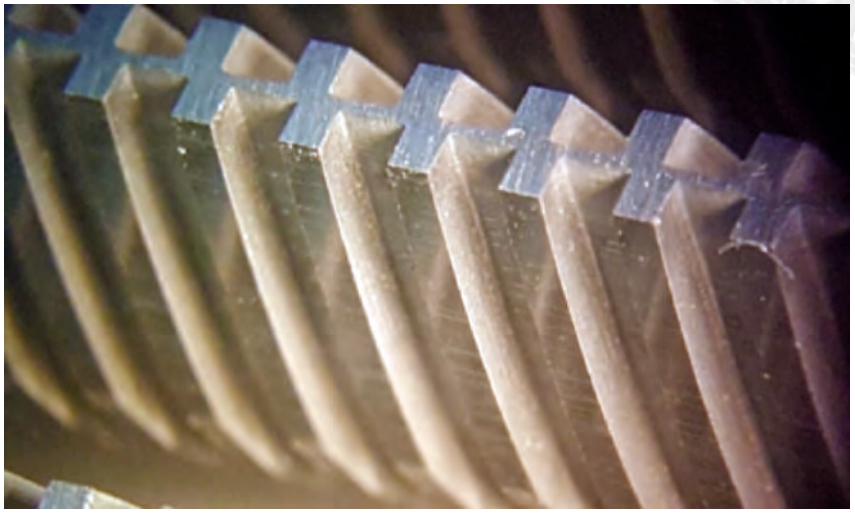
The recent improvements were shown in the reported test results. The graphic shows the result of a shaving application on a module m_n = 2 mm automotive gear.

During the tests, the Samputensili INNOshave™ has shown its superiority against state-of-the-art shaving cutters of our main competitors.

The standard shaving cutters of both of our competitors had to be changed after 2800 – 3300 shaved parts. The INNOshave™ ran much longer and reached 6700 shaved parts.

This translates into a tool life improvement by up to 138% thanks to the INNOshave™, which brings down customer´s tool cost per piece.

Also after resharpening the same high level of tool life was achieved.



INNOCHAMFER®

The success of Samputensili's chamfering and deburring tools has been proven in countless applications at our customers' plants all around the world.

Chamfering of gears is a major step in the manufacturing of high-precision gears.

Chamfering removes micro burrs and sharp edges to avoid damages on the gear and to protect the finishing tools.

Samputensili performs the chamfering process using rotating forming tools.

This concept is characterized by speed and cost-effectiveness and is particularly suited for the manufacturing of big batches, as in the automotive sector.

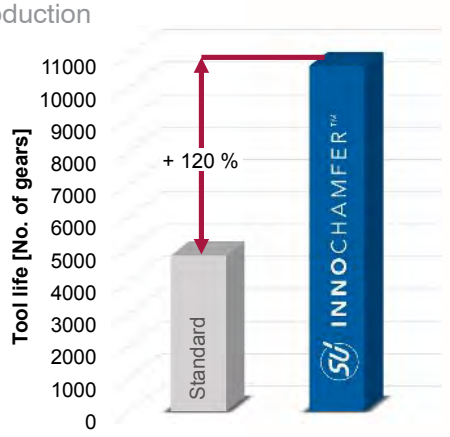
Thanks to Samputensili's decades of experience in designing and manufacturing chamfering tools, high-quality chamfers are ensured also after a high number of machined workpieces.

Samputensili chamfering tools are able to provide parallel type or comma type chamfers. Furthermore, chamfering of the root is possible, also for gears with interfering contours.

Tests in Automotive Gear Production

Tool Data
Module m_n = 1,7 mm
Pressure Angle α_0 = 18°

INNOchamfer makes rolling chamfering in dry conditions possible



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To meet the growing market demands, Samputensili has launched a new generation of chamfering tools, called INNOchamfer™.

The INNOchamfer™ combines the newest technologies in the field of base material and surface finishing to improve the contact zone between tool and part.

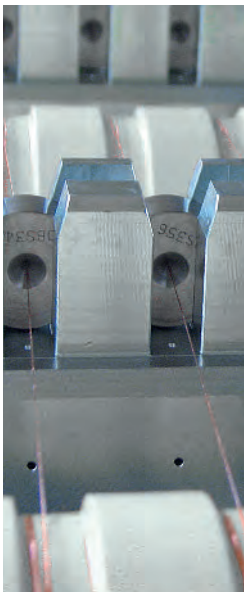
The rigid tool body and the low roughness on the surface optimise the forming operation. What is more, the INNOchamfer™ decreases the tool costs per piece.

The new tools have already proven their higher performance in several applications.

All trials have shown a significant tool life improvement. On automotive gears, the INNOchamfer™ lasts twice as long as the standard chamfering tools.

Furthermore, with the INNOchamfer™ technology, we offer our customers the opportunity to carry out chamfering in dry conditions.

Combined with dry hobbing, the gear soft machining can become a process chain without the need for cooling liquids.



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