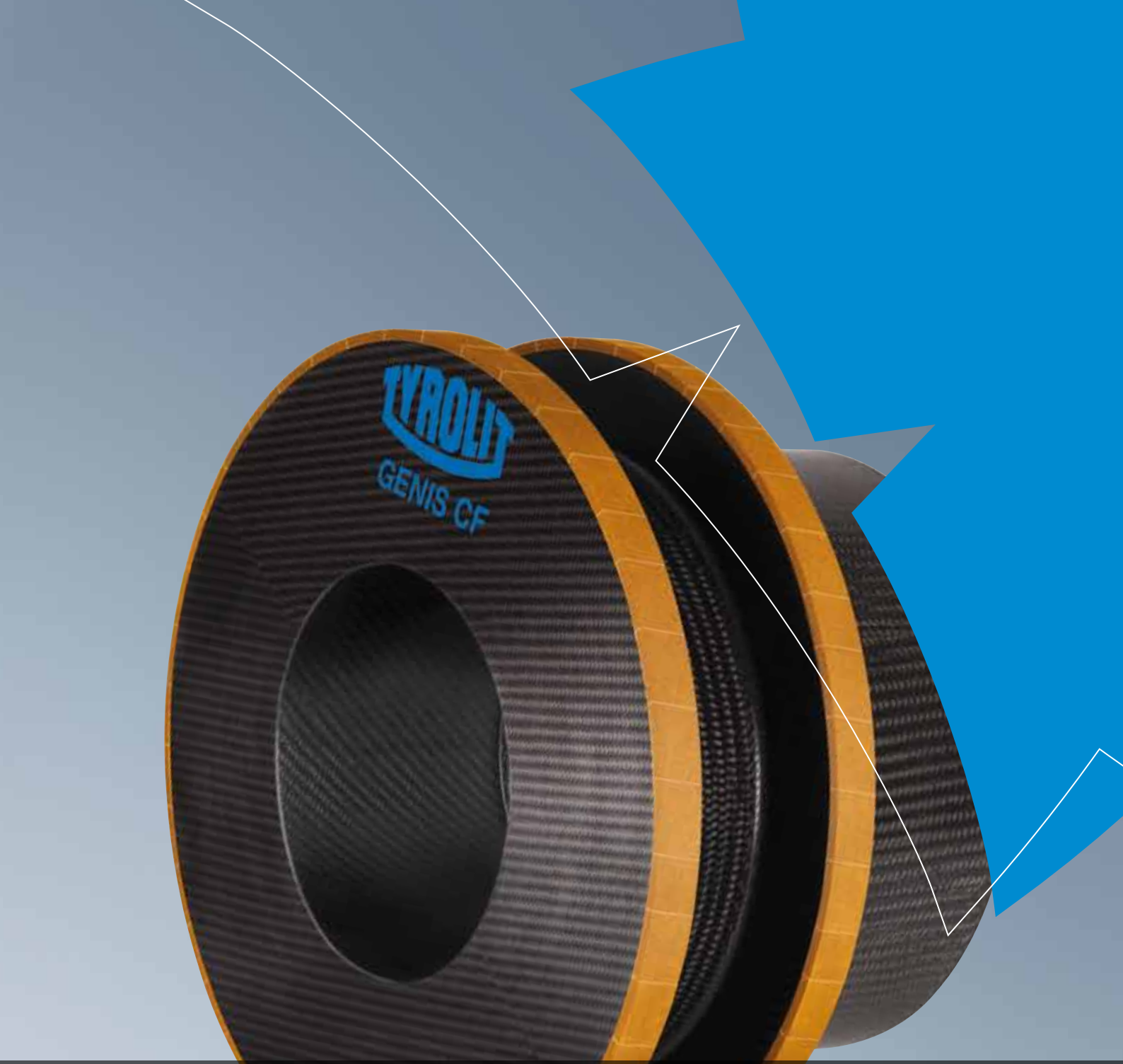


GENIS CF
INNOVATIVE BODY FOR HIGH-END APPLICATIONS

- Integrated body and grinding layer technology
- Body and grinding layer from a single source
- Attractive price-performance ratio

A Company of the SWAROVSKI Group

TYROLIT

GENIS CF
INNOVATIVE BODY FOR HIGH-END APPLICATIONS

Carbon fibre-reinforced composites are extremely durable and lightweight, but are also cost-intensive materials that, for financial reasons, are mostly used in high-tech aerospace, automotive and sport applications.
In recent years, this innovative material has also increasingly been used in the machine construction and tool making industries. The low weight, low expansion and high strength properties of carbon fibre have a positive effect on vibration, deformation and energy consumption, especially in highly dynamic environments.

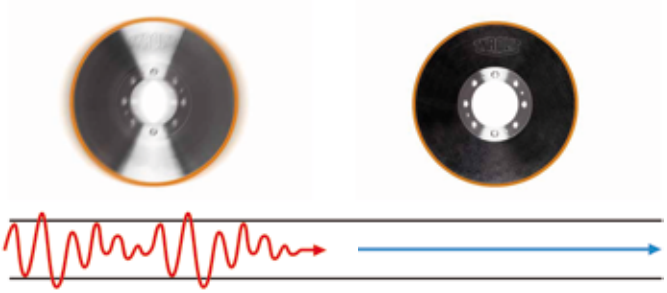
TYROLIT has amassed ten years of experience in CBN-mounted carbon fibre (CF) bodies for grinding shafts in the automotive industry. Customers in this sector benefit in particular from reduced acceleration and braking forces. Even very heavy tools become much easier to fit and remove, eliminating the need for additional lifting equipment on the machine.
In technical terms, the most outstanding and beneficial, effects are the vibration damping properties. By reducing unwanted vibrations during the grinding process, grinding wheel life is considerably extended and workpiece quality (chatter marks, roundness, etc.) is dramatically improved. However, cost efficiency is not only improved by extending the life of the grinding wheel. In many applications it is even possible to reduce the grinding time itself.

Product advantages
CF for exceptional damping and low weight
Integrated body and grinding layer technology
Can be replated several times
Also available with a neutral layer zone

Application benefits

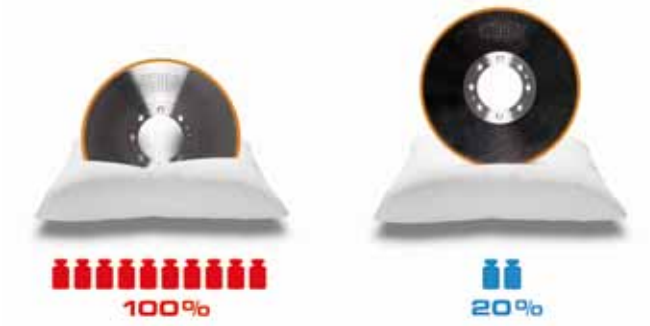
Excellent damping effect

- Fewer chatter marks
- Improved runout tolerance on the workpiece
- Shorter machine set-up times
- Lower finishing costs
- Increased grinding wheel life
- Higher production capacities



Lower weight

- Only 20% of a comparable steel version
- Protects grinding spindle and drives
- Simple handling while fitting
- Reduces spindle base load

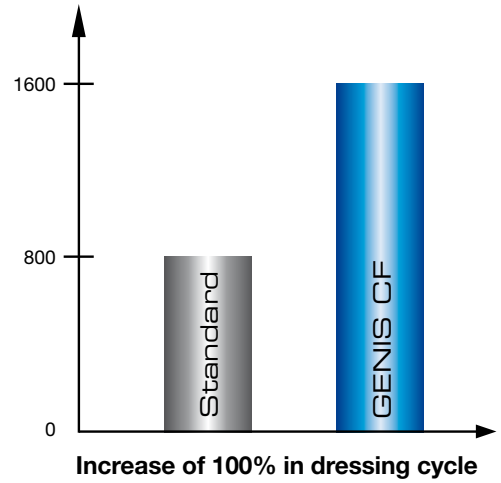


GENIS CF
APPLICATION EXAMPLE: CAM SHAFT

Cam contour grinding	
Material	**Cast iron**
Hardness	**48-52 HRc**
Machine	**Landis 3L**
Peripheral speed	**100 m/s**
Cooling lubricant	**Emulsion**
Shape and dimensions	**3A1SH 450x35x132 mm**
Specification	**GEN B181 V CF**

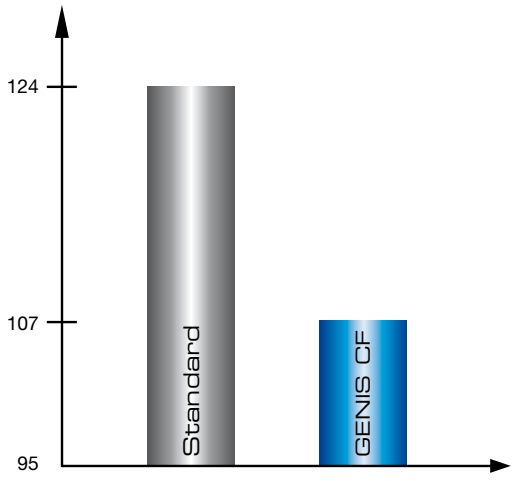
Production capacity when grinding cast cam shafts could not be increased any further with the CBN grinding wheels currently in use. Shorter grinding times resulted in chatter marks on the component and considerably higher levels of wear on standard grinding wheels. Whereas standard tools with a steel body had a dressing interval of 800, a doubling of this figure to 1600 with the new GENIS CF CBN grinding wheel shortened grinding times by 14%.

Cams



Increase of 100% in dressing cycle

Grinding time



Grinding time reduced by 14%

TYROLIT SCHLEIFMITTELWERKE SWAROVSKI K.G.
Swarovskistraße 33 | 6130 Schwaz | Austria
Tel +43 5242 606-0 | Fax +43 5242 63398

All our **worldwide subsidiaries** can be found on our website at **www.tyrolit.com**

TS310-M-2-D01-0509

www.tyrolit.com