

# innovate

An insight into innovative ideas,  
solutions and the people behind them

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## Train components inspired by nature

Trees have to be firmly rooted to the ground in order to withstand the enormous forces created by strong winds. At their base, where they meet the roots, they form transitions between the trunk and the ground – naturally making use of the notch effect to reduce stress. The same principle gave inspiration to Voith's innovative bionic tothing. "Utilizing this geometry not only makes the tothing more durable, but also allows for narrower designs in gearwheels. This results in lighter gear unit weight and also saves valuable centimeters of installation space," explains Steffen Pyka, Product Management Rail Drives with Voith. Adapted to regular-sized gear-tooth bases, the principle allows for more teeth to be fitted. The effect: a reduction of noise emissions of up to 3 dBA. Which is why Siemens is considering Voith's bionic tothing for the Mireo family, its next-generation regional trains.

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Steffen Pyka,  
Voith Product Manager Rail Drives