

Timken Provides High Performance for High-Speed Trains

TIMKEN

Where You Turn

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Customer

Voith Turbo GmbH & Co. KG
Heidenheim, Germany

Market

Rail

Application

Drives

The Timken Advantage

Timken helps Voith transmit power in high-speed trains like the Siemens Velaro E by providing specially-designed tapered roller bearings that:

- Reduce noise and enhance passenger experience
- Lower weight and design space
- Improve overall train performance

Passengers in Italy can enjoy a fast, quiet ride thanks to Timken and customer Voith Turbo GmbH & Co. KG, a drive manufacturer for the rail market. Timken is the sole authorized supplier of tapered roller bearings for the axle-riding final drives used to transmit power to the wheels of some of Europe's fastest trains.

The new Siemens Velaro E high-speed train is capable of achieving speeds up to 217 miles per hour on the Madrid to Barcelona route of Spain's national railway. Voith developed the SE-380 final drive for the Velaro E with both performance and passenger comfort in mind.

On the Velaro E, the drives are located directly below the passenger area. For this reason, noise reduction was a critical design objective. Voith made changes in the gearing and housing design and sought a new bearing concept.

Voith turned to Timken for help in designing a bearing for the output shaft of the drive that would support performance needs while being more compact and economical than the previous cylindrical roller bearing design used on some high-speed trains. Timken engineers designed tapered roller bearings capable of meeting the special design requirements and compatible with the extremely high travel speeds.

"We applied our knowledge of friction management and power transmission to take a proven bearing design and develop it further to improve the train's performance, lowering weight and enhancing the passenger experience by reducing noise," says Mat Happach, vice president - rail for Timken.

Timken has been developing and manufacturing products for the rail industry since the early 1930s. Its products are found on passenger and freight lines around the world.