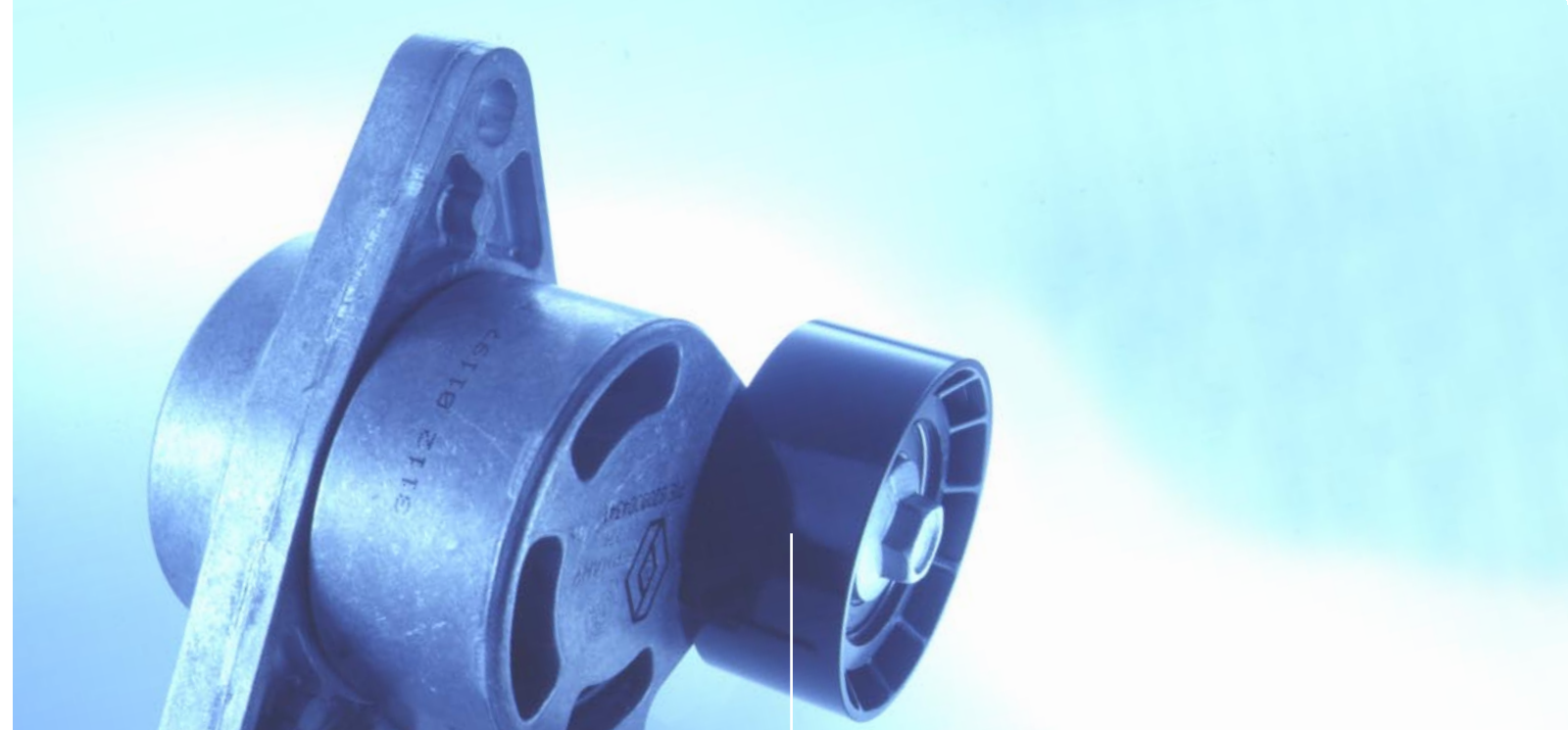


As a global partner to the automotive industry, Mubea has locations worldwide in all continents. We develop, manufacture, and market high-quality products like suspension springs and stabiliser bars, spring band clamps, disc springs, valve springs, belt tensioner systems, tubular shafts, camshafts and intermediate shafts, wire form springs, flat coil springs, headrest supports, wire springs, flat springs and components produced by Flexible Rolling.



Mubea
Belt Tensioner Systems.

Mubea

Muhr und Bender KG, Postfach 360, D-57427 Attendorn, Tel. +49 2722 62 476, Fax +49 2722 62 688
e-mail: belt-tensioner@mubea.com, www.mubea.com

1. Auflage Mai 2002 · www.werbungetc.de

Mubea
engineering for mobility

**Tensioning and Damping.
Mubea Automatic Belt Tensioner Systems.**



Historically, damaged V-belts were among the most common causes of car breakdown. The conventional V-belt was tensioned in the cold state. Over long periods of running, inaccurate instructions for installation, thermal expansion of the engine and stretching of the belt could cause significant deviations from the pre-tensioned state. One result of this was the screeching noise made by the belt under wet or frosty conditions.

Today, much higher demands are made on the life span of the V-belt, in spite of the much higher performances of auxiliary units. The ribbed V-belt (generally with 5-6 ribs) in combination with automatic belt tensioners was developed in order to meet these requirements. In addition to linear tensioners, there are now rotative tensioners with mechanical or hydraulic damping to suppress belt vibration, slippage and noise. They also assure even tensioning of the belt independently of production tolerances, stretching of the belt through heat or age, and expansion of engine units.

For more than 10 years, Mubea has been developing and producing mechanical friction-damped rotative tensioners for driving auxiliary units in car engines. We now supply four different tensioning systems.

The Component Tensioner E1 is mounted at the rear of the unit and transfers the tensioning moment to the tensioning pulley via a lever. It represents an especially practical solution when no space is available to install it at the front of the engine.

The Compact Tensioner E2 was developed for installation at the front of the engine. The sliding radial and axial bearings of the pulley support assure an accurately defined position of the pulley. This means that the tensioner is also suitable for use with a profiled pulley.

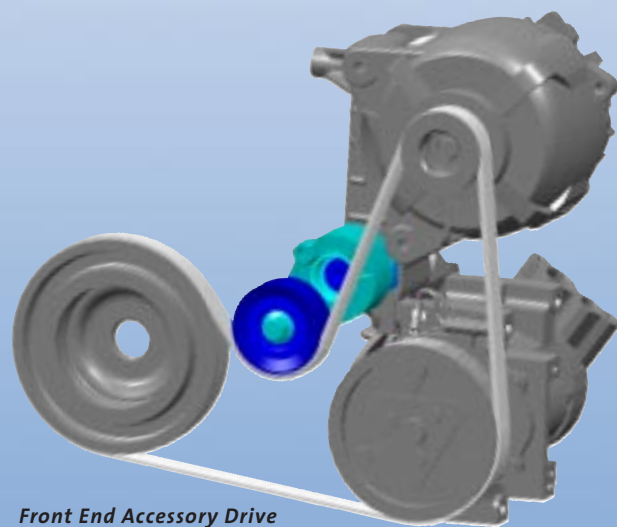
The Compact Tensioner E3 connects the bearings of the pulley support with the damping system via a tapered sliding bearing. The tapered bearing is pre-tensioned through axial spring force and therefore assures ample play. The Compact Tensioner E3 is designed with a very low component count, and is hence highly economical.

The Compact Tensioner E4 with asymmetric damping is Mubea's latest development. Here, the damping moment in the load direction is greater than that in the relief direction. Through a high degree of damping, the tensioner effectively prevents belt vibrations, but still possesses high re-tensioning dynamics.

Since 2002, our product development for engine components has been concentrated in a newly built Technology Centre in Attendorn. Modern development tools such as CAD, FEM and dynamic belt-drive simulation allow our engineers to design our belt tensioners for utmost safety and reliability. Sophisticated measuring and testing systems assure the highest quality, and our own shop floor guarantee rapid prototyping.

All Mubea belt tensioners and some of their components are produced in our modern plant in Zebrák in the Czech Republic. The one hundred percent testing of the tensioner for torque and friction guarantees consistently high product quality.

Through continuous growth, Mubea has become one of Europe's largest producers of belt-tensioning systems. Fast response times, consistently high quality and competitive prices secure and reinforce this position and will continue to do so in future.



Front End Accessory Drive

Cross Section of a
Belt Tensioner System

