

Celebrating a milestone in powertrain technology

100 million pushbelts – the basis for vehicle components of the future

June 26, 2024

PI 11845 BBM san/af

- ▶ Bosch has been manufacturing the pushbelt, a key component of continuously variable transmissions, in Tilburg since 1985.
- ▶ Tilburg's associates are increasingly applying their knowledge to new applications both within and outside the automotive industry.
- ▶ New high-tech thin-metal components, such as e-stacks for electric motors and air-foil bearings, round off the product portfolio.

Tilburg, Netherlands. In the Dutch city of Tilburg, Bosch has reason to celebrate: its plant there has now produced its 100 millionth pushbelt. In 2023, there were more than 200 vehicle models featuring this technology on the market. Although mainly used in passenger cars, the pushbelt increasingly also features in leisure vehicles such as quads and all-terrain vehicles (ATVs). The start of pushbelt production in 1985 also marked the beginning of the success story of the Bosch location in Tilburg, which has been the market leader for this component since then. Today, the location is using the expertise it has acquired to develop and manufacture new products for other applications. "Our associates here in Tilburg know all about components made from thin metal sheets," says Thilo Mueller, head of the thin-metal technologies business unit at Bosch. "We're now using this expertise in more and more applications both within and outside the automotive industry, such as electrolysis stacks. That's transformation in action."

The pushbelt is a key component of continuously variable transmissions, or CVTs. Each pushbelt comprises hundreds of specially developed individual steel elements, interconnected with strips of high-alloy steel. In the transmission unit, the pushbelt transfers the engine's output power to the drive axle, always ensuring the best possible ratio for the speed and power required. This reduces energy consumption and CO₂ emissions. Originally designed for combustion engines, the technology has now been adapted for hybrid and electric vehicles. With its continuously variable automatic transmission for electric vehicles (CVT4EV), Bosch has debuted a compact multispeed transmission design

specifically for electric cars. This is particularly advantageous for heavy or very fast vehicles. As part of an electric powertrain, the CVT4EV also reduces energy consumption, improves efficiency and performance, and ensures a pleasant, smooth driving experience.

Existing know-how for the development of new components

Based on the knowledge it has acquired over the years with the development and manufacture of the pushbelt, the Tilburg location has now expanded its product portfolio to include new high-tech thin-metal components. Air-foil bearings and e-stacks for electric motors went into production at the end of 2023, and the plant has now started work on the development of bipolar plates. Consisting of delicate metal sheets, the e-stack is the core element of high-performance electric motors. One application for the air-foil bearing is in fuel-cell systems, as part of an electric air compressor that reaches speeds of more than 100,000 revolutions. Bipolar plates can be used as a stack or welded together in fuel cells and electrolyzers.

Thanks to ongoing transformation and the further development of existing technologies, Tilburg is now a location with a future. It's not only the market leader for pushbelts, but also a Bosch research and engineering center for electrolyzer technology, where engineers create, test, and develop product designs, and make components with an accuracy of up to one-thousandth of a millimeter. Artificial intelligence (AI) also plays an important role in production processes and quality control. "The same innovative spirit that spurred us to invent the CVT pushbelt is now driving us to create the technology of the future," Mueller says. "Within eight years, we've taken completely new products into production for markets that were previously unknown to us. We've done so by putting our distinctive skills, expertise, and experience in development and manufacturing to good use. Together with our already highly successful and established pushbelt, we have the right mix to create a sustainable future for our location."

Press photos and infocharts in Bosch Media Service at www.bosch-press.com.

Contact person for press inquiries:

Anna Schmatz

Phone: +49 711 811-12715

E-mail: anna.schmatz@de.bosch.com

Mobility is the largest Bosch Group business sector. In 2023, its sales came to 56.2 billion euros, or just under 60 percent of total Group sales. This makes the Bosch Group one of the leading mobility suppliers. Bosch Mobility pursues a vision of mobility that is safe, sustainable, and exciting. For its customers, the outcome is integrated mobility solutions. The business sector's main areas of activity are electrification, software and services, semiconductors and sensors, vehicle computers, advanced driver assistance systems, systems for vehicle dynamics control, repair-shop concepts, as well as technology and services for the automotive aftermarket. Bosch is synonymous with important automotive innovations, such as electronic engine management, the ESP anti-skid system, and common-rail diesel technology.

The Bosch Group is a leading global supplier of technology and services. It employs roughly 429,000 associates worldwide (as of December 31, 2023). The company generated sales of 91.6 billion euros in 2023. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. With its business activities, the company aims to use technology to help shape universal trends such as automation, electrification, digitalization, connectivity, and an orientation to sustainability. In this context, Bosch's broad diversification across regions and industries strengthens its innovativeness and robustness. Bosch uses its proven expertise in sensor technology, software, and services to offer customers cross-domain solutions from a single source. It also applies its expertise in connectivity and artificial intelligence in order to develop and manufacture user-friendly, sustainable products. With technology that is "Invented for life," Bosch wants to help improve quality of life and conserve natural resources. The Bosch Group comprises Robert Bosch GmbH and its roughly 470 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. Bosch's innovative strength is key to the company's further development. At 136 locations across the globe, Bosch employs some 90,000 associates in research and development, of which nearly 48,000 are software engineers.

Additional information is available online at www.bosch-press.com, www.bosch-mobility.com, www.bosch.com.