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Press Release

30-year global success story for Schaeffler camshaft phasing systems, with more than 480 million units produced

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- Production milestone of almost half a billion units attests to Schaeffler's leading role in variable valve timing
- Hydraulic and electric camshaft phasing units for different drive solutions such as ICEs and hybrid systems
- Global expertise and customer proximity: main plant in Hirschaid, Germany, and six other production plants worldwide
- Next series production project set to start in India in 2028

Schaeffler looks back at more than three decades of experience in the development and manufacture of variable camshaft phasing systems. Volume production of the hydraulic camshaft phasing unit started at the company's headquarters in Herzogenaurach in 1996. Since then, Schaeffler has produced around 480 million camshaft phasing systems, with Hirschaid serving as the lead plant for these products. This successful product from Schaeffler enables needs-based adjustment of valve timing and improves the performance and torque curve of combustion engines, including in hybrid vehicles.

"The success story of our camshaft phasing systems is a prime example of Schaeffler's innovative strength and customer focus. The continuous development and refinement of this product group helps our customers to meet increasingly stringent requirements for fuel consumption, emissions, acoustics, and ride comfort in modern combustion engines," says Matthias Zink, CEO Powertrain & Chassis at Schaeffler AG. "Whether as hydraulic or electric technologies – Schaeffler offers compelling solutions for different drive concepts and market requirements."

Hydraulic camshaft phasing unit: proven efficiency and robustness

Schaeffler's hydraulic camshaft phasing systems use the oil pressure of the engine to precisely adjust the position of the camshaft. Depending on engine concept, different system architectures are used.

The technology features a robust design, high efficiency, low leakage, and minimal space requirement. A reliable locking mechanism in the home position helps ensure safe functioning during engine startup. The variable camshaft adjustment

improves the engine's torque curve and enables a lower idling speed, fewer emissions, and reduced fuel consumption.

Electric camshaft phasing unit: precise control and fewer emissions

With the electric camshaft phasing system, Schaeffler has added a solution to its product range that works independently of engine oil pressure and readies modern engine systems to meet the Euro 7 exhaust gas standard. Its main components are a brushless DC motor, gear unit and sprocket. The modular concept allows high adjustment capacity to suit different engines and customer requirements. Electric phasing enables the camshaft position to be adjusted with exceptional precision and speed in varying operating conditions. The flexible adjustment also helps to optimize noise, oscillation and vibration behavior and to significantly reduce CO2 emissions and fuel consumption, particularly during engine startup in hybrid powertrains.

Launched in Germany and now produced worldwide

Schaeffler has continually developed and optimized the technology for variable valve timing for decades and through to the present day. Following the start of development work in 1990, volume production of the first product generation for a four-cylinder petrol engine began in Herzogenaurach in 1996. The technology was initially used on one camshaft and subsequently on both.

From the end of the 1990s, other starts of production followed for various European and North American vehicle and engine manufacturers. With the second generation, whose fabrication started in Hirschaid from 2000, Schaeffler expanded its technological and industrial base. In the process, Hirschaid evolved into the main location for the ongoing development and industrialization of the camshaft phasing systems within the Schaeffler Group. Volume production of the electric camshaft phasing unit was also launched in Hirschaid in 2015.

Global development and production network

"Hirschaid is Schaeffler's lead plant for all global activities relating to camshaft phasing systems. From here, Schaeffler manages and supports related technological advancements, industrialization and international knowledge transfer within the Schaeffler Group," says Horatiu Dan Socaciu, Head of the Valvetrain Systems Business Unit at Schaeffler. "Our international network facilitates short distribution channels in the markets, close collaboration with our customers, and flexible adaptation to regional requirements." Alongside Hirschaid, Schaeffler has six other development and production facilities located in Europe, North and South America, China, and in Asia. Production is scheduled to start in another plant in India in 2028.

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Schaeffler Group – We pioneer motion: The Schaeffler Group has been driving forward groundbreaking inventions and developments in the field of motion technology for 80 years. With innovative technologies, products, and services for electric mobility, chassis solutions, and renewable energies, the company is a reliable partner for making motion more efficient, intelligent, and sustainable – over the entire life cycle. Schaeffler describes its comprehensive range of products and services by means of eight product families: from bearing solutions and all types of linear guidance systems through to repair and monitoring services. With around 110,000 employees and more than 250 locations in 55 countries, Schaeffler is one of the world's largest family-owned companies and ranks among Germany's most innovative companies.

More than 480 million camshaft phasers produced worldwide: Schaeffler's Hirschaid plant celebrated the product's 30th anniversary. (Photo: Schaeffler)

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Schaeffler's hydraulic camshaft phasing systems use the engine oil pressure to precisely change the position of the camshaft. (Photo: Schaeffler)

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With the transition from hydraulic to electric camshaft phasing systems, Schaeffler caters to the increasingly stringent requirements for accuracy, adjustment speed and flexibility during engine startup in modern vehicle architectures. (Photo: Schaeffler)

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Schaeffler also offers hydraulic camshaft phasing systems for commercial vehicles: This engine component allows for the variable adjustment of valve timing across the entire load and speed range. Depending on the system variant, one or both camshafts can be adjusted either synchronously or independently of one another. (Photo: Schaeffler)

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