

Media Release

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Fendt Relies on Fan Technology from Voith

- **Voith delivers fans for the world's most powerful standard tractor**
- **Energy required by the fan is reduced by more than 50 percent**
- **Compact design improves driver's line of sight**

Heidenheim, Germany: Starting with the month of September the first larger series of the new 1000 Vario tractor will be delivered by Fendt. The tractor's innovative cooling system is based on Voith fan technology for the first time. With a background in the rail vehicle industry, Voith is market leader in the development of efficient cooling systems. In future, this expertise will also be applied in the world's most powerful standard tractor (up to 500 HP). The Voith fan is decoupled from the engine speed by its own hydraulic motor and saves more than half the energy and fuel consumption when compared to standard components.

High-Performance Fan Paves the Way for a New Cooling Design

With its newly developed Concentric Air System (CAS), Fendt is the first manufacturer in the agriculture vehicle industry to also meet the highest technological standards in terms of cooling technology. The basis of the CAS is the fan developed by Voith, which is placed in a pressing arrangement in front of the cooler unit and the engine. As a result, the cold air with a higher density is drawn in from outside the vehicle and further compressed by the high aerodynamic efficiency. This increases the pressure in comparison to the intake configuration used up until now in tractors, where the fan is positioned directly in front of the engine, and allows for an enormous volume flow of up to 7 m³/s.

Without large cooling packages, the CAS can be designed significantly more compact, thus allowing the entire system to move closer to the

driver's cab. The shorter, narrower hood increases the driver's line of sight over the terrain ahead. At the same time, an improved steering angle increases the agility of the vehicle.

On average, the new Voith fan requires input power of 8 kW, less than half of a standard fan. As a total system, CAS reduces consumption by up to 70 percent.

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Optimum Cooling Capacity Due to Individual Design

The fan has its own hydrostatic drive and thus always provides the cooling capacity required, regardless of the engine speed. Using CFD simulations, the Voith development team designed the blade geometry in accordance with the individual operating parameters of the 1000 Vario. Additionally, the team also supported Fendt in vehicle design and during hood design in order to achieve optimum airflow.

The unit is assembled in series production in Heidenheim, Germany. At its headquarters Voith has set up a new assembly line for commercial vehicle fans in addition to the existing structures for assembling its cooling systems for rail vehicles.

Vibration Damper Protects the Drive Train

While Voith only recently entered the field of agricultural machinery and special vehicles with its fan technology, the Hydrodamp vibration damper is already firmly established in the sector. In the Fendt 1000 Vario, it is placed in front of the Vario transmission to reduce critical torsional vibration of the engine and shift resonant frequencies to non-critical speed ranges. This extends the lifetime of all components in the drive train and increases availability. Additionally, the Hydrodamp allows the vehicle to run at lower speeds, further reducing fuel consumption.

Voith Turbo, a Group Division of Voith GmbH, is a specialist for intelligent drive solutions. Customers from highly diverse industries such as oil and gas, energy, mining and mechanical engineering, ship technology, rail and commercial vehicles rely on advanced technologies from Voith Turbo.

Voith sets standards in the markets for energy, oil & gas, paper, raw materials, transport & automotive. Founded in 1867, Voith employs more than 20,000 people, generates €4.3 billion in sales, operates in over 60 countries around the world and is one of the largest family-owned

companies in Europe.*

* Excluding the discontinued Group Division Voith Industrial Services.

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Originally developed for maximum efficiency in rail vehicles, Voith fans are now being used for the first time in the commercial vehicle industry.



The Voith fan forms the basis of the Concentric Air System (CAS) used by Fendt to reduce the fuel consumption of the cooling system in the 1000 Vario by 70 percent.



Due to the CAS, the Fendt 1000 Vario benefits from a shorter and narrower hood.

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