



SUCCESS STORY

New Hydraulic Motors on Air Seeders and Planters Exceeds Performance Goals

Parker's Pump and Motor Division (PMDE) develop hydraulic motors to improve seeding performance by increased speed

CHALLENGE

Over the past few years, market demand has increased for air seeding machines. They are expected to be more precise, give higher performance, and also be more efficient. Noticing this opportunity, an OEM of Air Seeder Equipment began to modify their seeders and planters. Previously, the system was designed with lower speed fan drives for seed distribution. This presented an opportunity to increase machine performance and productivity while reducing fuel consumption. The goal was to reach a speed range of 5000 rpm up to 7500 rpm. The OEM consulted with Parker Hannifin Corporation's Pump and Motor Division (PMDE) team to develop a new hydraulic motors that would meet their new performance goals.

SOLUTION

The pneumatic seeder offers the most advanced planting method, so the seed is conveyed to the metering elements by an air stream from the hydraulic fan. The seed is then transferred through lines to the seed coulters. The planting drill technology carries out levelling, seedbed preparation, re-consolidation, seeding and pressing in one pass. It is known to provide impressive precision at high working speeds in the field. Thanks to the individual row depth control, air seeders always places the seed at the intended seeding depth. You benefit from an even emergence over the entire field.

Market

- Mobile - Agriculture

Customer

- OEM

Application

- Air Seeders
- Planters
- Seed drills

Solution

- F10
- PGM511

Results

- Increased seeding performance
- Vehicle productivity
- Reduced engine emissions



ENGINEERING YOUR SUCCESS.

In order to deliver perfect airflow within the pneumatic system, one component stands out as being most important. It's the hydraulic fan motor that reliably delivers high performance speed in certain load cycles. The different sizes of the seed drills mean that different hydraulic motors can be used. For seeder machines with a working width of 3 m – 4 m, primarily PGM511 gear motors from the factory PMDE-Chemnitz are used, which deliver a performance speed of 5.000 rpm. For working widths beyond 4 m, primarily F10 motors from PMDE-Trollhättan are used, with more power and speed rates above 7000 rpm.

PGM511

For usages in smaller working ranges at the field the PGM511 External Gear Motor is the best match. It combines a very simple and robust design together with an upper-level output speed rate.

The Parker Hannifin Gear Motor has more advantages beside speed rate. The most important is no need for a costly outboard bearing. This saves money and makes the motor small and very compact. We secure this thanks to an intensive pretesting of the motors in our labs plus an extra effort of having field test together with the OEM of agriculture equipment.

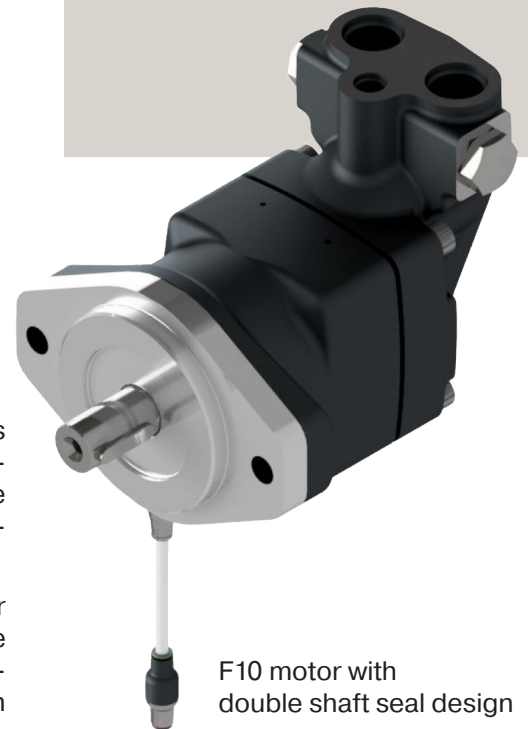


PGM511
External Gear Motor

F10

Looking at wider range of air seeders, the F10 bentaxis is the obvious choice. The spherical piston design gives a high speed capability with unbeatable overall efficiency. The double tapered bearing design allows the fan to be mounted directly on the shaft without any costly outboard bearing.

The dedicated F10 air seeder motors are equipped with Power Boost for increased performance, integrated anti-cavitation valve for longer service life, speed sensor helps monitoring the fan speed to optimize seeding performance. The unique double shaft seal design preventing oil leakage in pneumatic system.



F10 motor with
double shaft seal design

Results

- Solution to **prevent oil contamination** in soil and seeding system thanks to shaft seal design.
- Better **productivity** thanks to increased speed capability **by 40 %**
- **Cost savings** by simplifying the hydraulic system and reducing the number of components used
- **5 % less power losses** by using Power Boost compared to conventional design