

Fast forward...

... AND BACKWARD, TOO. IF YOUR HYDROSTATIC TRANSMISSION NEEDS A BOOST, TAKE A LOOK AT INTEGRATING THESE HIGH-SPEED HYDRAULIC MOTORS – AND BENEFIT FROM SUPERB CONTROL, EFFICIENCY AND PERFORMANCE WHILE YOU'RE AT IT

▶ Attention Agritechnica visitors! SAI Hydraulic Motors will be exceeding all 'normal' speed limits at the exhibition – but there will be no cause for alarm, as it will simultaneously be enabling better controllability, greater efficiency and outstanding performance. That's because the innovative design of the company's radial piston hydraulic motors enables them to achieve extremely high levels of speed, power and overall efficiency.

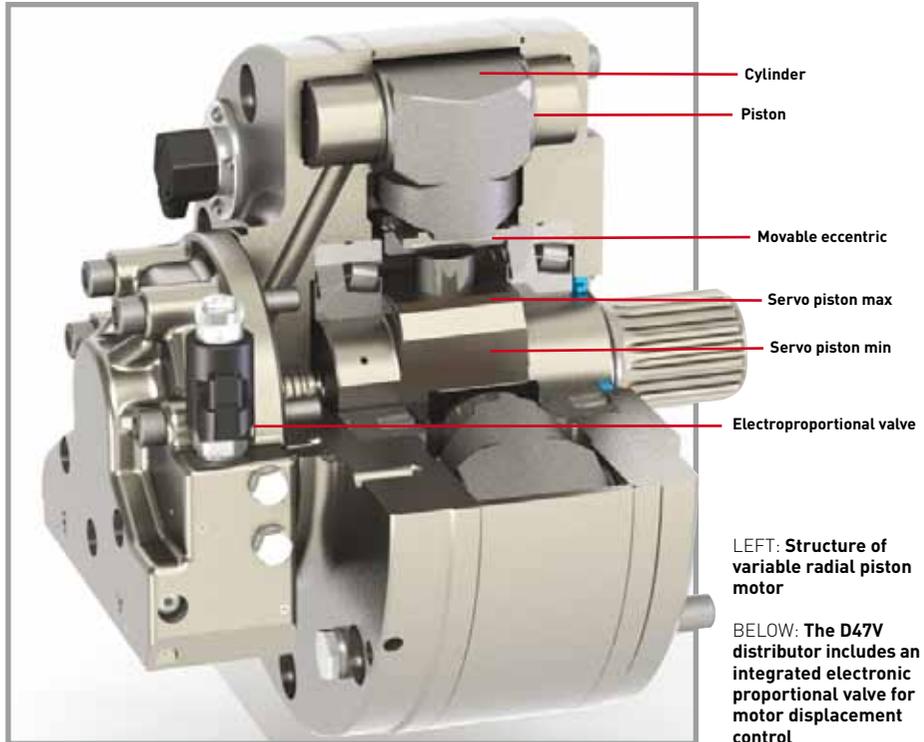
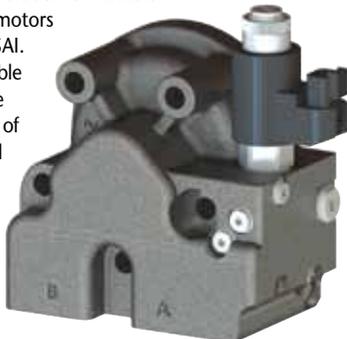
The hydraulic architecture that gives the best performance in terms of efficiency is the crankshaft design radial piston motor. SAI's design involves the use of cylinders supported in the motor casing by two trunnions, which allow each cylinder to swivel. In this way, the piston and cylinder remain aligned with the eccentric axis of the crankshaft as the shaft rotates. This is why the company's motors are characterised by extremely high starting torque.

Furthermore, considering that a hydraulic motor is effectively a mechanical actuator that converts hydraulic pressure and flow into torque and speed (i.e. hydraulic power into mechanical power), high efficiency is undoubtedly one of its most relevant features. Because the overall efficiency depends on friction and leakage, it is simple to understand that different structures in hydraulic motors have different performance and efficiency.

Displacement control

The majority of industrial equipment and mobile machinery require high starting torque, efficiency and controllability and therefore, especially when heavily loaded, are subjected to high working stresses.

All of these needs can be easily satisfied by virtue of the new generation of variable displacement motors produced by SAI. These are capable of meeting the wide demands of the market and maintaining efficiency at high levels throughout the entire speed and



load ranges – and all the while maintaining excellent displacement control.

This is achieved by changing the shaft eccentricity through the use of an electronic controller, which drives a proportional valve working via signals from the operator which are balanced by electronic feedback from the motor.

The use of variable displacement motors has a positive consequence on hydrostatic transmissions, especially those which demand high power. High efficiency levels can be maintained throughout the whole operational range, and this is particularly noticeable at very low displacement ratios. Together with high speed and high pressure capability, this represents a unique combination of parameters in the current fluid power discipline.

Operating at minimum displacement, the latest range of SAI variable motors can reach speeds of up

to 3,000rpm with the capability of reaching even 5,000rpm when eccentricity is equal to zero.

The wide operational range of these units, coupled with very high efficiency in all working conditions, enables machine designers to set the prime mover within a tight designated speed range where it is working at its maximum efficiency.

Therefore the use of SAI products has a positive impact on the overall efficiency of the complete power transmission. The consequences are numerous, including a reduction in exhaust emissions and a decrease in thermal losses, which increase machine lifetime and consequently improve overall equipment performance. **ivT**

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