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Sauer-Danfoss Launches PLUS+1™ Compliant Fan Drive Control (FDC) for H1 Pump Family

H1 FDC satisfies power level above 20 KW (27 hp), offers proportional forward control with reversing and zero-speed capability

AMES, Iowa, USA, April 11, 2013 – Sauer-Danfoss Inc. (NYSE:SHS)

Sauer-Danfoss is pleased to introduce a PLUS+1™ Compliant Fan Drive Control (FDC) for the H1 family of piston pumps. FDC for H1 pumps utilizes proven closed-circuit technology to meet urgent customer demand for more efficient and robust hydraulic cooling fan systems in Tier 4-compliant mobile off-highway equipment applications. Ideal for meeting cooling system fan power requirements in machines above 20 kw (27 hp), FDC for H1 pumps offers proportional forward control with reversing and zero-speed capability, a maximum-displacement full forward speed fault position and PLUS+1 compatibility that reduces development costs and accelerates time to market.

With the implementation of Tier 4 diesel engine emissions regulations, many off-highway equipment manufacturers are migrating from belt-driven fan drive systems to more efficient hydraulic modulating fan drives. Unlike belt-driven systems, which operate the fan at a fixed speed at least as fast as required under the most demanding cooling conditions, modulating hydraulic fan drives continuously adjust fan speed to the lowest level required to maintain proper cooling. The variable-flow functionality of FDC for H1 pumps provide increased efficiency over gear-pump and many open circuit systems, offering Tier 4 equipment designers significant power and fuel savings in most operating conditions.

“Compared to previous generations, new Tier 4 engines occupy more space in the engine compartment and have increased cooling requirements,” said Branko Horvat, Director of Product Marketing Managers for the Propel Sales business area at Sauer-Danfoss. “Hydraulic Fan Drive Control for H1 pumps offers superior fan drive efficiency, enabling OEM designers to offset increased cooling demand, reclaims lost engine power and improves fuel economy in the majority of operating conditions. Sauer-Danfoss FDC for H1 pumps will enhance the performance of future generations of machines in a broad variety of applications.”

Reversing and zero-speed capability

In addition to proportional forward control that enables modulating hydraulic FDC, the H1 pump family offers the reversibility and zero-speed capability that are inherent in robust closed-circuit systems. FDC can automatically reverse the direction of the fan to purge trapped dirt and debris and restore cooling to peak efficiency. The product also offers the ability to stop the fan completely in circumstances where cooling needs are minimal.

“FDC for H1 pumps achieves reversibility without the need for larger, more complex and costly plumbing,” Horvat said. “Zero-speed capability can be beneficial in extremely cold conditions where power is better utilized for warming up the vehicle.”

Another benefit of a closed-circuit system is what occurs in the event of a controller or electrical failure. The fault position of the pump is toward full forward displacement, enabling the fan to run at full speed to maintain the integrity of the cooling system on the vehicle. Maximum fan speed is determined by the Pressure Limiter Setting.

Sauer-Danfoss system solution

Hydraulic FDC joins the Sauer-Danfoss PLUS+1 family of flexible, powerful mobile machine management products. FDC utilizes Sauer-Danfoss fan drive subsystem software and integrates seamlessly with the H1 pump family, enabling OEMs to develop customized fan drive solutions rapidly using the PLUS+1 GUIDE programming environment.

“FDC provides OEMs with a robust Sauer-Danfoss system solution, reducing engineering investment and speeding time to market,” Horvat said.

Hydraulic FDC for H1 is available in 12V and 24V controls and is applicable on all H1 frame sizes. While belt-driven fan drive systems typically must be mounted near the engine, hydraulic fan drives can be positioned almost anywhere on the machine — a major advantage for space-conscious designers of Tier 4 equipment. Relocating the cooling system outside of the engine compartment can allow room for the additional componentry required for diesel exhaust after-treatment, and gives the system designer an opportunity to improve system cooling by minimizing restrictions in the path as the air flows through the engine compartment.

Other benefits

Additional benefits of modulating hydraulic FDC include:

- Increased power density makes more room available in the engine compartment for additional components/features.
- Higher pump and motor pressure, power and life ratings
- Minimized reservoir requirements, allowing for smaller reservoir size and delivering reduced potential for contamination
- Available motor speed sensors

About Sauer-Danfoss

Sauer-Danfoss Inc. is a worldwide leader in the design, manufacture, and sale of engineered hydraulic and electronic systems and components for use primarily in applications of mobile equipment. Sauer-Danfoss, with 2012 revenues of approximately \$1.9 billion, has sales, manufacturing, and engineering capabilities in Europe, the Americas, and the Asia-Pacific region.

More details online at www.sauer-danfoss.com.

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