Energy-saving pump design for hydraulic applications with the Sinamics servo pump from Siemens

With the Sinamics servo pump, the Siemens Drive Technologies Division offers an energy-saving solution for hydraulic applications. The pump has dynamic, direct pressure and flow control via a variable-speed servo motor. This means that, unlike in a conventional hydraulic solution, complex control systems are unnecessary and energy consumption is reduced by more than half.

Maximum energy efficiency and a compact design are also becoming increasingly important criteria when improving machines with hydraulically driven shafts. With this in mind, Siemens is introducing an innovative speed-controlled fixed-displacement pump for use in e.g. injection molding machines, machine tools or presses.

In the Sinamics solution, a hydraulic pump is driven by a variable-speed servo motor. The oil pressure in the system is controlled directly via the connected Sinamics S120 drive system. As opposed to a conventional application, complex hydraulic components such as variable-speed pumps and valves are unnecessary. Oil tanks can be reduced in size. The cooling system for the hydraulic oil is reduced to a minimum. This innovative concept results in a reduction in energy consumption of maybe 50 to 70 percent, thanks to improved efficiency in relation to an induction motor with a variable displacement pump. The minimal space requirement means that integration into the machine is made easier. Furthermore, there is a reduction in the quantity of hydraulic oil required. For example, for a 60 tonne injection molding machine, working 250 days a year with an active power of 5.4 kW, energy consumption is reduced by around 65 percent compared to the amount needed by an induction motor with a vane pump. This corresponds to a saving of more than 7000 Euros per year.
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The Siemens Industry Sector (Erlangen, Germany) is the worldwide leading supplier of environmentally friendly production, transportation, building and lighting technologies. With integrated automation technologies and comprehensive industry-specific solutions, Siemens increases the productivity, efficiency and flexibility of its customers in the fields of industry and infrastructure. The Sector consists of six divisions: Building Technologies, Drive Technologies, Industry Automation, Industry Solutions, Mobility and Osram. With around 204,000 employees worldwide (September 30), Siemens Industry achieved in fiscal year 2010 total sales of approximately €34.9 billion. www.siemens.com/industry

The Siemens Drive Technologies Division (Nuremberg, Germany) is the world’s leading supplier of products, systems, applications and services for the entire drive train with electrical and mechanical components and motion control systems for production machinery as well as machine tools. Drive Technologies serves all segments in manufacturing industry, process industry and energy/infrastructure. The division provides answers to the customers’ key requirements productivity, energy efficiency and reliability. In fiscal year 2010, around 36,000 employees of the Division (September 30), achieved total sales of €7.0 billion. www.siemens.com/drivetechnologies