Pressinformation

BINE Informationsdienst

Bonn, 12 June 2012

Efficiently driving industrial machines

Potential study recommends new solutions for driving systems

In automation technology, every conveyor belt and robot arm requires drive energy. Without this and comparable systems, in particular the heavy components would remain at a standstill in the production. If the efficiency of electrical and pneumatic drive technology could be increased, the electricity requirements of industry would drop. The latest BINE-Projektinfo brochure, “Getting things moving with little energy” (04/2012), presents a potential study on energy efficient automation. In a joint project, three research institutes and three industrial companies have systematically researched and assessed the possibilities.

The study focuses on drive technologies that use compressed air or electricity as energy sources and utilise these for handling tasks in robotics. The advantages and disadvantages of the two energy sources are compared for different tasks. Particularly with compressed air, simple measures such as continual monitoring and the rapid elimination of leakages can considerably reduce the energy costs. An overview of efficiency-enhancing measures for pneumatic systems therefore provides a new approach to the investigations. Together with optimised, electrically driven technologies, it is systematically shown how production processes can be made more energy efficient. The researchers conclude by naming their efficiency favourites.

Industry uses approximately 47% of the net electricity consumed in Germany, whereby seven per cent of the electricity consumed in Germany is used just for generating compressed air. The term “drive technology” encompasses diverse applications, ranging from motors that consume several hundred kilowatts of electricity to miniature applications.

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BINE is an information service by FIZ Karlsruhe
www.fiz-karlsruhe.de and supported by
Federal Ministry of Economics and Technology
on the basis of a decision
by the German Bundestag