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FIRST LINEAR HAMMER WITH SERVODIRECT TECHNOLOGY

Schuler unveils new line with fully electric drive at RUD-Schöttler

Forging hammers were previously driven either hydraulically, pneumatically or by a flat belt. Schuler's new development, however, features a linear motor – as used, for example, by the Transrapid maglev train.

"Thanks to the new drive system, the hammer can not only be regulated but for the first time also used in controlled operation," explains Schuler's Managing Director Jochen Früh. "The ability to precisely position and flexibly control the slide opens up completely new possibilities – not only for precision forging, but also in terms of energy efficiency." A pilot project on the topic is currently being run at RUD-Schöttler, sponsored by Germany's Federal Ministry for the Environment.

The patented hammer drive boasts an exceptionally high degree of precision in its dosage of impact energy and in its slide control: the repeat accuracy of the forging blows has a divergence of less than one percent. "The new drive technology even offers the possibility of precision forging without impact areas," says Thomas Hüttenhein, general manager of RUD-Schöttler. "This eliminates the previously standard hard-on-hard blows for balancing temperature and material fluctuations."

The electronic control system automatically adjusts the energy input and number of necessary forging blows to the actual forging result after each blow – until the preselected part thickness is achieved. The influence of engraving wear on part accuracy can therefore be compensated by regulating the energy dosage. This improves product quality and makes it possible to continually document the process data.

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Jochen Früh, Schuler's Managing Director

New forging hammer with ServoDirect Technology.

Precision forging with the linar hammer.

REDUCED CYCLE TIMES, INCREASED ENERGY EFFICIENCY.

Schuler's new drive technology therefore offers maximum flexibility in adapting to increasingly specialized application areas and processes in forging. The elimination of hard-on-hard blows means a reduction in the total number of forging blows – thus reducing cycle times and the energy needed for forming. Together with the non-contact and maintenance-free linear drive, which directly converts electrical energy into the mechanical movement of the hammer slide, the potential energy savings are up to 20 percent.

Precise control of the upper slide also enables the integration of stretching and rolling blows, as well as bending operations, into the actual forging process under the hammer. In the case of low impact energies, the linear motor can be started from any position and thus also reduces cycle times by eliminating unnecessarily long slide strokes. This greatly increases the potential areas of application. The ability to precisely control the linear drive means that the new linear hammer is ideal for automation with robots.

In addition, there is no more need for all previous components used to generate compressed air or hydraulic storage energy. As a result, the hammer is also virtually maintenance-free. By avoiding hard-on-hard blows on the impact surfaces, the load on die and hammer is also drastically reduced. "This leads to a reduction in noise emissions and thus opens up the possibility – in combination with conventional soundproofing – of three-shift operations," Thomas Hüttenhein concludes.

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