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Minimum energy requirements, maximum profitability:

The new electromechanical actuator from HAINBUCH

MARBACH. If you are looking for a hydraulic unit or complex technical control synchronization for the new hollow-spindle clamping cylinder from HAINBUCH, you are looking in vain. This product impresses users with ecological and economical qualities. And technology as it is so often the case with HAINBUCH, looks simple, but is extremely effective. Because the clamping cylinder has no hydraulics, there is no energy expenditure for the hydraulics. It only needs energy for the clamping force adjustment and this is even possible while machining. This is totally practical, process-oriented and obviously adapted to machining and centrifugal forces.

Optimally matched components

A planetary threaded drive, a superimposed gear unit and a servomotor – with this trio HAINBUCH, the Marbach-based clamping device manufacturer, wants to revolutionize machine tools. The technology is both simple and ingenious: The spindle transfers the drive of the planetary threaded nut directly via the superimposed gear unit. An »emergency stop situation« or a »reversing operation« can be realized without complex adjustment technology. The superimposed gear unit is responsible for the tension stroke or the clamping force adjustment and the servomotor is only used for a clamping movement.

Process-oriented clamping force, less energy consumption

The hydraulics, which are oil-intensive and maintenance-intensive, are without a doubt responsible for the lion's share of total energy consumption. Obviously this is an aspect of hydraulic clamping cylinders that is especially pronounced and is reflected in high leakage rates, large aggregates, and a correspondingly high consumption of energy. In addition the power losses for hydraulic rotary feeds with increasing through-bores are extremely high. This is precisely the point that HAINBUCH addresses; HAINBUCH has set itself the difficult task of substituting the hydraulics and thus producing a totally new, energy-efficient generation of hollow clamping cylinders.

The well-balanced electromechanical actuator trio from HAINBUCH maintains the stroke position, i.e. the tension force, even if there is an abrupt speed change. Neither, a stopping of the spindle, nor a zero crossing of the speed if there is a change in direction, causes a change of the clamping force. Via the servomotor the clamping force can be adapted to the machining and centrifugal forces during the entire machining process. The electromechanical actuator uses energy only in this case, or if there is a change in the stroke position. Consequently it also offers

significant energy savings over conventional hydraulic clamping cylinders. Moreover: Where there are no hydraulics, there are no oil changes or a disposal of oil. Ergo: Immense energy savings, lesser load of the machine drive, and at the same time more sensitive clamping force control during the machining process, greater positioning accuracy, and faster actuation of different stroke lengths. Nor is it necessary to move any more than the necessary opening and clamping stroke with the new technology. Employees are working on additional variants - even without through-bore - and these products will follow shortly.

Photos:

01_HAINBUCH_electromechanical actuator.jpg

The new generation of hollow clamping cylinders from HAINBUCH does just fine without hydraulics. And thus consumes significantly less energy.

02_HAINBUCH_electromechanical actuator.jpg

Full through-bore? With the energy-efficient hollow clamping cylinder from HAINBUCH this is not an issue. Variants without through-bore are already in development.

03_HAINBUCH_electromechanical actuator.jpg

The components of the HAINBUCH hollow clamping cylinder are optimally matched. Even if the speed is changed abruptly the trio maintains stroke position and clamping force.

04_HAINBUCH_electromechanical actuator.pdf

Thank to the immense annual energy savings, acquisition costs for an electromechanical actuator are amortized in approx. just a year and a half.

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