

Hydraulic clamping steers clear of rejection

The steering mechanism of a car is that part of the vehicle with which the driver has the most contact. It makes driving fun and safe and is responsible for comfort and relaxation. Modern steering systems are based on finely tuned interaction between precise mechanics and accurately controllable hydraulics or powerful electronics.

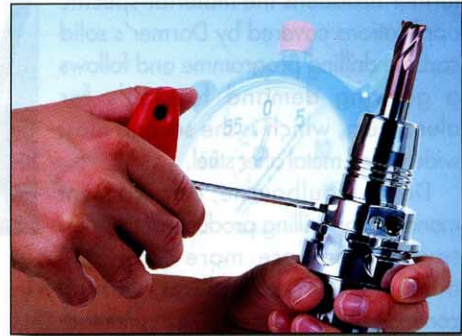
ZF Lenksysteme GmbH is among the leading manufacturers of steering mechanisms for passenger and utility vehicles worldwide. In the manufacture of highly precise pinions for passenger car steering mechanisms at the Schwäbisch Gmünd site in Germany, ZF Lenksysteme puts its trust in the TENDOTurn hydraulic expansion holder from SCHUNK and gains considerable advantages from this.

An oversized spanner wrench almost seems like a relic from the past in the hands of Dionys Müller, who is responsible for NC programming and planning in the "K valve" business unit at ZF Lenksysteme GmbH in Schwäbisch Gmünd. "We used to clamp our tool with this in the past," he laughs. "Precise tool presetting on the collet chucks was critical every time. During the clamping operation, the tool changes its position, just a minimal amount but still too much." Breakouts on the ER collet chuck are silent witnesses from the

time when workers tried to securely clamp tools with the spanner wrench and a high amount of force. "Today, tool presetting with TENDOTurn from SCHUNK is child's play, and the result is convincing."

While walking through the production hall and looking at the machines, it quickly becomes obvious that the quality factor has absolute priority at ZF Lenksysteme. A robot loads and unloads the CTX 400 series 2 CNC universal lathe from Gildemeister. Every thirty seconds, steering pinions are machined from 16 MnCr5, and are then individually checked one by one, automatically. There are no compromises when it comes to safety-related parts such as steering mechanisms. TENDOTurn is used on the machines for turning and drilling. Design specification P7 is easily complied with when boring out an M12 diameter, without reworking. "Rejects have been drastically reduced by switching over to the hydraulic expansion holder from SCHUNK. In addition, we could increase the feed from 0.08 to 0.15mm," says Müller. "This way, we save around fifty percent machining time. At the same time, we also achieve a much better surface quality and profit from the prolonged service life of our tools."

The higher price of a SCHUNK TENDOTurn



compared to an ER collet chuck is absolutely justified, as far as the experts at ZF Lenksysteme in Schwäbisch Gmünd are concerned. The precision toolholder pays for itself within a very short time, and furthermore ensures reliable performance and top class machining quality. TENDOTurn VDI 30 and 40 are used in Schwäbisch Gmünd.

The hydraulically clamped precision tool holders from the TENDO range from Lauffen-based clamping and gripping technology specialist SCHUNK ensure maximum vibration dampening. The user benefits from brilliant surfaces and from the considerably prolonged service life of the tools used. Due to the vibration dampening, breakouts on the cutting edge of the tool are avoided. When using high-quality tools, SCHUNK's hydraulic expansion holders can drastically reduce tool costs. When considering whether to retrofit a production system with the precision clamping device, time is a decisive factor. With TENDOTurn, as with all SCHUNK hydraulic expansion holders, the tool is clamped with an Allen key, which is fully precise and still simple within a minimum amount of time and without a peripheral device. In addition to more reliable performance, the setup times are also reduced. Machining times can also be frequently reduced because TENDO allows greater feed.

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