

High Precision turning just as on a CNC Machine

Specialists at ABP Racing use the Servoturn® 410/1000 for high-precision customizations of classic engines.



In his tuning workshop, Ralf Welzmüller breathes new life into old cars and fine-tunes racing engines for increased performance. The specialists at ABP Racing can literally “turn it up” with their KNUTH Servoturn® 410/1000, a servo-conventional lathe that delivers superior precision.

It all began 30 years ago, when Ralf Welzmüller started a replacement parts business in Dettenhausen, Germany. The passionate motocross racer sold tuning parts from his 65-square-foot basement and also repaired race cars for his friends. Over the years, the business and the tuning workshop for motorcycles and ATVs have experienced continuous growth and many changes. “It is important to watch and anticipate market developments in order to respond appropriately and at the right time,” says Welzmüller. To-

day, he also leases his fully equipped performance test bench to other tuning specialists, and sales of the tuning parts he developed are doing extremely well. His passion, however, is his third mainstay: Welzmüller specializes in optimizing and repairing cylinder heads, and his services in this field are in very high demand.

His customers bring him cylinder heads from very expensive or very old cars and motorcycles, for which replacement parts would cost a fortune or are no longer available today. For some, he is the last hope. “We were able to save a rare Bianchi from the 1930s by restoring the heavily damaged cylinder head”, Welzmüller stated as an example. “It took a lot of effort and hard work, but to see this beautiful car in its original condition is absolutely priceless”.



Servoturn® 410/1000

Servo-Conventional Precision Lathe

User-friendly, more powerful, reliable, precise and with increased load capacity
 » with mineral-cast frame, for minimal vibration, and linear guideways

- » electronic hand-wheels
- » workpiece lengths up to 1,050 mm
- » turning diameter over bed: 410 mm
- » spindle bores up to 52 mm

For complete information on the Servoturn® series, please visit www.knuth-machinetools.com

Know-How Meets Precision

Cylinder head machining requires know-how, experience, and maximum precision. “It’s especially tricky in pre-WWII cars, since the thermal properties of the materials used back then were very different from today’s materials,” said Welzmüller. “To ensure a smoothly running engine and optimum performance, accuracy to the 100th of a millimeter is necessary.” In 2016, Welzmüller was looking for a new machine that would ensure high-precision turning of valve seat inserts and feed-throughs. He needed a machine that was easy to operate, delivered high-quality machining results, and provided quick ROI even if used only intermittently in a repair environment.

Servoturn® – “A CNC-Light machine”

Tobias Hamann, KNUTH Sales Associate, suggested the just-introduced Servoturn® 410/1000 to Welzmüller. “With the Servoturn, we wanted to offer our customers something new that sets itself apart from the standard,” explained Hamann. The new servo-conventional lathe features a mineral-cast frame, to minimize vibration, and linear guideways.



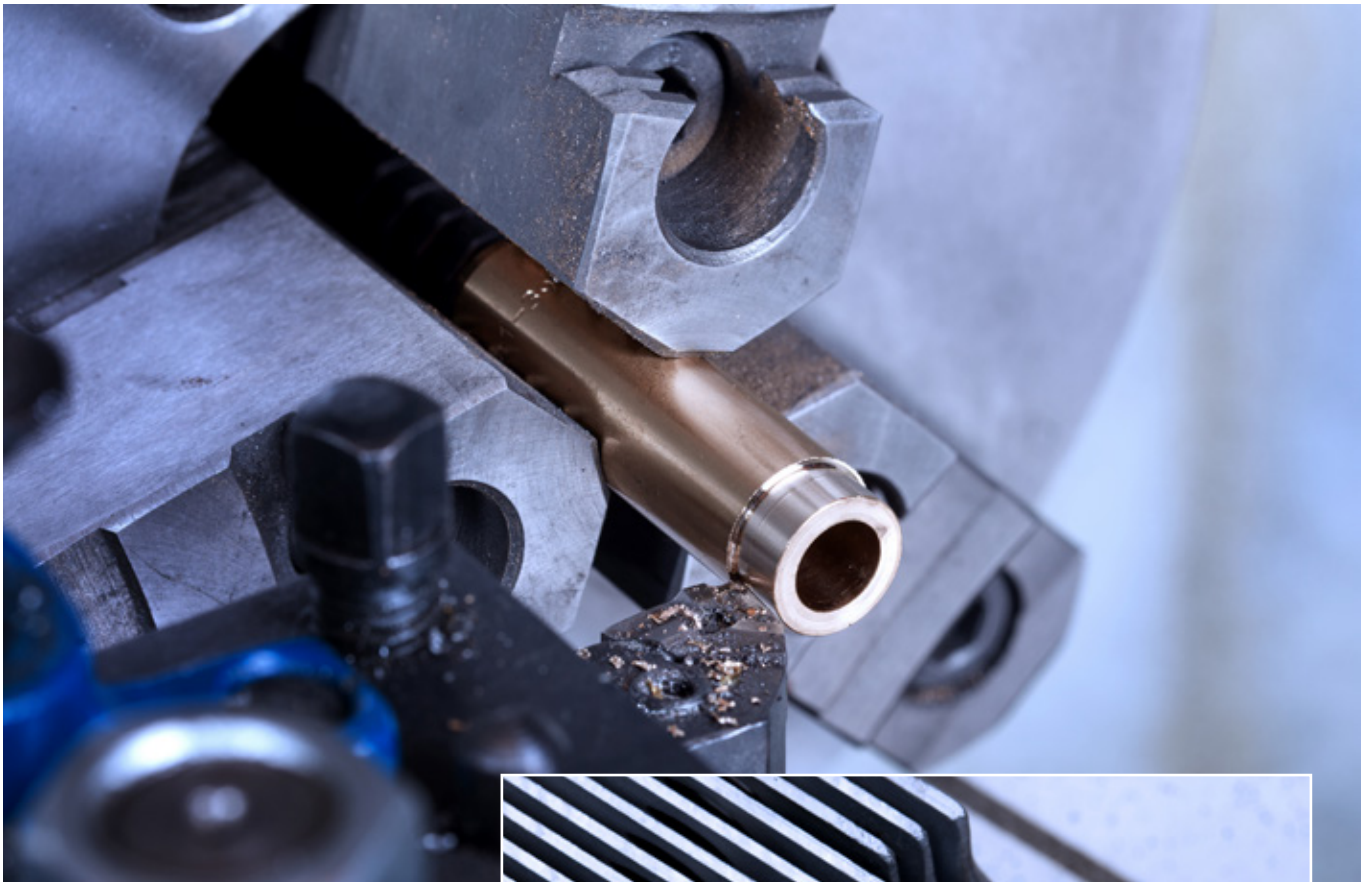
Ralf Welzmüller can set gauges and stops with ease and precision via electronic hand-wheels. "And since I can save these settings for future recalls, I get high repeatability – it's like having a CNC-Light machine", he added enthusiastically.

Precise gauge/stop adjustments accurate to the micrometer can be made via electronic hand-wheels and saved with the push of a button. "This Teach-In function allows the reuse of values in batch productions, ensuring high repeatability," explained Hamann. Ralf Welzmüller was interested right away and tried out the Servoturn® at a tradeshow. This lathe has been in operation at Dettenhausen for two years now, with great results. "I am truly excited," said Welzmüller. "It is very easy to adjust the settings, and since I can save these settings for future recalls, I get high repeatability – it's like having a CNC-Light machine."

Superior Surface Quality

The Servoturn® is perfectly equipped for small batch production and repair work. The main spindle speed is infinitely variable, and a constant cutting speed is available for facing operations. Feed and thread leads can be selected via rotary switches. "The Servoturn's feed via override potentiometer can

now be infinitely adjusted between 50 and 100 percent during conventional turning," explained Hamann. "The axes are moved via high-quality servo-drives, which translate the hand-wheel rotation with the precision and dynamics of modern CNC machines". The Servoturn® also produces a superior surface quality that rarely can be achieved with conventional machines. This is due in part to the mineral-cast frame, which dampens vibrations six times faster than GG25 and up to ten times faster than steel. Additionally, this eliminates loose change-gears or stuck bed stops.



To ensure a smoothly running engine, the valve feed-throughs must be machined with accuracy to the 100th of a millimeter.



First-Class Service

Ralf Welzmüller and his employees attended a two-day training course to learn about all the setup options of the Servoturn® and its optimal use for machining valve seat inserts and feed-throughs. "This was a great experience, plus I can call the KNUTH service technician any time to get immediate professional help", said Welzmüller. "And if a part ever fails, it will be replaced promptly." Such superior service is another big plus for Welzmüller, in addition to the excellent cost-effectiveness of KNUTH machines. His workshop also uses a DM 1000A universal lathe and a VHF 3 universal milling machine, which provides large travel ranges and generous work space despite its compact design.

Contact

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