

Superior Clamping and Gripping



T|E|N|D|O[®] E compact
The Hydraulic Expansion Toolholder



Field trials guarantee success

TENDO E compact

With the new TENDO E compact SCHUNK is currently stirring up the market. In order to guarantee the product's success from the beginning, the new toolholder was submitted to extensive testing in customer field trials prior to its market introduction.

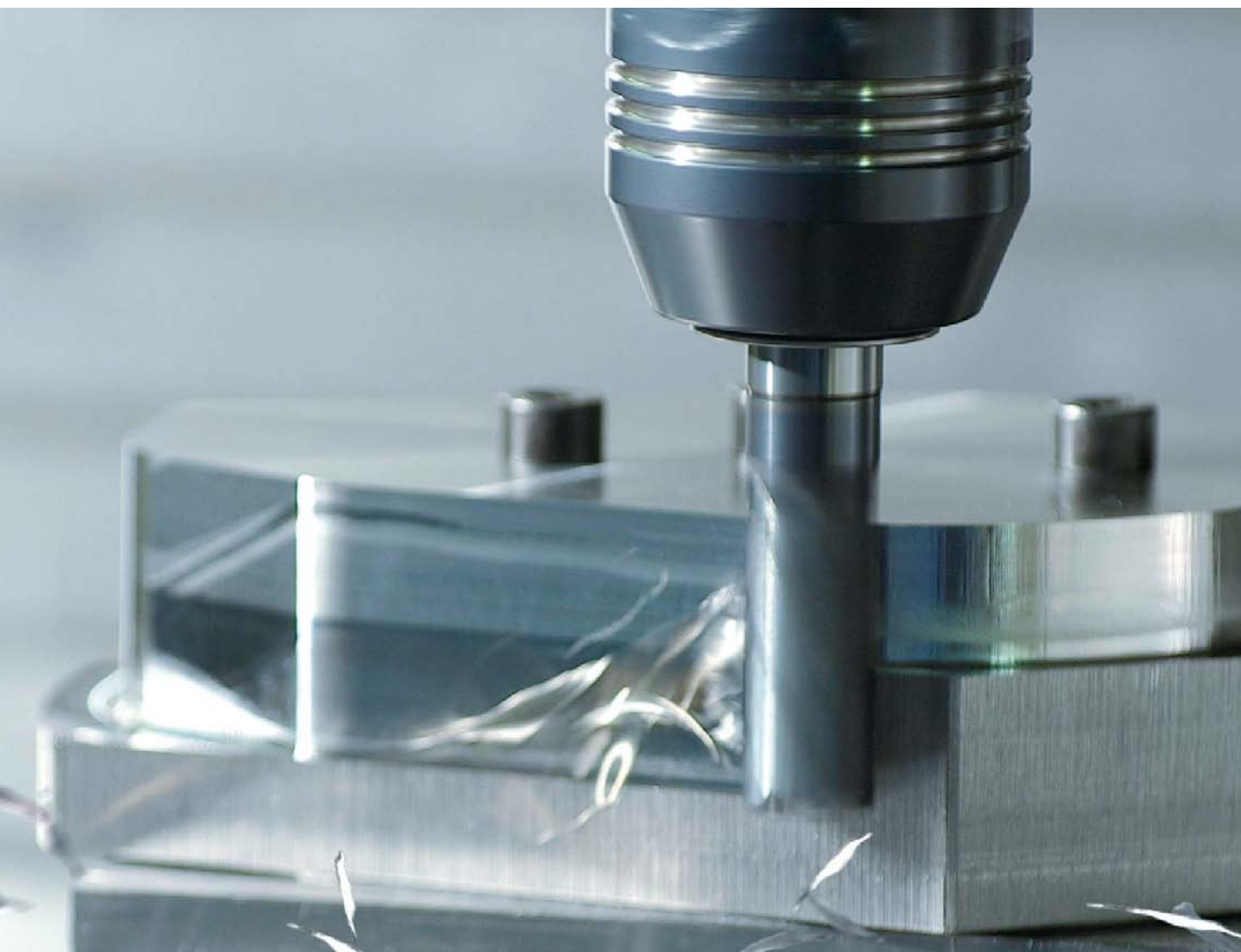
Without doubt TENDO E compact is the highlight in clamping technology of the year 2010 and in the following years. Therefore, of course, nothing was left to chance during the introduction, and market acceptance had to be tested too, before the start.

In a campaign that has been unique for SCHUNK so far, customers were involved in the development process with a field trial and were able to test the new TENDO thoroughly before its market introduction. About 30 customers participated and were supported by seven selected technical sales advisers.

Double benefit

It was especially useful to that we could get a double benefit from the field trials: firstly, as a valuable and hands-on source of information for the R&D department, who could directly draw conclusions about the capabilities and about approaches for future progresses from the results. Secondly, for our marketing department, who have now got case studies and concise quotes available.

You probably already know the quotes by our customers Jörg Kleemann, Anton Schönfelder and Raimund Dinyer.



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„My conclusion: I knew already that TENDO E compact is good. But I would not have thought that it is that good.“

Thomas Retzbach, Clamping Technology in Lauffen, Manager R&D

Better than expected

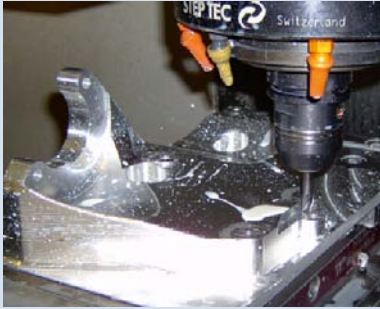
TENDO E compact would become a good product – this was quite obvious to all who were involved at an early stage. But that it not only fulfilled but exceeded the expectations was only realized by all during the field trials. After the trials at SLZ in Hanau at the latest, it was clear: TENDO E compact is the first hydraulic expansion chuck world-wide that is suitable for high-volume milling without any reservations.

Challenge your customers

Attached you will find a selection of the results from the cutting tests done during the field trials. You will note that the range of applications is very wide. Some users have only let the holder lightly „caress“ the workpiece – maybe out of respect for the hydraulic expansion technology, which has so far been considered as precise but sensitive. Don't hesitate to challenge your customers! Demonstrate them what performance hydraulic expansion technology can achieve from today on.

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Machine	Workpiece	Cutting data	Result
DMG DMU 80P Drive: 12000 rpm, 9 kW	 Connector flange Material EN AW-6082	VHM Kennametal ABDE2000A3AS, 3 cutting edges Projecting length 53 mm $v_c = 480 \text{ m/min}$ $v_f = 0.36 \text{ mm/rev.}$ $a_p = 20 \text{ mm}$ $f_z = 0.12 \text{ mm/tooth}$	• Improved surface quality • Improved tool life • Reduced tool costs • Time savings compared to heat shrinking: -50% • The product is exciting. Handling is easy and not prone to errors • The user can see TENDO E compact doing very well in roughing and finishing operations, due to the very high torque
Heller H2000 power cutting Drive: 10000 rpm, 38 kW	 Extruded housing Material: 3.3206	Wet milling with VHM Horn single edge circular mill Projecting length 50 mm $n = 4000$ $v_c = 200 \text{ m/min}$ $v_f = 500 \text{ mm/rev.}$ $a_p = 4 \text{ mm (2 x 4 mm each)}$	• Better life of the cutting tools • Shorter set-up times • Handling, cleaning, reliability, all very good • Preferred application of TENDO E compact for clamping of all solid carbide shanks in rough and finish milling operations
MIKRON ULP 1300 Drive: 10000 rpm, 58 kW	 Material: Aluminum EN5083	Wet milling with Garant solid carbide Torus mill D10, 4 cutting edges Projecting length 30 mm $n = 4700$ $v_c = 150 \text{ m/min}$ $f = 0.288 \text{ mm/rev}$ $a_p = 2.5 \text{ mm}$ $f_z = 0.072 \text{ mm/tooth}$	• Very good run-out accuracy • Good surface quality, no vibrations • Compared to Weldon holders TENDO E compact runs much more smoothly
DMU 80E	 Material: 1.2767	Ingersoll VHM D = 16 4xD TIALN $n = 1700$ $v = 80 \text{ m/min}$ $f = 650 \text{ mm/min}$ $a_e = 3 \text{ to } 12 \text{ mm}$ $a_p = 16 \text{ mm}$	• Compared to a finishing cutter that is clamped in a collet holder and operates with less cutting forces, the cutting operation is super quiet • Also see user report of company WKL