

# T|E|N|D|O® E compact

The Universal Hydraulic  
Expansion Toolholder –  
for every application,  
for every cutting tool.

Up to **300%**  
longer tool life\*

Superior Clamping and Gripping



## T|E|N|D|O® E compact HSK-A 63 Ø 20 mm

Tools and cutting data

\* Verified in a study by the wbk Institute of Production Technology  
at the Karlsruhe Institute of Technology (KIT).

# T|E|N|D|O® E compact convinces!

## Example 1, Part A:

### Rough machining of surface in synchronization

The TENDO E compact displays its full potential in surface milling of the base surface. While machining with a milling head would require several passes, the TENDO E compact accomplishes this task in a fraction of the time. Another advantage: the outstanding vibration damping from the hydraulic system provides for smooth running while reducing wear on the spindle and significantly increasing the tool life. (Figure 1 and 2)



## Example 1, Part B:

### Rough machining of outer contour in synchronization

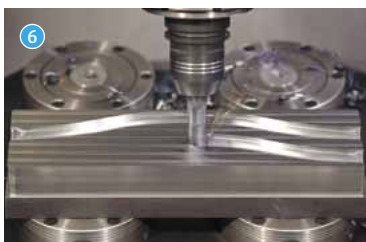
The rough machining of the outer contour is performed by the same toolholder without changing the tool. Since tool change is eliminated, machining can continue with no loss of time. The optimal radial stability due to the robust base body of the toolholder prevents lateral deflection during the machining process. (Figure 3 and 4)



## Example 2:

### Rough machining of full slots

For full slot machining, the tool is changed to a TiAlN-coated solid metal T-slot cutter with a diameter of 20 mm and 4 cutting edges, with unequal pitch. With permanent run-out and repeat accuracy of less than 0.003 mm the TENDO E compact produces an optimal surface finish due to an even cut and maximum reproducibility. (Figure 5 and 6)



## Example 3:

### Finish machining of slots and the outer contour

A solid metal T-slot cutter with a diameter of 20 mm and 8 cutting edges is used as a finishing tool for the finish machining of the slots and outer contour. The tool is held by full-surface power clamping. (Figure 7 and 8)



## Tools and Cutting Data

T|E|N|D|O<sup>®</sup> E compact HSK-A 63 Ø 20 mm

### Example 1: Rough machining of surface and outer contour

<b>Tool: Walter</b> H4034217-20 (prototype)	<b>Speed n [RPM]</b>	3532
<b>Coating:</b> TiAlN / zirconium nitride	<b>Feed rate <math>v_f</math> [mm/min]</b>	2762
<b>Weld on surface: no</b>	<b>Tooth feed rate <math>f_z</math> [mm]</b>	0.195
<b>Length of cutting edge: 32 mm</b>	<b>Depth feed rate <math>a_p</math> [mm]</b>	20 or 31
<b>Radius of cutting edge: 10 mm</b>	<b>Lateral feed rate <math>a_e</math> [mm]</b>	4
	<b>Rate of metal removal Q [cm<sup>3</sup>/min]</b>	221

### Example 2: Rough machining of full slots

<b>Tool: Walter</b> H3121378-20 (prototype)	<b>Speed n [RPM]</b>	1938
<b>Coating:</b> TiAlN	<b>Feed rate <math>v_f</math> [mm/min]</b>	815
<b>Weld on surface: yes</b>	<b>Tooth feed rate <math>f_z</math> [mm]</b>	0.105
<b>Length of cutting edge: 38 mm</b>	<b>Depth feed rate <math>a_p</math> [mm]</b>	7
<b>Radius of cutting edge: 10 mm</b>	<b>Lateral feed rate <math>a_e</math> [mm]</b>	20
	<b>Rate of metal removal Q [cm<sup>3</sup>/min]</b>	14.7

### Example 3: Rough machining of surface and outer contour

<b>Tool: Walter</b> H3021138-20 (prototype)	<b>Speed n [RPM]</b>	4500
<b>Coating:</b> TiAlN	<b>Feed rate <math>v_f</math> [mm/min]</b>	2300
<b>Weld on surface: no</b>	<b>Tooth feed rate <math>f_z</math> [mm]</b>	0.06
<b>Length of cutting edge: 38 mm</b>	<b>Depth feed rate <math>a_p</math> [mm]</b>	7 or 31
<b>Radius of cutting edge: 10 mm</b>	<b>Lateral feed rate <math>a_e</math> [mm]</b>	0.2
	<b>Rate of metal removal Q [cm<sup>3</sup>/min]</b>	14.3

## Blank:

Material: 42CrMo4

Tensile strength averaged: 1025 N/mm<sup>2</sup>

# T|E|N|D|O® E compact

## Universal Hydraulic Expansion Toolholder for drilling, reaming, tapping and high-speed cutting.

The TENDO E compact hydraulic expansion toolholder used in the live demonstration performs convincingly in volume up to 300% longer tool life.

Study by the wbk Institute of Production Technology at the Karlsruhe Institute of Technology (KIT) with all tool brands.

The advantages for users in machining:

- Optimal surfaces without chatter marks
- Minimal noise emission
- Reduced tool costs
- Tool change in seconds

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The Universal Hydraulic Expansion  
Toolholder – for every application,  
for every cutting tool.



[www.schunk.com/tendo/wbk](http://www.schunk.com/tendo/wbk)



A photograph of Jens Lehmann, a German goalkeeper, wearing a blue long-sleeved jersey with a mesh pattern on the sleeves. He is holding a blue and white soccer ball with both hands, wearing red and white goalkeeper gloves. The background is a solid blue color.

*J. Lehmann*

Jens Lehmann, German goalkeeper legend, brand ambassador of SCHUNK, the family-owned company since 2012, represents precise gripping and concentrated, safe holding.  
[www.gb.schunk.com/Lehmann](http://www.gb.schunk.com/Lehmann)

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