TENDO 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.

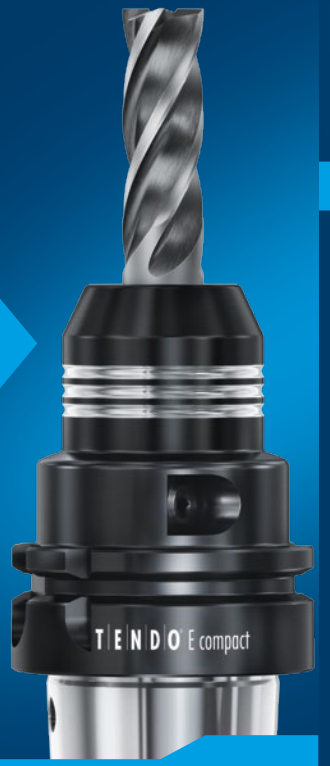
The advantages for users in machining:

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

TENDO E compact

The universal hydraulic expansion toolholder – for every application, for every cutting tool.

www.schunk.com/tendo/wbk



SCHUNK

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

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TENDO E compact

The universal hydraulic expansion toolholder – for every application, for every cutting tool.

Up to 300% longer tool life*

Superior Clamping and Gripping

SCHUNK

TENDO E compact
HSK-A 63 Ø 20 mm

Tools and cutting data

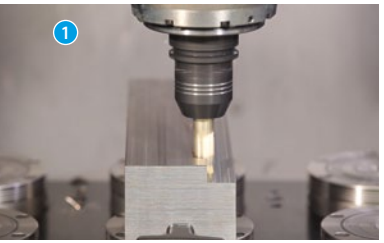
* Verified in a study by the wbk Institute of Production Technology at the Karlsruhe Institute of Technology (KIT).

TENDO® E compact convinces!

Example 1, Part A:

Rough machining of surface in synchronization

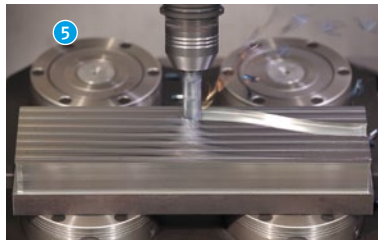
The TENDO E compact displays its full potential in surface milling of the base surface. While machining with a milling head would require several passes, the TENDO E compact accomplishes this task in a fraction of the time. Another advantage: the outstanding vibration damping from the hydraulic system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

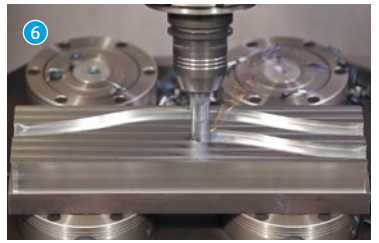


Example 2:

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)

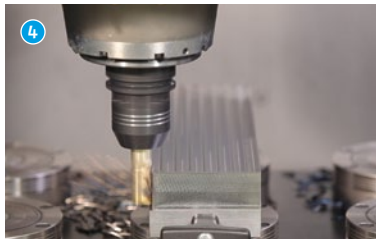




Example 1, Part B:

Rough machining of outer contour in synchronization

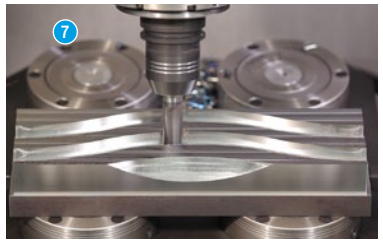
The rough machining of the outer contour is performed by the same toolholder without changing the tool. Since tool change is eliminated, machining can continue with no loss of time. The optimal radial stability due to the robust base body of the toolholder prevents lateral deflection during the machining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

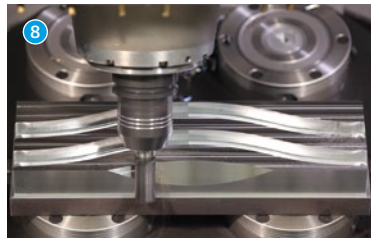


Example 3:

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
TENDO® E compact HSK-A 63 Ø 20 mm

Example 1: Rough machining of surface and outer contour

Tool: Walter H4034217-20 (prototype)	**Speed n [RPM]**	3532
	Feed rate v_f [mm/min]	2762
Coating: TiAlN/zirconium nitride	**Tooth feed rate f_z [mm]**	0.195
Weldon surface: no	**Depth feed rate a_p [mm]**	20 or 31
Length of cutting edge: 32 mm	**Lateral feed rate a_e [mm]**	4
Radius of cutting edge: 10 mm	**Rate of metal removal Q [cm³/min]**	221

Example 2: Rough machining of full slots

Tool: Walter H3121378-20 (prototype)	**Speed n [RPM]**	1938
	Feed rate v_f [mm/min]	815
Coating: TiAlN	**Tooth feed rate f_z [mm]**	0.105
Weldon surface: yes	**Depth feed rate a_p [mm]**	7
Length of cutting edge: 38 mm	**Lateral feed rate a_e [mm]**	20
Radius of cutting edge: 10 mm	**Rate of metal removal Q [cm³/min]**	147

Example 3: Rough machining of surface and outer contour

Tool: Walter H3021138-20 (prototype)	**Speed n [RPM]**	4500
	Feed rate v_f [mm/min]	2300
Coating: TiAlN	**Tooth feed rate f_z [mm]**	0.06
Weldon surface: no	**Depth feed rate a_p [mm]**	7 or 31
Length of cutting edge: 38 mm	**Lateral feed rate a_e [mm]**	0.2
Radius of cutting edge: 10 mm	**Rate of metal removal Q [cm³/min]**	14.3

Blank:

Material: 42CrMo4
Tensile strength averaged: 1025 N/mm²