

eBore™ Universal



**Operating instruction
boring tools for finish machining
for Ø 6–152mm**

Contents

Page

1. Safety Information	3
2. Application and operation	3
3. Tool data, permissible speeds	3–4
4. Operation	4–7
4.1 Mounting and fixing accessories	4–6
4.2 Adjustment of bore diameter	7
4.3 Setting the boring diameter with external digital display	7
4.4 Balancing	7
5. Maintenance	8
6. Accessories	8
7. Spare parts	8
8. Service key and tightening torques	8

Erickson tools are subject to constant further technical development. You can obtain up-to-date information from our product catalogue as well as on our website www.kennametal.com.

1. Safety Information



Before first use, please read the operating instructions carefully. These provide important safety information and information concerning use and maintenance of the tool.

This precision boring tool is designed for finishing bores in metallic materials. Specific information on the machining of individual metallic materials is not the subject of these operating instructions. When used with other materials, please consult our application engineers and observe the relevant, applicable safety regulations. The manufacturer cannot be held responsible for damage or injury caused by improper use.

A damaged tool could endanger your safety! Decommission the tool immediately and contact your supplier.

This tool complies with the prescribed safety regulations. Repairs must be undertaken only by trained personnel. Improper repairs can represent a considerable risk for the user. Warranty provisions can be implemented in the event that original Erickson spare parts and accessories are used.

Keep the operating instructions in a safe place for future use.

2. Application and operation

Precision boring tools are designed for machining holes from Ø 6 mm to Ø 152 mm. A wide range of accessories is available for the individual diameter ranges.

Boring:

- For the Ø 6 – 27 mm range:
Tool holder made of steel or carbide metal.
- For the Ø 20 – 53 mm range: Insert holder with serrated tool bodies made of steel.
- For the Ø 52 – 102 mm range: Insert holder for direct mounting onto precision boring tool slider.
- For the Ø 68 – 152 mm range:
Insert holder with aluminum serrated slide and counterweight.

Outside turning:

- For the Ø 2 – 58 mm range: Insert holder with aluminum serrated slides and counterweight.

3. Tool data

- Precision boring tool with optional digital display in combination with an electronic positioning system. In digital mode the slider's adjustment range is measured directly
- On the machine side, the precision boring tool is equipped with a KM50TS connection.
- Precision threaded spindle for precision adjustment.
- Manual precision balancing through balancing weights
- Maintenance-free
- Tool comes with Ø 16 mm bore and K-profile on front of slider for mounting genuine Erickson accessories.
- Internal coolant feed up to the cutting edge. Max. permissible pressure 40 bar.
- Radial adjustment range – 0.1 mm / + 2.5 mm.
- Storage temperature: – 10 °C to + 65 °C (14° F to 149° F).
- Operating temperature: + 10 °C to + 40 °C (50° F to 104° F).
- Weight for KM50TS: 0,9kg.

Maximum permissible speeds valid for relevant genuine Erickson accessories

When using the serrated tool body, serrated slides and insert holder, the tool slider must first be set to 0 on the scale (center). The required diameter can then be set using the slot in the insert holder.

The tool adjustment is then used to finalize the adjustment procedure. Slider displacement should be kept to a minimum.

Any deviation to this procedure means that the quoted permissible speeds are not valid.

- a) Boring, slider position according to the scale 0 up to feed-in of 2 mm in diameter. Steel tool holder, steel serrated tool body, aluminum serrated slide with counterweight, insert holder.

Boring range A mm	max. rpm
6.0 – 10.0	27 500
10.0 – 20.0	25 000
20.0 – 32.0	15 000
32.0 – 50.0	10 000
50.0 – 68.0	8 000
68.0 – 96.0	6 000
96.0 – 124.0	5 000
124.0 – 152.0	4 000

- b) Boring up to largest specified rated boring diameter

Boring range A mm	max. rpm
6.0 – 10.0	12 000
10.0 – 20.0	9 000
20.0 – 32.0	7 000
32.0 – 50.0	5 000
50.0 – 68.0	3 500
68.0 – 96.0	2 500
96.0 – 124.0	2 000
124.0 – 152.0	1 500

- c) Outside turning up to largest specified rated outside turning diameter. Aluminum serrated slide with counterweight, outside turning holder.

Boring range A

mm	max. rpm
2.0 – 10.0	5 000
10.0 – 20.0	4 500
20.0 – 30.0	3 500
30.0 – 58.0	2 500

The max. permissible residual imbalance of the machine manufacturer must be observed (if necessary, complete tools have to be balanced).

4. Operation

4.1 General information on fastening adapter, tool holders, serrated tool bodies

Note the information on clamping for diameter adjustment

The tool holder, serrated tool body and coolant delivery section are each secured to the slide by a threaded taper pin. In order to ensure optimum cutting positions and a secure fastening, we recommend making a slight to and fro turning movement with the tool holder while the threaded taper pin is tightened (tightening torque 8 Nm (70.81 in. lbs.).

Tool holders (Fig. 1)

Mounting

The tool holders (6) are fastened on a clamping surface using a threaded taper pin (5) in the slider.

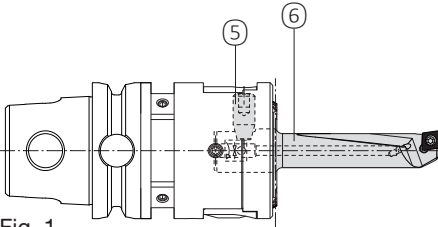


Fig. 1

Serrated tool bodies and insert holders (Fig. 2)

Mounting

The serrated tool bodies (7) are fastened in the slider using a threaded taper pin (5). To fasten the insert holders (8) in place, they are mounted onto the K-profile of the serrated tool body and clamped using the fixing screw (9) (tightening torque 8 Nm (70.81 in. lbs.)). The insert holders can be preset using the scale on the serrated tool body and insert holders. The scale on the insert holder is valid for a center slider position (= 0).

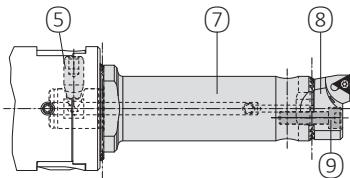


Fig. 2

Serrated slide with coolant delivery section (Fig. 3)

To fasten the serrated slide (10), the coolant delivery section (11) is first fastened in the slider using a threaded taper pin (5).

The serrated slide is aligned according to the marking (12) and fastened in place using the cap screws with washers (tightening torque 4 Nm).

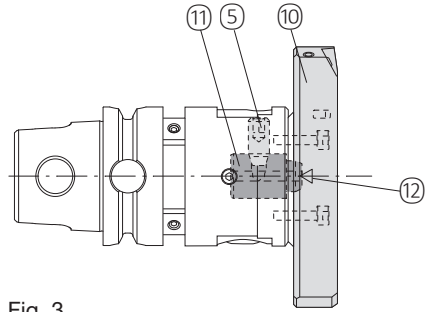


Fig. 3



Notice:

Do not fit the serrated slides without the coolant delivery section. Always secure this coupling section using the threaded taper pin, as otherwise accidents may occur due to loose pins.

Insert holder for boring and counter weight (Fig. 4)

The insert holder (13) is mounted on the side with the coolant delivery section, preset according to the scale and then fastened in place using the cap screw (14) (tightening torque 8 Nm). The scale on the insert holder is valid for the center slider position (= 0).

The counter weight (15) is set to the required diameter according to the scale on the opposite side and fastened.

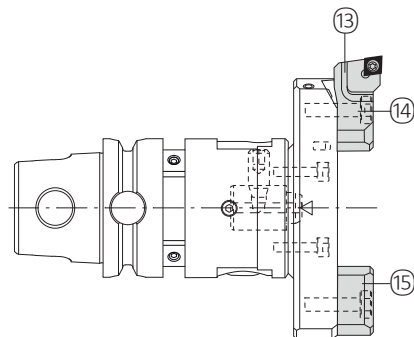


Fig. 4

Insert holder for outside turning and counter weight (Fig. 5)

The tool slider is moved to center position. It must then be fed in by 1 mm in diameter (according to display or scale).

If the internal coolant supply is used, the threaded pin (21) must be removed first.

The outside turning insert holder is mounted on the side with the coolant delivery section, preset according to the scale and then fastened in place using the cap screw (14) (tightening torque 8 Nm). 0.1 mm corrections can be made using tool adjustment.

The counter weight (20) is set to the required outside turning diameter according to the scale on the opposite side and fastened.

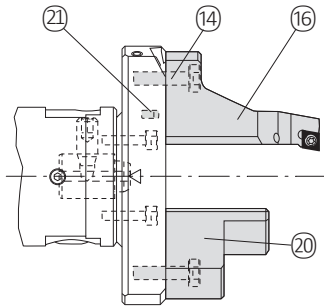


Fig. 5

Insert holder for boring and outside turning without serrated slide (Fig. 6)

For fastening purposes, the clamping bolt (17) is mounted with a threaded taper pin (5) in the slider. The holder (18) is mounted onto the K-profile and fastened in place using a cap screw (19) with washer.

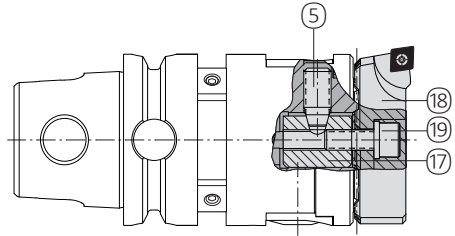


Fig. 6

Clamping (Fig. 7)

The slide is fastened in place using threaded clamping pin (1) (tightening torque 3 Nm (26.55 in. lbs.)). This helps to prevent influences such as machining or centrifugal forces from changing the diameter. The slider must be clamped during machining.

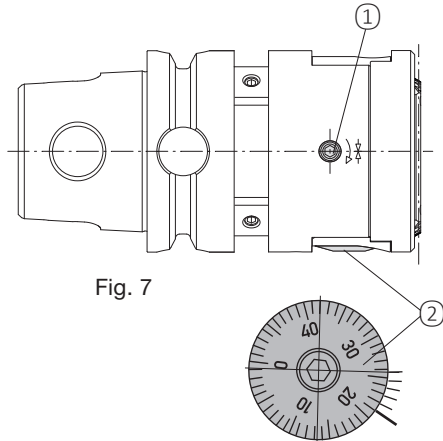


Fig. 7



Notice:

Do not make any diameter adjustments in the clamped state! The adjustment parts could be damaged otherwise.

4.2 Adjustment of bore diameter (Fig. 10)

Please observe sequence:

1. Release threaded clamping pin ①
2. Turn scale ② to adjust tool diameter.
 - On tool presetting device
 - On machine using gage cut or trial drill
 - 1 turn of scale: 0.5 mm adjustment in Ø
 - 1 scale mark: 0.01 mm adjustment in Ø
 - 1 vernier scale mark: 0.002 mm adjustment in Ø

2.1 Readjust tool (increase Ø) readjust scale to required value

or

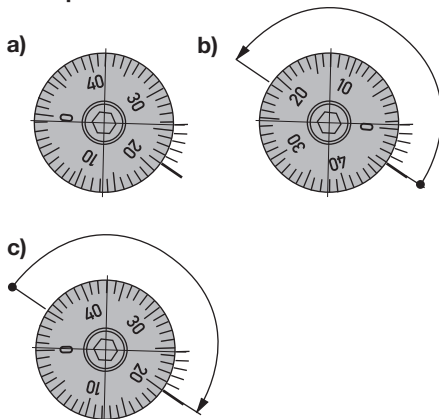
2.2 Reset tool

- Determine value set on tool (Fig a, scale value 21)
- Turn scale back by one half-turn, left direction of rotation (Fig. b)
- Set new (smaller) scale value

3. Tighten threaded clamping pin, tightening torque 3 Nm (Fig. c, scale value 20)

The path of the slider is restricted. Any attempts to adjust against the end stop may damage the tool.

Example:



4.3 Setting the boring diameter with external digital display

The eBore fine boring tools can optionally be operated with an electrical measuring system with an digital readout module.

Please refer to the eBore external read-out module Operating Manual.

4.4 Balancing (Fig. 8)

The tool is equipped with a groove for inserting balancing weights ①.

Precision balancing is performed using up to 6 balancing weights and a pre-balanced basic support with a balancing machine.

Markings ② on the tool mean that neutral positions for the four balancing weights can be set time and time again.

To install further balancing weights, first remove the screw plug ③ and insert further balancing weights into the T-shaped groove. Finally, apply coating of Loctite 234 to screw plug, screw all the way in and then tighten (tightening torque 8 Nm (70.81 in. lbs.))



Notice:

It is not permitted to use the tool without the bonded-in screw plug ③ (Fig. 8) in the balancing groove inlet.

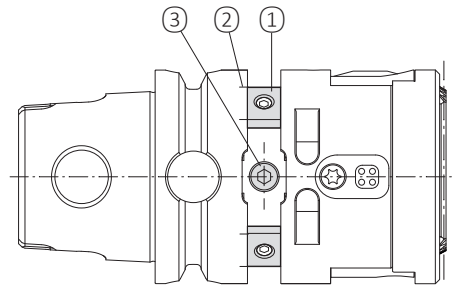


Fig. 8

5. Maintenance

No maintenance required!

To ensure the tool has a long service life, it must be cleaned after use. A light film of oil should be applied to the visible, uncoated steel parts from time to time.

6. Accessories

Accessories are not included in the scope of delivery and they must be ordered separately.

Information on accessories is available in the Erickson product catalog and on the Internet at:

www.kennametal.com

7. Spare parts

6738787 Threaded taper pin for fastening accessories

3905860 Threaded clamping pin for slide clamping

6655232 Balancing weight ①
incl. clamping screw

8. Service key and tightening torques

Service keys are included in the delivery.

	Service Key / Type	Torque
Clamping screw 3905860	1138297 s2.5 / DIN911	3 Nm
Threaded taper pin 6738787	1138315 s4 / DIN911	8 Nm

