

Precision meets Motion



Manual
***EWS* . Slot**

EWS
Tool Technologies

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5.3.1. Broaching tool for VDI disk-type turret - Basic

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EWS . Slot

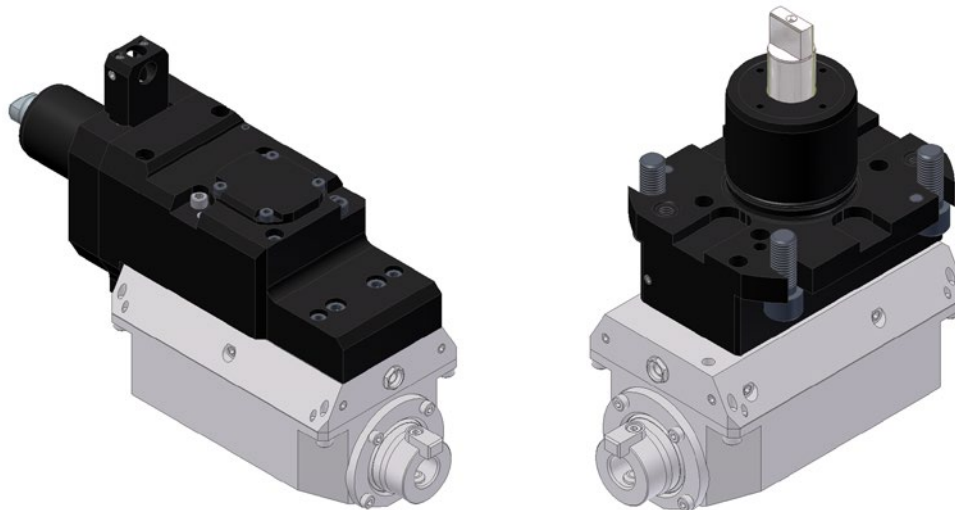
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1. Identification

Type: **EWS . Slot**

Designation: Broaching tool

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73066 Uhingen
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www.ews-tools.de



2. Product specification

2.1. Functions and scope of application

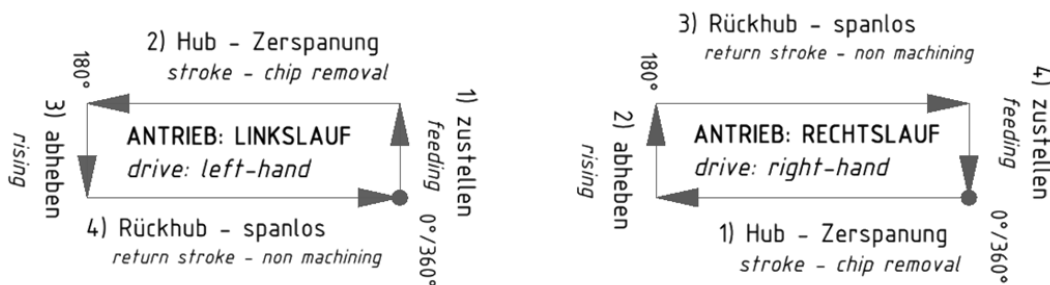
The **EWS . Slot** is a driven tool for broaching on lathes within a complete machining process adding a new dimension to the economic production of internal profiles (e.g. key slots or internal gears).

2.2. Safe and correct use

The driving direction of the **EWS . Slot** differs according to the application and the gear design. Please observe the notes applied on the tool and the drawing.

2.3. Technical data

	Short Version	Basic Version	Long Version
Dimensions	see drawing	see drawing	see drawing
Maximum number of strokes	1200 rpm (one rotation = 1 stroke)	1000 rpm (one rotation = 1 stroke)	750 rpm (one rotation = 1 stroke)
Stroke length	19 mm	35 mm	53 mm
Effective length	17 mm	32 mm	51 mm
Maximum torque at drive	20 Nm	20 Nm	50 Nm
Transmission	1:1 (1 stroke/rotation)	1:1 (1 stroke/rotation)	1:1 (1 stroke/rotation)
Maximum feeding	0,1 mm/Hub (depending on material)	0,08 mm/Hub (depending on material)	0,08 mm/Hub (depending on material)
Rising degree with return stroke	0,16 mm	0,16 mm	0,21 mm
Direction of drive rotation	see label on tool	see label on tool	see label on tool
Maximum slot width	8 - 10 mm (depending on material)	8 - 10 mm (depending on material)	8 - 10 mm (depending on material)
Maximum material strength	1100N/mm ²	900N/mm ²	900N/mm ²



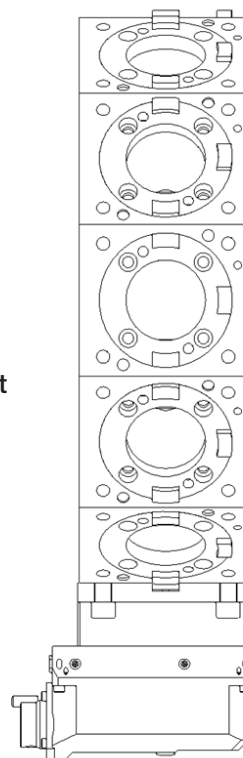
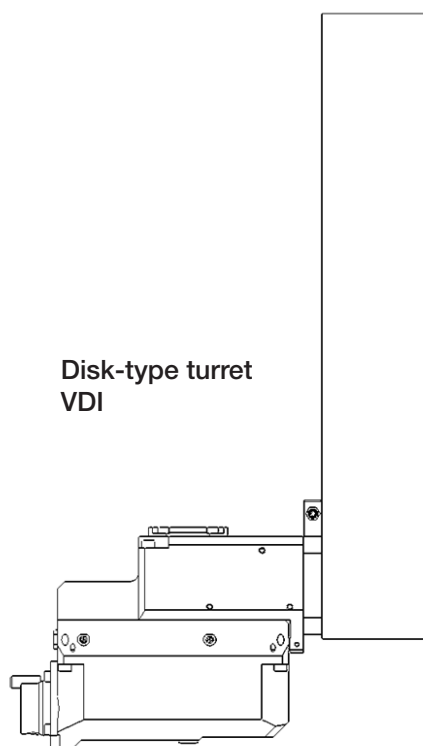
Motion sequence with 1 rotation of the drive spindle (sequence depending on turret type)

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2.4. Machine requirements

Workspace:	When swinging the turret using the EWS . Slot , sufficient space must be provided to ensure that there will be no collision with the turret socket or the housing.
Drive torque:	See torque/cutting force diagram
Starting torque:	Minimum 15 Nm
Turret type:	Slot variations for disk-type and star turret both with VDI and with BMT shank holders are available.



2.5. Protection of persons

The operator of the **EWS . Slot** has to comply with the provisions of the applicable industrial safety regulations.

2.6. Safe disposal

The operator has to comply with the provisions of the applicable environment protection regulations.

3. Operating instructions

3.1. Setting up

When mounting the **EWS . Slot** to the turret, insert the straight shank into the location hole of the turret. In doing so take care that the position of the dual flat drive at the tool head is in conformity with the slot of the machine drive.

Furthermore, make sure that the O-ring at the shank is not damaged.

3.2. Tool change

3.2.1. Clamping the tool

The tool is designed for cutting edges and their carriers made by the Horn Company (see appendix or www.phorn.de).

Clean the location hole and the bearing surface at the broaching tool when changing the tool. Place the insert holder into the adaptor ensuring the path of contact of the sliding block into the slot. Furthermore, the insert holder has to fit flat at the bearing surface. Lock the holder using the clamp screw (tightening torque = 20 Nm).

3.2.2. Removing the tool

After releasing the clamp screw, you can remove the insert holder. In case of a tight insert holder, firstly remove the sliding block, afterwards you can detach the insert holder with a rotary motion.

3.3. Handling

Prior to the machining using the **EWS . Slot**, the workpiece must meet the following conditions:

For internal and external machining, an undercut at the end of the tool run-out with a minimum width of 1 mm must be provided. In the case of poor chip removal, an undercut width of 2 mm is even recommended. The size of the undercut diameter must be determined to ensure a run-out of the cutting during the complete machining.

For the internal machining (key slot or internal gears), an additional pre-drilling or pre-milling operation is required. (also see: 4. Manufacturing Examples)

The programming parameters for slotting are identical to those for milling. Machining is performed during the stroke. The feeding movement occurs continuously during stroke and return stroke through the feed drive of the X-axis. The edge is raised by the integrated raising device.

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3.4. Cleaning and maintenance

3.4.1. Cleaning

Cleaning the broaching tool using a cloth or brush is sufficient. Compressed air may be used only for cleaning the location hole. It is not permitted to clean the complete broaching tool using compressed air, as this might push particles into the interior of the tool causing damage. Never use petroleum ether or industrial washing machines for cleaning!

3.4.2. Care

Whenever the broaching tool is not used, lubricate the bare part of the pusher with oil for protection against corrosion.

3.4.3. Maintenance

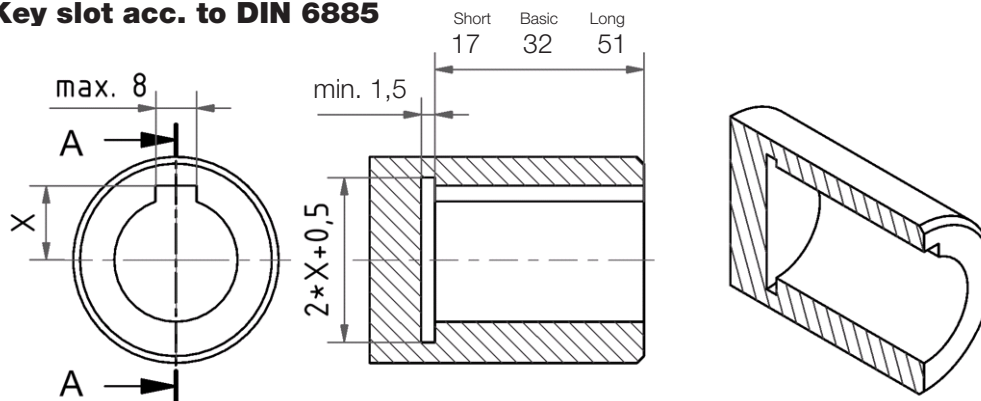
EWS . Slot is permanently lubricated and maintenance-free.
We recommend performing an annual inspection.

3.5. Guarantee and warranty

The Standard Conditions of Sale and Delivery of the manufacturer apply (see www.ews-tools.de).

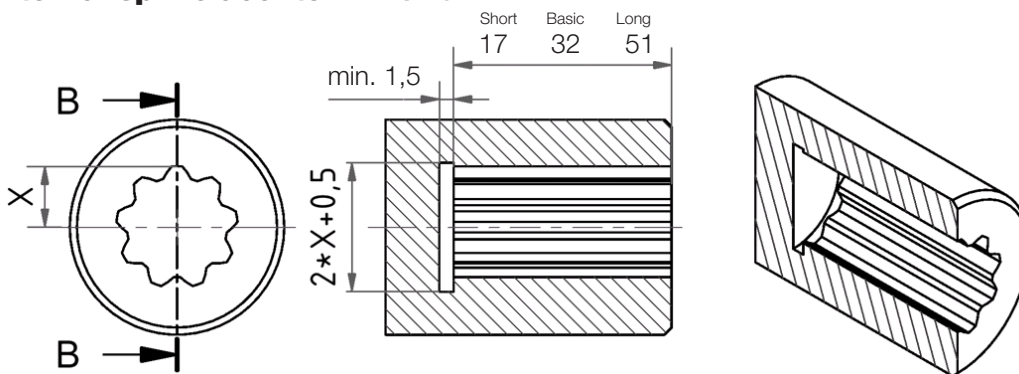
4. Manufacturing examples

Key slot acc. to DIN 6885



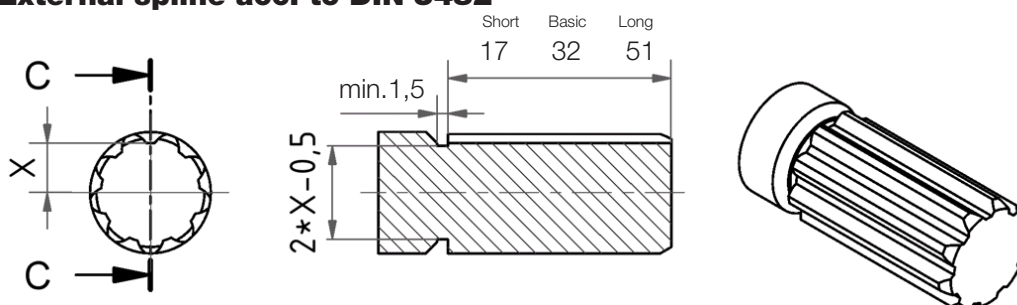
The maximum key slot width of 8mm may not be exceeded.

Internal spline acc. to DIN 5482



The maximum size of the profile must be calculated.

External spline acc. to DIN 5482



The maximum size of the profile must be calculated.

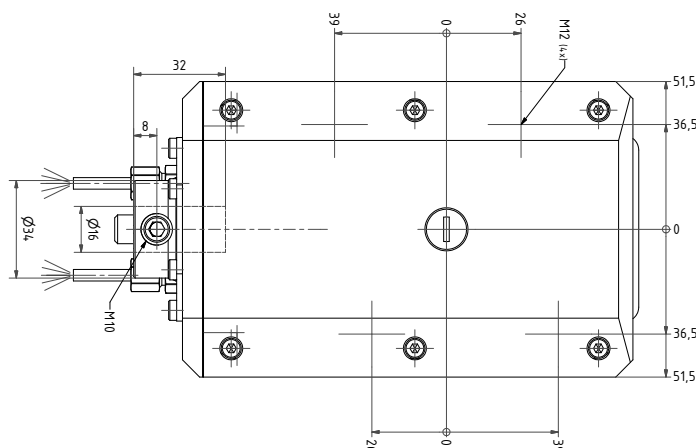
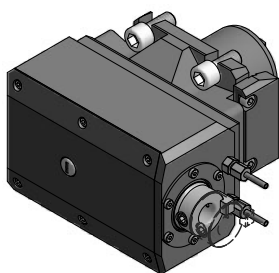
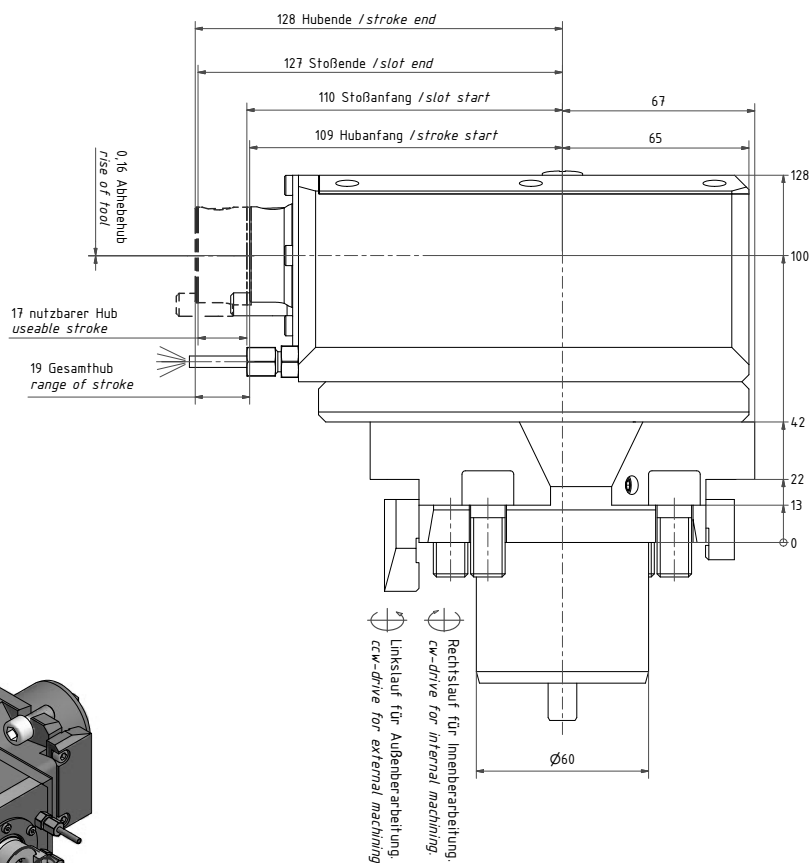
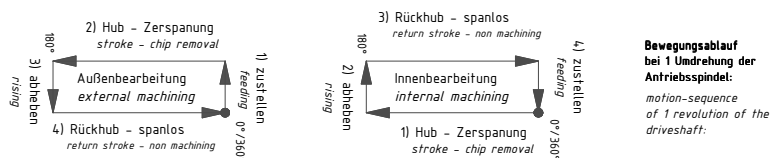
EWS . Slot

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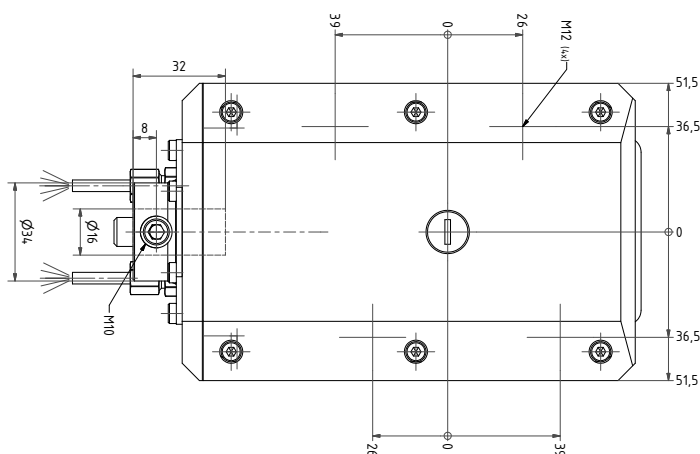
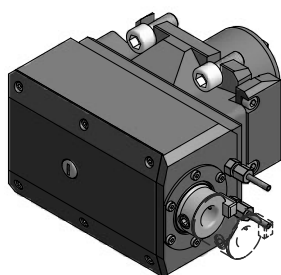
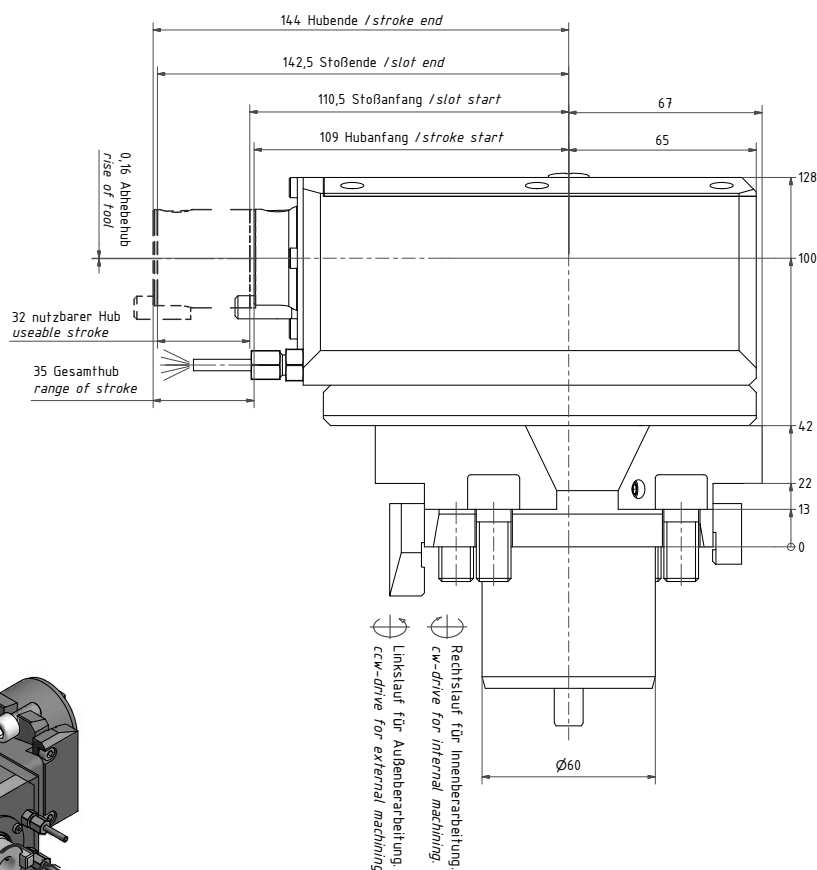
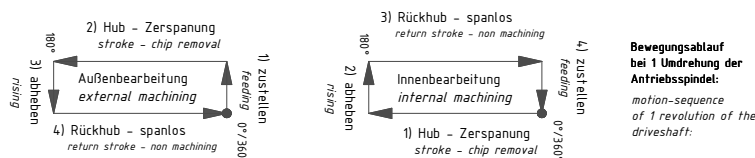
5. Product examples

5.1. Broaching tool for BMT star turret

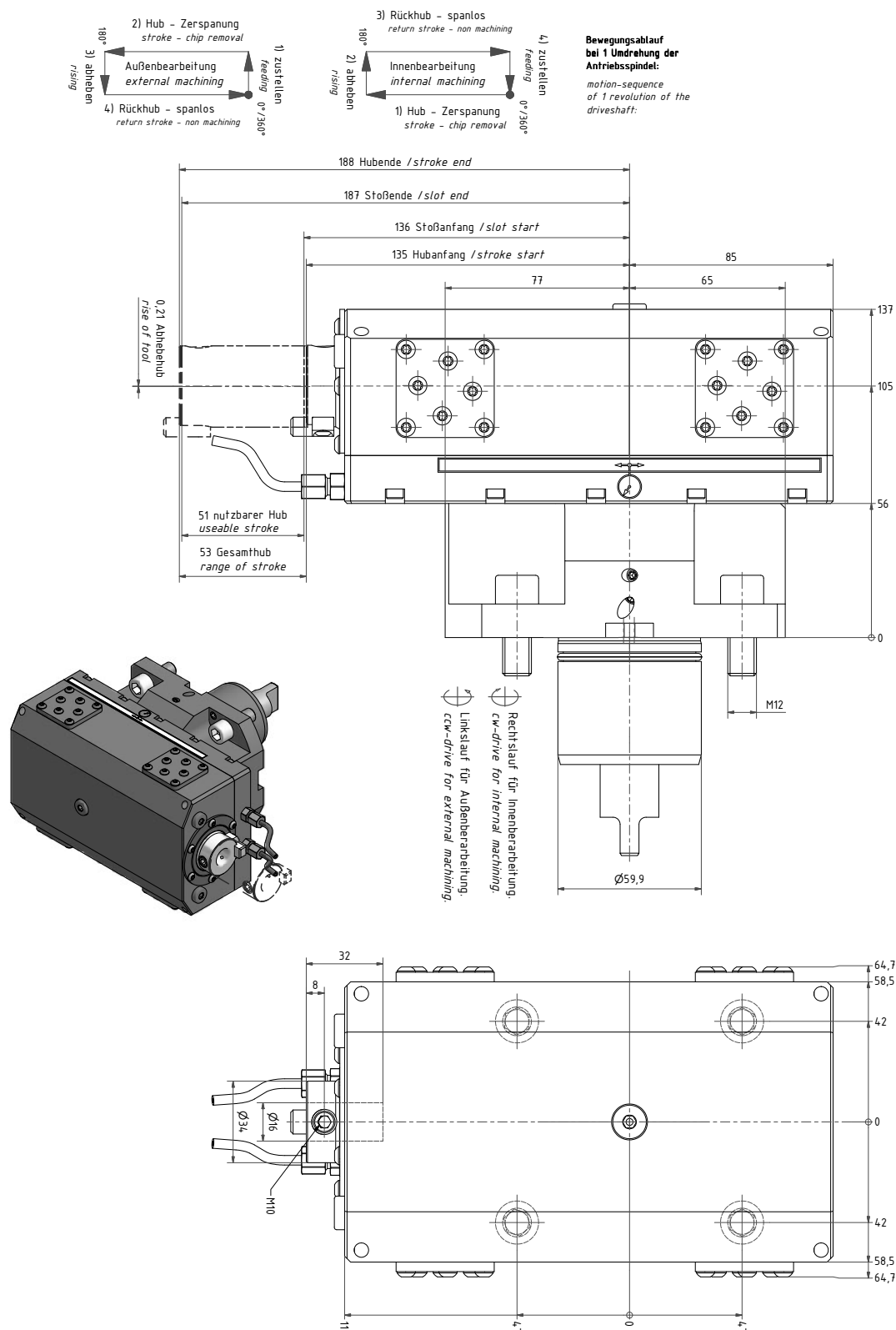
5.1.1. Broaching tool for BMT star turret - Short



5.1.2. Broaching tool for BMT star turret - Basic

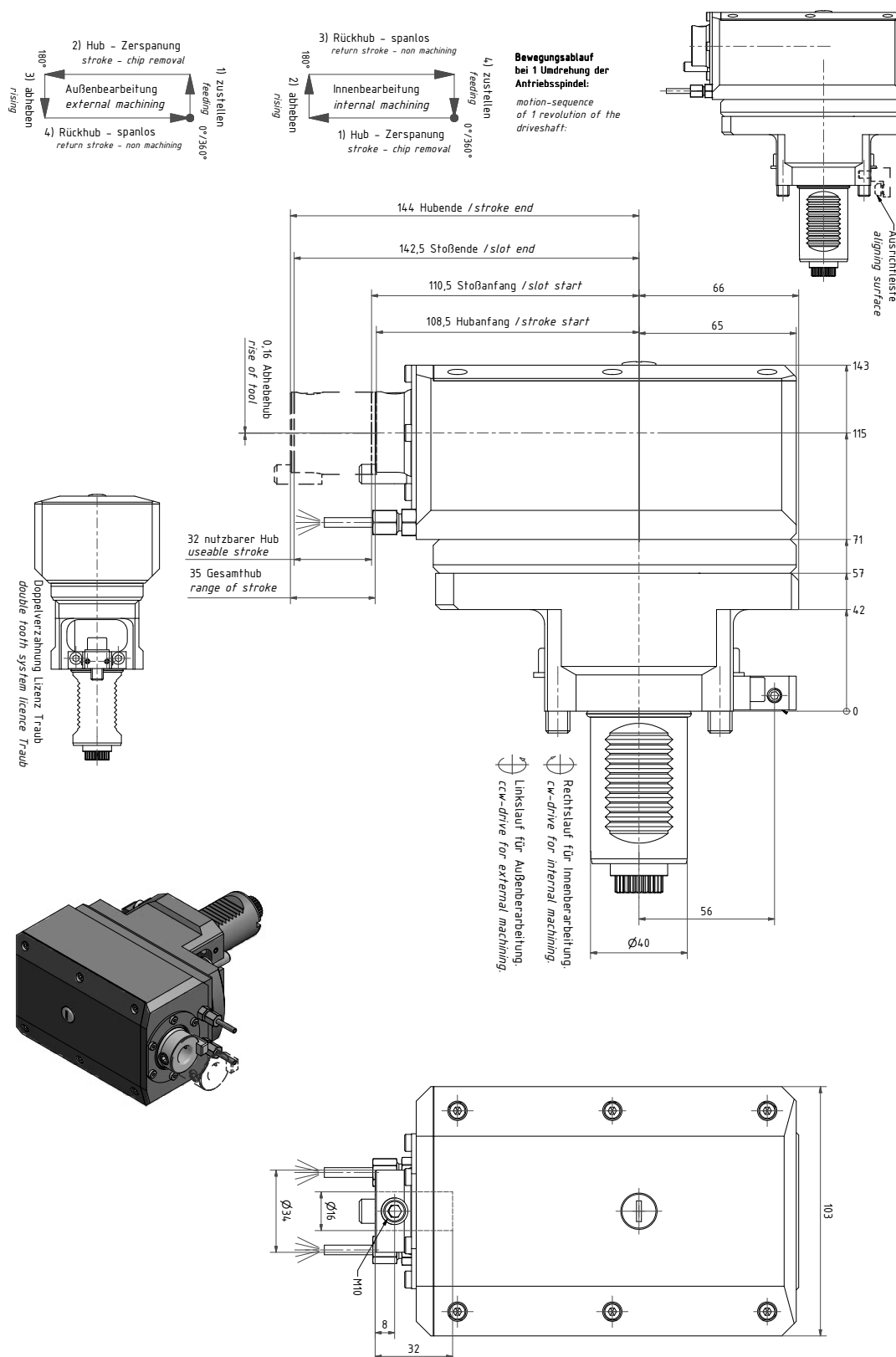


5.1.3. Broaching tool for BMT star turret - Long



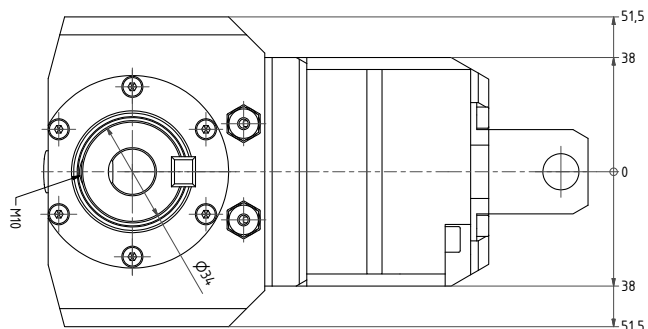
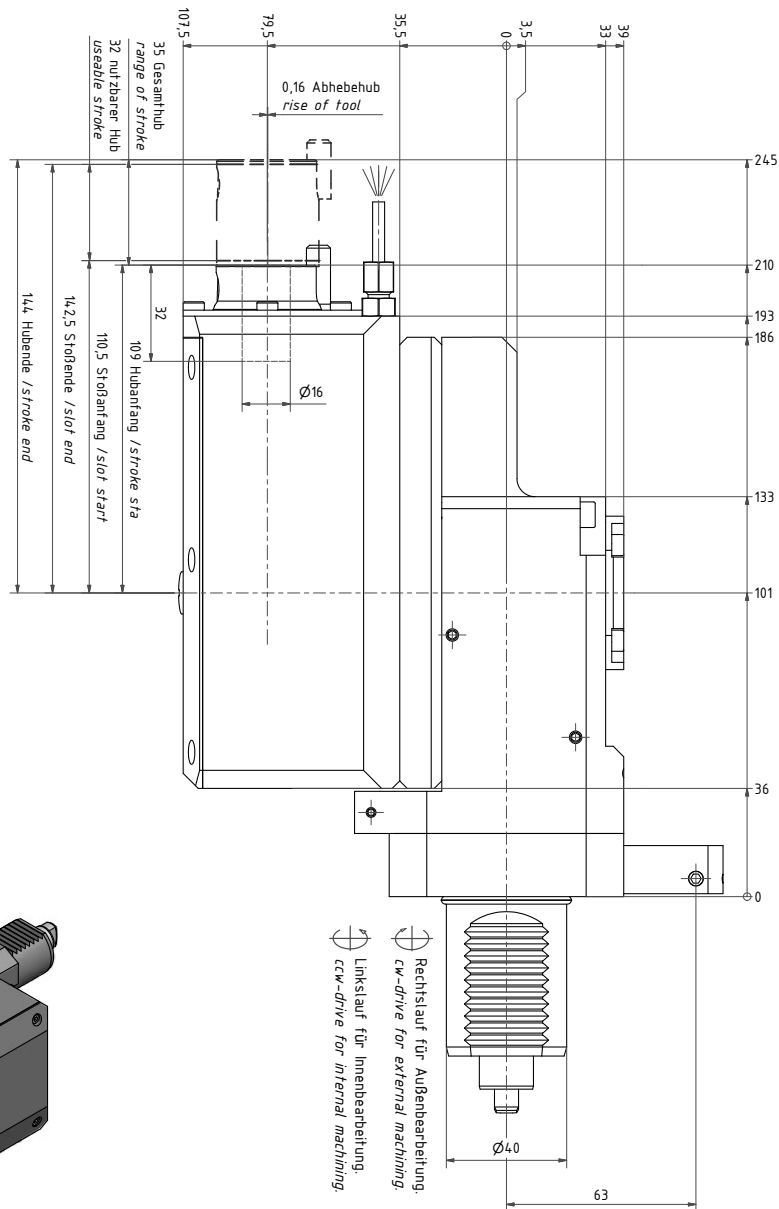
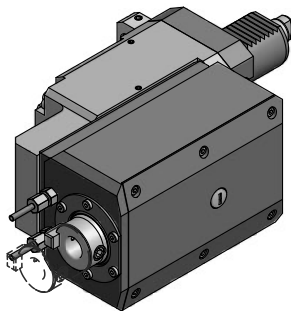
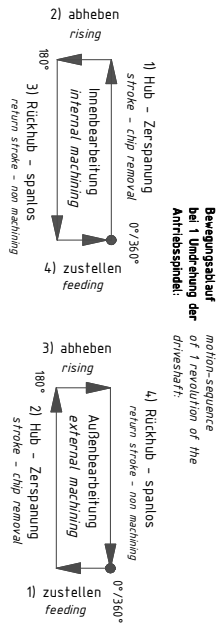
5.2. Broaching tool for VDI star turret

5.2.1. Broaching tool for VDI star turret - Basic



5.3. Broaching tool for VDI disk-type turret

5.3.1. Broaching tool for VDI disk-type - Basic





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