

Precision meets Motion



Manual

***EWS* . Gear hobber Z**

EWS
Tool Technologies

- 1. Identification**
- 2. Product specification**
 - 2.1. Operation and range of applications**
 - 2.2. Technical data**
 - 2.3. Machine requirements**
 - 2.4. Safety**
 - 2.5. Secure disposal**
- 3. Operating instructions**
 - 3.1. Setup**
 - 3.2. How to change milling cutters**
 - 3.3. How to change arbor**
 - 3.4. Adjustment of swivel head**
- 4. Cleaning and maintenance**
 - 4.1. Cleaning**
 - 4.2. Care**
 - 4.3. Maintenance**
- 5. Guarantee and warranty**

1. Identification

Type:	EWS . Gear hobber Z
Description:	Milling head for side milling cutters with adjustable angular cutter spindle
Manufacturer:	EWS Weigele GmbH & Co. KG Maybachstr. 1 73066 Uhingen Tel. +49 (0)7161 93040-100 www.ews-tools.de

2. Product specification

2.1. Operation and Range of applications

The **EWS . Gear hobber Z** is a driven tool which allows efficient manufacturing of external serrations on CNC lathes. The adjustable milling head which is rotatable on its shaft angle makes it possible to produce external teeth with different pressure angles. Slots, bevels or flutes with various angles are possible as well. The adjustability of the cutting angle is made possible by rotating the head on the base of the tool. The modular body of the milling head makes it possible to quickly and easily change the cutter arbors so several different sizes of cutters can be used on the same tool.

2.2. Technical data

Dimensions:	see design (machine-specific)
Max. RPM:	see design
Max. torque on drive:	see design
Driving reduction:	2:1
Direction of driving torque:	mutual
Angular adjustment:	continuous 360°
Angular motion gearing:	10:1
Diameter of cutter spindle:	Ø08 to Ø27 (machine-specific)
Types of milling cutters:	Milling, hob or module cutters
Diameter of cutter:	see design (machine-specific)
Lubrication:	fat permanent lubrication
Coolant supply:	external coolant

EWS . Gear hobber Z

Manual

2.3. Machine requirements

Working area:

To avoid collisions with the turret socket or the housing it is important to have sufficient space when rotating the turret with the **EWS . Gear hobber Z**. Depending upon the specific machine model, 1-2 adjacent tool stations might not be able to be used.

Torque requirements:

It is essential that the machine have enough torque to run to cutting tool effectively.

2.4. Safety

Any and all OSHA or other applicable governing body laws must be observed while operating the **EWS . Gear hobber Z**.

2.5. Secure Disposal

The operator has to comply with the regulations of the environmental protection law.

3. Operating instructions

3.1. Setup

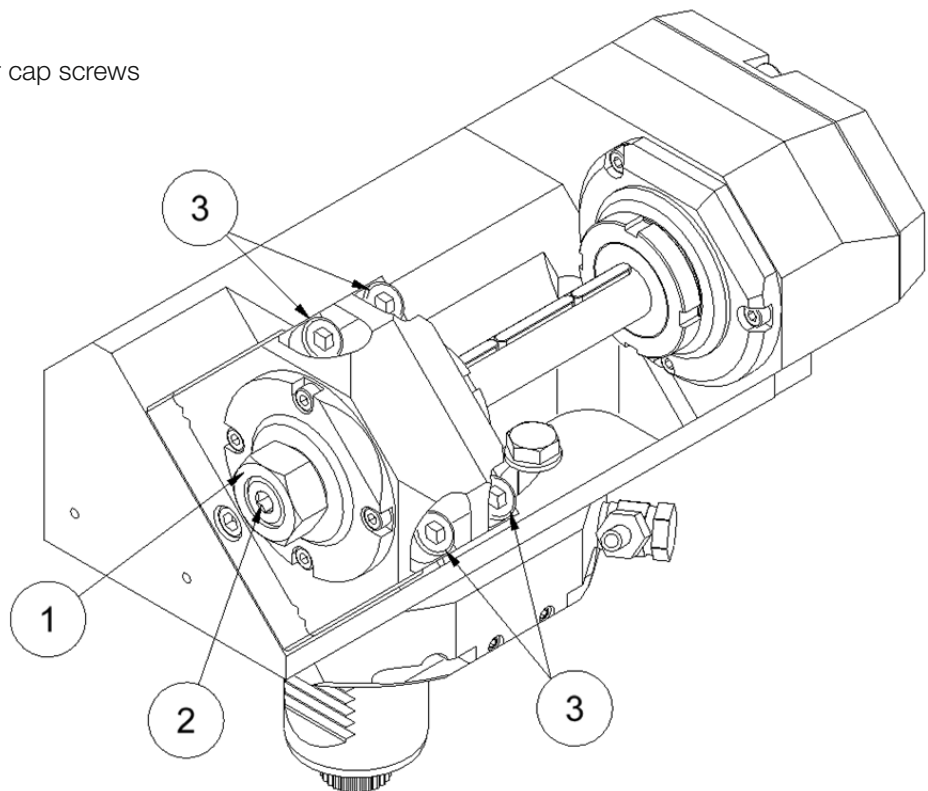
The tool must be mounted on the machine's turret before adjusting the **EWS . Gear hobber Z**. It is important not to damage the O-ring seal at the base of the tool when mounting on the turret.

3.2. How to change milling cutters

The steps for the change of the milling cutter and the assembly respectively are as follows:

1. Loosen the Nut (Pos.1), prevent the arbor from rotating by holding it steady with the appropriate allen wrench. (Pos.2).

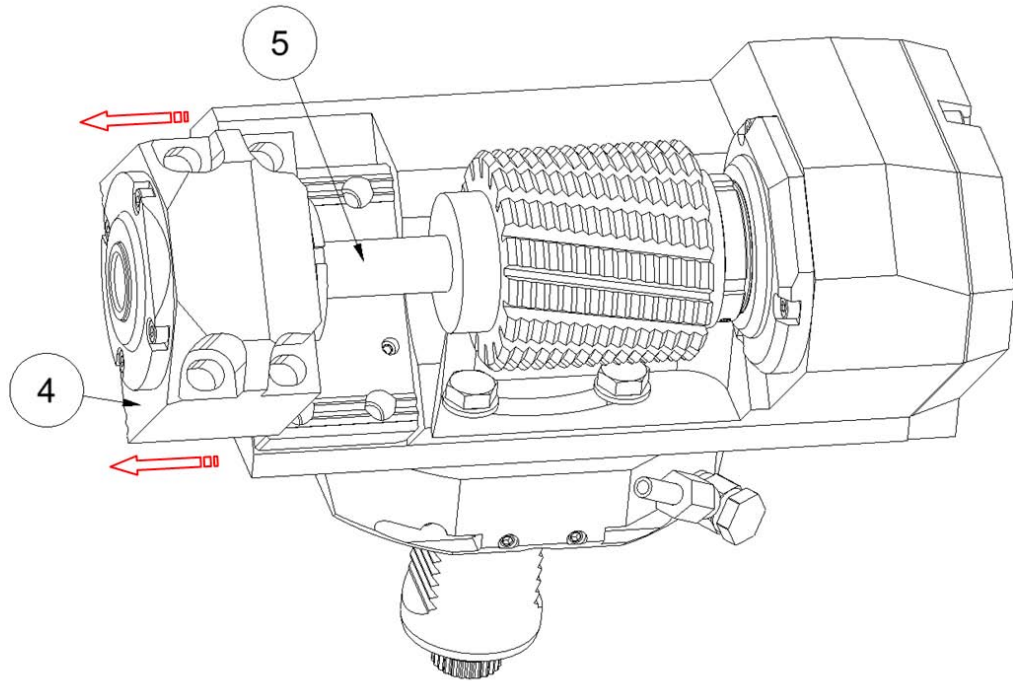
2. Loosen and remove the four cap screws (Pos.3).



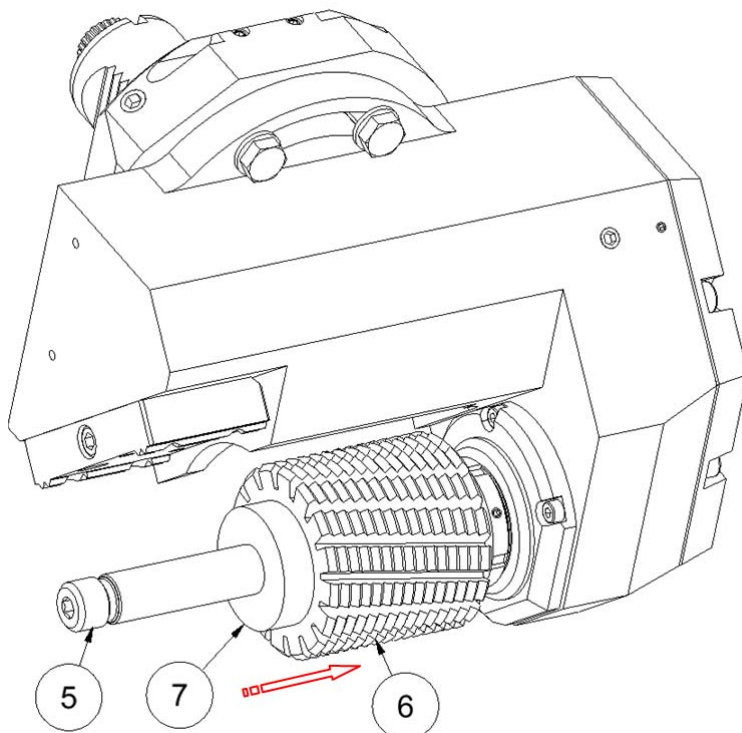
EWS . Gear hobber Z

Manual

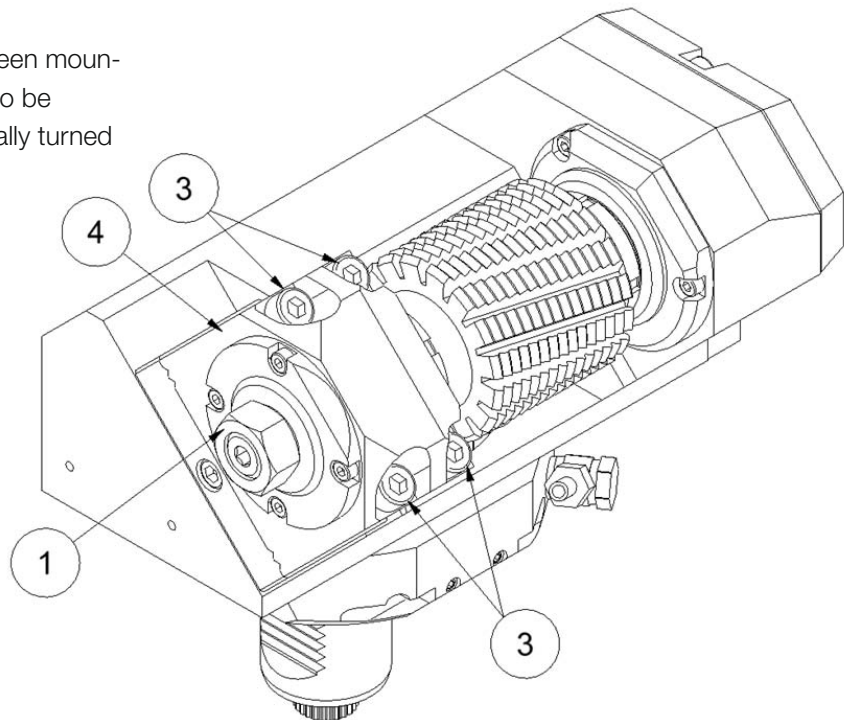
3. Remove the anvil block (Pos.4) from the milling cutter (Pos. 5).



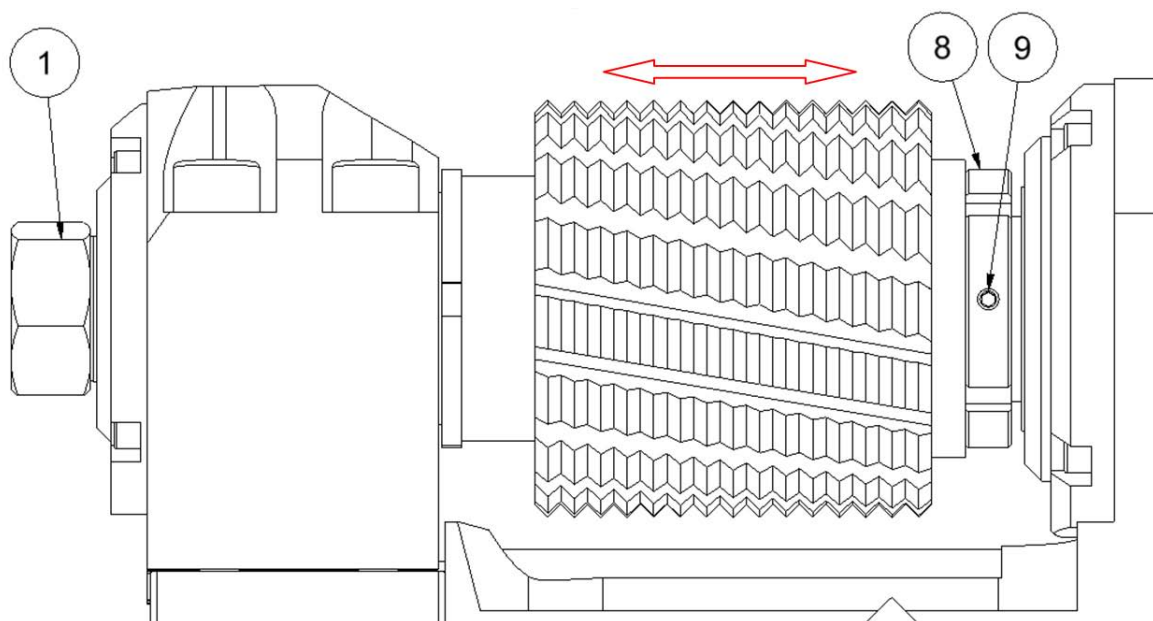
4. Place the milling cutter (Pos.6) with the corresponding spacer (Pos.7) on the mandrel (Pos.5).



5. After the milling cutter set has been mounted, the anvil block (Pos.4) has to be mounted. The nut (Pos.1) is initially turned on finger-tight.



6. Now follows the fine adjustment of the finger-tight nut (Pos.1). This is conducted by adjusting the spanner nut (Pos.8) until the milling cutter has reached the required position. Next the entire milling cutter set is tightened by the nut (Pos.1) and the spanner nut (Pos.8) is secured by the radial set screws. Finally tighten the anvil block (Pos.4) through the four cap screws (Pos.3). Machines with y-axis do not require the fine adjustment of the spanner nut (Pos.8) as you can use the ground face of the mandrel as a guide for the milling cutter.



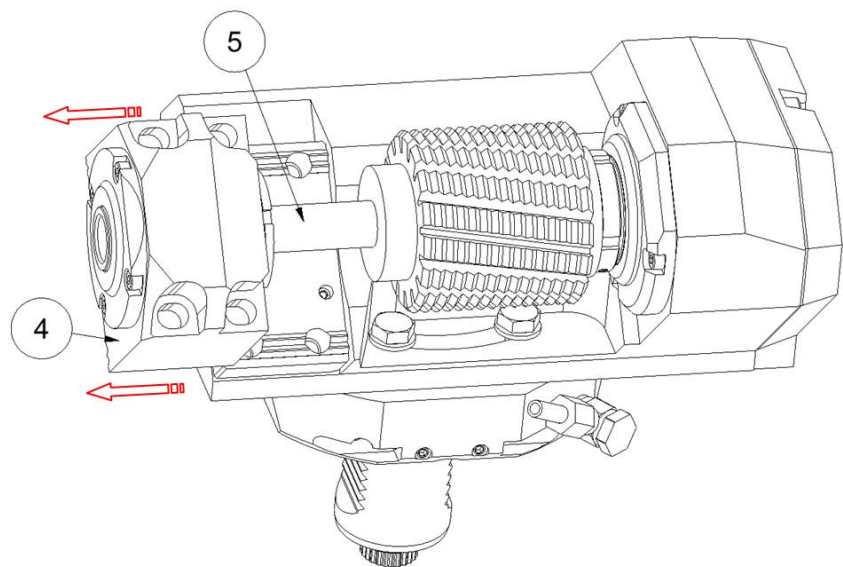
EWS . Gear hobber Z

Manual

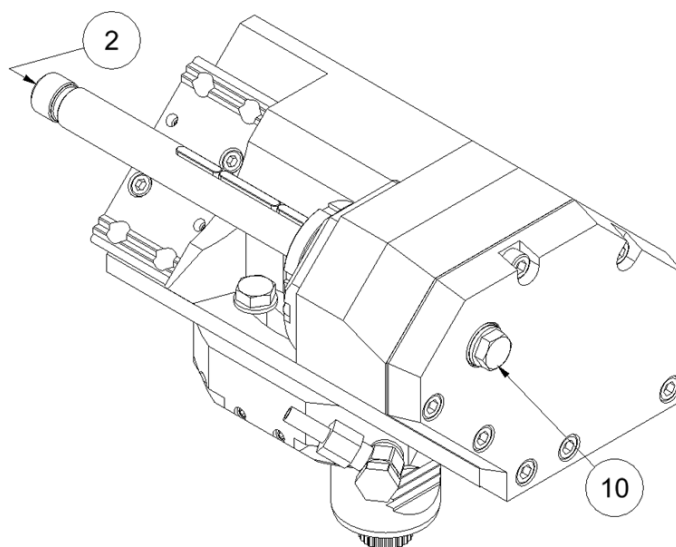
3.3. How to change arbor

The modular **EWS . Gear hobber Z** has interchangeable cutter arbors with different diameters. Use the following procedure to change the arbors.

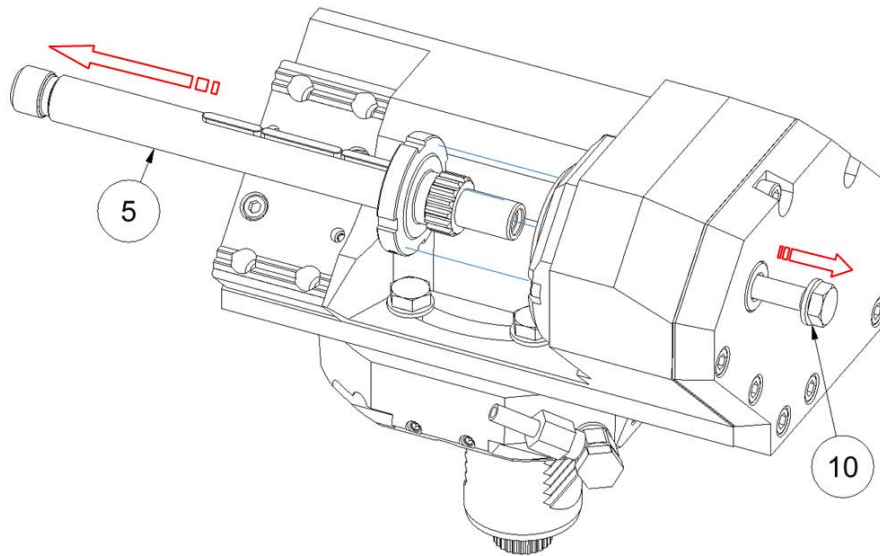
1. Remove the anvil block (Pos.4) of the milling cutter (Pos. 5). This operation is similar to the changing of the milling cutter (see 3.2 change of milling cutter).



2. Loosen the hex screw (Pos.10) on the opposite site of the anvil block by retaining the arbor at the end of the milling cutter with the appropriate allen wrench (Pos.2).



3. After the removal of the hex screw (Pos.10), pull out the milling cutter (Pos.5) and replace it with milling arbour that you want to use.

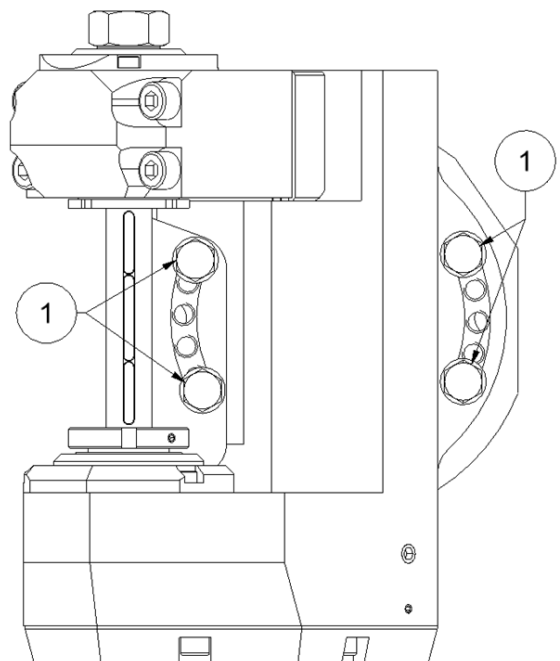


4. The reassembly has to be conducted in reverse order Steps 3-1.

3.4. Adjustment of Swivel head

To ensure an optimal hobbing it is necessary to adjust the swivel head corresponding to the pressure angle of the cutter. The following steps must be followed.

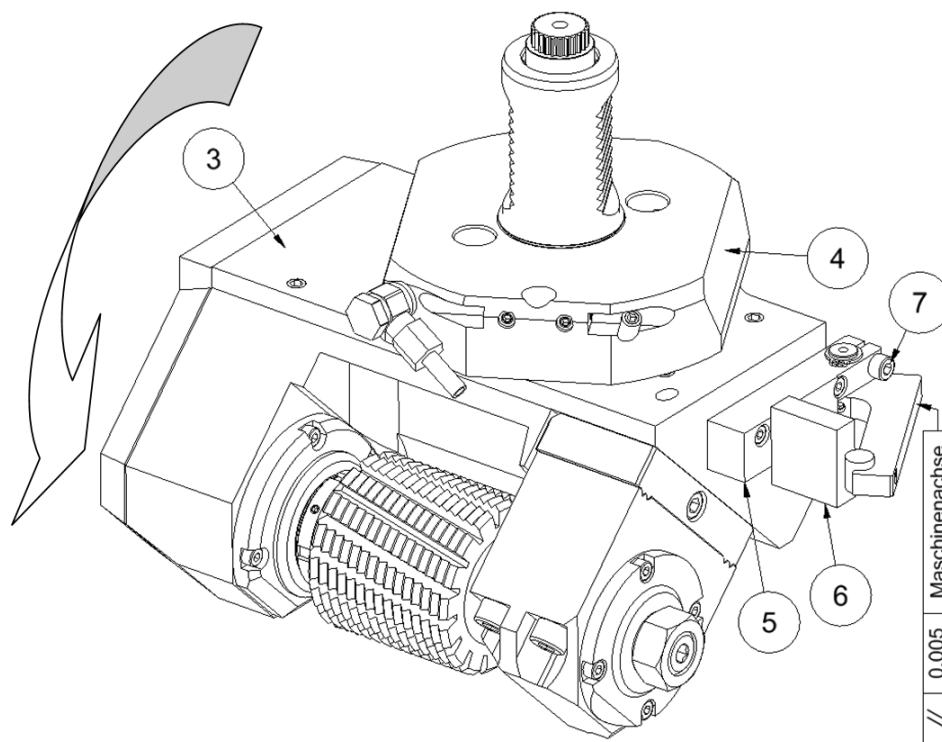
1. Loosen the 4 hex screws (Pos.1).



EWS . Gear hobber Z

Manual

- The adapter head (Pos.3) can be now rotated on the basic holder (Pos.4) easily. For a precise adjustment it is recommendable to conduct this on an assembly bloc or a measuring machine. The included sine bar (Pos.5) serves as an angle adjustment aid. Definition of the requested angle is determined by the corresponding gage block (Pos.6) (see included Excel file on the CD). Clamp the sine bar (Pos.5) with the gage block (Pos.7) through the cap screw (Pos.7). Finally turn the adapter head until the test surface of the sine bar is parallel to one of the axes of the machine.



- Tighten the hex screws (Pos.1) after reaching the requested angle. Before operating on the machine the sine bar (Pos.5) has to be removed.

4. Cleaning and Maintenance

4.1. Cleaning

Cleaning with a cloth or a brush is sufficient.

Important: Cleaning with compressed air is not allowed as particles can be blown into the seal surfaces on the tool and cause damage to the gears and bearings. Do not use benzene or industrial washing machines!

4.2. Care

After operating the **EWS . Gear hobber Z** it is recommended to lubricate the metallic parts to prevent corrosion.

4.3. Maintenance

An annual inspection is recommended.

The **EWS . Gear hobber Z** is permanently lubricated and maintenance free.

5. Guarantee and Warranty

The General Terms of Sales and Delivery of the manufacturer apply (see www.ews-tools.de).



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