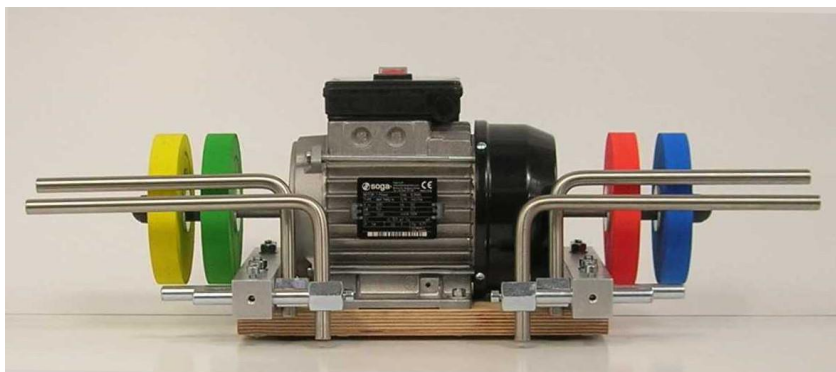


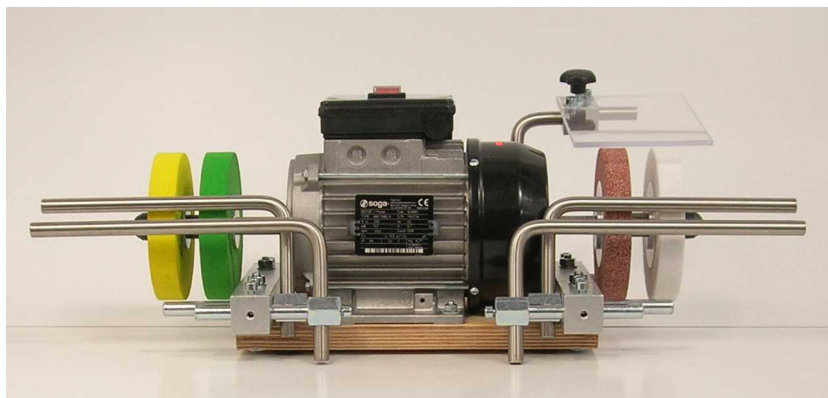
**Manual**  
(Translation)  
**Koch**  
**Grinding and**  
**Sharpening Systems**

**HT2000 / HT3000 / HT4000 / HT4001 / HT4002**

**Date: 10.12.2015**



HT3000



HT4000

# Table of contents

<b>1</b>	<b>Introduction.....</b>	<b>3</b>
1.1	General.....	3
1.2	Customer details.....	3
1.3	Functionality .....	3
1.4	Warranty and Guarantee .....	3
<b>2</b>	<b>Safety Instructions .....</b>	<b>4</b>
2.1	Usage .....	4
2.2	Liability.....	4
2.3	Safety devices .....	4
2.4	General safety instructions .....	4
2.5	Working- and danger area.....	5
2.6	Operator duty of care.....	5
2.7	Putting into operation.....	6
2.8	Care and maintenance .....	6
2.9	Recycling and disposal.....	6
<b>3</b>	<b>Models and machine types .....</b>	<b>6</b>
3.1	HT2000/HT4001 .....	6
3.2	HT3000/4000/4002.....	8
3.3	HT4000/4001.....	10
<b>4</b>	<b>Functioning.....</b>	<b>11</b>
4.1	Procedure .....	11
4.2	Grinding discs.....	13
4.2.1	Red/blue .....	13
4.2.2	Yellow/Green .....	13
4.2.3	Ceramic discs .....	14
4.3	Pastes.....	14
4.3.1	Green.....	14
4.3.2	Blue.....	14
4.3.3	Summary .....	15
<b>5</b>	<b>Parts list .....</b>	<b>15</b>
<b>6</b>	<b>Technical data.....</b>	<b>16</b>
<b>7</b>	<b>History .....</b>	<b>16</b>
<b>8</b>	<b>EG Declaration of Conformity.....</b>	<b>17</b>

## 1 Introduction

### 1.1 General

Congratulations on your purchase of a grinding and sharpening machine of Kurt Koch GmbH.

Please note carefully the following safety precautions before using your device in operation.

### 1.2 Customer details

#### **Kurt Koch GmbH**

General Manager: Florian Koch

Im Steineck 36

D-67685 Eulenbis

Email: info@koch.de

Internet: www.koch.de

Tel.: +49 6374 - 99 30 99

Fax: +49 6374 - 99 30 98

### 1.3 Functionality

#### **The Koch Grinding and Sharpening System**

The self-cooled ceramic aluminum oxide wheels grind any steel grade reliably without overheating the steel. The resulting burr is drawn off on the Koch felt discs.

The Koch felt discs of special felt are differently hardened and enriched with aluminum oxide; a pair of soft felt discs for quick removal of burrs; a pair of hard felt wheels for fine grinding and simultaneous removal of burrs.

The Koch active pastes of chromium oxide bring their grain of 2500 and 3500, as well as their integrated coolant, which prevents overheating of the tools. The fine grain of the active paste removes the burr reliably, making the later removal obsolete. Here, it is only necessary to work on the chamfer side, a removal from the tools inner surface is unnecessary.

### 1.4 Warranty and Guarantee

We give a full guarantee on our equipment.

The engine and the technical parts are guaranteed with 10 years proper function.

The function of the discs and grinding pastes are guaranteed under proper use and storage for their entire life! All discs can be processed to a diameter of approximately 80mm when used with the standard speed (approx. 1400 U / min). Depending on the usage, the original diameter and width of the discs their durability varies.

The standard wheels, 120 x 20 mm, may be used about 15,000 to 20,000 times, larger discs correspondingly more.

The green abrasive paste, grain 2500, reaches for about 2500 grinding operations. The blue abrasive paste, grain 3500, reaches for about 3000 fine polishing operations. In order to prevent drying, both pastes must not be stored under 7 degrees Celsius.

## 2 Safety Instructions

### 2.1 Usage

The unit is specifically designed for grinding and sharpening work on carving tools with steel blades only. Do not try to grind or sharpen other metal objects on this machine.

Use the device only after a detailed reading of the operating instructions! After switching off the machine, the grinding wheels still turn for a while!

### 2.2 Liability

The manufacturer is not liable for any damage caused by improper usage or misuse of the device.

### 2.3 Safety devices

The safety devices must not be rendered inoperative. Machine types with ceramic discs are supplied with a stationary spark guard which is to be installed under all circumstances. When a machine with only felt disks is being retrofitted with ceramic discs, the spark guard has to be retrofitted as well.

### 2.4 General safety instructions

- To prevent injury from electrical shock and damage to the machine, it may only be connected to a power supply with a protective conductor.
- In addition an RCD overvoltage protection is recommended.
- Check the machine for damages before operating.
- Always wear protective glasses when working with the machine. When working with ceramic discs flying sparks emerge. When working with felt discs some paste and steel debris from the cutting edge is thrown away to the rear.
- After each grinding process wash dust and abrasive dirt on your hands off with warm water. Wash contaminated clothing carefully, at best by hand. If paste

or abrasion gets into the eye wash them out under flowing water. If you have persisting afflictions consult medical help.

- The discs turn upwards, ie away from the cutting edge. Do not hold your tool edge against the disc direction!
- Do not reach into the turning discs!
- Gloves can get drafted into the rotating discs. Please consider working carefully without gloves.
- Do not wear ties, scarfs or other clothing that could get caught in the rotating discs (f.e. wide sleeves or long, loose hair)
- When using ceramic discs flying sparks emerge. Install the stationary spark shield and wear protective glasses. If the machine is retrofitted with ceramic discs it is essential to install the protective device against flying sparks! (Can be ordered additionally)
- The machine is to be operated by adults that have been trained in the use of the grinding and sharpening machine only!
- On the unit, especially on the engine there are no parts that need service by the operator. It is therefore not necessary to disassemble the machine or the engine. Repairs may only be carried out by professionally trained staff!
- Use only the recommended accessories by Kurt Koch GmbH, as listed in this manual.

### **2.5 Working- and danger area**

The machine must be securely mounted on a suitable, stable working table. Place the unit in about elbow height; as the swarf is flung in the rear direction, make sure that behind the machine there is no workspace or any flammable materials such as curtains or similar. The base plate is made of wood and can be provided with holes for bolting the machine securely to the workbench. Alternatively, the machine can be fixed with suitable clamps to the countertop.

### **2.6 Operator duty of care**

The operator of the grinding machine has to take care that only professionally trained personnel operates the machine. The work area must be set up and signposted in accordance with the risk regulations and directives for motorized table grinders.

### 2.7 Putting into operation

Before setting up the machine check all parts for completeness. Before starting the engine and any grinding/sharpening process, check if all adjustable parts like tool benches and cap nuts etc. are fixed. If using the quick release levers, the upper locking screw must remain loose. The enclosed plastic caps must be pinned up to the cap nuts left and right. Be aware that the cap nuts have a left-hand thread.

### 2.8 Care and maintenance

Keep the machine clean. Remove abrasive grit and dust regularly, at least once a week. Grinding discs must be exchanged when they are down to approx. 80mm. Suitable are all grinding discs in sizes 120x20mm – 150x30mm, as described in the spare parts list below.

### 2.9 Recycling and disposal

The grinding discs and pastes must be disposed in the residual waste. You might as well send the depleted discs back to the manufacturer, where they are being disposed properly. The machine itself must be disposed at your local collection point for electronic waste.

## 3 Models and machine types

All models are powered by a single-phase 300W motor, which provides the optimum operating speed of 1400 cycles / min. The shaft is continuous, the motor winding sits on the shaft, large ball bearings catch the pressure optimally.

The *HT2000/3000* are equipped with two soft felt discs for fine grinding and two hard felt discs. One kg paste (green) is included in the delivery. sind mit je zwei weichen Abziehscheiben sowie zwei harten Feinschleifscheiben ausgerüstet. Ein kg Paste Grün wird mitgeliefert.

The *HT4000* and *HT4001* have two ceramic grinding discs and two soft felt discs. The model *HT4002* has a ceramic-diamond disc and one soft felt disc.

All model come with one kg green grinding paste.

The models *HT2000/HT3000/HT4000/HT4001/HT4002* are supplied with an allen branch size 5 (for the screws to adjust the tool benches).

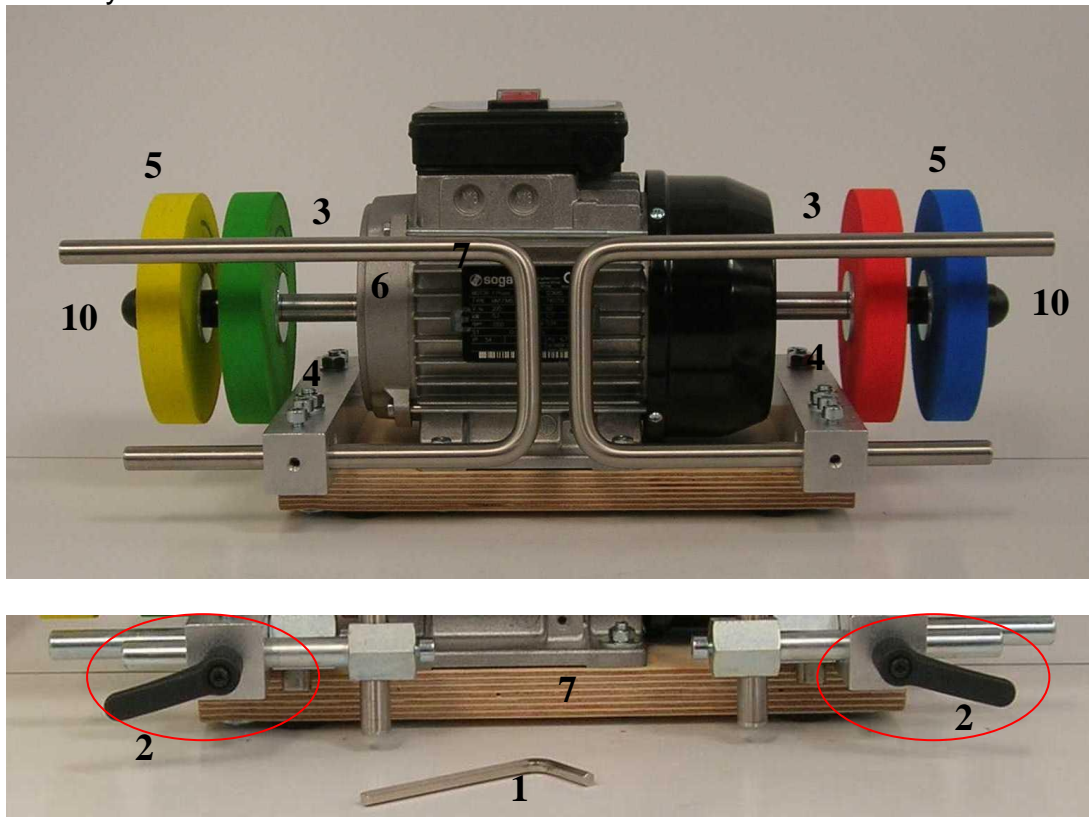
### 3.1 HT2000/HT4001

The tool bench is of U - bent 12mm Stainless Steel. The distance to the discs can be adjusted individually, a clamping lever allows a fast and simple adjustment during the work process. The stainless steel rod can be used in both receiving holes of the

## Koch grinding and sharpening systems

aluminum base. The small clamping lever is used at the end of the aluminum pedestal. The height of the tool bench is not adjustable.

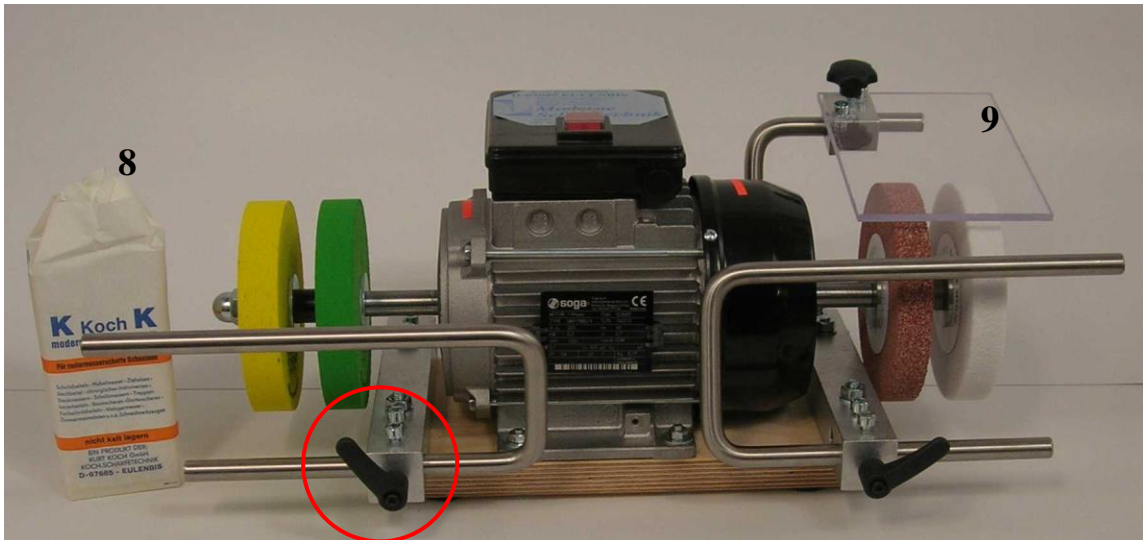
Delivery contents:



Picture 1

1. Allen wrench to adjust the tool trays
2. Quick release levers. Separately packed by delivery. Please place them in the two front side bores left and right.
3. Tool benches
4. On the left and right each two allen screws to fix/unfix the tool trays
5. Grinding discs (felt)
6. Engine
7. Ground plate
8. Additional accessory: 1kg grinding paste „green“ (image 2)
9. Guard against swarf and flying sparks (standard for HT4000/4001 models, must be retrofitted for any other model that is being retrofitted with ceramic disks instead of felt discs) (image 2)
10. A plastic coverage for the cap nuts (1 left and 1 right).

Use the accompanying Allen key to adjust the U - trays and bring them into a suitable working position. The distance between the steel trays and the grinding disc should not exceed 2mm. (Picture 2)



Picture 2

The black quick-release levers are used for quick adjustment of the tray position. On delivery, the quick release levers will be separated and must be screwed into the threads first.

### 3.2 HT3000/4000/4002

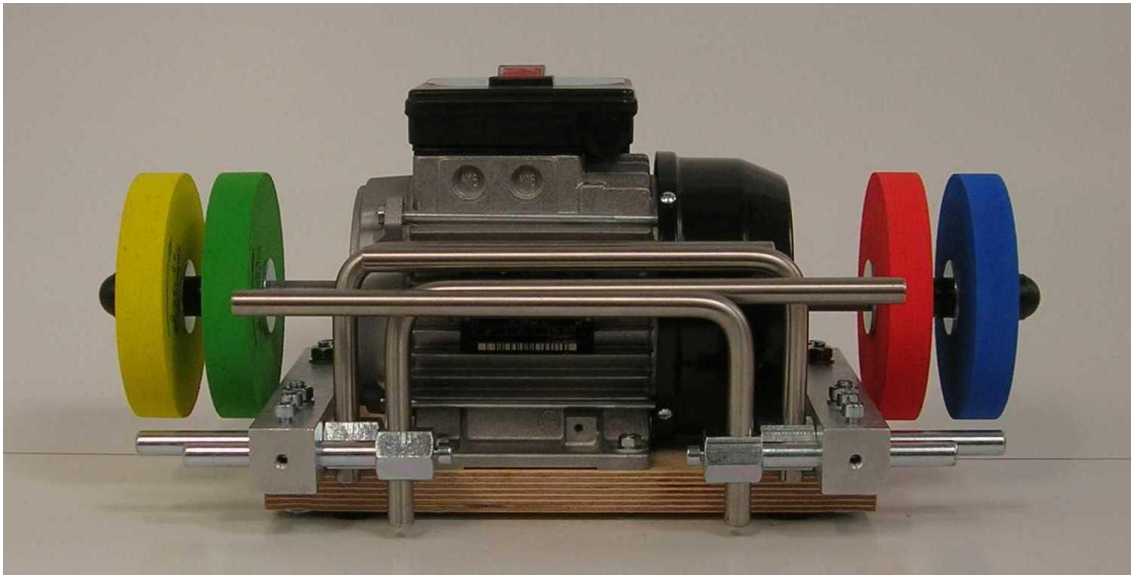
HT3000 HT4000 und HT4002: The tool – trays consists of two L - curved 12mm stainless steel rods; these are mounted on a guide bar in the aluminum base. The fixation of L - rod and guide rod is carried out by an Allen screw M6. The rear guide rod is secured with an Allen screw on the aluminum base, the front guiding rod is fixed with a small clamping lever and can so easily be adjusted during work. The double trays allow you to create an angular setting to either support the tool or guide your hand. The 12mm stainless steel rods of our models HT2000/3000/4000/4001/4002 can accommodate all commercially available tool guides/trays.

Delivery contents:

The package differs only by the four L - shaped tool trays from the HT2000.

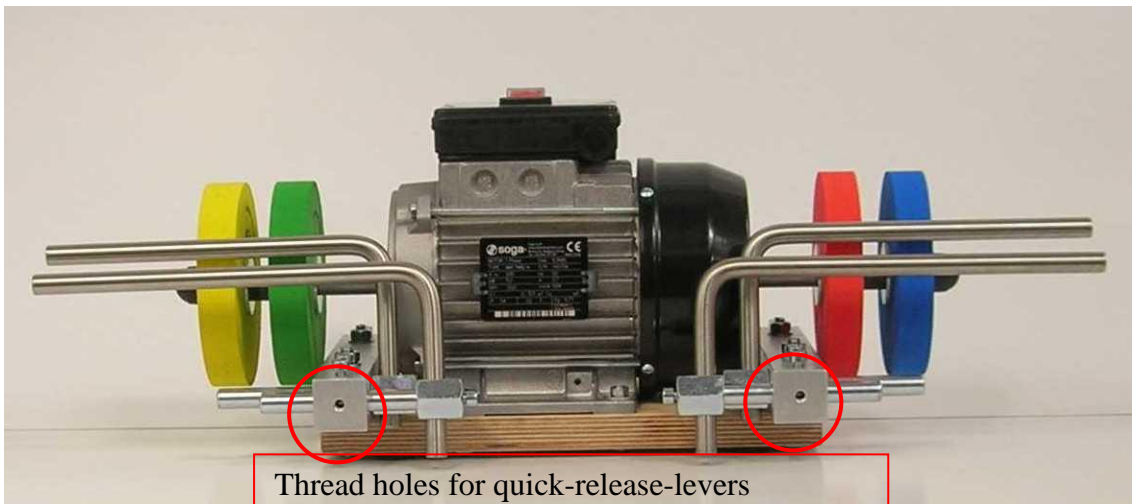


HT3000



**Picture 3**

With the Allen key, the L-bent tool trays are adjusted and fixed in the desired work position. The distance between the upper tray and the grinding wheels should not exceed 2mm. (Picture 4)



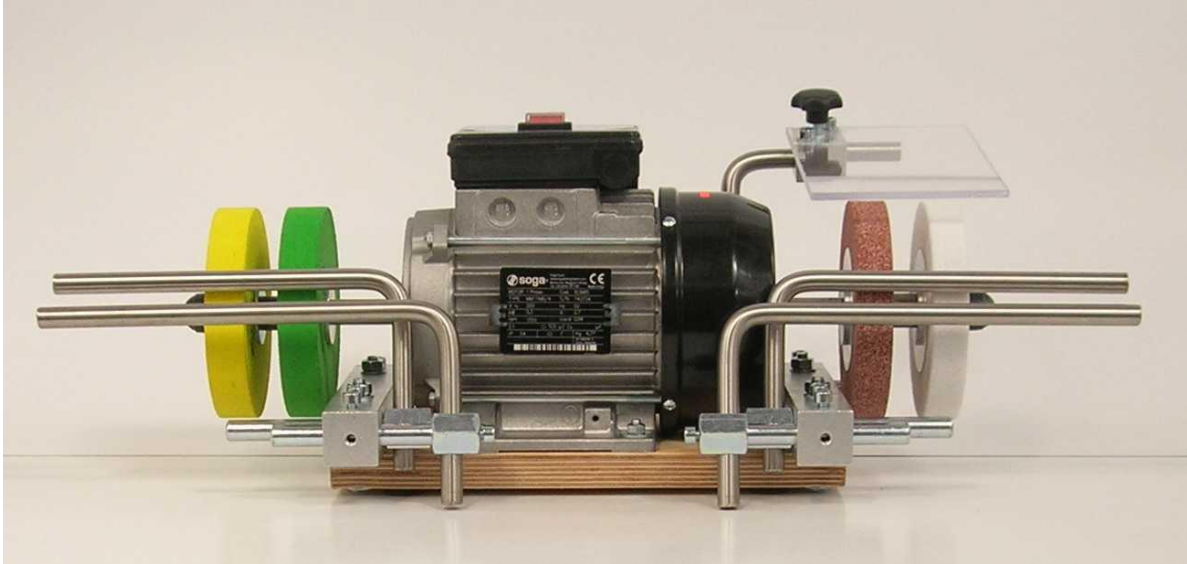
**Picture 4**

The black quick-release levers are used for quick adjustment of the tray position. On delivery, the quick release levers will be separate and must be screwed into the threaded drills first.

### 3.3 HT4000/4001

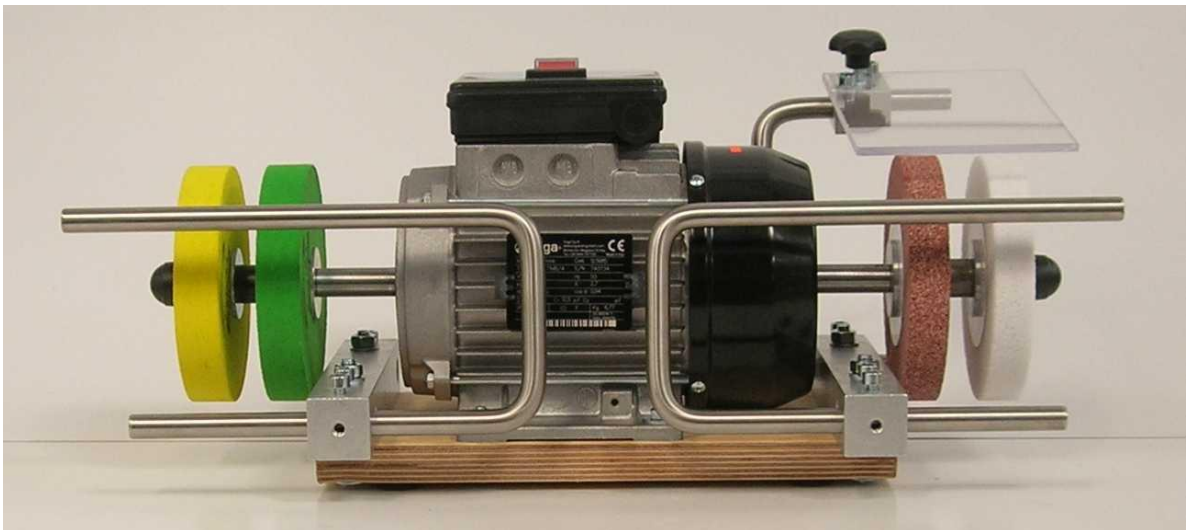
The HT4000 and HT4001 are delivered with a set of felt discs and a set of ceramic discs, as well as the obligatory protection from swarf and sparks for the ceramic discs. Die 4000 has four L - bent, adjustable tool trays. The HT4001 is equipped with two U - bent tool trays.

HT4000



Picture 5

HT4001



Picture 6

### 4 Functioning

#### 4.1 Procedure

The respective grinding paste is applied to the felt discs by pressing the block against the running discs. A thin film of paste is sufficient. After applying the paste it will last for about 30 seconds of grinding work, and should then be applied again. Due to the permanent pressure of the tool on the disc following a controlled guidance the necessary friction temperature is generated. The temperature is critical to the sharpening success. Concerns about the resulting temperature are completely unfounded. The grinding paste cools the tool. If the discs are too cold because of a low ambient temperature, it is recommended to warm them up with sand paper. Use worn or very fine sand paper to avoid grinding away too much of the disc surface. A cleaning of the grinding discs is not necessary. The more paste is worked into the discs, the better they are working.

All discs have the same basic material of felt, grit and hardener. The different incorporation of grit brings the variation of hardness and decides so on the specific performance of each disc. All discs can be applied with both, the green and blue paste. The yellow and green discs are materially identical but differently colored, to distinguish them for your specific application. One of the disks should be reserved for the flat tools such as chisels, planer blades, knives, etc. On the second disc, all hollowed tools are sharpened.

- We recommend using the green disc for all flat cutters and the yellow disc for hollowed cutters

Tools may be contaminated on their insides with glue residues or other stubbornly adhering substances. You can work such impurities off the discs - even rust.

Applying the grinding paste

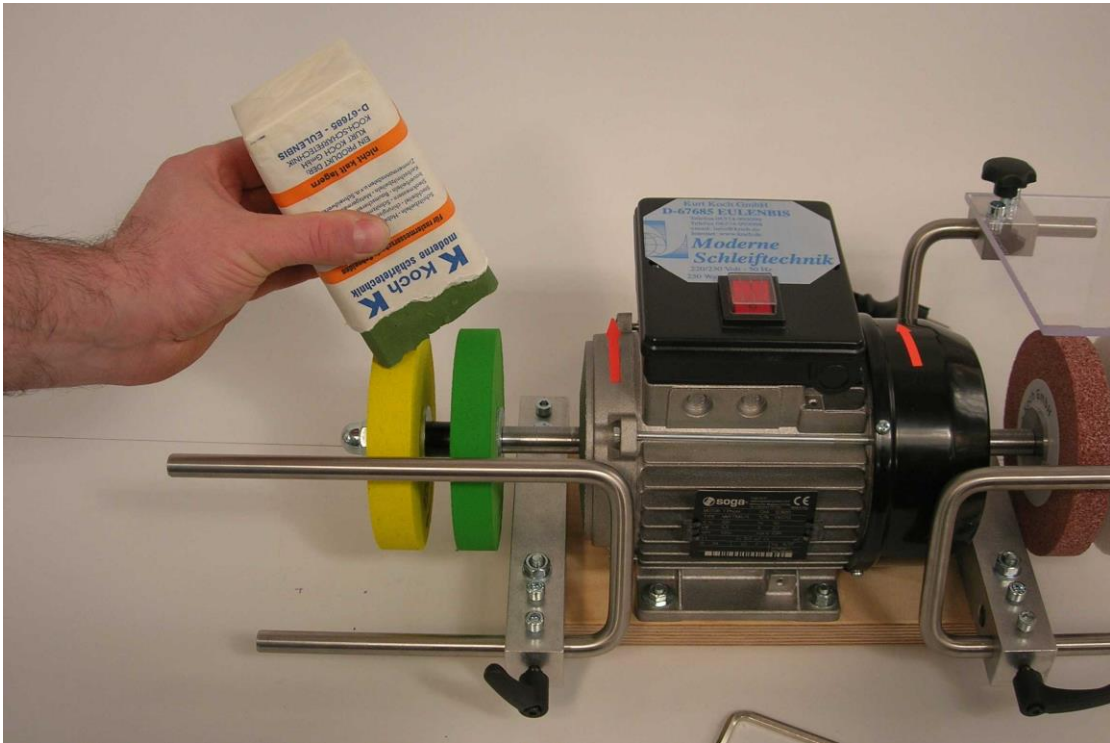


Abbildung 7

Leading the tool towards the grinding disc

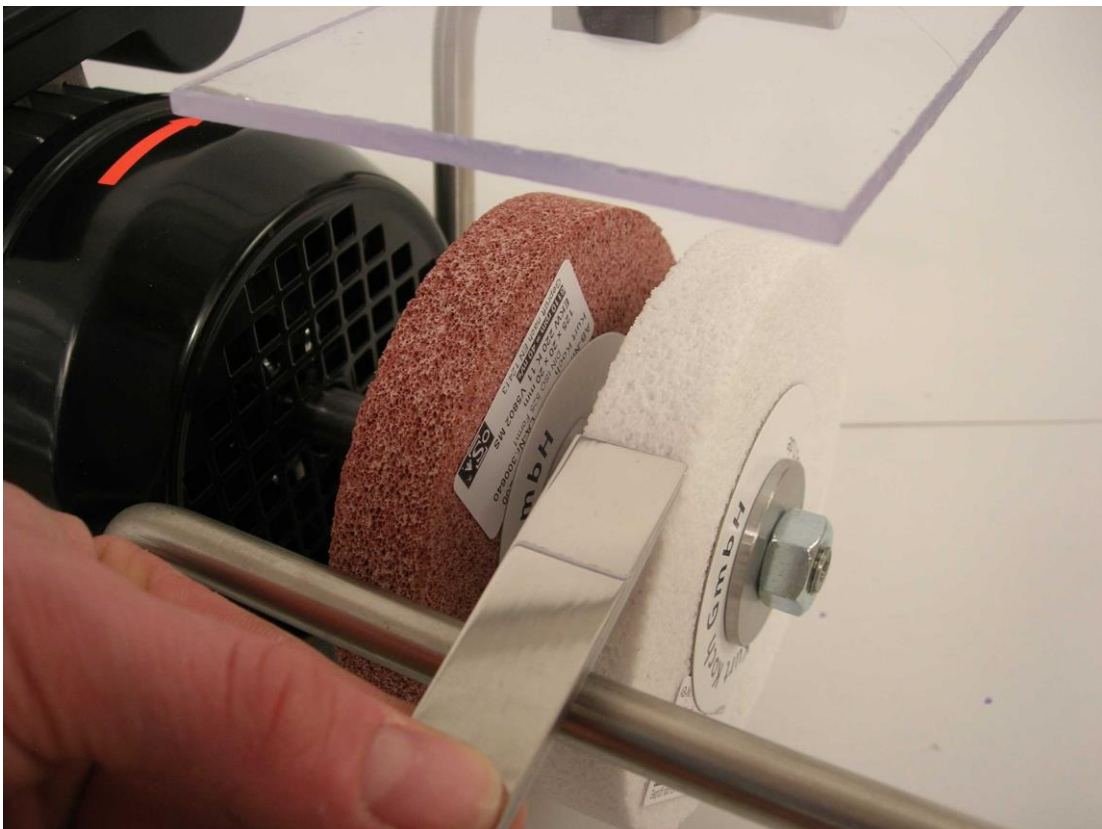


Abbildung 8

The running direction of the machine is indicated by the orange arrows on the engine. Never hold the tool against the running direction!

### 4.2 Grinding discs

#### 4.2.1 Red/blue

The red and blue discs are fine grinding discs, in comparison with the yellow / green honing discs they are materially identical, but hardened. They are colored differently to distinguish them for your specific application. As with Yellow and green one of the red and blue discs should be reserved for tools with flat cuttings. On the second disc all hollowed tools are being fine grinded. We recommend using the blue disc for flat cuttings and the red one for all hollowed cuttings.

The discs red and blue are used for fine grinding of the bevel, the form, for grinding out notches, for sharpening or even just for resharpener. Due to the compact hardness of the discs and the fineness of the grain of the paste grit 2500/3500 the material removal is correspondingly lower than with more coarse-grained abrasives as the ceramic discs, grinding belts or grindstones. Therefore the cutting edge is immediately, without any rework, razor sharp and ready for use.

Using the red and blue discs, the material removal can be better controlled than on the yellow and green grinding discs. The chamfer is becoming slightly hollow and razor sharp so that it can be used immediately. The detraction will take only a few seconds. In order to remove more material just add more grinding paste.

As a rule: For a 20mm wide chisel, the same width as the standard discs, 1mm steel thickness can be removed in about 3 minutes. Your tool is then shortened by 1mm. After completion of the fine grinding process, you will have a perfect, usable cutting edge.

#### 4.2.2 Yellow/Green

The yellow and green discs have an average hardness. They are used for quick removal / sharpening / polishing only. As a rule, it is sufficient to press each tool edge for a few seconds to the grinding disc in order to make the cutting edge razor sharp. Excessive pressing is not recommended for two reasons:

1. Unnecessary waste of material (steel)
2. There is a tendency of the too cutting to become softened.

Note: Each sharpening / fine grinding or polishing process requires only a few seconds time. Adding grinding paste only once is sufficient to make the tool razor sharp within a few seconds.

### 4.2.3 Ceramic discs

The ceramic discs can handle all steel grades: carbon steel; HSS and hard metals. Soft metal types can clog pores - a cleansing of the ceramic disc by grinding off material is recommended.

The ceramic discs White (grain 80) and red (grain 220) cool itself constantly by design. They are very efficient at 1400 U / min; their true strengths they show with increasing speed. Up to 6000U / min are feasible, what applies here: more speed brings more cooling, more cooling enables faster work without annealing the steel. The White ceramic disk is used for all coarse operations with high material removal or tools of greater width or greater hardness; here they are particularly efficient. There is no difference between flat or hollowed cutting edges.

The resulting burr is usually removed by using the felt discs (only from the bevelled side!)

The Red ceramic disk is used for all fine operations; for grinding very small carving tools or fine smoothing of wood turning tools or even kitchen knives. Flat or hollowed cutting edges doesn't matter here.

The resulting burr is usually subtracted using the felt discs (only on the bevelled side!)

#### **Please note:**

**When you already purchased a Koch grinding machine without ceramic discs and you want to equip your machine with ceramic grinding discs afterwards, you must install the additionally obtainable stationary anti-splash device to protect yourself against flying sparks and swarf!**

### 4.3 Pastes

#### 4.3.1 Green

The green paste is usually sufficient for most grinding and fine grinding processes with popular cutting and carving tools. With its grit 2500 it brings a considerable material removal and an impressive sharpness. Apply paste, press the tool against the disc and with some short movements sideways you are done. With hollowed cutting edges the movements should be accordingly in an axial rotation.

#### 4.3.2 Blue

Due to its extremely fine grit 3500 the blue paste has no great erosive effect. It improves the already very good result of the green paste by almost 50%! This provides more sharpness and durability in just a few seconds.

Recommendation: use the blue paste ideally for re-sharpening after the process of grinding with the green paste. Both pastes can be used at all felt discs, and both can be applied in whatever order one after the other. A cleaning of the discs is not required; on the contrary, the more paste feeding into the disc over time, the better results you will get.



### 4.3.3 Summary

The yellow / green discs are soft and suitable only for fast sharpening / polishing / detracting. One disc for flat and one for hollowed cutting edges. No detracting on the inside of the cutting edges needed.

The red / blue discs are suitable for grinding very hard with simultaneous detracting of the cutting edges. Again, one disc for flat and one for hollowed cutting edges.

Press the abrasive paste onto the disc, move tool on the disc, press hard and move according to its shape. Apply new abrasive paste (possibly several times) until the desired result is achieved.

All felt discs work with both grinding compounds – green and blue, they can be used mixed. The tool must be continuously pressed at the disc, so that the paste melts and works together with the contents of the disc. The paste also prevents overheating of the tool and protects it from annealing.

## 5 Parts list

Bezeichnung	Bestellnummer
Allen key M5	I.M5
Quick release levers M6x12mm	W115
Alu-bar 195x30x30mm, incl. Allen screws M6, two pairs each	W109
Carriage bolts M6x35 & M8x60, washers and nuts	
Allen wrench for HT3000/4000/4002	W107
L-tray short	W105.K
L-tray long	W105.L
U-tray	W103
Safety shield against swarf and flying sparks (complete)	W117
U-tray for glass shield	W120
Plexiglas window	W118
Bracket for Plexiglas	W119
Ground plate	W102
Engine	W108
Set of washers, distance sleeves and nuts (M12 normal threaded, left threaded and protecting caps)	W121
capacitor	W116
Flange adaptor for ceramic discs	HT50120
Distance sleeves for ceramic discs	HT50121
<b>Grinding discs (Ceramic)</b>	
Grit 80, size 125x20mm	HT50230
Grit 220, size 125x20mm	HT50231
Grit 80, size 150x30mm	HT50232
Grit 220, size 150x30mm	HT50233
<b>Grinding discs soft felt/diamond</b>	

## Koch grinding and sharpening systems

Yellow disc, 120x20mm	HT531
Green disc, 120x20mm	HT530
Green disc, 120x40mm	HT530-40
Green disc, 150x30mm	HT530-150
<b>Grinding discs hard felt/diamond</b>	
Red disc, 120x20mm	HT521
Blue disc, 120x20mm	HT520
Blue disc, 120-40mm	HT520-40
Blue disc, 150x30mm	HT520-150
<b>Pastes</b>	
Paste green, grit 2500	HT20
Paste blue, grit 3500	HT40

### 6 Technical data

<b>Bezeichnung</b>	
Power supply	230V
RPM	1400 Max.

### 7 History

Datum	Bearb.	Bezeichnung	Version
27.11.2015	Neumann	Original version	x
02.12.2015	Koch/Neumann	edited	1.0
10.12.2015	Koch/Neumann	edited	1.0-2
11.01.2016	Neumann	Translated (english)	1.0-2



## 8 EG Declaration of Conformity

The  
manufacturer:

Kurt Koch GmbH  
Im Steineck 36  
67685 Eulenbis

Hereby declares that the machines described below

**Koch Sharpening- and grinding machines, model and type  
HT2000 / HT3000 / HT4000 / HT4001 / HT4002**

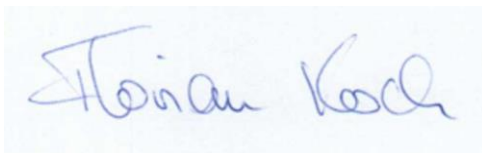
fulfill the health and safety requirements of

- EG machinery directive (2006/42/EG)
- EG directive EMV (2004/108/EG)

Harmonizing standards:

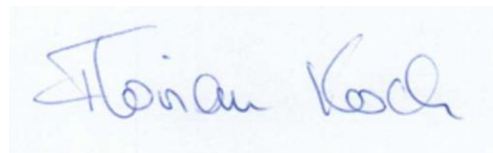
**EN ISO 12100-2, EN 13732-1, EN 61029-1, EN 60204-1, EN 61000-4-2, EN 61000-6-3, EN 61000-6-4**

**Constructional changes which affect the operating manual, technical data and the intended use, therefore change the machine substantially, make this Declaration of Conformity null and void!**



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**Florian Koch**  
documents authorized representative of  
Kurt Koch GmbH  
Im Steineck 36  
67685 Eulenbis  
GERMANY



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**Florian Koch**  
General manager of Kurt Koch GmbH  
Im Steineck 36  
67685 Eulenbis  
GERMANY