

OPERATION MANUAL FOR CORE-DRILL (CUTTER) SHARPENING MACHINE KBS/2



Original manual
Please keep for further use!

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EC-DECLARATION OF CONFORMITY

The manufacturer:

Kaindl-Schleiftechnik
Reiling GmbH
Remchinger Straße 4

75203 Königsbach-Stein
Germany

declares that the machine
described herein:

Grinding machine
Type: **KBS/2**

refers to the security and health requirements
of the following EC instructions:

EC Machine instruction (2006/42/EC)
EC Instruction EMV (2004/108/EC)

Applied harmonised norms:

**EN ISO 12100-1 and EN ISO 12100-2; EN ISO 13857; EN ISO 13732-1;
EN 61029-1, EN 60204 Part 1; EN 61000-6-1; EN 61000-6-2;
EN 61000-6-3; EN 61000-6-4**

**Change in design, which affect the technical data, listed in this operation manual
and the directed use, therefore change the machine substantially, make this
declaration of conformity invalid!**

These document had been compiled by:

Reinhard Reiling

Kaindl-Schleiftechnik
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1. DESCRIPTION

1.1 DIRECTED USE

The Kaindl **core drill grinding machine KBS/2** is determined exclusively for sharpening of HSS and hard metal core drills. For other operations, as listed here, the machine is not destined for. That goes for unauthorized use! In case the Kaindl core drill grinding machine KBS/2 is not used as per the intended purpose, a save operation cannot be granted.

In this case, the operator is responsible for all material- and personal damages.

You are asked to read this operation manual carefully, especially the general safety advice!

1.2 DESCRIPTION OF FUNCTION

The **core drill grinding machine KBS/2** offers the possibility to sharpen core drills very easily. Due to its robust and precision construction, the low-energy consumption and saving place, the machine can be operated - everywhere and instantly. The machine has been designed, in order everyone is familiar with, within short time and to be able to re-sharpen core drills very precise.

1.3 TECHNICAL DATA

Dimensions L x W x H, mm

Weight net	approx. 29 Kg
Electric connection	230 Volt; 50/60 Hz
Motor	230 Volt; 0,15 KW; 2800 U/min
length movement	
Motor slide	75 mm
Guiding slide	215 mm
Noise emission, dBa	< 70
Time until wheel comes to a stop	approx. 10 sec.
Grinding wheel	CBN grinding wheel Ø 125 mm
Boring core drill support spindle	19 mm weldon shank

Subject to technical changes!

2. GENERAL SAFETY ADVICE

2.1 DUTY OF TAKING CARE OF THE USER

The Kaindl **drill grinding machine KBS/2** has been designed and constructed under consideration of an endangering analysis and careful selection of observed harmonized norms, as well as further technical specifications.

This safety can only be achieved in daily work, when all necessary steps are taken. It is the duty of taking care by the user to plan and control these steps.

The user has to take care that:

- the machine is used as directed (see chapter "Description")
- the machine is used in flawless workable condition, especially that the safety installations are checked
- requested personal security equipment for the operator is available and used
- the operation manual is always in a readable condition, complete and available near the machine
- the drill grinding machine KBS/2 operated only by personnel that knows the contained operating instructions and the safety information
- all safety and warning instructions are not removed from the machine and kept readable.

2.2 EXPLICATION OF THE USED SAFETY SYMBOLS

In this manual the following symbols are used. These symbols should attract the attention of the reader to read the text beneath the symbols. These symbols indicate that there is an existing danger to life and health of persons!



Protect eyes while grinding, against kicked around particles



General danger



Before change of grinding wheel, or move to another place, disconnect from electric current.



Danger by laser beam

2.3 BASIC SAFETY ADVICE

Keep information available:

This manual has to be kept near the machine. It must be granted, that every person, who has to work with the machine has access to the operation manual. Additionally to the manual, also company instructions in sense of security and health requirements have to be provided.

All safety- and operation labels on the machine have to be always kept in a readable condition. Damaged- or unreadable labels have to be replaced immediately. These symbols point out, that there is a danger to life and health for persons.



Always wear safety goggles, when working on the machine.
The grinding dust may be dangerous to your eyes.



Before change of wheel or move to another place, disconnect from electric current.



Only remove the grinding wheel protection for changing the grinding wheel. During operation the grinding wheel protection must be mounted. The KBS has a laser unit. The laser beam mustn't hit the eyes, because the eyes may be damaged heavily. Prevent that direct sunlight shines through the optical lens, fire hazard!



Laser safety regulations:

The laser refers to Laser protection class II as per DIN EN 60825-1/94. For the operation, no further safety steps are requested.

2.4 DEMANDS FOR THE OPERATING PERSONNEL

Only persons who are familiar with this manual are allowed to work with the machine.

2.5 SPECIAL KINDS OF DANGER

Before starting the machine, the following checks have to be done:

- check the machine for visible damage; defects have to be repaired immediately.
- it is only allowed to operate the machine when all is 100% ok.

Check electrical connection regularly:

Fix open connections. Electric cables, being damaged have to be replaced by an electrician immediately. Never clean electrical equipment with water or similar.

Modification of the machine:

Due to safety reasons, you are not allowed to modify the machine.

Only use original spare parts / original wear parts / original accessories. These parts are specially constructed for this type of machine.

Please also read the chapter "General safety advice".

3. INSTALLATION

3.1 ENVIRONS CONDITIONS FOR THE INSTALLATION

Use the drill grinding machine only in dry rooms.

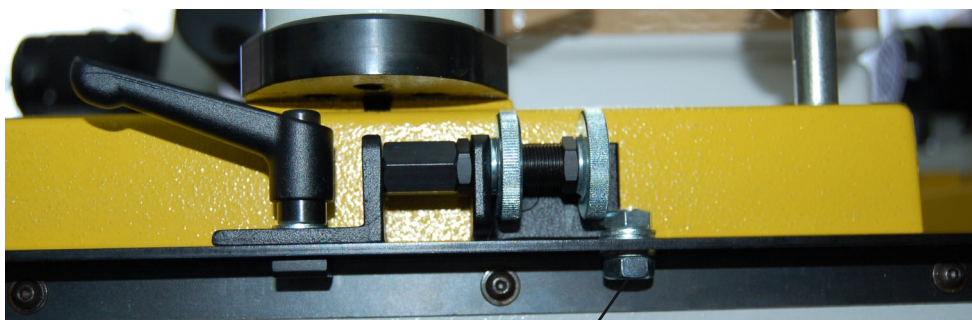
Environs temperature: from +5 to +50°C

Humidity: max. 90%, non condensing

The drill grinding machine is made for placing on a solid bench.

Please pay attention that the machine is placed safe. The place has to grant a vibration free turning of the motor.

3.2 REMOVE TRANSPORT LOCKS



Transport locks

After you have unpacked the machine, remove the transport locks (see picture).

3.3 ADVICE FOR DISPOSE OF PACKING MATERIAL



The carded box can be recycled. The rest of the packing is for garbage.

4. START UP

To prevent damage on the machine or severe injuries while starting, the following items have to be taken into account:

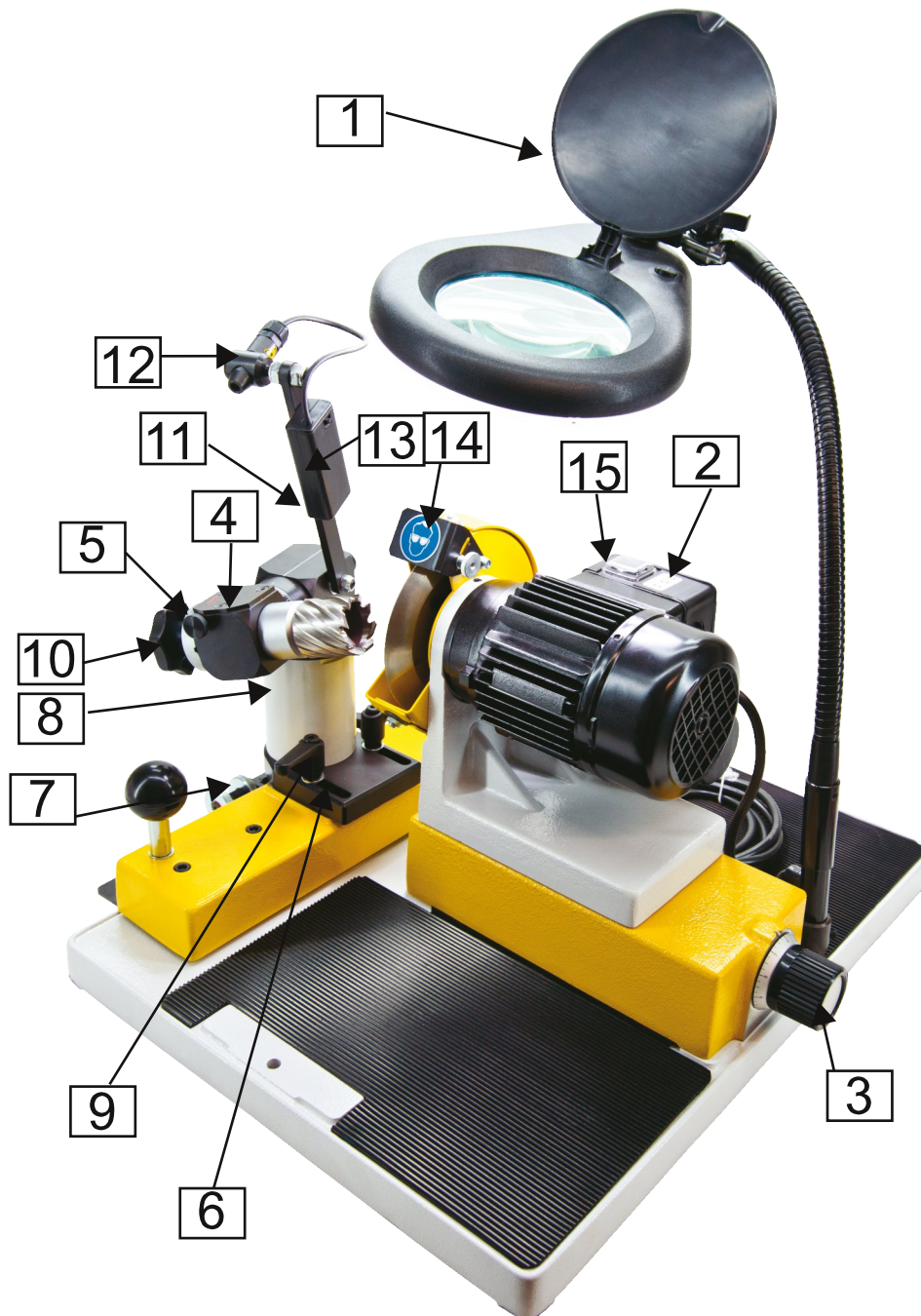
- Check if all tools and other parts not belonging to the machine, are removed.
- check the motor rotation direction before operating.
- Please check that the grinding wheel is turning **downwards**.
- Also read the chapter "General safety advice".
- Wear safety goggles.

4.1 CHECKS BEFORE THE FIRST INSTALLATION

- Check electrical components for damage
- Test if the guidance is sliding softly
- Inspect all fixed parts

5. OPERATION

5.1 DESCRIPTION OF COMPONENTS



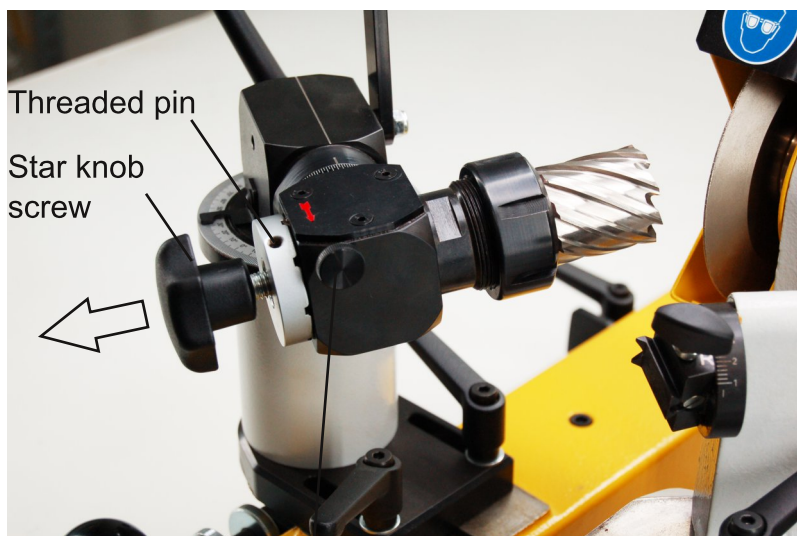
- | | | | |
|----|--------------------------------------|-----|------------------------------------|
| 1. | Precision lens LED lighted | 9. | Quick adjustment |
| 2. | Motor | 10. | Star knob screw for transport |
| 3. | Motor feed | 11. | Clamping lever for head adjustment |
| 4. | Core drill support (Weldon) | 12. | Laser |
| 5. | Index plate | 13. | Battery box |
| 6. | Slide for long core drills | 14. | Grinding wheel protection |
| 7. | Micrometer adjustment | 15. | Motor switch |
| 8. | Star knob screw for angle adjustment | | |

6.2. ADJUSTMENT AND SET UP

6.2.1 CHANGE OF INDEX PLATE

The index plate (page 9, Pos. 5) of the **drill grinding machine KBS/2** the precise of core drills, having different numbers of teeth. The basic equipment comprises the following index plates: **T-8** (for core drills with 4 or 8 teeth) and **T-10** (for core drills with 5 or 10 teeth).

Optional the following index plates can be ordered: T-4 to T-20 (Ø45) / T-22 and T-24 (Ø65). Special pitches on request!

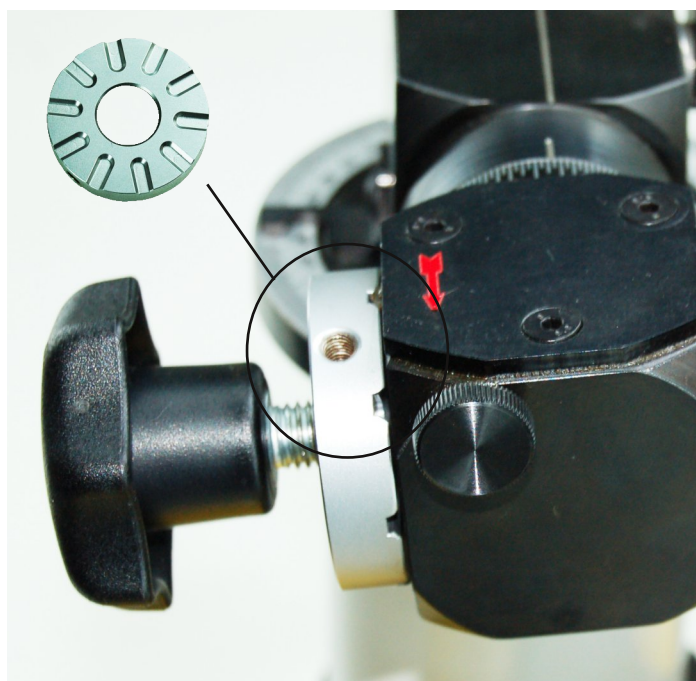


Threaded pin
Star knob screw

Knurled screw a

Change of the index plate

Select the suitable index plate for your core drill. For changing the index plate, turn the star knob screw clockwise till the threaded pin in on the upside and locked (see picture). Fix the knurled screw (a). Screw off the star knob screw anticlockwise. Open the threaded pin (Hexagon socket wrench 2,5) and remove the index plate.



Insert the index plate

Place the selected index plate on the spindle, pay attention that the threaded pin is over the groove of the spindle (see pic).

Turn the threaded pin in order it gets in slight contact to the groove (do not fix). Screw the star knob screw clockwise and fix. Now fix the threaded pin and open the knurled screw.

5.2 ADJUSTMENT OF THE CORE DRILL



PLEASE BE CAREFULL, THE CUTTING EDGES ARE VERY SHARP AND YOU MAY HURT YOURSELF VERY EASILY!



Turn the core drill support to 90° (see picture above)

By placing the core drill inside the support, pay attention that the threaded pin is **not** on the flat side of the Weldon shank (Do not tighten the pin yet).



The laser beam grants a precise positioning of the core drill in the support (Picture on the right). By use of the laser guiding pin, align the beam that he exactly lights the outer cutting edge (see picture on the right below).

The laser is switched on, by pressing the knob on the side of the casing. Turn the core drill in the support unit the laser exactly lights the edge of the outer cutting edge. Fix the core drill in this position with the threaded pin M8, placed on the side of the support.

!!! Mark the tooth you have adjust with a black felt pen !!!

outer edge

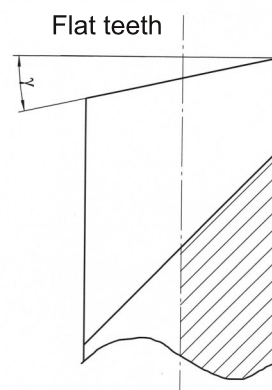
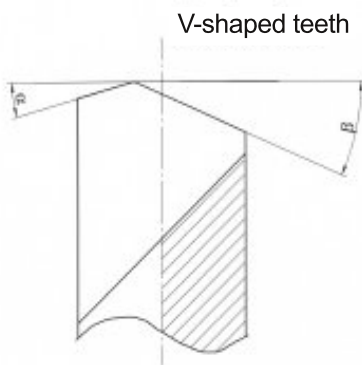
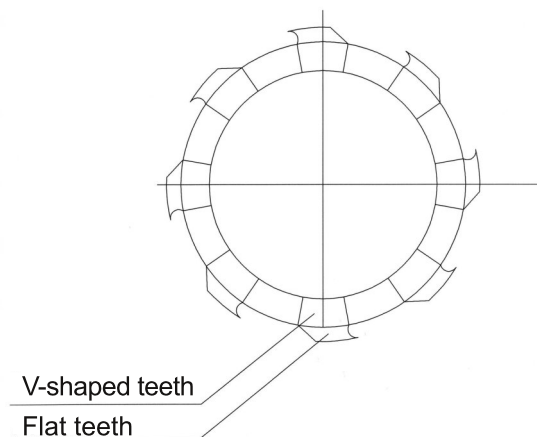
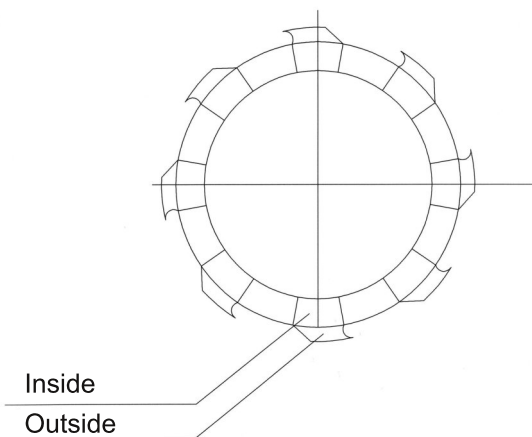


5.3 ALIGN OF THE CORE DRILL

DURING ALL GRINDING OPERATIONS, ALWAYS WEAR YOUR SAFETY GOGGLES!

Core drills are divided into 2 categories. Core drill with flat tooth or V-shaped tooth. The standard core drills only have V-shaped teeth. The alternating core drills have varying V-shape- and flat teeth.

With this machine type **KBS** the teeth are sharpened first on the inside and then on the outside. On the alternating core drills the V-shape teeth are sharpened first and then the flat teeth.



5.3.1 GRINDING OF THE CORE DRILL

Core drills are available in different diameters and variations, manufactured by different companies.

In case you got a grinding manual of your supplier, please use their specifications. If not, then use our adjustments (see table).

Number of teeth	Standard		
	Scale pillar		Support
back inside/ back outside	inside		inside
4	70°		7,5°
5	70°		7,5°
6	70°		7,5°
7	70°		7,5°
8	70°		7,5°
9	70°		7,5°
10	70°		7,5°
11	70°		7,5°
12	70°		7,5°

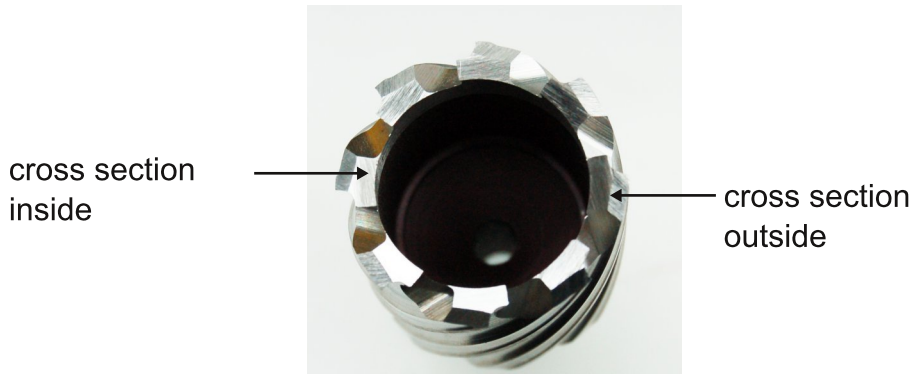
Adjustment on the core drill for grinding the back inside



Adjustment of the core drill: Back inside

!!! Use the suitable index plate !!!

We start grinding the back inside (see picture)

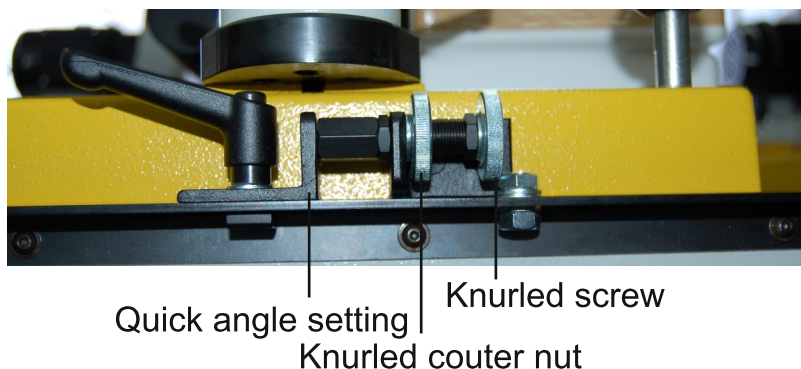


Place the scale of the pillar to **70°** (see picture page 13)
The core drill support place to **7,5°**

After you have finished the angle adjustment, move the core drill by using the guiding slide and the motor feed towards the grinding wheel. Grind the tooth which is projected to the **middle** of the grinding wheel. The one you have adjusted and **marked before!**

Move inside the grinding wheel (motor off) up to you touch the next tooth. Now fix the stop dog on the side in this position (see picture below). By using the micrometer knurled screw, move back a little in order the tooth does not touch the next tooth.

Now start grinding tooth by tooth of the back inside, by moving the slide forward and backward. The feeding with the motor feed should be done carefully and be kept in the same position for all teeth.



After you have sharpened the first tooth, move back the slide and turn the star knob screw clockwise up to the next index of the index plate. **Do not work with the motor feed.**

Repeat this operation until all teeth are sharpened.

Number of teeth back inside/ back outside	Standard		Support	
	Scale pillar inside	outside	inside	outside
4		82,5°		15°
5		82,5°		15°
6		82,5°		15°
7		82,5°		15°
8		82,5°		15°
9		82,5°		15°
10		82,5°		15°
11		82,5°		15°
12		82,5°		15°

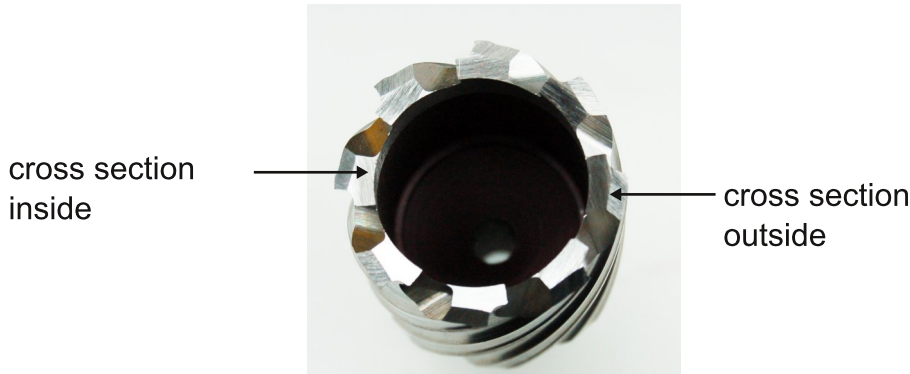
Adjustment for grinding the back outside



Adjustment of the core drill: Back outside

!!! Use the suitable index plate !!!

We start grinding the back outside (see picture)

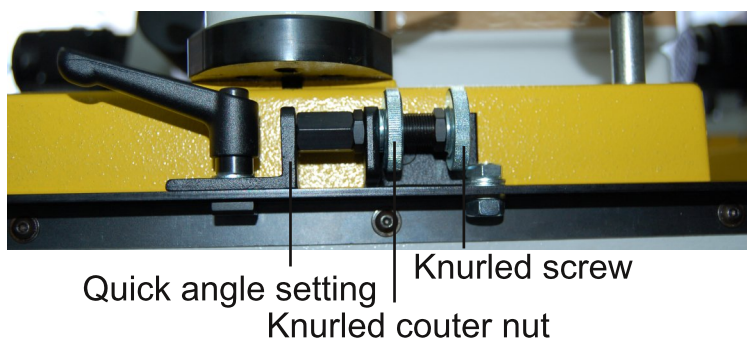


Place the scale of the pillar to **82,5°** (see picture page 15)
The core drill support place to **15°**

After you have finished the angle adjustment, move the core drill by using the guiding slide and the motor feed towards the grinding wheel. Do not grind the tooth, you have adjusted before (marked tooth), **but the next cutting tooth below.**

Move with the core drill slide to the grinding wheel (motor off) and adjust with the stop dog on the side (see picture below). Turn back the stop dog with the precision adjustment screw, up to the following tooth does not touch the grinding wheel.

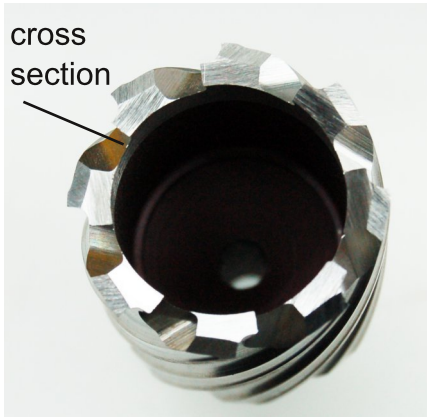
Now start grinding tooth by tooth of the adjusted back, by moving the slide forward. The feeding with the motor feed should be done carefully and be kept in the same position for all teeth.



This grants that all teeth having the same length after. When you have sharpened the first tooth, move back the slide and turn the star knob screw, clockwise up to the next index of the index plate. **Do not work with the motor feed.**

Repeat this operation until all teeth are sharpened.

5.3.2 GRINDING OF THE CUTTING FACE



For grinding the cutting surface, use the **CBN grinding wheel B 126** (Item.No. 17052).

(Changing of the CBN grinding wheel, please see chapter "Change of grinding wheel", page 18)

Place the scale of the pillar to **30°**.
(Standard value: see picture below)
 Place the core drill support to **25°**.

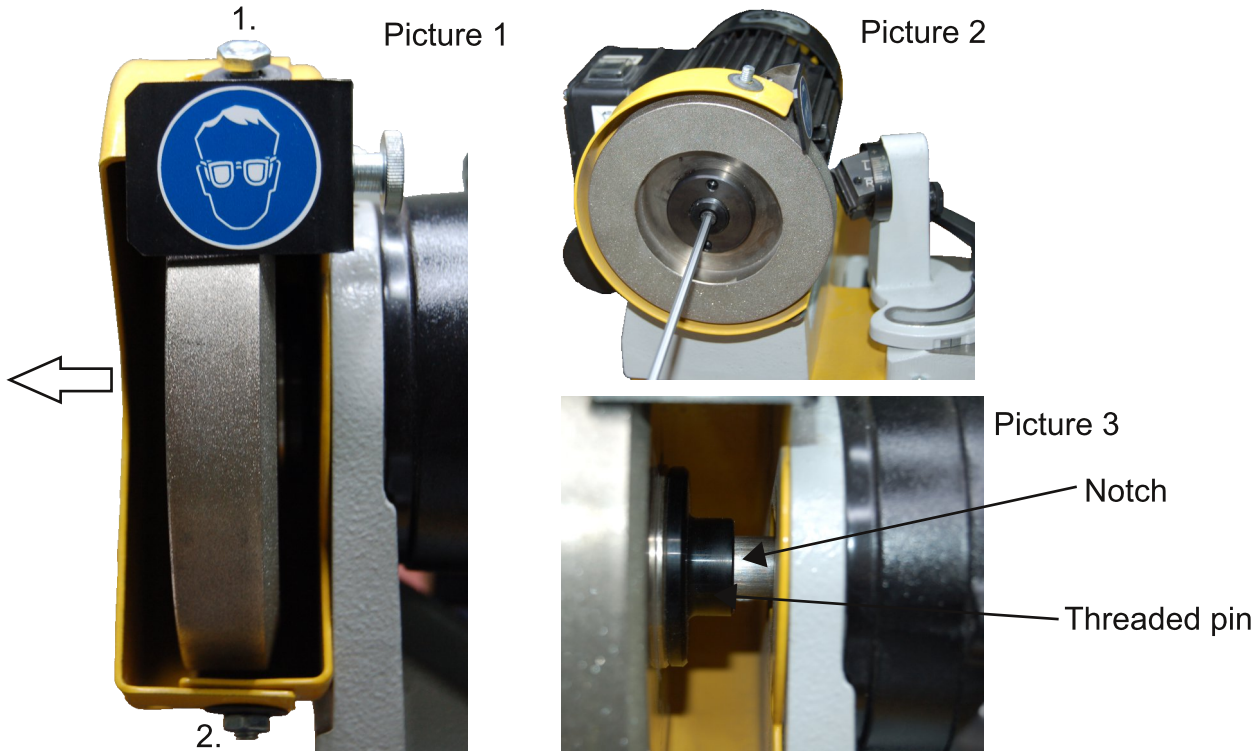
This setting is not identical for all types of core drills. Move the core drill towards the grinding wheel (motor off) and correct the angle setting if necessary. The angle can be between **15°** and **30°**. After the setting, move the core drills with the slide and the motor feed towards the grinding wheel. Grind the cutting face, by using the **CBN grinding wheel radius**. Do not grind the tooth you have adjusted (marked tooth) **but the next one cutting face below**.

Move inside the grinding wheel up the CBN grinding wheel touches the cutting face (motor off). Fix the stop dog on the side. Turn the micrometer adjustment screw, in order you can grind the cutting face completely. Now sharpen the adjust cutting face. The feeding with the micrometer adjustment screw should be done carefully. After you have sharpened the first cutting face, move back the slide and turn the star knob screw, clockwise up to the next index of the index plate. Do not work with the motor feed or the micrometer adjustment screw.

Repeat this operation until all cutting faces are sharpened.



5.4 CHANGE OF GRINDING WHEEL



Before changing the wheel, disconnect the electric plug, remove the core drill from the support.

Loosen both head cup nuts with a 10 mm engineers wrench and remove the grinding wheel cover as shown on the picture. Now open by use of an allen key SW 4,0 the screw in the center of the wheel support (Picture 2).

Now you can remove the grinding from the motor spindle. Open the grinding wheel support with the supplied key and change the grinding wheel. When placing the support in the motor spindle, pay attention that the threaded pin is in the notch of the motor spindle (Picture 3).

Now fix the screw in the center of the wheel support with the allen key SW 4,0 and mount the grinding wheel cover in opposite sequence. Take care that the grinding wheel support is mounted correctly.



Never use the KBS / 2 without correctly mounted grinding wheel protection!

6. MAINTENANCE - SERVICE

6.1 CLEANING AND GREASING

The **core drill grinding machine KBS/2** should be cleaned from grinding dust minimum weekly by use of a soft brush. For persistent soil, use a usual in trade machine cleaner. After cleaning, all moving parts should be greased with a drop of machine oil. To prevent corrosion of the blank parts also grease these parts and polish with a soft cloth after. Grease the motor slide every 6 month using the lubrication nipples.

6.2 REPAIRS

Repairs of basic unit assembly groups, as the grinding head or guiding slide can only repaired in our company. These parts are responsible for the precision of the machine.

7. WARRANTY

The warranty is **12 month** from date of shipment and refers to a **one shift work** under condition of a appropriate use of the machine.

The guarantee includes the costs for replacing of defect parts and assembly groups, including the required working time.

Excluded from any guarantee are:

- Wear parts
- Transport damage
- An improper use
- Damage by use of force
- Damages and consequential damages caused by breach of the duty of taking care of the user

In case of a warranty claim, we ask you to inform us about the serial no. of the machine.

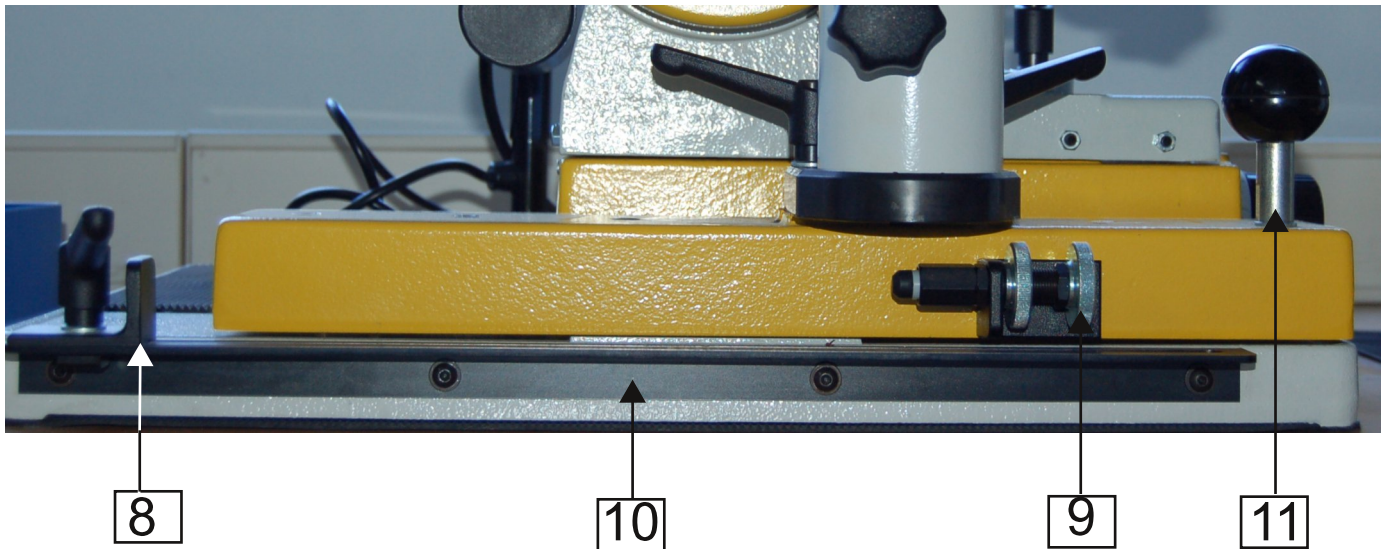
Returns have to be authorized by us, before shipment. We reserve the right to charge you with the transportation cost, if the return was not authorized.

Spare parts or replacement parts are transferred absolutely in our ownership.

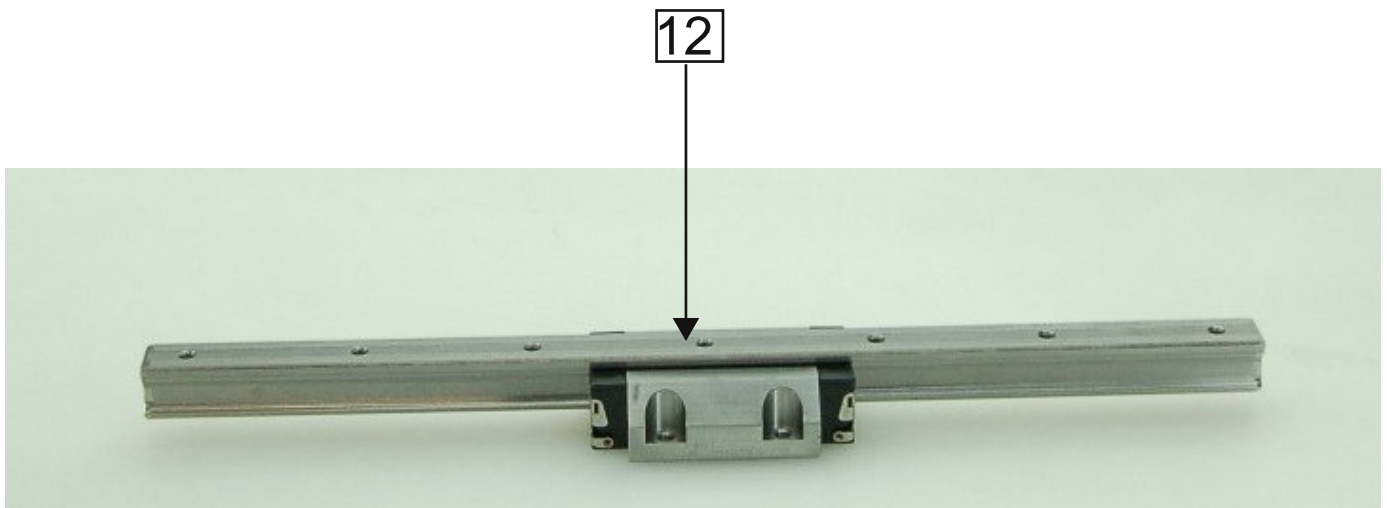
8. SPARE PART LIST

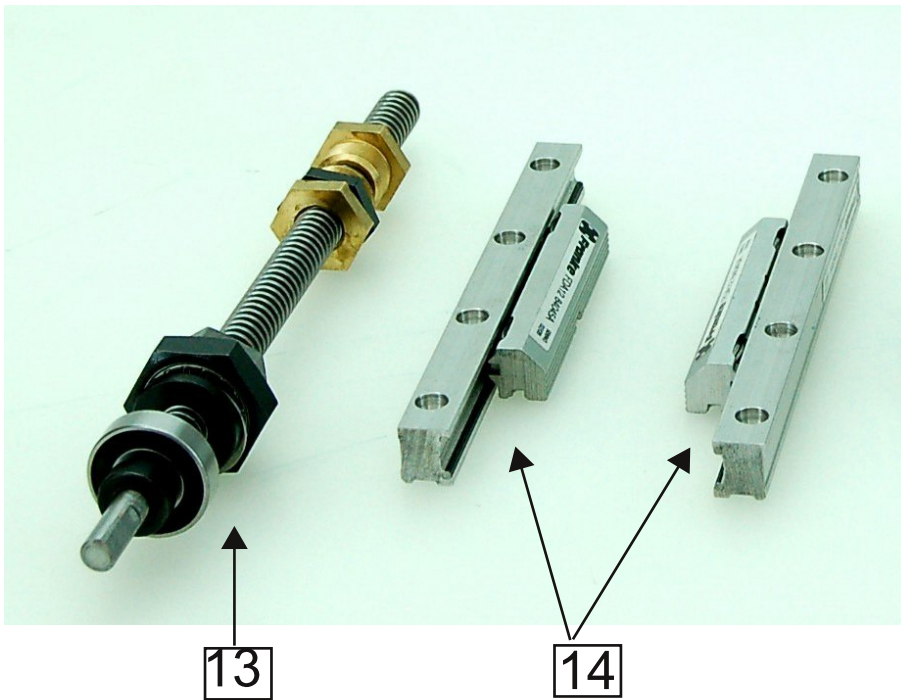


1. Item.No. 18070 Optical lens LED lighted
2. Item.No. 12874 Motor 230V / 50 Hz loose
3. Item.No. 11013 Motor switch complete with casing
4. Item.No. 10567 Fan wheel cover
5. Item.No. 10915 Rotating head with scale for prims- and motor feed
6. Item.No. 11261 Spark protective cover 42 mm adjustable
7. Item.No. 10914 Grinding wheel protector 3pcs.



- 8. Item.No. 12349 End position angle with lever
- 9. Item.No. 12350 Hydraulic end position damper complete with support
- 10. Item.No. 12351 Endposition rail
- 11. Item.No. 12352 Hand lever with bowl head
- 12. Item.No. 12357 Precision guiding rail with ball bearing carriage complete





- 13. Item.No. 10924 Spindle system motor feed compl. spindle, L= 237 mm, set of spindle nuts
- 14. Item.No. 12343 Guidance set new version 145 mm for motor feed

Please specify with order always model year and machine number!

Item.No. 17052 CBN grinding wheel B 126 (standard), 2 side covered for back of tooth
Item.No. 17053 CBN grinding wheel B 126 (standard), 3 side covered with radius for inside tooth