

**SAFETY INSTRUCTIONS
AND OPERATOR'S MANUAL
FOR
ANNULAR CUTTER
REGRINDING
MACHINE GRN-1**



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I. DESCRIPTION

1. Directed use

Grinding machine GRN-1 is specifically designed for HSS core drills re-sharpening. Machine is not recommended to any other applications.

In the case that the GRN1 is used for any other purpose, then safety cannot be assured. In such case the operator is responsible for any machine's damage or injury of people in the vicinity. Manufacturer recommends to read manual user very carefully, especially points regarding basic safety advice.

2. Description of work

Grinding machine GRN1 enables easy core drills (annular Cutter) re-sharpening. Because of it's solid and precise construction, low supply energy demand and small dimensions the machine can be used in any place and can be installed ready for use in a short time . GRN1 was designed as user friendly machine, and our operator manual describes how to make simple work of regrinding Cutters.

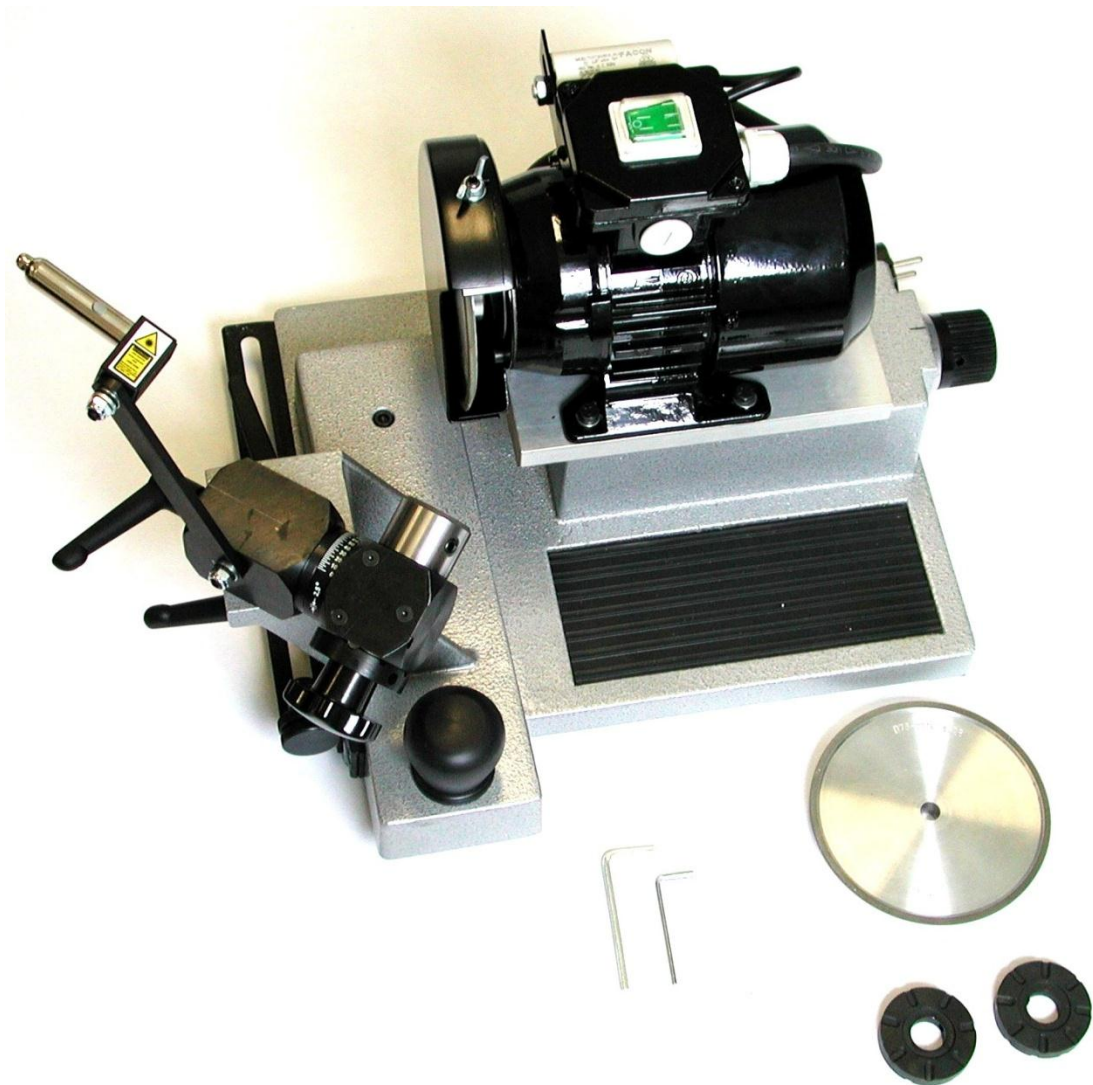
3. Technical data

Dimensions LxWxH. [mm]		465 x 399 x 355
Weight Net [kg]		15,5
Supply [V]		220 – 230 V AC
Motor [V / kW / rpm.]		230 / 0,18 / 2820
Movement length	Motor guide [mm]	70
	Guiding slide [mm]	162
Noise level dB(A)		<70
Grinding disc inert time [s]		10
Grinding disc		Electroplated, diamond grinding disc ø 125 mm
Cutter's clamping [mm]		19 (Weldon shank)
Insulation class		I
Max cutter's length		50 mm
Scope of the cutter's diameter		Ø14 mm - ø50 mm

4. Equipment

Core drill's re-sharpening machine GRN1 is delivered to the customer in carton packing, ready to use. The machine is completed with standard equipment, below:

- set of dividing discs
- hexagonal keys s=2,5 and s=4,
- grinding disc for tool flank (Gullet) grinding
- grinding disc for cutting surface (Cutting Edge) grinding
- Operators Manual with warranty card.



II. GENERAL SAFETY ADVICE

1. Operators duty

GRN1 machine was designed and made after risk level analysis and after selection of current harmonized standards in conformity with further technical specifications. Safety operating is ensured only if operator follows with further directions.

The operator has to pay special attention and be sure that:

- Machine is used as directed
- Machine is efficient,
- All elements strictly joined with safety work are regularly controlled
- Personal protection equipment is efficient and always available
- Operators manual is always close to the machine
- None of safety and warning label is removed from the machine.

2. Basic safety advice

Operators Manual shall be kept always close the machine in readable condition and available for any person operating with machine. In addition, the users own company instructions regarding security and health requirements have to be available for operators.

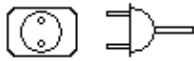
Symbols placed on the machine point out that there is a danger to human life and health. Labels placed on the machine have to be kept in good readable condition Damaged or not readable labels shall be replaced immediately.



Always wear safety glasses during machine work.
Grinding dust can be danger for your eyes.



Remove of the grinding disc protection is only permissible for grinding disc replace. During machine's work protection has to be always mounted.



Before grinding disc replacement or machine displacement always disconnect it from electric supply.



WARNING!!! LASER. Machine GRN1 is equipped with laser. In order to avoid eye injury laser **CANNOT** be directed into the human eyes.

3. Demands for operator

Only people familiar with this Operators manual, can be allowed to work with GRN1 core drill grinding machine. Any operator who did not get to know this operators manual contents before starting the machine, maintenance or service, may cause a dangerous situation for the user's and neighbouring persons safety.

Do not operate the machine whilst being under the influence of alcohol.

4. Special risks

Before machine start up:

- Check for any visible damages. Defects must be removed immediately.
- Machine can work only when is in 100% efficient
- Do not start machine if some damages or lack of equipment are observed
- Do not start machine in vicinity of flammable materials or in vicinity of fuel vapours.
- Check up regularly power supply cord.
 - Repair open electrical connections,
 - Replace electric cables immediately if damaged,
 - Never clean up electric equipment with water
- Do not dismantle safety protection elements

Machine modification

No modifications of the machine are allowed. Only original parts should t be used in order to replace some spare parts and accessories. Mentioned spare parts are constructed only for this machine. Read the chapter "General Safety Advice"

III. INSTALLATION

1. Work environment

Use GRN1 machine only in dry rooms

Environment temperature $+5^{\circ} \div +50^{\circ} \cdot C$

Humidity max. 90% (protect against condensing)

Place machine on solid bench

Pay attention for safe machine placing

Machine's work place has to ensure a vibration free motor work



To avoid machine's damage and series injury when starting the machine, following steps are necessary to be taken:

Ensure that all parts and tools which not consist the machine (allen keys, screws) are removed from machine vicinity.

Check condition of grinding disc.

Read also the chapter " General Safety Advice"

Always wear safety glasses.

2. Check before first installation

- Check up the condition of electric connections, and in case of extension cord wear, check up the condition above. In the case of any damage, the cord should be immediately replaced. This operation must be carried out by qualified electrician or in a certified service point.
- Check up fixation of all parts.
- Check up if the electric parameters of supply correspond to required data placed in this manual and on the machine's name plate. In case divergence appears always take into consideration data given on the machine's name plate.



- Check up if slide way moves without excessive frictional resistance. Machine can be only connected to the net equipped with earth protective pin. In case of non correct connection of grinding machine an electric shock may occur.

- In case, the plug does not suits to the socket, a qualified electrician intervention is necessary, in order to fit the plug and the socket. Any wilful exchanges in electric circuit of grinding machines are permissible.

Warning!

Never start the machine if some equipment element is missed, or machine is not carefully assembled. Not respecting this prohibition may cause the accident and serious injury. Avoid fingers contact with grinding disc, or other dangers in case the grinding disc pushes away from the shaft.

IV. TRANSPORT AND STORING

Storing conditions

Machine is delivered in original factory packing. We recommend for long-term storing to keep machine in dry surroundings in factory packing, in temperature from -20° C do 50° C.

Transport conditions

Machine is designed for hand loading and transporting in work place. For long distances can be transported by any transport medium. Please take care of you to prevent the machine's movement on slide ways under inertial force.

Before machine displacement:

- Turn off machine with button on position "0"
- Pull out the power cord from the socket
- Check up the condition of screws elements.
- Carry over the machine holding the machine's base with both hands

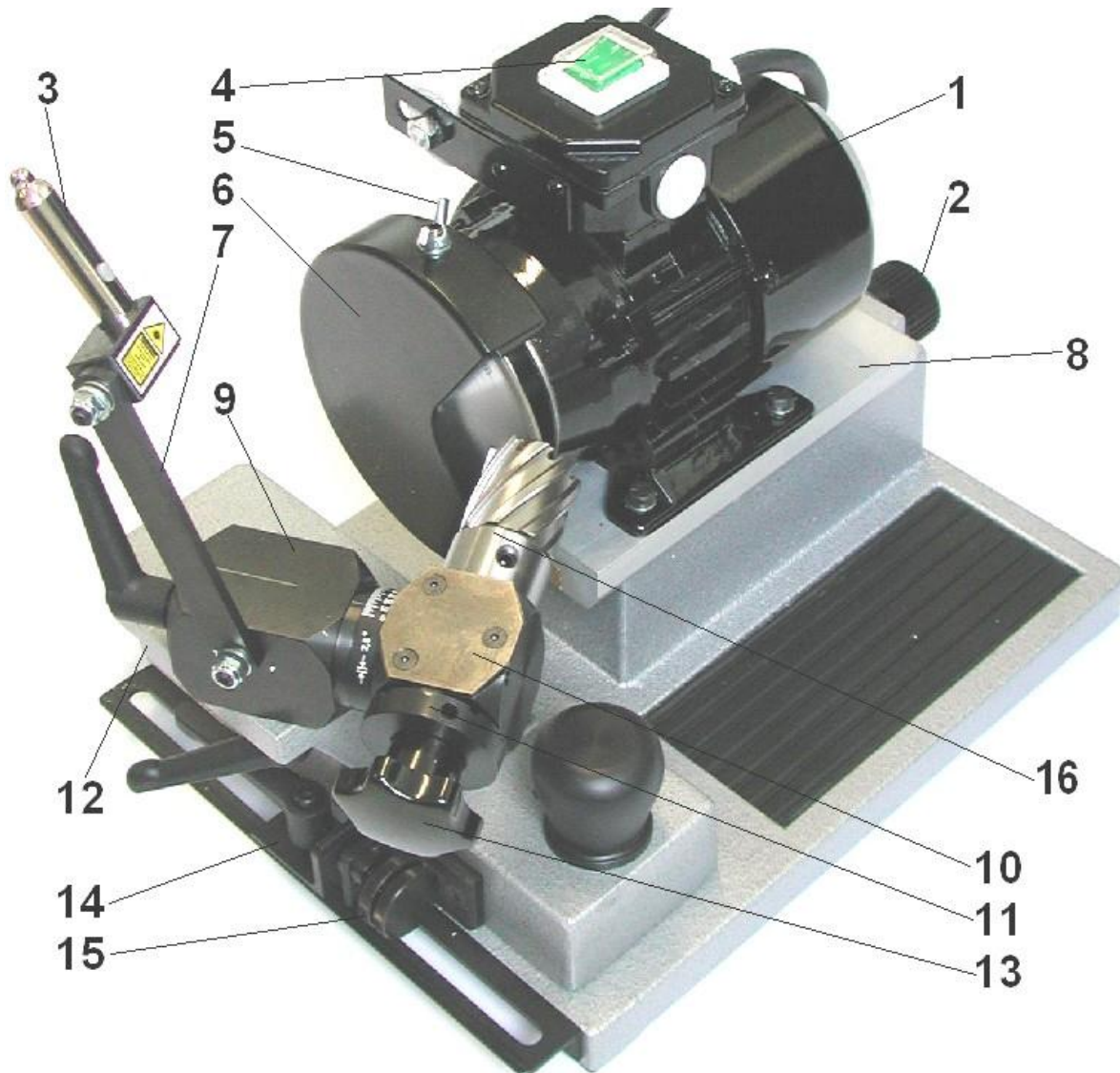
Warning!

In any case:

- Do not use power cord to move the machine
- Do not carry over machine with rotating grinding disc when replacing the machine
 - in order to change the machine's position.
- Avoid contact with the disc guard, adjusting elements and laser indicator body.

V. OPERATION

1. Components description

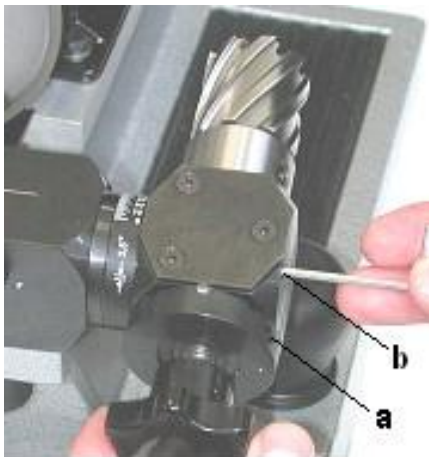


- | | |
|-------------------------------|-------------------------------|
| 1. Motor | 9. Wellhead support |
| 2. Motor feed screw | 10. Core drill holder support |
| 3. Laser | 11. Dividing disc |
| 4. Motor switch | 12. Support slide way |
| 5. Grinding disc guard fixing | 13. Star wheel with screw |
| 6. Grinding disc guard | 14. Bumper handle |
| 7. Laser arm | 15. Micrometric screw |
| 8. Motor slide way | 16. Weldon Arbor 19,05mm |

2. Adjusting and configuration

2.1. Dividing disc exchange

Dividing discs (point 6.1. pos. 11) of GRN1Grinding machine are responsible for accurately re-sharpening of core drill depending on the number of teeth. The basic equipment of machine consist of following dividing disc: T - 8 for core drills with 4 or 8 teeth, T - 10 for core drills with 5 or 10 teeth, and T - 6, T - 7, T - 9, (for core drills with 6, 7, 9 teeth).



Dividing disc exchange

Choose the dividing disc suitable for the number of core drill teeth. In order to exchange the dividing disc, first turn the star wheel in CW direction until the fixing screw (a) appears in upper position. Tight the bolt (b) with hex key 2,5. Untighten the screw with star wheel (pt 6.1. pos. 13) in CCW direction. Untighten screw (a) on dividing disc (use hex key 2,5) and pull out the disc.



Dividing disc assembly

Place the chosen dividing disc on the spindle. It is important to draw attention, that screw (a) appears under the spindle slot (see drawing.). Screw gently the screw (a) with hex key 2,5) to position the slot (do not tighten). Tight the screw with star wheel in CW direction. Next tight screw (a) placed on dividing disc and loosen the screw (b) (upper drawing).

2.2. Core drill adjusting



Warning! Edges of core drills are sharp. Please avoid injury!



Turn the arbor holder onto position 90 ° (see drawing.)

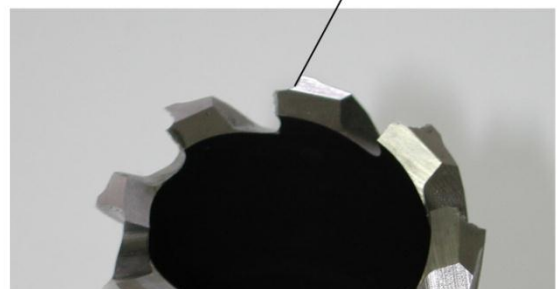
When placing the core drill inside the arbor, please draw your attention the fixing screw locates with the cylindrical surface of Weldon shank (not flat surface) of the core drill. (Do not tighten the screw). This is necessary to avoid the core drill position change during screw tight, what could result incorrect set up.

The laser ray enables core drill accuracy positioning in the arbor (right drawing) .

Wheel head support (pt 6.1. pos. 9) has got white line (see drawing). During laser ray positioning, its light must be always on this line located . This is the method of basic laser ray positioning or its new positioning.



Outer cutting edge



With the spindle of laser indicator guiding, set up laser indicator, to fit exactly to the external cutting edge (see drawing).

Laser ray is switched on by small button placed on cylindrical indicator's body. Now the user should turn the cutter slightly in the arbor, in order that the laser ray lights up exactly the on the external cutting edge . Fix the cutter in this position tightening the screw, placed on the cylindrical surface of Weldon arbor with hex key 4.

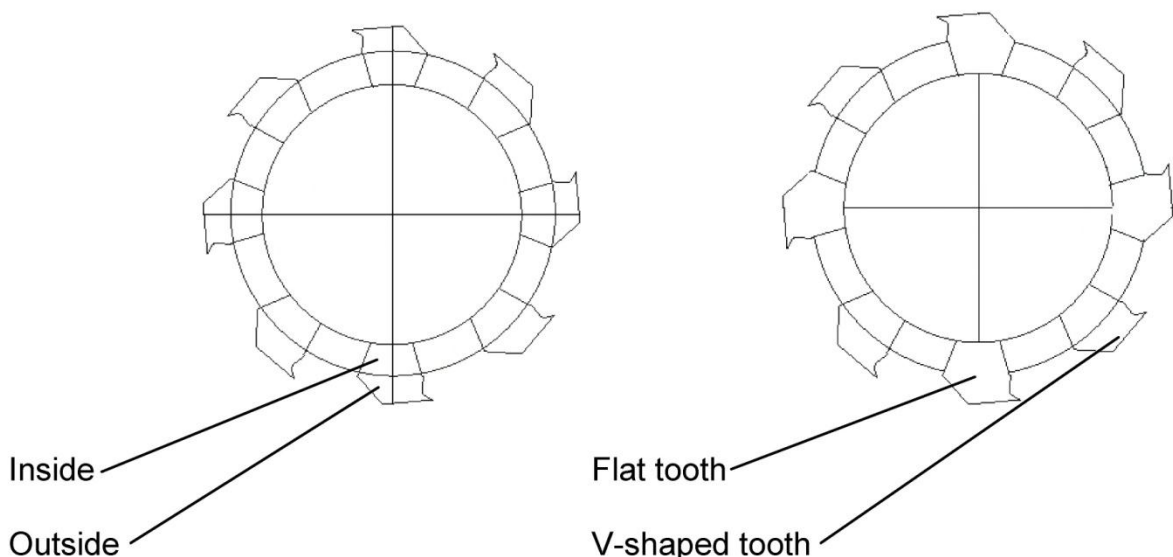
!! MARK THE POSITIONED TEETH WITH THE MARKER!

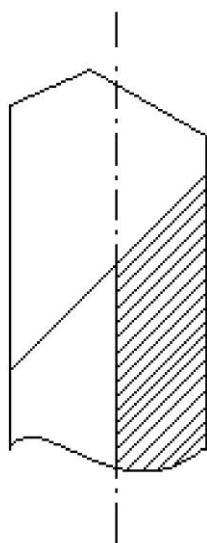
3. Regular work



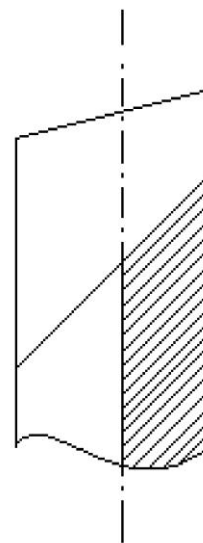
Always wear glasses during re-sharpening works.

There are two tooth forms of core drills. Core drills with flat tooth and with V-shape tooth. Standard type core drills are V shape tooth. Non-standard core drills are equipped alternately with flat and V-shape tooth. This machine is designed to re-sharpen in first line tooth on internal side and next on external side. In case of non-standard core drill re-sharpening first are re-sharpen V-shape tooth and next flat tooth.





V-shaped tooth



Flat tooth

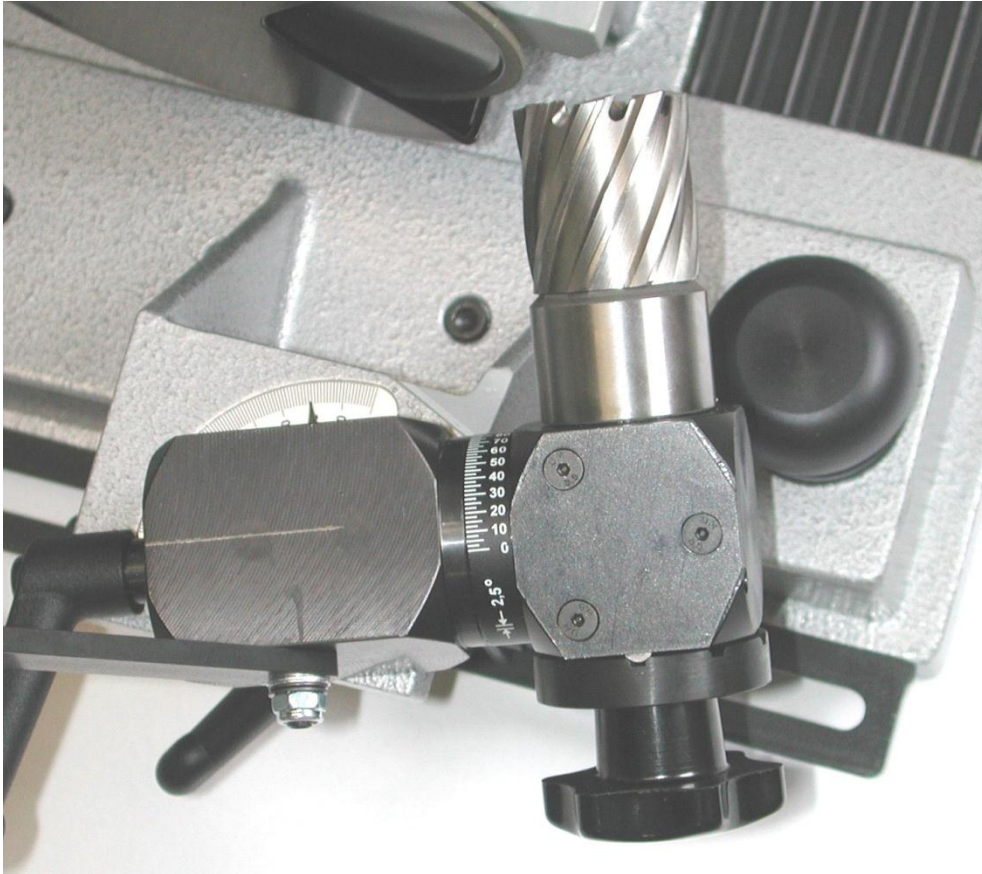
3.1. Core drills re-sharpening

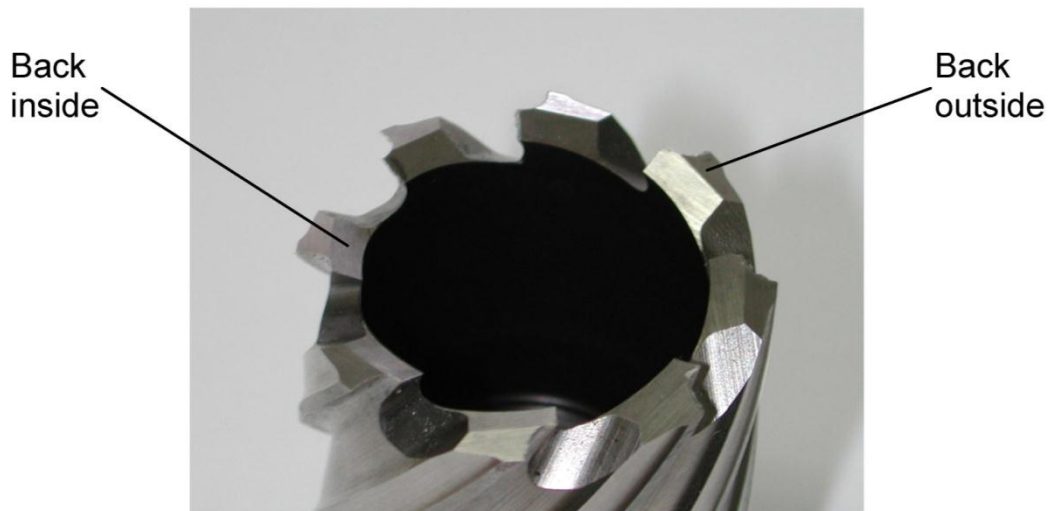
Core drills, although available in two sorts are manufactured by different manufacturers.

If core drills manufacturer provides user with information regarding re-sharpening parameters of tool, it is recommended to apply this settings. The following data below gives a **guide only** of the required angle settings

Tooth no	HSS Steel			
	Support Scale		Arbor angle	
	Intern.	Extern.	Intern.	Extern.
4	20°	7,5°	7,5°	15°
5	20°	7,5°	7,5°	15°
6	20°	7,5°	7,5°	15°
7	20°	7,5°	7,5°	15°
8	20°	7,5°	7,5°	15°
9	20°	7,5°	7,5°	15°
10	20°	7,5°	7,5°	15°
11	20°	7,5°	7,5°	15°
12	20°	7,5°	7,5°	15°

Core drill setting for internal surface re-sharpening





First step.

Set up the angle on wheel head support at 20°
Set up the arbor angle at $7,5^\circ$

!! Remember to use the correct dividing disc !!

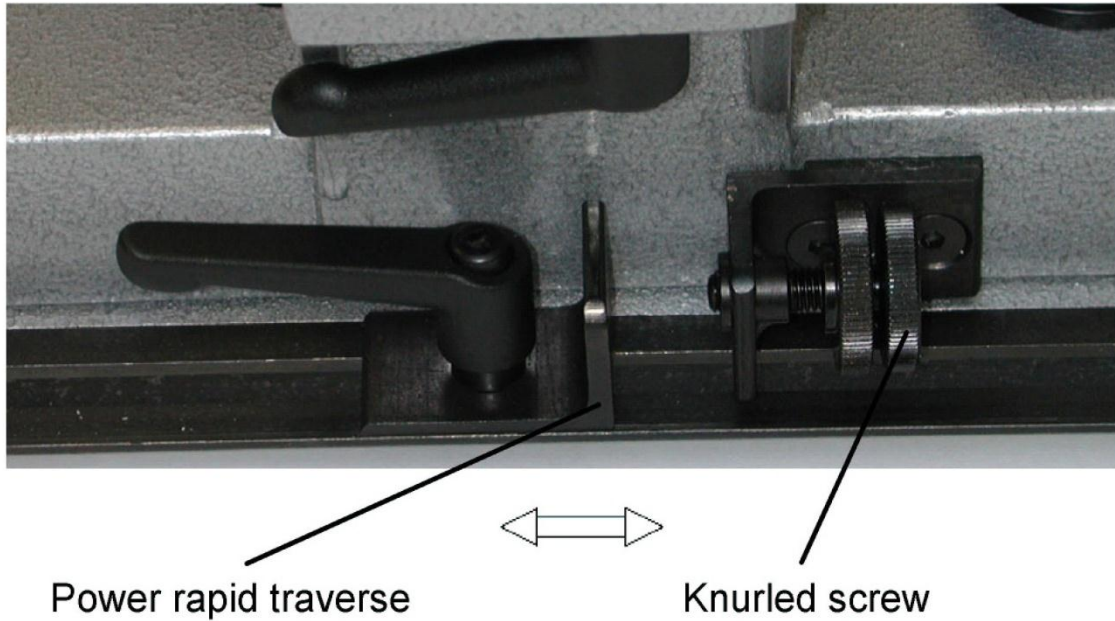
After both angles settings, move the cutter with the guide and motor feed mechanism to the grinding disc. Re-sharpen the tooth which is directed into the middle of grinding disc, nearest to the "3 o'clock" position. (This one which position was settled up with the laser ray and marked with the marker).

Move the support up to the tooth contact with the grinding disc. Lock the handle of the bumper in this position (see drawing).

With micrometric screw move back the guide slightly, just so the grinding disc did not touch the next tooth.

Start re-sharpening the tooth from internal surface, mowing the guide forward and backwards. Motor feed should be realised carefully and with the same value for all teeth.

After the first tooth re-sharpening, move back the guide and turn the star wheel in CW direction until the dividing disc will match the next position. Do not change the motor feed setting. Repeat above work until all teeth will be re-sharpened.



Core drill setting for external surface grinding



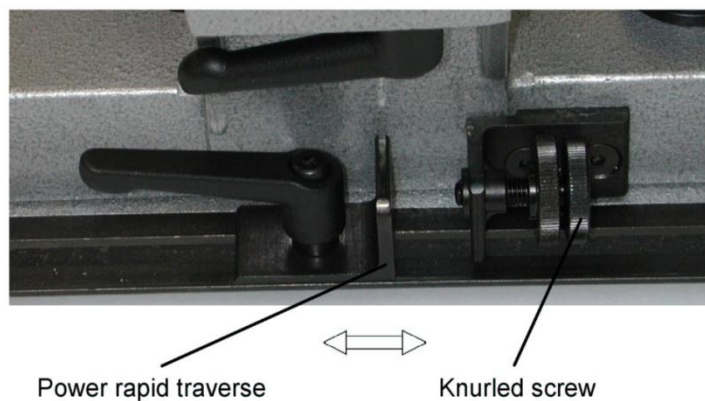
Set up the angle 7,5 ° on wheelhead support

Set up the 15 ° angle on arbor

After setting the angle, move the cutter with the guide and feed motor mechanism towards the grinding disc.

Do not re-sharpen the tooth marked earlier with the marker, but the next one placed below.

Move the support until the teeth will get in touch with grinding disc. Lock the bumper's handle in this position (see drawing).



With the micrometric screw, move back the guide, just to avoid the contact of next tooth with grinding disc.

Now you can start the sharpening process from the marked site, moving the guide forward and backwards. The motor's guide feed should be adjusted carefully and with the constant value for each tooth.

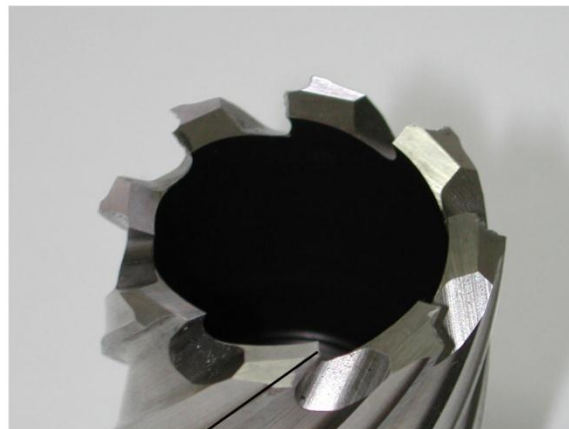
After the first tooth has been sharpened, move back the guide, turn the star wheel in CW direction, down to the dividing disc new position.

Do not change the motor feed adjustment. Repeat described above functions till all teeth will be re-sharpened. Carry out the process over several passes until the cutting edge is completely reground.

3.2. Gullet grinding

After intensive use, and after several re-grinds, it is necessary to reform the gullet area between each tooth, to ensure that the cutter performs its hole cutting operation correctly. Without a correct gullet, the cutter will not release its solid slug after the operation.

In the case of reforming the gullet, the second grinding disc with a different geometry of grinding surface, should be placed on machine's spindle.



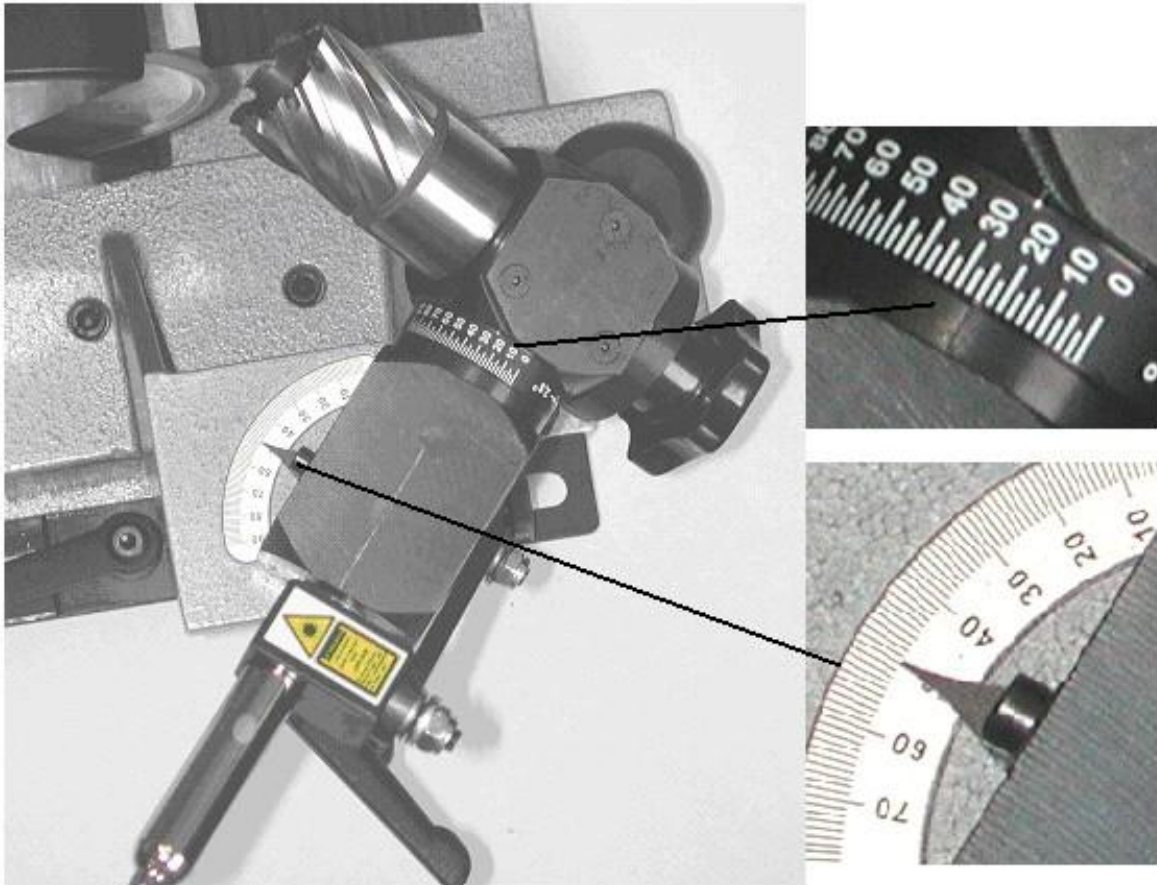
Cutting face

Adjust the angle 50 °on support scale

Adjust the angle 25 °on the arbor scale

Mentioned adjustments are not obligatory for all cutters types. Move the cutter into the grinding disc (when motor is ON) and if necessary correct the cutter adjustment.

The angle can fluctuate in range 15° ÷ 30°



After setting the cutter position, move the core drill with guide and motor feed mechanism towards the grinding disc. Grind the gullet area of the core drill with above mentioned grinding disc. Do not grind the tooth which was earlier marked with marker, but the surface of the next tooth.

Move the core drill along the grinding disc in a stationary condition till the Gullet touches the diamond disk. Set the lateral stop and the fine tuner in such a way that the Gullet surface can be ground.

Now grind the Gullet Surface which you have set. Delivery through the fine tuner should be low, and it should be uniform for all the Gullet surfaces. After grinding the first Gullet surface, pull the guidance carriage back and turn the star-shaped screw head in the clockwise direction (direction of arrow) right up to the next section. You can position the next stretched surface in this manner. Do not alter the motor feed and the fine tuner position.

Repeat the grinding process till all the Gullet surfaces have been ground.

4. Grinding disc replacement

Unplug the machine from the power supply before grinding disc replacement
Remove core drill from the arbor



Grinding disc replacement

Turn out the wing-nut fixing down and up.(see drawing) remove the guard. The grinding disc is equipped with hexagonal screw placed on the flange. Loosen screw with hexagonal key 2,5 and remove the grinding disc from machine spindle.



Grinding disc assembly

Place the proper grinding disc on machine's spindle (\keep approx. 5mm distance from internal surface of guard) and tighten the screw. Then re-assemble the grinding disc guard.

VI. MAINTENANCE AND REPAIR

1. Cleaning and greasing

The GRN1 core drill grinding machine should be cleared up from the dust particles at least once a week with delicate brush. After clearing all movables parts, the unit should be greased with a thin layer of machine oil.

Motors guides shall be greased every 6 months with thin layer of grease on the internal surfaces.

Warning!!

Cleaning machine with water is not permissible. Water use may cause machine's defect or damage.

Before cleaning machine it should be unplugged from the power supply.

2. Repair

Repair of machine main components such as guides or wheelhead, can be made only by the manufacturer. Mentioned parts are responsible for accurate machine's work.

VII. EC DECLARATION OF CONFORMITY

Declaration of compatibility

We

JEI solutions
Rawtenstall, Rossendale

declare with full responsibility that product:

Core drills grinding machine GRN-1

which the declaration applies to is in accordance with the following standard(s)
placed below:

EN 50144-1, and satisfies safety regulations of guidelines: 2006/95/EC, 2006/42/EC

Białystok, 2010-02-25



Chairman

VIII. MACHINE TEST CERTIFICATE

Machine control card

Product: JEI-GRN1

Serial No. _____

Date of test: _____

Electric test results:

Test	Result
Test with sinusoidal voltage of 1000 V and frequency 50 Hz	
Resistance of the protective circuit [Ω]	

The above-mentioned product meets the requirements of safe usage as prescribed in standard IEC-745

Name of tester _____

Quality Control _____

IX . WARRANTY CARD

WARRANTY CODITIONS

Core drill grinding machine JEI-GRN1

1. The Manufacturer grants the Buyer a guarantee for a 12 months period from date of sold.
2. The Buyer lost the warranty in case of:
 - Warranty sense remove;
 - Non permissible repairs or changes;
 - Use of machine not correct with destiny described in Machine's Manual;
 - Defects which occurred to be caused another than material defects or assembly mistakes.
3. Guarantor is responsible to repair the machine in reasonable time of 14 days from delivery time the machine to the service point, and 21 days in case of delivery by post.
4. Warranty does not cover: safety fuses, grinding disc, regular equipment of machine , electric brushes of the motor and the damages may occur during regular wear of machine .
5. The Seller is not responsible for damages of machine resulted by not proper way of transport.

 Description

Produce date:.....Serial No.....

Purchase date.....

Seller's description and signature.....