Børkey

Børkey 912 REXA 4

OPERATING MANUAL

1. Table of contents

2. About the operating manual

Notes on the operating manual

The operating manual shall facilitate getting to know the machine 912 REXA ^{4} and to use it for the intended application.

The operating manual contains important notes for operating the machine 912 REXA ^{4} safely and properly. Observing it helps avoid hazards and reduces repair costs and down time.

The operating manual always has to be available at the operating site of the machine.

Any person working with and on the machine must read and make use of the operating manual for works including:

- Operating, including setting-up, troubleshooting in the operation, disposal of production waste, servicing
- Maintenance (upkeep, inspection, overhaul) and / or
- Transport

Next to the operating manual and the mandatory accident prevention regulations in the country and on the operating site where the machine is used, the generally recognised rules for safe and proper working must be observed.

Keep this manual in a safe place for future reference !

For any inquiries please contact:

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3. Safety
Basic safety information

Works on the machine must only be conducted by authorised personnel.
Observe the legal minimum age!

The installation site of the machine must be dry and must feature a suitable height, as well as a level and solid ground.
The machine must not be operated in the open, in explosion-prone areas, or immediately adjacent to flammable substances.

Before activation the supply voltage must be compared with the power rating plate on the machine.
The connection must ensue using a properly installed safety socket only.
The machine must not be operated without the existing safeguards.
After completion of the activities and leaving the machine, the electric drive must be shut down.
The mains plug must be separated from the power grid upon any relocation of the machine.

Avoid any procedure that could impair the safety of the machine.

No safety devices must be altered, disassembled or be disabled on principle. The safety devices prevent damage.

Check the safety devices for all functions on every work day. Shut down the machine if any damage or flaw is recognisable that could impair the safety of the machine or if unusual noises can be heard.

The machine must be separated from the power grid by pulling the mains plug before any repair or maintenance works will be conducted.
As a matter of principle, all repair works must only be conducted by a specialist and only after the machine has been shut down. (Use original spare parts only)

The works on the electrical equipment of the machine must only be conducted by an electrically qualified person.

Connection lines

The connection lines must be regularly inspected for signs of damage or aging by a qualified person.

- Keep away from pinch and shear points.
- Do not use if not properly connected.

Hazard warnings

- **Do not reach into the running machine!**
- **Any preparatory and follow-up works only after the machine has been shut off!**
- **Wear safety glasses!**
- **Do not wear loose clothing or long, loose hair!**
- **Separate the machine from the power grid in the case of error.**
  To do that, pull the mains plug or switch off the fuse!

4. Information about the use of the machine

Proper usage

The machine Börkey 912 REXA ^{4} is exclusively designed for cutting cylinder keys, car keys, and cross keys.
Any other use beyond that is not deemed proper.
The manufacturer is not liable for damages resulting thereof.
The risk is borne solely by the user.
Observance of the operating manual and the maintenance conditions is part of the proper use.

5. Description

Semi-automatic key cutting machine

Börkey 912 REXA ^{4}

for cutting keys by sample

Main features of the machine

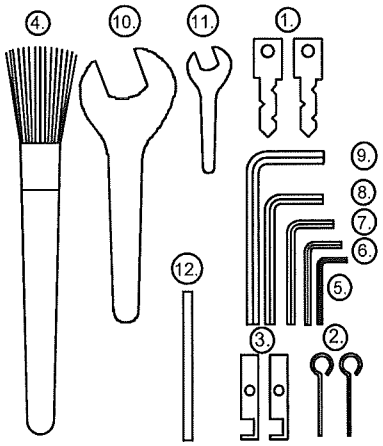
- Copies any cutting angle in the roll off method without changing the cutter
- Quickly adjustable 4-way reversible jaw
- Exchangeable wear parts
- Maintenance-free sintered bushings mounted cutting spindle
- Electronically sensor vernier adjustment of the depth
- The power supply for the milling drive is disrupted or enabled in the basic position or working condition of the key holder
- Safeguard against reactivation of the machine after an power loss and return of power
- Energy-saving LED lighting
- Separate connection cable

6. Technical data

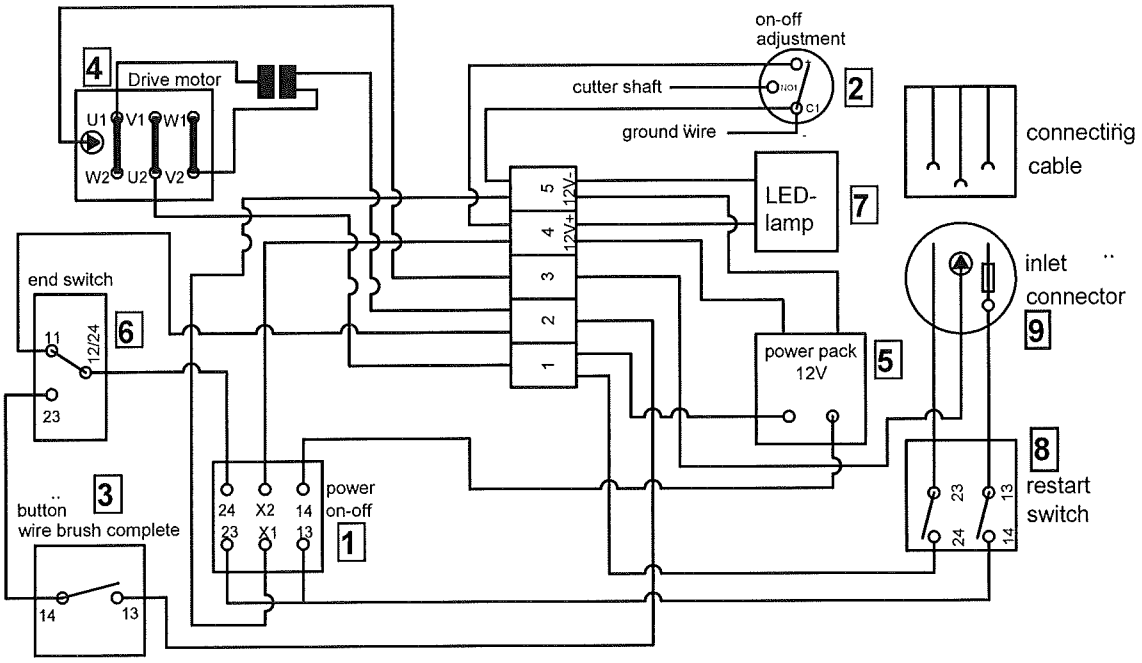
Power rating	255 W
Supply voltage	230 V
Frequency	50 Hz
Weight	24 kg
Space requirement	57x43x30 cm
Sound pressure level, after 3 GSGV	77 dB (A)

7. Equipment

		Order No.
1.	4 setting gauges	9954-204-008
2.	2 pins Ø 1.2	9954-204-010
3.	2 stops with recess	9954-204-014
4.	1 brush	9000-021-001
5.	1 allen key SW 2	9000-022-001
6.	1 allen key SW 2.5	9000-022-002
7.	1 allen key SW 3	9000-022-003
8.	1 allen key SW 4	9000-022-004
9.	1 allen key SW 8	9000-022-010
10.	1 jaw spanner SW 24	9000-023-003
11.	1 jaw spanner SW 10	9000-023-008
12.	1 jaw spanner SW 13	9000-023-002
13.	1 pins Ø 4	9000-020-002



8. Wiring diagram



(Wiring diagram illustration)

1 = Power on/off switch complete	9 912-013-006
2 = Power on/off switch adjustment	9 000-039-123
3 = Button wire brush complete	9 912-013-007
4 = Drive motor	9 000-026-091
5 = Power pack	9 912-013-005
6 = End switch	9 000-039-112
7 = LED lamp	9 912-013-004
8 = Restart switch	9 000-039-122
9 = inlet connector	9 000-057-004

9. Maintenance

The machine must be cleaned of metal residue (e.g. shavings) in regular intervals. (Brush)
You have to check in regular intervals that no metal residue (e.g. shavings) can accrue between the cutter and the machine body. (Clean with brush)

-Do not use compressed air!

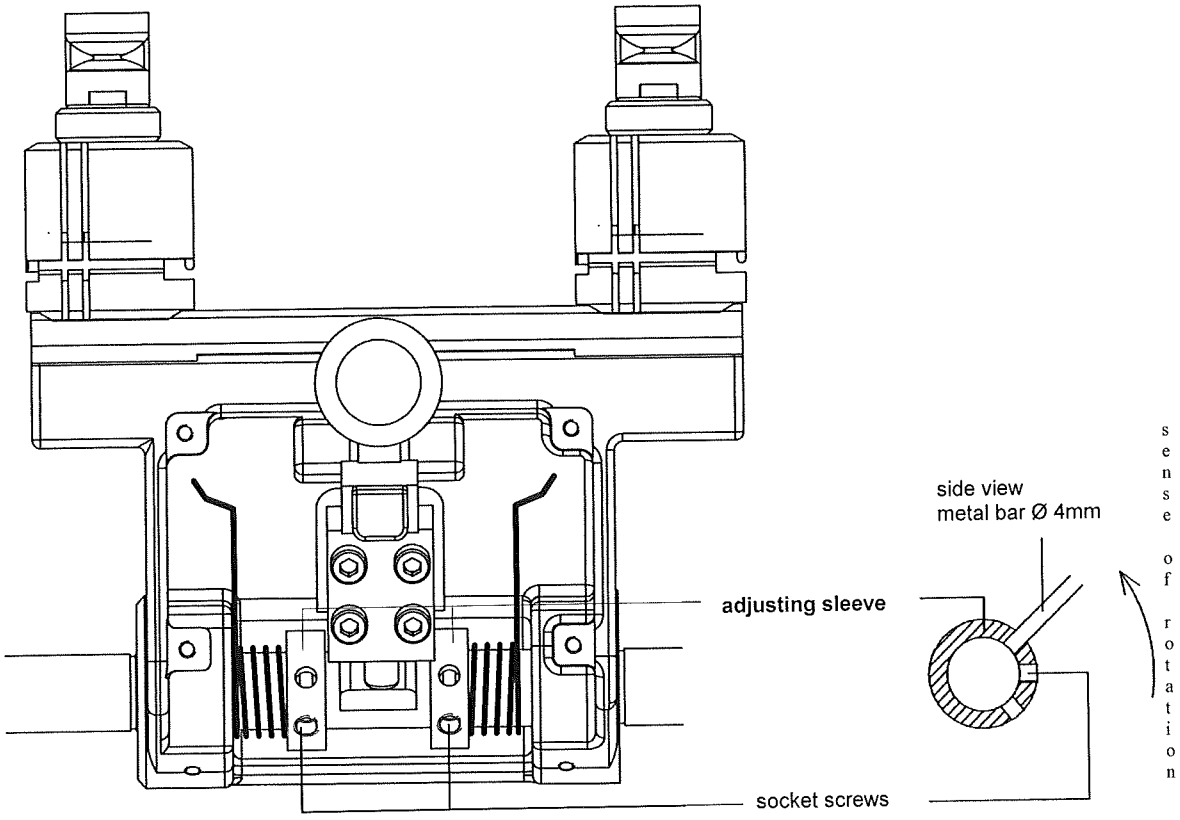
Possible retension (spring pressure too low) of the lateral springs in the key holder can be achieved by the spring tension mounted beneath the key holder. To do that, remove the key holder sheet and loosen the setscrew of the spring tightening coupling. Turn the spring tightening coupling upwards using a pin ∅ 4 and retighten the setscrew again (pic.3).

Lubricate the following parts approx. every 4 month (earlier if needed) with a good machine oil or grease:

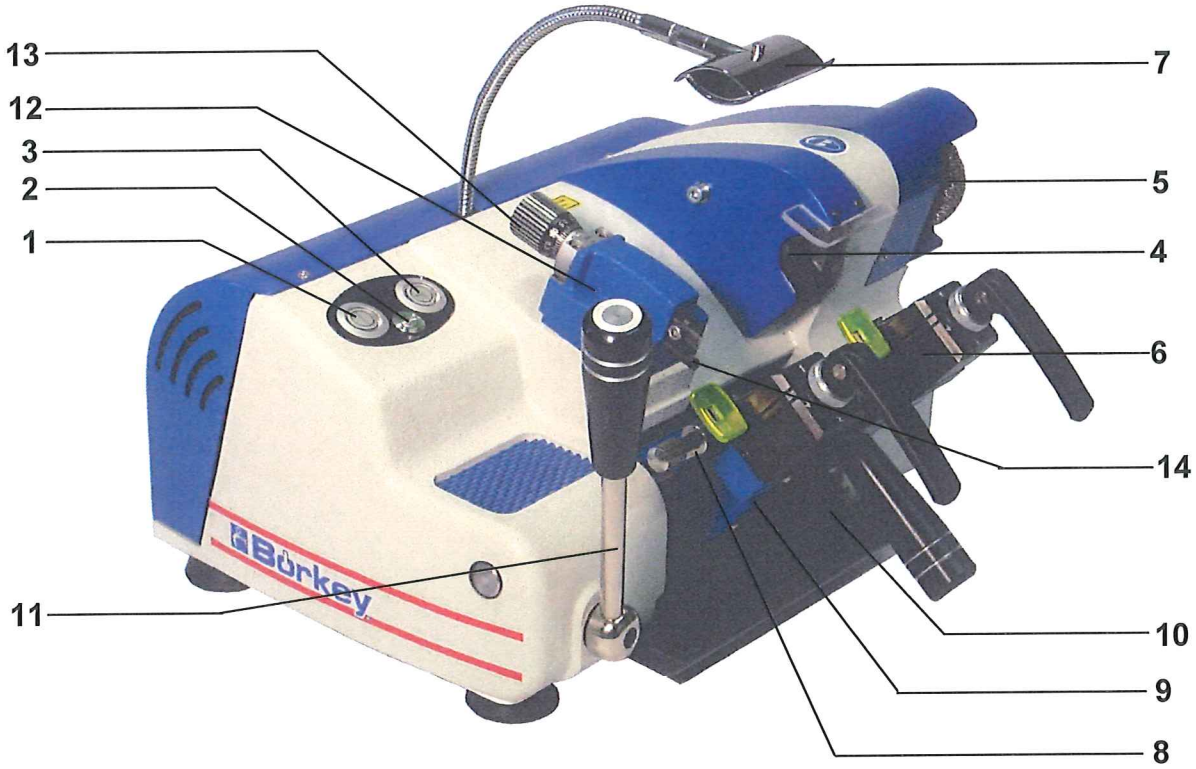
- Keyholder shaft
- Feed lever

Do not lubricate the cutting spindle!
Absolutely keep the drive pulley and the drive belt free of grease !

pic. 3



10. Main function parts



Push button machine ON-OFF (1)

Push button blue - machine on
Push button neutral - machine off

Push button machine adjustment of depth ON-OFF (2)

Push button at the bottom - adjustment on
Push button at the top - adjustment off

Push button activation of the wire brush ON-OFF (3)

Push button pressed - machine on
Push button not pressed - machine off

Intake cutter (4)

Shut down the machine when exchanging the cutter. Remove the protective cap from the cutter.
Loosen the tightening nut (4) by using a jaw spanner (SW 24) in clockwise rotation.
Insert allen key (SW 8) into the cutter shaft as a brace to avoid twisting of the cutter shaft.
Remove tools and insert another cutter in the cutter shaft and push it in all the way.
Tighten the tightening nut by counter-clockwise rotation and install the protective cap of the cutter.
After a successful exchange of the cutter, check the cutting depth and the lateral distance
feeler – cutter and if necessary adjust (page 13).
Correct, if necessary, the setting of the spacer (14). (Page 10)

Caution ! **Absolutely remove the brace from the cutter shaft before activating the machine.**

Intake wire brush (5)
Exchanging the wire brush
Loosen the setscrew of the wire brush intake. (allen key SW 2.5)
Afterwards pull the wire brush to the right and insert a new wire brush. Then tighten the setscrew of the wire brush intake.

Key intake (6)
Clamping tools for keys and clamping units.
The left intake is for the sample key, the right intake for the key blank to be processed.

LED lamp (7)

Stop lever (8)
The keys, key blank and samples are lengthwise aligned
with the stop levers.
Preparation and check (page 11 and 12)

Key holder (9)
Springy mounted work piece carrier with safeguard (10) and stop lever (8).

Safeguard key holder (10)
The safeguard always holds the key holder (9) in starting position for preparatory works. Unlock for working position by pulling it up.
It can only be operated if the stop levers (8) are in basic position.

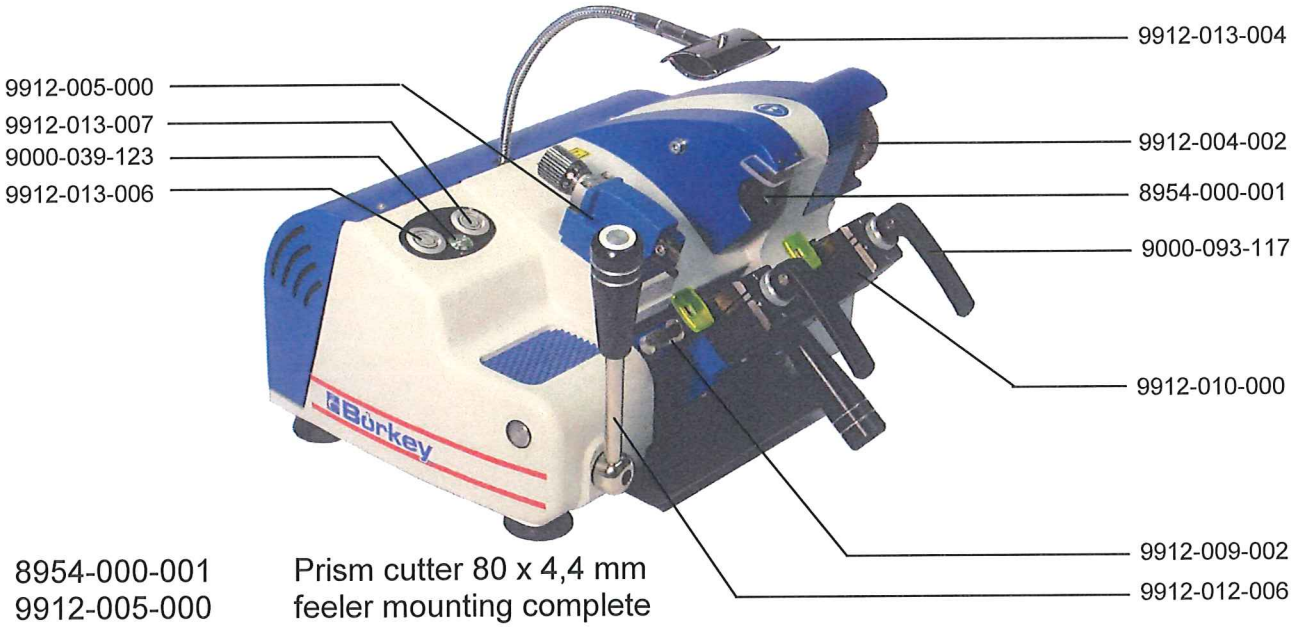
Level feed movement (11)
Shifting the key holder to the left or the right can be realised using the feed lever (11).
The feed lever can be brought into a favourable working position by releasing the screw on the lever and shifting the lever (11) correspondingly.
An individual height setting of the hand lever can be achieved by loosening the setscrews in the hand lever.

Adjustment spindle depth adjustment (13)
The adjustment spindle of the depth adjustment enables the precise setting of the cutting depth in the key blank. (Page 13)

Spacer (14)
The spacer protects the key intake against damage by the cutter.
A check or re-setting must be conducted after any change of the cutter diameter or any re-adjustment.

Re-adjustment: - Deactivating the machine –
Key holder in starting position.
Loosen the setscrew in the feeler mounting using an allen key SW 2.5 and unscrew the spacer (14) several turns. Lead the key holder to the feeler and cutter.
Screw in the spacer (14) until the largest possible cutting depth is achieved.
Lock the setscrew in the feeler mounting.

11. Spare parts list

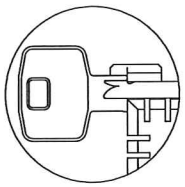


8954-000-001	Prism cutter 80 x 4,4 mm
9912-005-000	feeler mounting complete
9912-005-006	feeler insert
9912-013-004	LED lamp
9000-026-091	Drive motor
9912-013-006	Blue pressure switch with ring lighting ON-OFF
9000-039-123	Green pressure switch adjustment ON-OFF
9912-013-007	Pressure switch wire brush ON-OFF
9912-013-005	Power pack
9000-039-122	Restarting switch
9994-014-007	Shavings trough
9912-012-006	Feed lever complete
9912-009-002	Stop lever
9912-003-000	Baering unit complete
9912-004-002	Wire brush
9000-151-011	Conical groove belt
9912-010-000	Clamping jaw complete
9000-093-117	Eccentric tightening strap
9912-007-002	Leg spring right
9912-007-003	Leg spring left

12. Working notes

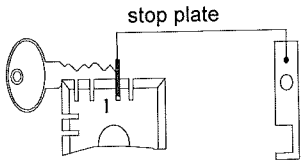
Cutting keys with stop collars

Bring the key holder to the left into basic position using the feed lever (11).
Fasten the sample key with the stop collar approx. 1 mm from the clamping jaw side into the left clamping jaw.
Slightly fasten the key blank with the stop collar approx. 1 mm from the clamping jaw side info the right clamping jaw. Turn the stop lever against the stop collar of the sample key.
Loosen the right clamping jaw and align the key blank to the stop lever and then fasten it; then put the stop lever back.
Keys with the same stop collar on both sides can be fastened against the left clamping jaw sides directly.
Use **clamping jaw 4** for very deep cuts (under 3.8 mm).
A possible tilting of the key during the cutting process can be prevented by using the clamping jaw sides 2 or 3.
The clamping jaws must always be kept free of shavings by using a brush.



Cutting keys without stop collars

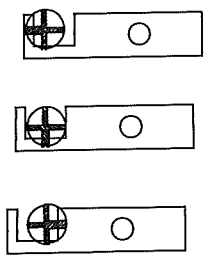
Keys without stop collars on the key shank can be fastened using stop plates at the tip.
Depending on the length of the key, the stop plates are inserted into one of the outer grooves on the right side of the clamping jaw.



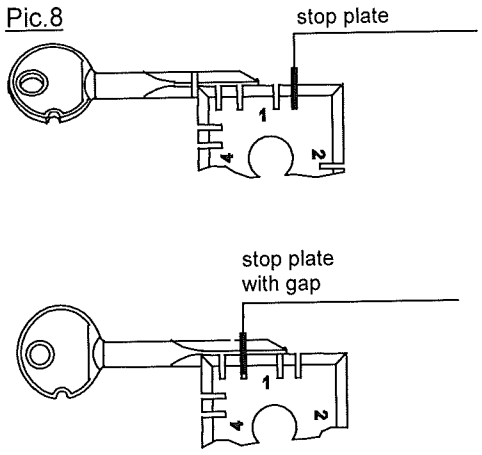
Cutting cross-keys up to a length of 120 mm (pic. 8)

Depending on the length of the stop collar on the cross keys, the stop plates must be inserted into the outer or inner left groove of the clamping with the gap upwards.
The edges of the gap are used as stop collar.
Pull back the stop plates after fastening the key.
Take care to fasten both keys on the same partition when fastening or shifting the keys.
Cross keys with stop ring or stop edge are fastened on the outer left side of the clamping jaw. To do that, secure the upper clamping against shifting by inserting the stop plates into the right grooves of the clamping jaw.

Pic. 7



Pic.8



Starting position - cutting

Turn the machine on – activate pressure switch (1).
Unlock the key holder (see page 10). Hold on carefully to the key holder while doing so.
Afterwards lead the first cut on the head side of the sample key slowly to the feeler using the feed lever (11) mounted on the left on the machine. The cutter will automatically move at this.
Release the key holder slowly and move the feed lever (11) quickly until the cutting process is finished. Bring the key holder into basic position after the completion of the cutting process. The cutter drive will automatically stop.
Remove the remaining ridge on the key with the help of the wire brush (5).
Activate pressure switch (3) at that.

13. Inspection - adjustment

Cutting depth (pic.9)

Insert setting gauges (20) into both clamping jaws and fasten it.
Lead the key holder to the feeler and cutter.
Cutter and feeler must now touch the rim of the key blank evenly. Any required correction of the depth ensues using the knurled screw. (13) (See page 10).
The adjustment using an electronically contact ensues by activating the pressure switch (2) for the adjustment. Unscrew the feeler a bit and then turn it back slowly until the pressure switch (2) flickers distinctly.
A required correction of the spacer (14), see page 10.

Lateral distances (pic.10)

Feeler – Cutter

Insert setting gauges (20) into both clamping jaws and fasten against the right side of the clamping jaw.
Lead the key holder to the feeler and cutter. It now should be possible to set both feeler and cutter evenly into the cuts of the setting gauges.

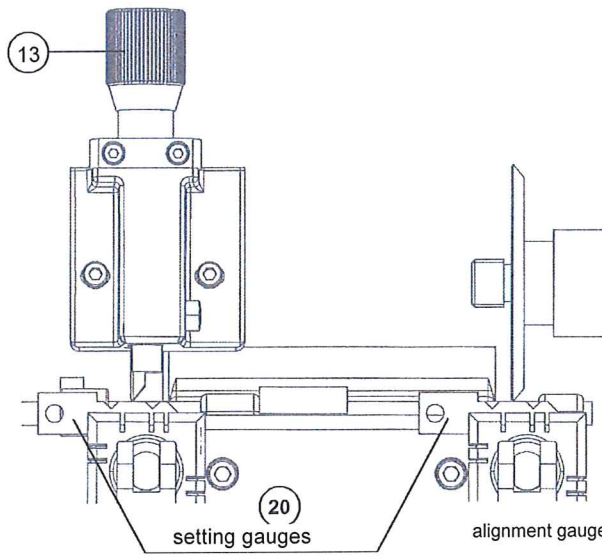
Re-setting: Loosen the screws (21) of the feeler mounting (3) slightly. A required correction of the lateral distance ensues by the setscrew. (1) Shift the feeler mounting in a manner, so that feeler and cutter lie closing in the cuts of the setting gauges. Re-tighten the screws (21).

The stop levers

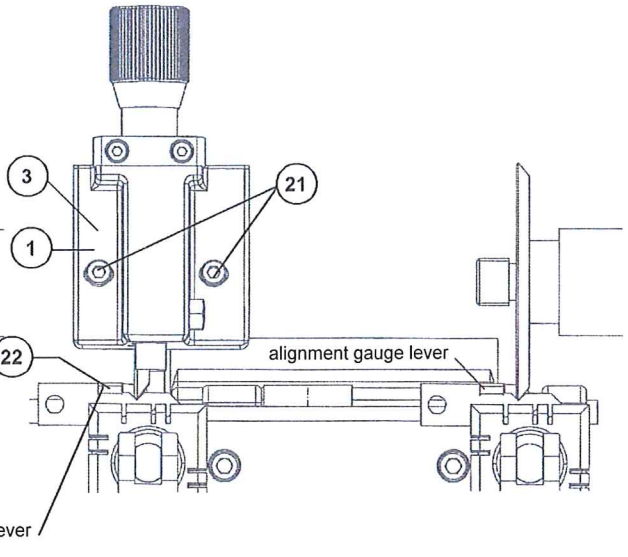
It must be possible to set both stop levers evenly and fixed against the blank stops.
Test: A piece of thin paper is inserted between the key blank stop and the stop lever and should now be wedged in.

Re-setting: Loosen the screw (22) on the stop lever; set the stop lever fixed against the key blank; re-tighten the screw (22).

Pic. 9



Pic. 10

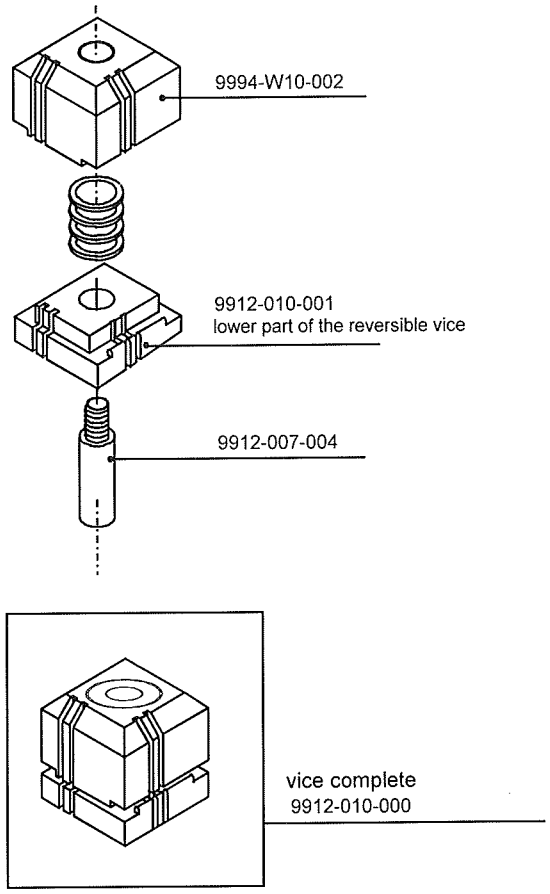


14. Description of the 4-way reversible jaw

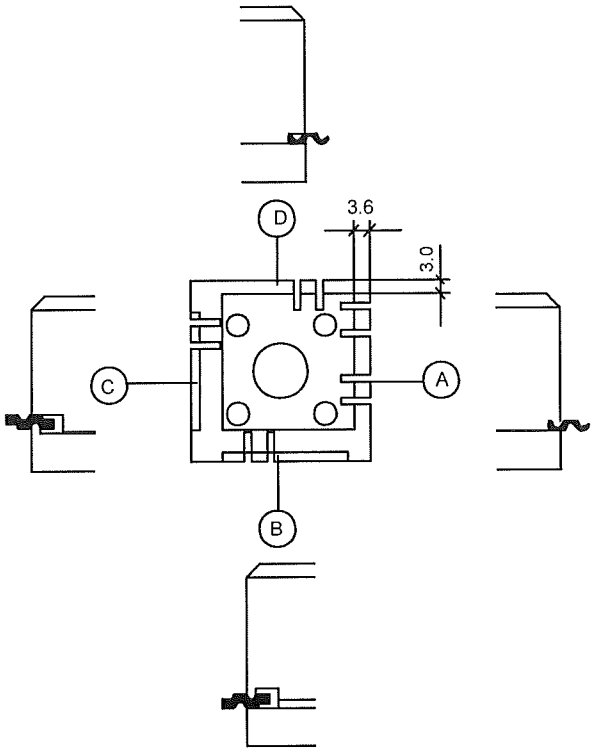
The 4-way reversible jaw

The clamping system facilitates clamping the key on its back or on its profile.

pic. 1



pic. 2



Clamping options:

Page 1 Fastening on the back for cutting depths of up to 3.6 mm to the key back.
Cross-keys up to a length of 120 mm.

Page 2 Profile guidance on the top for keys, which profile frames or incisions do not facilitate flawless clamping or aligning in the clamping 1 and 4.

Page 3 Profile guidance on the bottom for keys, which profile frames or incisions do not facilitate flawless clamping or aligning in the clamping 1 and 4.

Page 4 Back fastening position for cutting depths smaller than 3.6 mm to the key back.

Working instructions

Make sure that the clamping jaws for sample keys and key blank feature the same clamping positions.
Adjustment of the clamping positions ensues by rotating the entire reversible jaw.

15. Troubleshooting

Machine is not operational
- Check if the mains plug is properly connected to the power grid.
- Switch for restart has not been pressed
- Switch machine `ON – OFF´ has not been pressed
- Safeguard at the mains plug of the machine is defective

Cutter does not work – power supply is all right
- Check if the drive belt is defective. Check ease of motion of the engine shaft and the cutting shaft.

Drive belt defective
Remove wire brush and machine cap.
Loosen engine mounting below the machine bod (jaw spanner SW 13 mm).
Shift the engine using a clamping device until the original drive belt can be set over the pulleys. Stretch the belts by shifting the engine.
Re-tighten the engine and re-install the machine cap and the wire brush.

Engine and cutter shaft cannot be rotated
- Contact customer support.

Increased cutting noises; processing quality and accuracy no longer existing
- The processing tool (cutter) must be exchanged.
(Cutter exchange see page 9)
Check and re-adjustment (see page 13)

LED lamp does not glow
- Check if the mains plug is properly connected to the power grid.
- Switch for the lamp has not been pressed.
- Check electronic control gear (electronically qualified person).

Key holder cannot be shifted from basic position to the sensor – cutter
- Check if the stop levers are in basic position and if so, contact the customer support.

For any other errors please contact our sales department
Tel: 0049 2332 7006-0

EG – Declaration of Conformity

In the strict sense of the EC Machinery Directive 98/37/EG, Anhang II A

We August Börkey Nachf. GmbH
Geerstr. 4-12
D – 58285 Gevelsberg
Telefon 0049 2332 7006-0
Telefax 0049 2332 7006-22

declare that the machine

Model	Key cutting machine
Type designation	9912 REXA 4
Serial number	

is in conformity with the following applicable provisions:

Applied harmonized standards, especially
EN ISO 12100 – 1 : 2003 – 11
EN ISO 12100 – 2 : 2003 – 11
EN ISO 14121 – 1 : 2007 – 09
EN ISO 13857 : 2008 – 03
EN 60204 – 1 : 2006 – 06
EN 349 + A1 : 2008 – 06

Name:	Potthoff, graduate engineer
First name:	Volker
Position:	General Management

Gevelsberg, den 19.10.2011

Signature

Börkey
Key manufacture and machinery construction since 1851

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