



NX SERIE

Manual

ROBLAND[®]
MADE IN BELGIUM

Manual for Robland NX 310, NX 310 PRO, NX 410 PRO, NXTZ, NXTZ PRO NXSD 310 en NXSD 410

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EG Conformiteitsverklaring - EG Konformitätserklärung
EC Declaration of Conformity - Déclaration de Conformité CE

Geachte Klant - Sehr Geehrter Kunde - Dear Customer - Cher Client,
Gelieve hieronder onze CE-homologatienummers te willen vinden voor onze houtbewerkingsmachines
Bitte finden Sie anbei unsere CE-Homologationsnummern für unsere Holzbearbeitungsmaschinen
Please find herewith our CE-homologation numbers for our woodworking machines
Nous prions de trouver ci-après nos numéros d'homologation CE nos machines pour le travail du bois
Prin prezenta declaram ca la constructia masiniilor Robland s-au respectat urmatoarele norme si standarde de sigurenta si sanatate.

Wij, wir, we, nous

NV WERKHUIZEN LANDUYT
Kolvestraat 44
8000 BRÜGGE - BELGIE

verklaren hierbij dat de bouwwijze van de machines - erklären dass die Bauart der Maschinen - herewith declare that the construction of the machines - certifions par la présente que la fabrication des machines

ROBLAND

voldoen aan de volgende richtlijnen / folgende Bestimmungen entsprechen / comply with the following relevant regulations / sont conformes aux Normes suivantes:
Machine Directive 2006/42/EG - EMC Directive 2004/108/EG - EN 13857 / EN 13850 / EN 60204 part 1 / EN 1870-1
Type examination was carried out by the following approved body / Die Baumusterprüfung wurde von folgender Stelle durchgeführt / Le modèle a été examiné par l'organisme suivant / Het typeonderzoek werd door volgende instelling uitgevoerd:
Autoritate eminenta :

AIB-Vinçotte International
Bollebergen 2/B
B-9052 Zwijnaarde
België

Serie

NX310(PRO) combinatiemachine/combinée à bois/Kombimaschine/Combination machine	0101012013-122013
Nr. CE: Z10-174-142-A	
NX410(PRO) combinatiemachine/combinée à bois/Kombimaschine/Combination machine	0101012013-2031122013
Nr. CE: Z10-174-142-A	
NX-Z zaag/scie/Säge/saw	0101012013-2031122013
Nr. CE: Z10-174-142-A	
NX-TZ frees-zaag/toupie-scie/Fräse-Säge/spindle-saw	0101012013-2031122013
Nr. CE: Z10-174-142-A	
NXSD310-410 vlak-vandiktebank/rabot-dégau/Abricht-Dickenhobel/planer-surfacer	0101012013-2031122013
Nr. CE: Z10-174-142-A	

Brugge 05/09/2013

Yves Damman
Aftersales



tevens gemachtigd om technisch dossier samen te stellen
also authorized to establish the technical file
également autorisé d'établir le dossier technique
auch ermächtigt die technische Unterlagen zusammen zu stellen

Important instructions when ordering spare parts

Always mention the following items on your order :

Type of machine

Serial number from manual

Part number and quantity

Your reference and correct phone and fax number

FOR YOUR SAFETY AND THE PROLONGED USE OF YOUR MACHINE: USE ONLY ORIGINAL PARTS OF ROBLAND !!!

Safety and maintenance instructions

Woodworking with machinery is a pleasant job that will give you a lot of satisfaction. Nevertheless, working with a machine requires constant attention and care. Therefore, for your own safety, pay attention to the instructions summarised in this chapter.

The machine can only be used safely if the operator strictly follows the operating and safety instructions.

It is absolutely essential to read this manual before using the machine so you know how the machine works and what its limitations are.

Always make sure that all safety devices are fitted to the machine and that the machine is connected to a dust extraction system.

Also provide sufficient space around the machine and good lighting in the workshop.

When changing the tools or when doing a maintenance job, the machine must always be disconnected from its power supply.

Knives and tools which are not correctly sharpened or are in bad condition not only diminish the quality of the work, but also increase the risk of accidents.

Always wear suitable clothing. Loose or torn clothes are very dangerous.

Keep children away from the machine and the workshop.

To avoid damaging your hearing, the wearing of ear protection is mandatory.

When cutting narrow pieces always use a push stick. When damaged replace the push stick at once.

When cutting round work-pieces, always make sure the work-piece is secured against slipping.

Always use adapted jigs and templates and saw blades adapted to the work being carried out.

Carefully read the recommendations for adjusting the brake of the main saw brake motor.

Make sure all periodic maintenance work is done on time. These maintenance works may only be carried out with the machine disconnected from the main power supply line thus rendering it impossible to start the machine involuntarily.

Read carefully the instructions for cleaning the machine, clean only with the machine disconnected from its power supply line.

Test on a weekly basis the following electrical components: emergency stops buttons, the safety switches on the saw unit and test if the machine can be started-up with open doors.

Test on a weekly basis if the run down time of the saw motor brake does not exceed the 10 seconds.

Please read the noise emission values in the manual.

Operating instructions

The following recommendations for safe working methods are given as examples, additional to the information on the machine characteristics.

- When working with the spindle fence or the spindle, between 2 fixed stops and when tenoning, safety equipment must be used.
- Nevertheless, the user must also follow the operating instructions in order to avoid accidents.

1 Training of machine users.

It is absolutely necessary that the spindle-moulder user receives comprehensive training regarding operating and adjusting the machine. In particular:

- a) the risks involved in working with the machine;
- b) the operating principles, the correct usage and adjustment of the machine;
- c) the correct choice of the tools for each operation;
- d) the safe handling of parts to be machined;
- e) the position of the hands in relation to the cutter block;

2 Stability.

In order to be able to use the machine in a safe way, it's necessary to place it in a stable position on the ground or another stable surface.

3 Adjustment and installation.

- a) Disconnect the machine from its power supply before every adjustment.
- b) The recommendations of the manufacturer must be followed when adjusting an installing the tools.
- c) The tools must be suited to the material which has to be worked in order to assure a safe and efficient usage. The tools must be correctly sharpened and installed with tool holders that are carefully balanced.

4 Handling of tools.

In order to avoid severe cuts, safety measures must be taken when handling tools.

5 Installing tools

Special equipment, such as tool setting gauges, must be only used when the machine is not operating. Table insert rings must be used in order to reduce to a minimum space between the table and the spindle shaft.

6 Adjustment of the fences

- a) Working with the spindle fence requires special attention:
- b) A false or integrated fence should be used to minimise the opening between the tools and the fences.
- c) A push stick should be used as often as possible
- d) A wood pusher should be used, together with protection, to push the piece manually
- e) Long pieces need to be supported with roller supports.

7 Rotation direction and choice of speeds

It is very important that the chosen tool turns in the right direction. When the piece is presented, the operator must take care that the work piece is fed in the correct direction and the correct speed has been chosen. The speed must also be suited to the tool on the machine.

8 Functioning of the machine, choice of safety equipment and adjustment

Because of the various tasks that can be carried out with the various types of spindle shafts, spindle holders and cutter blocks, different types of safety equipment must be used. Every operation must be examined separately and then the correct guarding must be chosen. The minimal opening in the table also depends on the type of cutter block, diameter of the knives and height in which the cutter block is adjusted. This can be done by using the able insert rings which are delivered with the machine. In that way, the opening is as small as possible and the piece can no longer flip over and hit the knives.

Using a power feeder can prevent most serious accidents involving the hands. Such feeders can easily be adjusted and adapted to the size of the pieces.

When no power feeder is used, the wood pushers must be used, the horizontal and vertical springs making a tunnel in which the piece can be slid. This pusher, together with other safety equipment, reduces the gap between the cutting tool and the guide fences.

9 Working with the spindle fence when the total length of the piece has to be machined

In most cases a straight guard fence is used. The pieces can therefore be guided in the angle made by the table and the fence. The vertical and horizontal pushers can be placed in such way that they make a tunnel in which the first piece can be pushed. The second piece is then used to push the first one, the last piece is pushed forward with a wood pusher. Special blocks must be used relative to the dimensions of the piece. When working panels of small thickness, only the top of the spring may be used, on condition that the thickness matches.

On a spindle-moulder, the distance between the 2 extremities of the spindle guard fence must be large enough to leave enough space for the cutter block. Thus the knives, the cutter block and the spindle shaft may be exposed and extremity of the piece may come in contact with nose of the exit spindle guard fence. There risks can be avoided by using a false fence between the 2 spindle guard fences thus limiting the opening between them.

10 Working with the spindle fence when only a part of the piece is machined

When working with the spindle fence and this between 2 stops fixed onto the machine table or fences, only a part of the work piece is machined. By doing so, the cutting tool starts to machine the wood in the full section of the wood and does not start at the front, where the cutting action is more gradual and less severe. The cutting action is stopped before the work piece end is reached. This action is very dangerous and needs special care and attention. A stop solidly fixed at the front and back, must be used (see the example further in this manual)! A piece may only be guided by hand when it is sufficiently large, in all other cases a gauge or a support with protection must be used in order to avoid serious accidents. By means of the gauge, the piece can be quickly and precisely be put into place and firmly held there. A quick clamping system, working with tumblers or with cams, is most practical system to hold the piece. When the front and backstops are fixed to the spindle guard fence or to the table, a better control of the gauge is possible.

11 Working with the ring guard

When working with the ring guard, a support must be used, except when a certain process does not allow this, i.e. when the piece is too large to make the use of the support practical, or when the piece is so small or so difficult to machine that it cannot be held in the support without danger. The final shape is obtained by holding the gauge against a guidance bearing which is fixed to the spindle while the piece is held against the tool. The gauge can be part of the support.

12 Chamfering

When chamfering a solid support or a tilt able adjustable spindle guard fence must be used. A wood pusher must be used for the final part of the machining.

13 Working in the same direction as the tools

It is extremely dangerous to work in the same direction as the tools, as the operator cannot exert force to resist the strong movement of the piece as the tool comes into contact with it. Working in the same direction as the tools as absolutely forbidden, even when a support is used.

14 Other machining

For other types of work, e.g. tenoning, special gauges or supports can be used in order to avoid accidents.

Use of safety accessories

The following safety accessories can be used to help the operator during his work:

- supports
- wood pushers
- power feeders
- rollers
- stops

15 Noise reduction

- a) The condition of the tools is important to keep the noise level as low as possible.
- b) The material and the position of the guards are important to reduce the noise level.
- c) Using the correct speed will reduce the noise level.
- d) What is mentioned above does not take away the fact that separate safety equipment must still be used.

Explanation of acoustic levels

The values given are the output levels; there are not necessarily the levels on which the operator can work safely. Although there is a link between the output values and the safe working levels, it cannot be used in a reliable way to determine whether supplementary measures should be taken.

ACOUSTIC LEVELS

Measurements: as per ISO norm 7960
as per annexe D

Work station und load	Level continuous acoustic pressure as per index A dB(A)	Level acoust. power dB(A) (MW)	Max. Value acoust. pressure as per index C (instantaneous) dB
Sawing	88	103 (19,9)	< 130
Moulding	84	97 (3,2)	< 130
Tenoning	86	97 (5)	< 130
Planing	92	98 (6,3)	< 130
Thicknessing	83	97 (5)	< 130
Mortising	96	107 (250,1)	< 130

Normal use and prohibited use

CIRCULAR SAW

The table saw assembly is designed for the following working processes and equipped with protective devices. It is not designed to work materials such as ferrous or non-ferrous materials, and therefore tasks that differ from the ones stated below are prohibited.

- Ripping with the parallel saw fence with/without tilted saw blade with the fence upright or in the low position.
- Right-angled or mitre cuts with the 90° fence mounted to the sliding table with tilted or vertical saw blade.
- Cross cutting work pieces with the adjustable stop on the 90° fence.
- Cutting panels or solid wood on the sliding table.

PROHIBITED USE

Following tasks are prohibited on the table saw:

- submerged cuts by removing the riving knife and/or guard;
- all types of cuts without using the table saw fence, the 90° fence or sliding table;
- cutting large work pieces that exceed the table capacity without using aids such as roll supports.

REMAINING RISKS

Main risks on a table saw are:

- unintentional contact of the hands with the running saw blade;
- work piece kickback;
- tipping of the work piece due to insufficient support.

MOULDER-SHAPER

The shaper assembly is designed for the following tasks and equipped with protective devices. Other tasks than listed below are therefore prohibited.

- mould and form straight and curved pieces on the vertical spindle;
- shaping of curved work pieces using a ring guard fence;
- mortising, tenoning and panel edge shaping using corresponding safety devices.

PROHIBITED USE

The following tasks are prohibited on the moulder-shaper unit:

- down-cut shaping, i.e. when feed and tool rotation direction is the same;
- slotting with saw blades;
- using tool diameters which are not adapted to the spindle by using reducing sleeves;
- using larger tool diameters and higher speeds than the shown in the diameter-speed diagram;
- the use of ferrous and non-ferrous materials.

REMAINING RISKS

Spindle shapers are one the main causes of injuries in woodworking. Nearly all accidents result in hand injuries. They are due to contact with the rotating tool when the work piece is fed by hand and kickback occurs to sudden forward movement of the work piece.

The main danger areas on the shaper-moulder are:

- the working area;
- the moving machine and tool parts;
- the kickback area.

Always use appropriate protection devices and always observe the specific regulations for accident prevention.

Despite the use of specific protection devices and the application of the hygiene and safety instructions, some risks remain when working with the moulder-shaper:

- Risk of accidents in the insecure area of the tools
- Risk of wounding while replacing tools
- Risk of wounding by the piece of wood itself, or by wood shavings
- Crushing of the fingers
- Risk of jamming of the hand in the machine, when using a removable pusher
- Risk of back kicked pieces of wood
- Health risks through prolonged inhalation of particles, especially oak, beech or other exotic sorts of wood
- Deafness through prolonged exposition to noise

PLANER-THICKNESSER

The planer-thicknesser is designed for the following processes, and is equipped with protection devices and can only be used to work wood. All working processes that do not comply with these instructions are therefore prohibited.

- Planing the wide surface of the work pieces on the planer unit;
- Planing the narrow side of the work piece on the planer unit;
- Bevelling an edge on work pieces on the planer unit;

PROHIBITED USE

The following tasks are prohibited on the planer-thicknesser unit:

- down cut planing i.e. when the feeding direction and the planer's arbour rotation and direction are the same and the outfeed planer table is set lower than the infeed table;
- insertion cuts on the planer unit i.e. when the work piece is not worked along its entire length;

REMAINING RISKS

The most common danger areas on the planer-thicknesser unit are:

- the working area;
- the rotating tool, e.g. contact with the blades, getting caught in the rotating planer arbor, ejection of work parts, knots, etc;
- the work piece kickback area.

Despite the use of specific protection devices and the application of the hygiene and safety instructions, some risks remain when working with the planer-thicknesser:

- Risk of accidents in the insecure area of the tools
- Risk of wounding while replacing tools
- Risk of wounding by the piece of wood itself, or by wood shavings
- Crushing of the fingers
- Risk of jamming of the hand in the machine, when using a removable pusher
- Risk of backkicking
- Health risks through prolonged inhalation of particles, especially oak, beech or other exotic sorts of wood
- Deafness through prolonged exposition to noise

MORTISER

The mortiser unit is composed of the removable support and the chuck mounted on the planer arbor. It is designed to work wood; the use of all other materials is prohibited.

- mortising holes in all wood types with or without depth stop;
- mortising slots in solid wood;
- boring out knot holes

PROHIBITED USE

The following tasks are prohibited on the mortising unit;

- milling or tenoning with tools that do not have this purpose
- grinding metal parts e.g. planer knives.

REMAINGING RISKS

The main sources of danger on a mortiser unit are:

- unintentional contact of hands or other parts of the body with the rotating tool;
- tipping of the work piece due to insufficient support;
- contact with the planer arbor as it rotates.

Despite the use of specific protection devices and the application of the hygiene and safety instructions, some risks remain when working with the mortiser:

- Risk of accidents in the insecure area of the tools
- Risk of wounding while replacing tools (cuts through contact with the knives)
- Crushing of the fingers
- Risk of jamming of the hand in the machine, when using a removable pusher
- Risk of back kicked pieces of wood
- Health risks through prolonged inhalation of particles, especially oak, beech or other exotic sorts of wood
- Deafness through prolonged exposition to noise

TYPES OF TOOLS

Cutter blocks and the tool holders with interchangeable knives are frequently used when moulding. The cutter blocks can be made in 1 piece, the cutting part being fitted in a body of hard steel, mostly chromium steel. The tool holders consist of the part on which the knives are fitted mechanically. Their cutting part is made out of hard metal (HSS) or calcium-carbide (K), as is the case for the cutter blocks.

Circular saw

The use of saw blades in hard metal (HSS) is strictly forbidden. Always use carbide-tipped (K) saw blades.

Planer-thicknesser

The most frequently used planer knives are carbide (K) or hard metal blades (HSS).

Mortiser

Only use “left” drills on the mortiser. To avoid vibrations short drills should be used as often as possible.

IMPORTANT:

for each tool and for each diameter, the correct speed must be chosen.

Technical data NX 310

Weight (net)	530 kg
Tension	230 V Mono / 400 V Drehstrom - 3phase
Versions	
250 mm	with scoring unit
315 mm	without scoring unit
Saw	
R.p.m.	4500
Diameter saw blade and bore	250 x 30 mm / 315 x 30 mm
Diameter scoring saw blade and bore	100 x 20 mm
Cutting depth at 90°	85 mm (250 mm) / 107 mm (315)
Cutting depth at 45°	55 mm (250 mm) / 65 mm (315)
Dimensions cast iron table	1080 x 410 mm
Length sliding table	1250 x 320 mm (option 1450 mm)
Cutting length	1250 mm (option 1650 mm)
Cutting width parallel fence	800 mm
Motor power	4 PS/hp
Spindle	
R.p.m.	2900 / 4000 / 6000 / 7500
Diameter spindle arbor	30 mm (option 50 mm)
Capacity spindle arbor	122 mm
Travel	140 mm
Dimensions table opening	180 mm
Motor power	4 PS/hp
Planer-Thicknesser	
Total length planer tables	1400 mm
Capacity thicknesser	230 mm
Diameter cutter block	70 mm
Knives	3
Dimensions knives	310 x 25 x 3 mm
Feeding speed	6 m/min
R.p.m.	5500
Motor power	4 PS/hp
Morticer (option)	
Chuck	0 - 16 mm
Travel	165 x 140 x 85 mm

Technical data NX 310 PRO

Weight (net)	550 kg
Tension	230 V Mono / 400 V Drehstrom - 3phase
Versions	
250 mm without scoring unit	
250 mm with scoring unit	
315 without scoring unit	
Saw	
R.P.M.	4500
Diameter saw blade	250 x 30 mm / 315 x 30 mm
Cutting depth at 45°/90°	55 mm/85 mm - 65/115 mm
Dimensions table	1080 x 410 mm
Length sliding table	1450 mm
Cutting Length 1450 mm	1600 mm
Width sliding table	320 mm
Cutting width parallel fence	830 mm
Motor	5 hp/Ps
Spindle	
R.P.M. machine 400 V	2900/4000/6000/7500
R.P.M. machine 230 V (single phase)	2900/4000/6000/7500
Diameter spindle arbor	30 mm (Option 50 mm)
Capacity spindle arbor	120 mm
Travel	140 mm
Dimensions table opening	180 mm
Motor	5 hp/Ps
Planer-Thickneser	
Total length planer tables	1400 mm
Capacity thickneser	230 mm
Diameter cutterblock	70 mm
Knives	3
Dimensions knives	310 x 25 x 3 mm
Feeding speed	6m/min.
R.P.M.	5500
Motor	5 hp/ Ps
Mortiser (Option)	
Chuck	0 - 16 mm
Travel	165 x 140 x 85 mm

Technical data NX 410

Weight (net)	600 kg
Tension	230 V Mono / 400 V Drehstrom - 3phase
Versions	
250 mm	mit Vorritz / with scoring unit
315 mm	ohne Vorritz / without scoring unit
Saw	
R.p.m.	4500
Diameter saw blade and bore	250 x 30 mm / 315 x 30 mm
Diameter scoring saw blade and bore	100 x 20 mm
Cutting depth at 90°	85 mm (250 mm) / 107 mm (315)
Cutting depth at 45°	55 mm (250 mm) / 75 mm (315)
Dimensions cast iron table	1080 x 410 mm
Length sliding table	1450 x 320 mm
Cutting length	1650 mm
Cutting width parallel fence	900 mm
Motor power	5 PS/hp
Spindle	
R.p.m.	2900 / 4000 / 6000 / 7500
Diameter spindle arbor	30 mm (optie-option 50 mm)
Capacity spindle arbor	120 mm
Travel	140 mm
Dimensions table opening	180 mm
Motor power	5 PS/hp
Planer-Thicknesser	
Total length planer tables	1800 mm
Capacity thicknesser	230 mm
Diameter cutter block	70 mm
Knives	3
Dimensions knives	410 x 25 x 3 mm
Feeding speed	6 m/min.
R.p.m.	5500
Motor power	5 PS/hp
Morticer (option)	
Chuck	0 -16 mm
Travel	165 x 140 x 85 mm

Technical data NX TZ

Weight (net)	400 kg
Tension	230V 1ph / 400 V Drehstrom - 3ph
Versions	
250 mm without scoring unit	
250 mm with scoring unit	
315 without scoring unit	
Saw	
R.P.M.	4500
Diameter saw blade	250 x 30 mm - 315 x 30 mm
Cutting depth at 45°/90° - 250/315	55mm/85mm - 65mm/115mm
Dimensions table	1080 x 410 mm
Length sliding table	1250 mm (Option 1450 mm)
Cutting length	1400 mm / 1650 mm
Width sliding table	320 mm
Cutting width parallel fence	800 mm
Motor	4 hp/Ps
Spindle	
R.P.M.	2900/4000/6000/7500
machine 400 V	2900/4000/6000/7500
R.P.M. machine 230 V (single phase)	30 mm (Option 50 mm)
Diameter spindle arbor	120 mm
Capacity spindle arbor	140 mm
Travel	180 mm
Dimensions table opening	4 hp/Ps
Motor	

Technical data NXSD 310

Tension 230 V Mono / 400 V Drehstrom - 3phase
 Weight 280 kg

Planer

Planer width 310 mm
 Total length planer tables 1400 mm
 Diameter cutter block 70 mm
 Knives 3
 Dimensions knives 310 x 25 x 3 mm
 R.p.m. 5500
 Dimensions planer fence 1300 x 150 mm
 Inclination planer fence 90° - 45°
 Max. depth of cut 4 mm
 Motor power 4 PS/hp

Thicknesser

Dimensions thicknesser table 430 x 310 mm
 Capacity thicknesser 230 mm
 Diameter feed rollers 30 mm
 Feeding speed 6 m/min

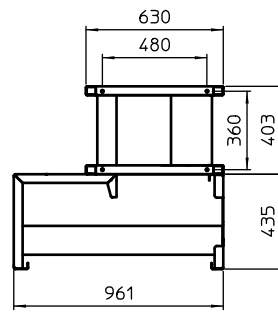
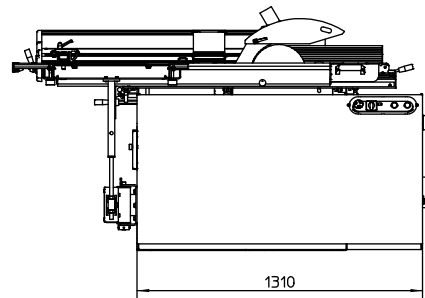
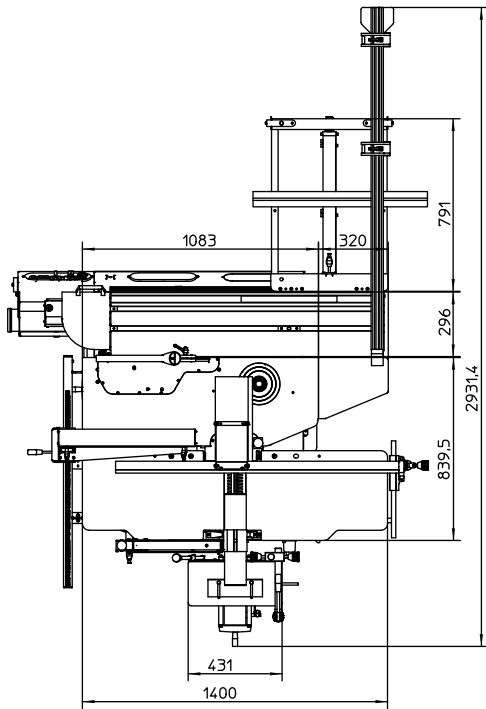
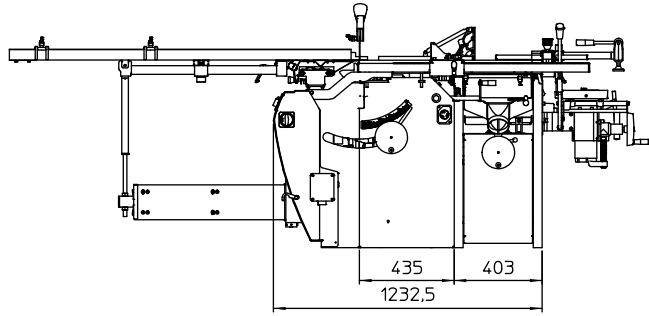
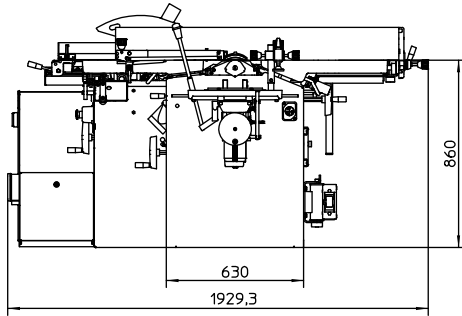
Morticer (option)

Chuck 0 - 16 mm
 Travel 165 x 140 x 85 mm

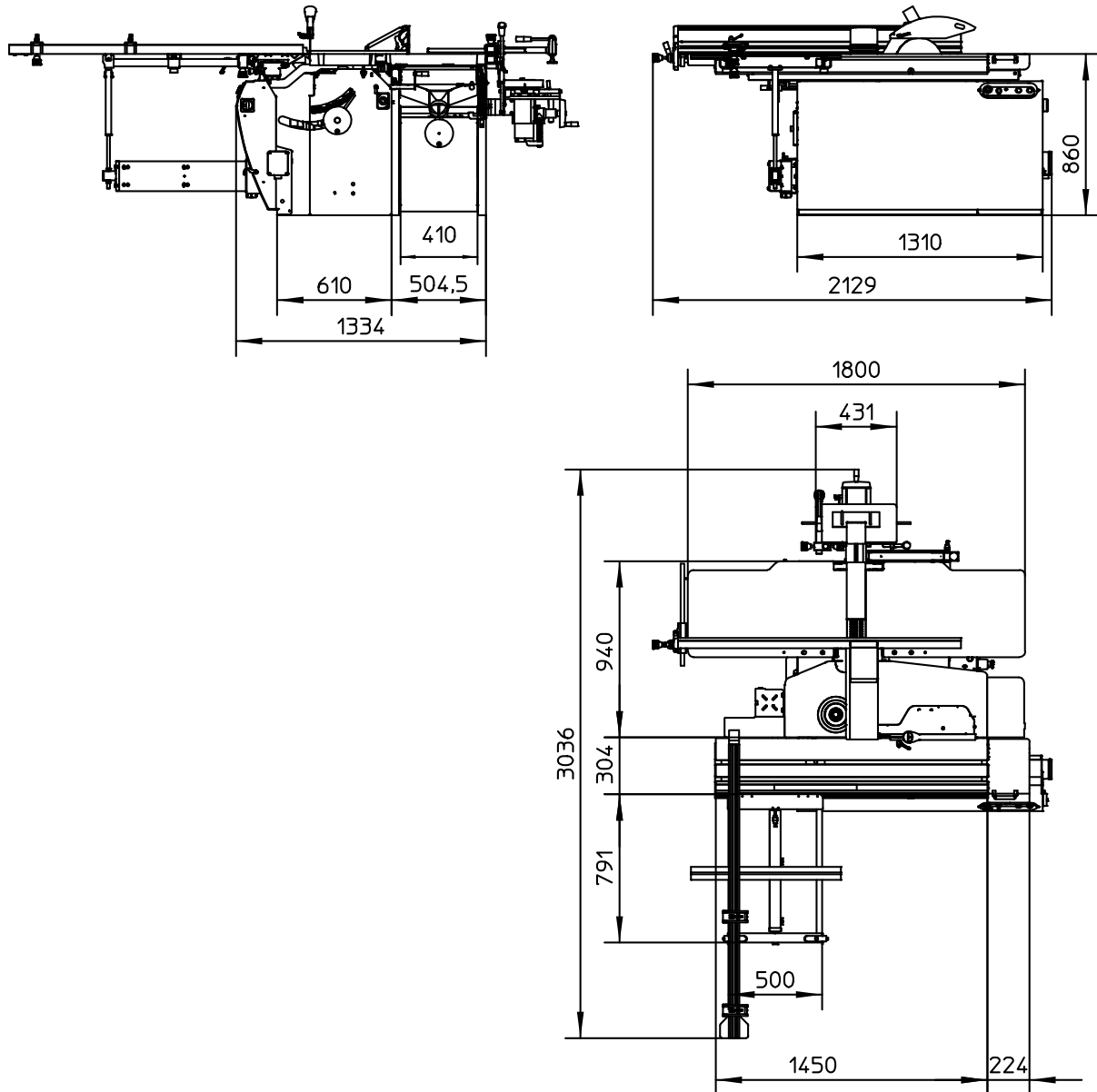
Technical data NXSD 410

Tension	230 V Mono / 400 V Drehstrom - 3phase
Weight	320 kg
Planer	
Planer width	410 mm
Total length planer tables	1800 mm
Diameter cutter block	70 mm
Knives	3
Dimensions knives	410 x 25 x 3 mm
R.p.m.	5500
Dimensions planer fence	1500 x 150 mm
Inclination planer fence	90° - 45°
Max. depth of cut	4 mm
Motor power	4 PS/hp
Thicknesser	
Dimensions thicknesser table	600 x 410 mm
Capacity thicknesser	230 mm
Diameter feed rollers	30 mm
Feeding speed	6 m/min.
Morticer (option)	
Chuck	0 - 16 mm
Travel	165 x 140 x 85 mm

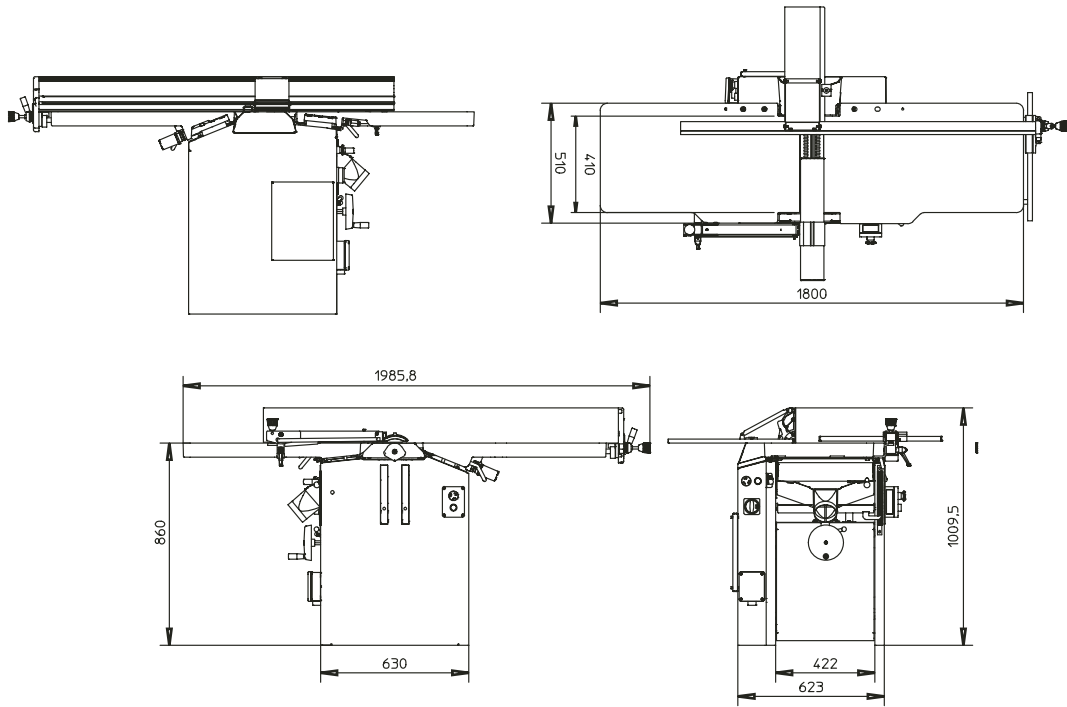
Footprints NX 310 & NX 310 PRO



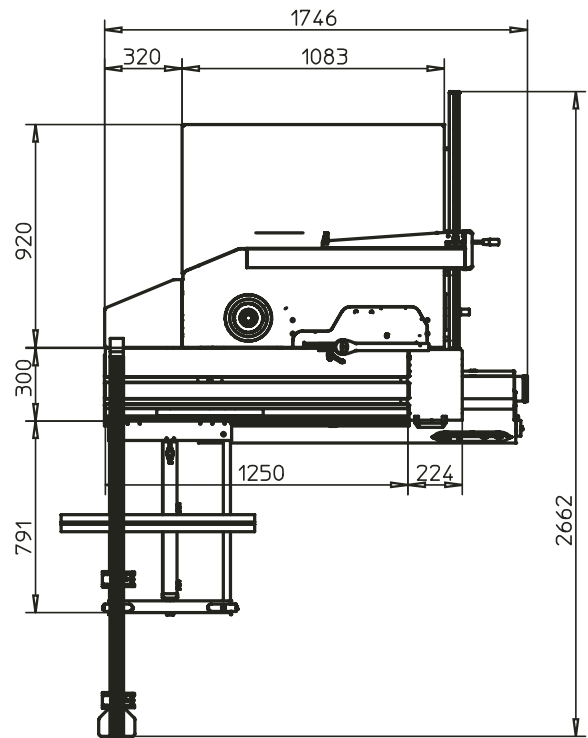
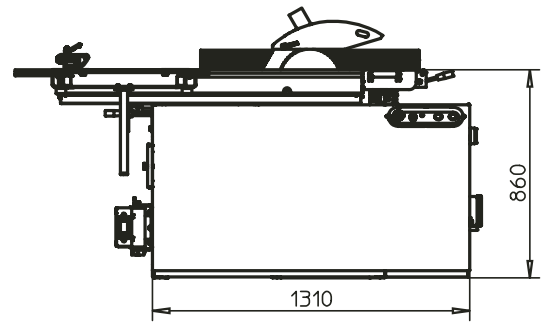
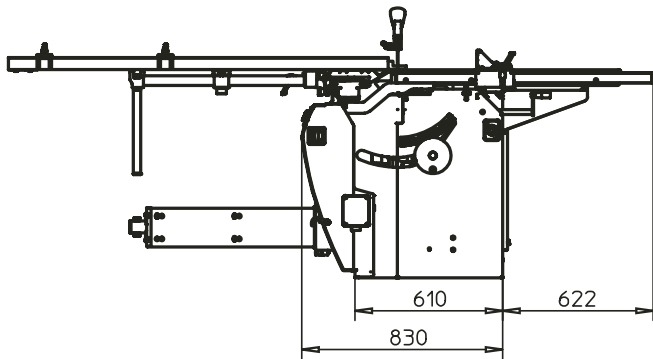
Footprints NX 410



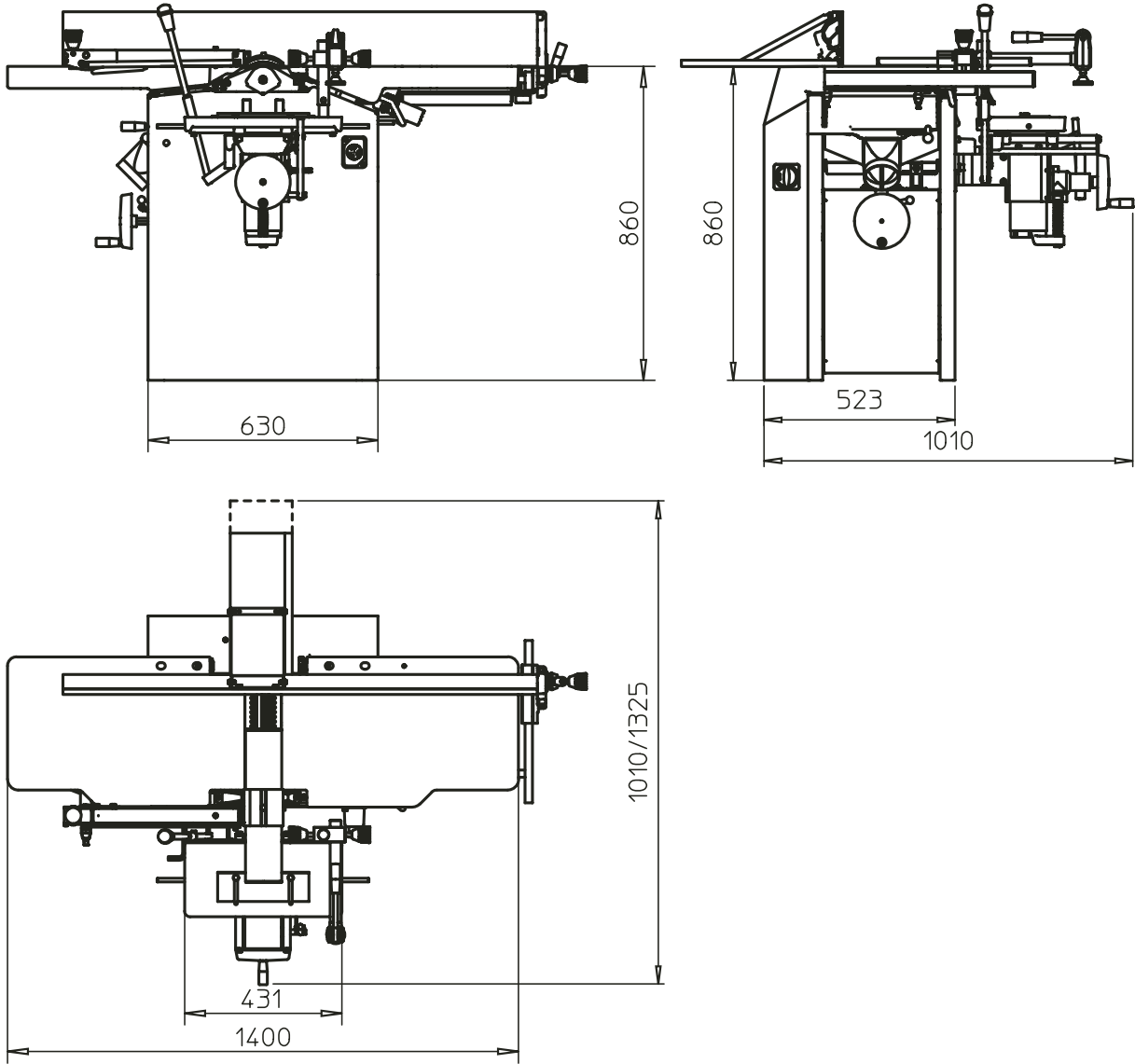
Footprints NXSD 410



Footprints NXTZ



Footprints NXSD 310



Transportation (fig. 1, 2 en 3)

Depending on the method of transport or shipping, you will receive the machine in a case or on transport blocks. The packing itself, made of fibre plates, and the wooden beams can easily be recycled. Take the sides of the crates and remove the carton and the other parts fastened to the bottom of the crate. Take the machine of the pallet by means of lever bands.

Self pick-up: for self pick-up, the assembled machine is securely mounted on transport blocks. The table surfaces and all exposed parts are covered with a protective plastic film. Avoid any impact when unloading the machine and never pull on the worktables or aluminium sliding table.

Machine on pallet: move the machine on level ground using a pallet jack as shown in the drawing. Use a wooden ramp made of thick board and wooden beams, and secure the ramp to the pallet in order to avoid slipping of the ramp.

Never try to move the machine on rollers when its on an incline. Once the machine is on level ground, move it with a pallet jack, or forklift.

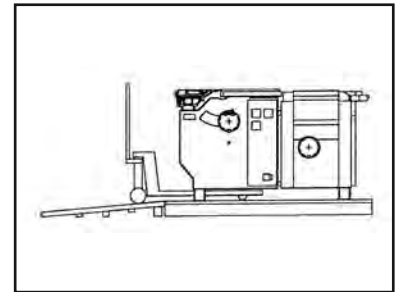


Fig. 1, 2, 3

ATTENTION:

Always make sure that the useful loading capacity is big enough. Place the lever bands in such a way that they don't put too much pressure on the tables. Lift the machine a few centimetres to remove the bottom of the crate.

Start-up:

Always make sure the machine wasn't damaged during transport or whilst unloading. Place the machine stable on a solid underground and make sure that there is enough space around the machine to use it safely.

ATTENTION:

Working with woodworking machines in an unsafe way can be very dangerous. It is in your own interest that you use all safety devices and protections.

Electrical connection (fig. 4, 5 en 6)

The electrical connection must be carried out by a qualified electrician who is able to calculate exactly the required wire section and amperage of the fuses.

- check that the main voltage of your machine corresponds with the voltage in your workshop;
- then open the electrical connection box at the back of the machine (fig. 4);
- connect the 3 phases to the terminals marked L1, L2, L3 (fig.5);
- if there is a neutral conductor (blue), it is connected to the terminal N;
- connect the earth (green + yellow) to the terminal marked with the earth symbol;
- check if the spindle runs freely before starting up the machine;

- check the rotation direction of the motors. This test can only be done on the motor of the spindle at 3000 R.P.M. The rotation direction of the motor has to be, seen from above, anticlockwise. If the rotation direction of the spindle is not correct, the wires L1 and L2 must be exchanged. If this direction is correct, all other motors have the right rotation direction.



Fig.4

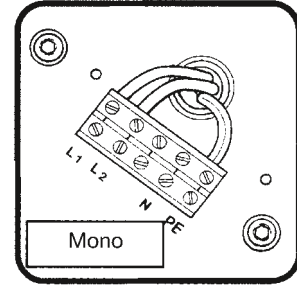
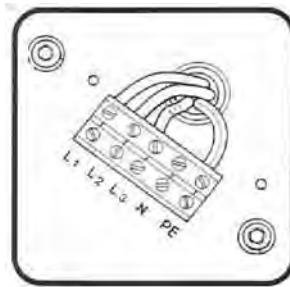


Fig.5

Warning:

The rotation direction can never be tested on the saw motor. The saw spindle has a left screw thread so that the saw blade can loosen if the rotation direction is incorrect.

Observation:

- 1 When starting a single phase machine, the start button has to be turned until the machine runs at full speed. As long as the start button is turned, the starting capacitor of the machine stays connected and will get damaged.
- 2 The motors are secured against overloading. If the motor is turned off because of this protection, you need to wait until the machine has cooled down, before starting it up again.
- 3 When starting a three phase machine, simply push the green start button.

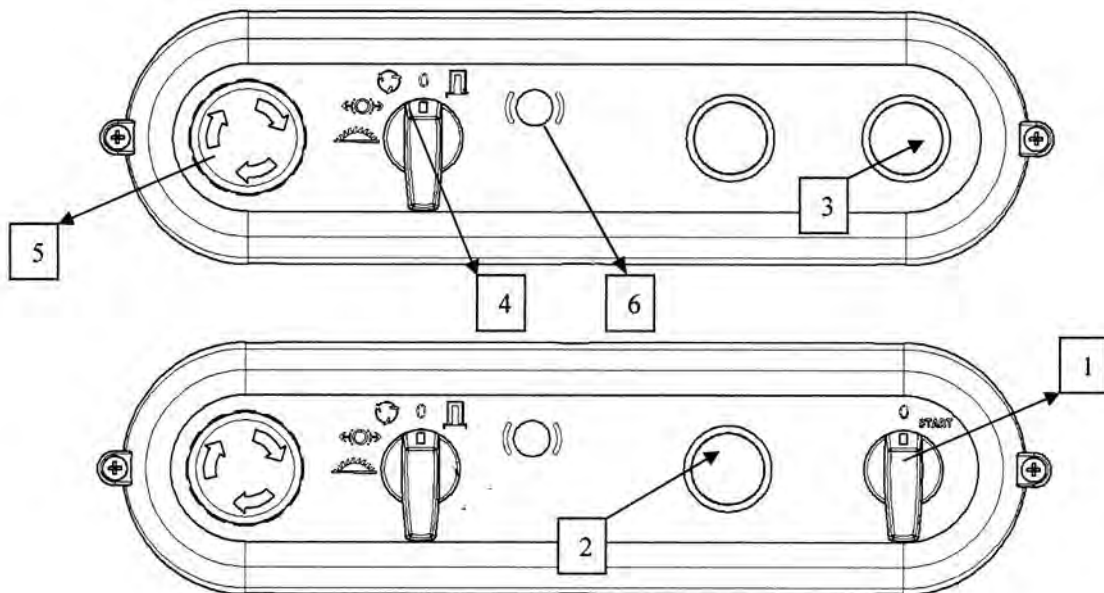


Fig.6

- 1 Single phase starter switch
- 2 Start button
- 3 Stop button
- 4 Selector switch
- 5 Emergency stop button
- 6 Warning bulb brake release

Mounting of the saw blade (fig.7)

- 1 Slide away the table.
- 2 Open the lower saw blade cover plate (1).
- 3 Raise the saw blade to the highest point.
- 4 Now put the locating pin (3) in the saw table to block the saw arbor.
- 5 Tighten the saw nut with the hookspanner (4). Warning: left hand threaded saw arbor!
- 6 **Do not forget to remove the pin which holds the saw arbor in place while tightening the nut.**

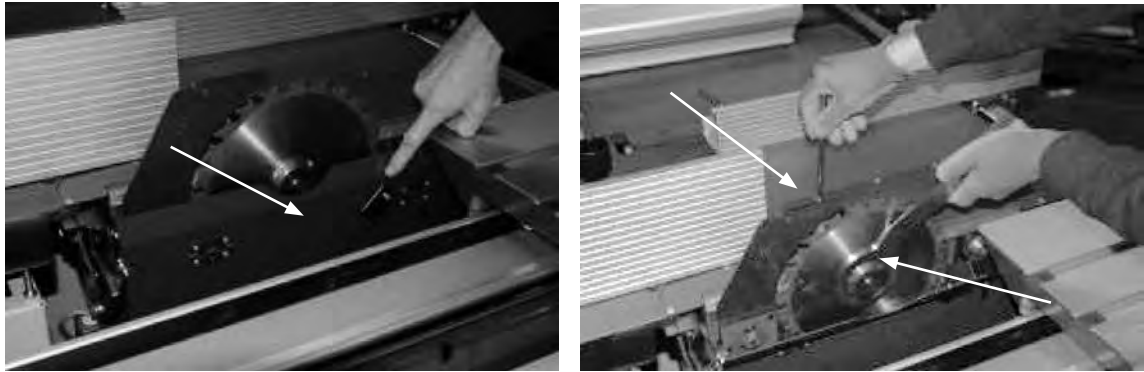


Fig.7

Mounting of the scoring blade

Attention: for the changing of the main saw blade or the saw blade of the scoring unit, disconnect the main switch and put the button on the « O » position.

In order to put, or change the scoring saw blade, slide the table to the rear far end and open the lower saw blade cover.

This cover is equipped with a safety switch which prevents the motors from being started up.

Turn the scoring arbor to the left (see figure below 2) and put the spanner on the flat sided arbor.

Put the Allen key into the bolt and loosen the bolt.

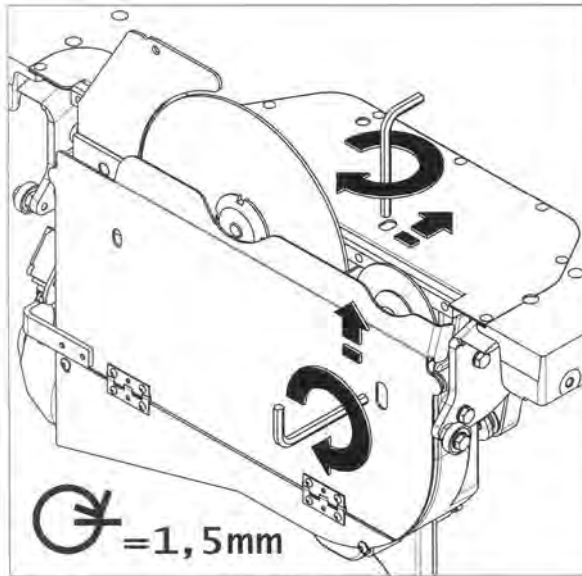
Make sure both scoring blade and saw arbor flange are clean!

Put the blade and tighten the bolt and close the cover.



Scoring saw blade adjustments

The horizontal and vertical adjustments of the scoring saw blade are made as follows: put the Allen key (1) in the opening in the table as shown on the picture: for raising or lowering scoring saw blade, turn the Allen key (1) in direction of the clock. To lower it, turn anti-clockwise. The horizontal shift of the scoring blade is made in the same way: in the direction of the clock to move it to the left, in the other direction to move it to the rear (right). These adjustments are positive and don't need any blocking.



Aligning the scoring unit in aspect of the main saw blade

It's recommended to use a double blades scoring saw blade, which can be used with spacers, allowing you to adapt the thickness to different kerfs and align it properly with the main saw blade. To achieve a perfect cut, without chipping or tear-out, it is necessary to perfectly align the scoring unit with the main saw blade.

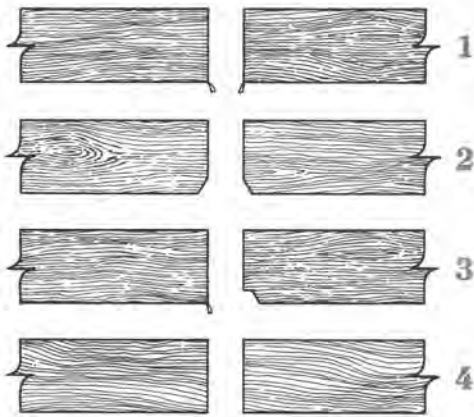
Check the main saw blade kerf and put spacer rings between the scoring saw blade halves in order to obtain the same kerf.

To check the cutting result, cut a sample piece, and check the result.

The pictures below show you the different possibilities:

- 1 The scoring saw blade is set too low: you will have some tear-out on the underside of the work piece.
- 2 The scoring unit is set too high and cuts too deep, or is too wide: you will have a chamfered edge on both sides.
- 3 The scoring unit is not perfectly aligned to the main saw blade, you will have some overflow on one side and some tear-out on the other side.
- 4 The scoring unit is perfectly aligned in aspect of the main saw blade, a smooth perfect clean sharp cut.

It is recommended to set the height of the scoring saw blade as minimal as possible in order to only cut the upper layer or coating of the panel. When the scoring saw blade is not used over a longer period of time, we recommend to remove it and store it in a dry place.



Adjusting the riving knife (fig. 8)

The saw is equipped with a riving knife suitable for saw blade diameters of 200 and 250 mm. Always set the riving knife (1) close to the saw blade so that the gap never exceeds 4 mm. The riving knife can be set in line with the saw blade by using the bolt (1) and the 3 adjustment screws (2). The bolt only moves the riving knife longitudinally. The 3 adjustment screws (2) the riving aligns with the saw blade.

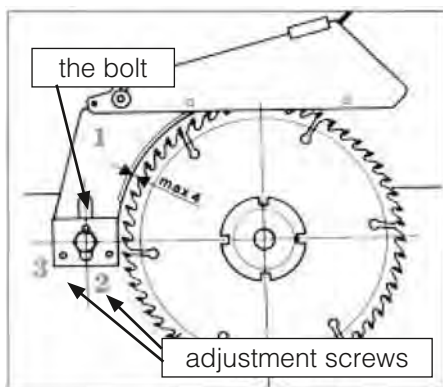


Fig.8

Saw hood (fig. 9)

The saw hood, delivered with the machine, is adjusted to the saw blades with a diameter of 200 mm and 250 mm or 315 mm and can be mounted without extra tools. Using the handle (1), the saw cap can be locked in any position.

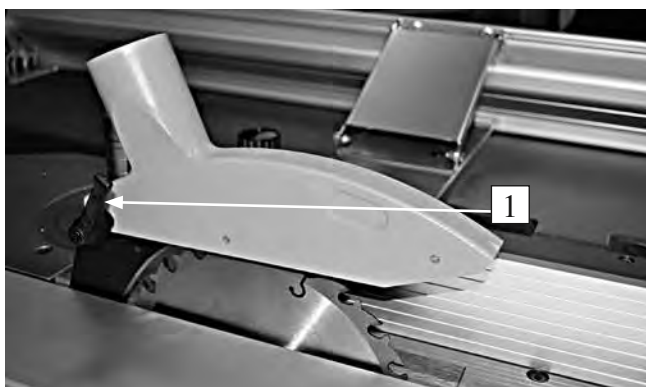


Fig.9

Tilting, rise and fall of the saw blade

- 1 By turning the hand wheel, the saw blade can be raised or lowered above or beneath the saw table.
- 2 For tilting the saw blade, put the crank handle as shown in the figure.



Fig.9 bis

Saw guide (fig. 10)

- 1 The saw guide is mounted on the cross-cut fence by means of 2 quick release handles (3).
- 2 This saw guide can be moved along the scale bar and can be secured by pushing the locking handle (2) down.
- 3 The saw guide has T-grooves on 2 sides, which allows a high or low position.
- 4 Adjust the height of the saw blade, in accordance with the thickness of the piece.
- 5 If possible, mount the guide, according to the height of the piece, vertically or horizontally and pull it back to the height of the riving knife.
- 6 Lock the guide with the handles (3)
- 7 The wanted cut can be read of the scale bar
- 8 For small cuts and cuts with tilted saw blade, the saw guide can be tilted to the low position thus avoiding sawing the saw guide, when making thin cuts.

WARNING:

for narrow cuts along the saw fence always use a push stick!

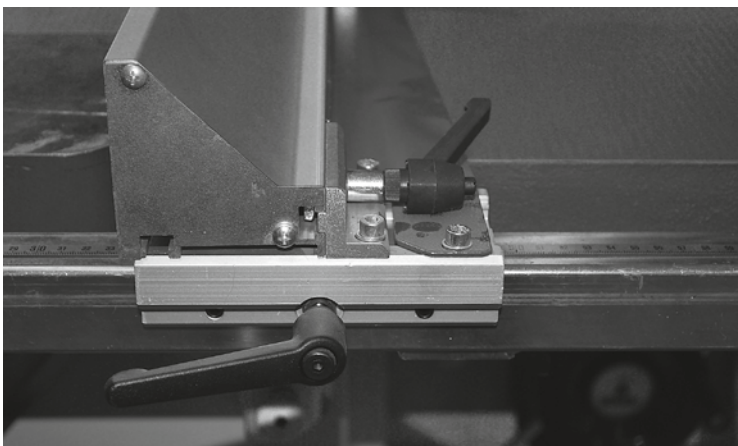


Fig.10

Sliding table (fig. 11)

The machine is delivered with the sliding table mounted onto it. For a good adjustment and functioning of the sliding table, it is necessary that the machine is evenly placed in both directions by means of a level. All adjustments and adaptations of the sliding table have been made by the factory.

To create a smooth movement of the wood or the panel, the sliding table is set at +/- 0.2 mm above de cast iron saw table.

The sliding table can be locked in one position along the whole length. This is necessary when, for example, sawing lengthways with the parallel fence.

The bolt is situated on the side of the sliding table (fig. 11.1). Pull the bolt forward and click it in the opening at the side of the sliding table. To unlock it, pull the bolt backwards and turn it 180°. Two rubber stops on the lower beam of the sliding table stop the course of the sliding table. When multiple movements back and forwards are repeated, it is possible that the ball bearing moves slightly. This will cause some resistance when pushing the sliding table.

This can also occur if the total course of the sliding table is shortened. With a few short pushes, with the purpose of reaching the end of the course, the position of the ball bearing can be improved.

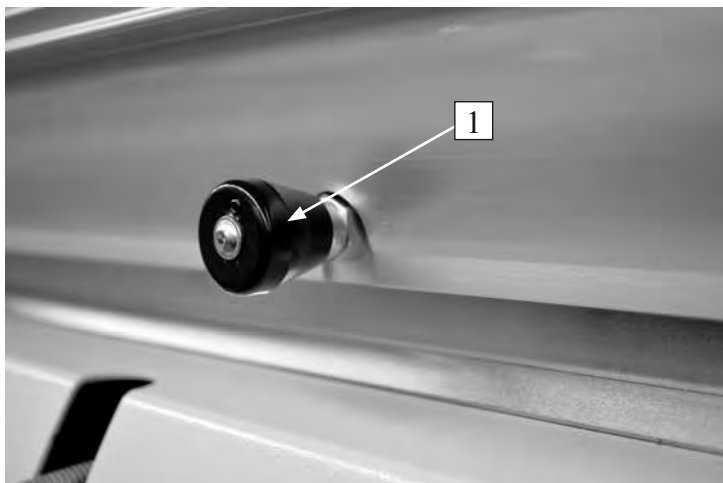


Fig.11

Attention: cleaning and maintenance of the sliding table

It is essential to frequently blow away the accumulated shavings and dust, between the two parts of the sliding table and the ball bearing. Push the sliding table to the end of the course to get better access to the rails, the ball bearing and the slides of the sliding table. Repeat this, with the sliding table moved to the other side, to be sure all shavings and dust is gone. A normal lubricant such as WD-40 is sufficient to grease the slides of the sliding table and to obtain good functioning.

ADJUSTMENT OF THE SLIDING TABLE (fig. 12)

The alignment between the sliding table can be adjusted by means of the 2 adjustment points below the fixed beam of the sliding table. Loosen the 2 screws (2) that hold the fixed beam on the chassis of the machine. Loosen the 2 bolts (1) and align by moving the sliding table. After the adjustments, tighten the 2 bolts. The adjustment of the sliding table against the cast iron saw table is made by means of the 2 bolts (1).

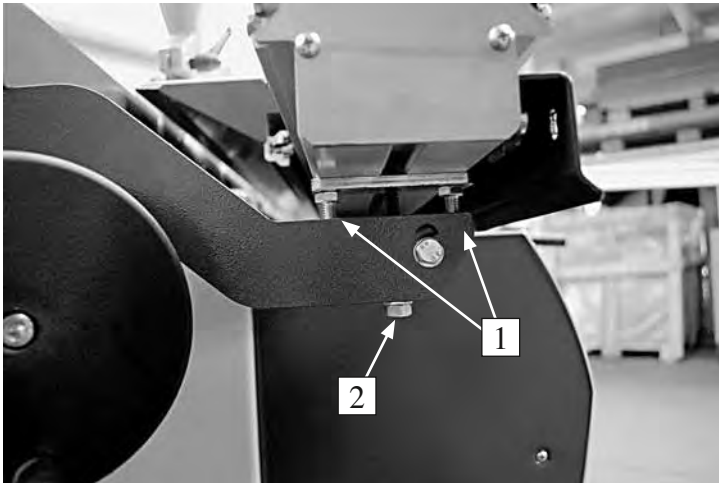


Fig.12

Mounting the cross cut table (fig. 13)

The cross cut table can be mounted onto the machine by hooking it on to the side of the sliding table. The handle (1) locks the outrigger table on to the sliding table. The outrigger table is only to be positioned at the rear side of the sliding table.

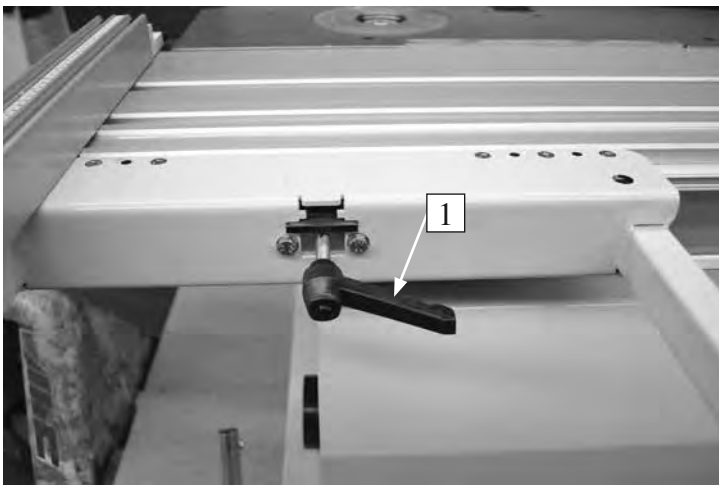


Fig.13

Mounting the cross-cut fence (fig. 14)

The cross-cut fence has 2 pins that are to be located in the holes on the outrigger table.

To put the fence in position, locate the pins of the fence in the holes.

Put the 2 locking knobs (1) to fix the cross-cut fence. The fence is set at 90° in the factory, but when the 90° shouldn't be correct anymore, it can be adjusted as follows:

Loosen the 2 locking handles (1) and the bolt (2) below the cross cut table, to loosen the 90° fence stop.

Turn the adjustment bolt (3) to the left or to the right, to move the fence and to open or close the 90° angle in relation to the saw blade. After this adjustment, tighten the bolt (2) and locking knobs (1). The fence can be used in both positions, at the front or the back of the cross cut table.



Fig.14

Use of the cross-cut fence (fig. 15)

The measuring tape of the cross-cut fence is factory set. To make sure the measurements correspond to the index, do the test where you place the 2 flip-stops on a certain distance and check if the obtained distances are the same as the distances of the index.

Lock the flipper at a defined length and cut off a sample.

Now take the exact measurements of the sample.

To calibrate the index, remove the 2 handles of the fence on the table, without removing the fence from the outrigger table. Inside the 2 locating pins of the fence you will find a socket cap screw.

Loosen the two socket caps, which enable you to move the fence to equalize the measurements with the index.

Tighten the two socket cap screws again and place the 2 locking handles. To calibrate the index on the telescopic part, loosen the 2 socket caps holding the short part of the fence on the square telescopic tube. Now repeat above in order to calibrate the scale on the telescopic part of the fence.

Tighten the two socket cap screws again.



Fig.15

Drawing of the splinter protection (fig. 16)

The fence is equipped with a splinter protection. When the splinter protection is damaged, it should be replaced. It can be replaced by a piece of wood that has the following dimensions:

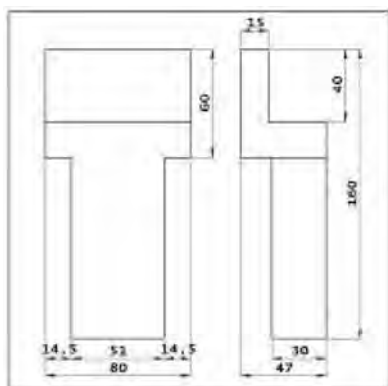


Fig.16

Mitre fence (fig. 17)

The mitre fence is mounted on to the sliding table as shown on the picture. The flat nut in the groove of the table is factory set at 90°.

For tilting the mitre fence, loosen the vertical post (1) of the wood clamp and the Kipp handle (3) and move the fence to the wanted angle.

The reading is done at the back of the support plate of the guide itself. Loosen both Kipp handles (2) for moving the fence as close as possible to the saw blade.

Make sure that all handles are fastened after the adjustment of the fence.

To remove the fence from the table: loosen the vertical post (1) of the wood clamp and the Kipp handle (3) and remove it.

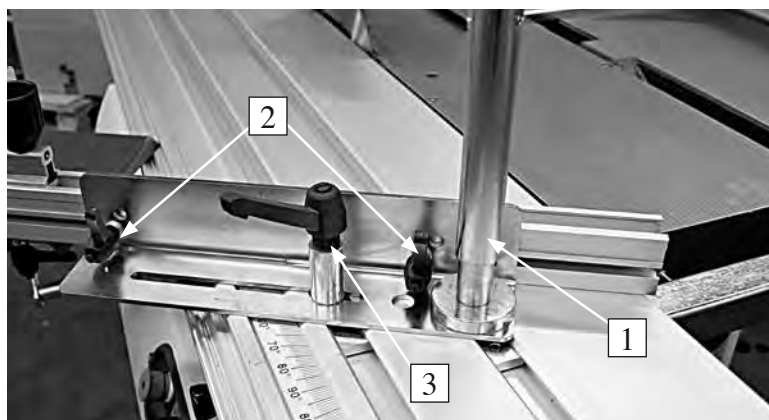


Fig.17

Spindle

Mounting the tools on the spindle (fig.18)

- 1 Set the brake release switch of the selector switch on in order to free the brake and turn the spindle free by hand and set the Allen key on the countersunk Allen bolt on top of the spindle arbor (1)
- 2 Push the locking lever (2) to the right and, at the same time, manually turn the spindle arbor (3) until the lower locking pin locks into the hole in the spindle.
- 3 Now loosen the clamp screw on top of the arbor with the Allen Key.
- 4 Always mount the spindle as low as possible on the arbor, so the bearing isn't overloaded.
- 5 Mount the correct number of spindle rings and tighten the screw, on top of the arbor.
- 6 When the lever (2) is released, the locking of the spindle arbour is automatically disengaged.
- 7 Always lock the position of the spindle height by locking the handle (3) behind the handwheel.

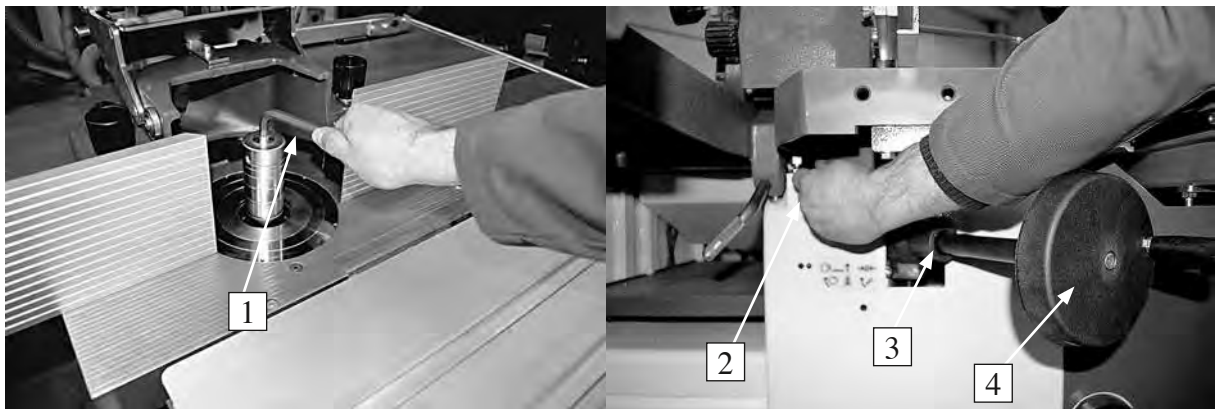


Fig.18

Adjusting the spindle height (fig. 18)

- 1 Unlock the locking lever (3) by turning it to the left.
- 2 The spindle arbour can be raised or lowered using the hand wheel (4).
- 3 After height adjustment always secure the spindle arbour by locking the lever (3) by turning it to the right.

Remark: When, after intensive use of the locking lever (3), it is no longer possible to lock this lever, take off the nut and remove the lever. Then turn it 1/6 turn to the right before putting it back on again. Put the nut back on and tighten it.

The spindle fence

Working with the spindle fence (fig. 19)

The spindle fence is fitted onto the table with two locking knobs (1). The body of the spindle fence is equipped with two slots which enables front and back movement. When the fence is fitted onto the table, the position of the aluminium fence plates can be adjusted by means of the adjustment knob (2). The opening of the 2 fence plates goes like follows: loosen the wing nut (3) which hold the fence and move the fence towards each other, so there is a minimal gap between the protruding tool and the fence plates. It is advisable to use a false fence or integrated fence which is mounted between the 2 spindle fences. The adjustment of the fences can be checked with a flat and precise rule.

Before starting the machine, the blocking of the bars of the fences on the table has to be checked. The wood pushers exert vertical and horizontal pressure on the work piece, which pushes the work piece against the table and the fence and which makes it slide easily. The manual wood pusher (fig. 20), supplied with the machine, can be used to push the wood safely. Not one element is fixed on the useful table surface. The 10 mm space between the base of the horizontal wood pusher and the table makes it possible to move the wood pusher under the wood pushers. To replace the spindle tool, or to make use of the feeder, the whole pusher system can be cleared by flipping it over to the back of the spindle fence: Pull the lever in the direction of the arrow. Lift up a little the cover plate. Now the system can be flipped over to the back. This part will prevent the fences from falling down. It is advisable to use a Q1

feeder system, as the kick back usually happens whilst working with the spindle fence when only a part of the piece is machined.

Clean apparatus make adjustment easier. Fences in a perfect state are advisable for quality work. Therefore, they should be replaced when the edge or surface is damaged by the spindle tool.

Adjustments (fig. 20)

3 adjustments have to be made:

- Adjustments of the spindle fences as close as possible tot the outer tool diameter, and adjustment of the depth of cut.
- Adjustments of the vertical pusher according to the height of the work piece
- Adjustments of the horizontal pusher according to the width of the work piece
- There can 't be too much pressure on the pushers, so the wood can slide easily between the wood pushers and the fences

Important:

Before starting the spindle, all locks and settings should be checked, and check manually if the tools can rotate freely. Always use the supplied wood pushers on the fence. This upper cover plate is used as protection of the upper part of the spindle tool.

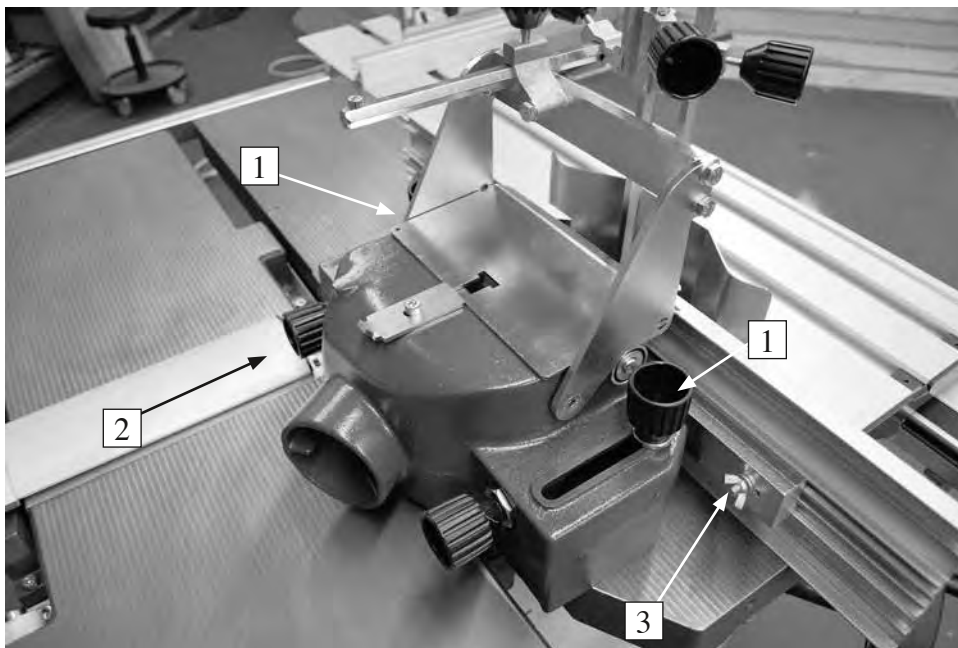


Fig.19

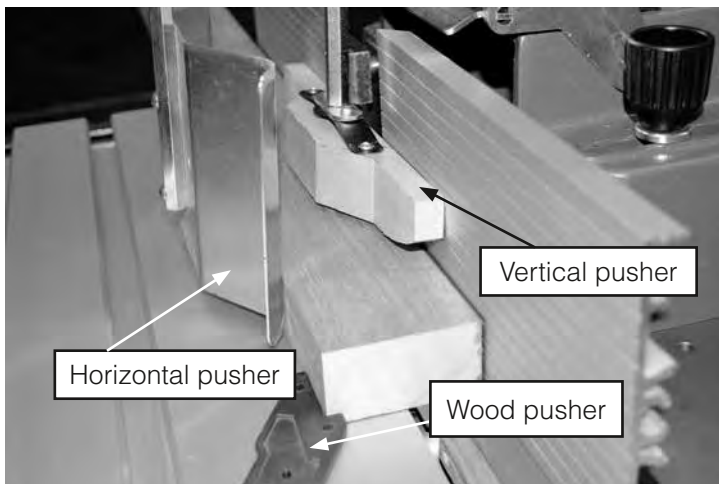


Fig.20



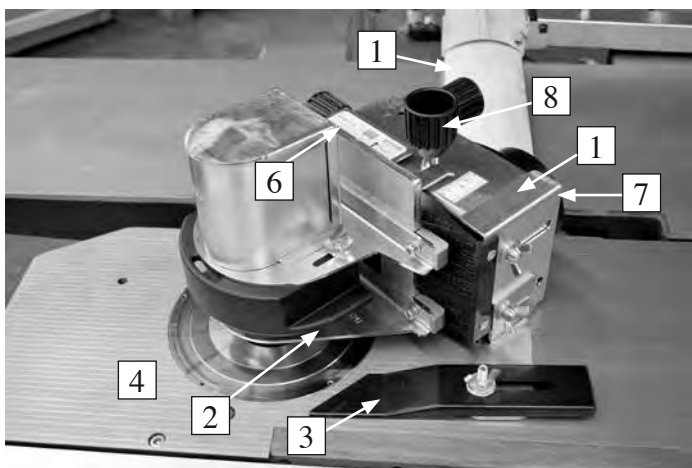
Fig.21

Working with the optional ring guard fence (fig. 22)

Attention: The use of a ring guard fence, for tools with a max. diameter of 150 mm, is optional.

Description: Ring guard fence with diameter 30 mm.

Fig.22



- 1 Body ring guard fence
- 2 Guiding template
- 3 Wood guide
- 4 Wood pusher protection
- 5 Adjustment knob
- 6 Fastener
- 7 Dust outlet
- 8 Locking knob

Assembly

The ring guard fence is fixed in the 2 holes in the spindle table. Make sure the positioning pin is fixed tightly in the borehole of the table.

Adjustments

- Adjust the guiding templates (2) in height in relation to the position of the tool and thickness of the work piece. Fix with the Allen key.
- Adjust the wood pusher (4) protection in height in relation to the thickness of the wood (a slight pressure of the pusher on the wood is needed) Fix with Allen key.
- Horizontally: for maximum protection and in relation to the tool diameter; fix with the two screws.
- After checking the protraction diameter of the tool, adjust the chip removal precisely by means of the handle (5) at the back of the fence support. Turning the handle anticlockwise for bigger reduction and lock with the handle on the support.

Function:

Normally the work piece is machined with the tool underneath the guiding template. Before starting, check that the work piece travel will not be blocked by any handle. The wood is guided along the

straight part of the template. The cutting depth is progressive; with a maximum on the index of the template (hat index is visible through the horizontal pusher. The wood guide, connected to the fence, replaces the template when calibrating with a bearing. The operator is obliged to use this guide which is delivered with the fence. It is thus advisable to adjust the wood pusher height using as a guide and to put it as far to the front as possible.

Tenoning guard option A4375 and tenoning table option A4276 (fig.23)

- 1 For tenoning, a special guard is mounted on the table.
- 2 This guard allows tools up to 250 mm diameter.
- 3 The hood (1) is fixed to the table with two 2 clamp screws (1)
- 4 The front cover plate (3) is adjustable in height with 2 knobs (2) at the top of the hood.
- 5 When tools up to 220 or 250 mm diameter are used, the speed of the spindle arbour has to be 3000 T/min.

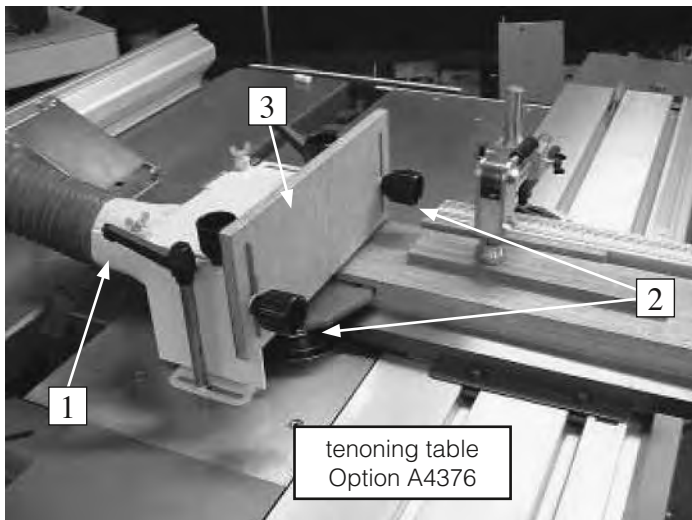


Fig.23

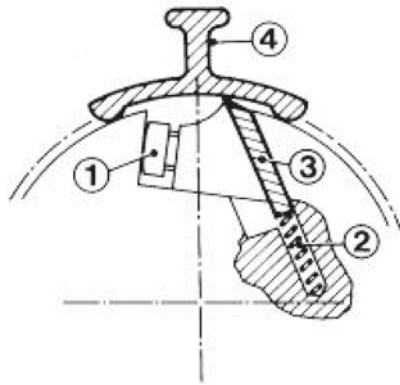
Thicknesser - planer - mortiser

Warning

- 1 Always make sure there is no tool left in the mortising chuck before starting up the planer-thicknesser.
- 2 Check very carefully whether the planer knives are well positioned and fastened. If this is not the case, they will come off when the machine is started and this could lead to serious injuries for the operator and damage the machine.

Changing and setting of the planer knives (fig. 24)

- 1 Unlock the bolts (1) in the jib strip and remove the planer knives
- 2 Remove the 3 jib strips and clean the grooves inside the planer arbor. Make sure the little springs (2) underneath the knives do not stay blocked inside their seats in the arbor
- 3 Never use planer knives which have less than 20 mm height
- 4 Put the cleaned planer knife (3) into the groove with the adjustment gauge (X428)
- 5 Tighten the bolts from the middle of the arbour to the outside
- 6 Do a trial run of the machine and then tighten the knives again.



Adjustment of the planer tables (fig. 25)

- 1 The out feed planer table has to be set at exactly the same height as the planer knives.
- 2 A simple way of checking the correct height of this out feed table is to put a 100 % straight piece of wood onto the out feed table, just above the planer knives. Both tables have a clamp handle (1) and an adjustment knob (2).
- 3 To adjust the table in height, use the adjustment knob (2)
- 4 During this adjustment, turn the planer arbor by hand and see if the planer knife touches the piece of wood.
- 5 After the adjustment in height the table has to be blocked again.
- 6 The chip removal is adjusted through the height of the in feed table and can be max. 4 mm.
- 7 After the adjustment, block the table again.
- 8 The opening of the table happens by means of loosening the handles and opening the tables.
- 9 The tables are automatically protected from falling by the protection lever. To close the table, simply flip over the piece and gently close the table.



Fig.25 A



Fig.25 B

Planer fence (fig. 26,27)

- 1 The planer can be adjusted according to the width of the work piece after unlocking the handle (1)
- 2 After unlocking the clamping handle (2) the fence can be set at 45° and 90°. The adjustment screw for position 90° is at the bottom of the clamping plate. The adjustment screw for position 45° is at the upper side of the clamping plate.

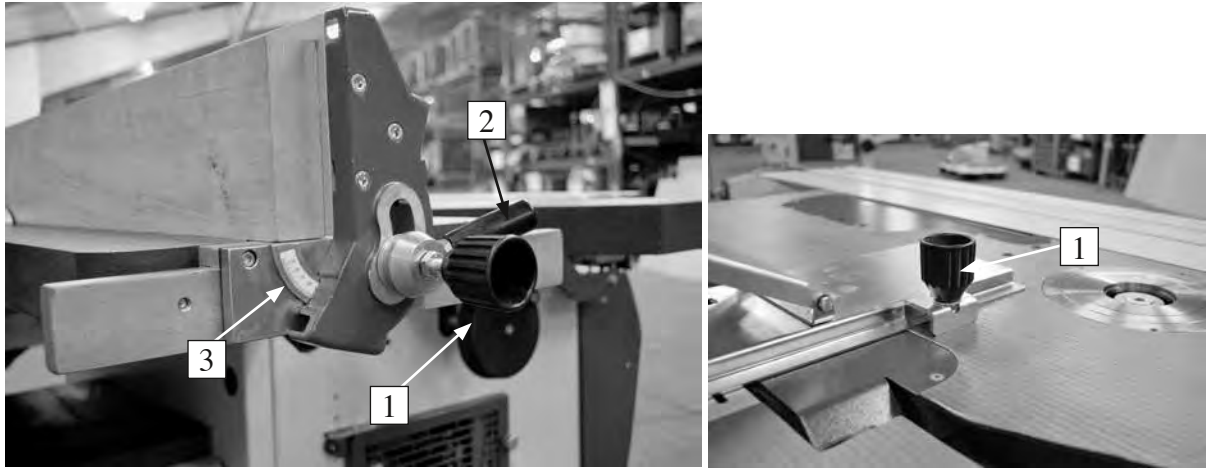


Fig.26

Planer protection (fig. 27, 28 en 29)

The planer protection is composed of an aluminium protection bridge which can be adjusted in height parallel to the planer arbor and tables at 100 mm maximum. For surface planing the bridge (1) has to be lowered by means of the adjustment knob (fig. 28.1). This position is not inflexible. Thanks to the flatted, bulged shape of the bridge, the work piece can be pushed over the planer in one fluent movement. That way, tracks of retaking are avoided. Move the bridge sideways by loosening the knob (fig. 28.1)

This protection has to be set in place for every operation on the planer.

Set the height with the adjustment knob, the work piece is guided along the planer fence. First check the work piece for straightness and always put the work piece with the concave down. Then set the chip thickness by adjusting the in feed table. For planing the narrow side of a work piece the protection bridge has to be lowered to the table and has to be set according to the work piece width. Set the protection bridge with a minimal opening to the work piece to ensure maximum cover and safety. To clear the planer protection from the tables, unlock the handle and swing the complete protection to the back.



Fig.27

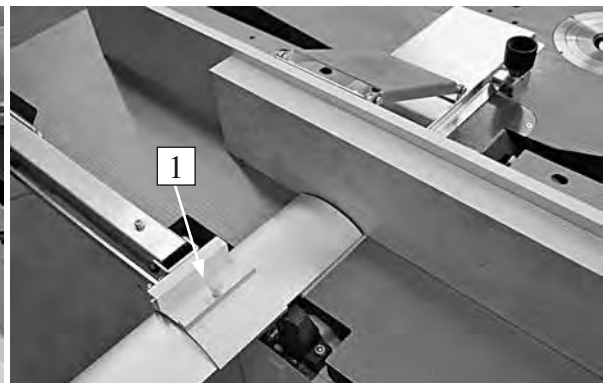


Fig.28

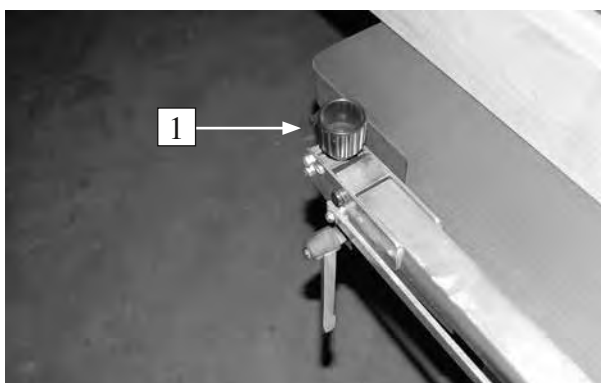


Fig.29

Thicknesser adjustment (fig. 30)

- 1 The rise and fall of the thicknesser table can be adjusted with the handwheel (1). One turn of this hand wheel equals 4 mm.
- 2 After height setting the thicknesser table has to be locked with the lever (2) situated behind the hand wheel, the height of the table can be read at the scale (3).
- 3 When, after intensive use of the locking lever (2), it is no longer possible to lock it, take off the nut which holds the lever and remove the lever. Then turn the lever 1/6 turn clockwise and put it back on again. Put the nut back on and tighten it again.
- 4 The table height cutting depth setting has to be adjusted in such a way that there is always 1 mm minimum clearance between the top of the wood and the connection bar between the bearing houses.
- 5 Always ensure that the anti-kickback protection fingers are kept clean and hang down freely in position under their own height.
- 6 The feeding mechanism can be engaged by unlocking the lever (4) and pulling it up. The feed through speed is 7 m/min.
- 7 In case of overloading of the feeding mechanism the feed rollers must be disengaged immediately by pushing down lever (4). Most likely the cutting depth setting is too big. Lower the table ½ a turn with the hand wheel and start all over again.

Important

A smooth table surface is essential for good operation of the thicknesser. Therefore the table should be cleaned and rubbed in with normal cheap whit paraffin wax regularly. A roller support should be used when long work pieces have to be machined.

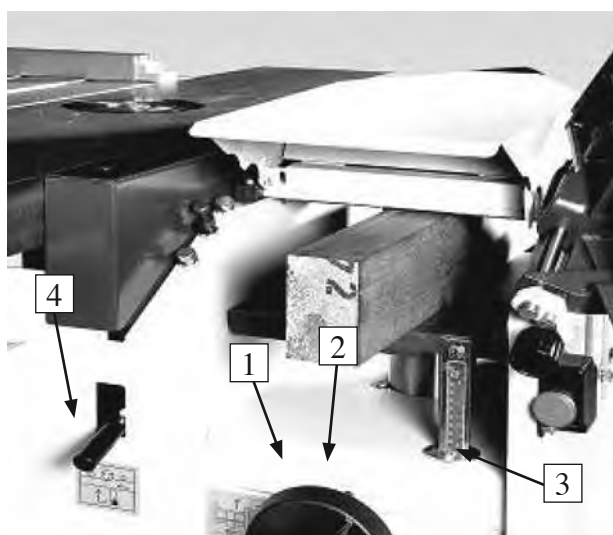


Fig.30

Mortiser

Warning:

- 1 Always make sure both the mortiser chuck and the planer arbor safety guards are in place before starting work.
- 2 Only use left hand drill bits and whenever possible short drills.
- 3 Make sure the drill bit is fastened correctly.
- 4 Make sure the work piece is firmly secured onto the table with the wood clamp.
- 5 An adjustable work piece support can be fitted onto the mortising table.

Putting the mortiser unit onto the frame (fig. 31)

- 1 Clean both mounting surfaces (1).
- 2 Slide the unit onto the two bolts (3).
- 3 Make sure the table is mounted horizontally before tightening the two bolts (3).

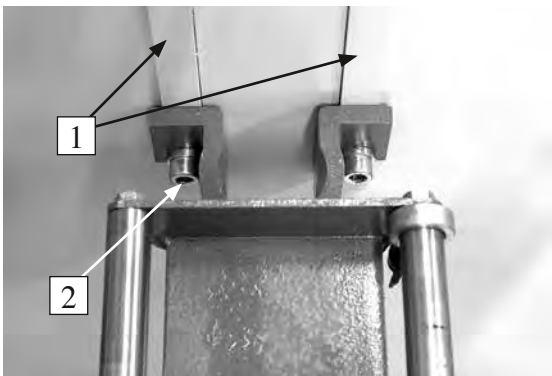


Fig.31

Height adjustment (fig. 32)

- 1 De hoogte van de boortafel kan afgesteld worden d.m.v. het handwiel (1). Blokkeer de tafel met het hendeltje (2). Één omwenteling staat gelijk aan een aanpassing van 4mm.
- 2 D.m.v. de 2 hefboomen op de tafel kan deze in alle richtingen worden bewogen.
- 3 De langsbeweging gebeurt met hefboom (3), de dwarsbeweging met de hefboom (4).
- 4 De hefboom kan bij het bewerken van grote platen een belemmering vormen. Daarom kan deze hefboom zeer gemakkelijk weggenomen worden.
- 5 Met de diepteanslag (5) en twee lengte aanslagen (6) kunnen meerdere identieke gaten gemaakt worden.
- 6 Het is aan te raden bij het boren van dieptegaten nooit direct tot op de volle diepte, maar wel stapsgewijs te werken (bv. per 10 mm); waardoor u op een veilige wijze een beter resultaat bekomt.
- 7 Bij het slaan van langsgaten eerst de nodige gaten naast elkaar tot op de juiste diepte boren. Bij het dwarsbewegen van de tafel niet direct tot op de volle diepte, maar wel stapsgewijs werken.

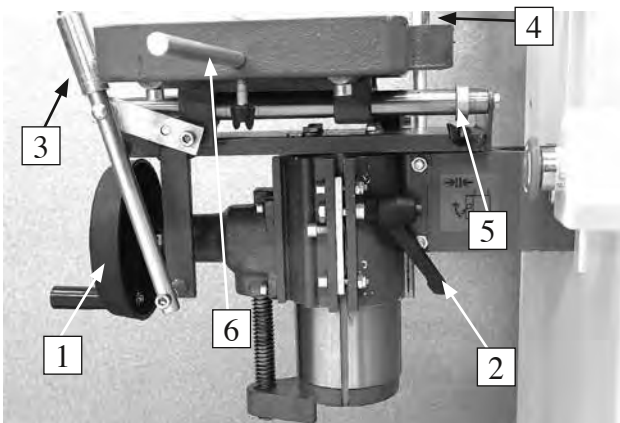


Fig.32

Planer protection during mortising (fig. 33)

Warning:

Always put the planer protection bridge in position above the planer arbour. This prevents accidental contact of the operator's hands with the planer arbor and knives during mortising. Alternatively, slide the planer fence fully forward (covering the planer arbor with the planer fence rear protection).

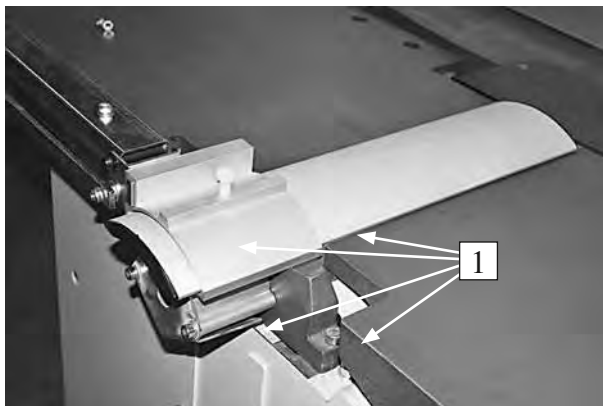


Fig.33

Fixing the mortising chuck to the spindle (fig. 34)

Always ensure that both the spindle and chuck threads absolutely clean before assembly.

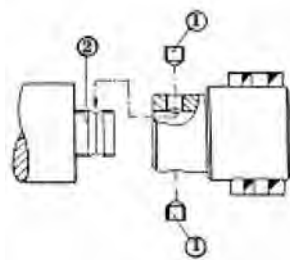


Fig.34

Warning: the mortiser chuck has a left hand thread!

Put the chuck onto the spindle arbor up to the end and check if the V-groove (2) in the spindle matches with the 2 holes in the chuck (if not, the spindle thread will be damaged!). Introduce the 2 Allen screws (1) and tighten them well. These press screws are needed to prevent the chuck from loosening.

Maintenance (fig. 35, 36, 37)

Warning: always disconnect the machine from its power supply before starting any maintenance work!!!!

The interior and exterior parts of the machine must be cleared at regular intervals to avoid accumulation of dust and woodchips. Any deposits of resin on the cross cut table sliding bars or on any other moving part of the machine must be removed with a piece of cloth and a little solvent (petrol, kerosene or other product). Never smoke or have any naked flame near the machine when using inflammable products, this to prevent risk of fire and serious burns for the operator.

All bearings are double sealed and lubricated for life, therefore they need no maintenance. All columns, e.g. spindle, thicknesser, mortiser need to be lubricated once a month, especially when the machine is used in a very humid environment. The best product to use is simple penetrating oil in a spray can. All other moving parts have to be kept free of dust and woodchips and may be greased with the same penetrating oil.

The use of a dust extraction system will most certainly extend the life of your machine. The life of the motors can be extended by blowing out saw dust from the cooling fan and from the motor body itself.

Planer belt tension:

Remove both cover plates of the thickener at both front and back side of the frame in order to get access to the planer motor drive belts by lifting them up and taking them out. The drive belts for the planer motor can easily be tightened by loosening the 4 nuts (1) holding the motor to the frame (fig 35.) The motor, under its own weight will lower and tighten the belts (belt type: SPZ 1400 (Robland n° NSPZ1400)).



Fig.35

Saw belt tension:

Tensioning the belts is done simply by loosening the bolts that holds the motor to the saw unit frame, the motor, again under its own weight will tighten the belts (fig. 36).

Belt type: for 250 mm dia. saw blade with or without scoring unit: SPZ545 (Robland n° NSPZ545).
For machines without scoring unit and 300 mm dia. saw blade: SPZ569 (Robland n° NSPZ569).

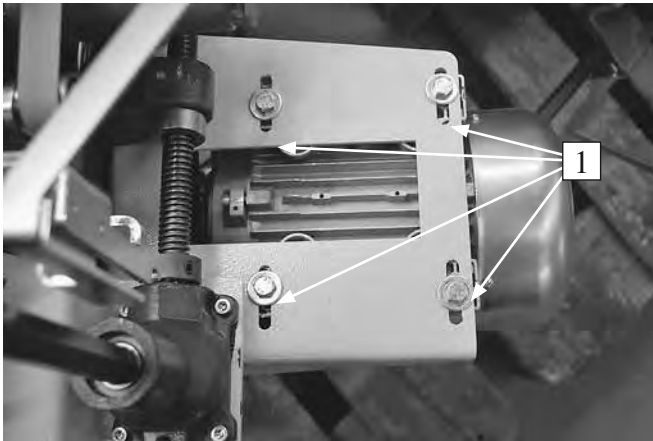


Fig.36

Changing and tension of the belts of the 4-speed spindle (fig. 37)

The machine is equipped with a 4 speeds spindle with a read out on the inner side of the machine, which allows the user to read out the speed of the spindle when starting up. Before loosening the belt to change the speed, loosen the belt spanner handle, then put the belt in the corresponding grooves to the chosen speed. Fasten the handle and check the tension of the belt, you can push the belt between the 2 pulleys, if the belt gives way approximately 5 or 6 mm, then the tension on the belt is right. Replace the belt by a Robland belt type: SPZ-700 (9,5 x 700) number N8224.

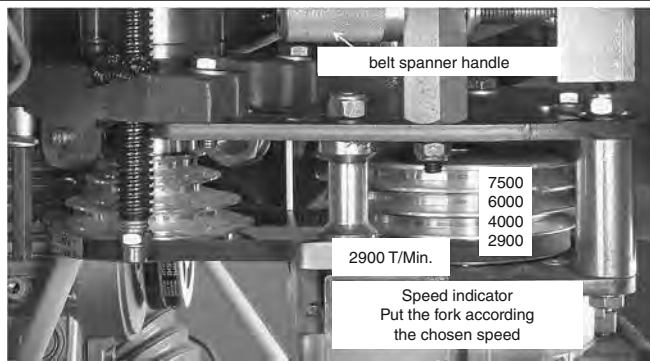


Fig.37

The drive chain for the feeding system on the thicknesser can very easily be lubricated by opening the planer in feed table. Now the drive chain can be seen right next to the planer table locking bolt. The little cover plate X0164 can be removed by removing the table locking bolt. When however the chain has to be replaced, then the complete saw spindle table has to be taken off to reach this chain.

Problems

Troubleshooting causes and solutions Oorzaken en oplossingen

1 The machine does not start when the start switch is activated:

- main switch off;
- power supply failure;
- emergency stop button activated;
- main fuse blown;
- overload activated due to motor overload;
- fault in the electrical system or machine connection;
- planer tables opened and dust chute thicknesser not in position.

2 Reduction of speed when working:

- belt tension not correct;
- motor overload due to incorrect feed speed;
- blunt tools.

3 Vibration of the tools mounted on the spindles:

- the tool is unbalanced; replace or have the balancing done by specialised personal and equipment.

4 Thermal overload does not re-arm automatically after shut-off and cooling down period:

- overload is not set for automatic reset or have the overload is faulty

Adjusting the spindle motor brake

When after extended use of the spindle, the brake down time of the motor exceeds 10 seconds the brake will need to be re-adjusted.

Without removing the motor cowling, put a 5 mm Allen key into the countersunk bolt and turn the bolt until the air gap between brake and ventilator fan is 0,2 mm.

Make a test run with the motor and check if the brake time is about 8 to 10 seconds.

Option digital read-out on the parallel fence

CHANGING THE BATTERY ON THE Z16 ELGO:

- Remove the digital reader from the cross-cut fence when changing the battery.
- This is very important: the reader may not be in contact with the magnetic tape!
- Now push F and keep on pushing it when removing the old battery.
- Place the new battery, still pushing F.
- Keep on pushing F until NO CODE appears on the screen.
- The reader is now calibrated and set at the factory settings.
- Repeat the above procedure in case of doubt about the operation of the reader.
- Calibrating the Z16 Elgo
- Calibrating the system: place the parallel fence up against the saw blade so that the teeth just touch the fence. Now push simultaneously both buttons F and Set in order to set the read-out at 0.
- It is recommended that each time a new saw blade is put on to the machine the system is calibrated again.

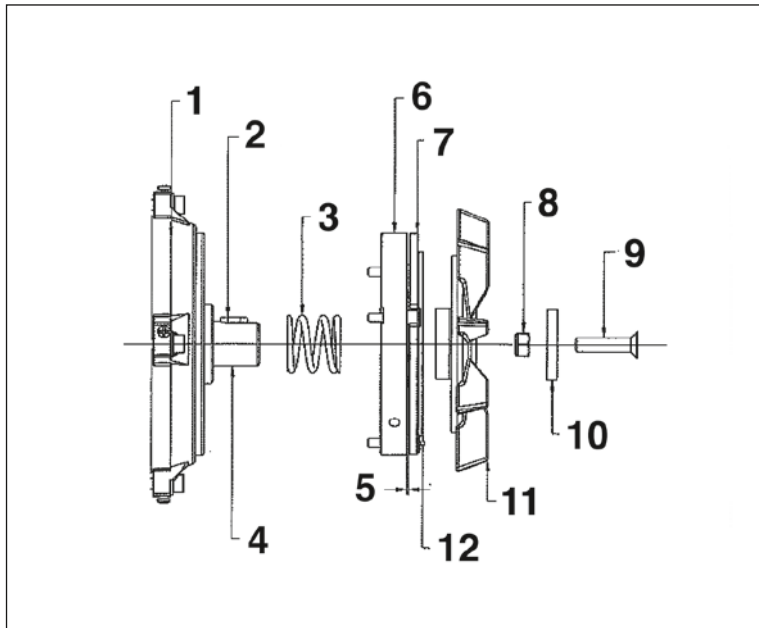


Adjusting the brake of the saw motor

If the run down time of the saw motor exceeds 10 seconds, then the brake will need to be readjusted. This is done as follows: without removing the motor cowling, turn the bolt holding the ventilator fan on the motor axle one 1/16th of a turn clockwise and make a brake test.

When needed adjust the brake furthermore until it does not exceed 10 seconds.

The air gap between ventilator fan (brake disk) and brake liner (Ferrodo) is factory set at 0,25 mm, this under normal conditions.



- 1 Motor frame
- 2 Key
- 3 Spring
- 4 Motor axle
- 5 Air gap
- 6 Electromagnet
- 7 Mobile disk
- 8 Locking nut
- 9 Adjustment bolt
- 10 Washer
- 11 Braking disk cast iron
- 12 Brake liner (Ferrodo)

Electrical components parts list

Q1	Mains isolator switch	N8443
F1/F2/F3	Fuse 10 Amp AM	N8552
F4	Fuse 1 Amp AM	N8554
F5	Fuse 2 Amp AM	N8553
T1	Transformer 400/230V/24V 45VA	N8563
eb1	Thermal overload 230V 1fase	N8477 (12-18 Amp)
eb1	Thermal overload 230V 3 fases	N8475 (5-8 Amp)
eb1	Thermal overload 400V	N8474 (4-6 Amp)
AU1	Emergency stop	N8502
AU2	Emergency stop	N8502
AU3	Emergency stop	N8502
S1	Selector switch	N9435
SE1	Safety switch saw	N9430
SE2	Safety switch planer	N9431
SE3	Safety switch spindle	N9430
LT1	Bulb brake release and 3000 RPM	N8439
LT2	Bulb 6000 RPM	N8439
START	Start button	N8449
STOP	Stop button	N8480
K1	Magnetic starter	N8457
M1	Motor saw 230V 1 fase	M0361
M1	Motor saw 230V 3 fase	M0305
M1	Motor zaag 400V	M0305
M2	Motor planer 230V 1 fase	M0361
M2	Motor planer 230V 3 fase	M0305
M2	Motor planer 400V	M0305
M3	Motor spindle 230V 1 phase	M1461
M3	Motor spindle 230V 3 phase	M1407
M3	Motor spindle 400V	M1408

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