

translation of an original Service instructions handbook

up dated 02/2016



WOODWORKING MACHINERY Masarykova 16, 517 50 Častolovice **ROJEK** Czech Republic - Europe www.rojek.cz rojek@export.cz +420 494 339137 up to - 41 fax - 322701; -323341

Contents

Introduction

1 Machine use

1.1 Workers qualification

1.2 Working surroundings

2 Machine signification

3 Technical data

3.1 Machine dimensions

- 3.2 Possible machine variants
- 3.3 Values of removal thickness, feeding and power
- 3.4 Data of appliance nois values
- 3.5 List of used grounds

4 Safety directions

4.1 General

- 4.2 Basic safety requirements
- 4.3 Dress a personal safety
- 4.4 Safety instructions for operator
- 4.5 Safety instructions for maintenance
- 4.6 Safety instructions for working place

5 Transport and storage

- 5.1 Transport and storage
- 5.2 Machine uplift

6 Machine positioning

6.1 Working space

6.2 Levelling and attachment of the machine

7 Connection of exhaustion

8 Connection to the mains

- 8.1 Connecting to the network
- 8.2 Operation safety
- 8.3 Rotating direction
- 8.4 Rotating direction change
- 8.5 Protection of electric installments

8.6 Machine operating

8.6.1 Machine"lower operating"from panel on machine stand

8.6.1.1 Machine connection

8.6.1.2 Machine start and stopping

8.6.1.3 Controler of emergency stopping

8.6.1.4 Rebreaking of cutterblock

8.6.2 Machine "upper operating "from panel on the bracket arm

8.6.2.1 Machine connection

8.6.2.2 Machine start and stopping

8.6.2.3 Machine run reversation

8.6.2.4 Rebreaking of cutterblock

8.6.2.5 Controler of emergency stopping

9 Operation and adjusting

9.1 Operation and adjusting of protecting guard

- 9.2 Adjusting of removal thickness
- 9.3 Adjusting of tiltable ruler
- 9.4 Adjusting of control panel
- 9.5 Planing of flat workpieces
- 9.6 Planing of narrow pieces
- 9.7 Planing with tiltable ruler

9.8 Planing of short pieces

9.9 Planing pieces of small cross-section

9.10 Working places

- 9.11 Protecting instruments
- 9.12 Installation of demountable parts
- 9.13 Forbidden manipulations

10 Tools

10.1 Recommended tools

10.2 Replacing and adjusting of cutterblock cutters

10.2.1 Cutters pushing up by screws system

10.2.2 Cutters pushing up by springs system

10.3 Cutters adjusting control

10.3.1 Cutters setting by a setting device

10.3.2 Cutters setting by a pointer indicator

10.3.3 Cutters setting by help of a wood scantling

10.4 Replacing and adjusting of TERSA cutterblock cutters

- 10.4.1 Step one
- 10.4.2 Step two

10.4.3 Step three

11 Maintenance and repairs

- 11.1 Stretching of cutterblock V-belt
- 11.2 Cleaning and lubricating
- 11.3 Faults remedy

12 Delivery extent

12.1 Accessories

13 Special accessories

14 Spare parts

15 Guarantee

16 Machine liquidation at service life expiry

16.1 Dealing with packing

16.2 Dealing with machine

Enclosures :

A) electric connection diagram

B) list of electrotechnical parts

Introduction

This manual was conceived at the manufacturer and is an indivisible part of the delivery enclosed with the machine. It contains basic information for qualified operating staff and discribes the surroundings and using ways of the machine for those it is intended. It contains also all necessary information for a correct and safe operating.

The machine is equipped with various safety equipment protecting the operator and machine as well at usual technological using. These regulations, however, cannot sheet all other safety aspects. That is why the operator must peruse and make sense of this manual before starting of using the machine. Installation and operation mistakes will be foreclosed herewith.

Do not try to start the machine before having read all instructions manual delivered with the machine and understood every function and technique.

Some information or drawings need not be intended especially for by yours bought type, for this manual contains all information of other this type variants we produce.By comparing of competent manual part with your machine - you will learn whether they correspond.

The producer reserves himself the right for particular variants in frames of a fluent technical development of the machine.

To stress the importance of some basic passages better, they are printed in **heavy letters** and marked by some preceding symbols - Appeal recommending to follow entirely following regulation :



Breach of these regulations may cause the death or a grave health exposure of operating personnel.

Warning against improper techniques or using of machine that may cause an exposure of human health, machine functioning and environment or cause economic losses.

The caution is an appeal to a due care for practising of following operations. Non-performing this caution may cause a human injury or damage of the machine.

The caution is an appeal to a due care for practicing following operations. Non-performing this caution may cause a human injury or damage of the machine.

Notice

The text and pictures of this manual is a know how of the ROJEK Co. No part of it can be copied and third persons are not allowed to learn it or its part without the company's approval.

1 Machine use

This machine is designed as planer for use in joiners shops(plants) at lengthwise (related to wood fibres) processing of wood and materials on its base within the width of 400 or 500 mm.

Machine is intended for being operated by one person.

Any manipulation with the machine is forbidden for children and youth.

1.1 Qualification of workers

Only a man or woman trained in woodworking branche or instructed and schooled by such a specialist can operate the machine. Machine operator is obliged to learn this manual and abide with all safety regulations, rules and appointments, valid in country in question.

1.2 Working surroundings

Machine must operate in workshop surroundings within temperature range $+5^{\circ}C - +40^{\circ}C$, relative air humidity 30% - 90% non condensing and altitude 1000 m above the sea in, surrounding classified : fire danger of combusitve dusts (BE2N2).

2 Machine signification

Machine type can be identified at the production shield on machine frame.

Type RFS 410 - planer, planing width 400 mm

Type **RFS 510** - planer, planing width 500 mm

CE	ROJEK dřevoobráběcí 517 50 často česká repul	I STROJE Lovice Blika
TYP STROJE PRODUCT TYPE MASCHINENTYP	VÝROBNÍ ČÍSLO SERIAL NUMBER ERZEUGNISNUMMER DOVOZCE INPORTER EINFUHRER	ROK VÝROBY YEAR OF MANUFACTURE BAUJAHR
NAPÉTÍ POWER SUPPLY SPANNUNG KMITOCET FREQUENCY FREQUENZ	VYKO POWEF MOTOF PROUL CURRE STROM	A OUTPUT RLEISTUNG

Informative shields and shields warning against dangers are placed at the machine.



- 1. fixing
- 3. rotating direction to the left
- 5. attention, alert
- 7. overswitch for electric brake releasing
- 7a) rotating direction of working spindle
- 7b) OFF, still-stand
- 7c) brake released.

- 2. rotating direction to the right
- 4. attention, electric device
- 6. rear table adjusting

3 Technical data

		RFS 410	RFS 510	
Length	mm	2 600	2700	
Width	mm	1220	1420	
Height	mm	1 070	1070	
Table height	mm	890	890	
Front table length	mm	1 400	1450	
Back table length	mm	1 150	1200	
Motor power	kW	3 (4)	4 (5,5)	
Motor rotating speed	RDM	2 860 (3 432 at 60	2 860 (3 432 at	
Notor rotating speed		Hz)	60 Hz)	
Cutterblock rotating speed	RPM	5 000 5000		
Cutterblock diameter	mm	116 116		
Number of cutters in	cutterblock	4	4	
pcs.		100	500	
Max. planing width	mm	400	500	
Max. shavings thickness	mm	8	8	
Tilting angle of tiltable ruler (c	legrees) °	0° - 45°		
Exhausting nozzle diameter	mm	150		
Voltage / frequency	V / Hz	1 phase + PE + N 230 V / 50 (60) Hz		
voltage / frequency v /		3 phases+PE+N 400(230) V / 50 (60) Hz		
Line safeguarding	А	16 (25)		
Nett weight	kg	560	630	
Gross weight	kg	550	620	

3.1 Machine dimensions



	A (mm)	B (mm)	C (mm)
RFS 410	410	2 600	1 220
RFS 510	510	2 700	1 420

3.2 Possible machine variants

electric motor power of	- RFS 4103 ; 4 kW (3 phases.), 3 kW (1 ph.) - RFS 5104 ; 5,5 kW (3 phases.)
operation voltage	- 3 x 400 V or 3 x 230 V
supply frequency	- 50 Hz or 60 Hz
brake of electric motor	 without possibility of electrical releasing of electric motor brake above mentioned possible (by switch on control pannel)

3. Values of shavings removal thickness, feeding and power

	feeding speed		shavings removal
power (kW)	(m/min)	planed width (mm)	(mm)
2,2	5	400	2
3	5	400	3
4	5	400	4
5,5	5	400	5

Above mentioned values are valid for spruce wood at relative air humidity of 12 - 15 % and sharp cutters in cutterblock. These values can be regarded as starting ones at taking the machine to operation. At longer machine use these values can be partly changed. E. g. at planing of harder woods and at cutters getting blunt it is necessary to count with adequate reduction of stated values.

Shavings removal thickness related to planed width and hardness of wood can be chosen only within the values at those driving motor does not get overloaded. On the contrary the protection of motor will act and the machine will get stopped.

It is necessary to count with worsened quality of processing at planing of materials of small thickness considering the springing of planed material piece.

3.3 Appliance nois data(EN 859+A2: 2012)

		RFS 410	RFS 510
Nois level A in ope- rator´s place (L _p A _{eq})	without tools	$L_pA_{eq} = 79,2 \text{ dB}(A)$	$L_pA_{eq} = 78,4 \text{ dB}(A)$
	with tools	$L_pA_{eq} = 94,5 \text{ dB}(A)$	$L_pA_{eq} = 86,9 \text{ dB}(A)$
Acoustic power A (L_{WA})in operator pl. EN ISO 3746:1995 K = 4 dB	without tools	$L_{WA} = 85 \text{ dB}(A)$	L _{WA} = 86,8 dB(A)
	with tools	$L_{WA} = 100 \text{ dB}(A)$	$L_{WA} = 92,2 \text{ dB}(A)$

Above stated values are those of emissions and need not represent the safe working values. Although there is a correlation between emissions values and levels of exposition, these values cannot be used for a reliable statement whether other precautions are necessary or not. Agents, influencing real exposure of workers, include other working space attributes, other sources of nois, etc., e.g. the number of machines and other from neighbourhood influencing processes. The most permissible exposition levels can differ according to country in question, too. This information will serve for machine user to a better astimation of risks.

3.4 List of used grounds

Directive 2006/42/EU stating technical requirements on machinery

Directive 2006/95/EU stating technical requirements on electric appliances of low voltage

Directive 2004/108/EU stating technical requirements on electomagnetic compatibility.

EN ISO 12100 : 2011 (EN ISO 12100 :2010) Machinery safety - General principles for designing - Risks estimation and reducing EN 859+A2 : 2012 (EN 859 : 2007 + A2 : 2012) Woodworking machinery safety - Planing machines with manual feeding EN 860+A1 : 2010 (EN 860 : 2007 + A1 : 2009) Woodworking machines safety - Single-side thicknessing machines

EN 861+A1 : 2010 (EN 861 : 2007 + A1 : 2009) Woodworking machines safety - Combined planing and thicknessing machines

EN ISO 13857 : 2008 (EN ISO 13857 : 2008) Machinery safety - Safety distances to avoid reaching touch of dangerous places by hands and feet ~ arms - legs.

EN 349+A1 : 2008 (EN 349 : 1993 + A1 : 2008) Machinery safety - The least gaps to avoid pressing of human body.

EN ISO 13850 : 2008 (EN ISO 13850 : 2008)

Machinery safety - Emergency stopping - Principles for designing

EN 953+A1 : 2009 (EN 953 : 1997 + A1 : 2009)

Machinery safety - Protective casings - General principles for designing and production of unmoved and movable protective casings

EN ISO 13849-1 : 2008 (EN ISO 13849-1 : 2008)

Machinery safety - Safety parts of controlling systems - Part 1: General principles for designing

EN 1037+A1 : 2008 (EN 1037: 1995 + A1 : 2008)

Machinery safety - Avoiding incompetent unexpected starting

EN ISO 14119 : 2014 (EN ISO 14119 : 2013)

Machinery safety - Blocking devices joint with protective guards - Fundamentals for designing and choice

EN 1088+A2 : 2008 (EN 1088 : 1995 + A2 : 2008)

Machinery safety - Blocking devices joint with protective casings

EN 55011 ed.3 : 2010 (EN 55011:2009)

Industrial, scientific and medical units - High frequency interference characteristics- Limits, measurement methods.

EN 60204-1 ed. 2 : 2007 (EN 60204-1 : 2006)

Machinery safety - Electrical machine parts - Part 1 : General requirements

EN 60073 ed.2 : 2003 (EN 60073: 2002)

Basic and safety principles for interface man-machine, marking and identification - Encoding principles of convey- ers and controllers.

4 Safety instructions

4.1 General

This machine is provided with various safety equipment proecting the operator and the machine as well. This, however, cannot involve all safety aspects. Therefore the operator must read through and understand this chapter. He must moreover respect also other aspects of danger, refering to surroundings conditions and processed materials.

This manual takes in 3 categories of instructive safety symbols :



Appeal recommending to proceed entirely according to following instruction(s). A dispatch or operator's heavy injury impends in case of non-performing this regulation.

Warning against improper techniques or machine using ways, those can endanger human health, machine functioning, environment or cause economic worses.

Caution is an appeal to appropriate care during practising of following activities. Non-performance of this caution can cause a small sized injury or machine damage.

Follow instructions stated on shields, fixed on the machine. Do not remove nor damage the shields. In any case of a shield damaging – always contact the producer !

4.2 Basic safety requirements



Under any conditions do not touch the low voltage system on the electric control pannel, transformers, motors and terminal boards. Every of mentioned unit is indicated with a shield.

Make sure that all safety elements are in active position and check up its function **before connecting** the machine to the mains. In case of a necessity to remove doors or protec-ting shields : switch off the main switch and lock it or disconnect the machine from the mains by towing off the plug.

Do not connect the machine to the mains with removed door or protecting covering.



- Learn the location of switches before starting of machine to avoid improper operating.
- Remember the position (location) of the emmergency switch, so as to use it promptly whenever needed.

- Pay attention so as not to touch any switch by chance during machine run.

- Never touch rotating cutterblock by hands or with whatever else.

- In case that you are finishing operating at the planer : switch off the machine at the control pannel and disconnect it from the mains
- Before cleaning : Switch off the machine and always lock the main switch or disconnect the machine from mains by towing off the plug.
- Before practising maintenance : Switch off the machine and always lock the main switch or disconnect the machine by towing off the plug.
- When more operators work at the machine : never begin another oparation without having instructed your cooperator how you intend to run on.
- Never adapt the machine in a way that could endanger its safe run .
- If you doubt about accuracy of by yours intended technique: discuss it with a specialist !



- Do not fail practising of regular surways in accordance with this instructions manual.
- Check up and make sure that nothing spurious occurs at the machine from user's side.
- After end of working adjust the machine so as to be ready for other serial of operations.
- If the mains supply is interrupted switch off the main switch at once or disconnect the machine by towing off the plug from the socket.

- Do not paint over, smear, damage, adapt nor replace safety shields. If they get unreadable or lost – contact the producer and renew them !

4.3 Dress and personal safety



 Experience shows that various personally worn objects e.g. finger rings, watches, wristbands and the like used to cause injuries. Hence put them away before beginning of work, fasten sleeves, remove tie – those could be caught by various parts of working machines. Brace your hair so

as not to fly free and wear suitable shoes recommended or rated by working safety rules of a country in question.

- Wear safety outfit (glasses, apron, safety footwear and the like).
- In case of obstacles above your head in working space wear a helmet.
- Wear always a protecting mask during planing material source of dust (when planed).
- Never wear free working dress.
- Never work on the machine under influence of drugs or spirit drinks.
- If you suffer from stuggers, fade or swoon do not work on the machine.

4.4 Safety regulations for operator



Get up content of this manual before starting up of the machine.

- Check up whether electric cabels are not damaged so as an electric current fading would not cause an injury (electric shock).
- Check up regularly whether safety coverings are properly mounted and if they are undamaged. Damaged coverings repair immediately or replace with other ones.
- Do not start the machine with removed protecting covering.
- Never use deformed or cracked tools.
- Replace blunt tools as soon as possible, for blunt tools often cause injuries or damages .
- Never use tools at higher speed than recommended by its producer.
- Stop all machine functions before replacing of tools.

- Do not remove or in any else interfer to safety elements like coverings, limit switches, nor practise its mutual blockage.
- Require an assistance for manipulation with parts exceeding your abilities.
- At a storm we recommend : Do not operate at the machine !

4.5 Safety rules for maintenance

Get up this manual instructions for machine maintenance men at all points before starting any maintenance work.



- Before beginning with maintenance works: Switch off always the main switch and lock it or disconnect the machine by towing off the plug from socket. Hererwith you avoid an occassional starting of machine by chance by another else person.



- A qualified person must practise maintenance works on electric parts.
- The machine is not disconnected from voltage when it gets stopped. Switch off always the main switch and lock it or disconnect machine by towing off the plug from socket.
- Do not clean the machine or its peripheral system if machine is completely out of run as long as the main switch is not switched off or the plug towed out from the net socket.
- Keep your fingers distant from belts and belts pulleys and from chains and chain wheels.
- Before exchange of machine electric parts switch off the main switch, lock it or disconnect

the machine by towing off the plug from the socket. For replacing of defected products use those consistent with specification of originals

- Do not remove or do up blocking of limit switches or other safety components.
- Keep always tidy the space for maintenance including your working place.



- Maintenance works must be practised by qualified
- personnel in tune with producer's instructions.
- Read through all the instructions manual for maintenance men patiently.
- For an exchange of parts and needy subjects ensure in advance equal ones with the original type or corresponding with the norms.
- Use only specified brands of lubricant (oil or grease) or with these equal ones.
- When one belt of used set of belts gets drained more than rated exchange the whole set.
- Do not use compressed air for machine cleaning or removing of wood chips.
- Control results of maintenance in presence of a responsible person.

4.6 Safety rules for working place



- Ensure always sufficient working space and free access to the machine and its peripheral device.
- Place the tools and other obstacles at a place for this inten ded remote from the machine.

- Ensure sufficient lighting in working space that will not throw shadows or cause a stroboscopic effect. Hygienic norms indicate 500 lx for minimal lighting

- for a safe and quality work.
- Never lay tools or other subjects onto working tables or coverings.

5 Transport and storage

5.1 Transport, stocking

Be especially careful during transport and manipulation and commit it to gualified personnel for it especially trained.



You must secure that no person nor subject could be folded by the machine during loading and unloading it ! Never enter the space under machine lifted up by crane or by a high-lift carriage !

The machine must be protected against excessive vibrations and moisture during transport. It must be stored indoor in temperature range (minus) - 25°C to + 55°C.

The machine is modularly wrapped in shrinkable folio when transported. On customer's wish the machine can be packed in a resistant wooden box.

5.2 Machine lifting

The machine or its separate parts can be lifted only with an approved lifting appliance of certified carrying capacity. We recommend to use : - a high-lift truck.

- a manual lifting carriage



The weight of RFS 410 is 560 kg. The weight of RFS 510 is 620 kg.

Prepare a high-lift truck or a manual lifting carriage of sufficient forks

- shift forks under the machine how shown on the picture left.

- place the second end of ropes under machine frame

- check up the stability of machine hang at a moderate lifting up, eventually change the truck position.

- lift the machine carefully and

and then relocate it without sudden changings of moving onto chosen

- put the machine carefully and slowly without beatings from truck onto ground.

6 Positioning of machine

Remove protecting coat from table and other machine parts with a solvent. Do not use petrol or kindred solvents for this action. They can cut down resistance against corrosion of some machine parts.

The working space extent depends on machine dimensions, intended working operations and dimensions of processed material.

Do not forget to let free a big enough space for installment of a sufficiently effective exhausting unit or hoses connecting with the central exhausting system.

6.1 Working space



It is important to keep a free space of at least 0,8 m, requested as working space surrounding the machine.

If a long peace is planed, it is necessary to have a sufficient space in front of and behind the machine in places of material in- and output.

6.2 Machine levelling and fixing



The machine is equipped with feet, (in lower frame part).

When the bottom is not flat, level the machine by help of fillers in allowance 1 mm/ 1000 mm and screw feet to the bottom (anchor the machine).

Attached drawing shows a lay-out of anchoring openings on the machine.

RFS 410 - A x B = $930 \times 374 \text{ mm}$

RFS 510 - A x B = 1030 x 474 mm

7 Connecting of exhaustion

An exhausting unit of minimal volumetric capacity 1270 $\text{m}^3 \text{h}^{-1}$ and minimal air stream speed in hose 20 ms⁻¹ for dry particals, and 1780 m³h⁻¹ at minimal air stream speed in hose of 28 ms⁻¹ for wet particals, is necessary for proper functioning of the machine.



Always operate machine only with running exhausting ! Start the machine and the exhausting unit all at once !

Use a flexible exhausting hose of diameter 150 mm for connecting. Connect the exhausting hose to nozzle, placed in rear part of the machine.



Wooden waste must be liquidated eco-friendly - not to worsen the environment.

8 Connecting to the mains



Only a qualified person is allowed to realize the first connection of the machine to the mains.

8.1 Connecting to mains



Make sure that no voltage is at the supply lead before connecting. Unscrew the cover of the terminal board (A), put the connecting cable through - into the box with the terminal board and connect individual phase conductors with corresponding clamps. Connect the protective conductor (yellow-green) to the clamp PE and the central conductor (pale blue) to the clamp N, if it is required. Cross- sections of phase conductors and of the protective conductor must be conformable with legal standard norms. Check up the rightness of connecting and fasten the terminal cover with screws again.

8.2 Operation safety



Damaged supplying lead must be replaced immediately by a competent specialist. Machine run with damaged supply cables is dangerous to life and forbidden !

Before establishing the machine to the run make sure that the voltage and frequency stated on the machine rating plate answer to those of supplying network.



Always switch off the main switch and lock it or disconnect the machine by towing the plug from the socket before tools adjusting and replace and all adjusting, treatment and maintenance works. Herewith you avoid eventual machine starting by chance by an else per-

son.

8.3 Rotating direction



An injury danger menaces at improper rotating direction of cutterblock !



When standing at the input table side of planer against guiding ruler – the cutterblock must rotate against incoming material, i. e. to the right in direction of arrow situated at cutterblock. Start the machine for a flash to learn the spindle rotating direction.

8.4 Rotating direction change



It is possible to change rotating direction of 3-phases motors by exchanging (switch-over) of conductors one instead of another (between 2 black ones or a brown and a black one) on supplying plug. Attention ! Avoid of mistaken changing of yellow-green wire with the phase ! Entirely a specialist qualified in electrotechnics is allowed to change the conductors - to reconnect the motor for rotating direction change !

Start the machine without tools for a flash to learn its rotating direction.

8.5 Protection of electric parts

The electric motor of the planer is equipped with an electric brake, able to stop the spindle in required time (within 10 s).

If the electric brake does not work well (spindle run out is more than 10 s) it is forbidden to work on the machine !

The protection against dangerous contact of inanimate parts is assured with a self acting disconnecting from the mains according to the norm EN 60 204-1 ed.2 and IEC 60 364-4-41.

8.6 Machine control

8.6.1 Operating machinery from panel on stand machinery (lower operating) 8.6.1.1 Machine connecting



The connecting and disconnecting of machine is done by switching ON and OFF of the lockable main switch (A). Till the machine is disconnected, it cannot be started. The main switch can be secured with a pad lock against an ineligible machine starting. 8.6.1.2 Machine starting - stopping The machine motor gets started by pushing the green knob (B) at the starter of the main control panel. The motor gets stopped by pushing the red controler (C). In case of a mains failure the machine is switched off by a tapped coil, it means that after the voltage restoring the machine must be switched on again. The inbuilt breaker will switch off the machine in case of motor overloading. Check up the machine (motor function,

blunt tools and the like) if the braker switches it off several times in a sequence.

8.6.1.3 Controller of emergency stopping

The controler of emergency stopping (H), after having been used, will remain locked in the position OFF, and before a new machine starting it is necessary to release it by indexing of the "mashroom" head. The machine cannot be started without this releasing.

8.6.1.4 Main switch and electric motor brake release

For an easier manipulating with cutterblock when exchanging the cutters it is possible to equip the machine with an overswitch (G) for motor brake releasing.

Position 1 - normal run

position 0 - OFF

position ${\bf 2}$ - released; after overswitching to this position, and pushing the green pusher of motor starter - the cutterblock will get released

position **3** - cutterblock reversation (so far as the machine is equipped with reversation)

So far as the overswitch gets overswitched across the "0" position - the machine must be always started by a motor starter.

8.6.2 Operating machinery from panel on the bracket arm (upper operating) 8.6.2.1 Machine connecting



The connecting and disconnecting of machine is done by switching ON and OFF of the lockable main switch (A). Till the machine is disconnected, it cannot be started. The main switch can be secured with a pad lock against an ineligible machine starting.

8.6.2.2 Machine starting - stopping

The machine motor gets started by pushing the green knob (B) at the starter of the main control pannel.

ATTENTION ! As far as the machine is equipped with a reversible overswitch (F), the machine can be started even

after running out of the precautionary time period (c. 20 s) after connecting of the machine to the mains with the main switch (A). The motor gets stopped by pushing the red controler (C). In case of a mains failure the machine is switched off by a tapped coil, it means that after the voltage restoring the machine must be switched on again. The inbuilt breaker will switch off the machine in case of motor overloading.

Check up the machine (motor function, blunt tools and the like) if the breaker switches it off several times in a sequence.

8.6.2.3 Machine run reversation

Look at the cutterblock from the side of the material income table of the planer, against

the guiding ruler. The cutterblock must rotate anticlockwise – means to the right, against inserted material of workpiece. The upfeed method of planing is concerned. As far as required by the technique (when using the mortiser as an auxiliary unit) - the cutterblock can be started in reverse sense of rotating – means to the left (as far as the machine is equipped with the reversation). The choice of required rotation sense is done by turning of overswitch (F) with pushed-in key into appropriate position. After running out of precautionary time period - the motor can be started by pushing of the green pusher (B). After turning of the overswitch (F) into position of the reversal rotation sense – to the left – this position is indicated by lighting up of the control light.

As far as the rotation sense is changed by the overswitch (F) during the machine run - at first the feed of electric power to the motor is interrupted, the motor stops and, as lately as the safety time period is ran out, the cutterblock can be started in reverse (contrary) rotation direction with the green controler (B).

8.6.2.4 Rebraking cutterblock

The cutterblock can be (after its stopping) – for an easier manipulation when exchanging the cutters (cutters) – released by indexing of the controler (G) into the position "RELEASED". The key must be put in the controler. After running out of the safety time period, the machine electric motor gets released and this stage is indicated by lighting up of the control light. The again-rebraking comes round after indexing of controler (G) into position braked (normal stage).

As far as the over switching of the release controler(G) comes during the machine run, at first the feed of electric power to the motor is interrupted, the motor stops and, as lately as the safety time period is ran out, the cutterblock will be released.

ATTENTION – It is necessary always to get back the release controler into the position "BRAKED", otherwise the cutterblock motor cannot be started with the green controler (B).

8.6.2.5 Controller of emergency stopping

The controler of emergency stopping (H), after having been used, will remain locked in the position OFF and before a new machine starting it is necessary to release it by indexing of the "mashroom" head. The machine cannot be started without this releasing.

9 Operation and adjusting of machine

9.1 Adjusting and operation of protecting device



Height of cutterblock covering (A) setting is adjustable by a lever (B).

Protecting cover, after being pushed downward, returns automatically to its original position. The lower, and maximal upper position (max. 75 mm above the rear table) is given by a stop screw. Protecting guard (D) can be laterally shifted after releasing of the lever (C).

9.2 Setting of removal chip thickness



Removal chip thickness is adjustable by changing of front table position :

- release the table by fixing lever (A);

- change position of table by table adjusting lever (B) according to required removal chip thickness;

- fix the table by fixing lever (A);
- the value of set chip thickness can be read at the scale (C).

9.3 Adjusting of tiltable ruler:



lateral adjusting

Release the fixing lever (B) of the leading (C) of the ruler (A);

- rebuild the ruler (A) laterally according to machined workpiece;
- tighten the fixing lever (A) of leading (C) again.

Tilting

Release the fixing lever (D) of the ruler (A) tilting;

- tilt the ruler (A) to the needy position;
- tighten the fixing lever (C) of the ruler (A) tilting again.

Positions upright and tilted of 45° are assured by the back stop screws.

9.4 Adjusting of control pannel



The control pannel (A) can be tilted from its upright position by help of screws (C) at the arm (B).

After release of tightening levers (D), the control pannel can be slid sidelong e.g. when using the mortiser upward over the workpiece input table or when tilting the leading ruler in direction beyond the table so as it does not interfere with the just used technique of planing.

9.5 Planing of flat workpieces



Put the flat piece on the planing table, take up the roller cover by left hand, adjust it to required height about 5 mm over input workpiece and switch on the machine. Push the workpiece towards the cutterblock, your hand is moving over the cutterblock cover, the workpiece is being shifted by hands - not by your entire body!

Do not push the workpiece backwards over the cutterblock !

9.6 Planing of narrow pieces



When planing narrow pieces set the cover of the cutterblock in such a position, so that the distance between the workpiece and cutterblock cover is max. 5 mm. Then switch on the machine and push and shift machined workpiece against cutterblock (between the cutterblock cover and ruler).

9.7 Planing with inclined ruler



Check the angle of the longitudinal ruler at loose tightening levers (the position 90° and 45° is fixed with backstop screws), tighten levers again and switch on the machine. Push chamfered workpiece forwards and against the ruler.

9.8 Planing of short pieces



Use a special holder when planing short workpieces. A possible exe-cution you can see on the picture.

You can offer the holder as a special accessories of the machine.

9.9 Planing workpieces of small cross section

Attention !

Big injury danger arises when leading the workpiece along the high rule incorrectly !



The ruler must be supplemented with the auxiliary ruler for planing of thin materials. It must be wider than 60 mm, its height within 20 and 25 mm. You can offer the auxiliary ruler as a special machine accessories.

9.10 Working places



Picture shows the position of working place.

9. 11 Protecting instruments

A short stiff aipron and protection of eyes are rated for the work on the planer. It is proper to use adequate protection of hearing and recommended working shoes. Wearing of working coats is forbidden.

9.12 Installation of demountable parts

Some parts of the machine can be dismounted according to the means of transport. Do not mount dismounted parts onto the machine before having read all service instructions manual and learned about the machine thoroughly.



Mount the carrier beam(B) of the cutterblock guard onto the rear table. Put the guard (C) into the leading and lock it.

In case of a machine making with the upper control board, insert the control pannel (D) with the arm (E) into the holder and fix it with fixing levers (F).

Insert the leading ruler (H) with the guide bar (K) into the bend of holder(J) and fix it with the fixing lever (I). The holder with the bend (J) is mounted at the rear machine table.

Do not forget to mount the rear cutterblock cover (L) onto the ruler holder.

9.13 Forbidden manipulations

On a machine it is forbidden:



- to make any treatments of machine safety elements not approved by the producer,
- to make any manipulations in contrary with this manual safety instructions (chapter 3)

- to touch or interfere with the cutterblock or its near surroundings and other moving parts

- to plane other material than wood or those on its base
- to process workpieces in cross-direction. Machine is intended only for planing in lengthwise direction of wood fibres.
- to overload the machine at processing of big semiproducts workpieces
- to remove shavings in cutterblock surroundings by hand or anything on running machine
- to use other cutters in cutterblock than recommended by machine producer
- to use cutters of width under 20 mm.

10 Tools



The machine is equipped with the motor electric brake.

Use electric releasing (if machine equipped with) of motor brake for easier turning with cutterblock when replacing cutting cutters. Eventually use the adapter to be mounted onto the end of cutterblock spindle for setting in a socket wrench

for this purpose. Spindle end is accessible after dismounting of small sideward covering. Dismount the adapter and put back the covering after adjusting of cutters.

10.1 Recommended tools



Do not use other cutterblock cutters than supplied or recommended by machine producer. Do not use cutters of width under 20 mm.

The cutterblock must be marked with name or logo (signification) of producer and maximal allowed rotating speed (RPM). Proper tools for using in this machine cutterblock are planing cutters 410; $510 \times 30 \times 3$ mm (length x width x thickness) from steel HSS (HSS 18) with grooves for adjusting screws.

Accessories (vee strips, cutterblock screws) weight may differ in allowance within \pm 0,25%. Cutters must be fixed along all its length.

10.2 Cutter block cutters exchange/ setting up 10.2.1 Pushing up cutters by screws system

Standard machine equipment is the Rojek cutterblock system. Swing away the planing ta-bles



before exchange of cutters. Release three screws (5) in the pressing-off-wedge (2) by hexagonal spanner nr. 4. Release the pressing off wedge (2) by hammer (through a piece of wood). Remove the cutter (3) by unscrewing two hexagonal screws (4). Clean the wedge fitting surface and the new cutter carefully. Insert the new cutter by screwing two hexagonal screws (4) so as its max. protrusion over cutterblock perimeter is 1,1 mm. **The manufacturer recommends cutters protrusion allowance 0,7- 0,8 mm.** Then tighten the pressing-off-wedge slightly with three hexagonal screws (5) so, as it is possible to move the cutter without restrain.

but impossible to take it out. Set a proper and definitive height of cutter with a solid wood scanting and two hexagonal screws (4) according to the article 10.5. Tighten all three hexagonal screws (5) in the pressing-off-wedge (2).

10.2.2 System, where cutters are pushed up from cutter block by springs.



The planing cutters (1) are fastened in the wedge groove of the cutter block (2) by a wedge (3). After releasing the screws (4), the cutter is pushed out by the pivot (5) with the spring (6) and can be removed. After inserting a new cutter (1), its pushing into the level of the surface of the cutter block body (2), and light tightening of the screws (4), the cutter is ready for adjustment.

If the cutters are changed for reason of wear, always replace all four !!!

10.3 Planing cutters adjustment

The quality of the machined surface depends on the accuracy of the cutter adjustment !!! **10.3.1 Adjustment using an establishing jig (establisher)**



After releasing the screws (4) of the wedge (3), the spring (6) with the pivot (5) pushes the cutter (1) of the cutter block (2) against the stirrup (7) of the establishing jig.

The stirrup serves as a stopper and the size of cutter ejection (1) above the surface of the cutter body (2) corresponds to the value of 0.9 mm. Hold the establisher pushed above the cutter (1) and gradually tighten the wedge screws (4), best gradually from the cutter centre to the ends. Repeat the procedure gradually with all cutters.

10.3.2 Adjustment using a dial indicator

After releasing the screws (4) of the wedge (3), let the cutter (1) being pushed out by the spring



(6) with the pivot (5) above the body of the cutter block (2) to a value over 1 mm. Using hard wood, a nylon chock or similar material, knock the cutter (1) into the cutter body (2) and check the value of ejection above the body of the cutterblock using the dial indicator (7) as shown in he picture. The check must be performed always at both ends and in the centre of the cutter with all cutters in the cutter block. After aligning the cutters are to be gradially tightened with the wedge screws (4), best from the centre of the cutter to the ends.

10.3.3 Adjustment by help of a wood scantling



Put a hard wood scantling (A) on the rear planing table (B) and make a sign on wood side in place of table end. Turn manually cutterblock of about 1/4 round (90°). Wood piece must shift a bit. Make the second sign and measure the distance between both signs. As far as the device is correct, this distance is about 3 mm (Xvalue on picture). Adjust all 4 cutters in cutterblock twice - always on the left and on the right side of cutterblock. Tighten all screws.

10.4 Exchange and adjusting of planing cutters TERSA

(This type of cutterblock is delivered especially on customer's order.)

10.4.1 Step one



10.4.2 Step two



Discharge the cutter in the cutter-block with knocking with the hammer of accessories onto the gasset.

Take the blunt cutter out from cutterblock and replace it with a new one.

10.4.3 Step three



Eccentric power fixes the position of cutters in cutterblock after starting the machine. The cutter is reversible. As soon as both cutting adges of any cutter is blunt - do not sharpen them, but replace with new ones !

The cutter is reversible. As soon as both cutting adges of cutter are blunt - do not sharpen them, but replace with new ones !

Exchange the blades all at once !

11 Maintenance and repairs



Always disconnect the machine from the mains before any maintenance or repair ! Switch off and lock the main switch or disconnect the machine by towing off the plug. Herewith you avoid a possibility of an occasional starting the machine by somebody else.

11.1 Cutterblock V-belt tightening



Take away dismountable covering (D) in machine rear part. Release fixing screws(A) of plate under motor flange and release fixing nut of tightening screw (B). Shift the motor downwards - herewith the V-belt (C) gets tightened. Tighten fixing nut of tightening screw (B), tighten fixing screws (A) of motor plate and put back dismountable covering (D). Properly tightened V-belt should sag of nearly10 mm when pressing to its middle by force of about 20 N (2 kg).

11.2 Cleaning, lubricating

Clean the machine regularly. Oil bars, gudgeons, screw bars and other parts amenable fret. The oiling frequency depends on the way of working, but apply it minimally once a month. Bearings of electric motors and shafts have a permanent grease filling and are sealed (closed). For this reason - do not grease them.

Clean the tables from resin by suitable solvent - for example by turpentine or petroleum, or by other suitable solvent according to your needs.

Take care that the belts are not fouled (dirty) with oil or grease. In case it happens, clean the belts only with paper.

Clean the machine from dust with a vacuum cleaner. This should be done once a week at least.

Lubrication points surway

	Bearings of spindles	Lifting of front table, lifting pins	Table plates and cutterblock
Lubrication point - needy act	1 (hour)	2 (hours)	3 (hours)
Permanent grease filling	at change		
Grease by spread- ing			
Grease with oil can		50	8
Plastic lubricant or oil	LV-2-3	OL-B5	OL-B5
Equivalent	ISO-L-XCBEA 3	B ISO - LAN 68	



11.3 Faults remedy

No defects should arise at a correct use and proper maintenance of the machine. If the shavings exhausting gets jammed - it is necessary to switch off the machine before carrying out the remedy. Stop the machine immediately if it gets jammed with the workpiece ! Blunt tool - cutter(s) in block is often a cause of electric motor overheating. If the machine excessively vibrates - check up its levelling and attachment, respectively fixing and ballancing of cutters used in cutterblock.

Machine does not work :

It is necessary to check up electric installation and connecting to the mains.

Front table moves with excessive resistance :

It is necessary to release fixing lever of table or lubricate bedding of table.

Machine output is insufficient :

Tools are not sharp.

Too thick shavings removal is set - it is necessary to regard workpiece width and wood hardness.

Front or back table is fouled.

Cutterblock V-belt is insufficiently tightened.

Electric motor does not give full output. - A specialist should solve it.

Machine vibrates:

Breach of fundamentals of chp. 10.1 - Recommended tools

Badly sharpened or adjusted cutters.

Cutters differ in width, thickness.

Exceeded weight allowance of tool accessories (chp. 10.1)

Machine does not stand on flat surface.

Workpiece interfers with the back table :

Badly in height adjusted cutters or front table.

Thinned end of workpiece :

Badly adjusted cutters or tables. Badly atteched or led-along workpiece.

12 Delivery extent

Complete machine, accessories according to list, service instructions manual, special accessories (if ordered).

12.1 Accessories

Name of part		pcs.	note
wench 13 x 16		1	
wrench 4		1	
wrench 6		1	
wrench 8			
balancing washer		4	machine balancing
adjusting instrument		4	for adjusting of cutterblock
aujusting instrument		I	cutters
PE bag with zip	250 x 350 mm	2	for manual + added packing

13 Special accessories

Mortising attachment VDA 315,

cutter setter with indicator,

instrument for planing of short pieces,

auxiliary ruler for planing of thin and narrow (of small cross-section) pieces,

TERSA cutterblock,

external feeding device.

14 Spare parts

When ordering spare parts : Mention always the machine production number, type and year (from machine rating plate) and the part position number in spars drawing. If an enclosure with listed spare parts is a part of this manual - it is available to state numbers and names of spares according to this enclosure.

15 Guarantee

Works and operations, not mentioned here, involve a written agreement of the ROJEK Co., Masarykova 16, 5170 50 Castolovice, the Czech Republic, Europe. Every machine and equipment is provided with a guarantee certificate. It is important to fill the warranty certificate just during purchasing it with a respect of possibility to set up eventual guarantee claim and for sake of product's safety. If the machine is not installed in a proper way, it may cause damage on it own or an injury to the operator. In this case we do not bear any responsibility. Possible guarantee claims have to be asserted at machine seller.

When the guarantee period expires - you can get the machine repaired at any specialized repair shop.

16 Dealing with packing, machine service life expiry

16.1 Dealing with packing

Our products are transported in packing fron cartoon or PE folio. Producers of these packings issued a legal declaration about their product. They concluded a contract about filling duties of taking back and usage of the vaste from packings with an authorized company. One of duties of these companies is also to inform the clients how taking it back is assured.

16.2 Dealing with machine

Service life of this machine depends particularly on usage way, working engagement intensity, frequency and kind of applied maintenance. The producer is responsible to machine user for evident losses caused by the machine for ten years.

Machine user is obliged to guarantee an environmentally safe liquidation of the machine according to country's in question laws about leavings - not to endanger the environment.

We recommend to run on as follows :

- 1) Demount all plastic parts and consign it to relevant accumulating containers.
- 2) Separate resting iron from non-iron parts and commit it to a specialized company for a separate liquidation.

RFS 410, 510 - 3 kW | 4 kW







LIST OF ELECTROTECHNICAL PARTS

Marking	function	type	2,2kW	3 kW	4 kW	5,5 kW	supplier	substitute	note
		technical data	pcs.	pcs.	pcs.	pcs.	supplier	Substitute	note
	CEG M90-2/FPC 2,2kW 1x230 V 13,4A 50, 60 Hz 2900 /min IM B14	1	_	-	-			for voltage. 1x230 V	
		CEG M90-2/FPC 2,2kW 3x230/400V 4,85/8,4A 50, 60 Hz 2900 /min IM B14	1	-	-	-			brake 230 V flange F54MSG52A
M1	cutterblock	CEG M100-2/FPC 3 kW 3x230/400 V 6,55/11,3A 50,60Hz 2900 /min IM B14	-	1	-	-	CEG		broko 220 V
M1 drive	CEG M100-2/FPC 4 kW 3x230/400V 9,1/15,7A 50,60 Hz 2900 /min IM B14	-	-	1	-	Italy		brake 230 V	
		CEGM112MB-2/FPC 5,5 kW 3x400/690 V 12,2/7,1A 50, 60 Hz 2900 /min IM B14	-	-	-	1			for voltage 3x 400 V brake 230V
	CEGM112MB-2/FPC 5,5 kW 3x230/400 V 21,2/12,3A 50,60 Hz 2900 /min IM B14	-	-	-	1			for voltage. 3x230 V	
	distributor	per machine variant			1		BaK Systems		
W 1-10	controlling circuits	H05VV-K1X1						CYSY 2A x 1mm ²	
W 11-20 W 31-40	power cir- cuits	H05VV-K3G2,5 H05VV-K4G2,5 H05VV-K4G1,5 H05VV-K5G1,5 H05VV-K7G1,5				CYSY 3Bx2,5mm ² CYSY 4Bx2,5mm ² CYSY 4Bx1,5mm ² CYSY 4Bx1,5mm ² CYSY 5Bx1,5mm ²			
W 21-30	protecting circuits	H05V-K1G1,5						CYA 2,5 mm ²	
XT1	supply terminal	branch line con- nection		1	1		GEWISS		

Note : The producer reserves himself the right for changing components and its supplier.



ES Conformity Declaration

Producer:	Rojek woodworking machinery, joint stock ID nr. CZ25266411 Masarykova 16, 517 50 Častolovice, the CZECH REPUBLIC				
Product term:	Handfed surface planing machine				
Type designation	RFS 310				
Secondary variants:	RFS 410, RFS 510				

Product specification: Woodworking machine for planing wood and semiproducts on wood base.

We, at own exclusive responsibility, declare that the explicit product was produced in accordance with following regulations and norms:

EU Directive 2006/42/ES stating technical requirements on machinery EU Directive 2014/35/EU stating technical requirements on electrical appliances of low voltage EU Directive 2014/30/EU stating technical requirements on electromagnetic kompatibility

Applied norms:

EN ISO 12100 : 2010, EN 859 : 2007 + A2 : 2012, EN ISO 13857 : 2008, EN 349: 1993 + A1 : 2008, EN ISO 13850 : 2015, ISO 447 : 1984, ISO 14120 : 2015, EN ISO 13849-1 : 2015, EN 1037: 1995 + A1 : 2008, EN ISO 14119 : 2013, epv HD 60364-1 : 2008, epv HD384.4.482 S1 : 1997, epv HD 60364-5-51 : 2009, EN 55011 : 2009, EN 60204-1 : 2006, EN 60073: 2002, EN 80416-1 : 2009, EN 80416-2 : 2001.

The conformity was reviewed in cooperation with SZÚ Brno, NB 1015

EU certificate type: E-30-20164-18, E-30-20165-18, E-30-00355-18

The last 2 figures of the calendary year nr., the electric device was granted the mark CE in: 01

Častolovice

Evžen Rojek

21. 5. 2018

executive director

signature



GRADUAL DC BRAKES MAINTENANCE ADJUSTING, INSTRUCTIONS

General information

This brake type is desidned for machinery where a gradual but not necessarily precise braking is required. Thank to the single friction surface, the FCP brake provides noisless controlled stopping with low a brake torque to prevent any damage to machinery and operator alike. The brake friction is applied by the action of a set of springs that push the armature plate against the internal surface of the cast iron cooling fan. When the coil is energized through an AC/DC rectifier, the brake is released.

The brakes are shipped adjusted to the the nominal values air gap and must be reset when a wear occurs. The extent of a brake wear depends on the machine service conditions.



Maintenance and readjusting

All parts of the brake must be checked frequently as the friction work depends on a number of factors, mainly on the inertia moment, the motor speed and the frequency of motor starts. A common criteria to establish what will be the brake life in each particular application is by periodical checking the air gap between coil surface and mobile anchor.

Due to a braking surface wear, the air gap increases. As soon as the air gap achieves 0.5 mm, a restoring is required (see following instructions : air gap setting-up, fitted with each motor). The armature plate must be replaced as soon as the wear of the friction material gets 1.5 mm. This means to replace the brake afterevery 4 up to 5 restoring operations.

After checking the brake make sure that the air gap is correctly regulated.

Carry out the brake servicing and repairing when the brake is disconnected having checked the earthing in beforehand, following the instructions.

A good functioning of the brake can only be guaranteed if the original components are used. If a restoring is required after a short time, the motor works under non-stardard conditions and following needs to be revised : a too big motor inertia moment; or too many motor starts per hour. Both of them can overload the motor brake.



the air gap adjustment instructions

So as to re-adjust the air gap, it is necessary to tighten up the adjustment screw up to the rated values, scheduled below.

brake	brake torque	input power	turn-on time	release time	air gap
dimension	Nm	W	ms	ms	mm
M 63	2,5	15	20	40	0,2
M 71	4	15	15	100	0,2
M 80	9	20	15	120	0,2
M 90	9,5	20	15	120	0,25
M 100	12	30	10	200	0,25
M 112	12,5	30	10	200	0,25
M 132	23	30	10	200	0,3
M 160	23	60	13	215	0,3

The adjusting screw is accessible without removing the air fan metal sheet - the picture below.

CONNECTION DIAGRAM FOR FPC BRAKE







NOTE : for a quicker but more approximate adjustment, first tighten the adjustment screw dock-wise till the bottom; then loosen it, turning it anticlockwise (see values listed on the table above)