

# **Panel Saw**

# PK 250 A ~ PK 315 A~ PK 320 A



# translation of an original Service instructions handbook

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WOODWORKING MACHINERY

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### 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 describes 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 operator and machine as well at usual technological using. These regulations, however, cannot sheet all other safety aspects. That is why operator must peruse and make sense of this manual before starting of machine use. 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 better stress the importance of some basic passages, they are printed in heavy letters and marked by some preceding symbols - Appeal recommending to follow entirely following regulation:



**Appeal** recommending to act entirely according to following safety regulation. Non-observance of this regulation can be very **dangerous** and cause a killing or grave health exposure of operating personnel.

**Warning** from improper techniques or way of machine use that can endanger human health, machine functions, environment or cause economic loss. Breach of these regulation may cause a killing or a grave health exposure of the operator

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

at the machine.

Regard the instructions explicit on shields herewith the machine is equipped. In case of its damage contact the producer and renew the shield in any way.

#### Caution

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### 1 Machine use

#### 1.1 Machine specification

The panel saw is a woodworking machine, enabling lengthwise and cross-sawing of intermediates from wood and wood based ones.

The machine is intended to be operated only by one single person. Any manipulating with the machine by children or youth is forbidden !

#### **1.2 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 a country in question.

#### **1.3 Working surroundings**

The machine must operate in workshop surroundings of temperature range  $+5^{\circ}C - +40^{\circ}C$ , relative air humidity 30% - 95% non condensing and altitude 1000 m above the sea in sur-rounding classified : fire danger of combustive dusts.

### **2** Machine signification

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

PK 250A - panel saw PK 315A – panel saw PK 320A - panel saw.

ROJEK ( MASARYKOVA 16, 5 ČESKÁ REPUBLIKA	DŘEVOOBRÁBĚ( 17 50 častolovice	CÍ STROJE a.s.
TYP STROJE PRODUCT TYPE MASCHINEN TYP	VÝROBNÍ ČÍSLO SERIAL NUMBER IERZEUGNIS NUMMER	ROK VÝROBY YEAR OF MANUFACTURE BAUJAHR
NAPĚTÍ POWER SUPPLY SPANNUNG	VÝKON POWER OUTPUT MOTORLEISTUN	s kW
KMITOČET FREQUENCE FREQUENZ	HZ PROUD CURRENT STROM	A

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



SENSE OF SYMBOLS, USED ON THE MASCHINE SHIELD:

- 1. saw blades lifting
- 2. saw blades tilting
- 3. scoring saw blade control
- 4. proper saw blades
- 5. main switch
- 6. attention, warning
- 7. attention, electric part
- 8. switch of scoring saw blade

### **3** Technical data

Type / model	specification	PK 250A/ PK315A	PK 320A	
Max. Ø of the main saw blade	with/(-out) scoring blade	315 n	nm	
Diameter of scoring saw blade		120 mm	120 mm	
Tilting of saw blades		90°/4	-5°	
Max. depth of cut $90/45^{\circ}$	saw blade 315 mm	100/ 70	mm	
scorer saw blade rotation speed	scorer 0,5 kW (60Hz)	8530 (10 2	36)/min.	
main saw blade rotation speed	for both 50+ 60 Hz the*same	*4400/	min.	
	main saw blade	30 mm (1"	'   5/8")	
Spindle diameter	scorer	20 mm (3/4")		
Fixed table dimensions		955 x 40	0 mm	
Table height		890 n	nm	
Voltage / frequency		3Ph+PE+N 230	) V/50(60)Hz	
Power line protection		16 (25	) A	
Weight	gross	240 kg	520*	
weight	net	230 kg	510*	
equipment specification				
	CV 360 : 1200 x 360 mm	S	N/A	
Sliding table L x W including	CV 360**2000 x 360 mm	0		
eccentric woodpresser	CV 360 : 2600 x 360 mm	N/A	0	
(table length = $\hat{cut}$ length)	CV 360 : 2800 x 360 mm	N/A	0	
	CV 360 : 3200 x 360 mm	N/A	S	
	870 x 630 mm	0	N/A	
Supporting frame dimensions	1290 x 650 mm	N/A	S	
	800 mm	S	0	
sowing out width	1050 mm	0	S	
sawing cut width	1500 mm	0	0	
	2.2 kW,1Ph	0	0	
	3 kW, 3Ph	S	0	
Motor power per main saw blad	3.7 kW, 3Ph S6 40%	0	N/A	
wotor power per main saw brad	4 kW, 3Ph	N/A	S	
	5.5 kW, 3Ph	N/A	0	
without	scorer	0	0	
Scorer with own motor 0.5 kW		S	S	
Cross-ruler with 2 stops		S		
Lengthwise ruler	cast iron			
Upper suction dust hood	wedge housing + hose Ø 40 mm	S	O without hose: on ask	
Fixed table extension		3		

Standard; Optional; Not Available;

main saw blade RPM the\*\*same **4400**/min~50+60 Hz by drive belt pulley changing for net frequence 60 Hz CV 360\*\*2 m; cast iron holder of lenghtwise ruler; frame 1290 x 650; sawing width 1050 mm; motor 4 kW.

#### 3.1 Machine dimensions PK 250A







#### 3.2 Available machine versions

<b>Electric motor power</b>					
-	- 2.2	kW	1 ph		PK 250A/PK 315A/PK 320A
	- 4,4	kW	3 ph	(S6 40%)	only PK 250 A/PK 315 A
	- 5,3	kW	3 ph	(S6 40%)	only PK 320 A/PK 315 A
	- 7,5	kW	3 ph	(S6 40%)	only PK 315 A.
<b>Operational voltage:</b>			_		
	- 1 x 2	30 V			
	- 3 x 2	30 V		or 3 x 400 V	
	Suppl	y frequ	ency:	50 or 60 Hz	
Saw	spindle	e	- diam	eter 30 mm or 1" o	r 5/8"
	scoring	g unit	- spino	dle diameter 20 mn	n or 3/4"
			- driv	en by a separate ele	ectric motor 0,5 kW
	sliding	table	- CV 3	360 1200   2000 m	m only PK 250A
			- CV 3	360 1200 2000 2	2500 mm only PK 315A
			- CV 3	360 2000   2800   3	only PK 320A
	cut wid	th	- 800	(1050   1500) mm	PK 250A
	cut wid	th	- 800	(1050   1500) mm	PK 315A
	cut wid	lth	- 1300	) (1050   1500) mm	PK 320A.

**3.3 Data of machine operation noise** (EN 1870-1:2000; ISO 7960: 1995)

		PK 250A, PK 315A PK 320A
noise level A in operator's place	idle run	$L_pA_{eq} = 73,4 \text{ dB}(A)$
$(L_pA_{eq})$	idle run working idle run working	$L_pA_{eq} = 92,9 \text{ dB}(A)$
acoustic power A (L <sub>WA</sub> )	idle run	$L_{WA} = 84,3 \text{ dB}(A)$
EN ISO 3746 (2011) $K = 4 dB$	working	$L_{WA} = 101,6 \text{ dB}(A)$

Above stated values are those of emissions and need not represent the safe working values. Although there exists 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 a real exposure of workers, include other working space attributes, other sources of noise, 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 estimation of risks.

#### **3.4 List of used reference documentation**

**E.U.** Parliament and Council **Direction 2006/42/EU**, in full wording, stating technical demand on machinery equipment

**E.U.** Parliament and Council **Direction 2014/385/EU**, in full wording, about conformity assessment of **electric equipments**, intended to be used **under certain limit voltages**, when delivered onto market

**E.U.** Parliament and Council **Direction 2014/30/EU**, in full wording, about products conformity assessment from aspect of **electromagnetic compatibility**, when delivered onto market

#### applied norms

**EN ISO 12100 : 2011** (EN ISO 12100 : 2010)

Machinery safety- General fundamentals for designing - Assessment and reducing of risk **EN ISO 13857 : 2008** (EN ISO 13857 : 2008)

Machinery safety - Safe distances to prevent hands, arms, feet, legs from reaching dangerous places **EN 349+A1 : 2008** (EN 349 : 1993 + A1 : 2008)

Machinery safety - The smallest gaps to prevent the pressing of human body parts **EN ISO 13850 : 2017** (EN ISO 13850 : 2015)

Machinery safety - Emergency stopping function - Fundamentals on designing **EN ISO 14120 : 2017** (ISO 14120 : 2015)

Machinery safety - Barrier guards - General fundamentals on designing and production of fixed and mobile guards

EN ISO 13849-1: 2017 (EN ISO 13849-1 : 2015)

Machinery safety - Safety of controlling parts - Part 1: General fundamentals on designing

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

Machinery safety - Preventing an ineligible starting

EN 1870-18 : 2013 (EN 1870-18 : 2013)

Woodworking machinery safety. Circular sawing machines. Part 18: Panel sawing machines **EN ISO 14119** : 2014 (EN ISO 14119 : 2013)

Machinery safety. Blocking devices connected with barrier guards. Fundamentals for designing and choice.

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

Industrial, scientific and medicine devices - Characteristics of high frequency interference - Measuring limits and methods

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

Machinery safety - Machines electric parts - Part 1 : General fundamentals

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

Basic and safety fundamentals for interface man-machine, marking and identification - Coding fundamentals of mediators and controllers

**EN 80416-1 ed.2** : 2009 (EN 80416-1 : 2009)

Basic rules for graphical marks for using on objects . Part 1: Creating of graphical marks for registration

EN 80416-2 : 2002 (EN 80416-2 : 2001)

Basic rules for graphical marks to be used on objects - Part 2: Shape and using of arrows.

### **4** Safety instructions

#### 4.1 in general

This machine is provided with various safety equipment protecting 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, refer 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 worse.

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



Never touch the low voltage system on the electric control panel, transformers, motors and terminal boards. Every of mentioned unit is indicated with a shield.

- Before connecting machine to mains: Make sure that all safety parts are in active position and check up their functioning. In case of necessary removing doors or protecting cover ings – switch off main switch and lock it or disconnect by towing plug from mains socket.
- Catchers of eventual back throw must be freely movable and its functioning controlled regularly several times a day.
- When door or protecting covering are apart do not connect the machine to the mains.



To avoid incorrect operating – learn positions of switches before machine starting.

Remember position (location) of emergency switch to be able to use it at once any time.

- Avoid touching some switch(es) by chance on running machine.
- Never touch rotating tool by hands or somewhat else.
- When you will not work on at the machine switch it off by control panel switch and disconnect it from the mains.
- Before cleaning: Switch off the machine and lock the main switch or tow plug off socket.
- Before doing maintenance inside machine: Always switch it off and lock main switch or disconnect plug from mains socket.
- When more workers operate the machine do not begin another work not having informed other worker about your intention how you will run on.
- Do not do up the machine in any way able to endanger its safe operating.
- In doubts about correctness of technique contact a responsible person.



Do not neglect practising of regular inspections in tune

with service manual instructions.

Check up and make sure that nothing troublesome ocurs on the machine.

- After finishing of work adjust the machine so as to be ready for following operations.
- In case of mains outage switch off immediately main switch or tow plug out from socket.
- Do not overpaint, smear, damage, do up nor get off safety shields. If they get unreadable or lost contact production plant and renew them.

#### 4.3 Working 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 planning 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 machine operator



Do not start up the machine before having got up the content of this manual.

- Check up whether electric cables 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 nor 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 regulations for maintenance

Get up manual instruction for machine maintenance men in 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. Herewith you avoid an occasional starting of machine by chance by another else person.

- WARNING
- 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 the 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 mains 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 pro
- ducts 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.
- 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 regulations 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 intended and 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 safe and quality work.

- Never lay tools or other subjects onto working tables or coverings.

### **5** Transport and storage

#### 5.1 Transport and storage

Be especially careful during transport and manipulation and commit it to qualified personnel especially trained for this kind of action.



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

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

The machine is modularly wrapped in shrinkable folio when transported.

On customer's wish the machine can be packed in a cartoon or 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 you to use:

- D high-lift
- E crane or other lifting appliance
- F manual lifting carriage.



Use a high-lift of sufficient forks length !



Prepare a high-lift (D) or a manual lifting carriage (F) of sufficient fork carrying capacity

- shift the fork(G)under the machine.

When using crane(E) or similar lifting mechanism- proceed followingly:

- prepare 4 lifting ropes (H) of minimal length 2 m

- bend ropes onto the crane hook (J) of demanded carrying capacity

- place the other end of ropes onto lifting rods, slid under the machine (rods are NOT a part of delivery)

- check up the stability of machine hang at a moderate lifting up

- lift the machine carefully and slowly and then relocate it without sudden changings of moving onto chosen place.

The weight of the sawing machine PK 250A is 450 kg (standard 2000mm). The weight of the sawing machine PK 315A is 455 kg (standard 2000mm). The weight of the sawing machine PK 320A is 520 kg (standard 3200mm).

The weight of the machine can also be greater, depending on the specific machine design according to the ordered specification.

### 6 Machine positioning

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 instalment of a sufficiently effective exhausting unit or hoses connecting with the central exhausting system.

#### 6.1 Space at working area



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 (in lower part of stand) has feet with levelling screws and bores for anchoring bolts. Use steel washers (part of delivery) under levelling screws and balance the machine in plane with the clearance limit 1 mm/1 m and screw down machine feet into the bottom (anchor the machine). Attached drawing shows a lay-out of anchoring openings on the machine.

## 6.3 Installation of demountable parts 6.3.1. PK 250A



Install suspensory frame (A) onto the sliding table (R); frame must be supported with a suspensory arm (B)

- install the sliding cross-ruler (C)
- install the fixture (D),
- install the ruler leading bar (E) [with measuring scale (E) according to making of sawing width,
- mount the table extension (F) with the exhaustion hose holder (G),
- mount the exhaustion hose holder (G) according to making of sawing width
- install the cross-ruler holder with the ruler (H) according to the making,
- mount the saw blades safety casing (I) onto the riving knife
- mount the hose (P) connecting the lower and the upper exhaustion
- mount the table prolongation (K)
- mount the sliding guide rule (N)
- mount the extension (O) of sliding table.

#### 6.3.2 PK 320A



Install suspensory frame (A) onto the sliding table (R); frame must be supported with a suspensory arm (B) - install the sliding cross-ruler (C)

- install the fixture (D),
- install the ruler leading bar (E) [with measuring scale (E) according to making of sawing width,
- mount the table extension (F) with the exhaustion hose holder (G),
- mount the exhaustion hose holder (G) according to making of sawing width
- install the cross-ruler holder with the ruler (H) according to the making,
- mount the saw blades safety casing (I) onto the riving knife or mount the paralleogram (L) with saw blade casing (M) according to machine making,
- mount the hose (P) connecting the lower and the upper exhaustion according to machine making
- mount the edging foot stop (J) if needed,
- mount the table prolongation (K)
- mount the sliding guide rule (N)
- mount the extension (O) of sliding table.

### 7 Exhausting connection

An exhausting unit of a minimum volumetric capacity in table lower, and a minimum air stream speed in the hose 20 ms<sup>-1</sup> for dry partial, at a minimal air stream speed in the hose of 28 ms<sup>-1</sup> for wet partials, is necessary for a proper functioning of the machine.



#### Always operate a machine only with acting exhaustion! Start the machine and the exhausting unit all at once !

Use a flexible exhausting hose of diameter 100 and 40 mm for connecting. When using parallelogram, use a flexible exhausting hose of diameter 60 mm. Connect the exhausting hose to the nozzle, located as follows :



The upper exhausting from saw is connected to a nozzle (B) at the saw blade casing.

nozzle opening **B**  $\not{0}$  40 ( parallelogram 60) mm. The lower exhausting is lead out at the lower rear part of the machine (A): the upper lead out is confluenced with that of lower here

(Ø 40 ~ Ø 100 mm).

 $\emptyset$  of lower exhausting hose is 100 mm.

 $\emptyset$  of upper exhausting hose is 40 mm or 60 mm according to machine type model making.

exhaustion capacity (m <sup>3</sup> /hod)							
lower exhaustion upper exhaustion together (m <sup>3</sup> /hod)						(m <sup>3</sup> /hod)	
diameter	(20m/s)	(28m/s)	diameter	(20 m/s)	(20 m/s)	(28 m/s)	
Ø 100	565	700	Ø 40	90	127	655	917
0 100	202	790	Ø 60	204	285	769	1075

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

### 8 Connecting to mains



Only an electro technically qualified person, cognizant of rated norms, can connect the machine to the mains.

#### 8.1 Connection to mains

A 4-wire cable with socket CEE 16 A and plug CEE 16 A is used for supplying. The mains socket, the machine is supplied from, must be grounded (or neutralized) according to regulations and safeguarded with at least a 16 A fusible cut-out or an L - circuit breaker.



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 required. Cross-sections of phase conductors and of the protective conductor must be conformable with legal standard norms. Check up accuracy of connecting and fasten the terminal cover with screws again.

#### 8.2 Safety of operation



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



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 an occasional starting of machine by any else person.

#### 8.3 Rotation direction



An injury danger menaces at an improper rotating direction of cutterblock



When standing at the place of machine operator - the main saw blade must rotate clockwise (= to the right), and the scoring saw blade, if installed, must rotate anti-clockwise (= to the left).

8.4 Changing the saw blade rotation direction



It is possible to change rotating direction of 3phases 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 or at terminal board. Attention ! Avoid of mistaken changing the yellow-green wire with the phase !

Entirely a specialist qualified in electrotechnics is allowed to make this change and to realize the connecting !



Start the machine for a flash so as to learn its rotating direction, if possible without tool.

An injury danger menaces at an incorrect rotating direction of saw blade.

#### 8.5 Protection of electric parts

The saw electric motor is equipped with an electric brake, able to stop the spindle in required time < 10 s. If the electric brake does not work well (the spindle run >10 s) it is forbidden to work on the machine ! The protection against a 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.

#### 8.6 Machine control

#### 8.6.1 Machine control of other machine type makings of PK 250A

The machine gets connected or disconnected from the mains by pushing plug into or towing it off the mains socket, eventually by switching on/off the lockable main switch (E). As long as machine is not connected with the mains - it cannot be started by the operation switch ( $A_1$  or  $A_2$ ). A pad lock can save the main switch against an ineligible switching on by a third person.



The **saw motor** starts by pushing the green knob (B) at the at the operation switch  $(A_1 \text{ or } A_2)$ . The **scoring** saw disk **motor** starts by help of the controller (F).

The scorer motor cannot start before an action of the main saw disk motor.

You **stop** the machine when pushing the red knob **C** at the operation switch.

After the end of a day workload, disconnect the machine from the mains: tow out the plug from a socket, or switch off the main switch (E).

At a mains outage, the machine is switched off by a relay coil, it means that the motor switch must be switched on again after a mains voltage return. An inbuilt breaker switches off the machine when the machine motor is overloaded. When the thermal breaker switches off the motor several times consequently: Check up the machine (motor function, blunt tool[s] and the like). The **emergency switch** (D) stays secured in a position **OFF**, after a using it: It is necessary to release it by turning with the "mushroom" head. The machine starts again only when the emergency switch (D) was release.

#### 8.6.2 PK 315A/ PK 320A machine control

**Connecting and disconnecting** the machine to/from the power supply network is carried out by means of switching the lockable control switch (A) on or off. The machine cannot be started by operation switch (B) until it is connected to the supply network. The control switch may be secured by a padlock to prevent inadvertent start of the machine. **The saw motor** is switched on by pressing the green control button (B) placed on the main control panel starter.



**The scorer motor** is switched on by a controller (D). The scoring unit blade motor cannot be started unless the saw motor is started first.

**The machine operation is stopped** by pressing the red control button (C) placed on the main control panel starter. In case of a power outage, the machine is switched off by means of a contactor coil, i.e. when the power supply is restored, the machine must be re-started. If the motor is overloaded, the in-built motor circuit-breaker switches the machine off. If the circuit-breaker's mechanism for disengagement switches the machine of several times (twice to three-times) in a short period of time, check the machine (state of motor, blunt tool etc.). **Emergency stop button** (E) - if used, it remains locked in the OFF position. Before the machine may be restarted, it is necessary to unlock the button by slightly turning its mushroom-shaped head. The machine cannot be restarted without this unlocking operation !

### 9 Machine operating



Adjust the saw only at machine still stand with sunk scorer to low position !

# 9.1 Adjusting of saw9.1.1 Riving knife and fender unit adjustment

The riving knife prevents eventual workpiece enclosure behind the saw disk and its claps during sawing. This could come about a back cling. **The riving knife must be mounted permanently**. It is adjusted by scrolling so that its distance from the saw disk should be 3- 8 mm, and 0 - 2 mm under tangential horizontal plane of the highest point of saw blade.

The fender is mounted above onto the riving knife into an "L" shape groove.



A cube (C), with forcing-off screws (D), is intromitted between riving knife (A) and riving knife holder (B). Riving knife is adjustable with the saw blade plane by changing the cube position.



#### 9.1.2 Height adjustment



9.1.3 Saw blades tilting

The height of the main blade (A) of circular saw is adjusted by rotation with a hand wheel after disengagement of a screw in the hand wheel (B).

rotate to the right = cutting height + rotate to the left = cutting height -

The cutting height is always set **from below**. It is necessary for eliminating of opportune clearance. The height of cut is usually set so that jags of the saw disk project from the workpiece.

After releasing the scorer arresting screw, the saw disc can be tilted to the side by up to  $45^{\circ}$  by turning the hand wheel.

Turning to the right =  $90^{\circ} - 45^{\circ}$ Turning to the left =  $45^{\circ} - 90^{\circ}$ 

Tilt value is to be read on gravity indicator scale (C) in hand wheel, or on magnetic sensor display (D), if the machine is equipped with.





Do adjust saw blade(s) under the machine still stand entirely!!

#### 9.1.4 Adjusting of scoring saw blade



Use the wrench nr. 6 (with handle T - both in machine delivery) for setting-up the scoring saw blade position.

The scoring saw blade (E) must be accurately aligned according to main saw blade.

Release arresting screw (H).

Rotate the adjusting screw (G).

turn to the right: scorer shifting backward

turn to the left: scorer shifts forward

Retighten screw (H) after scorer lateral setting.

Scorer (E) height set-up: turn screw handle (F).

turning to the right = scorer lifting up turning to the left = scorer sinking down.

#### A maximum height of a scoring saw blade lifting up must not exceed 3 mm above table surface !

#### 9.2 Adjusting of lengthwise rule

#### 9.2.1 adjusting the lengthwise ruler to required width of sawn workpiece



Required width of cut gets adjusted by sliding of lengthwise rule (A1) alongside the leading rod (B), tightening lever in position (C1). Set up dimension is fixed by tightening lever position C3. For a more accurate adjusting you can use a fine shifting by help of a yoke with a screw (D) tightening lever in position C2.

The rule (A) can be ejected after releasing the arresting lever (E). The L-profile can be turned into position (A2) when sawing narrow parts. The width of cut is showed at the measure (F). Caring square with scale measure can be laterally moved after releasing of fixing screws. The measure can be so adjusted to a correct worth related to jags expansion of used saw blade.

#### 9.2.2 Parallelism adjusting



Parallelism of lengthwise rule (A) with saw blade (B) gets adjusted by a position changing of the rule leading rod by release or insertion of fixing screws (D) in place of fixing the rule to cast iron table. After release of inner fixing nuts, the caring rod position can be changed by help of outer stop nuts (C).

The new position of rod must be fixed by two nuts in the edging of table extension in place (C) of attachment of rule to table extension. The rule divergence, set by producer, is  $0,1 \div 0,2 \text{ mm}/1\text{m}$ .

#### 9.3 Cross-ruler adjusting

9.3.1 Set up of cross ruler with flip-flop stoppers (PK 250A)



#### Plumb setup:

Cross rule (A) is placed on supporting frame (B). The arrestable screw (F) is at a tiltable stopper (E). Do loose fixing hand roses (C; D). Do loose the arresting screw (F) with a lock nut.

Set up the ruler plumb = set up screw (F) position. Fix the position: tighten screw (F) by a lock nut. Do tighten all other arresting parts.

#### Adjustment of sawing cut angle:

Loose fixing hand roses (C; D)

Tilt the stopper (E) to position: low. Set up ruler (A) position. Use the measuring scale (G).

The ruler angle of saw cut is adjustable in range:  $0^{\circ}$ :  $45^{\circ}$ . Fix the setup angle: tighten fixable roses (C; D). Adjustment of sawing cut angle:

Do loose fixing hand roses (C; D) Tilt the stopper (E) to position: low. Setup the ruler (A) position. Use measuring scale (G). The ruler angle of sawing cut is adjustable in a range:  $0^{\circ}$ :  $45^{\circ}$ 

Fix the angle adjusted: tighten fixing hand roses (C; D).

Adjusting of stopper(s) (J) of sawing width

Release the arresting handle of stopper(s). Shift the stopper in guide way of cross ruler profile. Read the stopper position on measure scale of ruler. Fix the position of stopper again: tighten the arresting handle. **Zero position adjustment:** 

In case by stop (J) set up required sawing width is not the real sawing width (e.g. due to a saw blade thickness change), the setup can be corrected after losing the arresting screw at strap (A) in lower slot of ruler profile. Tighten the arresting elements again after adjustment.

**Supporting frame position**: After losing the arresting handles (H), the supporting frame (B) with cross-ruler (A) can be shifted in sliding table slot. The cross-ruler (A) position can be also changed by

relocating the cross-ruler onto the other side frame side (B). It is necessary to check up, eventually set up, the scale measure at the frame, after a cross-ruler position changing.



9.3.2 Setting up the cross ruler by arresting cubes-Plumb setup and setup of distance from sawing disk

The cross ruler (A) is placed on the supporting frame (B). Do set up the plumb of ruler to saw disk: Release the arresting stars (C; D). Change the position of the arresting pin (F) in the cube (E).

Thrusting screws (H) have lock nuts. Screws (H) are used for changing the position of arresting pin (F). This position changes to set up the plumb of ruler (A) to the plain of sawing cut.

an arresting **pin position changing = setting** up the (same) distance: **pin <=>** saw **disk** - in the front ~ or ~ in the rear position of ruler on supporting frame.

The arresting rose (G) has a conical supporting face. The arresting rose (G) axes does not lie in that of the opposite screw (H). This offset enables to change the pin position. It enables to fix the pin (F), too. **Setup of stoppers** 

Release the arresting rose (N). Shift the rose in the guide way of cross ruler (A). Read the shift difference at the measure scale. in a limited range: shift the measure = correct the distance: stopper  $\langle = \rangle$  saw disk. Retighten the rose (N).

#### Setup of zero position

The arresting pin (F) fixes the upright distance: cross ruler <=> disk of saw. at an (e.g. other thickness of saw disk) discord: the setup one ~ real width of sawing cut: Release 2 positioning screws I. Correct the width of sawing cut. Retighten both screws (I).

#### **Position of supporting frame**

Loose arresting handles (L). Supporting frame (B) with cross-ruler (A) can be shifted in slot of sliding table. The cross-ruler (A) position can be also relocated onto the other side of frame. It is necessary to check up, eventually set up the scale measure at the frame, after a cross-ruler position changing.

#### Setup of sawing cut angle by angle measuring scale

Do release the arresting roses (C; D; G). Shift off the ruler  $\leq >$  from the sawing disk. Tow out the arresting pin (F) from the slot of the cube (E). Turn the ruler (A) within an angle  $0^{\circ} \div 45^{\circ}$  around the bolt of rose (C) according to the measure (J). Use the scale measure (J). Retighten all 3 stars (C; D; G).

#### Setup of sawing cut angle by help of a stop desk

The stop plate  $(\mathbf{O})$  is mounted on the supporting frame; stop slot from cross-ruler turning point (rose **C** bolt - middle - middle) distance is 340 mm.

Loose arresting roses (**C**, **D**, **G**), shift ruler to saw disc. Arresting bolt (**F**) can be towed out from cube(**E**) slot, the ruler (**A**) can be turned around rose (**C**) bolt (pull position bolt **P** into relevant stop desk slot) in angle 5°, 10°, 15°, 20°, 22.5°, 30°, 35°, 40° a 45° (the relevant value is read at frame angle measure scale). The plate shape ensures the same distance from saw belt.

It is necessary to demount - screw out - positioning bolt (**P**) from guiding block (**R**) for setting up another angle than  $5^{\circ}$ ,  $10^{\circ}$ ,  $15^{\circ}$ ,  $20^{\circ}$ ,  $22.5^{\circ}$ ,  $30^{\circ}$ ,  $35^{\circ}$ ,  $40^{\circ}$  a  $45^{\circ}$ .



**Recommendation for reduction of loading onto the supporting** 

**frame**: Producer recommends to load the workplace in a central position related to sliding table. (protruding Al profile of sliding table is (should be) by its whole plate above clamping solid beam of sliding table).



Set up supporting frame at sliding table so as to fill following:

An end position of sliding table is limited by a stopper. A launching arm of frame protrudes into the frontal end position. The arm should not touch the stopper screw in in launching profile. This stopper screw is NOT the stopper of the end position. It fixes the launching arm against out falling from supporting frame.



Producer recommends to load into sliding table: 1 large flat board workpiece to be sawn. Maximal dimensions of board are determined by possibilities of sliding table. Board dimensions are limited so that loaded workpiece causes no impacts onto device. Rolling wheels in sliding table, and those in supporting holder of table sliding rod, must not be deformed by impacts from an exceeding measurements board workpiece.

#### 9.4 Fixtures and feeders



A pusher (the machine delivery basic accessories) must be used for pushing (at longitudinal sawing)

of workpieces narrower than 120 mm. We recommend you to make a special fixture for cutting of the wedges:

the minimum fixture length - 300 mm width - 170 mm.

#### 9.5 Working places

The picture below shows positions of working places at the machine.



In concord with intention, the panel saw is operated from following positions:

**1-** on left side looking in sliding table shift direction in machine front side (main working place).

2 - on front machine side, right from sliding table, when working with sliding table
3 - place of man, doing off workpieces at the rear machine side, beyond table enlargement

#### 9.6 Safety instruments

When working on the saw bench you are obliged to wear short strengthened apron and safety goggles protecting eyes. It is advisable to use an adequate protection of hearing and recommended working foot ware. It is forbidden to use working mantles.

#### 9.7 Forbidden manipulations



#### ! It is forbidden on the machine:

- to make any treatments of machine safety elements not approved by the producer,
- to make any manipulations in contrary with this manual safety instructions (cap. 3),
- to touch or interfere with the saw blade or its near surroundings and other moving parts,
- to saw other material than wood or those on its base,
- to overload the machine by sawing of too large workpieces,
- to remove shavings from tools surroundings by hand or anything at a running machine,
- to use other saw blades than recommended by machine producer.

### **10 Tools**

#### **10.1 Recommended tools**



Using of saw blades from HSS steel is forbidden for its high risk to get broken !

Saw blades have to be marked with the manufacturer's name or logo (marking) and with the maximum admissible rotation speed, according to the norm EN 847 - 1: 2014.



**Tools, proper** for these dimensions saw machine type are: **Saw blade**  $\emptyset$  300 x 3,2 / 2,2 x 30 mm - 96 jags; saw blade  $\leftarrow$  >number of jags: chosen according to cut work -piece material. **Scoring saw blade**  $\emptyset$  **120** mm (100 mm) with a clamping opening  $\emptyset$  20 mm, thick 2,8 up to 3,6 mm (adjustable two-piece-scoring blade).

The machine is designed for saw blades of  $\emptyset$  250 up to 315 mm with jags thick 3,2 mm. The machine riving knife is designed for this type of saw blades.

An optional riving knife thick 2,5 or 2,8 or 3 mm is a proper tool to be mounted.

The thickness is indicated at every riving knife.

Using of different riving knives and saw blades of different dimensions must be consulted with producer ! relation of a saw blade thickness to that of its riving knife:

Riving knife (e) must be thicker than (b) saw blade and thinner than (B) slit of cut.

#### 10.2 Saw blades exchange



Slide out the sawing unit by the hand wheel to the highest plumb position. Shift the sliding table, lock off and tilt out the saw blades guard.

Intromit the fixing lever (D-from the accessories) into the opening of the main spindle, so that it cannot rotate. Unscrew the nut (A) by turning it in clockwise direction (left thread), take away the flange (B) and the old saw blade (C).

Before setting the new saw blade, make sure that it is perfectly clean and without bulging. When exchanging the scoring saw blade, proceed likewise. **WARNING** 

When exchanging the scoring saw blade, proceed likewise. **WARNI** The **scorer spindle** has a **right** thread (the scorer gets released anticlockwise) !

Put on the saw blade, flange and the nut and tighten it by suitable tools. Tilt back the saw blades guard.

**11 Maintenance** 



Always disconnect the machine from the network before any maintenance or repair. Switch off the machine and lock up the main switch or tow the plug from the mains!

#### **11.1 Tightening of belts**



#### 11.1.1 Tightening of main saw disk belt

Dismount the rear machine covering and release the fixing nut D. By help of a forcing-off screw (C) between motor holder (B) and spindle body (E) you can change the inter-pulleys distance and so tighten the belt (A). When you push by hand to a middle of a properly tight V-belt by a force of 20 N

(2 kg) - it should sag of nearby 10 mm. After tightening it is needy to tighten the fixing nut again and to mount the machine rear covering.



#### 11.1.2 Tightening of scorer belt

The scorer electric motor is revolving embedded on the bolt C by help of a holder E. The belt A is tightened by the heaviness of scorer motor assembly and by a leaf spring D. After releasing the screw B - the bolt C can be winded and herewith the leaf spring D tension can be changed.

#### **11.2 Cleaning and lubricating**

Clean the machine regularly. Oil the 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 with suitable solvent - for example by turpentine or petroleum, or by other suitable solvent according to your need.

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

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

Lubrication points and periods survey table

	spindle bearings	motion screws	scorer spindle bedding, pivots	table plate	spindles and flang- es
			like		
lubrication point	1	2	3	4	5
needy act	(hour)	(hours)	( hrs.)	( hrs.)	(hrs.)
permanent grease filling	When exchang- ing				
to grease by spread- ing		50			
to lubricate with an oil can			50	8	without tools or machine out of run
plastic lubricant or	LV-2-3				
oil		LV-2-3	OL-B5	OL-B5	OL-B5
equivalent	ISO-L-X	CBEA 3	IS	O–LAN 68.	

Lubrication points scheme to the lubrication points table



#### **11.3 Remedy of faults**

No defect should arise if you operate the machine properly and practise suitable maintenance regularly. In case that the sawdust sticks onto saw blade or the exhausting hose is filled up - switch off the electric motor before beginning of a repair, otherwise it could get damaged. Switch off the electric motor immediately, if the machine is getting jammed with the workpiece. The blunt saw blade is often a cause of the motor overheating. If the machine embodies increased vibrations, check its placing, fixing, or fixing and balance of tools.

#### The machine does not work:

Check the electric installation and the connection to the mains.

#### Machine output is insufficient:

Tools are blunt.

A too big chip (too big speed~force of feeding) - It is necessary to consider the workpiece cross-section and the hardness of wood. Shift the workpiece more slowly.

Driving belts are not tight enough.

The electric motor does not give a sufficient output - Consult a specialist.

#### The machine vibrates:

Tools are unbalanced. Sliding flats are not clean. The machine is installed on an uneven surface. Machine is badly anchored.

#### The workpiece hits the riving knife.

The riving knife is badly chosen or badly mounted.

### 12 Machine delivery extent

A complete machine, accessories (below listed), a Translation of an Original service instructions handbook for the machine, special accessories (if ordered). balancing washers 4 pcs. (+ connecting material [screw M 10 x 40; nut M 10]).

#### 12.1 Accessories

name of part		pcs.	note
wrench 8 x 10		1	
wrench 13 x 16		1	
wrench 18 x 24		1	
wrench 3		1	
wrench 4		1	
wrench 5		1	
wrench 6		1	
wrench 10		1	
wrench to adjust scorer		1	
holding lever		1	for saw spindle
plastic pusher		1	for holding of pieces
cartoon box	200 x 400 x 160 mm	1	for added packing
bag	250 x 350 mm	2	for manual and added packing.

### **13 Special accessories**

		PK 250 A/	
		PK 315 A	PK 320A
Supporting frame roll		0	0
frame supporting profile		N/A	0
digital admeasuring on the cross rule		N/A	0
digital admeasuring on the lengthwise rule		0	0
angular rule for short pieces		c	S
	for CV 360	S	
upper exhaustion	parallelogram R diameter 100 + 60 mm	0	0
formatting table enlargement	CV 360	0	0
supporting table	CV 360	0	0
Foot stop		0	0
pusher - handle of formatting table		0	0
fixing eccentric extra		0	0

S - standard

O - optional

N / A - not available.

#### 13.1 Roll of supporting frame



The roll is an aid. It improves loading the flat board workpiece onto the frame. By help of added material (C), fasten a roll to the fame (A). according to PK 250A/ PK 320A frame making. The connecting material (C) is in packing. The part(s) (D) are blind flanges.

Arrange the flanges for remounting onto the frame. according to need. Set up the roll at an eligible dimension in range 0÷0,5 mm under the frame plane field.



13.2 Supporting profile of frame (PK 320A, PK 315A)

Supporting frame profile serves to enlarge support face for material on supporting frame (B). Supporting profile (A) gets mounted onto frame traverse, where 3 openings are made. Set up the profile according to needs, fix it by arresting rose (C).

13.3 Digital admeasuring on the lengthwise ruler



Lengthwise rule (A) digital admeasurement serves for more accurate scale reading of sawing width by help of position data reader (B) AZ 16E from ELGO company. Magnetic reader AZS is mounted and adjusted on holder, at lengthwise ruler (C), magnetic tape is glued on strip with measure scale (D). Follow detached Service Instructions from data reader producer.

#### 13.4 Supporting table



The supporting table (A) is an aid. Table supports a flat workpiece in the frontal part of formatting table. distance: table  $\leftrightarrow$  saw disk is adjustable e.g. for edging the workpiece. Formatting table has a side slot. Put the table into the slot. Do balance the table by pushing-off screws (G). Fix the adjusted position by an arresting lever.

Release the arresting rose (D). Cube (C) has a supportable bolt (E). Cube (C) is adjustable according to scale measure (F). The bolt can be pushed down to the plane field of

cube. A screw is in the low part of cube. The spring pressure can be changed with the screw. We recommend to use an edging foot stop.

#### 13.5 Edging foot stop



An edging foot stop (B) is a stop for edging the workpiece. Optional slots are in sliding table. Put the foot stop (B) into a slot chosen. Fix the foot stop position with the arresting lever (C).

13.6 Pusher ~ handle of sliding table



A formatting saw **pusher** ~ **handle** is an aid for a better control of sliding table (B).

Do shift (by a stone) the pusher into the relevant side slot in sliding table.

The under lay base will remain at the outside part of sliding table.

Turn the handle (A). Fix the (chosen) pusher position at sliding table.

### **14 Spare parts**

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

### **15 Guarantee**

Works and operations, not mentioned here, involve a written accord of the ROJEK a.s., Masarykova 16, 516 01 Častolovice, the Czech Republic. Every machine and equipment is provided with a guarantee certificate. It is important to fill the guarantee certificate just during purchasing it with a respect of possibility to set up an eventual guarantee claim and for the sake of products safety. If the machine is not installed in a proper way, it may cause a 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 the 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 from 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 waste 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**

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

# The machine user is obliged to guarantee an eco-friendly machine liquidation according to the country's in question laws about leavings not to endanger the environment, after the machine service life expiry.

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.



#### ES Prohlášení o shodě

Výrobce :Rojek dřevoobráběcí stroje a.s.IČO 25266411Adresa :Masarykova 16, 517 50 Častolovice, ČESKÁ REPUBLIKA

Označení výrobku:

Formátovací kotoučová pila

Typ výrobku:

PK 250A, PK 300A, PK 315A, PK 320A

Označení výrobku: Stolová kotoučová pila

Typ výrobku:

Určení výrobku :

: Formátovací nebo stolová kotoučová pila pro podélné a příčné řezání dřevěných masívů a laminovaných desek ze dřeva a na bázi dřeva.

**PF 300L, PF 350, PF 400S** 

Z titulu naší výlučné zodpovědnosti prohlašujeme, že uvedený výrobek je vyroben ve shodě s následujícími předpisy a normami :

**PK 315** 

Zákon č.22/1997Sb. v platném znění o technických požadavcích na výrobky

Nařízení vlády č. 176/2008Sb. (Směrnice 2006/42/ES) v platném znění, kterým se stanoví technické požadavky na strojní zařízení

Nařízení vlády č. 118/2016 Sb. (Směrnice 2014/35/EU) v platném znění, kterým se stanoví technické požadavky na elektrická zařízení nízkého napětí

Nařízení vlády č. 117/2016 Sb. (Směrnice 2014/30/EU) v platném znění, kterým se stanoví technické požadavky na elektromagnetickou kompatibilitu

Aplikované normy:

ČSN EN ISO 12100 : 2011 (EN ISO 12100 : 2010), ČSN EN ISO 13857 : 2008 (EN ISO 13857 : 2008) ČSN EN 349+A1 : 2008 (EN 349 : 1993 + A1: 2008), ČSN EN ISO 13850 : 2017 (EN ISO 13850 : 2015) ČSN ISO 447 : 1992 (ISO 447 : 1984), ČSN EN ISO 14120 : 2017 (ISO 14120 : 2015) ČSN EN ISO 13849-1: 2017 (EN ISO 13849-1: 2015), ČSN EN 1870-18 : 2013 (EN 1870-18 : 2013) ČSN EN 80416-1 ed. 2 : 2009 (EN 80416-1 : 2009), ČSN EN 80416-2 : 2002 (EN 80416-2 : 2001) ČSN EN 1037+A1 : 2008 (EN 1037 : 1995+A1: 2008), ČSN EN 1870-19: 2014 (EN 1870-19 : 2013) ČSN EN 1037+A1 : 2008 (EN 1037 : 1995 + A1: 2008), ČSN EN ISO 14119: 2014 (EN ISO 14119 : 2013) ČSN 33 2000-1 ed.2 : 2009 (epv HD 60364-1: 2008), ČSN SN 33 2000-4-482 : 2000 (epv HD384.4.482 S1 : 1997) ČSN 33 2000-5-51 ed.3 : 2010 (epv HD 60364-5-51 : 2009), ČSN EN 55011 ed.3 : 2010 (EN 55011:2009) ČSN EN 60204-1 ed. 2 : 2007 (EN 60204-1 : 2006), ČSN EN 60073 ed.2 : 2003 (EN 60073 : 2002)

Posouzení shody bylo provedeno ve spolupráci s: SZÚ Brno, NB 1015.

ES certifikát typu: E-30-20064-18, E-30-20065-18, E-30-00120-18

Poslední dvojčíslí roku, v němž bylo elektrické zařízení opatřeno označením CE: 13.

Častolovice 1.3.2018 Evžen Rojek člen představenstva

#### Enclosure A electric connection diagram 4 + 0,5 kW 3 x 400 V 50/60 Hz



#### Enclosure B List of electric components

	LIST of	ELECTRIC PA	RTS (4 + 0,5 kW	3x400 V	50/60 Hz)	
marking	function	type, technical data	pcs.	supplier	substitute	note
ELECTI	RIC MOTOR	S				
M1	saw drive	CEG MT 100 LB 2 4,0kW 3x400/230V 9,1/15,7A 50,60Hz 2850 /min IM B14	1	CEG Itálie		
M2	scorer drive	CEG MT 71 LB 2 0,5kW 3x400/230V 1,33/2,3A 50/60Hz 2800/min B14	1	CEG Itálie		
SWITCH	IERS					
SA1	operation switch	LE-1M35N716 Uc=400V/50,60H z Ie=16A Ue=400V IP 54	1	TELEME- CANIQUE Francie		
QS,SA2	main switch scorer switch	VS 16 1104 A8 VSC VZ1C PG21 Ie=16A Ue=400V IP54	1	OBZOR Zlín		
SB1	saw guard main switch	XCK – A 102 1"a"+1"b" Ue=400V Ie=16A IP 54	1	TELEME- CANIQUE Francie		
SB2	emergency stopping switch	XAL K 178 1"a"+1"b" Ue=400V Ie=16A IP 54	1	TELEME- CANIQUE Francie		
CABLES	S AND TERM	IINALS				
W1-10	control circuits	H05VV-K1X1	as per machine variant		CYSY 2Ax1mm <sup>2</sup>	
W11-20 W31-40	power circuits	H05VV-K4G1,5	as per machine variant		CYSY 4Bx1,5mm <sup>2</sup>	
W21-30		H05VV-K1G2,5	as per machine var.		CYA 1,5mm <sup>2</sup>	
XT1	terminal	terminal box	1	GEWISS		

note : The producees reserves the right to change part(s) and its suppliers(s).