

# OPERATION MANUAL

## WINTER Smoothing Planner SURFACEMAX 410



**ATTENTION:** *Before commissioning it is necessary to get acquainted with all the instructions of this manual. The manufacturer is not responsible for damages caused due to improper operation of the machine or amendments in the design.*

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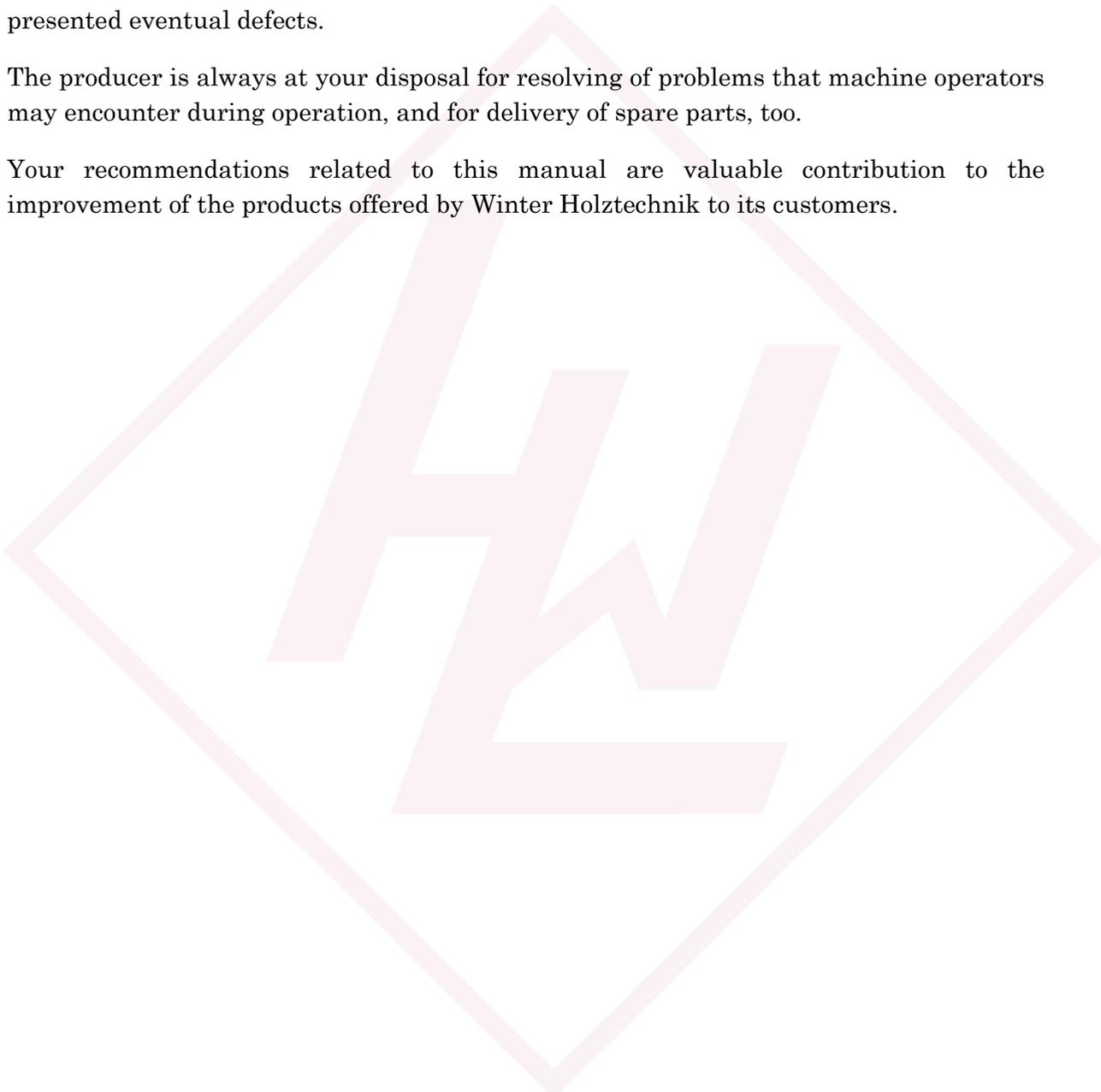
# 1 TO OUR CUSTOMERS

This manual contains all the instructions required for the faultless operation of the machine and its respective maintenance, as well.

Thus, during the warranty period, you will receive for free all components that have presented eventual defects.

The producer is always at your disposal for resolving of problems that machine operators may encounter during operation, and for delivery of spare parts, too.

Your recommendations related to this manual are valuable contribution to the improvement of the products offered by Winter Holztechnik to its customers.



## 2 GENERAL DATA

### 2.1 MANUFACTURER

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### 2.2 INTRODUCTION

The present manual is designed for those who will operate the machine. You will find in it the necessary data for assembly, commissioning, maintenance and safety operation of the machine. The experience of the company manufacturer and its experts is considered in the preparation of this manual.

We recommend you to consider with responsibility our recommendations concerning the safety of work. The operations requiring disassembly of machine and electrical components should be performed by authorized and qualified personnel only. Repairs and settings not described in the present manual should not be performed. This manual is prepared by the manufacturer and is an integral part of the machine's delivery. The information contained herein is intended for specialists and is compulsory.

The manual defines the machine's field of application and contains all the information necessary for its proper and safety operation.

The permanent and exact observation of the instructions contained in this manual ensure safety of personnel and machine, profitable work as well as long life of the machine itself.

For better clarity this manual is divided in separate parts in which are contained the more important subjects.

The contents will allow you to find fast the specific subjects.

The important text is printed in bold and is marked by the following symbols:

**WARNING**

This means that you should proceed very carefully in order to avoid situations that could be dangerous to human life or may cause serious injury to the personnel.

**ATTENTION**

Provides information about situations that may occur during the life of the product, the system or the equipment and that may cause injury to the personnel, damages on the machine, environmental pollution or financial loss.

**CAUTION**

Means that you should be more cautious in order to avoid material damage.

**INFORMATION**

Very important instruction.

Some figures and information in this manual may not coincide with those of the machine purchased by you.

The producer is constantly working on the improvement and renovation of the product and may introduce modifications without prior notification.

At preparation of this manual are considered all the operations belonging to "normal servicing". Repair works and other operations not mentioned in the manual should not be undertaken.

All operations requiring disassembly of machine parts should be carried out by technically qualified personnel.

The instructions of this manual should be observed for correct usage of the machine. Use only original spares of Winter Holztechnik.

The manufacturer should not be held responsible for damages caused by the use of spares which are not original.

## **INFORMATION**

The machine can be operated and serviced only by specially trained personnel, well acquainted with this manual.

### **2.3 CORRESPONDENCE**

In case of technical problem please contact the Seller or Service department.

In the correspondence or telephone call with them concerning the purchased machine please supply the following information:

- Machine serial number
- Operating voltage and frequency
- Date of production
- Detailed description of the eventual failure
- Detailed description of the working process
- Total time of operation – working hours;

In case of enquiry concerning the electrical part is necessary to provide the data from the name plate.

### **2.4 NAME PLATE**



Figure 1: Typical WINTER machine plate

## 2.5 FIELD OF APPLICATION

The surface planer is designed for processing of timber or materials similar to timber (e.g. woodenfibre plates, chipboards, plywood, laminated and non-laminated surfaces, etc.) being rectangle or square in cross section. Materials of other cross-sections, which may not lay properly on the table and the rulers, **SHOULD NOT BE PROCESSED ON THIS MACHINE.**

*You may not process materials other than those as indicated above, or materials other than wood on this machine.*

## 2.6 WORKING CONDITIONS AND REQUIREMENTS

### **ATTENTION**

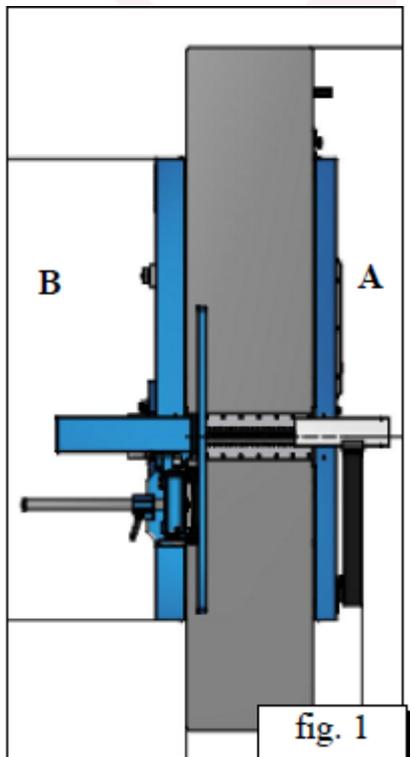
The machine is designed for one operator only.

A- Place of work during planer.

B - Place of work by mortiser.

### *Defense to operate*

The operation of the machine under conditions differing from those above mentioned is prohibited.



- The operation of the machine without the protection devices provided, as well as the removal of any part of those devices, is prohibited.
- Materials differing from those described above may not be processed on the machine.
- Pieces, whose dimensions differ from those described above, may not be processed on the machine.
- Tools that do not comply with pr. EN847-1 and tools, whose dimensions do not comply with the cutting disk shaft diameter, may not be used.
- Introduction of modifications in the machine is prohibited.

The sole and exclusive liability in case of injury of personnel and damages of the machine as a result of processing of unspecified materials shall be borne by the machine operator.

***Tools that may be used:***

May be installed and used on the machine tools complying with pr. EN847-1 related to manual feed only.

***Working environment***

The machine is designed for operation under the following environmental conditions:

Humidity	Max 90%
Temperature	Min +1°C Max +40°C
Altitude	Max 1000 m

The machine should not be open-air operated.

The machine should not be operated in environment presenting danger of explosions.

**2.7 TECHNICAL CHARACTERISTICS**

Planning width, max.	mm	410
Dimension of the working table	mm	2650x410
- entry board		1500
- exit board		1100
Maximal planning depth	mm	8
Cutting shaft r.p.m.	min <sup>-1</sup>	4700
Diameter of the cutting shaft	mm	125
Number of knives	p <sup>c</sup> .	4
Dimensions of knives	mm	410x35x3
Dimension of the rulers	mm	1296x167
Motor power	kW (HP)	4.0 (5.5)
Diameter of the dust-extraction mouthpiece	mm	0160
Net weight	kg	650

**AT SPECIAL REQUEST**

Mortiser with chuck WESTCOTT 0 - 16 mm, kg 100

Motor power, kW (HP)      5.5 (7.5)

## 2.8 NOISE CHARACTERISTICS

### **ATTENTION**

A continuous noise exposure over above 85dB (A) may result in health injury. That is why we recommend using in such cases noise protection devices like ear-plugs, earphones, etc.

Statement on the emitted noise:

1. /A/ weighted level of noise pressure at idle operation

$L_{pA} = 81 \text{ dB}$

Uncertainty  $K = 2 \text{ dB}$

2. /A/ weighted level of noise power at the working place.

$L_{wA} = 108 \text{ dB}$

Uncertainty -  $K = 2 \text{ dB}$

At 95% confidence interval.

## 3 SAFETY OF WORK

### 3.1 SAFETY INSTRUCTIONS

#### **ATTENTION**

Before commissioning, use, servicing, repair, cleaning or any other operations on the machine read very carefully this manual.

The manufacturer shall not be liable for any damages on the machine or any injury of personnel occurred as a result of failure to observe the operation, maintenance and safety instructions.

- Only trained and instructed persons are allowed to work with the machine; they must have profound knowledge of the rules and the dangers connected with work on this kind of machines; these persons should be fully conscious and of full control of their actions.
- Do not work beyond the instructions and without guards.
- Follow strictly the instructions of this manual.
- Cut off the power supply before performing any activities connected with preparation for work, troubleshooting, repair, maintenance etc..
- Before starting the machine check the safety devices.
- Working with gloves is not allowed.
- Clean thoroughly the machine from dust and chips after work.
- Never make use of water for cleaning the machine irrespective of connected to the mains or not.
- Always keep clean your working place.
- Before starting to work remove all tools and setting devices from the working surface.
- Always follow the rule to put the machine in switch off position before connecting to power supply.
- Before commissioning the machine check the condition of the electrical installation.
- Use the tools and the machine only for the stated purpose.
- Process only workpieces which are in the specified range of dimensions stated in Section D1 of the Operation Manual.
- Do not use the machine in rooms with high humidity; do not expose the machine to rain and low temperatures.
- Never let the machine running without control and when you are far of it.
- Do not work with loose clothing, free hair or long stoles.
- Remove all bracelets, watches, chains and similar objects.
- Keep the sleeves of the working dress always buttoned.
- Wedge-shaped pieces are to be processed always with their thicker end first.
- In order to protect yourself from the noise, always work with headphones.

- Always work with protection goggles, mask against the dust and with the other protection devices.
- Keep children away of the machine and take care to prevent machine's operation by children.
- Juveniles under age of 16 may operate the machine only under supervision of an experienced person.
- Provided the machine operates longer, it should be connected to the chip and dust extraction system.
- Before processing check the workpieces for defects, e. g. burls, fissures, nails, metal inclusions etc.
- Use perfectly sharpened tools only.
- Do not use cracked, damaged, wrong-shaped or incorrect sharpened tools.
- Always keep the tools with due care.
- Do not use the tools under speeds that exceed the maximal ones as specified by the respective tool producer.
- Clean tools' coupling surfaces and check for presence of swellings and dints.
- When handling the tools, use protection gloves whenever possible.
- Do not open in any case the protection covers and doors while the machine is running.
- Always operate the machine with intact protection devices, support rulers etc.
- Do not pass your hands or other parts of your body to the moving parts of the machine.
- Process only materials the machine is designed for.
- Exchange the knives of the cutting shaft always as a set. Do not use knives less than 20 mm wide.
- Ensure proper lighting (500 lux) that would not blind the eyes and avoid the stroboscopic effect.
- The transportation, installation and assembly of the machine should be assigned to qualified personnel only, possessing the required knowledge and equipment for that purpose.
- All interventions to the electrical equipment may be carried out solely and exclusively by qualified personnel who possesses the required knowledge for that purpose.
- Do not modify in any case the electric equipment of the machine.

**ATTENTION**

Neglecting of the safety rules or improper use of the machine may cause serious risk for the personnel.

***Training of the servicing personnel***

All servicing personnel must be trained to operate and maintain the machine. The training should include the following special features:

- General principles of machine's driving, the proper operation, adjustment of support rulers, as well as the use of appliances for special kinds of processing.
- The proper handling of the piece during processing.
- The position of the hands towards the cutting disks during processing and afterwards.

The servicing personnel must be informed about the dangers during machine's operation, as well as about the respective protection measures.

The servicing personnel must be trained to carry out periodical checks of the protection devices. The servicing personnel must be informed about the use of the protection devices.

### *Additional dangers*

Despite all operation and safety rules contained in this Operation and service manual, the following additional dangers may occur:

- Contact with the tool;
- Contact with the rotating parts of the driving (pulleys, belts etc.)
- Back hit of the piece or parts thereof;
- Possible danger of dust when operating without aspiration device.

However, the safety depends mainly on you. Bear in mind that you always undertake some risk when operating the machine.

### **WARNING**

Failure to follow the safety instructions, or improperly operate machine, presents serious danger for the servicing personnel.

## **3.2 DESIGN MEASURES FOR ENSURING SAFETY FOR WORK**

The surface planer is provided with following protection devices:

- Micro switch operated while the exit board of the machine opens, which switches off the machine when working in smoothing mode.
- Catch for opening of the entry board of the smoothing planer before opening of the exit board.
- Micro switch operated while the chip collector opens, which switches off the machine.
- The machine may not be operated if the boards of the smoothing planer and chip collector are opened when working in smoothing.
- Chip collector collects the chips and released during operation and is equipped with connection tip for a venting installation.

- The ship collector covers the cutting shaft during operation in thickening mode and prevents the access to the cutting shaft below the boards in smoothing mode.
- Barriers between the cutting shaft and the feeding and pulling roller preventing the contact between them, as well as preventing the access to the cutting shaft under machine's boards.
- Option to adjust machine's boards by height and blocking at the fixed position.
- The exit board of the machine has a catch, which does not allow (at adjustment of height) its working surface to get lower than the upper point of the cutting shaft.
- Machine's board does not allow the carried out of the operation «folding» by means of the cutting shaft.
- Slotted straps at the end of machine's ends, placed next to the cutting shaft.
- The slotted strap reduces the noise during operation, and remains always at a distance of 1 to 5 mm from the cutting circle, independent of the position of machine's boards on height.
- Bridge protection of the cutting shaft before the supporting grooving ruler covers the idle section of the cutting shaft during operation of the smoothing planer and may be adjusted within 0 to 75 mm depending on the thickness of the piece, serves also to press the piece to the supporting ruler.
- Supporting grooving ruler serves for reliable support and correct guiding of the piece during operation of the smoothing planer. May be adjusted under inclination from 90° to 45° and be blocked in the present position. May be shifted along the whole working width of machine's board and be blocked in the present position.
- Protection of the cutting shaft behind the supporting ruler covers the knives behind the supporting ruler, is fixed to the ruler and moves along with it.
- Extremely sharpened knives of the cutting shaft, blunt tools may cause a danger of reverse hint, overload the machine and present poor surface during processing.
- Dynamically balanced cutting shaft reduces the vibrations during operation and present good processed surface.
- During specific operations of short pieces we do recommend the use of additional equipment, for instance:
  - Smoothing device for short pieces; pushing wooden block for smoothing of thin pieces etc.
  - The additional devices should be always in good condition and should be placed next to the machine at a suitable place.

### ***ELECTRICAL EQUIPMENT***

- Electronic break for electrodynamics stop of the motor reduces the breaking time of cutting shaft's rotation up to 10 sec. After switching off of the motor.
- Protection against low voltage. When the voltage is low, the machine stops, but after restoration of the voltage it remains standstill. In order to put it into operation you need to follow the instructions related to the initial commissioning.
- Emergency stop of the main control panel.
- Protective earthing
- Overload protection of the motor (by means of built-in thermo switches).
- Protection of electrical equipment – IP54.

## 4 ASSEMBLY OF MACHINE

### 4.1 REQUIREMENTS TO THE WORKING AREA

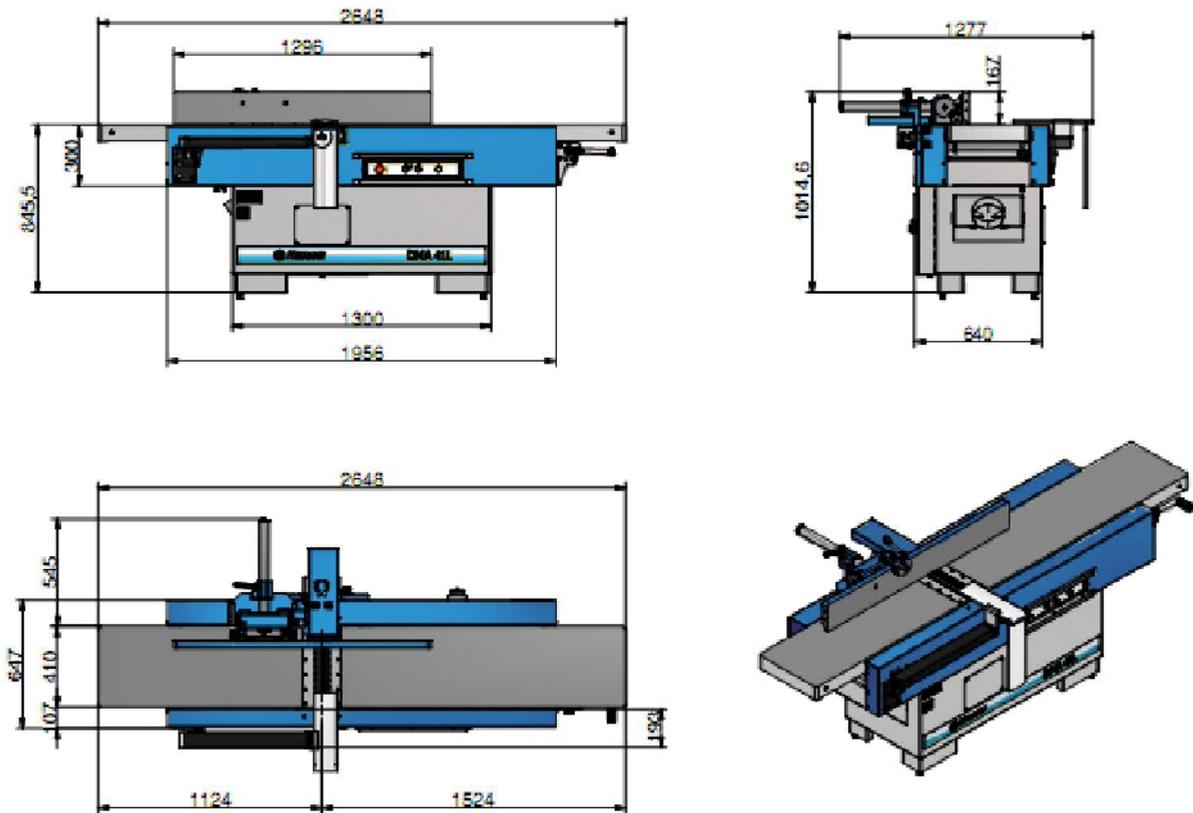


Figure 2

Choose a suitable place for the machine taking in mind the possibility to mount extension boards for the smoothing planer.

Follow the instructions given in section B.

The place chosen for positioning of the machine should provide for convenient connection to the electric mains and the device for aspiration of the dust and chips.

Provide for suitable lighting (500 lux) that would not blind and avoid the stroboscopic effect.

Check the load capacity of the floor and bear in mind that the machine must be leveled simultaneously on its four supporting points.

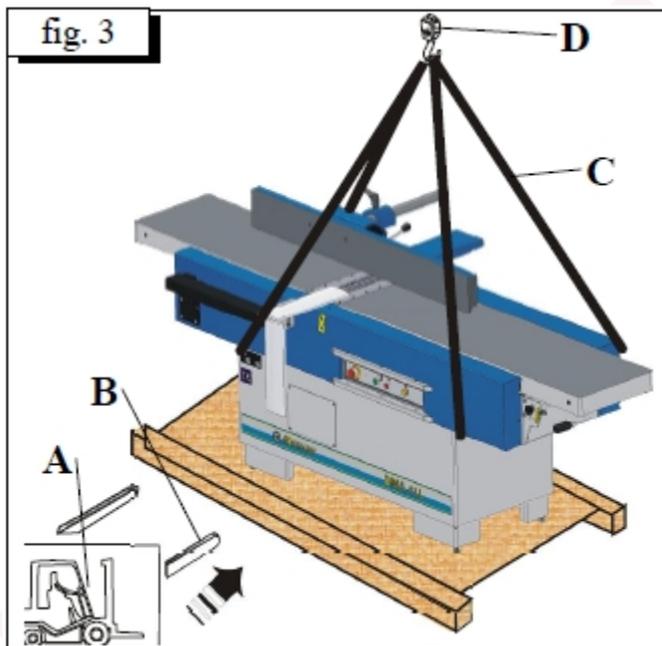
Provide for a distance of at least 0.8 m around the machine.

You should provide for the space required at the entrance and exit of the machine in order to feed and take up ling pieces.

## 4.2 UNLOADING OF MACHINE

### **ATTENTION**

For hoisting of the machine you will need a forklift truck with fork long at least 1200mm



- Provide for a fork lift truck A with the respective load capacity, corresponding to machines weight;
- The fork B of the truck should be positioned to the machine as shown on fig. 3;

In case you are in a position to make use of crane or similar equipment, make as follows:

- Prepare 2 pieces of ropes or belts C with the respective load capacity and length;
- Hang the ropes on the hook C with the respective load capacity and length;

- The ropes are hung on the hook of crane D with the respective load capacity and length, corresponding to the weight of the machine;
- The ropes are raised by the crane and are hung by four hooks purposed for lifting, in the four holes of machine's body.

### **WARNING**

Check the secure fixing of the hoisting hooks to machine's body.

- Set properly the ropes and if necessary the crane should move a bit to secure vertical and stable lifting without tilting of machines.
- The machines are lifted slowly and very carefully to avoid jerks and swinging of load.
- After lifting the machine at about 1 m stop the lifting and attach the four leveling supports to the body of the machine.
- After place with crane the machine in the selected place level the machine with the four leveling supports to obtain a stable position.

## 4.3 DESLUSHING OF MACHINE

Remove the anti-corrosion grease from all unpainted machine parts using kerosene, turpentine or ordinary cleaning products commercially available.

Do not use nitro- thinners or similar diluents and by no means use water.

#### 4.4 FOUNDATIONS LAYOUT

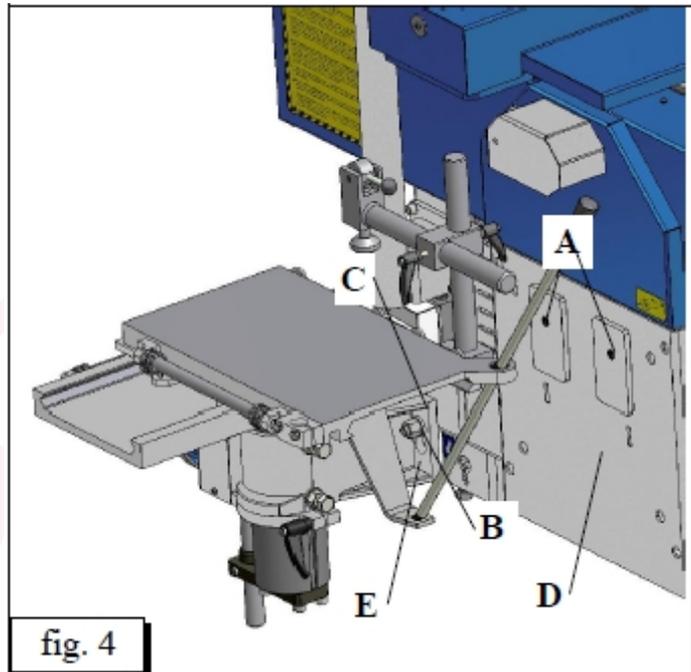
The stable construction of the machine, ensuring precise leveling and vibration-free operation does not require any foundations.

Besides that an additional facility can be mounted to the machine by which it can be moved in the working room.

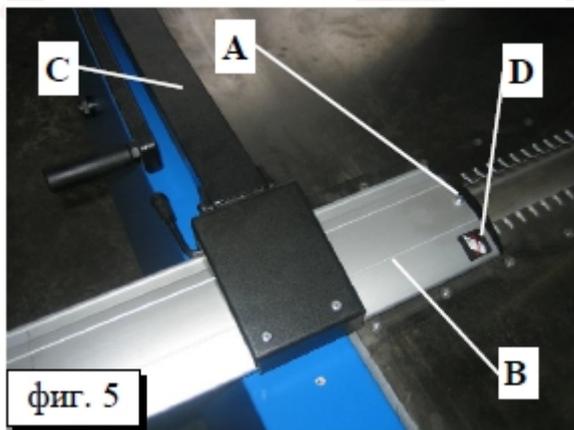
#### 4.5 ASSEMBLY OF THE DISASSEMBLED UNITS

With view to the transportation and packaging, some parts of the machine are delivered in unassembled condition.

You will find hereafter instructions concerning the assembly of those parts.



##### *Assembly of the drilling unit to the planer (option)*



Two people are required to assemble the mortiser.

The nuts, washers and studs B are screwed in apertures A during the transport.

The drilling unit's console C has grooves with outlets at the end.

Lift the drilling device about the crane so, that nuts B to get in apertures and console C will touch in body D the machine.

Lower easily drilling device and tighten nuts in position more convenient for you.

If necessary centre the drilling device from screws E for achievement of parallelism on a table and an axis cutting shaft (drill).

##### *Assembly a covering of a safety lock for planer*

- Unscrew screw A (fig. 5).
- Mount covering B in a shoulder of a safety lock for planer C, as shown in a figure.
- Tighten screw A (pay attention to tablet D).

## 4.6 CONNECTING TO THE MAINS

### **ATTENTION**

The connection of the machine to the mains and the subsequent additional check-ups should be executed only by an electrician.

- Check by suitable apparatus the good condition of the nullifying and earthing device.
- Check whether the supply voltage and frequency of the electric current correspond to the data shown on the plate of the machine. The permissible deviation of the voltage may be by + 15% (for instance: a machine with operation voltage 380V may work at the range between 360 and 400V).
- In order to determine the suitable section of the supply cable, refer to the data for the amperage shown on the plate of the machine, as well as to the table below.

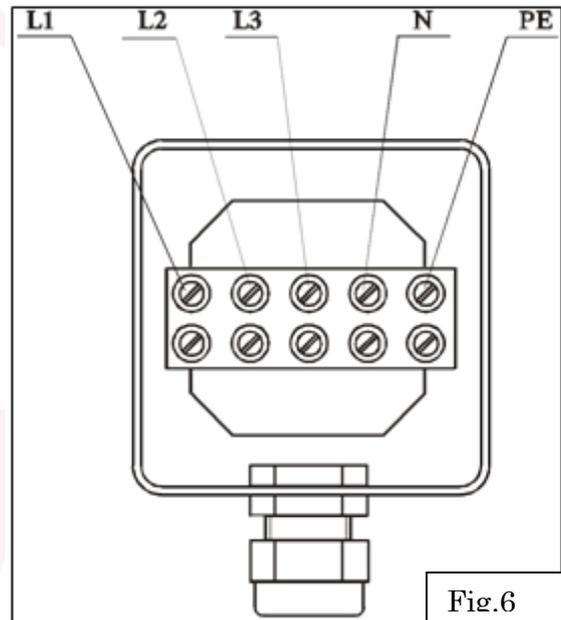


Fig.6

- We do recommend the cable to be rubber insulated type H07RN (WDE0282); take the appropriate measure to avoid mechanical damages.
- Connect the supply cable to the respective terminals of the entry box (L1,L2,L3,N,PE)./fig. 6./

Electric current (A)	Section of the cable	Fuse
Up to 10	2.5 mm <sup>2</sup>	12A AM
from 10 to 14	2	16A AM
from 14 to 18	6.0 mm <sup>2</sup>	20A AM
from 18 to 22	6.0 mm <sup>2</sup>	25A AM
from 22 to 28	10.0 mm <sup>2</sup>	32A AM
from 28 to 36	10.0 mm <sup>2</sup>	40A AM
From 36 to 46	16.0 mm <sup>2</sup>	50A AM

- For CEE plug (380V, 16A) the connection to the mains is done by means of CEE coupling
- (L1,L2,L3,N,PE).
- At the commissioning and after each modification of the connections to the three-phase mains check whether the direction of rotation of the shaft corresponds to that indicated on the table. If the direction of rotation is reverse, change the place of connection of phase conductors L1 and L2.

#### 4.7 CONNECTION TO THE ASPIRATION DEVICE

The chip and dust aspiration device must ensure a minimal rate of air delivery of 1800m<sup>3</sup>/h at a speed of 25-30 m/sec.

##### **ATTENTION**

The dust and chips aspiration device must be switched on simultaneously with the motor of the machine.

The machine is equipped with chip collector, equipped with tip for connection to the aspiration device in order to aspirate to dust and the chips.

Connect the chip collector by means of hose  $\varnothing$ 160 mm to the aspiration device for dust and chips.

## 5 FITTING AND OPERATING OF MACHINE

### 5.1 OPERATING OF MACHINE

#### 5.1.1 Dimensions of the pieces

##### *During operation of the smoothing planer*

The maximal dimensions of the pieces that may be processed on the smoothing planer are 2550x410 mm.

If you need processing longer pieces, then you should make use of roller supports to hold the piece.

The minimal dimensions of the pieces are 450x50x30. Shorter pieces may be generally processed only by means of suitable devices, e.g.:

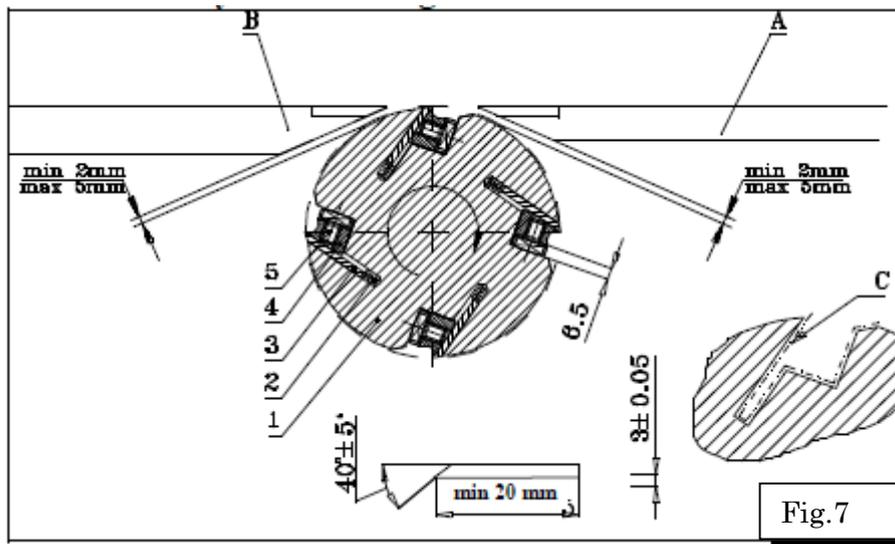
- Smoothing device for short pieces; etc.
- Pushing wooden block for smoothing of thin pieces;
- Additional supporting ruler, fixed to the supporting ruler for grooving etc. The pieces are pushed over the cutting shaft only by the additional devices.

#### 5.1.2. Disassembly, assembly and adjustment of knives to the cutting shaft

##### **WARNING**

- Before starting assembly, disassembly or adjusting of the knives make sure that the machine cannot be operated.
  - Switch off the machine from the electric mains.
  - Put the main switch in position "0" and lock it by padlock;
- When disassembling and assembling the knives always use, whenever possible, protection gloves.

*Disassembly of knives /fig. 6/*



- Release the pressing screws 5 (rotation clockwise);
- Remove the knives 3;
- Remove the pressing wedges 4;
- Remove the springs 2;

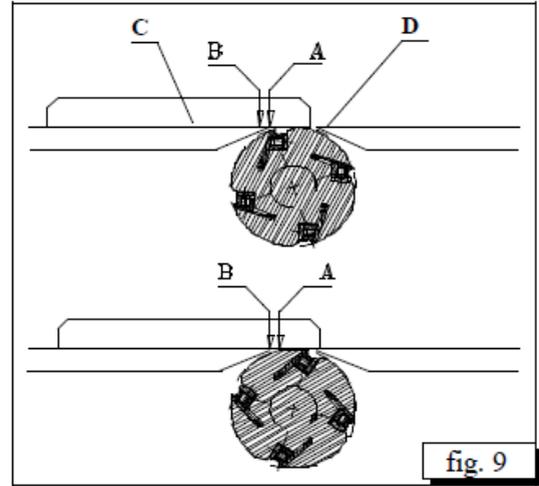
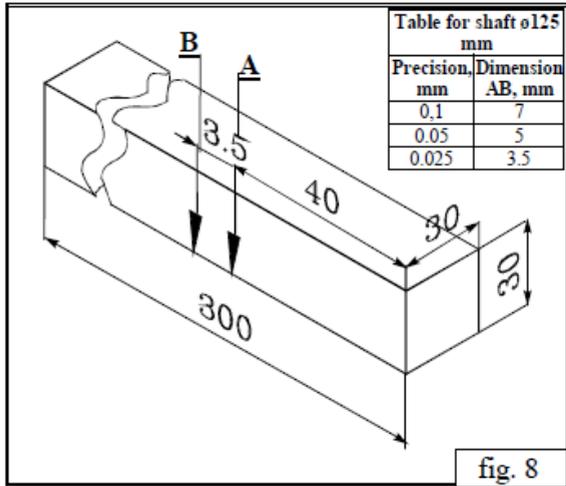
*Assembly of knives*

- Clean thoroughly the following parts:
  - grooves C in the cutting shaft 1;
  - springs 2;
  - knives 3;
  - pressing wedges 4 and screws 5;
- Place the springs, pressing wedge and screws along the knife in the respective groove of the cutting shaft.
- Check the operation of the spring by pressing slightly on the knife by means of wooden block.
- The knife should enter in the groove of the cutting shaft and, after releasing, get back in initial position.
- Check the proper placement of the knife according to the direction of rotation of the cutting shaft;
- Press the knife by means of wooden block against the spring and tighten slightly the pressing screws (rotation anti-clockwise).

*Adjustment of knives*

- The knives should come out over the body of the cutting shaft to distance not exceeding 1.0 mm.
- Adjustment it is possible make through with own hand made caliber (figs. 8) or about the dial indicator.
- The proceeding table is fixed in a factory the-manufacturer above a shaft on 0.8 - 0.85 mm. If necessary

- it is possible will adjust by means of caliber and a backlash device or with the dial indicator.
- The adjusting gauge (fig. 8), made out of hard wooden, is placed on the initial mass C (fig. 9) against the pressing screw.
- The pointer A should coincide with the edge of the mass (fig. 8).
- Turn the shaft by hand. If the knife is adjusted properly, it will shift the gauge to the pointer B.
- If the gauge moves more, the knife should be lowered, and if the gauge moves less, the knife should be lifted.



- Repeat the same procedure for adjustment of the knife at the other side of the cutting shaft, and after that tightens the pressing screws thoroughly (rotation to the left). The torque is 24 Nm.
- Check once again with the gauge to find out unexpected shift of the knife.

**WARNING**

- The knives must come out over the cutting shaft at maximal distance of 1.0 mm.
- Check thoroughly the knives for bending or fissures.
- You may not assemble defective knives.
- The defective knives must be replaced by sets only.
- Do not use knives thinner than 20 mm.
- Use only extremely sharpened knives, otherwise you may suffer a reverse hit of the piece.
- Tighten carefully the pressing screws. The torque is 24 Nm.
- During assembly check the direction of rotation of the cutting shaft.

**5.1.3 Operation of smoothing planer**

The smoothing planer is composed of the following main components /fig. 10/:

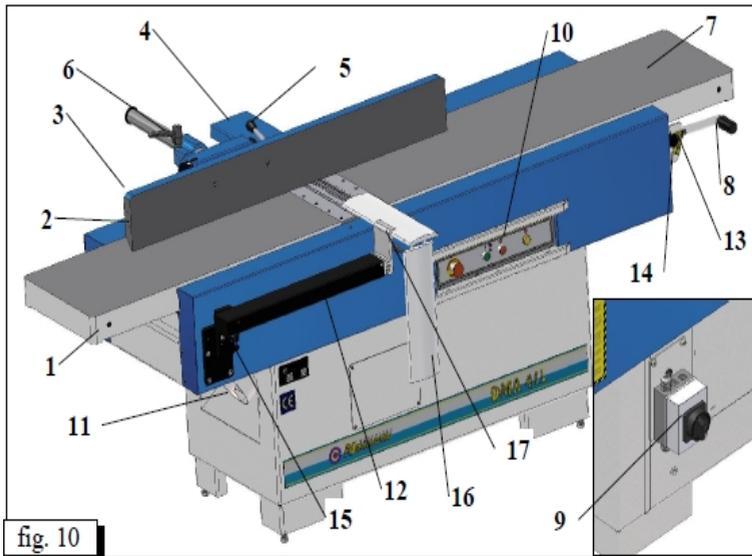


fig. 10

1. Exit board
2. Ruler for planer
3. Drilling device (option)
4. Guard for ruler
5. Handle for tighten the ruler
6. Handle for tighten to moving the ruler
7. Entry board
8. Lever for lifting the entry board
9. Main switch
10. Panel board
11. Chip collector
12. Guard for planer
13. Handle for tighten the lever

### **ATTENTION**

Before proceeding to any adjustments to convert the operating mode from, switch off the machine from the main switch 9.

- After release the handle 13 the entering table 7 can be adjusted on desirable thickness (max 8 mm) by means of a lever 8 counting on a scale 14.
- The proceeding table 1 is adjusted and blocked preliminary by a factory - the manufacturer.
- The ruler 2 can move a demon sedate on all working width of planer unit at release the handle 6, and also it is possible to bend under a corner from 90° up to 45° at release the handle 5. At moving the ruler 2 together with it moves also a safety lock for a ruler 4.
- The covering of a cutting shaft 16 can move on all length of a cutting shaft and to be blocked in the adjusted position by means of the lever 17.
- By means of the lever 15 safety lock for planer 16 can be adjusted on height from 0 up to 75 mm in relation to tables of the planer device.

### **ATTENTION**

After completion of adjustment all blocking elements must be tightened again.

#### *Operation instructions*

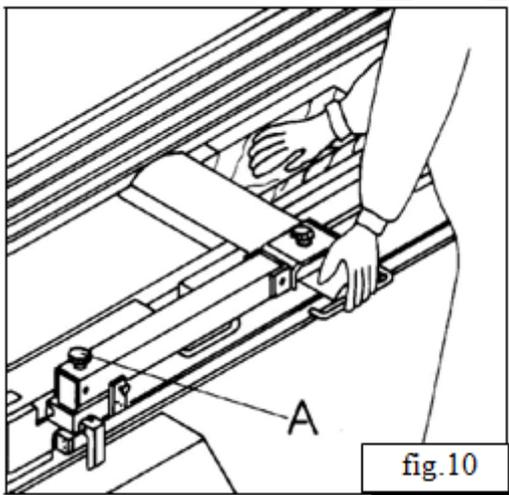
- Follow the safe modes of operation of the smoothing planer (section B.)
- Follow the direction of work of the smoothing planer.
- Cover the cutting shaft by the guard 16 (fig. 10)
- Do not catch the cover of the cutting shaft from its lower side.
- Do not push the piece with your fingertips.
- During processing of short or narrow pieces make use of additional devices (e.g. device for smoothing of short pieces, pushing wooden block, additional supporting ruler etc.)

- Before operation, check the pieces for faults, e.g.: burls, metal pieces, nails, fissures and other foreign bodies.
- When processing bent surfaces always begin by small chip.
- If the machine stops suddenly (e.g. break of electricity, tear of belts etc.), you must stop immediately the pushing of the piece.

**5.1.4. Safety modes of operation of smoothing planer**

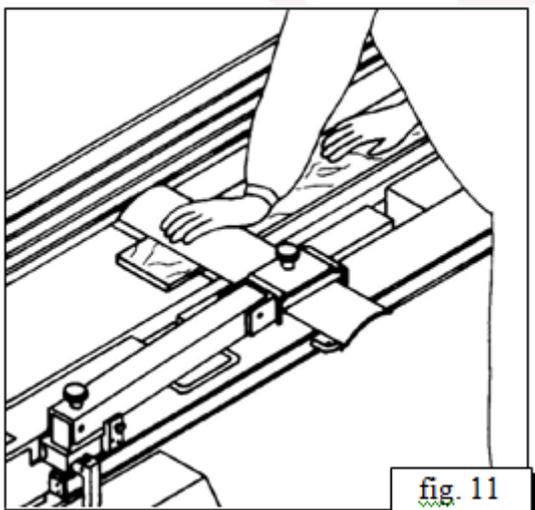
*Smoothing and grooving of pieces up to 65 mm thick.*

*Preparation for smoothing /fig.10/*



- The guard of the cutting shaft lying on the board is pushed away by hand until the supporting ruler and is adjusted according to the thickness of the piece by means of handle A.
- The piece is pushed by the right hand a little some below the guard of the cutting shaft; the guard should lay on the piece (fig.10).

*Thicknessing /fig. 11,12, 13/*



- The piece is pushed forward on the entry board by the palms of the hands, the hands passing one after another over the guard of the cutting shaft (fig. 11,12).

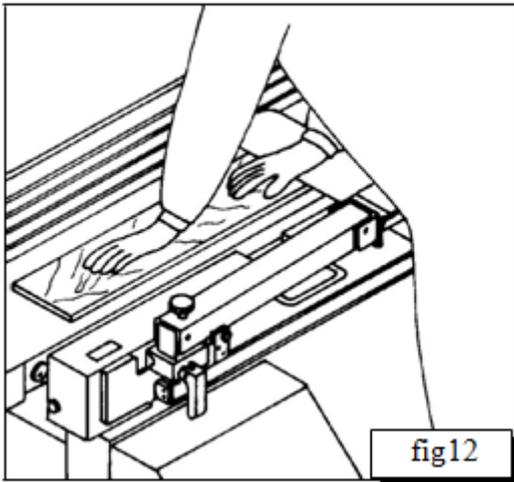


fig12

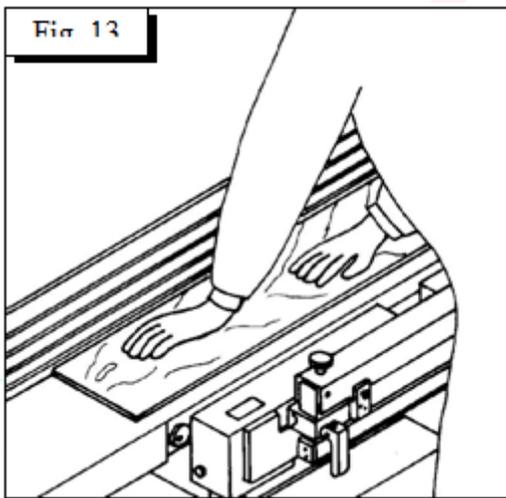


Fig. 13

- As soon as practicable, the piece is pushed forward only on the exit board (fig. 13).

*Preparation for grooving /fig. 14/*

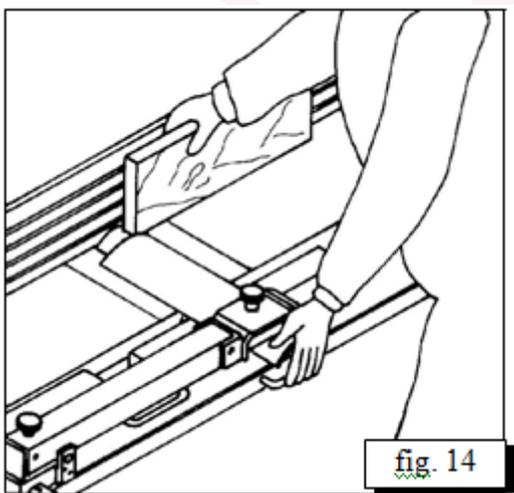


fig. 14

- The piece touches the supporting ruler for grooving by the right hand and is pushed forward on the entry board approximately to the front edge of the strap.
- The guard of the cutting shaft is pushed by the left hand until it touches the piece.

*Grooving /fig. 15/*

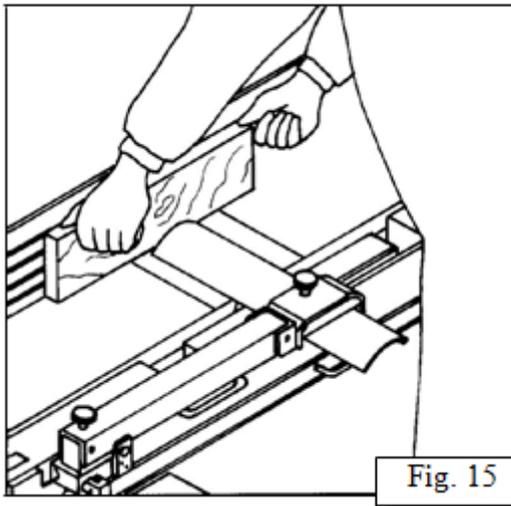


Fig. 15

- The left hand flexed in fist presses the piece to the supporting ruler and the board, the thumb being on the piece.
- The right hand flexed in fist pushes the piece forward, the thumb being on the piece.

*Smoothing and grooving of pieces thick over 65 mm*

*Smoothing /fig. 16/*

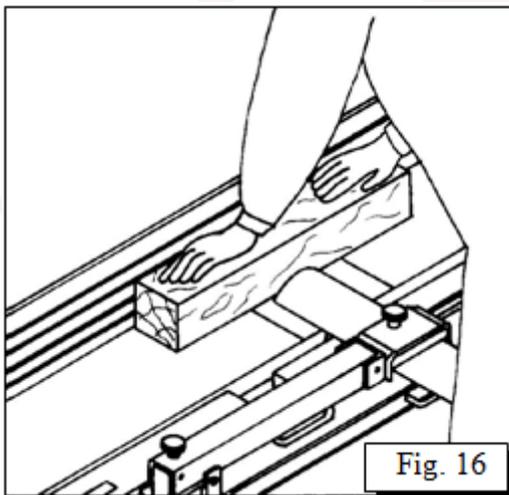


Fig. 16

- The guard of the cutting shaft must be put down to the board and pushed to the piece.
- The piece is pushed forward by the palms of both hands along the length of the supporting ruler for smoothing.

*Grooving /fig. 17/*

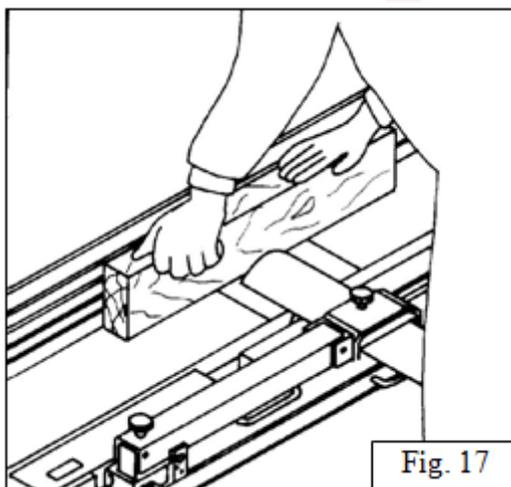
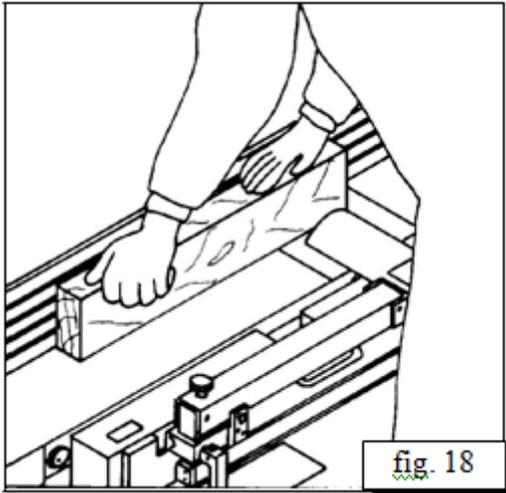


Fig. 17

- The piece is pushed forward by both hands, the left hand flexed in fist presses the piece to the supporting ruler and the board.
- The thumb is placed on the piece.
- At the exit of the piece the palm of the right hand must also lay on the piece. (fig. 18)

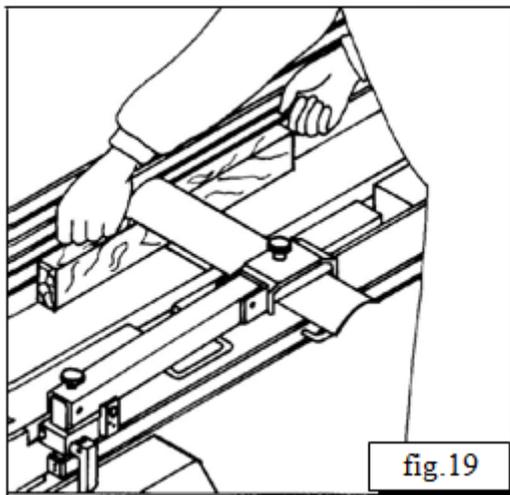
*Smoothing and grooving of pieces with small sections (e.g. lathes)*

*Smoothing /fig. 18/*



- The piece is pushed forward by the palms of both hands, exactly as for details thick up to 65 mm (fig. 11, 12, 13).

*Grooving /fig. 19/*



- The piece is pressed to the supporting ruler and the board of the smoothing planer and is pushed forward by both hands flexed in fists.
- The guard of the cutter shaft is pushed to the supporting ruler and is put on the piece.

*Smoothing and grooving of short pieces*

*Smoothing /fig. 20/*

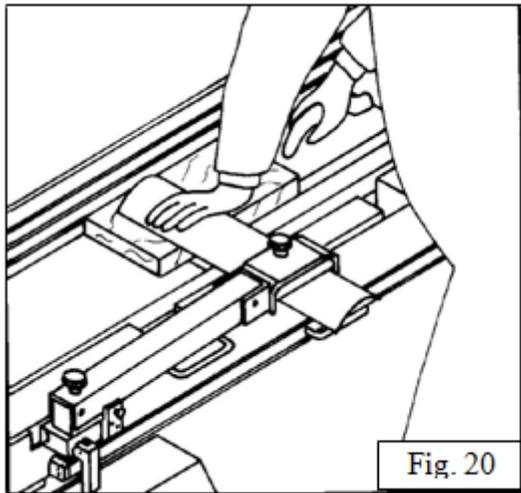


Fig. 20

- The piece is pressed to the entry board by the palm of the left hand and is pushed forward by the wooden block in the right hand.
- The left hand glides on the guard and as soon as the piece enters on the exit board, the pressing of the piece is effected on it.
- The pushing block may not be thicker than the piece processed.

*Grooving /fig. 21/*

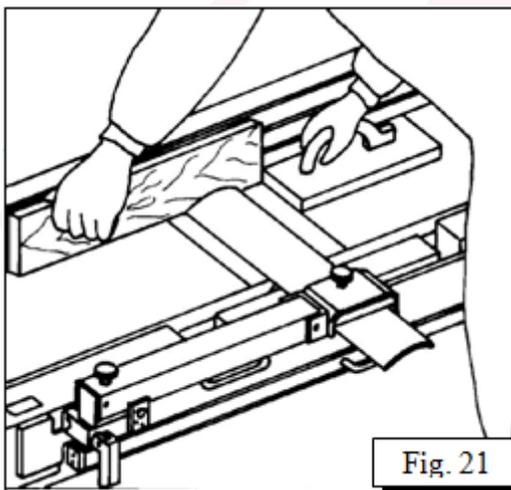


Fig. 21

- The piece is pressed to the supporting ruler and the board of the smoothing machine by the left hand flexed in fist, the thumb being placed on the piece; the piece is pushed by the wooden block in the right hand.

*Smoothing under inclination or bevel /fig. 22/*

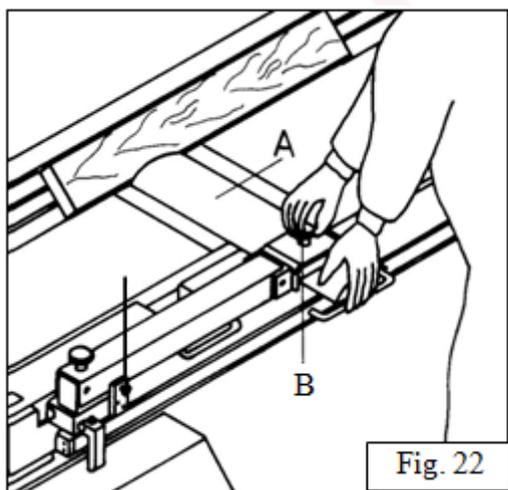


Fig. 22

- The piece is pushed to the inclined supporting ruler by the right hand.
- The piece and the guard of the cutting shaft are positioned as shown on fig. 22.
- The guard of the cutting shaft is pushed to the piece and slightly presses it.
- In this position the guard A of the cutting shaft is locked by means of handle B.

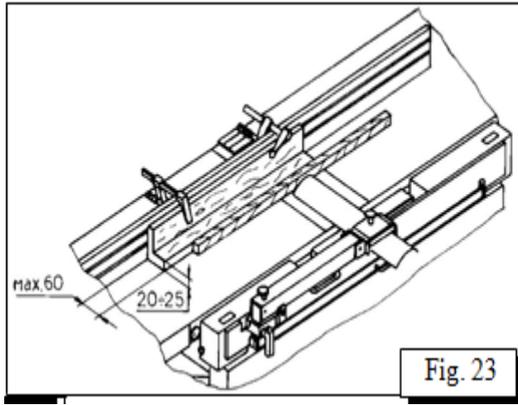


Fig. 23

- For processing of narrow pieces you can use your own additional rest, which is fixed on the supporting ruler ) e.g. by means of two binding clips) (fig. 23)

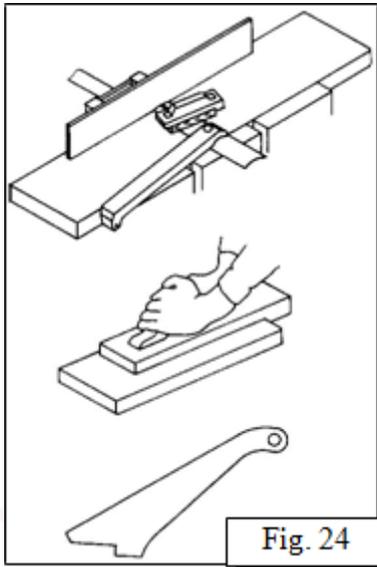


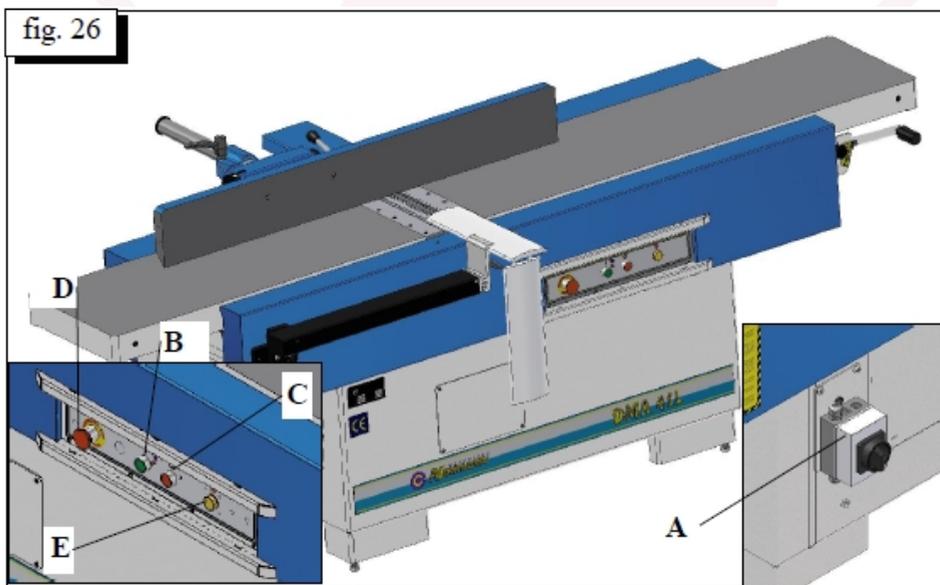
Fig. 24

**ATTENTION**

Increased danger of accident due to poor leading of the piece.

During smoothing of short pieces you can use your own device for pushing the piece /fig. 24/

5.2 Control Panel



A - Main switch – serves for inclusion and switching off of an electric feed of the machine. There is an opportunity to stop a switch, having closed it on the lock, in position “0” with the purpose to avoid possible undesirable start-up of the machine. It is put in action by turning. Position “1”: "is included". Position “0”: "is switched off".

B - Button - green - serves for a starting of the machine. It is put in action by pressing.

C – Button - red - serves for a stop of the machine. Is put in action pressing..

D- Button “Emergency stop ” - serves for a normal or emergency stop of the machine. Is put in action by pressing then the button itself is late in the pressed position. Until the button will not be released, the machine cannot join.

E – Signal lamp shines when the main switch A is in position “1”.

### 5.3. STARTING

#### **ATTENTION**

- Before commissioning always check the safety devices.
- Observe the instructions for safe work according the servicing manual.

The machine is commissioned by pressing the green knob.

### 5.4. STOPPING

#### *Normal stop /fig. 26/*

The normal stop of the machine tool is carried out by pressing red button C that includes a dynamic stop of the motor.

#### *Emergency stop /fig. 26/*

The emergency stop is made by pressing on emergency stop-button D that causes a dynamic stop the motor.

## 6 DESCRIPTION OF MACHINE

### 6.1 TECHNOLOGICAL PART

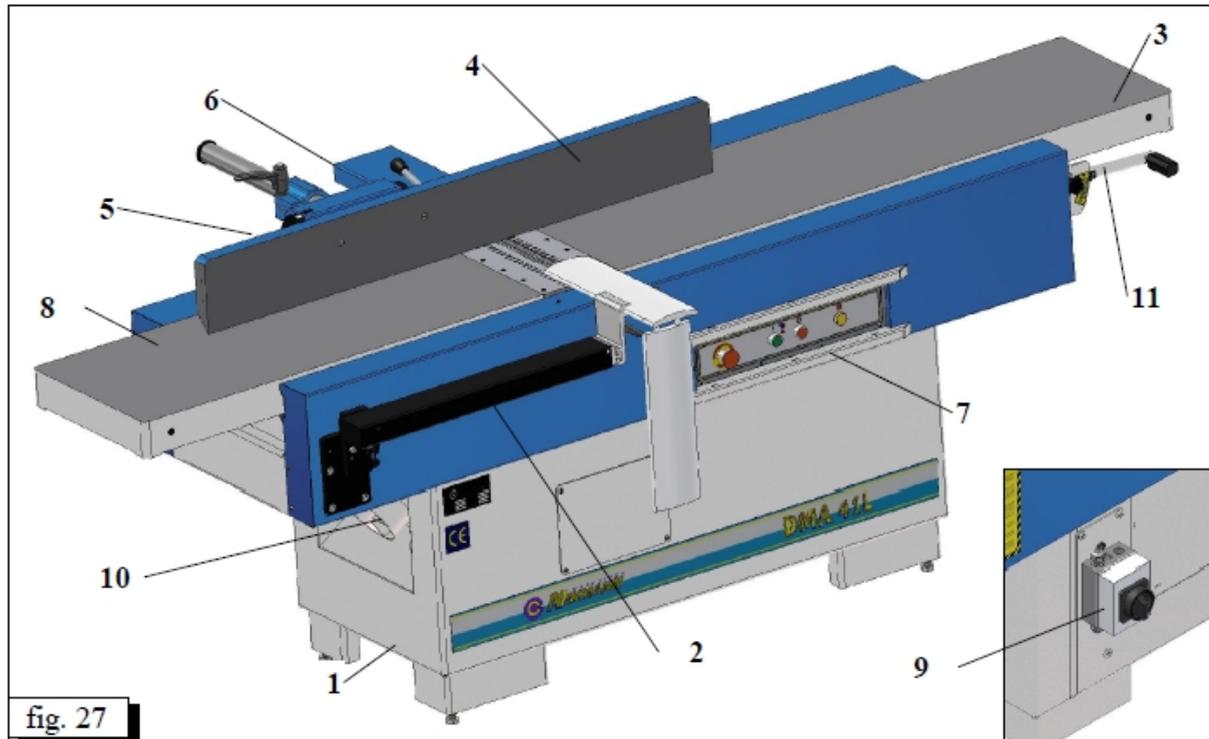


fig. 27

The machine is produced by the following main components /fig. 27/:

1. Body
2. Guard of the planer
3. Exit board of the planer
4. Ruler of the planer
5. Drilling device (option)
6. Guard behind the ruler
7. Control panel
8. Entry board of the planer
9. Main switch
10. Chip collector
11. Lever for lifting the entry board

The machine can perform the following operations:

1. Smoothing
2. Grooving

#### *Smoothing*

- This operation is carried out for processing of piece' lower part.
- The piece is placed on machine's boards with its wide side and the processing is carried out by means of the horizontal cutting shaft.

- The feeding of the piece is effected manually, but you can also use feeding device.
- During processing make use of the protection device of the cutting shaft and the supporting ruler.
- The processing is carried out along the whole length of the piece.

### *Grooving*

This operation is carried out for processing of the piece's marrow side, on machine's boards.

- The piece is led along the supporting ruler for grooving and the processing is carried out by means of the horizontal cutting shaft.
- The feeding of the piece is effected manually, but you can also use feeding device.
- During processing make use of the protection device of the cutting shaft and the supporting ruler.
- The processing is carried out along the whole length of the piece.

### **ATTENTION**

- DO NOT operate the machine for processing of only part of piece's length.
- Curved pieces which can not lie well on machine's boards and supporting ruler MAY NOT be processed.

Machine's operator will be the only liable person for injury of personnel or damages of the machine, occurred as a result of processing of other materials.

## **6.2. ELECTRICAL PART**

The machine is equipped with:

- electronic brake for electrodynamics braking of the motors;
- thermal protection of the electric motors;
- CEE plug for connection the machine to the mains;
- the electric equipment is protected against dust and moisture IP 54;

## 7 MAINTENANCE

### 7.1. CLEANING OF MACHINE

The general (complete) cleaning will guarantee long life of the machine and is one of safety factors.

#### **WARNING**

Before starting any cleaning, adjusting or dismounting of parts from the machine it is necessary to stop it, put a warning sign for the outsiders in the enterprise and lock the cap of the starter with a padlock.

After each working shift clean thoroughly the machine and all the components, aspirate the dust and the chips by means of the aspiration device and remove all other remainders by compressed air.

At least once every 6 months or every 500 operating hours remove the side covers in order to get full access for cleaning of the internal components.

### 7.2. LUBRICATION OF MACHINE

In order to remove the dust and chips, clean once per 500 hours by means of soft brush all belts.

Clean thoroughly the machine by strong jet of compressed air and lay a thin layer of oil or grease on all machine's mobile parts.

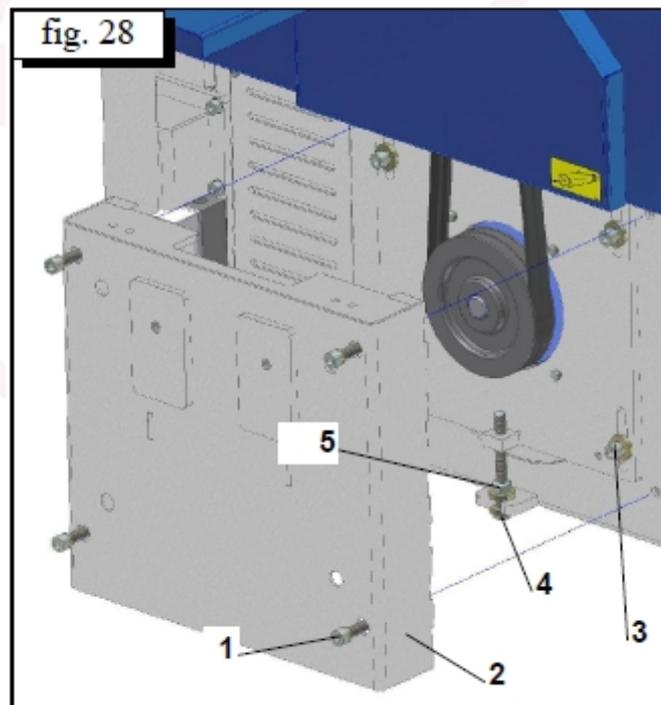
Protect the belts and pulleys in order to avoid possible soiling by oil or grease.

### 7.3 CHECKING THE CONDITION OF SOME UNITS AFTER OPERATION

Before starting any maintenance works on the machine disconnect the electric supply, unplugging it from the mains.

#### *7.3.1. Drawing of belts*

- Release screws of 1 (figs. 28), also discharge cover 2.
- Release easily screws 3.
- Release nut 5 and through a bolt 4 begin pull belts.
- After belts will be tense enough, tighten screws 3 and nut 5.
- At last put cover 2 and tighten screws 1.



**WARNING**

- Do not pull the belts with too much strength in order to prevent damages on the bearings and overheating.
- At least once per month check the tension of the belts and the chain and if necessary, stretch them additionally.

At every six months it is necessary to check up stretching of the driving belts again. The belts must not be stretched much strongly to not overload bearings. Too much strong stretching leads to lengthening of the belts and its fast wearing out. Pollution of the belts with oil, lubricant, solvent, paint etc., must be avoided. The driving belts and channels of belt pulleys are clean and dry with soft brush only and woolen or paper towel. Never use solvent and water.

***7.3.2. Control of the electronic brake for electrodynamics stopping of engine***

The machine has electronic brake for electrodynamics stopping of engine. The time for full stopping of the tool turning must not surpass 10 seconds from switching of the engine.

- This stopping time must be controlled every month.
- If it is more than 10 seconds electrician must check up the brake.
- The frequency of the switching on of this brake must be most 10 for an hour.

***Removal from operation, storage – disassembly (rejection) of the machine***

Switch off all electrical equipment during removal of the machine.

Provided the machine would not be use for some time, after switching off of all electrical equipment, clean it thoroughly and process the operation board, the shaft of the circular disk and the other unpainted parts by roof-protection product.

You should not store the machine in damp places and must protect it from environmental effects.

The machine is produced by non-toxic and safe materials. Upon rejection divide the metal and plastic parts and smash them afterwards.

***Emergency situations /states/***

Switch off the electric supply immediately in case of flood of the operation area. Before re-operation of the machine, it must be checked by trained authorized technician. Switch off the electric supply in case of fire and use fire extinguishers. Direct the jet to the base of the flame. Before re-operation of the machine, it must be checked by trained authorized technician. The operation area around the machine (please refer to Section C.1.) must always be unoccupied. You must not operate the machine in environment presenting danger of explosion.

## 7.4 TROUBLE-SHOOTING

### **WARNING**

Before starting any repair works switch off the electric supply of the machine.

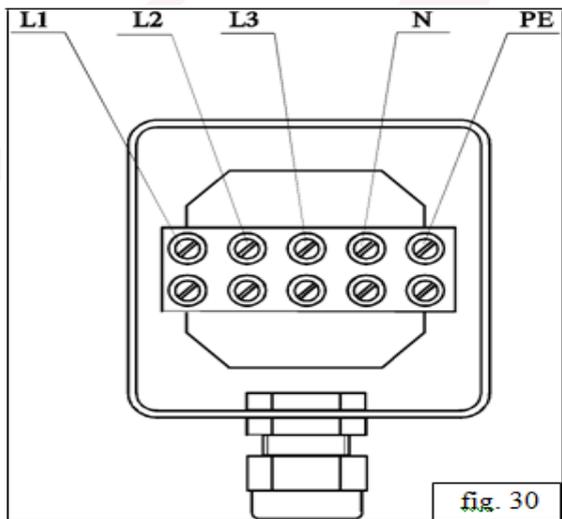
The machine has been tested in the production plant and you can freely operate it. The incorrect and out of function use of the machine may result in damages.

Fault:

- *The machine does not start.*

Reason:

- No voltage in the electric mains.



Repair:

Check whether the three phases are under tension. Check all options: L1-L2, L1-L3, L3-L2 /fig. 30/

If there is not tension at all the 3 cases, it means that there is no voltage in the electric mains. If, for instance, there is not voltage between L1- L2 and L3-L2, the reasons are:

- lack of one phase in the supply device
- damaged fuse in the distribution box of the supply device
- loosen cable L2

Fault:

- *The machine stops during operation.*

Reason:

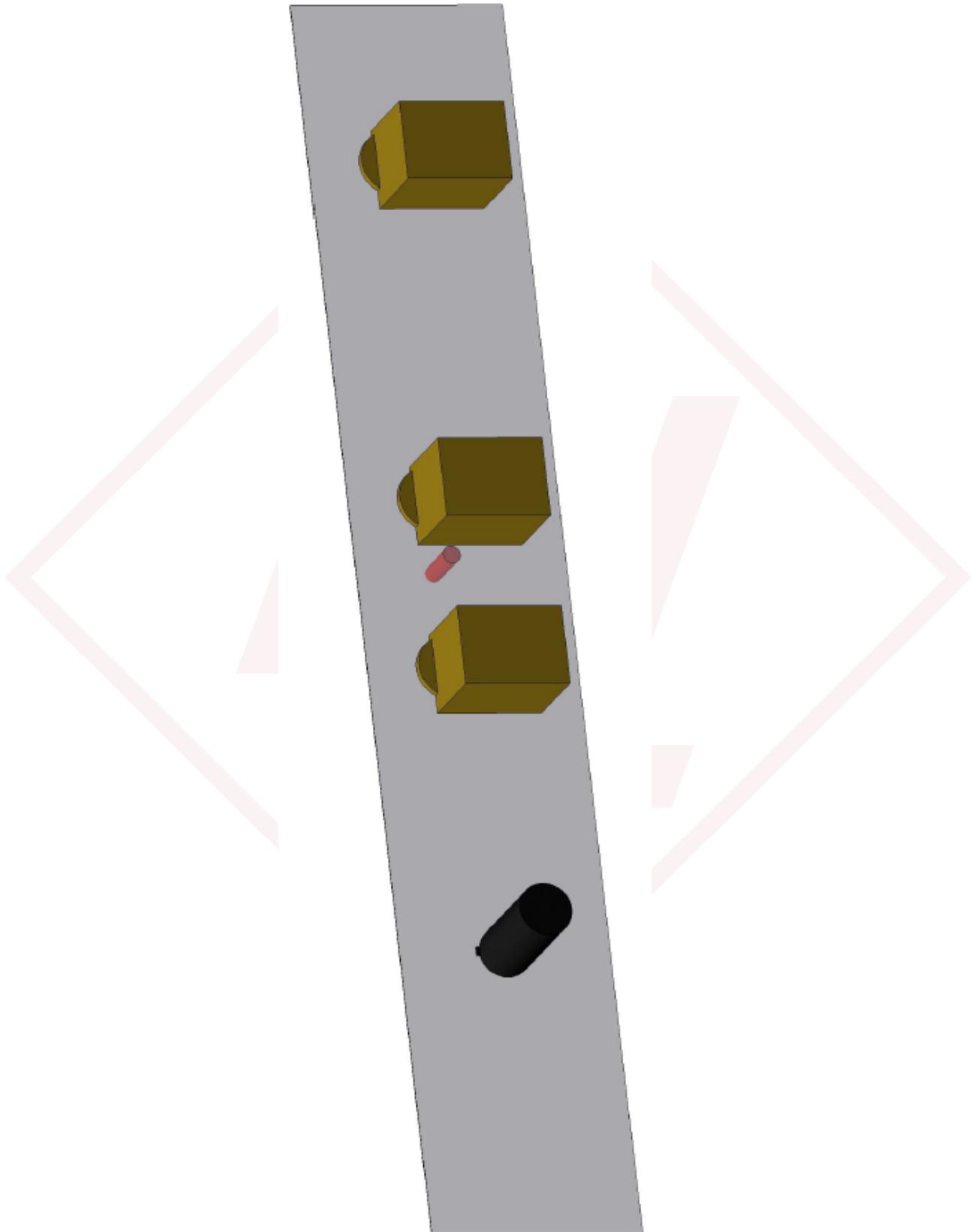
- Overheating of the motor, its thermo switch has disconnected the supply (incorrect use of the machine – overload).
- Belt tightened insufficiently.
- Warn belts touching the bottom of the grooves of the belt washers.

Repair:

- Switch off completely the machine. Wait the motor to cool down. Operate again the machine by pressing the green knob.
- Pull additionally the belts.
- Replace the belts by new ones after you have previously cleaned up the grooves of the belt washers.

## 8 APPENDICES

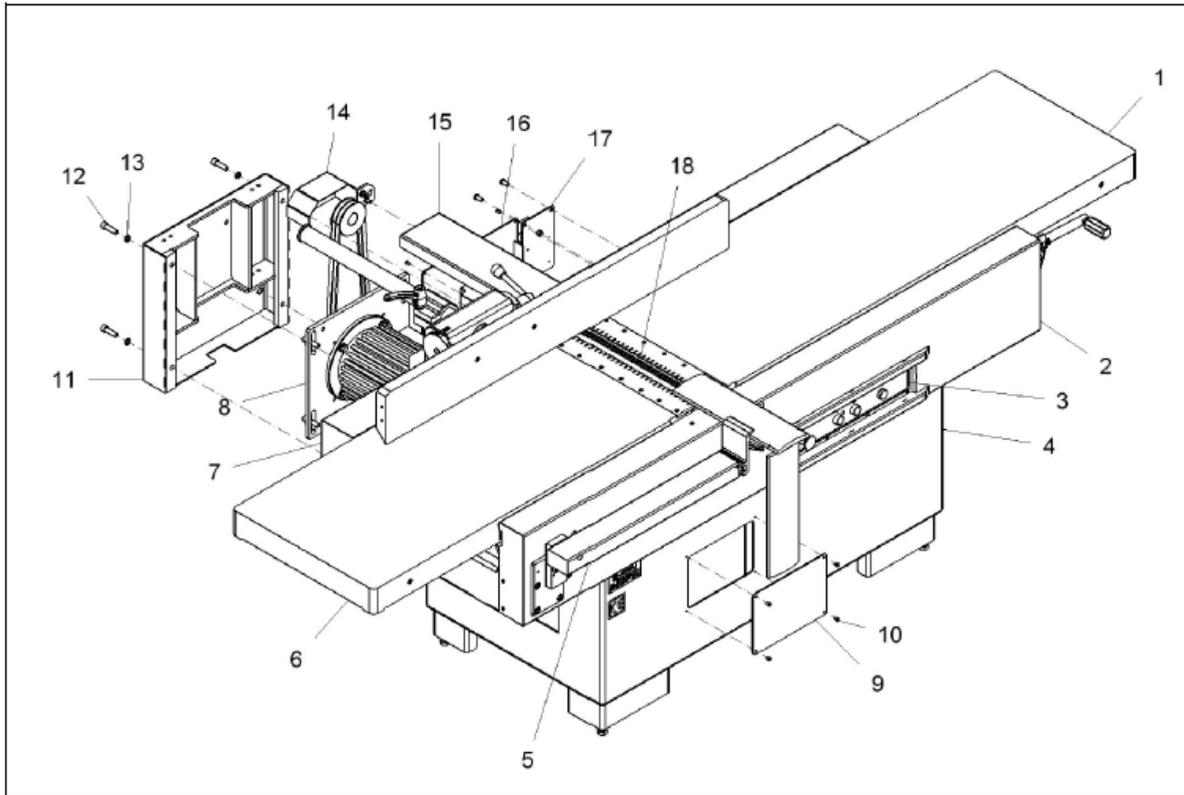
### 8.1 ELECTRIC CABINET – LAYOUT OF COMPONENTS



## 9 CATALOGUE OF SPARE PARTS

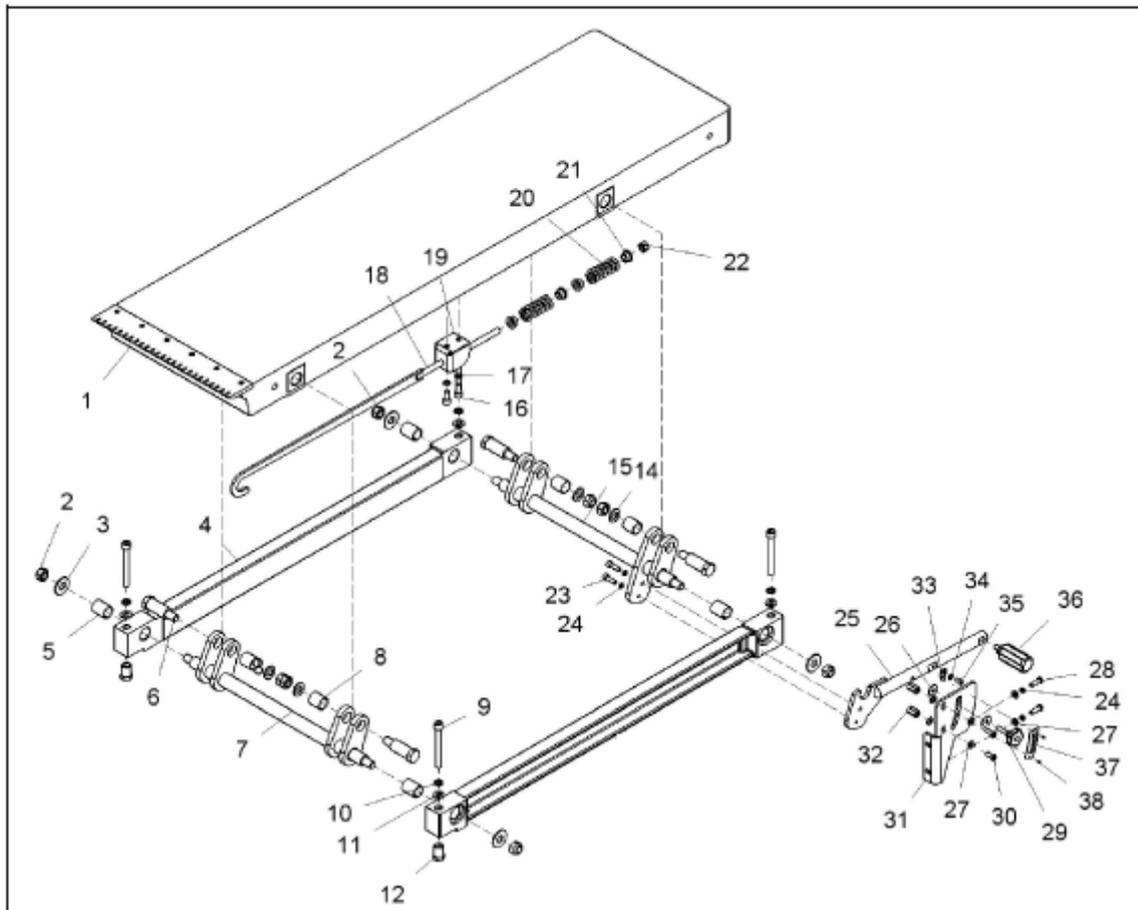
Order: Ref. No. - Denomination - Number  
 Example: AD410PRO.11.00.01 - Tie-bar - 1 psc.

### *AD410PRO.11.00.00 MAIN GEAR*



#### **DMA 41R.00.00.00.00 SMOOTHING PLANER 410**

1	DMA 41R.01.00.00.00	FRONT BOARD	1
2	DMA 53R.08.03.00.00	FRONT COVER WITH PANEL	1
3	DMA 53R.11.01.00.00	CONTROL PANEL	1
4	DMA 41R.05.00.00.00	BODY	1
5	DMA 53L.07.00.00.00	GUARD FOR PLANER TX U 650	1
6	DMA 41R.02.00.00.00	REAR BOARD	1
7	DMA 53L.08.06.00.00	REAR COVER	1
8	DMA 41L.04.00.00.00-BG	MAIN GEAR WITH MOTOR	1
9	PF 53R.00.00.00.21	COVER FOR BRAKE	1
10	ISO 7380	SCREW M 6X10	16
11	DMA 53L.08.01.00.00	COVER FOR DRILLING UNIT	1
12	DIN 912	SCREW M12X40	4
13	DIN 7980	SPRING WASHER 2-12H	4
14	DMA 53L.10.00.00.00	COVER FOR CHUCK	1
15	PF 41R.06.00.00.00	RULER	1
16	PF 53R.11.02.00.00	COVER FOR CONTROL PANEL	1
17	DMA 53R.11.04.00.00	PLATE	1
18	PF 41R.03.00.00.00	CUTTING SHAFT	1

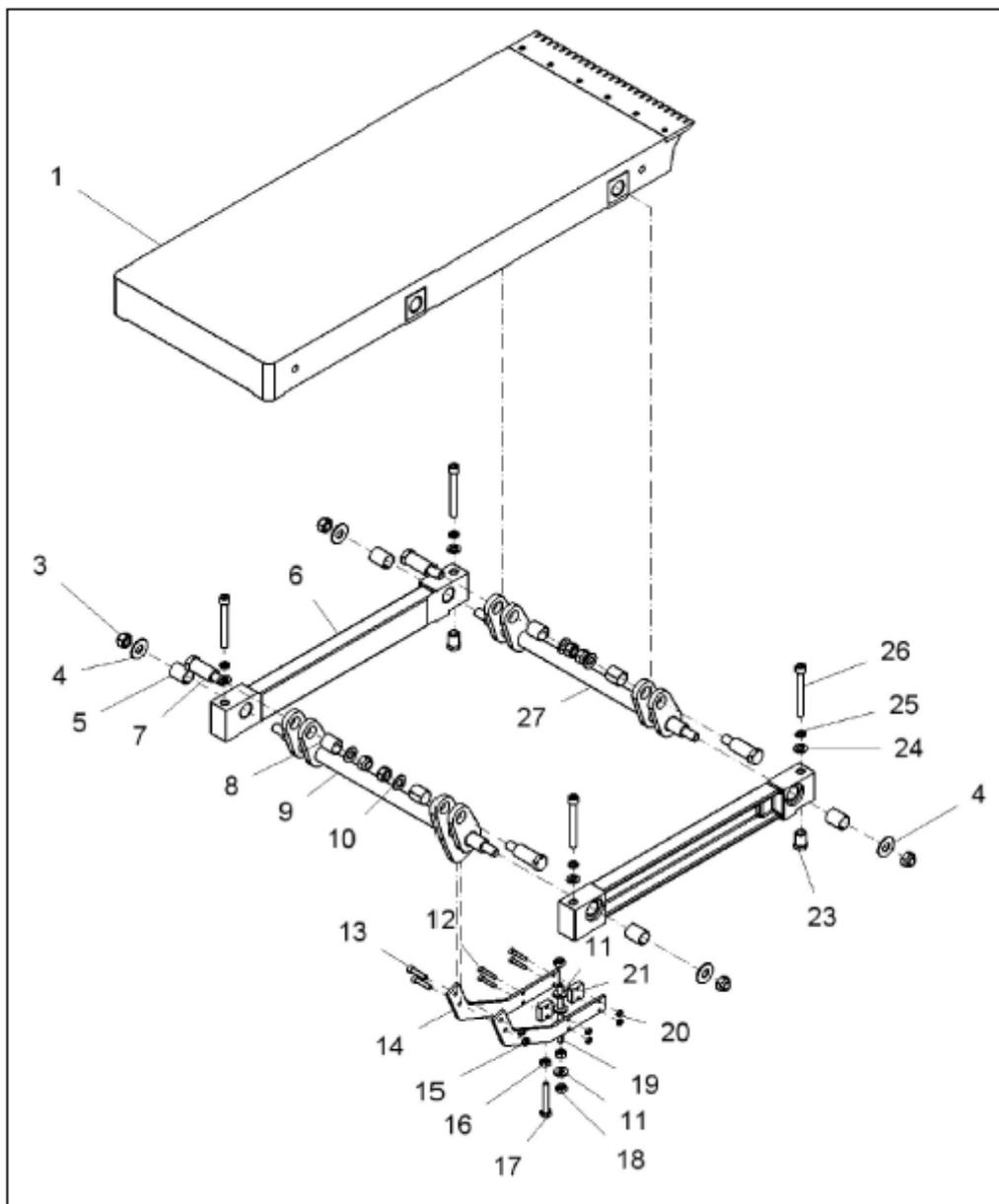


DMA 41R.01.00.00 FRONT BOARD

1	DMA 41R.01.01.00.00	FRONT BOARD	1
2	DIN 985	NUT M16	8
3	UN 737	WASHER M16	4
4	PF 53R.01.18.00.00	FRONT RIM	2
5		SLIDING BUSHING PAP 25x28x35	4
6	DMA 53L.01.00.00.09	BOLT SHORT	4
7	DMA 41L.01.02.00.00	FRONT HINGE	1
8		SLIDING BUSHING PAP 2530 P20	4
9	DIN912	SCREW M10X100	4
10	DIN 7980	SPRING WASHER 2-12H	4
11	DIN 125 A	WASHER M12	4
12	ST01.01.00.00.13	HOLLOW BOLT	2
14	DIN 125 A	WASHER M16	4
15	DMA 41L.01.03.00.00	REAR HINGE	1
16	DIN 912	SCREW M10x20	2
17	DIN 7980	SPRING WASHER 2-10H	2
18	DMA 53L.01.04.01.00	LIFTING CLAMP	1
19	DMA 53L.01.04.00.02	PLATE FOR SPRING	1
20	DMS 63-02.00.00.11	SPRING $\phi 30 \times \phi 5 \times 70$	2
21	DMS 63-02.00.00.10	GUIDING FOR SPRING $\phi 30 \times \phi 5 \times 70$	4
22	DIN 985	NUT M12	1
23	DIN 912	SCREW M8x25	2
24	DIN 7980	SPRING WASHER 2-8H	4
25	DMA 53R.01.05.01.00	LEVER FOR LIFTING	1
26	DIN 9021 A	WASHER AM 8	2

27	DIN 125A	WASHER AM 8	6
28	ISO 7380	SCREW M8x25	2
29	F178-40-M8-35	HANDLE STAR M8X20	1
30	ISO 7380	SCREW M8x20	2
31	DMA 53R.01.05.00.03	FIXING PLATE	1
32	UN 1933	NUT M8	2
33	DMA 53R.01.05.00.02	ARROW	1
34	DIN 125 A	WASHER AM 6	1
35	DIN 912	SCREW M6x12	1
36	ART.N775-38-M10	HANDLE M10	1
37	T1553	SCALE FOR LIFTING THE BOARD	1
38	DIN 7337 A	BLIND RIVET $\Phi$ 2,4X6	2

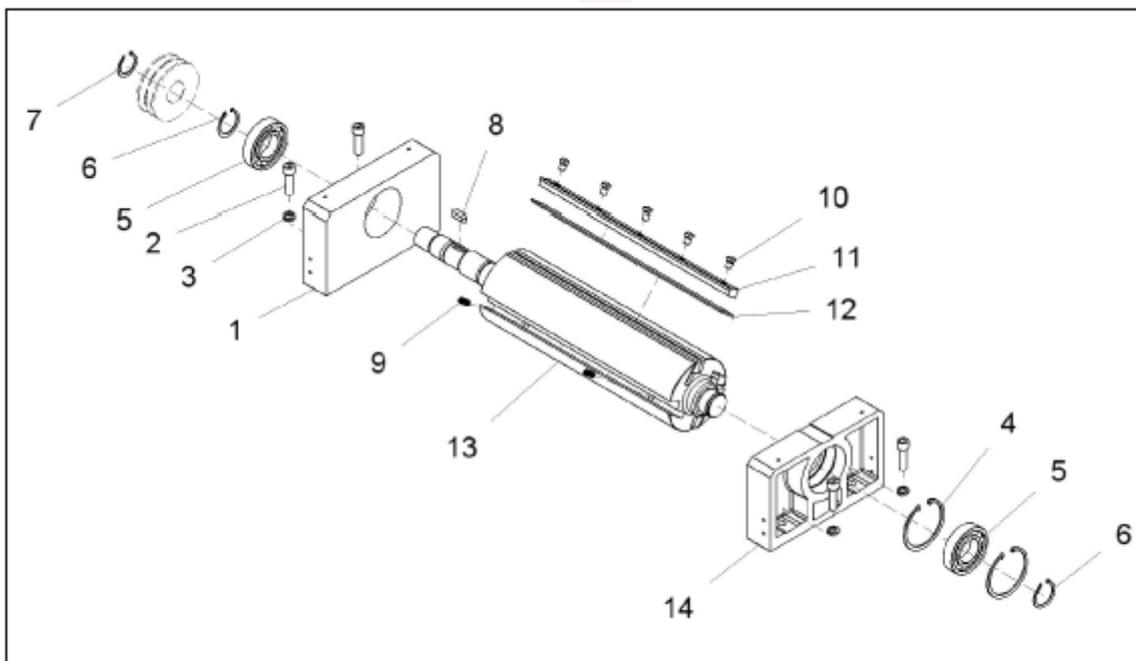




DMA 41R.02.00.00.00 REAR BOARD

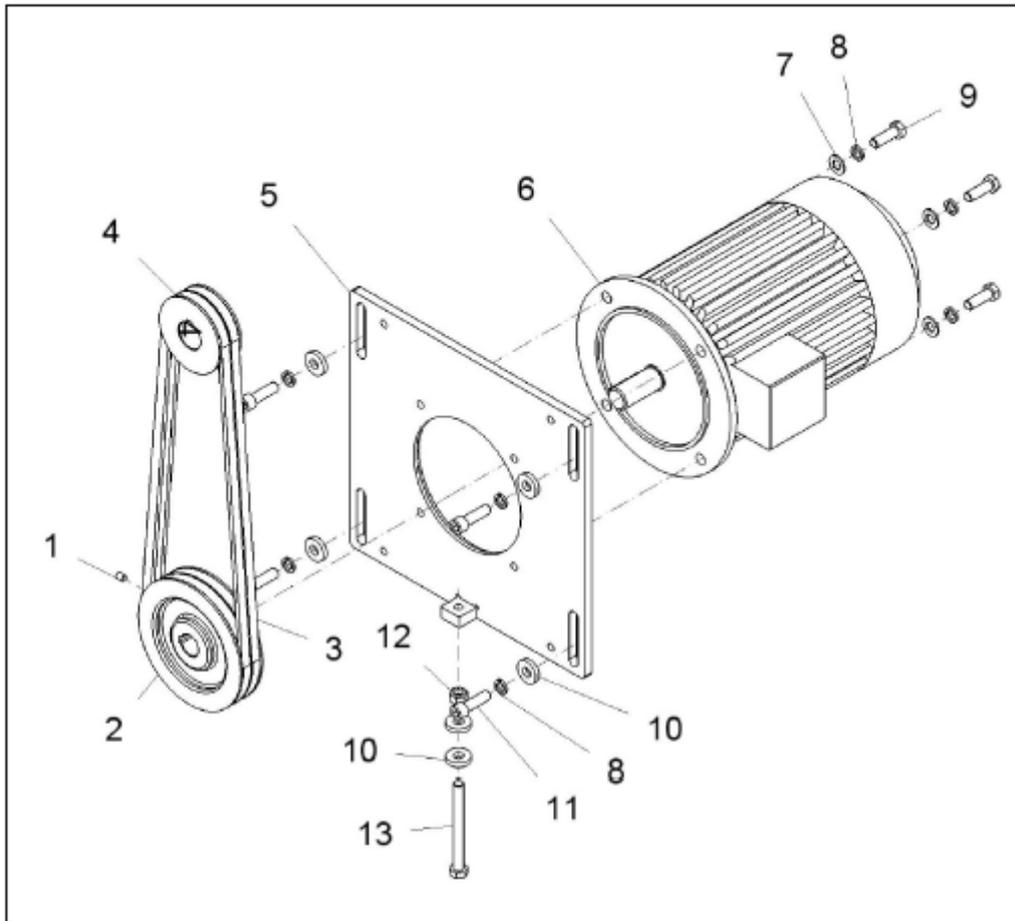
1	DMA 41R.02.01.00.00	REAR BOARD	1
3	DIN 985	NUT M16	8
4	UN 737	WASHER M16	4
5		SLIDING BUSHING PAP 25x28x35	4
6	PF 53R.02.28.00.00	SHORT RIM	2
7	DMA 53L.01.00.00.09	BOLT SHORT	4
8		SLIDING BUSHING PAP 2530 P20	4
9	DMA 41L.01.03.00.00	REAR HINGE	1
10	DIN 125 A	WASHER AM16	4
11	DIN 7349	WASHER M10	3
12	DIN 912	SCREW M 6X35	4
13	DIN 912	SCREW M8x35	2
14	PF 53R.02.00.00.12	PLATE FOR LIFTING	2

15	DIN 985	NUT M 8	2
16	DIN 934	NUT M10	1
17	DIN 933	BOLT M10X65	1
18	DIN 985	NUT M10	3
19	PF 53R.02.00.00.14	STUD M10X130	1
20	DIN 985	NUT M 6	4
21	PF 53R.02.00.00.13	TIGHTENING PLATE	2
23	ST01.01.00.00.13	HOLLOW BOLT	2
24	DIN 125 A	WASHER AM12	4
25	DIN 7980	SPRING WASHER 2-12H	4
26	DIN 912	SCREW M12X100	4
27	DMA 41L.01.02.00.00	FRONT HINGE	1



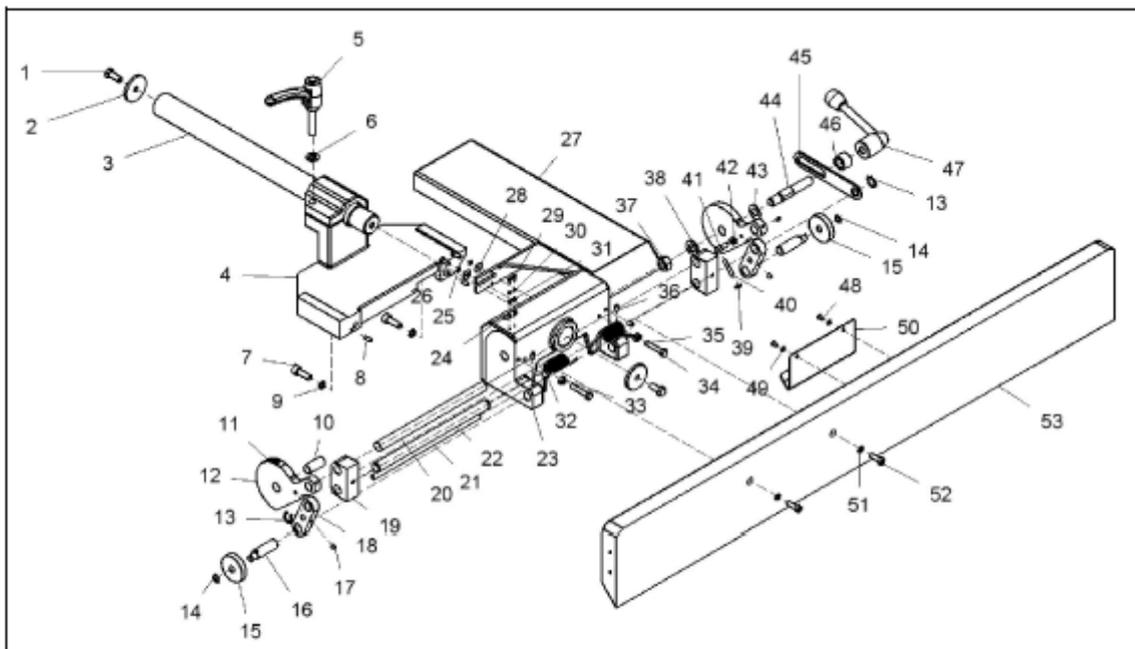
PF 41R.03.00.00.00 CUTTING SHAFT

1	DMA 53L.03.00.00.03	BEARING BOX, RIGHT	1
2	DIN 912	V M12X45	4
3	DIN 7980	SPRING WASHER 2-12H	4
4	DIN 472	RING FOR HOLE ø80	2
5	DIN 471	RADIAL BALL BEARING 6208-2RS	2
6	DIN 471	RING FOR SHAFT ø40	2
7	DIN 471	RING FOR SHAFT ø35	1
8	DIN 6885A	COTTER 8x7x28	1
9	FS32N.18.00.03	SPRING ø9x40xø1x3	2
10	PF41R.03.02.00.01	TIGHTENING BOLT M10X12	5
11	PF41R.03.02.00.01	CLAMPING WEDGE	1
12	PF41R.03.02.00.01	CUTTER HSS 410X35X3	1
13	PF41R.03.00.00.01	CUTTING SHAFT	1
14	DMA 53L.03.00.00.04-01	BEARING BOX, LEFT	1



DMA 41L.04.00.00.00-BG MAIN GEAR WITH MOTOR

1	DIN 913	FIXING SCREW M 8X10	1
2	DMA 53L.04.01.00.01	BELT PULLEY FOR MOTOR 50 Hz	1
3	SPA	BELT L=1272	2
4	DMA 53L.04.01.00.02	BELT PULLEY FOR SHAFT 50 Hz	1
5	DMA 53L.04.02.00.00	FLANGE FOR BG-112 MOTOR	1
6		MOTOR	1
7	DIN 125 A	WASHER AM12	4
8	DIN 7980	SPRING WASHER 2-12H	8
9	DIN 931	BOLT M12X35	4
10	DIN 7349	WASHER M12	6
11	DIN 912	SCREW M12X40	4
12	DIN 985	NUT M 12	1
13	DIN 933	BOLT M12X120	1



PF 41R.06.00.00.00 RULER

1	DIN 931	BOLT M10X25	2
2	PF 53R.06.00.00.09	WASHER	2
3	PF 41R.06.00.00.07	BEAM	1
4	PF 53R.06.00.00.19	CORPER	1
5	A583-108-M12-60	HANDLE M12x60	1
6	DIN 125 A	WASHER AM12	1
7	DIN 912	SCREW M10X30	2
8	DIN 913	FIXING SCREW M6X16	2
9	DIN 7980	SPRING WASHER 2-10H	2
10	PF 53R.06.00.00.03	PIN	1
11	PF 53R.06.00.00.23	SCALE	1
12	PF 53R.06.00.00.17	ARM	2
13	DIN 471	RING FOR SHAFT $\Phi$ 18	2
14	DIN 471	RING FOR SHAFT $\Phi$ 12	2
15	PF 53R.06.00.00.11	ROLL	2
16	PF 53R.06.00.00.02	ECCENTRIC	2
17	DIN 913	FIXING SCREW M6X8	4
18	PF 53R.06.00.00.18	PLATE	2
19	PF 53R.06.00.00.20	HOLDER	2
20	PF 53R.06.00.00.06	AXIS	1
21	PF 53R.06.00.00.04	AXIS	1
22	PF 53R.06.00.00.08	AXIS	1
23	PF 53R.06.00.00.16	BODY	1
24	PF 53R.06.00.00.15	ARROW	1
25	DIN 7980	SPRING WASHER 2-6H	2
26	DIN 931	BOLT M 6x16	2
27	PF 41R.06.01.00.00	GUARD	1
28	DIN 9021 A	WASHER M6	2
29	ISO 7380	SCREW M4X10	2
30	DIN 7980	SPRING WASHER 2-4H	2
31	DIN 125A	WASHER AM 4	2
32	DIN 914	FIXING SCREW M 8X16	1
33	DIN 934	NUT M8	2
34	DIN 933	BOLT M 8x45	2
35	PF 53R.06.00.00.24	SPRING	2

36	DIN 913	FIXING SCREW M 8X10	3
37	DIN 934	NUT M16	1
38	DIN 125A	WASHER M16	1
39	DIN 934	NUT M6	1
40	DIN 913	FIXING SCREW M 6X35	1
41	PF 53R.06.00.00.12	BOLT	1
42	DIN 439	NUT M 8	1
43		AXIAL WASHER AS 1730	1
44	PF 53R.06.00.00.05	STUD	1
45	PF 53R.06.00.00.13	ARM	1
46	PF 53R.06.00.00.10	BUSHING	1
47	W501.140.SN1601	HANDLE LEVER M16	1
48	ISO 7380	SCREW M 5x10	2
49	DIN125A	WASHER AM5	2
50	PF 53R.06.00.00.14-01	PROFILE	1
51	DIN 7980	SPRING WASHER 2-8H	2
52	DIN 6912	SCREW M 8X25	2
53	PF 53R.06.00.00.21	RULER	1

