STRATOS FU-230

WOOD TURNING LATHE

KS DREHSELBEDARF

Translation of the Original Instruction Manual

Dear Customer,

Thank you for choosing the Stratos Wood Turning Lathe.
The Stratos is a wood turning lathe that combines innovations with proven methods. The result of the cooperation between experienced wood turners and engineers is a great value-for-money wood turning lathe that is eminently suitable for beginners, advanced craftsmen, professionals and artists. Continuing to support you is important to us. If you have any questions about our products or service, please call us or send us an email.

We look forward to hearing from you. Your experiences enable us to keep improving the quality of this wood turning lathe.

Kind regards

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Explanation of symbols

Use eye protection

Use breathing protection

Use hearing protection

Environmentally hazardous substances

Use protective footwear

Direct risk to health and serious injuries

Damage or risk to people, the lathe, material or the environment

Information on the economical use of the wood turning lathe

Important information

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Introduction

This handbook contains instructions for assembly, safety notices, general operating and maintenance instructions and spare parts lists. The design and construction of the Stratos 230 are intended to enable you to work with the machine without problems for many years, if you comply with the recommendations specified in this manual.

1. Basic health and safety notices

Serious injuries can be caused by non-compliance with the following rules and warnings as well as with the safety notices specified in this operating manual and on the machine itself.

- **In the interest of your own safety. Read the operating instructions before starting the assembly and before commissioning the machine.**
  Store these operating instructions in a safe place and also pass them on if you hand over the wood turning lathe to someone else.
- **Do not make technical changes. The machine has been designed for working exclusively with wood.**
  Familiarize yourself with the applications and restrictions of the machine and associated risks. If the machine is not used for its intended purpose, the vendor will not bear any direct or indirect warranty claims. Furthermore, the vendor is not liable for injuries caused by the non-intended use of the machine.
- **Get informed before the initial use of the machine.**
  If you are not familiar with the functions of a wood turning lathe, find competent help. We urgently recommend an introduction to handling a wood turning lathe by an experienced person. Drechselbedarf Schulte offers appropriate courses.
- **When young people are using the machine,** the relevant legal requirements of the respective country must be complied with.
- **Physical suitability.** Users have to be physically fit and be introduced to the use of a wood turning lathe by a competent person prior to initial use. Handicapped persons may use the machine only after previous consultation by a specialist and with auxiliary resources, if applicable.
- **Keep children and visitors away from the work place.**
  Children and visitors must stay in a safe zone outside the working area. Make the working area child-proof by locking the workshop and by disconnecting the supply line or making sure it can be isolated.
- **Wear suitable clothing.**
  There is a risk of injury from rotating parts. Wear tight-fitting clothing. Take off scarves, rings, bracelets and other jewelry and garments that could get caught by the rotating parts. Wear sturdy protective footwear and ensure the floor is non-slip. Wear headgear/a hair net to protect long hair. Avoid wearing gloves which may be caught during the wood turning process.

- **Use Personal Protective Equipment (PPE).**

  Hearing protection: For extended periods on the wood turning lathe, wear hearing protection. Different materials can generate increased noise levels during wood turning.

Safety goggles/face mask: Always wear safety goggles when working with the machine. Always use adequate eye/face protection. Conventional eyeglasses are generally only shock-resistant and safety goggles only protect the eyes. Face protection protects the eyes and the face.

Breathing protection: Different types of wood, exotic wood materials and other harmful substances as well as tasks such as sanding, sawing and drilling can generate harmful dust. Therefore, only ever operate the machine in well-ventilated rooms and wear breathing protection (PPE). Also use suitable dust extraction and/or filtration of the circulating air. If you are using the wood turning lathe commercially, statutory safety regulations of the respective country must be complied with.

- **Do not work in a damp and dangerous environment.**
  The Stratos Wood Turning Lathe has been exclusively designed for use indoors.
  Protect the wood turning lathe from damp and humid locations. Do not subject the machine to moisture. Ensure the working environment is sufficiently lit and ventilated. Avoid areas with an explosive atmosphere. Non-compliance with these rules can lead to loss of warranty.
- **Keep your work place clean.**
  Untidy work places and surfaces can cause accidents. Only after all objects (tools, pieces of wood etc.) have been removed from the wood turning lathe, should you turn on the machine. Keep the immediate working area and the floor free from dirt and offcuts. Accumulated wood chippings are a fire risk and can cause accidents.
- **Fire prevention**
  Observe fire detection and fire fighting options such as location and operation of fire extinguishers.
- **Comply with electrical safety standards.**
  Pay attention to the appropriate electrical installation to which you connect the wood turning lathe and only ever use the supplied safety plugs. Do not use extension leads.
  The isolated sockets used must be fused with a 16 amp supply.

  Disconnect the machine from the power supply before carrying out maintenance or repairs.
- **In the event of a power outage**, the work piece will continue to spin freely. The machine slowing down can take some time.
- **Prevent unintentional starting.**
  Make sure that the main switch is in the "**OFF**" position when connecting the wood turning lathe to an isolated socket.
- **Never leave the machine running unsupervised.**
  Leave the machine only when it has been turned off and has come to a standstill.
- **Safety devices**
  Make sure the available safety devices are in their position and kept operational.
- **Use the appropriate tools.**
  Only ever use suitable tools or accessories for wood turning. Avoid unnecessary load on the tools. Maintain the wood turning tools in a good condition**.** Sharp and clean tools help ensure the best and safe results. This includes the correct position of the tool in relation to the work piece.
- **Never climb on the machine and tools.**
  A tilting machine or a cutting tool which is accidentally touched can cause serious injuries.
- **Remove adjusting wrenches and spanners.**
  Never leave the T-bar handle in the chuck. When starting the chuck, the T-bar handle can be ejected and cause serious injuries. Get into the habit of checking that all tools have been removed from the machine before turning it on.
- **Cleaning the wood turning lathe.**
  Turn off the wood turning lathe before cleaning it. Remove wood chippings and dirt with a brush. Important: After green or wet turning, the lathe bed must be cleaned immediately!
- **Attention during work.** Concentrate on your work. Distractions caused by conversations or carelessness can cause serious injuries.

Always ensure the correct posture and your balance.
Do not use the machine if you are **tired** or under the influence of **drugs**, **alcohol** or **medication**.

- **Check for damaged parts.**
  Before using the wood turning lathe or tools, carefully check them for damage. Ensure that these items are in an appropriate condition and that they are fit for purpose.
  Check the alignment and attachment of moveable parts. Faulty parts can impact operation and cause injuries. Damaged parts must be repaired or replaced by a professional.

- **Working with the wood turning lathe.**
  With the electric current turned off, check, by turning the spindle with your hand, that the work piece can be rotated freely.
  Check the work piece for parts that may break off it during the wood turning process. Remember when using adhesives that cyanoacrylate super glue can remain liquid for hours in cavities or wide splits. It can be thrown outward because of the centrifugal force and be ejected in the same direction as the wood chippings, i.e. toward the wood turner, potentially causing injuries or representing a health hazard.
  Always check whether the correct speed is set before turning on the spindle.
  Use the lowest speed for new work pieces or work pieces that are not round.
  Turn using the recommended speed (Table in Fig. 49 and Fig. 50).
  Never slow down the work piece with your hand.
  Position the tool rest as close to the work piece as possible (about 5-10 mm). Before each start, turn the work piece with your hand in order to ensure that it rotates freely. Use the handwheel for this.
  Turn off the wood turning lathe every now and then in order to position the tool rest ideally.

2. Intended Use

The Stratos 230 Wood Turning Lathe has been designed and built for turning work using wood materials, horn, bone and plastics in small sizes. Processing of other materials is not permitted or may only take place in particular cases after feedback with the equipment manufacturer.
The wood turning lathe must exclusively be used for turning between centers and face plate turning of round and regularly shaped, prismatic work pieces.
The wood turning lathe is not suitable for use in environments with a risk of explosion.
In the event of **non-**intended use of the machine, risk to people and material damage can result, as well as the machine's function being compromised.
If the wood turning lathe is used for anything other than listed above, its use will be deemed as non-intentional. As the manufacturer, we will not accept any liability for damage caused in this way.

3. Technical data

Overall dimensions
Length x height x depth ..... 1,350 mm x 1,250 mm x 500 mm

Weight
Bench top (without cast iron stand) ..... 113 kg
Stand ..... 65 kg
Total weight ..... 178 kg

Distance between centers ..... 700 mm
Distance between centers with 400 mm bed extension ..... 1,100 mm

Height of centers ..... 230 mm

Headstock
Spindle thread ..... M33 x 3.5 mm
Bore ..... No. 2 Morse taper (MT2) with a through-hole of 15 mm through headstock
Index with viewing window ..... 24-position indexing (in 15 degree increments)
Spindle lock 9-way
Sliding headstock pivots by 180 degrees with detent positions at 0, 22.5, 67.5, 90, 112.5 and 180 degrees

Power unit ..... ~230 Volt, three-phase motor, IP54, 1,420 rpm, 50 Hz 1,500 W
..... Variable speed control of the motor by the potentiometer on the movable control unit.

Mains supply ..... 230 Volt ~ 1/N/PE 50 Hz

Speed stages (rpm on the spindle) ..... Stage **I** 180 – 3,700 rpm and Stage **II** 80 – 1,350 rpm
..... by moving the Poly-V belt (reduction Level II 2.74: 1).

Tailstock
Bore ..... No. 2 Morse taper (MT2) with 9 mm through-hole
Quill travel ..... 100 mm with scale

Tool rest ..... 350 mm with 1“ stems

Emission sound pressure level ..... <79 dB (A)

Outrigger optional with bed extension
Work piece diameter ..... max. 800 mm
Work piece thickness ..... max. 200 mm

Basic equipment
350 mm tool rest, 150 mm face plate, MT2 live center, 25 mm spur center, face plate wrench to loosen the face plate, holder for tools and movable control unit, knock out bar and English language operating manual.

Optional accessory
Outrigger and machine bed extension (400 mm) in one with extension stems for the tool rest. Cast iron machine stand, prepared on three sides for outrigger.

Rating plate

Modell / Type	Stratos FU-230	CE
Motor / Power	3~230 V 50 Hz 1,5 kW	
Techn. Daten / Specification	0-3700 U/min(RPM)/ M33x3,5 / MK2	
Baujahr / Year		
Gewicht / Weight	178 kg (113 kg Tisch- / Table-Version)	
Serien-Nr. / Series No.	D	
Hersteller / Manufacturer	Drechselbedarf Schulte Meppener Str. 111 , D-49744 Geeste Deutschland	

Fig. 1

4. Description of functions

A wood turning lathe is a machine with which cylindrical or prismatic wooden work pieces are generally processed. For this, work pieces are secured between headstock and tailstock using a drive center (headstock) and live center (tailstock) or a particular clamping device (chuck, face plate) and driven via an electric motor.
Drive is from an electric motor via pulleys to the spindle. Stratos has two speed stages (gear ratios) that you can select. Fine-tuning of the speed takes place via frequency conversion which is regulated by a potentiometer (POTI in short) on the movable control unit, so you can steplessly set the speed in the respective speed stage. This will help you select the appropriate speed corresponding to the diameter and the shape of the work piece. It will improve safety during wood turning and the quality of the work piece surface.
In order to turn on the power unit, first turn the **main switch** (see Fig. 47) clockwise until it clicks into place. On the movable control box (Fig. 2), switch on the motor and increase the speed on the potentiometer.

Automatic deactivation
Stratos is equipped with a zero-voltage switch which deactivates the lathe in the event of a power outage or when the pulley cover is lifted, and it prevents restarting when the power has been restored. The speed can also be turned off via the frequency converter in the event of overload during wood turning. In order to restore the wood turning lathe to operation in any case, the cause must be eliminated. In the event of a power outage, power must be restored. If the cover has been lifted, it must be closed again. In the event of overload, the load must be reduced or the pulley with a lower speed must be chosen.

Using the tool rest, the turning tools are manually moved toward the work piece. This poses a risk of injury because the resulting cutting forces have to be countered by the user.
In order to compensate for the resulting forces, the turning tools must always rest firmly on the tool rest.
It is important that you read the operating instructions carefully before initial use in order to familiarize yourself with the risks that can be created by the operation of the machine (in particular rotating parts, resulting forces and risk of injury).
If you have no experience with wood turning, please get informed before working with the wood turning lathe. In order to do this, ask someone with experience in wood turning and have them train you.
At our site, we are offering beginners' and advanced courses.

5. Safety devices

The safety devices are for the protection of people and material property. Without intact safety devices, severe injuries can be the consequence.

Danger!	
	The wood turning lathe must always be used with functioning safety devices. Turn off the lathe immediately on noticing that a safety device is faulty or has been removed! All accessories added by the user must be equipped with the specified safety devices.

EMERGENCY STOP/OFF and ON Function

The lathe is equipped with a red combination switch (0) with which it can be **EMERGENCY STOPPED** as well as stopped in the conventional way (Fig. 2). By pressing the **red** button (0), all machine functions are deactivated.
To restart, press the **green** ON button (I).

The toggle switch is used to activate the machine's reverse operation.
The potentiometer regulates the speed.
.

Fig. 2

Warning signs on the wood turning lathe
The warning signs on the wood turning lathe are for your safety. Always keep them legible and observe their meaning (see Fig. 2a, Wear safety goggles).

Fig. 2a

Overview of other safety devices
The wood turning lathe is equipped with various safety devices:

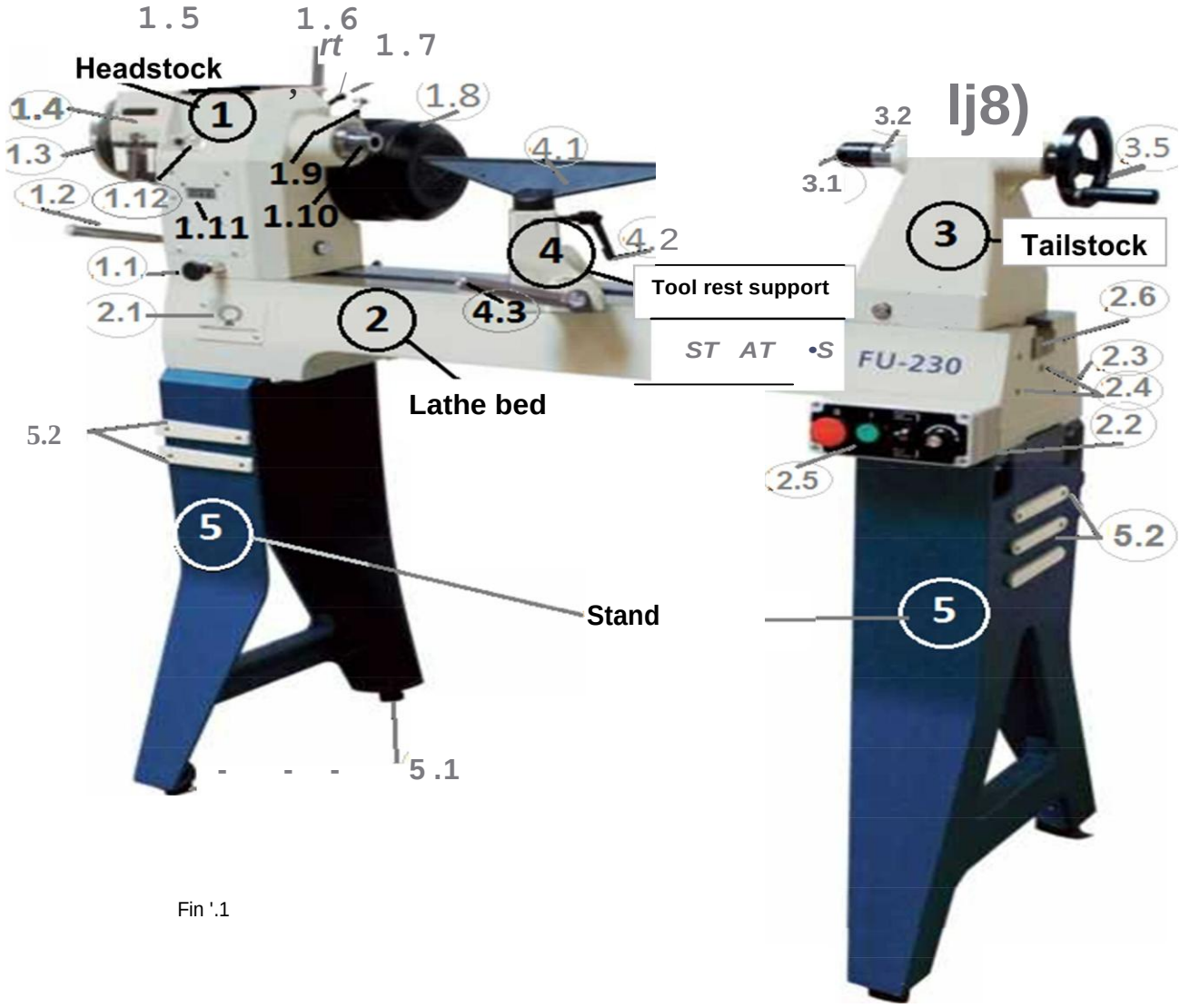
1. Electrical grounding conductor which is connected to the local mains supply via the safety plug.
2. Cover with interrupter switch over the pulley drive.
3. Electric motor cover.
4. Emergency stop via the movable control unit.
5. Stop rods on both lathe ends.

6. Installation site requirements

Requirement	Recommendation
Lathe installation site	Position the Stratos 230 close to a power source (isolated socket). Ensure the floor is level, solid and stable. Leave sufficient space around the machine. Also consider sufficient space for when the headstock has been rotated, for the bed extension and/or the outrigger. Other machines in the workshop must not interfere with the lathe's operation.
Lighting and ventilation	Ensure adequate lighting (lighting intensity according to DIN 5035) and ventilation. Also use adjustable lighting for your working area at the lathe so no shadow is cast on the work piece. We recommend a light source with a value of at least 300 LUX, or even better, 500 LUX at the cutting edge of the tool. If possible, position the machine close to a window.
Electrical equipment	To operate the wood turning lathe, a suitable, conventional 230 V isolated socket fused with a 16 amp supply is required. Electric cables and sockets must comply with local electricity regulations. If in doubt, ask your electrical specialist. Avoid the use of an extension cable (see Chapter "Connecting the wood turning lathe to the mains supply").
Ventilation	Adequately ventilate your work place. The degree of ventilation depends on the size of the workshop and the number of work pieces being processed. The use of dust extractors and filters reduces health hazards.
Working height	Set up the working height of the wood turning lathe so the spindle center is at the same level as the user's elbow.
Working area	When securing the lathe to the floor, free space around the lathe of at least 80 cm is required for repairs and maintenance work.
Stand	If the lathe is used without a stand, the operator must choose a suitable installation surface. In this case, the outrigger cannot be used.

7. Assembling the wood turning lathe

Description of the wood turning lathe



Fin '.1

1 Headstock
1.1 Headstock pivot locking pin
1.2 Headstock clamping lever
1.3 Handwheel
1.4 Pulley cover
1.5 Rubber tray
1.6 Motor clamping lever
1.7 Quick-release lever for motor locking mechanism
1.8 Electric motor
1.9 Spindle locking pin
1.10 Spindle with M33 thread
1.11 Digital speed display
1.12 24-position locking pin

2 Lathe bed
2.1 Main switch
2.2 Movable control unit holder
2.3 Tool holder (rear)
2.4 Holes for outrigger bed extension
2.5 Movable control unit
2.6 Stop rod

3 Tailstock
3.1 Live center
3.2 Quill
3.3 Quill fine adjustment (on the rear)
3.4 Quick-release lever for quill locking mechanism (on the rear)
3.5 Handwheel

4 Tool rest support
4.1 Tool rest
4.2 Quick-release lever
4.3 Tool rest support clamping lever

5 Stand
5.1 Level adjusting feet
5.2 Anchor points for bed extension

 © Drechselbedarf Schulte

Assembly information:

We carefully packaged the machine at our site. Upon receipt, please check the packaging for damage or whether the machine has become damaged during transport as well as whether the contents are complete. In the event of complaints, please report them to your supplier immediately and do not start using the machine. Claims at a later stage will not be accepted. Using this machine with others can lead to loss of warranty.
The packaging is made of raw material and can be returned to the raw materials cycle via the available local collection sites. Dispose of the packaging material only when the wood turning lathe has been assembled and is functioning properly.
Carefully read the operating manual beforehand!

Warning!	
	• Be aware of the weight of the individual components and handle them carefully to avoid causing yourself any injuries. • Ensure that all bolted joints are tight but not over-tightened. Check all bolted joints for tightness after eight operating hours. • During assembly, put the headstock down in such a way that the cable connections are not damaged and the cables are not disconnected under any circumstances. • The cast iron stand was developed for use with the Stratos 230. Using it with other machines can lead to injury.

Tool and resource recommendations for assembly:

- To support the headstock, two timber bearers are needed.
- 14 mm wrench, Phillips screwdriver, Allen key for loosening the face plate from the spindle and the mounting parts.
- Commercially available spirit level.
- Timber board (length x width) 1,150 x 100 mm and about 20 mm thickness with two holes of Ø 9 mm according to the drilling template (see Appendix 4) to secure the stand during assembly.
- A second person is essential during assembly.

Fig. 4 Delivery contents

Fig. 5 Accessories

Lathe bed, headstock, tailstock and tool rest support with tool rest are one unit.
The stand and the accessories are packaged in separate boxes (Fig. 4 and 5).

Delivery contents

A Lathe bed (see Fig. 15) with headstock, tailstock, tool rest support with tool rest 350 mm (1“ stems).
B Stand (see Fig. 10).
C Live center
D Spur center 25 mm, MT2.
E Knock out bar.
F Feet, height adjustable, 8 x 3/8“ x 50 mm (Fig. 12).
G Bolts 8 x 3/8“ for fixing the lathe bed to the stands.
H Morse taper double-sided, MT2, for aligning the centers.
I Allen keys 3 and 4 mm.
J Face plate wrench to loosen the face plate from the spindle.
K Face plate 150 mm with M33 x 3.5 mm thread with 2 set screws 5 mm (Fig. 8).
L Tool holder for the rear of the lathe bed (Fig. 7).
M Control unit holder for the front of the lathe bed (Fig. 11).
N In the accessory set, there is a stainless steel handle which has to be attached to the top of the motor flange. It is used to loosen the Poly-V belt.

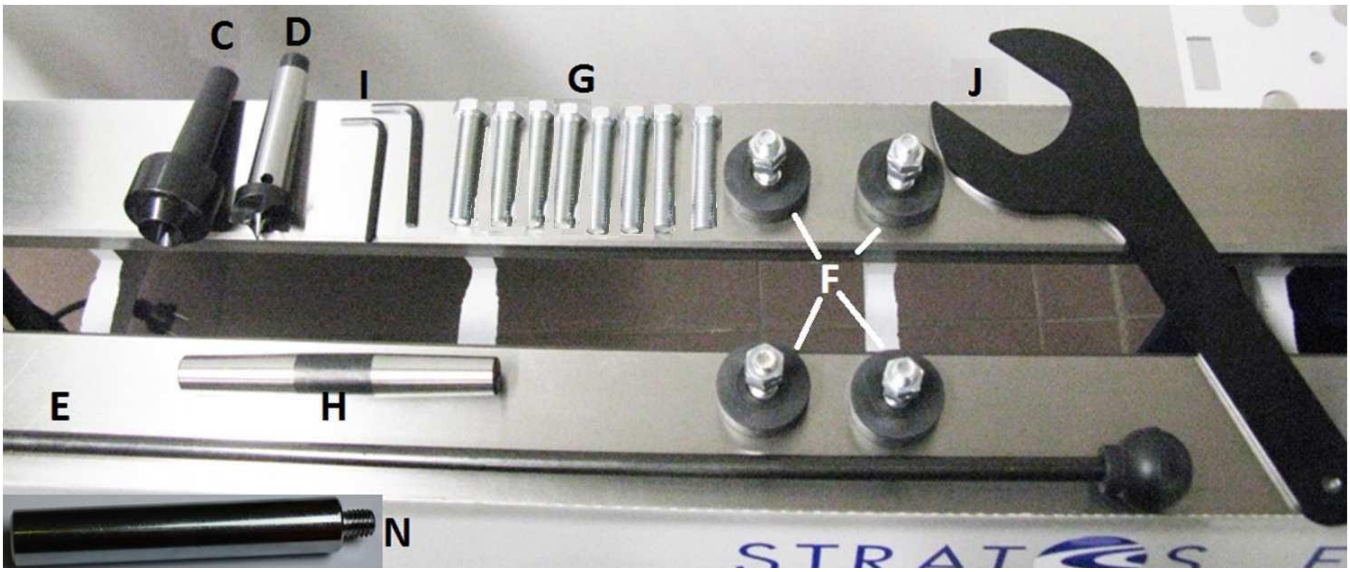


Fig. 6 Accessories

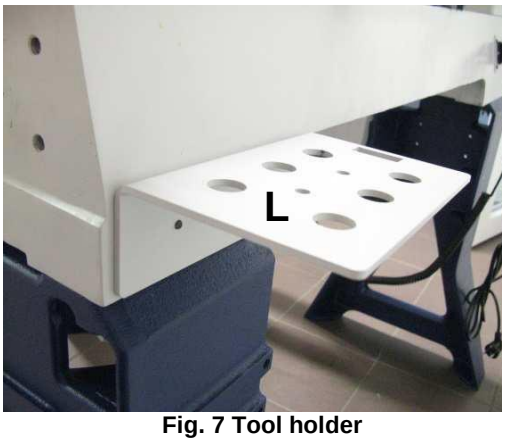


Fig. 7 Tool holder

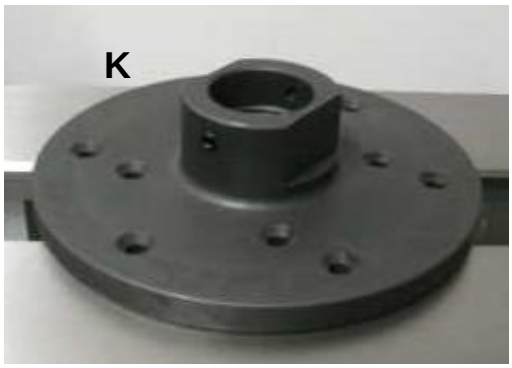


Fig. 8 Face plate with set screw

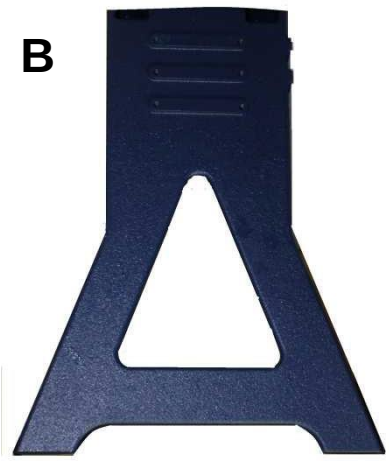


Fig. 10 Stand

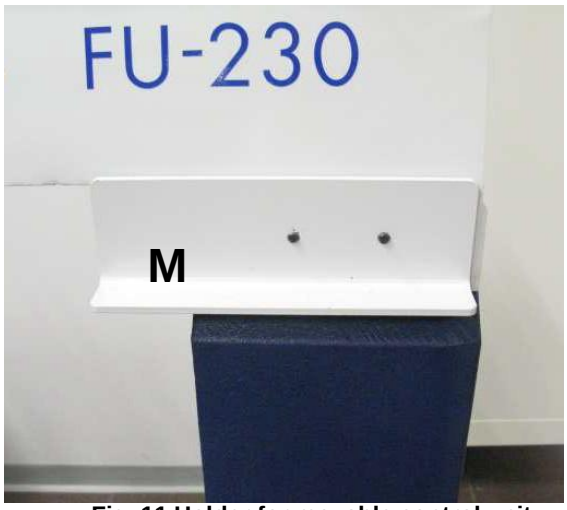


Fig. 11 Holder for movable control unit

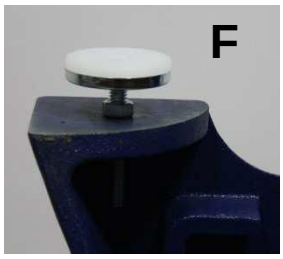


Fig. 12

Danger!

- During machine assembly, always make sure that your fingers do not get trapped in between the parts. Risk of crushing!
- Be aware of the weight of the individual components and handle them carefully to avoid causing yourself any injuries.

Preparing to attach the stands to the lathe bed.

The two stands can be used on the left and the right.

Place them flat on the floor and attach the feet to the threaded holes on the bottom. Secure them with suitable hex nuts. To ensure that the wood turning lathe is positioned securely and horizontally, you can alter the level adjusting feet nuts at any time. To level the lathe, use a commercially available spirit level.

The feet can be omitted if the floor is level and even and the working height is sufficient.

The feet are used to compensate for unevenness and to adjust the working height by up to 50 mm (rule of thumb for lathe height: elbow at spindle height).

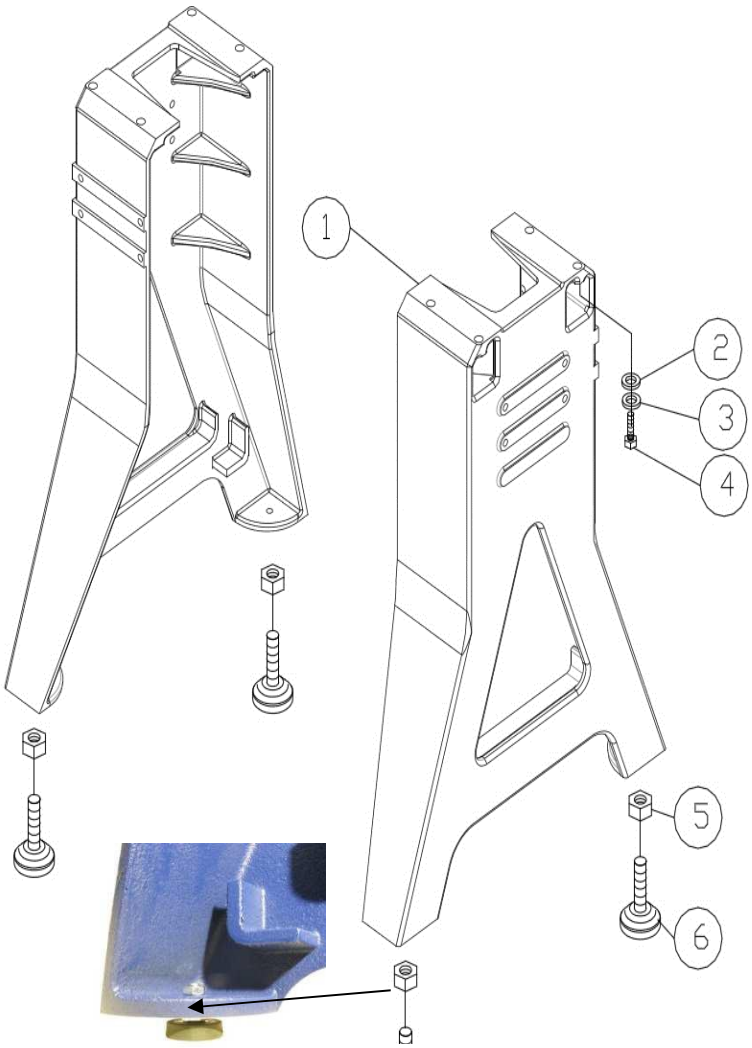


Fig. 13

Attach the prepared timber board (use the drilling template Appendix 4) to the fixing points (see Fig. 14) on the left stand for the outrigger using the supplied 3/8“ bolts. Then align the stand in such a way that it is flush with the board, and secure the board on the right stand using a bar clamp.

Fig. 14

Before fixing the lathe bed to the stand, reduce the weight of the lathe bed. Remove the plastic cover, headstock, tailstock and tool rest support. To do this, loosen the stops on both ends of the lathe bed (Fig. 16) and watch out for the connected cables.

Using two people, lift the headstock from the lathe bed guide and place it on two timber bearers next to the lathe between the stands (Fig. 17 + 18).
Advice: Lock the spindle in place and insert a 12 mm bar into the hollow spindle for easier transport.
Make sure that cables do not get damaged.
Using two people, lift the empty lathe bed (Fig. 19) onto the stand and align it.

Fig. 15 Lathe bed with headstock, tool rest and tailstock

Fig. 16 Removing the stop rod

Fig. 17

Fig. 18 Putting down the headstock

Fig. 19 Placing the lathe bed onto the stand

Now fix the lathe bed to the stand with the remaining two bolts. First, hand-tighten the bolts so you can adjust the lathe bed and the feet after removing the bar clamp. After tightening the two bolts on the lathe bed, you can remove the timber board and tightly connect the lathe bed using the supplied bolts.

Fig. 20 Connecting the lathe bed to the stand

Using the spirit level, check that the lathe bed is level. If required, adjust the lathe using the feet.

Fig. 21

Fig. 22

Using two people, carefully lift the headstock into the lathe bed guide.

Fig. 23

First, place the tool rest support on the lathe bed, then the tailstock.
Now replace the stops (stop rod and stop plate) at the ends of the lathe bed.

Fig. 24

 © Drechselbedarf Schulte

Fig. 25

Now insert the stainless steel handle (N) into the specified socket on the motor flange to tighten the drive belt.

Fig. 26

Attach the holder for the movable control unit to the front right of the lathe bed.
The tool holder is attached to the opposite rear of the lathe bed (Fig. 7).
Both parts are secured with two Allen set screws each from the inside of the lathe bed.

Fig. 27

Aligning the headstock

Loosen the headstock and rotate it so it is aligned with the lathe bed and the tailstock. Mount the double ended Morse taper (H) in the tailstock and, using the tailstock, insert it into the spindle so that it slides in without resistance.

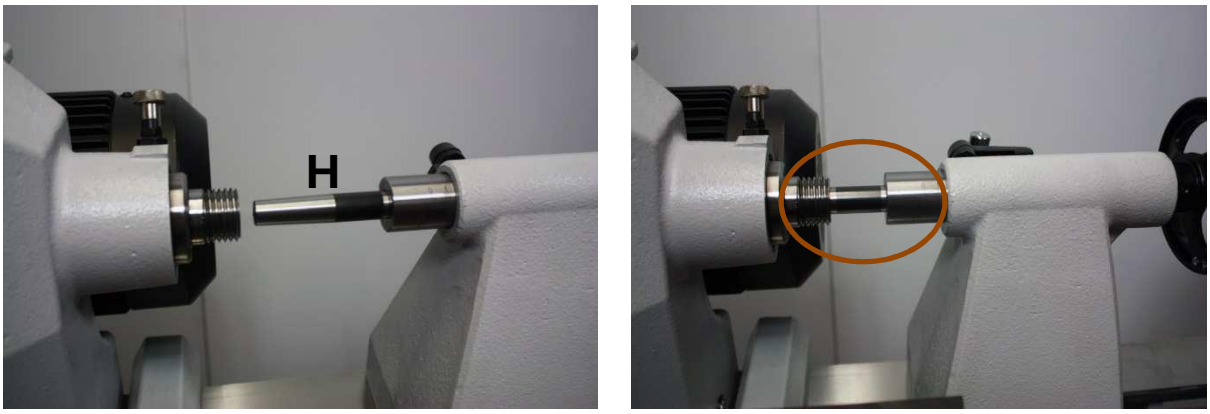


Fig. 28

If required, align the headstock accordingly. When quill and spindle are aligned, lock the headstock in position using the clamping lever.

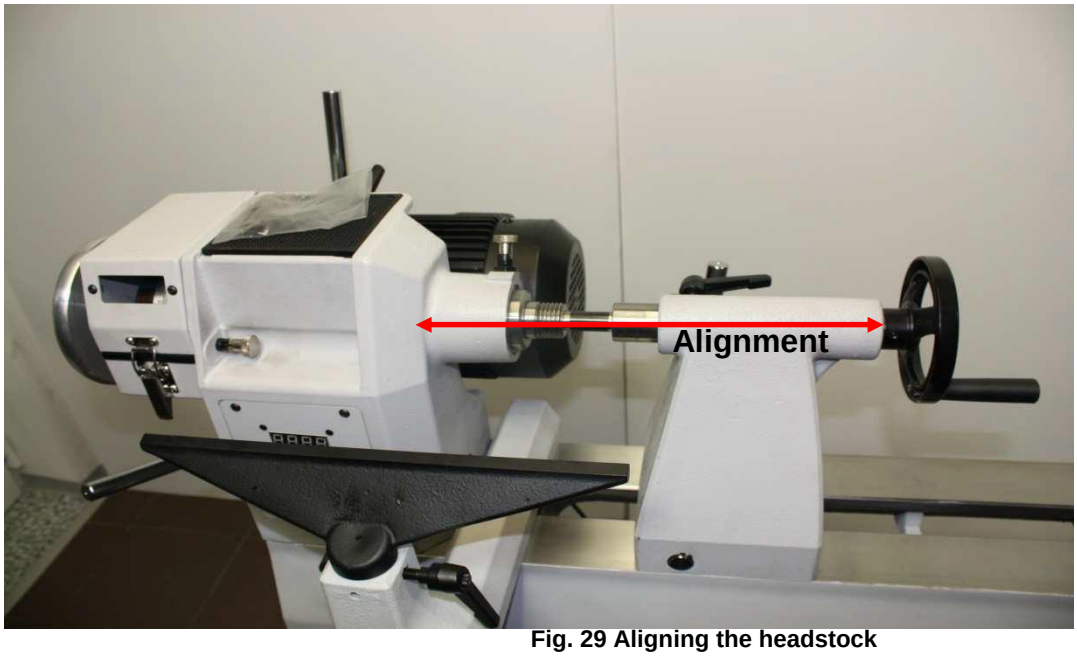


Fig. 29 Aligning the headstock

Warning!	
	You must repeat the process of aligning the headstock whenever you have rotated it, such as when using the outrigger.

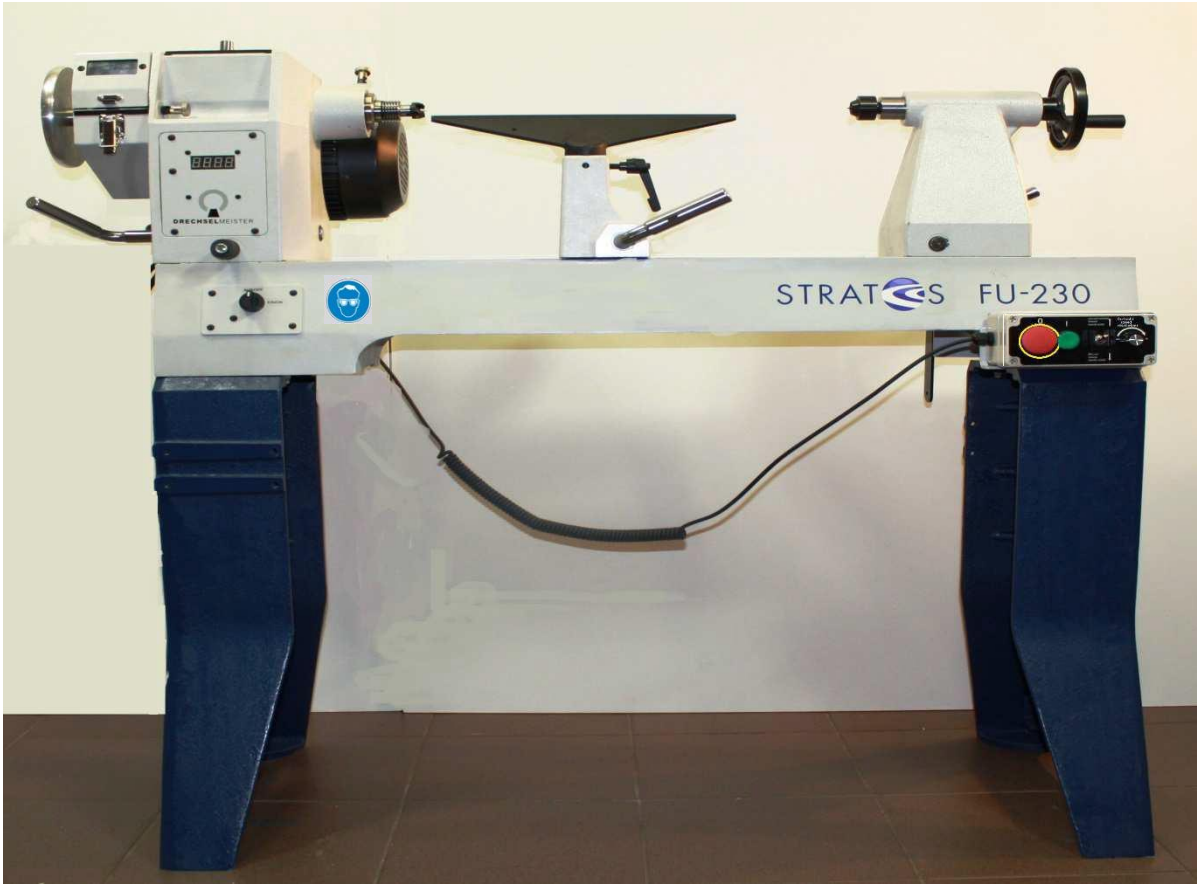


Fig. 30

The wood turning lathe has been assembled.

Easy quick-release system (available as an option)
This high quality equipment enables rapid replacement of the lathe bed extension and the outrigger (Fig. 31 and 35). This accessory is not part of the shipment.

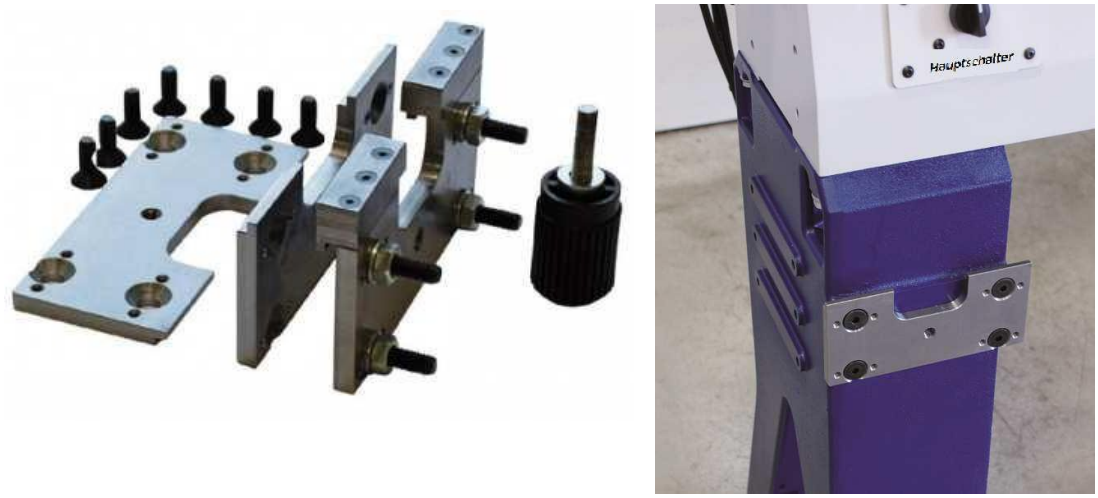


Fig. 31

Assembling the bed extension (available as an option)

The bed extension can be used to extend the lathe bed and for the outrigger. This accessory is not part of the shipment.

1. Before attaching the bed extension, push the tailstock away from the end of the lathe bed and remove the stop rod.
2. Using a second person, position the bed extension flush with the lathe bed and insert the Allen set screws with the washers through the holes in the bed extension into the threaded holes on the lathe bed.
3. Lift the lathe bed extension slightly above the top edge of the lathe bed. Tighten the screws only so much that the extension is held in position.
   IMPORTANT: So the tailstock can easily be moved along the groove, the lathe bed and extension have to be accurately aligned. **Advice**: Before tightening the bed extension, guide the tailstock over the connection point and tighten it. This will align the connection.
4. If required, use a rubber hammer or a hammer with a wooden block underneath in order to align the bed extension with the lathe bed.
   Never directly hit the metal surface with a metal hammer!
   Tap until both surfaces and the insides are completely aligned.
5. Then tighten the Allen set screws. Ensure that the alignment of both parts does not change.
6. To prevent the tailstock accidentally falling out, insert the stop rod at the end of the bed extension.

Outrigger fixing points

Fig. 32

Fig. 33

Outrigger

If the bed extension is used as an outrigger, fix it to the specified points on the side of the lathe bed or on the left side of the lathe. Insert the supplied shaft extension into the tool rest support.

Unique! (Available as an option):

Combined bed extension/outrigger (made of 400 mm cast iron extension and shaft extension for tool rest).

Can be used on three fixing points!

Fig. 35

Fig. 34

7. Connecting the wood turning lathe to the mains supply

The operator must use an isolated socket fused with 16 amp. The mains voltage and rating must correspond to the data on the lathe's rating plate.
The building must be equipped with mains protection which is connected to the lathe's safety plug.
The supplied safety plug must be used with a suitable isolated socket which has been appropriately installed, according to country-specific electrical regulations.

Danger!	
	• A lathe which has been connected and does not comply with regulations can lead to an electric shock. • All connections and repairs to the electrical equipment must be carried out by a qualified electrician.

8. Commissioning

To begin with, check that the machine has been set up and assembled correctly.
Before commissioning, remove all loose parts and tools that may be lying on the lathe.
Turn the main switch to "0". On the movable control unit, turn the toggle switch to "forward" and turn the potentiometer all the way to the left, to zero.
Insert the safety plug into the designated isolated socket.
Now switch the main switch to "I". (Switch it back to "0" when you have finished working with the lathe.)
To start the machine, press the green button (I) on the movable control unit.
By turning the potentiometer, you are increasing the speed to the required rpm.

.

! When starting the lathe with a work piece inserted, ensure the potentiometer is on "0". Then press the green **ON button** to turn on the speed.

9. Using the wood turning lathe

Headstock

The headstock consists of the power unit (electric motor) with quick-release lever and clamping lever to loosen the belt, pulleys with gear ratio, spindle with M33 x 3.5 mm thread and additional 34 mm flange as well as a No. 2 Morse taper (MT2), knob for spindle lock (clicks into place at 90° rot ation), knob for 24-position indexing (clicks into place at 90° rota tion), cover for pulleys with viewing window, clamping lever for cover, handwheel, clamping lever for moving the headstock, digital display of the spindle speed in rpm, and headstock pivot locking pin.

Fig. 41

Replacing the spur center

Using the supplied knock out bar, the spur center can be pushed out from the rear through the spindle shaft. Initially, try to push out the spur center with gentle taps. During this process, carefully hold on to the outside of the spur center with your other hand. Do not hold on to the spur center at its face or by the jaws as this can cause injuries.

Tailstock

Never loosen the quill on the tailstock or the tailstock itself while the work piece is rotating. The tailstock is equipped with a MT2 quill. The quill guide is equipped with a quick-release lever which must always be fixed using the handwheel after securing the side grain. Next to the quick-release lever, there is a lock lever which is used for adjusting the quill. Please ask your specialist dealer if needed.

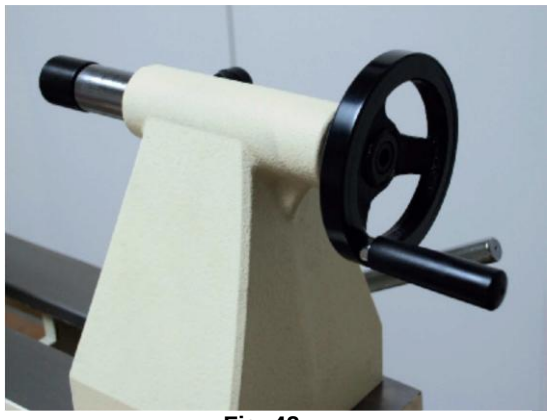


Fig. 42

On the back of the tailstock, there is the clamping lever for fixing the tailstock on the lathe bed. It can be removed by loosening the snap ring and relocated to the front of the tailstock.

Regularly check proper clamping of the tailstock on the lathe bed. The tailstock guarantees an exact alignment between live center and spur center. This guarantees low vibration woodturning and is the best prerequisite for exact drilling with a tailstock.

In order to move the tailstock on the lathe bed, loosen the clamping lever, move the tailstock to the required position and secure it there again. To move the quill in or out, loosen the quill's quick-release lever and turn the handwheel. Live centers and tools with a No. 2 Morse taper (MT2) can be used with the quill. In order to attach the tool, insert it quickly and tightly by hand into the quill support. Do not hit it into the socket.

In order to prevent the tool falling out, hold on to it from the outside. Caution: The center point can cause injuries.

Replacing the live centers

The live center can be ejected by turning the headstock handwheel counter-clockwiese. Alternatively, it can also be pushed out from the rear with the knock out bar.

Tool rest

After loosening the clamping lever, the tool rest support is moved to the required position on the lathe bed and secured there.

Move the tool rest close to the work piece. Every wood turner will choose the best setting for himself/herself. Before turning on the lathe, the work piece is rotated manually to ensure that it has no contact with the tool rest. During the work process, the lathe is stopped and the tool rest is adjusted at regular intervals.

Fig. 43

Locking device (excenter cleat)
If the headstock, tailstock or tool rest support cannot be secured on the lathe bed, the excenter cleat must be readjusted. Pull the headstock, tailstock or tool rest support to the end of the lathe bed and loosely tighten the self-locking nut (see image).

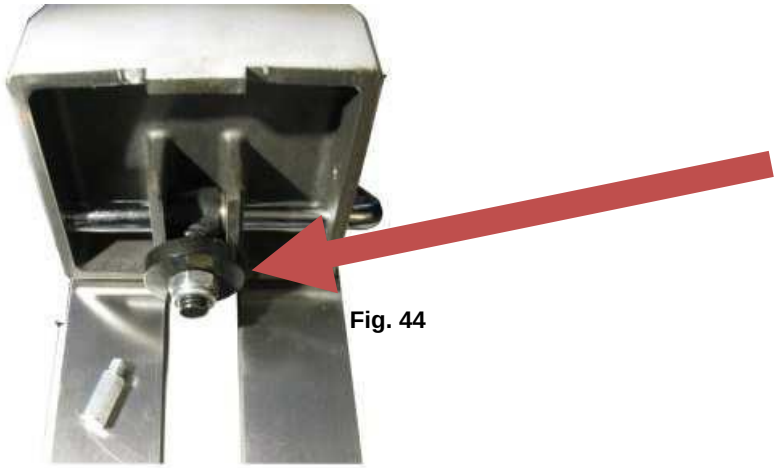


Fig. 44

Danger!	
	• As long as wood turning tools are in contact with the work piece, they have to rest securely on the tool rest. • In order to prevent trapping your fingers during sanding or polishing work, the tool rest must be removed from the work piece.

Spindle lock
The spindle lock can be activated by a 90° turn. Th e spindle has a total of 9 location holes for locking. Activate the spindle lock in order to loosen the chuck etc. from the spindle (Fig. 45).

! It is essential that the motor is not turned on during locking of the spindle.

Fig. 45

24-position indexing
By turning the knob (1) by 90°, the 24-position ind exing clicks into position. This enables an even graduation in 15° increments during one turn of the spindle. Using this graduation, the spindle can be divided 24, 12, 8, 6, 4 and 2 times per rotation (Fig. 46).

! You must make sure that the mains plug has been disconnected. Do not turn the motor on during locking.

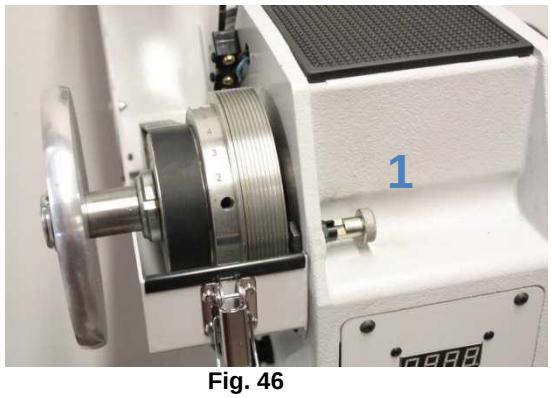


Fig. 46

Use the 24-position indexing only for graduation, not for loosening a chuck from the spindle.

Movable control unit and main switch

Main switch

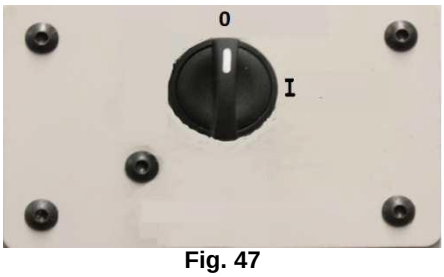


Fig. 47

Position the main switch to ZERO (0) to turn the machine off and to ON (I) to turn it on (Fig. 47).

The **main switch** should be used only at the beginning and the end of the wood turning work. General turning on and off takes place via the movable control unit.

Movable control unit

Position the movable control unit (Fig. 48) in an easy-to-reach place or on the designated holder.

Fig. 48

- The **red** button (0) is a combination button for **EMERGENCY STOP**
  and OFF (0) during woodturning.
- The **green** ON button (I) is used to turn on the lathe during woodturning.
- The toggle switch is for forward and reverse operation. It is usually in the forward position. Reverse operation is rarely used, e.g. during repeated sanding.
- The potentiometer (poti) is used to regulate the speed. Turn it clockwise and the speed increases. Turn it counter-clockwise and the speed decreases.

Warning!	
	• Always position the movable control unit within reach on the lathe or in the designated holder so you can activate the **EMERGENCY STOP** button (0) **at any time**. • When working with chucks, face plates and other M33 tools, a stop rod must be used during reverse operation.

Recommended speed range

1. Look for the work piece diameter.
2. Determine the intersection to the speed with a vertical line.
3. From this point, go left and determine the speed (rpm).

A. Recommended speed range for general woodturning

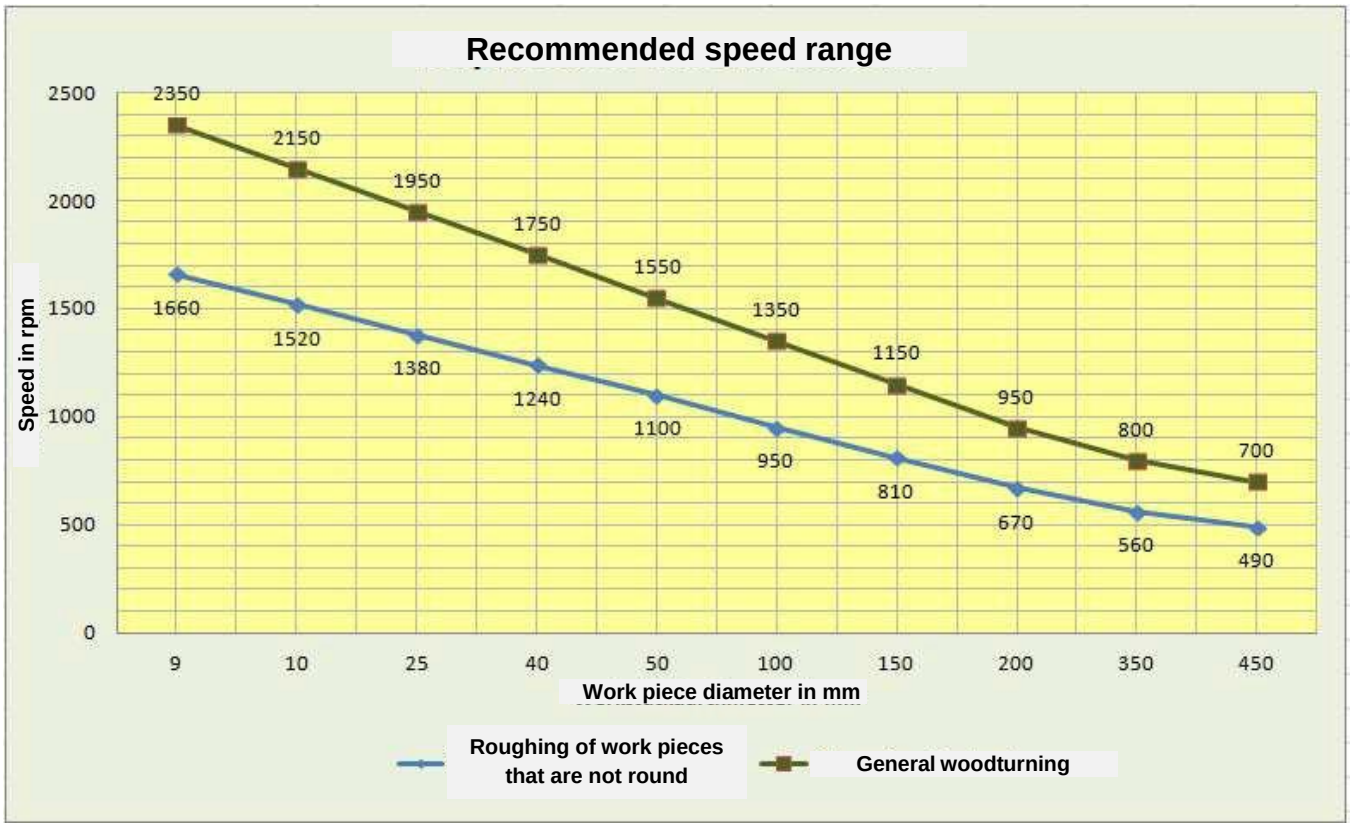


Fig. 49

B. Recommended speed range for general woodturning on the outrigger

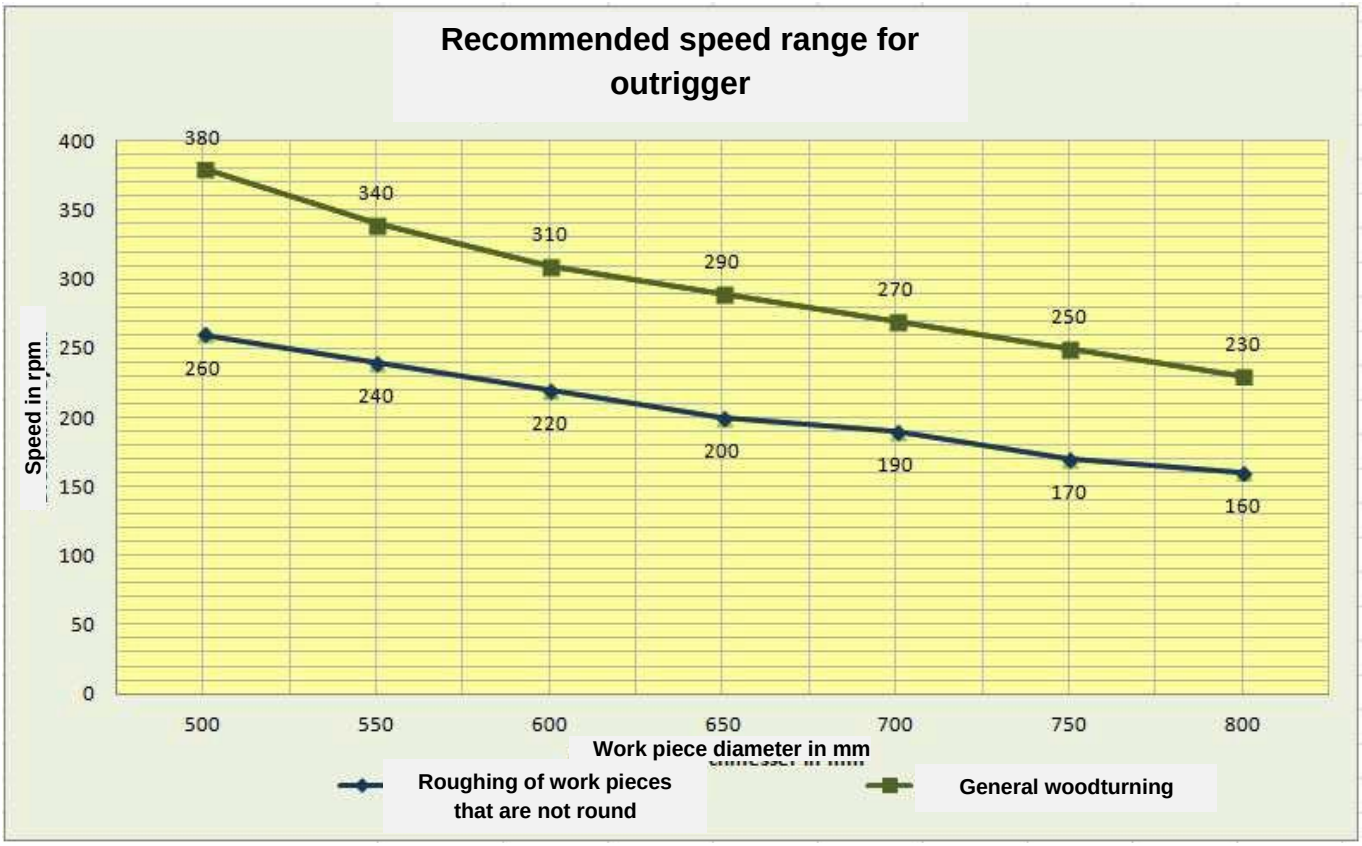
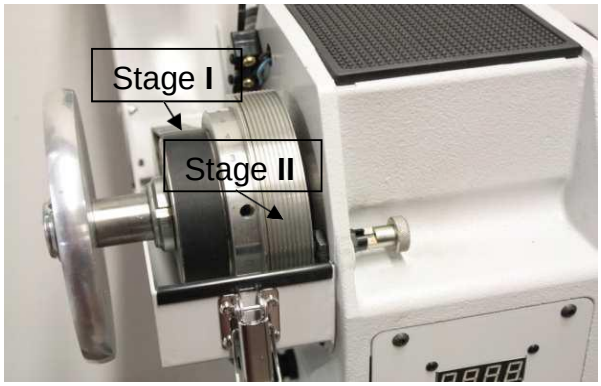


Fig. 50

Changing the speed range by sliding the belt

The motor drives the spindle pulleys via 2 wide pulleys using a Poly-V belt. A slower spindle speed is needed for work with larger diameters in order to maintain an ideal torque. This means that if you have turned a spinning top for example and then want to turn a bowl with a diameter of 30 cm or more, the motor output might be reduced under heavy use.
Therefore, a different speed must be selected.
Under the cover on the headstock, there are two pulleys. Using these, you can choose between the two speed ranges.
Disconnect the mains plug and only then open the cover on the headstock. Then loosen the quick-release lever on the motor flange. Using the chromium-plated clamping lever (S, Fig. 53), pull the motor toward the headstock. This loosens the tension in the Poly-V belt.
Now place the belt on the relevant pulleys on the motor and spindle.



New Fig. 51

Fig. 52 Open cover

Fig. 53 Slacken

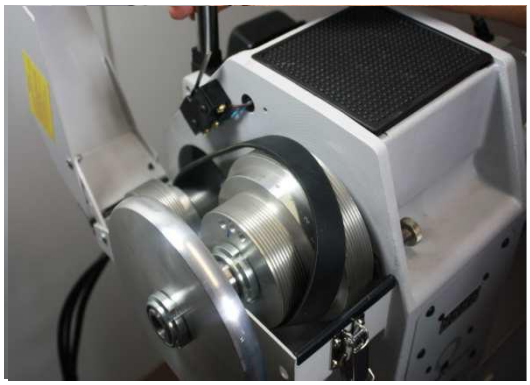


Fig. 54 Reposition belt

Fig. 55 Tension

Combination: Stage I for 180 - 3,700 rpm or Stage II for 80 - 1,350 rpm (see Fig. 51). Afterwards, using the chromium-plated clamping lever, push the motor in the opposite direction which retensions the belt (Fig. 54). Secure this position with the quick-release lever (Fig. 55) and close the cover. Close the toggle latch (V, see Fig. 56) again.

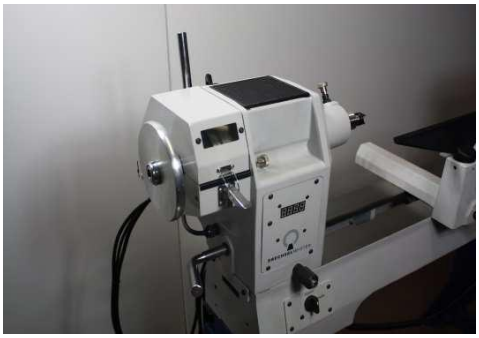


Fig. 56 Close cover

Now you can connect the mains plug again. The new speed range is available.

Replacing the belt

If you ever need to replace a faulty belt, this is very easy with the Stratos lathe. Disconnect the mains plug and only then open the cover (A). Loosen the quick-release lever (S) on the motor and, using the chromium-plated clamping lever, pull the motor toward the headstock. This loosens the tension in the Poly-V belt. Secure the position with the quick-release lever.

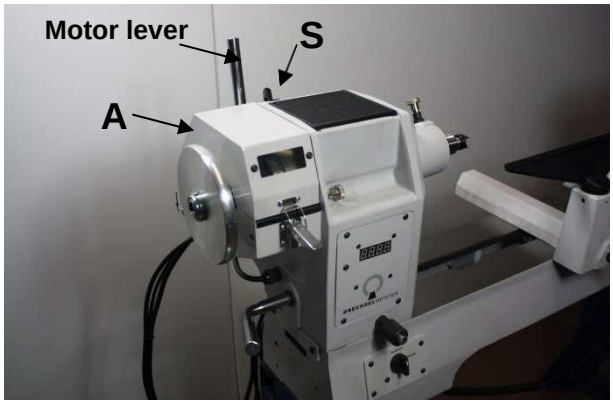


Fig. 57 Open cover

Now remove the faulty belt (cut with a knife or scissors if required). The new belt is put over the handwheel, guided past the spindle shaft and belt cover and then placed on the pulleys. Afterwards, using the chromium-plated clamping lever, push the motor in the opposite direction which retensions the belt. Secure this position using the quick-release lever (S) and close the cover and toggle latch (V, see Fig. 64). Now you can connect the mains plug again. The belt drive is now ready.

Fig. 58

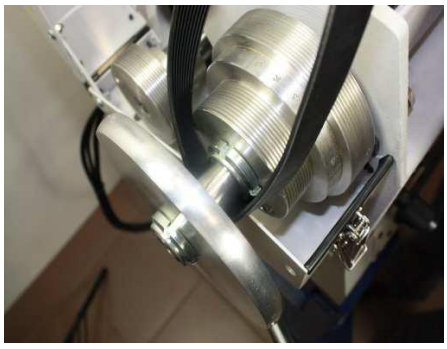


Fig. 59

Fig. 60

Fig. 61

Fig. 62

Fig. 63 Lock

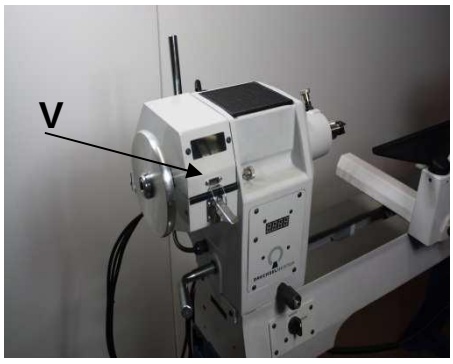


Fig. 64 Closed cover

Processing work pieces

Danger!	
	• Always use eye protection. • Make sure the work piece has been securely clamped in position. Always start with a slower speed and increase it to the ideal speed. • If the speed is too high, unbalanced work pieces can be ejected from the lathe and cause severe injuries. • When the **EMERGENCY STOP** button has been pressed, the lathe slowly reduces speed as programmed, down to zero. Never slow down the work piece using your hand. This can cause injuries from splinters and overheating. Your fingers could get pulled in between the work piece and the tool rest.

Warning!	
	• In the event of a power outage, the work piece will continue to spin freely. The machine slowing down can take some time. • The spur center has to grip securely. Using the spur center and a wooden hammer, center-punch the work piece (see Fig. 36). • Use an intermediate support (steady rest) for long and slender or long work pieces, in particular, when vibrations begin. • Be careful when using the tools. Place the tool on the tool rest first, then guide it closer to the work piece. • Carry out work on hazardous timber only with extraction or wearing a respirator and goggles. • Do not use heavy, unbalanced work pieces. When vibrations start, turn off the machine immediately.

- Do not use work pieces with cracks or insufficient solidity (e.g. because of rotting).
- Securely clamp the work piece in position.
- Select a state-of-the-art chuck.
- Select the speed depending on the work piece diameter.

Use the recommendations in the above speed table (see Fig. 49)

Pay particular attention to clamping the work piece in position. This must be done as safely as possible. There are different options available. Look for advice in books, seek training opportunities or take part in a wood turning course.
Pay particular attention to safety and work pieces that rotate unevenly. Use a balanced speed, clamp the work piece in position but try to remove any imbalance of the timber as much as possible prior to clamping it.

Fig. 36

Mounting side grain between centers

Ideal centering is essential because any imbalance has to be minimized, in particular for large work pieces. A deep indentation by the spur center also increases safe holding of the work piece during woodturning.

Take a square-ended piece of wood and determine the center on both ends. For this, join the diagonals with a pencil line (see Fig. 36). Alternatively, center finders are available for purchase.

After that, the scantling is placed on a solid surface and the spur center is inserted right in the center of the wood end using a hammer made of wood, rubber or Teflon. This will provide you with 4 deep indentations in one end of the scantling where the spur center can easily enter. The work piece is picked up without slipping.

Fig. 37

Insert the spur center into the spindle and ensure that it is secure. Insert the scantling with the indentations into the spur center and push the tailstock, with some excess length, towards the opposite end. Using the clamping lever, position the tailstock tightly on the rear of the lathe bed. By turning the handwheel, push the live center into the center of the other scantling end. Finally, lock the quill with the quick-release lever.

Do not push the work piece into the inserted spur center with the tailstock. This creates unnecessary pressure on tailstock and headstock and it makes insertion of the spur center into the scantling unnecessarily difficult, in particular with hard wood. The blank has been positioned correctly and is ready for woodturning.

Setting up the tool rest

The tool rest support is secured in front of the side grain work piece with the clamping lever.

Adjust the tool rest (Fig. 38) so that the wood can rotate freely. The gap between work piece and tool rest should be 5-10 mm. Lock it with the quick-release lever.

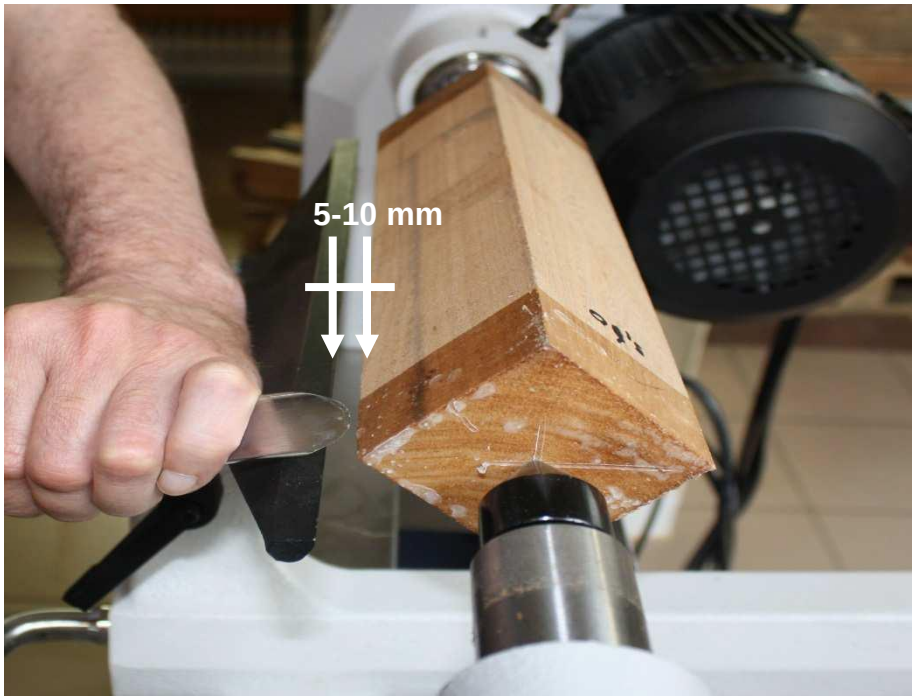


Fig. 38 Tool rest gap dimensions

The basic rule is that the wood should be cut with the tool. If the selected speed is too low, the wood will "hammer" against the tool, it will pull out and significant force will be applied to tool and work piece. This can lead to dangerous situations. Therefore, it is better to select a suitable speed (see Fig. 49). Your cut will be better and less force is applied to the work piece.

Compare this to working with a plane. If the plane is moved slowly, it is much harder to break the fibers. ´

Fixing end grain on a face plate

End grain blanks must be sawn as round as possible with a band saw before securing them on a lathe. This makes the start of the woodturning process easier and reduces vibrations. A flat surface is needed to secure the sawn out blank on a face plate or chuck. Hollow or arched surfaces may need to be planed. The face plate must be screwed to the blank with at least 6 wood screws. Using a face plate for initial positioning is a safe method, especially for large work pieces. Modern chucks enable clamping using chuck inserts or appropriate bore holes.

When using chucks, read the operating manual for the relevant chuck.

Fig. 39 Face plate

Positioning of the tool rest

Fig. 40 Tool position

When roughing, set the tool rest slightly below the spindle center line so the blade can engage slightly above the middle. The roughing gouge is used until the imbalance is removed (see Fig 40).

To process the shape, a spindle gouge is used. It engages noticeably above the work piece center.

Cylindrical shapes can be smoothed with a chisel. Here, too, the chisel engages noticeably above the center of the work piece (see Fig. 40a).

So-called "fillets" are cut with the beading tool or cut-off tool. The tool engages above the center.

Roughing gouge

A spindle-roughing gouge is used for between-center work to remove the corners from square stock, turn cylinders, tapers and long shallow curves. A distinction is made between the English "deep-fluted" and the German "shallow-fluted" roughing gouge. Do not try using the deep-fluted English style spindle-roughing gouge for bowls. The shallow-fluted German or Continental gouge can also be used for end grain wood.

Spindle gouge

The spindle gouge is used for between-center work to create large and small shapes such as coves, beads, ogees etc. and for the last smoothing cut.

Changes in work piece diameter are partly compensated for by adjusting the forearm. Spindle gouges always shape the side grain slightly above the work piece center. Spindle gouges are nearly always held with the cutting edge almost vertically and they **ONLY** ever cut with in the bevel-rubbing mode, close to the front curve, the cutting edge. Furthermore, when cutting with the spindle gouge, the bevel is always applied. When working with end grain, the shallow-fluted roughing gouge can be used on the underneath

of the work piece, although bowl gouges are mainly used for this nowadays. Also see the video "Einführung in die Grundlagen des Drechseln" (Introduction to the Basics of Woodturning).

Rectangular chisel and oval chisel

Rectangular chisels are traditional tools that have always been used for particularly fine surfaces when turning side grain. Oval chisels have only existed since the end of the 70s. They were developed for working on long coves. Chisels are held on the work piece with a side work angle of 45° (see Fig. 40a). The center third of the cutting edge does the work. Here, too, the bevel must be applied.

Fig. 40a

Parting tool

During cutting off, the tool is applied to the work piece on the upper third, cutting in an arc to the center.

With side grain, when turning a fillet, the same process is used, but only to the required diameter. For further information, please attend a woodturning course, get our video "Grundlagen des Drechselns" (Basics of Woodturning), read specialist books or have your specialist dealer explain to you in more detail.

Recommended speed

The speed, in rpm, mainly depends on the size of the work piece. But also other characteristics like imbalance, weight, hardness, different densities etc. determine the safe speed. If the speed is too low, a smooth surface is usually not possible. If the speed is too high, the lathe will start to vibrate and there is a risk that the work piece will be ejected and cause severe injuries or damage.

Outrigger

Warning!	
	• When using the outrigger, we recommend that the lathe is appropriately secured to the floor. • Only advanced wood turners with the relevant qualification or training are allowed to work with the outrigger!

When using the outrigger, larger bowls can also be made which require a lower speed. Select the speed range so that no vibrations occur. When using the outrigger, we recommend that the lathe is appropriately secured to the floor. During rotation of the work pieces, much higher forces occur than when woodturning over the lathe bed.

The Stratos offers you the opportunity to turn work pieces with a larger diameter than 45 cm. You have the choice of attaching the outrigger at the front left under the headstock or on the right outside surface of the right stand. For this, the headstock has to be moved to the right lathe bed end (Fig. 34 and 35). But first remove the tailstock from the lathe bed and watch out for the cables when moving the headstock.

Fig. 65

In order to use the outrigger (Fig. 66 and 67), attach the lathe bed extension (B) (only available as an option) to the designated anchor points (A) on the stand using the supplied mounting kit (G, Fig. 6). Loosen the clamping lever (K, Fig. 65) to be able to pull or push the headstock.
In order to rotate the headstock, unlock the locking device (D) (Fig. 65).
To do this, loosen the headstock pivot locking pin (D) counter-clockwise, then pull on it. Now the entire headstock can be rotated by 90°and 180° in the required direction. Afterwards, lock the headstock using the clamping lever (K) and the headstock pivot locking pin (D). Now insert the tool rest support (U) into the bed extension. In order to compensate for the greater outrigger spindle height, insert the shaft extension (V) into the stand and the tool rest as usual into the shaft extension, and lock both in position.

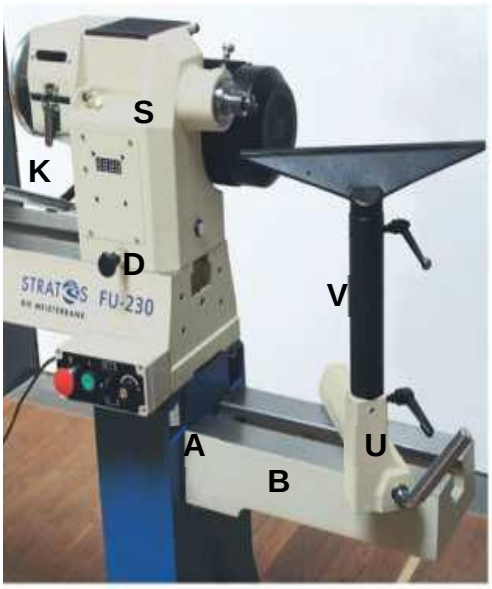


Fig. 66

Fig. 67

Danger!	
	Warning: Crushing hazard! • Please keep your fingers on the side of the locking device. • Watch out for your fingers when moving the headstock. They must not be underneath the locking device, because of crushing between locking device and lathe bed. **right** **wrong**

Notes for woodturning
For larger diameters, the headstock must be moved closer to the center of the lathe bed so the tool rest can be pushed to the outside of the work piece.

10. Care and maintenance

Maintenance/machine care:
After each use, particularly in the event of high humidity, the Stratos wood turning lathe should be protected on all parts susceptible to corrosion such as the lathe bed, spindle thread with MT2-bore and quill with MT2-bore as well as some screw threads, using appropriate wax, silicone spray or other rust protection.

After each use, clean the lathe bed, headstock and tailstock taper as well as the M33 spindle thread with a cloth soaked in spirit or a commercially available solvent. Store or dispose of the used cloths properly. Particularly when working with wet wood or suface finishes on the lathe, it is necessary to immediately clean all uncoated surfaces and to waterproof them.

After each use, check the pulleys for dust and dirt deposits and clean them if required.

The tailstock screw must be lubricated once per year in the event of high demand, or as required. To do this, remove the quill completely using the handwheel, enabling access to the spindle for lubrication.

All bearings are double-enclosed and do not need maintaining.

Repairs

Danger!	
	• When carrying out work on electrical parts of the machine, the mains circuit breaker must be switched off and the mains plug must be disconnected. Do not leave the mains plug unattended and ensure it cannot be reconnected. • Work on the electrical equipment must be carried out by qualified electricians.

11. Decommissioning

Please comply with the following notices to prepare for final decommissioning:

- When the machine has been decommissioned, the rules and regulations applicable at the time relating to disposal must be complied with.
- The machine is not part of household waste.
- Dispose of all system parts so that all health and environmental hazards are excluded. It is useful to check which materials can be recycled and to do this in consideration for our environment.

Oils, grease, solvents and detergents are an **environmental hazard** and must not get into the sewage system or the ordinary household waste. Dispose of them via local collection sites. Cloths or cotton waste soaked in oil, grease, solvents or detergents are flammable. Collect them in suitable, closed metal containers.
Cloths or cotton waste soaked in linseed oil tends to **spontaneously combust** and must therefore be stored and disposed of separately.

12. Warranty conditions

This product has a two-year manufacturer warranty from the purchase date in addition to the legal warranty. If processing or material faults occur during the intended use of the Stratos 230, they will be repaired or replaced by your relevant sales partner at his expense and choice. The requirement for this is that the customer ships the wood turning lathe to an authorized Stratos Service Center within the warranty period - supply proof of purchase by showing the receipt, and make prior payment for the transport costs - with the Service Center having sufficient opportunity to check the claimed fault. The costs for the return transport will be borne by the relevant Service Center. If, however, the claim is outside the warranty conditions, the customer himself/herself has to bear the costs of storage and return. The distributor cannot be held liable for a claim made based on regular wear and tear, improper use, mains overload, mains related overvoltage or in the event of alterations to the machine which were not carried out by an authorized workshop. The authorized dealer is in no case liable for incidental, particular, indirect or consequential damages or costs, including a potentially lost profit or lack of machine use. There are no other warranty claims, neither written nor oral, neither explicit nor implicit legal, commercial, customer-specific or otherwise, neither for merchantability and fitness for purpose nor otherwise. This excludes claims the customer has a right to within the scope of consumer protection regulations or another legal provision.
Please note that distributors in Austria and Germany may have their own warranty conditions concerning this product. The requirements for these may differ from those specified above. Therefore, please contact your local distributor in the event of problems.

13. Troubleshooting guide

Description of problem	Possible cause	Possible solution
Machine does not turn on	• No power • Motor, switch or cable faulty • Cover not properly closed • Spindle lock or 24-position indexing locked • Main switch not switched on	• Check mains fuse • Contact an electrician • Close the cover and secure it • Release the lock • Position main switch to I
Machine switches off	• No mains voltage • Frequency converter switched off	• Check mains fuse • Wait about 10 minutes, then turn it on again
Machine vibrates	• Work piece unbalanced • Work piece not clamped sturdily • Cutting edge of tool blunt • Cutting pressure too high • Work piece clamped off-center • Speed too high • Pulleys are loose • Machine positioned on uneven floor • Tool rest, tailstock or headstock not locked securely	• Compensate for imbalance, reduce speed • Improve clamping length or diameter, support tailstock end, use steady rest • Sharpen or replace tool • Reduce depth of cut or feed • Clamp work piece centrically • Reduce speed • Tighten pulleys • Compensate for unevenness with adjustable leveler • Check and secure, tighten self-locking nut on the underneath
Machine judders	• Feed too large, work piece surface too rough • Wood turning tool blunt • Centers not aligned • Wood turning tool springs	• Reduce feed • Resharpen wood turning tool • Adjust headstock • Move tool rest closer to work piece
Low spindle drive power	• Work piece too big • Poly-V belt loose	• Reduce belt speed • Retighten belt

14. Appendices

Appendix 1 Declaration of Conformity

CE

Original

EG - Konformitätserklärung

für Maschinen (nach EG-Richtlinie 2006/42/EG)

Hiermit erklären wir

Drechselbedarf Schulte
Inhaber Kornelia Schulte
Meppener Str. 111
D-49744 Geeste - Groß Hesepe

dass die Maschine:

Drechselbank

Typ : **Stratos FU - 230**
Seriennr. : von 10001 bis 10499

in der aufgestellten Ausführung folgenden einschlägigen Bestimmungen entspricht:

- EG-Richtlinie 2006/42/EG über Maschinen
- EG-Richtlinie 2004/108/EG über die elektromagnetische Verträglichkeit

Die Schutzziele der Niederspannungsrichtlinie 2006/95/EG wurden gemäß Anhang I Nr. 1.5.1 der Richtlinie 2006/42/EG eingehalten.

Zur Umsetzung der in den EG-Richtlinie genannten Anforderungen wurden die anzuwendenden harmonisierten Normen und technischen Spezifikationen herangezogen, insbesondere:

EN ISO 12100:2010	:	Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze - Risikobeurteilung und Risikominderung
EN 60204-1:2006	:	Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen - Teil 1: Allgemeine Anforderungen

Der Dokumentationsbevollmächtigte ist:
(Person, die bevollmächtigt ist, die technischen Unterlagen zusammenzustellen)

Frau Kornelia Schulte
Drechselbedarf Schulte, Meppener Str. 111, D-49744 Geeste - Groß Hesepe

Geeste - Groß Hesepe, den 10.09.2013

Kornelia Schulte (Inhaberin)

Drechselbedarf Schulte, Inhaber Kornelia Schulte
Meppener Str. 111
D-49744 Geeste - Groß Hesepe

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Appendix 2 Spare parts lists

Parts list A, Headstock

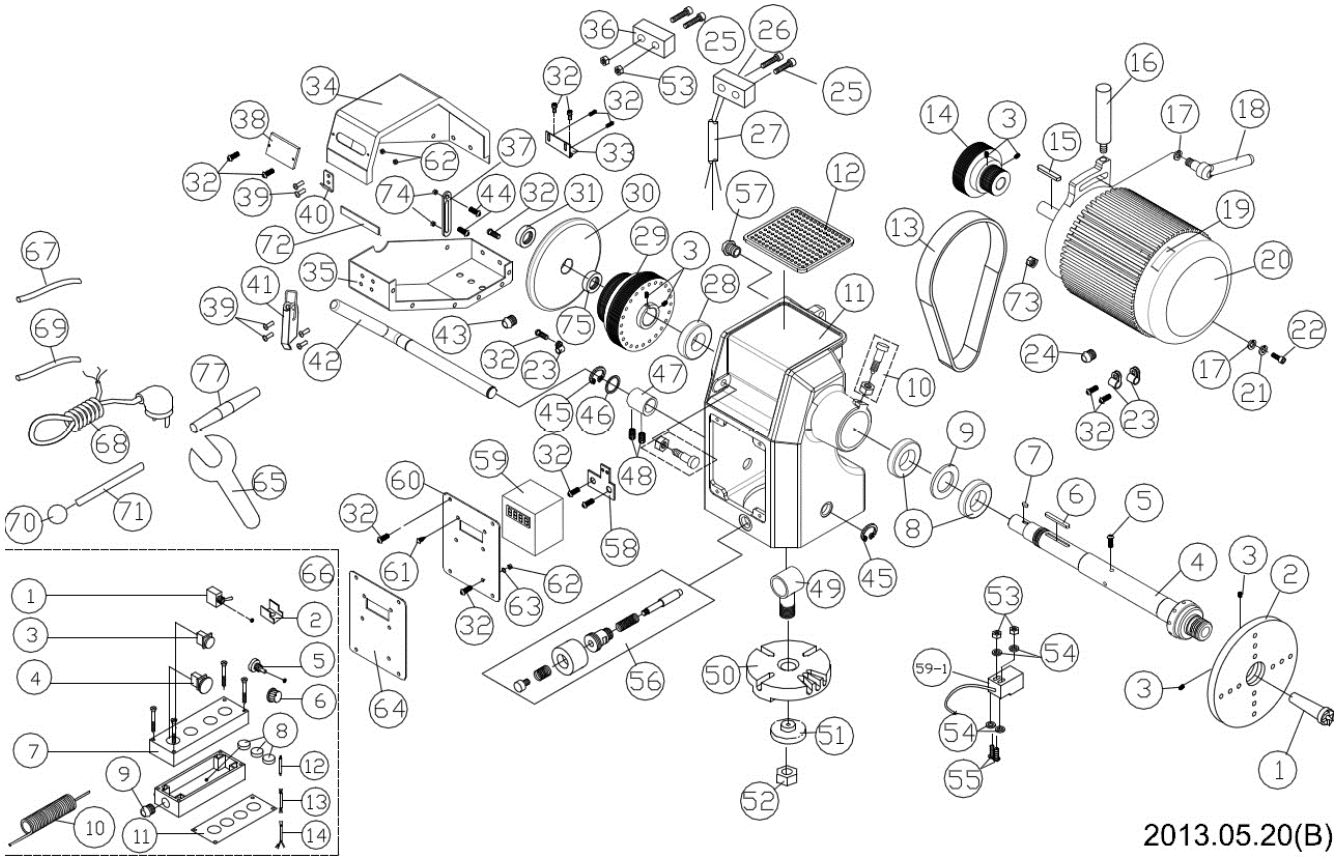

Fig. 68

Position number	Part no.	Description	Specification	Quantity
01	KS18-A01	Spur center	MT2	1
02	KS18-A02	Face plate	150 mm x M33	1
03	KS18-A03	Allen set screw	1/4x3/8"	6
04	KS18-A04	Spindle	M33x3.5 mm	1
05	KS18-A05	Round-head screw	1/4"x5/16"	4
06	KS18-A06	Key	6x6x50	1
07	KS18-A07	Key	4x4x10	1
08	KS18-A08	Bearing	6007	2
09	KS18-A09	Bearing bush - big		1
10	KS18-A10	Locking pin		2
11	KS18-A11	Headstock		1
12	KS18-A12	Headstock rubber tray		1
13	KS18-A13	V-belt	230-JlO	1
14	KS18-A14	Motor pulley		1
15	KS18-A15	Key	6x6x55	1
16	KS18-A16	Clamping lever		1
17	KS18-A17	Washer	3/8"xØ 21x2.5	2

Position number	Part no.	Description	Specification	Quantity
18	KS18-A18	Quick-release lever	3/8"	1
19	KS18-A19	Motor rating plate		1
20	KS18-A20	Motor	230V 50Hz	1
21	KS18-A21	Spring washer	3/8"	1
22	KS18-A22	Machine screw	3/8-16unc x 1-3/4	1
23	KS18-A23	Cable retainer	ACC5	2
24	KS18-A24	Cable bushing	PG13.5	1
25	KS18-A25	Round-head screw	M3X18	4
26	KS18-A26	Circuit breaker-1	14 V	1
27	KS18-A27	Single-wire cable 2		1
28	KS18-A28	Bearing	6205	1
29	KS18-A29	Spindle pulley		1
30	KS18-A30	Handwheel		1
31	KS18-A31	Nylon nut	M25	1
32	KS18-A32	Round-head screw	#10-24unc x 3/8"	19
33	KS18-A33	Hinge		1
34	KS18-A34	Upper cover		1
35	KS18-A35	Lower cover		1
36	KS18-A36	Circuit breaker-2	14 V	1
37	KS18-A37	Stop plate		1
38	KS18-A38	Acrylic panel		1
39	KS18-A39	Machine screw		6
40	KS18-A40	Clamping hook		1
41	KS18-A41	Toggle latch		1
42	KS18-A42	Headstock clamping shaft		1
43	KS18-A43	Cable bushing	PGII	1
44	KS18-A44	Round-head screw	10-24x1/2"	2
45	KS18-A45	Snap ring	S-19	2
46	KS18-A46	Spring washer	BBW-629	I
47	KS18-A47	Bushing		1
48	KS18-A48	Set screw	1/4"x1/4"	2
49	KS18-A49	(Swivel) Pin		1
50	KS18-A50	Positioning plate		1
51	KS18-A51	Fixing ring		1
52	KS18-A52	Nylon nut	3/4"-10unc	1
53	KS18-A53	Nylon nut	M3	4
54	KS18-A54	Washer	M3	4
55	KS18-A55	Round-head screw	M3x20	2
56	KS18-A56	Headstock pivot locking pin		1
57	KS18-A57	Strain relief	PG9	1
58	KS18-A58	Digital display mounting plate		1
59	KS18-A59	Digital display	220V	1

Position number	Part no.	Description	Specification	Quantity
60	KS18-A60	Control plate		1
61	KS18-A61	Machine screw	M3x10	4
62	KS18-A62	Nut	#10-24	3
63	KS18-A63	Toothed washer	#10-24	1
64	KS18-A64	Acrylic control panel		1
65	KS18-A65	Face plate wrench		1
66	KS18-A66	Movable control unit		1
66/1	KS18-A66-1	Forward/reverse switch		1
66/2	KS18-A66-2	Switch protector		1
66/3	KS18-A66-3	Button, green		1
66/4	KS18-A66-4	Button, red		1
66/5	KS18-A66-5	Speed controller		1
66/6	KS18-A66-6	Speed controller knob		1
66/7	KS18-A66-7	Housing		1
66/8	KS18-A66-8	Magnet		3
66/9	KS18-A66-9	Strain relief	PG9	1
66/10	KS18-A66-10	Cable		1
66/11	KS18-A66-11	Acrylic housing base		1
66/12	KS18-A66-12	Cable 1		1
66/13	KS18-A66-13	Cable 2		1
66/14	KS18-A66-14	Cable 3		1
67	KS18-A67	Motor cable		1
68	KS18-A68	Power cable		1
69	KS18-A69	Mains cable for digital display		1
70	KS18-A70	KNOB		1
71	KS18-A71	SHAFT		1
72	KS18-A72	Rubber		1
73	KS18-A73	Lock nut	3/8"	1
74	KS18-A74	Lock nut	#10-24UNC	2
75	KS18-A75	Lock nut	M30	1
76	KS18-A76	Cable clamp	5/16"	2
77	KS18-A77	Double ended Morse taper centering system	MT2 – MT2	1

Parts list B, Lathe bed, tool rest, tailstock

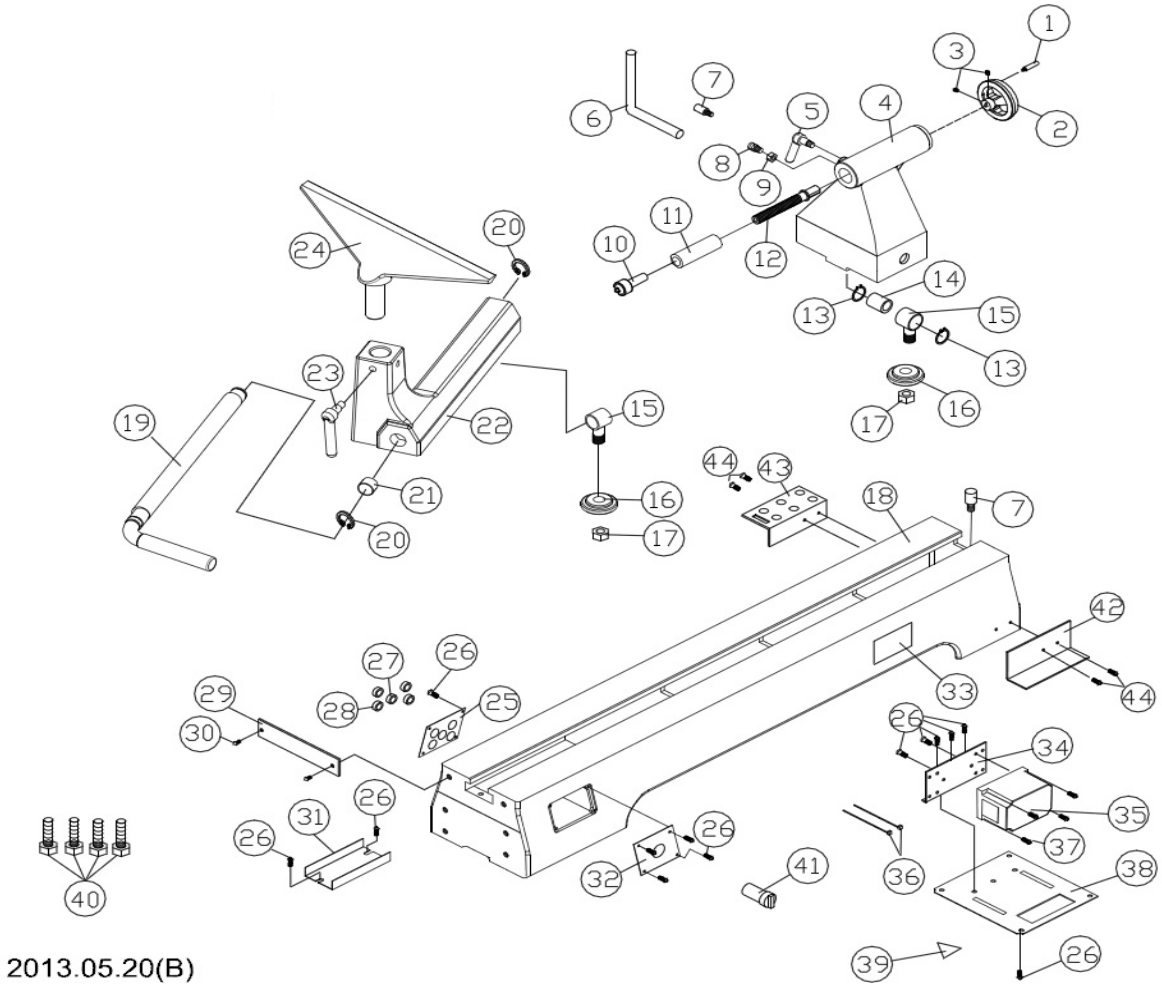

Fig. 69

Position number	Part no.	Description	Specification	Quantity
01	KS18-B01	Handwheel handle		1
02	KS18-B02	Handwheel	6" x19	1
03	KS18-B03	Set screw	1/4x1/4	2
04	KS18-B04	Tailstock		1
05	KS18-B05	Quick-release lever	5/16"	2
06	KS18-B06	Clamping lever		1
07	KS18-B07	Stop rod		2
08	KS18-B08	Quill fine adjustment	M10x30	1
09	KS18-B09	Nut	M10	1
10	KS18-B10	Live center	MT2	1
11	KS18-B11	Tailstock spindle		1
12	KS18-B12	Tailstock screw	5/8-18UNF	1
13	KS18-B13	Circlip	S-19	2
14	KS18-B14	Bushing		1

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Position number	Part no.	Description	Specification	Quantity
15	KS18-B15	Pin		2
16	KS18-B16	Fixing ring		2
17	KS18-B17	Nylon nut	3/4" x 10unc	2
18	KS18-B18	Bed		1
19	KS18-B19	Clamping lever		1
20	KS18-B20	Circlip	S-22	2
21	KS18-B21	Brass bush		1
22	KS18-B22	Tool rest support base		1
23	KS18-B23	Quick-release lever	3/8"	1
24	KS18-B24	Tool rest	14"	1
25	KS18-B25	Rear cover plate		1
26	KS18-B26	Round-head screw	#10-24unc x 5/16"	17
27	KS18-B27	Strain relief	PGll	1
28	KS18-B28	Strain relief	PG9	4
29	KS18-B29	Stop plate		1
30	KS18-B30	Round-head screw	1/4"-20UNC x 3/8"	1
31	KS18-B31	Cover plate		1
32	KS18-B32	Front cover plate		1
33	KS18-B33	Label		1
34	KS18-B34	Frequency converter side plate		1
35	KS18-B35	FC/frequency converter	2HP 230V	1
36	KS18-B36	Cable tie		2
37	KS18-B37	Machine screw	#10-24unc x 3/4"	4
38	KS18-B38	FC cover		1
39	KS18-B39	Label		1
40	KS18-B40	Hexagon bolt	3/8"-2"	4
41	KS18-B41	Main switch		1
42	KS18-B42	Holder for movable control unit		1
43	KS18-B43	Tool holder		1
44	KS18-B44	Machine screw	M6x10	4

Parts list C, Stand

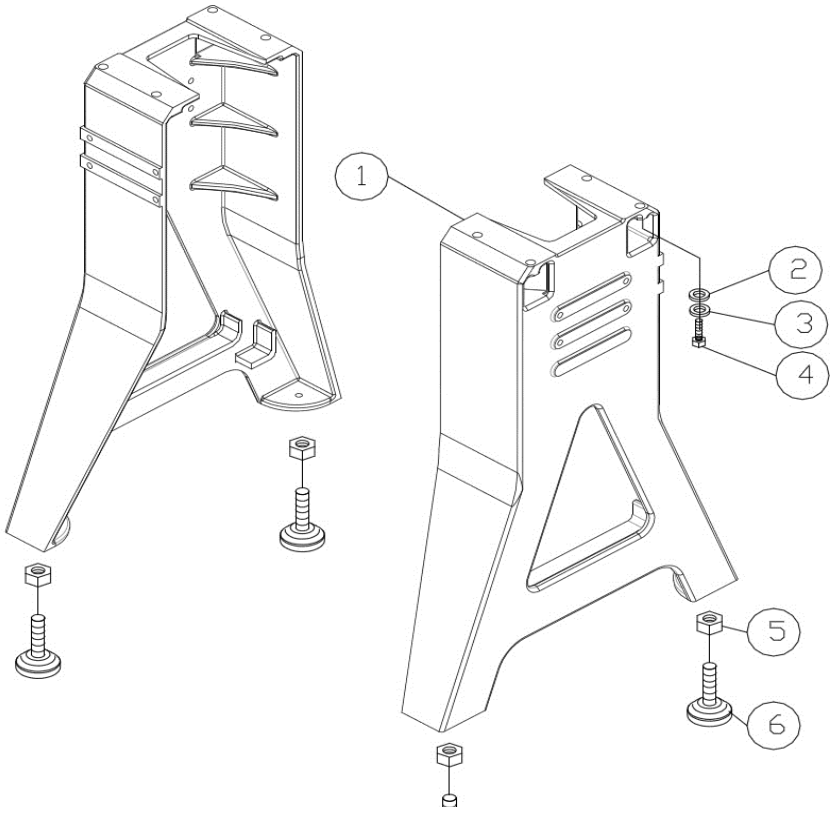

Fig. 70

Position number	Part no.	Description	Specification	Quantity
01	KS18-C01	Stand (for left and right-hand use)		2
02	KS18-C02	Washer	3/8"	8
03	KS18-C03	Spring washer	3/8"	8
04	KS18-C04	Hexagon bolt	3/8" -16 x 1-l/2	8
05	KS18-C05	Nut	3/8"	4
06	KS18-C06	Level adjusting feet	3/8"	4

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Appendix 3 Circuit diagram

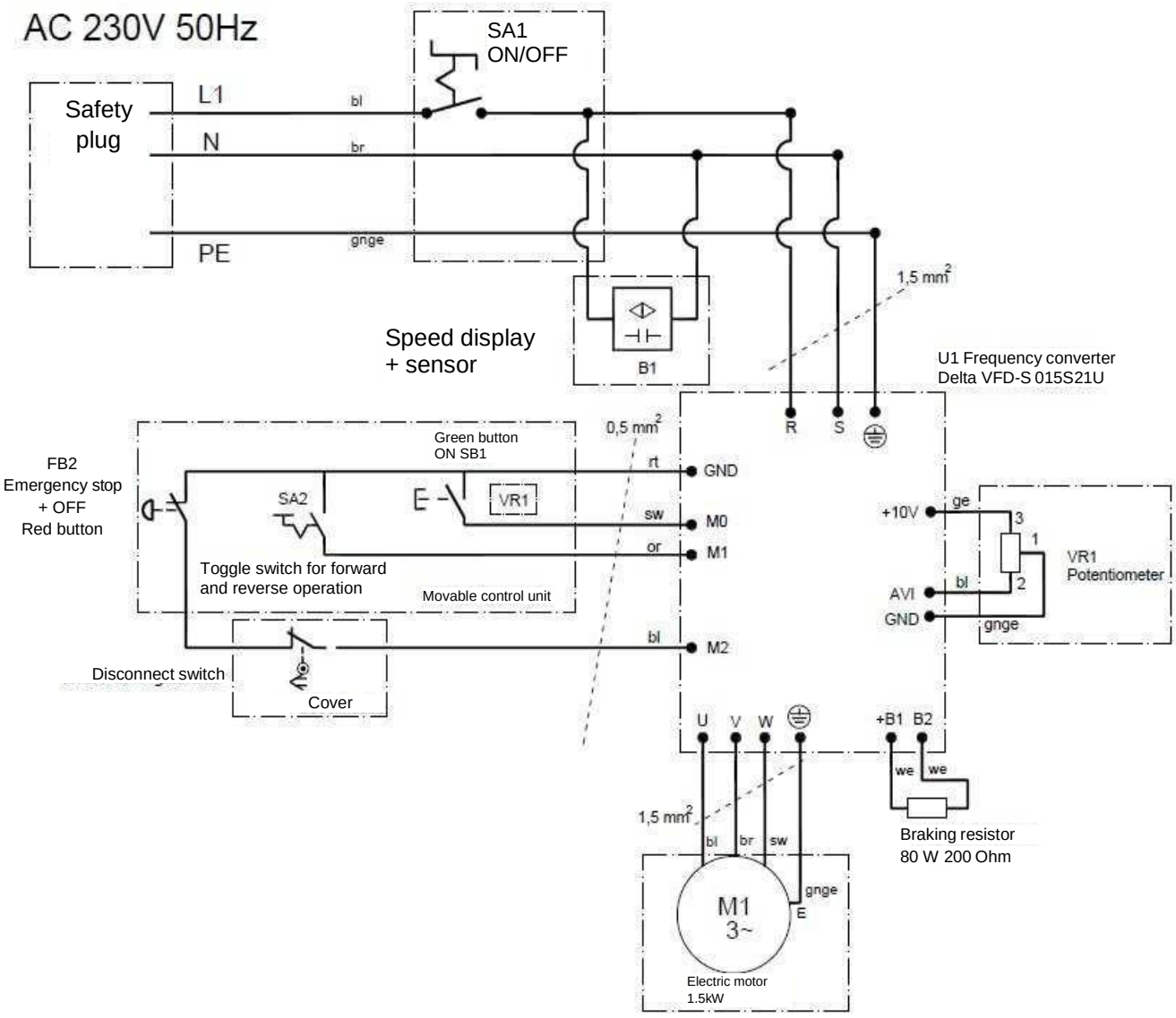

Fig. 71

Circuit diagram key

B1	Spindle speed sensor	SA2	Rotational direction switch
FB2	Emergency stop/OFF button	SB1	ON button
FU1	Fine-wire fuse	SK	Safety plug
M1	Electric motor	U1	Frequency converter VFD-S
SA1	Main switch	VR	1 Speed controller (poti)

Appendix 4 Drilling template, auxiliary support (for cutting out/printing)

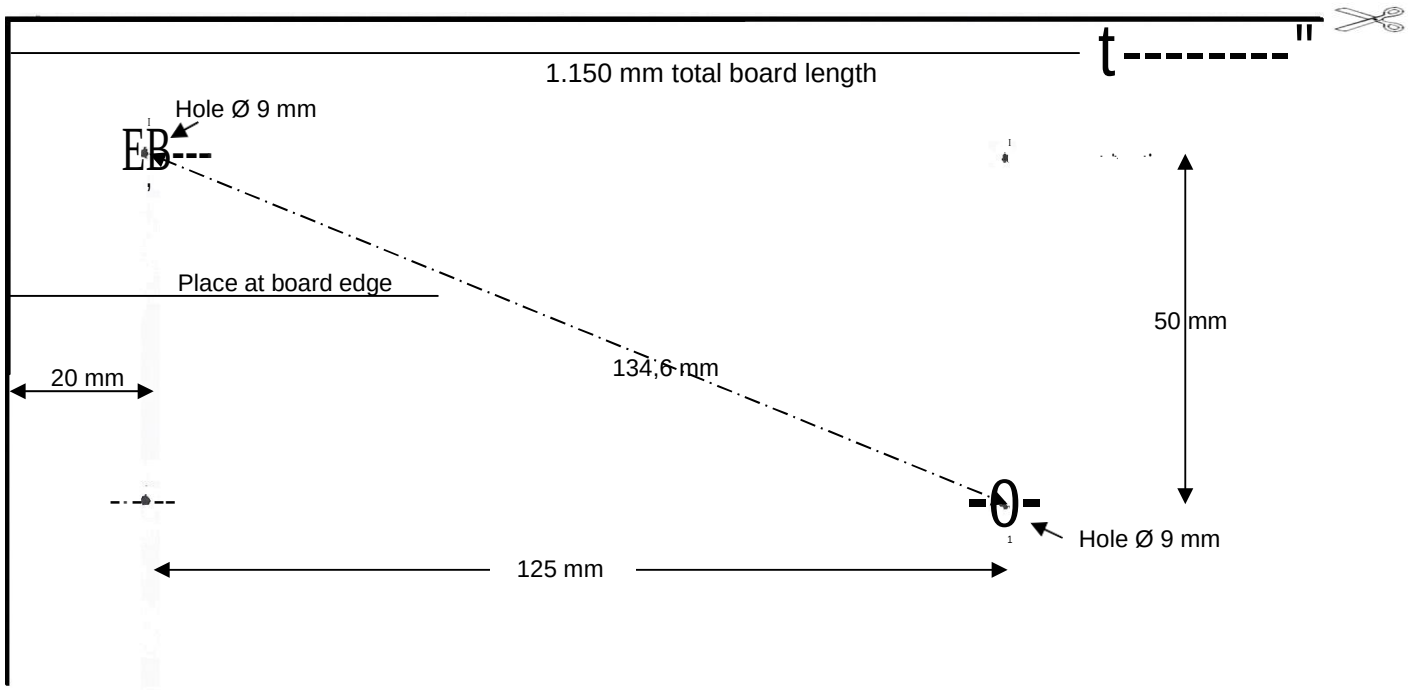

Fig. 72

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