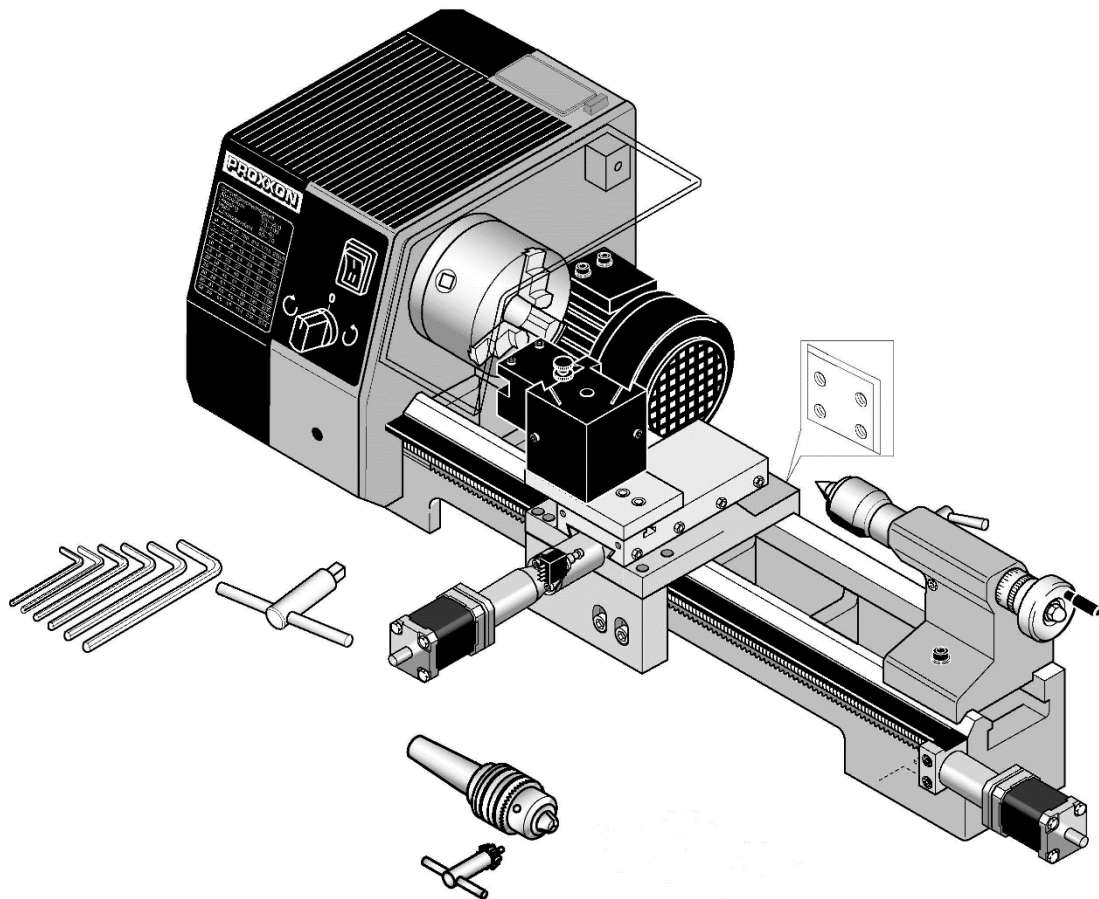


# PROXXON

## Commissioning Manual

### PD 400 CNC-ready

NO 24 504



# Commissioning Manual PD 400 CNC-ready

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## **WARNING**

**Read all safety warnings, instructions, illustrations and specifications provided with this power tool.**

Failure to follow all instructions listed below may result in electric shock, fire and l or serious injury.

**Save all warnings and instructions for future reference.**

The term "power tool" used in the safety instructions refers to mains-operated power tools (with mains lead) or battery-operated power tools (without mains lead).

## **1. Something general in advance:**

### **Please note:**

The information given and knowledge imparted in this manual are indispensable for the safe commissioning and operation of the machine and the control system!  
Therefore, read the manual carefully and make sure that you have understood the contents!

### **WARNING**

Familiarise yourself with the potential dangers of the machine before commissioning the selected software control machine tool configuration! Observe all safety instructions from this machine tool and from the manufacturer of the selected control. Note that the user alone is responsible for safety when operating the application.

### **DANGER**

In case of damage, do not touch any parts of the installation, disconnect the power supply and send the parts concerned to a qualified service workshop, ideally to our central service.

### **WARNING**

Observe the electrical values specified in the technical data for controlling the stepper motors of the machine tool. Make sure that the electrical configuration of the control is compatible with the electrical data of the motors!

## **2. The technology of your PD 400 CNC-ready at a glance**

Dear User,

With the PD 400 CNC-ready lathe, you have acquired a powerful, precise processing machine that meets high demands on operability, precision and reliability:

The mechanical basis is the proven PD 400 lathe from PROXXON.

However, the electronic control of the feeds of the two tool axes with a computer comprehensively extends the possibilities of a conventionally, i.e. manually controlled lathe:

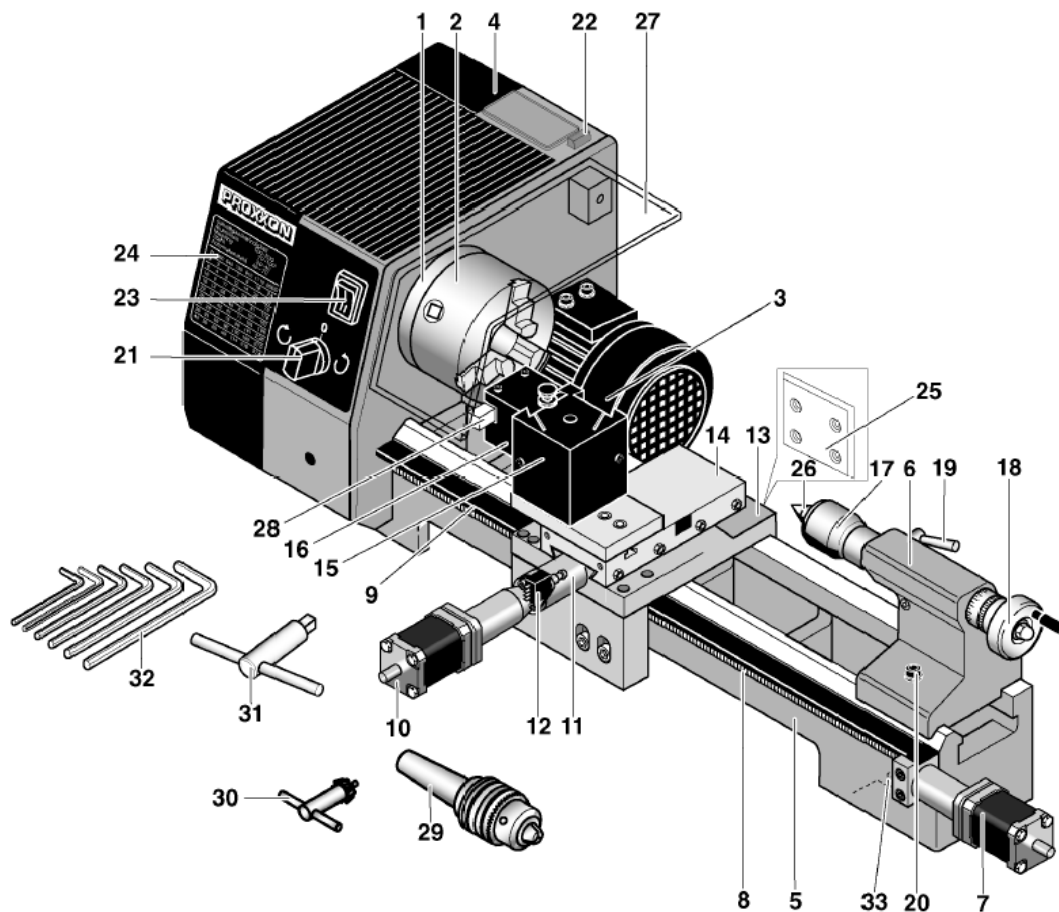
The handwheels of the PD 400 are replaced by electric stepper motors, whose force is converted into feed of the tool slides by means of high-precision recirculating ball screws.

The stepper motors are controlled by the selected CNC control, which is "operated" and monitored by the control computer.

## **3. Scope of supply**

- 1 pc. Lathe with attached stepper motors
- 1 pc. Three-jaw chuck (Ø 100 mm)
- 1 pc. Travelling centre punch
- 1 pc. Gear rim drill chuck (up to 10 mm clamping)
- 1 pc. Operating tool
- 1 pc. Multiple steel holder with 2 steel holder elements
- 1 pc. Rotary chuck guard

## 4. View of the machine with its elements



- |    |                        |    |   |
|----|------------------------|----|---|
| 1  | Main spindle           | 18 | Sleeve adjusting wheel                        |
| 2  | Lathe chuck            | 19 | Clamping screw for sleeve                     |
| 3  | Motor                  | 20 | Clamping screw for tailstock                  |
| 4  | Gearbox                | 21 | Direction of rotation switch                  |
| 5  | Machine base           | 22 | Indicator light                               |
| 6  | Tailstock              | 23 | Speed step switch                             |
| 7  | Drive for Z axis       | 24 | Speed table                                   |
| 8  | Spindle for Z axis     | 25 | Flange surface for milling unit PF 230/250/BL |
| 9  | Position switch Z axis | 26 | Travelling lathe centre                       |
| 10 | Drive for X axis       | 27 | Chuck guard                                   |
| 11 | Spindle for X axis     | 28 | Cutting tool                                  |
| 12 | Position switch X axis | 29 | Gear rim drill chuck                          |
| 13 | Support                | 30 | Key for drill chuck                           |
| 14 | Cross slide            | 31 | Key for lathe chuck                           |
| 15 | Multiple tool holder   | 32 | Allen keys                                    |
| 16 | Tool holder element    | 33 | Drill holes for fastening to table            |
| 17 | Sleeve                 |    |   |

## 5. Technical data

### 5.1. Lathe:

Length between centres:	400 mm
Height of centres:	85 mm
Maximum work piece diameter:	116 mm
Machine base:	Cross-ribbed surface, high-quality cast iron with ground prismatic guide
Spindle:	Main spindle, supported with 2 adjustable taper roller bearings
Spindle receiver:	MK3
Spindle drill hole:	20.5 mm
Spindle concentricity:	5/1000 mm
Chuck (series):	Precise 3 jaw chuck, centrally clamped, 100 mm diameter
Sleeve receiver:	MK2, retractable sleeve with scale
Spindle speeds:	Adjustable with switch (two-stage) and by shifting the drive belt (three-stage)
Switch setting 1:	80 / 330 / 1400 rev/min
Switch setting 2:	160 / 660 / 2800 rev/min
Motor rating:	550 W
Motor type:	Induction motor
Size (L x D x H):	900 x 400 x 300 mm
Weight (complete):	approx. 45 kg

## 5.2. Drives of the tool axes

### 5.2.1. Spindle drive Z-axis

Recirculating ball screw with 4mm pitch  
Effective diameter 12 mm  
Traverse path: 300mm  
Limit switch position: left

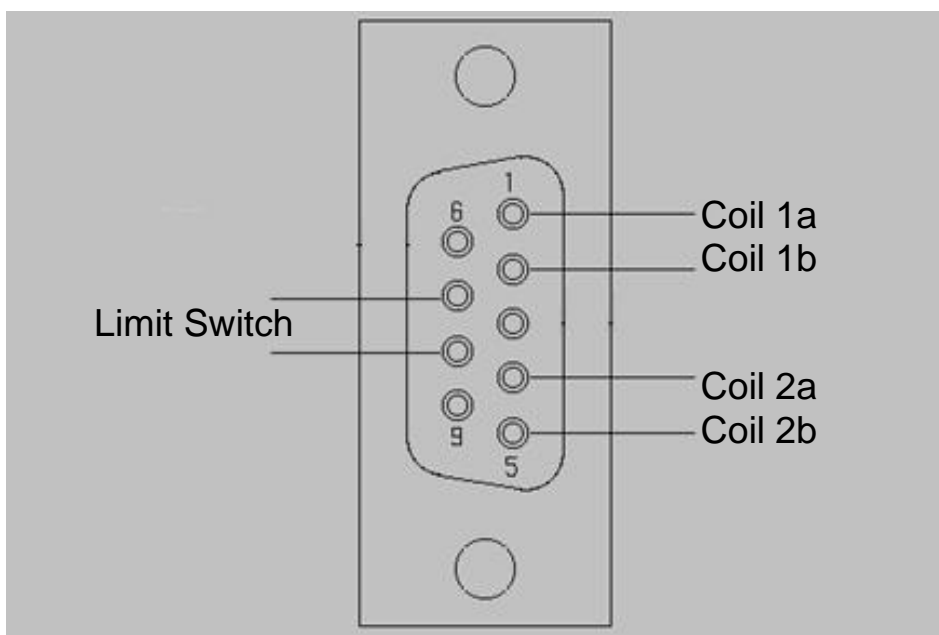
Motor:  
Current: 1,8 A  
Holding torque: 50 Ncm

### 5.2.2. Spindle drive X-axis

Recirculating ball screw with 2 mm pitch  
Effective diameter 8 mm  
Traverse path: 70mm  
Limit switch position: in front

Motor:  
Current: 1,8 A  
Holding torque: 50 Ncm

### 5.2.1. Pin assignment of the Sub D-9 connector



## 6.

### 6. Unpacking and setting up the machine

Please note:

The information given in this manual and the knowledge it conveys is indispensable for the safe commissioning and the safe operation of the machine and the controls!

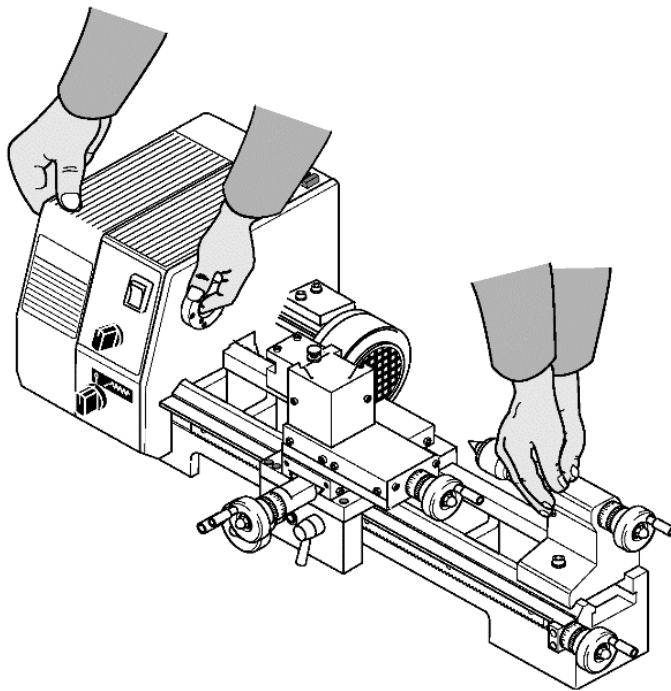
Please read the manual attentively and make sure you have understood the contents!

Carefully unpack the individual components from the Styrofoam packaging. Please check for completeness of the delivery by using the list in the chapter "Scope of Supply".

#### **Caution!**

Do not grasp the gear case, the motors, or the cover of the motor to lift the machine out of the Styrofoam packaging. The plastic caps could break.

Please enlist the aid of a helper to lift your PD 400 CNC-ready out of the package as illustrated in the figure on the right.





## 7. Basic tips on setting up and assembling the machine

- The machine may only be set up and operated in dry and well ventilated rooms.
- The installation surface must be level and sufficiently stable to absorb the vibrations that occur during operation. For this purpose, the machine must be fixed to a firm, level surface using the holes provided.
- Please ensure that the mains cable is outside the danger zone and is not crushed or otherwise damaged!
- Mount the lathe chuck on the main spindle with the 3 corresponding screws, making sure that the seat of the chuck is free of dirt and that the chuck is perfectly centred.
- Please note:  
All bare metal parts of the machine are preserved with a corrosion protection when delivered. This protection does not serve as lubrication, but only as preservation, and must therefore be washed off before first use, e.g. with a petroleum-soaked and non-fluffy cloth.
- All guides must be checked from time to time and, if necessary, adjusted in rare cases due to wear. (See chapter " Adjusting the play of the guides ").
- Afterwards, the bare guides and spindles must be well oiled with a suitable machine oil.

### 7.1. Room EMERGENCY Off

An EMERGENCY Off switch that disconnects the power supply in the entire room must be installed in the room where the machines are operated. This red/yellow coloured mushroom-shaped pushbutton must be easily accessible and arranged far enough away from the possible hazardous area.

## 8. Basics of working with the machine

### **Caution!**

Before switching on for the first time, check that the screws of the lathe chuck are correctly tightened, that the lathe chuck key is not inserted and that the support has sufficient distance to the lathe chuck.

### **Caution!**

Please note that due to the construction type, the motor can become very hot if left in idle operation for a longer period. This is not an indication for a motor defect; still, it is recommended to avoid this operating state and not to leave the machine unnecessarily in idle operation.

## **8.1. Fundamentals on turning and the PD 400 CNC-ready lathe**

### **8.1.1. Straight turning**

Straight turning is the type of turning whereby the cutter moves on a path parallel to the work piece axis, the "longitudinal feed".

The cutting depth, also called "infeed" is the amount by which the cutter dips deeper into the material for every turning cycle.

"Feed" is the distance per revolution of the work piece which the tool travels on its path. The cutting cross-section is therefore the product of feed and cutting depth. Straight turning is the most common machining type.

### **8.1.2. Grooving and parting**

Grooving is the manufacture of fine grooves through radial infeeding of the cutting tool without longitudinal feed.

If the tool is infeed so much that the work piece is thus "cut through" (meaning up to the rotary axis or the centre of the work piece), then this is called "parted".

In principle:

The height of the cutting edge of the parting tool must be adjusted precisely to the height of the centre of the work piece! Also, the tool must be clamped as short as possible:

Too much free length always means deformation and susceptibility to vibrations! This naturally applies to straight turning as well.

Use a low speed and lubricate the tool if possible with a bit of machine oil.

## 8.2. Various cutting tools and their properties

For various work tasks there are special tools that are optimally co-ordinated to their respective intended use due to their form. The right choice of tool is thus not only essential for the perfect quality of the work result, but some machining can only be done with certain tool forms from the outset.

We will briefly introduce the most important forms:

### 8.2.1. Roughing tools (1)

are used to wear off as much swarf as possible in a short time (regardless of the finish of the work piece surface).

### 8.2.2. Finishing or pointed tools (2)

are used to achieve a clean surface.

### 8.2.3. Right (3) or left cutters

are used for longitudinal and face turning as well as for boring acute angles in right or left machining direction.

### 8.2.4. Parting tools (4)

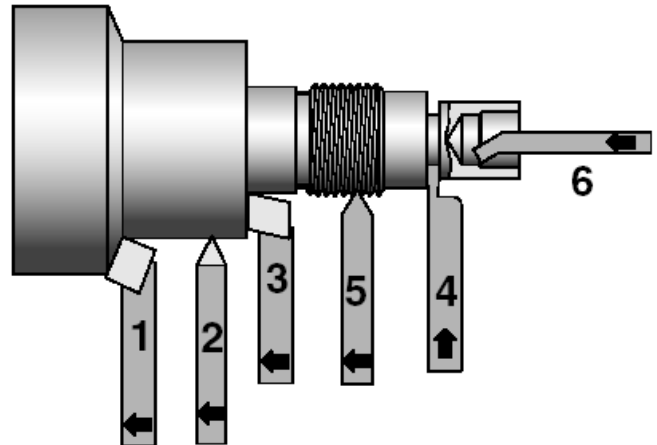
are used to groove flutes and to separate the work pieces.

### 8.2.5. Threading tools (5)

are used to cut external threads.

### 8.2.6. Inside turning tools (6)

for boring, i.e. to manufacture cylindrical hollow spaces



### 8.3. Inserting the cutting tool in the tool holder

The basic equipment of the PD 400 CNC-ready includes a multiple tool holder consisting of tool holder block 1 and two tool holder elements 2.

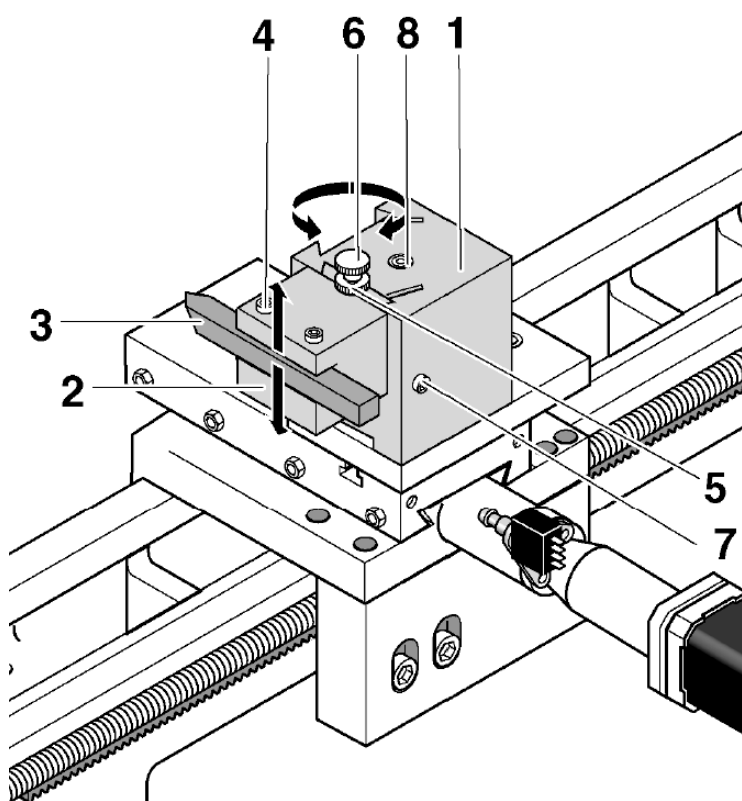
The tool holder elements can be adjusted in height: Turn the knurled screw 5 up or down until the tool centre is exactly in the centre, meaning at the same height as the work piece axis. The exact height setting is very important.

This is the only way to guarantee the optimal geometrical conditions at the cutting edge. Otherwise vibrations and a bad work result would be the result.

The position set in this way can be "memorized" by tightening with knurled screw 6 and can be reproduced by repeatedly inserting the tool holder in the dovetail guide.

Often different cutting tools are required for different work processes. If they are already "pre-mounted" in the tool holder and adjusted correctly, they can be easily exchanged in the dovetail guide after loosening screw 7.

The correct height is set automatically when the knurled screw hits the top side of the tool holder.



1. Insert cutting tool 3 in tool holder element 2. Firmly tighten both screws 4.
2. Insert tool holder element in tool holder block 1. Adjust the height of the cutting tool with nut 5 and tighten with nut 6.
3. Please adjust the height of the cutting edge with the lathe centre in the tailstock.
4. Clamp tool holder element with screw 7.

**Note:**

The entire holding block can be swivelled after release screw 8.

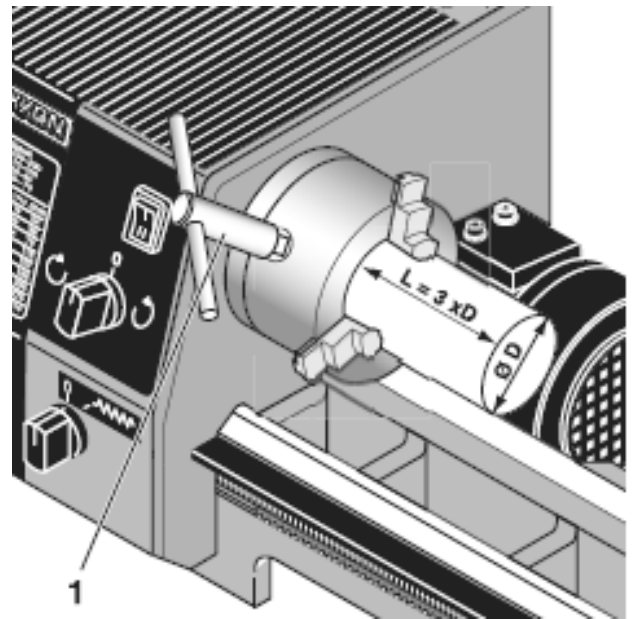
## 8.4. Clamping in the lathe chuck

### Caution!

Please comply with the enclosed operating instructions of the chuck manufacturer as necessary!

### Caution!

If work pieces are only clamped in the lathe chuck without counter-bracket by the tailstock, the projection may not be greater than the three-fold diameter of the material ( $L = 3 \times D$ ), see figure at right.

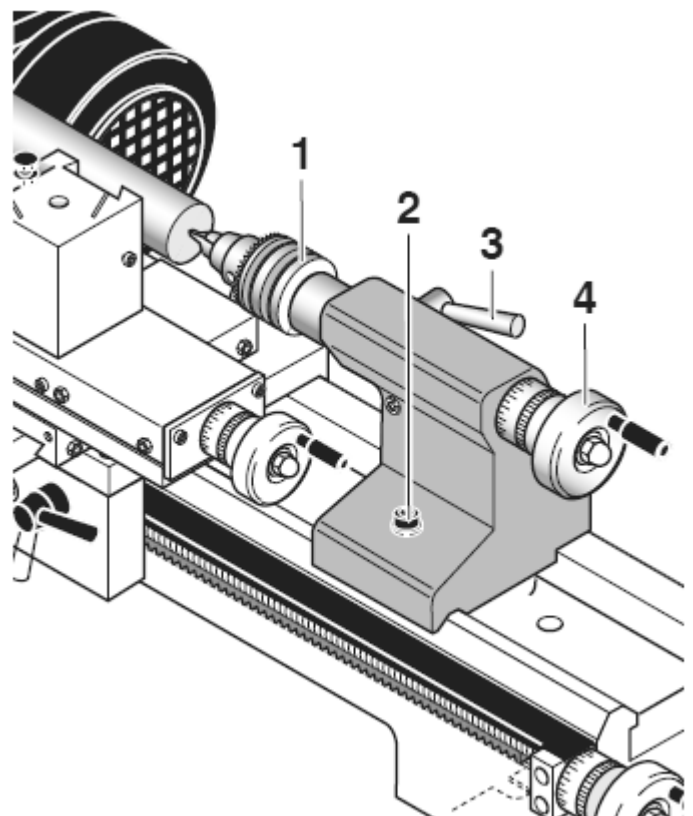


## 8.5. Machining longer work pieces with tailstock and lathe centre

Longer work pieces (chuck projection greater than the 3-fold work piece diameter) must be held at the right end by the tailstock and the travelling lathe centre. To do so, please affix a centring hole on the right side:

1. Carefully face turn the right face side.
2. Insert drill chuck 1 (picture right) in the tailstock and clamp the centring drill.
3. Move the tailstock up to the work piece and fix with clamping screw 2.
4. Switch on the machine and create the centring hole using the sleeve feed (hand wheel 4).

You can now replace the drill chuck with the travelling lathe centre. Place the centre in the centring hole and carefully infeed until there is absolutely no play. Now fix the sleeve with toggle 3.



## 8.6. Determining the correct spindle speed

The cutting speed is a decisive parameter during machining. Too high or too low cutting speeds affect the good end result, so the choice of spindle speed – which is decisive for the cutting speed – is very important for a good surface and clean metal removal. Another determining factor is the diameter of the work piece: the greater it is, the greater the relative speed is at the circumference at constant speed. The relation is characterised by the following equation:

$$n = Vc * 1000 / (D * 3.14)$$

whereby:

n: Rotational speed  
Vc: Cutting speed  
D: Diameter

The table on the gear case of the machine offers help in choosing the right cutting speed. For known cutting speed "Vc" and known work piece diameter "D", the necessary spindle speed "n" can be calculated.

An example:

An aluminium work piece with a 30mm diameter will be machined. The necessary cutting speed according to the table is 100–180m/min. We will calculate 132m/min.

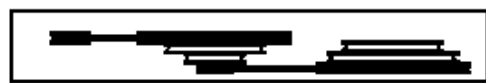
$$n = 132 \times 1000 / (30 \times 3.14) = 1400 \text{ rev/min}$$

This result can be read directly in the table on the gear case.

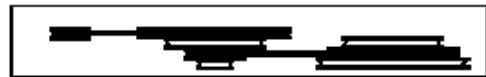
## 8.7. Determining the spindle speeds

By combining the speed step switch pos. 23 (Fig. 1) and the position of the belt in the machine's gear box, six main spindle speeds from 80 to 2800 rpm can be selected:

80/160 min<sup>-1</sup>



330/660 min<sup>-1</sup>



1400/2800 min<sup>-1</sup>

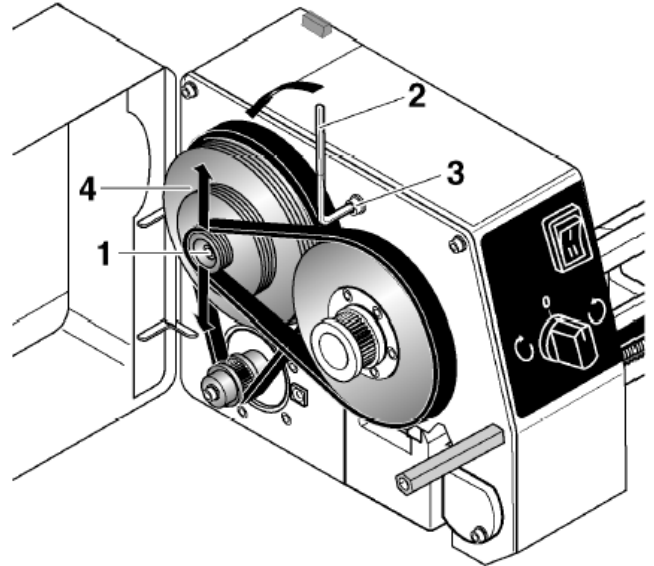


The specifications refer in each case to position I and II of the speed step switch.

## 8.8. Shifting the drive belt

The spindle speed can be changed by shifting the motor (multiple contact switch 1 Fig. 4). The speed is halved or doubled. On the other hand, the speed can be changed by shifting the drive belt in the spindle box at the left.

1. Switch off the CNC control at the mains switch and open the gear case with the Allen key.
2. Loosen clamping screw 1 by  $\frac{1}{2}$  a turn.
3. Use the Allen key 2 to turn screw 3 to the left. This releases the intermediate belt pulley 4.
4. Now change the belt according to the graphic shown below.
5. Use the Allen key 2 to turn screw 3 to the right to tension the belt again.
6. Remove Allen key 2 and tighten clamping screw 1.
7. Close the gear case and put the machine into operation.



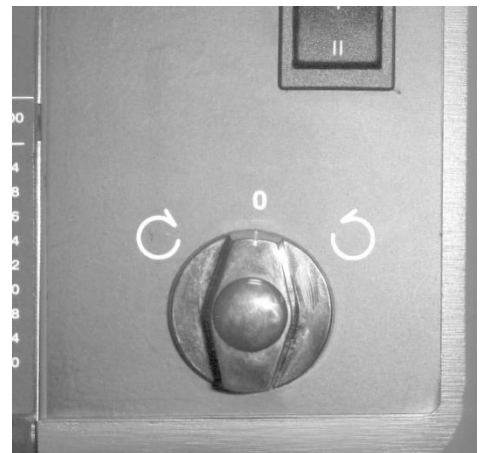
## 8.1. Direction of rotation switch

Your CNC machine no longer has a separate mains switch as it is controlled directly via control electronics.

However, during normal work, make sure that the direction of rotation switch of the machine (shown in the figure on the right) is not in the "0" setting, but is set to the desired direction of rotation.

Otherwise the machine will not start.

That is why it also may not be set to "0" during a machining procedure, as the spindle movement will be interrupted.



## 9. Service and Maintenance

### **Attention!**

During all maintenance and cleaning work, make sure that the machine cannot start up accidentally!

If necessary, make sure that the mains cable is disconnected from the control unit and that the direction of rotation switch (see page 15) is in the middle position "0".

## 9.1. General

Please keep the machine clean and handle it with care. Keep in mind that a "healthy" mechanical system is decisive for the quality of the work result.

The guides in particular play an important role here: they are important machine elements and must be treated with particular care.

Basically, machine maintenance includes cleaning after each use and regular oiling and lubrication.

## 9.2. Cleaning

For cleaning e.g. chips etc. please use a hand brush or a paint brush. Please make sure that the chips do not get into the guides or other moving parts.

Of course you can also use rags. However, these should not be linty in order to avoid soiling the guides.

A vacuum cleaner is also suitable for removing the chips!

**Never blow off the machine using compressed air:** Dust and above all swarf can be blown into guides or other moving parts and damage them!

When using cleaning agents, make sure the saturated wiping cloths are disposed of in an environmentally-compliant manner. Do not dispose of in household waste.

## 9.3. Lubrication

Grease or oil all parts according to the lubrication schedule. When oiling the sliding surfaces, move the carriages back and forth by hand several times so that oil can run into the guides.

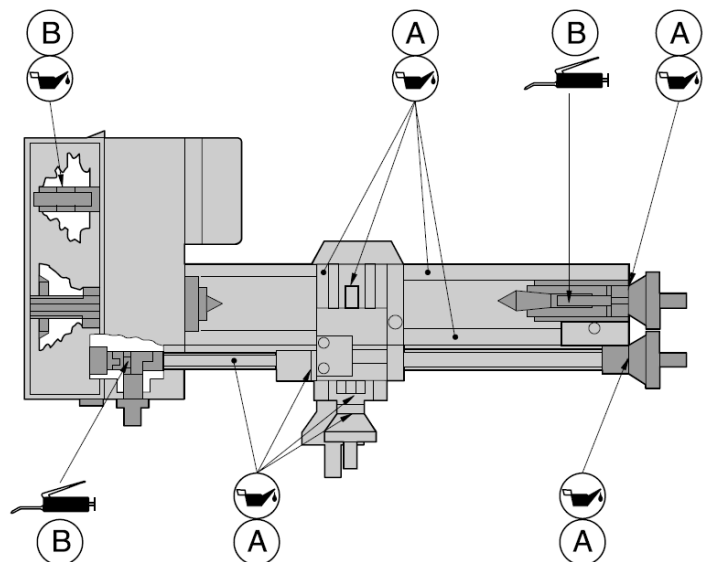
A = Oil/lubricate before every use

B = Oil /lubricate monthly

The regular and careful lubrication will decisively reduce friction between two moving parts and will thus contribute to a long service life of the guide and a good mechanical condition of the machine.

To properly apply the lubricant, use an oil can or a lint-free cloth saturated with oil or grease. Please treat the guides and all moving and blank parts in the same manner.

Please also comply with the instructions of the lubricant manufacturers!



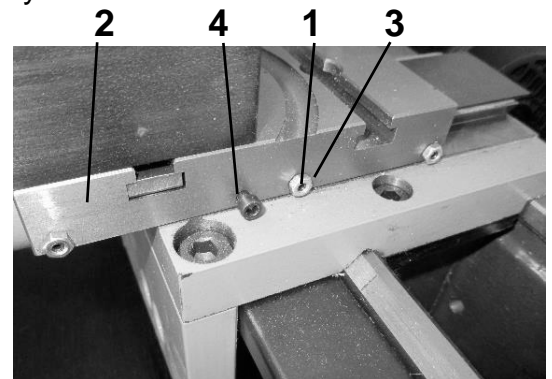


## 9.4. Adjusting the play of the guides

### 9.4.1. Adjusting the play of the guide of the cross slide

Even if the guides are regularly oiled, cleaned and properly adjusted, the guides will show play after some time.

1. Release the counter nuts 1 (Fig. 18) of the adjusting screws for upper carriage 2, turn in all adjusting screws 3 evenly until the play is eliminated and then retighten the counter nuts.

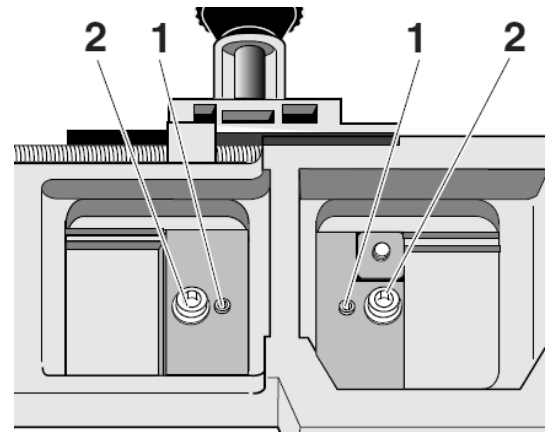


#### **Please note:**

The guide can be clamped with the screw 4.

### 9.4.2. Adjusting the play of the guide of the support

1. Repeat the same procedure for the cross slide 4. Note: The guide can be clamped with the help of screw 5.
2. Turn the machine upside down and unscrew the threaded pin 1 (pic. Right) somewhat.
3. Lightly retighten clamping screws 2 to reduce play.
4. Check if the support can still be moved easily. The drive motors could stall if the support is too stiff. These will then emit "peeping" noises. In this case, increase play somewhat.



## 9.5. Main spindle

The bearing assembly of the spindle through 2 taper rolling bearings is maintenance-free for at least 6,000 hours at minimum speed and 1,800 hours at maximum speed. If there is a small amount of play after this time, the bearings can be readjusted by a specialist or in our central service.

## 9.6. Care and maintenance checklist

Some elements affect the precision and work safety and must therefore be checked regularly.

Here the following checklist for this purpose:

- Guides – clean and dry?
- Spindles free of machining residues ?
- Fastening screws are tight?
- Alignment: Are tables at right angles?
- Open the spindle covers for inspection: must swarf be removed by vacuuming?

If required, the following maintenance activities are necessary:

- Clean the shafts, rub them dry, open the covers and clean or oil the spindle system.
- Readjust the guides in case the carriages have play
- Rub aluminium surfaces with acid-free oil.

If the CNC machine will be decommissioned for a longer period of time, it should be stored in a dry room at a minimum temperature of 5°C.

A cover to protect from dust and environmental effects is sensible.

## 10. Disposal:

Please do not dispose of the device in the household waste! The device contains valuable substances that can be recycled. If you have any further questions, please contact your municipal disposal company or other appropriate municipal institutions.

## 11. Compilation of safety notes

As with any other machine, there are some things that need to be observed when operating the CNC lathe PD 400 CNC-ready so that dangers to humans and the environment cannot occur.

In this context, please also observe the separately enclosed pamphlet with the safety notes.

Special noise protection    This can be achieved through ear protection, a protective cell, or a closed room. Also, clamp the tools short so they do not vibrate so strongly

User group                      Persons above the age of 14 may use the system; instructions on safety and compliance with the safety notes is always required.

**Caution!**

Risk of injury!                      Always keep your fingers away from the rotating work piece while turning! Never measure the work piece during operation with a sliding calliper or similar! Do not process the work piece during operation with a rasp or sandpaper!

Setting up the workplace:                      No spatial narrowness  
EMERGENCY Off push button in the room  
Vacuum cleaner, permanently installed  
PC and machine next to each other,  
Connecting cable, max. 1.5m

User group                      Technically capable persons who are at least 14 years of age.  
Familiarize yourself using the documents or by being instructed.

Machining unit                      Due to the safety regulations, a machining unit for clamping processing is delivered.

Changing work pieces                      Please observe at all costs that the machine is protected against unintentional actuation while changing the tools or clamping work pieces in the respective clamping device!

When changing the tools, the mains power input for the machining unit must be removed from the mains socket!

Clamp the lathe tool as short as possible!

Eye and contact protection                      Wear protective goggles in the immediate vicinity and make sure that the chuck guard is in the correct position when operating the machine.

Software safety measures:

Locking and stopping the machine:                      Machining, or movement, can be **interrupted at any time** (software STOP):

- By pressing any key of the alphabetic and numeric keypad or any mouse button.
- Activate the switch/pushbutton "Lock" at the CNC control MCS to the "Lock" position.

## 12. EC Declaration of Conformity

We herewith declare in sole responsibility that the following designated product in the design which we have marketed complies with the principle safety and health requirements of the applicable EU Directive.

This declaration shall lose its validity if unauthorised changes were made to the system.

Adress: Proxxon S. A.  
Härebjerg 6-10  
LU-6868 Wecker

Product designation CNC Lathe

Type designation PD 400 CNC-ready  
Article number 24504

### Applicable Guidelines and Standards:

#### **EC EMC Directive 2004/108/EG**

DIN EN 55014-1/08.2018

DIN EN 55014-2/01.2016

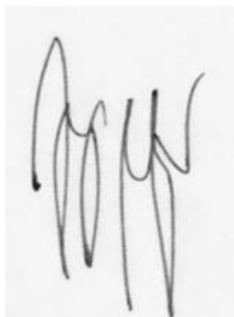
DIN EN 61000-3-2/03.2017

DIN EN 61000-3-3/03.2014

#### **EC Machinery Directive 2006/42/EG**

DIN EN 62841-1/07.2016

#### **RoHS-Directive 2011/65/EU**



Jörg Wagner

14 th of December 2022

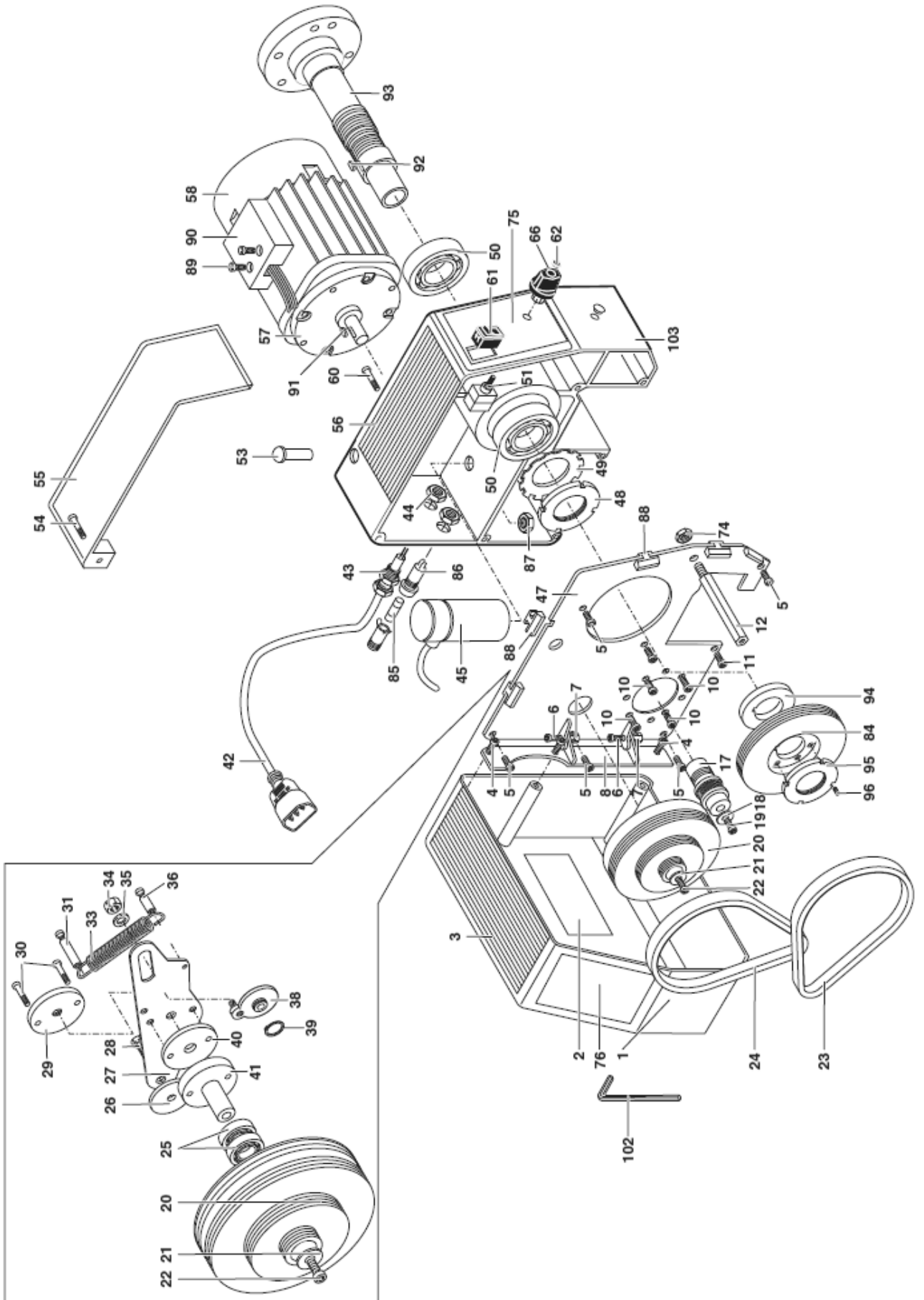
Machine Safety Department

The CE document authorized agent is identical with the signatory.

## **13. List of components and exploded views**

Please order spare parts in writing from the PROXXON Central Service

# 13.1. Assembly group 01 Headstock



<b>ET No.:</b>	<b>Designation</b>
24504 - 01 - 01	Cover for gearbox
24504 - 01 - 02	Table thread pitch
24504 - 01 - 03	Placement pad for cover
24504 - 01 - 04	Screw for hinge
24504 - 01 - 05	Screw for gear plate
24504 - 01 - 06	Screw
24504 - 01 - 07	Nut
24504 - 01 - 08	Hinge
24504 - 01 - 10	Screw
24504 - 01 - 11	Screw
24504 - 01 - 12	Bolt
24504 - 01 - 17	Belt pulley motor
24504 - 01 - 18	Washer
24504 - 01 - 19	Screw
24504 - 01 - 20	Intermediate belt pulley
24504 - 01 - 21	Washer
24504 - 01 - 22	Screw
24504 - 01 - 23	Belt main spindle
24504 - 01 - 24	Belt motor
24504 - 01 - 25	Bearing
24504 - 01 - 26	Plate
24504 - 01 - 27	Sheet
24504 - 01 - 28	Screw
24504 - 01 - 29	Plate
24504 - 01 - 30	Screw
24504 - 01 - 31	Bolt
24504 - 01 - 33	Spring
24504 - 01 - 34	Nut
24504 - 01 - 35	Washer
24504 - 01 - 36	Bolt
24504 - 01 - 38	Plate with hexagon
24504 - 01 - 39	Seeger circlip ring
24504 - 01 - 40	Plate
24504 - 01 - 41	Flange
24504 - 01 - 42	Mains cable
24504 - 01 - 43	Strain relief
24504 - 01 - 44	Nut for strain relief
24504 - 01 - 45	Capacitor
24504 - 01 - 47	Gear plate
24504 - 01 - 48	Grooved nut
24504 - 01 - 49	Locking washer
24504 - 01 - 50	Taper rolling bearing
24504 - 01 - 51	Rotary switch running direction (including axis and screws)
24504 - 01 - 53	Ready indicator

<b>ET No.:</b>	<b>Designation</b>
24504 - 01 - 54	Screw for chuck guard
24504 - 01 - 55	Chuck guard
24504 - 01 - 56	Placement pad headstock
24504 - 01 - 57	Motor (complete with cover plate)
24504 - 01 - 58	Cover plate for motor
24504 - 01 - 60	Stop screw
24504 - 01 - 61	Changeover switch for speeds
24504 - 01 - 62	Cap for rotary button
24504 - 01 - 66	Turning knob, complete
24504 - 01 - 74	Nut
24504 - 01 - 75	Spindle box sticker
24504 - 01 - 76	Sticker for gear case
24504 - 01 - 77	Lathe chuck (not pictured)
24504 - 01 - 78	Key for lathe chuck (not pictured)
24504 - 01 - 79	Fastening screw for lathe chuck (not pictured)
24504 - 01 - 80	Complete set of tools (not shown)
24504 - 01 - 84	Belt pulley
24504 - 01 - 85	Lead fuse
24504 - 01 - 86	Fuse holder complete
24504 - 01 - 87	Nut
24504 - 01 - 88	Positioning plate
24504 - 01 - 89	Screw
24504 - 01 - 90	Terminal box cover
24504 - 01 - 91	Fitted key
24504 - 01 - 92	Fitted key
24504 - 01 - 93	Main spindle
24504 - 01 - 94	Spacer ring
24504 - 01 - 95	Grooved nut
24504 - 01 - 96	Setscrew
24504 - 01 - 97	Article packaging (not pictured)
24504 - 01 - 99	Operating instructions and safety regulations (not shown)
24504 - 01 - 102	Allen key
24504 - 01 - 103	Spindle stock

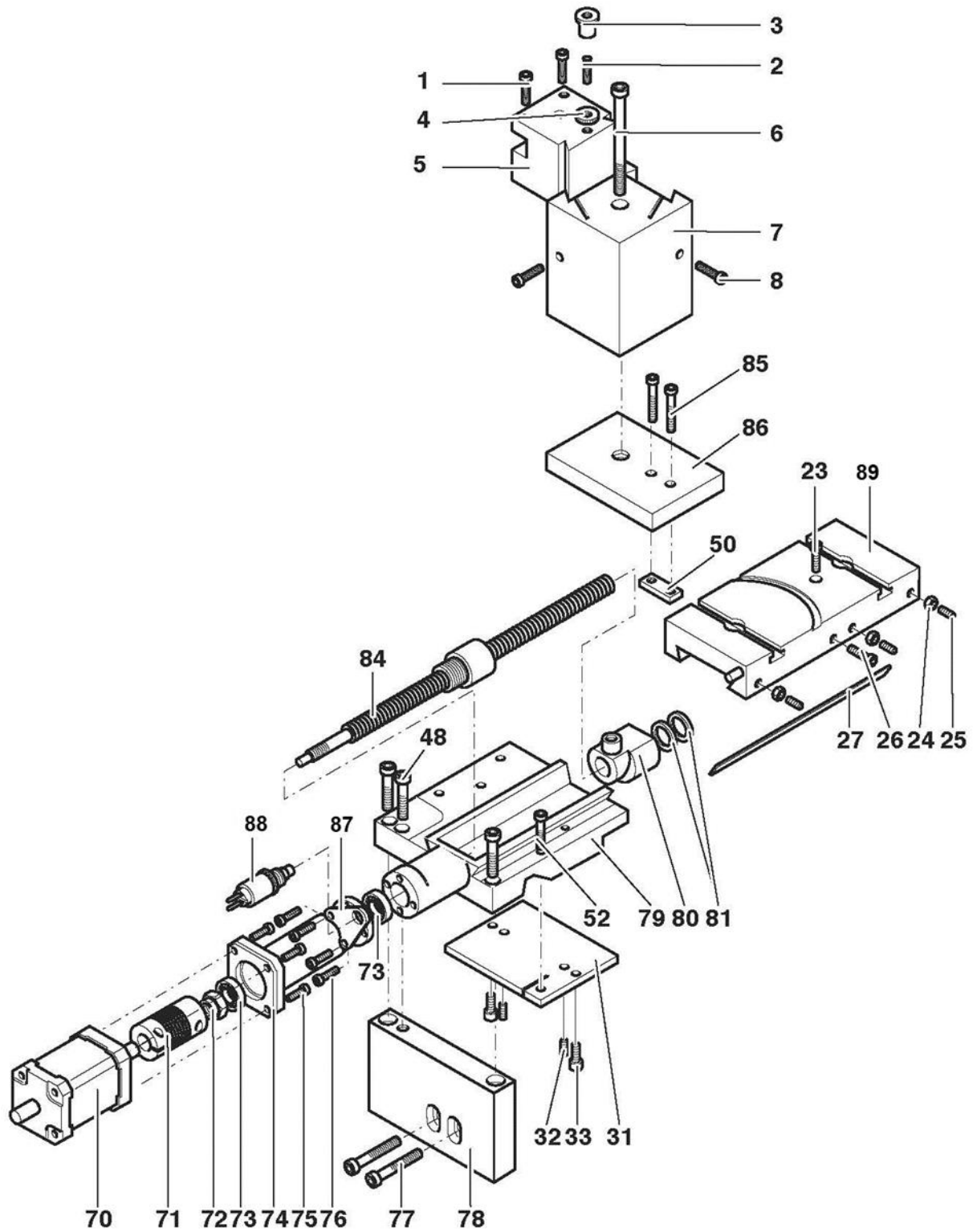






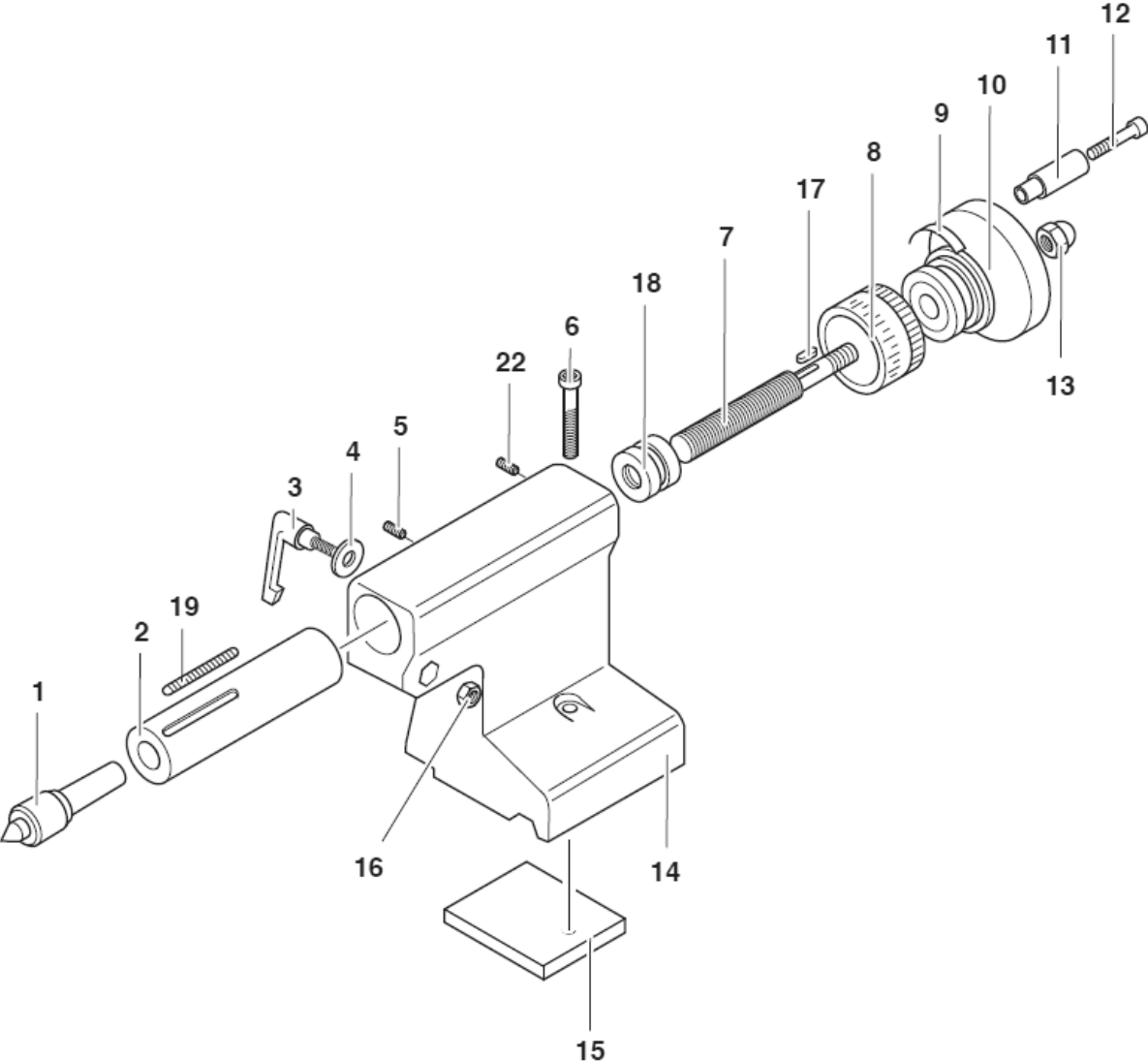
<b>No.:</b>	<b>Designation</b>
24504 -02 - 01	Bed with hardened guide
24504 -02 - 02	Cover plate
24504 -02 - 03	Screw for cover plate
24504 -02 - 04	Screw for motor mounting
24504 -02 - 05	Flange for motor mounting
24504 -02 - 06	Ball bearing
24504 -02 - 07	Nut
24504 -02 - 08	Coupling
24504 -02 - 09	Motor
24504 -02 - 10	Holder
24504 -02 - 11	Felt ring
24504 -02 - 12	Ball spindle
24504 -02 - 13	Screw
24504 -02 - 14	Cover
24504 -02 - 20	Screw
24504 -02 - 21	Position switch
24504 -02 - 22	Holder for position switch
24504 -02 - 23	Cable drag chain
24504 -02 - 24	Screw

### 13.3. Assembly group 03: Support with drive for X axis



<b>No.:</b>	<b>Designation</b>
24504 - 03 - 01	Screw
24504 - 03 - 02	Set screw
24504 - 03 - 03	Knurled nut
24504 - 03 - 04	Knurled nut
24504 - 03 - 05	Tool holder element
24504 - 03 - 06	Screw
24504 - 03 - 07	Tool holder
24504 - 03 - 08	Screw
24504 - 03 - 23	Screw
24504 - 03 - 24	Nut
24504 - 03 - 25	Set screw
24504 - 03 - 26	Screw
24504 - 03 - 27	Sheet
24504 - 03 - 31	Counter plate
24504 - 03 - 32	Set screw
24504 - 03 - 33	Screw
24504 - 03 - 48	Screw
24504 - 03 - 50	Sliding block
24504 - 03 - 52	Screw
24504 - 03 - 70	Motor
24504 - 03 - 71	Coupling
24504 - 03 - 72	Nut
24504 - 03 - 73	Ball bearing
24504 - 03 - 74	Motor holding flange
24504 - 03 - 75	Screw
24504 - 03 - 76	Screw
24504 - 03 - 77	Screw
24504 - 03 - 78	Plate
24504 - 03 - 79	Carriage
24504 - 03 - 80	Connector
24504 - 03 - 81	Felt washer
24504 - 03 - 84	Ball screw
24504 - 03 - 85	Screw
24504 - 03 - 86	Plate
24504 - 03 - 87	Spacer plate
24504 - 03 - 88	Position switch
24504 - 03 - 89	Upper carriage

### 13.4. Assembly group 04: Tailstock



<b>No.:</b>	<b>Designation</b>
24504 - 04 - 1	Travelling lathe centre
24504 - 04 - 2	Sleeve
24504 - 04 - 3	Toggle
24504 - 04 - 4	Washer
24504 - 04 - 5	Threaded pin
24504 - 04 - 6	Screw
24504 - 04 - 7	Spindle
24504 - 04 - 8	Graduated collar
24504 - 04 - 9	Spring
24504 - 04 - 10	Hand wheel
24504 - 04 - 11	Grip
24504 - 04 - 12	Screw
24504 - 04 - 13	Cap nut
24504 - 04 - 14	Tailstock
24504 - 04 - 15	Plate
24504 - 04 - 16	Nut
24504 - 04 - 17	Fitted key
24504 - 04 - 18	Limit stop
24504 - 04 - 19	Scale
24504 - 04 - 22	Threaded pin

# PROXXON

## Service note

All PROXXON products are thoroughly inspected after production. Should a defect occur nevertheless, please contact the dealer from whom you purchased the product.

Only the dealer is responsible for handling all legal warranty claims which refer exclusively to material and manufacturer error.

Improper use, such as capacity overload, damage due to outside influences and normal wear are excluded from the warranty.

You will find further notes regarding "Service and Spare Parts Management" at [www.proxxon.com](http://www.proxxon.com).

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