

Operating instructions

Desktop CNC-/3D-System STEPCRAFT 300 / 420 / 600



Original operating
instructions

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Please read these instructions before the first commissioning of your machine thoroughly and only commission the machine when you are sure that you understood everything.



Keep these instructions always nearby your machine.



Before each commissioning it is necessary to check if the machine is working technically perfect and if it is a technically perfect status.

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1 GENERAL NOTES

1.1 INFORMATION AND EXPLANATIONS FOR THE OPERATING INSTRUCTIONS

This manual serves to make you familiar with a desktop CNC-/3D-system and to impart you all necessary information which you require in order to be able to operate the machine safely and professionally.

This manual is applicable for the desktop CNC-/3D-systems STEPCRAFT 300, STEPCRAFT 420 and STEPCRAFT 600, hereafter referred to as STEPCRAFT.

Please completely read this manual before the first commissioning of your machine.

In order to minimize the risks of injury and/or material damages please only commission the machine and the corresponding control when you are sure that you have completely understood these instructions!

Please contact us for any further questions. Please find our contact data on page -3- of these instructions.

Please always keep these instructions nearby the machine. You should always have them readily to hand when you want to look up something.

Please only use this machine according to its intended use (refer to item 1.3).

We cannot be held liable for persons or material damages which are caused by using the machine other than the intended use, handling which does not comply with the common use of a CNC machine or if safety regulations are not obeyed (refer to item 2).

In case of lacking maintenance (refer to item 8) and/or wrong operation of the individual components your warranty claims are omitted.

We reserve the right to perform future technical enhancements on the machine and its components.

1.2 DESCRIPTION OF THE MACHINE

The STEPCRAFT machines are desktop CNC-/3D-systems for machining wood, plastics or nonferrous metals. The systems are based on a specially developed aluminum extrusion containing numerous functions (e.g. guiding, drive, protection against dust, etc.). It is very stable and torsion-resistant due to its angular shape.

The machine has three axes which are offset by 90°. In this way it is possible to travel to any point within the working range. Each axis is equipped with a step motor and a reference switch. The step motor precisely drives the mobile axes elements by means of a threaded spindle. It is possible to use the control in order to adjust the position of the axis with the help of the reference switch.

The machine table consists of a High Pressure Laminat (HPL) with a thickness of 8.0 mm. You can fix the work piece directly on the table with the clamping system delivered.

The STEPCRAFT-System consists of different central components. In order to use a ready-to-operate CNC machine the following additional components are required:

1. Control / main board (integrated, see connection panel on the back of the machine) with USB- or parallel module
2. System-guided tools with a shank diameter of 43.0 mm / 1.69 inch, e.g. a milling spindle, or any other tool with a shank diameter of less than 43 mm / 1.69 inch with a suitable clamping adapter (not enclosed)

3. Control software with cycle direction output signals, e.g. WinPC-NC or Mach3 (not enclosed). In the USB variant the software WinPC-NC Starter is enclosed.
4. Suitable PC (not enclosed)
5. Connection cable (enclosed)

You can optionally retrofit the machine/control e.g. with a fourth axis. This allows the turning of the work piece.

Please find further information for optional accessory under item 5.6 of these instructions.

1.3 INTENDED USE

The STEPCRAFT machine series is designed for private users (e.g. model-makers) and piece productions or productions of small series in the industrial area. It is not suitable for the production of large series or to integrate it in production lines.

The torsion-resistant structure allows to process plastic materials, wood and non-ferrous metals.

The used milling spindle should not exceed the power of 500 watts.

You should work using milling cutters with a diameter of up to 3.0 mm. If possible immediately absorb the chips during production.

2 SAFETY

2.1 GENERAL NOTES

Please completely read this manual before the first commissioning of your machine! Any person operating this machine must have read these instructions!

In order to minimize the risks of injury and/or material damages only operate the machine and the corresponding control when you are sure that you have completely understood the instructions!

Please do not hesitate to contact us for any further questions. Please find our contact data on page -3- of these instructions.

Please always keep these instructions nearby the machine. You should always have them readily to hand when you want to look up something.

Please only use this machine according to its intended use (refer to item 1.3). If the machine is not used as intended there is a risk for persons and of material damages!

It is not allowed to modify and/or retrofit the machine unless this has been expressly authorized by us in individual cases.

The STEPCRAFT is designed and constructed according to the currently applicable state-of-the-art.

2.2 RESPONSIBILITY OF THE OPERATOR AND WORKING SAFETY

When you operate the machine you should have the minimum age of 14 years and be technically experienced.

Being the operator you are responsible that you have read and understood all relevant operating instructions and to keep them nearby the machine.

You have to make sure that you operate the machine only when it is in a technically proper status.

The emergency-stop switch and if applicable other safety equipment must always be well attainable and operable.

Being the operator you have to wear the personal protective equipment described under item 2.3 when you work on the machine.

In particular when performing setting works on the machine on the control or on the milling spindle please disconnect the machine from the mains!

Always make sure to have sufficient clearance to the mobile parts (guiding, milling cutters, shafts) and never grasp with your hand into the machine. This may result in severe injuries!

Never hold the work piece (in order to measure it to process it or for any other purposes) while the machine is running. There is a high risk of injury!

Never hold the work piece to be processed only with the hand but always firmly clamp the work piece. Otherwise there is a high risk of injury!

Depending on the field of application of the machine (private or industrial use) please observe the correspondingly applicable regulations for occupational safety, safety and accident prevention as well as environmental protection.

2.3 PERSONAL PROTECTIVE EQUIPMENT

- Safety goggles (to protect the eyes against chips flying off at high speed, etc.)
- Hearing protection (to protect the ears against loud noises)
- Protective gloves (to protect the hands against cuts, abrasions, etc.)
- Furthermore do not wear any clothes which might get caught in the machine (ties, scarves, shawl, wide sleeves, etc.) and do not wear any jewelry in particular no long chains and rings.

2.4 ENVIRONMENTAL CONDITIONS

The machine is only suitable to be operated inside!

Position the machine on a solid plane substructure in order that it stands safely and can neither slip nor tilt over.

Make sure that there is sufficient space around the machine in order that you can work comfortably and that the machine can fully extend to its traveling paths. Also keep sufficient clearance to possibly nearby positioned machines.

Provide for sufficient illumination of the machine site and the working place surrounding the machine.

Place the PC which controls the machine nearby the machine so that you can have an eye on both.

All instructions for the machine and its components must be nearby.

2.5 COMMISSIONING OF THE SYSTEM CONTROL / MILLING SPINDLE

In order to safely and professionally commission the electronic control of the system the milling spindle and possibly additionally built-in components please imperatively read the operating instructions of the individual components completely before the first commissioning of the whole system.

Check if the individual components are perfectly connected with each other before the first commissioning and in regular intervals later on.

Furthermore, check before each use of your machine if it is supplied with current and if required if the compressed air is working perfectly.

2.6 OPERATOR

The person operating the machine should be not less than 14 years old and technically experienced.

All persons operating the machine must have completely read and understood all relevant operating instructions.

Each operator must get familiar with the electronic control of the machine as well as with the used control software before the first use of the machine.

Each operator must have personal protective equipment.

Each operator must operate the machine and its components with due prudence and due expertise which is necessary for the use of CNC controlled milling machines.

2.7 EMERGENCY-STOP SWITCH

The emergency-stop switch is located at the front side of the machine (refer to the schematics under item 3.1 of these operating instructions).

The Emergency-Stop is released by pressing the switch.

In this way the power supply of the control is interrupted. Furthermore, the control software receives the signal to stop the working process. The machine stops immediately.

ATTENTION! The emergency-stop switch can only affect the standstill of all components if they are connected.

This is ensured if you use the milling spindles and the controller made by STEPCRAFT.

If you use any third party products such as e.g. another controller you are responsible yourself to connect the Emergency-Stop switch professionally with your controller. Otherwise there is a risk for persons and material damages!

Also if you would like to use a system-guided tool like a milling spindle of another supplier which is equipped with a separate ON/OFF switch and is NOT controlled via the PC you have to make sure that it is professionally connected to the emergency-stop switch.

If you do not observe this it will continue running even if you actuate the emergency-stop switch. Also here there is a risk for persons or material damages!

Please do not hesitate to contact us for any further questions!

Please find further information regarding the Emergency-Stop switch under item 5.4 of these instructions.

2.8 REMAINING RISK

In spite of all preventive measures there is always a remaining risk for persons and material. Therefore, operate the machine and its components circumspectly and carefully!

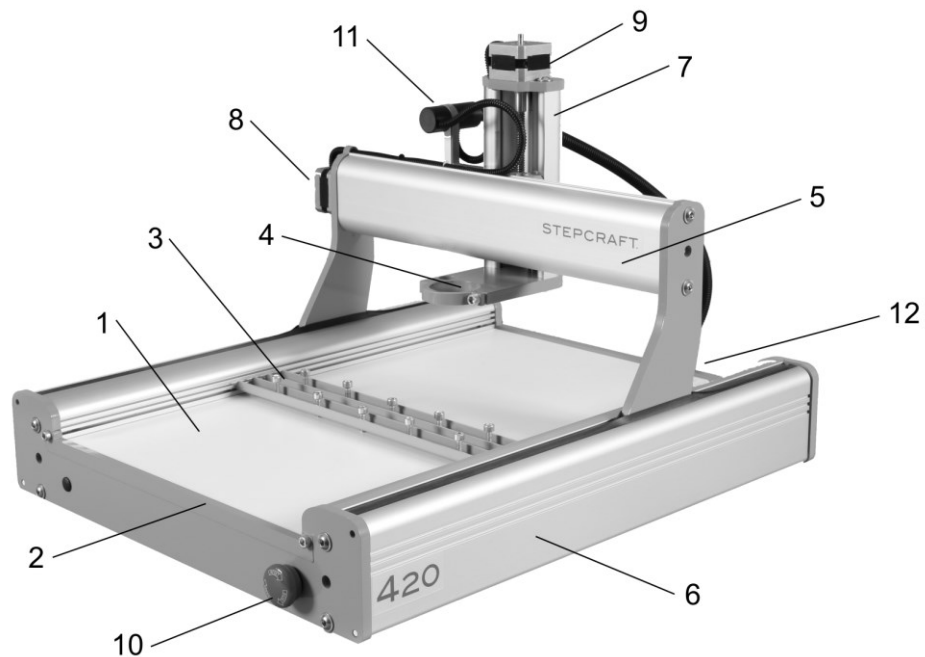
Make sure that you are working concentrated and that you are not tired.

Do not operate the machine and its components if you are under the influence of medication, alcohol or drugs.

3 STRUCTURE AND FUNCTION

3.1 DESIGNATION AND FUNCTIONS OF THE COMPONENT PARTS

- 1= Machine table to fix work pieces on it using a suitable fixture
- 2 = Attachment bracket for the machine table
- 3 = Integrated clamping system to fix appropriate sheet material
- 4 = 43.0 mm / 1.69 inch tool seat e.g. for milling spindle, hot cutter, engraving point
- 5 = X-axis guiding for driving and axis guiding
- 6 = Y-axis guiding for driving and axis guiding, incl. inspection flap for cleaning and maintenance
- 7 = Z-axis guiding for driving and axis guiding
- 8 = Step motor X-axis to move the slide of the X-axis
- 9 = Step motor Z-axis to move the slide of the Z-axis
- 10= Emergency-Stop switch to stop the machine quickly (only in emergency situations)
- 11 = Cable collector to cover X- and Z-motor/limit switch cable
- 12 = Backside of the machine with connector block for power supply and computer



4 COMMISSIONING

4.1 INSTALLING THE MACHINE

The machine must be positioned on an absolutely level even working table so that it stands safely and can neither slip nor tilt over.

All mobile parts of the machine must have sufficient space in order that they can be moved without collisions.

The cable duct of the system-guided tool e.g. the milling spindle must be designed in a way that the spindle cable is not being clamped between the guide ways of the machine.

It is necessary to well attain and operate the machine.

It is in particular necessary to reach the Emergency-Stop switch at any time; it must not be obstructed.

Provide for sufficient illumination of the machine site and the working place surrounding the machine.

Place the PC which controls the machine nearby the machine so that you can have an eye on both.

4.2 ENVIRONMENTAL CONDITIONS

Install the machine in a closed room.

Keep the environmental temperature of the machine dust-free. Too high dust loading can cause damages on the system.

The humidity should be within normal limits for humidity content inside. Protect the machine against wetness and humidity.

The perfect environmental temperature for the system is from 18°C to 25°C, from 64°F to 77°F respectively.

In particular protect the controller against overheating by avoiding direct sun radiation or indirect heating up nearby a radiator.

4.3 ELECTRICAL CONNECTION OF THE MACHINE

The connection of the stepping motors, the end switches and the emergency-stop switch has to processed conform to the construction manual enclosed.

The low-voltage plug of the power supply has to be connected to the connection socket of the unit control at the backside of the machine.

The computer will be connected to the desktop 3D-system with an USB- or parallel connection cable. The necessary socket is located at the backside of the machine, too. Depending on the variant of interface module there is either an USB- or a parallel socket.

The LED lights of the unit control are visible from the outside. The LED lights flash in case of:

Control light	Impact
LED1	System ok / power amplifier switched on / emergency-stop switch switched off
LED2	Power on / 5V DC

4.4 OPTIONAL ACCESSORY

If you use any accessory which was not made or sold by STEPCRAFT please check if it is compatible with your system before the first use.

In case of doubts please contact the corresponding manufacturer, if required.

4.4.1 DRILLING / MILLING SPINDLE

Please read the operating instructions of the drilling / milling motor!

In addition please observe the following items:

The used drilling / milling motor must not exceed the power of 500 watts.

The machine is equipped with a 43 mm / 1.69 inch tool holder with a thickness of 10 mm / 0.39 inch. The supply line of the drilling / milling motor is fixed to the cable collector of the X-/ Z-axis and there it is forwarded by means of a "flying" guiding with the cable straps enclosed.

Please imperatively make sure that the supply line is long enough and won't be clamped anywhere.

4.4.2 ADDITIONAL ACCESSORY

When using accessories please always make sure to have the additional operating instructions of the corresponding products and check if the parts are compatible to the STEPCRAFT desktop 3D-system and to the control before using them for the first time.

4.5 MACHINE TABLE

The machine table consists of a High Pressure Laminat (HPL) with a thickness of 8.0 mm / 0.31 inch.

The machine table can be easily replaced. It is possible to pull out the table to the front by removing the attachment bracket with the two relevant screws (see item 3.1).

Dimensions of the original machine table:

Typ of machine	Length	Width	Thickness
STEEPCRAFT 300	380 mm / 14.96 inch	234 mm / 9.21 inch	8 mm / 0.31 inch
STEEPCRAFT 420	500 mm / 19.69 inch	324 mm / 12.76 inch	8 mm / 0.31 inch
STEEPCRAFT 600	680 mm / 26.77 inch	444 mm / 17.48 inch	8 mm / 0.31 inch

5 MACHINE OPERATION

5.1 OPERATOR

The improper operation of the machine and its components can result in severe injuries or material damages.

Therefore, please observe the accident prevention regulations!

Before the first use of the machine each operator must have read and understood the existing instructions for the whole system (machine, spindle, control, software).

5.2 WORK PIECE

The work piece can be directly fixed on the machine table by means of the integrated clamping system. Alternatively e.g. a bench vice can be fixed on the machine table.

In case of through-milling (cutouts) it is recommended to position a MDF plate with a thickness of 6.0 mm / 0.24 inch underneath the work piece in order to avoid damages on the machine table.

The work piece should be sufficiently fixed in order to avoid unintentional slipping while processing it.

Never hold the work piece only with the hand during the processing. There is a severe risk of injury!

Admissible work piece size:

Typ of machine	Clamping length	Clamping width
STEPCRAFT 300	380 mm / 14.96 inch	222 mm / 8.74 inch
STEPCRAFT 420	500 mm / 19.69 inch	312 mm / 12.28 inch
STEPCRAFT 600	680 mm / 26.77 inch	432 mm / 17.01 inch

5.3 SYSTEM-GUIDED TOOLS

Please observe the corresponding operating instructions of your individual tool!

Never touch the tool then the system is running!

5.3.1 DRILLING / MILLING SPINDLE

Switch off the drilling / milling spindle by pressing the corresponding switch (if available) and secure it against restarting. If the drilling / milling spindle is equipped with a proper mains plug please disconnect it from the mains!

Always take the milling cutter out of the milling motor when working on the work piece (e.g. clamping, replacing) otherwise there is a risk that you get injured when touching the milling cutter!

Never touch/draw the cutter there is a severe risk of injury!

The tools must not exceed a diameter of 3.0 mm / 0.12 inch.

5.3.2 CUTTING KNIFE

Always take the blade out of the cutting knife when working on the work piece (e.g. clamping, replacing) otherwise there is a risk that you get injured when touching the blade!

Never touch/draw the blade there is a severe risk of injury!

5.3.3 HOT CUTTER

Switch off the hot cutter by pressing the corresponding switch (if available). If the hot cutter is equipped with a proper mains plug please disconnect it from the mains!

Never touch/draw the red-hot wire there is a severe risk of injury!

5.3.4 ENGRAVING POINT / PLOTTER PEN

Always take the engraving point out of the tool holder when working on the work piece (e.g. clamping, replacing) otherwise there is a risk that you get injured when touching the engraving point!

Never touch/draw the engraving point there is a severe risk of injury!

5.3.5 3D-PRINTER HEAD

Switch off the 3D-printer head by pressing the corresponding switch (if available) and secure it against loosing hot filament. If the 3D-printer head is equipped with a proper mains plug please disconnect it from the mains!

Never touch/draw the hot printer head there is a severe risk of injury!

5.4 EMERGENCY-STOP SWITCH

The Emergency-Stop switch is located at the front side of the machine (refer to the schematics under item 3.1 of these instructions).

If you press the switch the Emergency-Stop is released. The machine immediately stops (imperatively refer to item 2.7 of these instructions).

Only press the Emergency-Stop switch in emergency situations!

If the switch is pressed it results in an immediate machine standstill and can result in step losses and data losses.

A controlled stopping of the machine can only be performed by means of the control software.

In order to undo the Emergency-Stop status turn the Emergency-Stop switch to the right. Thus the control is reactivated. The working process has to be restarted.

5.5 OPERATION OF THE SYSTEM / OPERATING ELEMENTS

The whole system is controlled and operated by means of a computer (PC).

Please completely read the manual of your control software before the first commissioning and make sure that you understood everything.

For any further questions regarding the control software please contact the corresponding software developer.

5.6 OPTIONAL ACCESSORY

Please find additional accessories in our Online-Shop at www.stepcraft-systems.com of your STEPCRAFT such as:

- System-guided tools, e.g. drilling / milling spindle, cutting knife, plotter pen, engraving point, hot cutter, 3D-printer heads
- Extension of the modular unit control e.g. the 4th axis module together with the CNC rotary table
- Grooved plate (aluminium) or systems for mounting and clamping e.g. bench vice, clamping claws
- Tools for drilling / milling and many more

6 TECHNICAL DATA

6.1 DIMENSIONS AND WEIGHT

Typ of machine	Overall size (Length x Width x Height)	Travel distance	Weight
STEPCRAFT 300	430 x 345 x 400 mm 16.93 x 13.58 x 15.75 inch	300 x 210 x 80* mm 11.81 x 8.27 x 3.15 inch	9,2 kg 20.5 lbs
STEPCRAFT 420	545 x 435 x 400 mm 21.46 x 17.13 x 15.75 inch	420 x 300 x 80* mm 16.54 x 11.81 x 3.15 inch	11,0 kg 24.5 lbs
STEPCRAFT 600	730 x 553 x 400 mm 28.74 x 21.77 x 15.75 inch	600 x 420 x 80* mm 23.62 x 16.54 x 3.15 inch	16,0 kg 35.6 lbs

* For constructional reasons the travel distance of the Z-axis is getting reduced at the end positions of the X-axis by 10 mm / 0.39 inch.

6.2 DRIVE OF THE MACHINE

The axes of the machine are driven by means of bipolar step motors. All used motors have 1.8°/full step. They are connected to the drive shafts via axial coupling.

The machine is equipped with round threaded spindles TR8x2 with a feed/rotation of 2.0 mm.

Typ of machine	X-axis	Y-axis	Z-axis
STEPCRAFT 300	1,4 A	1,8 A	1,4 A
STEPCRAFT 420	1,4 A	1,8 A	1,4 A
STEPCRAFT 600	1,4 A	1,8 A	1,4 A

6.3 OTHER SPECIFICATIONS

	STEPCRAFT 300	STEPCRAFT 420	STEPCRAFT 600
Clamping surface (X Y)	222 x 380 mm 8.74 x 14.96 inch	312 x 500 mm 12.28 x 19.69 inch	432 x 680 mm 17.01 x 26.77 inch
Working space (X Y Z)	210 x 300 x 80* mm 8.27 x 11.81 x 3.15 inch	300 x 420 x 80* mm 11.81 x 16.54 x 3.15 inch	420 x 600 x 80* mm 16.54 x 23.62 x 3.15 inch
Passage height	115 mm 4.53 inch	115 mm 4.53 inch	115 mm 4.53 inch
Torsional stiffness (20N) (X Y Z)	0,07 mm – 0,12 mm	0,07 mm – 0,12 mm	0,10 mm – 0,14 mm
Repeatability	+/- 0,04 mm	+/- 0,04 mm	+/- 0,05 mm
Programmable resolution	0,005 mm	0,005 mm	0,005 mm
Backlash	approx. 0,08 mm (with software adjustable to 0,00 mm)	approx. 0,08 mm (with software adjustable to 0,00 mm)	approx. 0,08 mm (with software adjustable to 0,00 mm)
Maximum speed	1800 mm/min 70.87 inch/min	1800 mm/min 70.87 inch/min	1800 mm/min 70.87 inch/min

	STEPCRAFT 300	STEPCRAFT 420	STEPCRAFT 600
Spindle	Round-Thread spindle	Round-Thread spindle	Round-Thread spindle
Linear guide	STEPCRAFT-aluminium profile (EN AW-6063 T66) with roller guides	STEPCRAFT-aluminium profile (EN AW-6063 T66) with roller guides	STEPCRAFT-aluminium profile (EN AW-6063 T66) with roller guides
Drive	Stepper motors	Stepper motors	Stepper motors
Tool holder	Ø 43 mm / 1.69 inch (optional smaller diameters)	Ø 43 mm / 1.69 inch (optional smaller diameters)	Ø 43 mm / 1.69 inch (optional smaller diameters)
Overall size	430 mm x 345 mm x 400 mm 16.93 x 13.58 x 15.75 inch	545 mm x 435 mm x 400 mm 21.46 x 17.13 x 15.75 inch	730 mm x 553 mm x 400 mm 28.74 x 21.77 x 15.75 inch
Weight	9,2 kg 20.5 lbs	11,0 kg 24.5 lbs	16,0 kg 35.6 lbs
Machine table	HPL	HPL	HPL
Color	STEPCRAFT orange, Aluminium, white	STEPCRAFT orange, Aluminium, white	STEPCRAFT orange, Aluminium, white
Input voltage (AC)	100 – 240 V	100 – 240 V	100 – 240 V
Output voltage (DC)	19 V	19 V	19 V
Power consumption	90 W	90 W	90 W
Interface	USB or parallel	USB or parallel	USB or parallel

* For constructional reasons the travel distance of the Z-axis is getting reduced at the end positions of the X-axis by 10 mm / 0.39 inch.

6.4 SPARE PARTS

All parts of the machine and control can be purchased individually as spare parts.

Please contact us directly. Please find our contact data on page -3- of these instructions.

Please keep your machine data ready at hand when ordering spare parts.

6.5 PIN ASSIGNMENT CHARTS OF UNIT CONTROL / OPTIONAL MODULES

6.5.1 PARALLEL PORT LPT-ADAPTER (X1)

Connection of the computer to the unit control via parallel module (optional):

Signal	Pin
Relay 1	1
Direction X	2
Step X	3
Direction Y	4
Step Y	5
Direction Z	6
Step Z	7
Direction 4th axis	8
Step 4th axis	9
Tool length sensor	10
Emergency stop	11

Signal	Pin
Reference switch X/Y/Z	12
Reference switch 4th axis	13
Relay 2	14
n.a. (In)	15
Relay 3	16
n.a. (out)	17
GND	18-25
PE	shed
5V/VCC	

6.5.2 CONNECTOR EXTERNAL SIGNALS / SUB-D 15 (X2)

Connection of external devices to the unit control:

Signal	Pin
+24V	1
GND	2
+5V/VCC	3
Direction 4th axis	4
Step 4th axis	5
Relay 2	6
n.a. (Out)	7
Tool length sensor	8
+24V	9
GND	10
Disable	11
Reference switch 4th axis	12
Relay 1	13
Relay 2	14
n.a. (In)	15
PE	shed

6.5.3 CONNECTOR 4TH AXIS / SUB-D 9 (X101)

Connection of motor and reference switch of the 4th axis (optional):

Signal	Pin
Winding 1A	1
Winding 1B	2
n.a.	3
n.a.	4
Reference switch 4th axis	5
Winding 2A	6
Winding 2B	7
n.a.	8
GND	9

Signal	Pin
PE	shed

7 TRANSPORTATION / STORAGE

7.1 TRANSPORTATION

Please observe that the machine is very heavy and bulky when transporting it.

If necessary transport the machine with the help of a second person.

Please only use suitable transportation vehicles and carriers for transportation.

Never lift heavy loads above people!

7.2 PACKAGING

When you do not want to reuse the packaging material of the machine and of its components please separate it according to the disposal conditions on site and take it to a collection center for recycling or dispose of it.

7.3 STORAGE

If the machine or its components is not used for a longer time please note the following for the storage:

- Store the machine and the components only in closed rooms
- Protect it against humidity, wetness, cold, heat and direct sun radiation
- Store it dust-free, cover it, if required
- The storage place must not be subject to vibrations

8 MAINTENANCE

8.1 SAFETY

Before performing maintenance works on the machine switch it off and secure it against unintended restarting by disconnecting the mains switch of the controller!

If you use a milling spindle with its own mains plug disconnect it also!

All maintenance works must only be performed by a technically experienced person.

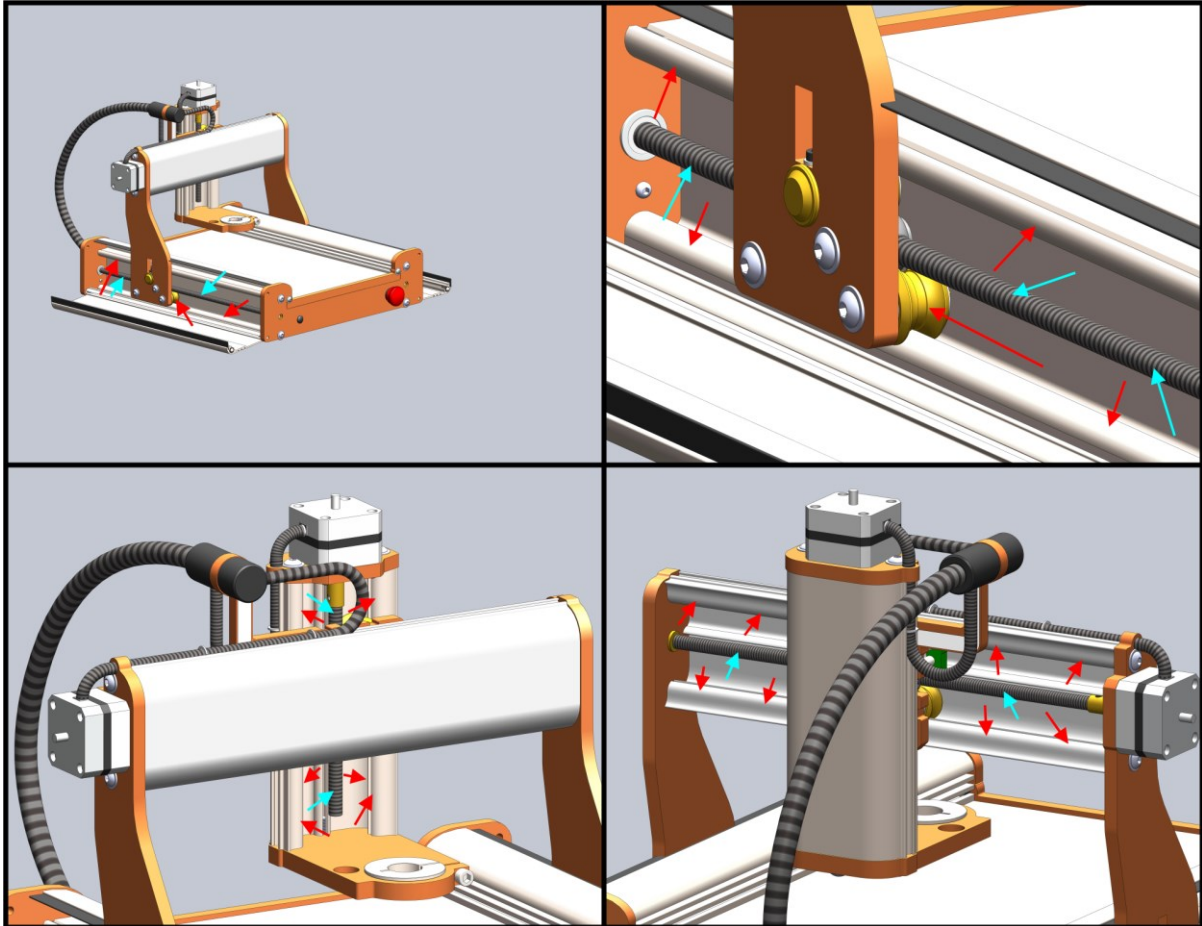
In case of improper handling of the machine there is a high risk of injury!

8.2 MAINTENANCE WORKS

Always thoroughly handle your STEPCRAFT in order to enjoy working with it for a long time.

Regular maintenance crucially influences the service life of your machine.

Therefore please perform the following maintenance:



Red marking:

- All guide areas have to be adequately greased before the machine can be put into service
- After two operating hours clean the guide ways of the machine using a dry, smooth and lint-free cloth and apply grease again
- Repeat step 2 every 10 hours

Blue marking:

- Apply sewing machine oil on the threaded spindle
- Clean it occasionally every 10 hours and apply oil again. Don't use grease!

Also always keep the machine clean. Any accruing chips or other soiling should be sucked off or thrown away after each working step.

Furthermore, please make sure that no chips or similar means get caught in the mobile parts.

9 MALFUNCTIONS

9.1 BEHAVIOR IN CASE OF MALFUNCTIONS

If a malfunction occurs on the system which might cause person or material damages please immediately stop the working process by pressing the emergency-stop switch!

In case of slight malfunctions please stop the machine as usual using the control.

If you are not able to remedy the malfunction yourself please contact us by indicating the malfunction which occurred.

Please find our contact data on page -3- of these instructions.

10 ANNEX

10.1 TYPE PLATE

The type plate is at the left side of the machine on the inspection flap.

Example:



10.2 COPYRIGHT

The contents of these operating instructions are the intellectual property of the company STEPCRAFT. Forwarding or copying (also in excerpts) is not allowed unless we authorized it expressly in writing. Any infringements are prosecuted.

10.3 WARRANTY AND LIABILITY

These instructions must be read by each user before the first commissioning.

We are not liable for damages which result from the non-observance of these operating instructions.

Any translations to other languages are performed by a qualified translation office. We are not liable for imperfect translations. The German original version of these instructions is always binding!

If translations to other languages are ordered by third parties we also are not liable for the completeness or correctness of the translations.

These instructions were edited to the best of our belief and on the basis of our experiences and knowledge.

The legal warranty regulations are applicable.

10.4 DISPOSAL VIA MUNICIPAL COLLECTING POINTS

Since the machine and its components include valuable raw materials which can be recycled please do not dispose of the machine with your household waste.

If you do not know how to dispose of the machine please contact your local disposer or any (municipal) facility commissioned with the disposal.

Of course you can also return the machine and its components to us and we will take charge of the disposal for you.

10.5 RoHS, 2002/95/EG

We confirm that the machines of the STEPCRAFT series comply with the RoHS, 2002/95/EC

10.6 EC-DECLARATION OF CONFORMITY

EC manufacturer's declaration of conformity
in terms of the directive 2006/42/EC, appendix II part 1 A

Manufacturer: Stepcraft GmbH & Co. KG
Kalkofen 6
58638 Iserlohn
Germany

Type of product: Desktop 3D-System

Type designation: Stepcraft 300 / 300 CK / 420 / 420 CK / 600 / 600 CK

Hereby we declare, that the machine named above is consistent with the following relevant regulations:

- EC machinery directive 2006/42/EC
- EC EMC directive 2004/108/EC
- The machine observes the protection targets of the EC low voltage directive (LVD) 2006/95/EC.

Applied harmonized standards, whose references have been published in the Official Journal of the European Communities:

EN 61029-1 11/2010 Safety of transportable motor-operated electric tools,
Part 1: General requirements


Representative for the compilation of the technical documentation is the signatory of this declaration.

This declaration becomes void, if not authorized modifications are made to the machine.


This EC manufacturer's declaration of conformity was issued

in: Iserlohn
on: 07-31-2013

by:


 Peter Urban
 (Managing director)

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 Markus Wedel
 (Managing director)

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